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The Wye Group Handbook

# Rural Households' Livelihood and Well-Being

Statistics on Rural Development and  
Agriculture Household Income



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## PREFACE

### *Why this Handbook?*

As the world changes, so should the collection of public statistics that inform governments and citizens about the nature of their lives and their livelihoods. For rural communities and for agriculturalists, the past decades have seen large changes in the structure and significance of farming and in the composition of rural economies. In developed economies, food is less and less a matter of commodities and agriculture is more than just their production. With food sufficiency not an issue for most, consumers have developed strong preferences with respect to food quality and safety. In rural areas, farms are often no longer the mainstay of the economy, and many farm families have income from both the farm business and off-farm employment.

Accordingly, public data collection is under increasing pressure to move away from an almost exclusive focus on commodity production and factor use. But move to what? This Handbook responds to the question, what next for rural and agricultural statistics? It envisages the need for better data and indicators on the environment, rural economies and communities, and, very importantly, the farm household itself.

Changes in the rural and farm sectors are accompanied by growing requirements for comparability in statistics across countries, reflecting the phenomenon of globalization, and for statistics as a measure of accountability in the use of public funds.

For agriculture, world markets matter, and multi-lateral trade liberalization almost certainly will require some degree of farm policy reform in developed – if not developing – countries. International trade agreements already point in the direction of the likely outcome - a requirement that domestic farm support distort world markets as little as possible. In practice, this criterion largely rules out direct market intervention to affect prices or area planted or quantity produced. As a consequence, the impact of policy can no longer be assessed simply by observing supply and demand shifts in commodity markets.

Market interventions are often replaced by direct payments to farm households. The disposition of those payments – as allocated between the farm business and other activities – is conditioned by the household's income and wealth, along with its preferences and demographic characteristics. The outcome is a matter for empirical analysis. Understanding the ultimate market impacts of these direct payments depends on having data on farm households that includes the farm operation and also all other activities. Focus on farm accounts and business is not sufficient.

In some constructions of an eventual agreement in the current Doha Round of trade negotiations, nations would be required to demonstrate that domestic support provided to their farmers does **not** distort world markets, that is, it does not cause them to increase agricultural production such that aggregate supply is affected significantly. Proving a negative proposition is difficult enough, but without data on the full range of a farm household's activities (that defines its choices for use of the direct payments), it really is impossible. Therefore, some degree of comparability across nations in farm household data is probably the precursor to its effective use in analyses that assess the degree to which countries are meeting their international obligations.

Beyond uses in international fora, data on rural and farm households and on rural economies and environments are increasingly sought as measures of the efficacy of public policies. Accountability is more than ever a requirement in governance, in both developed and developing countries. Objective assessment of the well-being of a nation's households is one obviously important indicator of success. The condition of the

natural environment is another. For rural areas, these dimensions of the quality of life are important in sustaining agriculture but also other activities such as tourism. The need to understand the causal linkages between government actions and economic and environmental well-being puts renewed emphasis on the careful selection of indicators and their policy relevance. Quantification is the by-word of accountability.

*Who is the Handbook written for?*

The Handbook is intended for the benefit of various groups concerned with rural development and the evolving nature of the agricultural industry. It aims to be a guide for the providers of statistics, not only those who confront measurement challenges for the first time, but also for those who are building on existing programmes. Statistical offices often have to make choices. The Handbook explains the underlying economic and statistical concepts and principles needed to enable these offices to make their choices in efficient and cost effective ways and to be aware of the implications of their decisions.

It is also intended for those who use the data to perform analyses and to interpret what the statistics mean for personal and national goals. The Handbook will be of special interest to those in the public sector responsible for setting targets and monitoring policies related to:

- the standard of living and well-being of rural households *vis-à-vis* urban and all households; and
- the standard of living and well-being of agricultural households *vis-à-vis* households of other socio-professional categories.

The Handbook is a reference for current **good practice**, drawing upon the collective expertise accumulated in many countries and providing a means of access to this form of social capital. Also, as a living document, it represents a potential repository for findings of new ways to approach measurement of important variables. In this respect, both developed and developing country settings are important.

*Directions and methods of work for compiling the Handbook*

The Inter-secretariat Working Group on Agriculture and Rural Indicators (IWG.AgRI) has as its participating organisations the United Nations Economic Commission for Europe (UNECE), the Organisation for Economic Co-operation and Development (OECD), the Food and Agriculture Organization of the United Nations (FAO), and the Statistical Office of the European Community (Eurostat).

In 2003 the IWG.AgRI agreed to set up a Task Force on Rural Development Statistics and Agriculture Household Income with a membership consisting of experts from the IWG.AgRI, the World Bank, national statistical offices known to be active in these areas, and academia. This initiative was endorsed by the Joint UNECE/Eurostat/FAO/OECD Meeting on Food and Agriculture Statistics that took place in Geneva in July 2003. Subsequently, it was approved by the UN Conference of European Statisticians (CES). The IWG.AgRI Task Force met five times: Washington (October 2003), Rome (October 2003), Paris (November 2003), Verona (July 2004), Wye (April 2005) and Rome (June 2005). The Joint UNECE/Eurostat/FAO/OECD Meeting on Food and Agriculture Statistics, which also took place in Rome in June 2005, endorsed the Handbook and asked the IWG.AgRI to have it disseminated in the autumn 2005. A final meeting of the Task Force took place in Paris in June 2006.

Drafting of the Handbook started in 2003. The electronic version of the Handbook was published as a web-based document in 2005. In 2007 the UNECE prepared a version suitable for printing; this involved a making number of minor changes to improve consistency (in matters of spelling, numbering etc.). These are being carried over to the electronic version. However, the content remains unchanged and represents the

state of statistics on rural development and agriculture household income at they were at the time of compiling the Handbook.

All members of the Task Force participated in their individual capacity as experts without necessarily committing their employers or organizations. The Handbook is published on the responsibility of the secretariats of the participating organizations of IWG.AgRI.

The sponsoring organizations recognize the usefulness of the principles and recommendations contained in the Handbook as good practice for agencies when compiling their statistics on rural development and agriculture household income. Because of practical and resource constraints some of the current recommendations may not be immediately attainable by all statistical offices. However, they should serve as guidelines for agencies as they revise their statistics and improve their programmes.

The Handbook draws upon the experience of many statistical offices throughout the world. The procedures these offices use are not static but continue to evolve and improve in response to several factors. Academic research continually improves and refines the economic and statistical theory underpinning rural indicators and strengthens it. New technology can also affect the methods used to collect rural statistics and transmit them. The present Handbook is therefore intended to be a "*living document*" which will be periodically updated and amended. Hence some of the chapters currently have the character of work-in-progress. This is certainly the case for the chapters dealing with case studies of country experiences. Future editions of the Handbook, incorporating developments and improvements, will be handled by the "Wye" Group (see below).

*Designation of the Task Force as the "Wye" Group*

In 2002, the PennState University (United States), the Economic Research Service of the U.S. Department of Agriculture, and the Department of Agriculture Sciences of the Imperial College London organized a *Workshop on the Farm Household-Firm Unit: Its importance in agriculture and implications for statistics*. This was held at the Wye (Kent, UK) campus of Imperial College. The IWG.AgRI participated actively in the Workshop. The issues raised had previously been recognized in a number of UNECE/Eurostat/FAO/OECD meetings on agriculture statistics as well as in the Second International Conference on Agriculture Statistics (the CAESAR Conference in Rome, 2001) as having a very high priority. All concerned parties agreed on the need to bring knowledge together and produce the present Handbook.

In view of the catalyzing effect that the 2002 Wye Workshop had and the important progress made at the 2005 Task Force meeting in Wye, the Task Force agreed to name the Handbook;

*The Wye Group:  
Handbook on Rural Households' Livelihood and Well-Being:  
Statistics on Rural Development and Agriculture Household Income.*

Early in 2007 the UN Statistical Commission accepted a proposal that this be formally established as a 'City Group', designated The Wye Group on Statistics on Rural Development and Agriculture Household Income. In its terms of reference one activity of this group is to determine the need for any changes or updating to the Handbook and, if indicated, to organize and execute revisions.

The designations employed and the presentations of the material in this publication do not imply the expression of any opinion on the part of the secretariats of the participating organizations of the IWG.AgRI concerning the legal status of any country, territory, city or area, or of its authorities, or concerning delimitation of its frontier or boundaries.



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The principal authors of the chapters are given below, though it should be borne in mind that all Task Force members (see Annex 1) contributed with in-depth comments and amendments to all chapters.

### *Chapter principal authors*

Chapter I	Mr. Berkeley Hill (Imperial College London, United Kingdom), Mr. Michael Goll (Eurostat) and Mr. Jan Karlsson (UNECE).
Chapter II	Mr. Jan Karlsson and Mr. Christian Kingombe (UNECE).
Chapter III	Mr. Jan Karlsson and Mr. Christian Kingombe (UNECE), Mr. Naman Keita (FAO), Mr. Nwanze Okidegbe (World Bank) and Mr. Michael Goll (Eurostat).
Chapter IV	Mr. Jan Karlsson, Mr. Christian Kingombe and Ms. Simone Pfuderer (UNECE), and Mr. Naman Keita (FAO).
Chapter V	Mr. Jan Karlsson and Mr. Christian Kingombe (UNECE), Mr. Nwanze Okidegbe (World Bank) and Mr. Michael Goll (Eurostat).
Chapter VI	Mr. David McGranahan (Economic Research Service of the U.S. Dept. of Agriculture), Mr. Ray Bollman (Statistics Canada) and Mr. Jan Karlsson (UNECE).
Chapter VII	Mr. Edoardo Pizzoli (ISTAT, Italy) and Mr. Ray Bollman (Statistics Canada).
Chapter VIII	Mr. Berkeley Hill (Imperial College London, United Kingdom).
Chapter IX	Mr. Berkeley Hill (Imperial College London, United Kingdom).
Chapter X	Mr. Berkeley Hill (Imperial College London, United Kingdom) and Mr. Federico Perali (University of Verona, Italy).
Chapter XI	Mr. Berkeley Hill (Imperial College London, United Kingdom).
Chapter XII	Mr. Jim Johnson and Mr. Mitch Morehart (Economic Research Service of the U.S. Dept. of Agriculture).
Chapter XIII	Ms. Cristina Salvioni (University of Pescara, Italy), Mr. Jan Karlsson and Mr. Christian Kingombe (UNECE), Mr Berkeley Hill (Imperial College London, United Kingdom).

- Chapter XIV Mr. Jan Karlsson (UNECE), Mr. Jim Johnson and Mr. Mitch Morehart (Economic Research Service of the U.S. Dept. of Agriculture), Ms. Cristina Salvioni (University of Pescara, Italy) and Mr. Edoardo Pizzoli (ISTAT, Italy).
- Chapter XV Mr. Berkeley Hill (Imperial College London, United Kingdom), Ms. Susan Offutt, Mr. Jim Johnson, Mr. David McGranahan and Mr. Mitch Morehart (Economic Research Service of the U.S. Dept. of Agriculture), Mr. Federico Perali (University of Verona, Italy).
- Annex 1 UNECE Secretariat.
- Annex 2 Mr. Jan Karlsson (UNECE) and Mr. Michael Goll (Eurostat).
- Annex 3 Mr. Jan Karlsson and Ms. Simone Pfuderer (UNECE).
- Annex 4 Mr. Jan Karlsson (UNECE) and Mr. Michael Goll (Eurostat).
- Annex 5 Mr. Jan Karlsson (UNECE) and Mr. Nwanze Okidegbe (World Bank).
- Annex 6 Mr. David McGranahan (Economic Research Service of the U.S. Dept. of Agriculture)
- Annex 7 Mr. Federico Perali (University of Verona, Italy).
- Annex 8 Mr. Christian Kingombe (UNECE).
- Annex 9 Ms. Cristina Salvioni (University of Pescara, Italy), Mr. Jan Karlsson and Mr. Christian Kingombe (UNECE).
- Annex 10 Ms. Cristina Salvioni (University of Pescara, Italy).



## EXECUTIVE SUMMARY

### *Why the urgency for better statistics on rural areas and farm household incomes?*

Large amounts of **public funds** are used to support farmers and their households in OECD countries. The current round of multi-lateral trade liberalization negotiations will almost certainly require some degree of farm policy reform in developed – if not developing – countries. International trade agreements already point in the direction of the likely outcome - a requirement that domestic farm support distorts world markets as little as possible. To achieve this, market interventions are often replaced by direct payments to farm households. Understanding the ultimate market impacts of these direct payments depends on having data on farm households that includes the farm operation and also all their other activities. **Focus on farm accounts and business is not sufficient.**

Increasing sums are being spent on rural areas, the livelihoods and well-being of people who live there, and conservation of the natural environment. Agricultural policy reform is likely to move spending further in this direction. In the rural areas of developed economies farms are often **no longer the mainstay of the economy**, particularly in OECD countries. Many of the problems of farm families can only be addressed by creating economic opportunities outside agriculture. Statistics for **rural areas** need to **go far beyond agriculture** and cover a wide range of economic, social and environmental indicators.

Less developed countries, where agriculture is still relatively important in rural areas, **poverty** is a major policy issue. In such circumstances income may be displaced as an indicator by consumption. Nevertheless, household incomes are seeing changes that move them towards the patterns observed in the developed world. Economies in transition face particular statistical challenges concerning their agricultures and rural development.

**Accountability** is more than ever a requirement in governance, in both developed and developing countries. Objective assessment of the well-being of a nation's households is one obviously important indicator of success. The condition of the natural environment is another. For rural areas, these dimensions of the quality of life are important in sustaining agriculture but also other activities such as tourism. The need to understand the causal linkages between government actions and economic and environmental well-being puts renewed emphasis on the careful selection of indicators and their policy relevance. Quantification is the by-word of accountability.

### *What are the key issues in rural statistics?*

In rural development it is particularly important to have clear understanding of what “**rural**” means and the **geographical areas** to which it is applied (which may range from the complete region to small local areas). Good practice includes the use of various levels to suit the problem at hand; sometimes the concern will be a large area (relevant to air quality for example) while for others (such as access to transport) something much smaller might be needed. It is also good practice to apply a system that covers the **entire territory**, so that comparisons are possible in a flexible way between rural and non-rural or between rural areas.

Indicators for the wide range of topics that rural statistics cover need to be drawn from many different data sources, as it is rarely possible to set up anything new. They must be reliable, timely and avoid the pitfalls that come with the need to work with existing data and to mix sources. The Handbook lists the desirable features of **quality** for indicators.

*What are the key issues in agricultural household income statistics?*

Similarly, when measuring **agricultural household income** it is necessary to settle on agreed definitions of a household, what makes it an “agricultural household” (for which several bases of classification are possible) and how income should be measured. A concept of an agricultural household that fits in OECD member countries is unlikely to be appropriate for many developing countries. Incomes of self-employed farmers contain elements that are particularly hard to value (such as food or fuel produced and consumed on the farm) yet which are of importance when comparing the income situation of agricultural households with that of other social groups. The choice by statistical offices on these fundamental methodological issues can seriously affect the results.

*Are we measuring farmers’ standard of living correctly?*

The conventional way of assessing incomes in agriculture has been by measuring the rewards from farming. This ignores the fact that many farm families have **multiple income sources**, receiving money off-farm employment, business profits, pensions etc. in addition to what they make from the farm. For many, farming may be only a minor part of household income. Measuring profits from farming alone is clearly inadequate for establishing the standard of living of farm operators, for indicating how many are in poverty or for showing how their disposable incomes fluctuate over time. Explaining their savings and investments, and even the way they use the land, also requires a broader household view. A new approach is needed that covers **all income and wealth sources for the complete household**. What statistics that exist on this basis at national level are patchy, inconsistent and inadequate.

*Are farm households more wealthy than other households?*

The **wealth** of farm households has usually been ignored when assessing their well-being. This is highly unsatisfactory as, in OECD countries, farmers as a group are often wealthy compared to the rest of society. Ways of measuring wealth and of combining it with income in a single measure are considered in the Handbook.

*How can we collect better data on farm household income and wealth?*

The provision of **data** is, in practice, **the most fundamental problem** facing the development of statistics on the income and wealth of agricultural households. Without data the discussion of methodological issues and identification of good practice loses much of its relevance. Many OECD countries do not have a single satisfactory microeconomic data source, a group that contains several EU Member States. The Handbook draws attention to the relative advantages and disadvantages of survey and censuses of various kinds and administrative records. In developing countries surveys of households are often the only practical sources of data, their costs also implying that they must form part of a consistent framework of surveys.

*How does this Handbook help?*

This Handbook acknowledges the **need for better data and indicators** on the environment, rural economies and communities, and, very importantly, the farm household itself which in almost all countries is the most numerous type of farm unit. Present information is **hampered by large variations** in how results are calculated at national level, offering the possibility of **misrepresentation and false conclusions**. **International standards** in statistics for rural areas and agricultural household incomes are crucial if meaningful comparisons are to be made between countries. They are also important to the establishment of general patterns that hold true for a range of countries. The Handbook helps fill this major information gap by setting out principles and pointing to good practice.

By establishing the main elements in the methodology of statistics on rural development and agricultural household income, it is hoped that the Handbook will assist in identifying the **direction in which methodology and data systems should be moving**, if not the exact path by which they should get there.



# I INTRODUCTION AND BACKGROUND

## I.1 Background to the Handbook

### I.1.1 Why is the Handbook being produced?

Over the past couple of decades rural development has become a priority area for governments and international organizations. The background to setting the priorities may differ between countries.

Among the **developed countries** (in the present text often referred to as the OECD countries) the focus is on how to ensure that people in such areas have good living conditions and opportunities and that rural areas are not de-populated. It also recognized that “*living rural areas*” play an important role for the environment at large and for the recreation and well-being of the urban population. Funding for rural development has so far been channelled mainly through support for agriculture, much of which is aimed at ensuring an equitable income level for the agricultural population. Notwithstanding the fact that the size of the agricultural population is generally small and dwindling,<sup>1</sup> this support is of quite remarkable proportions. Almost half of the EU budget, for instance, is still devoted to agriculture, although broader support for rural development is about to increase. Because of this there is a policy need to monitor the income situation of agricultural households both from the perspective of monitoring sectoral performance as well as its impact on rural development. Some analysts argue, however, that public funding for agriculture is not always a blessing for rural development because it might, when production and productivity targets are set, encourage the adoption of labour saving technology, which has exacerbated rural depopulation. Instead, they argue that a proactive rural policy should focus on ensuring equal access and equal quality of education and health and on improving other infrastructures.

The policies described above are of course to a varying degree also valid for the **developing countries**. In addition to these generic agricultural policy elements, many developing countries have a special focus on rural poverty and it is a fact that most of the rural populations are either directly or indirectly dependent on agriculture. In the UN Secretary General's report to the 2003 meeting of the Economic and Social Council (ECOSOC) of the United Nations it was stated that:

*“Three quarters of the world's poor live in rural areas of developing countries and depend mainly on agriculture and related activities for their livelihood. In 2025, when the majority of the world population is expected to be urban, 60 per cent of poverty will still be rural. Thus, the millennium development goals of halving the proportion of people living on less than a dollar a day and the proportion of those who suffer from hunger by 2015 cannot be achieved unless rural poverty is urgently reduced”* (UN, 2003).

Having recognized the high priority given to rural development policies, it is of course obvious that there is strong demand for statistics and indicators for monitoring rural development targets. In particular, there is a requirement for statistics on the incomes of rural and agriculture households, benchmarked against urban households and/or all households. Policy is likely to be more effective if the design and operation of

<sup>1</sup> In the OECD area, national shares of agricultural employment range from over 20% in Turkey, Greece and Mexico to less than 5% in most other countries. However, it should be noted that in addition to farm employment there are many other activities up-stream and down-stream that depend on primary agricultural production (OECD, 1994a), e.g. food processing industries.

programmes are based on reliable information about the extent of the problems the policy is attempting to tackle and how they are changing over time.

A strong contrast exists between the statistical provision for, on the one hand, agriculture as an economic activity and, on the other, rural policy. In most countries there is a strong and long-established system of **agricultural statistics**, with government agricultural departments often acting as the supplier as well as the main user. The basic data have come from a range of surveys and (increasingly) administrative records. The focus of agricultural statistics has been quite narrow, concentrating on the production of agricultural commodities (volumes, prices, values etc.), the use of resources in this process (variable inputs, labour, land etc.) and the residual rewards. In many countries the statistical systems have been slow to recognize that household-firms, that comprise the numerically dominant form of institutional unit in farming, are increasingly engaged in other economic activities, which they combine with agriculture in various ways (Hill, 2000).

In contrast, until very recently **rural statistics** have been weaker and highly fragmented (Hill, 2003). Often there is no single department having the responsibility, so that commentators find themselves gathering data from a wide range of sources - official statistics as well as many different non-official or private sources - many of which are not on a compatible basis.<sup>2</sup> It is clear that statistics for rural areas must go **beyond agriculture** and cover many economic, social and environmental parameters for rural residents, businesses and resources.

The present Handbook illustrates some key steps in setting up **a system of rural statistics**. While *ad hoc* research exercises that collect data and publish results relevant to specific policy aims have value, particularly when there is an information vacuum, these are likely to involve many different sets of definitions and approaches, preventing easy integration and synthesis. Methodology designed for a single purpose is unlikely to be well suited for others. In contrast, what was looked for here was the basis of a system for rural statistics in which there is a degree of commonality of methodology that permits the combination of data sources. Such a system, which probably needs to be built-up over time, is intended to be capable of providing answers to a range of policy questions by the flexible use of accumulated data.

In assembling such a system of rural statistics five main issues need to be addressed. These are:

- **Coverage of rural statistics**, in the sense of determining what aspects of rural areas should be described, what are the appropriate indicators for each, and consequently what data are needed.
- **Finding what data exist, who are the owners, and how they are accessed**. Comparing this list with what is needed gives an idea of where gaps in data exist, which in turn can lead to proposals for filling them.
- **Choice of variables, time periods and basic geographic units** for data aggregation, and the classification of these units into rural and non-rural.
- **Data acquisition and management**: reviewing organizational issues that need to be addressed when considering the establishment of a system of rural statistics by bringing together data sets from across government.

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<sup>2</sup> Official statistics are a specialized form of quantitative information; their distinguishing characteristics being that they are generated by the public sector, involve data collection, and are typically repeated at intervals. Principles of quality in public statistics can be summarized as relevance, objectivity, transparency, accuracy, timeliness, comparability over time, and accessibility (Hill, 2003).

- **Structure for the management** of the statistical collection, tabulation and publication of the statistics.

In the specific subject of producing statistics on the income situation of agricultural households a further set of issues have to be tackled. These include:

- **Defining the household** in terms of the membership and the criteria for belonging to it, which determines the individuals whose incomes are aggregated when creating income indicators at the household level.
- **Classification of households** into those that are agricultural and those that belong to other socio-professional groups.
- **Defining income** for which measurement is to take place (total income, disposable income, money income etc.) and, where statistics on wealth are to be produced, the appropriate concept to be used.

**International organizations** have already done a considerable amount of work on rural statistics. In a series of reports starting as early as in the middle of the 1980s, the **OECD** has developed a system for international rural development statistics (see list of references). Not all of this, however, is applicable to developing countries. These have received attention from the **United Nations**, **FAO**, and the **World Bank**, among others. In Europe, considerable work has been carried out by **Eurostat** which, as a result of the new rural development regulation (to operate 2007-13), is being accelerated and lifted above the agriculture dimension. In the more specialised area of statistics on the income situation of agricultural households, **Eurostat** has constructed a methodology that has been applied at sector level and has tackled many of the issues that would also need attention in any microeconomic approach. The **OECD** has reviewed what information exists on farm household income and has highlighted the differences between approaches and definitions that are found among its Member Countries. In particular the **Canberra Group** of experts on household income statistics (comprising *inter alia* representatives of the **Luxembourg Income Study (LIS)**, Eurostat, the **International Labour Office (ILO)**, OECD and the World Bank), have developed and published recommendations that, while not dealing explicitly with agricultural households, are likely to form the methodological foundation of future international work, and this Handbook has taken due regard of these proposals (Canberra Group, 2001).

As for **national organizations** - national statistical offices and other agencies responsible for monitoring rural development - there are **large differences** between countries concerning the definition of rural areas, choice and definition of indicators as well as how far they have moved towards setting up a system of rural development statistics. In this context the issue of **scope** is becoming increasingly important. Most countries think of their statistical program in a national sense. The emergence of the global economy and cross-border environmental concerns means that statisticians need to consider the international situation. In simple terms, data need to be additive and comparable across countries, which means that the basic metadata must be the same. A similar disparity of approach is experienced at national level with regards to statistics on agricultural household incomes, though within the European Union the framework of a harmonised methodology now exists.

The **objective** of this Handbook is to **consolidate** work done by international organizations, **highlight** where differences occur and as far possible to **fill gaps**. A special focus is also put on the **quality** of rural statistics and indicators, including those relating to the income of agricultural households. A salient feature of rural areas and their associated problems is that they can differ very significantly not only between countries but also within the same country. It is therefore not advisable to prepare a handbook that is prescriptive but rather one that, through drawing on international and national experiences, can **highlight**

**good practices.** At a practical level, a secondary objective is to make an **inventory** of national rural development statistics, with a particular focus on income measures. The overarching aim is to enable the **benchmarking** of ways of collecting data and constructing indicators so that they can be used to assist policy discussion and design.

### **I.1.2 Who is the Handbook intended for?**

International handbooks in the field of economic statistics have traditionally been intended to provide guidance about concepts, definitions, classifications, coverage, valuation, the recording of data, aggregation procedures, formulae, etc. They have been intended mainly to **assist compilers of the relevant statistics** in individual countries. This Handbook has the same principal objective.

The Handbook is also intended for the benefit of a **wide range of users of rural development statistics and of household income measures**, such as government and academic economists and policy analysts, regional and local agencies and their experts and participants in multilateral trade negotiations on agriculture. Rural statistics and income measures are key information for policy purposes. They attract a great deal of attention from the media, governments and the public at large in most countries. This Handbook is therefore also intended to promote greater understanding of the properties of these statistics, what they are attempting to measure and the underlying economic and statistical theory.

The resulting Handbook is unavoidably voluminous. As the various kinds of readers may have different interests and priorities, it is not possible to devise a sequence of chapters that suits all. Many readers may be interested in only a selection of chapters. Indeed, international handbooks are not necessarily intended to be read from cover to cover in the order set out, being more of the nature of reference material.

### **I.1.3 The role of statistics**

It is generally accepted that **statistics should be policy driven**. In a first step, statistics have to provide all necessary elements allowing policymakers to analyse the situation easily and correctly in order to identify policy needs. In a second step, once policies have been formulated, statistics have the function of monitoring the effects of specific policies. This allows policymakers, in turn, to evaluate the policies and adapt them if necessary.

In the ideal case - for step two - statisticians should be able to provide as quickly as possible the necessary elements to policymakers to confirm their general policies or to warn them that certain policy measures do not show the desired effect(s). This calls for quickly reacting indicators.

#### *The quality of indicators*

Statistical indicators are the tools that allow the formulation of policies and the monitoring of changes/development/progress of those policies. Indicators should fulfil the following criteria:

- They should be relevant;
- They should be simple and easily understandable;
- They should be problem oriented;
- They should be clearly defined;
- They should be based on the same statistical units;
- They should result in conclusions easily communicated to policymakers;
- In the ideal case, they should react rapidly to changing situations.



However, the selection of indicators will always be a **compromise** because:

- They often depend on available data, because financial resources are limited in almost all countries. Therefore it is necessary to exploit all kind of available data and sources in the first place.
- Priority is often given to indicators that are capable of assisting in the routine monitoring of policies. For example, policies addressing rural development for a whole country have to describe problems/targets common to all rural areas of that country. Indicators addressing specific problems for particular rural areas are less likely to be developed.

There is a broad spectrum of issues to be assessed within the social, economic and environmental fields of rural development. It could be argued that any indicator at the national level could be developed for rural areas.

#### *Data sources to be used*

The basic information for indicators for rural development and agricultural household income could originate from a variety of sources, each having their own advantages and disadvantages. **Censuses** give very useful information because the sample size is generally large (perhaps a total coverage). But normally censuses are performed only periodically and are separated by large time intervals, which make it difficult to construct appropriate time series. Nevertheless, they are very helpful in establishing a base line. **Sample surveys** are normally carried out with a higher frequency but the sample size makes it difficult to draw conclusions for small geographical units because the statistical significance is not good enough (e.g. the EU Labour Force Survey mainly gives statistically relevant results for NUTS2 areas).<sup>3</sup> The use of **administrative data** for the purposes of generating rural development indicators is not that common yet but it seems that their importance is growing, and tax records are already used in some countries to generate income data for farm operators. If the relevant registers are well kept and also well linked this is a very powerful tool. **Geo-referencing of data**, more a mechanism for linking sources than one in its own right, can be very helpful in the calculation of certain indicators. However, current cost considerations mean that this can only be used for robust information like locations of schools and hospitals.

#### *The geographical unit / reporting unit*

In order to combine information from different sources the statistical reporting unit has to be defined. This has to be the same for all information used, be it a census, a survey or administrative data. Examples of a consistent unit are the individuals (using a personal identity number) that enable various datasets to be combined in the income statistics registers of several Scandinavian countries, and the Geographic Information System (GIS) locator that can bring physical and environmental data together (as practiced in the UK). For comparability purposes, it is necessary to be able to define and delimit rural areas so that, for example, the employment rates or incomes of rural households can be compared with those of urban dwellers. An internationally accepted concept of rurality is the OECD approach, based on the NUTS system which uses communes as the basic geographical building block. The ways of defining and applying definitions of rural are described in a later chapter.

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<sup>3</sup> NUTS = Nomenclature of Statistical Territorial Units.

## I.2 What is rural development and why is it a policy area?

The starting point for statistics intended to inform decision makers and other stakeholders must be the nature of the underlying policies. Some attention therefore has to be given at the outset to what constitutes rural development and the problems that it is attempting to address.

Rural development used to be a sectoral issue with agriculture as the main focus. In many developing countries agriculture is still the corner stone of the rural economy. In the OECD countries, on the other hand, it has more and more become a **territorial concept**, dealing with spatial differences in problems and perspectives, opportunities and options (OECD, 1995). It is also a **multisectoral concept**, concerned with a wide range of demographic, economic, social and environmental issues. It stresses the importance of cross-sectoral, horizontal integration of activities and policies. Finally, rural development is a **dynamic concept**, concerned with medium to long term changes and adjustments in technology and ecology, economy and society. Rural indicator should therefore provide information on a variety of economic and social factors.

A large part of rural development is concerned with a process of ensuring that the population distribution doesn't get too skewed towards urban areas. To prevent this, analyses of **demographic pressures, employment, job creation and economic well-being** are of course issues at the forefront of rural development. Rural development policies are important elements within the overall package of long-term national development strategies that can preserve employment and create new jobs and thus prevent depopulation of whole areas. However, there has also been a recent shift in thinking away from the idea of development as a process mainly or entirely linked with **economic growth** to one based on increases in the **quality of life**. In fact, some rural areas contribute to the quality of life of society as a whole because they contain important public or quasi-public goods such as a clean environment, attractive landscapes and cultural heritage (OECD, 2001).

### *Common problems of rural areas in OECD countries*

It is obvious that the problems rural areas face in the OECD Member States are as diverse as the rural areas themselves. However, there are certain commonalities arising from the intrinsic characteristics of rural areas that should be addressed at any level, be it national or international. These commonalities can be used to guide what statistics are needed.

The traditional **economic base** of rural areas was the primary sector, especially agriculture. Thanks to great progress in farming systems and mechanization only a small percentage of the workforce of most OECD countries is now occupied in this sector. In almost all rural areas, businesses in the secondary and/or tertiary sector can be found. Often they are related directly or indirectly to the agricultural activities in the area (for example, agricultural machinery repair and maintenance, supply of farming inputs such as seeds or fertilisers and establishments processing agricultural products from the area). A more fundamental diversification of the economic base would mean establishing businesses less dependent on local agricultural activities. Small enterprises seem to be an option for achieving this independence, even when taking into account that economies of scale are difficult to build up. Extending the economic base requires a workforce equipped with suitable **human capital** (skills, education etc.), for which farming may not be a suitable preparation.

Rural areas have historically provided the work force needed to build urban environments and to operate urban factories. This **migration** of (mainly) young people out of rural areas has continued in the recent past, encouraged by policies concentrating on investment and employment at a limited number of urban centres. **Depopulation** of rural areas has been further accentuated by efficiency improvements in

farming in combination with the lack of alternative off-farm employment in some rural areas. On the other hand, **repopulation** of rural areas is also observed over the last decades. Decentralisation of certain types of economic activities towards the periphery, the attractiveness of the countryside coupled with better transport facilities (private car ownership, public transport infrastructure etc.) for commuting to urban centres as well as retirement migration are reasons contributing to the repopulation of certain rural areas. However, the combination of these developments may mean that a **structural imbalance** develops in the demographic profile, with a predominance of elderly people and a relative deficit of younger ones. A “viable” age structure is a precondition for developing an area; the area could lose population simply because the birth rate cannot match the death rate (natural population loss). There may be implications for the need for, and provision of, health, education and other services and the amount of human and social capital available to the local community.

Characteristics often associated with rural areas are **high poverty rates** and **social exclusion**. These depend on a number of factors (financial poverty, social transfers, life expectancy, long-term unemployment etc.). Accessibility can be assessed as an absolute and as a relative concept. Here accessibility is interpreted in broad terms. It may refer to the transportation infrastructure allowing residents to commute, people to visit rural areas for recreation and businesses to have easy access. It refers also to the accessibility of services and social infrastructure associated with a modern society.

Thus, despite important economic and demographic challenges, **rural areas are not necessarily synonymous with decline** and a wide range of economic performances can be observed (see Box 1.1). There are rural areas with remarkable success, for which the OECD (2001) gives the following reasons:

- Urban manufacturing and service industries started to relocate to suburban and rural green-field sites.
- Sustained endogenous development has also been observed, including dynamic SME clusters and industrial districts, development of diversified agro-industries, and rural tourism.
- Residential location decisions place increasing emphasis on quality of life factors, including proximity to open countryside and natural amenities.
- Increased demand on the part of urban dwellers for amenities in rural areas.

It is worth noting that the declining employment opportunities provided by primary industries (largely agriculture) in OECD countries is also seen in many of the upper-middle-income developing countries (e.g. the so-called NICs and the OPEC Members) (OECD, 2001).<sup>4</sup>

### *Developing countries*

Even though many developing economies are becoming more and more urbanized, according to the UN Population Division the rural population still comprised 59.5% of the total population in less developed regions in 2000 (with an estimate of 56.8% for 2005) and in the least developed economies the share was even higher at 74.8% in 2000 and 72.3% in 2005. Despite ongoing structural transformations in many of

<sup>4</sup> Organization of the Petroleum Exporting Countries (OPEC); The NICs is a group of fast developing countries known as 'Newly Industrialized Countries'.

The World Bank classification is:

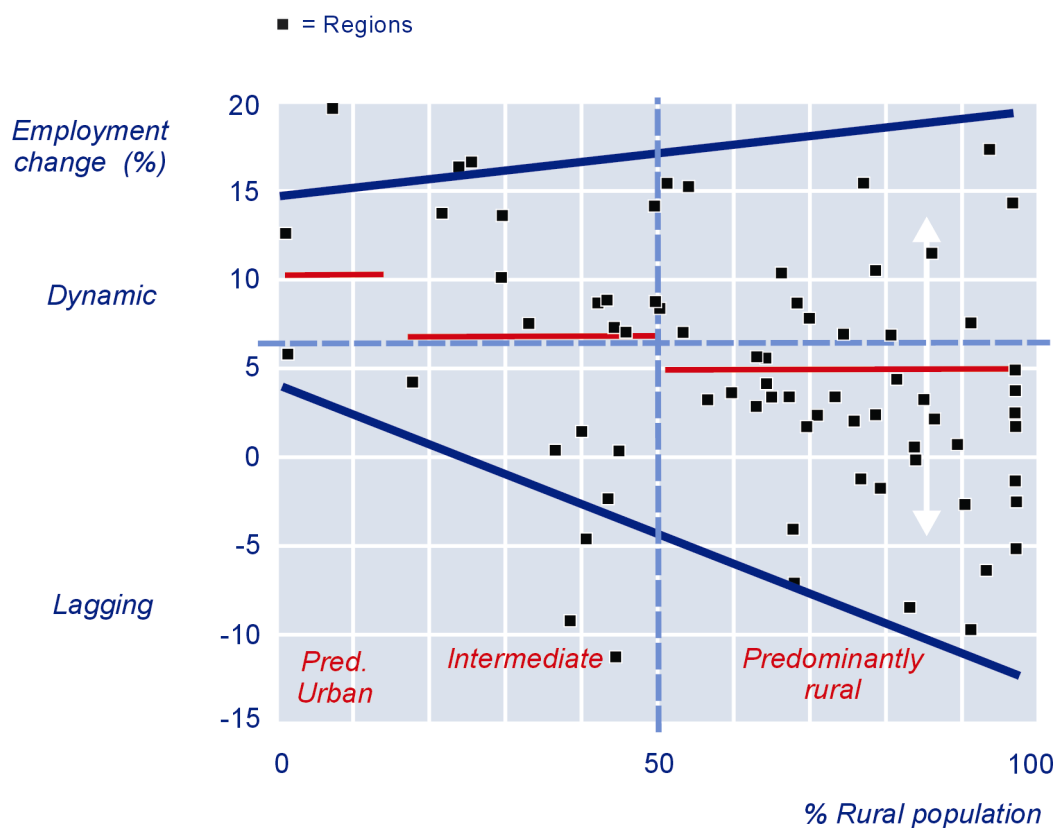
- 1) high-income economies – per capita GNP \$9,656 or more
- 2) upper-middle income economies – per capita GNP \$3,126 - \$9,655
- 3) lower-middle income economies – per capita GNP \$786 - \$3,125
- 4) low-income economies – per capita GNP \$785 or less.

these economies, around 75% of the poor still live in rural areas (IFAD, 2001) and the agricultural sector employs 40% of developing countries' workers and contributes over 20% of their GDP (ILO, 2004a).

**Box I.1 Variation between regions in the OECD**

The OECD (1994b) has found that urban areas generally showed higher employment growth than intermediate regions, which in turn had higher average growth than predominantly rural areas. There are, however, predominately rural regions that grew faster, and urban regions that grew slower, than the national average. Having said this, it should be noted that the spread in growth was much higher in predominantly rural regions than in the other two types of regions.

Figure I.1  
Illustration of the spread in the performance of employment change for different types of regions



Source: OECD (1994) Creating Rural Indicators for Shaping Territorial Policy.

In terms of employment, in 65 out of the 162 developing economies for which employment data are available by sector, agriculture is still the main employer.<sup>5</sup> This is especially the case in sub-Saharan Africa, where on average more than six out of ten people work in this sector. The share is also high in Asia where around five out of ten people work in agriculture. In contrast, in the Middle East and North Africa the figure is only two out of ten and in Latin America and the Caribbean only between one and two out of ten people. In the Middle East and North Africa, this is mainly the result of the low share of agricultural employment in the oil-producing economies. In Latin America and the Caribbean, the figure masks a wide range of differently structured economies, but for many economies in the region agriculture still plays an important role in terms of employment (ILO, 2004a).

The **diversity in development experiences** seen for OECD countries can also be found amongst the developing countries. African countries have shown that they can produce at a global level and compete on world markets. Mauritius, for instance, has been successfully exporting shrimps; Kenyan flowers are sold on London markets while Senegalese vegetables are offered in Parisian grocery stores. Fifteen countries, including Uganda, Ethiopia, and Burkina Faso, have been growing on average by more than 5% per year since the mid-1990s. Previous growth spurts were sporadic and didn't trickle down to all levels of society. Although a third of Africa has been growing at 5%, this growth is only just enough to keep the countries afloat and the number of poor people from rising. The growth would have to increase to some 7% to help lift the region out of poverty (World Bank, 2005).

### I.3 Rural development - policy objectives

Policies are normally designed to solve identified problems or, if a proactive approach is chosen, to avoid certain problems from developing. Looking at the "typical" problems of rural areas in the past decades, rural development policies normally aim to make rural places **economically, socially, culturally and environmentally healthy**. A successful rural development policy may be seen as one that should allow rural areas to:

- Be able to at least maintain their population and within it a viable population age structure.
- Diversify their economic base beyond the primary sector, maintaining or even increasing employment rates to absorb the loss of jobs in the primary sector.
- Be able to keep poverty rates and unemployment rates on a level not worse than those in urban areas. They should also aim at offering job opportunities for women and young people.<sup>6</sup>

<sup>5</sup> There is a correlation between the availability of data and GDP per capita; the poorer an economy is, the less likely it is to report data. Given this fact, it is also likely that the share of agriculture-dominated economies would be much higher if data were available for all developing economies.

<sup>6</sup> The term "youth" applies to persons between 15 and 24 years old (ILO, 2004b). The ILO (2004b) report focuses on policymaking, the overview of the position of youth in the labour market as well as the discussion of the causes of the problems and disadvantages they face. For more extensive analysis of these issues, see O'Higgins (2001) and Blanchflower (1999).

<http://www.ilo.org/public/english/employment/strat/yen/download/guidelines.pdf>

For more information about the central features of the Secretary-General's "Youth Employment Network," created following the Millennium Summit, and which is a partnership between the UN, the World Bank and the ILO, see <http://www.ilo.org/public/english/employment/strat/yen/>

Finally, see article 2 of the ILO Convention No.182 on "Worst Forms of Child Labour Convention" which states: "For the purposes of this Convention, the term "child" shall apply to all persons under the age of 18."

Source: [http://home.iprolink.ch/fitbb/TRADE\\_UNION\\_RIGHTS/ILO\\_Convention\\_182.html](http://home.iprolink.ch/fitbb/TRADE_UNION_RIGHTS/ILO_Convention_182.html)

- Be as easily accessible as possible and provide a minimum set of services. This means they should be well connected with neighbouring areas, which is the basis of tourism/recreation related industries. The provision of easy access to education, health care etc. for the local population is also required to maintain the attractiveness of living in the local area.
- Keep property ownership as wide spread as possible. The rate of locally financed and initiated new small enterprise start-ups should be relatively high.
- Keep the physical and mental health of the rural population as good as it is elsewhere.
- Make their key players work together towards common goals with an agreed value basis. The goals and values are set using a bottom-up approach. The local government should be empowered with reasonable fiscal and decision-making autonomy.
- Be responsible for their own development and not have it done by others.

The first part of this Handbook (Chapters II to VII) is devoted to issues in the generation of statistics appropriate for use in the context of rural development. The second part deals with the more specific measurement of the incomes and wealth of agricultural households. Some explanation of this is needed at this stage.

#### **I.4 Why a particular focus on agriculture household income and wealth?**

Agricultural households demand special attention when information on rural areas is collected for at least the following reasons:

1. Agriculture is an activity that accounts for a substantial share of the land use in many countries, so that their role in rural development is likely to carry major implications for environmental and landscape characteristics. However, in countries such as Canada, Finland, Russian Federation and Sweden forestry is the major land user. Agriculture in Canada, for instance, only accounts for 7% of land use.
2. The contribution of agriculture to economic activity is concentrated in rural areas. Indeed, the presence of agriculture (together with forestry) is a key element in the characteristic of rurality.<sup>7</sup>
3. Historically agriculture has been a major activity of the people that live in rural areas. While the proportion of rural residents working primarily in agriculture has declined to low levels in many of the richer industrialized countries (often less than 10%), the share is still substantial in others. Similarly, the share of total income accruing to rural residents from agriculture is typically small in industrialized countries but may still be important in others.
4. Agricultural households are a major source of the factors of production whose reallocation is an integral part of rural development. These households are often a source of labour to assist the growth of other industries, so the factors that lead to ex-migration of labour from agriculture, such as comparatively lower incomes, need monitoring. As major agents of change, particular attention has to be given to the present characteristics of agricultural

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<sup>7</sup> This is not necessarily the case in all countries. In Canada, for instance, 20% of all “census” farm operators live within the commuting zone of larger urban centres.

households, including the composition of their income which will reflect the extent to which they are already diversified into non-agricultural activities, both those found on the farm and off the farm, and the way that these characteristics are changing.

5. Of special significance is the level of income that farm households receive in relation to that of other socio-professional groups. This is because their relative earnings will be a major factor in determining the rate at which households leave agriculture and which resources are transferred to other operators. In many developing countries, but also in some European countries such as Poland, there is a significant portion of the agriculture population that can be characterized as constituting a pool of hidden unemployment in the sense that their contribution is rather marginal with regard to overall agricultural output. In the absence of other employment activities they probably rightly prefer to stay on their own farm or on the farm of someone else. In Poland, for instance, the number of persons working on private farms and considered redundant amounted to about 420,000 individuals, which is equivalent to almost 21% of the rural population employed in agriculture (Wikowski, 2004). Hidden unemployment primarily exists in small farms with less than five hectares (about 60% of all farms in Poland) and among persons aged 45 and above.
6. Policy for rural development has often grown out of agricultural policy. Spending on agriculture is still a dominant strand in policy intervention in rural areas. Even recent initiatives to promote rural development (such as the EU's Rural Development Regulation 1257/1999) focus on farm households as the principal agent for stimulating economic, social and environmental development.
7. In many countries a main aim of agricultural policy is to support the income of farmers and their families (see section 1.5 below). When the objective is to provide a "fair standards of living for the agricultural community", as is the case with the EU's Common Agricultural Policy, the comparability of the incomes of farm households with those of households belonging to other socio-professional groups is seen as important (Hill, 2000). Where the aim is the alleviation of poverty, again the overall income of the household is an important indicator.
8. The wealth of agricultural households is important because changes in the real value of that wealth is a form of personal income (especially when viewed retrospectively over a lifetime), and is one that is typically less heavily taxed. In agriculture the ratio between wealth and current income is often large, implying that capital gains and losses may be disproportionately significant for farmers. The level of wealth is also a source of economic status, the potential ability to consume putting farm owners into a position different from people without wealth.
9. Support provided to agriculture by government interventions typically reflects the value of land, the factor of production least elastic in supply. Consequently, the beneficiaries may be the owners of land rather than the operators of the farms. Where the farmer is also the landowner, this may not really matter (though there may be implications for the amounts of tax paid). However, where land is owned separately, the main beneficiary may be the landlord even though policy is intended to mainly to benefit the farm operator.

## 1.5 Agriculture households, their incomes and policy objectives

Agricultural households are important to policies directed at rural areas in two ways. First, they often form a **direct target group** of agricultural and rural development policies. In particular, concern with the living standards of the agricultural community (which comprises agricultural households), or the incomes that give rise to those living standards, is often a central objective (see review in Hill, 2000) and plays a major role in the discussion of the reform of policy (see for instance the Special Report No.14/003 by the European Court of Auditors, 2003). Examples can be found in which clear objectives are set for agricultural policy in terms of the relative income of farmers compared with other groups in society, of less detailed expressions that imply comparisons or at least the avoidance of poverty among farm families, and where the aim is to create the conditions in which satisfactory incomes can be generated by competitive producers and unacceptable instability prevented. Recently, agricultural policy has widened in many countries to include the diversification of income sources available to farmers, either on the farm or elsewhere. Many farm households are already diversified in this way, but there is seen to be room to develop such income further by vocational training, grants for investment, the provision of advice and so on. The purpose is so that, when combined with what can be earned from agriculture, the overall income position of farm families can be enhanced. This centrality of the “income objective” of agricultural policy alone would justify the development of statistics on the household incomes of farmers and their households to service that policy.

Second, agricultural households play a major part in achieving the other aims of agricultural and rural development policies because they **control production and the use of resources**. Their response to policy signals is what determines the overall outcome of the intervention. Understanding the economic situation of agricultural households is now recognized as a key element in designing and applying policy for agriculture and rural areas (Offutt, 2002; OECD, 2002). Though, as will become evident, statistics for agricultural households are not fully developed, sufficient evidence exists to demonstrate the great policy relevance of this information.

The structure of the agricultural industry of most countries at all levels of economic development is dominated, in terms of numbers, by firms owned and operated by households (household-firms).<sup>8</sup> These combine the economic functions of production and consumption and are, at the same time, social units. In many industrialized countries their numbers have been in long-term decline as the treadmill of technology lowers the real prices of agricultural commodities and makes the smaller farms unviable, in the sense that they are no longer capable of being the sole source of livelihood for their operator’s household (Eurostat, 2002). In some countries that have experienced histories of socialized or collectivized agriculture the role played by other forms of institutional unit (taking a variety of legal forms but characteristically large-scale in operation) is greater, but even there production by households often accounts for significant amounts of national output of certain commodities that can be produced on household plots.

However, a simplistic view of agricultural household-firms is both incorrect and harmful to the design of successful policy. They are **highly diverse** in many different dimensions. Attention is often focussed on the variety in size of their agricultural activities (land holdings, outputs, input uses etc.), farming types, performances, degrees of indebtedness etc. - all factors that will be reflected in the income levels from farming. But many households are also engaged in economic activities that are non-agricultural, either as waged employees (dependent activity) or as self-employed entrepreneurs (independent activity). While some non-agricultural activity may be sited on the farm, mostly this is off-farm. Households (and their members) also often receive income from property (rents from land and interest and dividends from financial

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<sup>8</sup> According to the EU Survey of the Structure of Agricultural Holdings (Farm Structure Survey) “Natural persons” accounted for the operation of 96% of EUR15 holdings in 2000. Only one country was below 90% - France (83%). Eurostat (various years).



assets), social transfers (pension etc.) and other sources, though, again, the incidences of these forms of income are far from uniform.

As a consequence, there is wide variation in the dependency of household-firms on agricultural activity, from 100% (with no non-agricultural income) to where farming represents only a minor income source, and in some cases a negative one (a loss). For farm dependent households the policies directed at agriculture are of obvious importance, but for those toward the other end of the dependency spectrum agricultural policy may have little relevance in terms of their incomes or activities; they will be more influenced by what is happening to non-agricultural parts of the economy, and more general regional and rural development and policies.

The wide variety of circumstances among farm households implies that a satisfactory consideration of their household income must go beyond the sector level, or group average, to include distributional information that reflects their diverse nature (Hill, 2000). It also implies that the analysis of the performance of policy need not always cover all the households that engage, to some extent, in the production of agricultural commodities. For some purposes it may be adequate to concentrate only on those for whom agriculture is the main activity or source of income, or those whose farms are above given size thresholds. Such issues are important when considering the definitions of an agricultural household and when drawing up statistics.

Some idea of the (then) perceived need for agricultural household statistics among European policymakers is given by the aims that were cited when Eurostat set up its project to improve the situation in the mid-1980s by creating sector-level statistics. The objectives were to:

1. Monitor the year-to-year changes in the total income of agricultural households at aggregate level in Member States.
2. Monitor the changing composition of income, especially income from the agricultural holding, from other gainful activities, from property and from welfare transfers.
3. Enable comparisons to be made in the development of total incomes of agricultural households per unit (household, household member, consumer unit) with those of other socio-professional groups.
4. Enable comparisons to be made between the absolute incomes of farmers and other socio-professional groups, on a per unit basis. (Methodology from the IAHS Manual of Methodology repeated as part of Eurostat (2002)).

However, sector-level statistics only provide part of the picture. To look at the distribution of income or the incidence of low-income among farm households compared to other households, at the change in income over time, and at the impact of agricultural, social and taxation policies, microeconomic data are necessary. These receive attention in the second part of this Handbook.

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## PART I RURAL DEVELOPMENT STATISTICS

### II NATIONAL AND INTERNATIONAL RURAL DEVELOPMENT POLICIES

#### II.1 A few examples of national rural development policies

A system of rural development statistics and its associated indicators must closely map the objectives indicated in the policies formulated by governments. Where policies are not very clearly formulated, statisticians have to anticipate indicators being demanded. In setting them up, they should apply international standards of good practice, as illustrated in this Handbook.

To this end a number of national policy formulations are listed below as illustrations of the level of concreteness in the policies.

The stated national objectives for rural and countryside policy in **England (United Kingdom)** (the UK's constituent countries have their own rural development policies) are as follows (DEFRA, 2004):

- **Economic and Social Regeneration** – supporting enterprises across rural England, but targeting greater resources at areas of greatest need;
- **Social Justice for All** – tackling rural social exclusion wherever it occurs and providing fair access to services and opportunities for all rural people;
- **Enhancing the Value of our Countryside** – protecting the natural environment for this and future generations.

In **Sweden** the regional policy aims at creating conditions for sustainable economic growth, equity and freedom of choice so that similar living conditions are created for all citizens in the country. To this end the Swedish government has given the National Rural Development Agency the following task: “... *to coordinate different sectors of society and working for good living conditions and development opportunities for rural areas and rural populations ...*”. One of the ways in which the Agency is managing this task is by providing information about the situation in rural and sparsely populated areas so that it can be monitored and analysed (Jönrup, 2003).

In 1999, **Ireland's** Department of Agriculture and Food published a White Paper on rural development ‘Providing for the future: a strategy for rural development in Ireland’ (McMahon, 2003). This set out a vision and framework for the development of rural communities in Ireland into the next millennium, concentrating on defining a strategic direction for Government in this area. The White Paper identified a policy agenda with six areas of concern. These are referred to in very general terms in extract shown in Box II.1.

These three national examples must be seen against the background of rural development policy for the European Union as a whole and its aims and objectives. The framework is provided by the Rural Development Regulation (Council Regulation (EC) No 1257/1999 and amendments in Council Regulation (EC) No. 1783/2003/1257/99) and other legislation. Annex 2 of this Handbook gives more details.

**Box II.I Ireland’s “Future Vision and Policy Agenda”**

The Government is committed to ensuring the economic and social well-being of rural communities, to providing the conditions for a meaningful and fulfilling life for all people living in rural areas and to striving to achieve a rural Ireland in which:

1. There will be vibrant sustainable communities with the range of age, income and occupational groups, such as to allow them to adapt to ongoing economic, social, cultural and environmental change and to enjoy a standard of living and a quality of life which will make them attractive communities in which to live and work; the maximum number of rural households and especially family farms, will be retained; there will be equity in terms of opportunity both between rural and urban communities and between communities in rural areas; individuals and families will have a real choice as to whether to stay in, leave, or move to rural Ireland.
2. There will be sufficient income and employment opportunities to allow individuals and families to live with dignity.
3. Rural communities will enjoy access to education, training and lifelong learning and to an adequate level of social and other services and infrastructures.
4. Rural communities will participate effectively in the structures and decision-making processes affecting them in an inclusive society based on the principles of equity, particularly in relation to gender balance and social justice.
5. The cultural identity of rural communities, in particular the language, traditions, heritage and sense of community will be valued and retained.
6. The rural environment will be respected and development in rural areas will take place in a sustainable manner (McMahon, 2003).

In addition to these EU/OECD country cases, a small sample of developing countries has likewise been covered (cf. section XIII.2.2). Some of their rural development policies are reported below.

According to **India**’s Ministry of Rural Development, India has been a welfare state ever since her independence and the primary objective of all governmental endeavours has been the welfare of its millions. Planning has been one of the pillars of Indian policy since independence and the country’s strength is derived from the achievement of planning. The policies and programmes have been designed to alleviate rural poverty, one of the primary objectives of planned development in India. It was realized that a sustainable strategy of poverty alleviation had to be based on increasing the productive employment opportunities in the process of growth itself. Elimination of poverty, ignorance, disease and inequality of opportunities and providing a better and higher quality of life were the basic premises upon which all the plans and blueprints of development were built.

For India rural development implies both the improved quality of life in rural areas as well as greater social transformation. In order to provide rural people with better prospects for economic development, increased participation of people in the rural development programmes, decentralization of planning, better enforcement of land reforms and greater access to credit are envisaged. In order to ensure that the fruits of economic reform are shared by all sections of society, five elements of social and economic infrastructure, critical to the quality of life in rural areas, were identified (health, education, drinking water, housing and roads).<sup>1</sup>

A partnership between the Government of the Republic of **Zambia** and the International Fund for Agricultural Development (IFAD) in implementing projects in Zambia has contributed to bringing about new approaches in the agricultural sector aimed at empowering local communities. This is being done in line with the Poverty Reduction Strategy Paper (PRSP).

According to a first progress report of the **Zambian PRSP** (January 2002 – June 2003) (GRZ, 2004), agriculture is a key sector in Zambia's poverty reduction efforts, since most of the poor are in agriculture and also because of the presence of a large resource endowment and conditions suited for agriculture development. The strategy for agriculture is two pronged: (i) ensuring food security and (ii) diversifying agriculture production through promotion of both large-scale and small-scale producers (under out-grower schemes as well as opening up farm blocks). The PRSP also aims at developing water resource infrastructure such as dams, boreholes and wells for improvement in water supply in rural areas and for agricultural use. However, the improvement of water and sanitation in rural areas has been constrained by lack of funding (GRZ, 2004).

An internal **World Bank review** of the first round of 12 PRSPs, covering both Africa and Latin America, indicates major gaps in understanding rural poverty, in particular the linkage between defined actions and outcomes for specific groups of the rural poor and effective mechanisms for selecting and sequencing public sector choice to achieve desired outcomes.<sup>2</sup> The review concludes that much more work is needed to underpin the PRSP process itself in the upcoming PRSP rounds and with implementation to secure, over time, the desired outcomes. This requires greater consensus building between development agencies and state governments on core principles. While much has been done in taking forwards strategic thinking within agencies, the dialogue between agencies and state governments must be strengthened for deepening the analytical underpinning and for shared learning on generic issues.<sup>3</sup>

## **II.2 Rural development - a sectoral based (agriculture) approach**

### **II.2.1 The agriculture perspective**

Historically, agricultural policy has been synonymous with rural policy, or at least has been perceived as such. Although farming is still important in shaping land use, employment opportunities in agriculture are declining in relative and absolute terms, at least in the OECD countries (OECD, 2003).

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<sup>1</sup> <http://rural.nic.in/i1.htm>

<sup>2</sup> The review used as its framework the treatment of rural content issues under the headings of participatory processes; poverty diagnosis; the targets and indicators; and priority public actions – these being the framework set by the World Bank and Fund Joint Staff Assessment (JSA) guidelines. It included an assessment of the PRSP documents and the related JSA documents but did not review related and underpinning working papers and reports.

Annex 1 in Proctor (2002) provides further specific detail.

<sup>3</sup> <http://europa.eu.int>

Historically, economists saw the main role of agriculture as the supply of labour for the industrialized sectors (Lewis, 1954) and, indeed, it is a necessary precondition for the development process. But by emphasizing this as the only important contribution, other significant functions of the agricultural sector tended to be overlooked.

Whereas most rural territorial units in most OECD countries depended on agriculture as their leading economic engine a half-century ago, today maybe only between one in five and one in every ten, depending on the country, rural countries is “farm dependent”, or counts agriculture as its leading source of income. Agricultural policy thus provides less and less stimulus to the viability of the rural economy (OECD, 2003).

Rural employment patterns and perspectives can therefore not be properly understood by focusing analytical attention exclusively on agricultural sector employment. But it is important, whether for a developed OECD country or a developing country, to monitor the share of agriculture in regional employment and to compare the national average with predominately rural, significantly rural and predominately urban areas, both in absolute terms and in annual changes (OECD, 1994).

Data should also be recorded on territorial differences in part-time and **pluriactive farming**, including agriculture/forestry and agriculture/fishery activities. A large proportion of farm labourers are employed part-time and sometimes engaged in other gainful activities. These include the following:

- Processing of agricultural products, for example, cheese making;
- Non-agricultural activities on the farm, for example, agro-tourism on the farm;
- Employment on other farms;
- Off-farm activities (OECD, 1994).

## **II.2.2 Trends in agriculture in the last 50 years – employment and productivity**

Looking at the period from end of World War II until now, agriculture in OECD countries (and many others) has gone through structural change on a scale that hardly any other sector can match. It can be characterized by the following keywords:

- **Plummeting employment** (including self-employed);<sup>4</sup> and
- **Skyrocketing productivity increase**; whilst in the same time
- **Cultivated farmland has been more or less stable.**

In Canada, for instance, about 1.2 million people worked on a farm as a main-job in 1946. By 1976, that number had dropped to a little under a half a million and to 367,400 in 2000 (Trant, 2002). One of the more interesting features is that employment in agriculture declined the most among self-employed farmers with no employees, a group more likely to have smaller farms that can probably more easily be run as a second job. The 1996 Canadian Census of Agriculture reported that 46% of all farmers worked off-farm work at some point in the previous year. The comparable figure in 1941 was 36%. Farmers were initially to be found in the forest, fishing, mining and petroleum industries but they are now participating in all sectors. Falling farm employment, however, has not resulted in the large-scale abandonment of farmland.

Improvements in **agricultural labour productivity** have been quite remarkable in many OECD countries. Again taking Canada as an example, agricultural labour productivity increased more than 5-fold

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<sup>4</sup> This is of course not unique for agriculture. Manufacturing has followed the same path but with a lag. See Chapter V “Industrialization, trade and structural change,” in UNCTAD’s Trade and Development Report 2003. Capital Accumulation, Growth and Structural Change.



between 1961 and 2000, largely out-performing the 3-fold productivity gains in the goods producing sector and surpassing the gains in the service sector, which had somewhat less than a 2-fold increase.

Another way to view productivity is to measure labour costs per unit produced. Again agriculture clearly appears to have led industrial sectors in terms of productivity gains.<sup>5</sup> In 1961, agriculture was labour intensive in comparison to the goods producing and service sectors of the Canadian economy, sectors which at that time required half the labour of agriculture, to produce a unit of value added production. By the year 2000 that relationship had changed. Labour costs had increased for all sectors as had production. Agriculture was the only sector however where production increased while employment declined. The result was only a 2-fold increase in labour costs per unit of real GDP produced in agriculture in comparison to a 4-fold increase in the goods producing sector and close to a 6-fold increase in the service sector (Trant, 2002).

### II.2.3 The current situation for agriculture

Several different and emerging forces affect agriculture. First is the **globalization** of the world economy led by several factors including rising incomes in developing countries, reduction in trade barriers, and large countries moving from planned to market driven economies. For a country's farmers and agribusinesses to compete effectively in global markets, a competitive agricultural system is needed. More than ever, the competitive structure of agriculture is affected by rules of trade, domestic policies, infrastructure development and new technologies (Vogel, 2002).

Second is the concern with the **environmental consequences** of the intensive use of land and water resources and the application of agricultural chemicals. Policymakers are faced with difficult decisions about appropriate actions to ensure that their agriculture system is competitive in the world market, yet is sustainable and in harmony with the environment.

A third force affecting agriculture in many countries is a rising political awareness of the **social implications** of the changing structure of the nation's farms into fewer but larger operations. This is happening to the extent that it is affecting the social structure of rural communities as the displaced farmers move elsewhere. On the other hand, there is a growing population of part-time farmers around urban areas who have employment elsewhere but desire the agricultural life style. While these producers may contribute little to overall agricultural production, they do account for a considerable amount of the land. In economics in transition and parts of the developing world, substantial proportions of total production may be generated by subsistence production. This non-marketed output may play a social role in rural communities that greatly exceeds its nominal significance in national accounts.

The primary issue facing statisticians is that all three forces are operating at the same time. Unfortunately, many countries have reduced the resources devoted to statistics on agriculture, based on its declining share in the national accounts. This is an inappropriate response in that it fails to recognize the wider social roles of agriculture and the need for statistics that relate to them. In particular:

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<sup>5</sup> The 3<sup>rd</sup> edition of the ILO's Key Indicator of Labour Market (KILM) provides estimates of productivity in agriculture, forestry and fisheries (table 18e). Labour productivity is defined as output - measured by gross domestic product (GDP) - per unit of labour input. For a substantial number of economies, the productivity measures for the total economy and manufacturing are complemented with measures of unit labour cost, i.e. labour cost per unit of output. The estimates of the agriculture, forestry and fisheries sector are of an experimental nature.

- Agriculture is at the centre of issues concerning land use and the environment.
- Agriculture is the major user of a nation's land and water resources whilst at the same time it is requested to provide an adequate, safe, and nutritious supply of food - a basic goal of every country.
- Agriculture is an important part of many countries' trade balances.
- Agricultural production, more than any other sector, is very volatile as it suffers from the vagaries of weather on top of market and policy driven effects.

In view of this, a well-designed statistics system needs to provide data to guide governmental policy decisions on agriculture as they relate to food security, economic sustainability, trade and other and economic issues that stretch beyond the narrow confines of farming. Conversely, as policymakers grapple with food safety, land use and environmental issues, they will want to know more about how their policies affect the economic and social well-being of farms and farm households. They will want to know about the geographic distribution of agriculture and its supporting infrastructure so that policy can be made more directly to sub-sectors or geographic regions (Vogel, 2002).

## **II.2.4 Other characteristics of agriculture**

### *Multifunctionality and agriculture*

The term multifunctionality is used to convey the notion that agriculture can play several roles in our societies in addition to its primary function of producing food. It implies "...*the existence of multiple commodity and non-commodity outputs that are jointly produced by agriculture, and the fact that some of the non-commodity outputs exhibit the characteristics of externalities or public goods* (OECD, 2001)."

Multifunctionality also applies to fishing and forestry policies as well as other economic activities but the examples used here will be drawn from agriculture.

The policy context lies in the increased demand for certain of the non-commodity outputs of agriculture. These include not only the environmental goods alluded to above but also social attributes such as the contribution that agriculture makes to the vibrancy, vitality and cohesion of rural society. Thus a statistical system should be capable of the following (after OECD, 2003):

- *Distinguishing public from private goods.* Private goods mean that farmers' production belongs to them. On the other hand, farmers are seen increasingly as agents producing public goods in the course of their private activity: landscape, environment, culture, and so on.
- *Distinguishing material from immaterial wealth.* The agricultural world produces material wealth along with immaterial wealth as, for example, landscape management of the soil and the subsoil, biodiversity, etc.

## **II.2.5 Perspectives on agricultural policy reform and the rural economy**

### *Developed countries*

Agricultural policy reform can imply significant adjustment costs for some individuals and areas in the short term, but the long-term benefits to both farm and non-farm households, and to rural areas generally, can be considerable. While the agricultural sector continues to shed employment, in part the result of long

term pressures (mainly arising from technological advance and static demand) and in part arising from shocks that include rounds of policy reform, jobs are not being created fast enough in other sectors in rural areas to absorb the individuals concerned. In consequence, many rural communities in Europe have a rate of unemployment above the national average.

Rural development policies, even if much more comprehensive and wide ranging than purely agricultural policies, are not a panacea for all the problems of rural areas. The most important task of national governments is to pursue macroeconomic policies conducive to sustained economic growth. The second major responsibility is to implement programmes aimed at reducing the isolation of rural areas, such as ensuring access to educational institutions at all levels, good public transport and accessible modern communication systems (OECD, 2003).

### *Developing countries*

Countries outside the OECD are in general, characterized by an agricultural sector that is much more important in economic terms, and perhaps also in social terms, to rural areas and to the economy and society overall (OECD, 2003). Even in the late 1990s, on average, more than 75% of the labour force in the least developed countries and other low-income countries was engaged in the agricultural sector while the figure was about 35% in other developing countries. Agriculture is thus a very important source of employment and income, with implications for other sectors of the economy, in these countries. Raising agriculture productivity is important for reducing poverty and promoting food security and nutritional well-being (cf. Chapter 3 in ILO, 2004).

Having said this, it is also clear that non-farm activities, which usually grow faster than farm production, will play an increasingly important role in expanding rural employment and income. Rural employment strategies should therefore also be developed in order to spur off-farm employment opportunities (UN, 2003).

## **II.2.6 The farm policy dilemma**

In many countries, agriculture policies are, or have been, overwhelmingly focused on subsidies to commodity growers. In other countries, trade issues or food security are the main focuses of agriculture policies. Broader rural development initiatives only receive a fraction of the subsidies<sup>6</sup> (OECD, 2003).

Countries are, however, becoming increasingly aware of the need for further progressive reductions in domestic agricultural support and border protection, and to shift away from policy measures that encourage higher levels of food production and input use, towards measures that are less distorting of markets and trade.

If productivity gains in agriculture tend to reduce the sector's capacity to create jobs, then viable rural communities may be assured more by comprehensive area-targeted programmes than by traditional agricultural production-linked payments. In other words, a shift from a sectoral to a territorial policy approach is called for (OECD, 2001).

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<sup>6</sup> In 2001, total support to OECD agriculture was USD 311 billion, representing 1.3% of GDP across the OECD area (OECD, 2003).

## II.3 Rural development - a territorial based approach

### II.3.1 Employment – the driving force of rural development

Labour force participation rates are generally lower in rural regions compared to urban regions. Moreover, in most countries, rural women are underrepresented in the labour force. On the other hand, a salient point in many developing countries is that women are typically more likely than men to work in the agricultural sector. For example, women in rural Africa produce, process and store up to 80 % of total foodstuffs, while in South and South-East Asia they undertake 60 % of cultivation work and other food production. As mentioned above, rural areas in developed countries will be confronted with substantial increases in the working age population. This will generate uneven territorial pressures for labour market adjustments (OECD, 1994).

In rural areas there are large variations in employment creation performance. In the OECD area, it has been noted that a group of dynamic predominantly rural regions, representing between 5% and 15% of the total national work force, has experienced employment growth considerably higher than the national economy as a whole. Thus, **rurality in itself is not a handicap for job creation** (OECD, 1994).

To this end the OECD recommends that more attention should be given to studies which examine intra-regional populations and employment dynamics. These studies should address the following questions:

- What role do towns and cities play in rural labour markets and rural development?
- Are there specific patterns of rural, as opposed to urban, employment and population developments?
- What is the economic base of urban and rural structures? Are there significant differences between urban and rural economic bases? (OECD, 1994).

### II.3.2 Trends for rural regions

One of the main conclusions drawn from analysing rural development is that rural areas and their economies are very heterogeneous, with large variations from one area to another. In the United States, for instance, most of the economic growth is concentrated in roughly four of every ten rural counties. Counties that are enjoying robust economic growth tend to have one of three characteristics: scenic amenities (such as in the Rocky Mountains), proximity to metro areas (common to the fringe areas of nearly all major metro areas), or are emerging retail and financial hubs (the solitary growth centres scattered throughout the nation).

Outmigration of young people caused by lack of employment opportunities and inadequate access to educational and leisure facilities, along with the in-migration of retirees in some places, has led to significant ageing of the population. Moreover, most rural regions have difficulty in establishing the necessary critical mass of facilities, producer services and infrastructures to support economic development. Consequently, entrepreneurs face specific obstacles in starting up enterprises in rural regions.

Some rural regions perform very well, even better than urban ones. A central question is therefore why certain rural regions perform better than others? Transport infrastructures and towns in the region or the vicinity of a major urban centre are often mentioned as important factors. Each region has different combinations and levels of capital endowment (physical, financial, human and social). What counts is the availability of one form of **capital** or another as much as the ability to properly exploit it. In some cases, **intangible aspects** (entrepreneurship, cultural identity, participation and partnerships) are the most important in making the difference.

Some regions succeed well in exploiting their natural resources such as wood, oil, minerals or hydro-electricity or to attract major public infrastructure investments. Another successful strategy has been to focus on amenity-based development schemes. The success of some rural regions has been due to their ability to valorise public or quasi-public goods such as a clean environment, attractive landscapes and cultural heritage (including food).

Farming can continue to play a role in, and remains a tool for, rural development. It is important to dispel the outdated notion of the “full-time farm business” with the household wholly dependent upon agricultural income (see Chapter IX).<sup>7</sup> Farm households often have multiple income sources (see Chapter X). In other words, the health of the farm and non-farm economies in rural areas is inexorably linked.

Dramatic shifts in populations provide another piece of evidence that a new approach to rural policy is needed. Many rural places with strong economic gains also experienced strong in-migration, while weak economies often saw an outright loss in population. Labour market statistics also show that unemployment remains highest in the most remote rural places while the suburbs to large cities had the lowest unemployment rates (OECD, 2003).

In this context, the OECD recommends that analyses should be made of **demographic pressure indices** (such as the population between 5 and 14 in relation to the population between 55 and 64) that indicate potential new workers per retiring worker. Another key measure is the **dependency ratio**, which is defined as the population between 0 and 14 plus over 65 in relation to the active population in the age range of 15-64.

### II.3.3 Entrepreneurship and job creation in rural areas

Factors often cited as associated with successful rural areas include well-established inter-firm relations within clusters, and accessible and valuable natural and cultural resources that increase the sustainable attractiveness of places.

Amenity-based development and industrial clustering seem also to offer sustainable prospects for an increasing number of rural areas. Together with increased connectivity due to information technologies, a greater and diversified social demand on rural areas has widened the range of regions considered as having marketable values.

Commuting has always separated where people live and work (Johnson, 1999). Improved transportation allows the distance between work and home to grow. Tele-commuting opportunities allow this distance to grow still more. Furthermore, spatially separated production, using information technology to coordinate production activities, splits the traditional workplace.<sup>8</sup> E-commerce, which is growing rapidly

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<sup>7</sup> In this context, Ray Bollman from Statistics Canada has an interesting observation: “Historically, at least in Canada since the period of European settlement, a significant share of farm operators worked off the farm. Also, historically, a relatively small share of the time of farming families was involved in growing plants and husbanding animals. A large share of the time was involved in the manufacturing of horsepower (i.e. raising and maintaining horses) and in the production of fuel (i.e. growing and harvesting hay and oats) and in food processing (washing and sorting eggs, churning butter, separating the cream from the milk, canning fruits and vegetables) – today, work in these manufacturing sectors is classified as “off-farm work” but this manufacturing activity used to take place on farms. Thus, perhaps, the same share of farm household time is still allocated to tending crops and livestock – the difference today is that the manufacturing of farm inputs and the processing of farm products tends to take place off the farm.”

<sup>8</sup> See ILO’s World Employment Report 2001, which examines the employment challenges and opportunities emerging from the rapid growth of information and communication technologies (ICT) around the world. Recognized as among

both in volume and in the range of goods and services traded (from stock to groceries), also tends to separate where people live and spend their money. .

The development of rural areas is based more and more on interactions with adjacent areas. Co-operation between communities and the setting up of horizontal partnerships between public and private actors over areas sufficiently large to define coherent, common strategies have been seen as the most effective means to enable these new forms of territorial development (OECD, 2003).

### **II.3.4 Are manufacturing and services now the pillars of rural development?**

While agriculture, forestry and fishing formed the traditional economic base of rural areas, the set of externally-oriented economic activities in rural space is now much larger. Manufacturing, tourism, and senior level government facilities of various types are now important sources of external income in many rural areas. Indeed those areas that still depend on farming and the other traditional primary sectors are typically less well off in terms of a broad range of economic indicators.

Moreover, in some rural communities there is no tradition of an indigenous **entrepreneurial class** and little experience in small-scale manufacturing. In these places, especially those with limited natural amenities, the potential to diversify beyond agriculture is mainly a function of the ability to attract outside industry.

Nevertheless, manufacturing will likely remain a central element in rural development. While many places are trying to expand the role of tourism this is not a real option for rural communities that are too inaccessible or lack a high enough level of amenities to attract visitors. Similarly there is little potential for producer services to play a major role in most rural places. Almost by default, the survival of many rural communities will depend upon maintaining a manufacturing base.

**Large firms**, relative to the size of the community, can present significant development problems. Entrepreneurship tends to be reduced if there is one dominant firm in the community. Further, the closing of a single, dominant firm represents considerable risk to the entire community.

### **II.3.5 Merging industry sectors**

Just as the computer industry merged with the telecommunication industry the same phenomena has happened with agriculture and agri-food. The potential for synergies also exist between agriculture and pharmaceuticals, agri-tourism and agri-environment. As an example, the pharmaceutical industry is introducing processes where pharmaceutical inputs are grown in crops or animals instead of being produced in factories.

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the major drivers of economic growth and wealth creation, ICT are raising productivity, reducing costs and increasing the speed of communications to help shape the new global economy. The effects of ICT on the emergence of new enterprises and the demand for new skills and knowledge are profound, and this study illustrates how they have changed labour market conditions and industrial relations as well. While analysing how new technologies influence the quantity, quality and location of work, the book also looks at where jobs will be lost and created in industrialized and developing countries.

### II.3.6 Industrial structures and characteristics of rural and urban economies

In all countries, establishment size, in terms of persons employed, is smaller in rural than in urbanized regions. The average size of establishments differs considerably and systematically among types of regions and countries, the smallest establishments are found in predominately rural regions. As a result, the average size and structure of enterprises and establishments in relation to employment change should be highlighted (OECD, 1994).

In the context of industrial structure, it should be noted that **specialization** in many rural economies has made them particularly vulnerable to business cycles and resource depletion, for instance in mining and forestry. A mix of business with respect to size and industrial and service sector variety seems to better lay the foundation for a more stable labour market (OECD, 1996).

### II.3.7 Sectoral mix and territorial dynamics

Analysis by the OECD has shown that the economic structure, i.e. the mix of different types of economic activities and size of particular activities, restrains employment growth in predominantly rural regions. At the same time, it is region-specific factors that make a predominantly rural region leading or lagging (Bollman, 2003).

It has been further shown that 78% of OECD territorial disparity in GDP per capita is due to disparities in labour productivity (GDP per worker). In some countries, such as Denmark, Netherlands, Ireland and Canada, it exceeds 90%. Even among a fairly homogeneous group of countries such as the OECD there is a wide range in territorial disparities of GDP per capita, ranging from an adjusted Gini coefficient of between 0.15-0.20 in Italy, Hungary, United States and Mexico to below 0.05 in Norway, Czech Republic and Sweden (Bollman, 2003).

The large differences in the performance of dynamic and lagging rural regions cannot primarily be explained by differences in their sectoral mix. Other characteristics such as networking and governance as well as a range of additional characteristics, often not yet identified or well understood, are responsible for generating positive territorial development dynamics, which more than offset the disadvantages stemming from unfavourable sectoral structures in rural regions (OECD, 1994).<sup>9</sup>

### II.3.8 Education and employment in rural regions

The level of education of the rural labour force is an important indicator in any assessment of rural employment conditions and trends. Unemployment rates differ significantly according to educational attainment levels.<sup>10</sup> People in rural regions tend to have lower education levels and are more likely to work in industries with low-skill jobs (OECD, 1994).

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<sup>9</sup> See the current research activities of Vincenzo Spiezia, Head of the OECD Territorial Indicators and Statistics Unit, which focus on the analysis of regional comparative advantages and the assessment of policies for regional competitiveness (cf. OECD, 2004).

<sup>10</sup> See the ILO KILM 11 'Unemployment by educational attainment,' which focuses on unemployment among workers categorized by their level of educational attainment. Specifically, the indicator is the percentage distribution of an economy's total unemployed according to five levels of schooling - less than one year, less than primary level, primary level, secondary level and tertiary level. Information for the indicator is given in table 11 for 105 economies, to some extent (Source: <http://www.ilo.org/public/english/employment/strat/kilm/kilm11.htm>).

More than half of the world's population and more than 70 % of the world's poor are to be found in rural areas where hunger, illiteracy and low school achievement are common. Educating a large number of people in rural areas is crucial for achieving sustainable development. Poverty reduction strategies are now placing emphasis on rural development that encompasses all those who live in rural areas. Such strategies need to address the provision of education for the many target groups: children, youth and adults, giving priority to gender imbalances. This complex and urgent challenge should be addressed systematically, through an intricate set of policy measures, at all levels of education systems.

Rapidly changing technologies and increasing globalization also suggest that better education and training have become essential for sustainable livelihoods and the competitiveness of the rural economy. For many years, the approach followed by policymakers and education specialists has been to focus on practical and occupational agricultural skill training provided mainly at the secondary and tertiary levels. Yet, in a spatial and economic environment increasingly shaped by non-farming activities, and in a policy context dominated by the poverty reduction agenda, education for rural development requires a holistic approach going beyond the narrow boundaries of the traditional agricultural education and training concept.

### **II.3.9 The role of tourism**

Although there are many methodological problems in measuring tourism, and few hard figures exist to support claims, it is clear that it is a powerful force of change in the economy in both the developed as well as in the least developed countries (OECD, 1994). Tourism is a growth sector in terms of employment. Overall, it grows faster than total employment, two to ten times faster than for the labour force as a whole, and is often considered an important potential source of employment for many rural areas. When successful, it helps to preserve local jobs in marginal rural areas, creates new jobs where the activity prospers, and diversifies employment.

Tourism related statistics are hard to identify. There is an international definition but the delimitation is very unclear. In ISIC revision 3, which is the international activity classification, tourism covers:

- ISIC 55: hotels, restaurants and cafes;
- ISIC 60-63: transport and travel;
- ISIC 92: recreational, cultural and sporting activities (market and non-market services).

Of course not all jobs in the above industries can be attributed to tourism.

When analysing the contribution of tourism to rural employment large differences between countries are noted. These, however, are partly due to differences in the content of the statistical categories (OECD, 1994).

Agri-tourism constitutes a significant opportunity where agriculture coincides with scenic or heritage amenities (OECD, 2003). The popular tourist regions in the predominately rural group all have in common a very low population density (OECD, 1994). The interdependence between agriculture and tourism can be illustrated by the example of the **United Kingdom**. The economic consequences of the outbreak of foot-and-mouth disease in the UK negatively affected farming as well as other rural economic activities. In the UK, income from farming has declined, leaving tourism as the predominant rural economic activity (OECD, 2003). Rural tourism is worth nearly £14 billion a year. It is estimated to support 380,000 jobs in the English countryside, compared to 374,000 in farming in 2000 – including farmers and their spouses. Rural England is home to some 28% of the population and 35% of registered businesses (OECD, 2003).



A contrasting example comes from **Zambia**. The **Zambian Poverty Reduction Strategy Paper (PRSP)** (2002-2004) section on tourism sets out a plan that envisages two broad interventions – national and zonal, both of which are expected to encourage investment in the sector. National interventions include rehabilitation of roads in tourist areas, rehabilitation of museums, tourist marketing, and human resource development. Zonal development refers to intense development work in identified tourist areas to make them attractive to tourist investment. It includes building or rehabilitating access roads, tourist roads, and airports where appropriate, and the provision of power (rural electrification).

Significantly, it also includes finding world-class investors (comparable in status to the Sun International) in the respective development zone, who will be the key engine in the area. Smaller lodges can feed off them. Within this framework, formulae have been designed regarding how the local people can participate in and benefit from the tourism expansion. The first priority zone is the Livingstone and Victoria Falls area because it promises the greatest impact with spillover effects to other parts of Zambia. It is followed by Kafue National Park (physically linked to Livingstone), the Lower Zambezi, and the Lusaka area. Other areas will follow in subsequent PRSPs.

### **II.3.10 The importance of communications**

The lack of access to frequent and reliable transport is a key factor in contributing to disadvantage and social exclusion in rural areas (OECD, 2003). However, scarce public funding must be prioritized. In this context, it could very well be argued that places that are growing “deserve” more public investment in their infrastructure and places that are declining have (almost by definition) too much infrastructure.

The **Zambian PRSP** (2002-2004) is once again a case in point on the issue of prioritization of public resources. The Government of Zambia pledges that the PRSP places a high premium on infrastructure development, particularly rural roads, in order to facilitate faster and diversified agricultural activity. This is well reflected in the scarce resource allocation pattern during the PRSP period. To encourage rural-based agricultural processing and mechanization, the energy sector is also receiving priority attention.

In any analysis of the employment situation and development trends in rural regions, **mobility** plays a significant role as a regional balancing mechanism for the labour market. Increased mobility in the form of commuting has consequences, not only for the labour market and for social policy, but also in inducing additional traffic and the creation of new challenges for transportation infrastructure policy (OECD, 1994). Commuters are defined as persons who cross regional borders to get from their place of residence to their place of work.

Peripherality has been defined in terms of distance from centres of economic activity. As such it is closely related to, but distinct from rurality, which is defined more often in terms of (low) population density (since rural areas may be very accessible, and some peripheral regions may contain major cities). It is also distinct from the density-based definitions of rurality in being a continuous (as opposed to dichotomous) concept (Bryden, 2001).

The simplest measurements of the impact of location on the development of an area are those which consider the transport infrastructure itself, expressed by distance or travel time to nearest nodes of inter-regional transport networks, for example:

- Road length by class;
- Distance from an international airport;
- Distance from a mainline railway station;

- Travel time to nearest urban centre (Bryden, 2001).<sup>11</sup>

There are, however, many more types of measurement of **accessibility** that have been utilized by researchers and policy practitioners. These include access to networks, distance to the nearest network node, number of direct connections, number of lines arriving at node, travel cost to one other node, average travel cost to all nodes, expected value of utility of visit to all nodes, potential accessibility, number of people reachable with a certain travel cost, inverse of balancing factor in spatial interaction model, and accessibility assessed by expert judgement.

### **II.3.11 The role of information technology for rural development**

Access to information technology is not universal, not even within the same country. The Canadian case study shown in Chapter IV of this Handbook shows that overall household Internet connectivity and use of computers are lower in rural and small town communities than in their urban counterparts. One reason for this is the difference in educational attainment between rural and urban areas.

Information technology provides possibilities for rural communities to have access to a whole range of services without being hampered by their distance to providers. It also provides increased opportunity to work from any physical location, which has favoured rural areas with excess labour supply, lower wages and a lower cost of living. This is a feature of teleworking from home, but it also refers to the relocation of jobs from industrialized to developing countries, such as "back-office" staff located in call centres, data entry and processing functions and software development. These kinds of services tended to move first to rural areas in developed countries and then to certain developing countries, India in particular.

Work that is independent of location constitutes a growing share of employment in industrialized countries. Almost one fourth of the workforce in the United Kingdom now carries out at least some of its work at home. By 2003, there will be an estimated 1.3 million employed in call centres in the EU, up from an estimated 670,000 in 2001. The technology is, however, universal. What constituted a chance for rural communities in developed countries to have access to a new labour market also represents an opportunity for developing countries.

More than 850 million people in developing countries are excluded from a wide range of information and knowledge, with the rural poor in particular remaining isolated from both traditional media and new information and communication technologies which would improve their livelihoods.<sup>12</sup>

Studies on information systems serving rural communities have focused on specific sectors such as agriculture or health, instead of covering rural community needs in a holistic manner. Rural information systems must involve rural communities and local content must be of prime importance (Mchombu, 1993). Traditional media have been used very successfully in developing countries, and rural radio<sup>13</sup> in particular has played a major role in delivering agricultural messages (Munyua, 2000).

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<sup>11</sup> There are many arguments from traditional location theory and more recent trade theory (Krugman, 1991) about where new development is likely to take place. Geographic concentration relies on the interaction between increasing returns, transport costs and demand. For an extensive discussion of the accessibility issue see Banister and Berechman (2000:50-54).

<sup>12</sup> Source: Communication for Development. [http://www.rdfs.net/themes/communication\\_en.htm](http://www.rdfs.net/themes/communication_en.htm)

<sup>13</sup> Using a popular radio programme called "*Kumuzi Kwathu*," (Our Village) and "*Chikaya chitu*" in Chewa and Tumbuka respectively, the Zambia Community Radio Project (ZCRP) (a United States Aid - funded project under the Education Development Centre (EDC) Africa) is reaching out to thousands of villagers, passing on life-saving

The Internet is rapidly expanding in developing countries. This expansion is, however, largely an urban phenomenon and most rural communities are not yet able to take advantage of the services available to their urban neighbours. Pilot projects linked to rural and agricultural organizations can help ensure that rural communities and agricultural organizations remain part of regional and national Internet initiatives.

In 2003 and 2005, the United Nations organized the World Summit on the Information Society with the aim of developing strategies to reduce the “digital divide” (Munyua, 2000).

### **II.3.12 Rural services standards**

People in rural areas have a right to reasonable access to a range of services to meet their various needs (OECD, 2003). These include not only basic services such as health care, schools, postal services and other communication means, and security (police, fire-brigades etc.) but also retail outlets of private goods and services as well as access to leisure and cultural activities and participation in the political process.

### **II.3.13 Objectives for rural policies**

The focus for promoting rural development and employment should be on transforming and developing new and distinctive economic functions (OECD, 2003). The interests of the majority of rural citizens, and even most farm families, seem to be best served by a development strategy based on investments to build local assets. In this context focus should be on:

- Enhancing “competitiveness” of rural regions by targeting local collective goods;
- Shifting from an approach based on subsidizing declining sectors to one based on strategic investments;
- Shifting from a sectoral to a place-based approach;
- Enhancing business assistance and networks of knowledge;
- Developing human resources through vocational training, including an important emphasis on entrepreneurial skills, and “capacity building” for policy actors at local levels;
- Ensuring new ways of providing public services in scarcely populated areas (OECD, 2003).

### **II.3.14 New issues in rural policymaking**

Past public policies have made simplistic distinctions between rural and urban areas. Furthermore, they have tended to regard rural areas as homogenous, with uniform problems and similar opportunities. In fact every rural place has different assets (OECD, 2001).

Why do regions have such distinct performance profiles? Regions have certain basic resources and characteristics such as potential-geographical location, proximity to markets, topography and climate, natural resource endowments, industrial heritage and endowments of human, social and physical capital that to a large extent shape their development trajectory. Even the new information technologies that make the factor of distance less important do not necessarily lead to more uniform spatial patterns (OECD, 2001).

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information on HIV/AIDS and inspiring people to fight poverty through motivational success stories they profile on selected villages (Chanda, 2004).

The need to develop tailor-made regional policies has been implicitly recognized by central governments and by, for instance, the EU (for example, the LEADER initiative follows a bottom-up approach).

The development of rural areas is increasingly based on interactions with adjacent areas. The inter-regional aspect is not always taken into account at the international level because these cross-border zones do not coincide with traditional administrative divisions.

In practice, a wide variety of institutional arrangements for the delivery of rural policy have been noted in OECD countries, but some common features are:

- Decentralization towards regions and localities;
- Support for “bottom-up” development initiatives;
- Attempts at better coordination of policies affecting rural areas at central levels through inter-departmental and inter-ministerial working groups;
- Greater coordination and cooperation at regional and local levels usually through partnerships (OECD, 2001).

It is widely argued that development policy and practice must allow for diversity in the goals and objectives of development, must acknowledge that it should include social, cultural, environmental as well as economic dimensions, and should allow for democratic processes at all levels (OECD, 2001).

## II.4 Conclusions

The main characteristic of rural policies, at least in developing countries, is the **shift from a sectoral to a territorial policy approach**, including attempts to improve coordination and to integrate the various sectoral policies at regional and local levels. There is a shift from an approach based on subsidising declining sectors to one based on strategic investments to develop new activities. More attention is given to quasi-public goods and “framework conditions” which support enterprise indirectly. To this end there is an increased focus on local specificities as a means of generating new competitive advantages, such as amenities of an environmental or cultural nature or traditional or labelled local products (OECD, 2001).

Another salient feature of present rural policies is the increased use of partnerships between public, private and voluntary sectors in the development and implementation of local and regional policies. This has also implied decentralization of policy administration and, within limits, policy design to those levels (OECD, 2001). There are clear moves away from centralized “top-down” policy and delivery towards more local “bottom-up” approaches within an agreed policy framework, although there are still issues about the balance between these and what institutions and governance are needed in support.

Regional policies play an important role but they need to understand and be sensitive to the differences between urban and rural areas within the region (and between different types of rural area), which may require different approaches. Regions may, in themselves, be at too high a level and sub-regional approaches may be needed, as demonstrated by Mexico’s focus on microregions. It is essential to identify, on an individual basis, each particular area’s opportunities and advantages as well as its disadvantages.

Agriculture continues to play an important role in rural economies - in many developing countries it is the key sector - and its impact on the landscape, the environment and rural amenities is critical.

Rural areas are not just problems; they also present opportunities and the potential to contribute positively to competitiveness, for example through the growth of microbusinesses, niche markets and the increasing role of women entrepreneurs (OECD, 2003).

The provision of infrastructure (such as transport, telecommunications, water and sanitation, power and gas, and major water works) and the enhancement of social capital designed to increase the competitiveness of rural areas are more and more the focuses of rural policies. An important part of these policies is the creation of a good environment for entrepreneurship and local initiatives (OECD, 2003). Rural development initiatives do not necessarily need to come from the “capital”, although there is a need for the central coordination of a wide range of policies affecting rural citizens through institutional arrangements for inter-departmental and inter-ministerial coordination (OECD, 2001). Central support needs to provide more flexible arrangements for rural development.

Other conclusions, partly overlapping what was said above, drawn from experiences of rural policies are in short:

- Efforts to create new institutional arrangements at local and regional levels to define policy objectives priorities and strategies, and implement policies and programmes at these levels.
- A new focus on trying to improve the “competitiveness” of rural areas.
- Attempts to divert resources from programmes which focused on subsidies to maintain existing rural activities to programmes which focus on support for investment in human and social capital, diversification of economic activity and the related creation of new enterprises, key infrastructure, the environment, and innovation.
- Efforts to reinforce rural economies, principally through diversification of economic activities.
- Enhancing business assistance, especially efforts to diffuse new technologies through R&D and the development of specialized regional institutes or centres.
- Developing human resources through vocational training.
- Developing and commercializing natural and cultural “amenities.”
- Creation of local products based on local identity and aiming at a market niche.
- New ways of providing public services in rural areas.
- The increasing use of programme evaluation procedures both as a control and a learning mechanism (OECD, 2001).

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## III CONCEPTUAL FRAMEWORK

### III.1 Definitions of rural

#### III.1.1 Introduction

Chapter III reviews the conceptual framework of rural development indicators selected by various international organizations. Each of the subsections of the chapter starts with the work carried out by the OECD followed by that of the other organizations. In order to avoid repetition of common features and issues that have been accounted for in the OECD subsection, they will not be repeated again in the successive subsections covering the other organizations. This approach implies that the OECD write-up will be substantially more extensive, which should not be taken as an indication of any qualitative or quantitative preference for the OECD material.

#### III.1.2 OECD

The design of the territorial scheme, which provides the geographic grids for the collection, aggregation and presentation of statistical data, is of key importance for all kinds of rural analysis. The territorial scheme applied by the OECD distinguishes two levels of geographic detail: **local communities** and **regions** (OECD, 1996).

It also defines a **rural area** as a local community with a population density **below 150 habitants/km<sup>2</sup>** (500 in the case of Japan) (OECD, 1994).

Replies to an OECD Rural Data Survey and an evaluation of other sources, lead to the following observations (see also Annex 1):

- **The notion of "rural" is universally used by OECD Member Countries.** It describes certain parts of the country that are characterized by a relatively low number or density of population, or by certain socio-economic features (OECD, 1996).
- **An official definition of "rural" does not always exist.** Definitions used vary significantly. In most cases they treat rural as a residual category. In this instance, it is defined negatively in the sense of not being "urban" or "agglomerated", rather than being explicitly specified by its own properties.

When analysing the different national approaches to defining "rural" it is appropriate to distinguish the following three aspects:

- The size of the territorial units and the level of geographic hierarchy;
- The criteria used to characterize the units at the respective levels;
- The quantitative thresholds used to define the boundary between rural and other areas (OECD, 1996).

The basic territorial units used in national definitions of rural vary considerably in size, both with regard to population and area. For example, French Communes, which are the smallest administrative units in Europe, have an average population of 1,500 inhabitants and a surface area of 15 square kilometres while English Districts encompass 118,000 inhabitants in areas of more than 500 square kilometres. Counties, which in the United States are used as the basic building blocks for rural analysis, have an average

population of 80,000 inhabitants and an average surface area of almost 3,000 square kilometres. In terms of area, these American Counties are much smaller in the East than in the West (OECD, 1996).

As a simplification, one can roughly distinguish two levels of territorial hierarchy used for rural classification and analysis. If Member Countries try to identify homogeneous “rural” areas as being distinct from “urban” places, they tend to use small geographic units at the local community level as the statistical building blocks. On the other hand, larger geographic units at the regional level are used where the emphasis is on analysing functional relations. Usually these larger zones cannot be classified in terms of either rural or urban but as more or less rural, according to their **degree of rurality**.

*A priori*, neither level of territorial detail is more appropriate than the other. The “right” choice will depend on the analytical purpose or on the policy problems that have to be solved. Consequently many Member Countries apply both territorial grids.

An additional difficulty arises from the fact that in most Member Countries the territorial grids do not remain constant over longer periods of time. **Boundaries are frequently changed**, often as a consequence of administrative reforms. Also, a given unit may be reclassified due to changes in population, making time series analysis on the basis of aggregated rural data particularly difficult, if not impossible.

Member Countries use a **wide range of criteria** for the designation of “rural” areas. For example:

- Size of population (total or agglomerated, absolute or relative);
- Population density (in relation to total or usable area);
- Commuting intensity (towards major cities or labour market centres);
- Share of agriculture (either in employment or in value added) (OECD, 1996).

The choice of criteria used to identify rural areas is not independent of the size or hierarchical level of the territorial units to which they are applied. To define rural at the local community level, most countries use a population size criterion. For larger functional or administrative regions, which in most cases will include at least some urban elements, criteria such as density and distance or others such as economic base are more commonly applied (OECD, 1996).

Even when the same criteria are used, the thresholds set for defining the boundary between rural other categories vary considerably. For population, the size of the agglomerated units used by Member Countries varies between 1,000 (Australia and New Zealand) and 10,000 (Italy); 2,000 is the most common threshold. The share of agricultural employment considered as the minimum for classifying an area as rural differs between 1.5% (Luxemburg) and about 20% (Greece).

It is clear that the use of alternative definitions will not only yield different results with regard to the scope of rural areas but will also create different pictures of their problems and perspectives:

- If the share of “rural” population in **France** were to be calculated using the French, Italian, Spanish and Greek definitions, the respective results would be: 27%, 51%, 30% and 27%. None of these definitions or their results, not even the French one, should be considered the “right” one (OECD, 1996).
- In the **United States**, rural analysis relies on two different definitions. The one distinguishing “rural” from “urban” places, the other differentiating “metropolitan” or “metro” from “nonmetro” counties. Both definitions result in roughly similar numbers of residents, 22% and 27% of the total United States population. The overlap, however, is small with only about 50% of the “rural” population residing in “nonmetro” counties.

- In **Canada**, the “official” definition of “rural” applies to individuals that live outside centres of 1,000 or more population. One third of these “rural” individuals are living within the commuting zone of “larger urban centres” (specifically, Census Metropolitan Areas with an urban core population of 100,000 or more or a Census Agglomeration with an urban core population of 10,000 to 99,999). Thus, these individuals are “rural” in the sense of living outside a centre of 1,000 or more but, from a labour market perspective, they are living within commuting distance of a larger urban centre. From this perspective they might be classified as “metro”.

As these few examples show, there is more than one “correct” definition of rural. National definitions are continuously under debate and are in fact adjusted from time to time, reflecting, for example, changes in socio-economic and administrative structures or in mobility and communication (OECD, 1996).

Since the review of national approaches showed that rural is often considered as the corresponding residual to “urban”, studies have been conducted into whether the OECD could base its definition of rural on past OECD attempts to describe urban.

OECD statistics on urban population revealed the following results:

- Two different approaches to measuring “urban” can be identified: one focusing on Urban Communities, the other dealing with Urban Areas and their Urban Centres;
- Population size was the decisive criterion in both approaches;
- The share of “urban” population reported by the two projects differs considerably;
- The ranking of OECD Member Countries by share of urban population varies according to the sources used.

The limitations of these statistics, at least for the purposes of rural analysis, can be demonstrated by a few examples. According to the OECD Urban Affairs statistics, only 18% of the Dutch population live in urban areas – the Netherlands being the most densely populated Member Country in the OECD – whereas the highest share of urban population is attributed to Canada (50%) and Greece (38%). In contrast, according to the Social Indicators statistics, Sweden and Denmark are ranked amongst the most urban OECD Member Countries, with urban populations of more than 80%. Italy with 53% and the Netherlands with 66% show up as being the least urban countries (OECD, 1996).

The definitions used may be considered reasonable for urban analysis. For rural analysis they seem to be a false starting point. Three main conclusions can be derived from this short review:

- “Rural” cannot be well defined as the residual of “urban”;
- Population size alone is not a sufficient criterion for describing “rural”;
- Statistics that are not based on commonly applied definitions tend to produce seriously inconsistent results (OECD, 1996).

### *Territorial coverage*

There are various reasons why it is appropriate to study the entire territory of the Member Countries and not just their rural parts. Even when focusing on rural analysis, the underlying territorial database should be structured neutrally, in such a way that it can also be used for other purposes, such as for urban or regional statistics. The database should, in principle, allow for **alternative groupings** of areas according to multiple analytical needs.

Also, from a purely rural perspective, there are good reasons for covering the entire territory. Rural analysis relies on the ability to describe the differences and the interrelationships between the rural areas and the other parts of the country. Only if data is available for all parts can consistency of results be confirmed (OECD, 1996).

#### *Hierarchical levels*

Within Member Countries, the OECD scheme distinguishes two hierarchical levels of geographic detail:

- Local community level - At this level, the territorial grid is very detailed. It consists of small, though not necessarily the smallest possible, basic administrative or statistical units. Rural analysis is usually based on these local units when it is concerned with characteristics of “homogeneous” areas that can be classified as being **either rural or urban**.
- Regional level - Here the territorial grid is less detailed. The geographic building blocks are larger administrative units or functional zones, such as provinces or labour market areas. At this level, the emphasis of rural analysis is on functional relations and on the wider context in which rural development takes place. Regions can usually be characterized only as being more or less rural.

This distinction between two hierarchical levels of territorial detail is central to the conceptual approach. Without this distinction, it would be impossible to accurately describe the complexity of rural problems in their various national and regional contexts. A too narrowly designed scheme for territorial analysis would not **properly reflect the diversity** of analytical and policy perspectives concerning rural development both within and between Member Countries.

Within Member Countries, local and regional administrations perceive rural issues and implement rural policies mostly with reference to the geographic detail at the local community level. National, as well as supra-national administrations often deal with rural issues at the more aggregate regional level (OECD, 1996).<sup>1</sup>

#### *Criteria for classification*

For the purpose of rural analysis, the geographic units must be grouped into different types. In doing so, it is crucial not to confuse two logical steps:

- Identify the object of observation – rural population and area;
- Describe their status and development.

Since rural is about people and territory, the OECD selected population density, calculated as inhabitants per square kilometre, as the most relevant and practical criterion for identifying **rural at the level of local communities**. Population density reflects characteristics of settlement, distance and even intensity of communication and land use.

**Population density** is a concept that is both intuitive to users and simple for providers of rural indicators in all Member Countries to calculate. Whatever the specific national or regional contexts may be,

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<sup>1</sup> In total, the territory of the 24 OECD Member Countries has been structured into more than 50,000 local communities and over 2,000 regions (OECD, 1996).

rural areas will always have a lower population density than urban areas. Contrary to the population size criterion that is applied in most national definitions, the use of population density as the classification criterion for local community units neutralises some of the distorting effects of the differences in the size of these units.

Population density also has the advantage of being policy neutral. It does not refer to any specific perception of rural problems and potentials. In an OECD-wide context rural cannot automatically be considered as in decline, poor, agriculture-based or peripheral.

Once rural is neutrally defined, the performance of rural areas can be measured by the use of indicators. With descriptions provided by the indicators, it may be of interest to create problem- or policy related - typologies. This should not be confused, however, with the question of what "rural" is. It would be misleading to embed preconceived outcomes of rural analysis in the very definition of rural.

To distinguish between rural and urban communities, not only must the classification criterion be selected but also a quantitative threshold has to be determined. The density threshold was set at 150 inhabitants per square kilometres for Europe, North America, Australia and New Zealand, and 500 inhabitants per square kilometre for Japan. Setting thresholds always involves some arbitrary judgment. The decision to use 150 (in the case of Japan 500) as the dividing line was, however, based on a series of considerations.

The analysis of the national distributions of local communities by density class showed that for most countries changing the threshold to 100 or 200 inhabitants per square kilometre would not lead to major changes in the share of the rural population. Only for a few countries would the ranking by share of rural population be different.

Under the OECD's working definition, rural areas are homogeneous in one dimension: their density is relatively low. This does not mean, of course, that their problems and perspectives are homogeneous. On the contrary, rural areas in the OECD are heterogeneous in several dimensions and it is an important task to understand this diversity further. The differences cannot, however, be explained only by the characteristics of the rural areas themselves. They often result from the type and intensity of relationship the rural communities have to other places in the wider region of which they are a part (OECD, 1996).

### III.1.3 European Union

So far the EU does not have a harmonized definition of what is rural. In a Eurostat working paper it was proposed to use population density alone as the distinguishing factor of 'rural' with a threshold of 200 inhabitants per square kilometre (Vidal *et al.*, 2001). Had the OECD definition of 150 inhabitants been used, for example, over fifty per cent of the Nomenclature of Territorial Units for Statistics (Level Three) (NUTS 3) regions would have been excluded from the analysis.<sup>2</sup> In some respects, therefore, 200 inhabitants per square kilometre represented a compromise between the various definitions of 'rural' and the data available. From 455 NUTS regions at the NUTS 2 or 3-level comprising the entire territory of the EU, 355 were included in this analysis (Vidal *et al.*, 2001). If the 150 inhabitants per square kilometre approach is applied to the resulting 1,214 NUTS 3 regions in the EU 25 and if 2001 census data is mostly used (for 59 NUTS 3 regions 1991 data had to be used), the following result was obtained:

<sup>2</sup> In principle, all variables available at Eurostat refer to the Nomenclature of Territorial Units for Statistics (NUTS [1995 and 1999]). In order to ensure that regions of comparable size are analysed, the statistical data refers to NUTS 3 level, except for Germany, Belgium and The Netherlands where data is related to NUTS 2 regions (Vidal *et al.*, 2001).

- 385 NUTS 3 regions (32%) are classified as “predominantly rural”;
- 424 NUTS 3 regions (35%) are classified as “significantly rural”;
- 405 NUTS 3 regions (33%) are classified as “predominantly urban” regions.

However, another official EU spatial concept exists for the Labour Force Survey (LFS) and will also be used for the Survey on Income and Living Conditions in the EU (EU-SILC). This concept is called “Degree of urbanization.” It distinguishes between densely, intermediate and thinly populated areas. The different areas are defined as follows:

- a. Densely populated area: contiguous set of local areas (communes) with a population density of at least 500 inhabitants per square kilometre and a total population of 50,000 or more.
- b. Intermediate area: contiguous set of local areas (communes) with a population density of at least 100 inhabitants per square kilometre and a total population of 50,000 or more or being adjacent to a densely populated area.
- c. Thinly populated area: contiguous set of local areas (communes), not belonging to a) or b).

As long as no official definition is available, Eurostat will partly base its work on this concept.

In the Hay report (see Chapter V), it is also suggested that only data at a NUTS 3 level or lower (NUTS4/Local Administrative Unit 1 (LAU 1) or NUTS5/Local Administrative Unit 2 (LAU 2) should be used. Another option is to further categorize into **rural and non-rural NUTS 3 regions**. This could result in even more representative NUTS3 data, when combined with a population density threshold (Hay, 2002). However, it has to be kept in mind that certain urban centres fulfil important functions for their rural hinterland and vice versa. In other words, functional interdependence might be present. Such “country towns” should be covered by the term rural.

In summer 2004, in the context of the preparation of the post 2006 programming period for rural development programmes, the Director General for Agriculture (DG AGRI) made an attempt to use land cover data to distinguish rural from non-rural areas. The importance of agricultural land, forests and natural areas for land use in the EU derives from the fact that combined they constitute 90% of the territory of the EU 25. In order to link to a territorial administrative unit and illustrate the potential policy area in the EU 25, the land cover approach was applied at the ‘cantonal’ (in France) or communal level (LAU 1 or 2, or NUTS 4 and 5). Municipalities which had at least 90% of their territory classified as agricultural, forestry or natural were flagged as rural. Areas with more than 10% of their territory not belonging to agricultural land, forests or natural areas were classified as non-rural or urban municipalities (EC, 2004).

### III.1.4 FAO

Rural development has for many years been recognized as an essential element in the eradication of poverty, hunger and malnutrition. The World Conference on Agrarian Reform and Rural Development (WCARRD) held in Rome in 1979 provided the impetus for the work on rural development statistics for the next decade. The World Conference recommended under Section ID (i) dealing with monitoring and evaluation that countries:

- Collect on a regular basis quantitative data and develop appropriate indicators on a number of specific items pertaining to the progress of agrarian reform and rural development;
- Establish benchmarks relating to the indicators for the years around 1980; and report on changes pertaining to these indicators at every other FAO biennial Conference.



The Programme of Action also recommended that the United Nations organizations, with FAO as the lead agency, consider the adoption of specific measures to assist countries in the above-mentioned tasks.

The FAO Statistics Division has started work on reviewing the underlying definitions and statistical frameworks for evaluating and monitoring rural development. Current work is focusing on developing a definition of rurality that provides a better basis on which to develop indicators. Current definitions focus on population related concepts and these definitions are proving to have little value in developing countries where spatial concepts are more important in evaluating and monitoring progress towards the overall goal of measuring rural welfare. In this context, the FAO is developing a rural definition that uses spatial aspects of rurality on a rural - urban continuum concept. Indicators which use distance as a dimension will be evaluated in the context of creating a statistical framework for rural development, i.e. distance to markets, employment, health services, education etc. The FAO rural development statistical framework will include between 15 and 25 indicators.

## III.2 Typologies

### III.2.1 OECD

A **typology of regions** is based on their degree of rurality according to the share of their population living in rural communities. The typology selected by the OECD follows a two-step procedure. In the first step communes are divided into rural and non-rural depending on their population densities using the figure of 150 inhabitants per square kilometre as the threshold value. The second step qualifies the regions (on NUTS3 level) as follows:

- **Predominantly rural** – more than 50% of the population in rural communities;
- **Significantly rural** – between 15 and 50%;
- **Predominantly urban** – below 15% (OECD, 1994).

Rural areas within each type of region retain the defining characteristics of their rurality – low population density – but they differ with regard to the regional context in which they are placed.

The **criterion** used to create the typology at the regional level is the share of the population of the region living in rural communities, as defined above. Thus, the typology reflects the **degree of rurality** of the whole region (OECD, 1996).

About a third of the OECD population lives in rural communities that cover over 90% of the OECD territory. About a quarter live in predominantly rural regions (OECD, 1994).

#### *Refinements*

The geographic scheme shown here can serve as a tool to structure the OECD territory and generate internationally comparable data. No doubt, however, it could and should be refined and improved in the course of future work. The following have already been discussed extensively:

- The interdependence of the size of the geographic units and classification threshold in defining rural;
- The options for alternative or more comprehensive sets of classification criteria;
- The implications of selecting modulated rather than uniform thresholds (OECD, 1996).

The descriptive quality of the results generated by the OECD scheme not only depends on the selection of the classification criteria and thresholds but also on the detail of the territorial grids to which they are applied. With regard to this interdependence in the choice of the geographic units and the thresholds, it was concluded that efforts should be concentrated more on establishing equivalent grids than on modulating thresholds (OECD, 1996).

It is evident that the sub-national units and the characteristics of the territorial grids vary among Member Countries. In an international context, however, the **equivalence of territorial grids** cannot simply be judged on average data for population and area. The choice of grids should always reflect what is considered a reasonable regional or local community context for rural analysis and policy. Not surprisingly, the perception of what might be the appropriate area for territorial units differs considerably between countries like Australia or Canada at the one extreme and most European countries or Japan at the other.

Topography, history and administrative tradition, language or other cultural distinctions have often created territorial entities which are small in area and population but which are nevertheless appropriate units for description of rural problems and policies. In any case, in selecting the territorial grids, a balance must be found between the aim of reflecting diversity and the risk of ignoring important functional relations.

Whereas at the local community level all Member Countries applied a single criterion for the classification of geographic units (**population density**), at the regional level, in addition to the main criterion (**regional share of rural population**), a secondary criterion (**size of the urban center**) was used. Regions with a centre of more than 500,000 inhabitants are usually better characterized as predominantly urbanized. With an urban centre of more than 200,000 inhabitants, it becomes reasonable to classify regions at least into the intermediate category of significantly rural regions.

The additional criterion of urban centre size shifts the distribution by type of region towards the urbanized end. At the other extreme, for regions with a very low density – below ten or even five inhabitants per square kilometre – it might be reasonable to create an additional category or a sub-category of the predominantly rural areas. The characteristics and perspectives of these **very low density regions** - mostly located in Australia, Canada, and parts of the United States but also in the northern parts of Scandinavia - will probably be quite distinct from those of the predominantly rural regions in the EC. In addition, these regions are usually also very remote from any urban agglomerations. Since, this fourth type of region would probably only be relevant for a limited number of Member Countries, it was decided not to introduce it in the tables of this Handbook. Further details could, however, be of interest in future stages of the Project's work.

In the attempt to apply a common approach to all Member Countries, particular attention was paid to the specific conditions of the **Japanese rural areas**. Japanese farm structure, and, as a result, agricultural population density, is very distinct from that of other OECD Member Countries. Japan is not only one of the three OECD countries where average national population density exceeds 300 inhabitants per square kilometre, but, in addition, its settlement pattern is extremely diverse. While the population tends to be concentrated in certain parts of the country, other parts remain unpopulated. Mountains and islands create many natural barriers that limit accessibility. After intensive explorations, it was decided to use the same criteria and methodologies but to apply a higher density threshold of 500 inhabitants per square kilometre (OECD, 1996).

*Some results: Rural communities – population and area*

About one third of the total OECD population (250 to 300 million people) are living in rural communities, occupying over 90% of the territory. National shares differ, of course, ranging from a rural population of just under 10% in the Netherlands and Belgium to about 60% in Finland, Norway and Turkey while the rural area varies from about 35% to almost 100%. For most Member Countries, the results for rural population and area as defined by the Project differ from those based on national definitions. They are, however, intuitive in an OECD context where international comparability is necessary

In some Member Countries, the rural area is very large but only a small fraction of the population lives there. In others, the rural population is large and more equally distributed. Whereas for the OECD as a whole the ratio of the rural-to-urban population is about 1:3, it is less than 1:2 in Turkey or Norway and as much as 1:5 in New Zealand (OECD, 1996).

*Three types of region – degrees of rurality*

Table III.1 shows the spatial distribution of total population and area by the three types of regions. On average, one quarter of the OECD population dwell in predominantly rural regions. These are those regions where the majority of people live in rural communities. At the other extreme, about 40% of the OECD population is concentrated in 3% of the territory in predominantly urbanized regions. The remaining one third inhabits the significantly rural, intermediate regions.<sup>3</sup> It should be remembered that even in the predominantly urbanized regions a certain share of the population, up to 15%, live in rural communities and that in the predominantly rural regions part of the population live in urban places (OECD, 1996).

Information on the differences in the territorial distribution of population between the three types of region provides another insight into the spatial organization of Member Countries. The graphical presentation in the form of a triangle in Figure III.1 gives an overall impression of the national differences in the degree of rurality at the regional level.

For many OECD countries - in particular the Netherlands, Belgium, Germany, the United Kingdom and Switzerland - the population share increases from predominantly rural to predominantly urbanized regions. For Austria and the Scandinavian countries, however, the opposite is the case. Here, less than a quarter of the population live in predominantly urbanized regions. In other Member Countries - France and Spain, for example - the largest share of population is in the intermediate, significantly rural regions. Conversely, Ireland, Iceland, Greece and Portugal and also Canada and Australia have a dual structure with a greater share of their population inhabiting the rural and urban extremes and a smaller fraction living in the intermediate regions.

Even this simple comparison reveals certain commonalities and differences in settlement pattern amongst Member Countries. It facilitates a better understanding of their perceptions of rural and their respective policy approaches (OECD, 1996).

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<sup>3</sup> The OECD now uses the term “intermediate” instead of “significantly rural”.

**Table III.1**  
**Typology of regions by degree of rurality:**  
**Shares of population and area in national totals\***

Country	Population			Area		
	Predominantly rural regions	Significantly rural regions	Predominantly urbanized regions	Predominantly rural regions	Significantly rural regions	Predominantly urbanized regions
	National total = 100			National total = 100		
Australia	23	22	55	92	8	0
Austria	40	39	22	71	28	1
Belgium	2	17	81	15	28	57
Canada	33	23	44	95	4	1
Denmark	39	38	23	68	31	1
Finland	47	32	21	83	16	1
France	30	41	29	61	34	5
Germany	8	26	66	19	39	42
Greece	47	18	35	81	16	3
Iceland	35	8	57	75	24	1
Ireland	62	-	38	91	-	9
Italy	9	44	47	26	54	20
Japan	23	34	43	59	33	8
Luxembourg	-	100	-	-	100	-
Netherlands	-	15	85	-	34	66
New Zealand	-	61	39	-	95	5
Norway	51	38	11	84	16	0
Portugal	35	24	41	81	13	6
Spain	19	46	35	55	39	6
Sweden	49	32	19	88	10	2
Switzerland	14	25	61	54	29	17
Turkey	58	30	12	82	17	1
United Kingdom	15	17	68	52	22	26
United States	36	34	30	85	10	5
EC average	17	31	52	49	34	16
OECD average**	<b>28</b>	<b>32</b>	<b>40</b>	<b>87</b>	<b>10</b>	<b>3</b>

Source: OECD. "Creating rural indicators for shaping territorial policy". Paris, 1996.

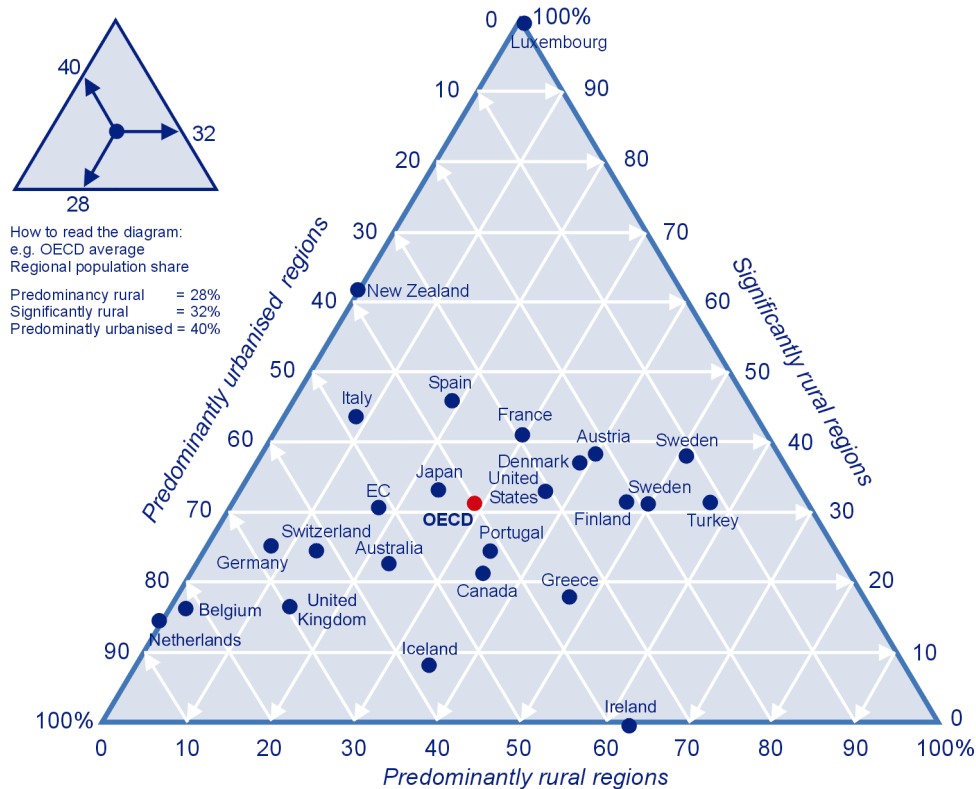
"Rural" communities = local communities with population density below 150 inhab./km<sup>2</sup>, 500 inhab./km<sup>2</sup> in the case of Japan. For explanation see Annex 2.

Typology of regions according to the share of rural population: "predominantly rural" = more than 50%; "significantly rural" = 15-50%; "predominantly urbanized" = below 15%.

\* Calculations based on most recent data available.

\*\* Japan not included; see note above.

**Figure III.1**  
**Distribution of population by type of region**  
**(Regional populations share in national totals,%)**



Source: OECD. "Creating rural indicators for shaping territorial policy". Paris, 1996.

*Two-level approach – an explanation*

Since the use of two levels of geographic hierarchy is central to the analytical concept, it seems appropriate to explain in further detail the importance of taking such an approach.

The **appropriate level for territorial analysis** always depends on the question under review. If, for example, territorial differences in employment opportunities are to be assessed from an economic policy perspective, information should be made available at the regional level. In fact, unemployment rates are usually reported at this level rather than at the local community level. The implicit premise is that, within reasonable distances, workers should be prepared to commute between their place of residence and their place of work. This may imply commuting from a rural to an urban area.

It would not be a realistic rural policy objective to provide jobs for rural citizens only in their own, or even only in rural communities. A reasonable aim would be for rural citizens to find jobs within an acceptable commuting distance from where they live. The place of work could well be urban but it should be within the same region or labour market area. The distinction between three types of region, however, allows an analysis of job opportunities under the different regional conditions.

The fact that unemployment rates at the local community level are usually not considered as an appropriate measure for judging economic policy performance does not, of course, mean that such figures

would not be of interest in a different policy context. From the perspective of social policy, for example, it might be relevant to know whether there are rural/urban differences in crime and suicide rates and to what extent these rates correlate with unemployment.

A **numerical example** may help to underline the advantages, or even the need for, a two level approach. In Germany, the total population grew by 1.7% from 1980 to 1990. At the local community level, when growth is measured for both the total rural and the total urban populations, the picture looks rather bad for rural; the growth rate for the urban population was almost double that for the rural population (1.9% cent as compared with 1.0%). At the regional level, however, it was the predominantly rural regions, which had the highest increase (2.2%), much higher than that in the significantly rural regions (0.6%) and even slightly larger than in the predominantly urbanized regions (2.1%) (OECD, 1996).

This example shows clearly that the results of rural analysis and the consequent policy conclusions can be quite different, depending on the choice of the territorial level at which rural conditions are analysed. Taking the example even further, both aggregated views may be misleading. Only by pursuing the analysis at both levels, thus allowing the six different types of area to be distinguished, can a clearer picture be gained.

A closer look shows that the good performance of the predominantly rural regions is due to a very high growth rate in their urban communities; at 6.0 per cent they had by far the highest increase in population. But also the rural communities in the predominantly rural regions did better (1.5%) than the average rural communities (1.0 %) and almost attained the average growth rate of the national total (1.7 %). The fastest growing rural communities were those in the predominantly urbanized regions (1.8 %) almost reaching the growth rate of the urban communities in those regions (2.2 %). The stagnating rural communities were in fact those in the intermediate, significantly rural regions (0.2 %). Within these regions, growth in the urban communities was not much better either (0.8 %) (OECD, 1996).

These few results generated for only one simple but important indicator - population change - may give an idea of the complexity of rural development issues and of the need for different strategies for different rural areas, depending on their specific regional contexts (OECD, 1996).

### III.2.2 European Union

So far no official typology for the European Union exists despite several attempts to create one in the past - for example, adapting the OECD typology for certain purposes (Vidal *et al.*, 2001).

In the *Proposal on Agri-Environmental Indicators* (PAIS) report (see Chapter V), it is said that if one wants to move away from typologies based on spatial criteria, there are more sophisticated rural typologies based on structural approaches that take into account a variety of characteristics to describe rural areas.<sup>4</sup> A number of multivariate analyses of a broad range of socio-economic indicator variables have been used to develop more sophisticated definitions of rurality at national and European levels. Reference is also made to a multivariate index of rurality, based primarily on Census data (Bryden, 2001).

Similar structural approaches to rural-urban classifications have been used for targeting resources to rural areas. In demarcating areas for Objective 2 Structural Fund assistance, for example, **rural areas are**

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<sup>4</sup> The overall objective of the PAIS project is to contribute to the on-going development of Agri-Environmental indicators of the European Commission, as outlined in COM (2000) 20 and COM (2001) 144. A specific focus of the PAIS project is directed at the following three indicator themes: Landscapes, Agricultural Practices, and Rural Development.

defined by either (low) population density or a percentage share of the workforce employed in agriculture (Bryden, 2001).

DG AGRI tried recently to use the OECD population density method and a land cover method (using Coordination of Information on the Environment (CORINE)) to come up with a first proposal combining the two approaches. However, for the time being this has to be seen as a pure academic exercise, which probably will be continued (Vard *et al.*, 2005).

The relationships between rural and urban areas extend beyond labour market flows however, as explored by the Study Programme on European Spatial Planning (SPESP). They include home-work relationships, rural areas as urban consumption landscapes, rural areas as suppliers of natural resources for urban areas and central place dynamics. The SPESP identifies **a six-fold typology of European territories** based on population statistics and takes its point of departure from urban and rural relationships, although it utilizes normative regions. Using NUTS II and III data, territories are distinguished on the basis of urbanization rate, rural population density, the degree of contrast in the distribution of settlement size, average distance to urban settlement, the primacy of the largest city and the size of the largest centre. The study stresses that more refined typologies are needed (NUTS IV and V) to be relevant for the analysis of sparsely populated areas where relationships are formed between small and medium-sized towns and rural areas (Bryden, 2001).

### III.3 Requirements of indicators and their assessment

#### III.3.1 Introduction

Indicators are statistical variables that help to transform data into relevant information. Indicators have meaning within defined conceptual frameworks and for specific analytical or administrative purposes. To provide meaningful information, they have to be interpreted in the context of these frameworks and purposes.

Indicators can be powerful tools for analysis, planning and monitoring if the trade-off between their strength - reduction of complexity - and their weakness - (over-)simplification - is carefully considered. Thorough interpretation, therefore, is a necessary prerequisite to any reasonable indicator use. Often indicators can be interpreted adequately only as part of a more comprehensive set of indicators.

Without explicit reference to a specific analytical task or policy objective, indicators are just statistical data or variables that provide only potentially useful information. The underlying logic relating certain statistical data to specified purposes must be based, at the very least, on a hypothesis, if not on a more elaborate theory or model. In fact, indicators can often be seen as a first attempt to structure complex interrelationships that may, in the end, help to formulate more sophisticated theories (OECD, 1996).

Indicators on rural development need to be based on **(1) published statistics** that are **(2) consistently collected** in **(3) comparable areas**, using the **(4) same unit** of measurement and based on a **(5) clear definition**. Indicators should also be sensitive to changes and trends over time that can inform future policy direction. To meet these demands, descriptive indicators for rural development often involve re-valuing well-known concepts and data sets in the rural policy context. In some cases, this process is accompanied by a definition of 'rural' (Bryden, 2001).

In particular the following three questions should be addressed in the selection process:

- What are the basic requirements for the construction of any indicator?
- What are the specific rural development dimensions that have to be captured by rural indicators?
- What are the purposes of collecting and providing international indicators? (OECD, 1996).

In this context particular attention must be paid to the quality of statistical data and their sources, availability of metadata and suitability for international benchmarking

### III.3.2 OECD

The OECD has formulated the following requirements on rural indicators:

- **Communication:** OECD rural indicators shall enable Member Countries to better communicate and discuss their national rural development problems and prospects.
- **Comparison:** OECD rural indicators shall facilitate the identification among Member Countries, of similarities and differences in rural development based on comparable statistics, so that a fruitful exchange of views and experience is possible.
- **Cooperation:** OECD rural indicators may even encourage Member Countries to cooperate in the design and assessment of their rural, development strategies.

The Project on Rural Indicators will provide information on sub-national (rural) areas in a multinational (OECD) context. It aims to establish a consistent information basis for systematic general description as well as for cross-national analysis of rural conditions and trends, which form the background for the design, implementation and impact of rural policies in OECD Member Countries.

OECD indicators should not be considered as imposing uniform concepts at the national level but rather as helping to provide a common language that allows international communication of similarities and differences. To meet this task:

- The statistics on which the calculation of indicators is based must be harmonized and comparable to the degree needed to make international communication meaningful.
- The results generated from these sources should be sufficiently differentiated and specific to the degree that they adequately reflect the whole range of territorial variety and distinctiveness.

From the above considerations the OECD derived three basic principles, which are important for any attempt to develop and operationalise a set of indicators:

- **Relevance:** To be relevant, indicators must serve a **clearly defined purpose**. Thus, the analytical and/or policy objectives for developing and using the indicators should be specified. Consideration of the relevance of indicators always implies an identification of their potential users. For those indicators that are designed to shape, implement or monitor policies, relevance also implies taking into account the administrative context, whether (inter-)national, regional or local, in which they can usefully be interpreted.



- **Reliability:** To be reliable, indicators must have a **sound scientific basis**. The reliability of indicators and their underlying analytical concepts depends on the quality of the theoretical foundations or models on which they are based: Validity of measurement must be ensured. As far as possible, the explanatory power of the indicator should be intuitive to potential users and not only to trained specialists in the field. This is more likely to be achieved if the measurement is as direct and close as possible to the observed phenomenon.
- **Realizability:** To be realizable, indicators must **be built on available statistical data**. Availability depends on the degree to which the analytical concept can be operationalized, on the type of data source, and on the possibility of assembling data within reasonable limits of time and resources. Realizability thus focuses on the producers of indicators and on the feasibility of data collection and processing (OECD, 1996).

### III.3.3 European Union

In the PAIS report a set of criteria very similar to that of the OECD is used for assessing indicators. It can be summarized as follows:

- **Sensitivity:** An indicator should be able to respond to a broad range of conditions within an appropriate time scale and geographic scale.
- **Analytical Soundness:** An indicator should be based on sound scientific methods.
- **Comprehensibility:** An indicator should be in a format that the target audience can understand; for example it should be non-technical if the target audience is the general public.
- **Relevance:** The indicator should be relevant to the desired goal, issues or mission. This is particularly the case for policy related indicators. For descriptive indicators the indicator is assessed in the particular light of the rural development issue to be addressed.
- **Reference value:** The indicator should have a guidance level or benchmark against which to measure change over time.
- **Generality:** The applicability of the indicator to the European level.
- **Data availability:** Indication of the availability of the data at the European level.
- **Conceptual Requirements:** Indication of how the conceptual basis of the indicator may need to be developed (Bryden, 2001).

Eurostat will exploit all available data sources and existing surveys. At the moment the focus is on exploiting the Labour Force Survey. It is also proposed to add questions and the Labour Force Survey coding to existing surveys.

Another approach to be discussed with EU Member States is to build up a data network within Member States. Member States should establish either a database for a number of variables (to be defined) or link existing databases in order to be able to extract the necessary data on NUTS 5 (LAU 2) level, if possible. The sources of these data are administrative registers or census data. This would allow Eurostat to react in a flexible manner, once an official harmonized definition for “rural areas” is agreed.

### III.3.4 FAO

The World Conference on Agrarian Reform and Rural Development (WCARRD) held in Rome in 1979. The following properties were considered necessary for the selection of socio-economic indicators for the purpose of monitoring activities:

- Relevant;
- Valid;
- Objective and verifiable;
- Sensitive;
- Feasible;
- Timely; and
- Simple.

If an indicator was weak in one of these properties a secondary indicator was also included.

## III.4 Themes and set of indicators

### III.4.1 OECD

If the selection of rural indicators must be guided in part by the principles applicable to any set of indicators, it must be driven even more by characteristics that are specific to rural development. There are three basic dimensions of rural development, which any reasonable assessment of rural conditions and trends must take into account:

- ***Territory***: Rural development is a **spatial concept**. It deals with territorial differences in problems and perspectives, options and opportunities. Such differences can be considered positively (diversity) or negatively (disparities). In either case, the territorial distribution determines the overall performance and viability of economic, social and environmental systems as well as the effectiveness and efficiency of related policies.
- ***Themes***: Rural development is a **multisectoral concept**. It is concerned with a wide range of demographic, economic, social and environmental issues. It stresses the importance of a cross-sectoral perspective and often provides an appropriate framework for the horizontal integration of various activities and policies.
- ***Time***: Rural development is a **dynamic concept**. It is concerned not with the mere passing of time but with concrete, historical dynamics which are reflected in changing technological options, economic structures, or social attitudes and perceptions.

Any set of rural indicators, therefore, has to provide information on a variety of economic and societal subjects. It has to do so in a territorially differentiated manner and it should be capable of reflecting changes over time (OECD, 1996).

Based on the above geographical definitions, the set of basic rural indicators is classified into four main themes, see Figure III.2.

For each region a “**development dimension**” can be defined. Each region can then be classified as a **dynamic region** or a **lagging region**, implying performance above and below average, respectively (OECD, 1996).

**Figure III.2**  
**OECD's basic rural development indicators classified by themes**

<b>Population and migration</b>	<b>Social well-being and equity</b>
Density	Income
Change	Consumption
Structure	Housing
Households	Health
Communities	Safety
	Culture and recreation
	Communications
<b>Economic structure and performance</b>	<b>Environment and sustainability</b>
Labour force	Topography and climate
Employment	Land use and its change
Employment and enterprise structure	Habitants and species
Sectoral share	Soils and water
Productivity	Air quality
Investment	

Source: OECD (1994). "Territorial Indicators of Employment. Focusing on Rural Development", OECD Paris, 1996.

### III.4.2 European Union

In the PAIS report the following key rural development issues are defined:

- **Social well-being – Quality of life:** Environmental features, service availability, housing, safety, income and deprivation.
- **Economic structure:**
  - General:* Sectoral shares, enterprise, investment, labour force attributes, performance and competitiveness, innovation, business infrastructure.
  - Primary sector activity:*
    - Multifunctionality of agriculture, diversification and productivity, financial resources.
  - Tourism sector activity:*
    - Physical features of consumption, physical features of supply, employment features and other monetary features.
- **Demographics:** Population density, change and structures, commuting patterns, cultural issues, educational attainment (Bryden, 2001).

In the Hay report (2002), the main aim of which was to characterize the spatial components of rural areas within Europe through the development of a set of indicators, the following ten general themes were proposed:

- Demographic characteristics and changes;
- Employment and human capital;
- Welfare, income and quality of life;
- Agriculture and structural change;
- Multifunctionality of agriculture;
- Rural economic diversification;
- Innovation and enterprise;
- Policy;
- Rural environment and landscapes;
- Infrastructure and peripherality.

Based on the experience from the Hay report and the PAIS project, Eurostat will launch a data collection exercise involving, if possible, all Member States in order to collect data on the following themes:

- Demography - Migration;
- Economy - Human capital;
- Economic structure and performance (primary sector);
- Accessibility to services - Infrastructure;
- Social well-being.

In total, data for about 25 indicators will be collected from Member States in the first phase. It is planned to enrich the list of indicators in further phases covering topics like environment, landscape and the competitiveness of agriculture.

### **III.4.3 The World Bank**

Rural poverty is a pervasive problem in many developing countries. There is therefore a need to systematically monitor its reduction. To this end, the World Bank uses a core set of indicators that captures the myriad of aspects of rural development and poverty. This template of indicators is intended to be used by policymakers in assessing the performance of their country's rural development programs (see Annex 5 for the core set of indicators). Unfortunately, disaggregated urban-rural data are rarely available. In most cases national aggregated data are used.

In developing countries some 70% of the poor reside in rural areas. Therefore, a country in this group cannot expect to raise itself out of poverty without specifically addressing poverty in rural areas (World Bank, 2000).

The World Bank has identified a number of key factors, which drive improvements in rural well-being, and grouped them into the following categories:

1. *Improvement in the rural economy.* This necessitates improving agriculture productivity, fostering non-farm activities, expanding the market base, fostering the private sector, and developing rural infrastructure.
2. *Sustainable natural resource base.* In most countries, rural economies are dominated by agricultural and natural resource-based activities. Many producers are already concerned about the deteriorating land and water base in their areas, and public awareness of

environmental issues adds urgency to the search for solutions to conservation issues. There is therefore a general consensus that unless the natural resource-base is managed in a manner that ensures its continued productivity and environmental quality, growth in the rural economy will not be sustainable.

3. *Fostering an enabling environment for broad-based and sustainable rural growth.* An appropriate overall macroeconomic policy and a supportive institutional framework are essential to growth and poverty reduction, and for the success of development activities in rural areas. Policy frameworks and good governance that enable rural people to effectively influence public decisions that affect them are needed. Public investments are also more effective if they are provided in a decentralized and participatory way.
4. *Improving social well-being, managing and mitigating risk, and reducing vulnerability.* To improve social well-being and minimize the vulnerability of the rural poor, developing countries should endeavour to improve access to nutrition and health services, help mitigate the effects of HIV/AIDS, increase access to rural education and improve its quality, and help improve food security for the rural poor. To achieve these objectives and foster broad-based growth and sustainable management of natural resources, it is essential to promote inclusiveness and remove barriers that exclude individuals on the basis of gender or ethnicity from economic and social opportunities.

In developing countries, it is expected that agriculture will remain the foundation of the rural economy for the foreseeable future. In sub-Saharan Africa, for instance, agriculture accounts for 30% of GDP, 40% of exports, and 70% of employment (World Bank, 2000). Of China's total population of 1,276 million people, almost 800 million, or 62.3%, are living in rural areas. The first Chinese Agriculture Census showed that as many as 34% of the 230 million rural households were engaged in both agricultural and non-agricultural activities.

Improved productivity in the agriculture sector is therefore essential for economic growth and for reducing poverty whether it is China or sub-Saharan Africa. However, this cannot be done by agriculture alone, which, in particular, the Chinese experience has shown. It has to go hand in hand with important contributions from non-agriculture activities and non-farm rural employment opportunities (Zhiqian, 2002; World Bank, 2000).

In 2001, the per capita net income of Chinese rural households was 2,366 yuan, which was less than one quarter of the urban counterpart. Looking at the expenditure side, rural households accounted for only 25% of total retail sales. On the other hand, it is worth noting the tremendous success in reducing poverty in China - from some 250 million individuals living in poverty to about 30 million in just a few decades.

In China, **agriculture**, **rural development** and **rural residence** are considered three dimensions of an **integrated rural system**, each with a set of core indicators being monitored.

Rural areas in China are defined as a residual to urban areas, which are defined as:

- Cities, where county level government (or higher administrative level) is located, districts directly under municipal government and with population density more than 1500 persons per square kilometre and the extension areas of districts directly under municipal government; and
- Small towns and special areas with non-agricultural population (more than 3,000 persons), including industrial and mining areas and development zones (Zhiqian, 2002).

*Data issues*

The World Bank recognizes that there are considerable data problems not only with the quality and reliability of rural data in many developing countries but also with the non-existence of vital data. Even when data are collected, most are aggregated at the national level with no possibility of breaking this down to urban-rural and regional levels.

The World Bank also stresses that improved monitoring of rural development will require a significant effort in data collection on a long-term basis. It advises against ad hoc surveys because these do not provide consistent coverage of the different aspects of rural development. Instead the World Bank proposes comprehensive household surveys and extended coverage of the agricultural censuses, focusing on family status, access to services, economic activities, production practices, expenditures and social activity. Such census should be complemented by regular panel surveys using sub-samples (World Bank, 2000).

**III.4.4 FAO**

Following the WCARRD, the FAO produced Guidelines on Socio-Economic Indicators for Monitoring and Evaluating Agrarian Reform and Rural Development (1988). The guidelines were the result of extensive collaborative work by UN agencies and countries. The provisional list of indicators was made available to countries for the preparation of their reports on progress in agrarian reform and rural development to the biennial FAO Conferences in 1983 and 1987. The final guidelines were then submitted for comments to the UN agencies through members of the ACC Task Force on Rural Development (1984).

The WCARRD Programme of Action stated that the primary objectives of rural development are the eradication of poverty, hunger and malnutrition. Other contributory objectives include growth with equity, national self-reliance (especially in food), ecological harmony and the conservation of finite resources.

Indicators covering the following goals and areas of concern were selected (see Chapter V for full list):

Poverty alleviation with equity:

- Income/consumption;
- Nutrition;
- Health;
- Education;
- Housing;
- Access to community services;
- Access to land, water and other natural resources;
- Access to inputs, markets and services;
- Development of non-farm rural activities;
- Education, training and extension;
- Growth.

The primary indicators are grouped according to WCARRD goals and areas of concern. Notable omissions from the list of primary indicators are those related to people's participation, including women's participation, as they had not been fully developed at that time. It was noted that not all primary indicators would be relevant or meaningful to a particular country so that countries would have to choose among them and substitute or supplement them as necessary.

A selection was made from the primary indicators of a smaller number of “core indicators” that were considered crucial for monitoring poverty alleviation, relevant to most countries and feasible from the data collection point of view. The “core indicators” cover the levels of living items, including access to essential social services, as well as other indicators pertinent to rural conditions of life. On these indicators, countries were requested to establish benchmarks and report changes to the FAO Conference.

During the 1990's, the FAO Conference discontinued the requirement of countries to report on the WCARRD indicators on a biennial basis. The focus shifted to reporting on under-nourishment. Countries however continue to use many of the indicators established in the WCARRD framework.

In 2003, the United Nations Economic and Social Council – High-level segment focused on rural development. The Report of the Secretary-General, “Promoting an integrated approach to rural development in developing countries for poverty eradication and sustainable development” (2003) provides detailed analysis of the issues facing developing countries. In particular it highlights the following elements of an integrated approach to rural development:

- Strengthening the rural economy;
- Social development;
- Sustainable use of natural resources and protection of the environment;
- Empowerment of the poor as a strategy for integrated rural development.

In summary the report states: *“Accelerated rural development is essential to achieve the internationally agreed development goals, including the millennium development goals. The present report provides policy recommendations on ways to promote an integrated approach to rural development, encompassing the economic, social and environmental dimensions, with a number of mutually reinforcing policies and programmes that address a broad range of issues related to rural development.”*

### III.5 Indicators – use and misuse<sup>5</sup>

There is no general definition of what constitutes an indicator as a special subset of statistical results in any official document at international level that would be applicable to all areas of official statistics. However, the term “indicator” is used with increasing frequency. One reason may be that the terms “statistics” or “statistical results” do not attract as much attention from users and the media as the term “indicator.” The implicit undertone of the term indicator is that it is more than an “ordinary statistic,” such as the size of the population or tonnes of steel produced, and as a result indicators deserve more attention than ordinary statistics.

There are several ways of approaching and defining indicators. The **first** and most evident approach to indicators is that they are simply the combination, through a defined algorithm, of two (or more) statistical results (“numbers”) to form a new derived measure. The simplest form is through a numerator and denominator, e.g. as per capita ratios or percentages or other forms of shares. The two elements may be taken from the same statistics (e.g. as for growth rates), or from two different statistics. The added element of the derived measure, as compared to simply looking at the numerator and denominator separately, is the added degree of comparability; the derived measure eliminates the size effect of the denominator. This is an especially desirable property when comparing across regions or between countries, but it is also important for comparisons over time in economic statistics. With this wide characterization of an indicator, all comparisons over time based on simple indices (with a base period value as denominator) would be included

<sup>5</sup> This section is taken from Brügger (2004).

under this concept. There are more elaborate forms of algorithms to compile derived measures in official statistics, which try to eliminate effects other than size. Examples are age standardisation, constant price aggregates, or seasonal adjustments.

A **second** approach to the term indicator uses a normative interpretation, with the possibility of establishing rankings or league tables if applied to comparisons of regions, countries, or other appropriate units, for the same period.<sup>6</sup> Indicators are those official statistics that allow a statement of “better”/”worse” (including a quantification of the difference), both in comparisons over time and across space. To be an indicator in the first definition is a prerequisite for normative interpretation; however, not all indicators of the first definition lend themselves to a normative interpretation.

While it is important that all users of official statistics, irrespective of their stand on certain policies and priorities, accept them as authoritative measures of reality, this is particularly important for normative indicators. This is the true meaning of impartiality. This principle is also the reason why official statisticians should avoid policy prescriptive comments when disseminating normative indicators.

Normative indicators lend themselves to transformation into rankings or league tables. Opinions differ whether statistical offices, and statistical services of international organizations, should publish rankings, as opposed to a more neutral sequence of tables. Fundamentally, if the indicator is sufficiently robust, and if the data sources are of sufficient quality and comparability, there is nothing that prohibits ranking. Ranking is even used for statistics other than normative indicators, with the purpose of identifying countries or regions that are “outliers” in a certain way and where the ranking deserves further explanation and analysis.

A **third** approach concerns those indicators that cover only a part of a target concept, which remains unmeasured within the framework of official statistics. This type of indicator can be found in areas that lack a common measurement unit such as money in economic statistics, or joules in energy statistics. Many statistical areas lack a common unit of measurement. These include social statistics (for example, health, education, quality of work or crime), environmental statistics and some new phenomena covering aspects of both economic and social statistics such as globalization, competitiveness and the information society. In this approach, the term indicator stands for something broader than what it actually measures.

A **fourth** approach concerns the so-called **synthetic indicators**. These are composite measures of individual indicators designed to give an easy overview of a complex array of indicators or statistics. Different forms and techniques of “weighting” the individual series are used.<sup>7</sup> The need for weighting arises from the fact that either the components are not expressed in the same measurement unit, or refer to different items where there is no obvious method of aggregation (such as prices for different commodities). While there has been some discussion about synthetic indicators in meetings of official statistics, the issue of whether, or under what conditions, such indicators are compatible with the framework of official statistics has not been given much attention.

There are no evaluative problems with synthetic indicators that use **empirical weights**, i.e. weights based on official statistics. Price and volume indices are prime examples of such indicators that are widely used in official statistics. If the single components are themselves produced according to the framework of

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<sup>6</sup> The World Competitiveness Yearbook (WCY) ranks and analyses the ability of nations to create and maintain an environment in which enterprises can compete (Source: <http://www02.imd.ch/wcc/methodology/>).

<sup>7</sup> An obvious example is found in the annual **Human Development Reports** (HDR), which was first launched in 1990. Since the first Report, four new composite indices for human development have been developed — the Human Development Index, the Gender-related Development Index, the Gender Empowerment Measure, and the Human Poverty Index (Source: <http://hdr.undp.org/aboutus/>).



official statistics, the added step of synthesizing them through empirical weighting derived from official statistics is also within this frame, and can add considerable value to the results.

The issue is entirely different with synthetic indicators based on **subjective weights**, be they determined by policymakers, specific users, or based on expert opinions about importance. Many statisticians argue that such subjective weights are not compatible with the principle of impartiality. Official statisticians should therefore not publish such synthetic indicators under the guise of official statistics, even when the individual components are fully part of those official statistics. Aggregating with no assignation of weights is tantamount to giving equal weights to every component, but this equal weighting remains subjective unless it has an empirical or conceptual foundation.

Subjective weighting is especially problematic for international comparisons, because different countries may prefer different weighting schemes, and it is hard to see ways in which an agreement between countries on subjective weights may be reached. In practice, the “experts” from the secretariats of international organizations will impose their own subjective weights.<sup>8</sup>

Apart from their use in resource allocation, the main purpose of such synthetic indicators seems to be to allow unequivocal rankings, given that the separate rankings of each component may lead to different “league tables.” In addition, some of these composite indicators are given bombastic labels. However, rankings produced by official statistics are not analogous to a sporting contest. A synthetic indicator implies the possibility of substitution, i.e. a “bad” ranking in one indicator can be offset by a “good” ranking in another component. In sport, this is indeed possible, but it is unlikely that we would see this substitution between the weakness of a country or region in one aspect, and the strength in another (unless these aspects are part of a common unit of measurement to be found in real life such as in economics). For national policy purposes, it is more important to identify where the strengths and weaknesses of a given country are; averaging them artificially hides this message. In contrast to other forms of aggregates, the simplicity of a single aggregate in this form of indicators is a smokescreen that dilutes the quality of the hard facts of the components by mixing them together with arbitrary subjective valuations.

It is recommended that official statisticians withstand pressures for endorsing synthetic indicators based on subjective weights, and make the components visible. If they are used, the limits of aggregation that are permitted within official statistics have to be made absolutely clear.

Synthetic indicators have become very popular outside official statistics, for comparing countries on corruption, competitiveness, etc., with some components of synthetic indicators being subjective. Official statisticians would undermine the principle of impartiality if they felt pressured by this competition to embark on the same approach.

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<sup>8</sup> A good example of this issue is Transparency International’s annual “Global Corruption Reports,” which contains a number of Corruption Surveys and Indices: The TI Corruption Perceptions Index (CPI), which ranks countries in terms of experts’ perception of corruption; The Global Corruption Barometer is a survey that assesses general public attitudes towards, and experience of, corruption in dozens of countries around the world; and The TI Bribe Payers Survey evaluates the supply side of corruption - the propensity of firms from industrialized countries to use bribes in foreign countries. (Source: [http://www.transparency.org/about\\_ti/annual\\_rep/index.html](http://www.transparency.org/about_ti/annual_rep/index.html)).

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## **IV INVENTORY OF NATIONAL APPROACHES TO RURAL DEVELOPMENT STATISTICS**

### **IV.1 Introduction**

The need for a new set of statistics or for more detailed information on a specific area generally arises from a shift in policy focus. Rural development statistics are no exception. Over recent years, rural development has become an important policy issue in most countries. Rural areas have suffered employment and population losses. With gains in productivity, fewer and fewer people were necessary to cultivate the land and rear animals. In many rural areas, the number of jobs lost in the agricultural industry has exceeded the number of jobs created in other industries, which led many rural residents to leave the countryside and look for jobs in the towns. Migration from the country into the towns gave rise to new economic and social problems both in urban and rural areas. Creating a rural environment that attracts people and businesses helps to solve problems in rural areas and helps to slow down or stop the continuing urbanization of most countries.

In developed countries, the problems in rural areas are increasingly not directly related to agriculture. Especially in countries where agriculture only accounts for a small percentage of both production and employment in rural areas, the main focus of rural policy has started to move away from agriculture towards targeting the wider rural economy and population. On the other hand, in most of the countries in the Commonwealth of Independent States (CIS) and developing countries, rural development has emerged as a distinctive field of policy, practice and research, resulting from a general disenchantment with previous approaches to development planning at national and sectoral levels. This new approach is defined by its concern with equity objectives of various kinds, in the sense that it focuses particularly on poverty and inequality. The term 'rural development' refers to a distinct approach which is at once broader and more specific than 'agricultural development'. It is broader because it entails much more than the development of agricultural production for it is, in fact, a distinct approach to the development of the economy as a whole (Harriss, 1982). The policy issues and their instruments, and hence the indicators for their monitoring, may therefore differ considerably between developed countries, on the one hand, and CIS and developing countries, on the other. This is important to note when discussing an international core set of indicators to monitor rural development.

This shift in policy focus has been recognized in some countries in the name of the departments/ministries. Examples are the Department of Environment, Food and Rural Affairs in the United Kingdom, the Ministry of Agriculture, Rural Development and Fisheries in Portugal, the Ministry of Agriculture and Rural Development in Israel and the Ministry of Agriculture and Regional Development in Hungary. In other countries, the issues of rural development have been added to the responsibility of the ministry that deals with agricultural policy without a change in name. For example, the United States Department of Agriculture covers rural development issues. Alternatively, rural development can come under the responsibility of ministries without a link to agriculture, such as the Ministry of the Interior and Health in Denmark or the Ministry of Industry, Employment and Communication in Sweden or Ministries dedicated to dealing with regional issues such as the Ministry for Regional Development and Regional Authorities in the Czech Republic.

In recent years, international organizations have also taken up work in the area of rural development and its related statistics. Eurostat has recently set up a rural development statistics unit within the directorate that also covers agricultural, food and environmental statistics. In the OECD, rural development statistics are covered by the Territorial Indicators Group. Within the FAO, rural development falls mainly within the

responsibility of the Sustainable Development Section. However, within the FAO, work on rural development statistics has been carried out at least since the World Conference on Agrarian Reform and Rural Development in 1979. Ten year later, the FAO published “Guidelines on Socio-Economic Indicators for Monitoring and Evaluating Agrarian Reform and Rural Development” which, as the title suggests, deals with both agricultural and rural indicators (FAO, 1988).

Regardless of where the responsibilities lie, it has been widely recognized that in developed countries rural development statistics need to look far beyond core agriculture. Rural development statistics have to cover not only the wider economic conditions in rural areas but also social and environmental conditions (see for example Hill, 2002). Getting this wider coverage of rural development statistics right is one of the challenges for statisticians working on the creation of a system of rural development statistics.

## **IV.2 Inventory of national rural development statistics**

In the spring of 2003, the UNECE started a project aimed at establishing an inventory on rural development statistics in Member Countries of the UNECE and OECD. After initial research on the Internet, a questionnaire was sent out to 12 countries (Canada, Czech Republic, Denmark, France, Germany, Hungary, Ireland, Italy, Romania, Sweden, United Kingdom and the United States). A summary of the replies of 11 of these countries was presented at the Meeting on Food and Agricultural Statistics, which was held in Geneva in July 2003.

At this meeting, participants pointed out that rural development statistics should be seen in the larger framework of regional/territorial statistics as demand for statistics on small geographic areas increases. The demand is not limited to rural areas. A system based on statistics for small geographic areas should be built-up which would be flexible and accommodate different definitions and different classifications.

During the discussion, a requirement to better understand policy needs emerged. Rural development statistics provide the evidence-base for rural development policy and therefore policy needs should be at the centre of statisticians’ preoccupations. It was mentioned that with the decoupling of subsidies it is likely that there will be more demand for rural development statistics. It is clear that rural development is much broader than agriculture and that a statistical approach needs to cut across traditional statistical categories of which agriculture is one. The possibility was raised that agricultural statisticians could coordinate rural development statistics, building on their knowledge of agricultural statistics.

Participants also discussed the usefulness of a standard definition of rural. It was noted that it might be difficult and/or not appropriate to have a standard definition due to the differences between countries. Others expressed the need for some kind of standard, pointing out that differences within countries can be larger than those between similar areas of different countries and that demand for internationally comparable data is increasing. There was general agreement, though, that more work needs to be done on an international level both on the definition of rural and on rural development indicators.

As a result, the UNECE sent a questionnaire to all countries that participated in the meeting. Replies were received from 26 countries. The aim of the questionnaire was to establish which organizations are responsible for rural development policy and rural development statistics, what the aims of the rural development policies are as well as how rural is defined and what kind of statistics are available at present. The question of which specific indicators could be used to satisfy the need for internationally comparable

rural development statistics has not yet been addressed by the UNECE project. However, both the OECD and Eurostat have carried out work in this area (see for example OECD, 1994 and Hay, 2002).<sup>1</sup>

The results of three sections of the questionnaire survey are presented here: the definition of rural, the availability of rural development and related statistics and rural development policy. Annex 3 gives a more detailed summary of the replies by individual countries to the 15 questions in the questionnaire.

### IV.3 The definition of rural

For statisticians working on rural development statistics, one of the first questions to ask is ‘what exactly is rural?’ This might seem a trivial question at first but it turns out to be anything but easy to define. The responses to the UNECE questionnaire showed that there is a **large variety of definitions**. In several countries more than one definition is used. In these countries, the policy issue to be addressed determines which definition is used. The differences, both within countries and between countries, relate not only to the different variables used to distinguish rural from non-rural but also to different thresholds and basic statistical units.

There are two main definition types. One is based on variables applied to **administrative areas** such as municipalities or larger areas (such as, for example, ‘Kreise’ in Germany or counties in the United States). The second type is a settlement-based definition, which looks at built-up areas/urban land use irrespective of **administrative boundaries**. The first type is more commonly used than the second.

Both these basic types of definitions then use specific variables to distinguish rural from non-rural areas. For a detailed summary of the definition of rural the reader is referred to Annex 3, questions 2 to 5.

Most definitions in use are a **combination of two or more variables** such as population level and population density or commuting intensity. The variables ‘population level’ and ‘population density’ are used most frequently. **The way these variables are used to define rural areas differ greatly**. In Denmark and the Czech Republic, the number of inhabitants of an administrative area is used on its own. In Germany, the definition is based on the population level of urban centres and the population density of the area surrounding urban centres. In the United States, one definition looks at the population level of urban centres and commuting patterns of the areas surrounding the urban centre. In Switzerland, population level, commuting pattern, population growth rates, built-up area, population/job density and employment in the primary sector are used to delimit agglomerations and isolated towns. All areas outside agglomerations and isolated towns are then considered to be rural. These are but a few examples of how population level and population density are used in definitions of rural areas. Very few countries do not refer to either population level or population density in the definition of rural. One of these exceptions is Romania. In Romania, the ‘rural’ status for a settlement is established by law without explicitly taking into account the demographic size or the population density. Similarly, in Kyrgyzstan, the parliament decides on the status of every settlement.

Even when similar variables are used to distinguish rural from non-rural, the **thresholds applied can be very different**. For the population level of municipalities, for example, this threshold ranges from 200 (in Denmark) to 2,500 (in Estonia). Several definitions look at the size of urban centres within a certain administrative area (for example, in Germany the threshold is an urban centre of 100,000 inhabitants within a region and in Bulgaria a municipality is only rural if the biggest town has less than 30,000 inhabitants). These examples also show that often rural is defined as the residual of urban.

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<sup>1</sup> As concerns inventories of rural indicators in EU countries, see also Bryden (2001).

The third element of the definition is the territorial unit on which the definition is based. Most **countries use existing administrative areas as the basic territorial unit**. Several countries, however, use statistical subdivisions that are mainly based on the organization of the population censuses (for example, Australia, Canada and Ireland). In Denmark and Sweden, the definitions are based on addresses. These definitions have the advantage of being independent of relatively random administrative borders and of providing a flexible basis for summary statistics. This approach is possible in countries like Sweden and Denmark with a wide range of register based statistics. In many countries, however, statistics at such a low level would require large resources. Rural markers would have to be added to sample surveys and the results would probably have to be compiled in two different ways - once in the traditional way to derive statistics for administrative areas and once to derive statistics on rural areas. For some statistics, such as those based on administrative records, this might not be possible.

The next question that was addressed was whether there is a need for a definition that distinguishes **degrees of rurality**. The responses to the questionnaire seem to suggest that there is a need for such a subdivision as more than half of the countries with an official definition of rural use some kind of subdivision of rural areas. The variables used to define degrees of rurality do not necessarily have to be the same as for the rural non-rural definition. For example, the rural/non-rural definition could be based on population level, whereas the subdivision could be based on the distance to an urban centre of a certain size.

#### **IV.4 Current availability of rural development and related statistics**

In many countries more than one organization collects and produces statistics on rural development, reflecting the cross-cutting issues related to rural development. Therefore, it will be not as straightforward as in some other areas to compile an inventory of available statistics and indicators. However, in all countries, some, but not necessarily the main, **responsibility** lies with the national statistical office. In countries that are based on a federal principal the regional statistical offices also play an important role in the collection of rural development statistics (for example, Australia, Canada, Germany and the Russian Federation). Frequently, ministries also share the responsibility for statistics on rural development.

The replies to the question of whether there is a core/standard set of indicators to monitor rural development showed that **several countries are in the process of developing or are investigating the need for a set of indicators** to monitor rural development. In several countries, sets of indicators exist that are directly linked to the monitoring of the EU Special Accession Programme for Agriculture and Rural Development (SAPARD) and the EU Rural Development Plan. As these programmes are closely linked to agriculture, the indicators are likely to be also closely linked to the part of rural development more closely associated to the agricultural community. One example of a set of indicators for rural development not linked to agricultural policy is the Finnish Rural Indicators project. A list with all the indicators in the Finnish Rural Indicators set can be found in Annex 3.

The questionnaire also revealed that at present the information on rural development available on the **Internet** is fairly limited. Several countries indicated that no rural development statistics are at present available on the Internet. In many other cases some regional and/or rural data are available on different sites. Very few countries have information on a dedicated site.

Questions 10 to 12 focused on small area statistics. Again the questions are summarized in Annex 3. The answers show that in the majority of countries the **smallest areas for which statistics are currently available** are municipalities, which often correspond to the EU NUTS 5 areas. Nine countries produce statistics for smaller areas. These smaller areas are usually some subdivision related to the organization or presentation of data on the population census. The reason for including these questions was to get some idea



of the feasibility of basing an international standard for the definition of 'rural' on territorial units not linked to administrative areas and/or those smaller than a municipality/village. The answers seem to suggest that a definition based on areas that do not correspond to administrative areas would require many countries to produce two sets of statistics - one for the administrative areas for which statistics are currently required and another one for different territorial units which are not based on the current territorial units.

Finally, the questionnaire also asked for the **percentage of the population** living in rural areas and the **percentage of land** that is classified as rural, the most basic rural indicators. The results are presented in Table IV.1.

These figures are based on the national definitions of 'rural' and therefore the **comparability** is very limited. At the moment, these data are used for international comparisons (for example, in the World Urbanization Prospects published by the Population Division of the Department of Economic and Social Affairs of the UN) as they are the only ones available. The OECD has developed a definition based on population density and statistics for OECD countries are available based on this definition.

Looking at the data available for Canada, England and the United States, which all have two or more commonly used definitions, it can be seen that the different definition can have sizeable effects on the indicators. For England, the population living in rural areas is either 20% or 28% depending on the definition used. The land in rural areas is 87% or 93%. For the United States, the difference between the two definitions is larger for the land area than for the population. In Canada the rural population varies between 22% and 38% depending on the definition used. It can be seen that the different types of definitions can have a large impact on both the population classed as living in rural areas and the land area covered. In addition, the overlap between the definitions is smaller than might be assumed from looking at these figures. Not all of the 20% of the population classed as rural in the English urban settlement definition are also included in the 28% classed as rural according to the administrative area definition.

Another point worth mentioning is the low figure for land in rural areas in Germany. The reason for this comparatively low figure is that the smallest geographic unit used in the classification is a 'Kreis', an administrative area consisting of several municipalities. All other countries in this sample base their definition on smaller geographic units. Generally, the smaller the basic geographic unit used in the classification, the higher the percentage of land classified as rural.

Due to the lack of comparability of the data, it is difficult to draw any other conclusions from the data presented in the table. The same will be true for every indicator of rural development - whether economic, social or environmental. The impact the definition of rural has on rural indicators in Canada are shown in a research paper by du Plessis *et al.*, 2002. It would be interesting to carry out similar research on an international level using different national definitions. This would show, for example, whether the differences in the rural population can be attributed mainly to differences in the definition or mainly due to actual physical differences in the various countries.

## IV.5 Rural development policy

Even though it is connected to agricultural policy and often emerges from it, rural development has a much wider scope. While agriculture plays a part in rural development, in many countries this is small and declining. Hence, rural development policy does not necessarily need to fall within the **responsibility** of the same organization as agricultural policy. In different countries, rural development is under the responsibility of different ministries/departments.

In most countries the ministry responsible for agricultural policy is also the major player (for example, Bulgaria, Estonia, Finland, France, Hungary, Kazakhstan and Slovakia) or one of the principal players (for example, Australia, Lithuania, Netherlands and Romania) in rural development policy. In other countries, the main responsibility for rural areas falls within the scope of other ministries such as the Ministry of Industry, Employment and Communication in Sweden, the Department of Community, Rural and Gaeltacht Affairs in Ireland, the Ministry for the Interior and Health in Denmark and the Ministry for Regional Development and Regional Authorities in the Czech Republic. In several countries regional governments play a major role in developing and implementing rural development policies (for example, Australia, Germany, Italy, Netherlands and the Russian Federation).

The UNECE questionnaire also included questions about the **objectives and major themes** of rural development policy. The replies show that the focus of rural development varies considerably between countries. In Canada for example, the aim is to improve the well-being of rural citizens. In the United States, the emphasis is on the improvement of the quality of life in rural areas. In most EU member and acceding countries, rural development is much more closely linked to agricultural policy as rural development falls within the second pillar of the Common Agricultural Policy. For acceding countries, rural development and agricultural policy aims are set out in EU SAPARD initiative. In order to decide on the scope and the focus of rural development statistics, it is important to understand the aims of rural development policy. The focus will be different depending on whether policy is mainly addressed at the agricultural community level or more generally at the rural community level.

In order to determine what general topic areas should be covered by rural development statistics, a question was included about what the main themes and objectives of rural development policy should be. The answers generally fall within the following main areas:

- Economic/employment;
- Service provision/Infrastructure;
- Environment;
- Social; and
- Preservation or renewal of rural communities and tradition.

The importance attributed to agriculture differs greatly between countries, ranging from being a main focus to only playing a minor part.

**Table IV.1**  
**Rural population and rural land**

	What is the percentage of the population that are classified to live in rural areas?	What is the percentage of the total land area that is classified as rural?
Australia	12.84 per cent	99.74 per cent
Bulgaria	41.9 per cent (11.2 per cent in less developed rural areas)	83.7 per cent
Canada	22 to 38 per cent depending on the definition used	99.8 per cent 'rural' and 95 per cent 'predominantly rural' (OECD definition)
Czech Republic	26.5 per cent	73.7 per cent
Estonia	32.6 per cent	98.4 per cent
Finland	43 per cent (27 per cent excluding urban adjacent rural areas)	95 per cent (83 per cent if urban adjacent rural areas)
France	24 per cent	82 per cent
Germany	13.03 per cent	30.35 per cent
Hungary	Narrow definition: 47.35 per cent; broader definition: predominantly rural 31.3 per cent and significantly rural	Narrow definition: 88.3 per cent; broader definition: predominantly rural 58.3 per cent and significantly rural 37.7 per cent
Ireland	n/a	n/a
Italy	n/a	n/a
Kyrgyzstan	65 per cent	28.8 (53.9) per cent of the land is agricultural land and land of rural settlements (about 90 per cent of the territory lays higher than 1,500m above sea level).
Latvia	47.5 per cent	98.2 per cent
Lithuania	33.1 per cent	97 per cent
Netherlands	n/a	n/a
Norway	22.3 per cent (population not living in urban settlements)	99.3 per cent (land outside urban settlements)
Romania	45.4 per cent	89 per cent
Russian Federation	27 per cent	n/a
Slovakia	29.9 per cent (OECD definition at NUTS 4 48 per cent in predominantly rural areas)	76.7 per cent (OECD definition 59.5 per cent in predominantly rural areas)
Sweden	35 to 40 per cent	more than 95 per cent
Switzerland	32 per cent	77 per cent (approximately)
Turkey	35.1 per cent	n/a
United Kingdom	n/a	n/a
England	20 per cent (settlement based definition); 28 per cent (ward based definition)	93 per cent (settlement based definition); 87 per cent (ward based definition)
Scotland	30.9 per cent 1)	n/a
Wales	32 per cent	82 per cent
Northern Ireland	n/a	n/a
United States	21 per cent (Census Bureau definition); 20 per cent (ERS definition)	97 per cent (Census Bureau definition); 80.8 per cent (ERS definition)

1) <http://www.gro-scotland.gov.uk/grosweb/grosweb.nsf/pages/scosett#res>.

Source: UNECE rural questionnaire.

## IV.6 Next steps

Further discussion is needed on the usefulness of an **international standard** for the definition of rural. Many countries are at present considering, or already working on, an official definition of ‘rural’ and on putting together a set of indicators to monitor and evaluate rural development policy. International cooperation and benchmarking would seem useful for countries currently considering these issues on a national basis. Similar problems and issues are likely to arise in different countries. The solutions might not be the same for all countries but information on what has been done in other countries and on international standards, recommendations or guidelines will help them make informed decisions.

As the demand for internationally comparable information rises, some kind of standard both for the definition of rural and for a set of indicators is desirable. In an increasingly globalized world, policymakers, researchers and the general public are not only interested in statistics showing what is going on in their country but also statistics on how their country compares to others such as neighbouring countries or countries with similar environmental, climate, social or political conditions.

## IV.7 Case study: Canada

### IV.7.1 Introduction

This section will review case studies of rural developments statistics compiled by countries. The intention is that as this Handbook is updated, additional country statistics showing good practise will be added. For the time being, there is only one case study. However, this is quite extensive, reviewing the rural statistical system in Canada. In many respects the rural statistical system in Canada is very advanced and lends itself to detailed analysis of policy issues related to various types of rural areas *vis-à-vis* both urban areas and the country as a whole. Many of the results appear in the *Rural and Small Town Canada Analysis Bulletin* series, which is published by Statistics Canada (and available at the Statistics Canada website: [www.statcan.ca/english/freepub/21-006-XIE/free.htm](http://www.statcan.ca/english/freepub/21-006-XIE/free.htm)). After reviewing the definitions and typologies used by Statistics Canada, selected results extracted from this Bulletin will be presented. These give a good illustration of what is achievable given the availability of a well-developed statistical system based on stringent definitions related to well proven survey methods.

Only a small fraction of the statistics from the various issues of the *Rural and Small Town Canada Analysis Bulletin* is presented here.<sup>2</sup> For instance, the detailed statistics broken down by categories such as regions or genders, which are of prime importance for rural development statistics, are, for reason of space, only briefly mentioned here. Readers interested in these breakdowns should consult the original sources.

### IV.7.2 Definitions and typologies [Vol. 4, No. 8]

Several alternative definitions of “rural” are used in Canada for national and provincial level policy analysis. The policy issue and the geographical focus being addressed (i.e. local, regional, national or international), leads an analyst to choose one definition over another. The definition chosen is of course also dependent on available data sources.

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<sup>2</sup> References are made in the text to the various volumes and issues of this periodical without each time mentioning the name of the periodical.

There are six alternative ways of defining “rural” in Canada. Depending on the definition of rural being applied, between 22% and 38% of the Canadian population are defined as rural. Three definitions will be shown below.

**Definition 1: For analysis of metropolitan versus non-metropolitan regions and their sub-categories**

This definition is based on census divisions (CDs) as the “building block” for defining regional types. This typology is equivalent to the Beale Code typology developed by Calvin Beale at the USDA.

**Metropolitan regions:** 50,000 or more people living in urban settlements (where an urban settlement has a population of 2,500 or more inhabitants)

1. **Major metro (central):** CDs with urban settlements of one million or more (central).
2. **Major metro (fringe):** CDs with urban settlements of one million or more (fringe).
3. **Mid-sized metro:** CDs with urban settlements of 250,000 to 999,999 people.

**Non-Metropolitan regions:** (those with under 50,000 people living in urban settlements)

4. **Small city (metro-adjacent):** CDs with 20,000 to 49,999 living in urban settlements, adjacent to a metropolitan region.
5. **Small city (non-metro-adjacent):** CDs with 20,000 to 49,999 living in urban settlements, non-adjacent to a metropolitan region.
6. **Small town (metro-adjacent):** CDs with 2,500 to 19,999 living in urban settlements, adjacent to a metropolitan region.
7. **Small town (non-metro-adjacent):** CDs with 2,500 to 19,999 living in urban settlements, non-adjacent to a metropolitan region.
8. **Rural (metro-adjacent):** CDs with no people in urban settlements with 2,500 or more, adjacent to a metropolitan region.
9. **Rural (non-metro-adjacent):** CDs with no people in urban settlements with 2,500 or more, non-adjacent to a metropolitan region.
10. **Northern.**

**Definition 2: The second typology concerns Rural and Small Town (RST) areas**

This definition focuses on the population living outside the commuting zones of larger urban centres or more specifically outside so-called Census Metropolitan Areas (CMA) and Census Agglomerations (CA). The more precise definitions of these concepts are:

- **Rural and Small Town (RST) areas** have a population of 1 - 9,999 where less than 50% of the employed individuals commute to a CMA/CA and less than 25% commute from a CMA/CA.
- **Census Metropolitan Areas (CMA)** has an urban core of 100,000 or over and includes all neighbouring municipalities where over 50% of more of the labour force commutes into the urban core or more than 25% commute from a CMA/CA.
- **Census Agglomerations (CA)** has an urban core of between 10,000 and 99,999 and abides by the same commuting rule as CMAs.

**Definition 3: The third definition is based on the OECD definition**

The OECD definition distinguishes between:

- **Predominately urban** regions;
- **Intermediate** regions; and
- **Predominately rural** regions, sub-divided into:
  - Metro-adjacent;
  - Non-metro-adjacent; and
  - Northern regions.

The major data sources for the rural and urban statistics are census data and labour force surveys.

**IV.7.3 Results**

Below a compilation is presented showing a few examples of results that have been extracted from various issues of the *Rural and Small Town Canada Analysis Bulletin*. Tables and graphics are grouped together at the end of this chapter.

**IV.7.3.1 Population issues****Migration to and from rural areas** [Vol. 3, No. 6]

Migration is a concern for RST areas of Canada as rural development is essentially a demographic phenomenon. In terms of net migration, RST areas were net losers of youth (under 25 years of age) but net gainers of individuals in all age classes from 25 to 69 years of age. Thus, RST areas appeared competitive in attracting migrants in all age classes from 25 to 69 years of age.

Patterns of migration into and out of rural and small town Canada were similar to the patterns reported in the United States. In the 1970s, there was a turnaround of the long-standing pattern of rural net outmigration. This was due to both higher in-migration and lower outmigration. In the 1980s, we also saw the turnaround of the turnaround where the pattern of rural net outmigration returned, caused by lower in-migration. In the early 1990s, there was a return to the pattern of the 1970s, namely, rural NET in-migration, but this time due solely to higher RST retention (lower outmigration).

Young adults were the most mobile during the study period. Those aged 20-24 had the highest rates of RST outmigration while those aged 25-29 had the highest rates of RST in-migration. In terms of net migration, RST areas were net losers of youth but net gainers of individuals aged 25-69. RST areas were therefore competitive in attracting migrants of all age classes from 25 to 69 years of age.

**Rural youth migration** [Vol. 2, No. 3]

By comparing the population structure for RST areas in 1996 to the overall Canadian population structure, one sees that the RST population has a smaller proportion of individuals who are 20 to 24 and 25 to 29 years of age. Is this due to migration? Will these individuals return to RST areas?

How many young adults should we expect to find in RST areas? To investigate this, this Bulletin calculated an expected 1996 population pyramid using the 1971 population structure (adjusted for expected deaths) and then compared this to the actual 1996 population pyramid. A 25-year period was used to allow

the youth to leave for education and to return to a rural area. All provinces lost youth from their rural areas between 1971 and 1996. There was a (net) exodus over this time period.

### **Population structure and change [Vol. 2, No. 2]**

In 1981, 33.6% of Canadians lived in predominantly rural regions. By 1996, this share had fallen to 31.4%. However, within predominantly rural regions, rural metro-adjacent regions are growing the fastest. These regions represent one half of the population in predominantly rural regions. Net migration is strongest towards rural metro-adjacent regions.

The rural population continues to concentrate in regions near cities. Between 1981 and 1996, the predominantly rural population increased in absolute terms by almost 11% (see Figure IV.7.1). Most of this increase occurred in rural metro-adjacent regions, which increased by almost 17%. The next largest rural population increase was 7% in the rural northern regions. Rural non-metro-adjacent regions had the smallest gains in population. These results compare with the predominantly urban and intermediate regions which had higher growth rates of approximately 22% each.

### **Rural and small town population is growing in the 1990s [Vol. 1, No. 1]**

Overall, Canada's RST population has grown in each intercensal period since 1976. However, the share of Canada's population living in rural and small town areas has declined from 34% in 1976 to 22% in 1996. There are two reasons for this. First, population growth has been higher in larger urban centres. Second, some rural areas are reclassified into "larger urban centres" in each census – both because commuting patterns change which causes the rural community to be classified within the commuting zone of the "larger urban centre" or the rural community grows past the threshold of 10,000 persons in the urban core. In this Bulletin, the 5-year growth rates were calculated within constant boundaries but, invariably, each 5-year period started with fewer rural people due to this reclassification.

Rural and small town growth rates vary widely among the provinces. Much of the growth within rural and small town areas is in the small towns. Sub-provincial data show wide regional differences within each province.

### **Immigrants [Vol.5, No. 4]**

Few immigrants reside in predominantly rural regions. In 2001, 28% of the population in predominantly urban regions was made up of immigrants (i.e. residents born outside Canada). The corresponding share for predominantly rural regions was only 6%. For Canada as a whole, immigrants had the same proportion with high school degree as the total population. In rural regions, on the other hand, immigrants were markedly more educated than the Canadian-born.

### **Immigrants in rural Canada – preference for urban regions [Vol.4, No. 2]**

Immigrants tend to prefer urban regions. In 1996, 17% of Canada's total population were immigrants and 88% of them lived in urban regions. There they made up 27% of the population compared with only 6% of the population in the predominantly rural regions. Another interesting result is that, within predominantly rural regions, immigrants had a higher level of educational compared with the Canadian-born.

Within predominantly rural regions, immigrants who arrived before 1981 had a higher employment rate and higher incomes than the Canadian-born population. Those immigrants who arrive after 1981 had the opposite result.

### **IV.7.3.2 Employment and labour force issues**

#### **Seasonal variation in rural employment [Vol. 3, No. 8]**

Within each industrial sector (except agriculture), the RST workforce exhibited a higher amplitude of seasonality than the workforce in larger urban centres (LUCs), over the 1996 to 2000 period.

After accounting for the national average amplitude of seasonality and after accounting for the intensity of rural employment in highly seasonal sectors (such as “primary sector other than agriculture” and “construction”), we calculated that 39% of the employment seasonality in RST areas is due to the unique aspects of working in those areas. Higher rural seasonality may be due to the fact that RST industries, such as processing and transportation, have stronger links to primary commodity flows.

#### **Employment structure up to 2000 [Vol. 3, No. 4]**

Between 1987 and 1994 RST employment grew almost 6% while LUC employment grew nearly 8%. This growth in RST areas was fairly steady with the exception of 1990-1991 when there was an overall decline in employment due to the economic recession. Between 1996 and 2000, while both the labour force participation rate and the employment rate in RST areas remained lower than in LUCs, growth was similar in both regions at just over 5% (Table IV.7.1).

The unemployment rates for RST areas and LUCs declined between 1996 and 2000, but the rate of reduction was slightly less in RST areas.

RST areas had lower labour force participation rates than LUCs for both youth and the general population (see Figure IV.7.2). However, up until 1999 the respective gaps closed. Between 1999 and 2000 the rate for youth and the general population declined in RST areas but continued a steady rise in LUCs.

While there was a general rising trend in the employment rates for the same population groups throughout, there was a large percentage difference between lower rates in RST areas and higher rates in LUCs. There was also a contrast between youth and the general population for each area, with youth having lower employment rates.

There was a smaller discrepancy in unemployment rates between RST areas and LUCs for the two populations than was evident in either the labour force participation or the employment rates. However, both youth and the general population exhibited a steeper decline in the unemployment rate in LUCs (see Figure IV.7.2). There was a marked difference in rates between youth and the general population in both areas, with youth averaging more than 5 percentage points higher than the respective general population.

When examining male and female youth in RST areas and LUCs the following results were obtained. Females had a lower rate of labour force participation than males. The male rates showed little difference between RST areas and LUCs, but the female rates were lower in RST areas. The male rates showed little difference between RST areas and LUCs, but the female rates exhibited a large discrepancy. Female RST labour force participation averaged 5 percentage points below that in LUCs.

Males in both RST areas and LUCs, and females in LUCs, had similar employment rates. However, females in RST areas had lower rates, averaging approximately 5 percentage points below the other groups.



While all the unemployment rates are high (averaging nearly 15%), after 1997 there was a downward trend for all the groups. This decline was steepest for male youth in LUCs. In both RST areas and LUCs, female youth had lower unemployment rates than the respective male population.

At the Canada level, it was seen that both the labour force participation rate and the employment rate in the RST areas were consistently below that of the LUCs. However, the RST areas were matching the LUCs in terms of the increase in employment rates over the five years. Both the RST areas and the LUCs had declining unemployment rates but the reduction was slightly less in the RST areas.

RST and LUC employment patterns of youth and the general population, split between males and females, were also examined. It was found that RST areas had lower labour force participation rates and employment rates and higher unemployment rates. However, the discrepancy with LUCs was relatively smaller for unemployment rates. Youth exhibited lower labour force participation and employment rates and higher unemployment rates than the general population. The variance between youth and the general population was particularly apparent in the unemployment rates with youth averaging 5 percentage points higher. For both youth and the general population the unemployment rate was declining faster in LUCs.

Looking specifically at male and female youth in RST areas and LUCs, females had generally lower labour force participation rates. This is particularly marked in RST areas. A similar pattern is seen in employment rates, with RST females having markedly lower rates than the other groups. However, the LUC female rate was closer to the male employment rates than was apparent in the labour force participation rate. Interestingly, although female youth had relatively less attachment to the labour force (i.e. lower employment rates and lower labour force participation rates), female youth (in both RST areas and LUCs) had lower unemployment rates than either male group.

#### **Employment structure** [Vol. 2, No. 6]

In Canada in 1996, residents of predominantly rural regions contributed about 29% of total employment. This share has been essentially constant since 1981. Among the types of rural regions, rural metro-adjacent regions contribute 15%, rural non-metro-adjacent regions contribute 12% and rural northern regions contribute 2%. All these shares remained essentially constant over the 1981 to 1996 period.

Looking specifically at the 1991 to 1996 period, the rate of employment growth in each type of rural region was higher than the employment growth in predominantly urban and intermediate regions. Within predominantly rural regions, rural metro-adjacent regions showed the strongest rate of employment growth in each intercensal period - however, some of the employment growth of these regions is due to an increasing number of residents commuting to jobs in urban centres.

#### *Other results:*

- The retail and wholesale trade sector is the biggest sector for employment in RST Canada and ranks as one of the top two sectors in each province.
- Manufacturing is also a top sector for employment in RST Canada.
- Only regions which are adjacent to major metropolitan centres reported employment growth above the Canadian average in each five year period since 1981.
- One half of the regions that reported below average employment growth for three consecutive periods were rural regions not adjacent to a metropolitan centre. The lack of access to a metropolitan centre appears to constrain employment growth.

**Employment structure in the primary sector** [Vol. 2, No. 7]

Today, less than 3% of the workforce has an agricultural occupation and less than 3% of the population live on a census farm. Furthermore, employment in rural metro-adjacent regions and in rural non-metro-adjacent regions remains 2.5 times more intensive in the agriculture industry, compared to the national average. This level of relative intensity has remained essentially the same over the 1981 to 1996 period because, within each type of region, employment grew or declined at essentially the same rate.

Agricultural employment showed modest growth in the 1981 to 1986 period in each type of region. Growth continued in the predominantly urban regions in the 1986 to 1991 period, due in part to continuing growth in demand for nursery and greenhouse products in the vicinity of cities. However, all types of regions experienced a decline in agricultural employment in the 1991 to 1996 period. This decline is driven, in general, by the on going substitution of machinery for labour in agricultural production. Since rural metro-adjacent regions and rural non-metro-adjacent regions are the most agricultural intensive in terms of employment, this across the board decline in the level of employment was felt most strongly in these rural regions.

**Employment structure in the manufacturing sector** [Vol. 2, No. 8]

Historically, manufacturing activity in Canada has been concentrated in larger cities. However, during the 1980s and 1990s, predominantly rural regions were relatively more intensive in “traditional” manufacturing relative to the overall economy. Each type of predominantly rural region appears 10% to 40% more intensive in traditional manufacturing than Canada as a whole. This relative intensity in traditional manufacturing constrained rural employment growth throughout the 1980s - because each type of region experienced a decline in traditional manufacturing employment from 1981 to 1986 and from 1986 to 1991. Employment levels essentially stabilised in the 1991 to 1996 (post recession) period. There were small gains in some regions and small losses in other regions.

In the 1981 to 1996 period, predominantly rural regions were relatively less intensive in complex manufacturing employment, with an intensity 60% to 70% of that of the country as a whole. During the 1980s, the intensity for predominantly rural complex manufacturing increased because its employment declined at a slower pace than the fall in urban complex manufacturing employment. In the 1991 to 1996 period, each type of predominantly rural region reported gains in employment in complex manufacturing whereas predominantly urban and intermediate regions showed only small changes.

**Employment patterns in the non-metro workforce** [Vol. 1, No. 2]

The growth and decline of non-metro employment varied according to provincial economic activities. For all provinces, except the Prairie provinces, non-metro unemployment rates were generally higher than metro unemployment rates.

Non-metro unemployment rates were less sensitive to economic fluctuations. In a recession, the rise in the unemployment rate was slower in non-metro areas. In economic expansions, the fall in the non-metro unemployment rate was slower.

Employment rates (employment/population ratios) were lower in non-metro labour markets. Generally, the following employment tendencies were observed:

- Leading into recessions, non-metro employment grew less rapidly than metro employment;
- During recessions, employment declined less in non-metro areas than in metro centres;

- During economic recoveries, employment growth was higher in non-metro areas than in metro centres;
- During economic expansions, metro employment growth overtook non-metro employment growth.

### **Self-employment activity** [Vol.5, No. 5]

Rural self-employment workers represented 37% of all self-employed workers in Canada in 2001 compared to a population share of 27%. The self-employment activity rate of workers in rural areas outside the commuting range of larger urban centres was more than double the urban rate in 2001.<sup>3</sup> However, the rural/urban differences in self-employment activity rates are much smaller when farming is excluded. Since the middle of 1990s, the number of rural workers engaged in non-farm self-employment has surpassed the number of farm self-employment workers.

### **Employment in agri-food industry by type of region** [Vol.4.No.8]

Employment in agriculture and the agri-food industry remained at 15% of the total employment over the 1981-1996 period.<sup>4</sup> While employment in agriculture has fallen, the agri-food industry has grown faster than the overall economy (Figure IV.7.3).

Employment in agri-food is more than three times the level of employment in agriculture. Primary agriculture saw a decline in employment between 1991 and 1996 while in agricultural services it has grown continuously since 1981. Most employment in the agri-food sector is in the food and beverage service sector and the wholesale/retail trade of agriculture and food products.

Predominantly rural areas are 30% more intensive in agriculture and agri-food employment than the Canadian average. In agriculture employment alone predominantly rural areas are 2.3 times as intensive as the Canadian average but the intensity has been declining over the years (see Figure IV.7.3).

### **Part-time employment in rural Canada** [Vol.4, No. 1]

RST areas have a significantly higher incidence of part-time employment than LUCs (see Figure IV.7.4). In 1999, it amounted to 15.6 in the former areas and 12.8% in LUC. Following the recession in the early 1990s part-time employment increased in both types of areas. It is interesting to note the close correlation between the two series. The predominately rural areas rural provinces have the highest incidence of part-time employment in their rural areas.

In 1987-1997, the average annual growth in part-time employment was 0.1% in RST while it reached 4.6% in the LUC. As for full-time employment, the RST did even worse - it fell 1.1% per year against 2.4% growth in LUC. This picture changed radically in 1997-1999. Part-time employment surged

<sup>3</sup> The self-employment activity rate is a wider concept than the self-employment rate because it includes also all employees earning unincorporated self-employment income outside their main job.

<sup>4</sup> Agriculture includes primary agriculture and agricultural services. Agri-food includes food processing, agriculture and food products wholesale and retail trade (including equipment and inputs) and food and beverages services.

Employment, which actually should be understood as number of persons engaged, includes paid workers, self-employed workers and unpaid family workers.

Data are available for 1981, 1986, 1991 and 1996. Predominantly rural regions are further broken down into rural metro-adjacent regions, rural non-metro-adjacent regions and rural northern regions.

by 3.1% per year in RST whereas it fell 0.3% in LUC. Full-time employment increased by 3.1% per year in RST while it rose by 2.9% in LUC.

### **Occupational pattern** [Vol.5, No. 6]

Predominantly rural regions have a higher concentration of unskilled occupations, within most industries, compared to predominantly urban regions (see Figure IV.7.5). Moreover, during the 1990s, predominantly rural regions tended to become more intensive in unskilled occupations within most industries.

#### **IV.7.3.3 Income and expenditures**

### **Rural – urban income divide** [Vol.4, No. 4]

Between 1992 and 1999, territorial income disparity in Canada increased. However, between-province income disparity decreased while within-province disparity increased substantially. The average provincial income is less relevant in explaining the increasing spatial disparity. Disparities between various (OECD) types of regions became more important. Although the changes are not dramatic the geography of income disparities is shifting slowly but steadily from a provincial to a rural - urban divide.

### **Rural and urban household expenditure patterns for 1996** [Vol. 1, No. 4]

Main conclusions are that:

- Rural and urban households spend the same share of their budget on the necessities of food, clothing and shelter but rural households spend more on food and less on shelter.
- Distance influences rural household expenditure patterns. Rural households spend a higher share on transportation and a lower share on some services (e.g. cablevision, Internet), which are more difficult to access.

In 1996, the total expenditure of an average Canadian household was \$49,054. Rural households spent an average of \$42,620 while urban households had an average spending of \$50,283.

In 1996, rural households spent 13% of their total budgets on food, while urban households spent 12% (see Table IV.7.2). This difference could be attributed to the fact that the average household size is moderately larger in rural areas (2.75 persons) than in urban areas (2.58 persons).

Both rural and urban households spent about the same share of their total budgets on clothing in 1996 (4.3%).

In 1996, households in rural areas spent an average of \$6,705 on shelter (16% of their household budgets), while urban households spent an average of \$8,800 (17%). A larger proportion of rural households owned their homes (82%) than urban households (64%). In addition, a larger share of rural homeowners (56%) has no mortgage payments compared to urban homeowners (45%).

Rural households spent an average of \$6,328 on transportation in 1996, 15% of their total expenditure, while urban households spent \$5,990, just 12% of their total expenditure.

Access to recreation services may be more limited in rural areas. In 1996, only 85% of rural households reported spending on recreation services, compared to 94% of urban households. On average,

rural households spent \$547 on recreation services, while urban households spent \$1,033. Rural households spent, on average, \$29 going to the movies compared to \$63 for urban households. Compared to urban households, rural households spent more on tobacco (the average across all rural households was \$619 and the average across all urban households was \$512).

### **Measuring income and well-being [Vol. 2, No. 5]**

Incomes are lower in rural areas. For the past three decades, rural families have had the lowest average incomes and the most urban areas (100,000 or more) have had the highest incomes.

In 1997, the average income for families living in rural areas was \$48,850 while in areas with a population of 100,000 or more, the average family income was \$59,920 (in constant 1996 dollars).

The income gap between rural areas and smaller urban centres has been falling the most, when we compare rural incomes to the incomes in each urbanization class. Since 1990, the average income gap between rural areas and cities under 15,000 population fell by 58%. Even against the 100,000 and over urbanization class, the rural urban income gap has fallen by 20%. By 1997, the average income for a rural family was only \$359 below that of a family living in an urban area with a population less than 30,000.

Through the 1990s, within each community size, the proportion of families with low income has not fluctuated significantly. The proportion of families with income below the LICO<sup>5</sup> is lower in rural areas. For families living in rural areas, the proportion with low-income remained at slightly below 10% while for those living in areas with a population of 500,000 and over, the rates ranged from 16% to 18%.

This is an indicator that rural communities are better off than urban communities in the sense that a lower proportion of their residents are restrained in the relative ability to purchase necessities.

Through the 1990s, like the low-income rates based on LICO, the incidence of low-income rate based on LIM have not fluctuated significantly within each community size.<sup>6</sup> However, across different community sizes, LIM rates have exhibited the opposite pattern of LICO rates. Unlike LICO rates, LIM rates are highest for rural families while families in the most populous areas (500,000 and over) have the lowest proportion of families with income less than the LIM. LIM rates for families living in rural areas were approximately 15% while for those living in areas with a population of 500,000 and over, approximately 12% have incomes below LIM.

The average person in rural and small urban areas receives more social transfers per dollar of income and pays less tax per dollar of income than the average urban person. On average, rural and small urban area individuals tend to receive relatively more transfers because:

- Their unemployment rates are higher;
- There is a higher proportion of children (and thus residents receive more from the child tax credit); and
- There is a higher proportion of retired people who receive Canada and Quebec Pension Plan benefits.

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<sup>5</sup> LICO (Low-Income Cut-Offs) are established each year with an adjustment for family size and an adjustment for the urbanization class (see Cotton, 2001).

<sup>6</sup> LIM (Low-Income Measure) equals one half of the national median income, adjusted for family size and urbanization class.

**Rural income disparities** [Vol. 3, No. 7]

Within each province, incomes in rural regions are lower than the incomes in urban regions. Provinces with above average urban incomes (e.g. Ontario, Alberta and British Columbia) also have above average incomes in their rural regions.

The share of the rural population with low-incomes has declined, relative to the share of urban population with low-incomes (due largely to an increase in the incidence of low-incomes in urban regions).

Thus, rural income disparities are decreasing within most provinces because the rural urban income gap is decreasing; and the incidence of low-incomes in rural regions is declining, relatively.

**IV.7.3.4 Social issues****A rural-urban comparison of health indicators** [Vol.4.No.6]

A lower proportion of Canadians living in small town regions (non-metro-adjacent), rural regions and northern regions rated their health as “excellent,” compared to the national average (see Table IV.7.3).

Health risk factors that are more prevalent in the non-metropolitan region population included being overweight and smoking, (see Table IV.7.3). Arthritis/rheumatism was higher than the national average in rural (non-metro-adjacent) regions even after adjusting for age.

**Health status and behaviours of Canada’s youth: a rural - urban comparison** [Vol.5, No. 3]

Studies have indicated that the health status of Canadians living in the most rural and remote parts of Canada is lagging behind that of urban areas. To some degree this is a result of demographic differences. However, analysis of the health of well-being of youth (aged 12-17) points to the same result. While 33% of girls in major metro regions rated their health as excellent, only 17% of girls in rural regions and 15% in northern regions rated their health at this level. Some 23% of boys in northern regions rated their health as excellent compared to 36% in major metro regions.

Boys located in small town regions had the highest prevalence of being overweight and obese. Boys in small metro regions had the highest prevalence of heavy drinking. Girls and boys in the northern regions are generally more likely to smoke. Within each type of region, girls are more likely to be smokers than boys. Physical inactivity is generally the same among youth across metro and non-metro regions. Previous studies had shown that physical activity for the population as a whole was more likely in rural areas.

**How far to the nearest physician?** [Vol. 1, No. 5]

In 1993, there were only half as many physicians per 1,000 population in RST Canada as in larger urban centres. However, two thirds of RST Canadians lived within 5 km of a physician. About 7% lived more than 25 km from a physician. In northern remote communities, over two thirds of the population lived more than 100 km from a physician.

**Housing conditions** [Vol. 2, No. 4]

Households are considered to be “below standard” if their dwellings do not meet one or more of three predetermined standards. The three standards are the suitability, adequacy, and affordability norms:

- The **suitability** norm – a suitable dwelling has enough bedrooms for the size and make up of the occupying household.
- The **adequacy** norm – an adequate dwelling does not, according to its residents, require major repairs.
- The **affordability** norm – shelter costs must consume less than 30% of before tax household income.

In 1996, predominantly rural regions had the lowest proportion of households with housing below standards (31%). Within rural regions there was little variation in the proportion of households with housing below standard. Rural northern regions had the highest proportion (33%), while rural metro-adjacent and rural non-metro-adjacent areas had the lowest proportions (31%) below standard. In contrast, predominantly urban regions had the highest proportion of households that did not meet one (or more) of the three norms of suitability, adequacy or affordability (39%).

Similar patterns are seen provincially. Within each province, predominantly rural regions had a smaller proportion of households below standard than did urban regions.

#### **Gender balance** [Vol.4, No. 3]

Rural females were less active in the labour market compared to rural males and compared to urban females. They also had a lower share of full-time work. Economic and business conditions were one of the major reasons why females undertook part-time work, which was not the case for rural males who worked part-time. Rural females worked less paid and unpaid overtime than urban females.

#### **Household Internet and computer use** [Vol.5, No. 1], [Vol. 3, No. 5], [Vol. 1, No. 7]

In 1989, 19.4% of Canadians had a computer at home, which increased to 33.2% in 1994. In 1997, the share of Canadian households with computers was 36.4%. At the same time, within RST areas, the share of individuals with a computer at home increased from 13.9% in 1989 to 22.5% in 1994. Fewer RST individuals use a computer at work, compared to individuals in larger urban centres.

In 2000, a lower share of RST individuals lived in a household with a computer, compared to their urban counterparts. Approximately one half of RST residents (48% of RST rural residents and 51% of RST small town residents) responded that they had a computer in the home compared to CMA residents (62%) and CA residents (55%).

The trend towards the adoption of computers within households is continuing. Between 1989 and 2000, the share of households with a computer has approximately tripled – and this trend exists for rural and urban Canadians. Nevertheless, rural RST areas continue to have a lower share of households with computers. The gap between RST and CMAs in terms of the proportion of households with computers was 13 percentage points in 2000 – the same as in 1994. Thus, rural households are still “lagging” behind in terms of computer ownership – the more rural the area, the lower the share of households owning a computer.

Overall, household Internet connectivity is lower in RST households than in urban. In 2000, over 45% of individuals in CMAs lived in a household with an Internet connection, compared to 30% of individuals in RST rural areas. The rate of growth of the proportion of households with an Internet connection is similar in metropolitan and non-metropolitan households. All areas are increasing their rate of adoption of Internet access but metro areas are maintaining a higher Internet adoption rate.

The use of the Internet has been perceived as a crucial medium for residents in rural and remote areas to reduce the costs of distance. Analysis have shown that within each age class, for each level of educational level and within each income group, members of rural households were less likely to use the Internet compared to their urban counterparts. Canadian data show that rurality per se is still an independent constraint on Internet use. On the positive side, however, households outside the largest 15 metropolitan areas with children under 18 years of age are more likely to access the Internet compared to similar households within the largest 15 metropolitan areas.

#### **IV.7.3.5 Business structures and economic growth issues**

##### **Economic diversification [Vol.4.No.7]**

Rural non-metro-adjacent regions show the widest range in the level of economic diversification and specialization (measured by the Herfindahl Index of Concentration). However, within each type of region, diversification varies widely depending on its location within Canada.

##### **The producer services sector [Vol.3, No. 1]**

The producer services sector (finance & real estate and business services) is a growing sector. Although the employment in predominantly rural regions grew faster than in urban they still have a very low share of their employment in this sector. Predominantly urban regions are 20% more intensive in producer services compared to the national average while predominantly rural regions are only 60% as intensive.

##### **The composition of business establishments in smaller and larger communities in Canada [Vol. 1, No. 3]**

There was a large number of new business starts in both smaller and larger communities in the 1993 to 1996 period. Smaller communities have relatively more businesses and are more likely to have smaller businesses. Service industry businesses dominate in both smaller and larger communities.

Producer service businesses have a relatively lower presence in smaller communities while distributive services, personal services and social services are almost equally spread across smaller and larger communities.

In Canada, while smaller communities had a population share of 35%, their business share was 38%. This contrasts with larger communities, which had a population share of 65% and a business share of only 62%.

In Canada, small businesses (with 4 employees or less) made up the overwhelming majority of total businesses in both smaller and larger communities in 1996. However, small businesses were relatively more prevalent in smaller communities. In smaller communities, almost 65% of the businesses had one to four employees and 82% had fewer than 10 employees. This contrasts with larger communities where 56% of the business had one to four employees and 74% had fewer than 10 employees.



**Factors associated with local economic growth** [Vol. 1, No. 6]

The main conclusions are that:

- A higher education level in a community provided only a weak boost to employment growth during the 1980s.
- Communities that were relatively specialized in primary sector employment and traditional manufacturing employment were relatively disadvantaged in the 1980s.
- The type of region in which a community was located had a substantial impact on the rate of local economic growth. Communities in regions influenced by metropolitan centres benefited relative to other communities.
- A higher unemployment rate in a community in 1981 did not indicate an excess supply of labour that would attract employers. In fact, wage rates grew less in these communities and thus these communities fell further behind during the 1980s.
- Communities with a higher share of population with low-incomes experienced higher economic growth in the 1980s, relative to the average community. These communities were catching up to the average community during the 1980s.
- There was a wide variability in community growth patterns in the 1980s. Many communities achieved economic growth in spite of the factors identified here that constrained growth for the average community.

It should be noted that the correlation between measures of educational attainment in the community and measures of local economic growth is generally weak. A higher level of average years of schooling within a community was associated with a lower rate of growth of average hourly wage rates. Community aggregate earnings grew less in communities with a higher level of education because the lower growth in wages was not offset by the growth of employment and/or the growth of hours worked. Note however that communities with a higher than average number of years of schooling did report higher employment growth, compared to the average community.

Another measure of the community's human capacity was also considered - the share of the population with low educational attainment and the share with high educational attainment. The results indicate that both areas with a lower educational attainment and areas with higher education attainment were associated with a higher rate of growth of employment in the 1980s. Communities with low skilled workers (as indicated by a high share of individuals with a lower level of education) were able to attract jobs during the 1980s and were also able to increase their wage level during this period. Thus, communities with a higher share of population that had lower education levels had significant association with a higher growth in aggregate community earnings.

Studies in the United States (for example, Killian and Parker, 1991) found no significant association between community employment growth and community education levels, if the industrial structure of employment and the type of region were taken into account. In this study, we have controlled for the industrial structure of employment and the type of region and we do obtain a positive (albeit weak) association between employment growth and education levels. Thus, during the 1980s, Canadian communities, but not communities in the United States, appeared to benefit from high community education levels. Employment specialization in the primary sectors was associated with lower growth in all measures of community development outcomes. Community specialization in traditional manufacturing was significantly associated with lower employment growth and with lower growth in aggregate community earnings.

### **IV.7.3.6 Educational issues**

#### **Rural and urban educational attainment**

Education has a crucial role to play in community development. A better educated labour force can improve the community's capacity to attract or generate economic opportunities and to translate those opportunities into higher-valued employment. However, in some cases rural areas provide limited job opportunities for skilled workers. Education therefore provides lower return on investment and consequently individuals have lower incentives to continue their schooling unless they plan to migrate out of the rural area.

In aggregate terms, predominately rural regions have followed the educational shifts that have taken place in the country as a whole. However, predominately rural regions have not closed the gap in the structure of educational attainment. Measurements for 1981 and 1996 showed that the gap in educational attainment between urban and rural regions persisted, (see Table IV.7.4 and Figure IV.7.6). In fact the gap in average years of schooling has tended to widen. It should be noted, however, that part of the observed spatial differences is due to the economic and demographic differences among regions. Another important observation is that there are large variations within each type of region.

### **IV.7.3.7 Territorial issues**

#### **Urban consumption of agriculture land**

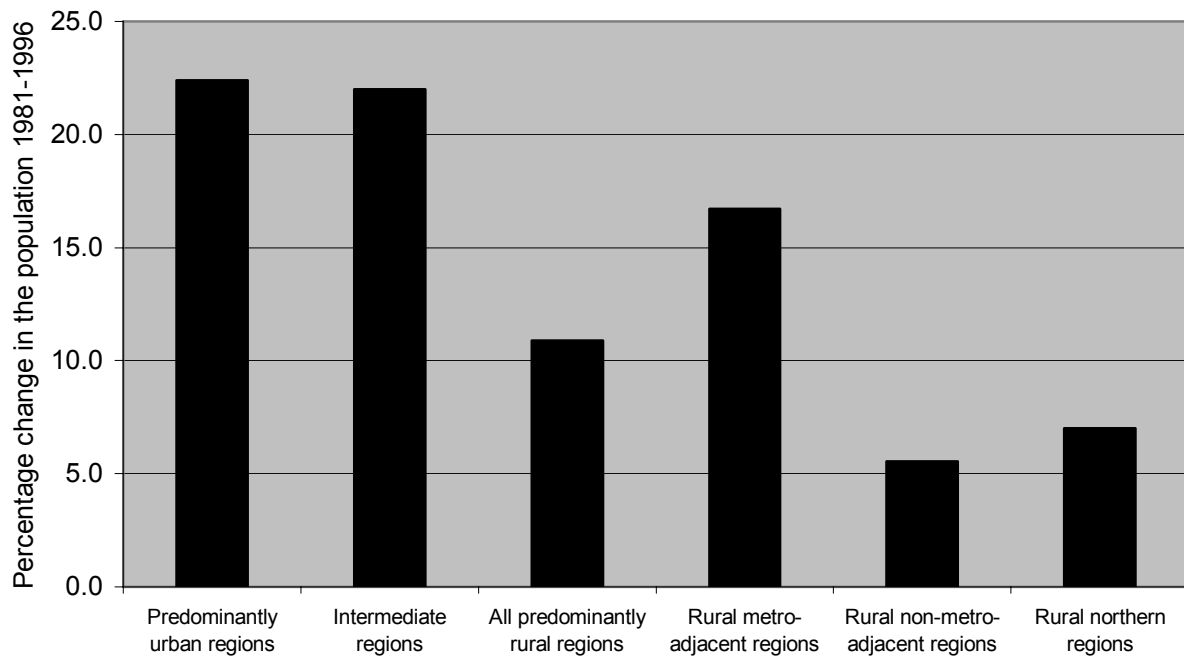
Of the total amount of land converted to urban uses in Canada between 1971 and 1996, about half, or 5,900 square kilometres, was "dependable" agricultural land. The urban consumption of agricultural land is partly due to the growing urban population and it is partly due to higher land consumption by each new urban dwelling.

### **IV.7.4 Concluding remarks**

The selection of results for Canada shown above gives a good illustration of how rural areas perform *vis-à-vis* urban areas in a large range of areas. It can certainly provide a good basis for policy decisions concerning rural development issues. However, for a complete picture, additional information could be added for the following areas:

- Land and typology issues, including amenities;
- Recreation and tourism;
- Communication infrastructure;
- Cultural activities;
- Crime rate;
- Analysis of out-outliers: identification of successful and unsuccessful communes and areas and analysis of the factors behind the results.

**Figure IV.7.1**  
**Canada: Percentage population change by types of regions, 1981-1996**



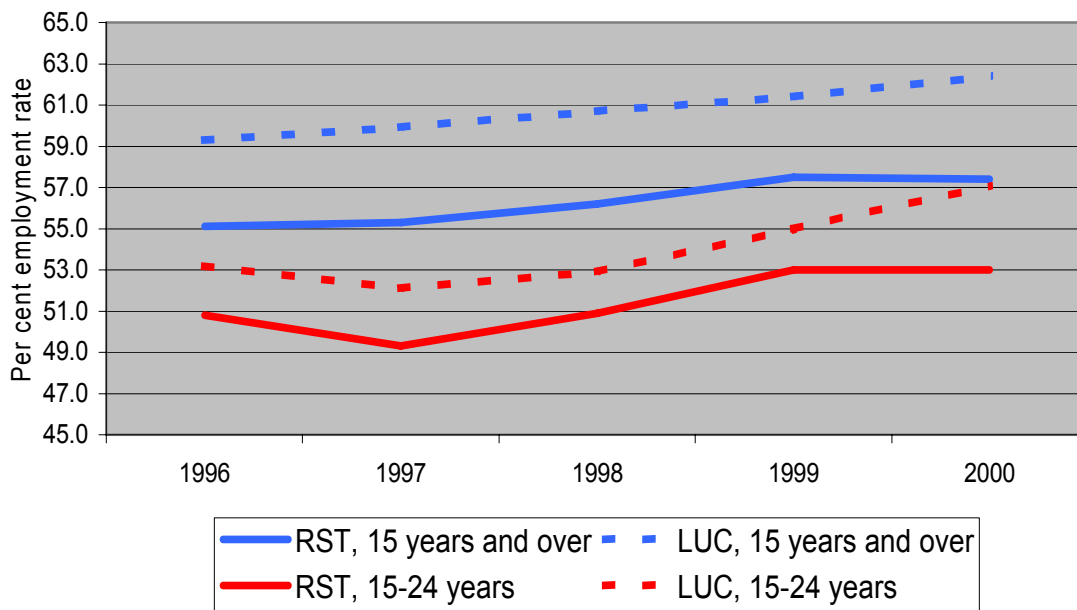
Source: Rural and Small Town Canada Bulletin, Vol.2, No. 2.

**Table IV.7.1**  
**Canada: Employment level and rate and unemployment rate in larger urban centres and rural and small town, 1996 and 2000**

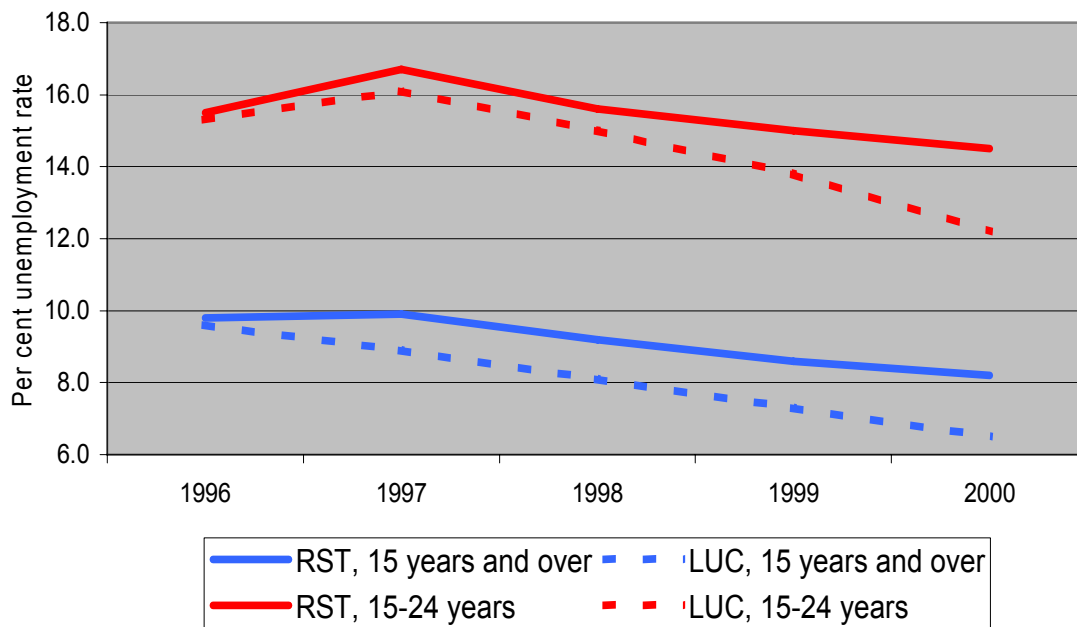
	1996	2000	% change
<b>Employment level</b>			
Larger urban centres	8,191,200	8,960,700	9.4
Rural and small town	1,913,100	2,104,200	10.0
<b>Employment rate (per cent)</b>			
Larger urban centres	76.8	80.7	
Rural and small town	73.4	77.1	
Difference	3.4	3.6	
<b>Unemployment rate (per cent)</b>			
Larger urban centres	8.6	5.4	
Rural and small town	9.1	7.2	
Difference	0.5	1.8	

Source: Rural and Small Town Canada Bulletin, Vol.3, No. 4.

**Figure IV.7.2**  
**Canada: Employment and unemployment rates by age groups and type of geographical area,**  
**1996-2000**  
**(RST = rural and small town areas; LUC = larger urban centres)**



Source: Rural and Small Town Canada. Vol. 3, No. 4.



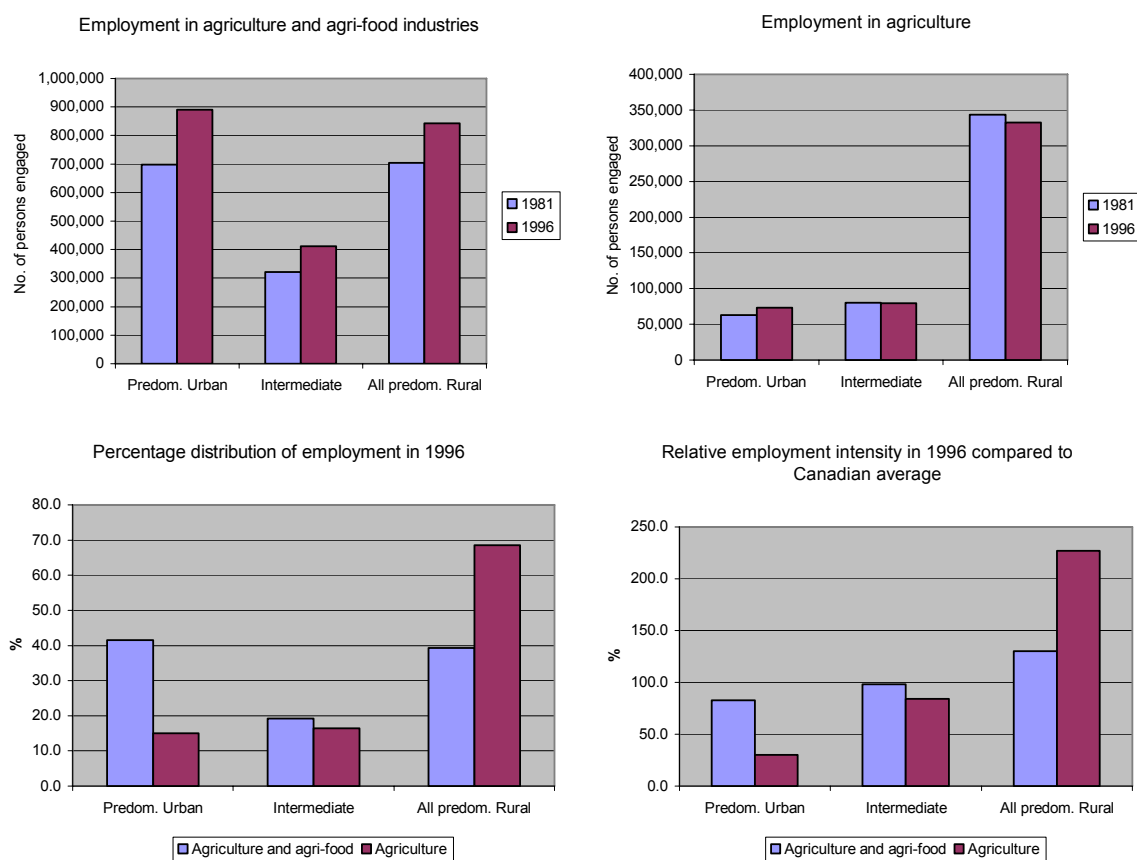
Source: Rural and Small Town Canada. Vol. 3, No. 4.

**Table IV.7.2**  
**Canada: Household expenditures by expenditure categories in urban and rural areas, 1986 and 1996 (constant 1996 dollars)**

	Urban		Rural	
	1986	1996	1986	1996
<i>Per cent of total expenditures</i>				
Food	14.1	11.9	15.4	13.4
Clothing	6.3	4.3	6.4	4.3
Shelter	16.5	17.5	14.2	15.7
<b>Total</b>	<b>36.9</b>	<b>33.7</b>	<b>36.0</b>	<b>33.4</b>
<i>Expenditure in \$ per household</i>				
Private transportation	4,194	5,415	4,430	6,113
Public transportation	468	576	202	215
<b>Total</b>	<b>4,662</b>	<b>5,990</b>	<b>4,632</b>	<b>6,328</b>
<i>Per cent of transportation expenditures</i>				
Private transportation	90	90	96	97
Public transportation	10	10	4	3
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<i>Expenditure per household in constant 1996 dollars</i>				
Tobacco products and smoker's supplies	734	512	795	619
Alcoholic beverages	927	627	750	562

Source: Rural and Small Town Canada Bulletin, Vol.1, No. 4.

**Figure IV.7.3**  
**Canada: Employment in agriculture and agri-food by type of regions**



Source: Statistics Canada, Rural and Town Canada Analysis Bulletin, Vol.4, No.8.

**Table IV.7.3**  
**Canada: Selected health indicators by type of region**

	Self-rated health (excellent)	Body mass index (overweight)	Smoking (daily/ occasionally)	Arthritis/ Rheumatism
Major metro (central)	<b>26.9</b>	<b>26.5</b>	<b>21.6</b>	<b>13.4</b>
Major metro (fringe)	<b>28.6</b>	32.8	27.5	14.3
Mid-sized metro	25.3	32.7	25.5	16.0
Small metro	24.9	<b>35.4</b>	<b>28.3</b>	<b>16.8</b>
Small city: metro adjacent	25.8	35.2	<b>29.4</b>	16.2
Small city: non-metro adjacent	24.0	<b>35.7</b>	26.7	16.4
Small town: metro adjacent	24.5	<b>36.8</b>	<b>29.1</b>	16.3
Small town: non-metro adjacent	<b>21.9</b>	<b>37.1</b>	<b>29.5</b>	<b>15.9</b>
Rural: metro adjacent	<b>19.3</b>	<b>45.3</b>	26.5	14.7
Rural: non-metro adjacent	<b>20.2</b>	<b>42.3</b>	<b>32.0</b>	<b>18.4</b>
Northern	<b>20.8</b>	<b>41.9</b>	<b>32.7</b>	16.1
<b>Canada</b>	<b>25.6</b>	<b>32.4</b>	<b>25.9</b>	<b>15.3</b>

Source: Statistics Canada, Rural and Small Town Canada Analysis Bulletin, Vol. 4, No. 6

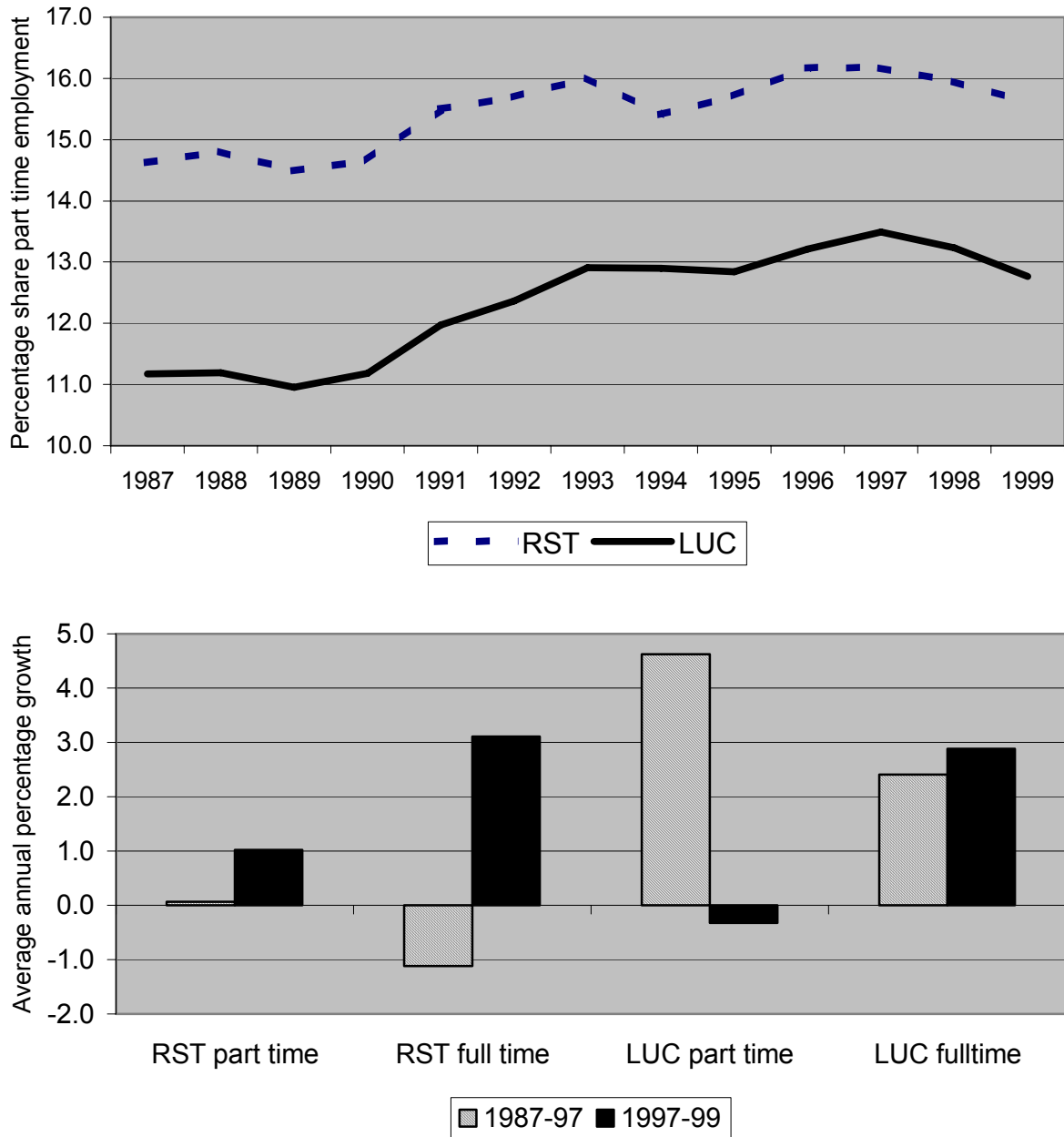
Note: Bolded grey cells indicate significantly different than the national average.

**Table IV.7.4**  
**Canada: Percentage distribution of population (25 to 54 years of age)**  
**by level of educational attainment**

	Less than grade 9		Grade 9-13 (no certificate)		High school certificate (no post secondary)		Some secondary	
	1981	1996	1981	1996	1981	1996	1981	1996
Predominantly urban	14.7	5.5	22.4	17.2	13.4	14.6	49.6	62.8
Intermediate	16.9	5.5	26.1	21.1	14.2	16.5	42.9	56.9
Rural metro-adjacent	18.2	6.3	30.2	25.6	12.6	16.8	38.9	51.2
Rural non-metro-adjacent	23.1	9.5	29.4	27.5	12.3	15.8	35.2	47.1
Rural northern	24.6	11.7	27.6	26.6	10.2	12.7	37.5	49.0
Canada	17.0	6.3	25.4	20.7	13.2	15.4	44.4	57.6

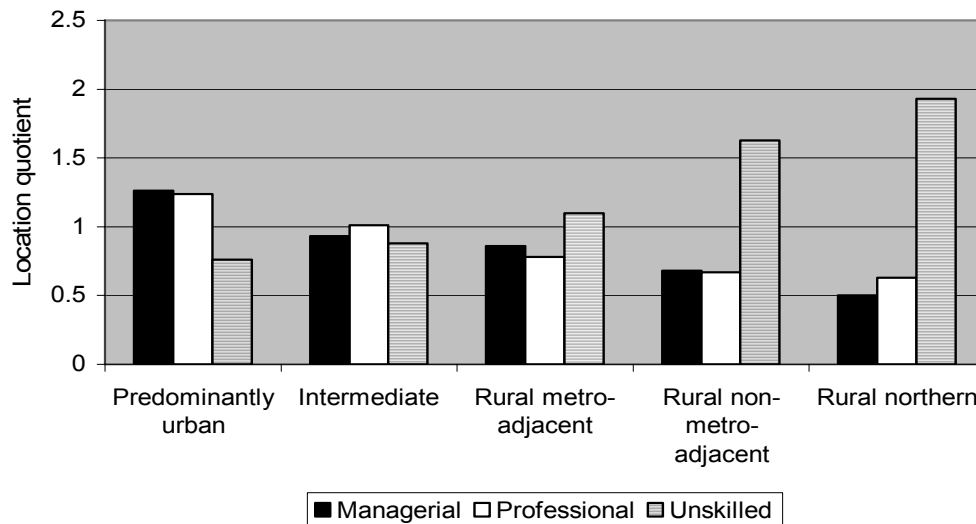
Source: Statistics Canada, Rural and Town Canada Analysis Bulletin, Vol.4, No.5.

**Figure IV.7.4**  
**(a) Canada: Percentage share part-time employment in RST and LUC in 1987-1999**  
**(b) Canada: Annual average percentage change in part time and full employment in 1987-1997**  
**and 1997-1999**  
 (RST = rural and small town areas; LUC = larger urban centres)



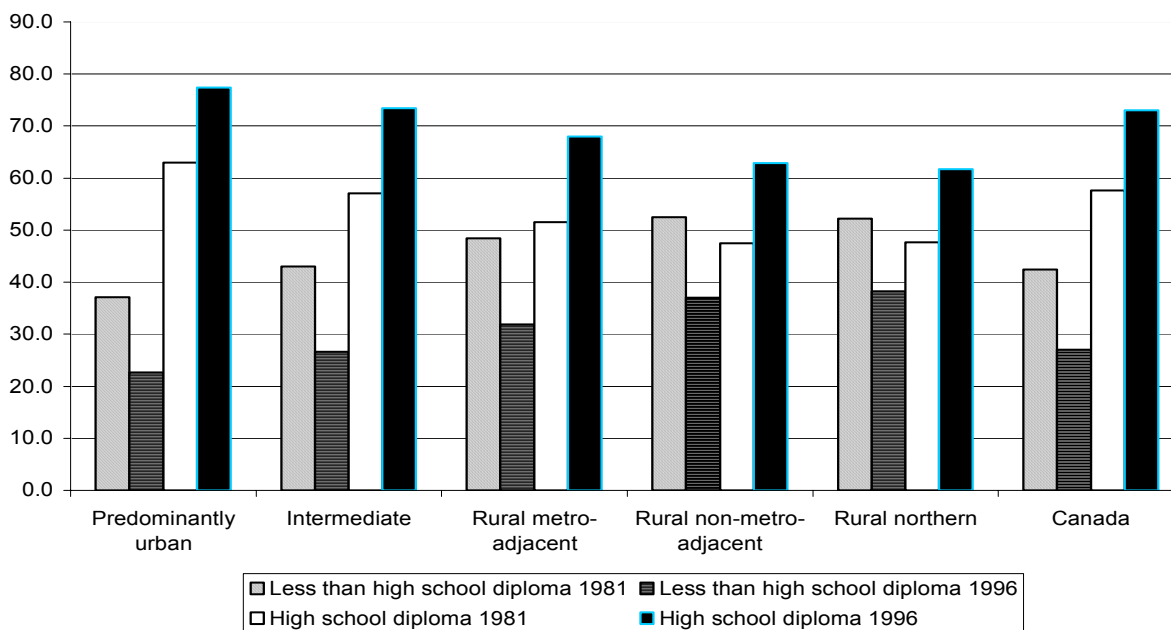
Source: Rural and Small Town Canada Analysis Bulletin, Vol. 4, No. 1.

**Figure IV.7.5**  
**Canada: Intensity of occupation by type of occupation and region in 2001, expressed as a location quotient<sup>7</sup>**



Source: Rural and Small Town Canada Analysis Bulletin, Vol.5, No. 8

**Figure IV.7.6**  
**Canada: Percentage distribution of population (25 to 54 years of age) by level of educational attainment**



Source: Statistics Canada, Rural and Town Canada Analysis Bulletin, Vol.4, No.5.

<sup>7</sup> The ratio of the per cent of total regional employment in a given occupational skill level divided by the percent of total employment in that occupational skill level in the nation as a whole.



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**Information on rural development and related statistics  
available on the Internet for selected countries**

**Australia**

Australian Bureau of Statistics (small area statistics under Themes – Regional Statistics)

[www.abs.gov.au/](http://www.abs.gov.au/)

**Bulgaria**

Ministry of Agriculture

[www.mzgar.government.bg](http://www.mzgar.government.bg)

**Canada**

Canadian Rural Partnership:

[www.rural.gc.ca](http://www.rural.gc.ca)

Rural and Small Town Canada Analysis Bulletin:

[www.statcan.ca/english/freepub/21-006-XIE/free.htm](http://www.statcan.ca/english/freepub/21-006-XIE/free.htm)

Statistics Canada – community profiles:

[www12.statcan.ca/english/profil01/PlaceSearchForm1.cfm](http://www12.statcan.ca/english/profil01/PlaceSearchForm1.cfm)

Statistics Canada - Definition of Rural:

[www.statcan.ca/english/IPS/Data/21-601-MIE2002061.htm](http://www.statcan.ca/english/IPS/Data/21-601-MIE2002061.htm)

**Denmark**

Statbank Denmark:

[www.statistikbanken.dk/](http://www.statistikbanken.dk/)

**Estonia**

Statistical Office (regional statistics on local government units, county and NUTS 3 level)

[www.stat.ee/](http://www.stat.ee/)

**France**

INSEE (statistics on rural and urban zones):

[www.insee.fr](http://www.insee.fr) (rubrique ‘territoire’)

**Germany**

Federal Office for Building and Regional Planning

[www.bbr.bund.de/](http://www.bbr.bund.de/)

Federal Statistical Office

[www.destatis.de/themen/d/thm\\_regional.htm](http://www.destatis.de/themen/d/thm_regional.htm)

**Hungary**

Ministry of Agriculture and Regional Development

[www.fvm.hu/main.php?folderID=945](http://www.fvm.hu/main.php?folderID=945)

**Kazakhstan**

Agency of Statistics

[www.stat.kz](http://www.stat.kz)

**Kyrgyzstan**

Statistical Office

[www.stat.kg](http://www.stat.kg)

**Latvia**

Central Statistical Bureau (Agricultural Census and Population Census data)

[www.csb.lv/](http://www.csb.lv/)

**Lithuania**

Statistics Lithuania (regional and agricultural statistics)

[www.std.lt](http://www.std.lt)

**Norway**

Statistics Norway (regional statistics)

[www.ssb.no/english/subjects/00/00/02](http://www.ssb.no/english/subjects/00/00/02)

**Russian Federation**

Ministry of Agriculture and Food

[www.aris.ru](http://www.aris.ru) (Russian)

Goskomstat Russia

[www.gks.ru](http://www.gks.ru) / <http://www.gks.ru/eng/>

Institute of Agricultural Marketing

[www.apkmarket.ru](http://www.apkmarket.ru) / <http://www.apkmarket.ru/aboute.html>

**Switzerland**

Federal Statistical Office (Scattered information)

[www.bfs.admin.ch](http://www.bfs.admin.ch)

**United Kingdom**

Department for Environment, Food and Rural Affairs (Defra) <http://www.defra.gov.uk/rural/default.htm>

Office for National Statistics (ONS)

<http://www.statistics.gov.uk/geography/nrudp.asp>

Scotland: [www.scotland.gov.uk](http://www.scotland.gov.uk)

Wales: [www.wales.gov.uk](http://www.wales.gov.uk)

**United States**

United States Census Bureau

[www.census.gov/](http://www.census.gov/)

Bureau of Labor Statistics

[www.bls.gov/](http://www.bls.gov/)

Bureau of Economic Analysis

[www.bea.gov/](http://www.bea.gov/)

Economic Research Service

[www.ers.usda.gov/](http://www.ers.usda.gov/)

National Agricultural Statistics Service

[www.nass.usda.gov/](http://www.nass.usda.gov/)



## **V INVENTORY OF RURAL INDICATORS BY INTERNATIONAL ORGANIZATIONS**

### **V.1 Introduction**

In the sections below a brief account is given of the set of indicators developed by major international organizations. This builds on the introduction already given in Chapter III section 4 to the themes within rural development on which these organizations have identified their need for statistics. Many of the indicators and the arguments behind them are of course much the same for all international organizations. Details of the OECD indicators are given first and these are not repeated in subsequent sections for the other organizations. This explains why the OECD section is much longer than those for the other organizations.

In order not to burden the text the various list of indicators explored and/or adopted by the European Union and World Bank are shown in Annex 4 and Annex 5, respectively. These include details about the definitions of the indicators.

### **V.2 OECD**

#### **V.2.1 Introduction**

Since rural development is a complex, multidimensional concept, rural conditions and trends cannot be described by a single yardstick. To cover the various perspectives, a whole set of indicators has to be found. Furthermore, the focus of analytical and policy interest in rural affairs changes over time.

Rural to urban migration has always been a major issue but even here perspectives have changed. In some countries there have been indications of counter-urbanisation and rural revival. Analysis of the economic determinants for migration has often led to a particular interest in the structural adjustments in agriculture. Rural has often been used as a synonym for agricultural. Such a notion has lost its usefulness because agriculture has long since ceased to be the most important economic base for most rural areas in OECD Member Countries. Farmers have become a minority even in rural villages and rural people are employed more and more in the secondary and tertiary sectors.

However, agriculture, together with forestry, still involves the management of land resources. It continues to shape the environmental quality of the countryside. Land use changes can have an important impact not only on ecological integrity but also on aesthetic, visual amenities. Environmental quality has become a key factor in any assessment of rural living conditions, as has education, health and safety. Income figures are still important criteria for measuring rural and regional disparities. However, alone they are not sufficient to explain why people stay or leave rural places.

OECD-wide rural indicators must cover the whole range of rural concerns and should improve the understanding of those factors which influence the design, implementation and impact of rural policies. As a first step, it is useful to distinguish between those subjects which are of general importance and which provide the necessary background for any rural assessment and other more specialized subjects for which a more detailed analysis is required.

The OECD identified the following general subjects, which cover the range of rural development (as well as urban) concerns in the OECD:

- Population and migration;
- Economic structure and performance;
- Social well-being and equity;
- Environment and sustainability.

With the aim of covering these subjects with as much balance as possible, a basic set of rural indicators considered suitable for OECD purposes was selected.

The selection process for the indicators reflected the three principles developed earlier: **relevance, reliability and realisability**. It was based on an assessment of various aspects, such as:

- Likely territorial differences;
- Coverage of the analytical issues;
- Explanatory power of the indicator;
- Availability of disaggregated data.

It is clear that no single basic indicator could be accepted individually as a reasonable yardstick for an assessment of rural conditions and trends. Even comparatively narrow aspects of rural life, such as education and health, are not adequately reflected by such crude measures as the percentage of population with a completed post secondary education, or infant mortality. Nor can disparities in social well-being be measured simply in terms of income per capita.

Not all of the indicators in the basic set are equally accessible. In fact, the list includes indicators with **three levels of availability**:

- Available in the short term;
- Feasible in the midterm;
- Desirable in the longer term.

Thus, this basic set of rural indicators cannot be considered final. In the course of further work it might be appropriate to modify the list by taking out some of the variables or adding new ones. Improvements, especially with regard to data availability, appear particularly desirable in the field of rural indicators on social well-being and environmental quality. The basic set of rural indicators should, however, always be restricted to a limited number of statistics, sufficiently balanced to cover all of the four general subjects (OECD, 1996).

In addition to, and in conjunction with, the work on the general subjects, other, **special subjects** will receive increasing attention. These could include rural employment and human resources, rural environment and amenities, rural infrastructure and access to services, rural tourism, small and medium-sized enterprises (SMEs) and agriculture.

### **V.2.2 Population and migration**

Basic information on the distribution of population over territory is indispensable for any rural analysis. Indications on population change, both natural and migratory, are of key importance in assessing past trends and future prospects of rural development. Territorially disaggregated population statistics differentiated by sex and age provide the foundations for a more detailed description or projection of rural

problems and perspectives. More refined analysis of economic and social aspects of rural life often also requires information about the social organization of the population at the level of households and local communities.

As for a basic set of indicators on population and migration the following were chosen:

- Population density;
- Population change;
- Population structure;
- Households;
- Communities.

### **Indicators**

**Density:** Despite the enormous differences in average national figures, population density is considered as a key indicator for rural analysis at the OECD level. It serves as the main criterion for the distinction of rural from urban in terms of both population and area. Density reflects territorial differences in settlement pattern. It also indicates difficulties in getting or providing access to infrastructure and services.

**Change:** Population change for sub-national territorial units provides basic information for assessing trends in demographic geography. It is appropriate to distinguish at least the following components: total net change, the natural balance (calculated as births minus deaths) and net migration (total net change minus natural balance). It would also be useful to know, for example, if increasing net migration gains are due to increased in-migration or reduced outmigration. It is, however, very difficult to obtain such disaggregated statistics at regional and local levels.

**Structures:** Data on the distribution of population by sex and age provide the basis for the calculation of various demographic ratios. Indices relating the population in different age classes, such as the dependency ratio - those aged 0-14 plus those aged 65 and over divided by those aged 15-64 - or the vitality ratio - those aged 20-39 divided by those aged 60 and over - can be used for the description of demographic features. They are also valuable tools in socio-economic analysis as well as in the planning of infrastructure, such as schools or hospitals. For many purposes, it is also important to be able to distinguish population data by sex (OECD, 1996).

**Households:** Apart from statistics on categories of individual persons, information on the structure and changes in their social organization can be important in learning more about territorial differences and developments. Household size and the share of children growing up in single parent households are variables that could indicate such differences.

**Communities:** In addition to family and household statistics, data on the share of the population living in local communities of different sizes can provide further detail to assess the degree of rurality or agglomeration of sub-national territorial units (OECD, 1996).

### **V.2.3 Economic structure and performance**

For the basic set of rural indicators, economic information can best be obtained from territorially disaggregated statistics on labour force and employment as well as from regional accounts of production and investment.

Ensuring and promoting efficient rural production and employment is surely one of the main objectives of rural policies. Thus, data on employment and value added growth, or labour force participation and unemployment rates are key variables for assessing the state of, and the prospects for, rural development. Since improvement in productivity and efficiency of rural economies always requires structural adjustment and investment, information should also be made available on these subjects (OECD, 1996).

The following indicators were chosen to describe economic structure and performance:

- Labour force;
- Employment;
- Sectoral shares;
- Productivity;
- Investment.

### **Indicators**

***Labour force:*** Labour Force statistics are of key importance for any assessment of economic development in different parts of a country. Change in total labour force and male and female participation rates are considered important indicators. For the purposes of rural analysis, it is crucial to clarify whether labour force and employment data are based on a measurement concept which refers to the “place of residence” or to the “place of work”.

***Employment:*** Employment growth and unemployment rates are major rural policy concerns. However, it should be realised that unemployment rates are very crude measures, which are difficult to compare internationally. They are often based on different statistical concepts and registration practices. Proper assessment of the rural labour market situation would need more detailed information on the underlying past and future trends in job supply and demand. At the moment such data are difficult to obtain. In any case, what should be sought is more differentiated information on the nature of unemployment, by age, sex and duration.

***Sectoral shares:*** Sectoral shares in employment and production (e.g. Gross Value Added) are usually examined to give a first indication of the main economic bases of an area. Knowledge of the shares of the three main sectors (primary, secondary, and tertiary) alone already provides valuable initial information. A further disaggregation would be more useful, however. This would allow analysts to distinguish between, for example, agriculture, forestry or fishing within the primary sector, or tourism from other activities in the services sector.

***Productivity:*** If data are available for employment and production then productivity figures can easily be calculated. They would be important tools for the understanding of structural adjustments within and between the different parts of a country. Unfortunately, as of yet, the availability of territorially disaggregated production data is limited in many countries.

***Investment:*** At present, the territorial detail of statistics on Gross Fixed Capital Formation is even less complete than for total production. However, since investment is crucial for any attempt to promote rural development it would appear appropriate to add an investment indicator to the basic list. Distinguishing among different types of investment, in particular, private and public, would be ideal.



## V.2.4 Social well-being and equity

While territorial income distribution is an important rural policy concern, disparities in social well-being and equivalence in standards of living cannot be properly assessed in income terms alone. A whole series of other aspects determining quality of life should be taken into account. However, it has proved difficult to find social indicators which can reasonably be discussed in a sub-national and international context at the same time.

The following indicators were chosen to describe important aspects of social well-being and equity:

- Income;
- Housing;
- Education;
- Health;
- Safety.

### **Indicators**

**Income:** Per capita income is probably the most commonly used measure to assess social disparities. Availability and quality of data sources is not, however, as good as one would expect. In Europe, most countries use Gross Domestic Product (GDP) per inhabitant as an indicator for regional income disparities. The smaller the area covered the more likely it is that this indicator will be misleading, because the GDP of an area is not necessarily produced only by the people living in that same area. The more important commuting becomes, the less meaningful the results. Since personal incomes depend to a large extent on redistribution through taxes and transfers, **figures on disposable personal income would surely be more appropriate indicators.** The purchasing power of income, however, may not be the same in every part of a country. This is even more true for international comparison, since current exchange rates do not always reflect the differences in purchasing power.

**Housing:** Housing conditions are an important component of a comprehensive monitoring of living conditions. The measurement and comparison of housing standards is difficult. However, the number of persons per room and the percentage of households having flush toilets appear to be variables that could provide initial indications of territorial differences in housing quality.

**Education:** Population with a higher level of education is another important aspect in describing territorial disparities. Since education systems differ considerably between countries, the most appropriate way to assess territorial differences would seem to be to measure the share of population over age 25 with a completed post secondary education.

**Health and safety:** Infant mortality and crime rates are, of course, not sufficient to adequately describe health and personal safety conditions. As part of a larger set of social indicators, however, they can serve as initial indicators for analysing territorial equivalence in qualities of life (OECD, 1996).

## V.2.5 Environment and sustainability<sup>1</sup>

Environmental quality is an important resource for, as well as a result of, rural development. To be sustainable, rural development has to be sensitive to environmental changes and impact. It should support efforts to maintain ecological integrity. Sustainable rural development requires adequate integration of environmental considerations into private and public decision-making.

For many environmental issues availability of territorially differentiated statistics is still very limited. A major problem for the integration of socio-economic and environmental information in rural analysis is that the grids of territorial units used to collect and present the respective data often do not coincide.

The following basic indicators on environment and sustainability were chosen:

- Topography and climate;
- Land use;
- Habitats and species;
- Soils and water;
- air quality.

### **Indicators**

***Topography and climate:*** Topography and climate not only shape the natural conditions but also help determine the attractiveness of areas as places for living, working and recreation. Measurement which makes sense in an international context is not easy, however. In a first attempt, the share of mountain area (over 600 meters) and the vegetation period (growing days per year) were selected as potentially relevant indicators. As a synthetic indicator that refers to a site-specific mix of threshold values in temperature, precipitation, sunshine etc., the vegetation period is not only important for agriculture but is also relevant for assessing locational amenities for housing or tourism.

***Land use:*** Data on land use, and in particular on changes in land use, can provide basic information not only on economic dynamics, e.g. in the farming sector, but also on basic environmental conditions. It is appropriate to distinguish between changes in total land use and changes in agricultural land use. In combination with other indicators, a growing share of arable land can be interpreted as an indication of increases in soil erosion and pollution risks. If, however, the initial share is low, a reduction of arable land could also be interpreted as a negative sign, because the diversity of landscapes and habitats may be diminishing.

***Habitats and species:*** The share of protected areas is a commonly used indicator for measuring the existence of nature conservation values, although its reliability as an environmental indicator is not very strong. It could even be interpreted as an indicator for nature at risk because without a threat there is often no need to designate such areas. As a rural indicator, comparing primarily territorial differences, and in combination with other indicators, its explanatory value may be higher, however. An indicator for assessing species diversity is the share of endangered species. At the national level, information on the number of threatened species exists for most OECD Member Countries. Information for sub-national units would be much more valuable. Providing such data, however, will not be easy in the short run.

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<sup>1</sup> It is recognized that, in its present version, the Handbook does not cover indicators of landscape quality and amenity. Annex 6 goes some way to redress the balance.

**Soils and water:** Conservation of soils and protection of ground and surface water are closely related issues. They have become key environmental concerns, in particular in many rural areas. Detailed maps on natural erosion risk do not yet exist for all OECD Countries but could be developed in the midterm. It would be “a once and for all” exercise. Combined with data on land use changes, an erosion risk indicator could provide information for purposes of soil conservation and also for water protection, since soil erosion is a major source for surface water pollution. Ground water pollution in rural areas is to a large extent due to intensive agriculture. Since the problem is not just mineral fertiliser use, nor even just the total amount applied, nutrient balances (input minus withdrawal per hectare) should be calculated as indicators. Again data are not yet available for many countries but they could be developed within a reasonable time-frame.

**Air quality:** Ideally, balances of flows should also be established in order to assess air quality. While this may not be realistic in the short-term, emission data for air pollutants such as sulphur dioxide and carbon dioxide do differ considerably between rural and urban places. These may help to provide some initial information on territorial differences in environmental quality and sustainability (OECD, 1996).

Table V.1 shows the set of indicators for which the OECD has collected data from Member Countries.

**Table V.1**  
**OECD rural indicators**

<b>Selected rural indicators by type of region (Regionen)</b>	<b>Predominantly rural regions</b>	<b>Significantly rural regions</b>	<b>Predominantly urbanized regions</b>	<b>National total or average</b>
<b>1 Population and area</b> Distribution of regions Distribution of population (%) Distribution of area (%) Population density (inhab./km <sup>2</sup> )				
<b>2 Annual population change (%)</b> Total net change Natural balance Net migration				
<b>3 Demographic structure (index)</b> Dependency Vitality				
<b>4 Employment by sector (%)</b> Agriculture Industry Services Total				
<b>5 Labour market</b> Annual employment growth (%) Participation rate (%) Unemployment rate (% of LF)				
<b>6 Productivity and income (nat.=100)</b> GDP per capita Personal income				
<b>7 Land use change (%)</b> Agriculture Forestry Other Total				

Source: OECD. Creating rural indicators for shaping territorial policy. Paris, 1996.

## V.3 European Union

### V.3.1 Indicators suggested in the PAIS report

The rural development domain of the Proposal on Agri-Environmental Indicators (PAIS) aimed to produce an inventory of social and economic statistics used, or with the potential, to measure changes in the rural regions of Member States. Information on indicators in the PAIS project was collected in a variety of ways, and from a variety of sources both within the administrations of Member States and within the academic community. As a result, it was possible to present information relating to **over 500 indicators** and descriptions of national approaches to rural development indicators in nine Member States.

Following an assessment of these indicators, grouped according to various themes, and using standard criteria of sensitivity, analytical soundness, comprehensibility, reference value and policy relevance, **55 indicators have been selected, which are considered to represent “good practice”** in addressing the needs of rural development policymakers and practitioners. The indicators are grouped under the headings shown below.

#### (i) *Population and migration - demographic structure and evolution*

An area's development depends on its population settlement and structure. For example, in areas of sparse settlement patterns it is difficult to achieve economies of scale in the production and/or delivery of goods and services. Both the level and change in population, and the resultant impact on resources, are often key development considerations. Permanent outmigration, for example, can drain labour, initiative, and income from rural areas. In several countries a key policy concern is high internal migration of young and educated people who are leaving rural municipalities and even regional centres and heading to the major city regions. It is clear that reproduction rates in most rural areas are now below urban rates, and that most rural areas depend on net inward migration for the maintenance of population. The scale and character (age-structure, class-structure, etc) of this inward migration is both an important indicator of economic performance, and a crucial element in future demographics. It is clear that, outside the commuting zones of major towns and cities, the scale and nature of inward migration varies considerably between different rural areas.

The common parameters used in relation to population composition are age structure, gender and household status. Different age-cohorts are of particular relevance to rural areas. Rural areas are often characterized by top-heavy age structures as a result of selective in- and outmigration in the past. As such, indicators of the general well-being of rural areas include:

- Per cent of population under 18;
- Per cent of population over 65;
- Per cent of young people aged 15-30.

These examples are used principally for the justification of policy support and allocation of resources in the rural policy context, although they are of course important for planning the delivery of a whole range of services such as education, health care and so forth.

Clearly, demographic forces influence the size and structure of the labour market. As exemplified by EU policy, age cohorts are often used in the calculation of demographic labour market indices. This group of indicators, generally expressed in ratios, include measures of the:

- Dependency rate (by gender):  $(\text{population } 0-14 + \text{population over } 64)/(\text{population } 15-64)*100$ ;
- Social weight of young population:  $(\text{population } 0-14)/(\text{population } 15-64)*100$ ;
- Rejuvenation rate:  $(\text{population over } 65)/(\text{population } 0-14)*100$ ;
- Substitution rate:  $(\text{population } 15-24)/(\text{population } 55-64)*100$ ;
- Demographic labour market index:  $(\text{population } 5-14)/(\text{population } 55-64)*100$ .

The last point gives an early indication of how many new jobs will be required in the next 10 years in order to prevent outmigration and population decline. The indicators are also disaggregated by gender.

At the most basic level, population change alone is a common and first indicator of development. Because of the strong relationship between development and population change, it is a popular indicator for identifying priority areas for special support in rural policy. The three principal components of population change are births, deaths and migration. The common indicators of population change, expressed as both ratios (per 1,000 of population) and in per cent are:

- Net migration;
- Average annual population change (natural balance and migration);
- Decennial population change (annual rate).

**(ii) *Social well-being - quality of life***

Quality of life factors, such as levels of crime, quality of, and access to, education and health services and the quality of the local environment have also been shown to be important for inward and outward migration decisions in rural areas.

Many of these concerns are applicable to all territories, but some are of particular importance to rural areas. In addition, there are issues that are intrinsically more 'rural' in nature such as employment in agriculture and forestry, specialised value added activities, environmental and landscape management, and rural tourism and recreation. Monitoring regional change in these sectors is increasingly relevant in view of the evolving nature of rural employment and diversification policies.

The enhancement of individual welfare, the improvement of living and working conditions and reduction of social exclusion are principal aims of European social and cohesion policies. The set of issues covered include:

- Rural safety;
- Rural environment;
- Rural income;
- Consumer oriented services;
- Housing.

**(iii) Economic structure and performance**

Diversification of the rural economy, and the creation and maintenance of employment are critical issues for Europe's rural areas. One part of this debate concerns the "multifunctionality" of agriculture, based on the insight that agriculture is not limited to food production, but extends to environmental and wider socio-economic functions. Policy measures to diversify on- and off-farm income sources and to widen the economic base of rural economies are implemented through a plethora of national and regional policies and agencies. The tourism sector has acquired a wider significance as rural areas transform into service-based economies. This is a sector that is able to utilize rural landscape amenities, as well as being associated with rural heritage and culture.

Strengthening the competitiveness of rural Europe does not only depend on the production factors available, but on a whole range of factors. They include access to an adequate transport and communications infrastructure that can enable rural areas to compete in the global economy, proximity to public services, conditions for entrepreneurship and effective support mechanisms.

Six issues have been identified as having important policy implications with regard to economic structure and diversification:

- Labour market structure and performance;
- Enterprise and innovation;
- Tourism and recreation;
- Multifunctionality of agriculture; and
- Business infrastructure.

The main indicators of economic structure pertain to both employment and output per employee within different economic sectors. The emphasis on these indicators is no longer on analysing the sectoral employment share of the primary sector in rural areas, but the degree to which the 'new economy' is prevalent, including tourism-dependent sectors, producer services, high technology manufacturing and quality value added activities.

The Rural Labour Market: The following change indicators are applied across all Member States at regional level (NUTS II or III level):<sup>2</sup>

- Unemployment rate;
- Participation rate;
- Self-employment;
- Long-term unemployment change;
- Educational attainment rate.

Enterprise and Innovation: Business vitality, in terms of density of businesses and turnover of businesses, can have a direct impact on the economic well-being of a territory. A focus on local entrepreneurship is concurrent throughout the EU and many national regional development policies.

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<sup>2</sup> NUTS = Nomenclature of Statistical Territorial Units.

Business Infrastructure:*Level of provision:*

- Number of Internet service providers (ISPs) within a territory;
- Provision of Integrated Service Digital Network (ISDN) and Asymmetric Digital Subscriber Line (ADSL) in a territory based on capacity and speed;
- Annual subscription cost of ISDN, ADSL and other broadband technology.

*Level of usage:*

- Number of ISDN, ADSL, cable subscribers by businesses within a territory;
- Number of Internet hosts and business subscribers to digital services;
- Turnover of business generated from the Internet;
- Number of home and work-based Internet users (and e-mail).

Tourism in Rural Development: Tourism is now viewed as a key rural industry within Europe. The countryside is recognized as an important resource for leisure pursuits for the domestic market, in addition to overseas visitors. Yet the indicators that are used to measure the supply and demand of tourism in rural areas continue to be limited. Tourism, as an activity, affects a range of policy areas: employment, regional development, education, environment, consumer protection, health, safety, culture, new technology, transport, finance and taxation. However, tourism remains difficult to define and measure, particularly in terms of its contribution to the national economy given that many of the commodities produced and consumed are subsumed within other elements and sectoral shares in national accounting systems.

The major statistics collected on tourism can be divided into supply and demand. Different tourism dimensions can be summarised as follows:

- Physical features of consumption;
- Physical features of supply;
- Employment features;
- Other monetary features, e.g. tourist expenditure.

Multifunctionality of agriculture: The multiple functions of agriculture (MFA) are critical issues for rural development indicators to capture and measure. As a sector, concerns relate to population maintenance, employment, landscape, environmental quality, and tourism and other non-production-related functions. Under rural development, research focuses on the social and economic functions of agriculture, largely excluding landscape and environmental quality, although these are critical dimensions of MFA. There are three key areas that socio-economic indicators can address: farm household employment; agricultural diversification and agricultural productivity.

The diversification of **farm household employment** into non-farming activities, where the unit of analysis is the farm household, constitutes one set of indicators. Under tourism, indicators of the role of tourism related enterprises on farms have been highlighted. Similarly, farm household employment and income from other non-farming enterprises are being measured. Measurement of changes in employment, time input, and turnover generated from alternative activities on assisted holdings, compared to non-assisted holdings, will be key evaluation indicators for the programmes.

A second set of indicators concerns the **diversification of primary production** on the farm holding, reflected in measurements of the uptake of agri-environment schemes, forestry and organic aid schemes. Usually calculated on a number of holdings and area basis, the indicators are expressed for policy-supported holdings. For example, typical indicators of organic farming include 'certified organic and in-conversion

land area and holdings,' the percentage of utilizable agricultural area (UAA) devoted to organic farming, and its evolution.

Although there is a wealth of efforts to measure the impact of agriculture on the environment, there have been fewer efforts to capture the impact that agriculture's habitat and species maintenance efforts have had on public goods. Indicators of habitats and species are currently restricted to proxy measures, such as the area of national, EU or Internationally designated areas. Although not used in this context, the population of farm birds, for example, could be an indirect indicator of farming's multifunctional role, based on the existence of values stemming from an altruistic concern for the environment (although this may be more applicable to urban residents, than rural). Other examples could include area of farmland maintained as woodland, plant diversity, hedgerows and organically farmed area. Difficulty in providing any scientifically sound calculation of the value of public goods may, in part, explain why such indicators are not utilized.

A third set of indicators concerns measurements of **farm structure (inputs) and productivity (output)**. Farm employment structure by EU land use categories are the most common indicators of resources, along with the form of farm tenure and total income from farming. Farm productivity is measured using output per hectare and output per employee and includes changes over time. There is little variation in the indicators used between countries, although some are able to produce data at finer spatial scales than others.

The proposed set of indicators is shown in Table 1 in Annex 4. This table could very well be amended to include columns for the geographic classes (such as "rural" and "urban" or "predominantly rural regions," "intermediate regions" and "predominantly urban regions") because every indicator applies equally to each type of geography.

### **V.3.2 Indicators suggested in the Hay report**

The Hay report (2002) stresses that there are significant problems concerning data availability even though it was not expected that data for all the variables would, in the first instance, exist at a NUTS 3 level or lower.

Much of the data, however, does not go beyond NUTS 2. This is a recurring problem for many of the required variables, with data for several only provided/collected at country level (NUTS 0) rather than district level (NUTS 3) or even regional level (NUTS 2). In fact, for a total of **fifty-eight indicators**, with the current data available, only **seven** of these can be calculated at NUTS 3.

Even when data is collected at NUTS 2 or NUTS 3 level there are problems with lack of harmonization. Data may exist, for example, for some countries in the years 1994 and 1996, and yet, for others it is only available for 1995 and 1997, thus making a country comparison for the same year impossible.

To add further confusion to the issue, in the years that NUTS 3 or NUTS 2 data exists there are often internal country data gaps. Although data may be provided at either NUTS 3/2 for a certain year, it might not be a 'full set', with possibly one fifth of the data missing.

In addition, for certain variables some countries simply do not provide data - for any year or at any NUTS level. In such cases a study of the EU-15 becomes instead a study of the EU-9 or EU-10. What makes this issue more difficult in terms of a country comparison is the fact that the data for the remaining



EU-9 or EU-10 will contain many of the problems mentioned above and, therefore, data will be neither complete nor satisfactory for the purposes of analysis.

Table 2 in Annex 4 lists the indicators suggested in the Hay report. Again, these indicators could also be applied to characterize urban areas.

Based on the Hay report and the PAIS project, themes and indicators that were selected by Eurostat are shown in Table 3 in Annex 4.

### **V.3.3 Common indicators for monitoring rural development programming – midterm review**

Agenda 2000 required Member States and regions to undertake a midterm review of their rural development programmes, based on common guidelines and indicators, to be submitted to the Commission no later than the end of 2003 (EC, 2003a; 2003b). The purpose of this is, of course, to assess how well the assistance has performed with regard to the achievement of objectives *vis-à-vis* the different categories of beneficiaries (EC, 2002).

The guidelines for the evaluation reports include an explanation of the methodologies applied, including the implications for the quality of the data and the findings, and the sampling techniques and sources that are used to collect the data. Moreover, it is required that optimum use be made of so-called secondary data, i.e. data that exist already, for example from the monitoring system. If primary data are used they must be based on representative sampling techniques.

Table 4 in Annex 4 contains a list of the common evaluation questions. In agreement with Member States, the European Commission has drawn up a series of common indicators for monitoring rural development programming for the period 2000-2006. These indicators and explanatory guidelines on how to complete the common rural development monitoring indicator tables can be found at the following Internet address: [http://europa.eu.int/comm/agriculture/rur/eval/index\\_en.htm](http://europa.eu.int/comm/agriculture/rur/eval/index_en.htm)

## **V.4 The World Bank**

For developing countries it is suggested that core indicators are selected from the following five themes.

- Basic socio-economic data;
- Enabling environment for rural development;
- Broad based economic growth for rural poverty reduction;
- Natural resource management and biodiversity;
- Social well-being (education and health).

These themes, and the proposed indicators under each theme, are partly derived from the set of indicators suggested by World Bank experts, which is shown in Annex 5. The indicators selected are largely determined by the availability of data and the particular policy issue that is to be addressed.

Many of the indicators listed in Annex 5 are highly correlated. From a resource point of view it makes good sense to identify those correlated indicators and only select one or a few from each group.<sup>3</sup> For the regular monitoring of rural development it is also important that complementary indicators are selected from each theme and that these indicators can be regularly measured.

For a great deal of the indicators listed in Annex 5, data are most probably not available on a regular basis. However, as is discussed in Chapter VI, when designing population and housing censuses, agriculture censuses, household budget surveys, labour force surveys and other types of survey, the data needs for constructing a selection of these indicators should be covered by the surveys.

## V.5 FAO

Table V.3 lists the World Conference on Agrarian Reforms and Rural Development (WCARRD) set of primary indicators. The indicators marked with an asterisk are the “core” indicators for use in monitoring poverty alleviation.

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<sup>3</sup> Principal component analysis (PCA) constitutes a **tool for evaluating and presenting the redundancies or associations between several continuous variables** (measured by the correlation coefficient) and is often **used to graphically represent and summarize the key features of a dataset**. Thanks to this descriptive method, datasets with a large number of variables can be analysed and summarized graphically, revealing the underlying structure of the data. Source: [http://training.creascience.com/product\\_info.php?products\\_id=45](http://training.creascience.com/product_info.php?products_id=45)

**Table V.3**  
**The WCARRD list of primary indicators**

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<b>I.</b>	<b>Poverty alleviation with equity</b>
	<u>Income/consumption</u>
1.	Percentage of population in households with per capita income below the poverty line *
2.	Percentage of income accruing to each fractile (decile/quartile) of the population *
	<u>Nutrition</u>
3.	Percentage of children aged 1-5 years in groups less than: *
	80% weight-for-age
	90% height-for-age
	80% weight-for-height
4.	Percentage of under-nourished population *
	<u>Health</u>
5.	Infant and child mortality rate *
6.	Percentage of the population in villages/communities with at least one health auxiliary
	<u>Education</u>
7.	Adult literacy rate *
8.	Primary school enrolment and completion rates
	<u>Housing</u>
9.	Percentage of rural household with specified housing facilities, e.g. piped water, electricity and sanitation facilities
	<u>Access to community services</u>
10.	Percentage of population living in villages/communities with access to: potable water, public health services, primary schools *
<b>II.</b>	<b>Access to land, water and other natural resources</b>
	<u>Access to community services</u>
11.	Percentage of number and area of agricultural holdings by size groups and tenure *
12.	Percentage of heads of rural households without land *
13.	Average wage rate of agricultural labourers *
14.	Rate of unemployment and under-employment
15.	Percentage of landless agricultural labourers to the population economically active in agriculture *
<b>III.</b>	<b>Access to inputs, markets and services</b>
16.	Percentage of rural households receiving institutional credit
<b>IV.</b>	<b>Development of non-farm rural activities</b>
17.	Percentage of economically active population engaged in non-agricultural activities in the rural areas
<b>V.</b>	<b>Education, training and extension</b>
18.	Number of rural (including agricultural) extension personnel per 1,000 holdings/households
<b>VI.</b>	<b>Growth</b>
19.	Annual rate of population growth

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Source: FAO.

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## VI DATA SOURCES

### VI.1 Introduction

Rural development statistics are concerned with the measurement of a multitude of heterogeneous variables, in the areas of demography, geography and territorial descriptions, environment and, above all, the whole spectrum of economic and social well-being, from a multitude of different sources. In fact, rural development statistics draw from almost all statistical fields. Yet, few of the agencies responsible for these statistics have rural areas in mind when designing their statistical systems. This creates two major problems: first, the **various data sources are often not designed in such a way that they can accommodate the various requirements of rural development statistics**, in particular sufficient geographical background. Labour and educational statistics, for instance, might very well be timely and have detailed breakdown of types of employment and education but only on a national level or, in the best case, major regions. They may not be available at smaller administrative levels such as communes, which are the basic units in rural development statistics.

To be useful for rural development statistics, surveys and other sources of primary data must contain the rural-urban code that is most appropriate for analysing rural development or contain codes with sufficient geographic specificity so that an analyst can create such a code. This is generally less of a problem where the statistics for rural development are analysed by the statistical agencies that carry out the survey, as confidentiality is not an issue. However, where rural analysts use publicly released versions of data and geographic specificity is limited, survey data may be made largely useless for rural analysis if the relevant geographic codes are not part of the data set. Thus, if the survey defines “rural” as outside of urban localities of 2,000 or more inhabitants, this cannot be used where the analyst is concerned with rural regions which are outside the immediate influence of major urban centres.

Whatever definition of rural is used, the actual territory classified as rural inevitably changes over time as the most rapidly growing rural areas cross the size and/or density threshold to become urban. Ideally, during transition years, surveys carry both new and old delineations of rural and urban. At the very least, in reporting a statistical series, years when the delineation was changed need to be noted.

National level surveys are constructed to represent the nation as a whole. Typically, sampling units are grouped or stratified on the basis of political and/or geographic characteristics and selected at random from within groups. Within these units, the sampling frame is then updated to take account of new and vacated housing units and a sample is then identified for interviewing. Survey sampling and interviewing costs are lower to the extent that the sampling is clustered, with fewer sampling units used for a given total expected sample size. However, especially where effectiveness of the stratification in capturing geographic variation is weak, reducing the number of sampling units reduces the representativeness of the survey respondents. This sampling design may result in samples that do not well represent the populations of rural regions or areas, particularly if sampling units are not stratified along rural-urban lines. Moreover, surveys selecting different sampling units over time can yield results that vary over time even when no actual change is present.

A related problem is that rural development statistics often have to **combine data from different sources**, sources that may differ in definitions, coverage, precision, measurement period and periodicity. Statistics on employment may differ depending on the source (household surveys, establishment (business) surveys, or administrative records). The problem is compounded when data from two or more sources are combined to form an indicator. Even combining national accounts data with employment and foreign trade data is problematic despite the close complementary nature of these statistics. When constructing rural

development indicators where the nominator and the denominator are based on different data sources, much attention must be paid to explaining the consequences of this on the results of the indicator.

A good example of mixing data sources is provided by the International Labour Office's (ILO's) new agricultural labour productivity indicator (Key Indicator of Labour Market (KILM) 18e) which is largely derived from the Groningen Growth and Development Centre (GGDC) Database at the University of Groningen (the Netherlands).<sup>1</sup>

When comparing rural indicators between countries other problems are added. Countries tend to use different definitions of rurality and degree of rurality as well as of key concepts such as household. Even among quite similar countries, for instance in the European Union, there is a wide span in the definition of household: people living under the same dwelling whether or not there are family ties, sharing of expenditures, pooling of income, the existence of family or emotional ties or a combination of one or several of these characteristics. There may also be big differences in the child-adult definition and how much weight is given in the household aggregate. (See Chapter IX of this Handbook for a further discussion of these issues.)

Also when it concerns the variables for which the household is characterized there is a great span in the definition among countries. This indicates that care should be taken when comparing indicator levels between countries and suggests a **focus on comparing changes in indicator levels between countries**, in particular if there is relative national stability in the calculation of indicators over time. While, for instance, price statisticians might be confident in presenting estimates of price changes for country comparisons, they are not that keen on comparing levels because like is not always compared to like.

The rest of this chapter reviews the main data sources used, singly or in combination, to generate rural statistics. The discussion attempts to cover both OECD members and developing countries.

## VI.2 Population and housing censuses

Censuses covering the total population and housing stock are indispensable for providing statistics on the population, family, household and housing situation on a uniform basis for small areas and sub-groups. The characteristics of the population include geographic, demographic, economic, educational and household and family characteristics. For many countries, a traditional census is vital for providing such information and often there are no viable alternatives. Registers and other administrative sources are an alternative to the traditional census as far as they contain the relevant topics, definitions and classifications and cover the entire population. Sample surveys used alone cannot provide equivalent data for small areas, but they can be used in combination with a census or to supplement census information on specific topics.

For rural development statistics, censuses are an invaluable source of data because of their complete coverage of the population, at least for basic demographic statistics, which permits a breakdown to small geographical units. The main disadvantage is the long time periods between the individual censuses, normally five years. Another disadvantage is that they are usually not sufficiently detailed with respect to

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<sup>1</sup> The GGDC has long-standing expertise in development and analysis of data on productivity performance, in particular on comparisons of levels of productivity by sector and industry. A full documentation of sources and methods by economy and underlying documentation on the use of purchasing power parity, etc., can be downloaded from the Internet site of the GGDC. Website: <http://www.eco.rug.nl/ggdc/>

expenditures, consumption and income patterns. As will be seen, however, this can be attenuated by conducting household budget surveys linked as sub-samples to censuses.

### Box VI.1

#### An example of mixing data sources

#### ILO's new agricultural labour productivity indicator (Key Indicator of Labour Market (KILM) 18e

For the OECD economies, most of which are included in the KILM 18 tables under the headings of “major Europe” and “major non-Europe”, GDP and labour compensation are mainly obtained from the OECD: *National Accounts*, Volumes I and II (annual issues). Employment estimates for the aggregate economy are mostly taken from OECD: *Labour Force Statistics* (annual issues), and for the individual sectors – as far as available – from the OECD: *National Accounts*, Volume II (annual issues) and the OECD: Structural Analysis (STAN) database. The estimates available from the OECD, which originally were obtained from national statistical offices and, where possible, harmonized for differences in concepts and industry classifications, have been supplemented, where necessary, with national accounts statistics obtained directly from the individual economies. For some economies, the database of the United States Bureau of Labor Statistics (BLS) was used, in particular for estimates on employment and for manufacturing.

For non-OECD economies, the national accounts and labour statistics publications of individual economies were often taken as the point of departure. The statistics from these sources were used to supplement statistics from international organizations such as the World Bank, the Asian Development Bank, the ILO and the United Nations Statistical Office. In the estimations for agriculture, forestry and fisheries, international sources served as the point of departure. Intensive use was also made of the FAO Database from the Food and Agriculture Organization of the United Nations (FAO). However, where it was possible to disaggregate the group to provide estimates for agriculture and forestry (without fisheries) and for agriculture (without forestry and fisheries), data came mostly from national sources. In addition, benchmark estimates of annual hours worked for a significant number of non-OECD economies have been developed.

The estimates for agriculture, forestry and fisheries (AFF), which are of an experimental nature and include as many as 112 economies, are based on measures of purchasing power parity (PPP) taken from a FAO database of prices received by farmers for about 180 products in 1995. These prices refer to farm-gate prices or first-point-of-sale prices, and in principle do not include transport costs or the profit margins that generally accrue to intermediaries. The PPPs for the farm sector are assumed to be representative of the fisheries and forestry industries. As for the aggregate economy, the PPPs for AFF are multilateral, using a Geary-Khamis weighting system. In contrast to the estimates for the aggregate economy and for the other sectors, the estimates for AFF are not backdated to provide them at a 1990 price level (KILM, 2004; van Ark and Monnikhof, 2000).

There are several international sets of recommendations which provide guidance and assistance to countries in planning the content of their census. These recommendations also facilitate and improve international comparability through the harmonization of data, definitions and classification of topics. To this end readers may wish to consult the following:

- **Recommendations for the 2000 Censuses of Population and Housing in the ECE Region.** Jointly prepared by the United Nations Economic Commission for Europe and the Statistical Office of the European Communities, United Nations, New York and Geneva, 1998. Statistical Standards and Studies – No. 49.

- **Principles and Recommendations for Population and Housing Censuses**, Statistical Papers, Series M, No. 67/ Rev.1, United Nations.

The scope of the UNECE/Eurostat joint Recommendations is limited to the following three elements: (a) a list of “core” topics which countries should cover in their censuses, and recommended definitions and classifications for each of the core topics; (b) a list of “non-core” topics which countries may wish to consider including in their censuses, and suggested definitions and/or classifications for some of the non-core topics, and (c) a basic set of tabulation programmes.

The data collection could involve both a short form (with selected questions) and a long form (with more questions). The long form is completed for a sample of households or people. Alternatively, one form could be used, but when this is done, a sample is often selected for processing certain questions: for example, those which could be costly to process, such as industry and occupation.

Some countries are using registers and other administrative sources, together with information from sample surveys, to provide census-type statistics. Other countries are able to collect all relevant information by combining data from different registers. Still other countries can get part of the information from registers and other administrative sources - often information on persons - but have to supplement these by using questionnaires, particularly as there are difficulties in putting new items required for statistical purposes into administrative registers.

Six units of enumeration may be used in population and housing censuses tables:

- (a) Persons;
- (b) Private households;
- (c) Institutional households;
- (d) Family nuclei;
- (e) Living quarters (i.e. housing units and living quarters other than housing units, such as institutions); and
- (f) Buildings.

In statistical terms, these concepts are clearly distinguishable, and the terms are not themselves interchangeable. Some households contain more than one family, several households may live together in a housing unit and, exceptionally, a single household may occupy more than one housing unit as its usual place of residence. Similarly, a building may contain several housing units and a housing unit may, exceptionally, be located in more than one building, for example, in the case of dwellings comprising a main building and a room or rooms above a detached garage that are clearly designed to be used as part of the dwelling. (See also Chapter IX of this Handbook.)

The UNECE/Eurostat Recommendations contain the following 29 core topics. Those that are of particular importance for rural development statistics are briefly annotated. There are also 52 non-core topics recommended for countries that have the means of covering them. Some of these are also briefly mentioned.

### **Geographic characteristics of persons**

1. **Place of usual residence**
2. **Place of usual residence one year prior to the census**



**Demographic characteristics of persons**

3. Sex
4. Age
5. Legal marital status
6. Country/place of birth
7. Country of citizenship

**Economic characteristics of persons****8. Current activity status**

This is the current relationship of a person to economic activity, based on a brief reference period, preferably the previous week. The use of the "current activity" is considered most appropriate for countries where the economic activity of people is not influenced much by seasonal or other factors causing variations over the year.

The "currently active population" (the "labour force") comprises all persons who fulfil the requirements for inclusion among the employed or the unemployed. "Employed" persons comprise all persons above a specified age who, during the reference period, performed some work for pay or profit, in cash or in kind, or were temporarily absent from a job in which they had already worked and to which they had a formal attachment, or from a self-employment activity such as a farm, a business enterprise or a service undertaking. The census documentation and tabulations should clearly describe the time limit chosen as the cut-off for considering persons to be "at work." According to the present international recommendations, the notion of "some work" should be interpreted as work for at least one hour during the reference period. The one-hour criterion is an essential feature of the labour force framework embedded in the international definitions of employment and unemployment, and a prerequisite for the consistency of employment statistics with national accounts data on production. Countries concerned about the usefulness of the one-hour criterion for other users of census results should also collect data on "time worked."<sup>2</sup>

**9. Time usually worked****10. Occupation**

"Occupation" refers to the type of work done in a job. "Type of work" is described by the main tasks and duties of the work.<sup>3</sup>

<sup>2</sup> "Labour force, employment, unemployment and underemployment" were subjects considered at the 13<sup>th</sup> International Conferences of Labour Statisticians in 1982. It resulted in a resolution, which represents the current ILO recommendations on the subject (source: <http://www.ilo.org/public/english/bureau/stat/techmeet/icls/subjects.htm>).

<sup>3</sup> An original ILO (LABORSTA) database was compiled from responses to a questionnaire sent to countries that were known to have coded the variable "occupation" using more than 20 occupational groups in their last Population Census or Labour Force (or Household) Survey. The ILO only included in the original database those countries that provided adequate data by sex for at least 15 occupational groups. This reduced the number of countries included to 40: six that provided data for only one year, 20 for two years and 14 for three. Geographical representation was unequal: only five African countries, two Latin American and two Caribbean countries provided data, in contrast with nine Asian and 18 European countries.

The updated ILO database was compiled from responses to a similar questionnaire sent to all countries. With this strategy the ILO managed to increase the total coverage to 85 countries and territories of which there were: 11 in Africa, 15 in the Americas, 4 in the Arab region, 13 from other Asian countries, 18 from Transition Economies, 20 from other

## 11. Industry (branch of economic activity)

“Industry (branch of economic activity)” refers to the kind of production or activity of the establishment or other unit in which the job(s) of the economically active person was located (or, in the case of unemployed, last located). For purposes of international comparability, it is recommended that countries compile the industrial characteristics of active persons according to the latest revision of the International Standard Industrial Classification of All Economic Activities (ISIC) available at the time of the census.

## 12. Status in employment

“Status in employment” refers to the type of explicit or implicit contract of employment with other persons or organizations, which the person has in his/her job. The basic criteria used to define the groups of the classification are the type of economic risk, an element of which is the strength of the attachment between the person and the job, and the type of authority over establishments and other workers, which the person has or will have in the job. Care should be taken to ensure that an “economically active” person is classified by “status in employment” on the basis of the same job(s) as used for classifying the person by “occupation,” “industry” and “sector.”

It is recommended that the economically active population be classified by status in employment as follows:

1. “Employees”, among whom it may be possible to distinguish “employees with stable contracts” (including “regular employees”);
2. “Employers”;
3. “Own-account workers”;
4. “Contributing family workers”;
5. “Members of producers' cooperatives”;
6. “Persons not classifiable by status”.

It is also recommended to identify separately “Owner-managers of incorporated enterprises,” who normally will be classified among “employees,” but whom one may prefer, for certain descriptive and analytical purposes, to group together with “employers.”<sup>4</sup>

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European countries and 4 in Oceania, for years around 1970 (58 countries), 1980 (52), 1990 (58) and 2000 (47). Most of the statistics that were provided were based on census results (ILO, 2003a; 2003b).

<sup>4</sup> The ILO also provides an indicator of status in employment, which distinguishes between three important and useful categories of the total employed. These are: (a) wage and salaried workers (also known as employees); (b) self-employed workers; and (c) contributing family workers (also known as unpaid family workers). These three groups of workers are presented as percentages of the total employed for both sexes and for males and females separately. Information on the subcategories of the self-employed group – self-employed workers with employees (employers) and self-employed workers without employees (own-account workers) – is not available for all economies but is presented wherever possible.

The indicator on status in employment is available for most developed (industrialized) and transition economies, as well as for many Eastern Asian, Latin American and Caribbean economies. Unfortunately, there are only a few sub-Saharan African economies for which this indicator is available and, where coverage does exist, extensive time series are lacking. Currently, information is also unavailable for some large developing economies, such as China and India. Information for the indicator, at least to some extent, is available for 129 economies (source: <http://www.ilo.org/public/english/employment/strat/kilm/kilm03.htm>).

### 13. Place of work

Place of work is the location in which a “currently employed” person performs his/her job, and where a “usually employed” person currently performs or last performed the job. While the information on place of work can be used to develop area profiles in terms of the employed labour force (as opposed to demographic profiles by place of residence), the primary objective is to link the place of work information to the place of residence. Therefore, the place of work should relate to the smallest civil division in which the economic activity is performed in order to establish commuter flows from the place of usual residence to the place of work.

A non-core topic related to place of work is **mode of transport to work**, which relates to the daily journey made. For people making several journeys or using more than one mode of transport, the mode of transport used for the greatest distance in the journey should be indicated.

Another non-core topic, which is important for rural development statistics, is **length (in distance and time) and frequency of journey to work**.

### Educational characteristics of persons

#### 14. Educational attainment

For purposes of international comparisons, it is recommended that countries compile their data in accordance with the latest revision of the **International Standard Classification of Education (ISCED)**.

“Educational attainment” refers essentially to the highest level successfully completed in the educational system of the country where the education was received. If relevant, “educational attainment” should take into account all deliberate, systematic and organized communication, designed to bring about learning, even if these were provided outside schools and universities.

At least four levels of education should be normally distinguished: primary; secondary - first stage; secondary - second stage; and post secondary. Persons who have received no formal schooling should also be identified. Ideally, educational statistics should be based on the working age population.<sup>5</sup>

<sup>5</sup> The ILO covers two relevant indicators: KILM 11 on unemployment by educational attainment and KILM 14 on Educational attainment and illiteracy.

KILM 11 focuses on unemployment among workers categorized by their level of educational attainment. Specifically, the indicator is the percentage distribution of an economy's total unemployed according to five levels of schooling - less than one year, less than primary level, primary level, secondary level and tertiary level. Coverage for the indicator is sparse for sub-Saharan Africa, the Middle East and North Africa. Many economies of Asia and the Pacific are also missing.

KILM 14 reflects the levels and distribution of the knowledge and skills base of the labour force. The indicator includes two measures pertaining to educational level of the labour force, and a third measure estimating illiteracy in the adult population. The indicator covers the educational attainment of both women and men in the entire labour force and shows the distribution of the educational attainment of the labour force aged 15 years and above for 104 economies (sources: <http://www.ilo.org/public/english/employment/strat/kilm/kilm14.htm> <http://www.ilo.org/public/english/employment/strat/kilm/kilm11.htm>).

### **Household and family characteristics of persons**

Countries are recommended to use the place of usual residence as the basis of household membership. If only *de jure* information is available (e.g. from registers) on place of residence, i.e. no information is available on usual place of residence, then that information can be used (alone or in combination with other information from other sources) provided that it is judged to reflect the usual residence situation sufficiently accurately.

The concept of “usual residence” is not without ambiguities. Are children away at school or post-secondary school still considered residents of their parents’ locality or are they residents of the place where they are schooled? In general, the latter is preferred as that is the residence at the time of the census or survey.

A private household is either:

- A one-person household, i.e. a person who lives alone in a separate housing unit or who occupies, as a lodger, a separate room (or rooms) of a housing unit but does not join with any of the other occupants of the housing unit to form part of a multiperson household as defined below; or
- A multiperson household, i.e. a group of two or more persons who combine to occupy the whole or part of a housing unit and to provide themselves with food and possibly other essentials for living. Members of the group may pool their incomes to a greater or lesser extent.

This concept of a private household, referred to as the housekeeping unit concept, requires some clarification on the distinction between “boarders” and “lodgers.” Boarders take meals with the household and generally are allowed to use all the available household facilities. Lodgers, however, are sub-tenants who have hired part of the housing unit for their exclusive use.

Some countries use a different concept of the private household in which the private household is equated with the housing unit. This concept of the household is referred to as the household-dwelling concept, and is defined as the aggregate number of persons occupying a housing unit.

The household-dwelling concept does not provide direct information on the number of housekeeping units sharing housing units. It is recommended that countries applying the household-dwelling concept give an estimate of the total number of housekeeping units in the census report. If the difference between the number of household-dwelling units and the number of housekeeping units is significant, these countries should also endeavour to analyse the occupants of housing units in such a way that they are able to compile the recommended basic tabulations relating to private households on the basis of the housekeeping unit concept. Countries should specify in their census reports whether they used the “housekeeping unit” or the “household-dwelling” concept of a private household. (Chapter IX of this Handbook contains a detailed discussion of different household concepts in the context of measuring the incomes of agricultural households).

#### **15. Relationship to reference person**

Information should be collected for all persons living in private households on their relationship to the reference member of the household. Data on this topic are needed for use in (i) identifying households and family nuclei; and (ii) compiling tabulations in which households are classified according to

characteristics of the reference member. It is left to countries to decide whether the reference member should be:

- The head of household or one of the joint heads;
- The person (or one of the persons) who owns or rents the housing unit or in whose name the housing unit is occupied under some other form of tenure or in whose name part of the housing unit is rented or occupied under some other form of tenure;
- An adult person selected with a view to facilitating the determination of family relationships; or
- A person selected on the basis of other criteria.

It is important that countries describe clearly in the census report the concept of the reference member that has been adopted and the definition that has been used. (Again, Chapter IX of this Handbook also discusses this issue in the context of statistics on the incomes of agricultural households).

## **16. Tenure status of households**

Non-core topics which are important for rural development statistics in this context are durable consumer goods possessed by the household, number of cars available for the use of the household and access to telephones, computers and Internet.

### **Characteristics of housing units and other living quarters**

17. **Type of living quarters**
18. **Type of ownership**
19. **Location of living quarters**
20. **Occupancy status**
21. **Number of occupants**
22. **Number of rooms**
23. **Kitchen**
24. **Water supply system**
25. **Toilet facilities**
26. **Bathing facilities**
27. **Type of heating**

### **Characteristics of buildings containing dwellings**

28. **Type of building**
29. **Period of construction**

For other issues with special importance for rural development statistics, it is recommended that information on place of usual residence should be collected in enough detail to enable tabulations to be made for the smallest geographic or administrative subdivisions required to meet users' needs for information on this topic.

In the UNECE/Eurostat Recommendations, it is suggested that countries which tabulate statistics only for civil divisions should, as a minimum, endeavour to compile data on the total population of each part of a civil division containing a population cluster, or part of a population cluster, of at least 2,000 inhabitants.

This will provide a basis for making a more clear-cut distinction between urban and rural areas and populations. Specific size classes are also suggested.

The **division** in urban and rural areas is a derived non-core topic in the UNECE/Eurostat Recommendations. The **most appropriate unit of classification** for distinguishing urban centres from rural areas is the **locality**.<sup>6</sup> While it is left to countries to decide whether to use the locality or the smallest civil division as the unit of classification, countries which use the smallest civil division are encouraged to obtain results which correspond as closely as possible with those obtained by countries which use the locality as the unit of classification.

It is suggested that localities or similar units be grouped into the following five categories:

Less than 2,000 inhabitants;  
2,000 to 9,999 inhabitants;  
10,000 to 99,999 inhabitants;  
100,000 to 999,999 inhabitants;  
1,000,000 or more inhabitants.

Countries are also encouraged to develop typologies of localities or similar areas based on additional criteria that could be used to distinguish different types of areas within particular categories of the suggested classification. Some countries may wish to subdivide one or more of the intermediate categories to distinguish market towns, industrial centres, service centres, etc. or to subdivide the large urban agglomerations in order to distinguish various types of central and suburban areas. Extensions of the classification in these and other ways would enhance its analytical usefulness.

It is also suggested that for purposes of international comparisons, countries define urban centres as localities with a population of 2,000 or more, and rural areas to include localities with a population of less than 2,000 and sparsely populated areas. However, for some purposes, a threshold of 10,000 residents may be more appropriate.

This Handbook recognizes as good practice that statistics on rural development should use regions as the geographical units of analysis rather than localities and open country areas. In industrialized countries, many people who now live in the countryside commute to major towns and cities for work. Their livelihoods are essentially urban livelihoods and they generally have access to a full range of urban services. At the same time, many small towns have lost urban functions as services have become more concentrated in urban agglomerations. Regions with only small towns may be considered rural regions even though some of the region's residents live in localities defined as urban on the basis of locality size. Urban regions typically have a large urban centre (50,000 or more population), while rural regions do not. However, one may also want to define intermediate regions on the basis of a city size of 10,000 or more and its commuting shed.

To enhance comparability across Member Countries, the OECD Territorial Indicators Project developed internationally comparable sets of regions based on population density of sub-regions and this is an alternative approach.

Some countries might also wish to consider defining urban areas in other ways (for example, in terms of administrative boundaries, of built-up areas, of the area for which services such as shops,

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<sup>6</sup> This does not necessarily mean that locality is the unit for analysis but rather the unit for classification aspects. Normally, one should use localities for analysis of local issues and regions for analysis of regional issues.

educational facilities, recreational facilities, employment, etc., are provided, or in terms of functional areas). Whatever approach is taken should be clearly described in the census report.

### VI.3 Agricultural censuses and surveys

In many developing countries, most of the rural population depend directly or indirectly on agriculture for their livelihood. Censuses and surveys on the agriculture sector are major sources of data on the agricultural production units which are mainly household based. Similar to population and housing censuses, agricultural censuses are comprehensive investigations providing structural information on the agriculture sector for small geographical units. They have the same limitations as the population censuses, mainly the length of time separating two censuses (10 years as recommended by the FAO) and the lack of coverage of expenditures, consumption and income patterns. During the interval separating two censuses, more frequent agricultural surveys (using the census data as the benchmark and sampling frame) are usually conducted to update census results.

In many countries, despite the limitations indicated above, censuses of agriculture remain a major source of data on rural populations. The FAO, in consultation with other international organizations prepares the “ World Programme for Agricultural Census” every 10 years. This provides updated guidelines on methods, concepts and definitions for the organization of agricultural censuses.

The new “2010 World Programme of Agricultural Census” being prepared by the FAO, adopts a modular approach which aims at helping countries to meet the need for a wider range of data from the agricultural censuses, while minimizing the cost of census-taking:

- A **core census module**, to be conducted on a complete enumeration basis,<sup>7</sup> will provide a limited range of key structural items of importance for national policymaking, making international comparisons, constructing sampling frames, and analysing data at detailed geographic or other levels. The core module is similar to conventional agricultural censuses in the past, but with a much more restricted range of items.
- One or more **census supplementary modules**, to be conducted on a sample basis at the same time as, or immediately after, the core census module to provide more detailed structural data or data not required at lower administrative levels. The sample for the census supplementary modules will be selected based on sampling frames from the core census module.

Box VI.2 contains the items recommended for core and supplementary modules.

An important feature of the new approach for generating data on rural populations and areas is the provision made for the collection of infrastructure data at the community level in addition to holding level data. Emphasis is also given to integrating the agricultural and population censuses, not only through the use of standard concepts and definitions and sharing field materials, but also coordinating the two data collection activities, adding agriculture-related questions to the population census, and the linking of data from the two sources. Also, recommendations are made for countries that wish to broaden the census to all rural households.

<sup>7</sup> For countries where a complete enumeration is not possible, the core module can be conducted on a large sample basis.

**Box VI.2**  
**FAO: World Census of Agriculture**

Items recommended for the core module<sup>8</sup>

0001	Identification and location of agricultural holding
0002	Sector of agricultural holding
0003	Sex of agricultural holder
0004	Age of agricultural holder
0003	Sex of household members (paragraphs ).
0004	Age of household members (paragraphs ).
0005	Household size
0006	Main purpose of production of the holding
0007	Number of land parcels (paragraphs ).
0007	Area of holding according to land use types
0008	Total area of holding
0009	Land tenure types on the holding
0010	Whether holding is irrigated
0011	Presence of temporary crops on the holding by crop type
0012	Presence of permanent crops on the holding by crop type and whether in a compact plantation.
0013	Number of animals on the holding by livestock type
0014	Presence of aquaculture on the holding
0015	Presence of forest and other wooded land on the holding
0016	Other economic production activities of the holding's enterprise

Items for consideration for the supplementary modules

Theme 01 – Land\_(Reference group: holdings with land in Item 0008)

Theme 02 – Irrigation and water management\_(Reference groups: Items 0201-0205 – holdings with irrigation in Item 0010; Item 0206 – holdings with temporary crops or permanent crops in Items 0011 and 0012; Item 0207 – holdings with land in Item 0008)

Theme 03 – Crops\_(Reference groups: Items 0301-0303 – holdings with temporary crops in Item 0011; Items 0311-0314 – holdings with permanent crops in Item 0012; Items 0321-0327 – holdings with temporary crops or permanent crops in Items 0011 and 0012)

Theme 04 – Livestock\_(Reference group: holdings with livestock in Item 0013)

Theme 05 – Agricultural practices\_(Reference group: all holdings)

Theme 06– Agricultural services\_(Reference group: holdings in sector “single-holding household” in Item 0002)

Theme 07 – Demographic and social characteristics\_(Reference group: holdings in sector “single-holding household” in Item 0002)

Theme 08 – Farm labour\_(Reference group: Items 0801-0814 – holdings in sector “single-holding household” in Item 0002; Items 0821-0823 – all holdings)

Theme 09 – Household food security\_(Reference group: holdings in sector “single-holding household” in Item 0002)

Theme 10 – Aquaculture\_(Reference group: holdings with aquaculture in Item 0014)

Theme 11 – Forestry\_(Reference group: holdings with forest and other wooded land in Item 0015)

Theme 12 – Management of the holding (Reference group: holdings in sector “single-holding household” in Item 0002)

<sup>8</sup> If the agricultural census is conducted in conjunction with the aquacultural census, an additional core item on area of aquaculture by type of site is included.



The new approach will make agricultural censuses a much more relevant source of data on rural areas and population. Since many farm households depend in part on off-farm income or income from family members living elsewhere, this approach will also aid in the assessment of the well-being of farm households (see Part II of this Handbook).

## VI.4 Household budget surveys

The main sources for this section are: “Household Budget Survey in the EU. Methodology and recommendations for harmonization – 2003 (European Commission, Luxembourg, 2003)” and “Household Surveys in Developing Countries and Transition Countries, Implementation and Analysis (United Nations, New York).” There are two main objectives for a household budget survey (HBS). The first is to obtain weights, which are used for elementary aggregates in the construction of consumer price indices or in cost-of-living indices. The international recommended classification of the items of goods and services in HBSs is the United Nations Classification of Individual Consumption According to Purpose (COICOP) (UN, 2003). The HBS is also used as an input to the building of the national accounts for measuring the household final consumption at an aggregate level.

The second major objective of HBSs, which is the main interest in the present Handbook, is to provide detailed information on the **living conditions of private households** in defined areas and time. The surveys are meant to give a precise picture of private households’ total consumption and expenditures broken down in various details as a function of household characteristics such as income, socioeconomic characteristics, size and composition, degree of urbanization, region, patterns of consumption between different types of household as well as information on levels of income, wealth and expenditures. Specific subpopulations such as the elderly, the young, rural populations etc. might be studied. In many countries the distribution of income and consumption is studied from the poverty perspective. Another usage in some countries is for the studying of nutritional patterns of households.

It is very common that special surveys are attached to the regular HBS, e.g. the use of ICT or Internet to take one example.

HBSs are very multi-purpose in nature and cater to a large number of users and uses. For rural development statistics, they are an invaluable source of data although in some countries they do not permit sufficient breakdown by regions and socio-professional categories (for example, farmers – see Chapter XIII of this Handbook). However, it is clear that HBSs have great potential for the improvement of rural development statistics. It is here that demands for special rural statistics and the required breakdown must be formulated. If this is done it is, however, in competition with many other statistical areas of interest, and there is a limit to how large the HBSs can be made. This implies that the demands from rural statistics must be well-formulated, consistent over time, be of interest to many users and be cost effective.

The frequency of HBSs varies greatly between countries, from annual surveys to surveys every five years or even every 10 years. In many countries the survey period is 12 months, that is, the survey is carried out continuously over the whole year.

As the basic unit for data collection is the household, even if dwellings or addresses happen to be the sampling units, the way households are defined is important. Normally the definition of a household is based on persons sharing an accommodation or address and/or sharing expenditures and/or income to various degrees. The family bond is another possible criterion. Even within homogenous groups of countries (for example, the European Union), different definitions might be applied. Whatever definition is reached, it has

to be made clear which categories of persons are included and which are excluded. The reference person of the household should also be defined as well as the child-adult setting.

The main characteristics of HBSs are briefly summarized in bullet form below:

- They are normally confined to the population living in **private households**.
- The **sample size** varies from a few thousands households to 50,000 in large European countries and to more than 100,000 people in the largest countries.
- **Probability sampling** is the recommended method, which is also used in most European countries.
- The most common practise is to use a **two-stage design** for sampling. First, a stratified sample of area units is selected by using probabilities proportional to size after stratification by geographical areas or by other variables. The second stage consists of the selection of households within each sample area. In countries with full-cover registers, a single stage sampling is used.
- There are a number of different approaches to **sampling frames**.
  - One approach is to **base the HBS as a sub-sample on another survey**, such as a labour force survey, or drawn from a master sample. This means that the HBSs can be linked to other surveys and that a wider range of data can be imputed and estimated. There is also an economic advantage of using such a sub-sample. There are, however, two major drawbacks. First, the response burden increases for the selected households.
  - Second, and this is related to the first drawback, is the effect on the response rates. It is generally necessary to restrict the HBS to those households that successfully completed previous surveys. For those countries that have sufficiently well-covered registers, a second approach is to use **registers** as the sampling frame.
  - A third approach is to use **area frames** such as a sample of areas from the population census or from a master sample, often constructed from the population census. By sharing between different surveys, the cost of developing and maintaining sampling frames might be reduced. There is also the advantage of operational linkages between different surveys.
- Normally, the **stratification criteria** are region, socio-professional categories of the reference person and household type or size.
- One of the major problems with HBSs is a high **non-response rate**, which might have serious implications on the reliability of the results. With a high rate of non-response it is common to undertake substitution.
- The recording of household data is usually done by a combination of **interviews** (in the EU usually two per household), **questionnaires** and **diaries**, in which households record all items of daily consumption and expenditures.
- The objectives of HBSs are to determine the level and structure of private households' expenditures or consumption or both. **Final consumption expenditure of households** is defined as:

**Monetary expenditures intended for consumption + consumption of own production + benefits in kind + imputed rents for owner occupied housing.**

Another, and possibly better concept, is the **actual final consumption expenditure of the household** which also includes acquisitions from governments and non-profit institutions servicing households (NPISH).

- For the measurement of various types of income (disposable income, net income etc.) and their components, see part II of this Handbook.

The list of variables in a HBS usually contains the following items at an aggregated level:

1. Demographic and geographical characteristics;
2. Characteristics of the household, household members and the reference person;
3. Education;
4. Insurance;
5. Indebtedness;
6. Economic activity;
7. Housing;
8. Possession of consumer durables;
9. Income;
10. Individual consumption by purpose.

HBSs are, as has been shown above, essential for many important statistical areas: national accounts, CPI, poverty statistics and rural statistics, just to mention a few. They are also, however, rather costly which puts the focus on cost-effectiveness. To this end there are two approaches to the design of the surveys: larger surveys every five years with say 5,000 households or surveys conducted on a continuous basis with say 1,000 households per year. In the latter model, data are accumulated over several years. For instance, data from three subsequent years might be aggregated and converted into annual results after having been adjusted for price changes. The advantage is that the workload is more evenly distributed and a smaller number of staff can be permanently engaged, which will increase their competence level.

#### **VI.4.1 Living Standards Measurement Study surveys - an introduction**

The overall objective of Living Standard Measurement Study (LSMS) surveys is the measurement and study of the determinants of living standards in **developing countries**, especially the living standards of the poor. To accomplish this objective, LSMS surveys must collect data on many aspects of living standards, on the choices that households make, and on the economic and social environment in which household members live. Much of the analysis undertaken using LSMS surveys attempts to investigate the determinants of living standards and this requires more sophisticated analytical methods than simple descriptive tables.

LSMS surveys have several characteristics that distinguish them from other surveys. One of the most important is that they use several questionnaires to collect information about many different aspects of household welfare and behaviour. These consist of a household questionnaire, a community questionnaire, a price questionnaire, and, in some cases, a facility questionnaire.

Another characteristic of LSMS surveys is that they typically are nationally representative, but use relatively small samples - usually between 2,000 and 5,000 households. This will yield fairly accurate descriptive statistics for the country as a whole and for large subareas (such as rural and urban areas or a few agroclimatic zones), but usually not for political jurisdictions (such as states or provinces). The surveys' sample sizes are generally adequate for the regression methods often used for policy analysis of LSMS survey data.

Because of their complexity, LSMS surveys have rigorous quality control procedures to ensure that the data they gather are of high quality. These procedures minimize any errors caused by respondent fatigue or the use of proxy respondents. The interviewer makes multiple visits to households to find any members who were not home during the interviewer's earlier visits. This also reduces the need to use proxy respondents.

There is one supervisor for every two or three interviewers. The supervisors must revisit a significant percentage (often 25%) of the sampled households to check on the accuracy of the interviewer's data. They must directly observe some interviews, and they must review each questionnaire in detail. The supervisor's assessment of these procedures is documented. Data entry and editing are done as soon as each interview is over. A data entry programme carries out a large number of quality checks to detect responses that are out of range or inconsistent with the other data from the questionnaire. Any problem this programme detects can be verified or corrected in a subsequent visit to the household by the interviewer (Grosh and Glewwe, 2000).

#### *Components of a typical LSMS survey*

One distinguishing characteristic of LSMS surveys is that they are multitopic and multilevel: they use several questionnaires to study many different aspects of household welfare and behaviour. The largest LSMS questionnaire is the household questionnaire. The LSMS household questionnaire always collects detailed information to measure household consumption, which is the best monetary indicator of household welfare. The household questionnaire also collects information on income and transfer income, while data on income from wage employment are collected in almost every LSMS survey. Further, many LSMS surveys also collect data on income from agriculture, household enterprises, and miscellaneous sources.

LSMS household questionnaires also record information on a variety of other dimensions of welfare and the use of social services (for example, housing and related amenities and the level of education of adults). A typical household questionnaire collects more information than this, in order to expand the range of living standards indicators that can be studied and allow researchers to model the choices households make. Some of the information (for example, consumption, housing quality and agricultural production) is collected only at the household level, but much of it (for example, employment, education and health) is collected at the individual level (Grosh and Glewwe, 2000).

### **VI.4.2 International Household Survey Network**

The demand for household-based economic and social data by national as well as international agencies is constantly growing. In developing countries, HBSs are the most effective way of obtaining most of the information relating to well-being and poverty. However, surveys are complex and expensive undertaking, requiring skilled staff to design and manage them. In many poor countries surveys can only be undertaken with significant outside assistance, as in the case of the LSMS surveys. This means that the surveys are donor driven and often of an *ad hoc* nature, with surveys only conducted when donor funding is available. The most serious problem is that the activities among different donors are often not coordinated. There are many examples of duplicated or conflicting data collection activities, which result in a huge waste of funds and put a high burden on the scarce personnel resources in the statistical offices in the receiving countries. To this should also be added the need to improve the quality of household survey data.

In this context, an initiative of the World Bank is to establish an **International Household Survey Network**. This is designed to ensure better coordination between international and national donor agencies, on the one hand, and the receiving agencies, on the other. The aim is to facilitate the collection of more and better data, make better use of available data, increase the frequency of data collection, strengthen national

capacities in receiving countries and reduce costs. This comes at the price of less freedom of survey design by a particular donor and the loss of the associated prestige. It should be acknowledged that this is a reasonable restraint on the donor.

### **VI.4.3 Master sampling frames and master samples**

*Ad hoc* scheduling of surveys has now been replaced in many National Survey Offices (NSOs) with long-range plans in which surveys covering different topics are conducted continuously or at regular intervals. The United Nations National Household Survey Capability Programme has played an important role in this process.<sup>9</sup>

Sharing of survey personnel and facilities among the surveys will make effective use of staff and facilities. The development of a master sampling frame (MSF) and a master sample (MS) for the surveys is often an important part of an integrated household survey programme.

For each unit there may be information on urban/rural classification and identification of higher-level units. For each area unit there must also be information on the boundaries of the unit.

The most common type of MSF is one with census enumeration areas as the basic frame units. Usually there is information for each unit that links the unit to higher-level units (administrative subdivisions).

An up-to-date MSF with built-in flexibility has advantages apart from the cost and quality aspects discussed above. It facilitates quick and easy selection of samples for surveys of different kinds and it could meet different requirements on the sample from the surveys.

The MS makes it possible to have overlapping samples in two or more surveys. This permits integration of data at the micro level by linking household data from the surveys. There is, however, a risk for adverse effects on the quality of survey results when sample units are used several times. Households participating in several rounds of a survey or in several surveys may become reluctant to participate or be less inclined to give accurate responses in the later surveys.

The MS design always represents a compromise between different requirements on the design from the surveys in the programme. The design chosen for the MS will usually suit most of the surveys in the survey programme fairly well but none perfectly well.

The most important source of data and materials will usually be the latest population census. This is obvious in the case where the NSO intends to use census enumeration areas as frame units but even if other (administrative) units are to be used there is usually a need for population or household data from the census for these units.

The quality of the MS deteriorates over time. The measures of size used for assigning selection probabilities become out-of-date as population changes take place. This would not be a problem if the population change were a more or less uniform growth in all units in the master sampling frame. However, this is usually not the situation. Population growth and migration occur at varying rates in different areas;

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<sup>9</sup> See latest report on Household Sample Surveys in Developing and Transition Countries (source: <http://unstats.un.org/unsd/hhsurveys/>).

often there is a low growth, or even decline, in some rural areas and a high growth in some suburban areas in the cities. For this reason the MSF is normally completely revised after each population census, usually every ten years. In some situations, however, it may be possible to use the MS for surveys concerned with the study of characteristics of economic units, such as household enterprises, own-account business and small-scale agricultural holdings.

In most developing countries a large proportion of the economic establishments in the service, trade and agricultural sectors are closely associated with private households. These establishments are typically many and small and widely dispersed throughout the population. There may often be a one-to-one correspondence between such establishments and households, and households rather than the establishments themselves may serve as the ultimate sampling units.

#### **VI.4.4 Suggested integrated programme of household surveys<sup>10</sup>**

The value of household surveys covering family status, access to services, economic activity, production practices, expenditure and social activity would be greatly enhanced if they were followed up by the routine use of panel surveys using sub-samples, in order to track performance. This approach would ensure comprehensiveness and consistency and avoid the use of excessive amounts of ad hoc, largely anecdotal data. It requires a long-term financial commitment by countries and international development partners. Some initiatives are under way which could help in this effort. For example, the Food Insecurity and Vulnerability Information Mapping System (FIVIMS), a UN inter-agency action, is working with countries to facilitate standard data collection for food security indicators to monitor follow-up to the World Food Summit in 1996.<sup>11</sup>

One approach (see Vogel, 2004b) could be an important first step. Vogel proposes a framework and overall design of an integrated annual rural household survey programme, which would integrate a country's core statistical needs with those needed to monitor progress towards meeting the Millennium Development Goals (MDGs). The framework recognizes some of the MDG indicators and incorporates them as part of the core items and issues covered in the survey design. The survey design recognizes that there are core data items at the household level that need to be monitored every year but it also recognizes that there is no need to monitor other items every year because situations do not change that rapidly. There are two reasons for proposing an annual survey framework. One is to build a database of household data that can be used for analytical purposes for current and future policy and investment decisions, and especially to forecast the consequences of any proposed actions. A primary goal is to provide a survey framework that provides the data required to monitor progress towards meeting the MDGs, and more importantly, the inter relationships between them. Another goal is to foster statistical capacity building. When countries only do periodic household surveys, they receive training and technical assistance for that particular instance. However, when the survey is completed the sponsor or donor goes elsewhere, leaving the country without the capacity to continue.

Figure VI.1 provides a brief description of the proposed survey framework. It should be noted that the proposal suggests having a national level rural household survey to provide a cross-section of information over time. Further, the sample is divided into replicates with five being used each year. By the fifth year, each replicate will have been in the sample for five consecutive years.

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<sup>10</sup> This section includes an excerpt from the paper "Integrating Rural Household Survey" presented by F. Vogel at the 2004 MEXSAI Conference in Cancun (Vogel, 2004a).

<sup>11</sup> <http://www.fivims.net/index.jsp?lang=en>

**Figure VI.1**  
**Description of distribution of sample replicates by year and detailed questionnaire to be used**

Replicate Year	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	Rep 6	Rep 7	Rep 8	Rep 9	Rep 10	Rep 11	Rep 12
1	A	A	A	A	A							
2		B	B	B	B	B						
3			C	C	C	C	C					
4				D	D	D	D	D				
5					A	A	A	A	A			
6						B	B	B	B	B		
7							C	C	C	C	C	
8								D	D	D	D	D
9									A	A	A	A
10										B	B	B
11											C	C
12												D

Detailed Questionnaires

- A. MDG 1. Poverty, Hunger, Employment, income
- B. MDG 2 & 3 Education
- C. MDG 4,5, & 6 Health
- D. MDG 7 Environment

Every replicate receives same core questionnaire every year

- A. (MDG 1) Indicators of progress towards eradicating poverty and hunger. This would also have information about employment and wage rates included in the October Inquiry. This would provide the primary data needed to enable the calculation of Purchasing Power Parities for the poor in conjunction with the International Comparison Program.
- B. (MDGs 2 and 3) Indicators of progress towards achieving universal primary education and gender equality for women.
- C. (MDGs 4, 5, and 6) Indicators of progress made to reduce child mortality, improve maternal health and combat diseases.
- D. (MDGs 7 and 8) Indicators at the household level to measure the consequences of improving the environment and improving the competitiveness of markets by removing distortions to trade.

Every sample household in every replicate will receive the same core questionnaire that will remain essentially the same over time. The core questionnaire will obtain information needed on an annual basis, have considerable year-to-year volatility, be important in monitoring food security issues, and provide an overview of progress towards meeting the MDG's. The design will provide longitudinal analysis of the core data so that short run evaluations of the effects of policy or investment decisions can be appraised.

The key to the design is that each year each household is also surveyed by a detailed questionnaire that rotates by subject matter each year. The variables to be measured on a rotating basis are those for which change would be difficult to monitor on an annual basis. During the period a household is in the sample, it will be queried by each of the detailed questionnaires at least once with one fifth of the households surveyed twice for one of the detailed questionnaires.

At the end of the fifth year a household in the sample will have been surveyed annually for the core items, once for each detailed questionnaire, and twice for one of the detailed versions. In this way the survey will provide a matching sample comparison over time.

## VI.5 Labour force surveys

Labour force surveys are another important source for rural development statistics.<sup>12</sup> These surveys do not only focus on employment and unemployment characteristics but also on details of hours worked, type of work, economic activity, education and training, and income as well as a whole range of demographic variables. Labour force surveys may also contain various types of *ad hoc* modules related to specific urgent topics, such as computer use at home and at work. The units of measurement are both individuals and households. With households, it is important to record variables that describe their composition since the definition of household varies between countries.

Labour force surveys are the source that gives the most detailed information on labour market issues at an aggregate level as well as across economic sectors. However, for cost reasons, the sample size is normally not sufficient to provide reliable figures on regional disaggregation or for small industrial or commercial sectors. This is a serious drawback when using labour force surveys for rural development statistics. The problem may be partly overcome by linking the surveys to censuses and imputing territorial breakdown.

As previously mentioned, the definition of household differs between countries, which has implications for international comparisons. In order not to make things even worse, countries are recommended to use the available set of the most recent revisions of international standards such as:

- International Standard Industrial Classification of all Economic Activities (ISIC), United Nations;
- International Standard Classification of Occupations (ISCO), ILO;
- International Standard Classification of Education (ISCED), UNESCO.

In several countries, a significant proportion of the population work on their own small farm and **produce only for their own consumption**. Is such a person considered to be employed? Normally the

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<sup>12</sup> A Labour Force Survey is a standard survey of work-related statistics. Statistics and metadata for some countries are available from the ILO [LABORSTA](http://www.ilo.org/dyn/lfsurvey/lfsurvey.home) database (Source: <http://www.ilo.org/dyn/lfsurvey/lfsurvey.home>).



definition of employment states that a person is employed if he/she did any work for pay or profit during the reference week for the survey. Work in this context means work for pay, payment in kind or profit during the reference week, even for as little as one hour. If production for one's own consumption falls within the production boundaries in national accounts (i.e. it is considered important in relation to the total supply of these goods), it should be considered as employment.

The **treatment of seasonal workers** is another aspect of employment that is important in all countries, but particularly for developing countries and for rural statistics. It is clear that during the off-season the seasonal workers should not be considered as being employed in the reference period as they do not continue to receive wages or salaries, even though they might have a contract or an assurance to return to work at a later stage. To capture seasonal fluctuations in employment, labour force surveys are often carried out quarterly or even monthly.

Labour force surveys are often the only source of information on underemployment, where people work part-time but would work more hours given the opportunity to do so. These surveys may also identify people who are not in the labour force, but would work if the opportunity arose.

Finally, labour force surveys are often the only surveys that ask about people with second jobs (such as farmers who also hold off-farm jobs), employment and unemployment over the past year, or other information that helps to better understand employment conditions, particularly in rural areas.

## VI.6 Other survey sources

In developed countries where agriculture is rather marginal from an employment and economic sector perspective, **business surveys** and **structural business statistics** play a more dominant role as data sources than do farm surveys (dealt with above). These surveys, which are carried out frequently, can provide detailed information about the type of economic activities, their relative size in monetary and employment terms as well as their dynamics. However, the shortcomings are that they provide only a rather aggregated territorial breakdown, in the best case by major regions. **Statistical business registers**, which constitute the frames for business surveys, do contain information with a detailed territorial breakdown and these can be a very useful source for analysing rural business structure. The variables recorded for enterprises, besides information about location, type of business and owner structures are often limited to employment, wages, and gross output. This limitation could, however, be overcome by creating links between the business surveys and exhaustive processing of the data in business registers.

Health and education, which are also important variables with respect to rural development analysis, are partly covered in population censuses, HBSs and labour force surveys. However, for more detailed analysis **specialized surveys in health and education** are often required.

## VI.7 Administrative registers

Administrative registers are another important source for rural statistics and have the advantage that they are readily available and are normally much less expensive to use than surveys. Despite the fact that they are subject to confidentiality laws with regard to how they can be used, they have wide national coverage and the administrative arrangements are such that relevant statistics can be extracted. It must be remembered that the definition of key concepts such as employment, unemployment and type of occupation might not be the same as those that would be used for statistical surveys, as the registers are set up for administrative purposes. In addition, the arrangements in administrative registers can change frequently,

leading to discontinuity. Finally, they also have the weakness that they have a purely national policy perspective. This means that, for instance, registers for social insurance systems vary greatly between countries.

However, in some countries, notably the Nordic countries, register data are very well developed and can produce excellent statistics as well as providing sampling frames. The type of registers mainly used for rural development statistics are population registers, tax registers (including VAT registers), vehicle registers, social security registers and insurance registers.

### **VI.7.1 Vital statistics records**

Statistics on births and deaths are required to estimate net migration rates for a locality. If the population census only asks about residence in the previous year it provides only a very partial glimpse of migration. Moreover, since the number of people who migrate in a year is relatively small, estimates for small territorial units are likely to be unreliable. With vital statistics records, one may estimate net migration relatively precisely for the entire period between censuses, under the assumption that census population counts at the ends of the time interval were equally reliable. Care must be taken, however, that the residences recorded for births and deaths are the usual places of residence and match what is recorded in the census.

Infant and age-standardized mortality rates are sometimes used as health measures. However, death rates are often so low that frequently one has to average mortality rates over several years to obtain a reliable measure for small localities.

## **VI.8 Non-official statistics, e.g. from trade associations**

For certain variables of interest for rural development statistics (for example, tourism, recreation, rural amenities, local business structures and supply of cultural activities), the available sources might not be from official statistics but rather produced by trade associations, local agencies and authorities, or societies and clubs (e.g. sport or cultural). If such information is used, much attention must be given to how the statistics were generated, what definitions were used, whether they are compatible with official definitions and how the data were collected and processed. In addition, the results might serve the interests of the collecting organization and may not be totally objective. An example of this would be data on the numbers engaged in certain cultural and educational activities where the results are tied to the provision of public or private funding for those activities. To this should be added that non-official statistics are often neither exhaustive nor based on probability sampling.

It is also problematical when statistics from these sources are combined with official statistics in order to create indicators. Here the rural statistician must be extremely careful and scrutinize compatibility and coverage of the sources. If such indicators are used, the statistician should clearly indicate not only sources, methods and individual metadata but also how the indicator should be interpreted and with what precision.

## **VI.9 GIS and geo-coded statistics**

An increasing amount of information is being made available through Geographic Information Systems (GIS). These systems attach geographic identifiers to data, allowing them to be mapped. To visualize geographic congruence or other relationships, users can superimpose one map upon another, or

create a many-layered map. The standard road map, which often contains information about topography, cities and towns, and rivers and lakes as well as roads and highways, is a type of layered map. With GIS one might add a layer of soil type or agricultural products. This would provide information on how agricultural products vary with elevation and distance from a major town, for example.

All data attached to place or area, including data from censuses, satellite imaging, and geological studies, can be included as long as there are geographic identifiers (longitude and latitude) attached. For areas such as political jurisdictions, this means having “shape files,” which provide coordinates for the jurisdictional boundaries. This creates an enormously powerful analytical tool, as ecological data can be combined with demographic, economic, and social data relatively easily, once the system is established. It is also possible to extract data files relating to given types of localities. Thus, one could, for instance, create a table that crossed commune or township elevation with type of agricultural product or income.

Much of the information available through GIS systems is already available for standard geographic units (townships, communes, etc.). Thus, someone may already have created a data set with average elevation that could be attached to a land use file. However, the mapping of the data creates many new opportunities for the development of geographical or ecological indicators that remain largely unexplored.

First, GIS may be used to develop environmental measures for localities. Examples include the proportion of the territory that is occupied by a lake or pond (or, alternatively, miles of lake shoreline), average elevation, and topographic variation. All of these measures may relate to the attractiveness of the area as a place of residence. Other measures might include miles of autoroute or major roads in an area or road density.

Second, GIS may be used for generating information about distances and neighbouring areas. For instance, with a health facilities database in GIS and a road system layer, it would be possible to estimate driving times to a regional hospital for populations in territorial units lacking hospitals. Economic well-being of residents in territorial units may relate to job growth not only in the place or area of residence, but also in neighbouring territorial units that are within commuting range.

Third, GIS may be used to define new socio-economic units. For instance, with data on commuting or shopping patterns, one can use GIS to define labour market or market centre service areas and generate statistics for those areas.

Finally, GIS can be used to map information based on political units onto ecological units such as river basins or agricultural zones where these zones form the unit of analysis.

The application of environmental measures is not always straightforward. Distances or lengths that are measured can depend on how small the basic unit of measurement is. Variegated shorelines, for instance, vary in estimated length depending on the whether one selects a measurement unit that pick up every inlet or a measurement unit that will not. Much environmental data, such as climate and air or water pollution, is collected at data points. Statisticians have developed various methods such as “krieking” to estimate climate and air quality between data collection points, but these estimates are not necessarily precise where the terrain is mountainous or uneven.

## **VI.10 Conclusions and recommendations**

This chapter has demonstrated that the rural development statistician must base his/her work on a **multitude of statistical sources**. This calls for the statistician to pay very strong attention to the:

- Definitions used in the various sources;
- Differences in coverage;
- Difference in precision;
- Problems of mixing sources in order to create indicators.

All sample surveys are subject to both sampling errors and non-sampling errors (unwillingness of respondents to provide correct answers, misunderstanding the questions, non-response, mistakes by the interviewers, miscoding etc.). It is therefore important that rural development statisticians indicate as far as possible the reliability of each of the sources used.

Survey data should be exposed to data checking, for instance by using **consistency check** programs. Of particular importance is that rural development statisticians be aware of how the particular survey has treated **missing data**, as these will seriously affect the quality of the data sets. There are several possible approaches to the problem of missing data. If the household or the person included in the survey cannot be re-interviewed, then the best solution is to impute the data. There are several methods available to achieve this. However, if for a particular household or person too many variables contain errors or are missing, that household or person should probably be removed. In this case the weighting has to be adjusted.

When procedures for the imputation of missing data, or correction of data, are used, the rural development statistician must clearly indicate which procedures have been used and how they might affect the results. If the rural development statisticians cannot control these issues (which is often the case), they should at least be informed how the particular survey has treated them, so that this is properly recorded in the metadata.

Though more an issue of publication than a characteristics of data sources, Statistical Disclosure Limitation (SDL) has become a major concern for statistical agencies as surveys and censuses are usually taken with an explicit understanding that personal or establishment information will not be revealed. Reasonable response rates depend on the belief that respondents have that their answers will be kept in confidence. There are numerous methods of SDL. For table presentation, the most frequent is to suppress data in cells with below a certain number of responses. SDL must be considered as a strategy, however, and not dealt with piecemeal, on a table by table basis, for instance. It is sometimes possible to combine information from different tables, sometimes released in different reports, to ascertain confidential information that is suppressed in any single table.

As has been pointed out several times, rural development statistics in this Handbook focus on the **well-being of the household** in various categories of territorial areas. As the household is the main statistical unit for which production, income and consumption is measured, the underlying definitions must be clearly indicated and tested for consistency as well as compared with other countries. In this Handbook it has been said that, as in many cases there are large variations in definition and coverage of variables between countries, **it may not be advisable to benchmark levels but rather to benchmark changes in levels**.

Within a country there might be quite significant differences in income between regions. In these cases there are normally also significant differences in price levels, in particular for housing, food and certain services. This calls for to the use as far as it possible of **income measures expressed in purchasing power**.

Comparison of the relative purchasing power between regions can be done in several ways using (Ball and Fenwick, 2003):

- **National weights**, which enables comparisons for a uniform basket of goods between regions and the national average as well as between regions;

- **Regional weights**, by pricing the cost of regional representative baskets. This enable comparisons to be made for a representative basket of goods for each individual region, compared with what that basket would have cost at national average prices; and
- **A geometric mean** of national and regional weights.<sup>13</sup>

**Rural development statistics must be based on a multitude of statistical sources, which are not always compatible. This Handbook strongly endorses, as good practice, the publication together with the statistics of a detailed analysis of the sources and methods used, adequate metadata for the individual data cells, and a readers' guide, advising how the results should be interpreted and with what precision.**

**For international benchmarking the above should be recorded for each country. If incompatibilities exist, these must be clearly indicated, together with a guide to what extent data indicator levels can in fact be compared. If they cannot, only changes in levels of indicators should be recorded.**

**Because of the multitude of indicators, it might be tempting to construct a rural composite of indices for international benchmarking. This Handbook advises against such a practise.**

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<sup>13</sup> Data for the United Kingdom showed that for the north-east region the national weights fell from 95.3 to 91.5 between 2000 and 2003 while for London they increased from 106.8 to 107.6 (national averages =100). For individual items there are of course even larger differences. The regional weight for housing, for instance, was 69.2 in the north-east while it reached 120.0 in the south-east.

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## VII APPROACHES IN SELECTING A CORE SET OF INDICATORS

### VII.1 Introduction

In Chapters III to VI of this Handbook, and in associated annexes, numerous examples of rural and rural development indicators, as defined by international organizations as well as by national agencies, were presented.

The selection of a particular set of indicators is based on:

- The policy issues under consideration;
- Which definition of rural is actually chosen (which also reflect policy concerns); and
- Data availability.

It is therefore not meaningful to present a recommended set of indicators, as such a set is “a moving target”.

Rather, the main purpose of this chapter is rather to provide a statistical **framework** to aid the identification and construction of a core set of indicators that will be useful to describe “rurality.” Establishing this framework involves drawing on and generalising from the material contained in preceding chapters. A degree of repetition is inevitable, at least as far as principles are concerned. At the end of the chapter, a list of suggested areas of general interest to the users (and thus also to the suppliers) of statistics on rural development is provided, with examples of indicators, based on considerations of operational feasibility.

Large numbers of statistical indicators are available to measure socio-economic phenomena. Many are put forwards in publications and on websites by national, international and independent institutions. Any indicator will provide information on some characteristics of the phenomena under observation. However, the selection of suitable indicators requires that account be taken of the **correlation** among the variables under consideration and the **measurability** of the specific indicators. The calculation of several highly correlated indicators is not useful either from an analytical or an economic point of view. Second, the selection of suitable indicators has to be done in relation to the particular focus of the present Handbook – that of **rurality**.

Summary indicators (developed from a combination of individual indicators) might also under certain circumstances be useful in order to provide an overall view of rurality. However, it is important when dealing with summary indicators to understand their composition and the limitations that arise from the way that they are constructed. The issue of weighting in the construction of synthetic indicators suggests a careful application of this kind of indicator and a requirement to make the components visible (for more information on this specific problem, see Chapter III.5).

### VII.2 Two approaches in selecting indicators

There are two main approaches to selecting indicators that depict some aspect of the rural condition. These two approaches, in turn, rest upon two different conceptualisations of rurality – the sectoral and the territorial (see Chapter II.2 and II.3).

In one perspective of rurality, agriculture and other related or non-urban economic activities (fishing, lumbering, mining, etc.) characterize the rural world and what are considered rural areas. In this **sectoral approach**, rural households are defined according to their main economic activity (agriculture, forestry, mining etc.). It is then possible to apply rural indicators to this subpopulation of households and compare them to rural households in different regions, or to non-rural households in the same region. The sectoral approach is mainly used in developing countries where rurality is almost exclusively identified with agriculture, forestry and fishing because of the dominant position of these economic activities.

The second conceptualisation of rurality, is a geographic (or territorial or spatial or an area) concept.<sup>1</sup> In this **territorial approach**, rurality refers to the **distance** of the household with respect to accessing markets or services and it refers to the **density** of the settlement in which the household is located (as larger settlements provide agglomeration economies that allow the provision of “higher-level” services (such as complex hospital procedures and professional sporting events). Thus, in the territorial approach, rural areas are identified in relationship to their spatial characteristics that describes:

- (long) distances; and
- (low) population density.

The indicators can be used to compare different rural areas or to compare rural areas to non-rural areas. Thus, according to this approach, which is mainly used in developed countries with a low agriculture population, rural populations live at a distance from a population centre and they live in areas with a low population density. The economic and social implications are that rural populations have more difficulty accessing urban markets and they have more difficulty in accessing the non-market benefits (such as hospitals or ballet performances) of urban agglomerations. A low population density implies that rural populations lack urban agglomeration economies - and urban agglomeration economies are now driving economic development in many countries.

It is recommended that the choice of geographical unit be based on the specific policy issue under consideration (Chapter III.1). For example, in rural areas with no access to treated water, water quality would be a very local issue and a definition of rural based on neighbourhoods or localities would be appropriate. However, for regional issues, such as access to jobs within a commuting area or the access to surgical procedures, then the choice of the definition of rural should be based on regional territorial units - like a county or, in some countries, a regional planning authority.

*Typologies of rurality.* For some policy issues, localities, neighbourhoods, regions, countries, etc. may be rolled up to provide a typology of various types of rural areas. This often allows a gradient from ‘most rural areas’ to ‘least rural areas’ to be constructed (for a review, see Chapter III.2). Sometimes, it is important to classify individual communities as ‘rural’ versus ‘urban’ within larger ‘predominantly rural’ and ‘predominantly urban’ regions. This is particularly important because ‘rural’ communities within a

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<sup>1</sup> It is acknowledged that for some discussions, “rural” is a social construct and thus perceptual notions of “rural” would be appropriate for these discussions. It is also acknowledged that historically, rural was agriculture, fishing, lumbering and mining and these activities all used to take place in rural areas. However, within each of these areas, there were also merchants selling various goods and people providing services (such as teachers and tavern operators) so that not all the people in these areas were workers in agriculture, fishing, mining and lumbering. Sometimes these workers lived in villages or towns and, at a certain size of settlement, there would be some urban services (such as a post office, tavern and a grocery store) available. Thus, for these questions, their settlement was “urban.” For other discussions, the classification of the household according to the sector of employment of the head of the household is important (for example, the international fluctuation of the prices of the output of the agriculture, fishing, mining and lumbering sectors hit these households directly) but these discussion are independent of the “rurality” (i.e. distance and density) of the location of the household.



'predominantly urban' region would be expected to have different problems and different solutions than a 'rural' community in a 'predominantly rural' region.

The wide difference in levels of development in several key geographical areas of the world suggest that, besides the core set of indicators, there is a need for some specific focuses. Some themes are more relevant to developed countries, such as environmental conservation and rural sustainability. Other themes are more relevant to developing countries, such as poverty reduction and health care (see Chapter II for a review of policy concerns among countries at different stages of economic development).

This approach is already adopted by international organizations with regard to developing countries where the question of rural development is more closely related to overall problems of general development. Having said that, in order to foster comparability across different areas, these special focuses (or departures from a common set of indicators) need to be limited.

### **VII.3 Rural indicators classified by themes**

In Chapter III.4 details were given about themes to which indicators are classified as proposed by the OECD, Eurostat, World Bank and FAO. By and large these sets of themes resemble each other, which is, of course, no surprise. All four proposed set of themes constitute good examples for countries or agencies wanting to set up rural development indicators.

The observation of rurality can be done from several perspectives, suggested by different theories of development. The corresponding themes of interest could be utilized for the construction of rural indicators. Besides the four sets of themes mentioned above, two alternative schemes are also proposed here, aspects of which are already part of national and international statistics. In Section VII.5 examples of indicators are given for various themes within the two schemes.

#### **Scheme I**

##### **A. Components of rural development**

1. Natural environment;
2. Social well-being;
3. Conditions for economic well-being.

##### **B. Potential of rural development**

1. Territory with respect to population;
2. Economic structure;
3. Communications.

##### **C. Special focuses on developing countries**

#### **Scheme II**

In this scheme the focus is on the development process. The discussion on indicators of development starts from a framework for understanding "sustainable livelihoods" as suggested by the

Department for International Development (DFID) in the report: Introduction to the Sustainable Livelihoods Approach.<sup>2</sup> ([www.livelihoods.org/info/info\\_guidancesheets.html](http://www.livelihoods.org/info/info_guidancesheets.html))

DFID defines livelihood as the combination of “the capabilities, assets and activities required for a means of living”. Within this livelihood context the core analytical framework starts from the so-called asset pentagon, which contains the following five categories:

1. **Natural capital;**
2. **Financial capital;**
3. **Human capital;**
4. **Physical capital; and**
5. **Social capital.**

Communities and regions achieve desired outcomes by applying strategies that exploit these assets. Indicators or statistics on strategies are difficult to conceptualize and, typically, the strategy that works for one community or region will not be appropriate for another. However, some indicators or statistics that measure:

6. **The capacity of the community / region to generate and to implement strategies** will be proposed.

Finally, indicators of:

7. **Desired outcomes** would need to be monitored.

It quickly becomes obvious that there are no hard-and-fast rules for assigning a given indicator to a given category. Rather, the purpose of these categories is to remind us that these five assets are important in the development process of urban and rural communities and regions.

A list of examples of indicators relating to these two schemes appears at the end of this chapter.

## VII.4 Measures of rurality

### VII.4.1 Defining the characteristics of an indicator that deals with rurality

Statistical indicators have to satisfy certain properties to be useful and effective (see Chapter III.3). This is particularly true for indicators dealing with rurality.

The first characteristic of a rural indicator is that it should use variables that are **reliable and simple to measure**. This implies that the data inputs required for the calculation are cheap to acquire and easy and straightforward to get from a respondent or to access from an administrative data source (for indicators such as municipal expenditures or available hospital beds in the given rural area). Resource costs are particularly important for rural statistics in poor countries.

The second characteristic of a rural indicator is that it must have **feasibility** of measurement, preferably on a worldwide basis, and **comparability**. It is important to remember that from a sustainable development perspective, measurements of rurality are relevant mainly in relative terms, such as:

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<sup>2</sup> DIFD is a British government department responsible for promoting development and the reducing poverty.

1. a rural area compared to another rural area; or
2. a rural area compared to a non-rural area.

#### VII.4.2 Statistical requirements of a rural indicator

The following is a list of requirements for a good quality indicator, developed from Chapter III.3:

1. *Understandable*: should be clear and brief, easy for users to read and understand.
2. *Transparent*: inputs and the process of production should be clear. Users should know how it is produced, where the information comes from, how the information is processed and how it is calculated.
3. *Significant and relevant*: should be informative to users.
4. *Analytical*: should give a sufficient insight into the phenomena.
5. *Complete*: should cover the whole population of statistical units or the whole geographical area.
6. *Reliable*: should have little statistical error or noise.
7. *Comparable*: there are different levels of comparability:
  - 7.5. Inside comparability: should be possible to compare the same indicator for two subpopulations or areas;
  - 7.6. Outside comparability: should be possible to compare the indicator with similar indicators from other sources (different data sources or different producers);
  - 7.7. Inter-temporal comparability: should be possible to review the indicator over time.

To achieve comparability, it is necessary to have clear and constant definitions and classification.

8. *Coherent*: should have the same reference period, accountancy criteria and mode of calculation as other information sources.
9. *Continuous*: should have no interruptions in the indicator time series.
10. *Accessible*: should be easy to get by users in terms of effort, time and money costs.
11. *Timeliness*: should provide information to users as close as possible to the occurrence of the phenomena under study.
12. *Not expensive*: cost of production should be minimized (in terms of money and the burden on the respondent) in proportion to the information produced.

For an indicator to be useful in representing a socio-economic attribute, it should satisfy these 12 points.

#### VII.4.3 Three dimensions of any indicator

Three dimensions may be identified when assembling any indicator:

1. The **state** or situation or level of the indicator (such as the per cent of females, 25 to 54 years of age, with a secondary school diploma in all rural territorial units within a country);
2. The **dispersion** or concentration or variability of this indicator (such as the GINI Index of Inequality across all rural territorial units of the per cent of females, 25 to 54 years of age, with a secondary school diploma; or perhaps more simply, the number of rural territorial units where this "per cent" is less than one half of the national average); and

3. The **tendency** or trend of this indicator over time.

Each dimension of a given indicator adds important information for the policy discussion.

The purpose of statistical indicators is to highlight those aspects considered sufficient to describe the socioeconomic characteristics by degree of rurality. First, to summarize the phenomena it is necessary to produce some measures of the **level**. These have to include only principal and uncorrelated components. Second, some measures of component **dispersion** and **concentration** should be provided. Finally, are things improving or getting worse - what is the trend over time?

Rural households are typically the unit of observation from which data are tabulated for each rural territorial unit (such as the per cent of households with a single parent as the head of the household)<sup>3</sup>. An example of an indicator calculated on the rural households base is the normalized mode of per capita real income of the households in a given year in a given rural area<sup>4</sup>. The dispersion and concentration of this variable can be measured in various ways, such as by the normalized squared error from the mode and the Gini Index of Inequality. (See Chapter XI later in this Handbook for a review of measures of inequality in the context of agricultural household incomes).

An example of an indicator calculated from an administrative database might be the normalized mortality rate for children under 5 years of age for a given year for a given rural area. The dispersion and concentration indicators could be calculated across all similar rural areas.

Beside measurements of dimension, dispersion and concentration taken at a single point in time, it is often useful to have a measure of **tendency over time**. For many characteristics of rurality, time series data are necessary to calculate the inter-temporal rates of improvement or growth, or the average of these rates over a set period of time. Averaging the rate of growth over, for example, five years might be preferable for understanding tendency because short-term volatility will be excluded.

Finally, we note that each dimension (**level**, **dispersion** and **tendency**) of an indicator for a given rural territorial unit may be compared to other rural territorial units or to urban territorial units to obtain a measure of imbalance in development or to measure a socioeconomic discrepancy.

#### **VII.4.4A graduated sequence of rural indicators**

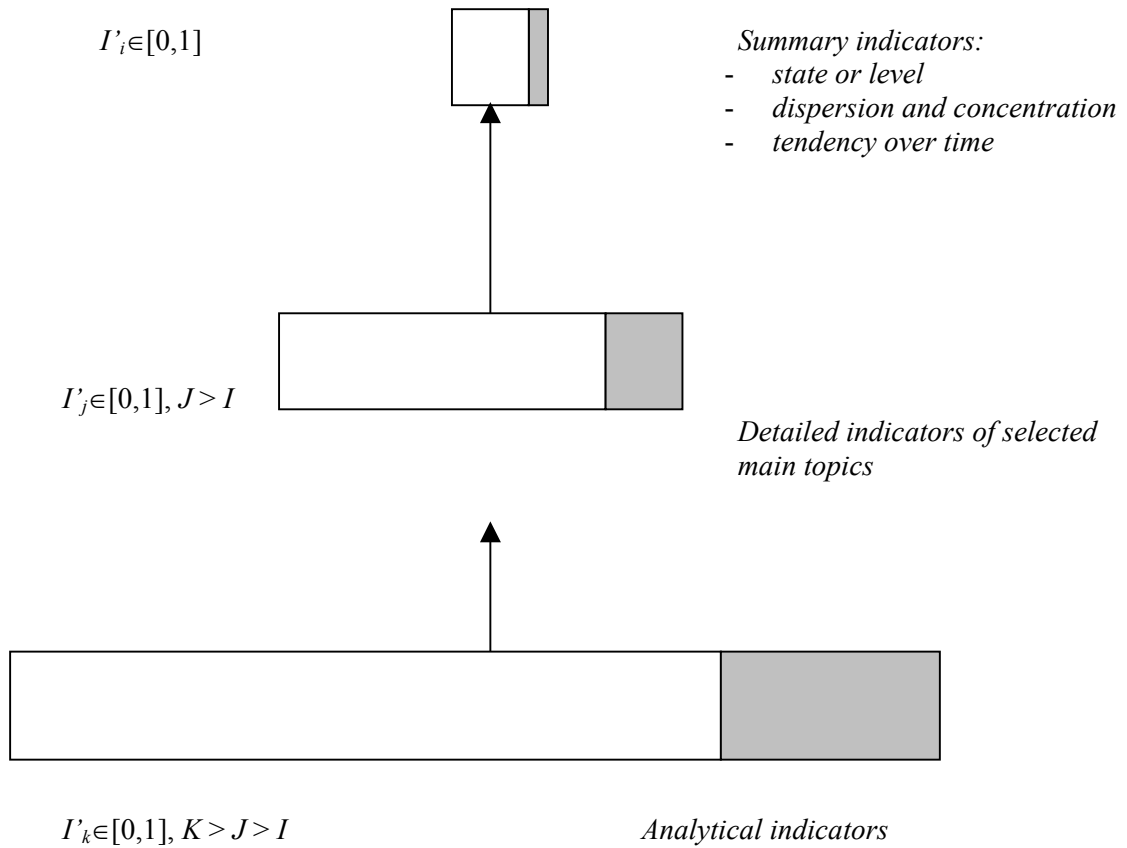
When selecting indicators it must be remembered that not all indicators have the same informative capacity with respect to the phenomena under observation. Moreover, too many indicators can create confusion and produce misinformation for the final user. For this reason, this Handbook recognizes the value of using a graduated sequence of rural indicators, such as the hierarchy summarized in Figure VII.1.

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<sup>3</sup> In some cases, the rural area itself becomes the unit of observation in cases where the statistical agency might publish data collected from an administrative data source (such as the per cent of the municipal budget allocated to education for a given rural territorial unit).

<sup>4</sup> Mode is suggested for variables that are not normally distributed among the population even if in practical terms, as a first approximation, normal mean is applied.

**Figure VII.1**



Source: IWG.AgRI Task Force.

### VII.5 Suggested sets of rural indicators

Two alternative possible schemes are presented below which evaluate the state, tendency over time, variability and concentration of rural development.

## Scheme 1

### A. Components of rural development

#### A.1 Natural environment

Character: Quality of the countryside and the condition of the natural environment (natural resources and wildlife), as necessary requirements to reach a good quality of life and as an opportunity to enhance the economic conditions of the rural population.

Suggested proxy indicators:

1. State
  - Per capita drinking water:* cubic metres of drinkable water at time  $t$  / population at time  $t$
  - Per capita CO<sub>2</sub> emission:* tonnes of CO<sub>2</sub> emission at time  $t$  / population at time  $t$
  - Per capita energy consumption:* KWh of energy consumption at time  $t$  / population at time  $t$
  - Biodiversity index:* number of animals (farmland birds, wild beasts, farm animals) at time  $t$  / square kilometres of the surface at time  $t$
  - Landscape index:* square kilometres of land lost from agriculture and forestry to industrial, housing, road and other uses at time  $t$  / square kilometres of the surface at time  $t$
  - Waste recycling index:* per cent of waste that is recycled at time  $t$
2. Tendency over time
  - For each indicator:* indicator at time  $t$  / indicator at time  $t-1$

#### A.2 Social well-being

Character: Quality of social life and welfare. Good quality means good education and health; reduced risks and vulnerability of people.

Suggested proxy indicators:

1. State
  - Literacy rate:* per cent of population, aged 15 – 24, who have completed a given level of formal schooling at time  $t$
  - Infant mortality rate:* number of deaths of infants (under one year of age) per 1,000 live births at time  $t$
  - Newspapers per capita:* number of newspapers sold at time  $t$  / population at time  $t$
  - Political rights:* per cent of the eligible voters who voted in the last election
  - Green areas rate:* green area as a per cent of total area at time  $t$
2. Tendency over time
  - For each indicator:* indicator at time  $t$  / indicator at time  $t-1$

#### A.3 Conditions for economic well-being

Character: Income and wealth of people.

Suggested proxy indicators:

1. State  
*Real per capita income:* real income at time  $t$  / population at time  $t$
2. Tendency  
*Real per capita income growth:* real per capita income at time  $t$  / real per capita income at time  $t-1$
3. Dispersion and concentration  
*Real per capita income inequality:* normalized squared error from the mean at time  $t$   
Gini Index of Inequality at time  $t$

## **B. Potential of rural development**

### **B.1 Territory with respect to population**

Character: territory available to the rural population to live, to cultivate (usable agricultural land) and to perform other economic activities.

Suggested proxy indicators:

1. State  
*Per capita territory:* square kilometres of the surface at time  $t$  / population at time  $t$  (which is the inverse of the population density)  
*Per capita AAU:* agricultural Area Utilised (AAU) (square kilometres) by rural population at time  $t$  / rural population at time  $t$   
*Rural youth:* rural population under 14 at time  $t$  / rural population at time  $t$
2. Dispersion  
*Per capita territory:* number of rural territorial units within each size class of square kilometres of surface area per inhabitant at time  $t$   
*Per capita AAU:* number of rural territorial units within each size class of AAU at time  $t$
3. Tendency over time  
*Rural pop. growth:* rural population at time  $t$  / rural population at time  $t-1$

### **B.2 Economic structure**

Character: Health of the economic environment of the rural population.

Suggested proxy indicators:

1. State  
*employment rate:* population employed at time  $t$  / population at time  $t$   
*local government debt rate:* local government debt in region  $r$  at time  $t$  / population in region  $r$  at time  $t$

2. Tendency over time  
*migration rate:* per cent net flow of population at time  $t$   
*employment growth rate:* population employed at time  $t$  / population employed at time  $t-1$   
*local government debt reduction:* local government debt in region  $r$  at time  $t$  / local government debt in region  $r$  at time  $t-1$

### B.3 Communications

Character: Ability of rural population to communicate and interact with the rest of the world.

Suggested proxy indicators:

1. State  
*Per capita stations:* number of stations (railway stations, ports and airports) at time  $t$  / rural population at time  $t$   
*Per capita telephones:* number of telephones (home, mobile and public) available at time  $t$  / population at time  $t$
2. Tendency over time  
*Per capita stations rate of growth:* number of stations at time  $t$  / number of stations at time  $t-1$   
*Per capita telephones rate of growth:* number of telephones at time  $t$  / number of telephones at time  $t-1$

### C. Special focus on developing countries

This is a list of characters that are relevant from a developing country perspective. The construction of indicators is not suggested as the final choice will depend mainly on data availability in any country.

#### C.1 Market and institutions

- food price index
- membership in organizations of agricultural producers

#### C.2 Infrastructure

- rural population with access to electricity

#### C.3 Poverty

- rural population living on less than \$1 a day
- rural child malnutrition

#### C.4 Agriculture

- agricultural productivity
- food production index

#### C.5 Natural resource

- forests and deforestation



**C.6 Education**

- rural female literacy with respect to rural male literacy
- net rural enrolment ratio in primary education

**C.7 Health**

- infection among rural population

**Scheme 2****ASSETS, CAPACITY to design and implement strategies and desired OUTCOMES  
for sustainable livelihoods**

Selected possible indicators for urban and rural populations	One possible rural-specific indicator for this item
Potential indicators of the ASSETS of a locality or region are:	
<b>Natural capital:</b>	
Potential drinkable water per capita, within a given time period	How much time per day is required to access and transport water for an average family?
Hectares of arable land per capita	
Hectares of forested land per capita	
<b>Financial capital:</b>	
Share of population with savings over a given limit (say, with savings greater than one half of the individual's annual income)	What share of these "savings" is in fixed assets (e.g. land, buildings, machinery) and what share is in liquid assets (e.g. stocks, bonds, bank accounts)?
Availability of financial institutions (banks, lending circles, etc.) within the community / region (e.g. number of institutions or distance to the nearest institution)	Is the institution required to re-invest a certain share of its portfolio in the local community?
<b>Physical capital:</b>	
Per cent of population living in a household with electricity	For persons without electricity, what share has no access to electrical services?
Housing stock (number of persons per room in the dwelling)	
Per cent of population within one kilometre of a paved road	
Per cent of population within one hour of an international airport	
<b>Human capital:</b>	
Infant mortality rate: number of deaths of children under one year of age as a per cent of all live births within a given the time period	For infants who die, what per cent die due to a lack of access to maternal care?
Per cent of population, for a given age group, who are literate (For some countries, the OECD Adult Literacy Survey is appropriate. Alternatively, one might tabulate the share of the population, within a given age group, who have completed a given number of years of formal schooling.)	
Per cent of children, within a given age group, enrolled in formal schooling	For each age group, per cent of population living more than 30 minutes from a school.
Per cent of population living more than one hour (or one half hour) from a hospital	
<b>Social capital</b>	
Number of newspapers sold per capita, within a given time period	Share of news that is local, national and international

Selected possible indicators for urban and rural populations	One possible rural-specific indicator for this item
Per cent of eligible electors who voted in a recent election	
Per cent of individuals living in a residence with a telephone (land line or cell phone)	
Per cent of individuals of a given age group who participate in a voluntary organization or community groups	
<b>Potential indicators of the CAPACITY to design and implement development strategies would include:</b>	
Per cent of the population, for a given age group, who have attained a secondary school diploma;	For population 20 to 24 years of age without a secondary school diploma, per cent who live more than 30 minutes from a secondary school
Per cent of population working in, or with experience in, each of the industrial sectors of the economy (such as agriculture, manufacturing, tourism, retail sales, etc.)	
Per cent of population living within 15 minutes of public transport (bus, train, boat, etc.)	
Number of new business starts in the past 12 months, calculated on a per capita basis	Per cent of new entrepreneurs who grew up on this locality
<b>Potential indicators of the desired OUTCOMES of the sustainable livelihoods of individuals within urban or rural communities or regions:</b>	
Life expectancy at birth, for males and females	
Population change, tabulated for specific age groups and by gender (some rural communities / regions wish to stop population decline while other communities / regions wish to stabilize their populations at new, but lower, sustainable population level, while there is another group of rural communities / regions who wish to restrict their population growth from in-migrants);	
Employment rate (per cent of individuals in a given age and gender group, who are employed – in wage work or self-employed or as an unpaid family worker);	
Earned income per worker (1) (by age and gender)	
Per cent of population living in poverty (using the measure of poverty suitable for each country, to determine urban – rural differences)	
Per cent of population, for a given age group, that dies from a preventable cause (e.g., accidents, communicable disease, AIDS, etc.)	

(1) One common indicator for international comparisons is the GDP per capita. This is problematic for sub-national analysis. Many countries do not prepare a sub-national set of national accounts – and most certainly not for rural and urban areas. The ability to correctly assign the earnings of labour and the earnings of capital, let alone the number of workers, to the appropriate sub-national geography is problematic (although admittedly still a popular activity for some). Caution is called upon against placing undue emphasis on the calculation of GDP per capita for sub-national areas.



## **PART II**

# **AGRICULTURE HOUSEHOLD INCOME AND WEALTH**

## **VIII CONCEPTUAL FRAMEWORK – INTRODUCTION**

### **VIII.1 Matching indicators to policy needs in countries at different levels of economic development**

Indicators of household income and wealth in the agricultural sector must be seen in context. A guiding principle in the design of statistical systems of countries, irrespective of their level of economic development, is that indicators should reflect the policy purposes for which they are needed. Writers on statistics typically identify many of the same features of “good” quality, though the terms used may vary (see, for example, Brackstone, 1999; de Vries, 1998; Elvers and Rosen, 1998; Holt and Jones, 1998). Accuracy, coherence, consistency, continuity, timeliness, accessibility, presentation and comparability over time and space are normally mentioned. All these may be classed as “intrinsic” properties of statistics. “Relevance” is another key characteristic, although this differs in nature from the other “intrinsic” characteristics, in that it is dependent on the validity of the link between what decision makers get and what they need in order to make appropriate policy decisions.

The relevance of indicators of income and wealth for agricultural households comes in large part from the aims of agricultural policy. Though they only represent one component of the population of rural areas, and in many industrialized countries a small and declining one, they are the focus of substantial government interest. In addition, within the public sector, policies on deprivation, economic development, sustainability, trade liberalization and environmental quality would find such statistics useful if their aims are to be properly serviced and the performance of policy interventions to be assessed. Others groups also needing the information include academics and commercial firms, such as those in the industries upstream and downstream from farming.

Among the policies directed at agriculture, two groups are encountered. Firstly, there are the government interventions concerned directly with the well-being of people in the agricultural sector. In less developed economies the emphasis is on poverty. Some industrialized countries express aims in a generalised way (such as the EU’s Common Agricultural Policy objective of ensuring a “fair standard of living for the agricultural community”), some have had explicit targets for the incomes of their farm operators, while yet others are more concerned with creating the economic conditions in which competitive firms can generate a satisfactory income (for a review see Hill, 2000).

Secondly, there are other policies that have indirect links with the incomes of farmers. Enhanced rewards have been used as a way of encouraging a range of responses from farm operators, such as to expand the supply of farm commodities for reasons of food security or trade enhancement or, more recently in heavily populated industrialized countries, to provide more environmental services. A common result of such incentives has been to increase the personal incomes of farmers, something that makes difficult the removal of the incentives if circumstances change and policy aims shift.

Income and wealth are only partial indicators of well-being. In industrialized countries other factors to consider are the ability to control one’s own environment, quality of working conditions, independence etc. and in less developed ones these include the more fundamental issues such as life expectancy, food

security and health.<sup>1</sup> Here we are concerned primarily with *economic welfare* - those economic causes of utility in the form of goods and services and the command over their consumption that income and wealth provides. Other causes of satisfaction - so-called “psychic income” - are beyond our present consideration but should not be ignored. For example, the general lack of success of various publicly funded schemes aimed at encouraging farmers to retire by compensating them for the money income they would forego can be explained in part by their failure to recognize the importance of the loss of non-pecuniary rewards from farming.

### *Agricultural income problems*

Observation of the documentation, rhetoric and practice of policy suggests that farmers and their households are caught up in income problems that are widespread and characterize the agriculture industry, at least in periods of relative peace in international relations. While these are expressed here in relation primarily to the agricultures of industrialized market economies, there is much in common between countries at all stages of economic development. These income problems are as follows:

- (a) The particularly low-incomes in certain regions or sizes of farm (the *poverty issue*). At the same time the occupiers of other farms may have high incomes, so that the heterogeneity of the income situation presents a problem in describing the (income) poverty issue in agriculture as a whole and in designing policy to address it. Poverty is of particular relevance in less developed economies.
- (b) The variations of income experienced by the individual unit (farm household) over time (the *instability issue*). Again this may vary between region, type and size of farm and will be a more pressing issue among low-income farmers, where periods in poverty may result. While incomes from agricultural activity are inherently unstable, the presence of other income may dampen the impact on total household income.
- (c) The general levels of rewards of those engaged in farming compared with earnings in other sectors (termed the *parity issue*). This is often expressed in terms of the incomes of people working in agriculture compared with those in other groups in society or the national average. However, for self-employed farmers these incomes are a mix of rewards to labour, capital and land and the issue of parity includes the return to investments in land and capital assets as well as to labour. A major factor in explaining the apparently low reward to land is that its value is determined in a market, typically very small in relation to the total stock, that is often dominated, on the demand side, by existing farmers trying to expand. By spreading fixed costs, a possibility often opened up by technical advances that require larger-scale production, they can reap the benefits of lowering average costs. However, expanding farmers bid up land prices to levels that are determined by their margins over variable costs, not by total costs, and thus land appears very expensive in relation to average profits.
- (d) Partly as a result of this last point, and because in market economies public support to farm incomes tends to be capitalized into higher land prices, income problems are often seen among farm occupiers that are often also owners of substantial amounts of wealth. Wealth is even more unequally distributed than are incomes, and farmers who own land are likely to have a markedly different economic status from those who are tenants or where land rights are poorly defined. It is perhaps worth noting that the wealth of farm

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<sup>1</sup> The OECD has developed a list of social indicators.

households is usually ignored when discussing the need for policy intervention to tackle income problems.

The first three of these points are the same trio of central components of “the farm problem” that have been identified in the United States and summarized by Gardner (1992).

Parity and poverty are concerned essentially with the welfare of farmers and their dependants. Instability is somewhat different. A low farm income in a single year may not immediately throw the recipients into the poverty category. Reserves will be drawn on or borrowings made to maintain living standards through times of temporary financial setback. Thus in industrialized countries it is important to distinguish between those farm households that have to contend with occasional periods of low-income and those that suffer hardship from incomes that are persistently low. However, when year-to-year fluctuations are anticipated, the level of consumption by farmers and their households may have to be curtailed in order to set aside reserves for years of low-incomes or to pay for past borrowing in lean years. Farmers may have to be content with generating a safer but lower income, with consequences both for consumption possibilities and the potential for the business to grow. However, the implications for farm families of sudden falls in income may be far more serious in a low-income country than in a developed one, so the issue of instability is likely to be viewed differently.

Secondary to these three main strands are other issues, some of great importance, which are believed to be related to a significant extent to incomes from farming. Among the most prominent of these are beliefs that incomes of farming households have a substantial impact on the following:

- (i) The level of general economic activity and employment in rural areas, especially in those suffering from unfavourable natural conditions, such as hill and mountain areas, where alternative employment opportunities also tend to be limited. Support for farming in these areas is seen as a way of promoting the viability of the rural economy. In less developed countries this line of reasoning is stronger than in many industrialized ones where farming now often accounts for only a small part of the economy, even in rural areas.
- (ii) The pursuit of practices to conserve the natural environment, with the assumption that adequate incomes are a prerequisite for conservation at the farm level. While it might be expected that this income would come from farming, situations can arise in which the ability to undertake environmentally beneficial actions comes from off-farm sources.
- (iii) The rate of technological advance. Though not an argument heard so loudly in industrialized countries in times of agricultural surpluses, the notion that a prosperous agriculture was necessary to encourage the development of new technology and its uptake through rising levels of investment and capital stocks was built into the thinking of post-war agricultural policy in the UK and in Europe more generally. A prosperous farming sector produced thriving support industries, with more jobs and income arising from exports of modern machinery and chemicals. But again there is evidence that the on-farm investments can be funded by resources earned in other sectors.

With each of these three income-related issues there are alternative ways of bringing about the desired ends other than through changing the incomes of farm operators. There may be superior ways of stimulating rural employment or of conservation than by using farming and farm operators as vehicles.

In addition, the implementation of policy may throw up situations where income information is important. By no means the least significant of these is to facilitate policy reform. If, as an operational objective resulting from budgetary constraint or international agreements on world trade, it is necessary to change the present pattern of support to agriculture, the reforms will carry implications for the economic situation of people operating agricultural businesses and others working in this industry. To get changes accepted within the political system it may be necessary to consider the provision of compensation for income forgone or to introduce adjustment assistance (such as diversification grants, training schemes, creation of other jobs for farmers and their families etc.).

### **VIII.1.1 Types of income and wealth statistics needed**

To service such aspects of policy mentioned in the previous sections, statistics on agricultural household income and wealth are required. A more specific guide as to what is needed, at least in a European context, is provided in the methodology handbook of Eurostat's Income of the Agricultural Household Sector (IAHS) (Eurostat, 1995) which states that the objective of its sector-level statistics was to generate an aggregate income measure, using harmonized methodology, in order to:

- (i) Monitor the year-to-year changes in the total income of agricultural households at aggregate level in Member States.
- (ii) Monitor the changing composition of income, especially income from the agricultural holding, from other gainful activities, from property and from welfare transfers.
- (iii) Enable comparisons to be made in the development of total incomes of agricultural households per unit (household, household member, consumer unit) with those of other socio-professional groups.
- (iv) Enable comparisons to be made between the absolute incomes of farmers and other socio-professional groups, on a per unit basis (Eurostat, 1995):

To this list can be added objectives that relate to the distribution of incomes and wealth that only microeconomic results can furnish:

- (v) Describe the distribution of the above in terms of policy-relevant breakdowns, including by size and type of farm, by region, by socio-economic composition of household, by professional nature of the household, by income and level of wealth and other parameters of the farm and the agricultural household the need for which may become apparent. This will include, for example, households deemed to be operators of commercial farms, of subsistence producers, hobby farmers etc.
- (vi) As a subset of the above, to provide information on cases whose low-incomes can be deemed to place them in poverty (the criterion for which may be determined in various ways).
- (vii) Provide information on the levels and distributions of the wealth of farm households (assets, liabilities, net worths) and how these relate to the income situation of the same households.



Whatever the particular policy aim, from the statistical perspective of quality of information, it is important to ensure that statistics on income are linked with the appropriate institutional unit. As the United States AAEA Committee on Economic Statistics stated in 1972:

*“Only when the basic economic structure of the industry can be described accurately by our data system will analytical accuracy be possible in dealing with the performance and behavioural characteristics that are the focus of most economic analyses.” (AAEA, 1972)*

## **VIII.2 Households as economic, social and cultural units and as agents for environmental change and conservation – controllers of resources and users of services**

The focus of this part of the Handbook is on the income and wealth of agricultural households, in most countries the most numerous type of producing unit of agricultural commodities. Their response to economic signals is critical to supply and to the use of factors of production, including land. Households, however, are more than units of production, which may be combined with other forms of economic activity between which the boundaries are permeable. They are also units of consumption. Offutt (2002) points out that, while taking an overall view of the household when modelling its behaviours has appeal in the setting of farm policy analysis, the agricultural household is a special and complex case because decisions have to be made on how to allocate time and resources among the farm business producing marketable output, off-farm wage labour, and the time devoted to leisure and to all other household activities (e.g., child rearing, hobbies, vacuuming). The household may produce food for its own consumption as well. Moreover, there is a somewhat hazy margin between production and consumption, exemplified by the use of the farm dwelling as both a business and a domestic asset.

As noted above, the standard of living of the agricultural community is a matter of central concern within agricultural policy, though precisely which households form this community has rarely been set out explicitly and is thus capable of various interpretations. The standard of living is, essentially, associated with the level of consumption that takes place. The household is a prime unit, and income a key determinant, in the measurement of potential consumption.

Agricultural households are also social units and are important to the cultural identity of rural areas. The “family farm” is a potent if imprecise concept that shapes the direction of much policy aimed at agriculture. Different countries have their own ideas of what comprises a family farm. While family operation and management is a central feature, farm size, the opportunity for family members to work together and continuity of succession are also used. Certainly the desire to pass on a farm business to the next generation is a major aim of a substantial share of farmers, particularly where its size allows it to be a viable business. While the precise nature of the sort of society that policy is intended to promote and preserve is not often clearly articulated, it is clear nevertheless that in many countries there is a belief that conserving an agriculture structure dominated by household-firms is an effective way of protecting the social fabric. Often this extends to the cultural attributes that are associated with small-scale farming, such as local traditions and languages, especially in the more remote rural regions. Thus there is often political will to support the incomes of farm families as a way of achieving cultural aims. In the EU this forms part of the rationale of rural development policy and the subsidies provided to farmers, especially in disadvantaged areas (mostly hill and mountain regions), with the incomes of farms seen as a key indicator. Many industrialized countries also have special legislation in place, especially on taxation, to facilitate inter-generational transfer of land.

Agricultural households, through their occupancy of land, and frequently their ownership of it, are also important agents of environmental character and change. As a major category of land user, the management decisions taken by agricultural households can affect the appearance of the countryside, biodiversity and environmental quality. Financial incentives are commonly offered to manage land in particular ways, such as agri-environmental agreements. These will feed through to the income situation of the household, providing a link between its functions as an environmental and an economic unit. There are also strong links between the social and environmental functions, in that major land use changes are often associated with the period when control of the farm passes from one generation to the next.

In developing statistics on agricultural households care has to be taken to acknowledge its complex nature. The notion of a “triple bottom line” may be helpful in this respect – meaning that, when dealing with households, their economic, social and environmental significance must be borne in mind. The income and wealth of farmers and their families certainly have links to all three.

### VIII.3 Concepts of income and wealth and related indicators

Statistics on the income and wealth of agricultural households are the end-point of an information system. Before the data on which the statistics are based can be collected, there are the crucial stages of “conceptualization” and “operationalization”. “Conceptualization” involves developing concepts that are “capable of portraying and reducing the nearly infinite complexity of the real world in a manner that can be grasped by the human mind” (Bonnen, 1975). As concepts cannot be measured directly, “operationalization” involves defining variables that are as highly correlated as possible with the aspect of reality that is being examined. In the United States, Bonnen has stressed the significance of adequate conceptualization if the agricultural information system is to perform satisfactorily (Bonnen, 1975; 1977). In the UK this concern has been expressed in relation to national accounts, Holt and Jones (1998) pointing out that “It is rare for the concepts that we strive to measure to be driven by a well defined theoretical construct”. However, only if this first step is reliable can “operationalization” be undertaken adequately; “.. no matter how well one manipulates the numbers, one may still be measuring the wrong thing” (Bonnen, 1975). “Conceptualization” is the responsibility of both statisticians (who constitute a major part of the “data system”) and of members of the “inquiry system”, outsiders who are not involved in the routine of actual statistics production and who therefore can contribute a more detached view (for example, consultants, academics etc.).

Conceptualization is not easy even in static conditions. In the dynamic economic and technical environment of the 21st Century, the changing nature of agriculture has presented a moving target, opening a gap between the conceptual basis of existing statistics and reality. Such shortcomings in statistics can be more insidious than failure in the “intrinsic” characteristics (inaccuracy because of poor response rates etc.) because conceptual obsolescence is not readily quantified and because it usually a gradual process. The need to generate statistics on a regular basis may divert attention from any widening gap, while the protection of institutional interests and human capital in existing concepts and systems of measurement will tend to marginalize any gaps that are allowed to surface. This Handbook represents an attempt to fill an important gap in the existing statistics on agriculture by facilitating the development of statistics on the wealth and income of agricultural households.

Several indicators of income and of wealth are pertinent to the purposes for which they are needed, outlined in the previous section. The two most obvious income measures are *total income* and *disposable income*. The details of both are considered later (Chapter X), but they can be introduced here in general terms. **Total income** would be used to describe the composition of the resources flowing towards household from their engagement in agriculture and from a range of other sources and how these resources differ over

time, place and among different groups of agricultural households. These resources comprise both income in money terms (profits, cash wages, interest received, social benefits etc.) and in kind (goods and services).

**Disposable income** bears a more direct relationship with economic welfare as it relates to command in the market over goods and services, what is left over being saved. Certain deductions take place from total income over which the individual or household has no short-term influence. Examples include income tax and social insurance payments. Only after these have been met is the household able to spend on consumption. Disposable income is thus of particular interest to analysts concerned with poverty and the distribution of incomes available for consumption and saving. It may be adjusted to take into consideration items that the state often provides in kind, such as education and health care, thereby permitting an improved comparison between countries that differ in the level of public provision of these benefits.

Comparison between farm households and those of other socio-professional groups is an important step in meeting the common policy requirement that farm families should have a standard of living comparable to other groups. This comparison would be expected to be on the basis of disposable income but with the precaution that the different types of income that the groups receive are treated fairly. Examples include the adequate identification and valuation of income in kind that farm households can enjoy by being occupiers of land (such as cheaper food that they produce themselves) and, in the other direction, the extra costs of consumer goods, higher travel costs and reduced availability of goods and services that are (sometimes) faced in rural areas.

However, as will become clear in Chapter X, the details of both income concepts are by no means straightforward. For example, are the costs of travel to work to be treated as a negative item when calculating disposable income, as without them no earning would take place? Farmers generally avoid this cost but it can be important to people who do not work at home. In addition, the availability of data may be a serious handicap. Thus there may be difficulties in making satisfactory comparisons, particularly between the households of farmers and other socio-professional groups, and between farm households in different countries. Sometimes a trade-off will be required between what is in theory a preferable basis for making comparisons and the practicalities of measurement.

Among the indicators relating to wealth, primacy is usually given to the stock measure of **net worth** (the value of assets less borrowings) of the household. Again, there are many issues of detail and these are discussed in Chapter XII. For example, among the assets, while private property presents some problems of valuation, difficulties extend to other things like pension entitlements. Where farms are partnerships, or where the land is owned by different people from those who own the farm business, the idea of the net worth of a single household may be difficult to establish.

A further major issue, that links (current) incomes and net worth, concerns changes in the real values of assets and liabilities. These can be very important in agriculture. While accumulation of capital can come from savings out of disposable income, and things like gifts and inheritance can play a part, changes in value of assets can also come from (real) capital gains and losses. Moreover, reductions in the real value of liabilities (in times of inflation) can achieve a similar result. Accounts for income and capital are linked, and it is sometimes a matter of choice whether, for example, a capital gain is included or excluded from the measures of income or whether non-regular items in the resources flowing towards households, such as bequests of money or lottery wins, should be seen as income or as capital transfer. In theory, a measure of "**economic status**" is available that combines income and wealth into a single measure that represents the combined potential command over goods and services, but this has rarely been used in an agricultural context. These issues are explored further later in this Handbook and some practical recommendations are made.

## VIII.4 Households and other forms of institutional units within accounting and statistical systems

A distinction central to this Handbook is that between the activity of agricultural production and the institutional units that are responsible for it, of which the agricultural household is the most numerous example in the agricultural industries of many countries (though they often account for a smaller share of overall production). This distinction between the activity and the institutional unit is critical to the accounting framework within which income statistics are generated.

### VIII.4.1 Accounting frameworks

To be internationally comparable, statistics on the income and wealth of agricultural households have to share a common conceptual framework. Departures from this base are possible for reasons of circumstance, which may be both theoretical and practical, but the framework nevertheless can act as a reference to which these variations may be reconciled by bridges.

Two possible types of accounting framework are encountered that affect many aspects of the methodology encountered in this Handbook – **aggregate accounting** as represented by national accounts, and **microeconomic accounting**, as seen in farm or household accounts. The alternative approaches are reflected in definitions that, while being similar, differ in matters of detail that are often important to the way the results are interpreted. This is well expressed in a passage relating to income concepts from the report of the Canberra Group of international experts on household income measurement (Canberra Group (2002) section 2.2.1).

*“The macro-analyst is interested in the aggregate of household income as it fits into the macroeconomy as a whole, and approaches its construction in a top-down manner. ....Exhaustiveness of the definition is also very important to the macro-analyst, as is its consistency with the definitions of income of the other institutional sectors: no theoretical gaps can be left unfilled, even if in practical terms imputations and estimations have to be widely employed when actually compiling the statistics.*

*The micro-analyst on the other hand is primarily interested in the measurement of income distribution. Conceptually, this means that the definitions are driven mainly by what the individual perceives to be an income receipt of direct benefit to him or herself, which results in a bottom-up approach to the construction of a definition. The means of payment is a major discriminatory factor and the rationale behind the payment is subsidiary. Practically, definitions have also to be constrained by what it is feasible to collect in household surveys or what is available at the household level in relevant administrative sources. In fact these two considerations – the conceptual and the practical – will usually result in the same choices, since if individuals perceive a receipt to be of direct benefit to them they are much more likely to be able to provide reliable data on it.”*

The UN's System of National Accounts (SNA), in its latest (1993) versions (hereafter referred to as SNA93) is probably the most universally accepted set of international accounting conventions (UN, 1993). It forms the basis of much of the economic statistics that already exist for agriculture in countries at all levels of economic development. The FAO's *System of Economic Accounts for Food and Agriculture* of 1996 (SEAF96) is based on it. The SNA93, though aggregate in nature, also commonly acts as a benchmark for microeconomic accounting and thus constitutes the starting point for this section of the Handbook. Attention is also drawn to other frameworks, mainly microeconomic ones, where necessary.

The SNA93 contains guidelines relevant to the development of statistics on households. However, the central focus of the SNA is on national accounting and economic aggregates. For many purposes to do with agricultural policy and rural development the prime concern is with what happens at the level of the individual agricultural household. The concepts and approach of the SNA93 need modification before they can be applied in the context of microeconomic statistics. For example, the concept of disposable income viewed at sector level contains items (both positive and negative) that would not be included in household-level studies or would be treated differently. (The definition of income is taken up in detail in Chapter X.) Reconciliation is possible given the information on the definitions used, though the existence of what are apparently different figures may be confusing for the non-expert.

Another example of macro-micro disparity, which is a common feature of official statistics, occurs with the interpretation of what is a household. Some large institutional social units (such as religious communities) are treated in the SNA93 as being within the households sector, though they would not normally be seen by policymakers as typical targets for agricultural income support, nor are they usually included in household budget surveys.

It should be noted that the SNA93 does not make recommendations specific to agricultural households and the measurement of their income and wealth. Rather, it gives general recommendations by which the households sector might be broken down into sub-sectors, of which agricultural households could form one. In practice few countries attempted to do this (Germany and France being exceptions) before Eurostat took an initiative in the late 1980s to encourage a general disaggregation of household sector accounts as a means to develop income statistics for the agricultural household (sub)sector in a manner that automatically generated comparable results for a range of other socio-professional groups (Eurostat, 1995).

The alternative to the SNA93 as an accounting framework for calculating income is to adopt a microeconomic approach. Within the EU there is a network of family budget surveys and Eurostat has published multinational tables of results. While a fully harmonized methodology has not been developed and published (along the lines, for example, of the EU Farm Accountancy Data Network for the results of farm businesses in the EU), nevertheless inventories have been compiled of how Member States interpret key elements in the methodology and recommendations have been laid down (Eurostat 1980, 1981, 1990, 1993). Countries were found to adopt differing approaches to details (such as whether domestic servants living with their employers were treated as part of the household or as a separate household) while maintaining broad conformity to the main concept. Indeed, it might be argued that such flexibility of detail is needed to reflect differing socio-economic conditions.

A recent major step in developing a methodology for use at household level has been the *Final Report and Recommendations* from the Expert Group on Household Income Statistics (the Canberra Group), published in 2001 (Canberra Group, 2001). This group contained representation from the statistical offices of some sixteen countries and many international organizations, including Eurostat, the International Labour Office, the OECD and the World Bank. Experience of existing projects to improve and use household-level statistics were included, notably the Luxembourg Income Study (LIS); this is not an EU project although Eurostat and the OECD are partners in it. The Canberra Group's recommendations acknowledge the SNA93. They are likely to set international standards in the areas to which they apply, and in particular for assessing how the distribution of income is changing over time and, in particular, the issue of poverty.

The issue of sub-sectoring is not tackled by the Canberra Group, though household budget surveys (the main data source for microeconomic work) have commonly grouped households by the occupation of the head of household, as have other microeconomic studies based on tax data. No specific treatment of agricultural households is mentioned. This is perhaps surprising given the overlap between a main driver of the Canberra Groups' activities (income distribution and poverty) and the aim of agricultural policy. The

issue of sub-sectoring is clearly a central one in the development of this Handbook, as this involves determining what is an agricultural household is. So too are the particular problems associated with income and wealth measurement of this group, such as the potential for consumption from own production and the high amounts of capital involved because of the significance of land as an input. Nevertheless the Canberra Group recommendations are highly pertinent to the guidelines of good practice that this Handbook aims to establish.

#### **VIII.4.2 Accounts for activities and for institutional units**

Two main approaches towards accounting for agriculture can be found within the SNA93 conceptual framework:

- Accounts for the activity of producing commodities (goods and services) deemed to be agricultural, together with their residual “income” concepts;
- Accounts for institutional units that engage in agricultural production.

Of course, as these are part of a single system, they relate to each other. Figure VIII.1.1 illustrates this relationship in an agricultural context. It shows that agricultural activity (represented by the operating surplus arising from this activity, which will be described later) is divided between the various types of institutional units that are involved in entrepreneurial activity. These fall into three main types:

- (i) **Households** in their role as units of production (household-firms), and for which agricultural activity is one (possibly the only one) form of independent activity (self-employment) that the household members engage in. The household may also engage in dependent activity (its members work as employees) and may also receive resources in other ways (for example, from welfare transfers, property income, etc.). The independent agricultural activity may account for various shares of the total resources available to the household.
- (ii) **Corporations**, at least part of whose activity involves agricultural production. (Strictly these are non-financial corporations, as the SNA93 also provides for financial corporations as a separate category).
- (iii) **Other types** (including government and Non-Profit Institutions).

This Handbook is primarily concerned with the first of these forms of institutional unit - households. The nature of what constitutes an agricultural household (or an agricultural corporation) is critical to the generation of statistics and can affect both the numbers of households and the income levels and compositions relating to them. The concept of a household (which may take a variety of forms) and the basis used to classify them as agricultural or non-agricultural (for which several possibilities exist) receive detailed attention in Chapter IX.

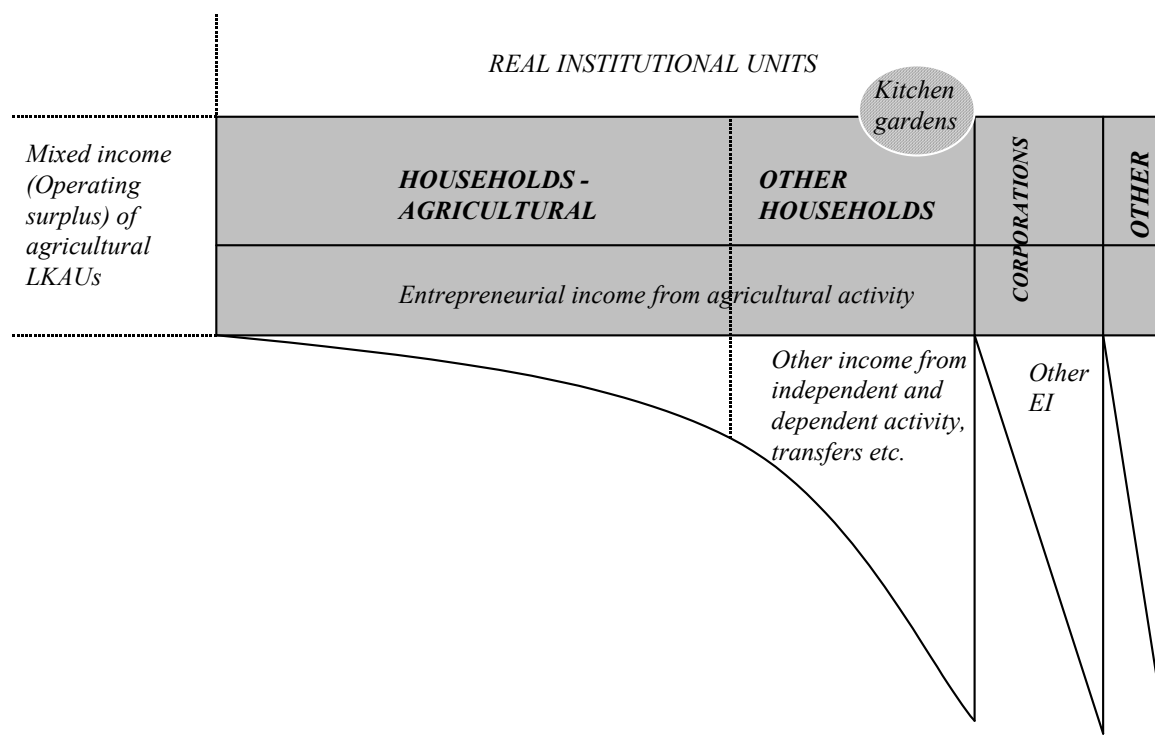
The SNA93 described a full sequence of accounts for households as institutional units, including not only current accounts for production but also capital accounts and balance sheets. This sequence is set out in a slightly simplified form in Figure VIII.1.2. Though conceived within the framework of national accounts, the sequence can be applied at microeconomic level with some modifications to the coverage of items. When applied to agricultural households, this sequence allows for the calculation of many items that are relevant to agricultural policy, including *inter alia* their:

- Value added from production;
- Operating surplus from production;

- Residual entrepreneurial income from production;
- Income from all sources, including entrepreneurial income; wages, property in its various forms, social transfers etc.;
- Disposable income, after the deduction of non-optional payments (such as direct taxes and social contributions);
- Consumption spending and saving;
- Investment;
- Balance sheets - stocks of assets, liabilities and net worth.

While the complete sequence can, in theory and given adequate data, be drawn up for agricultural households as institutional units, activity accounts are strictly only applicable down to the level of operating surplus. To go further in the sequence requires assumptions about the extent to which the institutional unit (household) is mono-active in agriculture and on the separability of consumption activity and production, both of which are increasingly subject to question, although such assumptions are often made by the array of indicators commonly in use. In some countries many different business arrangements and households may be engaged in a single farm operation. This means that a household may not earn all of the entrepreneurial income from production. Dissatisfaction with assumptions that have to be made regarding the role of the household in operating a farm and its income from self-employment constitutes one reason why it is necessary to develop indicators that relate to the household as an institutional unit, along with other institutions, which is the aim of this part of the Handbook.

**Figure VIII.1.1**  
**The relationship between agricultural activity**  
**and the institutional units that generate it**



**Figure VIII.1.2**  
**The full sequence of accounts for households in the System of National Accounts**  
**(from SNA93 Table A.V.6)**

**I. Production account**

<b>Uses</b>		<b>Resources</b>	
P.2	Intermediate consumption	P.1	Output
		P.11	Market output
		P.12	Output for own final use
B.1g	<i>Value added gross</i>		
K.1	Consumption of fixed capital		
B.1n	<i>Value added net</i>		

**II. Distribution and use of income accounts**

II.1 Primary distribution of income account

II.1.1 Generation of income account

<b>Uses</b>		<b>Resources</b>	
D.1	Compensation of employees	B.1	Value added
D.11	Wages and salaries		
D.12	Employers social contributions		
D.12 1	Employers' actual social contributions		
D.29	Employers' imputed social contributions		
D.29	Other taxes on production		
D.39	Other subsidies on production		
B.2	<i>Operating surplus</i>		
B.3	<i>Mixed income</i>		

II.2 Allocation of primary income account (which can be subdivided into two)

II.2.1 Entrepreneurial income account

<b>Uses</b>		<b>Resources</b>	
D.4	Property income (connected with market activities)	B.2	<i>Operating surplus</i>
D.41	Interest	B.3	<i>Mixed income</i>
D.45	Rent		
		D.4	Property income (connected with market activities)
		D.41	Interest
		D.42	Distributed income of corporations
		D.421	Dividends
		D.422	Withdrawals from income of quasi-corporations
		D.44	Property income attributed to insurance policyholders
B.4	<i>Entrepreneurial income</i>		



## II.2.2 Allocation of other primary income account

<b>Uses</b>		<b>Resources</b>	
D.4	Property income (not connected with market activities)	B.4	<i>Entrepreneurial income</i>
D.41	Interest		
D.42	Rent	D.1	Compensation of employees
		D.11	Wages and salaries
		D.12	Employers' social contributions
		D.121	Employers' actual social contributions
		D.122	Employers' imputed social contributions
		D.4	Property income (not connected with market activities)
		D.41	Interest
		D.42	Distributed income of corporations
		D.421	Dividends
		D.422	Withdrawals from income of quasi-corporations
		D.43	Reinvested earnings on direct foreign investments
		D.44	Property income attributed to insurance policyholders
		D.45	Rent
B.5	<i>Balance of primary income</i>		

## II.3 Secondary distribution of income account (simplified)

<b>Uses</b>		<b>Resources</b>	
D5	Current taxes on income, wealth etc.	B.5	<i>Balance of primary income</i>
D.61	Social contributions	D.61	Social contributions
D.61 1	Actual social contributions		
D.61 2	Imputed social contributions		
D.62	Social benefits other than social transfers in kind	D.62	Social benefits other than social transfers in kind
D.7	Other current transfers	D.7	Other current transfers
D.71	Net non-life insurance premiums	D.72	Non-life insurance claims
D.75	Miscellaneous current transfers	D.75	Miscellaneous current transfers
B.6	<i>Disposable income</i>		

II.4 Redistribution of income in kind account

<b>Uses</b>		<b>Resources</b>	
		B.6	<i>Disposable income</i>
		D.63	Social transfers in kind
		D.631	Social benefits in kind
		D.6311	Social security benefits, reimbursements
		D.6312	Other social security benefits in kind
		D.6313	Social assistance benefits in kind
		D.632	Transfers of individual non-market goods and services
B.7	<i>Adjusted disposable income</i>		

II.5 Use of income account

II.5.1 Use of disposable income account

<b>Uses</b>		<b>Resources</b>	
P.3	Final consumption expenditure	B.6	<i>Disposable income</i>
P.31	Individual consumption expenditure		
		D.8	Adjustment for the change in net equity of households on pension funds
B.8	<i>Saving</i>		

II.5.2 Use of adjusted disposable income account

<b>Uses</b>		<b>Resources</b>	
P.3	Actual final consumption	B.6	<i>Adjusted disposable income</i>
P.31	Actual individual consumption		
		D.8	Adjustment for the change in net equity of households on pension funds
B.8	<i>Saving</i>		

III. Accumulation accounts

III.1 Capital account (simplified)

<b>Changes in assets</b>		<b>Changes in liabilities and net worth</b>	
P.51	Gross fixed capital formation	B.8n	<i>Saving, net</i>
K.1	Consumption of fixed capital	D.9	Capital transfers, receivable
		D.92	Investment grants
P.52	Changes in inventories	D.99	Other capital transfers
P.53	Acquisitions less disposals of valuables		
		D.9	Capital transfers, payable
K.2	Acquisitions less disposable of non-produced non-financial assets (land etc.)	D.91	Capital taxes, payable
		D.99	Other capital transfers, payable
B.9	<i>Net lending / borrowing</i>	B.10.1	<i>Changes in net worth due to saving and capital transfers (Total of the above)</i>

The other accounts (not detailed here) are as follows):

- III.2 Financial account
- III.3 Other changes in assets accounts
  - III.3.1 Other changes in volume of assets account
  - III.3.2 Revaluation account
    - III.3.2.1 Neutral holding gains/losses account
    - III.3.2.2 Real holding gains/losses account

#### **IV. Balance sheets**

- IV.1 Opening balance sheet
- IV.2 Changes in balance sheet (within which the change in net worth is attributed to savings and capital transfers, other changes in volume of assets, and nominal holding gains/losses)
- IV.3 Closing balance sheet

#### **VIII.4.3 Activity accounts – agriculture as an activity**

Before moving to statistics based on accounts for agricultural households and their related methodology it is necessary to describe briefly the activity accounts that form the basis of most of the current indicators used internationally to monitor the economic situation in agriculture. Activity accounts are commonly calculated at both the level of the entire agricultural industry and the level of the individual farm business. The basic methodologies of each level were established in the 1930s, though some elements of farm-level studies go back further (Hill, 2000). Historical precedent is important in explaining the present form of this approach and its dominance hitherto.

Many industrialized countries construct industry-level accounts for the activity of producing agricultural commodities, as does Eurostat for the EU as a whole. Known in the EU as the Economic Accounts for Agriculture (EAA), they and their associated industry-level income indicators have long been used to guide policy. The OECD has used the EAA methodology as the basis for its collection of comparable statistics for a wider range of countries. The aggregate activity accounts are complemented by accounting systems at the microeconomic level (farm or holding). For an outline of activity accounts in the EU see Box VIII.1.

**Box VIII.1**  
**Activity accounts in the EU**

The EU publishes aggregate (industry-level) activity accounts for the EU using data provided by the individual Member States. Eurostat has established an agreed methodology (Eurostat, 1997 and updates) and harmonized results are published annually for the EU and for individual countries. Though based in National Accounts methodology (SNA93), the EAA depart in a number of ways to put them more in line with the perceived needs of policymakers in terms of the coverage of commodities (small adjustments are made, for example, to include Christmas trees, the production of which would otherwise be classed as forestry) and units of production (in effect, output from hobby gardening is no longer included). Since the revised version of the methodology was introduced (EAA97) to be compatible with the revised SNA93 (and its European manifestation, the ESA95), the nature of these departures has been made transparent, with a bridge table provided in the methodology (though not always actually calculated) between the ESA and the SNA. Many individual governments apply this EAA97 methodology (sometimes with small variations) in the creation of accounts and indicators for national purposes.

The industry-level activity accounts are complemented by accounting systems at the microeconomic level (farm or holding). Again, many industrialized countries carry out surveys of the accounts of individual farm businesses, including the income generated from production, to inform policymaking. In the EU, the survey is known as the Farm Accountancy Data Network (FADN, or the French acronym RICA) and is made up of national surveys that supply data to the European Commission which acts as a coordinating and regulating agent. Again, the methodology is agreed by Member States and thus the results are harmonized and comparable (Commission, 1989 and updates). Farm-level data is needed to study issues such as distribution of rewards, of productivity, of stability etc.

Activity accounts at the aggregate level have a major advantage that in industrialized countries they can often be built-up from national level data, without the need to carry out representative surveys of farm accounts. For example, the value of crop output may be estimated from censuses or surveys of crop areas multiplied by average yields and prices. Their results can therefore be produced in a timely and relatively economical way, important features of statistical quality. However, some important drawbacks of (current) activity accounts are that:

- In their traditional form at both industry and farm levels they may relate only to the production of a list of agricultural commodities. The list of what constitutes an agricultural commodity, and therefore agricultural production, is agreed as the International Standard Industrial Classification of all Economic Activities (ISIC Rev 3) and its EU equivalent, the Classification of Economic Activities in the European Community (NACE Rev 1.1). While this is not highly contentious, there are some difficulties at the margin. However, with the broadening of activities undertaken by farmers (such as the provision of agri-tourist accommodation and adding value in food processing) there are increasing problems in separating the value of output into agricultural and non-agricultural. Particularly difficult is the isolation of the inputs used in agricultural production where these are shared, such as the use of a tractor for agricultural production and for forestry or for snow clearing. In the United States, for example, the output accounts include estimates of revenue from services and forestry, such as the hiring out of farm machinery and equipment or the undertaking of custom work for other households or firms. Inclusion of these additional sources of earnings in the estimate of the value of agricultural sector production requires explicit attention to

questions focused on these non-crop or livestock production activities in data collection activities. When data are drawn from microeconomic sources, accounts for agricultural production have to be carved out from transactions of real businesses by separating off any non-agricultural activities, something that is increasingly difficult.<sup>2</sup>

- In accounts for activities care has to be used in going beyond the calculation of NVA or Operating Surplus to achieve an indicator that corresponds to what would be regarded as the profit from farming (for example, Entrepreneurial Income in the EAA or Family Farm Income in FADN/RICA). Interest and rent relate strictly not to activities but to institutional units, in agriculture mostly households and their members. Interest paid will relate to the entire borrowing of a household and will encompass borrowing for consumption and to facilitate production (of all types). This means that careful attention has to be given to estimates of debt that are used in farm activities, including debt used for seasonal loans and other intra-year farm activities. Some even view the partitioning of interest into agricultural and other purposes as theoretically objectionable (because of the fungible nature of loans) and impractical. Rent paid may suffer from similar problems where there is a degree of combined consumption and production or several forms of production on the same real estate. Labour also presents an issue for measurement since households may pay selected members a wage charged as a labour expense to the farming activity. This wage would be an income to the household. The combining of payment of employee compensation (wages), rents, and interest out of net value added to arrive at an estimate of an operator's surplus is clearly a challenge to data collection activities. This challenge, in many countries, is made even more difficult by the presence of multiple households (for example a multiple generation farm) and by the increased use of a variety of business arrangements that bring outside entities into a household's farming activities. An example is the production of poultry or pigs under some contractual agreement.
- Particular difficulties arise with the inclusion in accounts for agricultural activity of payments for non-production. Normally payments are in the nature of a transaction, and a flow of goods and services can be identified that correspond with the money flow. While something of this nature could be argued in the case of payments for undertaking production in particular ways that result in a flow of environmental services, there are some financial flows (such as the "compensatory payments" associated with the 1992 and subsequent reforms to the EU's Common Agricultural Policy) for which no obvious corresponding flow of goods and services exists.
- The 'income' concepts of activity accounts are (in essence) factor rewards and do not correspond with the personal incomes of their operators. These concepts are difficult to interpret by non-specialist users (especially when divided by labour input, which is only one of the contributing factors). The outcome is that the indicators are often used as a proxy for the standard of living of the agricultural community, a purpose for which they are manifestly ill-suited.
- The activity accounts exclude capital gains and losses on most assets (including real estate and liabilities), items that should appear later in the sequence among the capital accounts. By not taking these gains and losses into account, items are being left out that form a component of the longer-term personal rewards of farm operators and that may be important in influencing decisions to stay or leave the industry.

<sup>2</sup> In aggregate activity accounts the basic unit of production is the fictional agricultural Local Kind of Activity Unit (LKAU – equivalent to the *Establishment* in SNA93 terminology).

- Capital balance sheets and net worth cannot, strictly, be calculated for the activity of agricultural production. Balance sheets only apply to institutional units, such as households or other bodies with legal status that can enter into contracts, obtain loans etc. It is possible to classify capital assets as agricultural and thus build up a partial picture on that side of the balance sheet. The nature of liabilities means that careful attention must be paid to attempts to develop estimates of debt associated with farming activities. Even if balance sheets can be developed for agriculture, these are open to criticism for their coverage and potential bias at the household level.

#### **VIII.4.4 Accounts for institutional units – accounts for farm household-firms**

The essential features of a system of accounts based on institutional units (in the case of agriculture, unincorporated household-firms, with other accounts for corporations etc.) are as follows:

- They are based on complete units, without need to separate off activities.
- Complete series of current and capital accounts are possible (dependent on data availability) for households down to disaggregation of disposable income into consumption and saving.
- The series potentially extends to capital accounts and balance sheets (equivalent to the net worth of households).
- The accounts cover all flows of resources; for households this includes those from independent activity in agriculture and other industry groupings, dependent activity (wages), property income, welfare transfers etc. It should be noted that public payments for the supply of (non-marketed) environmental services and compensation for non-production (the latter a particular problem for activity accounts) are accommodated without difficulty in the institution / household unit approach.
- The inclusion of the flows are not dependent on classification by function (e.g. from production of goods and services), though the origins may be used to divide up the total flow.
- Sector and income concepts are more easily understood by users, as they apply to real units and do not involve assumptions about the separation off of the agricultural components in outputs and inputs.
- Integration of sector and micro levels accounts and indicators is better, as the sector is taken as comprising collections of complete institutional units.
- A possibility exists of sub-accounts for selected groups of institutional units, such as:
  - Corporation;
  - Other non-household forms (cooperatives etc.);
  - Households, with (for example):
    - some agricultural production;
    - agricultural production above a given level (which might be that deemed to comprise subsistence production in contrast to hobby gardening, or some other threshold that is deemed to be the lower limit of ‘serious’ or ‘commercial’ or ‘professional’ production, for which holding size might be the criterion);

- agriculture-dependent for current income, which may be assessed in terms of the entire household or of a reference person, such as the head of household;
- regionally disaggregated, or divided into those that are in rural and in non-rural parts of the country.

Despite these positive attributes, this approach has the drawback that it requires detailed accounting data to be collected at the level of the institutional unit - the household-firm or corporation – something that may be avoided for major elements in aggregate activity accounting. This may be expensive.

In OECD countries, setting up accounting based on complete institutional units may be particularly problematic where farm surveys are the main data source and, as in many EU Member States, these do not currently ask questions that go beyond the agricultural activity. It is feared that farmers might be unwilling to reveal their other economic activities and interests, with possible implications for their cooperation rates in what are usually voluntary surveys. Clearly an adequate explanation by the collecting authority as to why this information is required should be available. This would include the fact that on-farm behaviour (land use, investments etc.) is influenced by the full range of economic activities and interests of the household-firm, not just those relating to agriculture.

The advantages of accounting and income measurement on the basis of institutional units are not confined to relatively developed countries. The FAO's 1996 *System of Economic Accounts for Food and Agriculture*, which has general applicability but is directed especially at less developed economies, recommends that accounts based on institutional units (in effect, households) is the preferred approach. A major additional reason is that this also corresponds with the way that statistics are built-up in less developed countries, which relies heavily on surveys of households.

### **VIII.5 Where we are in the provision of income indicators taken from institution-based accounts for household-firms**

Activity accounts (current) and related income indicators at aggregate and microeconomic levels are long-established at the EU level and can be found in many other OECD countries. In contrast, accounts and indicators for agricultural households and other forms of institution are far less well-developed. Commentators on agricultural policy (summarized in Hill, 2000) have concluded that the lack of institution-based accounts is a major gap in statistics needed to assess its performance. A recent report by the European Court of Auditors found that the aggregate and microeconomic activity accounts in use in the EU (the EAA and FADN/RICA) “do not provide sufficiently exhaustive information on the disposable incomes of agricultural households and do not allow an assessment of the living standard of the agricultural community to be made” (Court of Auditors, 2003; para. 79). Some possible explanations for the poor availability of statistics based on the agricultural household are given in Box VIII.2.

Statistics that take the agricultural household as the basic institutional unit, while being less well-developed than activity accounts, nevertheless exist to some extent. At sector level, the EU Eurostat's IAHS statistics partially fills this gap. A methodology has been devised, based in national accounts and incorporating ideas on disaggregation of the households sector taken from France and Germany, but when applied there have been rising problems in maintaining the calculation of results because of data availability and quality (Eurostat, 2002). Nevertheless the development of the methodology has tackled a number of issues of definition that have proved valuable when applied in other circumstances and levels of aggregation. At the microlevel, there is no workable EU system in place for measuring the income of agricultural

households on a harmonized basis, constituting a large gap in the coverage of agricultural statistics and a potent stimulant for the methodology set out in this Handbook.

The OECD has collated a large number of studies of the income situation of agricultural households, many of which are microeconomic in nature (various reports summarized in OECD, 2002). However, the results contain data that involve a range of definitions. Generalizations of findings and comparisons across countries are hazardous. In particular, the results (both in terms of numbers of cases in the sector and the average level and composition of income) are sensitive to the definition of what constitutes an agricultural household. The need to develop basic recommendations for a methodology is self-evident.

The consequences of this imbalance between accounts for agricultural activity and for agricultural institutions are that activity accounts are being stretched beyond what can be justified by the present structure of the agricultural industry. The indicators derived from them appear to be put to inappropriate uses and hence policy decisions are likely to be based on inappropriate statistics (OECD 1997, 2002). The implication is that costly policy mistakes may have been made, and may still continue to be made, unless the information gaps are filled. This concern, though perhaps felt most strongly in the 21<sup>st</sup> Century, is by no means a recent phenomenon. As long ago as 1933 there were warning about using inappropriate indicators (Peterson, 1933) and the debate resurfaced in the 1970s, particularly in the United States (AAEA, 1972).

In many countries the main limiting factor in generating statistics on the income and wealth of agricultural households is the availability of suitable basic data. Such data comes in three main forms:

- Surveys of farms that take a broad, household approach and collect data on more than just the output and inputs used in the farming process, covering other income and other assets and liabilities. An example of “good practice” is the United States farm accounts survey (the Agricultural Resource Management Survey – ARMS), the latest report of which demonstrates how useful such information can be in revealing the nature of the problems facing agricultural households (Mishra *et al.*, 2002).
- General surveys of households that cover income and expenditure, that have a sufficient number of cases that turn out to be agricultural households, and where the income data is of sufficient quality. In many OECD countries such surveys are ruled out for one or both of these reasons.
- Taxation records, where self-employed farmers can be identified as a trade group within the industrial classification. These records may be combined with other administrative records to construct an income statistics register. However, their usefulness is hampered in many countries by farmers not being taxed on their actual incomes but according to some standard - typically dependent on farm area - or by their falling below the tax threshold (OECD, 2004).

In reality, it is found that some countries have several good sources, while others have none. In view of the fundamental importance of the data system to the development of statistics on agricultural household income and wealth, this Handbook provides a detailed country-by-country review of data sources and the income statistics for agricultural households to which they give rise. Chapter XIII contains this material.



**Box VIII.2****Some explanations for the lack of statistics for agricultural households (based on Hill, 2000)**

Given that indicators relating to the income situation of agricultural households are generally seen now as being of importance, how is it that they have received so little attention from statisticians in the past? Why in those relatively few countries, including the United States, where data have existed for a considerable time, has information on the income and wealth position of farmers as a group not made the substantial impact on domestic policy that might be expected, especially when their income and wealth situations are good compared with other groups in society? In the EU (and in many individual OECD countries) there seems to be a number of explanatory factors:

*Lack of political demand.* Politicians have not requested this information, perhaps because of a too-simple perception of the agricultural industry, or a fear of the electoral consequences of drawing attention to it.

*Historical precedent.* Activity accounts, at both aggregate and farm levels, and their related "income" indicators are long-established, having been set up when there were stronger grounds for assuming that the only source of incomes of farm households was from farming. In the EU, the EAA adopted the 'Branch' concept at its outset in 1964; as did the FADN basic legislation of 1965.

*Operational requirement.* The fact is that agricultural policy (including the EU's CAP) has operated apparently successfully for many years in many countries without information on the incomes of agricultural households. The administration of income support systems has rarely if ever required the data (though some tests of eligibility have been applied within individual structural schemes).

*'Rational ignorance' among many users.* There is a tendency among users, especially non-specialists, to adopt satisfying behaviour. That is, they take the first available indicator that appears to meet their needs, so that measure of the income from agricultural activity may be assumed to show the income of farmers. Among some users there may be a suspicion that the information revealed by household-firm data could be against their political and/or bureaucratic interests.

*Self-interest of bureaucracies.* Government departments for agriculture have often taken a pro-farmer stance and might therefore not wish to draw attention to anything that might lead to a reduction in support for the industry, as might be revealed by statistics on household income. There is also an understandable aim of wishing to maintain continuity with long-established systems of activity accounting.

*Data availability.* Lack of basic data of suitable quality in some countries is a major constraint in the development of statistics on the complete activities of farm businesses and their households. In countries where it has not been conventional to ask questions on non-farm income, agencies that collect data have been reluctant to ask new questions about non-farm income for fear of harming response rates.

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## **IX THE AGRICULTURAL HOUSEHOLD – CONCEPTS AND DEFINITIONS**

The household, rather than the individual, is commonly adopted as the basic unit of analysis when considering the economic situation of society (though data for individuals may be collected separately). The household is recommended by the Canberra Group of experts for use in studying income distributions and is the basic unit in household budget surveys, the main purpose of which is to assist in the creation of retail price indices (cost-of-living indices). In an agricultural context, it is adopted by the FAO as the foundation for its System of Economic Accounts for Food and Agriculture (SEAFSA), intended for use by countries at all levels of economic development (FAO, 1996). Within the EU, Eurostat measures the total income of agricultural households. In the United States, incomes for farm occupier households are calculated by the United States Department of Agriculture's Agriculture Resources Management Survey (ARMS) (the forerunner of which was the Farm Costs and Returns Survey).

A central feature of the household is that there is a high degree of pooling of income and expenditure. This means that assessment at the level of the household is more meaningful in representing the potential command over goods and services than would be the case if the incomes of the individual members were treated separately. This is not to deny that, for example, farmer's wives may have some source of income which they regard as their own (such as from providing bed-and-breakfast accommodation in the farmhouse), or that the pocket money which a farmer spends is the result of a collective decision and is approved as a necessary line of expenditure by the household. In many countries spouses work off the farm operation at a wide variety of occupations. When asked, they commonly report that their earnings go to increase the overall household income.

While in such circumstances it clearly makes more sense to take the household as a convenient basis for income measurement, it must be borne in mind that for some analytical purposes it is necessary to have figures that relate to individuals, as these are the fundamental units that experience utility (this issue is explored when the definition of income is considered in Chapter X).

A detailed consideration of what constitutes an agricultural household can be broken down into two elements:

- The definition of a household;
- The characteristics that distinguish an agricultural household from any other.

Both 'household' and 'agricultural household' (or 'farm household') are familiar terms. However, behind this common usage lie a variety of meanings that must be clarified and used with discrimination when generating statistics. Some of the general issues were introduced in Chapter VIII. Here the intention is to review the details.

### **IX.1 Definition of the household appropriate to accounting and statistics**

The starting point for the definition of a household is the System of National Accounts 1993 (SNA93) (UN, 1993). The following definition uses the SNA93 (para 4.132) but adds a phrase that appears in the version of the SNA that is applied in the EU by the European System of Accounts (ESA) (Eurostat, 1996).

*For the purpose of the System, a household may be defined as:*

*A small group of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food. [The criteria of the existence of family or emotional ties may be added].*

The predominant view of households in the SNA93 and ESA95 is that they are units of consumption whose main resources come from wages (compensation of employees), property income or transfers. However, it is clear that households can also have a production activity, something that is of particular importance when considering agricultural households. The ESA describes the households sector as follows:

*ESA 2.76 The households sector includes:*

- *Individuals or groups of individuals whose principal function is consumption;*
- *Persons living permanently in institutions who have little or no autonomy of action or decision in economic matters (e.g. members of religious orders living in monasteries, long-term patients in hospitals, prisoners serving long sentences, old persons living permanently in retirement homes). Such people are treated as comprising, together, a single institutional unit, that is, a single household.*
- *Individuals or groups of individuals whose principal function is consumption and that produce goods and non-financial services for exclusively own final use; only two categories of services produced for own final consumption are included within the system: services of owner-occupied dwellings and domestic services provided by paid employees.*
- *Sole proprietorships and partnerships without independent legal status - other than those treated as quasi-corporations - which are market producers.*
- *Non-profit institutions serving households, which do not have independent legal status or those which do but are of only minor importance (see ESA 2.88).*

Hence the SNA/ESA definition of the households sector includes private households but also some units which do not form part of the coverage of household budget surveys. Examples include both communal living units (hostels and monasteries) and other institutions such as universities. However, these units are unlikely to correspond with the notion of the target group for agricultural policy and are probably better omitted from statistics on agricultural households. In any event, where households are selected for special study that are mainly dependent on agriculture for their incomes, such non-family forms are unlikely to be included.

As noted above, the SNA/ESA definition encompasses both the consumption and production activities of households. However, it defines households from a national accounts standpoint, which may not be universally appropriate. For insights into the microeconomic approach it is useful to turn to the series of household budget surveys, such as those found in the EU and that form the basis of much international work on poverty and income distributions. The official definitions of households that exist for use in the separate national household budget surveys are broadly similar but differ in detail. For the United Kingdom a household was described thus:

*A household comprises one person living alone or a group of people living at the same address, sharing their meals and the household, and having sole use of at least one room. All persons in a household must receive from the same person at least one meal a day and spend at least four nights*

*a week (one, if they are married) in the household. The household includes staff, paying guests and tenants, and also anyone living in the household during the period in which expenditure is recorded. Persons who normally live in the household, but who are absent for a period of more than one month, are excluded (Eurostat, 1985).*

The condition of living at the same address and sharing catering arrangements is common among the definitions adopted by all the EU Member States, though differences occur in the way that live-in domestic staff and temporary residents, such as students, are treated. However, such differences are peripheral to the main thrust of the definition of the household for the purpose of income studies. Of far greater import is the role played by adult family members, additional to the farmer and spouse, who may live in the farm dwelling - usually grown-up children, parents, brothers and sisters. These multigenerational and extended households are thought to be a particular feature of the social structure of agriculture, even in many industrialized countries. While there would be little dispute over treating a cohabiting couple with dependent children as a single household unit for the purpose of income assessment, there are problems if other adults also live in the same dwelling. Things are made complex because of the fact that many farms are run by family members working together and many different forms of financial arrangements, formal or informal, may exist between them. For example, family labour working on the farm may be unpaid, paid as hired workers, or be self-employed business partners.

Where grown-up children receive a wage, though they may make some payment to the farm household for their keep, they probably regard their independently-earned income to be under their own control as far as spending is concerned. The case for *not* including these additional adults in the household unit is particularly strong where they have full-time jobs off the farm and are treated within national tax systems as separate units. To include them in the larger household unit of measurement, when they are clearly financially independent, introduces a degree of artificiality that can undermine the validity of the income statistics. However, even if such grown-up children do not contribute labour to the farm on a regular basis, it seems highly unlikely that they would not help out at seasonal labour peaks; to some extent they still form part of the agricultural labour force. Much the same problem is faced when retired parents live with their farmer-children or when other groups of relatives live in the same house. The notion of personal income implies the freedom to dispose at will, and it is far from certain that, for example, the old-age pension of a retired relative living in the same residence can be regarded as at the general disposal of the household.

In developing countries the concept of the household can be rather different from that applicable among OECD Members. This is reflected in the UN in its guidelines for population and housing censuses, taken over into the draft methodological recommendations for the World Programme of Agricultural Censuses scheduled for 2010. These describe a household as follows:

*"The concept of household is based on the arrangements made by persons, individually or in groups, for providing themselves with food or other essentials for living. A household may be either (a) a one-person household, that is to say, a person who makes provision for his or her own food or other essentials for living without combining with any other person to form part of a multi-person household, or (b) a multi-person household, that is to say, a group of two or more persons living together who make common provision for food or other essentials for living. The persons in the group may pool their incomes and may, to a greater or lesser extent, have a common budget; they may be related or unrelated persons or constitute a combination of persons both related and unrelated"* (UN, 1998).

The guidelines stress the criterion of household members sharing the means for living, and do not mention the need to live at the same address (that is, in the same dwelling). They point out that when viewed in this way, households may occupy the whole of a housing unit (dwelling), part of one or several units. There

may be more than one household living in a housing unit. Some households consist of extended families making common provision for food and may occupy more than one housing unit. In other cases, different family units live in separate housing units, but have a common head, such as in polygamous unions. A “family” is more readily understood than a “household”, but it is not the same thing; a family may include people living in other households in other places.

Consequently, when designing statistics on the income situation of agricultural households, a distinction should be drawn between the household as a social unit for domestic budgeting and consumption (the housekeeping unit, or *single budget household*, comprising only those people who pool income and expenditure) and the household unit in the domiciliary sense (the *accommodation* or *dwelling household*, consisting of the people living under the same roof). Of course, any one farm may have more than one household associated with it; this applies whichever approach is taken.

In the absence of firm information on intra-household financial integration and the diverse forms it takes, a case exists for calculating household incomes using both concepts. This would imply data collection for all people living in the same dwelling, but only including the incomes of some of them when using the *single budget household* concept. Some balance could then be struck between the overstating of income at the disposal of the household incurred by including the income of additional adults and the understatement which would doubtless result from their being excluded. What is appropriate treatment for one country may not apply elsewhere because of differences in degrees of financial integration that will reflect, *inter alia*, social norms and systems of direct taxation. However, the boundaries of the *single budget household* are not simple to define. In reality, family budget surveys differ in their approaches, but usually conform to dwelling household (Eurostat, 1993). In contrast, taxation statistics that use the *fiscal household* approximate to the *single budget household* (though the move to independent taxation of individuals in some countries, including the United Kingdom, has eroded this).

The Canberra Group (2001) approaches the definition of a household from a microeconomic standpoint. The Group’s formulation of the several tiers of units involving household statistics are set out in Figure IX.1. Its recommendation is that the household (as shown in this figure) is adopted as the basic statistical unit for income distribution analysis, with other units taken as alternatives for particular purposes. The Group’s preference for the household (dwelling concept) is a reflection of the importance of household budget surveys as a main data source and of its particular interests – income distribution statistics. In the present context a somewhat different view is appropriate, in which the comparative position of agricultural households in relation to other socio-professional groups is of concern. Of particular importance is the comparison of agricultural households to other households that have a role in production activities. These might constitute one of the “particular purposes” postulated by the Canberra Group.

In the absence of an internationally applied definition of a household, Eurostat has recommended that, for its Income of the Agricultural Households Sector (IAHS) statistics, the definition of a household should accord with that used in national household budget surveys. This will normally be based on the single dwelling concept. However, a consensus is building that, for the purpose of constructing income statistics for agricultural households, the narrower single (housekeeping) budget concept is preferable for both theoretical and practical reasons. This Handbook therefore recognizes the *single budget household* concept as the preferred household measure. But it is equally clear that, for comparisons to be drawn with other socio-professional groups, an equivalent treatment must apply there too. If this is not possible, the single dwelling household may have to be used.



**Figure IX.1**  
**Canberra Group recommendations for harmonized statistical units**

**Dwelling**

A structurally separate set of living premises with a private entrance from outside the building or from a common hallway or stairway inside. Eurostat definition is: a structurally separate set of living premises and the principal usual residence of at least one person.

**Household (dwelling concept)**

A person or group of people who reside together in the same dwelling. This is virtually identical to the Eurostat definition of a private household - household dwelling concept.

**Family (housekeeping concept)**

Two or more people sharing a common dwelling unit and related by blood, marriage (including same sex couples and de facto or Common Law relationships) or adoption. The proposal here is that all relatives living together at the time of the data collection should be considered to comprise a single family regardless of the nature of kinship. This is virtually identical to the Eurostat definition of a private household – housekeeping concept.

**Unattached Individuals**

An unattached individual is a person living alone or in a household where he/she is not related to other household members.

**Income Units**

One person or group of related persons, within a household, whose command over income is shared.

*Source:* Adapted from Table 3.1 of the Canberra Group (2001).

**This Handbook recognizes that a flexible but transparent approach should be taken to the definition of a household. While income measurement on the basis of the complete dwelling household should be undertaken to facilitate comparisons, both internationally and with national data sources, data should also be available to allow the application of the concept of the single budget household which in some circumstances may be preferable.**

## **IX.2 Households of different sizes and compositions**

Households differ in size and composition. A given level of income for a large family may represent a much lower standard of living per member than for a smaller family. In particular, comparing the income level and distribution in this income between, say, households headed by active farmers with the all-households average is likely to be misleading, as the latter will reflect the large numbers of low-income single-person households, mainly containing elderly individuals, that typify many industrialized countries. Simply dividing income by the number of individuals in the household may not be satisfactory, as the requirements of child household members are likely to be different from those of adults. Basing the analysis of incomes on particular sizes of household (for example, comparing the incomes of households of two adults and two children across socio-professional groups) is likely to be restricting in terms of numbers of

cases. Some equivalence scale needs to be applied which puts incomes on a common base. This is a recommendation of the Canberra Group (for a review of approaches see Hagenars and Van Praag, 1985). It is preferable that different coefficients be applied at different levels of income, though this is not usually done. The choice of scales and equivalence figures will reflect differences in social conditions, and these are likely to change over time.

Hill (2000) reports that in the United States, though the scales used were otherwise similar to the British coefficients, the figure applied for late teenagers was substantially higher. This suggests that American families at the time may have been required to support their near-adults more than in the United Kingdom. It is likely that the coefficients that should apply to agricultural households will differ from those for other socio-professional groups, reflecting the particular social conditions found there, including the unusually large households found in some countries. This point is related to, but separate from, the issue of the proper measurement of household income where opportunities for the consumption of own production are offered, as in farming. However, it appears that whatever equivalence scales are adopted, arbitrary judgements are inevitable. In this case, countries should report the equivalence scale used to facilitate comparisons.

It is obvious that the use of equivalence scales is made less critical if a *single budget* definition of a household is adopted, in effect narrowing coverage to the couple and dependent children.

Eurostat recommends that, where equivalence scales are used in the estimation of incomes of agricultural households, that these are the same as scales currently employed within national household budget surveys. When calculating income results, Eurostat further requests that these are calculated on the basis of three different measures:

- Income per household;
- Income per household member (that is, divided by the number of people in the household);
- Income per consumer unit (that is, after applying an equivalence scale).

The use of an average income per household member or an equivalence scale when applied to income implies a particular distribution of income within the household; averaging implies equal division of incomes. In reality this may not happen, and the spending power may be exercised by particular individuals, others having much reduced levels and, possibly, thereby suffering economic deprivation. The issue of intra-household distribution is considered in more detail in Chapter X. However, reservations that should be borne in mind when interpreting income statistics do not alter the desirability of taking the size and composition of the household into account when reporting them.

**This Handbook recognizes that both of these practices (the calculation of income per household member and per consumer unit, and the use of national equivalence scales) should be followed. Details of Equivalence Scales should be made available as metadata.**

### **IX.3 The rural and urban household enterprise**

The problems of defining what is meant by rural and urban have been considered elsewhere in this Handbook and will not be repeated here. Under most definitions of rural, agricultural households will be considered as operating within the rural space and using land in ways that typify rurality. An ability to

classify households, both in their role as consumers and as producers, into rural and non-rural is of considerable importance to a range of public policies.

However, it should be borne in mind that, in many industrialized countries, the households found in rural areas are not necessarily involved in agricultural production, even in a minor way. Some indication of the situation in the EU comes from an analysis of the features of rural areas published by the European Commission in preparation for its programme of rural development post 2006 (European Commission, 2004) and based on the OECD typology of municipalities (communes). In 2000, the proportion of the labour force working in agriculture, hunting, forestry and fisheries was only 13.1% in regions of the EU-25 classified as “predominantly rural” (that is with over 50% of the population living in rural communes, with less than 150 inhabitants per square km), falling to 6.6% in “significantly rural” regions (15-50% of the population in such communes) and 2.0% in “urban” regions. The structure of agriculture means that, at least in most countries, the labour would have been predominantly self-employed in farming. These figures are based on the main occupation of individuals in the labour force, so will understate the proportions that have some involvement with agriculture.<sup>1</sup> A consequence of these findings is that, while the large majority of agricultural households are likely to be found in rural areas, not all are. In these areas most of the households, even those with self-employment as their main income source, will be non-agricultural in terms of their predominant economic activity.

In developing countries, however, the rural population is relatively more important and agriculture accounts for a far higher proportion of the labour force. According to FAO statistics for 2001 (taken from its website), in developing countries 59% of the population was classed as rural (62% in the developing countries of Africa and Asia), in contrast with 37% in transition economies and 22% in industrialized countries. While the proportion of the population that is rural has been in decline since 1980 in each of these categories, the fall in absolute numbers in developing countries has been the most substantial. Agriculture, which accounted for only 6% of the labour force in developed industrialized countries in 2001, was the main occupation of 22% in countries in transition and 43% in developing countries (48% in East and Southeast Asia).

Many of the people who live on farms may not regard the farm as their main activity. Residence on an agricultural holding is of little meaning as a basis of classification in many parts of Europe where distances are often small enough for people to commute from farms (often little more than rural houses with particularly large gardens) to their regular place of work in urban areas. Conversely, it is quite possible, though less common for farmers to live in towns and for them to commute to their farms. In this case the location of the household's dwelling may not be where the farmed land is situated. Up to 1983, the USDA produced income statistics for ‘farm residents’; a farm was (and still is) defined as an establishment from which a given minimum value (\$1,000) of agricultural products was sold or would normally have been sold in a year. A set of objections similar to those in Europe led to the discontinuation of the USDA series after almost fifty years, though analysis of farms is still made on this basis (see Banks *et al.*, 1989). Residence does, of course, cover both self-employed and hired workers and thus extends to households that are not agricultural, in the sense that they receive income from self-employment in agriculture.

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<sup>1</sup> A special report to the Countryside Agency in the UK (*Self-employment in rural England* by Elaine Kempson and Michael White, 2001) drew on the Family Resources Survey of 1998-1999 and 1999-2000 to analyse the personal characteristics and incomes of self-employed people and employees in agriculture and forestry and to contrast them with the self-employed and employees in urban households. Reference is made to gaps in responses to income questions and the under-estimation of incomes of self-employed (with correction factors of 1.2 to 1.5 mentioned but not applied to the results). Agriculture/forestry accounted for 10% of the self-employed people in rural areas.

## IX.4 Definition of the agricultural household-firm (enterprise) and those belonging to other socio-professional groups

Neither the SNA93 nor the Canberra Group explicitly considers what characteristics should cause a household to be classified as being an agricultural household rather than one belonging to some other socio-professional group. Yet the manner in which the agricultural community is defined has a strong relationship with the utility of statistics to assist in policymaking decision (their *relevance* to users) because it carries important implications for the results, both in terms of the numbers of households that qualify and the income results that emerge.

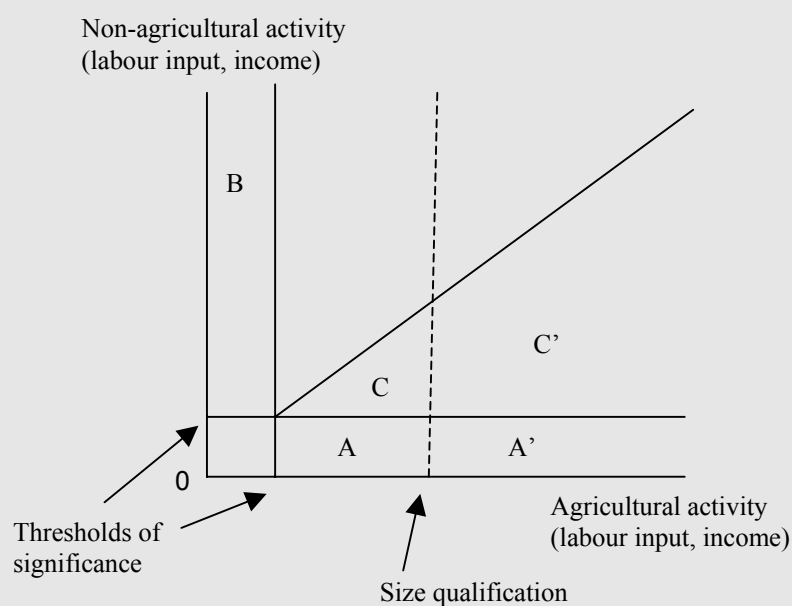
Several criteria can be used to qualify those households as agricultural, and the one which is appropriate will depend on the purpose for which these have to be distinguished from other households. The issue for the EU has been discussed in the context of which households comprise the agricultural community (Hill, 1990). Meanwhile, a longer history of studies in the United States has been particularly concerned with the recipients of the rewards from farming (Banks *et al* 1989). *Residence on a farm*, already dealt with above, is problematic. *Ownership of agricultural land* is another possible criterion, perhaps with a minimum size qualification (such as the threshold for inclusion in the EU's Farm Structure Survey) to eliminate large gardens. However, we are here mainly concerned with the operators of agricultural holdings (holders) and their households, not landowners (although there are good economic arguments for believing that the ultimate beneficiaries of income support are the owners of land - land being the factor of production in least elastic supply). Some, but not all, of these owners will be farmers, with the share of owner-occupation varying widely between countries.

A more plausible approach in the present context is to define an agricultural household in terms of its dependency on self-employment in farming for the household's livelihood. One way is to look at the pattern of working time; an agricultural household might be taken as those *households in which at least one member spends some time working in agricultural production*. However, this would include every one who grows some of their own vegetables in their gardens for hobby purposes as well as those for which this is a subsistence activity (that is, it substitutes for income-generating activity that could be used to purchase these commodities). These domestic producers, while not normally considered as part of the agricultural industry in many industrialized market economies, may be seen in a different light in countries with a history of collectivized agriculture or at lower levels of economic development where their production contributes significantly to overall output. If it is desirable to exclude these households, some cut-off might be used below which producers would not be considered as "real" farmers. Examples include minimum labour input (in days), a minimum area, or a minimum amount of output. Similar cut-offs are used in agricultural statistics to set the bottom limits of what constitutes a farm (or agricultural holding). In the United States, for example, the definition of farm applies to operations with \$1,000 of agricultural sales or the potential to generate such sales. A variant of this would be to include only those households where the members spend the *majority* of their time working on their farms. Box IX.1 illustrates some of these combinations.

At the level of the individual it may be relatively easy to collect data on what the respondent declares as his or her "main occupation." This is often a subjective judgement but is usually consistent and relatively stable. However, the use of a time allocation method at the household level is far more difficult in practice, requiring the labour records of each household member. These are rarely available in a reliable form. Another drawback of this labour input approach is that the notion of work may be too restricting. It is simplistic to treat only physical labour as work. On many larger farms physical labour may form only a small part of the operator's activities and it may be difficult or impossible to separate out time spent on managing the farm from that spent managing other activities. The two may even be complementary.

**Box IX.1****Possible ways of selecting agricultural household on the basis of proportions and levels of agricultural activity**

The “broad” and “narrow” ways of defining agricultural households, applicable when using either a labour input or an income criterion, are explored further in the Figure below (from Hill, 2000). Agricultural activity (time or income) is shown on the horizontal axis and non-agricultural activity on the vertical. On both margins there is a level of activity which can be treated as irrelevant (kitchen garden production, hobby furniture repairing etc.). Only households which are within A or A' are unambiguously agricultural: those in B are similarly non-agricultural. Those which lie in C or C' use the majority of their labour for agriculture or derive most of their income from it, and could reasonably be labelled as agricultural. The division between A and A' (and C and C') might result from the imposition of some size qualification. If only a small amount of labour was spent in agriculture, even if little or none was used elsewhere, the household might fail to be regarded as agricultural and might be classed as non-economically active. Qualification tests outside this framework could also be employed; minimum holding areas or output values could be imposed before a household entered the frame.

**Combinations of agricultural and non-agricultural activity**

Probably a better basis of classification in the context of industrialized countries is *income dependency*. This is the system proposed for the disaggregation of the households sector of national accounts in the SNA93/ESA95. At its broadest, the agricultural household could be defined as one in which anyone makes some income from self-employed farming activity. This coverage of households containing self-employed (independent) individuals would cover a wide diversity of types, spanning both those for which farming was a commercial activity and the main source of livelihood and many others earning only very small amounts from farming and whose main income came from other sources. Although constituting part of the agricultural community when defined in the “broad” way, this latter group could not be considered as being dependent on farming for their livelihoods.

### **IX.4.1 Selecting from the “broad” definition of an agricultural household**

Following on from the above, it would be possible to define an agricultural household in a very broad way to include all those that derived any income, however minor, from agriculture or contributed some labour input to agricultural production. The next step then becomes one of selecting cases from this broad coverage in ways that would be policy-relevant. One relatively straightforward approach would be to apply a “narrow” definition and include only those households that were mainly dependent on farming for their livelihoods. This would include those who derived half or more of their total income from self-employment in agriculture or where it was the largest single source of income (which is not quite the same). The basis of this classification is compatible with the complete allocation of all households into socio-professional groups, of which agricultural households could form one. Because a comparison between the incomes of agricultural households and other socio-professional groups is an explicit or implied aim of agricultural policy in many countries, the ability to compare on this common income-dependency basis has attractions.

If, on the other hand, environmental policy is the issue, the broader group may be more relevant. This is based on the potential for large amounts of environmentally sensitive land to be controlled by those earning only very small amounts from farming and whose main income is derived from other sources.

Using this simple binary classification, it is possible to derive results for both the “broad” and “narrow” definitions of an agricultural household. Moreover, it should also be possible to obtain information on those “marginal” households in which farming generates some income but where it is not the main income source by using a process of subtraction.

Though income dependency is attractive as a basis for defining the agricultural community in a “narrow” sense, it is possible that the interest may be in households that use labour input to agriculture, or who use some combination of income dependency and labour input. These are combined in Box IX.2, which shows the percentage of income derived from, and the percentage of time used for, agriculture, together with situations where the combinations might have policy relevance (from Hill, 2000). A similar approach combining income and occupation (of the operator) has been applied in the United States by Ahearn and Lee (1991).

### **IX.4.2 Some practicalities of classification**

*Reference person system:* In practice, classification systems based on the characteristics of whole households (income composition or labour input) often prove difficult to implement because of data problems. The alternative, which has gained ground in the EU, is the *reference person* system (where this person is typically the head of the household). Under this system, the whole household is allocated to the agricultural group if the reference person satisfies the criteria for inclusion. A reference person system carries with it the possibility that the nature of the total household may be poorly represented. For example, an elderly head-of-household farmer may have living in his household many younger people whose main occupations and income sources are off the farm.

While the household may be classed as agricultural using a reference person occupation system, it might be non-agricultural in terms of its overall income composition or labour allocation. Such situations can be reduced by imposing criteria to determine who is taken as the reference person; it could be the member with the highest income. Anomalies have to be accepted in the interest of practicality. Such a system is used in all the Family (Household) Budget Surveys in the EU, though there are differences in the rules determining who is regarded as the reference person and how his/her occupation group is determined. Within Eurostat’s IAHS statistics, in many Member States (most notably France, but also including Spain, Portugal, Italy, Greece, and Belgium) classification is determined not by income composition but to the

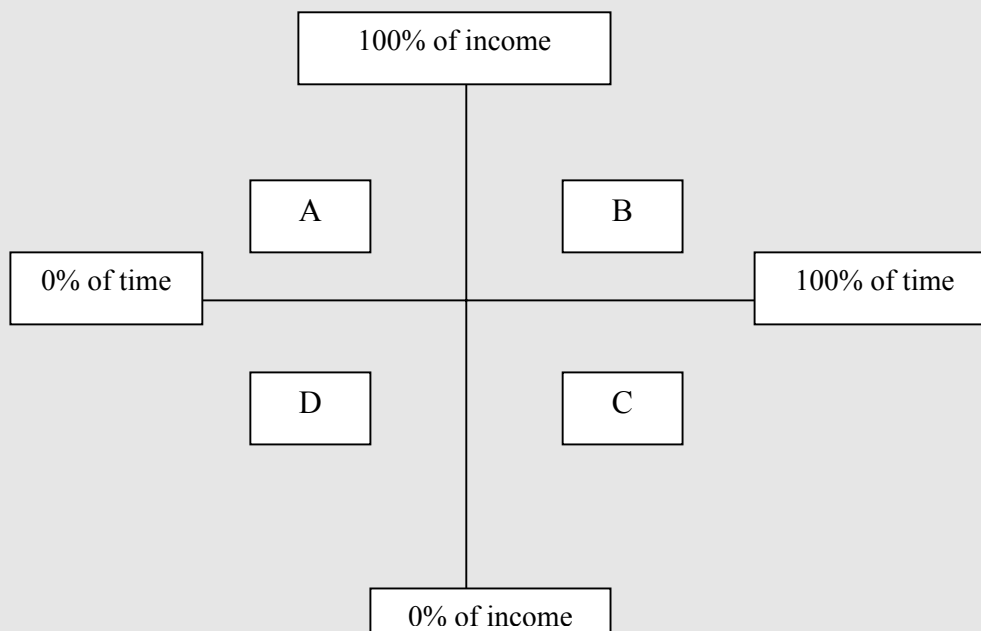
reference person's *declared main occupation*. Typically this is interpreted subjectively by the respondent and can be a mixture of income composition and time allocation, or predominantly time. However, evidence from Ireland suggests that the difference in results between using income composition and time allocation can be substantial.

*Variation of income for classification purposes.* An important caveat must be borne in mind when applying criteria that involve the selection of households according to their position on a continuum. This is that there must be some degree of *stability in the variable used for classification purposes*. In this respect labour input, or a self-declared subjective judgement of the head of household's main occupation, are superior to income composition. This is especially true of farming with its inherent income instability. Not only will the number of agricultural households where farming is the main income source change, but also the average income levels of those remaining in the group will alter. Evidence from Germany (Cordts *et al.*, 1984) and Norway (Hill *et al.*, 2001) suggests that taking a three-year period removes most of the unpredictable variation in incomes, an approach supported by analysis in France (Brangeon *et al.*, 1991). Using longer periods gives more stability but there is an increasing danger that changing farm structure (changes in the size distribution of the farms concerned) will affect the long-term trend in income variability. There is a tendency for the classification system to respond to changes in the numbers of households in ways which hide the cases in certain categories, and sometimes these are the ones of greatest interest. For example, while the number of holdings deriving some income from farming may be declining in a stable and predictable way, if falls in income from farming are concentrated among the small, low-income farms, this may disproportionately affect the numbers whose main income comes from farming.

Many of those with the severest income problems will be declassified as agricultural households. This is seen in an extreme form when incomes from farming fluctuate and reclassification (on the basis of income composition) takes place each year. Empirical evidence from Denmark, reported to Eurostat's IAHS statistics, demonstrates that it is quite possible for the residue of households left in the agricultural group in years of low farm profitability to be occupiers of the larger, more successful farms. On the smaller farms, the low farm profits shifts the balance in income composition to the extent that they no longer fall into the agricultural group. In consequence, the average total incomes of the remaining agricultural households are seen to increase when the general prosperity of agriculture falls. Thus it may be necessary to pay attention to both what is happening to numbers and income levels among agricultural households defined in the "narrow" way, and to what is happening in the "marginal" group where farming is not the main income source.

*Falling household numbers over time.* Even if short-term instability can be eliminated, the households that are labelled as agricultural will not form a constant group over time. In the long term, agricultural household numbers will decline, in line with the historic trend. Agricultural policy reform is likely to accelerate this decline. For example, the households which are most successful in diversifying into non-agricultural activities can be expected to eventually fall outside the agricultural group as defined in the "narrow" sense, and to join some other. Even farmers who face a fall in their income from farming without developing other earnings will eventually be excluded from the agricultural category as their welfare transfers grow in relative importance. Thus when commenting on income developments over time, changes in the composition of the group of agricultural households must be borne in mind.

**Box IX.2**  
**Combination of time allocation and income dependency**



On the assumption that a 50 per cent line can be used to divide the agricultural from the non-agricultural, cases falling into quadrant B may be confidently treated as agricultural since they satisfy both criteria. Similarly those in quadrant D could be classed as non-agricultural, though they operate holdings and are therefore beneficiaries of any price-support regimes for agricultural commodities which might exist. However, D might also include some households which might be regarded as legitimate targets of agricultural policy; households on farms too small to absorb all the available labour (yet too large to be dismissed as not really being farms at all), where there currently are no other opportunities for alternative employment, and where there is major dependence on welfare transfers as a source of income. Policies of farm modernization or the promotion of rural diversification may offer hope for some of these. Also covered here would be high-income households whose farms may be large but whose non-agricultural activities may generate even larger non-farm incomes and where little household labour is spent on the farm, operations being carried out by hired managers and workers. Quadrants A and C contain further complex mixes of farming situations. For example, C would cover, on the one hand, the semi-retired businessmen, filling his time on the farm carrying out unnecessary tasks while receiving a high income from his former business in the form of director's remuneration and dividends on his investments and, on the other, a low-income farm household struggling against severe natural production conditions which absorb most of its available labour but yet which leave it primarily dependent on other sources of income. Quadrant A would include the large-scale farmer who arranges his farm so that he can spend large amounts of time off the holding doing, for example, unpaid political work, or in leisure pursuits.

Given the above, it is desirable to have data that enables a study to be made longitudinally through time, that is, a panel approach. If the policy interest is to trace the development of income of people who *started* any given period as members of agricultural households, some attempt should be made to retain these



in the group. Income averaging over a short run of years for the purpose of classification also requires individual cases to be maintained and identified in the data system. This represents a major challenge to the way that official statistics are organized (typically as a snapshot at a particular moment), since longitudinal analysis of a constant sample is at present very rare and data are not organized in ways that makes this easy. The need for this demographic approach is, of course, something that is shared by studies of businesses in other sectors.

**This Handbook recognizes that, as good practice, data should be available to develop estimates of income for households defined as agricultural in alternative ways. This flexible approach should permit a coverage of all households that earn any income from self-employed farming activity. However, it should also permit the selection of households where agriculture is the main income of the household (smoothed to take into account the year-to-year variation anticipated by farmers, for which averaging over three years is advised). Secondary criteria may also be applied, such as farm size. Where it is not possible to use household income composition for classification, the Handbook recognizes the use of a reference person system, where the person is normally the main income earner. Studies should be undertaken to assess the significance of adopting alternative bases of classification.**

### **IX.4.3 Choice of other socio-professional groups with which to compare agricultural households**

Frequently, users wish to compare the economic situation of agricultural households with that of other socio-professional groups or with all non-agricultural groups or with the national average.

Caution is advised on making such comparisons. It should be remembered that:

- The income of agricultural households often includes entrepreneurial income. In conventional accounting systems entrepreneurial income comprises a hybrid of rewards, including not only the reward to unpaid labour but also to the capital and land owned by the entrepreneur. In contrast, the national average is dominated by households whose main income comes from wages or social benefits. While the nature of the income composition is not relevant for short-term comparisons of the ability to spend or save (the main issue being the funds that are available to consumption or saving), this may not be valid in longer-term exercises.
- As noted above, the national household average will often be dominated by single-person households (comprising mainly the young and old), so adequate steps have to be taken to respect differences in size and nature of households in the groups to be compared. In addition to income per household, the use of income per household member and income per consumer unit (calculated using equivalence scales) is recommended. Alternatively, comparisons can be made only using households of the same demographic characteristics (such as households containing two adults and no children).
- There is often special interest in comparing the income of farm households with those of other business people with enterprises of similar size in rural areas.
- The accounting systems used to generate income figures may not capture adequately all the elements of income that should be included in comparisons. For example, the output of food that is consumed by the farm household, or costs of private living that are treated as business costs, will need adequate identification and evaluation before satisfactory comparisons can

be drawn. In some regards, comparisons between agricultural households and the operators of other small businesses avoid some of these difficulties.

- Capital gain may be an important source of income for agricultural households that own land that is not available to other groups in society and consequently is not normally covered in measures of current income.
- Income variation, and the way in which it is viewed, including any countermeasures taken, can vary between socio-professional groups. Thus income averaging may be appropriate where this is feasible.

These issues relating to the definition of income are examined in greater detail in Chapter X.

For use within its IAHS statistics, Eurostat has developed a typology of other socio-professional groups that is recommended for use in comparisons (see section IX.7 below).

**This Handbook recognizes that steps should be taken to avoid misrepresentations when drawing comparisons between the income situation of agricultural households and other socio-professional groups. At the least, this should include income comparisons per household member and per consumer unit.**

## IX. 5 Households containing hired labour working in agriculture

Hired (dependent) workers are not usually considered to be agricultural households. Within the EU, they have not been treated as being within the agricultural community for which the CAP aims to provide a “fair standard of living.” Indicators of the residual rewards from farming (entrepreneurial income) exclude the costs of hired labour. Policies have been primarily directed towards assisting the self-employed members of the agricultural labour force, not the hired ones. Income problems among the households of hired workers have been subject to the normal provisions for poverty alleviation, in the same way as for other employees. Some countries where there are substantial numbers of hired workers in agriculture have a special system for monitoring the wages and conditions of service. In the UK, there is a special legal mechanism to set minimum wages and to avoid exploitation that may result from the fragmented and small-scale nature of agricultural employment. Nevertheless, a range of studies has shown that low-income and household poverty are commonly found among the hired section of the labour force, a particular problem when this is associated with low wealth, as is often the situation.

At this point it is necessary to mention farms that have their own legal status (companies or similar forms). Where a family farm takes the legal form of a company the farmer-directors are not, from a legal perspective, self-employed (as they would be as sole traders or as partners) but rather are salaried employees of their own companies. Similarly, any dividends they may receive are not strictly income from self-employment. According to the definition of an agricultural household as one where the head (or the entire household) has self-employment as their main income source, the households headed by hired workers are not included. Applying this rule strictly would mean that the households of the operators of company farms would also not be included. This is the current approach used in the United States where non-family farms and farms run by hired managers are excluded from the calculation of farm household income.

In reality, most company farms are family owned and operated businesses that adopt this particular business form primarily for taxation reasons or for other conveniences (such as distributing ownership of a

family business among members who do not wish to farm). In most respects they are indistinguishable from unincorporated businesses. Indeed, in the EU's Farm Structure Survey, some Member States record family farms run as companies as if they were sole traders or partnerships. A common-sense view would clearly include the households of such farmers as agricultural households and as a part of the agricultural community. In practice these farms will often be large and there may be several directors, in which case there is likely to be more than one agricultural household per business.

The lack of statistical attention given to the households of hired agricultural workers can be expected to change following the EU's enlargement to the east. This enlargement has brought into statistical coverage large numbers of people working on farms arranged as forms of cooperative or joint stock companies that are very different in nature from the traditional family farm. This point is developed in the next section.

**This Handbook recognizes that:**

**Households found on family farms that are arranged as corporations, but that function as unincorporated businesses should be treated as if they were sole-proprietorships or partnerships, and thus be classed as agricultural households. Income results should be shown separately for the households on these quasi-unincorporated farms if possible, which would enable exclusion or inclusion with other agricultural households according to the user needs.**

**The income situation of the households of hired agricultural workers should be assessed as a separate and supplementary exercise (a recommendation to be taken with that of the next section). An ability to analyse by the type of business on which they are employed should be incorporated (family farm, corporate farm etc.).**

## **IX.6 Relevance for countries with large-scale agricultural enterprises with separate legal status**

The statistical treatment of hired agricultural workers, their households and their incomes has been thrown into prominence by the enlargement of the EU and the associated introduction into the sector of significant numbers of large-scale agricultural units that have their own legal status and that have a considerable number of employees. These are far removed from the "family farm model" that underlies many agricultural statistics. Many large-scale agricultural units with their own legal status are already found in the unified Germany where they are thought to be responsible for some 15% of the agricultural Net Value Added of the entire (enlarged) country (Eurostat, personal communication). The accession of a further 10 Member States in 2004 has raised these units and their hired workers to much greater prominence. For example, in Hungary in 2000, corporate units constituted only 0.9% of total farms but these occupied 41% of the area.

Replies to a Circular Note from Eurostat have shown that a range of organizational forms are encountered – agricultural enterprises arranged as joint stock companies, limited liability companies, cooperatives, partnerships etc., though in some countries the business structure is not yet stable. Several countries have explicitly stated that the households that work on these large units are considered as part of the agricultural community and are seen as intended beneficiaries of agricultural policy. Furthermore, these households also commonly operate private plots that generate a significant share of their own food supply and contribute a substantial proportion of the aggregate output of some commodities. However, such plots may also be operated by households that are not associated with large-scale units.

There are implications for both the “narrow” and “broad” views of what constitutes an agricultural household, the statistical responses to which have not yet been fully worked out. As an interim solution, Eurostat has proposed that it will provide for the inclusion of income estimates for households found on large-scale enterprises as an “add-on.” This add-on will constitute a supplementary category of households that, in the interest of simplicity and clarity, will cover the households of employees working on *all* large-scale agricultural enterprises, irrespective of the form of legal structure that these units take. To be included, the household’s reference person must work on a large agricultural unit and that job must be their principal occupation (in terms of income or, failing that, of time). It is assumed that this will be the case for most reference persons.

This “add-on” provision applies to statistics for agricultural households defined in the “narrow” way. The solution appropriate to the “broad” definition of an agricultural household is more problematic and needs further methodological consideration. While the “broad” coverage should obviously include the households of private farmers (deemed to be all those selling to the market and thus generating some income from this activity) and of all workers on large units (to be consistent with the above treatment of reference persons found on them), the issue is complicated by the significant amounts of agricultural production of a subsistence nature that takes place on private plots.<sup>2</sup> This has been accommodated by a proposal to include subsistence producers within the “broad” definition of an agricultural household, while still excluding hobby producers, a distinction that is hard to make but which is intended to be consistent with the (activity) Economic Accounts for Agriculture (EAA). However, this solution on household classification should only be regarded as provisional. Another problem is posed by the valuation of the output from private plots and the contribution this makes to any measure of disposable income, though this issue is also faced by the EAA and national accounts.

**This Handbook recognizes that the income situation of the households of hired agricultural workers on all large-scale agricultural units should be assessed as a separate and supplementary exercise, including a breakdown of the type of unit on which they are found and the forms of income they receive (wages, profit share etc.).**

## IX.7 Households in less developed countries

Up to this point the discussion of agricultural households and how they may be defined has taken place mainly in the context of the social institutions normal in developed countries, and especially those of the OECD members. It has been acknowledged that even among these there are variations in norms in terms of issues such as extended and multigenerational households that pose problems in establishing methodologies that can generate comparable results. It is necessary to note that, when the spectrum of countries is extended to less developed economies, problems of this sort multiply considerably. As Box IX.3 makes clear, in an African context the household, whether defined in terms of a dwelling or single budget unit, may be irrelevant for statistical purposes or in explaining behaviour. Solutions to methodological problems should be sought that are appropriate to local social norms, and what is suitable for Africa may not apply elsewhere. Later versions of this Handbook are likely to elaborate on this crucial issue if the material it contains is to find greater application among less developed countries.

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<sup>2</sup> In 2001 in Estonia, there were some 176,000 household plots (1.6% of agricultural area) in contrast with 85,300 agricultural holdings (98.4% of the area). Of the 32,400 ha occupied by household plots, which averaged 0.18 ha each, some 2,300 ha were used for potatoes.

## IX.8 Typologies of farm households

Finally, three examples are given of typologies of farm households relevant to the generation of statistics that are suitable for policy analysis and that incorporate the structure of total household income. Two also involve other socio-economic characteristics.

### IX.8.1 European Union: Eurostat's IAHS statistics typology

The first example is the pioneering typology of farm households developed by Eurostat in its Income of the Agricultural Households (IAHS) statistics for EU Member States (drafted before the enlargement of 2004), to which reference has already been made. In brief, this is a binary classification that divides households with some income from farming (a "broad" coverage) into those that are narrowly "agricultural" and those that are "marginal".

- For its "**broad**" coverage all households are included that derive some income from independent activity in agriculture (other than income solely in kind that is of a "hobby" nature). This income can arise from the activity of the head of the household or any other member.
- For its "**narrow**" coverage the IAHS applies a classification system based on the **main income source of the household's reference person** (Eurostat, 1996), a more practical approach than one that looks at the composition of the entire household's income. This reference person is intended to be the household's highest income earner, who will also usually be the one regarded as the head of the household. How this person is designated varies from country to country, and may be selected by self-declaration or more complex algorithms. Countries where an income-based classification is not feasible (for example, France) have been allowed to apply a system based on the reference person's main *time allocation* or on a more subjectively determined occupation or trade group label. It is recognized that some producers of significant volumes of agricultural commodities may be excluded from the "narrow" agricultural group if they have even larger incomes from elsewhere.
- Subtracting the "narrow" coverage from the "broad" results in a "**marginal**" group of households that engage in independent agricultural activity but where the main income is from some other (non-agricultural) source.

The "narrow" definition takes precedence in the generation of IAHS statistics because it produces a group that appears to correspond more closely with the "agricultural community" whose incomes the CAP is intended to support. Of course, whichever definition is being used, the incomes of all household members are summed to achieve a total for the household.

**Box IX.3****Difficulties in using the household as the unit for analysis**

A number of criteria can be used to define the household. Those commonly employed include: members have a common source of major income; they share a common source of food; and they sleep under the same roof or within the same compound. But the criteria used to identify households must be relevant to the local situation, since their size and characteristics show wide variations by principal occupation, locality and country. The household may consist of a single family, but in Africa households commonly comprise several families, kin, and even persons with no kin relationship. It is possible for families to be spread among several households, either temporarily or permanently. For example, a married woman while young may continue to live in her father's household, while her husband lives under a separate roof.

The household is an important social unit because within it many of the decisions concerning individual members' activities and their consumption (and thus their welfare) are made and its physical properties – that it is a collection of individuals with an identifiable location – makes it a useful sample unit in survey work. It must be emphasized, however, that households are embedded in wider social networks, their lineage group for example, whose actions partly determine their members' welfare. Given the importance of the household as a decision-making unit, we need a conceptual framework to analyse its decisions over the allocation of resources. Two key issues are raised in the analysis of the household. The first is the role of the household as both the producing and consuming institutional unit. Whereas in much of orthodox economic theory the firm is assumed to be the producing unit and the household the consuming unit, quite different institutional arrangements must be assumed for developing countries. This is especially the case in Africa given the predominance of agricultural activities in total employment and the limited share of formal employment in most countries.

The second issue that has been addressed concerns how household decisions are made – are they reached collectively or does one individual or group dominate the process? A related issue is whether we can speak of a 'household welfare function', since there may be conflicts of interest within the household. In theoretical work, individuals are aggregated into households on the assumption that they possess identical preferences based on identical tastes. Household decisions are then analysed in the same way as those for a single individual. Why people should group themselves in a household is usually analysed as a secondary problem, but it is generally assumed that they make up a family. Sen ... calls this arrangement the 'glued-together family'. Alternatively, a 'despotic family' is one in which the head of the family takes all the decisions, so the family behaviour is simply a reflection of the head's choice function. These are polar cases – in the former, members of the household are assumed to share the same preferences; in the latter, the preferences of the household head alone are relevant.

Major problems exist, however, in using either the concept of the 'glued-together' or the 'despotic' family. Preferences, particularly those that arise from age and sex differences, can differ widely among family members so that they will allocate family resources in different ways. The eventual allocation of resources will differ, perhaps substantially from that under 'glued-together' or 'despotic' families. These difficulties apply with equal force to the unit of the household because large numbers of people can be involved in decisions about its collective resources. In such circumstances, assuming a single-household utility function is even less valid than making such an assumption for a single family unit.

*Source:* World Bank (1990) pages 38-39.

Some idea of the implication of this typology for the numbers of households and income levels can be gained from the seven EU15 countries where this calculation is possible (though spread across several years). The “marginal” households are shown to be present in substantial quantities and in some countries are more numerous than “narrow” agricultural households (see Box IX.4). This may present difficulties of acceptance amongst some users if they feel that large numbers of the households they regard as farmers are being excluded and that the results relate to a small sector of the industry that is, in some sense, atypical. This has proved a particular problem in Denmark and Ireland because of their socio-economic traditions (see comments in Box IX.4). Though highly heterogeneous, the “marginals” share the characteristic that agriculture is typically of less importance to them from the perspective of total household income (for example, generating only some 5% of household income in Germany in 1983 and 14% in Ireland in 1987) (Eurostat, 2002 and earlier reports).

Though attention here has focussed on households, a parallel classification of other institutional units (corporations etc.) might also be envisaged. By summation, a picture could be presented of all units engaged in production or for which it is the major activity or income source.

Eurostat has also developed a draft typology of other socio-professional groups, based on national accounts guidelines, to be used for comparative purposes within IAHS statistics (see Box IX.5). Some commentators see the ability to compare the incomes of agricultural households with others in society as important to the achievement of the objectives of agricultural policy, in particular of ensuring the “fair standards of living for the agricultural community” which is a prime aim of the EU’s CAP. Categories shown in **bold** constitute a “minimum” list proposed by Eurostat. Member States that wish to use a more detailed breakdown may do so. In reality, where results are calculated, Member States largely use the bolded categories.

Among agricultural households defined in a “broad” way, alternative and more detailed ways of disaggregating the data are, of course, possible (for example, by size of farm, by type of rural location, by age of principal farm operator). However, in Europe there is no systematic and harmonized approach; what is done is usually determined by national data availability. An interesting example is provided by Ireland, where the combination of the annual national farm survey and the periodic household budget survey enables a flexible and detailed analysis to be carried out, though only in the base years of the household survey (typically every 6 or 7 years). This enables, at least in theory, the comparison of incomes of farm households defined in various ways with other socio-professional groups. Denmark publishes household income results (total income and disposable income per farm) by size of farm (area and economic size). Germany also breaks down the results of total and disposable income from its farm accounts survey into averages for “full-time” (subdivided by size), “part-time” and “spare time” farms. (For a review of these and other country breakdowns see Hill, 2000). These breakdowns use conventional categories and are not explicitly policy-orientated.

**Box IX.4****Implications of using “broad” or “narrow” definitions of an agricultural household**

The following numbers of agricultural households and average incomes are contained in Eurostat’s reports from its IAHS statistics. They come from a number of national sources, some routine annual exercises but many others from special studies, some of which are now quite historic.

Number of households and levels of average net disposable income for three groups of agricultural households, in selected Member States:

<i>Agricultural households</i>	<b>Denmark (1999)</b>	<b>Germany (1983)</b>	<b>Greece (1994)</b>	<b>Ireland (1987)</b>	<b>Netherlands (1988)<sup>1</sup></b>	<b>Finland (1992)</b>	<b>Sweden (1992)</b>
<b>No. agricultural households (x 1 000)</b>							
"broad"	57	613	615	207	136	139	94
"narrow"	16	353	398	85	87	73	54
"marginal"	41	260	217	122	49	65	41
<b>Disposable income per household (All households = 100)</b>							
"broad"	99	110	114	105	210	124	81
"narrow"	105	101	86	127	267	131	79
"marginal"	92	123	166	89	108	116	85

The relationship between numbers of households in the three categories reflects real differences in national socio-economic conditions. For example, in **Denmark** the transfer of land between generations typically takes the form of sales between parents and children, something that is not usual elsewhere in the EU. Specialist lending institutions grant loans for this purpose. To meet interest charges it is common for one or more members of the successor’s household to take a non-agricultural job, something that can influence the choice of enterprise on the farm. Interest charges also reduce the profit from the farm business. The result is farming that appears unprofitable (in the short term) because of a high debt burden and relatively few households where the farm forms the main income source. In the longer term, the death of parents implies the release of capital to the succeeding generation. In **Ireland** demographic conditions appear to have produced relatively large numbers of household comprising single older males who are dependent on social benefits.

*Source:* Eurostat (2002) Income of the Agricultural Households Sector 2001 report. Theme 5. Eurostat, Luxembourg. ISSN 1725-1605.



**Box IX.5****Typology of socio-professional groups for use within IAHS statistics  
(a disaggregation of the households sector account)**

- (a) **Employers and own-account workers**
  - (i) **Farmers** (This group should not include forestry or fishery households. Where it is not possible to exclude them, this should be made explicit)
  - (ii) **Others**
    - (x) Retail and wholesale distribution; accommodation and catering
    - (y) Services (including professions operating as own-account workers)
    - (z) Others (including manufacturing industry)
  - (iii) **All self-employed [(a)(i) + (a)(ii)]**
- (b) **Employees**
  - (i) Manual workers in agriculture, industry and services
  - (ii) Non-manual workers
  - (iii) All employees [(b)(i) + (b)(ii)]
- (c) **Others**
  - (i) Recipients of property income
  - (ii) Recipients of pensions
  - (iii) Recipients of other current transfers
  - (iv) All others
- (d) **All households except farmers [(e) minus (a)(i)]**
- (e) **All households [(a) + (b) + (c)]**

**IX.8.2 Economic Research Service farm typology for the United States**

The second example of a typology applied to agricultural households comes from the United States, where the Economic Research Service (ERS) (2001) of the Department of Agriculture has developed a classification that appears to be more focussed on the needs of policymakers. It is based on a combination of the occupation of the operator and the sales class of the farm (Offutt, 2002). It identifies five groups of small family farms (sales less than \$250,000).

- **Limited resource.** Any small farm with gross sales less than \$100,000, total farm assets less than \$150,000, and total operator household income less than \$20,000. Limited resource farmers may report farming, a non-farm occupation, or retirement as their major occupation.

- **Retirement.** Small farms whose operators' report they are retired (excludes limited resource farms operated by retired farmers).
- **Residential/lifestyle.** Small farms whose operators report a major occupation other than farming (excludes limited resource farms with operators reporting a non-farm major occupation).
- **Farming occupation/lower-sales.** Small farms with sales less than \$100,000, whose operators report farming as their major occupation (excludes limited resource farms whose operators report farming as their major occupation).
- **Farming occupation/higher-sales.** Small farms with sales between \$100,000 and \$249,000 whose operators report farming as their major occupation.

In addition, there are three categories of farms that are considered large in that their sales exceed \$250,000. This threshold is admittedly arbitrary, with the ERS choosing \$250,000 at the suggestion of the National Commission on Small Farms.

- **Large family farms.** Farms with sales between \$250,000 and \$499,999;
- **Very large family farms.** Farms with sales of \$500,000 or more;
- **Non-family farms.** Farms organized as non-family corporations or cooperatives, as well as farms operated by hired managers.

This typology now forms the basis for disaggregating ERS reporting on farm household and business performance and will be used to evaluate the impacts of changes in agricultural legislation. According to Offutt (2002), disaggregation using the typology shows very clearly how dependence on farm income varies by farm type. In 1999, only households operating very large farms acquired more than 80% of their total income from their farm business.

For large farms, farm income accounted for 60 per cent of total income while for higher-sales small farms, half of total income came from farming. The remaining small farm households derived virtually all their income from off-farm sources. Off-farm income, therefore, is as important, or more important, than farm income to the well-being of most of America's farm families. The data on household income also show distinct differences in levels compared to United States average household income (more detailed comparisons with separate socio-professional groups are not offered in the USDA-ERS publication). As noted, the average farm household income in 1999 was about a third higher than the average for all United States households. But, again, this average masks significant variation.

For example, the average household income for limited resource farms lay below the poverty level while the average household income for the very large family farms was more than three times the national average. On smaller farms where the operator's main occupation was farming, the higher-sales group's total income was just above the national average while the lower-sales group lay just below it. In addition, total income from retirement farms lay just below the national average.

Residential/lifestyle farms had negligible or negative income from their farm but had overall household incomes above the national average. These comparisons of farm household income across typology groups demonstrate the value of survey data in presenting a cross-sectional view. In addition, it emphasizes the value of using the household as the basic unit of observation.

### IX.8.3 Italy: the ISMEA survey

The third example of a farm household typology comes from Italy and is based on analysis of 1995 ISMEA survey data which used a sample drawn from the 1992 Agricultural Census (Napoletano *et al.*, 2001; Castagnini *et al.*, 2003). This survey collected data on farm budgets, household and farm characteristics, time use, off-farm money income, governmental and intra-household transfers, consumption, and information about the degree of autonomy in decision-making by household members. A farm size threshold of four European Size Units was applied to exclude households where agricultural activity was negligible or marginal. Rather than starting from categories that were primarily determined by policy requirement (as in the United States), groupings were developed by statistical techniques from a socio-economic survey of Italian agriculture that was based on general equilibrium household theory for those engaged in entrepreneurial activities. The main thrust of the work was to establish links between the micro- and macroeconomic levels of economic and policy analysis.

The outcome was a typology of seven categories that bears a striking resemblance to the ERS system for the United States (see Figure IX.2). The breakdown by type, and their geographical location, enabled some key conclusions to be drawn. For example, limited resources farms contribute only two per cent to agricultural output but 70% of them are concentrated in the *Mezzogiorno*, an area suffering from structural disadvantages and where there are currently very few alternatives to agriculture. This finding suggests that, for this part of Italy, policymakers should focus their attention on programmes of economic and rural development rather than on agricultural support.

The three examples cited above illustrate the usefulness of being able to disaggregate the income results, especially in ways that may be of relevance to agricultural and other policies. The similarity of the system devised for the United States and the empirical results of analysis in Italy suggests that there may be virtue in adopting the basic typology they contain for application elsewhere among OECD countries.

**This Handbook recognizes the value of the typologies of agricultural households that reflect the needs of users and encourages their development. The basis of the typology should be flexible so that different needs can be met. Consideration should be given to the international application of a classification similar to that used by the USDA-ERS.**

**Figure IX.2**  
**The ISMEA survey-based typology**

Farm type	Description
Limited Resource	Any small farm with global family income, gross sales and total farm asset less than the first quartile of the respective distribution.
Retirement	Small farms whose operators report that they are retired.
Residential	Small farms whose operators are not retired and report a major occupation other than farming.
Small family farms	Small farms with gross sales less than the first quartile of the distribution and whose operators report farming as their major occupation.
Medium family farms	Any farm with gross sales less than the third quartile of the distribution and whose operators report farming as their major occupation.
Large family farms	Any farm with gross sales over the third quartile of the distribution.
Non-family farms	Any farm organized as non-family corporations or cooperatives, or operated by hired managers.

Source: Napoletano *et al.* (2001).

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## **X DEFINITIONS OF INCOME**

### **X.1 Income as factor rewards and as source of consumption spending**

A distinction has already been made (Chapter VIII) between drawing up accounts relating to an activity and accounts relating to institutions, of which households are of particular interest here. This is reflected in two approaches to income in agriculture. One approach sees income as a reward that the owners of fixed factors of production receive as a result of allowing their land, capital and labour to take part in production. The other sees income as the flow of resources that households receive that may be spent on consumption and on saving.

The traditional way of monitoring the economic situation in agriculture has been by means of indicators of factor reward. These can relate to all the fixed factors (land, labour and capital) irrespective of who owns them (as reflected in Net Value Added). Alternatively, by deducting charges for hired labour, borrowed capital and rented land, only those factor rewards belonging to the farmer and other family labour are revealed. This residual is often taken to be the income accruing to farmers and the unpaid members of their households for working in agriculture and using their land and capital in this industry.

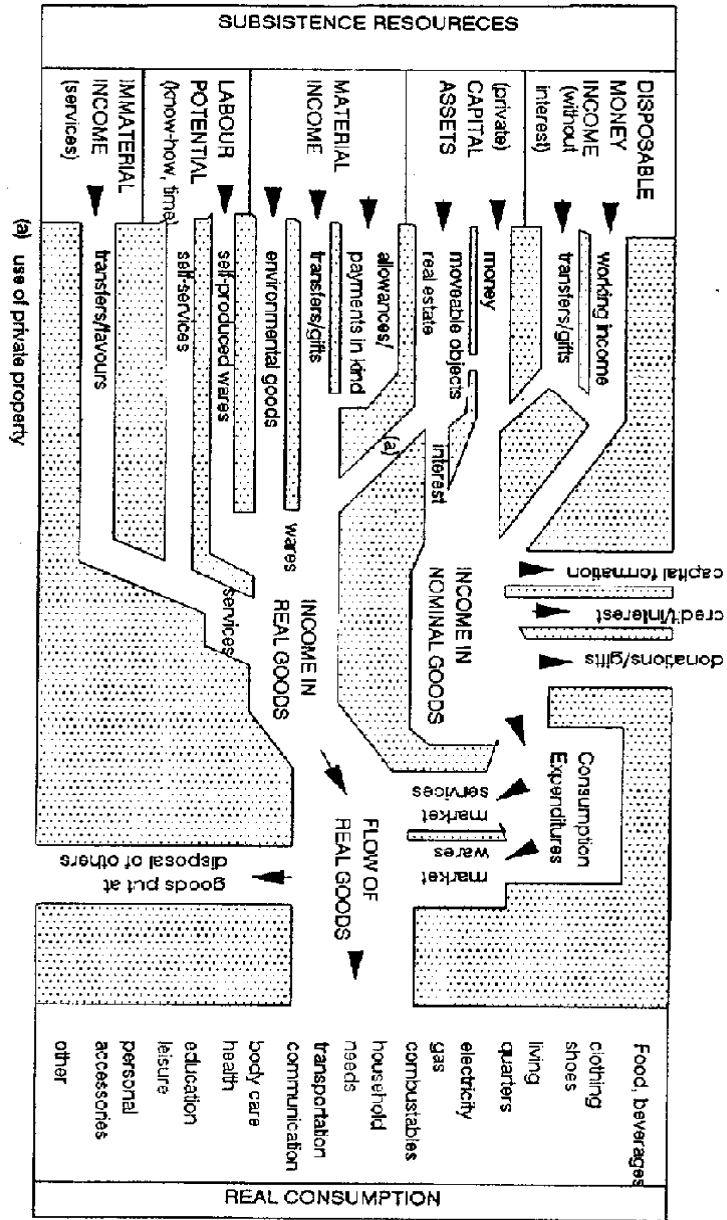
However, households that operate farms often receive, in addition to their rewards from farming, income from running non-agricultural businesses, from waged employment, from social transfers etc. It is important when assessing the welfare of agricultural households not to assume that these other sources are unimportant. Empirical evidence suggests that they can be of great significance in many countries at all levels of development (OECD, 2003). For example, in the United States over four fifths of the household income of farm operator households regularly comes from non-farm sources and in 2000 this was over 95 per cent (Mishra *et al.*, 2002). In 2000, on only 11 per cent of United States farms did the occupiers make more than half of their household income from farming. Evidence over time suggests that these other forms of income are becoming more important in many countries. However, the relative dependency on the farm for income varies widely among agricultural households, reflecting a number of factors including farm size. However, it is particularly sensitive to the definition of what constitutes an agricultural household.

Not all the resources flowing towards farm households are available for spending or saving. Some allowance has to be made for maintaining the stock of productive capital by reinvestment. In addition, some payments have to be made that are not optional or discretionary, such as direct taxation and contributions to social insurance schemes.

### **X.2 Relationship between household resources, income and expenditure**

In considering the economic situation of agricultural households it is instructive to first take an overall view of the resources flowing to these households and the way in which these resources are used for acquiring the means for living. Figure X.1, adapted from Cecora (1986) comprehensively demonstrates the resources used to support the "subsistence" of private households.

**Figure X.1**  
The “subsistence” of private households



Note: This figure has been redrawn and modified from Cecora (1986).



Resources take both monetary and material forms and are derived from a variety of sources (from work, from property, from private or public transfers etc.). Resources are also used in several ways, including the acquisition of consumption goods and services. It follows that this flow can be measured at various points and with various degrees of completeness. Most practical income measurement concerns that part of the flow that comprises “nominal goods” in Figure X.1. However, as will be demonstrated, some forms of income in real goods are normally included (especially the housing services provided by owned dwellings). Having said this, there is also a need to consider other activities that might be deemed to constitute part of income, such as what happens in the home, and whether resources that arrive irregularly, such as inheritances of money or assets, should be treated in the same way as regular earnings from economic activities and social benefits. It is important to remember that the assessment of income usually involves the drawing of rather arbitrary boundaries in the overall flow of resources, the suitability of which will depend on the particular circumstances.

The measurement of personal income constitutes a subset of this flow. A widely accepted definition of personal income is that given by Simons:

*Personal income may be defined as the sum of (1) the market value of rights exercised in consumption and (2) the change in the store of property rights between the beginning and end of the period (Simons, 1938).*

It is important to note that these consumption rights include those that could be exercised in addition to those which are actually used; otherwise a high earner who spent little might be grouped with a low earner who spent everything.

Income is only numerically identical to consumption when the store of rights, in the form of savings, remains constant. We would expect the low spending high earner to accumulate savings over the period.

This notion of personal income also corresponds to that put forwards by John Hicks (1946), who described an individual's income as the maximum value he could consume during a period and still be as well off at the end of the period as he was at the beginning. The concept of income set out in the System of National Accounts 1993 (SNA93)(UN, 1993) is closely aligned with that described in Hicks. In the SNA93, the theoretical view of disposable income is defined as “... *the maximum amount that a household or other unit can afford to spend on consumption goods or services during the accounting period without having to finance its expenditure by reducing its cash, by disposing of other financial or non-financial assets or by increasing its liabilities.*” (SNA93, para 8.15). It follows that increases in “the store of property rights” arising from capital gains constitute positive contributions to personal income while losses are negative items.

### **X.2.1 Income from self-employment**

When measuring income according to the approach to personal income outlined above, the flow of resources towards households comes in three main forms:

- from gainful activities (mainly employment and self-employment);
- from the ownership of property (rent from land, interest from financial assets); and
- from transfers (mostly social transfers organized by government but also private ones, such as from family members working abroad).

Each has its own set of technical issues and it is not possible in this Handbook to explore every one in detail. However, of particular concern is the measurement of income from self-employment as, by

definition, agricultural households are involved with self-employment (independent activity) in operating a business. Depending on which definition of an agricultural household is applied, the farm business may be the only source of self-employment income, the main source or a minor source (see Chapter IX) but it will always contribute a part of the total.

For self-employed operators of unincorporated businesses income is measured by the net surplus accruing from the production process. This may be labeled **Entrepreneurial Income**. It can be formulated at its simplest as follows, based on the SNA93 (UN, 1993):

	Value of output (sales plus own consumption)
<i>Minus</i>	Cost of intermediate consumption (inputs purchased)
<i>Equals</i>	Gross Value Added
<i>Minus</i>	Capital consumption
<i>Equals</i>	Gross Value Added
<i>Minus</i>	Cost of paid labour (wages and other costs)
<i>Equals</i>	Operating Surplus <sup>1</sup>
<i>Less</i>	Interest paid and rent paid
<i>Equals</i>	Entrepreneurial Income

Similar formulations are used in aggregate (industry-level) and microeconomic (farm-level) accounting systems. However, there are differences of detail, such as the treatment of subsidies and the basis of valuation (market prices or basic prices). At the microeconomic level, Entrepreneurial Income corresponds to the residual profit generated by the business from its outputs after the costs of production have been met (including both the purchase of variable inputs and the rents, interest charges and hired labour costs relating to the “fixed” factors).

- Income from self-employment has some characteristics that set it apart from income from employment (after ILO, 1997). As noted above, for self-employed people who operate businesses that use assets (in contrast with those who only supply services), Entrepreneurial Income comprises a mix of returns to the fixed factors (land and capital owned by the operators and both their manual and managerial labour input). This prevents simple comparison with the income of employees, which does not contain any elements of return to capital or land.
- It is a residual, not determined in advance, which depends on the profits of the production activity. This may have implications for the practicality of measurement and data collection, as calculation is only secure once the accounting process is complete. This may be some time after the end of the period to which the income relates.
- By definition, Entrepreneurial Income includes the rewards to any unpaid labour, which in agriculture often comprises members of the farm family. The implication is that there will be some financial reward received by these unpaid workers. However, in microeconomic accounting in agriculture, a wage is sometimes imputed for non-paid labour other than the farmer and spouse (for example, a wage is deducted for sons or daughters working on the farm, even when no wage is paid or where only a nominal payment is made). This provides for greater comparability between farms operating with different proportions of hired to family labour.

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<sup>1</sup> SNA93 describes Operating Surplus of unincorporated businesses as “mixed income”. Operating Surplus is not a concept often used at the microeconomic level.

Calculating the profit from the farm business is not without areas of contention. For example, the valuation of biological assets that last beyond one accounting period (such as dairy cows or plantations) is an issue that may impact the residual income. Similarly, the estimation of capital consumption is possible in various ways (for example, valuation at historic cost, replacement cost, different assets lives etc.). When appraising investments, an *ex ante* view of capital consumption may take a different approach from that appropriate to the *ex post* calculation of income. Another approach is that an operator might be allowed to deduct from income that which is viewed as necessary for business reinvestment to maintain viability. In a dynamic environment this might be more than the estimate of capital consumption based on the existing stock and asset lives (ILO, 1997). The treatment of capital consumption (depreciation) and other conventions used in the measurement of business profits for the purpose of taxation may well differ from those that would be adopted in an economic measurement. Although accounting on an accrual basis may be the norm, some tax systems allow farmers to calculate their incomes on a cash basis (OECD, 2003). Such issues have been a concern in the development of an International Accounting Standard for agriculture (IAS 41) which is now in the process of being adopted in many countries.<sup>2</sup>

In estimating the residual income from farming activity for the purpose of assessing agricultural household income, a valuable resource exists in the form of the methodology developed in existing farm accounting systems. For the EU, the European Commission, in association with Member States, has developed an accounting methodology for its Farm Accountancy Data Network (FADN/RICA). Evolving since the mid-1960s, its details are now readily available.<sup>3</sup> A research network (PACIOLI) has developed in association with FADN/RICA (see, for example, PACIOLI (2004)). The FADN/RICA methodology includes a list of the items that lead to various income indicators, of which Farm Family Income is the most relevant in the present context; it describes the residual as “remuneration to fixed factors of production of the family (work, land and capital) and remuneration to the entrepreneur’s risks (loss/profit) in the accounting year” (European Commission, 2002). Family Farm Income is similar to (but not identical with) the Entrepreneurial Income of the SNA93. As the harmonized basis for microeconomic accounting for farming, including income indicators, in 25 European countries, FADN/RICA will be influential in any international system of farm household income measurement. The equivalent survey in the United States (the Agricultural Resource Management Survey – see Chapter XII.4.1) uses a similar approach but calls its residual concept Net Farm Income.

## X.2.2 Income in kind

Income in kind is a part of the rewards from self-employment. In agriculture, this issue is especially problematic because of the enhanced opportunities that farm households have to consume from the outputs or inputs of the business. In attempting to express income as a magnitude of money, it will be necessary to attach monetary values to these goods and services, the relevant question being “How much would the farm family have to pay to consume these items if they did not come in a physical income form?” The problem involves, first, identifying the non-monetary income and, second, choosing an appropriate method of valuation. Some examples of income in kind are straightforward. If a farmer’s wife is given eggs in exchange for working on a neighbour’s holding for a few hours each week, then these eggs clearly form part of her household’s income. The method of valuing them may be open to argument, but there would be little doubt that the eggs should be included. The use of petrol paid for by the farm business but used for private

<sup>2</sup> IAS 41 was approved by the International Accounting Standards Committee (IASC) in December 2000 and became effective on 1 January 2003. The objective of IAS 41 was “to establish standards of accounting for agricultural activity - the management of the biological transformation of biological assets (living plants and animals) into agricultural produce (harvested product of the enterprise’s biological assets).” It is anticipated that IAS 41 will become IFRS 41 under the revised framework of International Financial Reporting Standards issued by the International Accounting Standards Board (IASB). The IASB superseded the IASC in 2001. ([www.iasplus.com/standard/ias41.htm](http://www.iasplus.com/standard/ias41.htm))

<sup>3</sup> [http://europa.eu.int/comm/agriculture/rica/index\\_en.cfm](http://europa.eu.int/comm/agriculture/rica/index_en.cfm)

outings would also qualify. These are both items that can be substituted by articles bought in the marketplace - shop bought eggs and petrol bought at the pumps. Others, however, are far more problematic.

Income in kind is of particular importance in an agricultural context because of the fringe benefits associated with farming. The description “fringe” is perhaps unfortunate since it gives the impression that these benefits are unimportant and might be ignored, yet it is precisely these “fringe” elements in the rewards enjoyed by farmers and landowners that those outside the industry frequently find the most attractive. Benefits such as domestic environments divorced from unwanted encroachments by noisy people and traffic, the ability to pursue space demanding activities like horse riding and the opportunity for direct involvement in the protection and conservation of wildlife seem to be precisely the attributes of farming which potential new entrants with adequate fortunes made in other businesses are keenest to secure. They are also those that are protected most vigorously when some external change, such as a motorway development, threatens them.

In an agricultural context there are two important examples of income in kind where some valuation by imputation is required. The first is the farm household **consumption of food materials produced on the home farm** (often termed own consumption). Food consumed by farm families which they grow themselves involves costs of production borne by the business (fertilizer, tractor fuel, machinery hire purchase charges and so on) which are debit items in calculating income from self-employment. In assessing the total income to the farmer from his business the value of all these own-consumption goods have to be accounted for. A way of looking at home consumption of farm production is that, in the case of any other household, the food would have to be bought for cash, so the real value of the farm household income is greater than it appears nominally by the extent of the household’s own consumption. Consequently, farm families would be expected to spend less on purchased meat, milk, eggs etc. than other types of households. Choices have to be made on the method of valuation, the options being to use retail prices, wholesale (or farm gate) prices, or some estimate of the costs of production. A retail valuation was adopted by Bellerby (1956; p.57) in his seminal work on the relative income position of the agriculture and non-agriculture sectors. However, the practice in the European System of Accounts (Eurostat, 1979, 1995) in its household sector account has been to use farm gate prices, with the justification that on farms the foods consumed from own production do not receive the benefits of packaging, processing and presentation, all of which are reflected in the retail price. Though this particular income adjustment is probably of little importance when comparing the incomes of one group of farmers with other farmers, there could be a substantial impact when ranking farmer incomes against those of other groups in society.

The second example concerns the **services provided by owner-occupied dwellings**. Typically the buildings on a farm include a domestic house for the farm family. Sometimes there is more than one such building. If the house were let it could command a rent, and by occupying the house the family is in effect receiving the benefit in kind. Consequently, an imputed rental value should be added to the income of the farm household. Similar reasoning would apply, of course, to housing of other socio-professional groups who have accommodation which goes with the job or business, including clergy. Indeed, all owner-occupiers of domestic houses are receiving a flow of services in kind from their property, and a full assessment of their income should take the value of these services into account.

In addition to these two examples of income in kind that are particularly relevant in the agriculture context, a third type, applicable more generally, should be mentioned. These are **social benefits in kind**. These are the goods and services consumed by individuals that are provided in kind by the state and financed from taxation, such as health care and education. As will be seen later, the disposable income of households is sometimes adjusted by these benefits (to form “adjusted disposable income”). While for some items (dental treatment, perhaps) evaluation of these benefits is relatively straightforward because a market price exists for similar services (for example, the costs of private dentists), for others there may be no parallel market from which values can be taken, or the markets may be so marginal that the prices in them are not

satisfactorily representative of the whole. In such cases the average cost of providing these items may have to be substituted as values. Though there are practical problems of identification and valuation, these forms of income in kind should not be ignored, especially where comparisons of household income are made between countries that have different levels of state activity in the health and education sectors or over time when changes in the level of state provision take place.

### **X.2.3 Living costs**

When comparing levels of disposable income between agricultural households and other groups, and in particular when implying that these can be used as an indicator of potential consumption, it may be important to note differences in the amount that farmers and their families have to pay for certain goods and services. Food produced on the home farm and consumed by the farm family may be (net) less expensive than if purchased from off-farm sources, and this may also apply to fuel and some land-demanding recreational activities. On the other hand the costs of other goods and services may be greater in rural areas than in urban ones, reflecting remoteness and sparseness of population. Transport costs are a particular issue; some farm households (and other self-employed people) may be able to spread vehicle expenses between production and consumption activities, whereas this may be denied to others, including both urban and rural dwellers. Thus, caution has to be exercised when drawing comparisons based on disposable income.

## **X.3 Individual and household incomes**

The focus of the second part of this Handbook is the income of the household, which is assumed to relate to the well-being of its members. While for both practical and theoretical reasons this Handbook assumes the predominance of the household as the basic measurement unit, this section draws attention to the limitation of the whole household approach and the need for caution when using income indicators for this multiperson unit.

It is necessary to explore briefly the relationship between the household and the individuals of which it is constituted, something that bears on the validity of measuring income at the household level and, by extension, the usefulness of the resulting statistics. Much of this discussion could have as easily fitted into Chapter IX, where the definition of the household was considered.

In Chapter IX the concept of the household was based on the assumption of income pooling and shared expenditure within this unit (especially in its *single budget household* form). A feature of agricultural household incomes is that they are usually only meaningfully defined at the household level because, typically, they comprise rewards that are earned, at least in part, by members working as self-employed labour on the farm operated by the household.

However, for some purposes, it is important to know more about the economic situation of the individuals. For example, a fundamental welfare question involves knowing how much money is needed to make *each household member* as well off as they were before a change in living conditions. Compensations should be defined on the basis of *individual* rather than *household welfare*. The measure of individual income sought here corresponds to individual welfare after the redistribution of both monetary and non-monetary resources has taken place within the family.

In general, income surveys report individual measures of income. But incomes of individuals can only be measured directly when household members are the employees (i.e. not self-employed) of some third party institutional unit and provide their time to their employer at an objective market wage. Clearly, the

derivation of the incomes of individuals within farm households presents challenges because of the nature of the family operation of the income generating activity. Reconstructing the incomes of household members and consequently revealing associated individual welfare requires knowledge of individual utilities that are only derivable from the identification of the rules governing the intra-household allocation of resources.

Asking how household endowments of both goods and time are allocated within the household is an interesting behavioural question. It is also a crucial welfare issue, since measures of poverty and inequality, based on the assumption of equal treatment of family members, may grossly underestimate reality. Some members of the household may be relatively more or less poor depending on the allocation rule. Knowledge of how resources are shared within the household may be relevant, for example, to the devising of eligibility rules for benefit schemes or to ranking households in terms of the equality of the intra-household distribution process. The definition of the consumer unit (discussed in Chapter IX) is founded on the notion of including all individuals pooling a given total income. According to Seneca and Taussig (1971), determining the income unit is the most intractable problem that must be resolved in estimating equivalence scales appropriate for tax policies.

When looking at how far models of household behaviour take us in our understanding of the behaviour of households, a particular difficulty arises from the general assumption that the household acts as one entity (Imperial College, undated). Theories such as the profit-maximizing peasant (based on neo-classical theory); the risk-averse peasant; the drudgery-averse peasant (Chayanov and Nakajima models); and the farm household peasant (Barnum-Squire, and Low models) have two common assumptions, namely that the household acts as one decision-making entity, and that its objective is to maximize something, whether profit or utility. In other words these theories assume that the household has a single utility function and that the utility of each individual household member is integrated into this single function. This assumption poses a number of problems. Traditional models describing household decisions in a unitary fashion are inadequate to properly describe the intra-household decision process.

On the other hand, the collective models of household behaviour, which try to take account of the objectives and behaviour of individual members of the household by relaxing the assumption that the household acts as one decision-making entity, enable a discussion of intra-household relations and gender issues to take place (Imperial College, undated). The collective representation of family behaviour (Chiappori, 1992), where each family member is characterized by a utility function and decisions are assumed to be Pareto efficient outcomes, is appropriate since it makes the intra-household decision process endogenous. Chiappori's "collective approach" permits the estimation of individual incomes and the associated utility levels of individual household members. In welfare terms it would be possible to determine how much money is needed to make each household member, be it an adult or a child, as well off as they were before the change. It would then be appropriate to refer to inter-personal rather than inter-household comparisons. Further, the knowledge of the welfare levels of *individual household members* makes it possible to account for gender and inter-generational differences in the evaluation of policy impacts. Ultimately, it would be possible to answer fundamental questions such as whether it is better to be a poor child in a rich household or a rich child in a poor household.

Income statistics are usually computed without using knowledge about the intra-household allocation of goods and power and without giving special consideration to the fact that goods that are private at the aggregate household level are public within the household (Gronau, 1988, 1997). This knowledge, though deducible (Deaton, 1988; Gronau, 1988; Chiappori, 1992), is usually constrained by the fact that only information at the household level is available in expenditure surveys. The neglect of intra-household inequality may have consequences for the measurement of society's level of poverty and inequality (Haddad and Kanbur, 1990), or it may generate paradoxical results of the type reported by Glewwe (1991) according to which transfers from the poor to the rich could decrease inequality.

In this regard, Sen (1983) points out that “A much more articulate family welfare function is needed to relate the collection of unequaled levels of well-being of family members to an aggregate measure for the family as a whole. This will, of course, involve a “mini social choice problem...”. The approach of “equivalence scales” “...has to be integrated more fully with *intra-family allocation* and theories of aggregation of unequal well-beings.” Gronau (1997) reinforces this point by asserting that “... the effect of children on consumption patterns depends on the intra-household redistribution of resources and consumption technology, and that in discussing “children welfare indices” (which adult equivalence scales presume to be) one has to ask: *whose welfare do we have in mind?*”.

In general, the households living in poverty have a single income earner. These households often live in disadvantaged areas where job opportunities are scarce, especially for low skill workers. The degree of dependency of the household upon the resources brought home by the primary breadwinner, generally a male, varies with the life cycle of the family and across social strata. In these households, the dependency upon the income received by the single worker implies that the welfare of the members depends upon the man’s allocation rule of his wage among personal expenses and expenses for the care of the dependent members of the household and the housekeeping budget, generally handled by his wife. This is not always either a smooth or a fair division.

Because the distribution patterns of wages within the family is an informal matter that has not been adequately studied, it is difficult to know which pattern of wage allocation prevails across the households of different societies. According to Secombe (1993), three broad variants may be distinguished: 1) altruistic, 2) fair, and 3) egoistic and despotic. In the altruistic model, men hand the salary in its entirety to their wives while keeping a modest amount for personal needs at their spouses’ discretion or by mutual agreement. Within the fair model, probably the dominant pattern, the working men hand over a housekeeping allowance, colloquially known as the wife’s ‘wage.’ In poor households, in a relative sense, when the allowance barely covered the regular weekly expenses of food and rent, it was almost impossible to set aside funds for children’s boots, new clothes or unexpected medical bills. In the egoistic and despotic variant, extremely pernicious but not uncommon, the cash wives obtained was a random residual corresponding to the amount left over after their *callous* husbands had satisfied their wants: visiting the pub or betting shop. Working men who ‘*drank their pay*’ caused serious negative externalities to the other members of the household.

Finally, in this section we turn to the implications of the relationship between individual and household incomes for data systems. The implementation of the collective approach to the analysis of the household enterprise, permitting the recovery of individual behaviour and welfare levels, requires the collection of information about the private consumption of goods and time use. This information is crucial when the policy analyst is interested in gender issues or the well-being of children. Social accounting matrices, both at the household and society level, can maintain the gender or adult/children differentiation, thus permitting the analysis of intra-household distributive issues. The researcher responsible for the questionnaire design should therefore ensure that the information outlined in Box X.1 is included. On a practical level, the degree of detail and the recovery of incomes of individuals to which it gives rise can enable datasets to be linked where, for example, some are on an individual basis and other use the household as the basic unit.

**Box X.1****Recommendations to data systems for implementing a collective approach**

The questionnaire design should provide for the following information to be collected:

**Consumption spending and Labour**

- Clothing for male, female and children, toys, school material and other education expenses, baby food, personal care items, alcohol, tobacco.
- Individual specific time-use.
- Off-farm work opportunities and wages.

**Income and wealth**

- The sources of non-labour income should be assigned, when possible, to each household member.

**Production**

- Who does what in the farm and in the household, distinguishing, when possible, the activities undertaken by the father, mother, children, other adult members of the household and hired labour.

**X.4 Shadow wage and the non-observed economy**

Income of agricultural households, in the sense used so far, is a hybrid of factor rewards (to physical and intellectual labour input, to the other fixed factors – land and capital – owned by the farm household) and transfers of various kinds. In conventional accounting systems, “unpaid” family labour does not usually appear as an explicit cost of production. Consequently there is no explicit “wage” paid to the labour that the farmer and his family for their contribution to production. Yet the decisions made at household level on how to allocate labour to agriculture and other activities will reflect the implicit reward (“wage” or “income”) in alternative uses and from using time for leisure.

The shadow evaluation of family labour can be estimated using three different approaches.

**Accounting approach:** the value of family income can be obtained as a residual, subtracting from net income the remuneration of all other factors of production. The remuneration of land can be taken as either its rental value or it can be imputed adopting an interest rate (typically greater than 2%). The cost of using owned operating capital could be evaluated by applying the prevailing rate in the credit market. Individual labour implicit wage income is then obtained by dividing the residual by the number of household labour units. Note that this criterion compensates both the physical and intellectual labor. Furthermore, labour is evaluated uniformly across working family members.

**Objective market wage under competitive conditions:** this approach evaluates an hour of household labour at the prevailing market wage supposing that the labor market is at a competitive equilibrium and the farmer is indifferent between working in the farm and in the off-farm market. In this situation, the subjective evaluation (by the farmer) and the objective evaluation (from the market) of the opportunity cost of working inside or outside the household coincide. This “opportunity cost” approach may differentiate the contribution of the different working household members when accounting for the individual characteristics such as age, sex, education, and location of the farm as a proxy for off-farm market conditions within an econometric estimation (Huffman, 1996). The derived wage corresponds to the



potential compensation that a farmer endowed with a specific level of skills could have potentially obtained if he/she had found off-farm employment.

**Shadow wage:** when labour markets are not competitive, as it is often the case in both developed and developing countries, the family “unpaid” labour can be evaluated as the marginal product of labour, corresponding to the subjective evaluation of the disutility associated with an extra hour of work. This approach requires the estimation of a production or a cost function from which the marginal productivity can be evaluated. It is important to realize that the application of this approach implies the following assumptions:

**Assumption 1.**            *The farm household economy is non-separable<sup>4</sup>.*

**Assumption 2.**            *Adult (and child) family labour are quasi-fixed factors in the short run.*

The knowledge of shadow wages is fundamental in order to explain individual labour choices. Farmers decide to work on the farm by comparing the shadow wage with the market objective wage, when the subjective perception of the probability of finding a job, either in agriculture or in other sectors, and the objective probability of being hired are equal to 1. If subjective and objective probabilities diverge, then the proper wage comparison is between shadow wages and expected market wages which thus incorporates information about the probability of finding a job conditional on the level of education, age, experience and, more generally, skills of the farmers.

Shadow wages from agricultural activities can be estimated on an individual basis if data are collected *about who does what in the farm*. Still, the derivation of individual incomes incorporating also an assessment of the change in the household’s net worth during the accounting period requires that non-labour income is assigned to each household member given the knowledge of the rule governing the allocation of resources within the household. Note that the shadow wage approach is often the only one available when evaluating child labor.

In developing countries child labour may represent an important component of the input to the production of agricultural commodities and a source of income to the household as a whole. There may be a requirement to estimate the shadow wages of this child labour. This is a specialist issue that later versions of this Handbook may wish to develop.

## **X.5 Various income concepts and relationships between them**

The accounting frameworks in which income measurement normally takes place, described in Chapter XIII, draw a somewhat arbitrary border around the items that are included. Flows from market activities are included, whereas non-market ones (including unpaid domestic work by household members) is not. This was also apparent from Figure X.1 (from Cecora, 1986) where it was clear that only some flows of resources towards households are measured. The definitions of income that are recommended in this

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<sup>4</sup> Under separability, the general equilibrium program of the household is recursive. Production decisions are not affected by the household’s endowments, preferences, characteristics or decision processes. On the other hand, consumption decisions are affected by production choices since profits are part of the budget constraint. However, under non-separability implies jointness in decision-making. This can happen when the same input, such as time, is shared across the household and home production processes, and in the presence of home consumption of the household marketable product. Under these conditions, farm production and household consumption decisions are non-separable and leisure/labour demand on the household is not independent from the on-farm demand of family labour.

Handbook do, for practical reasons, mainly respect conventional accounting boundaries. For agricultural households this flow of resources will come not only from independent (self-employed) activity on the farm, but also from other types of self-employment, from wages, from property (rents and interest) and in other money (or near-money) forms. Some imputed items are within the conventional boundary (especially the imputed rental value of owner-occupied dwellings). Various formulations of these flows are possible (for example, cash flow, total household income, disposable income etc.). This will be dealt with later in this Chapter. Information about off-farm paid employment permits the derivation of total and disposable farm household income (Hill, 2000; Eurostat, 2002; OECD, 2003; Smeeding, 1997; Smeeding and Weinberg, 1998).

However, it is worth noting that other concepts of income exist that, in some circumstances, may be preferable. This section illustrates the methodology used in computing extended income and full income, both at the household and individual level, for a sample of Italian farm households and compares the distribution of these incomes across genders.

### **X.5.1 Extended and full incomes**

The notion of extended and full incomes is important both to understand differences in family organization and to describe how households respond to policy changes by reallocating labour among the farm, the home, and the off-farm opportunities.

The family portfolio of labour choices includes not only gainful activities but also employment in domestic activities. This form of self-employment is valued at the “unpaid” equilibrium shadow wage, and, if a competitive environment is assumed, corresponds to the opportunity cost of time. The incorporation of this implicit source of income in the computation of household incomes gives the *extended* income (Lazear and Michael, 1988; Jenkins and O’Leary, 1996; International Research and Training Institute for the Advancement of Women (INSTRAW), 1996). The sum of extended income and the value of leisure time forms the Beckerian notion of *full* income (Becker, 1981).

According to Becker’s (1965) definition of full income, there is no distinction between an hour spent on pure leisure and an hour spent looking for job opportunities. Jenkins and O’Leary (1996) suggest that this may be a problem if one considers the case of involuntary unemployed people as well. As a consequence, most of the studies on full income restrict the estimation to extended income by setting the value of leisure to zero. However, because the members of farm households can allocate their working time with certainty on the farm, it is plausible to assume that there is no involuntary unemployment. Therefore, pure leisure of farm households can be taken as genuine leisure (Wales and Woodland, 1977). In view of the certainty of being able to work on one’s own farm, the opportunity cost of time devoted to pure leisure can be assumed to be equal to the implicit on-farm earnings. Jenkins and O’Leary (1996) stress that it is implausible to set the value of leisure time equal to the market wage rate.

A more detailed consideration of extended and full income is given in Annex 7.

### **X.5.2 The importance of time to income measurement**

Income is a flow concept rather than a stock. The notion of a time period over which income is received and measured is integral to the concept and is explicit in the Simons definition of personal income. However, there is no specific period over which income must be measured. By convention, a year is commonly taken as the relevant accounting period; this is not sacrosanct and there may well be other lengths of time which are more appropriate for particular circumstances. Importantly, it is unlikely that a detailed

definition of income which is appropriate for one length of time will be equally appropriate for a shorter or longer period.

Looking back over a lifetime and assessing the personal income of a farmer, a full assessment of the personal income could take a very broad view. Not only would the income in cash and kind be covered, but also any capital gains or losses would need to be ascertained. This *ex post* view of income is related to the notion that consumers, in this case farmer households, can have a longer-term expectation of their income, which would encompass all income forms, and on which their consumption pattern is determined - the "Life Cycle - Permanent Income Hypothesis" put forwards by Freidman (1957). This is dealt with in greater detail in the following section. Here it is sufficient to note that, while little work has been done on the relationship between spending and perceived incomes of a longer-term nature in agriculture, evidence on the personal expenditure of farmers (using data from Denmark and Norway, referred to in Hill (2000), suggests that they do not substantially adjust their annual consumption to accommodate shifts in the profits generated by their farms, at least not within the same accounting period.

There are well-established empirical links for the population as a whole between age and income. Low yearly incomes are found particularly among the young and elderly, and higher levels somewhere in the middle. Farmers as a group tend to be relatively old compared with the rest of society. On an annual basis some of these older farmers would have a low-income, but in former times their earnings may well have been substantial. Their present position might simply reflect changed priorities and the assurance of accumulated savings and other forms of wealth. In other words, their ability to consume may be quite adequate. Taking a longer view would reduce the inequality of incomes within the farming community. This is a conclusion applicable to many occupations but it is particularly appropriate in farming where quite large year-to-year variations are regarded as normal (Atkinson, 1975).

The longer the period chosen, and the more disparate the groups for which comparison is required, the broader the income concept needed for a satisfactory outcome. In the shorter term it may be appropriate to narrow the definition of income to suit the problems in hand. Much of the purpose for income policy, and therefore of income measurement, hinges on poverty (an issue tackled in more detail in Chapter XI). In this situation it may be satisfactory to put on one side those constituents of income that do not, in the short run, impinge significantly on the amount of cash a household has to meet its immediate needs. Thus capital gains and imputed rental values might be excluded.

Another aspect of time and income measurement, even when the conventional period of a year is used, concerns the way that transactions relate to the period in question. Financial years covering twelve months may, in principle, start at any point in the calendar, though surveys of accounts (such as the EU's Farm Accountancy Data Network - FADN/RICA) would clearly prefer their cases to share a common year-end (or a narrow band of year-ends) as a wide spread makes interpretation more difficult. In agriculture, the production cycle has often led to a crop-year being used. However, adjusting across different crop-years to fit the calendar years used by national accounts can be a source of rather arbitrary year-on-year variation. Data for the different types of income received by agricultural households may not be available on a consistent basis. Perhaps more significant is the preference, both within the SNA93 for national accounts and the recommendations of the Canberra Group for microeconomic measurement, for income accounting to be undertaken on an *accrual* basis (that is, when payments become due) rather than on a *cash* basis (that is, when the payment actually arrives). The difference in results for a particular year can be quite significant. However, in practice it is likely that data on many items are only available on an actual receipts (and payments) basis and thus not in accord with the accruals rule. Estimates of both total income and disposable income are likely to contain both accrual based and cash based income and be unavoidably hybrid in nature, something that must be borne in mind when interpreting them.

### X.5.3 Lifetime income and permanent income hypothesis

While **life cycle theory** centres more on the explanation of the relationship between age, saving and the creation of wealth, **permanent income theory** is more concerned with the dynamic behaviour of consumption, particularly in relation to average or expected incomes. In this framework, consumption is the annuity value of current financial and human wealth. The dynamic features of consumption captured by the Life Cycle Permanent Income hypotheses, framed within the economic theory of the household (Becker 1981; Kooreman and S. Wunderink, 1997), are very useful in understanding the trade-off between current and future benefits or costs, with a special emphasis on the cultural and socio-economic determinants of subjective discount rates.

The relatively stable consumption of farmers in the face of fluctuating incomes, noted in the previous section, can be expressed more formally within the Life Cycle Permanent Income Hypothesis. This can be formulated as an observation that the farmers' marginal propensity to consume is high in relation to the level of permanent income and negligible in relation to the level of transitory income because individuals tend to smooth consumption uniformly during the life cycle. In other words, consumption choices are based on the possibilities available according to the personal income stream and level of wealth expected over the whole life cycle.

In general, current consumption is affected by the personal rate of inter-temporal preferences (which leads to anticipated consumption when high), and the interest rate that can be earned from savings (which makes an individual more patient and less prone to consume today rather than tomorrow). The price of consumption tomorrow relative to consumption today is the discount factor, which can also vary subjectively according to the personal degree of impatience.

According to the life cycle theory, saving behaviour and the evolution of the stock of assets depends on personal tastes, life cycle needs and the value of lifetime resources, but is not determined by the temporal pattern of life cycle labour income. If young households' income is low, but is anticipated to be higher later, it is not rational to stop higher consumption, because this is facilitated by the ability to borrow.

In general, the accumulation of savings is also strongly motivated by precautionary motives (both against ageing and uncertain prospects) and bequest motives (Deaton, 1992). Cautious households tend to save more in early life than would be predicted by the permanent income hypothesis. Economic uncertainty and unanticipated shocks affect the consumption plan of individuals differently depending upon the myopic or forward-looking attitude of consumers and the presence of liquidity constraints (Hall, 1978; Flavin, 1985; Zeldes, 1989). The more binding the borrowing restriction, the closer consumption follows the income path. Younger cohorts especially feel the stringency of this constraint when they are forced to limit borrowing designed to sustain current consumption even when they have the prospect of high future incomes.

For the Life Cycle Permanent Income Hypothesis to work in developing countries, credit markets needs to be sufficiently developed and must function properly. Consumption credit is especially important where access to capital markets is rationed (Eswaran and Kotwal, 1989). The existence of credit rationing that is proportionate to the land endowment of the farm household results in unequal access to the credit market. This fact explains why access to credit can be an important factor both in determining the levels of permanent incomes and in shaping the process of formation and differentiation of rural classes. These processes manifest themselves differently according to the economic, social and institutional situations specific to each society. For example, in societies where private property is a well-established institution but land redistribution is a central to agrarian reform, such as in many Latin America countries (including Peru, Nicaragua, Ecuador, Chile and Brazil), the differentiation of rural classes dominates the process that leads to the formation of new classes. On the other hand, in former socialist economies that are in transition (many in

Eastern Europe, Syria and Tanzania), it is more likely to observe the formation *ex novo* of rural classes. These aspects are not trivial, because for every class (characterized by specific combinations of wage incomes and wealth) there is a particular pattern of accumulation and formation of permanent incomes throughout the life cycle and highly differentiated behaviour with respect to precautionary motives and liquidity constraints.

Under conditions of uncertainty and credit rationing, risk-averse farmers are exposed to a higher volatility of production and household incomes. Farm households need to smooth consumption through time, using consumption credit as a form of insurance to assure the sustainability of the household. They may also use this credit to invest in new technologies that promote the growth of both production and household incomes as a consequence of the fact that production and consumption decisions are not separable within a farm household. The poorest farm households, experiencing difficulties in managing the farm and household risks because of lack of access to consumption credit and, consequently, to new technologies, are often forced to over-exploit local natural resources. These households are often compelled to move towards marginal lands with high ecological vulnerability or to extend the arable frontier at the expense of forest, causing land degradation and other ecological problems.

Interestingly, consumption can be “financed” both through the credit market and the labour market. In the latter case, this takes place through the “lending” of the farmers’ time to take advantage of off-farm job opportunities. Since wealth influences the access to the credit market, this in turn affects the participation in the off-farm labour market and investments in the farming business (Serra *et al.*, 2003). Recent evidence shows that off-farm labour can be negatively associated with the accumulation of farm capital and the relative importance of farm incomes in the formation of the permanent income of the household (Ahituv and Kimhi, 2001). Interestingly, more educated farmers are able to work off the farm and still maintain a capital-intensive farm enterprise by enjoying easier access to the credit market.

## **X.6 Subsidies, preferential tax treatments, and income measures**

Agricultural households in developed economies are the recipients of major amounts of what are commonly called “subsidies.” These encompass both direct payments by the government (financed by taxpayers) and market interventions (involving transfers from consumers). In less developed countries transfers may flow in the other direction. When assessing income it is important that these resource flows are adequately captured. Transfers in the form of monetary payments made direct to agricultural households, or where they are reflected in enhanced market prices of outputs and lowered costs of inputs, are reflected in the measures of income produced by conventional accounting systems. Where they take the form of concessions in direct taxation, these tax “expenditures” will be reflected in lower deductions and thus in the level of disposable income. There remains the possibility that benefits are given that fall outside the accounting system, and these may be important when attempting to compare the economic well-being of agricultural households with those of other socio-professional groups, or between farm households in different countries.

The System of National Accounts (SNA93), which provides the conceptual framework for much of this Handbook, takes a somewhat narrow approach to what is considered to be a subsidy, and this is carried over to accounting for agricultural activity and for agricultural households. The SNA93 defines subsidies (D.3), as “current unrequited payments that government units, including non-resident government units, make to enterprises on the basis of the levels of their production activities or the quantities or values of the goods or services which they produce, sell or import” (para 7.71). Payments linked to capital (such as grants to encourage investment) are not taken into account when measuring income in the household sector of national accounts, though they are in some microeconomic systems (such as the EU’s FADN/RICA survey

of farm businesses). The treatment of social benefits in kind provided free or at reduced costs to agricultural households (for example, special education for farm families) may not be satisfactorily identified or evaluated. While concessions on current taxation will be reflected in disposable income, special treatment on the taxation of transfers of agricultural land, particularly, between generations, may be important to the assessment of income measured over the longer term but will not show up in current accounting and residual income indicators (OECD, 2004).

The measurement of income should take into account the possibility that elements of this type may exist, and consideration should be given to whether steps need to be taken to include them.

## X.7 Definitions in use

In considering the definition of income to be used in analysing the income situation of agricultural households it is useful to review existing practice. Examples can be found at both the level of national accounts and at the microeconomic levels. The differences of approach towards accounting and income measurement result in differences in definition. This is well expressed in a passage from Section 2.2.1 of the Report and Recommendation by the **Canberra Expert Group** on Household Income Statistics (Canberra Group, 2001).

*“The macro-analyst is interested in the aggregate of household income as it fits into the macroeconomy as a whole, and approaches its construction in a top-down manner. Previous attempts to update the existing international guidelines on income distribution (UN, 1977) to bring them into line with the 1993 SNA have categorised income according to the type of transaction which gives rise to the flow without regard to the medium in which payment is made. The sequence is basically to measure first income generated in the course of production, then to allow for distribution of property income thus arriving at a concept called “primary income.” The next stage is to account for current transfers, widely interpreted, and thus arrive at “disposable income.” This is either spent on consumption or saved. Saving is used either to finance investment or leads to net borrowing or lending.*

*Exhaustiveness of the definition is also very important to the macro-analyst, as is its consistency with the definitions of income of the other institutional sectors: no theoretical gaps can be left unfilled, even if in practical terms imputations and estimations have to be widely employed when actually compiling the statistics.*

*The micro-analyst on the other hand is primarily interested in the measurement of income distribution. Conceptually, this means that the definitions are driven mainly by what the individual perceives to be an income receipt of direct benefit to him or herself, which results in a bottom-up approach to the construction of a definition. The means of payment is a major discriminatory factor and the rationale behind the payment is subsidiary. Practically, definitions have also to be constrained by what it is feasible to collect in household surveys or what is available at the household level in relevant administrative sources. In fact these two considerations – the conceptual and the practical – will usually result in the same choices, since if individuals perceive a receipt to be of direct benefit to them they are much more likely to be able to provide reliable data on it.”*

As part of its plan to harmonize methodology across the EU Member States, Eurostat has developed the **Income of the Agricultural Households Sector (IAHS) statistics**. This provides a definition of income to be used when estimating the incomes of agricultural households (Eurostat, 1996). However, this definition is based on national accounts methodology and consequently contains some facets that are

inappropriate when applied at the farm household level. In contrast, the methodology recommended by the Canberra Group for microeconomic work using household-level data is primarily intended for application in the study of income distribution, including poverty, and the emphasis is on income as a means of improving *current* economic well-being, as reflected in the ability “today” to consume goods and services. Resource flows that result in the ability to consume “tomorrow”, such as employer contributions to pension funds, interest accumulated by these funds, and capital gains, are not usually seen by households as affecting their ability to consume “today” (indeed, they may be unaware of them) and are thus of less concern to microeconomic statisticians. Moreover the Canberra Group’s income definition is not specifically designed to suit the rather special characteristics of agricultural households. Households whose principal income source is wages dominate the households sector in industrialized countries in terms of numbers, and the Canberra Group’s approach reflects this. In contrast, agricultural households by definition are involved with income from self-employment, heavily so when a narrow definition of what constitutes an agricultural household is adopted. Income in kind is particularly significant to farm households and, while being of special importance to farmers in less developed countries, is by no means insignificant in richer countries, especially to those occupiers whose main purpose is orientated towards lifestyle or hobby agriculture. The subsistence production on private household plots of workers in large-scale agricultural enterprises in some of the countries with formerly collectivised (socialized) agriculture practices are another example of the importance of output for own consumption and income in kind.

The headings of the various items of the IAHS definition of disposable income are shown in Figure X.2. For a detailed treatment of each item, reference should be made to the IAHS Manual of Methodology (Eurostat, 1996). An equivalent outline of the definition adopted by the Canberra Group in microeconomic (household level) studies is shown in Figure X.3, slightly rearranged from the source document to ease comparison and to reflect the importance of income from independent activity (self-employment) in the present context. Detailed descriptions of the various components in this definition appear in Appendix 1 of the Canberra Group’s report. It should be noted that some items appear in the IAHS definition under unexpected labels. A good example is where, following the sequence of accounts for the households sector in national accounts, the resources from agricultural and other independent (self-employed) activity are shown as Operating Surplus (NVA less the costs of hired labour) rather than Entrepreneurial Income or profit from the unincorporated business (which also deducts rent and interest paid). In the strict national accounts/IAHS definition rents and interest are deducted under a later item (negative property income), which includes interest for private consumption loans as well as for agricultural purposes.

**Figure X.2**  
**Net Disposable Income in Eurostat's IAHS statistics**

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The concept which forms the centre of the IAHS sector-level income measure for agricultural households is **net disposable income**. It is defined as follows:

- (1) Net operating surplus (mixed income)<sup>5</sup> from independent activity:
    - (a) From agricultural activity
    - (b) From non-agricultural activity
    - (c) From imputed rental value of owner-occupied dwellings
  - (2) Compensation to members of agricultural households as employees, from agricultural and non-agricultural activity
  - (3) Property income received (rent, interest, dividends etc.)
  - (4) Non-life insurance claims (personal and material damage)
  - (5) Social benefits (other than Social benefits in kind)
  - (6) Miscellaneous inward current transfers
  - (7) Total resources (sum of 1 - 6)
  - (8) Property income paid
  - (9) Net non-life insurance premiums
  - (10) Current taxes on income and wealth
  - (11) Social contributions
  - (12) Miscellaneous outgoing current transfers
  - (13) Net disposable income (7 minus 8 - 12)**
  - (14) Social transfers in kind
  - (15) Net adjusted disposable income (13 plus 14)
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<sup>5</sup> Under the new SNA (1993)/ESA (1995), operating surplus and mixed income are alternative names for the same balancing item. Mixed income is the term used in the context of unincorporated enterprises owned by members of households in which the owners or other members of their households may work without receiving any wage or salary. Though farms are usually of this form, for the purpose of the TIAH methodology the term operating surplus is used for this item; this is done to avoid potential confusion between mixed income and other microeconomic income concepts in which interest and rents have already been deducted.



**Figure X.3**  
**Definitions of income (microeconomic) by the Canberra Group (2001)**

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<b>2</b>	<b>Income from self-employment</b>
	<i>Cash or near cash</i>
	2.1 Profit/loss from unincorporated enterprise
	2.2 Royalties
	<i>In kind, imputed</i>
	2.3 Goods and services produced for barter, less cost of inputs
	2.4 Goods produced for home consumption, less cost of inputs
	2.5 Income less expenses from owner-occupied dwellings
<b>1</b>	<b>Employee income</b>
	<i>Cash or near cash</i>
	1.1 Cash wages and salaries
	1.2 Tips and bonuses
	1.3 Profit sharing including stock options
	1.4 Severance and termination pay
	1.5 Allowances payable for working in remote locations etc, where part of conditions of employment
	<i>Cash value of 'fringe benefits'</i>
	1.6 Employers' social insurance contributions
	1.7 Goods and services provided to employee as part of employment package
<b>3</b>	<b>Rentals</b>
	3.1 Income less expenses from rentals, except rent of land
<b>4</b>	<b>Property income</b>
	4.1 Interest received less interest paid
	4.2 Dividends
	4.3 Rent from land
<b>5</b>	<b>Current transfers received</b>
	5.1 Social insurance benefits from employers' schemes
	5.2 Social insurance benefits in cash from government schemes
	5.3 Universal social assistance benefits in cash from government
	5.4 Means-tested social assistance benefits in cash from government
	5.5 Regular inter-household cash transfers received
	5.6 Regular support received from non-profit making institutions such as charities
<b>6</b>	<b>Total income (sum of 1 to 5)</b>
<b>7</b>	<b>Current transfers paid 2.4.3.1</b>
	7.1 Employers' social insurance contributions
	7.2 Employees' social insurance contributions
	7.3 Taxes on income
	7.4 Regular taxes on wealth
	7.5 Regular inter-household cash transfers
	7.6 Regular cash transfers to charities
<b>8</b>	<b>Disposable income (6 less 7)</b>
	9 Social transfers in kind (STIK) received
<b>10</b>	<b>Adjusted disposable income (8 plus 9)</b>

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In contrast, the Canberra Group's microeconomic definition deducts such payments at an early stage to reach the profit/loss from the unincorporated business run by the household. Within this income from self-employment there are some non-cash elements identified separately in the microeconomic measure that are already subsumed in the aggregate approach in the calculation of operating surplus. The main examples of unexpected items in this current account are the receipt of (non-life) insurance claims as a resource and the payment of insurance premiums as a negative item. In microeconomic accounting the former (for example, compensation for the loss by fire of a tractor) would normally be placed among the capital accounts, and the cost of insurance premiums would be treated as a cost in reaching the profit (income) from the business operated by the self-employed person. Some sub-items (not apparent from the headings in IAHS definition) are included in the national accounting approach to maintain the integrity of inter-sectoral transfers; non-cash benefits imputed to holders of insurance policies because of the performance of invested funds are an example. Similarly some items in the miscellaneous transfers category (on both the positive and negative sides) contain elements that would be regarded in microeconomic accounting as payments out of disposable income rather than items to be deducted in its calculation. As already noted, the national accounting framework requires transfers from households to charities and other non-profit institutions such as churches to be seen as leaving the households sector, so leading to their treatment as negative items. A different view is taken in microeconomic accounting, where such payments may be deemed to be made out of disposable income rather than to be deducted. A key issue seems to be the extent to which these payments are regarded as voluntary or non-voluntary. The latter might include trade union dues where membership is required (formally or *de facto*) in order to undertake a particular line of business.

Despite such differences there are broad similarities between the two in the general structure of what constitutes income, both in total and disposable forms. Both include cash (or near-cash) payments and non-cash elements. Non-cash elements pose difficulties of identification and valuation and, in particular, there is often a lack of suitable basic data by which quantification can take place. Both include the value of the services provided by owner-occupied dwellings, a particular example of a non-cash form of income. Both provide for two types of disposable income (unadjusted and adjusted). The adjustment factor is 'social transfers in kind', such as education and health services that the state finances and provides free at the point of delivery to individuals and households.

Neither the IAHS nor microeconomic definitions are entirely suitable for practical use in their complete forms. Bearing in mind both the conceptual problems associated with some of the items and the practicalities of attempting to make international comparisons in income distributions, accumulated through the work of the Luxembourg Income Study (LIS), the Canberra Group recommends a somewhat simplified form of disposable income for use in studies of income distribution where different data sources are used and international comparisons are required (see Figure X.4). This simplified approach omits some of the imputed components and some that are of an ambiguous nature. In particular, it omits the value of Social Benefits in Kind (SBIK), and thus does not attempt to estimate an adjusted net disposable income. Imputed items are much reduced, including the removal of the value of owned dwellings. The list of miscellaneous transfers is much simplified, only retaining those benefits that are obvious transfers from the state and those which constitute regular receipts from other households and charitable institutions. Among the payments, only those that are wholly or largely non-voluntary remain in the coverage; regular inter-household negative transfers are left out.

**Figure X.4**  
**Canberra Group recommended components of a simplified definition of disposable income**

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<b>1</b>	<b>Employee income</b>
1.1	Cash wages and salaries
<b>2</b>	<b>Income from self-employment</b>
2.1	Profit/loss from unincorporated enterprise
	<i>Inputed income from self-employment</i>
2.4	Goods and services produced for barter, less cost of inputs *
2.5	Goods produced for home consumption, less cost of inputs *
<b>3</b>	<b>Income less expenses from rentals, except rent of land **</b>
<b>4</b>	<b>Property income</b>
4.1	Interest received less interest paid
4.2	Dividends
<b>5</b>	<b>Current transfers received</b>
5.1	Social insurance benefits from employers' schemes
5.2	Social insurance benefits in cash from government schemes
5.3	Universal social assistance benefits in cash from government
5.4	Means-tested social assistance benefits in cash from government
5.5	Regular inter-household cash transfers received
<b>6</b>	<b>Total income (sum of 1 to 5)</b>
<b>7</b>	<b>Current transfers paid</b>
7.2	Employees' social insurance contributions
7.3	Taxes on income
<b>8</b>	<b>Disposable income (6 less 7)</b>

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\* Not included in LIS DPI.

\*\* Included in property income in LIS DPI.

Source: Canberra Group (2001) Table 4.1.

This Canberra Group's simplified list forms a useful template for estimating the income of agricultural households. Most of the simplifications are helpful when applied to agricultural households as a subsector. For example, experience in the IAHS statistics suggests that very few countries are able to estimate SBIK for agricultural households other than to distribute the aggregate for the entire households sector in a rather arbitrary way, such as per head, something for which there is little empirical support. The removal of many inter-sectoral transfers accord with what many Member States have done when supplying IAHS results to Eurostat. So too is the reduction of items in the miscellaneous inward transfers category to state payments and other regular transfers. Nevertheless, certain modifications to the Canberra Group's simplified definition seem appropriate to suit the special circumstances found in agriculture. A revised definition is proposed in Figure X.5. The main differences are shown in *italics*. However, where the amplification is simply a disaggregation of a total, this is not flagged.

Two changes to the Canberra Group's simplified list are introduced. The first relates to the inclusion of an imputed rental value of the farm dwelling (and equivalent treatments of the dwellings of other socio-professional groups if comparisons are to be made). The reasons for including this item are that (a) empirical evidence shows that it can be important in some countries to the overall level of income; (b) in some farm accounts surveys provision already exists for its calculation, so many countries will already have

experience in making the estimates; (c) most EU Member States have made calculations as part of their submissions of IAHS results to Eurostat. The second change is a more specific mention of the value of income in kind from self-employment. It should be noted that income in kind from employment is not covered; only cash income is included in the form of wages and salaries. The fact that some countries may find it difficult to provide data for one or other of these items is a handicap but not an insurmountable one. The Canberra Group notes that, as long as items are detailed separately, it is possible to make comparisons between countries or sub-sectors by omitting items for which there is poor coverage.

A third change was considered but has not been implemented. This was the deduction in reaching net disposable income of other regular negative transfers (in addition to taxes and social contributions) by the members of agricultural households as self-employed people or as employees of other businesses. This mirrored the treatment of regular outward transfers and maintains a degree of symmetry. However, this item was ruled out because of impracticality over identification and measurement.

**This Handbook recognizes the simplified definition of disposable income shown in Figure X.5 for application to income measurement of agricultural households. When presenting results, information should be available for the separate items shown in this definition.**

**Figure X.5**  
**Recommended definition of net disposable income for application to agricultural households**

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**Net income from self-employment (money income and in kind)**

Net income from self-employment (operation of unincorporated businesses, or incorporated businesses that can be treated as *quasi* unincorporated because of family operation and ownership) after deduction of intermediate consumption items, interest on business loans, rents on land and business property, and a depreciation allowance for capital consumption. This will include net profit or loss in money form and the value of other income in kind, such as the value of output used for barter and for own-consumption, net of cost of inputs used in their production.

*Of which:*

- (a) Self-employment in agriculture (money income and in kind)
- (b) Self-employment in other industries (money income and in kind)
- (c) *Imputed rental value of owned dwelling*

+ **Cash wages and salaries**, earned from dependent activity in enterprises (institutional units) that may be agricultural or non-agricultural in nature

(= Primary income)

**+ Rent received**

- (a) Net rents from the letting of property other than land
- (b) Net rents from the letting of land

**+ Other property income**

- (a) Net interest received (interest received less interest paid, though payments should not include interest already deducted in calculating profits)
- (b) Dividends received

**+ Social transfers received**

- (a) Social insurance benefits from employers' schemes
- (b) Social insurance benefits in cash from government schemes
- (c) Universal social assistance benefits in cash from government
- (d) Means-tested social assistance benefits in cash from government

**+ Other current inflows**

Regular inter-household cash transfers received such as transfers from relatives living and working abroad)

**= TOTAL INCOME**

**- Current taxes on income and wealth**

**- Non-discretionary social contributions (payments to social security schemes)**

- (a) By members of agricultural households as self-employed person
- (b) Employee social contributions (only) relating to income from employment

**= NET DISPOSABLE INCOME** (note: this is not adjusted for the receipt of social benefits in kind)

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## XI INCOME LEVELS, DISTRIBUTION AND POVERTY

### XI.1 The assessment of poverty

A major reason for requiring statistics on the income of agricultural households is to explore whether there is a problem that requires government intervention. Particular attention is paid within policy planning circles to the problems associated with low-incomes. In less developed countries this may manifest itself in a lack of ability to meet basic needs (food, shelter etc.). In more developed economies these needs may be met but there may still be disparities between groups that raise concern on the grounds of equity. While basic needs may be met, low-income households could still be regarded as suffering deprivation.

What is meant by the term “deprivation” depends on the context (Bradley *et al.*, 1986) but it is, nevertheless, a potent concept in justifying policy action. Within the agricultural sector of industrialized countries it is commonly found that various forms of deprivation are connected - an inadequate income will tend to be associated with isolation on a small farm, where the family is locked into a restricted set of social contacts and has only a narrow range of access to the facilities provided for society in general. The problem is therefore multifaceted. Nevertheless, these additional forms of deprivation (social, cultural, etc.) are separate from (but may be linked to) what can be described as economic deprivation or income poverty. Economic deprivation may be described as situations where people have an insufficient command over the resources needed for living and are excluded from the socio-economic system.

In order to turn this inexact notion of insufficiency into a measure which can be used to guide practical policy, some standards have to be set for what is deemed sufficient. One way of doing this is to establish a *poverty line*. This has two distinct roles (Ravallion, 1998). One is to determine what the minimum level of living is before a person is no longer deemed to be “poor.” The other is to make comparisons between families in order to inform observers of what expenditures are needed in each set of circumstances to ensure that the minimum level of living needed to escape poverty is reached. It is possible to establish a poverty level in terms of a combination of characteristics. An example would be income plus leisure where two people of identical income might be classified differently if one has more leisure time than the other. In this situation the term poverty boundary is more appropriate than poverty line. However, it is more usual to simplify the relevant variables to one - that of income. When tackling low-incomes in agriculture, a monetary poverty line can be a very useful yardstick against which the circumstances of agricultural households, families or individuals can be compared.

#### XI.1.1 Social exclusion

While social exclusion is a concern for society in general, it is of special interest in an agricultural society. For individuals in particular groups, social exclusion is a form of marginalization leading to economic deprivation in terms of limitations of functionings of living standards (the term “functionings” in the literature, following Sen, means what a person succeeds in doing and being) and various forms of social and cultural disadvantage. Social exclusion in a rural environment, where self-employed work is “unpaid,” may be disguised in that it may not manifest itself in unemployment *per se* but in low-income and low wealth farm households.

Social exclusion is related to both inequality and poverty and may be expressed in terms of both the number and quality of functionings from which the person is excluded. Its multifaceted nature can be captured by reporting the proportions of households having financial difficulties, not having access to basic

necessities, living in bad housing conditions, having infrequent social contacts, dissatisfied with the work or living conditions, etc.

In order to capture the multidimensionality of inequality and poverty a comprehensive measure of poverty which pools indicators such as the headcount, the income gap, the difference in income between social groups, and the within-group Gini (see below) into a single poverty ratio is required (Dagum and Costa, 2003). Dagum and Costa also propose a methodology to develop a multivariate analysis of poverty, which also includes elements of social exclusion and limitations in the space of functionings and capabilities.

## **XI.2 Ways of measuring the incidence of poverty among households**

Of course, poverty is associated with one end of the income distribution. The distribution of incomes is important because an otherwise satisfactory level of average or median income can nevertheless contain cases where incomes are sufficiently low as to constitute a policy problem. Thus when considering poverty among households it is necessary to put this in the more general context of the spread of incomes. The Canberra Group report (2001), which is a major foundation of the methodology outlined in this Handbook, is quite reticent in its treatment of how income distributions should be described, lacking a specific section dealing with them as a tool in economic and social analysis. However, before dealing with the distribution of incomes it is first necessary to set out the basis on which poverty lines might be established. Later some of the practical issues in the application of poverty lines will be described.

Poverty lines are by their nature impossible to set without involving value judgements. These may be explicit or hidden in the assumptions behind what may appear to be objective methodologies. A variety of approaches to defining a poverty line have been used or proposed. Two polar positions can be taken. The first position assumes that the poverty line can be set in absolute terms, in which case it would be possible to totally eliminate poverty if every one could be lifted above the poverty line. The second position assumes that poverty is a relative phenomenon, in which case poverty will never be removed (Hagenaars and Van Praag, 1985; Hagenaars *et al*, 1994; Ravallion, 1998).

At its most extreme, an absolutist view of poverty would be a situation of deprivation of certain basic goods and services necessary for maintaining physical subsistence. This makes no reference to the well-being of the rest of society. In these circumstances, a poverty line would correspond to the income required to allow the acquisition of these basic means. This was basically the approach of the seminal work on UK poverty by Rowntree (1901) and Booth (1902). It is particularly suited to the circumstances of less developed countries. Of course, if income (rather than consumption) is used as the criterion on which the line is drawn, then it becomes important to ensure that income is adequately measured, especially income taken in kind from own production of food and other domestic requirements.

A less rigid attitude might set a poverty line somewhat above this subsistence-consumption level. This higher level will reflect society's view of what constitutes a minimum acceptable income for its members. Both are absolute figures, though in the latter case the level takes into account more than physical necessities. As Atkinson (1975) points out: "It is misleading to suggest that poverty may be seen in terms of an absolute standard which may be applied to all countries and at all times, independent of the social structure and level of development. A poverty line is necessarily defined in relation to social conventions and the contemporary living standards of a particular society." Though a subsistence poverty line may have the appearance of objectivity, the *choice* of defining poverty in this way is as subjective as any other based on less clear physical requirements (see also Atkinson, 1980).

The other extreme in poverty line definitions is represented by those which set the line at some percentage of the society's average personal income or at some point in the distribution of incomes, for example, at some percentage of the median income or the lowest decile. Expressed in such a way, poverty will never be eliminated. But this too imposes the judgement of the observer on the measure of poverty. In an attempt to strive for greater objectivity, exercises have been conducted to extract from a representative cross-section of people, using surveys, society's assessment of where the poverty line lies (Hagenaars and Van Praag, 1985).

While different respondents perceive poverty differently according to their circumstances, suitable weighting can be employed to achieve poverty levels that reflect the mix of views in society. This has been termed a "subjective" view of poverty (Forster, 1994), and constitutes a third approach for establishing poverty lines. However, adopting a poverty line derived in this way presupposes that society in general is the best assessor of poverty; this is not self-evident. Table XI.1 summarizes the three approaches to establishing poverty lines.

**Table XI.1**  
**Three different approaches to defining low-income (poverty lines implied)**

	<b>Absolute approach</b>	<b>Relative approach</b>	<b>Subjective approach</b>
<b>Method</b>	- Define an absolute subsistence minimum in terms of basic needs. The aggregate cost constitutes the low-income line	- Define low-income as a fraction of average or median income ( <i>e.g.</i> 50% of median)	- Incorporate a minimum income question in household surveys
<b>Examples</b>	- U.S. Social Security Administration Poverty Index	- International comparative studies often use this method	- Very few regular surveys adopt this approach
<b>Advantages</b>	- Permit analysts to quantify easily the effects of social programmes	- Allow cross-country comparisons because of its independence of a specific country's definition of basic needs	- Can avoid the problem of the arbitrary choice of basic needs
<b>Difficulties</b>	- Arbitrary nature of the choice as to what constitute basic needs - Difficulty in cross-country comparisons	- Relationship between low-income and poverty is less clear	- Cross-country comparison is extremely difficult

Source: FÖRSTER (1994), pp.7-10 cited in OECD (2001).

In its work on low-incomes in agriculture the OECD (2001) has outlined ways of measuring poverty among agricultural households in its Member Countries. The OECD's methodology is based on international practice and uses evidence from the Luxembourg Income Study (LIS) database for the mid-1990s to compare the degree of "low-income" in agricultural households to other households in the different countries. Twenty-one countries provided data, including thirteen of the EU-15; Portugal and Greece were unfortunate omissions. This is regrettable as, arguably, low-incomes among agricultural households are particularly problematic in these two countries. Both the "broad" and "narrow" definitions of an agricultural household were applied.<sup>1</sup> The sources of data for the LIS database are principally household (family) budget

<sup>1</sup> In the broad definition, a farm household is "a household whose farm self-employment income is not zero." In the narrow definition a farm household is "a household whose farm self-employment income is more than 50% of total household income." For the purpose of income measurement at the household level, disposable income was used, adjusted for household size (equivalence elasticity = 0.55) (see Förster, 1994). The low-income threshold was 50% of the median (disposable) income of all households.

surveys or panel surveys. Unfortunately, such general surveys have well-known deficiencies; they usually have few agricultural cases and the quality of income data is sometimes suspect, particularly where gaps in coverage of the components of income prevent full comparability between agricultural and other households. For these reasons Eurostat has so far declined to use them to generate microeconomic statistics on agricultural households. The desire to improve this data situation is, of course, one reason for assembling this Handbook. Having said this, the OECD's descriptions of statistical presentations of low-incomes are entirely valid and can form a template for application in situations where suitable data exist.

### **XI.2.1 Low-income rate (Cumulative proportions below percentiles of the median)**

The first method of presenting low-income often adopted in international comparisons is to ask what proportion of the population is below specified percentages of the median income. This proportion is often called the *low-income rate*. Though the results must be treated with caution (because of the quality of the basic data), some of the main features of the OECD/LIS analysis are worth noting. If the standard of low-income was taken as 50% of the median income of all households, and if the "broad" definition of an agricultural household was adopted, the incidence of low-incomes was much higher in agricultural households than in other households in nine countries (Australia, Denmark, France, Hungary, Ireland, Italy, Netherlands, Poland, Spain). The highest incidences of low-income were recorded in Hungary (33.8%), Australia (25.4%) and Ireland (24.6%). The largest differences in the percentage of low-income agricultural households and low-income non-agricultural households were recorded in Hungary, Poland, Ireland and Australia. The smallest differences were recorded in the Czech republic, Canada and Finland. However, if the "narrow" definition of an agricultural household was taken, the results were different. With the exception of Hungary, the Netherlands and the UK, the low-income rate among agricultural households was higher. Moreover (again when using the "narrow" definition), the number of countries where the incidence of low-income was higher among agricultural households than among non-agricultural households increased from nine to thirteen. These examples illustrate the importance of the choice of definition of an agricultural household to the outcome of the analysis.

### **XI.2.2 The low-income gap**

The cumulative proportions below given percentiles of the median (i.e. the low-income rate described above), provides useful information on the incidence of low-income. However, it does not capture the intensity of low-income. That is, it does not show how far the low-income households fall below a given cut-off line. The average low-income gap (ALG) is commonly used as an indicator of this intensity, and it is defined as the difference between the average income of the low-income households and the low-income line, as a percentage of that low-income line:

$$ALG = \frac{z - \overline{y}_q}{z}$$

where

$z$  = low-income threshold

$\overline{y}_q$  = average income of the low-income population

Using this methodology, the OECD analysis found that the low-income gap was bigger in agricultural households than in non-agricultural households in all the countries where data were available. This means the intensity of poverty was higher among agricultural households. Comparisons between the

income gaps calculated using the two definitions of an agricultural household found that the “narrow” definition produced a bigger low-income gap in all countries, although the extent of the widening of this gap varied amongst countries.

### **XI.2.3 Relative income level by percentile**

Low-income rates indicate the share of the population below specified percentages of the median. An alternative way to examine a distribution of income is to compare the income of households at selected percentiles with the median income.

For example, in Australia in 1994-1995 the median income (adjusted by household size) per household for all households was AU\$16,708. Agricultural households in the lower quartile, i.e. 25% up from the bottom, had a medium income of AU\$8,282 and expressed as a percentage of the median, was 49.6%.<sup>2</sup> The corresponding figure for non-agricultural households was 59.3%. These results can be interpreted as follows; the agricultural household income at its lower quartile was about half of the median income of all households and about 10% below that of non-agricultural households at the same quartile.

In the OECD/LIS analysis, if the lower quartile of both agricultural households and non-agricultural households were compared, seven of the countries had agricultural household income below that of non-agricultural households. If the “narrow” definition was taken, the number of countries which had inferior agricultural household incomes at the lower quartile increased to eleven.

### **XI.2.4 Cumulative decile shares - Lorenz curve**

*Relative income level per percentile* reveals relative income levels of households at certain percentiles compared to the median income. In order to understand the concentration of incomes, it is useful to know cumulative shares of total income.<sup>3</sup> The Lorenz curve is a familiar construction to illustrate graphically the concentration of incomes. It plots cumulative proportions of the population, from the poorest upwards, against the cumulative shares of income that they receive. If all incomes were identical, this would trace a diagonal 45 degree line (“line of perfect equality”). In the other extreme case - if the richest unit received all the income - the Lorenz curve would lie along the horizontal axis, and then along the vertical axis at the 100% income share (“line of perfect inequality”).

The Lorenz curve allows for an unambiguous comparison of the relative distribution in cases where the curves do not intersect. One distribution is unambiguously more equal than the other if every point on its Lorenz curve lies inside (upper-left) the other (the first has Lorenz superiority to the second). If two Lorenz curve cross, it is not possible to say which curve represents a more equal distribution of income.

In the OECD/LIS analysis, unambiguous comparisons between agricultural households and non-agricultural households were not always possible because the curves crossed. However, where this problem was not encountered, there were some interesting and mixed results. With both the “broad” and “narrow” definitions, non-agricultural households had Lorenz superiority over agricultural households in most countries, but with exceptions. When comparisons were made between the two ways of defining the

<sup>2</sup> This figure represents the upper bound value of the lower quartile.

<sup>3</sup> When drawing Lorenz curves, “bottom coding” may be necessary in order to avoid bias. If the adjusted disposable income of a household is negative, its income is adjusted to zero, and if the income is lower than 10 per cent of the upper bound value of the first decile, it is adjusted to that value (10 per cent of the upper bound value of the first decile). For example, if the upper bound value of the first decile in a country (adjusted disposable income basis) were \$2,000, all the adjusted disposable incomes lower than \$200 (10% of \$2,000) would be adjusted to \$200 (Atkinson *et al.*, 1995). The same adjustment is done for the Gini coefficients in the next section.

agricultural household, in most countries the “broad” definition produced a Lorenz superior result, though in Finland and Norway the “narrow” approach was superior.

### **XI.2.5 Gini coefficient**

A derived summary statistic used to characterize the distribution of incomes is the Gini coefficient. The Gini coefficient is defined as the area between the Lorenz curve and the 45 degree line as a ratio to the area of whole triangle. The Gini coefficient is 0 when all incomes are distributed equally and 1 (or 100 if expressed in a form more comparable with other indices) when there is perfect inequality. The Gini coefficient may be calculated from the formula:

$$G = \frac{2}{n^2 \bar{y}} \sum_{i=1}^n i(y_i - \bar{y})$$

where

$n$  = total population

$\bar{y}$  = average income

$y_i$  = income of the  $i^{\text{th}}$  household

In the OECD/LIS analysis a mixed pattern emerged, both between countries and when using the “broad” and “narrow” definitions of an agricultural household. In some countries the Gini coefficient was lower in agricultural households than in non-agricultural households, i.e. incomes were distributed more equally in agricultural households. For others, the reverse was true. If the results from the “broad” and the “narrow” definitions were compared, the Gini coefficient was higher when using the narrow definition in most countries, suggesting that the distribution is more equal when all households having some income from agriculture are included (see Appendix D of Ashok *et al.* (2002) for making adjustments to Gini coefficient calculations to allow for negative incomes).

### **XI.2.6 Sen index**

Finally, as an alternative summary measure, the Sen index can be considered. This was developed by Sen to combine the three indicators described above into a single indicator of poverty for a given poverty line. To recap, the three indicators of low-income are:

- Low-income rate - Cumulative proportions below percentiles of median: a proportion of the population is below specified percentages of the median;
- The average low-income gap: the difference between the average income of the low-income households and the low-income line (specified percentages of the median), as a percentage of that low-income line;
- Gini coefficient: area between the Lorenz curve and the 45 degree line as a ratio of the whole triangle that represents a degree of inequality in the distribution of income.



The Sen index consists of the head-count ratio multiplied by the income-gap ratio augmented by the Gini coefficient of the poor weighted by the ratio of the mean income of the poor to the poverty-line income level, and multiplied by 100 to be in a form comparable with other indicators. The Sen index is thus defined in the following way (Förster, 1994; p.21):

$$S = LIR \left[ ALG + \frac{\overline{y}_q}{z} G_p \right]$$

$$= LIR [ALG + (1 - ALG)G_p]$$

where

LIR = low-income rate (head-count ratio)

ALG = average low-income gap

$\overline{y}_q$  = average income of the low-income population

z = poverty line

$G_p$  = Gini coefficient of income inequality among the low-income population

In short, the Sen index can be interpreted as a weighted sum of poverty gaps of the poor. The values for the Sen index lie in the closed interval, with  $S = 0$  if everyone has an income above the poverty line, and  $S = 1$  (or 100) if everyone has zero income. The Sen index is useful for cross-country comparisons of poverty, because it combines the incidence, the intensity and the distribution of low-incomes in a single indicator.<sup>4</sup>

According to the OECD/LIS analysis, if the Sen indices of agricultural households (using the “broad” definition of agricultural household) and non-agricultural households that had less than 50% of the median income were compared, the Sen index was generally higher for agricultural households, i.e. the degree of poverty was greater. If the “narrow” definition of agricultural household was taken, the Sen index was also higher in agricultural households in all the countries where the data were available. However, for most of the countries, the Sen index was lower using the “broad” definition than it was when the “narrow” definition was used. That is, the degree of poverty among agricultural households was higher when using the “narrow” definition of an agricultural household.

### **XI.2.7 Warning in the interpretation of coefficients**

Though the Canberra Group (2001) report does not offer much detailed advice on the use of the different ways of measuring poverty or inequality, it makes some valuable comments on the care with which changes in coefficients over time (such as the Gini coefficient) have to be treated. The problems that may arise when attempting to identify trends include:

<sup>4</sup> Unfortunately because of a problem of sample size, a Sen index could not be calculated for several countries.

- **Two point trends.** Comparable household income microdata may only be available for two periods. Having two periods permits the user to estimate the change between them, but it may convey a misleading impression of the underlying trend. There is considerable danger in taking a very small number of years to extrapolate long-run trends.
- **Business cycle effects.** Because of cyclical variations in inequality, trends based on an arbitrary time period (e.g., 1980 to 1995) might produce misleading comparisons if its “fit” with the business cycle differs between nations. If trends in inequality are pro-cyclical - as is the case in the United States - peak (year) to trough (year) trend estimates are biased downwards while trough to peak trends are biased upwards. The opposite holds if inequality trends are counter-cyclical. Comparing peak-to-peak or trough-to-trough provides the least biased estimates and this requires a lengthy time series of estimates.
- **Mixing datasets and definitions.** The only ‘time series’ available may have been constructed using several income definitions and/or several datasets over time. In general, mixing cursorily different datasets to form a single trend is not recommended as the trend will reflect *both* the “real” inequality change *and* differences across datasets.

### **XI.3 Poverty lines and inequality measures in practice in agriculture**

All poverty lines are arbitrary. The choice of method of their determination depends essentially on the problem at hand and the dominant social values. The absolutist approach is now less in favour because of rising general levels of consumption and changed public perceptions of poverty. Bare physical subsistence criteria have been replaced by criteria relating to the ability to participate acceptably in the social system (Van Slooten and Coverdale, 1977). Another set of value judgements is involved when equivalence scales are used to apply poverty lines to families of different sizes and compositions. If the marginal needs of additional household members are given a low rating, then poverty among (often elderly) single-person households is emphasised more and family poverty is emphasised less. On the other hand, a high rating will make poverty appear more “rural” and, in the European context, more “southern.” Ultimately the setting of a poverty line is not an economic decision but a political one (Madden, 1975).

For practical purposes many countries utilize a poverty line in their general welfare policies, though it may not be labelled bluntly as such. Its practical implementation may involve measuring the cost of some single parameter, such as the necessary family expenditure on food, and extrapolating from this to the total income required to cover all purposes at the poverty level. The United States has used a poverty line developed from the USDA’s Low Cost Food Plan, the poverty line income being three times this on the grounds that average food expenditure comprised about one third of the typical family’s budget (the Orshansky index) (Orshansky, 1963). This was clearly inappropriate for farm families which produced more of their own food than the typical United States family, so the poverty line for farm families was set initially at 60% of the standard line (Bryant *et al.*, 1981). Criticism that, while food costs of farmers were lower, this did not necessarily apply to the other components in family budgets, resulted in the gradual narrowing of the farm/non-farm poverty lines to 85% in 1969 and its total elimination in 1981 (see Fisher, 1997a, 1997b and 1992). In Australia, the 1973 Henderson Poverty Enquiry used a farmer poverty line 20% below that for all families (Vincent, 1976). In Canada, the similar “low-income cut-off” is defined differently for rural and non-rural households (OECD, 1995).

There are problems associated with using an income base that is too narrow when assessing the extent of poverty, especially rural poverty. This is illustrated by the impact on the numbers of United States rural families classed as poor when the concept of income was widened to include unrealized capital gains and the value of non-market services provided by owner-occupied housing, home-grown food and

do-it-yourself activities in addition to annual money income (which is used in official United States statistics). All of these additional forms of income are probably more important for agricultural households than for non-agricultural ones and especially for poor ones (Gardner, 1975). This "full income" approach attempted to estimate the purchasing power available for consumption and saving in a normal year. In the absence of reliable data by which piecemeal corrections could be made to income data, Gardner used an intricate method based on rates of return on the factors (land, capital and human) used on farms. Because of this, substantial errors were probably involved, but the methodology gives a first approximation of the importance of taking a wider income view. In 1969, 20% of rural farm families were below the poverty line when using conventional income measurement. Taking a full income approach reduced this to the range 5% to 14%, depending on certain assumptions. Seven to eight percentage points of this reduction was attributable to a more equal distribution of farm incomes and a further five percentage points was due to a higher average income.

Poverty lines are easier to use where incomes are stable. The random variation in agricultural incomes from year to year, principally weather-related, means that in some years a farm family could fall below the line and in other years be above it. Classification on a single year's income, as is common in income distribution statistics, would be foolish. Evidence from Australia, Denmark and Germany (see Chapter IX.5) suggests that a distinction should be drawn between the core of farm households that are in a persistent low-income situation and those who suffer temporary low-incomes. While the former are likely to constitute a welfare problem requiring intervention with public funds, the latter are not. How far low-incomes have to fall, and for how long, before government action is justified is, of course, a matter of political judgement.

Despite methodological difficulties, one might have supposed that the importance of low-incomes to agricultural policy would have engendered a substantial effort by official statisticians to assess the number of farm families who fall below poverty lines. This is not the case. Only in the United States have figures for farmers who are in poverty been published regularly (though this has now ceased), and even these do not seem to have been of major importance in shaping agricultural policy. Other countries have occasional studies or pieces of research, though these are not numerous. The use of a poverty line for farm families in Australia, referred to above, was part of a special investigation that has not been repeated. The OECD study of low-incomes in agriculture (OECD, 2001) mentions only Belgium, Canada, Czech Republic, Ireland, New Zealand and Turkey as having national studies that have considered the distribution of incomes (household or individual). Even here, poverty lines do not often form part of the methodology. In most of the EU Member States the information by which such an exercise could be carried out is either not coordinated or simply not collected. One of the exceptions is Ireland where there are not only periodic studies of income distributions for farmers based on the household budget survey (which links with the National Farms Survey to improve data quality) but also special welfare payments for landholders whose incomes fall below specified thresholds (the Farm Assist Scheme, which is a means-tested social insurance scheme). Some 20% to 25% of landholders seemed to qualify in the 1980s.

In the absence of basic data, the matter of how best to calculate and use the poverty line and measures of inequality that may be of policy interest shrink to irrelevance. So too do the more modest ways outlined by the Canberra Group report (using graphical presentations, medians, quartiles and Gini coefficients). Nevertheless, it is to be hoped that further developments in this direction will be possible once data sources are in a more satisfactory state.

**This Handbook recognizes the usefulness of calculating the basic statistical characteristics of the distribution of incomes of agricultural households, including medians and quartiles, and measures of inequality and of poverty based on them.**

**The use of Lorenz curves, low-income rates etc. is encouraged, with comparisons drawn over time, geographically and between agricultural households (variously defined) and other socio-professional group, suitable attention being given to hazards in these comparisons. When setting income poverty lines no particular methodology is preferred, though accounts of the methods used should accompany results.**

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## XII MEASUREMENT AND COMPOSITION OF FARM HOUSEHOLD WEALTH

### XII.1 Introduction

Wealth is a potent component in the factors which determine the position of the agricultural community within society. Wealth is important because it gives rise not only to income in a variety of forms but because it also provides security, freedom of manoeuvre, and economic and political power. Within society as a whole, wealth seems to be much more unequally distributed than income and has a major influence on the overall degree of inequality (Atkinson, 1980). A political economy comparison of income and wealth distributions among farmers and the rest of society through time would be of great policy relevance in ways such as understanding the evolution of the accumulation of wealth through the life cycle of the household statistical unit, identifying important causes of wealth inequality specific to different social groups, and proposing methods for lessening the recent increase in the concentration of wealth (Juster and Kuester 1991; Juster *et al.*, 1999). How property ownership is regarded is an important part of any study of social inequality. "This is not only in the obvious sense that the distribution of material resources will in large part determine the character of that society's economic and political life, but also in the sense that such conceptions serve as important legitimising ideologies buttressing the stability of social life" (Newby *et al.*, 1978).<sup>1</sup>

In developing countries there is striking evidence about the large negative impact of assets (especially land), rather than inequality in wage incomes, on future growth (Deininger and Squire, 1998; Deininger and Olinto, 2002). They also point out that the unequal distribution of assets also affects the equal distribution of opportunities for building both physical and human capital assets in the future. In general, the distribution of assets is the key determinant of the income distribution (Alesina and Rodrik, 1994).

The importance of wealth as a contributor to the economic welfare of farm households in OECD Countries is well established. Attempts by governments to support the incomes of farmers tend to be capitalised into land values (the factor of production least elastic in supply), a phenomenon which results in landowning farmers and landlords often benefiting through capital gains (though this is probably not the intention) but with little improvement in incomes accruing to those without owned land. Changes in the value of assets (real capital gains) have been briefly mentioned as a component of personal income (Chapter X) for which measurement may be required.

However, the absolute value of wealth is also of interest. A common phenomenon in developed countries is for cases of low current income to be combined with substantial wealth, suggesting that the potential power of the household to consume will be misrepresented if only income is taken into consideration. A familiar pattern in developed countries is for the wealth of farmers to increase with age up to a plateau; in contrast, incomes first rise and then decline as old age is reached. Agricultural land is usually the main component among the assets. In part this wealth may represent provision for retirement. However, much of it is passed to succeeding generations, with important consequences for the distribution of assets in society. Succession in a family farm is an especially significant issue because, besides the transmission of

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<sup>1</sup> It should be noted that a multinational Luxembourg Wealth Study (LWS) now exists, forming a parallel to the Luxembourg Income Study (LIS), referred to at various points in this Handbook. The LIS, which began in 1983, has a database drawn primarily from household budget/income surveys and covers some 25 countries. The LWS, initiated in 2003, covers a smaller number of countries; publications of comparative studies of wealth distribution were intended to appear in 2005 ([www.lisproject.org](http://www.lisproject.org)).

assets, it involves the transfer of knowledge and management skills to the next generation, which may contribute towards maintaining farm household viability through time.

In developed countries statistics on the wealth of agricultural households are rarely available at present. In contrast, many countries have surveys of farm accounts, and these usually collect data on the value of assets used by the agricultural holding (farm business) and associated liabilities, enabling estimates to be made of their net worth. An important example is the EU's Farm Accountancy Data Network – FADN/RICA – that comprises individual national surveys in Member States using a harmonized methodology. Some countries (such as the United Kingdom) estimate aggregate balance sheets for their agricultural industries. There is some concern on both theoretical and practical grounds about the validity of balance sheets drawn up for such “fictional” units as the holding (Hill, 2000a). This centres on what an agricultural asset is (a particular problem when these serve both production and consumption functions, such as cars) and whether liabilities (which can only be transacted by real people or other legal entities) can be deemed to be attributable to the “holding.” There is also the issue of valuation of capital items, which will usually be according to market price, though, where no market exists or in some other circumstances, may be taken as use value or cost of production (Hill, 2000b). The valuation of farmland is a particular problem in countries in which there is public intervention in the land market, such as by restricting who can purchase or by applying differential rates of capital taxation according to the status of the new owner (OECD, 1998, 2004).

Many of these problems (though not that of valuation) are eased considerably if the complete household-firm is the unit for which the balance sheet is drawn up. Unlike the “holding,” the household is an institutional unit, and its net worth (wealth) will cover all its assets and liabilities. Though it will be important to be able to group the individual items by type and use, overall the picture will be more reliable as an indicator of the economic situation of the household and is likely to be a superior explanatory variable for behaviour, such as the decision to invest or to leave farming.

Any picture of the wealth of agricultural households will reflect the definitions chosen for the household and the classification system used to distinguish an agricultural household from one belonging to some other socio-professional group. These issues were discussed at length in the context of income measurement in Chapter IX and repetition here is not necessary. Consistency between the definitions used for the measurement of incomes and of wealth is obviously important when the two are to be combined to describe the economic situation of farm operators. However, it should be borne in mind that the complex patterns of asset ownership within families may mean that a definition of household that embraces a range of owners may be preferable and influence the decision about the appropriate unit for income measurement. For example, in a two-generation household where land belongs to the parents but farming operations are carried out by their children (who are the nominal earners of the entrepreneurial income), it may make sense to use the dwelling household as the basic unit for measuring both income and wealth.

One of the few developed countries capable of quantifying the household wealth of its farm operators, covering not only assets and liabilities associated with farming but also those held outside agriculture, is the United States.<sup>2</sup> Much of this chapter focuses on this example, which this Handbook regards as an illustration of “good practice.” Further details about the main data source used (the ARMS farm accounts survey) are given in Chapter XIII.3.1.1. Later the situation of statistics on the wealth of farm households in a range of developing countries is reviewed. The state of information there is often surprisingly good because the basic data are collected as part of general Living Standards Measurement Study (LSMS) questionnaires.

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<sup>2</sup> Another is Italy, though the number of agricultural cases in the Bank of Italy household survey is small. Some other countries, notably in Scandinavia, appear to have the necessary basic data but do not make estimates of wealth for their agricultural households.



### **XII.1.1 Wealth of farm households in the United States**

In the United States, wealth and the means by which farmers accumulate it have been of interest to policy officials, farmers, lenders, academics, and those with an interest in farming and rural affairs for many decades. In a 1923 American Economic Review paper, Gray reported an estimate of the net worth of farmers (Gray, 1923). This paper, prepared over eight decades ago, employed the traditional balance sheet accounting formulation: assets equal liabilities plus owner equity. Gray prepared an assessment of farm assets and liabilities to estimate net worth as the difference between assets and debt. Included in the measurement of assets were farm real estate, livestock, implements, crops on hand on January 1, the value of growing crops, and other items of farm capital such as supplies on hand and cash needed to run the farm. Farmer liabilities included the farm mortgage and debts other than those secured by real estate. Making this paper relevant to current considerations of household wealth measurement, Gray recognized that a complete accounting of wealth required an estimate of non-farm assets, and personal loans for such items as food and clothing. To estimate the net worth of farmers, Gray moved beyond the farm business to recognize personal and household assets and liabilities.

In the United States, balance sheet accounts were established for the farm sector in 1945 (USDA, 1945). Like Gray, the USDA balance sheet highlighted the need to include information for both farms and farm households. Thus, a consolidated balance sheet that included both farm and household items was developed. In 1980, the USDA created a new balance sheet account that separated the farm business and operator households. The balance sheet created in the 1940's treated the household and the farm business as a single entity. By 1980, the USDA recognized that many farmers were less dependent on farm income than previously. Likewise, household assets and income were influenced by factors outside the farm sector.

In this chapter, the uses made of wealth measures for farms and farm households are discussed. The reasons why estimates of net worth for farms are not synonymous with estimates of net worth for households that control farms are then highlighted. This is followed by a discussion of what is included in wealth measures developed for farm households. The chapter continues with a discussion of some added insights gained from wealth measurement as a companion indicator to household and business income statistics in the United States. The chapter concludes by looking at the measurement and composition of farm household wealth in developing countries.

### **XII.2 Selected uses of farm and household wealth measures**

With wealth estimates for farmers dating to the early 1900's, a key question becomes "why the long-standing interest in the development of measures of wealth for both the farm business and the farm household?" A summary of uses made of wealth measures for farms and farm households helps respond to this question.

There are at least three main uses of farm-level net worth information. The first addresses questions about asset ownership and management. Who owns the physical assets, particularly land, and who is farming the land? This reflects the issue of who owns or controls agricultural resources and is important to assessing changes in farm structure. A variety of public policy issues may arise from trends in asset ownership, including potential barriers to entry for farmers. Many of the benefits and costs of government policies are tied to asset ownership or control. Links between public programs and asset ownership raise issues about the distributive effects of government policies. A second use centres on the financial position, or solvency, of businesses and, when combined with income, establishing measures of business profitability and liquidity. When farms confront eroded asset values relative to debts or when they have insufficient funds to meet debt service commitments, farm failures may arise and erode the quality of lender portfolios.

Spillover of farm problems into the lending sector can affect rural communities more broadly, especially if banks begin to close or if they are unable to meet commitments to non-farm customers. A third use of farm wealth data focuses on access to credit. Of interest in the United States is the availability of credit and financial services to small and beginning farm businesses. Information about the farm balance sheet, particularly lender market shares among different sizes of farming operations, and net worth helps inform this issue.

Measures of farm household net worth have several uses in the estimation and analyses of household economic status and wealth management issues. These include: (1) providing information about assets which are an income source and debt which requires an expenditure from the household; (2) giving a measure of economic resiliency or the ability to withstand unanticipated financial shocks, including a potential source of funds to support consumption; (3) providing insight, based on the composition and accumulation of holdings, into how farmers build wealth; (4) establishing a capital stock to underpin decisions about retirement, financial security in later life, and the transfer of assets to a new generation of farmers; and (5) giving a basis for deriving more comprehensive measures of household economic well-being than can be attained through use of an income indicator alone.

As a source of income and expenditure of the household, assets and debts affect both the credit and debit sides of the household income statement. Assets are a source of property income in the form of interest, dividends, and rents. Assets may also be a source of service-related earnings of the farm holding that are in addition to income from production of agricultural commodities. Interest paid on debt is an expense, which may belong to the farm or to the household depending upon where debt is held. Taking into account the debt position and income level of the household may dramatically alter perspectives about the debt service capability of a farm business. Off-farm incomes of households, including property income, may make debt service commitments look less problematic than they would if made on the basis of farm earnings alone (McElroy *et al.*, 2002). But, household debt for non-farm purposes may also expose farm businesses to potential financial difficulty. Moreover, if a large share of household income is devoted to debt service, households have fewer resources for purchasing goods and services (Dynan *et al.*, 2003). Knowledge of the full set of assets and debts at both the farm and household levels, and total income from all sources, is necessary to accurately evaluate business and household solvency and to assess the ability of each to meet its financial commitments.

In addition to providing a potential source of property income and influencing debt status, measures of net worth provide a portrait of the economic resources available to households at a given point in time (Bureau of the Census (U.S.), 2003; Bureau of the Census (U.S.), 1994).

**Wealth is a measure of the level of financial or economic resources that a household and its members have available at a given point in time.**

Wealth provides a capacity to draw down assets to generate an infusion of funds to sustain consumption when faced with an unanticipated economic or financial shock or to respond to a new business opportunity. Given that farm households, on average, spend a large portion of available work time and other resources participating in off-farm activities, shocks can emanate from either the non-farm or farm sectors of the economy, as well as from a wide variety of household events. The ability of a household to adjust to a financial or economic shock may be enhanced by the ability to sell, lease, or redeploy assets such as land or other capital.

The composition of a household's portfolio may affect how it responds to changes in government policy or some other event. For example, a household that owns only machinery and equipment and leases land would not benefit from rising land values. In fact, if rents rise because of higher land values, the household may face higher costs and lower incomes. Meanwhile, households that own land may see their net worth rise. Of course, it is also possible, as the widespread United States farm financial crisis of the 1980's illustrated, for land values to erode. This left farms and their controlling or ownership households in a difficult financial position, if not bankrupt. Knowledge of the composition of household net worth provides a basis for evaluating how effects of public policy or changes in the farm economy may be transmitted throughout the farm sector and rural areas.

In addition to accumulating wealth as a precaution against financial shocks, households also save to support financial security in retirement. Information about net worth and its composition may help identify segments of the farm community that may encounter difficulty in sustaining consumption and meeting basic needs without significant ongoing sources of income from earnings or from transfers from government or other sources.

Wealth measures are also important to understand household economic well-being. Aside from using assets or wealth in current production or to generate income in the form of interest, dividends or rents, a household can also realize gains or losses from the sale of assets. Even if not sold, household wealth could be converted to an annuity value and combined with income to provide a more robust estimate of consumption that household resources could support if assets were converted to cash. Hathaway makes this point by noting that, "changes in real wealth due to changes in asset values have much the same characteristics as current income in that they can be saved (i.e., used to increase net worth) or they can be consumed (via sale or borrowing) without decreasing net worth (Hathaway, 1963). Whether taking stock of performance or debt service capability, examining the ability to sustain consumption and provide for basic living needs, or deriving indicators of economic well-being, household wealth measures improve the perspective (gained solely from the use of income measures or farm business measures) of the economic status of farm households and their members.

### **XII.3 Differences in wealth measurement for farms and farm operator households**

Farm households can be defined in a wide variety of ways. For example, in the United States, a farm household is defined as the domicile of the primary operator of the surveyed farm establishment. This includes individuals living in the operator's residence who share the financial resources of the farm operator. A shortcoming of the United States' farm household wealth collection through the Agricultural Resource Management Survey (ARMS) is that data are collected only for the primary operators of United States farms and their households. Ideally, data used to construct household wealth estimates would provide coverage for all households contributing assets and sharing in production risks. To provide the flexibility needed to classify households, data regarding the characteristics of households, household members, and the farms they operate are also collected. This enables households to be categorized into groups needed to address specific questions.

### **XII.4 Connection between farms and households in wealth measurement**

Farm households accumulate wealth through a variety of avenues. One way is to consume less than is earned over a period of time. Another is through increasing asset values, due to changes in the conditions

governing supply and demand for the asset and changes in the services associated directly or indirectly with the asset. A third way is through gifts, transfers or inheritances. The concept underlying the collection of data to measure wealth and wealth accumulation of farm households is that the farm can be separated from the households associated with farming. The farm business is viewed as an establishment, or an economic unit, that produces agricultural output or other goods and services. Operators of farms use assets acquired from households and other legal entities to generate output and contribute to value added within the economy (see Figure XII.1). As business establishments, farms utilize assets provided by multiple legal entities, including households and other businesses. Likewise, farm households may decide to allocate their assets in a variety of outlets. The farm business may be only one component of the household portfolio.

Business linkages are not only important in establishing the flow of resources to the farm, but are also valuable in helping understand the distribution of farm income and wealth. For example, of the 2.1 million U.S. farms in 2002, 209,000 rented land under a share-rent arrangement. Under typical share-rent arrangements, landlords provide a share of operating inputs in addition to land. Yet, other farms are organized as partnerships or family corporations and over 50,000 grew commodities under a contract arrangement with another entity. The variety of business organizations and arrangements being used by farmers suggests that the net worth of either the farm sector or farm businesses cannot be assumed to belong entirely to farm households. Data collection must discern whether all farm assets and liabilities accrue to a single, or primary operator's household (see Figure XII.2). Meanwhile, households allocate their own resources to multiple uses. This means that measures of farm household wealth need to reflect portfolio decisions that take into account assets and/or liabilities outside the farm (see Figure XII.3).

## **XII.5 Data to support estimates of household net worth**

Farm households use a wide variety of livelihood strategies, saving, and investment choices. This means that both farm and non-farm sources of wealth should be considered in constructing estimates of household net worth. Each segment of the household balance sheet has its own challenges and can be inherently difficult to measure. Work with data for all United States households has demonstrated that wealth is not simple to measure (Bowles and Bosworth, 2001). Households typically have a list of assets and multiple sources of both business and personal debt (see Table XII.1).

**The Handbook recognizes that farm households may have multiple sources of farm and non-farm assets and/or liabilities. To help ensure accuracy and completeness of estimates, net worth measures should take into account both farm and non-farm sources of wealth. Estimates of net worth should also recognize that farm wealth may not be entirely owned by farm households.**

Estimates of net worth for United States farm households can be developed from two major surveys: The Survey of Consumer Finances (SCF) and the Agricultural Resource Management Survey (ARMS). The SCF is a cross-section survey conducted every three years by the Federal Reserve (Kennickell, 2000). Since the focus of the SCF is on household wealth, it contains detailed questions on financial assets, non-financial assets, and debts. The SCF contains limited information about linkages between farm businesses and their households. Sample size also limits its use in examining wealth for farm households. In 2001, the latest year available, fewer than 300 farm households were included.

**Table XII.1**  
**Average wealth of farm operator households by farm typology group, 1999**

Item	Limited-resources	Retirement	Residential/lifestyle	Farming occupation/lower-sales	Farming occupation/higher-sales	Large	Very large	All
Number of farms	127,738	297,566	931,259	479,925	175,370	77,314	58,403	2,147,576
Per cent of farms	5.9	13.9	43.4	22.3	8.2	3.6	2.7	100
Farm total assets	84,147	347,772	299,934	512,282	810,706	1,230,336	2,212,028	468,385
Farm total debt	6,590	7,002	28,398	32,561	109,313	205,558	442,800	49,322
Farm net worth	77,557	340,770	271,536	479,720	701,392	1,024,778	1,769,229	419,063
Operator household share of farm assets	83,600	336,644	290,023	485,049	747,020	1,103,458	1,799,418	435,438
Operator household share of farm debt	6,534	6,913	27,938	31,683	104,470	190,427	368,129	45,939
Operator household share of farm net worth	77,066	329,731	262,085	453,366	642,551	913,031	1,431,288	389,498
Operator household off-farm assets	66,752	218,860	236,907	161,769	132,167	199,793	259,502	198,219
Cash, money market accounts, etc	17,542	61,028	36,898	46,193	32,556	38,343	49,228	41,200
IRAs, Keough, 401K, etc	11,969	50,939	67,447	38,539	27,555	39,439	50,138	50,663
Corporate stock, mutual funds, etc	12,590	50,838	48,774	36,126	35,830	61,065	70,145	44,048
Other nonfarm assets	*24,650	56,055	83,788	40,912	36,225	60,945	89,993	62,309
Operator household off-farm debt	5,872	12,151	37,248	17,558	13,004	27,644	32,919	25,061
Operator household off-farm net worth	60,880	206,709	199,659	144,212	119,162	172,149	226,584	173,159
Operator household net worth	137,945	536,440	461,744	597,577	761,713	1,085,180	1,657,872	562,657

Source: 1999 USDA Agricultural Resource Management Survey.

\* indicates that the standard error of the estimate is greater than 25 per cent and less than or equal to 50 per cent.

The ARMS is an annual cross-section survey that contains information about the farm, the farm operator and his or her household. Income, consumption, and wealth are collected concurrently from the same sample unit. Estimates of farm household wealth produced by the USDA rely on the ARMS since all types and sizes of business operations are included along with the households of the primary or senior farm operator. SCF results provide a basis for comparing estimates of wealth for farm households derived from ARMS with estimates for all United States households.

To construct estimates of household net worth, data collection starts with the farm business. The goal is to measure the value of business assets by component, to identify liabilities, and to establish ownership and control of assets used in production. The largest and most important component of farm business assets, land, is valued by asking for the values of component parts. This is done for two reasons. First, dwelling values, especially the operator dwelling, are used to impute an annual rental value that becomes a part of the estimates of income. Second, the value of land and buildings rented to, and rented from, others helps determine the amount of assets controlled in the business operation. The farm business balance sheet is completed by asking about other assets used in the business. Beginning and end of year values are determined for crops, livestock, production inputs, costs sunk into growing crops, and accounts owed to the business. End of year values are collected for items such as tractors, machinery, trucks and cars owned by the operation. For trucks and cars, an effort is made to obtain the share of their value that is associated with the farm. End of year values of assets are used in constructing the business balance sheet. Change in value from beginning to end of year contributes to value added and to the development of an accrual based measure of business income.

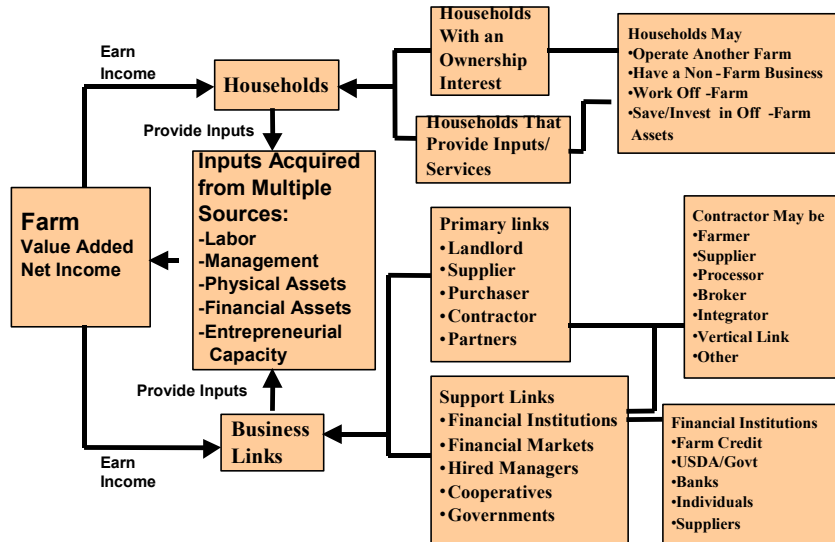
Farm debt is collected next, following the organization of a standard balance sheet. First, inquiries are made about loans taken and repaid during a calendar year. Not all farms have loan balances. Many do use loan funds during the year, but repay them by year-end. Collecting information about intra-year production loans helps put interest expense reported for the farm into perspective. For the five largest loans, sufficient data are collected to estimate the amount of debt service on the loan. Details about the purpose of the loan are established, including the per cent for farm purposes. These questions help align the estimate of farm debt with asset values and with business net income.

Once farm asset values and debt have been established, farm net worth is calculated by subtracting debt owed by the farm from total farm assets. When there are multiple farm households associated with a business, farm net worth is allocated among households to avoid overstating wealth estimates for any one household.

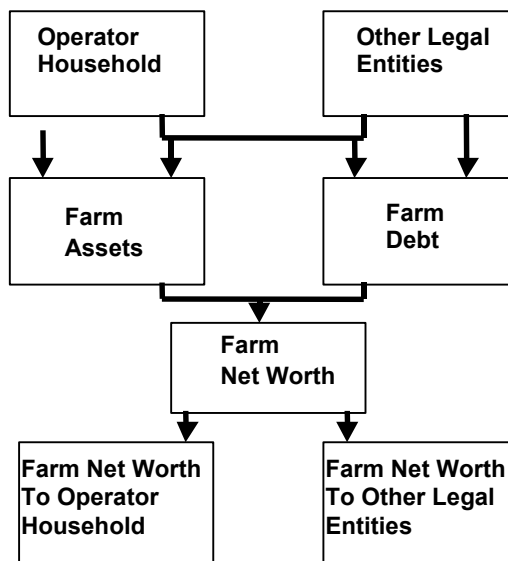
To complete an estimate of net worth for the household, the value of non-farm assets and debts are collected. As with the farm business, the ARMS is designed to inquire about household non-farm assets first. Non-farm assets are grouped into four categories: financial assets, business holdings, real estate, and other assets not reported elsewhere.

Asset values are followed by household debt owed outside the business. Like assets, debt is collected in four parts. The ARMS obtains information about mortgages on the operator's dwelling. Dwelling values are included in the farm balance sheet if the dwelling is owned by the farm. If it is not a part of the farm, the dwelling is included in household assets and debt is reported as a part of household debt. The remaining debt questions ask about other real estate loans, debt associated with other businesses that are not part of the farm, and personal loans such as credit cards, automobile loans, or any other household debts. Non-farm asset values combined with non-farm debt give an estimate of farm household net worth from non-farm sources. Household net worth is the summation of farm and non-farm components.

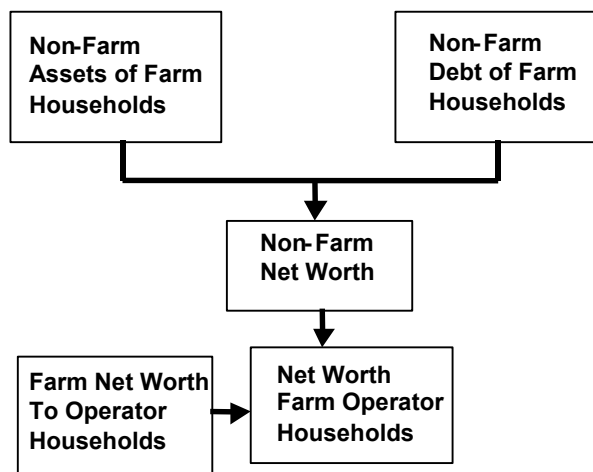
**Figure XII.1**  
**Modern Farms Use Inputs from a Variety of Sources who in return share in Output and Income**



**Figure XII.2**  
**Households Share Farm Net Worth with other providing Inputs**



**Figure XII.3**  
**Operator Households' Net Originates from Farm and Non-Farm Assets and Liabilities**



To facilitate collection of non-farm assets and debt, the respondent is not asked to report specific dollar amounts. Instead, respondents are asked to select from among 31 codes that reflect a dollar range. Codes for dollar categories have been used to report off-farm income, assets and debt, and consumption expenditures in the ARMS since 1986. Experience suggests that reporting codes have made questions viewed as personal less intrusive to respondents and enumerators. As a result, there is little non-response on these items. Refusal codes also help distinguish between a valid zero and a known positive (but missing) value thereby improving estimates of household wealth. Codes for dollar categories have also been used in other data collections to help facilitate reporting of household wealth data (Jappelli and Pistaferri, 2000).

**The Handbook recognizes that household net worth is the summation of farm net worth (assets minus debts) and non-farm net worth (assets minus debts).**

## **XII.6 Extending analyses of household economic status and well-being**

Measures of wealth can complement use of money or other income measures for evaluating business or household economic or financial performance. This section discusses how household wealth estimates can help extend analyses of household economic well-being based on income measures.

**Capital gains as income.** Household incomes may include income from property and transfers. Realized property income has typically been included in measures of household income as interest and dividends. Household assets, whether associated with their farm or in other forms, may be subject to gains



or losses in value from a variety of macro- and microeconomic events, policies, or programs. Whether or how capital gains should be considered in the measurement of farm or household income is open to discussion (see Chapter X of this Handbook, and Hottel and Gardner, 1983; Brinkman, 1980; Hill, 2000b, 2002; Canberra Group, 2001).

At the household level, if net worth increases during an accounting period, the increase results from household savings, receipt of transfers, or changes in the marketable value of holdings. Given a similar starting point, households with increases in net worth are likely to be in a better longer-term financial position than are households with static or declining net worth. In examining the well-being or longer-term viability of households, it may also be helpful to know whether any drawdown in wealth levels was planned (making use of resources accumulated in an earlier period) or involuntary (the result of some shock).

While the Canberra Group did not include the value of unrealized asset gains in either the ideal or practical measure of disposable income advanced in its report and recommendations, it did recognize that such gains could have a significant impact on household economic well-being. The Canberra Group noted that including an imputed income stream from these gains would provide additional perspective of the household's command over resources. The group also noted, however, that if the focus is on whether a household can meet its everyday needs, the relevant approach is to include only realized gains and losses on holdings. The Group recognized that collecting data needed to estimate capital gains through surveys would be difficult and would increase respondent burden. They recommended the use of a satellite account to report income estimates that included measures of capital gain (Canberra Group, 2001).

The United States Census Bureau recently released a satellite account that extends money estimates of income for all households in the United States to include realized gains and losses (Denavas *et al.*, 2002). The Census Bureau has also begun to recognize the effect of including unrealized capital gains in measures of income, at least to the extent that including an annuity based on equity held in home ownership is reflective of property holdings.

**Household savings.** Farming, as largely a self-employment industry, faces a variety of business and financial risks. Business risk arises from changes in production or prices, while financial risk emerges from the fixed financial commitments of the farm. Savings help add to household wealth and provide a buffer or cushion to manage either planned expenditures, such as educating children, or unplanned events, such as crop failure or a medical problem confronting a household member. For both planned and unplanned events, savings provide a source of household liquidity. In addition, accumulated savings provide a source of financial security in later life when earned income is typically lower.

Savings are a measure of flow over a defined period. In contrast, wealth is a measure of stock defined at a point in time. Savings can be measured in several ways (Juster *et al.*, 1999; Mishra and Morehart, 1998). One way is to take the difference between household income and expenditures, establishing a direct link between household earnings and wealth accumulation (see Chapter X). A second method is to sum new funds put into household assets with the amount of debt that has been repaid. Or, alternatively, savings can be measured as the difference in net worth during a period of time, revised to reflect gains or losses in asset values and transfers received by the household. Considerable difficulties with respect to survey use have been recognized for the last two measurement methods (Juster *et al.*, 1999).

**Measures of household well-being.** An individual's economic status has been defined as command over the potential to consume goods and services (Hill, 2000b, 2002). Measures of **economic well-being** that include all potential sources of income from the use of labour and owned assets have been calculated for households (Chase and Lerohl, 1981; Carlin and Reinsel, 1973; Wolfe *et al.*, 2004a; Wolfe *et al.*, 2004b; Salant *et al.*, 1986). In this case, the ability to acquire goods and services is viewed as being reflected not

only in the money income available to the household but also by the money that could be raised by converting the household's stock of assets to income. This could be accomplished in a variety of ways, including drawing down savings, selling assets, or borrowing using assets as collateral.

The ARMS has been used to jointly consider income and wealth in assessing the economic well-being of farm households in the United States. One approach involves qualitative categorizing of household income and wealth based on median non-farm household levels of income and wealth (McElroy *et al.*, 2002; Mishra *et al.*, 2002). Farm households were grouped depending on whether they had higher or lower amounts of income and wealth when compared with the median for non-farm households.

Another approach yields a quantitative measure whereby estimates of wealth are converted to an annuity and the annual equivalents of annuity payments are summed with estimates of annual money income. Challenges in determining an annuity value of wealth include decisions about the length of life expectancy, rate of interest, and measure of net worth. A particular problem in determining life expectancy for households occurs when assets are owned by operators and another person or persons. In these cases it is difficult to decide whose life expectancy to use. For example, in the United States, information about farm household money income and wealth has been used to produce an index based on a two-dimensional measure of economic well-being. This is achieved through use of a formula such as the following:

$$\text{Economic Well-Being Indicator} = \text{Household Income} + \text{Annuity Value of Net Worth}$$

Formulas used to generate an annuity typically require the choice of a finite time horizon. One option is to assume that no household would consume assets at a rate that would leave household members in an impoverished state. The measure of net worth to use is also an important consideration. Farm households, like other self-employed households, own assets that provide the basis for generating current money income. To avoid double counting, farm production assets and household durable goods are generally excluded from measures of net worth used in constructing composite indicators of well-being.

**Farm household portfolio composition and liquidity.** Liquidity is concerned with the ability of households to generate enough funds to meet financial obligations as they come due. It is measured by examining the farm and household balance sheets to determine whether current assets, if sold, would be sufficient to pay current liabilities. Financial analysts usually use the term "current" to mean some relatively short period of time of up to a year. The relationship between current assets and liabilities provides an indication of the amount of internal capital farm households have available for business and household operation. With households allocating financial resources to farm and non-farm uses, an accurate perspective of the amount of funds available for the business to acquire a needed input, to handle an emergency, or to repay a short-term debt may require information about both farm and household sources of assets and liabilities.

Farm households maintain a varied portfolio of assets, however, farm assets, and particularly farmland, still dominate their balance sheets. With diversified household portfolios, the degree of solvency of farm businesses that can draw on household assets or liquidity may be under estimated by looking solely at farm business balance sheets. Non-farm net worth may be used to relieve farm liquidity constraints. The opposite situation can arise when farm equity is used as collateral for consumption or to fund non-farm enterprises. Moving from a business to a household perspective, composition of the portfolio indicates household's use of funds and funding priorities, particularly as they move through stages of the farm-family lifecycle.

## XII.7 Measurement and composition of household wealth in developing countries

Measurement of household wealth in developing countries utilizes the same financial concept implemented in other countries. Household wealth is the difference between the value of all assets, farm and non-farm, owned by the household and liabilities owed by the household to any of a variety of lenders. Differences in estimation may lie mainly in the types of assets owned by households and the sources of debt utilized. Information on household wealth for developing countries comes principally from separate modules within their Living Standards Measurement Study (LSMS) questionnaires, in particular those covering their (non-agricultural) household enterprises, agriculture, savings, and credit. This subsection presents a brief description of the existing measurement of rural household assets and liabilities, as captured by multitopic LSMS household surveys in a small sample of developing countries.

### XII.7.1 Household enterprises module

Among developing countries LSMS questionnaires mostly contain a module exploring the dynamics and activities of **non-agricultural household enterprises** (which, for simplicity, are referred to in Chapter 18 in Grosh and Glewwe (2000) as “household enterprises”). These modules gather information on the portion of a household’s income and employment derived from non-agricultural self-employment. More extensive versions have also collected information on the involvement of household enterprises with credit (Vijverberg and Mead, 2000). Most household enterprises fall into one of two major categories: Many, probably the majority, of these enterprises generate only minimal income that is barely sufficient to enable their owners to survive; examples are food preparation, sewing, shoe shining, and street vending. Other household enterprises, sometimes referred to as *microenterprises*, generate incomes that are substantially higher. In contrast with survivalist enterprises that rely almost exclusively on unpaid family members (and often consist of one person working alone), microenterprises are more likely to use hired workers. Examples of microenterprises are furniture making, manufacturing, and wholesaling (Vijverberg and Mead, 2000).

Business assets are an important determinant of the performance of an enterprise. Enterprise performance can be measured not only by labour productivity or by the absolute amount of income generated but also in terms of the percentage return to investments in the enterprise. And an enterprise’s start-up and subsequent performance depend heavily on the entrepreneur’s ability to acquire the assets needed to be competitive in the sector. If one of the purposes of a particular survey is to investigate the credit needs of small-scale private enterprises, it is important to collect information about business assets.

Business assets come in two forms: fixed assets and inventories. **Fixed assets** include land, buildings, tools, machinery, furniture, and vehicles used by the labour force. **Inventories** consist of raw materials, intermediate goods that need to be further processed, and finished products ready for sale. While recent enterprise income can be analysed using the current value of business assets, in order to analyse income over 12 months, additional information on sales and purchases of assets is needed.<sup>3</sup> For land and buildings, any expenditure on improvements may be counted as assets purchased. The “normal” quantity of inventories is difficult if not impossible to measure, hence the LSMS questionnaires ask only for current values. Asking for current market value of assets is a common practice in preparing balance sheet estimates for businesses and households.

<sup>3</sup> Assuming that transactions took place on average a half year ago, the typical value of business assets in use over the past 12 months can be approximated by the following:  

$$([\text{current value of assets}] + [\text{value of assets sold}])/2 - [\text{value of assets purchased}]/2.$$

For many purposes, the most important question about fixed assets is not so much what assets are **owned** by the enterprise but rather what assets it **uses**. An entrepreneur may rent, own, or borrow assets from a neighbour or relative or from another enterprise operating in the household. Experience with previous LSMS data sets indicates that a significant proportion (about one fourth) of household enterprise owners report owning no assets, and those that do own assets often share them with household members or with other household enterprises; this is particularly the case with vehicles. If an asset is shared, it contributes not only to the income of the enterprise that owns it but also to the income of other enterprises that use it or to general household welfare. In light of this fact, it is necessary to devise a way to account for the complex sources and uses of business assets (Vijverberg and Mead 2000).

### Box XII.1

#### Modules on (non-agricultural) household enterprises

The **China** Living Standard Survey (CLSS), 1995-1997, gathers data on household non-farm businesses for the *three* most important enterprises operated by the household. It collects data on the ownership, type of business, investment and its sources for each enterprise. It also records information on **assets** and inventory.

The **Côte d'Ivoire** Living Standards Survey (CILSS), 1985-1988, collects information on the *three* most important businesses per household. Information on **the value of productive assets and stocks** is also recorded.

The **Ghana** Living Standards Survey round four (GLSS 4) 1998-1999 gathers information on **assets** of the non-farm enterprise and solicits information on 'net income and inventory of enterprise'.

The **Morocco** Living Standards Survey (MLSS), 1990-1991, provides information on the identification of home enterprises; on fixed-place (home or shop) enterprises expenses; ambulatory enterprises expenses; enterprises with formal accounting procedures receipts; enterprises without formal accounting procedures receipts; capital and loans.

The **South Africa** Integrated Household Survey (SAIHS), 1994, asks about whether any member of the household owns other property or a share of other property (e.g. business property); how much it is worth; and whether any rent is being received.

The **Vietnam** Living Standards Survey (VLSS), 1997-1998, collects information on ownership, sales and purchases of **assets** and other durable goods.

The **Zambia** Living Conditions Monitoring Survey (ZLCMS), 1996, asks about what assets the household owns. This refers to **household assets** that are in good working condition and are used by the household in the production of goods and services. In the event an individual is running more than three activities the respondent is asked to specify up to *three* of the most important business activities.

## XII.7.2 Agriculture module

The agriculture module in LSMS surveys includes only the activities of the farm that involve crop (annuals and perennials) and livestock production. It omits hunting, fishing, and gathering activities as well as the processing of agricultural products. Those activities can be treated as non-farm enterprise activities and should be included in the household enterprise module of an LSMS.

The agricultural module has generally had several objectives: measuring net income from the household's production of crops and livestock; and measuring **the value of household agricultural assets** such as land, animals, and equipment etc. (Reardon and Glewwe, 2000).

**Box XII.2****Modules on agriculture – selected developing countries**

**China** records information on different **agricultural inputs and agricultural assets**, e.g., farm machines and equipment.

**Côte d'Ivoire** records for each type of livestock the number of and value of **livestock** currently owned and the number of and value of livestock sold, purchased and lost over the past year. It asks for a list of the main small **tools** used and owned by Ivorian farmers. It also asks about the value of the current stock of each type of **farm equipment** (not tools) such as tractors, carts, vehicles and draft animals

**Ghana** covers **agricultural assets** such as land, livestock and equipment. The land referred to covers all **land owned** by the household whether for agricultural or non-agricultural purpose, including land rented out to other persons.

The **India** – Uttar Pradesh and Bihar – Survey of Living Conditions (ISLC), 1997-1998, seeks information on livestock owned and **farming assets** owned.

**Morocco** asks about the size and current value of the land plots; the ownership and income of livestock; and agricultural equipment and loans.

**Peru** asks about the market value of any agricultural equipment that is owned.

**South Africa** asks about the persons in the household having the right to use (having access to) any land for arable farming or for stock farming. It also asks whether the household owns, or farms with, any **animals** and seeks information on the presence of poultry of any kind. Furthermore, it asks whether the household owns mechanized **farm equipment** or non-mechanical farm tools.

**Vietnam** collects information on household's control over different plots of **land of different tenures**. It collects information on **livestock, poultry and other animals** that are either consumed by a household or generate income. It collects information on **hand tools**, and information on **implements and farm machinery** owned by the household, and any rental revenues obtained from them.

**XII.7.3 Savings module**

The savings module is an essential part of a multitopic household survey like the LSMS. This module gathers data on **the value of the household's stock of financial assets**. Such data are necessary to accurately estimate **household wealth**. And the savings module can collect information on both the types of financial assets held by households and recent transactions in such assets during the period of the survey, providing information that is directly relevant for analysing household savings (Kochar, 2000).

The savings modules in most multipurpose household surveys (including many LSMS surveys) typically collect information only on **financial assets and liabilities**. The data set generally includes information on the household's **non-financial assets** in other modules of the survey (Kochar, 2000).

It is widely believed that **the low return on assets** in developing economies partly reflects the fragmented nature of capital markets and, hence, the inability of households to hold assets that yield the highest rates of return. The levels and (especially) the forms in which households save affect household incomes, particularly in countries where agricultural or non-farm enterprises constitute a major source of household income (as is the case in most developing economies).

Income from agricultural or non-farm enterprises reflects, in part, the household's **ownership of physical capital or "productive" assets** such as the machinery and tools used in such enterprises.

Investment in such assets represents an act of saving, thereby linking savings and portfolio choices to household income (Kochar, 2000).

As noted above, there are alternative ways to measure savings: two of these are by subtracting consumption from household income or by observing changes in stocks of individual assets. For this reason, data on financial assets are best collected in the savings module. There are **difficulties** inherent in each of the two ways of measuring savings. A lack of data on important assets is a problem when measuring savings using data on asset transactions. And the difference between income and consumption does not always provide a reasonable estimate of savings, often because of weaknesses in the design of the income and consumption modules (Kochar, 2000).

Data on stocks of assets are also necessary to estimate **household wealth**. Experience has shown that the accuracy of estimates of household wealth can be improved if households are asked about the value of different types of assets rather than being asked to provide an estimate of their total wealth (Kochar, 2000).

**Box XII.3**  
**Savings modules**

**China** asks the household to list different places (e.g., banks, credit union, loan to enterprises) to put away money which will not be used for a while, and to estimate the maximum amount of money that could be taken from own assets when faced with, for example, some kind of disaster or the need to build a new house.

**Côte d'Ivoire** records the total value of all savings.

**Ghana** collects information on loans, assets and savings information about the household's savings account and the current value of savings is collected.

The **Jamaica** Survey of Living Conditions (JSLC), 1997, included questions about how often the respondent saved, financial assets, and other assets.

**Vietnam** asks households to list different **types of savings**, if any. The respondent is also asked to total the current value of all the different forms of savings that he/she has.

#### **XII.7.4 Credit modules**

Not covering all of the sources and types of credit in a multitopic household survey can lead to serious mis-measurement of credit use. Thus it is essential for surveys to ask questions about every conceivable source and variety of credit to ensure that the full extent of credit use is accurately measured. While basic information on borrowing has been collected in many past LSMS surveys, few surveys have included detailed questions about credit sources or even general questions about using supplier credit for productive purposes. Questions on the use of supplier credit have most frequently been found in inquiries about agricultural enterprises, but even in these cases very few questions were included (Scott, 2000).

Analysis of the data from the few surveys that have addressed this issue in depth have shown that it is vital to include explicit questions about the sources and types of credit and about the purposes to which it is put (see Table XII.2). Only when these questions are included will surveys yield enough data to give an accurate picture of total credit use (Scott, 2000).

**Table XII.2**  
Types of Credit Information Obtained by Selected LSMS Surveys

Country	Loans				Trade credit					
	Mortgage	All loans	Specific loans	By source		Agriculture	Non-agricultural enterprises	Food	Other consumption	Service
				Implicit	Explicit					
Ecuador 1994	○	●	● <sup>a</sup>	●	●	●				
Ghana 1987/8	○	●	●	●	●	●				
Ivory Coast 1985	○	●	●	●	●	●				
Kyrgyz Rep. 1996	○	●	●	●	●	●	●		●	
Peru 1985	○	●	●	●	●	●				
Pakistan 1991	○	●	●	●	●	●	●	●		
South Africa 1994	○	●	●	●	●			○	○	
Vietnam 1992/3	○	●	●	●	●	●				

● Indicates that the questionnaire contained thorough questions on this topic.  
○ Indicates that the questionnaire partially covered this topic.  
a. Only agricultural loan information was collected.

Note: This table only shows whether each questionnaire included questions asking if the household had obtained credit of a specific type. The table does not show whether the design of the questionnaire would yield the data necessary to calculate the size of the loan, the total cost of credit, or other loan terms.

Source: Relevant LSMS questionnaires.

#### Box XII.4 Credit modules

**China** collects general information on the number of different sources the household has ever borrowed money from. Information on the amount of the loan, interest, collateral requirement, repayment schedule and reason for borrowing is requested for each instance of borrowing. The survey also gathers information on enterprise **debt and its structure** (e.g., bank loan, loan from collective or cooperative foundation, and private loan).

**Côte d'Ivoire** records the total amount of **loans** provided by the household to others, total amount **borrowed** from institutions or from other people.

**Ghana** obtains information on loans contracted or negotiated by the household in terms of money or goods.

**India** aims at ascertaining **the net debt position of the household**. The total amount currently outstanding that the household owes to others is also recorded.

**Morocco** asks questions about borrowing, lending and savings.

**Peru** asks about any financial transaction undertaken in the last 12 months; the amount of the **loan** remaining to be paid.

**South Africa** asks whether any member of the household **owes cash or goods** to any institution or to an individual who is not a household member; the amount owed; and the monthly payment.

**Vietnam** collects information on the amount of **indebtedness** of household members to people or institutions outside of the household. If money or goods have been borrowed, or borrowed and repaid by any household member in the last 12 months, information is collected on those loans, including the source and amount of loan, interest, side payments, collateral, repayment schedule, reason for borrowing, and number of loans from the same source. It also collects similar information on the amount household members have lent to people outside of the household.

## XII.8 Conclusions

In developed countries, while balance sheets for farm businesses are frequently encountered in association with surveys of farm accounts, information on the wider assets, liabilities and net worth of the households that operate farms is confined to a very few. This represents a substantial gap in knowledge about the economic situation of farm household-firms and one which is of significance both to agricultural policy in OECD Members and to explaining behavioural responses and adjustment patterns. The importance of agricultural land to the asset mix and the relevance of changes in its value to the longer-term rewards earned by its owners, in turn a reflection of the support policies applied to agriculture, makes the present information lacuna particularly worrying.

The results that are obtained for household wealth are dependent on the definitions adopted for a household and the basis of classifying them into agricultural or non-agricultural. This parallels the situation experienced when measuring incomes, and there is no need to repeat the issues covered in Chapters IX and X. A range of specific issues relates to asset identification and valuation, but a detailed exploration of these must await a subsequent edition of this Handbook. It is anticipated that the Luxembourg Wealth Study may be useful in pointing to a harmonized wealth methodology for agricultural households, performing a role similar to that of the Canberra Group in household income measurement (see Chapter X). Another similarity with income statistics is that data sources vary between countries. The extension of farm accounts surveys to cover household wealth (in addition to agricultural assets and liabilities) has attractions for some countries, though there are well-known difficulties in securing information about households from a survey based on farms (see Chapter XIII). Some countries may prefer other types of microeconomic data sources, such as administrative registers or household surveys. A detailed review of potential data is an obvious next step which a later Handbook should consider.

In developing countries, notwithstanding some non-sampling measurement error problems, the work done in the countries cited in this chapter suggests that it is already feasible to construct balance sheets for the agricultural households found there. A possible format is provided in Annex 8.

Despite the relatively limited state of development of wealth statistics compared with income statistics (though household incomes are by no means yet at a satisfactory state in many countries), it is possible to make a clear statement of the desirability of having them.

**This Handbook recognizes that the wealth situation of the households that operate farms should be assessed. This includes, in addition to the assets and liabilities directly related to agriculture, those that household members hold outside the farm business.**



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## **XIII INVENTORY OF METHODOLOGIES USED: AGRICULTURAL INCOME AND WEALTH STATISTICS**

This chapter reviews the existing methodologies used to generate income and wealth statistics for agricultural households. First there is a review of the sorts of basic data sources that may be available, with their respective strengths and weaknesses. This is followed by an account of the definitions applied and data used in a range of countries. This is in two parts. The first describes the situation in developed countries (Members of the OECD and/or UNECE). The second deals with a sample of developing countries. Both parts draw on information gathered by the UNECE especially for this Handbook.

### **XIII.1 Data sources for agricultural income statistics – generic sources**

The lack of basic data has for long been a problem in establishing statistics on the economic situation of agricultural households. In 1964, the OECD examined the issue of low-incomes in agriculture. As part of this investigation, the OECD attempted to collect information from 22 countries on the incomes farmers received from other sources and which might compensate for low earnings from farming. To its concern it found that:

*...In most countries, the information available does not give a precise indication of the farm income situation. Farm families cannot be accurately classified according to their level of income; data on income received from non-farm sources are particularly deficient. These limitations are a serious handicap in devising suitable policies and in assessing the results of measures taken; attention should be given to improving the situation (OECD, 1964, p.7).*

Although scraps of information about off-farm activities could be found for most countries, comprehensive sets of microeconomic income data that permitted the identification of farms with low total incomes were only encountered in the Scandinavian countries, Austria, Germany, Canada and United States.

Slattery (1966) reviewed what was known on the relative income of farmers up to the mid-1960s in seven countries where data on personal incomes could be found (Denmark, Germany, Sweden, United States, Canada, Australia, and New Zealand – the latter two not covered by the OECD work above). Tax records formed the prime source except for Germany where farm accounts were used. Slattery's analysis related to the average incomes of farm and non-farm sectors and did not explore the distributional issues for which such data are particularly suited. In 1989, Hill noted that in the EU, despite the passing of three decades during which the CAP, with its increasingly important income objective, had come to dominate the agricultural policies of Western Europe, the list of Member States with satisfactory microdata on the overall income of their farming households was almost unchanged from that found by the OECD in the 1960s. Only Ireland and the Netherlands had been added to Slattery's list. The absence of countries of such major importance to the CAP as France, Italy and United Kingdom was particularly regrettable. By 2000, virtually no progress had been made in putting what patchy data existed at the national level on to a common methodological basis that would permit comparison and aggregation (Hill, 2000).

A review of the current situation concerning data sources on a country-by-country basis is given in the next section. First, however, it is useful to describe the main data sources and their various strengths and weaknesses. It must be remembered, however, that while the existence of data is a prerequisite for the creation of statistics, it does not necessarily mean that they can be used for this. There may be practical or

legal impediments that must be overcome and, even when these can be circumvented, resource costs are involved.

### **XIII.1.1 Types of data sources**

Microeconomic information on the personal incomes of farmers and their households in industrialized countries comes from data gathered in three main ways - from surveys of farm accounts, from family (household) budget surveys in which farmers form one of several socio-professional groups, and from taxation records where self-employed farmers can be identified as a trade group within the industrial classification. In addition, there are various other sources. Some are regular, as in the annual microcensus in Germany or claims for income support under welfare programmes in Ireland and France, while others are occasional, like the investigation of farming households in Luxembourg in 1978 by the Centre for Population and Policy Studies (CEPS) (Hill, 1988) and the special studies in France by the *Centre d'étude des revenus et des coûts* (CERC) for 1978 (Brangeon *et al.*, 1991; Jégouzo *et al.*, 1998) and for 1997 by the National Institute for Statistics and Economic Studies (known by its French acronym - INSEE) (Berthier, 2004). Occasional data also come from special studies that involve looking at the incomes of farmers, such as surveys of farm business structure, of part-time farmers and the large-scale multi-country study of farm household adjustment in Europe undertaken by the Arkleton Trust (Bryden *et al.*, 1992) and its national offshoots. Here emphasis is given to the regular sources.

Farm accounts surveys are important for policy purposes because they are mostly undertaken either by or for governments and form part of the official data set on agriculture. However, not all farms in developed countries draw up accounts. According to the Farm Structure Survey less than one third of holdings kept accounts in 2000 (31% in 2000 for ten Member States, though this was up from 15% for nine countries two decades earlier). In some countries it was virtually universal (including Denmark, the Netherlands and the United Kingdom), whereas in Greece only 1% of holdings kept accounts; in Austria it was 5% and in Spain 11%. However, bookkeeping has been encouraged to the extent that each EU15 country has at least one survey of farm accounts using a harmonized methodology that contributes to the European Commission's Farm Accountancy Data Network (FADN, also known by its French acronym RICA). The quality of the information is generally high because of the ways in which the sample is selected and the data collected. However, as suppliers of data on the total income of farm households, such surveys are of limited potential. First, the sample is designed to be representative of agricultural activity, not of farming households. Hence there may be a concentration on the larger "commercial" producers and relatively poor coverage of small "non-commercial" farms, even if the occupiers of such holdings are mainly dependent on the farm for their livelihood. A minimum size of farm may be used that cuts off a substantial proportion of farm operators.<sup>1</sup> This has led to criticism of the EU's FADN/RICA for its limitations with regard to exploring issues that relate to people engaged in agriculture (see views reported in Hill, 1988).

In addition to the above, farm accounting is often restricted to inputs and outputs of agricultural activity. For example, FADN/RICA does not require information beyond that related to the farm business. Whatever their relevance to the problems of farming at the time they were set up, such a narrow perspective restricts the capacity of the survey in providing answers to many of today's policy questions. A few national surveys in the EU go further and regularly collect additional data on the farm household's non-farm income, though there may be a problem in achieving high data quality across the various sources; among the EU 15 countries this list includes Denmark, Germany, Netherlands, Austria, Finland and, since 1989, the United Kingdom. In the United States, the Agricultural Resources Management Survey (ARMS) covers both the farm and non-farm income and wealth of operators. Data from the ARMS have proved highly

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<sup>1</sup> In the FADN/RICA, coverage of about 98% of activity but only about 50% of operators is achieved.



valuable in analyses of the economic conditions of operator households (the ARMS is treated as a case study in Chapter XIV).

A final aspect of farm account surveys is that, by virtue of being purely farm surveys, they do not generate data on other socio-professional groups with which comparisons of the economic situation of farm households could be drawn. This means that alternative data sets may have to be used to provide results for the population in general or subsets of it (such as households headed by other self-employed persons), with the possibility that full comparability may not be achievable.

Nevertheless, where information is lacking, farm accounts surveys appear to be an attractive option for development by adding questions related to off-farm income, non-farm wealth and other aspects of the household that are of increasing relevance in explaining farm decisions and establishing the economic well-being of farm households.

*Family (household) budget surveys* and related panel studies are a second potential source of data. These take place in OECD Countries, including all EU Member States. Household budget surveys cover all households, including agricultural households. As a result, comparisons should be possible between agricultural households and other types of household. There have been moves towards a common methodology both within the EU and internationally (Canberra Group, 2001; Eurostat, 1993; 2003). The primary purpose of household budget surveys is to provide information for the weighting of price indices, and emphasis has traditionally fallen on the expenditure side. Despite this, the amount of information collected on incomes has gradually been expanding, though there is variation in the amount of detail among countries. This flows from the fact that income data are collected primarily to obtain a classifier for the study of patterns of consumption rather than to study income in its own right (Eurostat, 1993). Nevertheless, in countries with a substantial proportion of their population still engaged in agriculture, these surveys are a potentially valuable source of information on the total income of farmer households. The OECD used data from household budget surveys in 25 countries stored in the database of the Luxembourg Income Study as the basis for its study of low-income in agriculture (OECD, 2001).<sup>2</sup>

There are three main disadvantages of household budget surveys. First, because agricultural households constitute a small proportion of the population in most OECD Countries, few agricultural cases turn up in the surveys. As a result, the data are often insufficient for any statistical significance to be attached.

Second, they are expensive to carry out, with the result that they are conducted only occasionally - typically at five to seven year-intervals. This creates the problem of how their findings should be updated in non-survey years. In addition, results from the analysis of the mass of data also tend to be rather dated by the time they are published. These surveys are therefore best at providing detailed information when time is not of the essence.

Third, the reliability of data on incomes is not high (see, for example, the case of Greece in Sarris (1996)). Not all items leading to income may be collected (such as imputed items and rental values of owned dwellings) and there may be no coverage of assets, liabilities and net worth. The problem with the quality of income estimates comes from the underrepresentation of self-employed households in voluntary

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<sup>2</sup> The Luxembourg Income Study (LIS) project began in 1983 under the joint sponsorship of the government of Luxembourg and the Centre for Population, Poverty and Public Policy Studies (CEPS). The main objective of the LIS project was to create a database containing social and economic data collected via household-based surveys in different countries. The LIS database contained information for 25 countries by the end of 2000, of which 22 are OECD countries.

surveys (there may be difficulty in making contact and a high non-cooperation rate), and also from the understatement of real income levels from self-employment. This may not be deliberate but can arise from the uncertainty which households have about the amounts they are earning from farming and even of what constitutes income (Martin *et al*, 1996; van der Laan, 1999). Ireland has attempted to circumvent the problem by integrating their household survey with the annual farm accounts survey (the National Farm Survey) that contributes to FADN/RICA, selecting as agricultural households cases that were already cooperating in the National Farm Survey (Hill, 1988). In Germany, incomes are estimated indirectly by summing consumption spending with the level of savings.

Longitudinal studies using a panel of households are needed where the main interest is the way in which income varies over time and the way in which various components change. The pattern by which many agricultural households diversify their income sources as a response to the pressure on the rewards from farming would be expected to be revealed by the use of constant samples. In reality, general surveys of households that use a panel approach often appear to suffer from the problem of small numbers of agricultural households. Box XIII.1 contains details of panel surveys for the EU.

#### **Box XIII.1**

##### **The European Community Household Panel (ECHP) and European Union Statistics on Income and Living Conditions (EU-SILC)**

The European Community Household Panel (ECHP) was initiated in 1993 with the intention of establishing a European database of comparable statistical information for all Member States (EU 12) on the income and living conditions of households. Details were collected on the incomes of individual household members, which then could be aggregated to the household level in various ways (for example, by using a dwelling or a single budget concept of the household). The first main survey took place in 1994, with a sample of some 60,500 cases. It was anticipated that about 3,300 would turn out to be agricultural households; in the United Kingdom the sample of 5,000 households was expected to yield about 100 farm households. In reality, the first round of the ECHP threw up fewer than 2,661 cases in which the head of household (or the reference person) was returned as self-employed and had agriculture as their broad industry group. In Germany there were 25 households with such a reference person and in United Kingdom 61 households; only in Greece, Ireland and Portugal were there more than 300 such households (Eurostat, personal correspondence). The number of cases corresponded to less than 1% of agricultural households estimated in Eurostat's sector-level Income of the Agricultural Households Sector (IAHS) statistics, and less than 0.5% in countries other than Ireland and Luxembourg. Over time the numbers were expected to become even smaller. By way of contrast, the EU's Farm Structure Survey aims for a minimum sample of 10% in order to catch the diversity found in this industry, although in practice this sometimes falls to 3%. In addition to the number of agricultural cases in the ECHP sample being too small to be usable, it may be expected to suffer from the same well-known problems as household budget surveys in its attempts to gather reliable income data from self-employed people, especially those in agriculture.

The ECHP has been replaced by the European Union Statistics on Income and Living Conditions (EU-SILC) survey, which has a cross-sectional sample size of 121,000 households for EU-25 (91,000 for the longitudinal study). A "full-scale pilot" survey took place in 2003 and the "true" EU-SILC survey was conducted in 2004. While full implementation is not expected until 2007, the first cross-sectional data will be available in 2006. However, in view of the sample size, it is likely that the EU-SILC will suffer from the same problem of a small number of agricultural households as did the ECHP.

As will become clear later in this chapter, in developing countries household surveys have become a dominant form for collecting data on incomes and consumption, supplementing or sometimes even replacing other data collection programmes and civil registration systems (UN, 2005).

*Taxation records* form the third main potential data source on the total personal incomes of farmers and their households. In countries that have income taxes for individuals or groups of people (such as couples, who may form a fiscal household), an advantage of using taxation records is that taxes are not voluntary, so records of the income on which tax is based should exist for all taxpayers. Data may be drawn from the whole universe or just a sample depending on the number of cases and degree of disaggregation required. Because there are usually penalties for illegal tax avoidance, some degree of quality assurance is built in, though there may be bias towards the underreporting of income. Assuming that taxpayers are identified by trade group, of which agriculture could be one, it should be possible to compare the situation of farmers with other classes of taxpayer.

However, there are many substantial drawbacks. First, tax records relate to concepts of income (and assets in some situations) used by tax authorities, and these may differ from those used by economic statisticians. For example, some forms of income may be deemed to be exempt from tax and are thus likely not to appear in income registers. In addition, rules on matters like capital allowances, offsetting losses and so on may not accord with the treatment appropriate for assessing personal incomes in the context of agricultural policy.

Second, low-income farmers may fall below the tax threshold and thus not be represented in statistics based on taxes (Ireland is a case in point - see Hill, 1988). This will complicate comparisons of income with other socio-professional groups.

Third, the system of taxation of agriculture may be different from the rest of the national system, so that income data may not be available. For example, in many OECD Countries (including no less than seven of the EU 15) at least some farmers (typically the smaller ones) are not taxed on their actual incomes but according to some standard - usually dependent on farm area or numbers of animals (OECD, 2004). Assessment on an actual income basis can only happen if the farmers keep accounts for their businesses. As was noted above, for the EU as a whole this seems to be still very much the exception.

Fourth, there may be a problem of timing. Where tax is assessed on the basis of an accounting profit this may be done in arrears, unlike other forms of income that are taxed in the year in which they are earned. Consequently there may be problems of aligning information on self-employment income with statistics on other income.

Fifth, there may be implications with respect to the institutional form the farm business takes; arranging a business as a company rather than as a partnership or sole trader will impact the way that income is reported and taxed.

Sixth, there may be practical or legal reasons why tax data are not available or appropriate. These range from technical difficulties, such as matching up the income declarations of individuals to create data for households, to legal restrictions in some countries on access to tax data for non-taxation purposes, even by statistical authorities.

Nevertheless, in situations where it is possible to combine tax data for individuals with other administrative and survey data, the outcome is a valuable and powerful tool for studying socio-economic problems and monitoring the performance of policy directed at solving these problems. This is the case in

some Scandinavian countries where the combination of tax data and other forms of data constitutes their Income Statistics Registers.

The discussion of alternative data sources so far has been relevant for OECD Countries. In developing countries farm accounts surveys and taxation may not exist. The main (perhaps the only) source of data for statistics on the income of agricultural households, and many other aspects of agriculture, may be household surveys.

## **XIII.2 Survey on definitions and measurement issues in selected countries**

### **XIII.2.1 Predominately developed countries (UNECE and OECD countries)**

#### **XIII.2.1.1 Background**

In March 2004, the UNECE contacted UNECE Member Countries and those OECD countries that are not UNECE Members to ask for information on definitions, data sources and other information concerning the collection of statistics on the income of agricultural households. The emphasis was on what was already used in available statistics rather than what might be possible within national data systems

Since Eurostat had already collected information for EU Member States, these countries were only asked to update the information already held and provide any information on changes that had taken place since the 2001 Inventories of Income of the Agriculture Households Sector (IAHS) report<sup>3</sup> (Eurostat, 2002) was put together. Non-EU countries were sent a questionnaire (see Annex A at the end of the present chapter) and were asked to provide any further information available concerning agricultural household income. Replies have been received from 20 EU countries and 25 Non-EU countries (see Annex B at the end of the present chapter).

The replies varied in the amount of information supplied. The Czech Republic and Malta indicated that there is no information available yet and are excluded from the tables. Switzerland pointed out that 'agricultural households economic accounts' were removed from their statistical programme in autumn 2003 without giving any information on the activities recorded before 2003. Switzerland is also excluded from the tables. Luxembourg also indicated that there was no information available and that there is no intention to collect data on agricultural household income. Luxembourg is nevertheless included in the tables since some information is available in the 2001 IAHS report. For the same reason, Austria, Greece, Netherlands and Spain are included in the tables even though no reply has yet been received from them.

This report provides a short summary of the areas covered in the questionnaire. The questionnaire and tables with more detailed information of the survey can be found in Annex 9 at the end of this Handbook.

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<sup>3</sup> An inventory of Income of the Agricultural Households Sector (IAHS) statistics covering EU Member States was first undertaken in 1990 (Eurostat working paper F/LG/187) and a second (in two stages) in 1996 (F/LG/320, 324, 350 and 366). The consolidated inventory, covering all the main elements of the methodology, was published as part of the IAHS 2001 Report (Eurostat, 2002).

### XIII.2.1.2 Definition of household

The way the household is defined is important because it influences the survey's coverage of the population and the analysis of the data, in particular when cross-country comparisons are made (see Chapter IX in this Handbook). The most commonly used criteria in the definition of a household are co-residence (living together in the same dwelling unit), a pooling of income and resources, the sharing of expenditures (including joint provision of the essentials of living such as food) and, finally, the existence of family or emotional ties.

#### EU countries

Table XIII.1 shows that 11 out of the 22 EU countries for which data are available use the target definition of a household as specified in paragraphs 2.1 to 2.5 of the revised Manual that Eurostat published, after discussion with Member States, for its Total Income of Agricultural Households (TIAH) statistics (Eurostat, 1995). These statistics subsequently were renamed the Income of the Agricultural Households Sector (IAHS) statistics, and the two acronyms are used interchangeably in this Handbook. Eurostat's TIAH/IAHS target household definition was based on that of the European System of Accounts (ESA) (itself being rooted in the UN System of National Accounts - SNA). This definition refers to people living in the same accommodation, with a shared budget and who consume certain types of goods and services such as food collectively. People do not have to have a family link. Four other countries (Estonia, Latvia, Slovenia and Sweden) provided a definition very close to the one stated in the ESA.

Table XIII.1

Definition of household in EU countries

Country	Reference to				
	common dwelling	shared budget	shared food/meals	family link necessary	students/temporarily absent
Austria	Yes.	No.	Yes.	Yes.	Not mentioned.
Belgium	(Yes.)	No.	No.	Yes.	Not mentioned.
Denmark	Yes.	No.	No.	Yes.	Not mentioned.
Estonia	Yes.	Yes.	Yes.	No.	Not mentioned.
Finland	Yes.	Yes.	Yes.	No.	Not mentioned.
France	Yes.	Yes.	Yes.	No.	Not mentioned.
Germany	Yes.	Yes.	Yes.	No.	Not mentioned.
Greece	Yes.	Yes.	Yes.	No.	Not mentioned.
Hungary	Yes.	Yes.	Yes.	No.	Not mentioned.
Ireland	Yes.	Yes.	Yes.	No.	Not mentioned.
Italy	Yes.	Yes.	Yes.	No.	Not mentioned.
Latvia	Yes.	Yes.	No.	No.	Not mentioned.
Lithuania	Yes.	Yes.	Yes.	No.	Not mentioned.
Luxembourg	Yes.	Yes.	Yes.	No.	Not mentioned.
Netherlands	Yes.	Yes.	Yes.	No.	Not mentioned.
Poland	Yes. but seamen and workers abroad included.	Yes.	Yes.	No.	No.
Portugal	Yes.	Yes.	Yes.	No.	Not mentioned.
Slovakia	N/A.	N/A.	N/A.	N/A.	N/A.
Slovenia	Yes.	Yes.	Yes.	No.	Not mentioned.
Spain	Yes.	Yes.	Yes.	No.	Not mentioned.
Sweden	Yes.	No.	No.	No.	Not mentioned.
United Kingdom	Not applicable since based on tax returns of individuals				

Source: UNECE survey on agricultural household income statistics.

In practice the definitions used deviate to different degrees from the TIAH/IAHS target definition, the UK's definition being the most dissimilar. This stems from the fact that the UK's statistics are based on the tax records of individuals. Finally, it should be pointed out that the family link criterion is used only in Austria, Belgium and Denmark.

### Non-EU countries

Out of the 25 non-EU countries that replied to the questionnaire, 18 provided a definition of household (see Table XIII.2). All the countries use the co-residence criterion with the only exception being Andorra. In addition, Andorra is the only country to require members of the household to be part of the same family.

The definitions used in Canada, Norway and the United States do not refer to shared budgets but only refer to sharing a dwelling unit. The wording of the definition of household provided by the Republic of Korea does not refer to sharing a dwelling unit but it seems to be implied. Reference to shared meals and/or common provision of food can be found in the definition of household in 10 countries.

Table XIII.2

### Definition of household in Non-EU

Country	Reference to				
	common dwelling	shared budget	shared food/meals	family link necessary	students/temporarily absent
Albania	N/A.	N/A.	N/A.	N/A.	N/A.
Andorra	No.	Yes.	Yes.	Yes.	Not mentioned.
Armenia	Yes.	Yes.	No.	No.	Not mentioned.
Australia	N/A.	N/A.	N/A.	N/A.	N/A.
Azerbaijan	Yes.	Yes.	Yes.	No.	Not mentioned.
Belarus	Yes.	Yes.	No.	No.	Not mentioned.
Bulgaria	Yes.	Yes.	Yes.	No.	Included.
Canada	Yes.	No.	No.	No.	Included.
Croatia	Yes.	Yes.	Yes.	No.	Not mentioned.
Georgia	Yes.	Yes.	No.	No.	Not mentioned.
Japan	N/A.	N/A.	N/A.	N/A.	N/A.
Kazakhstan	Yes.	Yes.	Yes.	No.	Not mentioned.
Kyrgyzstan	Yes.	Yes.	No.	No.	Not mentioned.
Mexico	Yes.	No.	Yes.	No.	Not mentioned.
New Zealand	Yes.	Yes.	Yes.	No.	Not mentioned.
Norway	Yes.	No.	No.	No.	Not mentioned.
Republic of Korea	N/A.	Yes.	Yes.	No.	Not mentioned.
Republic of Moldova	Yes.	Yes.	No.	No.	Not mentioned.
Romania	Yes.	Yes.	No.	No. but definition is 'generally relatives.'	Not mentioned.
Switzerland	Yes.	Yes.	Yes.	No.	Not mentioned.
The former Yugoslav Republic of Macedonia	Yes.	Yes.	Yes.	1/	2/
Turkey	N/A.	N/A.	N/A.	N/A.	N/A.
Turkmenistan	Yes.	Yes.	No.	No.	Not mentioned.
Ukraine	Yes.	Yes.	No.	No.	Not mentioned.
United States of America	Yes.	No.	No.	No.	Not mentioned.

Source: UNECE survey on agricultural household income statistics.

1/ Not necessary but non-family members need to work, eat and reside in the house community.

2/ Students always included, other people absent for more than 45 days in last three months are excluded.

### XIII.2.1.3 Definition of agricultural household

#### EU countries

The two definitions of agricultural household most commonly applied in the EU countries are the “narrow” and the “broad” ones (see Table XIII.3). According to the “narrow” definition “agricultural households are those where the income from independent agricultural activity, net of capital consumption, constitutes the *main source* of the total income of the reference person” (TIAH Manual, Rev.1, paragraph 2.7.3). This approach forms part of a complete disaggregation of households into socio-professional groups, permitting income results to be compared on a consistent basis. In contrast, agricultural households, in the “broad” sense, are those that derive *some income* from independent activity in agriculture (other than income solely in kind). This income can arise from activity of the head of household or any other member” (TIAH Manual, Rev.1, paragraph 2.10.1). The use of the “broad” definition does not allow comparisons of agricultural household income to be made, except with the “all households” average (or “all other households”). See Chapter IX of this Handbook for a full discussion of the concepts and definitions of agricultural households. There the use of both definitions was proposed to cater for different policy contexts, with additional possibilities (such as being linked with farm size) also considered.

Table XIII.3

Definition of agricultural household (narrow or broad) and inclusion of fishery/forestry in EU countries

Countries	Narrow/Broad	Fishery/Forestry
<b>Austria</b>	Narrower than IAHS target.	Included.
<b>Belgium</b>	No information on definition used.	Not included.
<b>Denmark</b>	Narrow.	Not included.
<b>Estonia</b>	Not in use.	Included.
<b>Finland</b>	Broad.	Not included.
<b>France</b>	Not in use.	Not included.
<b>Germany</b>	Narrow.	Not included.
<b>Greece</b>	Narrow.	Included.
<b>Hungary</b>	Narrow.	Not included.
<b>Ireland</b>	Narrow.	Not included.
<b>Italy</b>	Narrow.	Not included.
<b>Latvia</b>	Not in use.	
<b>Lithuania</b>	Narrow.	Not included.
<b>Luxembourg</b>	Not in use.	
<b>Netherlands</b>	Narrow.	Not included.
<b>Poland</b>	Narrow.	Not included.
<b>Portugal</b>	Not in use.	
<b>Slovakia</b>	Not in use.	
<b>Slovenia</b>	Broad.	Not included.
<b>Spain</b>	Between the IAHS “narrow” and “broad” definitions.	Not included.
<b>Sweden</b>	Narrow.	Not included.
<b>United Kingdom</b>	Between the IAHS “narrow” and “broad” definitions.	

Source: UNECE survey on agricultural household income statistics.

Ten countries (Denmark, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Netherlands, Poland and Sweden) replied to the UNECE survey that they use a “narrow” definition of an agricultural household in their published statistics. Finland and Slovenia replied that a “broad” definition of the agricultural household is used. Austria replied that the definition is based on a farm size criterion, while in Spain

agriculture has to be the main income source of at least one member of the household, not necessarily the household head. Six countries stated explicitly that no definition of agricultural household is used (Estonia, France, Latvia, Luxembourg, Portugal and Slovakia). These replies are not fully in accord with other information sources. It is known from the IAHS report (Eurostat, 2002) Spain, France, and Finland have used “narrow” definitions when sending results to Eurostat and that seven EU Member States (Denmark, Germany, Greece, Ireland, Netherlands, Finland and Sweden) have generated results for both the “narrow” and “broad” definitions for at least one year for comparative purposes, with some striking findings in terms of numbers of households and income levels (see Box IX.4 of Chapter IX of this Handbook).

Following the indications given in the TIAH Manual, forestry and fishing are usually excluded from agricultural households in published statistics.

In the EU countries there is usually no shortage of data on farm income, these data are collected by the FADN/RICA survey. More problems arise when the farm household global income has to be calculated. The main statistical sources that can be used are farm account surveys, administrative data (taxation), national Household Budget Surveys and the Statistics on Income and Living Conditions (EU-SILC). In some countries farm account surveys have been expanded in order to collect data on non-agricultural incomes of farm households. The taxation source is not always exploitable and in addition, the available information does not always allow the agricultural household income to be reconstructed, due to the special taxation regime applied to small farms (estimated agricultural income). This is the case in France and, to a lesser extent, in Hungary.

Household Budget Surveys and EU-SILC surveys do contain data on the global income of agricultural households; the problem is that the coverage of farm households is too low to produce a statistically significant sample. This is, for instance, the case of the Belgium SILC survey that contains data on only about 90 agricultural households, which accounts for 0.15% of the total number of farm households. Similar problems are reported for Hungary and France. For example, the French Family Budget survey collects data on only 237 agricultural farm households and the number falls to about 150 in the Income and Living Conditions Survey (ERCV). The National Institute for Statistics and Economic Studies (INSEE) is presently working on a project based on the joint utilization of the FADN/RICA data and those collected by the survey on taxable income.

#### Non-EU countries

Out of the 23 non-EU countries, 12 gave a definition of agricultural household (see Table XIII.4). The majority gave a definition closer to the broad target definition in the IAHS Manual than to the narrow definition, in the sense that reference is made to the household or any household member rather than to the reference person who is involved in agricultural activities. It then depends on the size of the thresholds whether the activity is likely to give rise to a large share of the household’s income or not. No reference is usually made to the share of income coming from agricultural activities. In the former Yugoslav Republic of Macedonia, a household is only classified as agricultural if all members of the household are engaged on the agricultural holding. If one or more members receive income from other sources then the household is classed as “mixed.” In the Republic of Korea it is also necessary that all members be mainly engaged in farm work to be classified as full-time farm households.



Table XIII.4

Definition of agricultural household (narrow or broad) and inclusion of fishery/forestry in non-EU countries

Countries	Narrow/Broad	Fishery/Forestry
Albania	N/A.	N/A.
Andorra	No definition provided. However, in the survey of family budgets the category 'worker in agriculture' is one of the ten socio-professional groups based on the main source of income of the household reference person.	N/A.
Armenia	N/A.	N/A.
Australia	N/A.	N/A.
Azerbaijan	No information on definition provided. However, the Household Budget Survey has information on main source of income of household head of which one is 'hired workers in agriculture' and one is 'work in household production'.	N/A.
Belarus	Not in use.	N/A.
Bulgaria	Broad.	Excluded.
Canada	Broad. 1/	Excluded, unless household is also involved in agricultural activity.
Croatia	Broad. 2/	Included.
Georgia	N/A.	N/A.
Japan	Household having cultivated land of 30 acres or over, or whose annual sales of agricultural products amounts to 500,000 Yen and over.	Excluded.
Kazakhstan	N/A.	N/A.
Kyrgyzstan	An agricultural household is a household in a rural area (according to the Territorial Classification of the Kyrgyz Republic SAOTO) and produce agricultural produce.	Excluded.
Mexico	Households in which agriculture is the main income source.	Excluded.
New Zealand	Not currently applied.	N/A.
Norway	Households having agricultural land or livestock. An agricultural household may have zero or negative income from agricultural activity and still be included in the statistics.	Households solely engaged in forestry and/or fisheries are not included.
Republic of Korea	Households with 10 acres or more, or which raises livestock and sells products.	Excluded.
Republic of Moldova	Household category 'farmers': households whose heads have their main source of income from individual agricultural activity. Household category 'Employees in agricultural sector': households whose heads have their main source of income from remunerated agricultural activity.	N/A.
Romania	A farmer household is a household where the head of household has the occupational status of being self-employed in agriculture or is a member of an agricultural association.	N/A.
Switzerland	N/A.	N/A.
The former Yugoslav Rep. of Macedonia	See 3/	Included.
Turkey	Not in use.	N/A.
Turkmenistan	Not in use.	N/A.
Ukraine	Not in use. But information on types of activities is available so that households with income from agriculture, fisheries, forestry could be identified.	N/A.
United States of America	A subset of households engaged in the operation of a farm business establishment (land under operating arrangement on which there are or could be sales of at least \$1,000 annual worth of agricultural products). For purposes of the U.S. Department of Agriculture's Agricultural Resource Management Survey (ARMS), the definition refers to a household as 'The operator, spouse and all individuals living in the operators residence who share the financial resources of the farm operator. Students living away from home who are dependent upon the operator's household for support are included.'	Excluded.

Source: UNECE survey on agricultural household income statistics.

1/ One of the residents of the household must be a farm operator, as identified on the Census of Agriculture.

2/ An agricultural household is every household that has an agricultural estate (over 10 ha) and whose members are involved in agricultural production.

3/ A household with its own agricultural holding and all its members able to work are engaged on the holding as agricultural workers. None of the household members is officially employed outside the holding, none of them owns a store for trade and none of them is a pensioner, but one or more of its members can occasionally work outside the holding in order to earn some additional income. It also includes agricultural workers with no land who work regularly on the holdings of other private agricultural workers; agricultural households with elderly members who own a holding, but are not capable of working, regardless of whether they pay for the cultivation of land, lease their land or give it to sharecroppers since their income comes from the holding and they do not have any other income; households whose members have acquired the right to receive agricultural pension on the basis of the Law on Retirement and Disability Insurance; agricultural households whose members are temporarily working abroad.

Of the remaining countries, four explicitly stated that a definition for agricultural household did not exist (Albania, Belarus, New Zealand and Ukraine). The countries that did not provide a definition, but did not state explicitly that no definition of agricultural household was used, most probably do not use an official definition of agricultural household. Three countries that did not provide a definition gave detailed information on the socio-economic classification of households according to the main source of income of the reference person and had 'agricultural workers' as one of the categories (Andorra, Azerbaijan and the Republic of Moldova). However, only the Republic of Moldova has a separate category for income from independent agricultural activity.

#### **XIII.2.1.4 Definition of rural household**

##### EU countries and non-EU countries

The survey also asked for information on the definition of rural households. This was done primarily to complement statistics on rural areas covered in Part One of this Handbook. It is recognized that, especially in developed countries, farm operators are only one component in the makeup of rural communities. The information provided is sketchy. For some countries, more information is available from the UNECE survey on rural development statistics; see Chapter III of this Handbook.

#### **XIII.2.1.5 Treatment of special institutions**

##### EU countries

All the EU countries that provided information on this point follow the TIAH Manual and exclude religious houses, farming cooperatives and similar institutions from the agricultural households sector when generating statistics.

##### Non-EU countries

With the exception of Belarus, the thirteen countries that provided information on this point declared that they do not include special institutions in the agricultural households sector.

#### **XIII.2.1.6 Classification into socio-economic groups when using the "narrow" definition of an agricultural household**

##### EU Countries

The TIAH Manual (Rev.1.) is primarily concerned with the use of the "narrow" definition for generating results because this enables comparisons to be made between socio-professional groups drawn up in a consistent manner. In paragraph 2.7.3 it states that: "The basis for classifying households into socio-professional groups within the TIAH is the main source of income of the household's reference person." When generating results using the "narrow" definition most EU countries have a classification that is close to this target definition. In the Netherlands and Poland the income of the whole household is considered. In France and Italy the classification is based on what the reference person declares to be his/her main activity, taking different factors into account. In Finland and Sweden, reference is made to the main activity of the reference person without any details of how to determine what the main activity is. Luxembourg and Belgium base their classification on both income and time spent by the reference person.

*Non-EU countries*

Six countries explicitly stated that they do not use socio-professional classification of households. A further nine countries did not provide any information on socio-professional classifications. Of the remaining, Andorra and Croatia use the main source of income of the reference person/head of household to classify households into socio-professional groups. Belarus and the United States also use income in the classification but from the information provided it is not evident if it is the income of the household or of the reference person. In the Republic of Korea the main source of income of all household members is used.

**XIII.2.1.7 Short-term stability mechanism***EU countries and non-EU countries*

Four EU countries make use of smoothing to improve the stability of the number of households deemed to be agricultural. None of the non-EU countries make use of short-term stability mechanisms.

**XIII.2.1.8 Equivalence scales***EU countries*

Thirteen countries use equivalence scales to convert the number of household members into consumer unit equivalent (see Table XIII.5). With the exception of Luxembourg, the same coefficients are used for both adult men and adult women. The coefficient for the head of household is in general 1.0 in all countries for which data are available. In Hungary, a smaller coefficient (0.9) is used if the head of household is a pensioner. In Luxembourg, the coefficient depends on whether the head of household is male (1.0) or female (0.8) and, if the head of household is male, also on whether he is over or under 60 (0.8 if he is over 60). Coefficients for additional adults vary between 0.8 and 0.65. The coefficient for additional adults used in the majority of countries is 0.7.

In nine countries, the coefficient for children is 0.5 regardless of the age of the children. However, in Hungary, Portugal and Luxembourg the coefficient for children is age dependent (ranging from 0.2 to 0.8 in Luxembourg and Portugal and from 0.4 to 0.65 in Hungary). In most countries persons of age 14 and above are classified as adults. The exceptions are Denmark (17 years) and Italy (15 years).

*Non-EU countries*

Eight of the countries that replied to the questionnaire gave details on the equivalence scales used (see Table XIII.6). In general, a coefficient of 1.0 is used for the first adult. In Armenia, the coefficient for the first adult is 1.0 if male and 0.8 if female. In Georgia, the coefficient depends both on the sex of the first adult and age, with people over 60 getting a lower coefficient. The coefficient used for additional adults varies between 0.5 in Croatia and 1.0 for males in Armenia. With the exception of Georgia, countries use just one coefficient for children, regardless of age. In most countries this coefficient for children is 0.5. Countries that do not use 0.5 include Croatia (0.3), Kazakhstan (0.8) and Ukraine (0.7). Only five countries provided information on the age from which persons are classified as adult. Two use a threshold of 14 years (Azerbaijan and Belarus), one uses 15 years (Armenia) and two use 16 years (Georgia and Republic of Moldova).

Table XIII.5

Equivalence scale used to give consumer units in EU countries

Country	First adult/head of household		Other adults		Children	Threshold age child/adult
	male	female	male	female		
<b>Austria</b>						
<b>Belgium</b>						
<b>Denmark</b>	1	1	0.7	0.7	0.5	17
<b>Estonia</b>	1	1	0.8	0.8	0.8	
<b>Finland</b>	1	1	0.7	0.7	0.5	
<b>France</b>	1	1	0.7	0.7	0.5	14
<b>Germany</b>	1	1	0.7	0.7	0.5	14
<b>Greece</b>	1	1	0.7	0.7	0.5	14
<b>Hungary</b>	1.0 ; 0.9 if pensioner household.	1.0; 0.9 if pensioner household.	0.75; 0.65 if pensioner household.	0.75; 0.65 if pensioner household.	0.65; 0.5; 0.4	
<b>Ireland</b>	1	1	0.7	0.7	0.5	14
<b>Italy</b>	1	1	0.7	0.7	0.5	15
<b>Latvia</b>						
<b>Lithuania</b>						
<b>Luxembourg</b>	1.0; 0.8 if 60 and over.	0.8	1.0; 0.8 if 60 and over.	0.8	Seven age dependent coefficients ranging from 0.2 to 0.8.	14
<b>Netherlands</b>						
<b>Poland</b>	1	1	0.7	0.7	0.5	14
<b>Portugal</b>	1	1	1.0; 0.8 if aged 60 and over.	0.8	Seven age dependent coefficients ranging from 0.2 to 0.8.	14
<b>Slovakia</b>						
<b>Slovenia</b>						
<b>Spain</b>	1	1	0.7	0.7	0.5	14
<b>Sweden</b>						
<b>United Kingdom</b>						

Source: UNECE survey on agricultural household income statistics.

Table XIII.6

Equivalence scale used to give consumer units in non-EU countries

Country	First adult/head of household		Other adults		Children	Threshold age child/adult
	male	female	male	female		
Albania						
Andorra						
Armenia	1	0.8	1	0.8	0.5	15
Australia						
Azerbaijan	1	1	0.7	0.7	0.5	14
Belarus	1	1	0.75	0.75	0.5	14
Bulgaria						
Canada						
Croatia	1	1	0.5	0.5	0.3	
Georgia	1.0 if between 16 and 60; 0.88 if over 60.	0.84 if between 16 and 60; 0.76 if over 60.	1.0 if between 16 and 60; 0.88 if over 60.	0.84 if between 16 and 60; 0.76 if over 60.	1.0 if between 7 and 16; 0.64 if 0 to 7.	16
Japan						
Kazakhstan	1	1	0.8	0.8	0.8	
Kyrgyzstan						
Mexico						
New Zealand						
Norway						
Republic of Korea						
Republic of Moldova	1	1	0.7	0.7	0.5	16
Romania						
Switzerland						
FYROM a/						
Turkey						
Turkmenistan						
Ukraine	1	1	0.7	0.7	0.7	
United States of America						

Source: UNECE survey on agricultural household

a/ The former Yugoslav Republic of Macedonia

### XIII.2.1.9 Own consumption

#### *EU countries*

The TIAH Manual (3.4.2) states that own consumption should be valued “at the basic price of similar goods sold on the market.” Almost all of the EU countries estimate own consumption; the only exception is Finland that stopped producing such estimates in 2000. In Estonia and Lithuania the value is a self-reported estimation by survey respondents at market prices. Most of the countries declared that own consumption is valued at market price without specifying exactly what kind of price is used. Germany, Greece and Ireland make use of the producer/farm gate price, while in Spain the retail price is used.

*Non-EU countries*

Canada and Kyrgyzstan do not provide any estimation of own consumption value. The United States and Norway make use of self-reported estimations made by survey respondents. With the exception of Japan, that uses farm gate prices, the value of own consumption is usually obtained by using market price.

**XIII.2.1.10 Imputed rent***EU countries*

Out of the 19 countries that replied to this question, four countries do not calculate an imputed rental value of dwellings. Of the remaining 15 countries, the imputed rental value of owned dwellings is usually measured on the basis of the value of actual rents of similar dwellings. In Estonia, Greece, Lithuania and Slovenia the value is a self-reported estimation by survey respondents.

*Non-EU countries*

Six countries, out of the seventeen that replied to this question, do not impute the rental value of owned dwellings.

The U.S. Department of Agriculture measures the rental value of operator dwelling by using direct reported values of the operator dwelling and rent to value ratios obtained from the U.S. Department of Commerce. The product of these two items gives a measure of gross space rent. Survey respondents report expenses on their dwellings except for depreciation, which is imputed. Gross rents and expenses are used to calculate an estimate of net rent for operator. In Japan, the imputed rent is valued on the basis of the purchase value of “own dwellings” less depreciation. In Norway, the value is included in the tax return data, though the stipulated taxation value of “own dwellings” is much lower than the real market value.

**XIII.2.1.11 Calculation of net disposable income of agriculture households – items covered**

Countries were asked to indicate from a list of items, based on the Eurostat IAHS Manual’s definition of disposable income (see Chapter X of this Handbook), which elements were included in their national statistics on agricultural household income. Because of the large number of individual items and differences between countries in what they cover, it is not proposed to make a detailed report here. Rather, reference should be made to Annex 9 of this Handbook.

Nevertheless, a general observation can be made about one aspect of the definition of income – the use of “adjustment.” As was described in Chapter X, disposable income can be interpreted as measuring the maximum value of the final consumption of goods and services (used to satisfy the needs and wants of its members) that a household can afford to consume in the current period without having to reduce its cash, dispose of other assets or increase its liabilities. However, the consumption possibilities of a household are also affected by the value of consumption goods and services received from the government as social transfers in kind. When these latter items are taken into consideration, the result is referred to as the “adjusted” disposable income.

*EU countries*

Nearly all EU countries calculate, or have calculated in the past, net disposable income of agricultural households, though the regularity and up-to-dateness of published statistics varies widely. Those

with no published estimates available are Hungary, Latvia, Slovakia, Slovenia and the United Kingdom. Most published results do not take social benefits in kind into account; only three countries (Lithuania, Spain and Estonia) calculate the “adjusted” disposable income.

#### Non-EU countries

Only nine non-EU countries reported that they calculate net disposable income of agricultural households. Japan, Mexico and Republic of Moldavia calculate the “adjusted” disposable income by allowing for social transfers in kind. Australia reported that it deducts *imputed* social transfers in kind. In addition, Albania reported that implied data are covered elsewhere.

### **XIII.2.1.12 Conclusions**

The results of the survey on agricultural household income statistics undertaken by UNECE show that there are many differences in the concepts, definitions and coverage used by countries in defining the income of agricultural households. It might be argued that such flexibility of detail is needed in order to reflect differing socio-economic conditions. However, these differences make cross-country comparisons difficult. This Handbook may be able to improve this situation by pointing to good practice in terms of definitions and their use.

## **XIII.2.2 Selected developing countries**

### **XIII.2.2.1 Background**

The UNECE survey on agricultural household income statistics detailed in the preceding section (XIII.2.1) was repeated in March 2005, when the UNECE sent out exactly the same survey questionnaire to a group of developing countries. It is recognized that such countries face problems of a conceptual and practical nature that are different from those of OECD Members, requiring a separate treatment in this part of the Handbook that deals with what happens in practice. The group of developing countries was selected mainly on the basis of two criteria: The country should have conducted at least one Living Standards Measurement Study (LSMS) household survey and/or conducted a census of agriculture within the FAO's decennial World Census of Agriculture Programmes (WCAP)(see Box XIII.1); and the government in question should have a data access policy, which preferably requires no prior permission from the respective government to use the data.<sup>4</sup> Whereas the first criteria was based on purely methodologically grounds, the second criteria was rooted in the realization that a lot of the needed information had to be extracted from online Internet resources, due to the low response rate amongst the survey recipients. The ten countries that formed the basis of this analysis are Brazil, China, Ghana, India, Jamaica, Morocco, Peru, South Africa, Vietnam, and Zambia (see Annexes C and D at the end of this chapter).

Household surveys have become a dominant form for collecting socio-economic data in developing countries, supplementing or sometimes even replacing other data collection programmes and civil registration systems (UN, 2005). Important indicators to inform and monitor development policies are often derived from such surveys. Since 1970, several major international programmes have been organized to support the collection of household survey data in developing countries. Among the largest such

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<sup>4</sup> Many countries have alternative sources for some of the information they need on persons working in or dependent on agriculture (for instance, population census or sample survey evidence) and therefore may be inclined to collect only selected data instead of conducting a full agricultural census.

programmes have been the United Nations Household Survey Capability Programme (UN, 2005), and the World Bank's Living Standards Measurement Study (LSMS). The LSMS is a multitopic survey.

A series of over 60 Living Standards Measurement Study (LSMS) surveys has been carried out under the aegis of the World Bank in over 40 countries. The methodology of the LSMS surveys, which gather data on many aspects of household welfare, was developed by the World Bank in order to provide policy relevant, household level data for evaluating the effect of a variety of government policies on the living conditions of the population. Because of the substantial variation in the contents of the surveys it is important to scrutinise the LSMS Information Table. The Basic Information Documents contain information on the purpose of the survey, sample design, organization of the survey team, names of original and constructed data files, and codes not contained in the questionnaires. Over time, LSMS surveys have become increasingly customized to fit specific country circumstances, including policy issues, social and economic characteristics, and local household survey traditions (Grosh and Glewwe, 2000a). The principal implementing agency is usually the national statistical office (NSO) which takes the lead in questionnaire design, sample design, and fieldwork methodology using the techniques found by the LSMS to be most effective (Scott et al., 2005).

### **Box XIII.2**

#### **The World Census of Agriculture Programme (WCAP)**

Since 1950 the FAO has been assisting countries in planning and conducting censuses of agriculture. The agricultural census is of particular importance to countries in which significant segments of the population depend on agriculture for their livelihood. From a strictly statistical viewpoint, the census data represent one of the most important components of the information system in a country and can serve as the basis for many other statistical activities related to food and agriculture, such as conducting various agricultural sample surveys.

Each decennial WCAP, promoted first by the International Institute of Agriculture and then prepared by the FAO, has provided methodological guidelines for organizing national agricultural censuses. The six decennial Programmes - centred on 1950, 1960, 1970, 1980, 1990 and 2000 - gradually expanded the census scope while keeping structural aspects of the agricultural production sector as the central theme (Stloukal, 1999). Today, there are more than 100 countries participating in the WCAP at set periods.

The publication "Programme for the World Census of Agriculture 2000," (Vol. 5), is intended to assist countries by providing definitions, concepts, standards and guidelines for censuses in the decade 1996-2005. The FAO's Statistics Division is currently developing the Programme for the 2010 round of agricultural censuses, covering the period from 2005 to 2014. The programme is expected to be finalized in 2005.

Each WCAP has attempted, in one way or another, to cover some of the basic demographic and economic characteristics of persons belonging to the population of the holders' households. The FAO recommendations have typically been decided on the basis of extensive consultations with statistical offices in individual countries. Their evolution thus mirrors the collective experience of national and international organizations with regard to the collection of agricultural information.

Recognizing that countries differ in their capacity to carry out a census of agriculture, FAO WCAPs have always included a recommendation that countries should tailor the agricultural census to their unique situation. Countries with poor statistical systems have been advised to restrict the scope to essential items, whereas statistically more developed countries have been invited to broaden their census objectives. Ultimately, however, it is up to the national authorities to choose the statistical topics to be monitored, and the classifications to be used, in the agricultural census in their country (Stloukal, 1999).

*Source:* <http://www.fao.org/es/ess/census/default.asp>



LSMS surveys have several characteristics that distinguish them from other surveys. First, and perhaps the most important, is that they use several questionnaires to collect information about different aspects of household welfare and behaviour. Second, they typically have nationally representative, but relatively small, samples - usually between 2,000 and 5,000 households. This only yields accurate descriptive statistics for the country as a whole and for large sub-areas (such as a division into rural and urban areas) (Grosh and Glewwe, 2000a). Third, because of the complexity of most LSMS surveys, they have rigorous quality control procedures to ensure that the data they gather are of high quality. These procedures are generally difficult to implement on larger samples (Grosh and Glewwe, 2000a).

Despite the success of the LSMS programme, several challenges remain for LSMS surveys and other multitopic household surveys. First and most obviously, many developing countries still have inadequate household survey data. This is true even for some of the countries that have recently fielded new surveys. Ideally, all governments should collect data on a regular, ongoing basis in order to monitor poverty trends over time. However, survey efforts are still sporadic in many developing countries today, and many surveys have serious deficiencies such as limited questionnaires, samples that exclude rural areas, and long delays in processing the data after completing the fieldwork.

Second, improvements are needed in the process of adapting the LSMS approach to countries that have not yet implemented LSMS-type surveys.

Third, the data gathered from some parts of LSMS survey questionnaires have been disappointing. Two particularly difficult problems entail the measuring of household income from agriculture and non-agricultural self-employment and the measuring of savings and financial assets (see Chapter XII of this Handbook).

Fourth, new issues have emerged since the first LSMS surveys were implemented. The economics profession has increasingly discounted the notion of the household as a unified decision-making body, trying instead to understand how goods, services, and power are allocated among the different members of a given household (Grosh and Glewwe, 2000a).

#### **XIII.2.2.2 Definition of household**

There is no uniformity in the definition of the household across different surveys, although all involve some form of living and eating together (see Table XIII.7). Some definitions incorporate the pooling of funds. Unfortunately, different criteria are often in conflict, and household arrangements are often not constant over time. Many of the problems are associated with the complex structure of living arrangements in developing countries. As noted in Chapter IX of this Handbook, when men have several wives, each wife often runs what is effectively a separate household within a larger compound presided over by the husband. Even without polyandry, several generations of the families of siblings may live in a single compound, sometimes eating together and sometimes not, and with the group breaking up and reforming in response to economic conditions. In some countries, there are lineages to which groups of households belong, and the head of the lineage may have power to command labour, to order migration, to tax and reward individuals, and to control communal assets. Even so, members of the lineage will typically live in separate households, which may not be the appropriate units for the analysis of at least some decisions (Deaton, 1997). An overall view of the characteristics of the definitions is given in Table XIII.8.

A decision to separate previously pooled households should not affect estimates of average consumption or income per head, but will increase measures of inequality, since the previous single estimate for the pooled household is replaced by multiple estimates for each of the sub-households. Splitting

households has the same effect on the distribution of income or consumption as an increase in dispersion with no change in mean, and so must increase measures of inequality (Deaton, 1997).

From Table XIII.7 it appears that all the (non-randomly) selected developing countries in the sample use common dwelling as the main criteria in their definition of household, while de-emphasizing the necessity of a family link. Moreover, most of the sampled developing countries do make reference either explicitly or implicitly to shared budget and food/meals in their definition of a household within the framework of the Living Conditions Surveys.

Table XIII.7

## Definition of household in a selected group of developing countries

Country	Definition of 'household'
<b>Brazil</b>	A <b>household</b> is defined as the person or collection of persons, whether related or not, that habitually live in the same private dwelling, occupying it in part or in whole, and that tend to their life needs together.
<b>China</b>	<b>Household members</b> were defined to include "all the people who normally live and eat their meals together in this dwelling." Those who were absent more than nine of the last twelve months were excluded, except for the head of household.
<b>Ghana</b>	A <b>household</b> was defined as a group of people who have usually slept in the same dwelling and taken their meals together for <u>at least 9 of the 12 months</u> preceding the interview.
<b>India</b>	A <b>household</b> is defined as a group of people who normally live and eat their meals together. For the purposes of this survey, "normally" is taken to mean that the person concerned has lived in the household for at least 3 of the past 12 months.
<b>Jamaica</b>	A <b>household</b> consists of one person who lives alone or a group of persons, who, as a unit, jointly occupy the whole or part of a dwelling unit, who have common arrangements for housekeeping, and who generally share at least one meal. The household may be composed of related persons only, of unrelated persons, or of a combination of both.
<b>Morocco</b>	A <b>household</b> is defined to include all those individuals for whom the household is their primary residence, and who are economically dependent on the household. Household members also include: individuals who are not physically present but whose absence has been for <u>less than one month</u> .
<b>Peru</b>	<b>The household</b> is defined as the person or collection of persons, whether related or not, that habitually live in the same private dwelling, occupying it in part or in whole, and that tend to their life needs together.
<b>South Africa</b>	<b>The first definition of the household</b> comprises individuals who: (I) Live under this 'roof' or within the same compound/homestead/stand at least 15 days out of the past year, and (II) When they are together they share food from a common source (i.e. they cook and eat together); and (III) Contribute to or share in, a common resource pool (i.e. they contribute to the household through wages and salaries or other cash and in-kind income or they may be benefiting from this income but not contributing to it, e.g. children, and other non-economically active people in the household. Visitors were excluded from this definition. <b>The second definition of the household</b> includes only those members who had lived "under this roof for more than 15 days of the last 30 days". This definition was derived to eliminate double-counting of individuals.
<b>Vietnam</b>	<b>Household members</b> were defined generally to include "all people who normally live and eat their meals together in this house and have done so for 6 or more months out of the past year" which is the same as in 1992-93. However, specific cases to include as members or exclude as non-members differ slightly from 1992-93 and are listed in the questionnaire.
<b>Zambia</b>	A <b>household</b> is defined as a group of persons who normally eat and live together. These people may or may not be related by blood, but more common provision for food or other essential living, and they have only one person whom they all regard as the head of household. A household may comprise several members and in some cases may have only one member. <b>Usual Member of the household</b> -- The de jure approach was adopted for collecting data on household composition. It relies on the concept of usual residence. A usual member of household was considered to be one who had been living with a household for at least 6 months. Newly married couples were regarded as usual members of the household even if one or both of them had been in the household for less than 6 months. Newly born babies of usual members were also considered as usual members of the household. Members of the household who were at boarding schools or temporarily away from the household, e.g. away on seasonal work, in hospital, away to give birth, visiting relatives of friends, but who normally live and eat together, were included in the list of usual members of the household.

Source: UNECE (2005) Survey.

In certain provinces of **Zambia** households are characterized by being polygamous, e.g. a man living in a village with several wives each living with her children in a separate hut or group of huts should be regarded as separate households if each wife cooks and eats meals separately. In this case, even if they sometimes eat together, the fact remains that the wives are running separate households. Therefore, they are treated as different households. On the other hand, a man living in a village with several wives, each living with her children in a separate hut or group of huts, is regarded as one household if all those wives cook and eat together.

**Table XIII.8**  
**Definition of household in selected developing countries**

Country	Definition of household				
	common dwelling	shared budget	shared food/meals	Reference to family link necessary	students/temporarily absent
Target definition (from TIAH Manual, Rev.1, para 2.4.1)	yes	yes	yes	no	not mentioned
Brazil	yes	(yes)	(yes)	no	not more than 12 months
China	yes	(yes)	yes	no	not more than 9 of the last 12 months
Ghana	yes	(yes)	yes	no	not more than 3 of the 12 months
India	yes	(yes)	yes	no	not more than 9 of the last 12 months
Jamaica	yes	yes	yes	no	not mentioned
Morocco	yes	(yes)	yes	no	absent for less than one month
Peru	yes	(yes)	(yes)	no	at least 3 of the last 12 months
South Africa	yes	yes	yes	no	at least 15 days out of the past year or more than 15 days of the past 30 days
Vietnam	yes	(yes)	yes	no	less than 6 of the past 12 months
Zambia	yes	yes	yes	no	at least six months

Source: UNECE (2005) Survey on Agricultural Household Income Statistics.

Note: Information extracted from official websites.

The **Zambian** Living Conditions Monitoring Survey uses the *de jure* (“usual”) system of enumeration as opposed to *de facto* (“as of previous night”) system. A “usual” member of household is defined as one who has been living with a household for at least six months. He/she may or may not be related to the other household members by blood or marriage, and may be a house helper or labourer. A usual household member normally lives together with other household members in one house or closely related premises and takes his/her meals from the same kitchen. Newly married couples are to be regarded as usual members of the households even if one of them has been in the household for less than six months.

Members of the household who are at boarding schools or any other persons temporarily away from the household who normally live and eat there such as persons temporarily away for seasonal work, because of illness, giving birth, visiting relatives or friends have to be included in the list of usual members of the household. Any other persons such as visitors who have spent at least six months with the household also have to be included as usual members of the household. Other persons such as servants and lodgers who are part of this household must be taken as usual members (CSO, 1996).

In **Ghana** Living Standards Survey IV a household is defined as a group of people who have usually slept in the same dwelling and taken their meals together for at least 9 of the 12 months preceding the interview. All listed persons who have been away from the household for more than three months are not considered to be household members except, (1) the person identified as the head of household even if he/she has not been with the household for 9 months or more; (2) newly born children; (3) students and seasonal workers who have not been living in or as part of another household.<sup>5</sup>

<sup>5</sup> In full, the Ghana Living Standards Survey includes the following as part of the household: All the persons not present but who normally live, sleep and eat together with the household, i.e. those who are temporarily away for schooling, temporarily left for marriage, vacation, seasonal work, illness, giving birth, military training, prisons etc.

In the **South Africa** “Baseline Household Statistics” methodological report, the household concept definition was drawn up in such a way as to avoid double counting of individuals who may live in more than one place. Hence, two definitions were used. The first definition was used only in the first section of the questionnaire, i.e. the Household Roster and the second was used for the rest of the questionnaire. The first definition of the household comprised all individuals who: (i) live under this roof or within the same compound/homestead/stand at least 15 days out of the past year; and (ii) when they are together they share food from a common source; (iii) contribute to or share in, a common resource pool. Visitors were excluded from this definition.<sup>6</sup>

The second definition of the household only included those members who had lived “under this roof for more than 15 days of the last 30 days.” This definition was derived to avoid double counting of individuals.

The **Brazil** LSMS survey, 1996-1997, defines a **resident** as a person for whom the dwelling unit is his/her place of habitual residence. The following are also considered as residents of the dwelling unit: the person present on the date of the interview and who does not have another place of habitual residence; the person for whom the dwelling is his/her place of habitual residence but who is temporarily absent on the date of the interview for a period of not more than 12 months, as a result of, for example, boarding at a school.<sup>7</sup>

The **China** Living Standards Survey (CLSS), which consists of one household survey and one community (village) survey, was conducted in Hebei and Liaoning Provinces (northern and north-east China) in July 1995 and July 1997, respectively. In this CLSS, household members were defined as “all the people who normally live and eat their meals together in this dwelling.” Those who were absent more than nine of the last twelve months were excluded, except for the head of household.

The **India** Survey of Living Conditions in Uttar Pradesh and Bihar, 1997-1998, defines a household as a group of people who normally live and eat their meals together. For the purposes of that survey, “normally” is taken to mean that the person concerned has lived in the household for at least 3 of the past 12 months.<sup>8</sup> People who live in the same dwelling, but do not share food expenses or eat meals together, are not members of the same household. For example, if two brothers, each having his own family, live in the same house but maintain separate food budgets and cooking facilities, they would constitute two separate households. Likewise, people who eat together but do not sleep in the same dwelling are not members of the same household. However, exception to this rule may be made in the case of those persons who normally take their meals together and for all purposes live together, but may sometimes sleep in other places for security reasons (e.g. with livestock, or in shop or other place of business).

For the 1982 **Jamaica** Population Census, the following definition of household was adopted and has been used for all household surveys conducted since: a household consists of one person who lives alone

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<sup>6</sup> The South Africa Integrated Household Survey is a nationally representative, multi-purpose household survey, which was undertaken in the nine months prior to the country’s first democratic elections in April 1994.

<sup>7</sup> The following criteria are applied to define the dwelling in which a person is to be considered a resident when more than one dwelling is occupied by that person. The first criterion found to be applicable will determine the dwelling: (1) the person is considered a resident of the dwelling unit in which that person’s family resides; (2) the person is considered a resident at the dwelling unit in which that person spends the major part of the year; (3) the person is considered a resident of the dwelling unit in which that person has resided for the longest period of time.

<sup>8</sup> The only exceptions to be made to this rule should be for (i) persons who are the main provider for the household, (ii) infants who are less than 3 months old, and (iii) newly weds who have been living together for less than 3 months. Servants, lodgers, farm-workers, and other such individuals who live and take meals with the household are to be counted as household members, even though they may have no blood relation to the household head.

or a group of persons, who, as a unit, jointly occupy the whole or part of a dwelling unit, who have common arrangements for housekeeping, and who generally share at least one meal. The household may be composed of related persons only, of unrelated persons, or of a combination of both. The same definition was adopted for the 1991 Population Census.<sup>9</sup>

The first **Morocco** Living Standards Survey (MLSS) was conducted between October 1990 and October 1991 and provides data for a sample of 3,323 households and 19,577 individuals.<sup>10</sup> The MLSS 1990-1991 survey covers all household members, defined to include all those individuals for whom the household is their primary residence, and who are economically dependent on the household. Household members also include: individuals who are not physically present but whose absence has been for less than one month (or in the case of those hospitalized, less than six months), lodgers who share at least one meal with the household, and servants who reside at and share meals with the household.

The first **Vietnam** Living Standards Survey (VLSS) was conducted in 1992-1993 by the State Planning Committee (now the Ministry of Planning and Investment), together with the General Statistical Office. The second round of the VLSS was conducted between December 1997 and December 1998.<sup>11</sup> This survey defines the household members as “all people who normally live and eat their meals together in this house and have done so for 6 or more months out of the past year.” While this is the same definition as used in 1992-1993, there are some differences with respect to specific cases about who to include and who to exclude from the household.<sup>12</sup>

### XIII.2.2.3 Definition of agricultural household

When constructing statistics for agricultural households in developing countries the primary unit of enumeration is the agricultural holding, which may be briefly defined as a techno-economic unit comprising all land and livestock used for agricultural purposes and operated under a single management, without regard to title or legal form. The census should, in principle, cover all holdings in the country. For practical reasons, however, the census enumeration is usually limited to those holdings above prescribed limits of size and do not include land solely used for communal grazing, etc. A holder is defined as a person who exercises management control over the operations of the agricultural holding. Usually there is one holder in an agricultural household, who may or may not be the head of the household. In developing countries, a one-to-one correspondence between a household and a holding is quite usual, but it is certainly not universal. A single agricultural holding can include several agricultural households, and one agricultural household can operate on several agricultural holdings.

When using agricultural census data, one has to remember that in some contexts it is common that the demographic data collected in a census of agriculture refers only to persons attached to agricultural holdings and that there may be no coverage of other persons belonging to the holders' household, and hired

<sup>9</sup> The Jamaica Survey of Living Conditions (JSLC), first conducted in 1988, was originally conceived to be a semi-annual survey. In 1990, an annual survey was deemed to be sufficient and an annual schedule was adopted. Fourteen rounds of the survey were completed from August 1988 to July 2000. The JSLC differs from other LSMS surveys in its relatively narrow focus and greater emphasis on immediate policy impact. The JSLC is linked to the ongoing quarterly Labour Force Survey.

<sup>10</sup> Survey fieldwork began on October 15, 1990, and ended on October 30, 1991. Fieldwork was organized into 10 four-week periods (survey “months”), but there were some breaks during this time so that the survey itself took about 54 weeks to complete.

<sup>11</sup> The second round of the VLSS used 5 questionnaires: commune, price, school, clinic, and household. The household questionnaire contained 15 sections each of which covered a separate aspect of household activity.

<sup>12</sup> See Table 2.2: Categories of household members and Non-members at: <http://www.worldbank.org/html/prdph/lms/country/vn98/vn98bif.pdf>

workers who either permanently or occasionally work on the holding. Thus, agricultural censuses do not cover all persons associated with agriculture (Stloukal, 1999).<sup>13</sup> Many of these problems also are faced by surveys of holdings in developed countries.

An agricultural household is defined as a household in which at least one member is carrying out some agricultural activity on the holding belonging to the household (excluding the growing of vegetables meant for home consumption). Table XIII.9 describes the relationship between the holding and the agricultural household for a number of developing countries.

Table XIII.9

## Definition of agricultural household and treatment of fishery/forestry in developing countries

Country	Definition of agriculture households
<b>Brazil</b>	The definition of <b>holding</b> matches with the one suggested in the FAO Programme for the World Census of Agriculture (WCA) 2000.
<b>China</b>	<b>Agricultural household:</b> refers to rural household whose members are either engaged in purely agricultural activities, or in a combination of agricultural and non-agricultural activities
<b>India</b>	<b>Operational Holding</b> (the statistical unit for census) is defined as all land wholly or partly used for agricultural production and operated as one technical unit by one person, alone or with others, without regard to title, legal form, size or location. <b>Operational Holder</b> is the person who takes all managerial decisions regarding cultivation of land. He may be the legal owner or a leaser or a tenant farmer.
<b>Jamaica</b>	<b>Farmers</b> that possessed a total area of under 25 acres (the definition of small farmer used by ACB).
<b>Morocco</b>	<b>Agricultural holding</b> was defined as an economic unit of agricultural production under single management, comprising all livestock kept and all land used for agricultural production purposes, regardless to title or legal form.
<b>Peru</b>	The selected statistical unit is the <b>Agricultural Unit</b> , defined as any piece of land consisting of one or more parcels, totally or partially used for agricultural production, carried out as a technical-economic unit by the agricultural holder, without regard to size, tenure or legal status
<b>South Africa</b>	If the household members are engaged 50% in agricultural and 50% in non-agricultural activities, the category is defined by the household's income.
<b>Vietnam</b>	<b>Agriculture, forestry, fishery households:</b> are households with all or most of labourers regularly participating, directly or indirectly, in agricultural, forestry or fishery production and these activities are the principal source of their income.
<b>Zambia</b>	<b>Agricultural Household:</b> Is a household in which at least one member is carrying out some agricultural activity on the holding belonging to the household (excluding the growing of vegetables meant for home consumption). Preliminary testing showed that there was almost one-to-one relationship between the agricultural household and holding. The terms holding and agricultural household are therefore used interchangeably.

Source: UNECE (2005) Survey.

## XIII.2.2.4 Classification into socio-economic groups

The basis of classifying households into socio-professional groups in developing countries is usually the use of their labour. The **China** Living Standards Survey (CLSS), 1995-1997, asked all individuals age thirteen and above to respond to the employment activity questions. The CLSS collected general information on farm and non-farm employment, such as, for example, whether or not the household member worked on a household owned farm in 1994, number of work days and number of hours worked during the busy season, occupation and sector codes of the major, second, and the third non-farm jobs, and the number of days worked on, and total income derived from, these non-farm jobs. Furthermore, detailed information on the major and the second non-farm job is collected.

<sup>13</sup> <http://www.fao.org/sd/wpdirect/wpan0041.htm>

The **Ghana** Living Standards Survey round four (GLSS 4) 1998-1999 was designed to gather information on employment, time use and the different sources of income for household members aged seven years and over.<sup>14</sup> GLSS 4 provided information on the characteristics of main occupation for the previous 12 months by detailing the kind of work or industry a respondent was mainly engaged in.

Individuals in **Jamaica** Survey of Living Conditions (JSLC) can be linked to the data from the Jamaican Labour Force Survey. Each member of the household older than 14 years of age is asked questions regarding his or her employment status.<sup>15</sup> In the 1997 JSLC, a module was included to obtain an in-depth picture of earnings in the country. This module was based on the employment and earnings portion of the 1993 Time Use module that was found to be superior in its response rate for earnings data compared to other attempts including the Labour Force Surveys. The information collected included details on the main occupation, allowances received in addition to or as part of salary, income, additional employment, information on the unemployed, and household enterprises.

The **Morocco** Living Standard Survey, 1990-1991, provided, for example, information on current principal employment for individuals aged seven or more; characteristics of salaried employees; current secondary employment; principal employment in the previous 12 months; salary earnings; and secondary employment in the past 12 months.

The **Peru** Living Standards Survey (LSS) asked questions on the economic activity of those six years and older and provides a description and code of occupation and a description and code of establishment.<sup>16</sup> The Peruvian LSS also provides a description and code of secondary occupation at which most hours were spent in last 7 days and a description and code of Establishment.

The **South Africa** Integrated Household Survey, 1994, asked questions about what job the household members did and in which sector they were employed. These questions were repeated for a second casual or temporary job.

The **Vietnam** Living Standards Survey asked all individuals age six and older to respond to the economic activity questions. These began with questions on the nature of their work in the last seven days. For work in the last seven days, information was collected on, for example, length of employment, type of employer and money and in kind compensation and benefits. Similar questions were asked of any secondary job in the last seven days. If the main work in the past twelve months was different from the main or secondary job in the past seven days, the complete set of questions was answered for that work as well. For those in self-employed agricultural work, a different series of questions was asked on hours worked in peak and non-peak weeks in the past 12 months for six different agricultural-related work activities. Occupation and industry of employment codes are printed directly in the household questionnaire. In addition, this survey gathered data on household businesses for up to the four most important enterprises operated by the household.

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<sup>14</sup> In this survey, main occupation is defined as: the work to which most time is devoted when a respondent has several jobs. For instance, the main occupation for the past 12 months of a respondent who farms mostly but often goes fishing during the dry season is farming.

<sup>15</sup> The Labour Force Survey contains much less detail than the standard LSMS employment and job search modules. Moreover, the Labour Force Survey income data are of dubious quality.

<sup>16</sup> Principal Economic Activity was defined as the activity on which most hours were spent (NOT which provided the most earned income).

### XIII.2.2.5 Short-term stability mechanism

None of the surveyed developing countries make use of short-term stability mechanisms.

### XIII.2.2.6 Equivalence Scale

As noted in Chapter IX, equivalence scales are designed to account for the varying requirements of families of differing sizes and age compositions, and an extensive literature exists on their conceptual bases and estimation. A feature of developing countries is that nutritional requirements play a far more significant role than among OECD Members. Tables XIII.10 and XIII.11 give basic calorie requirements and calorie equivalence scales.

There are two major approaches to the construction of equivalence scales. The first can be termed the subjective method and is based on personal assessment using survey data. This survey approach attempts to measure a minimum standard of living for alternative family structures. Jane Xi Pan *et al.* (2004) used the subjective-qualitative method to estimate household equivalence scales for their study of urban Chinese poverty in 1988 and 1995. To avoid the problem that persons in rich regions tend to have higher perceived needs they incorporate objectively determined cost-of-living indices to adjust for regional differences in purchasing power. Minimum needs thresholds were constructed for seven family types and converted into equivalence scales. They found that a two-person family composed of two adults with the age of the household's head greater than or equal to 60 years old would need 1.54 times as much as a single adult, and three-person family without children would need 1.99 times as much as a single person. Three persons with one child would need a little less, 1.77 times that of a single person. Finally, four or more person households with children (D4+\_K) and without children have equivalence factors of 2.00 and 2.38. Pan *et al.* (2004) went on to construct minimum needs thresholds for four different regions.

The second major approach is to use expert-based equivalence scales. Gustafsson and Li (2001) provide a set of expert based equivalence scales, which they use to measure inequality in Chinese incomes.<sup>17</sup>

An interesting observation is drawn from Burgess (2001). In **China** the land equivalence scales for children 0-14 are 0.567 and 0.507 in Sichuan and Jiangsu respectively which are almost directly in line with the calorie equivalence scales, 0.576 and 0.522. This, according to Burgess (2001), serves as preliminary evidence that land is being allocated in line with nutritional needs. If the nutritional hypothesis holds then land allocation should be done mainly on the basis of the number of adult equivalents in a given household as determined by the calorie share method.<sup>18</sup>

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<sup>17</sup> Gustafsson and Li (2001) indicate that one person = 1.0, two persons = 1.88, three persons = 2.66, four persons = 3.54 and five-plus persons = 5.0.

<sup>18</sup> Calorie based equivalence scales are thus closer to the notion of physiological or nutritional welfare which motivated the earliest work on equivalence scales though the method is not prescriptive and behavioural responses are taken into account.

Based on a 0-4, 5-9, 10-14, 15-55+ age breakdown there are 138 household types in Sichuan and 117 household types in Jiangsu each of which was assigned a unique equivalence scale. A 0001 household containing one adult was set as the numeraire and had a scale equal to unity. Scales calculated for other households are thus interpretable as adult equivalents.





**Table XIII.11**  
**Nutrition (calorie) based adult equivalence scales**

Age (years)	Male Weight	Female Weight
0	0.33	0.33
1	0.46	0.46
2	0.54	0.54
3-4	0.62	0.62
5-6	0.74	0.70
7-9	0.84	0.72
10-11	0.88	0.78
12-13	0.96	0.84
14-15	1.06	0.86
16-17	1.14	0.86
18-29	1.04	0.80
30-59	1.00	0.82
60+	0.84	0.74

*Source:* Dercon (1998).

Note: Calculated from World Health Organization data.

It should first be noted that imputation is an inherently difficult and error-ridden process. Imputation is likely to work best where there is relatively little need for it - when the economy is highly monetized but there is a relatively small amount of own production (such as vegetable gardens) involving goods that have clear market equivalents. Imputation works badly in economies in which a large share of transactions do not pass through the market.

Food that is either home-produced or received as gifts or payment in kind has been the most important imputed item in LSMS surveys to date. In principle, the calculations are straightforward. The respondent is asked to report the values of any home-produced food items consumed by the household during the reference period, and the sum of these values is added to the consumption total. Given the seasonality of production, the recall period probably has to be a year, or at least a typical month over the last year. It may be possible to do better than this when there is a multiple-visit agricultural module in the survey. However, the major difficulties are with valuation, since the respondent is being asked a purely hypothetical question about the sale or purchase of an item that is rarely traded or that may have been traded some time ago (Deaton and Grosh, 2000).

The value of the physical quantities of goods consumed observed by the respondent can be obtained in several ways. As noted in Chapter X, *farm-gate prices* set a lower bound on valuation, since it is usually presumed that consumption is evidence that the good is valued beyond what it would fetch, whereas *market*

*prices*, are likely to be too high because they include transport and distribution margins and because the commodity traded is often of higher quality than its home-grown counterpart. However, once the quantity has been obtained, the respondent could be asked to report one or both of these two prices or simply to estimate the value of the commodity directly. Some degree of cross-checking is possible from the quantities and prices of purchases reported in the agricultural module or from the prices gathered in the community questionnaire (Deaton and Grosh, 2000).

The **China** Living Standards Survey (CLSS), 1995-1997, provides information on household consumption expenditure. The CLSS collects detailed expenditure information on thirty-four items of market purchased food (including expenditure in restaurants) in the previous year. Besides market purchases (including barter), the CLSS gathers information on consumption from home-produced food (total thirty-two items) over the previous year.

The **India** Survey of Living Conditions Uttar Pradesh and Bihar, 1997-1998, on food expenses and home production, collects information on the household's total expenditure on food of various types, including an estimate of the value of home-produced or home-grown food consumed by the household. It also provides an estimate of food consumed that was received as payment in kind, i.e. as remuneration for work done on someone else's farm, as gifts, or as presents from relatives and/or friends.

The **Jamaica** Survey of Living Conditions asks the respondent if there was any expenditure in the previous twelve months on 43 categories of food items. For each item that had been purchased in the last year, the amounts spent during the past seven days and the amount spent during the past 30 days/4 weeks was recorded. In 1992 through 2000, the value of home production and gift food was integrated into the food expense module. Thus the number of items for which this information was collected was expanded from 43 to 55.

In the JSLC surveys from 1988 through 1991, for sixteen food items, the respondent was asked if the household had eaten any food that was home-produced or that was received as a gift. The respondent was asked how much it would cost to buy the amount of home-produced food consumed during the past seven days and the amount consumed during the past 30 days/4 weeks, and the amount it would cost to buy the amount received as gift during the past 30 days/4 weeks. Starting in 1992, the value of home production and gift food was integrated into the food expense module.

The **Morocco** Living Standards Survey provides information on individual expenditures in the past 30 days; individual expenditures in the past seven days; daily (over four days) expenditures on food and household items; and home production and consumption of food.

The **Peru** Living Standards Survey asks questions such as: Does the household produce any food for business or home use; did the household purchase or use self-produced products in past 15 days; how the food item was obtained (for example, self-supplied); and total amount of purchases or self-production in the past 15 days.

The **South Africa** Integrated Household Survey looks at the patterns of food consumption for all the people in the household. It inquires as to whether any of those foods were received in the form of a gift or as payment for work that any member of the household did. It elicits information about whether the household was able to consume any of the foods listed as a result of its being produced by the household. It also asks about what crops, if any, the household was harvesting in the past year.

The **Vietnam** Living Standards Survey, 1997-1998, collects detailed information on market purchases and consumption from home production for 45 food items. Thus, besides market purchases

(including barter), information is also collected on consumption from home production. Again data is obtained on the number of months each item was consumed, but unlike market purchases, the information on the quantity and value of consumption is obtained by asking a single question on the total amount for the previous 12 months (as opposed to asking how often the item was purchased each month and the quantity purchased each time).

The **Zambia** Living Conditions Monitoring Survey I (1996) asked about how much was spent on and consumed from own produce from a list of food items during the previous two weeks.

### **XIII.2.2.8 Imputed rent**

For housing, the largest of the durable goods, the imputation approach again starts from the rental equivalent. Unlike the value of most other durable goods, rents can sometimes be observed directly, and these are the correct numbers to add into the consumption aggregate. For households that do not report rents, the standard procedure is to impute a rent based on the characteristics of the house, as reported in the housing module. One approach is through “hedonic” regressions in which reported rent is regressed on the house’s characteristics (such as size, number of rooms, construction material, and location) and the results are used to calculate rents for other properties where rents are not reported.

The credibility of these regressions is compromised if only a small fraction of the sample reports rents and, more generally, if those who report rents are unrepresentative of the population as a whole. While it is possible to make mechanical corrections for the selection, these corrections usually require arbitrary and untestable assumptions that further compromise the credibility of the process. This is a difficult area. In general, survey analysts should make sure that indefensible imputations are not dominating welfare comparisons. The data required for rent imputations are gathered in the LSMS housing module (and to some extent in the community questionnaire) (Deaton and Grosh, 2000).

The **China** Living Standards Survey (CLSS), 1995-1997, contains basic information on housing from all the 880 farm households interviewed and selected from a total of thirty-one sample villages for the household survey. However, no information was collected on housing rent.<sup>19</sup>

The **Ghana** Living Standards Survey round four (GLSS 4) 1998-1999 seeks information on the type of dwelling, occupancy status, number of rooms and room space, **expenditures**, utilities and amenities as well as the physical characteristics of the dwelling. GLSS 4 seeks information on rent payment(s), either cash or in kind.

The **India** Survey of Living Conditions Uttar Pradesh and Bihar, 1997-1998, on housing and access to facilities, collects information in three areas: the type of dwelling occupied by the household, access to basic services (water, sanitation, and electricity), and access to various facilities providing services. However, no information is collected on rent, despite the fact that certain questions are for renters only.

In **Jamaica** Survey of Living Conditions, questions on housing are designed to characterize the type of dwelling occupied by the household and to determine the amount spent on housing, including rent, water, electricity, and other expenses. Expenses include the amount paid for water and electricity. Information on ownership, rent, mortgage and taxes is also collected.

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<sup>19</sup> Several rounds of pilot surveys for preparing the CLSS questionnaire showed that there are almost no households living in dwellings they do not own. Therefore, in the housing section of the formal questionnaire, there are no questions about house renting activities. To see which method was used to get the house depreciation rate and eventually to obtain the “use value” of dwellings see Appendix D: Household Expenditure Calculation, section 2.3 in: <http://www.worldbank.org/lsm/country/china/docs/chnbinf.pdf>

The **Morocco** Living Standard Survey, 1990-1991, collects information on the status of ownership or rental arrangement; physical characteristics of dwelling; services (water, sewage, etc.); and expenditures on housing.

**Peru** National Survey of Households Living Standards Measurement, May - July 1994, provides information on Ownership Status of Dwelling. For example, rented in exchange for in kind services or money, and asks follow-up questions such as "if rented, from whom rented; if you had to rent, estimated rental value in Soles per month?"

**Vietnam** Living Standards Survey, 1997-1998, contains information on the type of dwelling, housing expenses, and housing characteristics for all households interviewed. Information was collected on ownership status and rental cost if rented.

The **Zambia** Living Conditions Monitoring Survey I (1996) asks about the basis upon which the household occupies the dwelling; how the rent is paid; and how much the household pays in rent per month.

### **XIII.2.2.9 Calculation of net disposable income of agriculture households**

As was noted in Chapter X, income and consumption are different but related concepts. Though the focus of this Handbook is the income of agricultural households, the purpose of measuring income is very much linked to the ability that income gives to consume and thus be reflected in the livelihood of the household. Some economists prefer income as a measure of living standards because they follow a "rights" approach. According to this approach, income, together with assets, measures the potential claims on the economy of a person or family. Other economists prefer to use consumption data as these show the level of living by measuring what people acquire.

Another consideration when deciding whether to use income (including income from assets) or consumption is the time period over which living standards are to be measured. There is a good deal of empirical evidence that even people in poor agricultural societies and people without the ability to borrow much can smooth their incomes within a particular year and perhaps over a series of years, so that consumption will reflect living standards at least throughout one year and perhaps over a series of years (for a review see for instance Deaton, 1997, Chapter 4).

Most people do not receive income every day, and many do not receive income every season - or at least not an equal amount every season. So while consumption over a week, two weeks, or a month is likely to be a reasonable indicator of living standards over a year or over a few years, income will not be. If analysts are interested in measuring averages, income variation will not matter much if the survey itself is spread over a year, since some people's zero incomes will balance out others' high seasonal incomes. However, analysts are usually interested not only in means (LSMS surveys are rarely the instrument of choice for estimating mean income or consumption) but also in inequality and poverty, which are sensitive to the tails of the distribution, especially the lower tail. Gathering data on the previous month's income will overestimate inequality in annual living standards and, provided the poverty line is below the mode of the distribution, will overstate the fraction of people below the line. Although there are also random irregularities and seasonal patterns in consumption, they are typically smaller than those in income, because consumption is less tied to seasonal and weather-related patterns in agriculture than is income. Even so, consumption measured over a reference period of less than a year is likely to overstate poverty and inequality. In addition, the overstatement may not be constant over time if seasonal patterns change with time, because one year is different from another - or over the long run, because agriculture accounts for a shrinking share of household income as economies become richer (Deaton and Grosh, 2000).

These arguments provide a persuasive case that, given the choice, (perfectly measured) consumption is a more useful and accurate measure of living standards than is (perfectly measured) income. These theoretical advantages of consumption are likely to decrease as the period over which it is feasible to gather data gets longer. If it is feasible to visit households on many occasions throughout the year this will clearly capture any seasonality in the household's income. Moreover, if the survey has a panel element so that income can be averaged over a series of years, it makes little difference whether income or consumption is measured, if one can be measured as accurately and as cheaply as the other (Deaton and Grosh, 2000).

The income of many households - particularly but not exclusively agricultural households - varies seasonally throughout the year. In these circumstances, measuring households' annual income (which is the minimum amount of data needed to adequately determine poverty and distribution) would require many visits to the household or reliance on the ability of household respondents to remember their income from many months earlier. However, if consumption is smoothed over the seasons - and much of the literature already cited suggests that this is done in most households - consumption will vary less by season than income does. It may also be possible to collect useful data on annual consumption without making multiple visits (Deaton and Grosh, 2000).

It is generally thought that respondents are more reluctant to share information about their income and (to an even greater degree) their assets than about their consumption. Thus, they are more likely to lie about their income than about their consumption. In many countries income is taxable, at least in principle, and it may be hard for the survey interviewers to persuade respondents that the information they give will not be passed on to tax authorities.

Income from assets is likely to be particularly hard to capture because the ownership of assets is highly unequal, and the wealthy, who own the most assets, are typically thought to be the least likely to cooperate. Given that most of the survey interviews in developing countries must be conducted in a semi-public place, respondents are often reluctant to state their wealth in the presence of relatives and friends. These problems of measuring assets and asset income are likely more severe for measuring inequality than for measuring poverty, since households below the poverty line typically have few assets (Deaton and Grosh, 2000).

The **Ghana** Living Standards Survey round four (GLSS 4) 1998-1999 collects data on the household's agricultural activities. It provides data on agricultural production, technology, processing, marketing, income and consumption patterns. The GLSS 4 was also designed to obtain information on income for the household specifically from non-farm enterprises. It identifies which household members are responsible for each non-farm enterprise in terms of decision-making and the allocation of income it generates. Non-farm enterprises that are currently operating and those that were operational some time in the past 12 months but currently not operating are considered.

The GLSS 4 1998-1999 obtains information on income transfers, that is all incomes of members of the household other than that from paid employment. Transfers to the household are considered as income where as transfers from the household constitute expenditures, thereby completing the income and expenditure current accounts of the household.<sup>20</sup> Furthermore, the GLSS 4 1998-1999 is designed to collect information on loans, assets and savings.

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<sup>20</sup> Included in these transfers are remittances. Remittances are regular or irregular contributions in terms of money or goods and food made to person(s) living abroad or elsewhere. For example, any money, food or goods sent out or received by the household to/from a household member or relative staying abroad or elsewhere is a remittance.

The **India** Survey of Living Conditions Uttar Pradesh and Bihar, 1997-1998, also aims to capture the flow of remittances and transfers into the household.<sup>21</sup>

According to the **Jamaica** Living Standards Measurement Survey, theoretically, all the elements of a household provide the following equation:

$$\begin{aligned} \text{Household income} = & \text{household consumption expenditure} + \text{non-consumption expenditure} \\ & + \text{savings} - \text{net debt (net repayments of principal and interest on debts} \\ & \text{contracted by the household} - \text{net repayments of principal and interest on} \\ & \text{money lent by the household).} \end{aligned}$$

**Jamaica** Survey of Living Conditions records the value of all miscellaneous income received by household members during the past twelve months. Income sources include: remittances from relatives or friends that live abroad, rental payments for land or property, social security and other pensions and interest from loans.

The **Morocco** Living Standards Survey, 1990-1991, asked questions to identify home enterprises.

The **Peru** Living Standards Survey, 1994-1995, asks whether the household received non-labour income in the previous 12 months and about the source of other income received. It also inquires as to whether the household took a loan or other source of credit.

The **South Africa** Integrated Household Survey solicits information about income received from absent members of the household or from any other person from the list of people who make contributions to the household. It also talks about any money or any form of assistance that members of the household may have received from sources which do not involve employment of some kind. There are many ways in which the household can receive money without being employed. For example, pension payments, charity, unemployment insurance fund, government disability grants, and other forms like that.

The **Vietnam** Living Standards Survey, 1997-1998, collects data on money and goods that come into the household as remittances or from other sources unrelated to employment such as social security, pension, poverty alleviation funds, interest on savings or investments, insurance payments, gifts, inheritance, lottery winnings, renting out of equipment or buildings and the sale of vehicles or durable goods.

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<sup>21</sup> These do not include payments for work or purchases of goods or services in this section, and do not include transactions, which are clearly loans. Also, transfers between household members are not included. However, payments received from any person not considered to be a household member according to the survey definition are included.

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## ANNEX A

**UNECE questionnaire concerning income of agriculture households**

Please provide notes for your country concerning the issues below:

1. Definition of a household, agriculture household and rural household.
2. Criteria for classification of households into socio-professional groups (“narrow” target definition), e.g. based on the main source of income of the household’s reference person.
3. Mechanism used to introduce short-term stability in numbers of agricultural households, e.g., the use of average incomes over several years.
4. Treatment of forestry and/or fishery households. Are they included in agricultural households?
5. “Broad” definition of an agricultural household, e.g. households that derive some income from independent activity in agriculture. If such a definition is used please indicate thresholds.
6. Treatment of non-personal form of institution in the household sector (religious houses, farming cooperatives and similar institutions).
7. Treatment of holdings operated as corporate institutions but *de facto* run as family businesses.
8. The equivalence scale used to give consumer units. There are differences in the age at which the coefficient for children or elderly persons is replaced by that for additional adults. Please give details on the equivalence scale used to estimate numbers of consumer units.
9. The basis of estimating the value of own-consumption (of agricultural and non-agricultural goods and services), e.g. valued at the basic price of similar goods sold on the market.
10. The basis of calculating the imputed rental value of own dwellings, e.g. the estimated value of rental that a tenant would pay for the same accommodation.
11. Calculation of net disposable income of agriculture households: Indication of items covered.



Please indicate in the table below with the following symbols:

y = yes, explicit data

\* = implied data covered elsewhere

(y) and (\*) = covered in part

@ = gross of capital consumption

	Please indicate with symbols above
No. households	
No. persons	
No. consumer units	
1 FROM INDEPENDENT ACTIVITY	
1a From independent agricultural activity	
Net Operating Surplus	
Income	
1b From independent non-agricultural activity	
Net Operating Surplus	
Income	
1c Net Operating Surplus from imputed rental value of owner-dwellings	
2 DEPENDENT ACTIVITY of which	
2a Wages and salaries	
2b Employers' actual social contributions	
2c Imputed social contributions	
3 PROPERTY INCOME RECEIVED of which	
3a Interest	
3b Dividends	
3c Withdrawals from quasi-corporations	
3d Property income attributed to insurance policy holders	
3e Rents on land and subsoil assets	
4 NON-LIFE INSURANCE CLAIMS	
4a Claims on capital items	
4b claims on personal accident	
5 SOCIAL BENEFITS received (other than social transfers in kind)	
6 MISCELLANEOUS INWARD CURRENT TRANSFERS	
7 CURRENT RECEIPTS Sum of 1-6	
8 PROPERTY INCOME PAID of which	
8a Interest on loans for	
(i) farming purposes	
(ii) purchase of agr. Land and buildings	
(iii) other business purposes	
(iv) private and other credit	
8b Rents on	
(i) agricultural land and buildings	
(ii) other business land and buildings	
9 NET NON-LIFE INSURANCE PREMIUMS	
10 CURRENT TAXES ON INCOMES AND WEALTH of which	
10a on income	
10b on capital gains	
10c on capital or wealth	

		Please indicate with symbols above
10d	on private use of vehicles etc.	
11	SOCIAL CONTRIBUTIONS of which	
11a	Actual	
	(i) employers' actual social contributions	
	(ii) employees' social contributions	
	(iii) by self-employed and non-employed persons	
11b	Imputed	
12	MISCELLANEOUS OUTGOING CURRENT TRANSFERS of which	
12a	to NPISHs	
12b	between households	
12c	other	
13	NET DISPOSABLE INCOME (7 minus 8-12) OR ANOTHER DEFINED CONCEPT	
14	SOCIAL TRANSFERS IN KIND	
15	NET ADJUSTED DISPOSABLE INCOME	

## ANNEX B

### Replies to the UNECE questionnaire concerning income of agriculture households

The following EU Countries have replied:

Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Slovakia, Slovenia, Sweden and United Kingdom.

Replies have not yet been received from the following EU Countries:

Austria, Cyprus, Greece, Netherlands and Spain.

The following countries that are Member States of the UNECE and/or OECD but not of the EU have replied:

Albania, Andorra, Armenia, Australia, Azerbaijan, Belarus, Bulgaria, Canada, Croatia, Georgia, Japan, Kazakhstan, Kyrgyzstan, Mexico, New Zealand, Norway, Republic of Korea, Republic of Moldova, Romania, Switzerland, the former Yugoslav Republic of Macedonia, Turkey, Turkmenistan, Ukraine and United States of America.

Replies have not yet been received from:

Bosnia and Herzegovina, Iceland, Israel, Russian Federation, Serbia and Montenegro, Tajikistan and Uzbekistan.

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## ANNEX C

## A Sample of LSMS Surveys

Country	Year	Household count	Questionnaire	Additional Metadata Documentation on the web	Access Policy
Brazil	1996-1997	4,940	Portuguese PDF English PDF	<i>Additional Documentation for the 1996-1997 Brazil Survey of Living Conditions</i> <a href="http://www.worldbank.org/lsm/country/brazil/br96docs.html">http://www.worldbank.org/lsm/country/brazil/br96docs.html</a>	No prior permission from government is required to use the data.
China (Heibei Liaoning Province)	1995 -1997	780	Household Chinese Household English Village Chinese Village English	Documentation for the China - Heibei and Liaoning Living Standards Survey <a href="http://www.worldbank.org/lsm/country/china/chndocs.html">http://www.worldbank.org/lsm/country/china/chndocs.html</a>	No prior permission from government is required to use the data.
Ghana	1987-1988 1988-1989 1991-1992 1998-1999	3,200 3,200 4,565 5,998	Household Questionnaire Part A PDF (97 KB) Household Questionnaire Part B PDF (117 KB) Community, PDF - (73 KB) Price, PDF - (89 KB)	Documentation for the 1998-1999 Ghana Living Standards Survey <a href="http://www.worldbank.org/lsm/country/gh/gh989doc.html">http://www.worldbank.org/lsm/country/gh/gh989doc.html</a>	Prior government permission is required, but the track record for a timely, positive response is good.
India (Uttar Pradesh and Bihar)	1997-1998	2,250	Household Questionnaire, PDF (266 KB) Village Questionnaire, PDF (132KB)	<i>Documentation for the 1997-1998 Uttar Pradesh and Bihar Survey of Living Conditions</i> <a href="http://www.worldbank.org/lsm/country/india/upbdocs.html">http://www.worldbank.org/lsm/country/india/upbdocs.html</a>	No prior permission from government is required to use the data.
Jamaica	1988-2000 (annual)	2,000-7,300	Questionnaires for all years: Survey of Living Conditions Labour Force Survey	<i>Documentation for the Jamaica Survey of Living Conditions 1988-2001</i> <a href="http://www.worldbank.org/html/prdph/lsm/country/jm/jmdocs.html">http://www.worldbank.org/html/prdph/lsm/country/jm/jmdocs.html</a>	Prior government permission is required, but the track record for a timely, positive response is good.
Peru	1985 1991 1994	5,120 2,200 3,500	<i>Household questionnaire;</i> Community questionnaire	Basic Information Peru: Living Standards Measurement Survey (PLSS) 1991 <a href="http://www.worldbank.org/lsm/country/pe91/docs/pe91_e.pdf">http://www.worldbank.org/lsm/country/pe91/docs/pe91_e.pdf</a>	No prior permission from government is required to use the data.
South Africa	1993	9,000	Household questionnaire, Community questionnaire	Documentation for the South Africa Integrated Household Survey <a href="http://www.worldbank.org/lsm/country/za94/za94docs.html">http://www.worldbank.org/lsm/country/za94/za94docs.html</a>	No prior permission from government is required to use the data.
Vietnam	1992-1993 1997-1998	4,800 5,994	Household Commune School Price	Documentation for the 1997-1998 Vietnam Living Standards Survey <a href="http://www.worldbank.org/lsm/country/vn98/vn98docs.html">http://www.worldbank.org/lsm/country/vn98/vn98docs.html</a>	Prior government permission is required, but the track record for a timely, positive response is good.
Zambia	1991* 1993* 1996 1998 2002	9,886 (PS I) 10,121 (PS II) 11,752 (LCMS I) 16,710 (LCMS II)	Household	The 1996 Zambia Living Conditions and Monitoring Survey (LCMS) <a href="http://www4.worldbank.org/afr/poverty/measuring/Indicators/ZMB_96.PDF">http://www4.worldbank.org/afr/poverty/measuring/Indicators/ZMB_96.PDF</a>	Contact ZAMSIF

Notes: \* Priority survey I (1991) and Priority Survey II (1993), which subsequently were replaced by LCMSI-III. During 1985-1999 the following countries implemented full-size LSMS surveys: Algeria, Brazil, Côte d'Ivoire, Ecuador, Ghana, the Kyrgyz Republic, Mauritania, Morocco, Nepal, Pakistan, Panama, Peru (1985-1986, 1991, and 1994), Turkmenistan, and Vietnam.

Scaled-down LSMS Surveys have been carried out, with World Bank support in Albania, Azerbaijan, Bolivia, Bulgaria, Pakistan (1995-1996 and 1996-1997), Peru (1990) and Tanzania (Grosh and Glewwe, 2000b).

## ANNEX D

## Sample of Developing Countries conducting Agriculture Censuses

Countries	On Web	1980 round	1990 round	2000 Round
Brazil	Yes	1980-1985		1996
China	Yes			1997
Ghana				
India	No	1976-1977 / 1980-1981	<u>1985-1986 /</u> <u>1990-1991</u>	<u>1995-1996 /</u> <u>2000-2001</u>
Jamaica	No	1978-1979		
Peru	Yes		1994	
South Africa	Yes		1993	2002
Vietnam	No		1994	2001
Zambia	Yes		1990	(2000)

Source: <http://www.fao.org/es/ess/census/wcares/default.asp>



## **XIV INCOME AND WEALTH STATISTICS FOR SELECTED COUNTRIES**

This chapter provides illustrations of methodologies currently used to generate statistics on the income and wealth of agricultural households in a range of OECD countries and outlines their main findings. The examples are the United States (the Agricultural Resource Management Survey), Italy (three surveys), Denmark and Sweden (both of which utilise administrative registers that combine several datasets), Canada (results only), Eurostat's Income of the Agricultural Households Sector (IAHS) statistics that contain income estimates for all EU-15 Member States other than the United Kingdom, and Australia.<sup>1</sup> Various forms of data systems are encountered, singly or in combination, including farm accounts surveys, household surveys in which farm families form only one socio-professional group, and taxation records. They also display a wide variety of definitions, particularly of what constitutes an agricultural household and how income is measured, that are important to the results obtained. The lack of comparability between countries is a handicap and demonstrates the potential usefulness of the present Handbook. Nevertheless, some common features can be found that transcend methodological disparities and which are of importance in understanding the economic position of households that operate farms. Attention will be drawn to these in Chapter XV.

The nature of the material means that each country (and the EU) is best treated as a stand-alone section, with its own set of references. Tables and figures are grouped at the end of each section (though they are numbered consecutively throughout the chapter). This structure should also facilitate the incorporation of other country examples in later versions of this Handbook.

### **XIV.1 United States**

#### **XIV.1.1 The Agricultural Resource Management Survey (ARMS)**

The Agricultural Resource Management Survey (ARMS) is essential to the research and analysis mission of the Economic Research Service (ERS), and is a key input to economic statistics produced by the United States Department of Agriculture and other agencies. It provides the information base for sector estimates of value added, income for farms by type of commodity specialization, costs of producing major crop and livestock commodities, indices of prices paid by farmers for production inputs, and a report on the status of family farms. The ARMS also supports the Department's estimates of household income and wealth, and is used in a variety of applied farm production, management, technology adoption, resource use, and household well-being research applications. While the ARMS became a stand-alone survey beginning with the 1996 calendar year survey, it retained and built upon features of survey activities that date to the 1970s. This paper provides a synopsis of events that contributed to the development of the ARMS, gives an overview of purposes served by the survey, discusses survey design and content, highlights research program activities, and closes by giving a perspective about the ARMS as an evolving survey instrument.

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<sup>1</sup> Readers should also consult publications from the OECD that report results from its member countries, especially OECD (2005) *Policy Brief: Farm Household Income: Towards Better Informed Policies* and OECD (2003) *Farm Household Income: Issues and Policy Responses*, ISBN: 92-64-09965-4. Both are available on [www.oecd.org/agr/policy](http://www.oecd.org/agr/policy)

#### **XIV.1.1.1 Origin of the ARMS as a principal USDA survey**

In 1974, the United States Congress wrote legislation that required the United States Department of Agriculture (USDA) to “conduct a study of the costs of producing wheat, feed grains, cotton, and milk and to produce annual estimates of costs that were representative of the sizes and types of farms engaged in production, and the range of technologies in use.” The requirement to produce cost estimates was followed by funding to conduct commodity surveys.

Meanwhile, funding was also provided in the mid-1970s to survey farm business establishments about production expenses, capital expenditure, and other general economic information. This survey became the Farm Production Expenditure Survey, which the ERS and the National Agricultural Statistics Service (NASS) shared jointly in developing and funding. This collaborative effort was facilitated since both the research agency and statistical agency were in the same mission area of the Department.

The Farm Production Expenditure Survey contained detailed questions about production practices and input use in crop and livestock production, and about expenditures for the business as an establishment. Information for sales, inventories, assets, or liabilities of the business was incomplete or non-existent in surveys conducted during the late 1970s and into the early 1980s. Inadequate survey content prevented analysts from developing estimates of income for business establishments, producing firm-level balance sheets, or putting into context costs incurred in the production of crop or livestock commodities.

#### Extending survey activity for farms and households of farm operators

Three events provided motivation to change the survey content and sample design of the Costs of Production and Farm Production Expenditure Surveys. One involved ERS efforts to re-examine economic information produced for the United States farm sector, and a growing recognition of the inadequacy of the “one farm, one farmer, and one farm household concept.” Second, was recognition of the need to collect data that more accurately reflected the relationship of households to their farm business. The third major event that crystallized need for improved business-household income and finance data was the farm financial crisis that spanned the United States in the 1980s. The ERS and the NASS were responsible for measuring the extent of financial difficulty in farming and rural communities, and financial institutions, in the United States but existing survey instruments were not suited to this task.

Economic accounts and estimation systems built in the early part of the twentieth century were not very effective in providing information about different groups of farms or households that made up the farm sector a half-century later. The agricultural economic and finance literature was evolving to present a case for thinking about farming in terms of households as well as business establishments (Schertz, 1982). Key questions raised by this work included: To what extent was resource ownership and use separated in farm production? What was the distribution of farms among different household models, ranging from those that owned all resources and retained earnings to those that provided entrepreneurial resources, but only some of the other resources used in production? What was the distribution of income and wealth among different household groups? To what extent did households that provided resources to farming also provide resources to other activities? A system of data that included information on both farms as business establishments and on households offered a solution to address these questions (Schertz, 1982). Microeconomic indicators were needed to test economic hypotheses and to extend the knowledge base for farms and farm households, especially with regard to analyses of income and wealth (Johnson, 1984; Johnson & Baum, 1986; Baum & Johnson, 1986; Gardner, 1975; Ahearn, 1986). These articles pointed to conceptual shortcomings in farm and farm household data and made recommendations for improvement in survey content.



Meanwhile, farm financial difficulties had become an agenda item for the United States farm sector at the beginning of the 1980s. The USDA and the public had only incomplete information and anecdotal evidence with which to assess the scope, intensity, and nature of the problem. ERS analysts had started to revise content of farm business surveys to support estimates of business establishment cash operating margins and to fortify revised farm sector accounts. However, these actions by themselves were insufficient to address debt levels, farm business solvency, and the debt service capability of institutions that operated farms, including farm households. Moreover, the data were not sufficient to address whether household sources of income and equity altered the perspective about farm business vulnerability.

The ERS and the NASS concluded that a new survey design was needed, while recognizing that the agencies faced time and funding constraints. The solution was to merge the independent Costs of Production and Farm Production Expenditure Surveys into an integrated survey of farm businesses. The goal was to meet data needs for specific farm enterprises, farms as business establishments, and for farm operator households, from the perspective of a rudimentary measure of “non-farm” income. These objectives were achieved by developing a new enterprise farm household based survey. The integrated survey established for 1984, called the Farm Costs and Returns Survey (FCRS), consisted of a sample drawn from a list frame of medium to large farms and a complimentary area frame for completeness that covered new entrants and smaller farms. The FCRS used multiple questionnaire versions in a modular design. Each questionnaire version contained common, global questions that permitted collection of data items for farms and households across the entire survey sample.

Improvements in survey design and content resulting from the 1984 merger enabled the USDA to generate estimates of net cash income for business establishments, a measure of net cash income for operator households, and measures of business solvency and debt repayment ability. Information for farms, including debt owed to specific lender groups, allowed ERS analysts to assess the extent of potential loan losses of farmers and lenders and to examine how potential financial problems varied among farms and households by size of business operation, location of farm, and by lender group (Hanson, 1987; Hanson *et al.*, 1991; Jolly *et al.*, 1985; Johnson *et al.*, 1985; Johnson *et al.*, 1987). The collaborative nature of work needed to develop the FCRS under tight time constraints and using available resources drew heavily on the ERS and the NASS being in the same mission area of the USDA.

#### Extending data to support farm financial statements

Recognizing that cash based measures of financial indicators were incomplete, survey questionnaires were revised to enable more complete specification of the income statement and balance sheets prepared for farm businesses. New questions measured depreciation and changes in inventory value, providing the basis to move from cash based measures of income to an accrual basis. Other important data improvements also occurred during the mid-1980s. For example, the use of contract arrangements in commodity production was explicitly measured. This was important because it allowed assignment of income and expenses to the appropriate entity. As a result, both the income statement and balance sheet produced for a farm not only reflected economic and accounting standards and concepts, but that their components were partitioned among farms, landlords, and contractors.

#### Expanding the scope of household income, wealth, and demographic data

Surveys conducted for 1986 and 1987 were the first attempts to collect more substantial information for farm operator households. Information was collected for four components of off-farm income: non-farm related business income, wages and salaries, interest and dividends, and all other non-farm sources of income. Demographic and other information, such as primary occupation, operator age, and education level, which put farm and household income into a broader context that extended beyond the association with a

business, were also collected. Off-farm income data collected during this period provided the first opportunity to develop a perspective about the ability of households to service debt out of total income. Moving to this level of analysis raised issues for further refinement, such as the existence of non-farm assets and liabilities and the level of household consumption expenditures. This set the stage for modifying the FCRS to allow a more explicit focus on the household.

The survey developed for the 1988 calendar year marked the first extensive collection of data for the operator's household. Innovations that focused on the household included information on household sharing of income with other entities enabling a determination to be made of what portion of the farm business net income was earned by the farm operator household. The survey also gathered information necessary to prepare farm operator household balance sheets. Information on household assets by component of asset, such as cash, chequing account, money market account, corporate stock, surrender value of life insurance and other financial assets, trucks, cars, and other assets was gathered. Detailed information on household assets was accompanied by questions focused on household debt and more explicit accounting of off-farm income. Hours of off-farm work by the farm operator and spouse were also enumerated along with their on-farm work hours. The survey also collected data on consumption expenditures, and goals and attitudes about the farm operation.

While the 1988 survey could be characterized as the first concerted household data collection, the instrument developed for 1991 was designed to enable estimation of a household model while supporting the development and reporting of estimates of household income and wealth. This was accomplished by extending questions pertaining to household economics to include questions related to operator and spouse labour allocation and employment decisions. The specific types of information included: the number of household members, age and education, commuting distance, years worked at a particular job, how long the household had operated a farm, whether the operator or spouse were raised on a farm, years worked at any off-farm job, benefits from off-farm work, consumption expenditures, and household assets and liabilities. The 1991 survey also contained questions needed to support estimation of farm business and household income and wealth, to establish a relationship between the household and the farm it controlled, and to support assessments of the financial status of farm households drawing on both income and wealth attributes.

The collection of household-farm linked data was enhanced by adding modules of questions focused on the business as an establishment, the household as an institutional unit, and members of the household to an existing survey that was national in scope. While the content and sample design of the ongoing survey were changed, existing funds were used for data collection.

#### Agricultural Resource Management Survey (ARMS) emerges from ongoing survey activity

In 1996, the ERS and the NASS undertook a second merger of independent survey activities. This merger combined the FCRS and Cropping Practices surveys conducted by the USDA. The Cropping Practices survey focused on collection of yield, production practices, and input use data at a field level. Advantages of this merger were to link household and farm economic data to field-level chemical use and production practice data and to expand information available for assessing cost distributions and technology and practice adoption.

Merger of independent surveys into the ARMS set the stage for further integration of the ARMS into NASS' ongoing Census and national survey programs. Integration with the Census of Agriculture was accomplished in 1997 by including questions in the ARMS survey instrument that were needed to complete a Census questionnaire. The practical result of the Census-ARMS integration was to strengthen the ARMS sample, edit, and summary programs and procedures by drawing from routines created for the Census. Even

beyond this, the integration of the ARMS and the Census provides a direct link from the ARMS to the Census.

#### **XIV.1.1.2 ARMS design characteristics**

The ARMS is designed as a multiple phase, multiple version survey. The first phase of the survey is a screening sample to identify operations that are “eligible” or “in-scope” business operations for the ARMS (see Figure XIV.1). The second and third phases of the ARMS collect information to underpin USDA estimation and research responsibilities. The ARMS supports estimation of household income and wealth, business income and performance measures, sector farm income and value added, production costs for crop and livestock enterprises, and chemical use by farmers in the production of crop and livestock commodities. The survey is personally enumerated over several months (from July to April) using multiple survey forms (see Figure XIV.1). Samples qualified in the Phase I screening activities for a cost and return survey are contacted in late fall to obtain field-level information about practices and inputs used in the production of the commodity of interest. Those that respond in Phase II are contacted again for a follow-up interview as part of Phase III, to obtain information about their farms and households. This link enables analysts to not only establish estimates of costs of producing commodities, but to examine adoption and uses of technology, use of conservation and environmental practices, and participation in government programs.

The largest portion of the total sample is focused on farms and households, not commodity production. This portion of the survey is conducted during the winter to collect information from operators about their farm operation and the economic and financial status of their households, along with socio-economic and demographic information used in classification and analysis. Questions are asked about the prior calendar year. Given the sample design, Phase III interviews for commodity producers can be combined with general purpose phase III farm household interviews to achieve greater statistical reliability associated with the larger sample.

ARMS samples are stratified by size of operation, type of industry classification, and commodity acres. For the farm household phase III version of the survey, strata size groups for each state include farms over \$1,000,000 in sales, farms with \$500,000 to \$1,000,000, farms with \$250,000 to \$500,000, farms with \$100,000 to \$250,000, and farms with \$1,000 to \$100,000 in farm value of sales. Farms are further stratified to reflect industry groups such as oilseeds, grains, beans, cotton, milk, or cattle and calves. The farm type classification follows the major industry groups classified in the North American Industry Classification System.

The phase II sample reflects the presence and level of targeted commodity production activities for the reference year. Since the USDA is charged with reporting production costs and returns and chemical use for selected commodities (principally those for which farm programs have traditionally been developed), a portion of the sample has to reflect acreage of major crops. Thus, the sample is stratified to ensure representation of a range of acreage classes. For example in 2004, the sample strata included producers of cotton that had over 1,500 acres, from 1,000 to 1,499 acres, from 500 to 999 acres, from 200 to 499 acres, and from 1 to 200 acres.

#### **XIV.1.1.3 Content of current ARMS survey questionnaires**

The ARMS uses a modular questionnaire design, much like the overall design of the survey itself. All but a few modules are oriented towards collecting information needed to implement the sector-household income links illustrated in Figure XIV.2. Remaining modules collect information required to estimate business and household wealth, to measure household labour allocation and sources of off-farm income, to

classify farms and households by structure and demographic attribute, and to support analyses of performance and well-being.

#### Production characteristics of the farm

The initial section of the questionnaire obtains information about rents paid and received that are used in construction of the farm income account and asks the respondent to identify the type of farm operation based on which commodity (or group) represents the largest portion of gross income. The remainder of the first section contains questions that establish the amount of acreage operated, land ownership, and the commodities produced by the farm (see Figure XIV.3). While focused largely on physical attributes of the farm, information is collected to account for the physical quantities of crops produced, the amount owed a share-rent landlord, and the quantity used on farms as an input in further production activities.

#### Business income sources

Information needed to estimate a farm's gross revenue is gathered prior to collecting input expenditures (see Figure XIV.4). This follows the organization of typical income statements. Use of contract arrangements is fairly common among larger farm businesses. It is important to establish the presence of, and collect information on, production contracts, since the farm typically does not own the commodity produced under such contracts. As a result, only a fee for service is counted as part of farm earnings. Marketing contracts are different since farms own the commodity. Payment for commodities delivered under a marketing contract may stretch over multiple years. Thus, the presence of contracts affects accounting for income. This is particularly the case at the farm and household level and is a major reason why we cannot assume that operator households earn all of the income generated by farm businesses.

The income account is completed by collecting cash sales and earnings of the farm from other sources. These other earnings generally arise from government payments or from income earned from use of the farm's resources in gainful activity other than production of crops or livestock. Insurance payments that arise from weather damage or some other source, which may vary over time and among farms, are also included in other farm related income.

#### Purchased inputs

The ARMS accounts for the operating and capital expenditures of operators, their landlords, and any contracting entities that may be participating in the business. All major input categories are covered and are set up to enable development of both a standard business income statement and an estimate of a farm's value added (see Figure XIV.5). The ARMS accounts for employee compensation, real estate and non-real estate interest, and capital consumption. These items are needed to move from an estimate of gross value added to net value added and from net value added to net income. Employee compensation is of special interest to the measurement of household income. While wages paid to the operator or household members are expenses to the farm, they are sources of income to the household. Questioning is set up to support this difference between the farm and the household.

#### Measurement of household income from farming

Household income from farming draws on output, revenue, and expense data collected to provide estimates of value added, net farm income, and net cash income for the farm (see Figure XIV.6). Cash income for the business is derived by eliminating measures of non-cash income and expenses from estimates of net farm income. This is achieved by collecting information on change in the market value of inventory

for crops, livestock, production inputs, and accounts receivable. In addition to depreciation, data are also collected for non-cash expenses and income items such as unpaid benefits to labour, home consumption of farm produced goods, and imputed rents for operator occupied housing owned by the farm operation. These rents, like other non-cash items, are excluded from net farm income to arrive at a cash based estimate of income from farming.

In the United States, about 300,000 households, in addition to farm operator households, share in the net income of farm businesses. The ARMS explicitly accounts for income accruing to the operator's household by collecting data on the share of farm income received by the operator. To go from this correctly portioned farm business net cash income to an estimate of household income from farming, other sources of farm related earnings such as wages paid to household members by the farm are added. This last measurement step illustrates that, as self-employed farm operators, households may decide to pay themselves a wage, increase farm expenses, and reduce farm income, but when the household is viewed as the measurement unit, farm wages constitute earned income.

#### Measurement of household income from farm and off-farm sources

Estimates of household income consist of a household's earnings from its farming activities and from its off-farm sources. Based on experience, ERS collects off-farm income data in a series of questions focused on how the household may choose to allocate its resources (labour, entrepreneurial capabilities, financial assets, and physical capital) outside the farm business (see Figure XIV.7). The household may be entrepreneurial and operate another business or a second farm. Or, household members may work off-farm for a wage or salary. For all income except wages and salaries, data are usually collected as a total for the household from each source. For wages and salaries, questions ask about wages earned by the operator and the spouse which, when combined with information on the allocation of labour hours, helps support estimation of household models. In addition to earned income from wages, salaries or self-employment and property income such as interest, dividends or rents, the ARMS asks for transfer income along with any other cash sources of income earned by the household.

#### Measurement of business and household net worth

Data are collected to develop a current market value basis balance sheet at a point in time, which for the ARMS is the last day of the calendar year. The ARMS' treatment of the balance sheet has made collection of data to improve measurement at all levels of aggregation from sector to farm and household more explicit. For example, the ARMS asks for each component of land and building assets (operator's dwelling, other dwellings, other farm buildings and structure, orchards, trees and vines and land) and sums these to reach a total land and building value (see Figure XIV.8). This approach provides information that supports the income account as well as the balance sheet. Remaining questions for farm assets focus on establishing value levels for crops stored, livestock (including separate estimates for breeding and non-breeding livestock), production inputs (including separate estimates for inputs on hand and inputs used for crops destined to be fed to livestock), trucks, cars, machinery, tools, equipment, stock in farm cooperatives (which may be required to contain business loans, purchase inputs, or sale outputs), money owed the operation for sale or production of agricultural commodities or products, and other assets owned by the operation. For crops, livestock, production inputs and money owed the farm for sales of production, beginning and end of year values are collected. Year over year change in the value of inventory for these items is used in developing farm level estimates of net income and value added. In contrast with the approach used in the sector accounts, physical quantities of crops and livestock on hand at points in time are not collected so that they could be valued with an average price. A more general approach is used to lessen respondent burden.

Information about farm debt is collected to support calculation of net worth, with net worth being equal to total value of assets minus total debt. Specific information for up to the five largest loans is obtained along with the total for any debt owed on additional loans. For each loan, information on the balance at year-end, interest rate, year it was obtained, portion for farm purposes, purpose of the loan (such as refinancing) and whether or not the loan was guaranteed by some government entity is requested. These data are used to produce an estimate of the farm's debt service commitment.

In addition to debt repayment capacity measures, the ARMS business balance sheets are used with farm-level income statements to produce indicators of profitability, solvency, liquidity, and financial efficiency for the farm.

Moving beyond the farm business to the household, the ARMS explicitly measures sources of household non-farm assets and debts on a more frequent basis (see Figure XIV.9). Annual estimates of household assets and liabilities are obtained to combine with detailed farm business asset and debt measures. Detailed components of non-farm assets and debt are collected periodically in the ARMS. These data are used to gauge household participation in a variety of financial markets and to examine savings and investment behaviour in the context of a portfolio that reflects households' goals and objectives, and to compute extended measures of well-being that incorporate both income and wealth measures into the analysis.

### Classification and analysis

The ARMS is developed to recognize a long-standing interest in characterizing farms and households using a variety of size, organization, vocation, work status, and income dimensions. This work recognizes farm and household diversity. Recently, emphasis on households and individuals that operate farms has expanded. This expansion has resulted from dual career, multiple job holding experiences becoming more common among farm households and from farms being organized or reorganized so that, in some cases, the operator's household and its members neither provide all assets nor earn all farm income.

Placing these changes into context along with traditional information needs requires data for firms, households, and individuals engaged in farming. The ARMS has been designed to collect data at each level of measurement — farm, household, and individual. For the farm, the focus is on identifying the number of operators engaged in the business, structure of the farm's management team, the legal status of the business, number of households sharing in business income, and the number and types of claimants on farm income. These farm business data help measure how total income produced by the farm is shared among a variety of stakeholders and provides a perspective about the diverse nature of farms in the United States.

Operator, spouse, and household data are intermingled. From an individual perspective data that traditionally have been collected for operators such as age, education, gender, race, occupation, and off-farm work hours have been extended to the primary operator's spouse and for most items, excluding off-farm work, to a second or third operator if present on the farm. Each of these individuals is asked to provide a response to questions about who performs selected managerial or production tasks for the farm. Farm-based questions are expanded by asking respondents about their farm or off-farm occupation and their allocation of work time to off-farm jobs. In addition, the ARMS collects information about years of experience with farm and off-farm jobs, reasons for off-farm work, timing of farm and off-farm work decisions, and type of work performed. These data help put on-farm and off-farm work decisions into perspective. To further characterize differences among households that operate farms, a variety of goal, attitude, managerial choice, and policy response questions are asked. For example, in recent years, questions have been asked about retirement and succession plans, timing of input purchases, and response to changes in input prices.

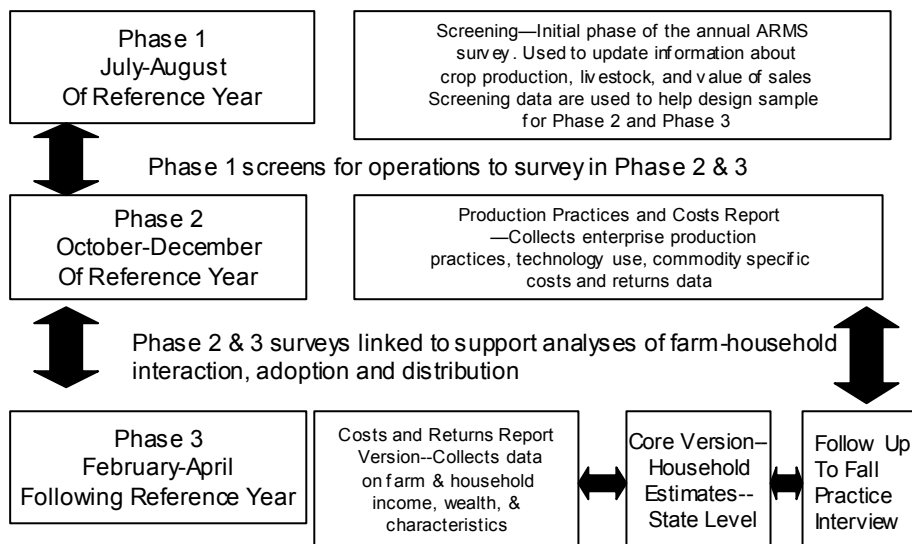
Information about how farmers generally allocate fixed direct payments received from government programs between farm and household uses has also been requested.

Household questions are designed to provide information about the structure and economic situation of the household. Income, asset, and debt data are extended with a series of questions about the household's estimate of basic needs, living expenditures, prior year levels of income and expenditures, and the size and composition of the household as measured by the number and age of household members.

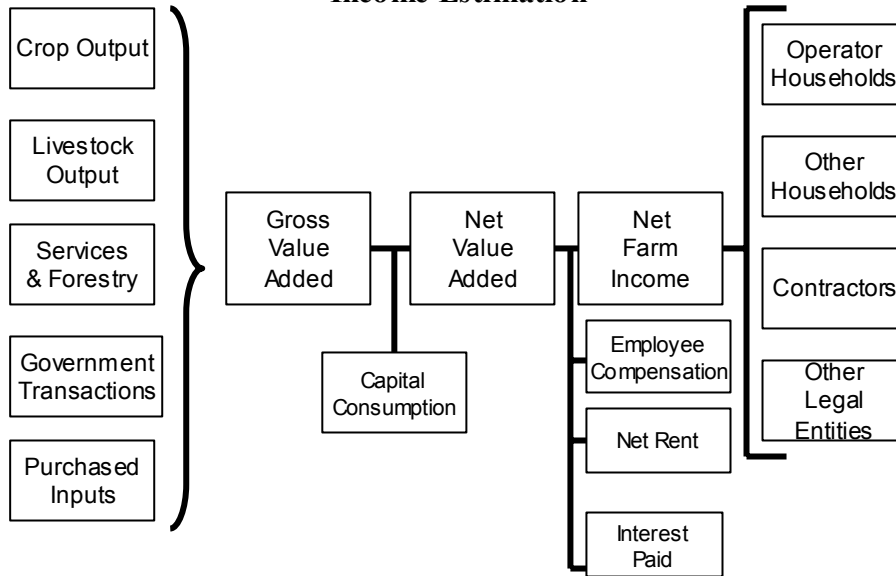
**XIV.1.1.4 ARMS: An evolving survey**

The ARMS is an evolving survey instrument. The ERS and the NASS have made many substantive changes to help ensure that survey results more accurately align with official estimates from all parts of the United States farm economy. Likewise, close attention has been paid to survey content from two major vantage points. First, care is taken to make sure that the ARMS provides data to implement economic and accounting concepts ingrained in estimates of income and wealth. Second, the ARMS is used to assist research focused on issues of importance to the USDA and the farm sector. Issues change over time. Likewise, the organization of farms and the households that control them change and adjust to a variety of policy, economic, and personal stimuli. These adjustments in the various target populations (individuals, households, and farm businesses) indicate that the ARMS will continue to adapt. New methods and ways of collecting data, both to be more effective in reaching farmers and in reducing their burden, will be tested. The ERS and the NASS will continue to examine content requirements to meet new data needs while ensuring that up-to-date concepts are used in the measurement of household, business, and sector income and wealth. Taken together these steps will refresh the ARMS and increase the likelihood that it will remain a valuable instrument that adequately represents United States farms and farm households.

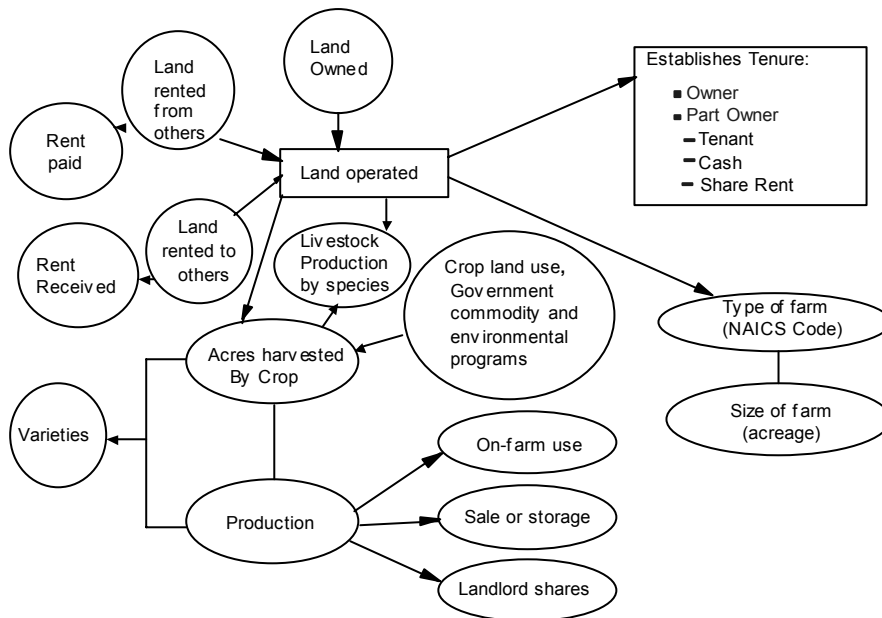
**Figure XIV.1 ARMS Has a Modular Design to Reflect Complex Farm-Household Production, Financial Structure and Organization**



**Figure XIV.2 Aggregate Farm Sector-Household Link in Income Estimation**

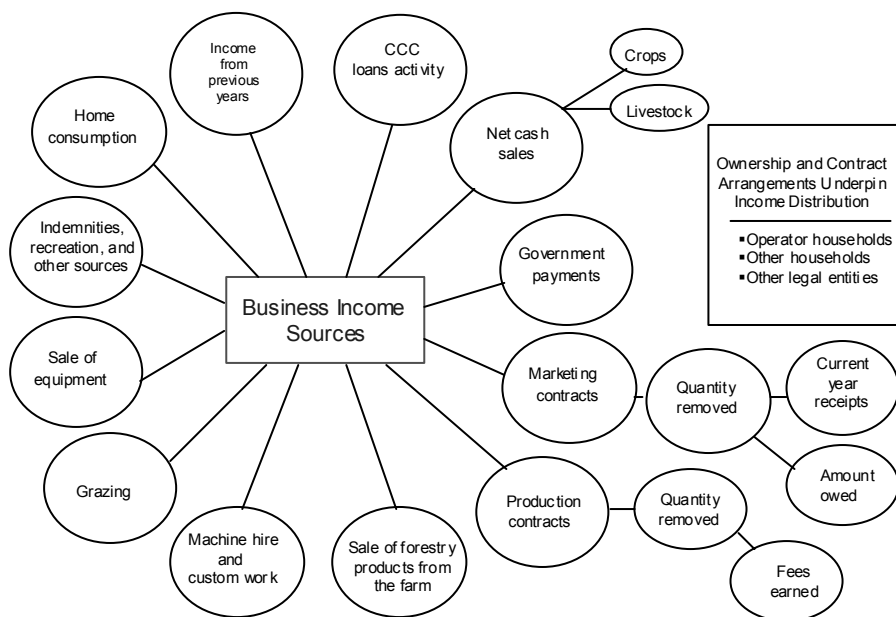


**Figure XIV.3 Land Use, Tenure, Crop and Livestock Production**





**Figure XIV.4 ARMS– Farm Business Income Sources**



**Figure XIV.5 ARMS– Farm Business Expenses**

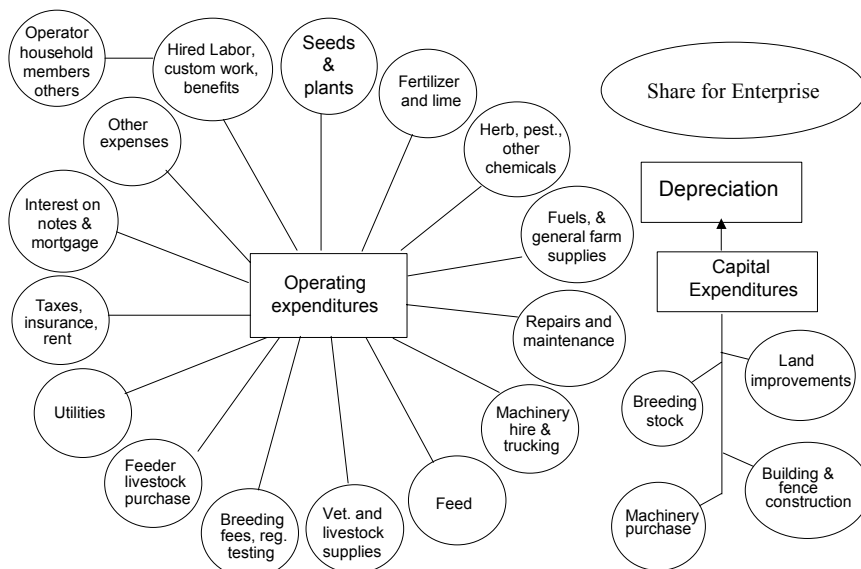


Figure XIV.6 Measurement of Household Income From Farm Activity

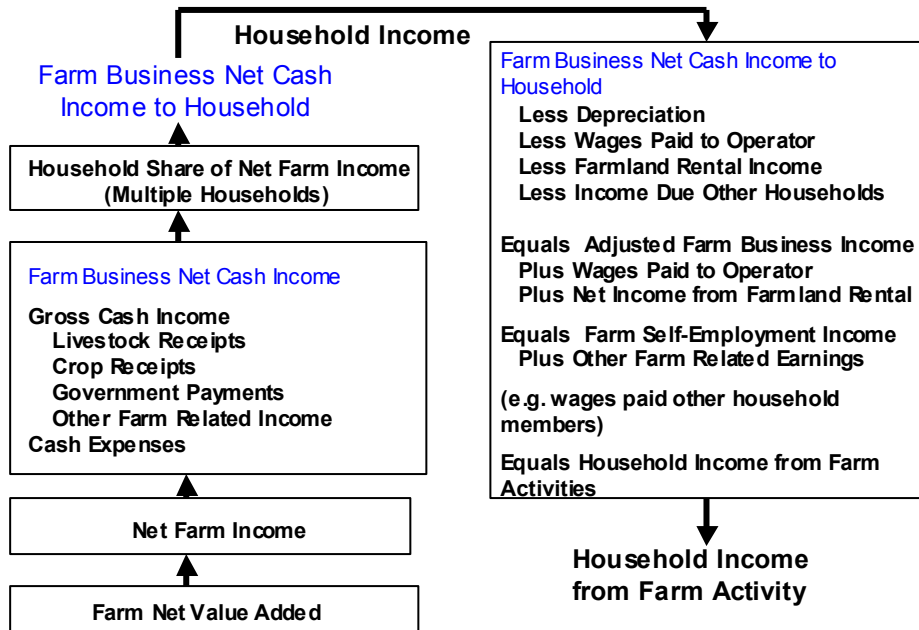
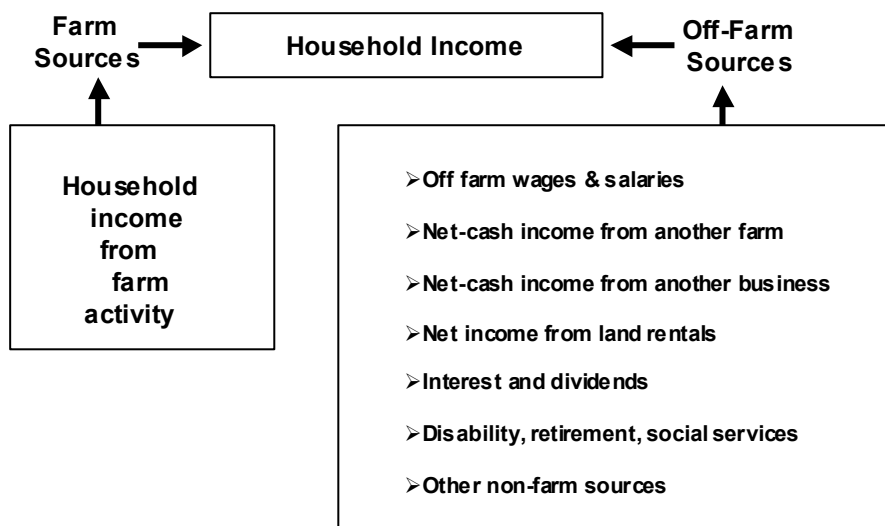
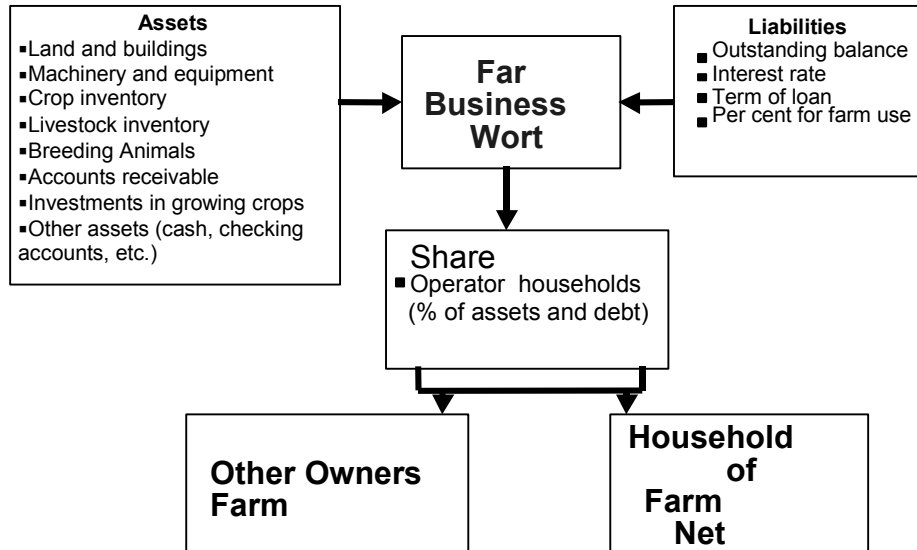


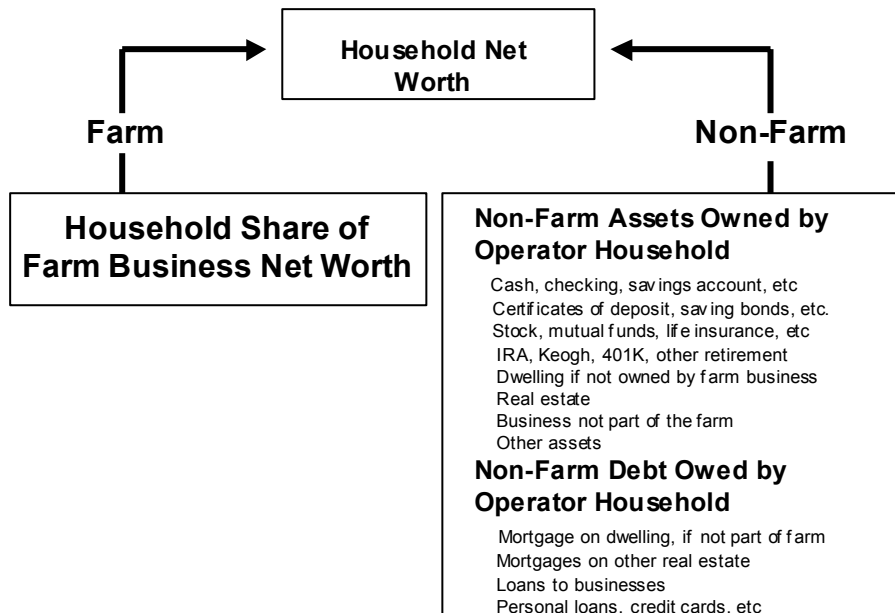
Figure XIV.7 Measurement of Household Income From Farm and Off-Farm Sources



**Figure XIV.8 Net Worth of Farm Businesses Operated by Households**



**Figure XIV.9 Household Assets, Debt and Net Worth**



## **XIV.1.2 Agriculture household income and wealth statistics**

### **XIV.1.2.1 Introduction**

Income from the farm business is now shared among many parties, and farm household income from off-farm work, investment, and other sources has increased dramatically. Returns from farm production activities center on the farm business. However, assessment of farm household well-being must focus on the household as the unit of analysis, or risk drawing incomplete or incorrect conclusions about farmers' income and households' economic well-being. In addition, sector-wide income estimates can obscure structural changes that have occurred in farming and in household labour and investment decisions, and thereby provide incomplete information about the distribution of income among farm households. For these reasons, the farm household is used as the unit of analysis for considering both income and wealth relative to non-farm households, and for considering the distribution of income and wealth, including the ability of income to meet household consumption needs.

The data and analysis below are extracted from *Income, Wealth, and the Economic Well-Being of Farm Households* prepared by the Economic Research Service of U.S. Department of Agriculture. The data for 1999 reported in this publication have been supplemented on a selected basis with data for 2003.

### **XIV.1.2.2 Income and well-being of farm households**

Off-farm work by farm operators and their spouses has increased steadily since the mid 1960s. In 1969, total net income earned by farm households from farming and off-farm earned income was roughly comparable at \$15 billion, with off-farm wages and salaries providing \$9 billion of the total. By 1999, total off-farm income in the agriculture sector had increased to \$120 billion, compared to \$44.3 billion in net income earned from farming (see Figure XIV.10). In 2003, off-farm earnings totalled \$122.6 billion and net farm income was \$59.2 billion, which continues to underscore the importance of off-farm earnings to the total incomes of farm households.

### **XIV.1.2.3 Income and expenditures by household size**

Figure XIV.11 gives details about income and expenditures by three size classes of households in 1999 and 2003. Total expenditures were highest in farm households with five or more people in 2003. This group spent an average of \$43,000, compared with \$34,000 for households of one or two members. This is expected since households with two or fewer persons have lower average household income, whether farm or non-farm. It is interesting to note that while income rose only marginally between 1999 and 2003 (and, indeed, fell slightly in households with five or more people), expenditures increased substantially for each size class of households. This implied that the non-consumed part of income (income less expenditure as a percentage of income) fell. For households with five or more members the share was almost halved, reaching 36%. For households with three or more members it fell from 56% to 41% and for households with one or two members from 63% to 47%.

As a figure for comparison, in 1999 the average expenditures of all American households amounted to about \$37,000.

### **XIV.1.2.4 Farm households working more off the farm and accumulating wealth**

The average money income of farm households in the United States first exceeded that of all United States households starting in 1972. Incomes of farm households periodically exceeded the incomes of all United States households from that time until the mid 1990s. Income of farm households has consistently been

higher since the mid 1990s (see Figure XIV.12). Average farm household income in 2003 was about \$68,500, compared with \$59,100 for the average non-farm household. Median income for farm households has also been roughly on par with the median income of all United States households in recent years.

What accounts for the closing of the income gap for farm households? Since 1964, earnings from off-farm sources have grown from about \$10 billion to \$123 billion (in nominal terms). Meanwhile, sector-wide net cash farm income has only increased by a factor of five (see Figure XIV.13). Thus, the increase in farm household earnings has been driven by the increase in off-farm earnings. In fact, net cash farm income has fallen as a percentage of total income from farm and non-farm sources, from 58% in 1964 to 36% in 2003.

Wages and salaries make up a significant proportion of off-farm earnings, even though they declined from 65% in 1964 to about 56% in 2003.

#### **XIV.1.2.5 Largest farms have most income, wealth and debt**

Over 90% of United States farms are classified as small farms. However, large and very large family farms, which made up only 8% of all farms in 1999, accounted for 57% of production. Households operating very large farms had the highest average household income, \$201,000, about four times the average for all United States households. These farms received only 18% of their income from off-farm sources. In 2003, the income for this group of households had risen to \$227,000 (see Figures XIV.14 and XIV.15).

Households operating residential/lifestyle farms or large family farms also had average income above the United States average, but the sources of income differed between the two groups. Residential/lifestyle households received virtually all of their income from off-farm sources, while large farms received just 40% from off the farm. Households operating higher sales small farms had an average income very near the United States average, and half came from off-farm sources.

Limited resource, retirement, and lower sales farm households had average household incomes below the United States average and relied heavily on off-farm income. In fact, income from farming was negative (see Figures XIV.14 and XIV.15). The 2003 income of households with retirement farms also had a negative contribution from farming. In 1999, the Conservation Reserve Program (CRP) was the primary source of farm income for 21% of retirement farms.

Farm size and wealth are positively related. In 1999, the value of farm assets increases from about \$77,000 for limited resource farms to about \$1,431,000 for very large farms. Limited resource, retirement, and residential/lifestyle farms have farm assets below the level of the average farm household (about \$389,000). Farm debt follows a similar pattern, increasing from about \$6,600 for limited resource farms to about \$368,000 for very large farms. Households operating very large farms had the highest wealth, both farm and non-farm. Interestingly, the wealth of residential/lifestyle farm households is equally divided into farm and non-farm sources, reflecting the importance of non-farm assets to these households.

#### **XIV.1.2.6 Location influences household income and wealth**

Since off-farm income is a major source of income to farm households, location of the farm relative to off-farm employment opportunities is vital. Many studies have investigated the potential effects of the availability and accessibility of off-farm jobs. Farmers near urban areas are likely to have access to more active labour markets, and would be expected to supply more labour hours off the farm, all else being equal.

Two thirds of all United States farms are located in non-metro counties. About three fourths of small farms (farming-occupation) and large family farms are in non-metro counties. In addition, about two fifths of higher sales (small) farms and large family farms are in rural counties not adjacent to a metro area, compared with one third of all farms.

On average, about one fifth of the total income of farm households located in rural areas (both adjacent and non-adjacent) came from farming in 2003, indicating a high level of dependence (85%) on off-farm work even here (see Figure XIV.16). The total household incomes of these farms are on par with all United States households. It is also interesting to note that between 1999 and 2003 the increase of \$10,000 in total average income was attributed solely to off-farm sources of income.

Farm households in metro areas (central city, fringe, medium metro, and small metro) have the highest level of income (\$74,000) among farms by location, and 89% of this income is derived through off-farm sources (mostly wages and salaries). In these households, both the farm operator and the spouse tend to work off-farm.

Farm households located in urban (adjacent and non-adjacent) areas tend to be similar - they have some income from farming but off-farm income again is the major contributor to total household income (see Figure XIV.16). These results reaffirm that location and composition of income in a farm household are related. Still, farm households in remote rural areas depend heavily on off-farm employment.

Wealth for farm households in different locations follows the same pattern as income. Farm households in or near a metro area had the highest level of wealth (a net worth of \$650,120 in 1999), one third from non-farm sources. These farm households also had the highest farm assets and lowest farm debt. This suggests they may be full-owners renting land and machinery to part-owners and tenants. At the other extreme, farm households in rural areas have one fourth of their net worth in off-farm assets. Rural farm households had the highest farm debt and considerable farm assets (\$378,665) in 1999.

#### **XIV.1.2.7 Comparing farm and non-farm income and wealth**

In general, farm and non-farm household income are similar at several points within the overall distribution. Average incomes are similar for non-farm and farm households, though farm household income is more dispersed - larger shares of farm households have negative income and have incomes above \$200,000. On the other hand, average wealth for farm households is substantially greater than for non-farm households, and is less dispersed.

#### **XIV.1.2.8 Farm households save more, spend less than non-farm households**

Expenditure levels represent an alternative indicator of economic well-being. While household income and wealth measured in any particular year are affected by contemporary economic conditions, the level of household expenditures is affected by the household's beliefs about total income and wealth over a lifetime. Household spending can exceed income by borrowing or liquidating financial capital. One would expect this to occur most at very low levels of income.

For both farm and non-farm households, spending tended to increase with income level, over much of the income distribution. However, the data show that farm household expenditures tend to be lower than non-farm household expenditures, even when controlling for differences in income, age, location, and size of population. Data for 2003 show that the exception was at low levels of income (below \$15,000), where farm households tended to consume more than non-farm households (see Table XIV.1). It is likely that

many farms in this category had experienced temporary dips in their incomes to particularly low levels due to weather or other factors, and used their assets to support consumptions at their “normal,” higher level.

Expenditures for farm and non-farm households increase with age through the age group 45-54, and then decline, tracking the earnings profile among farm households. Income exceeds expenditures by the most for the 45-54 age group.

Farm and non-farm households had comparable expenditure profiles across the different household sizes. In general, households with more members had greater expenditures, although a plateau was reached at about four members for non-farm households and was still rising at five members for farm households.

The trend for farm household expenditures to be lower than non-farm household expenditures is sustained by simple summary analysis. For example, farm households may more readily categorize their expenses as business versus personal household expenses. As such, non-farm households may be required to assume more transportation and work-related expenses directly relative to farm households, whose expenses are often commingled with the business. Farm households may also be able to spend less by providing a portion of their own consumption from their farm. Although food is the most obvious savings, in some parts of the country a farm's oil and gas expenses are waived in return for resource extraction agreements with utilities. Or perhaps farm households choose to save, rather than consume, a greater portion of their income as a form of self-insurance against greater income variability, to service their debt, or for inter-generational transfers to help their son or daughter get a start in farming. The greater savings may be invested into the farm or some other business, or saved in more liquid accounts.

#### **XIV.1.2.9 Main findings and policy implications**

The data above draw a picture of farmers' well-being in the context of income, wealth, and consumption at the household level. They also compare the economic status and well-being of farm operator households within the farm sector and relative to all United States households. The main findings of this analysis are:

- Farm households are no different from other households in being pluriactive, pursuing multiple careers and diversifying earnings.
- The farm business as a source of income has become increasingly less important to farm households, especially among farms with sales of less than \$250,000 per year, which make up over 90% of all farms.
- For most non-farm proprietorship households, the business is the main source of income; in contrast, for most farm proprietorship households, the farm detracts from total household income.
- While farm income exhibits considerable variability, farm **household** income is more stable.
- The average wealth of farm households has increased, and farm households have broadened their investment portfolio to include more non-farm components.
- While the life cycle is a dominant influence on differences in the level and source of household income and wealth, other contributing factors include farm type and size, operator education, farm tenure, and household size.

- Average incomes are similar for farm and non-farm households, but farm household income is more dispersed.
- Farm household wealth is considerably greater on average than non-farm household wealth, and is less dispersed.
- The conventional wisdom that farm households are financially disadvantaged compared with other United States households does not hold.

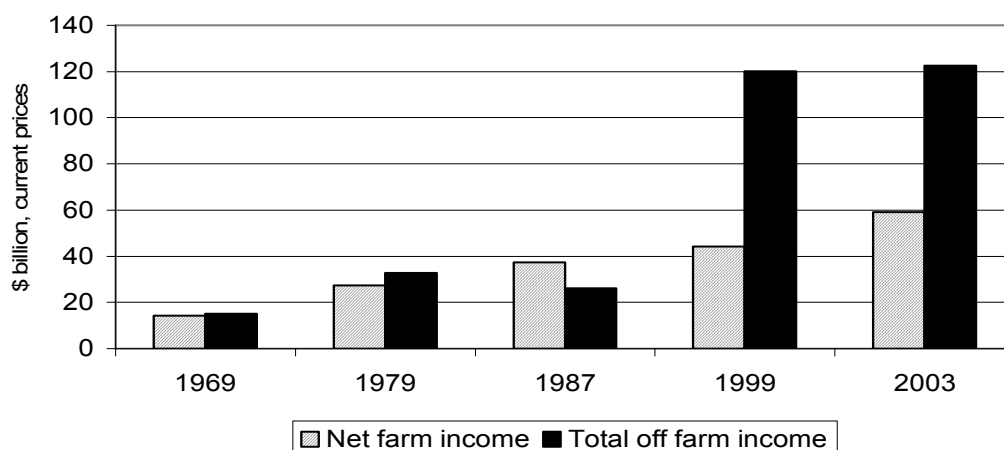
Results of the joint income and wealth analyses, comparing farm households to the median of all United States households, revealed that in 1999:

- 2.6% had higher incomes and lesser wealth;
- 6.0% had both lower income and wealth;
- 42.6% had lower income but higher wealth;
- 48.7% had both higher income and wealth.

On average, farm households have higher incomes, greater wealth, and lower consumption expenditures than all United States households. Incomes of farm households are, on average, sufficient to support a standard of living (defined as meeting consumption and basic household needs) that either is comparable to or exceeds that for all United States households. No longer do farm households inhabit one all-defining group that is considered either disadvantaged or without problems.

Figure XIV.10

Sources of income in the agriculture sector



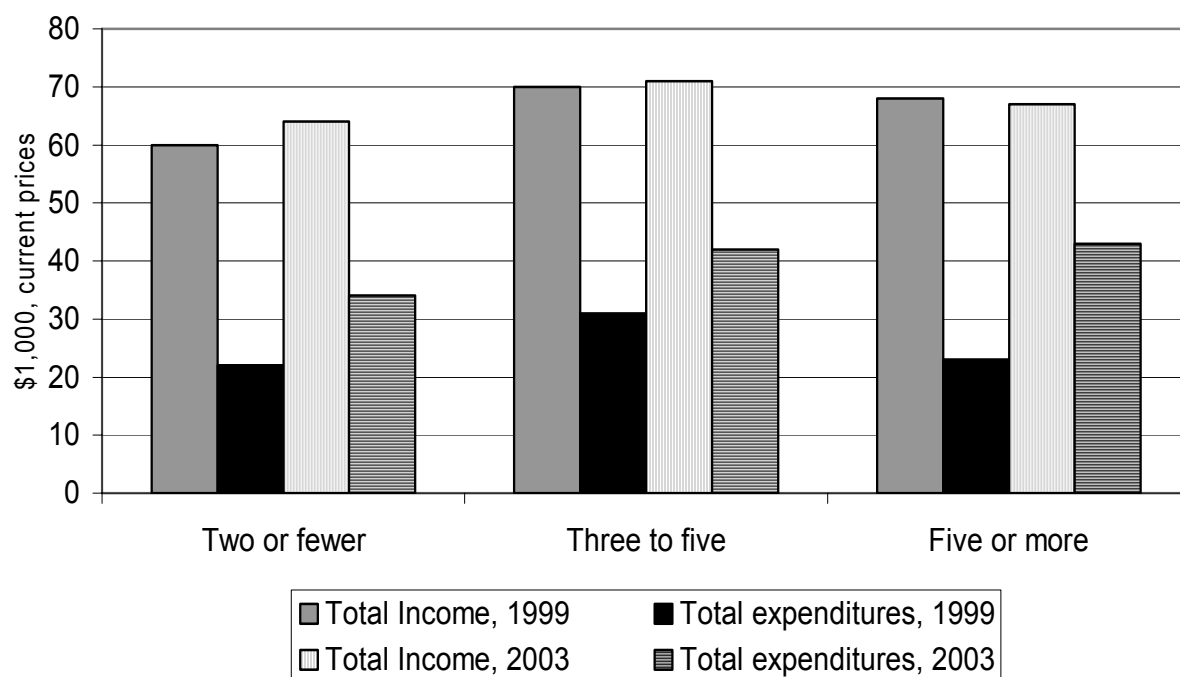
Source: Economic Research Service of US Dept. of Agriculture.

	Net farm income	Total off farm income	Net farm income as a percentage of total income
	\$ billion, current prices		
1969	14.3	15.1	48.6
1979	27.4	32.8	45.5
1987	37.4	26.2	58.8
1999	44.3	120.1	26.9
2003	59.2	122.6	32.6



Figure XIV.11

Total income and expenditures per operator household, by household size, 1999 and 2003

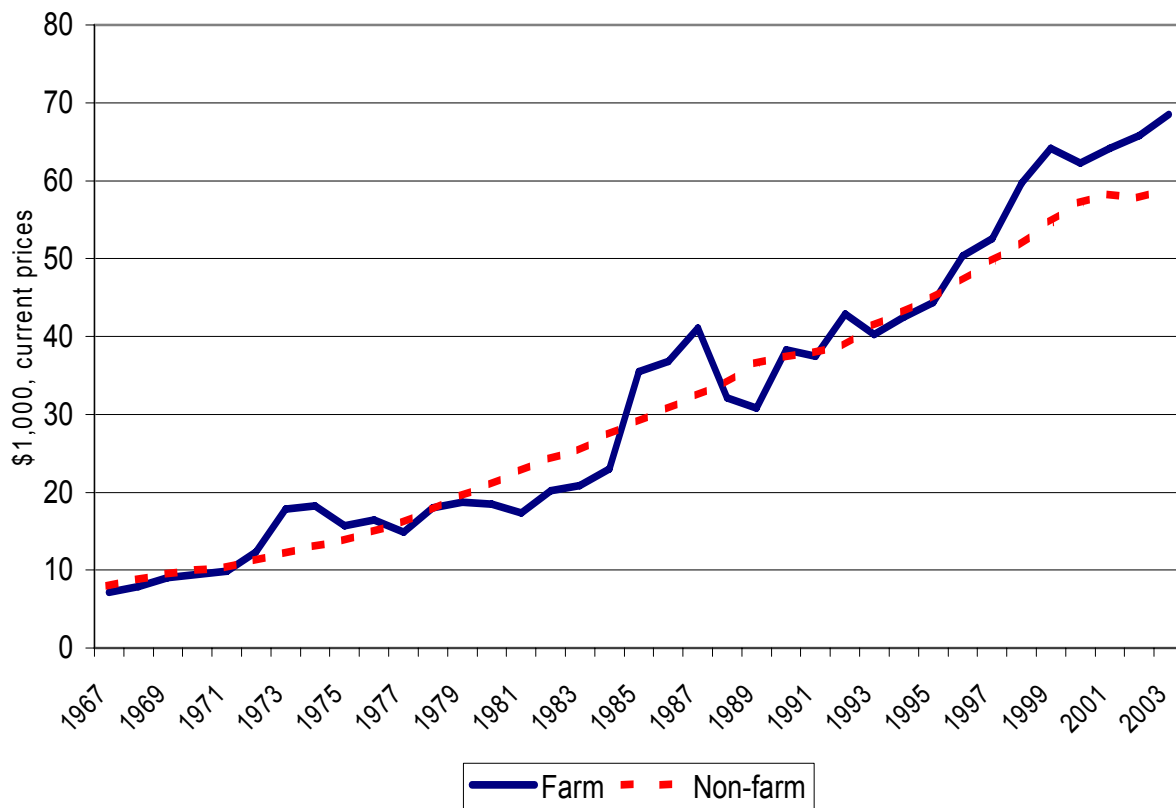


Source: Economic Research Service of US Dept. of Agriculture.

Household size	Total Income, 1999 \$1,000	Total expenditures, 1999 \$1,000	Total Income, 2003 \$1,000	Total expenditures, 2003 \$1,000	Net diff. 1999 \$1,000	% of income 1999	Net diff. 2003 \$1,000	% of income 2003
Two or fewer	60	22	64	34	38	<b>63.3</b>	30	<b>46.9</b>
Three to five	70	31	71	42	39	<b>55.7</b>	29	<b>40.8</b>
Five or more	68	23	67	43	45	<b>66.2</b>	24	<b>35.8</b>

Figure XIV.12

Average income of farm and nonfarm households, 1967-2003, in \$1,000 current prices



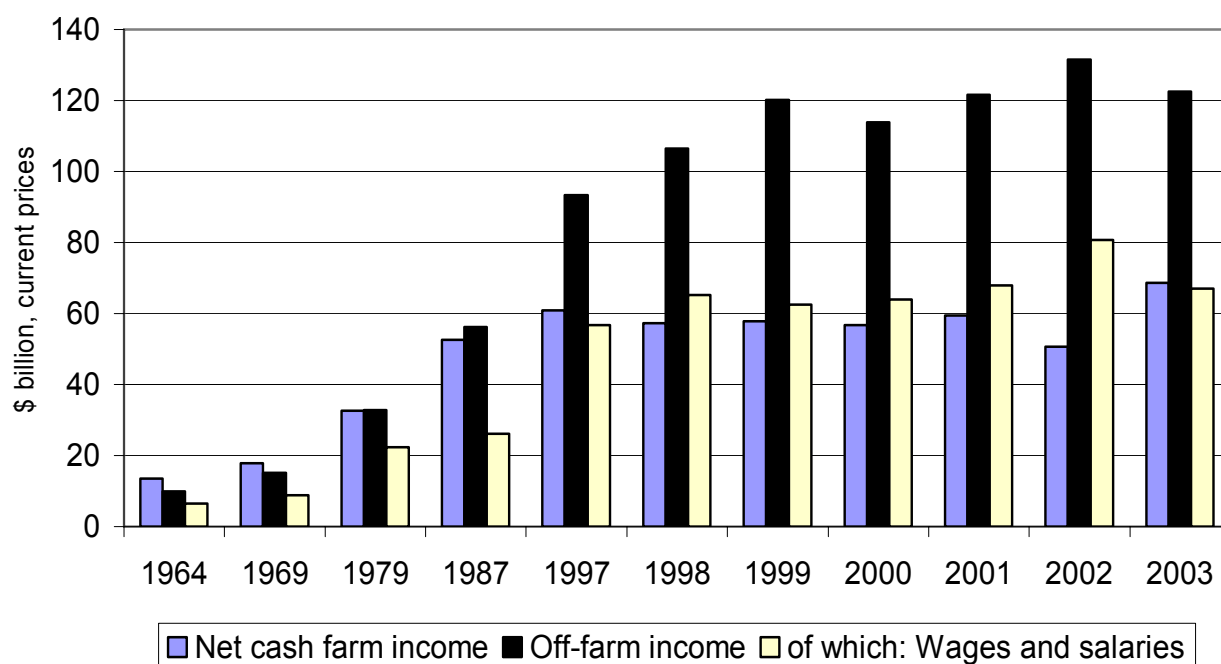
Source: Economic Research Service of US Dept. of Agriculture.

\$1,000 current prices

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976
Farm	6.191	6.526	7.244	7.519	8.206	9.629	11.442	12.041	12.408	13.539
Non-farm	7.989	8.76	9.544	10.001	10.383	11.286	12.157	13.094	13.779	14.922
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Farm	14.111	17.016	19.499	18.123	18.842	20.382	21.534	23.013	24.119	27.56
Non-farm	16.1	17.73	19.554	21.063	22.787	24.309	25.401	27.464	29.066	30.759
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Farm	29.822	31.155	34.156	39.269	36.839	42.911	40.223	42.469	44.392	50.361
Non-farm	32.144	34.017	36.52	37.103	37.922	38.84	41.428	43.133	44.938	47.123
	1997	1998	1999	2000	2001	2002	2003			
Farm	52.562	59.734	64.347	62.223	63.983	65.761	68.506			
Non-farm	49.693	51.855	54.842	57.135	58.208	57.852	59.067			

Figure XIV.13

Farm sector net cash income and income of farm households from off-farm sources, 1964-2003, in \$ billion, current prices

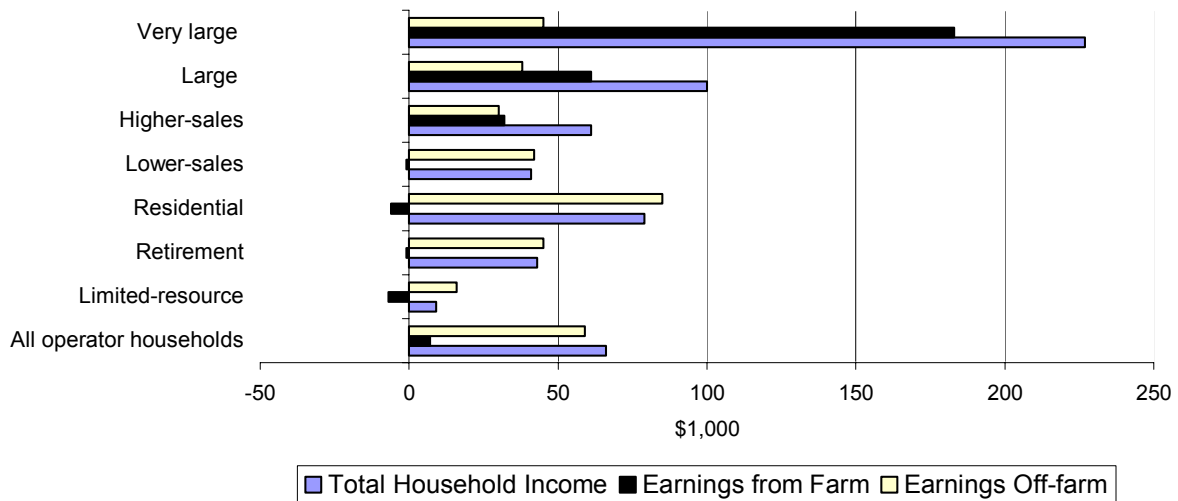


Source: Economic Research Service of US Dept. of Agriculture.

\$ billion, current prices	1	2	3	4	5
	Net cash farm income	Off-farm income	of which: Wages and salaries	1 in % of (1+2)	3 in % of 2
1964	13.6	10.0	6.5	57.6	65.0
1969	17.8	15.1	8.8	54.1	58.3
1979	32.6	32.8	22.3	49.8	68.0
1987	52.6	56.3	26.2	48.3	46.5
1997	60.9	93.3	56.7	39.5	60.8
1998	57.3	106.4	65.2	35.0	61.3
1999	57.8	120.1	62.5	32.5	52.0
2000	56.7	113.9	63.9	33.2	56.1
2001	59.5	121.7	68.0	32.8	55.9
2002	50.7	131.6	80.8	27.8	61.4
2003	68.6	122.6	67.0	35.9	54.6

Figure XIV.14

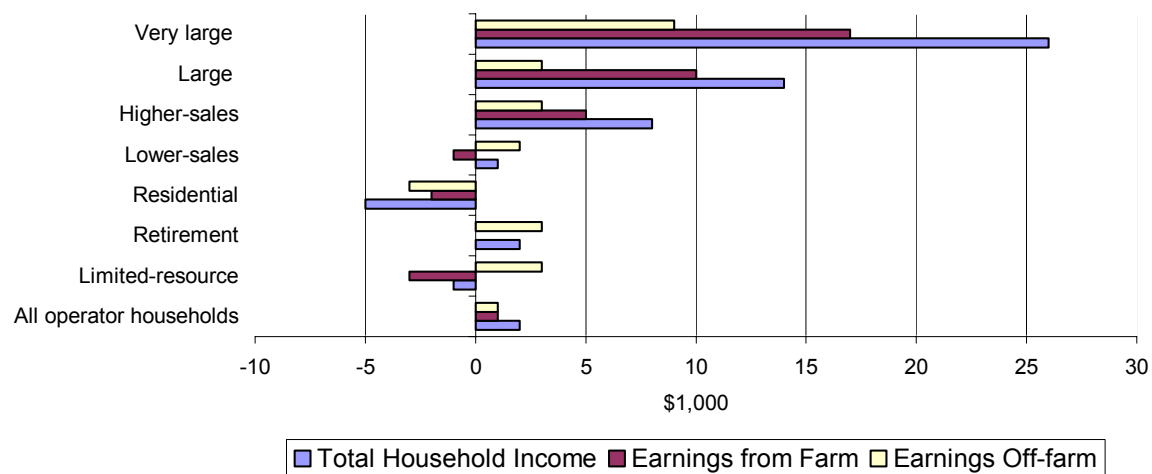
Total, farm-related and off-farm income per household, by farm typology group, 2003, in \$1,000



Source: Economic Research Service of US Dept. of Agriculture.

Figure XIV.15

Total, farm-related and off-farm income per household, by farm typology group, difference between 2003 and 1999, in \$1,000

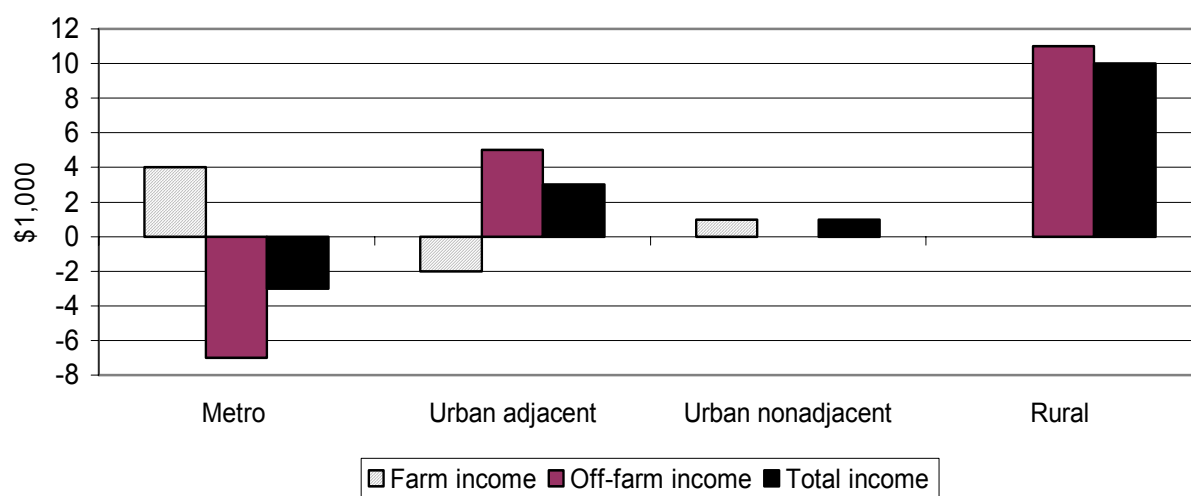
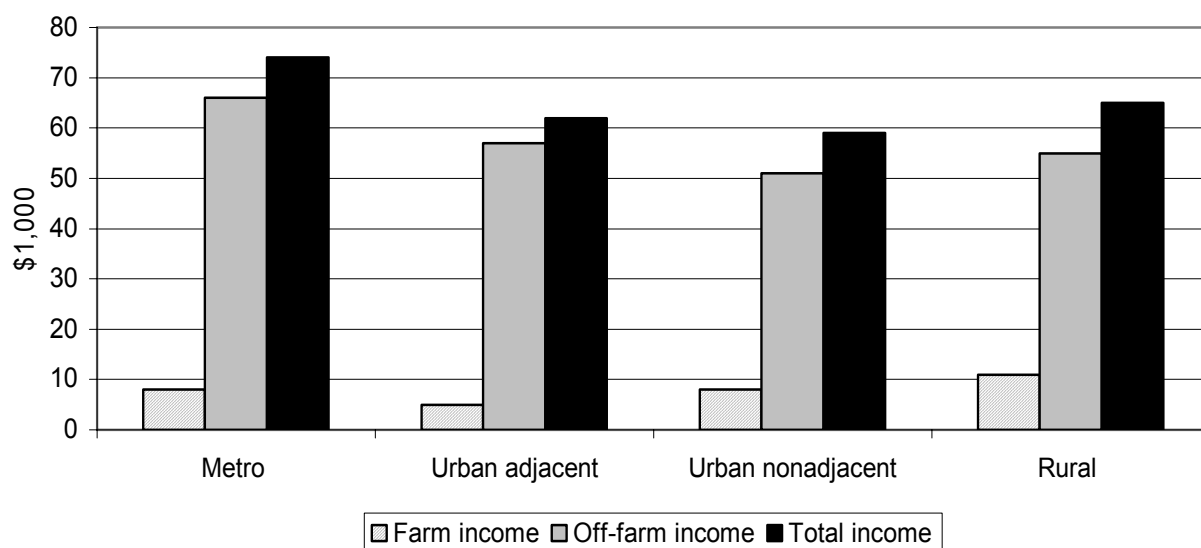


Source: Economic Research Service of US Dept. of Agriculture.

\$1,000	2003			Difference 2003 - 1999		
	Total Household Income	Earnings from Farm	Earnings Off-farm	Total Household Income	Earnings from Farm	Earnings Off-farm
All operator households	66	7	59	2	1	1
Limited-resource	9	-7	16	-1	-3	3
Retirement	43	-1	45	2	0	3
Residential	79	-6	85	-5	-2	-3
Lower-sales	41	-1	42	1	-1	2
Higher-sales	61	32	30	8	5	3
Large	100	61	38	14	10	3
Very large	227	183	45	26	17	9

Figure XIV.16

Total, farm-related and off-farm income per household, by farm location, 2003 and increase 1999-2003, in \$1,000



Source: Economic Research Service of US Dept. of Agriculture.

	2003			Difference 2003 - 1999		
	Farm income \$1,000	Off-farm income	Total income	Farm income	Off-farm income	Total income
Metro	8	66	74	4	-7	-3
Urban adjacent	5	57	62	-2	5	3
Urban nonadjacent	8	51	59	1	0	1
Rural	11	55	65	0	11	10

INCOME AND WEALTH STATISTICS FOR SELECTED COUNTRIES

Table XIV.1

Income and expenditures for farm and non-farm households by income class, 1999 and 2003, \$

	Less than \$5,000	\$5,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$19,999	\$20,000 to \$29,999	\$30,000 to \$39,999	\$40,000 to \$49,999	\$50,000 to \$69,999	More than \$70,000
<b>1999</b>									
Farm household expenditures	20,611	13,345	13,294	15,215	19,093	20,781	21,930	24,464	35,178
Farm household income	-30,316	7,578	12,518	17,408	24,810	35,105	44,823	59,122	158,036
<b>Income less expenditures</b>	<b>-50,927</b>	<b>-5,767</b>	<b>-776</b>	<b>2,193</b>	<b>5,717</b>	<b>14,324</b>	<b>22,893</b>	<b>34,658</b>	<b>122,858</b>
Nonfarm household expenditures	17,983	14,921	19,710	24,367	28,916	35,048	40,826	49,606	76,742
Nonfarm household income	1,633	7,631	12,338	17,311	24,467	34,353	44,321	58,473	113,441
<b>Income minus expenditures</b>	<b>-16,350</b>	<b>-7,290</b>	<b>-7,372</b>	<b>-7,056</b>	<b>-4,449</b>	<b>-695</b>	<b>3,495</b>	<b>8,867</b>	<b>36,699</b>
<b>2003</b>									
Farm household expenditures	25,534	20,781	22,467	22,610	25,991	31,223	31,844	37,428	54,827
Farm household income	-30,142	7,703	12,578	17,398	25,048	35,177	44,514	59,111	155,319
<b>Income less expenditures</b>	<b>-55,676</b>	<b>-13,078</b>	<b>-9,889</b>	<b>-5,212</b>	<b>-943</b>	<b>3,954</b>	<b>12,670</b>	<b>21,683</b>	<b>100,492</b>
Nonfarm household expenditures	17,453	15,245	19,344	22,923	28,196	33,794	39,531	48,281	74,912
Nonfarm household income	1,200	7,799	12,455	17,410	24,655	34,485	44,294	58,900	117,960
<b>Difference 2003 - 1999</b>									
Farm household expenditures	4,923	7,436	9,173	7,395	6,898	10,442	9,914	12,964	19,649
Farm household income	174	125	60	-10	238	72	-309	-11	-2,717

Source: Economic Research Service of US Dept. of Agriculture.

Table XIV.2

Income and expenditures for farm and non-farm households by age class, 1999 and 2003, \$

<b>1999</b>	Under 35	35 to 44	45 to 54	55 to 64	65 and over
Farm household expenditures	21,965	25,864	28,112	24,744	18,895
Farm household income	74,831	64,826	86,194	63,784	39,625
<b>Income less expenditures</b>	<b>52,866</b>	<b>38,962</b>	<b>58,082</b>	<b>39,040</b>	<b>20,730</b>
Nonfarm household expenditures	31,866	42,792	46,511	39,394	26,521
Nonfarm household income	35,286	53,579	59,822	49,436	26,581
<b>Income less expenditures</b>	<b>3,420</b>	<b>10,787</b>	<b>13,311</b>	<b>10,042</b>	<b>60</b>
<b>2003</b>					
Farm household expenditures	32,685	38,604	40,754	42,093	27,723
Farm household income	49,939	76,617	76,482	80,522	48,986
<b>Income less expenditures</b>	<b>17,254</b>	<b>38,013</b>	<b>35,728</b>	<b>38,429</b>	<b>21,263</b>
Nonfarm household expenditures	35,063	47,037	50,254	43,996	29,167
Nonfarm household income	41,384	61,091	68,028	58,672	30,437
<b>Difference 2003-1999</b>					
Farm household expenditures	10,720	12,740	12,642	17,349	8,828
Farm household income	-24,892	11,791	-9,712	16,738	9,361
<b>Income less expenditures</b>	<b>-35,612</b>	<b>-949</b>	<b>-22,354</b>	<b>-611</b>	<b>533</b>

Source: Economic Research Service of US Dept. of Agriculture.

## XIV.2 Italy

This section on income and wealth statistics for Italy covers three sources, the Ismea survey (directed specifically at agricultural households), the REA survey and the RICA-REA project (a business survey for the agricultural sector integrated with the Italian component of the European Commission's farm accounts survey), and the Bank of Italy's general survey of household income and wealth that includes agricultural cases.

### XIV.2.1 The ISMEA survey

#### XIV.2.1.1 Overview

The Institute for Services in Agriculture and Agro-food Markets (Ismea) survey not only provides data on production practices and resource use in agriculture, but also the information needed to model farm household behaviour. The survey undertaken in 1996 was designed in collaboration with the *Microsimulation-Unit* of the University of Verona<sup>2</sup> and fulfilled the mandate under which Ismea had to build an agri-food Input-Output (I/O) table. In addition, the data provided essential information to policymakers (at the regional, national and Communitarian level) and agricultural organizations for designing and judging various policies and programs that touch the farm sector or affect farm families. The provision of this information was also part of the policy mandate of Ismea. The aim of this section is to provide a detailed description of the Ismea survey and to discuss its utility with regard to monitoring the living conditions of the rural and farm population.

#### XIV.2.1.2 The survey

The Ismea survey was designed to collect statistical information on the behaviour of each member of the agricultural household and on the way that public and private resources were shared within the household. This would permit an empirical analysis of the household decision-making process with regard to these resources. In general, production, consumption and labour supply decisions are usually analysed separately in terms of the behaviour of producers, consumers, and workers, respectively. Agricultural households integrate all these usually separate decision-making units within a single institution. Therefore, it makes sense to analyse the linkage between income, consumption and labour supply within farm households.

#### XIV.2.1.3 The sample design

The Ismea survey was a probability weighted, stratified survey (by European Size Unit (ESU)<sup>3</sup> and Farm Type<sup>4</sup>) that collected information from 1,881 farms, 1,777 of which were household-farms.<sup>5</sup> Appropriate sample weights (expansion factors) were available so that estimates for the entire population could be determined from the survey results.

<sup>2</sup> <http://pilar.univr.it>

<sup>3</sup> The European Size Unit (ESU) is the indicator used by FADN to measure the economic dimension of a farm. It is based on the standard gross margins (SGM) attributed to the farm, that is on the potential gross margins producible in a farm with given structural characteristics. In 1995: 1ESU = 1200 ecu = 920.95 euro.

<sup>4</sup> The classification of farms into types is based on the financial potential of the various agricultural activities of the farm and the combination of these activities.

<sup>5</sup> The size of the Ismea survey is in line with the indications given by the Living Standards Measurement Study (LSMS) of the World Bank. The LSMS surveys tend to use small samples, often in the order of 1,600 to 3,200 households and rarely more than 5,000 households. Although larger samples would have smaller sampling error, it was judged by survey designers that non-sampling errors would increase more than concomitantly.

The collection units were the farms, defined in official statistics as the economical-technical unit composed of land (even if not contiguous), plant and tools, and where agricultural, animal and forestry production is undertaken by a person, company or agency which bears the risks.

Sampling was based on the Agricultural Census conducted in 1991 by the Italian National Statistical Institute (ISTAT). Farms below an economic size of 4 ESU were excluded. This removed those enterprises where the agricultural activity was either marginal or negligible. The universe was divided into 15 main farm types and three ESU classes on the basis of the census results. The sample was statistically representative at the macroregional level (north, center and south).

#### **XIV.2.1.4 The questionnaire**

The objective of the Ismea survey was to gather data about both the farm and the household that could be used to assess both the structure and the behaviour of the farm. Further, it was designed to evaluate the effects that various agricultural and rural policies had on household behaviour and welfare by using a collective household approach.<sup>6</sup> Accordingly, a multitopic questionnaire was designed to collect data on several dimensions of farm and household well-being, including consumption at the individual level, income, savings, financial wealth, governmental and intra-household transfers, education and housing (see Table XIV.3).

The design of the Ismea questionnaire was inspired by the questionnaires in use for farm production data collection (for example that used by the FADN/RICA- farm production), those on the consumption of household members (such as the one used by ISTAT), by the EU time budget and by the questionnaire used by the Bank of Italy to collect data on household incomes. The final result was a set of questions very close to those suggested by the LSMS<sup>7</sup> to assess the welfare of rural households.

#### **XIV.2.1.5 Production and factor use information are structured by activity**

A peculiarity of the Ismea survey was that, in contrast to the questionnaire used by the FADN/RICA, the sections on production and on factor use were structured by activity. This level of detail was needed to build the Input-Output table of the agricultural sector.

#### **XIV.2.1.6 From the farm operation to the farm household-firm unit perspective**

Another important characteristic of the Ismea questionnaire was that the attention shifted from a traditional farm operation perspective to a farm household-firm unit perspective. For example, information on the social characteristics (gender, age, level of education, professional characteristics, etc.) not only of the farm operator but of all family members was collected. In addition, the questionnaire contained a stylized time sheet<sup>8</sup> describing how much time each family member devoted to activities such as on- and off-farm work, household work, child care and pure leisure time. This type of information was very useful when the work roles and off-farm labour participation of different members of the family were analysed. In addition, the data gathered in the time budgets were also essential for estimating the full and extended household income (see Chapter X for a discussion of these concepts).

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<sup>6</sup> That is, using models that explicitly take into account differing resource allocation decisions amongst the individuals of the same household.

<sup>7</sup> The Living Standards Measurement Study, which was established by the World Bank in 1980.

<sup>8</sup> The time sheet is comparable to that used by ISTAT in the "Multiscopo survey" and in the Communitarian survey on time budgets conducted by Eurisko.



#### **XIV.2.1.7 An agricultural standard of living survey**

The Ismea survey was designed to provide the information needed to assess not only the economic impact of policy programmes at the farm level, but also the socioeconomic impact at the farm household level. In other words, the survey was designed to assess the impact policy programmes had on the standard of living and economic welfare of farm households. In order to facilitate this, a module of questions gathering information on the quality of life and on other characteristics of farm households was added.

The first group of questions concerned housing characteristics. The responses to these questions were used to infer the standard of living of the agricultural household. The second group of questions collected detailed information on household consumption: the consumption of food, either bought from the market (recording both quantity and price) or grown on the farm, and the consumption of both semi-durable and durable goods (distinguishing between children and adult goods). Measurement of consumption was emphasized in the questionnaires because this kind of information allows a better estimate of household economic welfare than does information on income.

The first part of the questionnaire was complemented by a module containing questions on the intra-household decision-making process for both farm and household decisions with regard to household goods, intra-household transfers, subjective measures about the risk associated with future investments in agriculture and intentions about the future development of the farm. This information, not usually available in the traditional agricultural statistics, proved to be very useful, for example, in addressing problems such as modelling the intergenerational succession of household-farms, or the on- and off-farm labour decisions within the farm household.

The collection of data on household welfare was completed by a group of questions on household income (comparable to the survey on household income conducted by the Bank of Italy and by the European Community Household Panel), savings and financial investments of the family.

Table XIV.3 shows that the Ismea survey incorporates much of the information on the household that was suggested by the LSMS to analyse the quality of life of households. Annex 10 gives further details about the coverage of various types of surveys. The information gathered by the Ismea survey allows analysis of the standard of living of agricultural households. It is easy to see that information on non-farm enterprises run by the household members and on the services that they use is required to facilitate the study of living standards, not only of agricultural households but of all rural households.

#### **XIV.2.1.8 From an agricultural to a rural living standard survey**

Ismea is now planning a new socioeconomic survey, which will take place during 2006. The new survey intends to broaden its focus from an agricultural living standard to a rural living standard. The survey will be based on a double sampling, incorporating both agricultural and rural households, with between 9,000 and 10,000 units. The household data collected by the survey will be combined with detailed territorial statistics drawn from the GeoStarter database.

**Table XIV.3**  
**Modules in the Ismea survey**

<b>Module</b>	<b>Respondent</b>	<b>Subject</b>
<i>Section I: «General information about the household»</i>		
Tenure, legal status, structural and other characteristics of the farm	Best informed farm member	Tenure, owned and rented land, physical size, altitude, etc.
<i>Section II: «Characteristics of the households and labour organization:»</i>		
Information on the family	Best informed family member	Social characteristics (gender, age, level of education, professional characteristics, etc.) and hours of labour worked by the household members
Information on wage workers (fixed and temporary)	Best informed farm member	Gender, hours of labour worked in high and low season, gross monthly wage by qualification???
<i>Section III: «Commercialization:»</i>		
Purchase of inputs and sales of farm products	Best informed farm member	Product marketing and institutional arrangements
<i>Section IV: «Production:»</i>		
Crops, livestock and products of livestock.	Best informed farm member	Quantities produced, self-employed and processed products, stocks, sales and prices, premiums and subsidies.
Other farm revenues	Best informed farm member	It collects information on farm revenues different from the sale of agric. products (machine hiring, custom work, land rents, production contracts, agri-tourism, insurance payments, etc.)
<i>Section V: «Factor use:»</i>		
Inputs and labour used for crops and livestock	Best informed farm member	Cash expenditure for inputs (fertilizers, other chemicals, seeds, feeds, water, oil and insurances) by activity and number of hours worked by family members, waged workers and machines.
Labour cost	Best informed farm member	Salaries paid
Other expenses	Best informed farm member	Overheads, environmental, etc.
<i>Section VI: «Investments and financial activities:»</i>		
Land and investments	Best informed farm member	Value of land capital and investments
Credits	Best informed farm member	farm credits by type
Debts	Best informed farm member	debts and loans by type
<i>Section VII: «The Household:»</i>		
Housing characteristics	Best informed household member	Type of dwelling. Durable goods owned (cars, televisions, bicycles, sewing machines, etc.) and percentage of use in the farm and in the household.
Time use	Head of household/principal respondent	On- and off-farm labour time per member of the household and time spent to reach the workplace by means of transportation. Sector of activity and expected reserve wage in agriculture or in other sectors.

Module	Respondent	Subject
Household consumption	Best-informed household member	
Annual consumption		List (value of durable goods distinguishing between children and adult goods)
Monthly consumption		List (value of semi durables goods)
Weekly consumption		Food quantity and prices of bought food and self-consumption
Responsibilities and intra-household decision	Best-informed household member	Who decide in farm, in family and out of farm. Separated income between wife and husband
Household goods	Best-informed household member	Hh header growths in farm. Time spent in family Sons in farm. Farm inheritance and farm legacy
Intra-household transfers	Best-informed household member	Gifts, inheritance, familiar loans
Other information about the farm and the household	Best-informed farm member	Technology, bookkeeping. Subjective measures of risk, intentions about the future development of the farm
Income and savings	Best-informed household member	Monthly global household income and wife's income contribution; number of pensions preceptors and range of perceived pension; annual savings and investment in accounts, bonds, shares, financial funds

## XIV.2.2 The REA survey and the RICA-REA project

### XIV.2.2.1 Overview

The REA survey is the Business survey for the agricultural sector in Italy that investigates the economic results of farms and the off-farm income of households involved in agricultural production<sup>9</sup>. The survey, managed by Istat since 1997, is part of a general project (RICA-REA) within the National Statistical System (SISTAN). The RICA-REA is the result of the integration of the Italian FADN/RICA, conducted by the National Institute for Agricultural Economics (INEA), with the REA survey. As a result of an agreement sponsored by the Ministry of Agriculture that involves Regions and Autonomous Provinces in 2003, just one national survey is now conducted.

The survey produces statistical information that meets the needs of the National Accounts unit in Istat to satisfy the requirements of the European System of Accounts (ESA95) and to estimate agricultural household income. Economic aggregates of the agricultural sector have been directly estimated on a farm basis for the first time, paving the way for a comparison with economic results of industrial and services firms. Moreover, since the present survey is harmonized with the Farm Structure Survey (FSS), it is possible to integrate physical and monetary variables at the microeconomic level and to analyse farm performance in relation to their structural characteristics. Finally, with the microdata it is possible to investigate, for the first time, the multifunctionality of farms and their socioeconomic and environmental sustainability.

<sup>9</sup> [www.istat.it/strumenti/rispondenti/indagini/rea/indice\\_rea.html](http://www.istat.it/strumenti/rispondenti/indagini/rea/indice_rea.html)  
[www.istat.it/strumenti/rispondenti/indagini/ricarea/ricarea02.htm](http://www.istat.it/strumenti/rispondenti/indagini/ricarea/ricarea02.htm)

This survey is an example of how official needs for information at the macrosector level can be combined with the increasing demand for statistical data at the microfarm level. The result has been achieved through an institutional agreement inside the Italian public administration, and has involved those public research institutes with interest in the subject.

#### **XIV.2.2.2 Survey characteristics**

REA is an annual survey, carried out through face-to-face interviews on a random sample of farms. Data are collected at the regional level by FADN/RICA, under the statistical responsibility of Istat.

The reference population, for estimation purposes, is the national population of farms of any typology and size, including exclusively zoo-technical farms. Since the 2002 reference period, the observation field has been restricted to the so-called European Union (EU) field, that excludes microfarms with less than € 2,066 of sales or farms with under one hectare of Agricultural Area Utilised (AAU).

The sample in the 2004 reference year contains about 25,000 farms and, following a panel criteria, is partially renewed over time. It is extracted from the database generated by the General Census of Agriculture which is updated by annual sample surveys.

#### **XIV.2.2.3 The questionnaire**

An innovative questionnaire has been introduced for the REA survey. Information is collected on the main economic phenomena going on inside the farm and the holder's household using only a limited number of questions. Data are collected on:

1. Costs;
2. Revenues of the farm by kind of activity (principal and secondary activities);
3. Self-consumption by the household of the holder;
4. Consumption of farm products as inputs;
5. Stocks at the start and at the end of the reference year;
6. Buying and selling of capital goods;
7. Public and Common Agricultural Policy (CAP) subsidies;
8. Labour force and costs of employees;
9. Holder and the holder's household;
10. Off-farm income of the household members.

The REA questionnaire is just four pages long with the first page restricted to the analysis of costs: inputs for cultivation, animal breeding, energy consumption, administrative and functioning costs, interests and direct taxes on goods and production. In this respect, it includes a specific survey on costs necessary to compile the Italian Input-Output table.

An important section of the questionnaire is dedicated to the structure of the holder's household and the income sources of its components. The overlapping of a unit of economic activity (the farm) and a unit of consumption (the household) allows a double level analysis: the farms' economic performance coupled with the income distribution within households that are involved in agricultural production and have direct management of the farm.

#### XIV.2.2.4 From micro to macro estimates

Data on sampled farms allows estimations at different levels of aggregation: from typologies of farms and households (by dimensional classes, kind of activity, geographical location, income sources, types of farming, etc.) to the whole agricultural sector.

An example of national accounts aggregates estimated for the 2002 reference year, is shown in Tables XIV.4. Tables XIV.5(a) and XIV.5(b) are examples of analyses at the farm level of the income structure of the household and the opportunity for income brought about by multiple activities.

**Table XIV.4**  
**Farms economic results <sup>(a)</sup> – Years 2002**

ECONOMIC VARIABLES	Farms	Farms with more than 5 ha	
		Absolute values	%
<b>Absolute values (thousand of units)</b>			
Farms <sup>(b)</sup>	1 838	459	25.0
ULA <sup>(b)</sup>	1 295	641	50.0
Dependent ULA <sup>(b)</sup>	164	126	76.8
<b>Absolute values (millions euro)</b>			
Production <sup>(c)</sup>	32 095	24 383	76.0
- Turnover	27 232	20 542	75.4
Intermediate costs	13 772	10 479	76.1
<b>Value added <sup>(c)</sup></b>	<b>18 323</b>	<b>13 904</b>	<b>75.9</b>
Labour cost	2 412	1 935	80.2
<b>Gross operative margin (GOM)</b>	<b>14 911</b>	<b>11 969</b>	<b>75.2</b>
Other net profits	619	317	51.2
Social contributions due by operators and families	1 333	833	62.5
<b>Gross management result (GMR)</b>	<b>15 197</b>	<b>11 453</b>	<b>75.4</b>
<b>Average farm values</b>		<b>Ratios</b>	
<b>(units)</b>			
ULA <sup>(b)</sup>	0.8	1.4	1.8
Dependent ULA <sup>(b)</sup>	0.1	0.2	2.0
<b>(euro)</b>			
Production <sup>(c)</sup>	17 474	53 090	3.0
- Turnover	14 826	44 727	3.0
Intermediate costs	7 498	22 817	3.0
<b>Value added <sup>(c)</sup></b>	<b>9 976</b>	<b>30 272</b>	<b>3.0</b>
Labour cost	1 313	4.214	3.2
<b>Gross operative margin (GOM)</b>	<b>8 663</b>	<b>26 059</b>	<b>3.0</b>
Other net revenues	337	691	2.1
Social contributions due by operators and families	726	1 813	2.5
<b>Gross management result (GMR)</b>	<b>7 274</b>	<b>24 937</b>	<b>3.0</b>

(a) Only individual farms and corporate farms.

(b) Unit of labour.

(c) Basic prices values.

Source: Istat – Business Survey on Farms (REA).

**Table XIV.5(a)**  
**Income and labour force employed in farms directly managed by households**  
**by classes of AAU – 2002**

Classes of AAU (hectares)	Households with a directly managed on a farm and with off-farm incomes (%)					Number of household members working in farm (average by farm)	GOM per household member working in farm (euro)
	Total	With indep. work income	With dependent work income	With pensions	With capital income		
<b>Less and equal 1</b>	84.2	18.8	36.9	47.0	1.0	2.0	619
<b>1-5</b>	74.4	16.5	29.5	45.7	2.2	2.1	1 788
<b>5-20</b>	59.5	14.3	21.4	37.7	1.1	2.1	6 158
<b>20-50</b>	49.1	15.8	15.4	24.9	1.8	2.3	16 925
<b>More than 50</b>	32.2	7.8	11.0	20.0	4.6	2.4	25 382
<b>Total</b>	<b>72.9</b>	<b>16.7</b>	<b>29.5</b>	<b>43.2</b>	<b>1.6</b>	<b>2.1</b>	<b>3 535</b>

Source: Istat – Business Survey on Farms (REA).

**Table XIV.5(b)**  
**Composition of total income of households managing mono- and multiactive farms**  
**by income source and by classes of AAU – 2002 (%)**

Classes of AAU (hectares)	Income source							Total
	Strict agricultural activity	Secondary activities connected to agriculture	Independent work	Dependent work	Pension	Capital		
<b>Households managing mono-active farms</b>								
<b>Less and equal 1</b>	21.8	-	14.9	32.9	29.5	0.9	100.0	
<b>1-5</b>	37.6	-	10.8	23.4	27.3	1.1	100.0	
<b>5-20</b>	71.5	-	5.9	10.5	11.8	0.2	100.0	
<b>20-50</b>	91.2	-	2.1	2.8	3.5	0.4	100.0	
<b>More than 50</b>	96.9	-	0.9	0.9	1.0	0.2	100.0	
<b>Total</b>	<b>57.6</b>	<b>-</b>	<b>8.0</b>	<b>16.5</b>	<b>17.4</b>	<b>0.6</b>	<b>100.0</b>	
<b>Households managing multiactive farms</b>								
<b>Less and equal 1</b>	20.4	34.2	9.1	15.6	18.2	2.5	100.0	
<b>1-5</b>	37.5	28.5	8.7	9.6	15.6	0.1	100.0	
<b>5-20</b>	55.4	27.3	2.2	6.5	8.0	0.6	100.0	
<b>20-50</b>	68.1	24.1	1.8	2.4	3.0	0.6	100.0	
<b>More than 50</b>	74.7	22.5	0.7	0.8	1.2	0.2	100.0	
<b>Total</b>	<b>56.5</b>	<b>26.3</b>	<b>3.5</b>	<b>5.6</b>	<b>7.5</b>	<b>0.6</b>	<b>100.0</b>	

Source: Istat – Business Survey on Farms (REA).

#### **XIV.2.2.5 Conclusions and final recommendations**

The examples used in this section have suggested some potential uses of the REA survey microdata. A business survey, similar to REA, for the agricultural sector can be a suitable tool, at least in the European context, for micro and macroanalysis applied to agriculture. Nevertheless, some conditions have to be satisfied in order to establish a reliable and useful database without significantly increasing the response burden for agricultural holders:

- business surveys should include farms without a relevant amount of agriculture production but important for rural development monitoring;
- business surveys should be carried out on a random sample to avoid significant bias due to voluntary sample designs;
- business and structural surveys should be coherent with respect to the definitions of statistical units and common structural variables used to obtain consistent estimates;
- in the case of non-overlapping samples, the business survey must collect a minimum set of structural variables useful for calibration to the structural survey results and for microeconomic analysis.

#### **XIV.2.3 Survey of Household Income and Wealth**

The microdata collected in national Surveys of Household Income and Wealth or in Household Budget Surveys can be of help in analysing the economic well-being of rural and agricultural households. Moreover, this microdata can help to identify those individuals or households groups, within the rural community, which have a low enough standard of living to be potential beneficiaries of rural and agricultural policies aimed at alleviating poverty.

In this section, a distributive analysis of income, consumption and wealth of Italian agricultural and rural households is presented.

##### **XIV.2.3.1 The data**

The following analysis relies on data from the Historical Archive (HA) of the Survey of Household Income and Wealth (SHIW) conducted by the Bank of Italy, covering the years 1995, 1998, 2000 and 2002. The survey was originally designed to collect data on incomes and savings. However, over the years the range of collected data expanded to the extent that wealth (both in terms of real assets and financial assets) and other information relevant for analysing the economic and financial behaviour of Italian households became available. Presently the sample covers more than 8,000 households and 21,000 individuals.

The variables used to analyse the economic situation of the households are income, consumption and wealth. Household income comprises income from work (whether as an employee or self-employed), pensions, public assistance, private transfers, income from real properties, the imputed rental income from owner-occupied dwellings, and interest on financial assets net of interest paid on mortgages. All components are recorded net of taxes and social security contributions. Household consumption is given by the sum of expenditures on durables (transport equipment, furniture, etc.) and non-durables goods. Household wealth is calculated from the sum of real (property, companies, and valuables) and financial assets (deposits, government securities, equity, etc.), net of financial liabilities (mortgages and other debts).

In the following analysis, all the economic variables are expressed in constant 2000 prices, using the consumer price index as the deflator. Observations are weighted by using adjusted weights, available in the

HA, obtained by post-stratifying the samples to re-establish the marginal distributions of components by sex, age group, type of job, geographical area and the demographic size of the municipality of residence, as registered in population and labour force statistics. These weights provide greater stability when comparing results from different years.

### Rural and agricultural households

So far a common concept of what constitutes a rural area has not been developed at the EU level. To collect statistics on the main economic, social and environmental features of rural areas, though, we need to have an approximation of the area defined as rural and which may, therefore, be the recipient of rural policy. Following the example recently given by the European Commission, the OECD definition that identifies local areas (municipalities) as rural if the population density is below 150 inhabitants per square kilometre was applied. This definition has proven to be useful in making international comparisons of rural conditions and trends. Unfortunately, this information on the population density of the municipality in which households in the SHIW reside is available only for the year 2002. For the purposes of this section, this group is called the *Rural Household Group*.

In addition to this rural household group, two other groups of households have been identified. Both of these have strong agricultural involvement.

The first group encompasses those households that are identified by applying the so-called “broad” definition of an agricultural household. These are those households that derive some income from *independent activity in agriculture* (other than income solely in kind). This income can arise from activity of the head of household or any other member (see Chapter IX of this Handbook for a fuller discussion of the definition of the agricultural household-firm). For simplicity, this group is called the *Farm Household Group*.

In Italy, around 40% of the total agricultural workforce is composed of salaried workers. In countries with a high share of salaried workers in agriculture, like Italy, it is important to monitor not only the economic situation of the farm households but also that of the agricultural wage worker households.<sup>10</sup> As a consequence, a second group of agricultural households have been identified, comprising those households that derive some income from salaried activity in agriculture. This group is termed the *Agricultural Dependent Household Group*.

#### **XIV.2.3.2 Economic conditions of rural and agricultural households**

The sample sizes of the three groups of households identified above (the farm household, the agricultural dependent household and the rural household) is shown in Table XIV.6.

The top three charts in Figure XIV.17 show the evolution from 1995-2002 of the levels of three variables (income, consumption and wealth) for five groups of Italian households. These household groups are:

- Total households;
- Total self-employed households;
- Rural households;

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<sup>10</sup> On average, the share of salaried workers within the total agricultural work force in the EU25 is around 24%. Apart from Italy, EU countries in which salaried work is particularly important are the Czech Republic (78%), Finland (78%) and Slovakia (55%). In addition, in Denmark, Germany, Spain and the Netherlands salaried workers constitute more than one third of the total labour input to agriculture.



- Farm households;
- Agricultural dependent households.

The last three are those groups previously defined. By combining these household groups into one chart, visual comparisons can easily be made. Note that data for rural households are only available for the year 2002.

It can be seen that the agricultural dependent households are disadvantaged relative to the other household groups. They record the lowest values on all three variables of income, consumption and wealth for every year of the study period. Conversely, farm households are better off than the Italian average household on all variables, with the largest difference being in the wealth category. This confirms the results of previous analysis (ISTAT, 1998; Eurostat, 1998). It is interesting to note that farm households appear to be better off even than the Italian self-employed group for some years of the study period (and for wealth they are better off in every year). An additional characteristic of the farm households is that they have a higher variability than in the rest of the household groups for all the variables. This is mainly due to unpredictable weather and the biological risks inherent in agricultural production. A final feature of farm households, mentioned earlier, that should be emphasised is that they show levels of wealth much higher than the rest of the Italian households. This is mainly due to the ownership of physical farm assets, the most important of which is the ownership of land.

The 2002 data of rural non-agricultural household type shows results that are very close to the average Italian household for all the variables.

The last two charts in Figure XIV.17 show the results for the income and consumption variables in adult equivalents. In order to perform inter-household comparisons, as it is usually done when a poverty analysis is undertaken, we need to convert households differing in size and composition into adult equivalents (see Chapter IX). This conversion has been done by applying the OECD modified equivalence scale.<sup>11</sup> Distribution is thus measured across adult equivalents, attributing to each person the equivalent income and consumption of the household to which he or she belongs.

It is interesting to note that when the differences in household size and composition are taken into account, the differentials among income and consumption levels of the farm and non-farm household types tend to shrink.

However, the relative disadvantage of the agricultural dependent households observed previously is confirmed even when differences in household size and composition are accounted for. Conversely, the relative position of the rural household type worsens both in terms of income and consumption. Finally, it is interesting to note that in terms of both income and consumption, farm households are no longer better off than the self-employed household group in most years.

### Inequality and poverty

A summary statistic that can be used to characterise the distribution of incomes within a group is the Gini coefficient (or index) (see Chapter XI for a fuller explanation of the Gini coefficient). The higher the Gini index, the more unequal (or more concentrated) is the distribution. In this section, the Gini index is used to analyse the distribution of the three economic variables within each household group.

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<sup>11</sup> This scale assigns value 1 to the first adult, 0.5 to any other person aged 14 or older and 0.3 to any person younger than 14.

The data reported in Figure XIV.18 show that the large variability previously observed in the *levels* of income and consumption in the farm household group is matched by a large variability in the distribution of these variables. Due to the extreme fluctuations it is difficult to define the relative position of farm households in distributive terms. For example, the concentration of their income is approximately equal to the other household groups in 1998 and 2000 but is much higher in 1995 and 2002. In terms of consumption, the concentration of distribution is higher in the farm household group than all others for every year of the study period. This pattern is even more pronounced when the size and composition of households is taken into account (as shown in the “Equivalent consumption” chart). Apart from 1998, farm households’ wealth concentration is lower than in the rest of the household groups. Finally rural households present a lower concentration of both equivalent income and equivalent consumption (i.e. when the size and composition of households are taken into account) relative to the rest of the population.

In order to measure the incidence of poverty a poverty line must first be established. A poverty line is the minimum standard of living achieved before a person or household is no longer deemed to be “poor.” For the purposes of this section, the poverty line has been set at 50% of the median equivalent income.

Figure XIV.19 shows the proportion of households in each household group that fall below the poverty line. Apart from the agricultural dependant household group, the data show that the incidence of poverty is more or less the same across the different household groups. Moreover, the incidence of poverty tends to decrease over the study period. Over the period, the proportion of the agricultural dependant household group below the poverty line appears to have been higher than the rest of the groups under analysis, in some years more than double. However, this finding should be treated with caution, as the costs of some important consumption items may be lower for farm households (though for others it may be higher).

The effect of relatively high income variability in the farm household group can even be seen in this index. In 2000, the fall in farm household income, mainly due to the fall in farm net income, manifested itself in a rise in the poverty rate amongst this household group to 23.4%.

#### **XIV.2.3.3 Conclusion**

This section has demonstrated how the data collected in national Household Budget Surveys can be used to perform distributive analyses of the rural and agricultural population. By making use of data on income, consumption and wealth, the relative position in terms of economic well-being of different household groups can be assessed and the possible presence of poverty or low-income detected.

An advantage of Household Budget Surveys in regard to activity-specific data sets is that the economic situation of rural and agricultural dependent households can be studied and monitored and directly compared to that of farm households. This is particularly important for Italy with its relatively high share of agricultural dependent households.

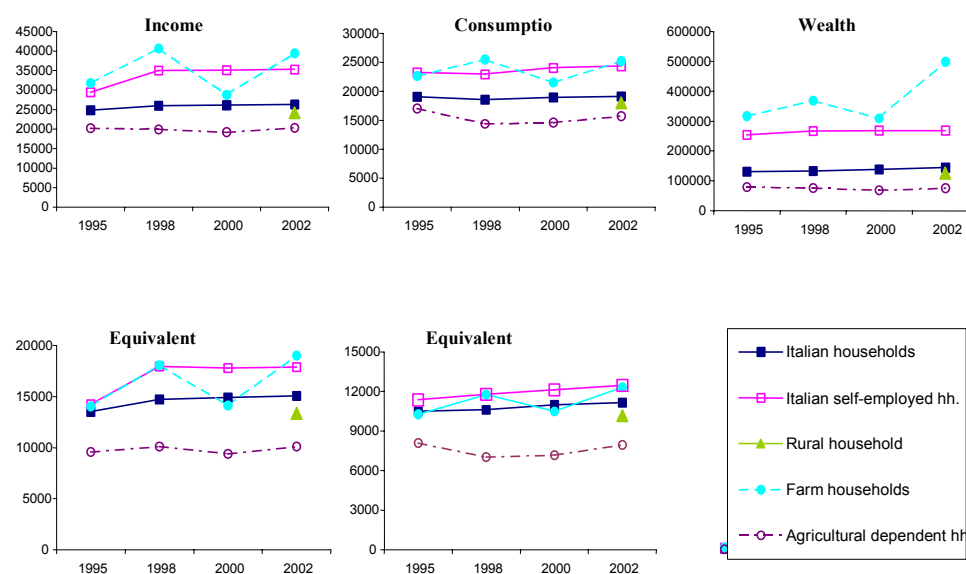
There are, however, some limitations imposed by the use of Household Budget Surveys. The most important limitation is that Household Budget Surveys do not provide information on the type of farm business run by the household. As a consequence, while the overall economic well-being of farm households can be monitored, it is not possible to detect the impact that specific farm business types have, for example, on low-income or poverty among that group.

**Table XIV.6**  
**Italian households and individuals by household type**

	1995		1998		2000		2002					
	Hholds	%	Individ.	Hholds	%	Individ.	Hholds	%	Individ.			
<i>Household type</i>												
Farm	144	1.77	557	78	1.09	290	124	1.55	441	113	1.41	401
Agr. dependent	132	1.62	495	155	2.17	589	192	2.40	691	192	2.40	634
Rural non-agricultural									1,111	13.9	3,049	
<b>Total population</b>	<b>8,135</b>	<b>100</b>	<b>23,924</b>	<b>7147</b>	<b>100</b>	<b>20901</b>	<b>8,001</b>	<b>100</b>	<b>22,268</b>	<b>8,011</b>	<b>100</b>	<b>21,148</b>

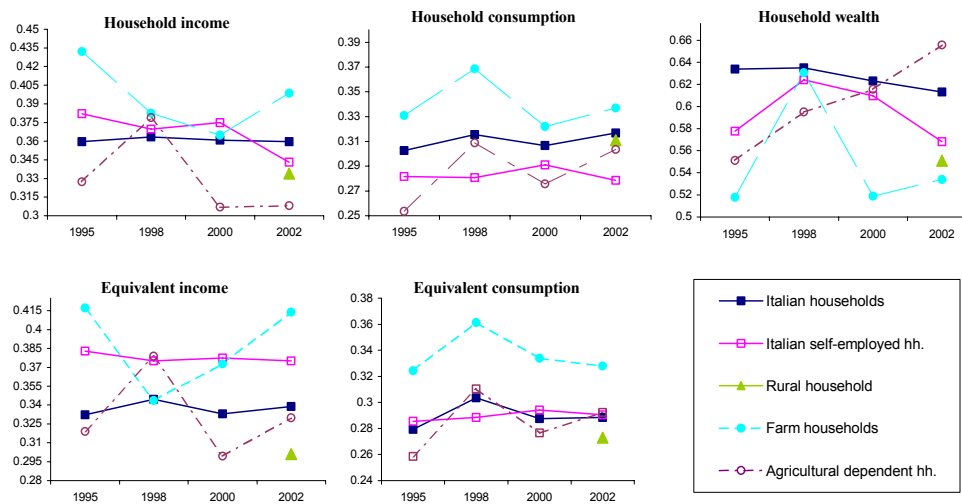
Source: Salvioni and Colazilli (2005).

**Figure XIV.17**  
**Household and equivalent income, consumption and wealth, Italy, 1995 to 2002**



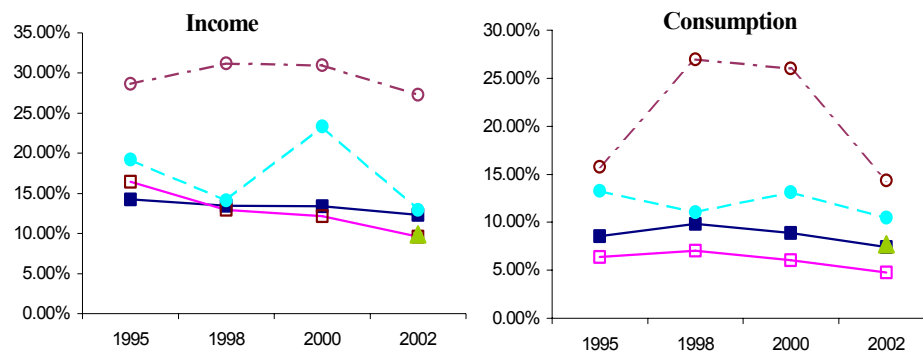
Source: Salvioni and Colazilli, 2005.

**Figure XIV.18**  
**Gini index on household and equivalent income, consumption and wealth, Italy, 1995 to 2002**



Source: Salvioni and Colazilli (2005).

**Figure XIV.19**  
**Headcount ratio on household and equivalent income and consumption, Italy, 1995 to 2002**



Source: Salvioni and Colazilli (2005).

## XIV.3 Denmark – register based agricultural income statistics

*[Editor's note: Readers should be aware that interest payments in Denmark represent a uniquely large share of the cost faced by farmers among the Member States of the European Union. This is linked to the way in which agricultural assets are transferred between generations that, typically, involve sales from parents to children. In order to support the high interest burden that results from the credit taken to purchase these assets by family successors there is a tendency for the spouses of Danish farmers, and frequently the farmers also, to work full-time or part-time outside agriculture, particularly in the early years of succession. This in turn has some impact on the choice of farming enterprise, since some forms of production (such as cereals) are more compatible with part-time activity than others (such as dairying). The high burden of interest payments (which often leads to negative profits from the farm business) and the treatment of interest in the taxation system of Denmark means that there is an emphasis on measuring income before interest charges. It also means that when households are classified according to their main income source (which, for farming, would normally be after deducting interest charges associated with the business), numbers of agricultural households appear to be disproportionately small. Further discussion is contained in Eurostat (2002)<sup>12</sup>]*

### XIV.3.1 Introduction

For many years, Statistics Denmark has compiled agricultural household income statistics, partly to accord with an agreement with Eurostat for EU statistics and partly to provide domestic information. A main objective for Eurostat's Income of the Agricultural Households Sector (IAHS) statistics is to compare agricultural household income with the income of other socio-professional households, while the main objective for the domestic statistics is to show differences between different types of farming.

The household income statistics are based on a combination of registers of persons, households, income and agricultural holdings. The methodology is further described in section XIV.3.2 below. The statistics for Eurostat are presented in section XIV.3.3. In section XIV.3.4 the income situation for different types of agricultural holdings and other subgroups of farms is presented. Finally, the issue of wealth is introduced with the presentation of figures from the Danish Farm Accountancy Data Network (FADN) statistics. The FADN statistics include information on the assets and debts of family farms.

### XIV.3.2 Combining of registers and income information

The statistics introduced here are based on registers of agriculture, households and income. The income register is basically information from tax authorities, which provide Statistics Denmark with data on different kinds of income of all relevant inhabitants. Furthermore, there is information on tax, interest and social contributions. Information on disposable income can be calculated from these data.

The income register contains information on the kind of economic activity undertaken by the individual, for example, whether the individual is an employer (broken down by line of business) or an employee.

The household register records information on individuals belonging to a household unit. From these data the number of households and the number of consumer units (CU) can be calculated. The principal, or head, of the household unit counts as 1 CU, other adults within the household count as 0.7 CU

<sup>12</sup> Eurostat (2002) *Income of the Agricultural Household Sector 2001 Report*. Theme 5. Eurostat, Luxembourg. ISBN 92-894-4471-1.

and children in the household count as 0.5 CU. The key to the income register is the personal ID-number of the individual.

The agricultural register is the Farm Structure Survey (FSS) register. This contains the annual sample of approximately 50,000 farms in Denmark that have more than five hectares of land or are of similar economic size in terms of production. The register includes, for example, information on the type of farming, standard labour hours, farm location and the age of the farmer. As a result, several subgroups can be delineated.

Almost all farms in the FSS (more than 98%) are associated with an individual owner who has a Danish ID-number. It is the presence of this ID-number that facilitates linkage to the other registers. Using the sample to represent the whole population of farm holdings, a specific income statistic on farmers can be compiled. Moreover, farm income can be broken down by subgroup.

In the full dataset, the following variables are compiled:

- A. Income from agriculture (calculated according to tax regulations)
- B. Income from other enterprises (calculated according to tax regulations)
- C. Remuneration of owner-occupied dwellings
- D. Wages and salaries
- E. Property income (including interest from financial assets)
- F. Social benefits received (including pensions)
- G. **Total income (A+B+C+D+E+F)**
- H. Interest on loans
- I. Tax on income and capital
- J. Social contributions, including savings for retirement
- K. **Disposal income (G-H-I-J)**

In cases where farmers (known from the farm register) have other businesses in addition to farming, the allocation of income is based on the most important business.

In addition, the remuneration from owner-occupied dwellings, calculated as a percentage of the value assessed by the public authority, is not taken into account in the specific Danish statistics as almost all farmers own their dwelling. Therefore, the artificial calculation used to improve comparability between owned and rented dwellings is not relevant.

Finally, it should be mentioned, that the variables do not include all the specifications listed in the questionnaire from Eurostat. However, it generally covers the overall framework.

### **XIV.3.3 Comparison between farmers and other professional groups**

One of the main reasons for compiling agricultural household income statistics is to analyse the situation in terms of the targets set out in the EU's Common Agricultural Policy (CAP), namely to ensure a fair income among farmers and their families. To make any assessment of this kind a comparison with other groups is necessary. In Table XIV.7, figures comparing farmers to other socio-professional groups within Denmark are presented.

It is important to note, that the definition of farmers in this context is the "narrow" definition, where only families whose main income comes from farming are included (see Chapter IX of this Handbook). This number (approximately 15,000 in 2002) represents only about 30 per cent of the total

number of “farmers” in Denmark. It should be further noted, that the number of farms defined as “full-time” farms in 2002 was approximately 23,000. The discrepancy in the numbers indicates that about one third of full-time farms could not fulfil the income criteria of the “narrow” definition that year.

Looking at the results, it is difficult to make comparisons of the income composition on all the variables. In particular, because profit from agriculture and other businesses do not include a deduction for interest related to the business. However, looking at the bottom line, the farmers’ net disposable income (202,000 DKK per household in 2002) is among the lowest of all the groups. This is particularly important in light of the fact that farm households had the highest consumer units per household.

Looking at the composition of income, it can be seen that households with employers as the main person providing income still have a relatively high income from wages and salaries. This suggests that the spouse of the employer often works for wages outside of the family business. Furthermore, the figures show that, amongst all employers and own-account workers, farmers have the highest level of interest payments. This indicates that debts (probably related to high capital input) are very high for farm households.

#### **XIV.3.4 Comparison between different types of farms**

In the Danish context, the compilation of agricultural household income is seen as an important supplement to the Economic Accounts of Agriculture, because agricultural activity is very rarely the only income generating activity for the farm family. In fact, part-time farmers (where the standard labour input to the farm is less than one work unit), account for more than half of all farmers in Denmark. In 2002, part-time farms constituted 53% of all farms in the Farm Structure Survey.

Figure XIV.20 shows disposable income broken down by full-time and part-time farms. It can be seen that part-time farmers, in general, have a higher disposable income than full-time farmers. Furthermore, there was a steep decrease in the disposable income for full-time farms in 2002. The figures are in the Annex to this section (Tables 1-3).

The disposable income for all farms in 2002 is 176,000 DKK. However, it was seen in the previous section that farms, using the “narrow” definition, had an income of 202,000 DKK. Corrected for the remuneration of own dwelling this figure is reduced to 191,000 DKK, still 15,000 DKK higher than for all farms.

Figure XIV.21 shows the composition of total income for agricultural households. It can be seen that less than the half of total income is derived from agricultural activity. Income from wages and salaries is as important as agriculture – even before agricultural income has been reduced by any interest related to farming activities. This is a significant result.

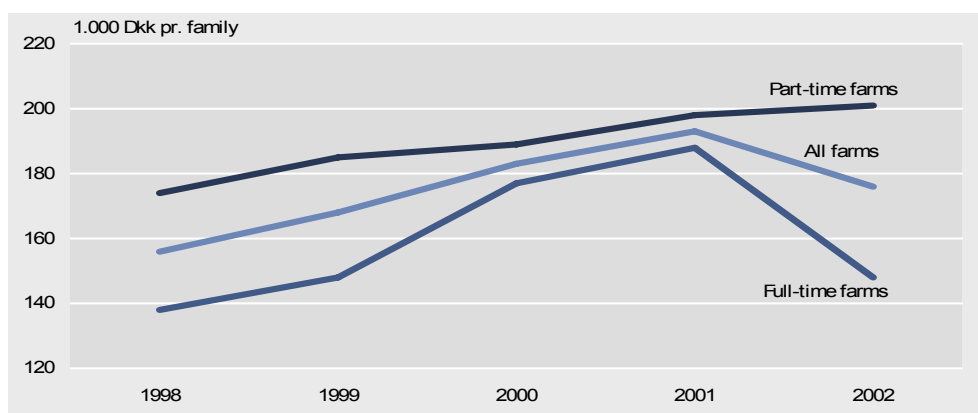
However, it is very important to distinguish between full-time and part-time farms when analysing the composition of income. With full-time farms, almost 60% of total income in 2002 was derived from agricultural profit whereas it was only 7% for part-time farms. However, the portion from wages and salaries was 21% for full-time farms and 65% for part-time farms. Social benefits counted more for part-time farming households where the number of pensioners is relatively high.

**Table XIV.7**  
**Income and income composition by socio-professional group**

	Farmers	Other employers	All employers	Manual employees	Non-manual employees	All others	All except farmers	All households
1,000 DKK per household								
Profit, agriculture	481	0	65	0	0	0	0	3
Profit, other enterprises	3	420	364	3	6	1	18	18
Remuneration of own dwelling	11	18	17	7	16	2	7	7
Wages and salaries	123	122	122	321	516	8	232	231
Property income	18	15	15	3	7	7	6	6
Social benefits received	34	33	33	34	30	165	85	85
Gross income	669	608	616	368	576	182	349	351
Interest on loans	264	99	121	29	48	7	27	29
Taxes on income and capital	124	171	165	96	176	47	97	97
Social contributions	79	89	88	46	69	4	36	36
Net disposal income	202	248	242	197	283	125	189	189
numbers, 1,000								
Households	15	95	109	857	547	988	2486	2501
Household members	39	225	263	1,746	1,309	1,383	4,663	4,702
Consumer units	29	174	203	1,399	1,007	1,246	3,826	3,855
per household								
Household members	2.65	2.38	2.41	2.04	2.39	1.40	1.88	1.88
Consumer units	1.99	1.84	1.86	1.63	1.84	1.26	1.54	1.54

Source: Income of Agricultural Household Statistics 2002, delivery to Eurostat.

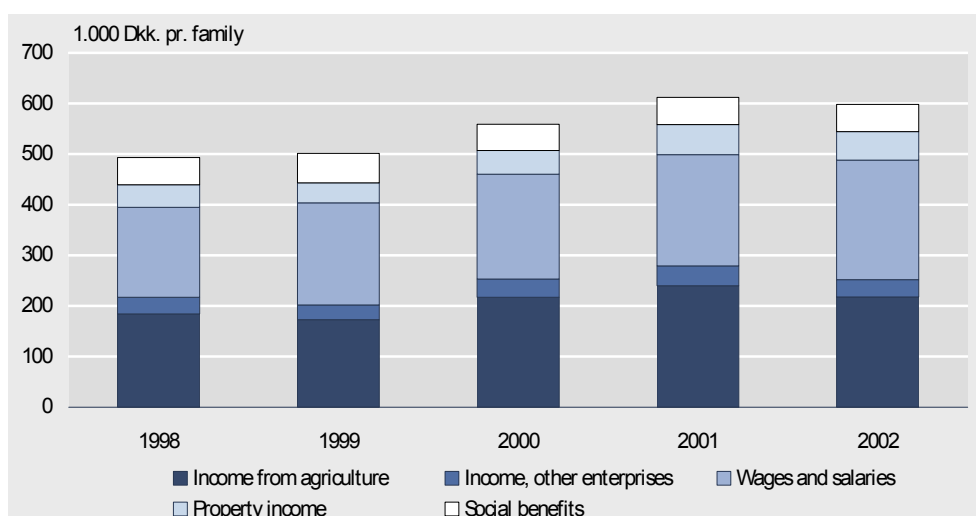
**Figure XIV.20**  
**Disposable income for agricultural households, all farms**



Source: Income of Agricultural Households Statistics in Denmark, Statistics Denmark, SE 2004:11.



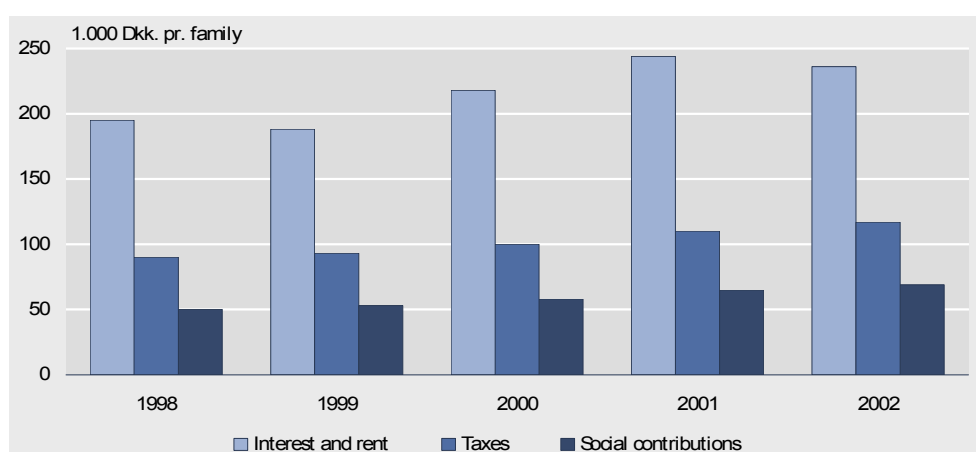
**Figure XIV.21**  
**Composition of gross income for agricultural households, all farms**



Source: Income of Agricultural Households Statistics in Denmark, Statistics Denmark, SE 2004:11.

The main costs paid out of total income is shown in Figure XIV.22. It is obvious that interest is the most important element. In fact, interest is twice as high as taxes for all agricultural households. Looking at full-time farms, however, the interest is 3.4 times the taxes, while the taxes on a part-time farm are 25% higher than the interest. This difference is mainly explained by differences in debt which is, in turn, related to the farm capital input.

**Figure XIV.22**  
**Interest, taxes and social contributions at agricultural households, all farm**



Source: Income of Agricultural Households Statistics in Denmark, Statistics Denmark, SE 2004:11.

Looking at farms broken down by age of farmer (see Tables 4-6 in the Annex), there is a tendency for older farmers (up to 60 years) to have a slightly decreasing portion of their total income derived from agriculture and an increasing portion of their income derived from wages and salaries and from property income. On the expenditure side, it is significant that interest payments lower with age while taxes increase.

These patterns hold for both full-time and part-time agricultural households. However, when comparing income composition by age groups, it should be noted, that the family size of the agricultural households in the youngest and oldest groups is much smaller than in the other groups.

### XIV.3.5 Development of wealth in agricultural households

Statistics Denmark has no specific statistics on wealth among agricultural households. However, The Danish Institute of Food Economics is compiling Farm Account Data Network (FADN) statistics on Denmark. This FADN framework means that some information on wealth by household will be available even though it will not be possible to get full information on all farms.

**Table XIV.8**  
**Assets and liabilities: Age groups, full-time farms, 2003**

	Farmer's age, years				
	- 34	35-44	45-54	55-64	65 -
	—1,000 DKK per farm				
Balance in the end of the year					
Agricultural assets	11,071	10,984	10,480	8,890	9,005
Other physical assets	1,313	1,654	1,865	1,588	1,656
Financial assets	649	756	1,060	971	1,662
Assets Total	13,033	13,394	13,405	11,449	12,322
Bond loans	7,728	6,872	5,688	4,310	3,282
Bank loans	1,944	1,476	1,402	1,059	701
Other liabilities	873	738	620	504	518
Debt capital, total	10,545	9,086	7,710	5,873	4,501
Net capital	2,487	4,308	5,695	5,576	7,821
Ratio of debts	80.9	67.8	57.5	51.3	36.5

Source: Agricultural Account Statistics 2003, Danish Institute of Food Economics

However, statistics on the assets and debts of full-time farms are available. The assets and debts of full-time farms, for five age groups, are shown in Table XIV.8. It is important to note that the market value of the farm is based on public assessment and can be over- or underestimated. Nevertheless, the figures in the table clearly indicate that there is a consistent gain of net capital during the life of the farmer, with an increase in net capital from approximately 2.5 million DKK for young farmers to 7.8 million DKK in the oldest group, even though they have broadly similar total assets. From a lifetime income perspective this substantial gain of capital is important, particularly when comparing income in the agricultural sector with the income in other groups.

## XIV.4 Sweden – another example of register based statistics

### XIV.4.1 Introduction

Sweden provides another example of how registers can be used for calculating agriculture household income. Data are extracted from the following three registers:

- **The Farm Register (LBR)** which changed somewhat in 2000, resulting in a slight reduction in the number of operators per farm and a sharp reduction in the number of old operators.
- **The Register of Total Income Statistics (IoT)**, which contains information for the whole Swedish population, with unique personal identifiers, about income, deductions, taxes and social transfers.
- **The Register of the Total Population (RTB)**. As of 1999, the household concept was changed for the calculation of IAHS. Previously, only the operators and the spouse were included. In the new concept a maximum of two generations are included provided they are related to each other and are registered at the same address.<sup>13</sup>

### XIV.4.2 Agriculture household income 1999-2002

In 2002, the average agriculture household income, before transfers, amounted to about 314,000 SEK, of which net income from self-employment (including interest adjustment for the self-employed) amounted to 23% (see Table XIV.9). This share was only slightly above the corresponding share in 2000 when the new family concept was adopted. While net disposable income increased by 18% in the period 1999-2002, the household income before transfers only rose by 11%. Wages and salaries rose by 14% while income from self-employment surged by 29%. This was partly offset by a fall of 35% in net capital income.

Average net disposable income for agricultural households amounted to just over 90% of average net disposable income for all households. Its share rose, however, by about three percentage points in the period 1999-2000.

### XIV.4.3 Agriculture household income according to IAHS – comparison between socio-economic groups

IAHS data for Sweden are available for 1999 and 2000. Of a total population of 75,281 agricultural households (“broad” definition) (or about 1.6% of all households in Sweden), 18,339, or 24% of all agriculture household and 0.4% of all households, fulfilled the IAHS criteria for the “narrow” definition.

In 2000, the average agricultural household (“narrow” definition) net disposable income amounted to about 213,000 SEK. This compares with 203,000 SEK for other self-employed, 233,000 SEK for employees, 220,000 SEK for all farm households (“broad” definition) and 189,000 SEK for all households (see Table XIV.10 and Figure XIV.23). Households with only employees thus had 23% higher net disposable income than the average of all households, the category all farm households were 16% better off, farmers (“narrow definition”) +13% and other self-employed +7%. On the other hand, the growth in net

<sup>13</sup> There is no information about couples living together but not having common children. This results in an overestimation of single-person households.

disposable income between 1999 and 2000 was, compared with all households, twice as large or more for farmers (both "broad" and "narrow" categories) and other self-employed.

Of total resources received, net operating surplus from independent activity, but excluding owner-occupied housing, amounted to 60% for farmers with the "narrow" definition, 62% for other self-employed and 18% for all farmers.

Looking at the distribution of average farm household ("narrow" definition) income by the three major regions of Sweden, there are rather marginal differences (see Figure XIV.24). However, when household income distribution is broken down by farm size it is a different story. Average household income for farms with 200 or more hectares is twice that of households with farm size of 5-10 hectares and of 10-20 hectares (see Figure XIV.25).

As would be expected average household income peaks for operators in the age group 40-49 years and is lowest in the age group 30-39 years (see Figure XIV.26).

Statistics Sweden and the Swedish Board of Agriculture have not published IAHS statistics for the years 2001 and 2002 as the calculations of owner-occupied housing, with the method applied, is considered to be misleading. This is mainly due to the evolving differences in the tax evaluations of houses on farms, compared with other houses.

Table XIV.9

Agriculture household income after transfers, 1999-2002. Average per household in Swedish kronor

	2002	2001	2000	1999	%, 99-02
Wages and salaries	246,100	235,200	226,400	215,300	14.3
General deductions	4,300	4,300	4,200	3,600	
Net income from self-employment (including agriculture)	52,400	51,200	45,900	40,600	29.1
Changes in expansion capital	20	1,200	1,700	600	
Net capital income	19,700	22,900	29,000	30,400	-35.2
of which Net interest adjustment for self- employed */	19,700	19,700	18,600	16,300	
<b>Household income before transfers</b>	<b>313,920</b>	<b>306,200</b>	<b>298,800</b>	<b>283,300</b>	<b>10.8</b>
<b>Net income from self-employment (incl Net interest adjustment for self- employed) as a percentage of household income before transfers</b>	<b>23.0</b>	<b>23.2</b>	<b>21.6</b>	<b>20.1</b>	
Positive transfers	11,900	11,400	10,700	9,500	25.3
Negative transfers	100,300	101,600	104,000	102,400	-2.1
<b>Net disposable income</b>	<b>225,520</b>	<b>216,000</b>	<b>205,500</b>	<b>190,400</b>	<b>18.4</b>
Net disposable income for all household with members of 18 years and over	247,400	240,600	239,000	214,800	15.2
Farm households as a percentage of all households	91.2	89.8	86.0	88.6	

Source: Statistics Sweden and the Swedish Board of Agriculture: Statistiska Meddelanden, JO 42 SM 0401.

Note: Data for all households (source: Statistics Sweden: *Disponibel inkomst för samtliga hushåll 18-år, medelvärde, löpande priser, kr, efter hushållstyp, ålder och tid*) are calculated from a different survey than farm households. Only a rough comparison can be made between the two sets of data.

\*/ Net interest adjustment can be used by farmers and other self-employed in order to get corresponding taxation as other enterprises.

Table XIV.10

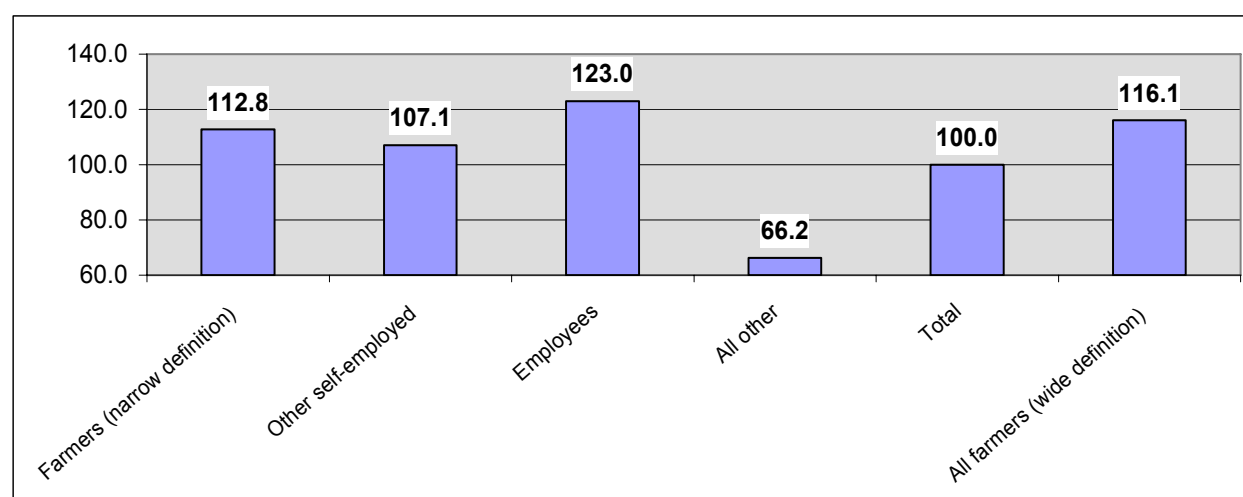
Income for socio economic groups in 2000 according to IAHS definitions. Average per household in Swedish kronor

	Farmers (narrow definition)	Other self- employed	Employees	All other	Total	All farmers (wide definition)
1a+ Net operating surplus (mixed income) from independent 1b agricultural and non-agricultural activities	227,500	291,600	4,200	1,300	11,600	79,100
1c From imputed rental value of owner-occupied dwellings	26,900	19,600	16,000	8,400	13,100	26,300
2a Compensation to members of agricultural households as employees, from agricultural and non-agricultural activity, i.e. wages and salaries	52,000	67,600	315,800	10,400	186,900	169,800
2c Imputed social contributions	21,800	28,500	132,800	4,200	78,500	71,200
3 Property income received (rent, interest, dividends etc.)	10,400	11,900	5,800	9,700	7,500	10,300
4 Non-life insurance claims (personal and material damage)						
5 Social benefits (other than Social benefits in kind)	42,000	53,600	45,700	158,900	90,800	72,200
6 Miscellaneous inward current transfers						
<b>7 Total resources (sum of 1 - 6)</b>	<b>380,600</b>	<b>472,900</b>	<b>520,200</b>	<b>192,900</b>	<b>388,400</b>	<b>428,900</b>
8 Property income paid	8,900	19,400	17,100	4,600	12,200	13,300
9 Net non-life insurance premiums						
10 Current taxes on income and wealth	78,800	150,000	106,300	53,600	86,400	86,900
11 Social contributions	76,800	95,700	161,300	7,700	98,200	106,100
12 Miscellaneous outgoing current transfers	2,700	5,200	2,700	1,800	2,400	3,000
<b>13 Net disposable income (7 minus 8 - 12)</b>	<b>213,400</b>	<b>202,600</b>	<b>232,800</b>	<b>125,300</b>	<b>189,200</b>	<b>219,600</b>
<b>Net disposable income in 1999</b>	<b>195,000</b>	<b>182,700</b>	<b>222,000</b>	<b>125,000</b>	<b>181,500</b>	<b>203,800</b>
<b>Percentage change 1999/2000</b>	<b>9.4</b>	<b>10.9</b>	<b>4.9</b>	<b>0.2</b>	<b>4.2</b>	<b>7.8</b>
Number of:						
persons in the households	47,364	272,925	5,845,825	2,705,462	8,871,576	194,223
households	18,339	123,852	2,672,850	1,854,608	4,669,648	75,281
persons per household	2.58	2.20	2.19	1.46	1.90	2.58

Source: Statistics Sweden and the Swedish Board of Agriculture: Statistiska Meddelanden, JO 42 SM 0201.

Figure XIV.23

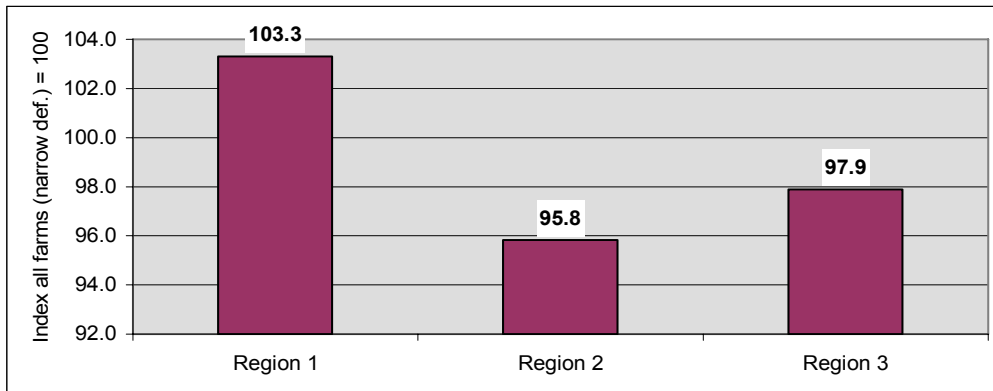
Index of net disposable household income 2000 by socio-economic groups, total households = 100.



Source: Statistics Sweden and the Swedish Board of Agriculture: Statistiska Meddelanden, JO 42 SM 0201.

Figure XIV.24

Index of average farm household net disposable income (narrow definition) by type of region in 2000. All farm households (narrow definition) = 100



Source: Ibid.

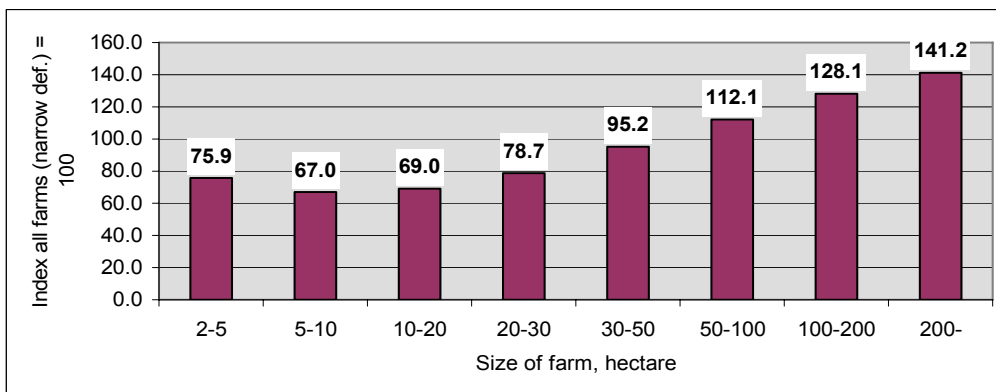
Region 1: Mainly farm land areas.

Region 2: Mainly forest areas.

Region 3: North Sweden.

Figure XIV.25

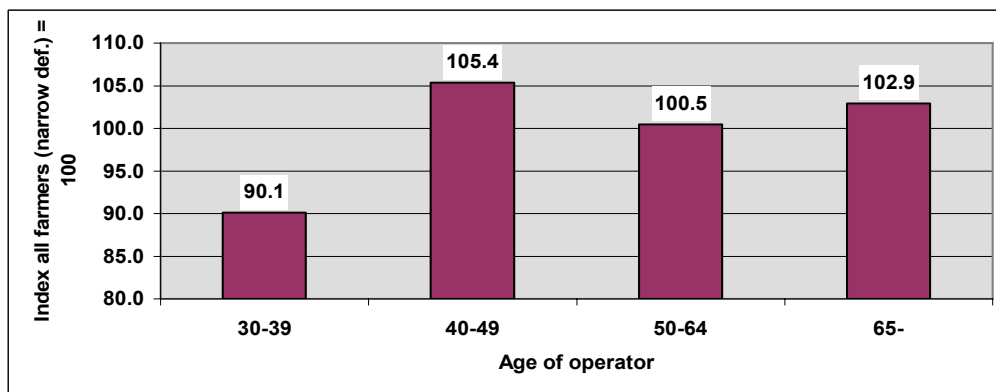
Index of average farm household net disposable income (narrow definition) by size of arable land in hectare in 2000. All farm households (narrow definition) = 100



Source: Ibid.

Figure XIV.26

Index of average farm household net disposable income (narrow definition) by the age of the operator in 2000. All farm households (narrow definition) = 100



Source: Ibid.

## **XIV.5 Canada**

### **XIV.5.1 Gross and net revenues per farm – medium-sized farms have the highest operating margin**

In 1996, almost half of all farms in Canada (234,390) reported net cash operating revenue of less than \$10,000 and half of these reported losses.<sup>14</sup> Table XIV.11 and Figure XIV.27 show the distribution of the number of farms, gross farm revenues and net cash operating revenue by size class of gross revenue in 1996 and 2001. It is interesting to note that while farms in the gross revenue class of \$10,000-\$49,999 increased their average net operating income from \$1,541 to \$2,297, an increase of 49%, farms in all the other revenue classes saw their income increase only by between 1% and 3.1%.

In 2001, farms with gross revenues of \$500,000 or more, which made up 6.5% of all farms, accounted for almost 51% of aggregate gross revenues but for only 37% of aggregate net cash operating revenue. It is also interesting to note that their operating margin is lower than farms in all other gross revenue classes, except for that of the \$10,000-\$49,999 class. In fact, the highest operating margin, whether measured before or after capital cost allowance, is found among medium-sized farms, that is those with gross revenues of \$100,000-\$249,999.

### **XIV.5.2 Farm operators' off-farm income exceeds net cash farm operating revenue**

In the period 1993-2001, average net cash operating revenue from the farm and average off-farm income per operator have steadily increased (see Table XIV.12 and Figure XIV.28). Between 1993 and 1999, off-farm income for operators increased its share from 52% of total operator income (before capital cost allowance) to 58%. By 2001, however, it had dropped to just below 55%. While average off-farm income rose by almost 48%, average net cash farm operating revenue increased by only 34%, indicating that operators of farms with over \$10,000 in gross revenue are getting increasingly dependent on off-farm income opportunities for their living.

#### ***Wages and salaries are the most important source of off-farm income***

Wages and salaries are the most important source of off-farm income. In 2001, they accounted for 31% of total operator income (before capital cost allowance) and 56% of off-farm income. Wages and salaries are followed by investment income and pension income at 9% and 8% of total operator income (16% and 14.5% of off-farm income), respectively (see Table XIV.13 and Figure XIV.29).

#### ***Off-farm income as a share of total operator income (before capital cost allowance) is smaller for operators of larger farms***

In general, off-farm income as a share of total operator income (before depreciation) is smaller for operators of larger farms. Operators of the smallest farms tend to use off-farm income to cover losses from the farm or, equally likely, operators of the smallest farms began with an off-farm job and have started a small hobby farm on the side. In 2001, off-farm income represented about 94% of total operator income

<sup>14</sup> "Farms", as published in Statistics Canada (1998) **Economic Overview of Farm Incomes: All Farms, 1996** (Ottawa: Statistics Canada, Catalogue no. 21-005) ([www.statcan.ca:8096/bsolc/english/bsolc?catno=21-005-X&CHROPG=1](http://www.statcan.ca:8096/bsolc/english/bsolc?catno=21-005-X&CHROPG=1)) refers to unincorporated farms with gross revenues of \$10,000 or more plus incorporated farms with gross revenues of \$25,000 or more (if 51% of more of their sales are generated by agricultural activities) plus communal farming operations such as Hutterite colonies.

(before capital cost allowance) for operators of small farms with gross revenues of \$10,000 to \$49,999, compared with about 33% for the operators of the largest farms (see Table XIV.13).

***The highest dollar amount from wages and salaries was earned by operators of very large farms followed by the smallest farms***

The highest dollar amount from wages and salaries (about \$24,600 in 2001, or about 63% of their reported total off-farm income) was earned by operators of larger farms (see Table XIV.13 and Figure XIV.29). This may be attributed to the fact that many farms in this size class are likely to be incorporated farms. Operators of incorporated farms receive the income from their farms in the form of wages and salaries or as dividends. The wage and salary expense reduces net operating revenue of the farm enterprise, while the wage and salary income increases the reported off-farm income of the farm operator. Note also the high amount of investment income (which includes the dividends paid by the corporate farm) received by operators of larger farms.

Operators of the smallest farms also receive a large amount in wages and salaries – about \$17,400, or 57% of their total off-farm income. The lowest average earned level of wages and salaries was recorded by operators of farms with gross revenues of \$100,000 to \$249,999 - about \$8,200, or 48% of their total off-farm income. The farmers in this category spend relatively more effort on their farms than other categories, which, as was seen above, also results in the highest operating margin.<sup>15</sup>

***Investment income as a percentage of total off-farm income tend to increase by revenue size – for pension income it is the reverse***

Investment income as a percentage of total off-farm income tends to be higher for operators of larger farms - 12% for the smallest category rising to 22% for operators of farms with revenues of \$500,000 or more (see Figure XIV.29). As noted above, investment income of operators of larger farms would be expected to be higher, in part due to the dividends flowing from an incorporated farm to the operator. For pension income it is the reverse. For the largest farms, pension income represents only 5% of total off-farm income while it constitutes as much as 19% for the operators in the smallest farm category.

Non-farm self-employment income is fairly stable at between 5% to 7% of total income for operators in all farm categories.

**XIV.5.3 Total farm family income increases steadily as a result of increasing off-farm income**

Between 1996 and 2000, the total number of families associated with unincorporated farms (with gross revenue of \$10,000 or more) declined continuously by almost 9% to just below 148,000 (see Table XIV.14). In the same period, the average operating income per farm family fell by 0.4% while the average off-farm income surged by over 24%. This resulted in an increase of average total income per farm family of almost 17%, reaching about \$66,300 (\$54,500 after deduction for capital costs). The share of total income represented by off-farm income rose from 69% in 1996 to 73.5% in 2000.

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<sup>15</sup> Note that the operating margins reported here are gross revenues minus cash expenses, including the wages paid to the operator and other family members. If these wages were classified as income, rather than an expense, then the calculated margins of the larger farms would be expected to be higher.



Increased payments from farm aid programs, as well as higher livestock and product revenues as a result of strong demand, limited the losses in average net farm operating income. The rise in average off-farm income was largely driven by a surge in labour income.

### ***Off-farm income exceeds 70% of total family income***

On average, farm families received 26.5% of their total income from farming activities and 73.5% from off-farm income. Wages and salaries and non-farm self-employment income taken together accounted for 67% of total off-farm income (see Table XIV.15). Pension income represented 12.6% and investment income 10.5%.

### ***Average total family income varied greatly***

Table XIV.15 introduces a further breakdown of unincorporated Canadian farms into those that are business-focused and those that are non-business-focused (or “lifestyle”) farms. Average total family income varied greatly across these different farm typology groups, from about \$16,500 for the families associated with large unincorporated farms that are low-income non-business-oriented farms to \$117,600 for families associated with unincorporated very large business-focused farms.

### ***The contribution from off-farm income varied from 32% to 102% of total income***

The contribution from off-farm income also varied considerably - from 32% for families associated with unincorporated very large business-focused farms to 102% for families operating farms classified as medium-sized lifestyle farms. In the latter case, off-farm income is thus used not only for the totality of the families' living but also the operation of a small hobby farm holding (see Table XIV.15 and Figure XIV.30).

For small non-business focused farms, the share of off-farm income is 77% and of this amount the share from wages and salaries and non-farm self-employment income account for only 24%. Investment income and pension income was, not surprisingly, high at 22% and 46.5%, respectively. The income of families with very large business-focused farms was 32% from off-farm income and of this source about 68% originated from wages, salaries and non-farm self-employment income. Investment income had a share of 16%.

Families operating farms in the categories of small, medium and large business-focused farms as well as the medium-sized lifestyle farms all had a very large share of wages, salaries and non-farm self-employment income as a share of total off-farm income - between 72% and 88%. Investment income and pension income were less than 10% for these groups of farms.

## **XIV.5.4 Steady increase in wealth accumulation**

The economic well-being of the farm family is not only dependent of total family income but also on their wealth. In the period 1996-2000, average total income per farm family operating an unincorporated farm increased by almost 17% (see Table XIV.14). In the same period, equity in the agriculture sector increased by almost 16%. For the period 1995-2003, the increase amounted to 30.5% (see Table XIV.16 and Figure XIV.31).

In 2003, farm real estate accounted for almost 60% of total farm sector assets, of which land accounted for 44%. Machinery had a share of 14% followed by “quota”, which essentially is a licence to sell a certain amount of a specific product, with 10%. The value of this item increased by 119% in the period

1995-2003. The value of farm real estate increased by 37%, of which service buildings and homes had the highest growth, 42% and 48%, respectively.

With respect to the debt structure of Canadian farms, Figure XIV.31 shows that current liabilities in relation to total liabilities increased from about 17% in 1997 to about 23% in 2003. Return of equity shows rather large fluctuations - almost halving between 1996 and 1997 after which it slowly increased or was flat until 2001. It then dropped between 2001 and 2002 before immediately recovering in 2003 to the trend level of 1997-2001.

#### **XIV.5.5 Notes to the data and the data sources**

- The average net income measures do not include any income in kind such as the value of goods produced for home consumption, less cost of inputs.
- The value of owner-occupied housing is not imputed for any of the data on total incomes for the “operator,” “family” or the “household” associated with farms.
- Tables XIV.11 to XIV.13 relate to the operators of unincorporated and incorporated farms. Tables XIV.14 and XIV.15 represent only for unincorporated farms.
- If nothing else is mentioned, net operating income refers to income before capital cost allowance. When income is measured after capital cost allowance, the capital cost allowance is obtained from the income tax returns. This does not correspond to the economic depreciation used in the farm income accounts (in aggregate, they are somewhat similar in magnitude, however).
- Farm family refers to a married couple or a common-law couple with or without children at home; or a lone parent of any marital status, with at least one child living at home. There is no restriction on the age of the children. Children must report a marital status other than married or living common-law and have no children in the household. The concept of farm family thus differs somewhat from the concept of household.
- Within Statistics Canada, the division responsible for generating statistical data from the income tax records of individuals (the Small Area and Administrative Data Division (SAADD)) assembles a “family file” (for families as defined above) using the information on the individual income tax records that indicate the Social Insurance Number of the spouse and the number of dependent children. For the total income of “farming families”, the detailed information on farm revenues by item and farm expenses by item from the farm taxation record is linked, via the Social Insurance Number of the operator, to the SAADD “family file.”

Table XIV.11

Operating revenues and expenses by revenue classes in Canada, 1996 and 2001

	Revenue classes					All
	\$10,000 - \$49,999	\$50,000 - \$99,999	\$100,000 \$249,999	\$10,000 - \$49,999	\$500,000 - and over	
<b>1996</b>						
Number of farms	103,475	45,770	55,045	20,310	9,805	234,390
Average total revenues per farm, C\$	25,036	72,330	158,704	341,451	1,285,967	145,837
<b>Average net operating income per farm, C\$</b>	<b>1,541</b>	<b>13,818</b>	<b>34,031</b>	<b>67,835</b>	<b>160,801</b>	<b>23,977</b>
<b>2001</b>						
Number of farms	97,220	40,010	49,590	23,310	14,545	224,670
Average total revenues per farm, C\$	25,322	72,167	160,633	344,071	1,519,559	193,329
<b>Average net operating income per farm, C\$</b>	<b>2,297</b>	<b>14,043</b>	<b>34,713</b>	<b>68,544</b>	<b>165,751</b>	<b>28,998</b>
<b>Percentage change 1996-2001</b>	<b>49.0</b>	<b>1.6</b>	<b>2.0</b>	<b>1.0</b>	<b>3.1</b>	<b>20.9</b>
<b>Average net operating income per farm after capital cost allowance, C\$</b>	<b>-1,438</b>	<b>5,097</b>	<b>16,282</b>	<b>31,832</b>	<b>70,177</b>	<b>11,725</b>
Operating margin	0.09	0.19	0.22	0.20	0.11	0.15
Operating margin after capital cost allowance	-0.06	0.07	0.10	0.09	0.05	0.06

Sources: Statistics Canada, Farm and Off-Farm Income Statistics 2001, Catalogue no. 21-019-XIE, May 2004.  
 Statistics Canada, Economic Overview of Farm Incomes, 1996, Vol. 1, No. 1, Oct 1998

Figure XIV.27

Percentage distribution of revenues, operating income and number of farms by revenue classes in Canada in 2001

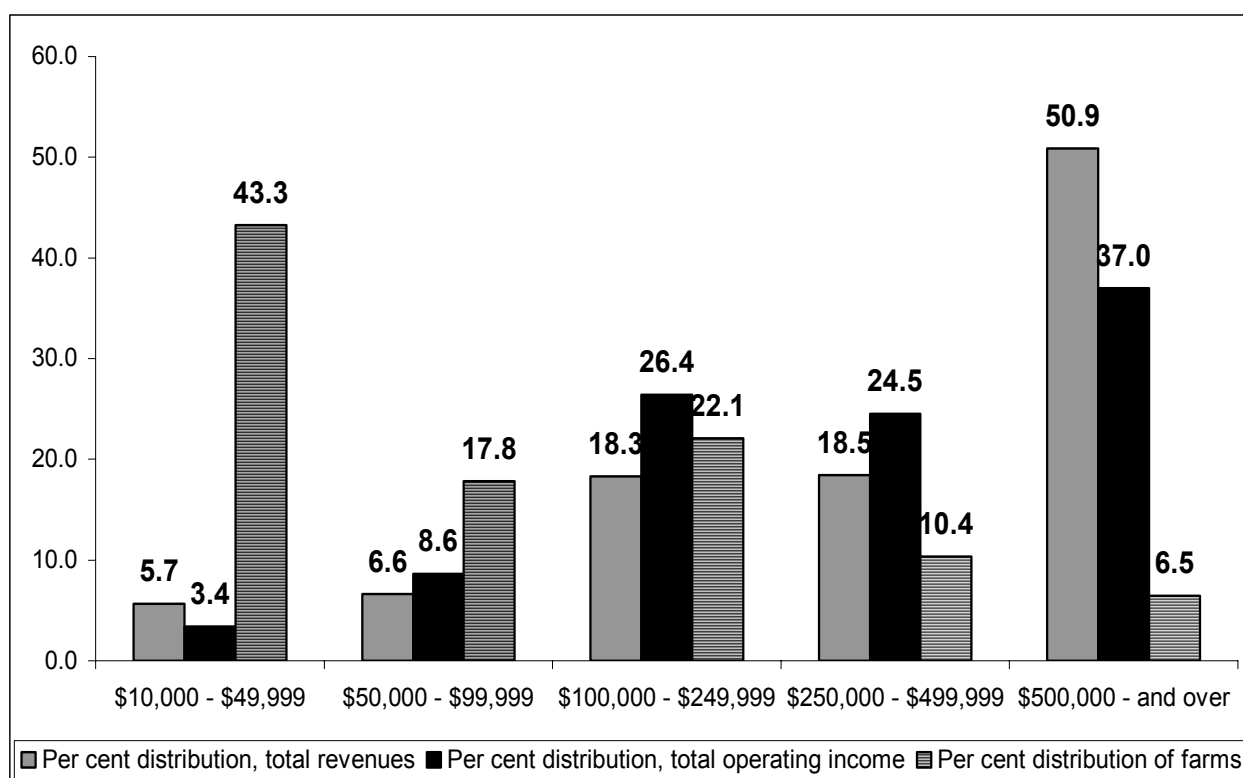


Table XIV.12

Average total income per operator in Canada, 1993-2001, current C\$

	1993	1995	1999	1999	2000	2001	% change 1993-2001
<b>Average total income per operator, C\$ */</b>	<b>33,334</b>	<b>37,220</b>	<b>39,976</b>	<b>40,009</b>	<b>43,558</b>	<b>46,998</b>	<b>41.0</b>
Average off-farm income per operator, C\$ **/	17,434	19,206	22,220	23,210	24,455	25,729	47.6
Average net operating income per operator, C\$ ***/	15,900	18,014	17,757	16,800	19,103	21,269	33.8
Off-farm income per operator, % **/	52.3	51.6	55.6	58.0	56.1	54.7	
Net operating income per operator ***/	47.7	48.4	44.4	42.0	43.9	45.3	

Sources: Statistics Canada, Economic Overview of Farm Incomes, Vol. 2, No. 1, Dec. 2001.

Statistics Canada, Farm and Off-Farm Income Statistics 2001, Catalogue no. 21-019-XIE, May 2004.

\*/ Excludes communal farming operations. \*\*/ Excludes taxable capital gains. \*\*\*/ Before capital cost allowance.

Figure XIV.28

Percentage share of net farm income and off-farm income per operator in Canada, 1993-2001

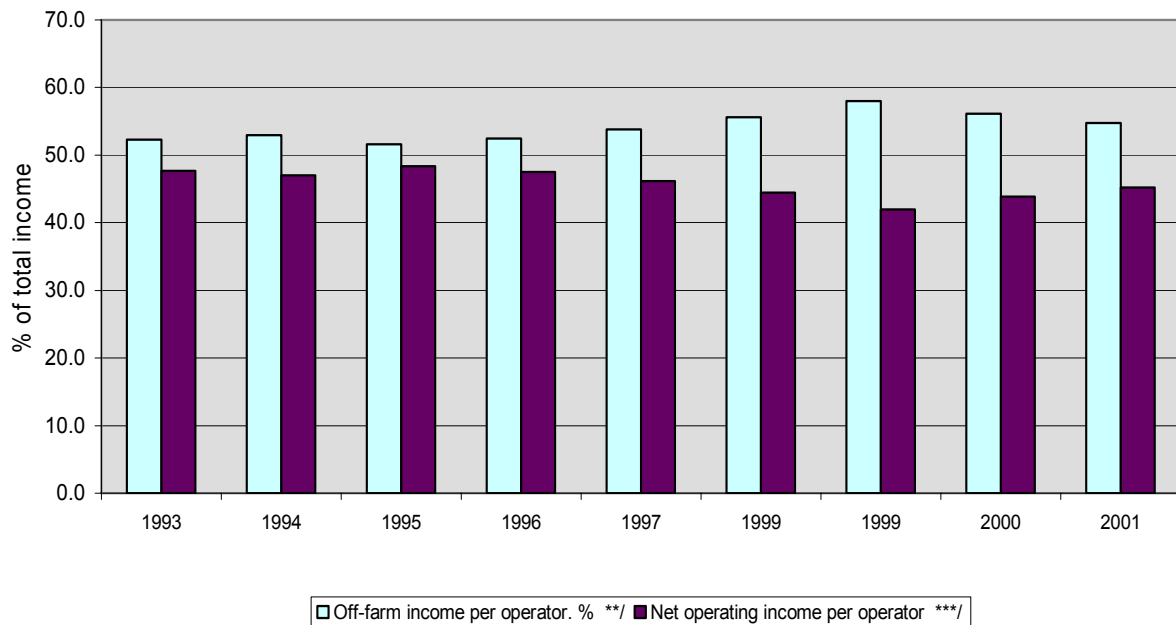


Table XIV.13

Total income of farm operators by revenues classes, unincorporated and incorporated sectors, Canada, 1998 and 2001.  
Average per operator, C\$

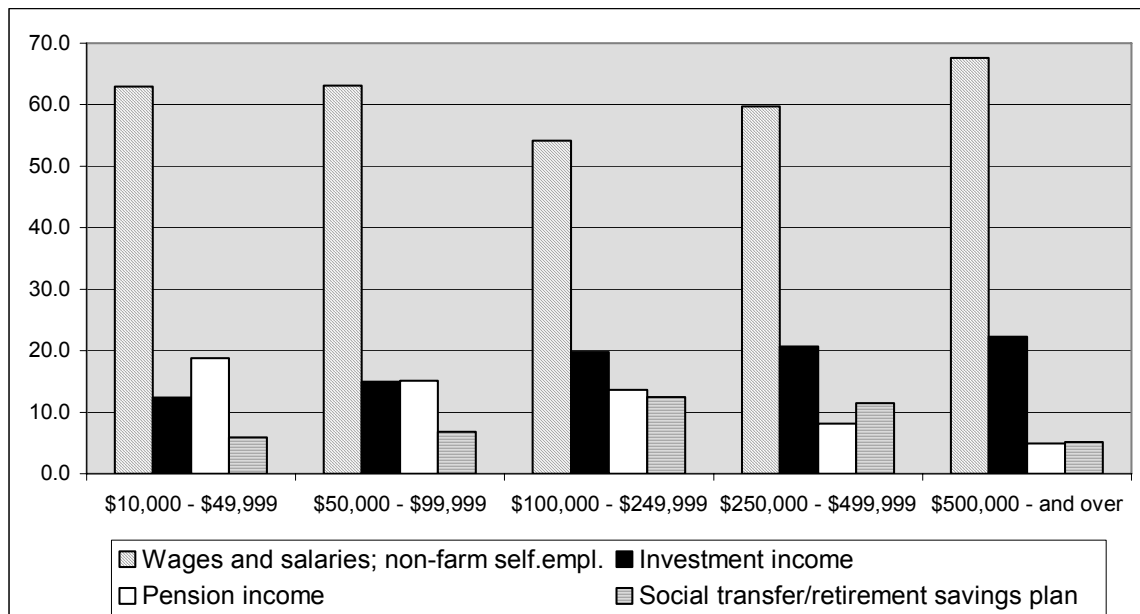
	Revenue classes					All	%
	\$10,000 - \$49,999	\$50,000 - \$99,999	\$100,000 - \$249,999	\$250,000 - \$499,999	\$500,000 and over		
<b>1998</b>							
Number of operators	118,150	54,330	71,670	33,720	18,890	296,760	
Number of farms	101,480	45,140	52,650	20,310	10,390	229,970	
<b>FARM INCOME</b>							
Total revenues	21,594	59,807	117,497	206,114	717,126	116,962	
Total expenses	20,107	48,057	92,591	166,618	646,205	99,205	
<b>Net operating income</b>	<b>1,487</b>	<b>11,750</b>	<b>24,906</b>	<b>39,496</b>	<b>70,921</b>	<b>17,757</b>	<b>44.4</b>
<b>OFF-FARM INCOME</b>							
Wages and salaries	15,881	10,760	6,671	9,834	22,282	12,426	31.1
Net non-farm self-employment income	1,847	1,182	1,056	1,033	1,611	1,427	3.6
Investment income	3,212	2,853	2,745	4,749	7,691	3,494	8.7
Pension income	4,593	3,238	1,685	1,308	1,621	3,080	7.7
Government social transfer	715	503	465	468	386	567	1.4
Other off-farm income	700	1,027	1,012	1,083	1,026	899	2.2
Retirement savings plan income	420	330	318	354	371	368	0.9
<b>Total off-farm income (excluding taxable capital gains)</b>	<b>27,366</b>	<b>19,882</b>	<b>13,845</b>	<b>18,687</b>	<b>34,828</b>	<b>22,220</b>	<b>55.6</b>
<b>Total operator income</b>	<b>28,853</b>	<b>31,632</b>	<b>38,751</b>	<b>58,183</b>	<b>105,749</b>	<b>39,977</b>	<b>100.0</b>
<b>Off-farm income as a share of total income (%)</b>	<b>94.8</b>	<b>62.9</b>	<b>35.7</b>	<b>32.1</b>	<b>32.9</b>	<b>55.6</b>	
<b>2001</b>							
Number of operators	114,020	49,060	66,380	37,910	26,630	293,990	
Number of farms	97,215	40,005	49,590	23,310	14,265	224,380	
<b>FARM INCOME</b>							
Total revenues							
Total expenses							
<b>Net operating income</b>	<b>1,958</b>	<b>11,451</b>	<b>25,934</b>	<b>42,164</b>	<b>80,673</b>	<b>21,269</b>	<b>45.3</b>
<b>OFF-FARM INCOME</b>							
Wages and salaries	17,389	13,720	8,217	10,213	24,563	14,431	30.7
Net non-farm self-employment income	1,679	1,677	1,154	1,157	1,926	1,515	3.2
Investment income	3,756	3,657	3,414	3,936	8,734	4,137	8.8
Pension income	5,673	3,680	2,357	1,551	1,929	3,721	7.9
Government social transfer	691	546	524	595	512	601	1.3
Retirement savings plan income	1,099	1,125	1,635	1,585	1,516	1,325	2.8
<b>Total off-farm income (excluding taxable capital gains)</b>	<b>30,287</b>	<b>24,405</b>	<b>17,301</b>	<b>19,037</b>	<b>39,180</b>	<b>25,730</b>	<b>54.7</b>
<b>Total operator income</b>	<b>32,245</b>	<b>35,856</b>	<b>43,235</b>	<b>61,201</b>	<b>119,853</b>	<b>46,999</b>	<b>100.0</b>
<b>Off-farm income as a share of total income (%)</b>	<b>93.9</b>	<b>68.1</b>	<b>40.0</b>	<b>31.1</b>	<b>32.7</b>	<b>54.7</b>	
<b>% change 1998-2001</b>							
Number of operators	-3.5	-9.7	-7.4	12.4	41.0	-0.9	
Number of farms	-4.2	-11.4	-5.8	14.8	37.3	-2.4	
<b>FARM INCOME</b>							
Total revenues							
Total expenses							
<b>Net operating income</b>	<b>31.7</b>	<b>-2.5</b>	<b>4.1</b>	<b>6.8</b>	<b>13.8</b>	<b>19.8</b>	
<b>OFF-FARM INCOME</b>							
Wages and salaries	9.5	27.5	23.2	3.9	10.2	16.1	
Net non-farm self-employment income	-9.1	41.9	9.3	12.0	19.6	6.2	
Investment income	16.9	28.2	24.4	-17.1	13.6	18.4	
Pension income	23.5	13.7	39.9	18.6	19.0	20.8	
Government social transfer	-3.4	8.5	12.7	27.1	32.6	6.0	
Retirement savings plan income	161.5	240.9	414.2	347.7	308.6	260.1	
<b>Total off-farm income (excluding taxable capital gains)</b>	<b>10.7</b>	<b>22.7</b>	<b>25.0</b>	<b>1.9</b>	<b>12.5</b>	<b>15.8</b>	
<b>Total operator income</b>	<b>11.8</b>	<b>13.4</b>	<b>11.6</b>	<b>5.2</b>	<b>13.3</b>	<b>17.6</b>	

Sources: Statistics Canada, Farm and Off-Farm Income Statistics 2001, Catalogue no. 21-019-XIE, May 2004.

Statistics Canada, Economic Overview of Farm Incomes, Vol. 2, No. 1, Dec. 2001.

Figure XIV.29

Sources of off-farm income as a percentage of total off-farm income



	\$10,000 - \$49,999	\$50,000 - \$99,999	\$100,000 - \$249,999	\$250,000 - \$499,999	\$500,000 and over	All
Wages and salaries	57.4	56.2	47.5	53.6	62.7	<b>56.1</b>
Net non-farm self-employment income	5.5	6.9	6.7	6.1	4.9	<b>5.9</b>
Investment income	12.4	15.0	19.7	20.7	22.3	<b>16.1</b>
Pension income	18.7	15.1	13.6	8.1	4.9	<b>14.5</b>
Government social transfer	2.3	2.2	3.0	3.1	1.3	<b>2.3</b>
Retirement savings plan income	3.6	4.6	9.5	8.3	3.9	<b>5.1</b>
	100.0	100.0	100.0	100.0	100.0	<b>100.0</b>

Sources: Statistics Canada, Farm and Off-Farm Income Statistics 2001, Catalogue no. 21-019-XIE, May 2004.  
 Statistics Canada, Economic Overview of Farm Incomes, Vol. 2, No. 1, Dec. 2001.

Table XIV.14

Off-farm and net operating income per farm family, unincorporated sector, Canada, 1996-2000

	1996	1997	1998	1999	2000	%, 1996/2000
Number of farm families	161,580	162,450	154,970	151,840	147,680	-8.6
Number of farms	157,810	159,060	152,980	150,500	146,400	-7.2
Average off-farm income per farm family	39,131	41,165	43,677	45,419	48,682	24.4
Average operating income per farm family	17,658	18,029	17,432	16,803	17,588	-0.4
Average total income per farm family	56,789	59,194	61,109	62,222	66,270	16.7
<b>Off-farm income as a percentage of total income</b>	<b>68.9</b>	<b>69.5</b>	<b>71.5</b>	<b>73.0</b>	<b>73.5</b>	
Average total income per farm family after capital cost allowance	46,290	48,178	49,586	50,328	54,545	17.8

Source: Statistics Canada, Farm and Off-Farm Income Statistics 2001, Catalogue no. 21-019-XIE, May 2004.

Table XIV.15

Average off-farm income by source and average net operating income of farm families by farm typology group, unincorporated sector, in Canada in 2000, C\$

	Business-focused farms				Non-business focused farms			Total
	Small farms	Medium farms	Large farms	Very large farms	Small farms	Medium farms	Large farms	
Number of farm families	13,970	17,340	40,220	3,590	35,140	24,780	12,640	147,680
Number of farms	14,020	17,550	39,340	3,070	35,140	24,500	12,770	146,400
<b>OFF-FARM INCOME</b>								
Wages and salaries	23,837	42,210	22,680	22,942	9,677	78,904	7,522	30,133
Net non-farm self-employment income	2,401	3,731	2,459	2,950	1,118	5,408	1,328	2,694
Investment income	2,121	4,198	3,395	6,012	10,054	4,975	1,390	5,110
Pension income	2,040	1,809	751	406	21,183	2,192	1,071	6,120
Government social transfer	3,317	2,382	2,536	2,731	615	2,003	2,707	2,065
Other off-farm income	1,046	2,522	3,213	2,861	2,861	2,474	814	2,561
<b>Total off-farm income</b>	<b>34,762</b>	<b>56,852</b>	<b>35,034</b>	<b>37,902</b>	<b>45,508</b>	<b>95,956</b>	<b>14,832</b>	<b>48,683</b>
Net program income	1,616	5,073	10,627	25,389	4,148	1,583	3,003	5,770
Market income	2,052	7,288	29,071	54,306	9,611	-3,812	-1,353	11,818
<b>Net operating income</b>	<b>3,668</b>	<b>12,361</b>	<b>39,698</b>	<b>79,695</b>	<b>13,759</b>	<b>-2,229</b>	<b>1,650</b>	<b>17,588</b>
<b>Total income of farm families</b>	<b>38,430</b>	<b>69,213</b>	<b>74,732</b>	<b>117,597</b>	<b>59,267</b>	<b>93,727</b>	<b>16,482</b>	<b>66,271</b>
<b>Percentage share off-farm income</b>	<b>90.5</b>	<b>82.1</b>	<b>46.9</b>	<b>32.2</b>	<b>76.8</b>	<b>102.4</b>	<b>90.0</b>	<b>73.5</b>
<b>Percentage of total off-farm income:</b>								
Wages and salaries + non-farm self empl.	75.5	80.8	71.8	68.3	23.7	87.9	59.7	67.4
Investment income	6.1	7.4	9.7	15.9	22.1	5.2	9.4	10.5
Pension income	5.9	3.2	2.1	1.1	46.5	2.3	7.2	12.6
Other	12.6	8.6	16.4	14.8	7.6	4.7	23.7	9.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Statistics Canada, Farm and Off-Farm Income Statistics 2001, Catalogue no. 21-019-XIE, May 2004.

Figure XIV.30

Average off-farm income and net operating income per farm family by farm typology in Canada in 2000, C\$

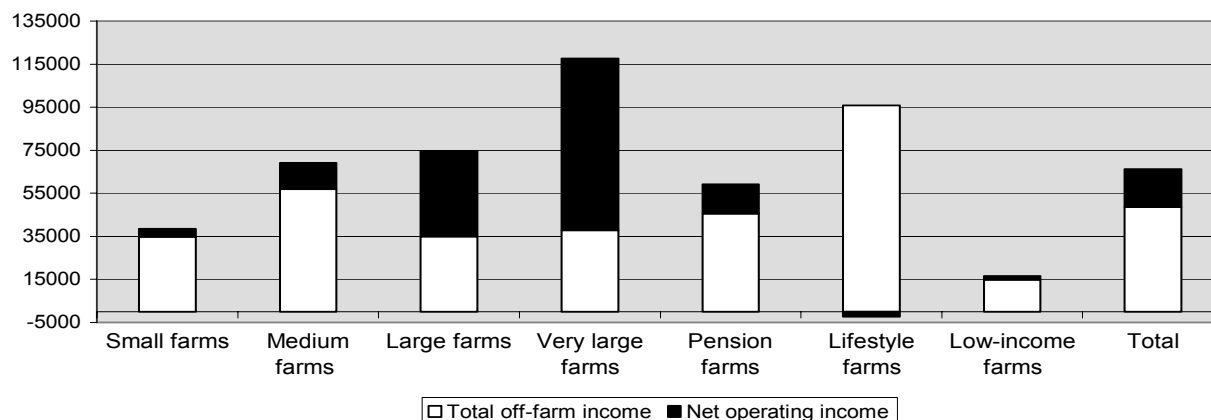


Table XIV.16

Balance sheet of the agriculture sector, including non-operator landlords and excluding personal shares of households, current C\$ million

	1995	2000	2001	2002	2003	% 95 03	% share 2003
<b>Current assets (CA)</b>	17,100	19,200	19,800	20,100	21,100	23.4	9.1
of which:							
Inventories	14,300	16,200	16,400	16,400	17,100	19.6	
<b>Quota</b>	10,500	18,200	18,800	22,100	23,000	119.0	10.0
<b>Breeding livestock</b>	7,600	9,800	9,900	9,600	9,900	30.3	4.3
<b>Machinery</b>	25,600	30,900	31,600	31,700	31,900	24.6	13.8
<b>Farm real estate</b>	100,200	126,700	130,400	134,300	137,600	37.3	59.6
of which:							
Land	75,500	95,000	97,600	99,900	102,400	35.6	44.3
Service buildings	18,500	24,000	24,900	25,600	26,200	41.6	11.3
Homes	6,100	7,700	7,900	8,800	9,000	47.5	3.9
<b>Other long-term assets</b>	5,800	6,600	6,400	7,600	7,400	27.6	3.2
<b>Total assets (TA)</b>	166,900	211,400	217,000	225,400	230,900	38.3	100.0
<b>Current liabilities (CL)</b>	4,300	7,500	8,200	8,500	9,900	130.2	
<b>Long-term liabilities</b>	19,200	28,300	29,300	32,300	34,000	77.1	
<b>Total liabilities (TL)</b>	23,500	35,700	37,600	40,800	43,900	86.8	
<b>Equity (E)</b>	<b>143,400</b>	<b>175,700</b>	<b>179,400</b>	<b>184,600</b>	<b>187,100</b>	<b>30.5</b>	
<b>Current liquidity ratio (CA/CL)</b>	3.991	2.569	2.404	2.368	2.133		
<b>Debt structure (CL/TL)</b>	0.182	0.209	0.219	0.208	0.226		
<b>Return on equity</b>	0.029	0.021	0.022	0.014	0.020		

Source: Statistics Canada. Balance sheet of the agriculture sector, May 2004. Catalogue No. 21-016-XIE, Vol. 3, No.1.



Table XIV.17

Net farm income in Canada, 1995- 2003, current C\$ million

	1995	2000	2001	2002	2003
Net cash income */	5,590	6,360	8,090	7,290	4,440
Depreciation charges	3,460	4,330	4,460	4,520	4,590
Value of inventory change	710	280	-1,030	-1,580	2,660
<b>Total net income **</b>	<b>2,990</b>	<b>2,460</b>	<b>2,720</b>	<b>1,330</b>	<b>2,630</b>

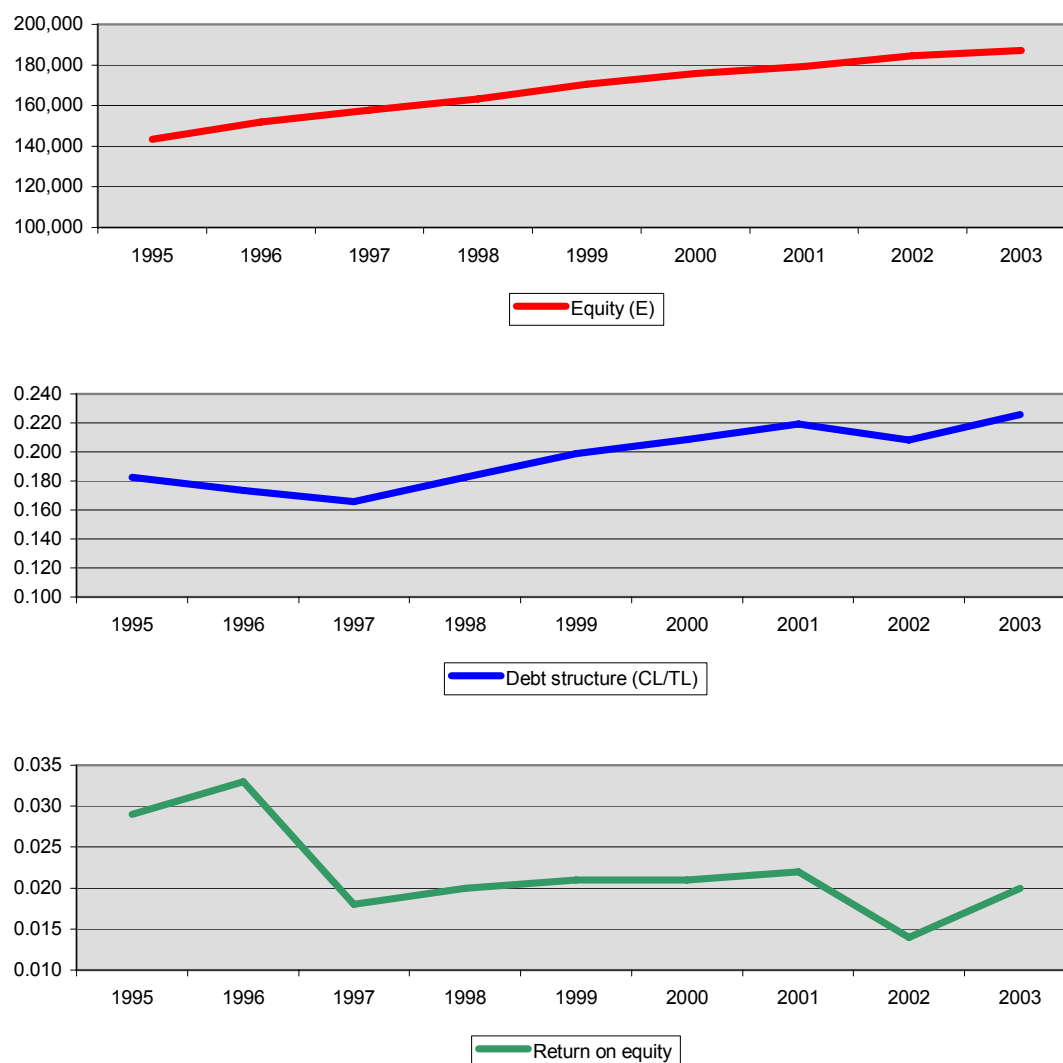
Source: Statistics Canada. Net farm income, November 2004. Catalogue No. 21-010-XIE, Vol. 3, No.2

\*/ Net cash income = total cash receipts - operating expenses after rebates

\*\*/ Total net income = net cash income + income in kind - depreciation charges + value of inventory change

Figure XIV.31

Equity, debt structure (current liabilities in relation to total liabilities) and return on equity in Canada, 1995-2003



## XIV.6 European Union

### XIV.6.1 Introduction

In the European Union, Eurostat, besides measuring income from agriculture production, has set up a methodology for measuring the income of agricultural households. These Income from Agriculture Household Sector (IAHS) statistics were established with the objectives of:

- Monitoring the year-on-year changes in the total income of agricultural households at the aggregate level in Member States;
- Monitoring the changing composition of income, especially the proportions of income from the agricultural holding and from other gainful activities, from property and from welfare transfers;
- Comparing the trends in the total income of agricultural households per unit (household, household member, consumer unit) with that of other socio-professional groups;
- Comparing the absolute income of farmers with that of other socio-professional groups, on a per unit basis.

The main concepts in the IAHS methodology are described in the box below.

The main aggregate income concept used in the IAHS project is **net disposable income**, adapted from national accounts methodology (see also Chapter IX). This concept includes not only income from farming and from other gainful activities, but also from pensions and other forms of transfer. The value of farm-produced goods consumed by agricultural households and the rental value of the farmhouse are treated as positive components of income. Elements deducted include current taxes and social contributions. Provision exists within the methodology to use **adjusted net disposable income** that also takes into account social benefits received in kind (such as state-provided education and health care); this has advantages in terms of drawing comparisons between countries and over time but is not yet a practical measure in most Member States.

#### **Income and households: Concepts and definitions**

**Income**: the main concept is household **net disposable income**, that includes all income from independent activity (self-employment), dependent activity (employment), property, social and other transfers, and is after the deduction of items such as current taxes, social contributions and other payments. It is expressed in aggregate, per household, per household member and per consumer unit.

**Household**: the household includes all members living together (this varies in detail between Member States), and includes, in agricultural households, both those who work on the agricultural holding and those who do not.

**An agricultural household** ("narrow" definition) is one where the main income of the household reference person (typically the head of household) is from independent activity in agriculture (farming). A range of other socio-professional groups can be established on the same basis for the purpose of comparison. A second, supplementary, "broad" definition of an agricultural household includes all households where any member has some income from independent activity in agriculture.

For the purpose of measuring net disposable income, the most appropriate institutional unit is the **household**, so the aggregate income relates to that received by a sector made up of households. The logic for preferring the household as the basic unit rather than the individual is that members of households, and especially married couples and their dependent children, usually pool their incomes and spend on behalf of the members jointly. This is not to deny that there may be some differentiation and individual control of personal incomes. However, in general, it makes much more sense to measure across the whole household. In the IAHS methodology, a household is defined as in national Family Budget Surveys. Although there are small differences between Member States these definitions typically include all members who live under the same roof and share meals. Consideration has also been given to an alternative household concept - the single budget household - that excludes persons who are financially independent, such as grown-up children of the farmer and spouse who still live at home but who work full-time off the farm. However, it has not yet been possible to make income estimates on this basis because of data problems in many Member States.

In order that households of different sizes and compositions can be brought together for income analysis purposes, it is convenient to express incomes per household member and per consumer unit. While the former is simply the result of a count of the number of persons within households, the latter uses coefficients (in the form of an equivalence scale) to express children and additional adults in terms of consumer units. Small variations in the scales used are found between Member States (which may reflect real differences in socio-economic conditions between countries), but in practice most Member States adopt a standard set of coefficients; typically the head of the household counts as 1 unit, additional adults 0.7 units, and children as 0.5 units. It is important to note that households of farmers, defined in this way, may include persons who contribute no labour input to the agricultural holding.

The most significant part of the IAHS methodology, and one which can have a substantial effect on the results, is the system used for **classifying households as agricultural or belonging to some other socio-professional group**. Reflecting both theoretical and practical considerations, for the purpose of classification in IAHS statistics, households are allocated to socio-professional groups on the basis of the main source of income of the reference person (typically the head of household or the largest contributor to the household budget). This system allows a complete and consistent allocation of households to occupational groups. Thus an agricultural household is one in which the main source of income of the reference person is from independent activity in agriculture.<sup>16</sup> Some Member States, that cannot at present use an income criterion, substitute the main declared occupation of the reference person.

In the context of the IAHS statistics this definition of an agricultural household is sometimes labelled "**narrow**" since it excludes those households which operate a holding but where farming is not the main income of the reference person (or the person's main occupation). Of course, when measuring household income the incomes of all members are summed, but these additional incomes are not considered at the classification stage.

It should be noted that households headed by hired workers in the agricultural industry are not included within the agricultural household group when defined in this way. In practice, only farmer households are covered in the IAHS results. This situation may need to be revised on a future occasion to allow for the coverage of households found on the large-scale agricultural units of some of the new Member States.

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<sup>16</sup> Where possible, the group of agricultural households should not include forestry or fishing households.

## XIV.6.2 An overview of results

### Summary of selected IAHS findings

1. The number of agricultural households (where the main income of the reference person comes from farming) is substantially smaller than the number of households where there is some income from farming, and generally smaller than the number of agricultural holdings.
2. Where data exist over time, absolute numbers of agricultural households have been falling, in some instances very rapidly. The fact that results do not relate to a constant set of households must be borne in mind when interpreting changes in incomes per household over time.
3. Agricultural households (defined as above) in all countries are recipients of substantial amounts of income from outside agriculture. Though typically about a half to two thirds of the total comes from farming, there are large differences between Member States and some differences between years.
4. The total income of agricultural households is more stable than their income from farming alone. Non-agricultural income (taken together) is less variable from year to year than is farming income. Disposable income seems to be less stable than total income, but the relationship between the two depends on a variety of factors, including the way that taxation is levied.
5. Agricultural households have average disposable incomes per household that are typically similar to, or higher than, the all-household average, although the relative position is eroded or reversed when income per household member or per consumer unit is examined.
6. On average, households with an agricultural holding but where farming is not the main income source of the reference person appear to derive little income from farming; their average disposable income can be greater or smaller than incomes of agricultural households, depending on the country in question.

The IAHS statistics are not at the same level of development throughout the European Union. Any consideration must, at this stage, bear in mind that full harmonization in the methodology has not yet been achieved and that gaps in the data exist. Results should therefore be regarded as indicative and, in the case of some countries, experimental.

## XIV.6.3 Availability of results

IAHS results are available for all Member States of the EU-15 using the “narrow” definition of an agricultural household. However, countries differ widely in the number of years covered, the most recent year for which results are available, the degree of disaggregation of the households sector and the extent to which results are integrated with national accounts. In terms of length of series, at one extreme is Germany, where annual figures for the period 1972-1993 are held in Eurostat’s IAHS database, broken down within the framework of national accounts into socio-professional groups, of which agricultural households form one. At the other are countries for which only a single year is currently represented in the database, such as Ireland (1987 - though data from later surveys should be available soon) and Luxembourg (1989), or a larger

number where comparable figures for non-agricultural households are not broken down into their constituent socio-professional groups.

There is a commitment by all Member States to (i) expand the number of years for which results are available, carrying the series forwards to year  $t-2$ , (ii) to apply universally the “minimum” list of socio-professional groups, thereby enabling a more detailed comparison of the incomes of agricultural households, and (iii) to make other improvements in the methodology and quality of results. However, difficulties in providing resources for IAHS work in the face of competing priorities means that progress since the 2001 IAHS report was published has been limited, with only a minority of countries generating annual results. Furthermore, IAHS statistics which are at the sector level cannot throw light onto the distributional issues that may be important (such as the numbers of low-income farm households). Data may not be readily available for the calculation of net disposable income as defined in IAHS statistics, which corresponds to National Accounts methodology. Furthermore, the definition adopted for household surveys is (arguably) more relevant to the objectives for which IAHS results were intended. This has led to pressure to develop statistics on a microeconomic basis to set aside, and perhaps replace, the sector-level IAHS ones.

#### **XIV.6.4 Main findings**

Despite the lack of complete harmonization in IAHS statistics, gaps in the years covered and the general criticisms of their sector-level approach, some preliminary findings can be drawn from them that are of general interest to decision-making under the CAP and other EU policies. A summary was given in the box above; some are based on results from all Member States while others depend on the greater quantity of information available in a minority of countries but which, nevertheless, are likely to be found throughout the EU.

This overview concentrates on four of the possible areas of analysis - the implications of applying the IAHS definition of what constitutes an agricultural household on the numbers of households covered, the composition of the total income of these agricultural households, the relative stability over time of the income from farming and total income, and comparisons of average disposable income between agricultural households and the entire households sector.

#### **XIV.6.5 Numbers of agricultural households**

In most countries, the number of households that satisfy the IAHS definition of an agricultural household is much smaller than the number of holdings shown in the Community survey on the structure of agricultural holdings. In 1987, the number of agricultural households for the European Union as a whole (EU-12) appeared to be less than half the number of holdings. In some countries (notably Italy, Spain, Portugal and Denmark) the number of agricultural households was particularly low in relation to the number of holdings, implying that on two thirds or more of holdings there were no households whose reference person (head) had farming as the main income source (or occupation). However, on some (typically large) holdings there could be more than one agricultural household. This and other technical factors helped explain why in the United Kingdom the numbers of holdings and agricultural households were almost the same, despite the known existence of many smaller holdings where no household could satisfy the definition of being an agricultural one.

Due to the non-correspondence between agricultural holdings and households, a preferable approach is to compare the numbers of households that satisfy the target “narrow” definition with those of households where at least one member of the household has some income from farming (that is, the target “broad” definition). This also throws some light onto the households that are outside the former definition but inside the latter, which might be called “marginal” agricultural households. Only seven countries can

provide such information at present (Denmark, Germany, Greece, Ireland, Netherlands, Finland and Sweden), and mostly for only one year, so caution must be exercised in interpreting the findings.<sup>17</sup> In each country, whilst the use of the “narrow” definition reduced the number of agricultural households compared with the numbers which qualified under the “broad” definition, the extent varied substantially; the number of “narrow” households as a percentage of “broad” households ranged (in ascending order) from 33% in Denmark (1996), 41% in Ireland (1987), 53% in Finland (1992), 57% in Sweden (1992), 58% in Germany (1983), 60% in the Netherlands (1988), and 65% in Greece (1994). Further consideration of the “marginal” agricultural households is given later in this section (figures for later years may now be available for the Scandinavian countries and Ireland, but these are unlikely to change the general picture).

In countries where IAHS results are available for a run of years on a comparable basis, it is clear that the number of agricultural households has been in decline. In Germany (as constituted before October 1990) the fall was from 349,000 households in 1984 to 261,000 in 1993 (25%, or an annual average decline of 3.2%) against an overall rise (13%) in the total number of private households. In France, farm household numbers fell even faster, with a fall of 27% (or 3.9% annually) in the number of agricultural households in the seven-year period 1984-1990. This was against a background of a 7% increase in the total number of households. In the following five years, the disparities were even greater; the number of agricultural households fell by another 25% (or 5.5% annually) whilst the number of households as a whole increased 7%. In Portugal, the fall in agricultural household numbers between 1980 and 1989 was 37% (or an average decline of 4.9% per year). Interpretations of income movements over time must recognize that the agricultural households group is not of a constant composition but is changing and contracting.

#### **XIV.6.6 Composition of income of agricultural households, and deductions**

IAHS statistics show that, in all countries, agricultural households (“narrow” definition) are recipients of substantial amounts of income from outside agriculture. Typically only about a half to two thirds of the households’ total income comes from farming, though there are substantial differences between Member States (see Figure XIV.32) and for individual countries over time. In the periods shown (three-year averages ending in the latest available year or, where this is not possible, single years), countries in which substantially less than half of the total household income came from farming were Germany, Finland and, most notably, Sweden (where only a quarter of total income came from farming in the three years centred on 1996). At the other end of the spectrum, with more than three quarters (78%) coming from farming but still with a substantial minority of their income coming from other sources, was the Netherlands. There is substantial variation between years for some countries, reflecting, in particular, changes in the income from farming. For example, in Germany the share of the total coming from farming declined from 43% in 1991 through 39% in 1992 to 30% in 1993, a change clearly linked to the drop in earnings from farming. On the other hand, a fall in Finland from 41% in 1993 to 33% in 1994 was largely explained by an almost threefold increase in income from other independent activity (largely forestry); in subsequent years this fell back somewhat and income from farming increased (the share coming from farming stabilizing around 34%). Such sharp short-term changes, however, do not significantly affect the validity of the general conclusion.

The second most important source of income of agricultural households was usually wages or social receipts; in the United Kingdom it was property income. Income from other forms of independent (self-employed) activity, such as operating other (non-agricultural) businesses, was generally unimportant, except in Finland where farm-forestry appears to provide the explanation. However, there may have been some underrepresentation of other forms of independent activity because data sources (such as taxation

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<sup>17</sup> Some other countries (Spain and Austria) do have definitions for the household that are broader than the “narrow” definition but are not the target “broad” definition.

statistics) may not reflect the extent to which they are carried out within the framework of what is primarily a farm business.

Countries also differed in the amounts of household income taken in taxation and other deductions, so that the same average total income figure can imply different levels of disposable income in different Member States. At one extreme were Denmark, Germany and Sweden where a quarter or more (on average) of an agricultural household's income was taken as taxes and social contributions in the latest period for which results are available. At the other extreme were Portugal and Greece, where less than 5% was taken.

Of course, these differences reflect national policies on taxation for which there may be a counter-provision of goods and services provided in the form of social benefits. Only some of these are at present captured in the measurement of net disposable income. For example, the provision of individual non-market goods or services (such as education and health services) is not currently covered (though they are in the concept of net adjusted disposable income). Consequently, the net effect on consumption is impossible to assess without more detailed information.

Another general finding was that, in many countries, the proportion of total income taken by current taxes and social contributions was lower (often much lower) among agricultural households than among households in general. Denmark, Germany and Sweden are the exceptions, where agricultural households have shares taken which are above or very close to the national averages. However, no conclusions can be drawn as to the relative burdens of taxation without much more information on the levels and distributions of income, and details of the tax regimes applied to income from self-employment in general and agriculture in particular vis-à-vis income from employment and other sources.

#### **XIV.6.7 Stability of income of agricultural households**

There is evidence from several Member States that the total household income for agricultural households is more stable than their income from farming alone. Non-agricultural income (taken all together) is less variable from year to year than is farming income (though this is not a necessary condition for total income to be more stable). Disposable income seems to be less stable than total income; a variety of factors seem to be operating here, including the way that taxation is levied. The implication is that the year-to-year movements in indicators of the income from agricultural activity should not be taken to imply movements of the same proportion in the total income of agricultural households. These are likely to be smaller.

Figure XIV.33 shows the change in income (from farming and total income) between the beginning and end of similar periods. For all countries other than Finland and Sweden, the percentage change in total income was smaller than the percentage change in income from farming alone and the change was always in the same direction. In Finland and Sweden, the falls in farming income were more than offset by rises in other sources, so total income rose. This pattern is consistent with the above observation, and again illustrates the point that changes in farming income are not necessarily a good guide to changes in overall household income.

#### **XIV.6.8 Comparisons of the income of agricultural households with the all-households average**

The latest available IAHS results, taking three-year averages where possible (see Figure XIV.34), indicate that, for most Member States, the average net disposable income of agricultural households was close to or higher than the all-households average (comparisons are not possible for all countries). The main exception was Portugal, where it was much less (less than half). Somewhat lower levels were also found in

Greece (86%) and Italy (90%).<sup>18</sup> The relative position was eroded when income per household member or per consumer unit was examined. Nevertheless, on all three measures (per household, per household member and per consumer unit) agricultural households had incomes at or above the national averages in France, Ireland, Luxembourg and (most notably) the Netherlands.<sup>19</sup> However, agricultural households on average usually had incomes lower than households headed by other self-employed reference persons in the same Member State.

Again, some large short-term fluctuations can be observed. The relatively low-income position of agricultural households in Germany (not including the area of the former GDR) in 1993 reflected a sharp decline in incomes from farming compared to 1992 (when the disposable income per household had been 99% of the all-households average); 1992 was itself the end of a four-year period in which agricultural households had disposable incomes substantially above the national all-households average. Finland, in contrast, saw a rise in the relative position of agricultural households (from 131% of the all-households average in 1992 to 170% in 1994), the result of a growth in income not from agriculture but, in this case, from other forms of self-employment. In subsequent years this has fallen back somewhat (to between 141% and 152%). Only in Greece, Italy and, in particular, Portugal were farmer households consistently and substantially below the all-households average.

These results do not suggest that agricultural households are a particularly disadvantaged group in terms of their average disposable incomes, a major finding in the light of the objectives of agricultural policy in the European Union. In investigating whether there is a low-income problem, other factors need to be considered, including the distribution of incomes around the group mean. And it should be recalled that, despite the stabilising influence of income from sources other than farming, the relative position of agricultural households can be subject to quite large short-term variations.

#### **XIV.6.9 Comparison with other socio-economic groups**

Table XIV.18 shows that although agricultural households, in some countries, have net disposable income that exceeds that of the average household in general, they quite substantially trail the “other self-employed” group in all countries (except the Netherlands). Moreover, with the exception of Finland and the Netherlands, agricultural households have a lower average disposable income than the “employee” household group in all countries.

The extraordinary level of disposable income among farm households in the Netherlands should be noted. It is more than three times that of the average households and 2.6 times that of all other self-employed households. This is likely to reflect the fact that agricultural and horticultural businesses in the Netherlands are typically large and represents very substantial capital sums. Hence, the income received will be a hybrid of rewards to the farmer’s entrepreneurial and physical labour and to the capital and land that he/she owns. Therefore it is not surprising that, where net worths are high, the total income generated by the business is also high. It is not unreasonable to measure such income as it will be at the disposal of the farm household to spend on consumption, to save or invest in the business or in other ways.

Another result to be noted is that of Finland where agricultural households have 50% higher disposable income than the average household and almost at the same level as other self-employed households. Compared with neighbouring countries like Denmark and Sweden, the result in Finland is striking. There may be fundamental differences that help explain the differences between Finland and Denmark and Sweden, including the rather unusual (by international standards) practice in Denmark of

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<sup>18</sup> Data for Greece is not included in the table.

<sup>19</sup> Income per household member for Luxembourg is not available.



transferring farms between generations by means of sales using credit facilities set up with this in mind. The exceptionally high interest charges faced by younger farmers has for long been a feature in Denmark, and this may feed though to lower disposable incomes.

However, there are also likely to be small but by accumulation significant differences in definitions. For example, the definition of a household used in Sweden relates only to the core of a couple and dependent children, whereas in Finland it covers all persons resident at the same dwelling, which results in a higher income per household. In countries where single-person households may be significant in determining the national average household income, these differences in the definition of household when applied to the agricultural sector may result in the sorts of situation described. Clearly there is a need to exercise caution when using any statistics and not to go beyond their capacity to inform. This is particularly the case in drawing international comparisons where harmonization is less than complete.

#### **XIV.6.10 Income situation of "marginal" households**

Reference has already been made to households where some member of the household has an income from independent activity in agriculture (that is, from farming) but where farming is not the main income source of the household reference person. As mentioned previously, this group is formed by subtracting those agricultural households defined as "narrow" from those agricultural households that are defined as "broad." Among the Member States where information is available these "marginal" agricultural households accounted for more than a half of all the households with some farming income in Denmark and Ireland (72% in 1999 and 59% in 1987, respectively), and between about 40% and 50% in Germany, Greece, the Netherlands, Finland and Sweden. Despite their numerical importance, they accounted for only a relatively small proportion of the aggregate income derived from farming by agricultural households as a whole (see Figure XIV.35). For most countries only between a fifth and a tenth of the entire sector's income from independent activity was generated by "marginal" households. The figure was very small in Germany (8% in 1983) but rather higher under the unique circumstances found in Denmark (26% in 1999). Perhaps of even greater importance are the income characteristics of these "marginal" households and the impacts that they have on average income levels when a "broad" definition of an agricultural household is adopted (see Table XIV.19).

In Denmark, Ireland, the Netherlands and Finland the average incomes per household of the "marginal" households were smaller than those of the agricultural households defined in the IAHS "narrow" way. In the first two countries they appeared to be a relatively low-income group, with incomes below the all-households average; in the Netherlands and Finland they were above it. However, in Germany and Greece the "marginal" households appeared to be a relatively high-income group. They had an average disposable income per household that was not only larger than that of agricultural households defined in the "narrow" way but was also substantially above the all-households average. In Sweden there was little difference between the various agricultural groups on a per household basis but they were all below the national all-households average.

When incomes were expressed per household member and per consumer unit, the income position of the "marginal" households deteriorated relative to the all-households average in Denmark, Greece, the Netherlands, Finland and (household members only) in Ireland (data on this basis are not available for Germany and Sweden). In Finland the somewhat smaller sizes of the "marginal" households improved their incomes per household member and per consumer unit compared with the "narrow" group.

Such diversity among only seven countries points to the need for sets of income results to be available for both "narrow" and "broad" (and "marginal") agricultural household groups in each Member State. Differing social, economic and agricultural structures will likely mean that countries need to be

considered individually and quick generalizations avoided, at least until more comprehensive information is available.

However, a characteristic shared by all the countries from which evidence is available is that only a small proportion of the total income of “marginal” households comes from farming. In Germany only 5% of “marginal” households income came from farming. Comparable figures are the Netherlands 8% (not updated since the special study of 1988), Finland 11%, Ireland 14%, Greece 17% and Denmark 12% (1999). It follows that changes in the income from independent agricultural activity are of relatively little significance to the total income of these households; their overall position is more likely to be affected by changes in the economy in general (as these impact wages, often the major source of income) and policy on social benefits (another major source of income). Policies supporting farming incomes (for example, through instruments which raise the market prices of agricultural commodities) will therefore not likely significantly improve the income situation of these households.

#### **XIV.6.11 Farm households “broad” definition compared to all households**

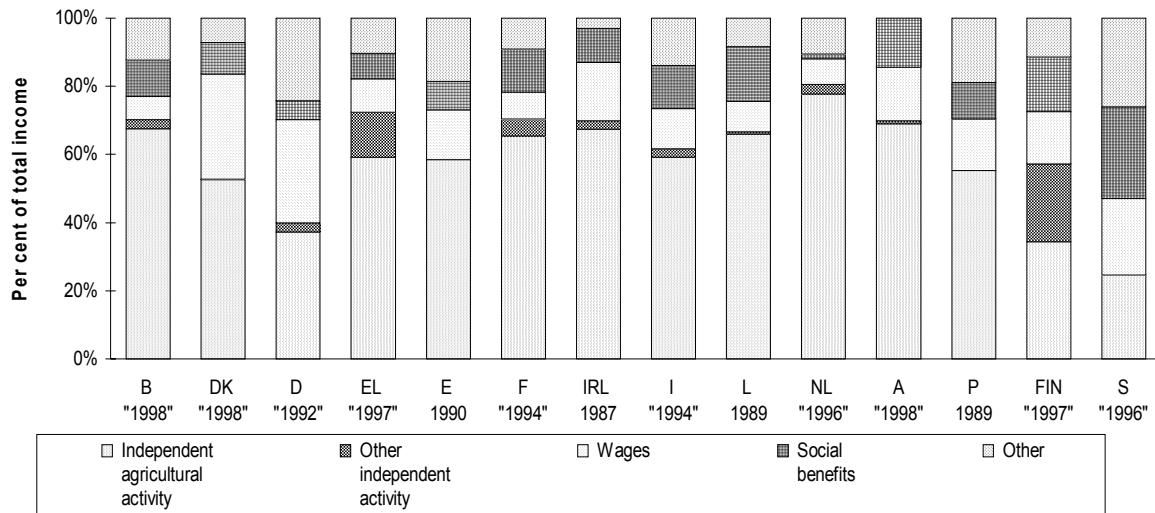
In Figure XIV.36 the average disposable income per farm household, according to the “broad” definition (that is, all those with some non-zero income from farming), and per household member, is compared with the income of the average household and household member. Unfortunately, the year for comparison is not only somewhat outdated but differs among the countries.

In all countries, except Sweden, the net disposable income per farm household was either on the same level (Denmark, 1999) or higher than the average for all households. In Sweden the farm household had an income of about 90% of the average household. Again, it can be seen that agricultural households in the Netherlands and Finland were much better off than the average household.

The picture changes when looking at disposable income per household member. Only in the Netherlands did the average farm household member have a disposable income that was higher than the average member of all households. However, in Greece and Ireland, members of agricultural households had more or less the same income level as members of all households.

Figure XIV.32

Composition of the total income of agricultural households by source, for selected Member States. Per cent.

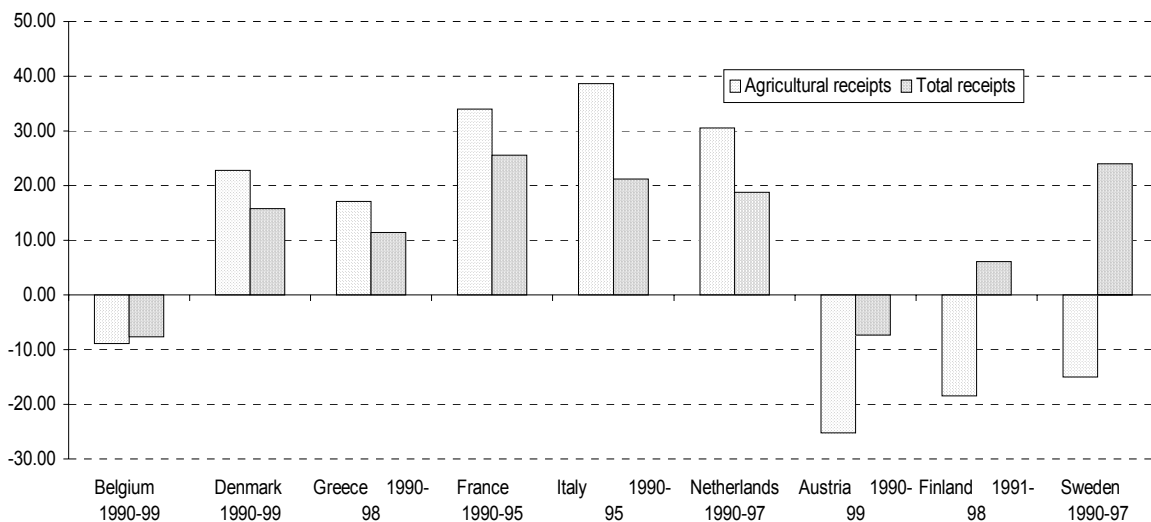


Source: Income of the agriculture houshold sector, 2001 report. Eurostat.

- Notes:
- (i) In Spain, Portugal and Sweden there is no subdivision of income from independent activity in agriculture and elsewhere.
  - (ii) Results for the Netherlands are based on the household as the unit of classification (rather than the reference person).
  - (iii) In France problems of comparability arise because of the way in which social contributions are treated.
  - (iv) In the UK the current data source does not cover households with holdings arranged as corporate businesses, and there are other statistical problems that should preclude direct comparisons with other Member States.
  - (v) "Other" includes income from property, imputed value of domestic dwelling, and other miscellaneous current transfers.

Figure XIV.33

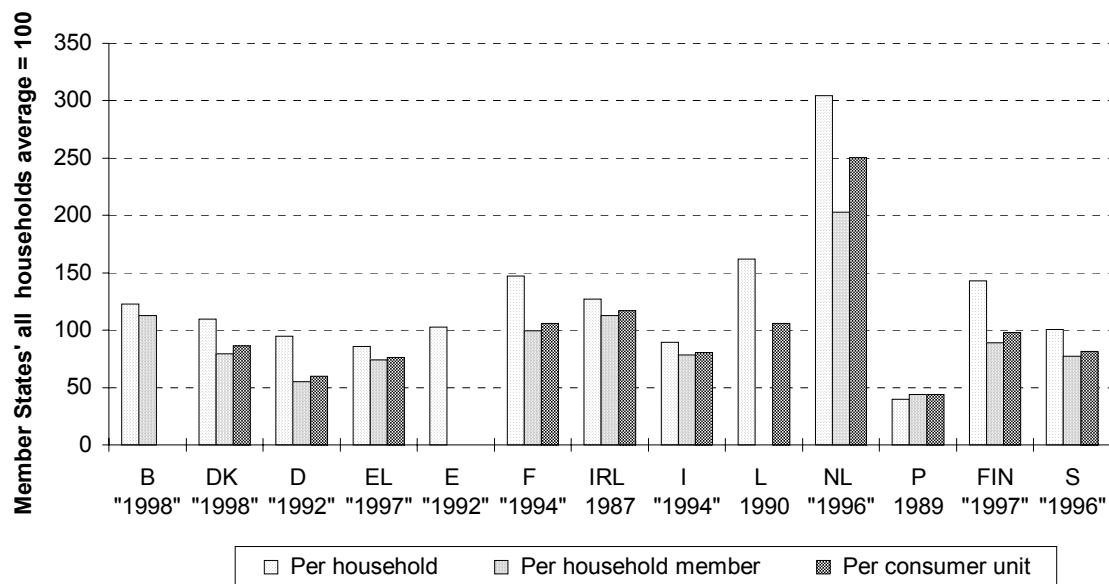
The development of agricultural household incomes in selected Member States (in real terms and %).



Source: Income of the agriculture houshold sector, 2001 report. Eurostat.

Figure XIV.34

Average disposable income of agricultural households relative to the all-household average.  
Selected Member States

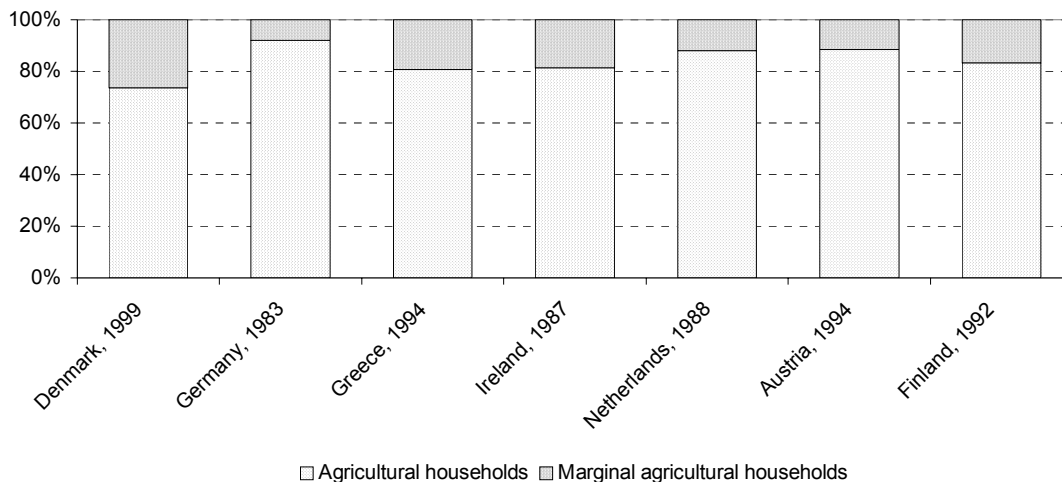


Source: Income of the agriculture household sector, 2001 report. Eurostat.

Note: For Luxembourg, in the absence of a comparison being generated within the IAHS statistics, interim figures taken from a survey of living standards have been substituted.

Figure XIV.35

Income generated from agriculture by agricultural households (narrowly defined) and the „marginal“ agricultural households, as a share of the total income generated from agricultural



Source: Income of the agriculture household sector, 2001 report. Eurostat.

Table XIV.18

Average disposable income of per agriculture household (narrow definition) and per household member relative to all households (=100)

	Employers and own-account workers			All employees	All others	All except farmers	All households
	Farmers "narrow"	All other	All self-empl.				
	a 1	a 2	a 3	b	c	d=e-a1	e=a+b+c
<b>BELGIUM (1999 p)</b>							
Net disposable income/household	111.9					99.9	100.0
Net disposable income/household member	102.3					100.0	100.0
<b>DENMARK (1999)</b>							
Net disposable income/household	104.9	132.8	128.9	121.5	66.3	100.0	100.0
Net disposable income/household member	75.8	104.4	100.1	105.1	88.7	100.2	100.0
<b>GERMANY (1993)</b>							
Net disposable income/household	78.7	235.9	214.7	111.1	70.2	100.2	100.0
Net disposable income/household member	61.7	250.6	217.7	123.4	89.7	100.8	100.0
<b>GREECE (1998)</b>							
Net disposable income/household	84.5	156.2	133.2	90.7	83.1	101.6	100.0
Net disposable income/household member	73.3	177.1	152.3	109.3	109.8	103.1	100.0
<b>SPAIN (1990)</b>							
Net disposable income/household	97.0	118.6	113.2	124.3	68.8	100.1	100.0
Net disposable income/household member	84.5	102.0	97.7	108.8	86.7	100.6	100.0
<b>SPAIN (1990)</b>							
Net adjusted disposable income/household	103.4	109.2	107.7	122.2	68.5	99.9	100.0
Net adjusted disposable income/household member	90.1	93.8	92.9	107.1	86.3	100.4	100.0
<b>IRELAND (1987)</b>							
Net disposable income/household	127.3					97.4	100.0
Net disposable income/household member	113.3					98.6	100.0
<b>ITALY (1995)</b>							
Net disposable income/household	96.7					100.1	100.0
Net disposable income/household member	82.9					100.4	100.0
<b>NETHERLANDS (1997)</b>							
Net disposable income/household	328.8	128.6	151.5	112.8	70.6	98.1	100.0
Net disposable income/household member	220.6	103.5	119.2	99.1	95.7	98.5	100.0
<b>PORTUGAL (1989)</b>							
Net disposable income/household	39.6	147.5	117.3	151.2	28.4	103.0	100.0
Net disposable income/household member	43.8	159.7	127.7	171.7	24.0	102.5	100.0
<b>FINLAND (1999)</b>							
Net disposable income/household	152.4	163.4	160.4	119.9	63.2	98.9	100.0
Net disposable income/household member	96.5	125.1	116.0	103.0	88.0	100.1	100.0
<b>SWEDEN (1997)</b>							
Net disposable income/household	97.1	116.1	111.6	125.3	64.3	100.0	100.0
Net disposable income/household member	76.6	90.4	87.2	108.0	85.4	100.3	100.0

Source: Income of the agriculture household sector, 2001 report, Eurostat.

Table XIV.19

Number of households and levels of average net disposable income for three groups of agricultural households, in selected Member States

	Denmark (1999)	Germany (1983)	Greece (1994)	Ireland (1987)	Netherlands (1988)	Finland (1992)	Sweden (1992)
<b>Number of agricultural households (1,000)</b>							
"Broad"	57	613	615	207	136	139	94
"Narrow"	18	353	398	85	87	73	54
"Marginal"	41	260	217	122	49	65	41
<b>Disposable income per household</b>							
<i>All households</i>	100	100	100	100	100	100	100
<i>Agricultural households</i>							
"Broad"	99	<b>110</b>	<b>114</b>	<b>105</b>	<b>210</b>	<b>124</b>	81
"Narrow"	<b>105</b>	<b>101</b>	86	<b>127</b>	<b>287</b>	<b>131</b>	79
"Marginal"	96	<b>123</b>	<b>166</b>	<b>89</b>	<b>108</b>	<b>116</b>	85
<b>Disposable income per household member</b>							
<i>All households</i>	100	100	100	100	100	100	100
<i>Agricultural households</i>							
"Broad"	71		<b>100</b>	98	<b>138</b>	93	
"Narrow"	76		78	<b>113</b>	<b>175</b>	88	
"Marginal"	70		<b>147</b>	87	75	<b>101</b>	
<b>Disposable income per consumer unit</b>							
<i>All households</i>	100	100	100	100	100	100	100
<i>Agricultural households</i>							
"Broad"	77		<b>101</b>	<b>101</b>	<b>167</b>	97	
"Narrow"	83		76	<b>117</b>	<b>211</b>	94	
"Marginal"	76		<b>149</b>	89	<b>85</b>	102	

Source: Income of the agriculture household sector, 2001 report. Eurostat.

Notes:

A special study was conducted by the CBS, Netherlands, to calculate results according to the broad definition of an agricultural household. The results that were derived have not been updated since 1988 unlike results derived for the narrow definition. Therefore, so that there is consistency in the comparison between broad and narrow results, the narrow results that were available at the same time as the study results for the broad definition have been taken. This means, however, that the narrow results appearing for 1988 are not the most up-to-date figures that Eurostat has received.

The definitions of the three groups of agricultural household are:

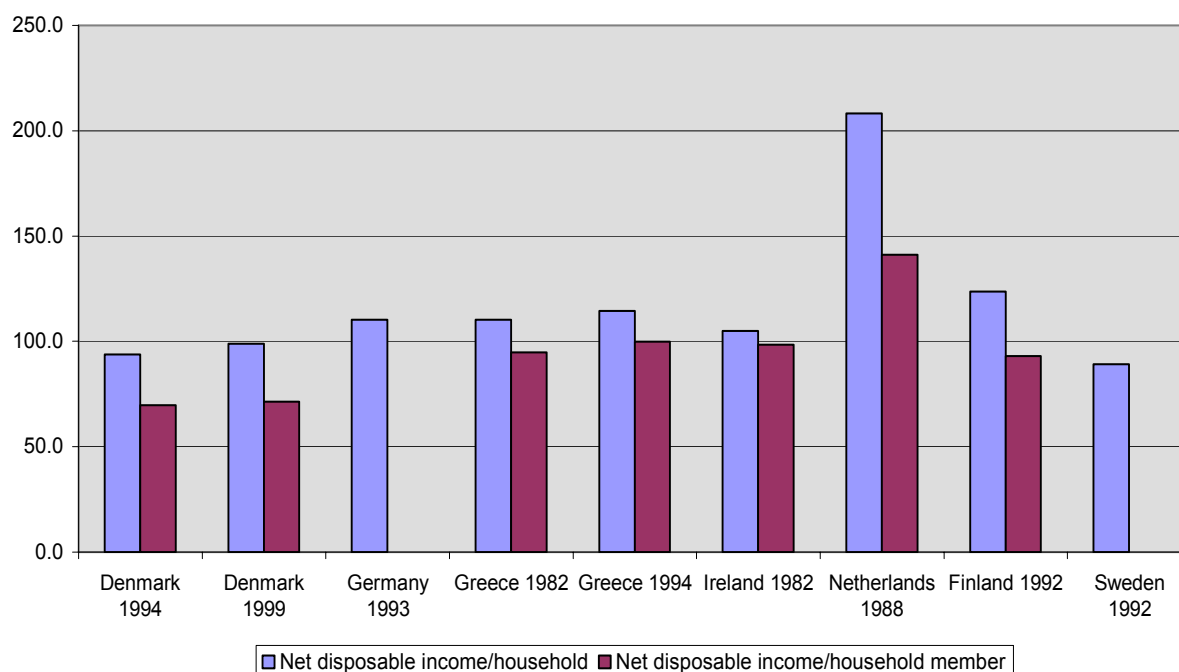
"narrow" - main source of income of the reference person is independent activity in agriculture.

"broad" - where any member of the household has some income from independent activity in agriculture.

"marginal" - households which satisfy the "broad" definition but not the "narrow" definition.

Figure XIV.36

Average disposable income of per agriculture household (wide definition) and per household member relative to all households (=100)



	Denmark 1994	Denmark 1999	Germany 1993	Greece 1982	Greece 1994	Ireland 1982	Netherlands 1988	Finland 1992	Sweden 1992
Net disposable income/household	93.7	98.8	110.3	110.4	114.3	104.9	208.2	123.7	89.1
Net disposable income/household member	69.7	71.4		94.8	99.8	98.4	141.2	93.2	

Source: Income of the agriculture household sector, 2001 report, Eurostat.

## XIV.7 Australia

In Australia in 2001, households that contained at least one person whose main income comes from agriculture had a mean income of about 90% of those households where no person was employed in agriculture (see Table XIV.20 and Figure XIV.37). However, average incomes vary widely depending on the degree to which income from agriculture contributes to the total income of the agricultural household. If income from agriculture contributes less than one quarter of total income the mean income of the agricultural household is only 87% of that of non-farm households. Where income from agriculture constitutes between one quarter and one half of total income then the total income of the agricultural household jumps to 114% of non-agriculture households. If agriculture income accounts for between one half and three quarters of total income the agricultural household income drops to 97% of non-agricultural households. Where more than three quarters of income comes from agriculture the income falls to 76% of the non-farm income.

Table XIV.20

Income of agricultural and other households in Australia, by contribution of agricultural income to total income in 2001, \$A

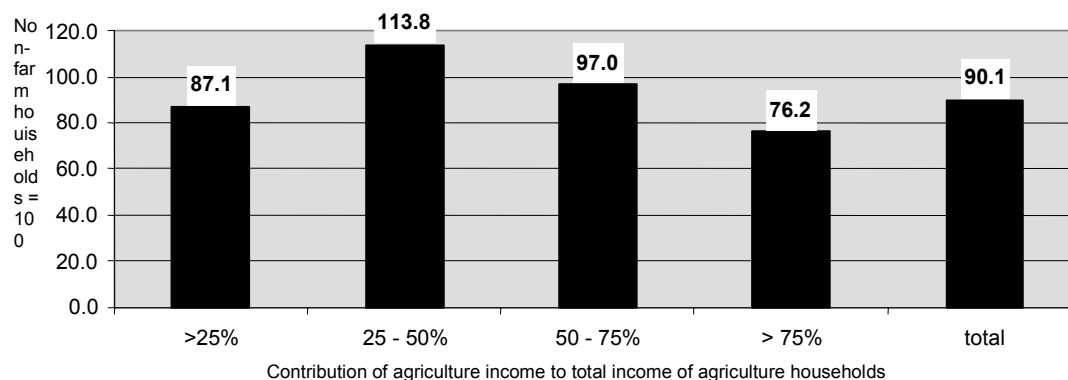
	Estimated number of households	Sample count of households	Mean agricultural income (a) (\$A per week)	RSE of mean agricultural income (%)	Mean total income (\$A per week)	RSE of mean total income (%)	Agric. Income as % of total income
Household contains at least 1 person whose main job is in the agriculture industry, where the contribution of agricultural income to total income is							
Less than 25%	88,704	75	77	48.8	849	18.9	9.0
25% to less than 50%	40,415	35	424	9.7	1,110	9.2	38.2
50% to less than 75%	58,635	52	594	15.5	945	14.5	62.8
75% or more	78,201	77	673	13.2	743	13.2	90.5
<b>Total</b>	<b>265,955</b>	<b>239</b>	<b>419</b>	<b>10.1</b>	<b>879</b>	<b>8.0</b>	<b>47.7</b>
Household contains no person employed in the agriculture industry							
	7,048,965	6,547			975	0.9	
<b>Total</b>	<b>7,314,920</b>	<b>6,786</b>	<b>15</b>	<b>12.2</b>	<b>972</b>	<b>1.0</b>	

Source: Australian Bureau of Statistics, Survey of income and housing costs, 2000-2001.

(a) Income from wages and salaries from main job plus own unincorporated business income where industry of main job is agriculture.

Figure XIV.37

Income of agriculture households compared to non-agriculture households (= 100) for different levels of contribution of income from agriculture, 2001



Source: Australian Bureau of Statistics, Survey of income and housing costs, 2000-2001.



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## ANNEX

## Results from Income of Agricultural Households Statistics, Statistics Denmark

**Table 1**  
**Income for agricultural households, all farms**

	1998	1999	2000	2001	2002
	1,000 Dkk.				
+ Income from agriculture	184	173	217	240	218
+ Income, other enterprises	33	29	36	39	34
+ Wages and salaries	178	202	207	220	236
+ Property income	44	39	47	59	56
+ Social benefits	54	58	52	54	54
<b>= Total income</b>	<b>492</b>	<b>501</b>	<b>560</b>	<b>612</b>	<b>598</b>
÷ Interest and rent	195	188	218	244	236
÷ Taxes	90	93	100	110	117
÷ Social contributions	50	53	58	65	69
<b>= Net disposal income</b>	<b>156</b>	<b>168</b>	<b>183</b>	<b>193</b>	<b>176</b>
	number				
Farms	59,166	57,314	53,904	52,815	49,769

**Table 2**  
**Income for agricultural households, full-time farms**

	1998	1999	2000	2001	2002
	1,000 Dkk.				
+ Income from agriculture	353	349	422	464	425
+ Income, other enterprises	34	30	46	47	44
+ Wages and salaries	118	139	145	153	158
+ Property income	55	47	56	80	70
+ Social benefits	38	42	38	41	42
<b>= Total income</b>	<b>599</b>	<b>606</b>	<b>707</b>	<b>785</b>	<b>739</b>
÷ Interest and rent	317	313	365	411	399
÷ Taxes	87	88	100	112	118
÷ Social contributions	56	58	65	75	74
<b>= Net disposal income</b>	<b>138</b>	<b>148</b>	<b>177</b>	<b>188</b>	<b>148</b>
	number				
Farms	28,292	26,173	25,235	24,839	23,360

**Table 3**  
**Income for agricultural households, part-time farms**

	1998	1999	2000	2001	2002
	—1,000 kr.—				
+ Income from agriculture	30	26	37	41	34
+ Income, other enterprises	33	29	28	31	25
+ Wages and salaries	231	255	262	280	306
+ Property income	35	32	40	41	43
+ Social benefits	67	71	65	66	65
<b>= Total income</b>	<b>395</b>	<b>413</b>	<b>431</b>	<b>459</b>	<b>473</b>
÷ Interest and rent	84	83	90	96	92
÷ Taxes	92	97	101	109	116
÷ Social contributions	45	48	53	56	64
<b>= Net disposal income</b>	<b>174</b>	<b>185</b>	<b>189</b>	<b>198</b>	<b>201</b>
	—number—				
Farms	30,874	31,141	28,669	27,976	26,410

**Table 4**  
**Income for agricultural households, all farms by age of farmer**

	Under 30 years	30-39 years	40-49 years	50-59 years	Over 60 years
	—1,000 Dkk.—				
+ Income from agriculture	260	265	246	237	129
+ Income, other enterprises	25	27	31	43	35
+ Wages and salaries	208	269	321	278	86
+ Property income	32	25	37	78	78
+ Social benefits	39	45	32	27	114
<b>= Total income</b>	<b>565</b>	<b>629</b>	<b>667</b>	<b>664</b>	<b>442</b>
÷ Interest and rent	356	314	282	240	114
÷ Taxes	70	97	119	145	106
÷ Social contributions	39	59	74	87	56
<b>= Net disposal income</b>	<b>100</b>	<b>160</b>	<b>192</b>	<b>191</b>	<b>166</b>
	—number—				
Farms	1,661	9,069	13,211	13,067	12,761

**Table 5**  
**Income for agricultural households, all full-time farms by age of farmer**

	Under 30 years	30-39 years	40-49 years	50-59 years	Over 60 years
	—1,000 Dkk.—				
+ Income from agriculture	405	477	462	435	296
+ Income, other enterprises	38	29	42	39	73
+ Wages and salaries	135	153	201	163	92
+ Property income	54	36	47	85	124
+ Social benefits	37	44	34	23	86
<b>= Total income</b>	<b>669</b>	<b>739</b>	<b>787</b>	<b>745</b>	<b>671</b>
÷ Interest and rent	526	486	447	365	254
÷ Taxes	61	85	111	134	153
÷ Social contributions	32	56	75	90	77
<b>= Net disposal income</b>	<b>50</b>	<b>112</b>	<b>154</b>	<b>156</b>	<b>188</b>
	—number—				
Farms	966	4,719	6,685	6,746	4,244

**Table 6**  
**Income for agricultural households, all part-time farms by age of farmer**

	Under 30 years	30-39 years	40-49 years	50-59 years	Over 60 years
	—1,000 Dkk.—				
+ Income from agriculture	57	34	25	26	45
+ Income, other enterprises	8	24	20	47	16
+ Wages and salaries	310	395	443	401	83
+ Property income	3	12	26	71	55
+ Social benefits	43	46	30	32	128
<b>= Total income</b>	<b>420</b>	<b>511</b>	<b>544</b>	<b>577</b>	<b>327</b>
÷ Interest and rent	119	127	113	106	45
÷ Taxes	83	109	127	158	82
÷ Social contributions	48	62	72	85	45
<b>= Net disposal income</b>	<b>170</b>	<b>212</b>	<b>232</b>	<b>228</b>	<b>155</b>
	—number—				
Farms	695	4,350	6,526	6,321	8,517

## XV FINDINGS AND GOOD PRACTICES IN STATISTICS ON RURAL DEVELOPMENT AND AGRICULTURAL HOUSEHOLD INCOME

### XV.1 Introduction

This chapter brings together the central issues in the methodologies of rural statistics and the measurement of agricultural household income and wealth. It points to **good practice** in each of these areas.

As was described at the outset (Chapter I) the purpose of compiling the Handbook was not to produce a detailed and prescriptive manual on how these statistics should be produced, something that applies particularly to the sections on rural statistics. Rather, it was to inform both suppliers and users in these relatively new areas of statistics of the issues that have to be confronted, alternative approaches, data sources utilized etc. by drawing on the experiences gained in international organizations and national statistical offices. Nevertheless, one general lesson to be learned is that a **lack of harmonization** hinders in a very substantial way the ability to synthesise findings and draw comparisons between countries, valuable information in understanding the economic and other changes taking place. Therefore, particularly in the section on agricultural household income measurement, it is possible to suggest certain definitions and approaches that responsible officials might adopt. Of course, in groups of countries like the European Union harmonization can be carried a step further within the framework of community institutions.

Statistical indicators are tools that assist in the formulation of policies and the monitoring of changes/development/progress of those policies. Various overlapping sets of desirable characteristics of indicators are encountered in this Handbook. Bringing these together suggests that indicators should be:

- **Problem-oriented and relevant**, which will also include **timeliness**.
- **Reliable** in the sense that they are analytically sound and based on scientific evidence of their links with the problem in hand.
- Capable of establishing **levels, dispersions and trends** in the characteristics they attempt to measure.
- Capable of providing a **reference value** which can act as a benchmark against which change can be measured.
- Capable, within the bounds of suitability to different circumstances, of permitting **comparisons in space**, especially between countries, and bearing in mind the increasing interest in international comparisons.
- Capable of **reacting rapidly** to changing situations, including the interventions used to implement policies.
- Easily **understandable**, in the sense that they are **clearly defined** and capable of providing **conclusions easily communicated** to policymakers.
- Where formed by combining or comparing datasets, the elements should be based on the **same statistical units**.

However, the selection of indicators will always be a **compromise** because:

- Data collection is usually an expensive activity, especially where a new or additional survey has to be developed. Indicators are often restricted to exploiting existing datasets and sources or those to which commitments have already been made, adding value to the source. Thus **realizability** is also a desirable characteristic of an indicator.
- The **cost/benefit** ratio of an indicator is significant in its development, particularly in economically poor countries. The benefits come in many forms, and at times **political and administrative factors** may outweigh the potential efficiency gains of better policy decisions.
- Priority is often given to indicators that are capable of assisting in the routine monitoring of policies. For example, policies addressing rural development for a whole country have to describe problems/targets common to all rural areas of that country, that is, **generality** is a significantly desirable quality in an indicator. Indicators addressing specific problems for particular rural areas are less likely to be developed.

## **XV.2 Statistics for rural development**

Statistics should be **policy-determined**, that is, they should be available to assist with the formulation of policies and assessing the performance of interventions. The aims of rural development policies are not always articulated clearly or in a timely way, and statisticians may have to anticipate the demand for indicators.

Looking at the “typical” problems of rural areas in the past decades, rural development policies normally aim to make rural places **economically, socially, culturally and environmentally healthy**. In broad terms, a successful rural development policy may be seen as one that allows rural areas to:

- Be able to at least maintain their population and within it a viable population age structure.
- Diversify their economic base beyond the primary sector, maintaining or even increasing employment rates to absorb the loss of jobs in the primary sector.
- Be able to keep poverty rates and unemployment rates on a level not worse than those in urban areas. They should also aim at offering job opportunities for women and young people.
- Be as easily accessible as possible and provide a minimum set of services. This means they should be well connected with neighbouring areas, which is the basis of tourism/recreation related industries. The provision of easy access to education, health care etc. for the local population is also required to maintain the attractiveness of living in the local area.
- Keep property ownership as wide spread as possible. The rate of locally financed and initiated new small enterprise start-ups should be relatively high.
- Keep the physical and mental health of the rural population as good as it is elsewhere.
- Make their key players work together towards common goals with an agreed value basis. The goals and values are set using a bottom-up approach. The local government should be empowered with reasonable fiscal and decision-making autonomy.
- Be responsible for their own development and not have it done by others.



### XV.2.1 Key issues in rural statistics

Key issues for rural statistics are the **definition of rural**, the type of **geographical unit** to which it is to be applied, and the nature of the **indicators** that are employed to reflect aspects of concern in these areas.

There is more than one “correct” definition of rural and what is most appropriate will depend on the policy problem being considered. National definitions are continuously under debate and are in fact adjusted from time to time, reflecting, for example, changes in socio-economic and administrative structures or in mobility and communication. Similarly the level at which classifications are applied (that is, the size of the territorial units and the level of geographical hierarchy) will depend on the analytical purpose or on the policy problems that have to be solved. Within Member Countries, the OECD scheme distinguishes two hierarchical levels of geographic detail: local community level (small, though not necessarily the smallest possible, basic administrative or statistical units) and regional level. This Handbook recognizes that a **hierarchical system** (not necessarily just two-level) is good practice (Chapter VII).

The choice of what constitutes a rural area can have a marked effect on the results shown in statistics, such as the proportions of the population of a country who live there. As the demand for internationally comparable information rises, some kind of standard both for the definition of rural and for a set of indicators is desirable. In an increasingly globalized world, policymakers, researchers and the general public are not only interested in statistics showing what is going on in their country but also statistics on how their country compares to others such as neighbouring countries or countries with similar environmental, climate, social or political conditions.

Comparisons between countries rely on a commonality in statistical methodology. Certain bases of classification and typologies of rural areas have gained predominance at international level. The OECD system, based on population density, is widely used at regional level. This Handbook recognizes the value of countries having the capacity to generate rural statistics on this **standardized OECD basis**, though they should not ignore the advantages flowing from more detailed or complex bases of classification for national purposes.

Whichever level of geographical unit is selected, there are good reasons for covering the **entire territory** (that is, both rural and non-rural areas). Rural analysis relies on the ability to describe the differences and the interrelationships between the rural areas and the other parts of the country. Only if data is available for all parts can consistency of results be confirmed. This Handbook recognizes the value of classifications that cover all geographical areas and encourages their use as good practice.

In terms of what data should be collected, it is widely accepted in OECD countries that statistics for agriculture only relate to a small (and usually shrinking) sector of the economy and society, though this is not necessarily true for some developing countries. In most circumstances, rural statistics have to cover a broad range of economic, social and environmental issues. Various lists of indicators exist for OECD and EU countries and for the developing world (World Bank, FAO). While there is some overlap between indicator sets, there are differences that reflect the priorities of the institutions that drew them up. To take just one example, Eurostat has proposed that all Member States collect data on the following themes.

- Demography - Migration;
- Economy - Human capital;
- Economic structure and performance (primary sector);
- Accessibility to services - Infrastructure;
- Social well-being.

This Handbook recognizes the value of a **set of “core” indicators** for international use. In addition to those currently put forwards by international organizations (Chapter V), a further set has been proposed as part of Chapter VII. It is not felt appropriate at this stage to make a firm recommendation of a preferred list.

Each theme and related indicators has its own methodological questions that must be addressed, too numerous to be detailed here. Some overlap with material in the second part of the Handbook, such as the definition of a household and the use of equivalence scales when assessing poverty. Nevertheless, there are common sources of weakness that statisticians should take steps to minimize, such as **the dangers of using data from different sources that are not entirely compatible in order to construct indicators**. A general warning can be made about the use of a particular type of indicator - **composite indices**. Because of the multitude of indicators, it might be tempting to construct a rural composite of indices for international benchmarking. This Handbook strongly advises against such a practise, for statistical reasons set out in Chapter III.5.

It is possible to be more prescriptive about recommending that methodological details are made available to users. For practical reasons rural development statistics must be based on a multitude of statistical sources, sometimes rather disparate in nature. This Handbook strongly endorses, as good practice, the publication, together with the statistics, of a detailed analysis of the **sources and methods** used, adequate **meta data** for the individual data cells, and a **readers’ guide**, advising how the results should be interpreted and with what precision.

For **international benchmarking** the above methodological information should be recorded for each country. If incompatibilities exist, these must be clearly indicated, together with a guide to what extent data indicator levels can in fact be compared. If they cannot, only **changes in levels** of indicators should be recorded.

However sophisticated the methodology put forwards for rural statistics, a crucial factor in their development is the **availability of data**. The Handbook considers the generic sources (Chapter VI) and their relative advantages and drawbacks. Sources are more varied in OECD Member Countries (censuses and surveys of various kinds, administrative records etc.) than in developing countries, where household surveys are predominant. Any new system for data collection is likely to demand substantial resources, and surveys should to be set within a proper statistical framework for efficient operation. There will be obvious interest in making use of what already exists by adding value, though the warnings of mixing disparate sources will have to be heeded.

Despite such dangers, when assembling statistics for rural areas it is often useful to gather (secondary) data from more than one source, when available, in order to cope with potential problems of reliability and validity. It is in the discrepancies that lessons can often be learned about the shortcomings of one data source or another and pointers to improvements found.

Some countries are able to link existing datasets in a reliable way, typically using personal identifier labels – Scandinavia leads the way in this respect. As a case study, experience in **Canada** (Chapter IV) demonstrates good practice in which a flexible dataset can in provide a wealth of information relevant for many aspects of rural policy. The statistics show the extent of changes over time in key indicators (on migration, employment, incomes, consumption spending, health, education etc.) and help identify those that are associated with successful development strategies.

## XV.2.2 Rural measurement problems

Statistics on rural development are problematic in several ways. They are largely based on national censuses and surveys, which, in most industrialized countries at least, were not designed with rural areas in mind. As a consequence, many statistics used routinely at the national level or in urban regions need to be treated with caution when applied to rural areas. And, statistics that might pertain largely to rural areas, on land use, for instance, are often not part of national or regional data sets.

One central problem is that, because they are delineated on the basis of density and/or size of place, **rural areas do not remain constant over time and their boundaries are porous**. Rural areas that gain population become at some point urban areas and are then classified as such. This makes it difficult to track changes over time. Thus, looking at historical population trends using a current delineation of rural-urban is likely to underestimate overall rural population growth and overestimate urban growth. Without a careful presentation of the data, it is easy to conclude that areas have not grown because they are rural, forgetting that areas remain rural because they have not grown.

**Rural boundaries** not only change over time, they also become increasingly porous as commuting increases. By definition, rural areas lack large centres. Many residents, particularly in areas proximate to cities, may commute outside of the rural area to work. If regions are defined in part on the basis of a commuting threshold, the problem is minimized, but, even here, until that threshold is reached, there will be some discontinuity between jobs in the region and the jobs held by residents. This affects urban as well as rural statistics, but rural statistics are impacted more because commuters constitute a larger proportion of the rural work force.

A second issue is that statistics developed at the national level to reflect livelihood and well-being **may be less valid in rural settings than urban settings**. For instance, while censuses and surveys typically ascertain a single occupation, many rural people may hold more than one job. In some rural areas, for instance, a substantial proportion of people with income from farming may not consider farming as their principal occupation. The number of farmers identified in an agricultural census may far exceed the number of farmers found in a population census of the same area.

Another related example is unemployment, a key national and international indicator. This measure works well in urban areas, where the vast majority of people employed are wage and salary workers. In some rural settings, however, particularly agricultural settings, many people are self-employed. In this case, economic hardship is more apt to be marked by underemployment than by unemployment. Farm household members, for example, may have farm work, but have a desire to work off the farm and be able to do so without substantial loss in farm income. Whether they have off-farm work is not likely to be reflected in unemployment statistics.

A final example: rural employment is more likely to be seasonal than urban employment and estimates of labour market conditions can vary considerably depending on when a census or survey is taken. These examples point to the importance of using household budget and related surveys to supplement census data in understanding rural development conditions.

A third issue is a **lack of measures that pertain particularly to the development of rural areas, such as natural amenities**. Measures of urban assets tend to be a by-product of business and other surveys and administrative data. Thus, the presence of transportation hubs, research universities, and substantial high-end business services sectors have all been linked to urban growth in industrialized countries. By these standards, rural regions are clearly disadvantaged. However, rural areas can have their own advantages: pleasant landscapes and climate, lakes or ocean, mountains and streams, and unique picturesque or historical

settings. These assets are important for tourism and second home development, but they can also serve to attract entrepreneurs and others who prefer to reside in natural rather than urban environments. A study of rural United States counties found population and employment growth to be more highly correlated with natural amenities than with the economic base (McGranahan, 1999).

The potential importance of these natural assets is included in the concept of farm “multifunctionality,” where farms and farmland are recognized as having environmental, recreational, and scenic outputs in addition to agricultural productivity. However, the actual measures of rural amenities - what attracts people to rural areas - have not been developed. One reason is that the measures cannot be derived easily from existing statistical systems. More important is the current lack of any clear basis for ascribing amenity value. When it comes to attractive rural settings, “more” is not always “better.” Landscape preference research has found, for instance, that people most like varied landscapes (and even then, only up to a point).

The absence of official measures of these rural amenities does not mean they are irrelevant for rural well-being. Families may be willing to “pay” considerably for these amenities, by accepting lower earnings and/or paying a higher proportion of income for housing. The result may be rural anomalies from a strictly economic perspective, such as population shifts from areas of apparently high real earnings to areas of lower real earnings. Annex 6 gives further details about the importance of natural amenities.

The fourth issue is the relatively **small size of rural regions**. Tabulations of income, occupation, and other socioeconomic measures that are used nationally or in urban regions may be inappropriate for rural areas because of issues of data confidentiality. Statistical Disclosure Limitation (SDL) has become a major concern for statistical agencies as reasonable response rates depend on the belief that respondents have that their answers will be kept in confidence. (Methods of overcoming this problem were touched on in Chapter VI).

Small size also affects the reliability of statistics estimated on the basis of administrative records. National statistical agencies are increasingly called on to develop local area estimates for various measures where the costs of censuses or major surveys are prohibitive. For instance, in years outside of censuses, area populations may be estimated on the basis of births, deaths, school enrolments, telephone hook-ups, and other measures. Regional income or domestic product may be estimated from establishment data on employment and wages and other information. Typically, estimates are made first at the national and perhaps regional levels, where there are extensive data, and then allocated downward, based on local statistics. In rural areas, these estimates must be treated cautiously. Estimates are inherently more unreliable where territorial units are small. Moreover, the assumptions and methods that are used in making these estimates may fit urban areas better than rural areas. It is, for instance, typically much more difficult to estimate self-employment income than wage and salary income.

The small size of rural regions can also affect the reliability of estimates from surveys and, since they frequently ask complete sets of questions only for a proportion of respondents, population and other censuses. One way to overcome this problem is by over-sampling in rural regions or at least those rural regions of particular interest, such as agricultural regions or declining regions. Of course, over-sampling in one type of area means under-sampling in another. More precise regional estimates come at the expense of precision in estimates for other national subpopulations such as ethnic groups. Bayesian techniques are available to estimate the sample size necessary to obtain estimates of a given precision.

The fifth issue relates to the **interpretation of rural statistics**. To the extent possible, well-being outcomes (earnings, employment, health etc.) need to be standardized for the composition of the population. This is most obvious in the case of mortality rates, which are highly related to age and sex, but it extends to

other areas as well. Comparisons between rural and urban regions or localities almost inevitably find rural areas have lower incomes than urban areas. This does not necessarily mean that rural areas are somehow lagging, however, or that an explicitly regional policy is called for. As noted elsewhere, according to conventional methodology the cost of living is typically lower in rural areas than in urban. But, adjusting for cost of living may not be enough.

The residents of rural regions also tend to have relatively low levels of educational attainment and to be older than their urban counterparts. Since lower levels of educational attainment are generally associated with lower incomes at the individual level, lower rural incomes may reflect the educational characteristics of the rural population rather than any drawback to rural residence. By the same token, if income disparities increase or decrease nationally across educational attainment levels, this will be reflected in increasing or decreasing disparities between rural and urban areas. This tendency of divergence is also found between industrially advanced countries with a highly educated labour force and less developed countries characterized by a predominantly rural economy<sup>1</sup>.

### XV.3 Statistics on the incomes and wealth of agricultural households

In OECD countries the relevance of indicators of income and wealth for agricultural households comes in large part from the **aims of agricultural policy**. Though they only represent one component of the population of rural areas, and in many industrialized countries a small and declining one, farm households and their livelihoods are the focus of substantial government interest. Concern is not usually well-focussed, but is often to do with the level of income and how this affects consumption possibilities and poverty (an aspect of particular concern in developing countries). In addition, within the public sector, policies on deprivation, economic development, sustainability, trade liberalisation and environmental quality would find such statistics useful if their aims are to be properly serviced and the performance of policy interventions to be assessed. Others groups also needing the information include academics and commercial firms, such as those in the industries upstream and downstream from farming. In developing countries the prime concern is **poverty**.

The main way in which incomes in agriculture are currently described by official statistics in most countries (and in the European Union as a whole) is by measures of the return to the **factors used in the activity of agricultural production**. While this approach is appropriate for some circumstances, it is clearly not capable of providing information on the non-agricultural sources of income in which farm operators and their households frequently engage, especially in developed countries. For this a **household perspective** is needed. The combination of farming with other income-generating activities is a common and increasing phenomenon. Non-agricultural incomes from gainful activities together with the returns from property ownership and transfers from government are necessary inputs to explaining the consumption and savings opportunities of farm households and to their on-farm decisions, such as the choice of enterprise mix, intensity of land use, investment level etc.

To continue to monitor the income situation of farm operators using only indicators based on agricultural activity carries the danger that such **figures will be misused** to draw implications for agricultural households. This would break a fundamental principle in the choice, design and use of indicators which lays

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<sup>1</sup> According to the ILO, unemployment is quite evenly distributed between men and women with a secondary education in most economies, but at the tertiary level of education greater country-level diversity is apparent. In all the economies shown, females with higher education levels are more often unemployed than males of the same education group. On the other hand, with the exception of Peru, men with low education levels have higher unemployment rates than females in all economies (ILO, KILM 11). Source: <http://www.ilo.org/public/english/employment/strat/kilm/kilm11.htm>

emphasis the selection of indicators that match the problem in hand. What would be needed in developed countries are indicators of household total and/or disposable income. The same principle might indicate that consumption is preferable to income as a measure of well-being in less developed economies.

At present there is **no internationally agreed system for generating statistics on income and wealth for agricultural households** that parallels the OECD coordination of a set of aggregate Economic Accounts for Agriculture (activity accounts) and associated indicators for its Member Countries based on methodology established by Eurostat for use in the European Union. What exists at national level is patchy, contains large gaps and uses different methodologies, a factor that hampers comparisons between countries. Typically the surveys on which most evidence is based relates to a non-constant sample that is shrinking over time, with the snapshots at single points in time hiding a considerable amount of contrary short-term movements (“churning”).

Nevertheless, some broad generalizations are possible from existing results (Chapters VIII and XIV) that support the need for better information on agricultural household incomes that cover more than just the income from agricultural activity. These include the following:

- The income from farming alone substantially understates the overall income that agricultural households receive, so judging their economic situation only on the basis of agricultural income will overstate the problem of low-incomes and associated poverty. The relative importance of non-farm income seems to have been increasing over time (though the non-constant nature of most samples makes this conclusion. Multiple income sources are found not only in OECD countries but also in less developed ones and economies in transition.
- The stability of total household income over time is greater than that from farming alone, so judging the instability problem will be overstated if only farm income is considered.
- Consumption spending is more stable over time than income, suggesting that farm households save and dis-save to cushion income variations. This is compatible with the permanent income hypothesis in which consumption is sensitive to long-term income prospects and relatively insensitive to short-term movements. In developing countries access to credit is a key factor in allowing consumption to depart from income.
- The distribution of incomes among farm household in OECD countries is generally made less unequal when total income is considered rather than the income from farming alone.
- In many developed countries the disposable income of farm operator households compare favourably with the national average, suggesting that farmers and their families as a group do not form a particularly disadvantaged group in society. The position is somewhat eroded when incomes are measured per household member or per consumer unit.
- Wealth and income are linked, especially in agriculture where land prices reflect *inter alia* the profitability of farming. In the few OECD countries where wealth statistics are available, farm households are typically more wealthy (and substantially so) than the rest of the population. While some agricultural households have both low-income and low wealth, far commoner situations are where low-income is found combined with high wealth, or where both wealth and income are large.
- These findings on relative income and wealth positions of farm households have implications for countries (including the European Union) that have policies aimed at ensuring a fair standard of living for the agricultural community.

### XV.3.1 Methodological issues in measuring agricultural household income and wealth

The second section of this Handbook is largely concerned with discussion of methodological issues that have to be confronted when developing statistics for agricultural households and in reviewing what countries actually do when attempting measurement. The choices made reflect the purposes for which the statistics are required; within a single country there may be a range of uses that, in an ideal world, would be met by using different concepts. For the sake of **international comparability** the same methodology needs to be applied across a range of countries, but this risks imposing definitions on circumstances for which they are not entirely appropriate. Methodology also has to take into account the practicality of being put into operation, which will be usually determined by **available data sources**. In reality the methodology usually turns out to be a compromise. This is why it is valuable to understand the background against which decisions on methodology took place and the process by which choices have been made.

The main methodological issues concern the following:

- Definition of a household (dwelling and single budget units).
- Method of measuring household size and use of equivalence scale.
- Classification of households into agricultural and other; employee households, subsistence producer households. This, combined with the definition of a household, essentially results in a definition for an agricultural household.
- Measure of income, including the coverage of both money income and income in kind, imputed flows, disposable income (after the deduction of non-optional deductions such as taxes), and broader approaches that take into account in-household activities.
- Measures of wealth, and economic status.
- Distribution of incomes, indicators of inequality, and the measurement of poverty.

Though this Handbook stops short of making recommendations, it does indicate **good practice** in approaching each of these issues. It recognizes the following:

- *Definitions of a household, an agricultural household and related matters* (Chapters IX to XII):
  - A flexible but transparent approach should be taken to the definition of a household. While income measurement on the basis of the complete **dwelling household** should be undertaken to facilitate comparisons, both internationally and with national data sources, data should also be available to allow the application of the concept of the **single budget household** which in some circumstances may be preferable (Chapter IX). However, the concept of a household applicable in OECD Members may require modification for use in developing countries.
  - In addition to income per households, the calculation of **income per household member and per consumer unit** (using national equivalence scales) should be undertaken. Details of Equivalence Scales should be made available as metadata. The basis of these scales may vary between countries at different stages of economic development.
  - Data should be available to develop estimates of income for households defined as agriculture in a number of ways, as no one definition will suit all purposes. This flexible approach should permit a coverage of all households that earn **any income**

**from self-employed farming activity.** However, for many of these farming will be only a very minor activity. Particular policy interest focuses on a more **narrowly defined** sub-group, where **agriculture is the main income** of the household (smoothed to take into account the year-to-year variation anticipated by farmers, for which averaging over three years is advised). This “narrow” approach facilitates comparisons with other socio-professional groups selected in a consistent manner. Where it is not possible to classify using the household’s main income source, the Handbook recognizes the use of a **reference person** system, where the person is normally the main income earner and households are classified as agricultural or as belonging to some other socio-professional group according to that person’s main income (or occupation). For other purposes, selecting from the “broad” coverage by farm size (and other criteria) may be undertaken. Studies should be made to assess the significance of adopting alternative bases of classification and different coverages.

- Steps should be taken to avoid misrepresentations when drawing comparisons between the income situation of agricultural households and other socio-professional groups. At the least, this should include income comparisons **per household member and per consumer unit**.
- The income of households that operate **family farms as corporations** requires special attention, as income comes not as self-employment income but from employment and from property. They may be treated as quasi unincorporated. Results should be shown separately for the households, which would enable exclusion or inclusion with other agricultural households according the user needs
- The income situation of the households of **hired agricultural workers** (that is, those that do not have entrepreneurial responsibility) should be assessed as a separate and supplementary exercise. An ability to analyse by the type of business on which they are employed should be incorporated (family farm, corporate farm etc.). In developing countries this category will include landless workers in agriculture.
- As a special case of the above, in countries that previously operated socialised forms of production, the income situation of the households of **hired workers on all large-scale agricultural units** (whether arranged as cooperatives, other forms in which there is some entrepreneurial responsibility, or corporations) should be assessed as a separate and supplementary exercise, including a breakdown of the type of unit on which they are found and the forms of income they receive (wages, profit share etc.). These households may also be **subsistence producers**. How they should be treated is a matter for further discussion.
- There is value using **flexible typologies of agricultural households** that reflect the needs of users, and their development is encouraged. Consideration should be given to the international application of a classification similar to that used by the USDA-ERS.
- *Definitions of income and related matters:*
  - Bearing in mind the methodologies of national accounts and the recommendations of the Canberra Group of Experts relating to general household income statistics (Chapter X), the Handbook recognizes the value of applying a **simplified definition of disposable income** when measuring the income of agricultural households, as



shown in Figure XV.1. When presenting results, information should be available for the **separate items** shown in this definition.

- Basic statistical characteristics of the **distribution of incomes** of agricultural households should be calculated, including medians and quartiles, and measures of inequality and of poverty based on them (Chapter XI). In developing countries the measurement of consumption may be superior to that of income in the assessment of living standards and poverty.
- The use of Lorenz curves, low-income rates etc. is encouraged, with comparisons drawn over time, geographically and between agricultural households (variously defined) and other socio-professional group, suitable attention being given to hazards in these comparisons. When setting **income poverty lines** no particular methodology is preferred, though metadata on the methods used should accompany results.
- Household **net worth** is the summation of farm net worth (assets minus debts) and non-farm net worth (assets minus debts) (Chapter XII). Farm households may have multiple sources of farm and non-farm assets and/or liabilities. To help ensure accuracy and completeness of estimates, net worth measures should take into account both farm and non-farm sources of wealth. Estimates of net worth should also recognize that farm wealth may not be entirely owned by farm households.
- Indicators that combine income and wealth in a single indicator should be explored (such as estimates of **Economic Status**). Comparisons between agricultural households and other socio-professional groups must be done with care over the issue of assets used in production.

The review of **current methodological practice** in measuring the income of agricultural households in OECD countries (Chapter XIII) shows a range of definitions in use and mixed treatment of elements in income (such as imputed flows) and the use of equivalence scales. Of particular significance are the differing approaches used to the coverage of agricultural households in the statistics.

Countries fall into two main groups in this respect. First there are those that take a **“broad” approach** and include among agricultural households all those that operate a farm (usually defined in terms of an agricultural producing unit whose size is above some threshold that separates it from a domestic garden or hobby production). Examples are found mainly where agricultural household statistics are based on censuses or surveys of farms (or agricultural holdings). Second are those countries that apply a more selective approach designed to include only those households that have agriculture as their main source of income or activity, with the assumption that these are the main target of support by agricultural policy. In the European Union, Eurostat’s IAHS statistics have given priority to this **“narrow” approach** (an important factor being that this facilitates comparisons to be made with other socio-professional groups) and its influence is clearly observed among Member States. Other examples can be found that fall between these approaches or select in different ways.

Only rarely are results presented using alternative definitions in the same country. When this happens within a single dataset, or other means of drawing comparisons are possible (such as with agricultural censuses), it is clear that the choice of definition often has a major influence not only on the number of households classed as agricultural but also on the results in terms of income level, composition and comparison with other socio-professional groups. This finding points to a need for caution when using unharmonized results and the desirability of agreeing on key elements of methodology for international studies.

**Figure XV.1**  
**Recommended definition of net disposable income for application to agricultural households**

**Net income from self-employment (money income and in kind)**

Net income from self-employment (operation of unincorporated businesses, or incorporated businesses that can be treated as *quasi* unincorporated because of family operation and ownership) after deduction of intermediate consumption items, interest on business loans, rents on land and business property, and a depreciation allowance for capital consumption. This will include net profit or loss in money form and the value of other income in kind, such as the value of output used for barter and for own-consumption, net of cost of inputs used in their production.

*Of which:*

- (a) self-employment in agriculture (money income and in kind)
- (b) self-employment in other industries (money income and in kind)
- (c) *imputed rental value of owned dwelling*

- + **Cash wages and salaries**, earned from dependent activity in enterprises (institutional units) that may be agricultural or non-agricultural in nature

(= Primary income)

+ **Rent received**

- (a) net rents from the letting of property other than land
- (b) net rents from the letting of land

+ **Other property income**

- (a) net interest received (interest received less interest paid, though payments should not include interest already deducted in calculating profits)
- (b) dividends received

+ **Social transfers received**

- (a) Social insurance benefits from employers' schemes
- (b) Social insurance benefits in cash from government schemes
- (c) Universal social assistance benefits in cash from government
- (d) Means-tested social assistance benefits in cash from government

+ **Other current inflows**

Regular inter-household cash transfers received such as transfers from relatives living and working abroad)

= **TOTAL INCOME**

- **Current taxes on income and wealth**

- **Non-discretionary social contributions (payments to social security schemes)**

- a) by members of agricultural households as self-employed person
- b) employee social contributions (only) relating to income from employment

= **NET DISPOSABLE INCOME** (note: this is not adjusted for the receipt of social benefits in kind)

### XV.3.2 Provision of data – the data system for agricultural household income measurement

The provision of data is, in practice, the **most fundamental problem** facing the development of statistics on the income and wealth of agricultural households. As in the case of rural statistics, without data the discussion of methodological issues and identification of good practice loses much of its relevance.

Reviews of data sources in developed countries have been published by Hill (2000) and the OECD (1995, 1999). This Handbook has not attempted to update this work, which mainly took place in the later 1990s. Rather, it has concentrated on cases studies where data are robust enough to enable patterns in the results to be identified (Chapter XIV).

Among OECD countries the three main generic sources of agricultural household income are **farm accounts surveys, general household expenditure surveys** (which increasingly also cover incomes), and **taxation records**. Each has well-known advantages and disadvantages (Chapter XIII). In developing countries household surveys (Living Standards Measurement Study (LSMS) surveys) are the principal method of data collection.

Though there is some information on agricultural household incomes in all OECD countries, **wide variations are found in the availability and quality of data**. A few countries have several good data sources on which to base statistics, sometimes having the ability to link datasets to provide a powerful and flexible tool of analysis. Examples are the Scandinavian countries with their income registers. Elsewhere a single survey may provide a sufficiently robust base (for example, the ARMS survey of farms in the United States). However, **many countries do not have a single satisfactory microeconomic data source**, a group that contains several EU Member States. Situations occur in which simultaneously the national farm accounts survey does not include questions on other sources of income that are necessary to establish household income, where the taxation of farmers does not yield information on actual incomes, and where the household budget survey either generates too few agricultural household cases for the results to be reliable or where the quality of income data is unacceptably poor. This gap in was one factor that led Eurostat's IAHS statistics, initiated in the late 1980s, to take a sector-level approach based in national accounts, one which is less dependent on good quality microeconomic data though these are usually still needed as distribution agents for economic aggregates (Eurostat, 2002). In the more recent discussions on the need for statistics on agricultural household incomes emphasis has once more switched to microeconomic data as a primary source, as it is acknowledged that in many respects only microeconomic data can provide answers to many of the important policy questions.

Developing the data systems of OECD countries so that they are capable of servicing statistics on agricultural household incomes are **matters for national governments and their statistical authorities**. Making use of existing regular farm surveys for which there a continuing commitment by extending coverage to household income and wealth has obvious attractions. Adding value to tax data by modifying the ways that they are processed and accessed in order to provide economic information may be relatively low-cost. Boosting sample sizes of agricultural cases in general household surveys and improving quality of income data, perhaps by establishing links with farm accounts surveys, may be another possibility. Sometimes only a completely new survey is adequate. Each of these advances implies costs, not only in terms of resources used by the data system but politically and in the potential impact on the rest of the statistical system (such as by affecting response rates among cooperators in existing voluntary surveys). Countries will need to appraise their particular opportunities and costs and the routes chosen by which to provide data will probably differ.

By establishing the main elements in the methodology of statistics on agricultural household incomes, it is hoped that Handbook will assist in identifying the **direction in which data systems should be moving**, if not the exact path by which they should get there.

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## ANNEX 1

### LIST OF TASK FORCE MEMBERS

Mr. Ray BOLLMAN, Statistics Canada, Ottawa, Canada.

Mr. Paul FENSOM, Department for Environment, Food and Rural Affairs (DEFRA), York, United Kingdom.

Mr. Christopher GIBBINS, Department for Environment, Food and Rural Affairs (DEFRA), York, United Kingdom.

Mr. Michael GOLL, Eurostat, Luxembourg.

Mr. Berkeley HILL, Imperial College London (Wye campus), Ashford, United Kingdom.

Mr. Jim JOHNSON, Economic Research Service (ERS) of the U.S. Dept. of Agriculture, Washington DC, United States of America.

Ms. Carol JONES, Economic Research Service (ERS) of the U.S. Dept. of Agriculture, Washington DC, United States of America.

Mr. Hans JÖNRUP, Swedish Board of Agriculture, Jönköping, Sweden.

Mr. Jan KARLSSON, United Nations Economic Commission for Europe (UNECE), Geneva, Switzerland.

Mr. Naman KEITA, Food and Agriculture Organization of the United Nations (FAO), Rome, Italy.

Mr. Christian KINGOMBE, United Nations Economic Commission for Europe (UNECE), Geneva, Switzerland.

Mr. Andreas H. LINDNER, Organisation for Economic Co-operation and Development (OECD), Paris, France.

Mr. David A. McGRANAHAN, Economic Research Service (ERS) of the U.S. Dept. of Agriculture, Washington DC, United States of America.

Mr. Robert MAYO, Food and Agriculture Organization of the United Nations (FAO), Rome, Italy.

Ms. Catherine MOREDDU, Organisation for Economic Co-operation and Development (OECD), Paris, France.

Mr. Mitch MOREHART, Economic Research Service (ERS) of the U.S. Dept. of Agriculture, Washington DC, United States of America.

Ms. Susan OFFUTT, Economic Research Service (ERS) of the U.S. Dept. of Agriculture, Washington DC, United States of America.

Mr. Nwanze OKIDEGBE, World Bank, Washington DC, United States of America.

Mr. Federico PERALI, University of Verona, Italy.

Ms. Simone PFUDERER, United Nations Economic Commission for Europe (UNECE), Geneva, Switzerland.

Mr. Edoardo PIZZOLI, Italian National Institute of Statistics (ISTAT), Rome, Italy.

Ms. Cristina SALVIONI, University of Pescara, Italy.

Mr. Peter SZABO, Eurostat, Luxembourg.

Mr. Thierry VARD, Commission of the European Communities, Brussels, Belgium.



## ANNEX 2

### A SUMMARY OF EU AGRICULTURE AND RURAL DEVELOPMENT POLICIES

The first move towards the introduction of an integrated approach to sustainable rural development as part of EU policy came with the 1988 paper "The Future of Rural Areas." It found expression in the LEADER Community Initiative and the Structural Fund reforms. The **1992 Common Agricultural Policy (CAP)** reform, together with the Treaty of Union ('Maastricht Treaty'), confirmed that the development of rural areas was to be included as part of the Community Policies for economic and social cohesion (Article 130a) (Bryden, 2001) and that the EU "shall aim at reducing the disparities between the levels of development of the various regions and the backwardness of the least-favoured regions." An important element of the new policy approach was the emphasis placed upon the environment and the protection of natural habitats. The measures accompanying the 1992 reform (in particular regulations 2078/92 on agri-environment and 2080/92 on afforestation of arable land) consolidated the redefinition of market policy. In particular, they responded to concerns on the relationship between the environment and the multi-purpose nature of agriculture. This so-called 'multifunctional' nature of agriculture has become a key factor in the EU's negotiating position in the Millennium Round of Trade Talks. In this respect, agriculture and forestry are considered key sectors (Hay, 2002).

In 1991, the EU launched the **LEADER** programme designed to support local rural partnerships with 'bottom-up', integrated rural development programmes in the priority regions. Priority regions were defined in the reform of the Structural and Cohesion Policies. The concept underlying the LEADER initiative reflected the new thinking on rural development that was contained within the document '*The Future of Rural Society*' (Hay, 2002).

The original objective of the LEADER initiative was to find innovative solutions which could serve as a model for all rural areas and ensure maximum integration between measures supporting rural areas and the various sectoral measures. The current LEADER + initiative (a follow-on from LEADER I in 1991-1994 and LEADER II in 1994-1999) will be delivered by partnerships based in clearly defined rural areas and made up of representatives of the public and private sectors (Local Action Groups – LAGs). It is the LAGs that are responsible for devising and implementing rural development strategies for their areas.

LEADER +, whose budget for 2000-2006 amounts to €5,046.5 million (EC, 2003a),<sup>1</sup> is structured around "three actions" designed to enhance local development through support for:

- Integrated territorial rural development strategies of a pilot nature based on a bottom-up approach and horizontal partnerships;
- Inter-territorial and transnational cooperation;
- Networking of all rural areas in the Community, whether or not they are beneficiaries under LEADER+, and all rural development actors (EC, 2005a).

In order to encourage 'bottom-up' development LEADER is largely based on local participation in both the design and implementation phases of projects which, amongst other things, aim to make the

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<sup>1</sup> Of which €2,105.1 is funded by the European Agriculture Guidance and Guarantee Fund (EAGGF) Guidance section and the remainder by public and private contributions (European Commission, 2003).

products and services of rural areas more competitive, improve the quality of life in rural areas and add value to local products. In many respects LEADER has been, and remains, the only policy that is specifically directed at rural areas rather than being part of a wider agricultural policy (Hay, 2002).

In 1997, the CAP 2000 working document emphasised that issues of increasing importance to rural areas were economic diversification, quality of life and competitiveness. It emphasised that competitiveness itself depends on a range of crucial factors, including infrastructure, education, proximity of services and the capacity for innovation. Addressing such issues is a key objective of the emerging Community rural policy (Bryden, 2001).

The **Commission's Rural Development Regulation (RDR)** (Council Regulation (EC) No 1257/1999 and amendments in Council Regulation (EC) No. 1783/2003) and the **Structural Funds Regulation (SFR)** provide the framework for taking forwards the Community rural policy in the new millennium (Bryden, 2001). This was introduced as part of the **Agenda 2000** package agreed by Agricultural Ministers in 1999, in which rural development measures were brought together under a single regulation and became known as the 'second pillar' of the CAP (Hay, 2002).<sup>2</sup>

**Agenda 2000** moved the focus more towards the environment, food quality and the vitality of rural life. The reformed CAP was a step towards supporting the broader rural economy rather than simply subsidising agriculture production (EU, 1999). Price support is replaced by direct payments for spatial development and nature conservation and by a consistent rural policy. In this new approach to rural economies there are three main objectives:

- To create a stronger agricultural and forestry sector;
- To improve the competitiveness of rural areas;
- To maintain the environment and preserve Europe's rural heritage (EU, 1999).

The targeting of financial resources is the watchword of regional policy reform under Agenda 2000. To this end it was decided to reduce the number of **priority objectives** from seven to three. These three priority objectives are:

- Objective 1: Regions whose development is lagging behind;
- Objective 2: Regions in structural crisis and assist them into growth and jobs;
- Objective 3: Regions needing support for education, training and jobs; helping people to adapt and prepare for change (EU, 1999).

Nearly 70% of total spending is directed to objective 1.

There are **four Structural Funds** which operate under a common set of rules:

- The European Regional Development Fund (ERDF);
- The European Social Fund (ESF);
- The Guidance section of the European Agricultural Guidance and Guarantee Fund (EAGGF);
- The Financial Instruments for Fisheries and Guidance (FIFG) (EU, 1999).

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<sup>2</sup> Agenda 2000: For a stronger and wider Union [COM(97) 2000], presented 16 July 1997 by the Commission.

Agenda 2000 reduces **Community Initiatives** from thirteen to four, one of which is the LEADER for rural development. The four initiatives are due to receive 5.35% of total Structural Funds in 2000-2006

Total Community spending on rural development has been increasing and is expected to exceed €6 billion in 2003 (Guarantee and Guidance combined). On average, each Community euro is matched by a national euro so total rural development spending is double the above figure. For the period 2000-2006 total programme spending will amount to some €52.5 billion. There is a range of 22 measures, which are available to Member States in their rural development programmes. These measures can be grouped into three main categories:

- Group 1: restructuring/competitiveness;
- Group 2: environment/land management;
- Group 3: rural economy/rural communities (EC 2003a, 2003d).

About 52% of the Community contribution has been targeted to Group 2, followed by 38% for Group 1. Only 10% is allocated to Group 3. For the period 2007-2013, overall expenditures in nominal terms should be kept below the 2006 figure with respect to market-related expenditures and direct payments. However, an exception will be made for spending on rural development.

The source of EU funding varies according to the regions concerned:

- In Objective 1 regions (regions whose development is lagging behind) the source of funding is the EAGGF Guidance.
- Outside Objective 1 regions, the source of funding is the EAGGF Guarantee section. (EC, 2003a, 2003d).
- From 2007, rural development measures will be financed by the European Agricultural Fund for Rural Development (EAFRD) (EC, 2004). To ensure a balanced strategy a minimum funding for Group 1 (competitiveness) and Group 3 (wider rural development) of at least 15% of total EU programme funding will be required. For group 2 (land management) at least 25% of total EU programme funding is required. In addition, a minimum of 7% of the EU funding is reserved for the LEADER axis (EC, 2004).

On 26 June 2003, a fundamental **reform of CAP** was adopted which will completely change the way the EU supports its farm sector (EC, 2003c). The key elements of the new reformed CAP are:

- A single farm payment for EU farmers, independent of production (although some linkage to production may be maintained to avoid abandonment of agriculture land and to ensure that it is maintained in good agricultural and environmental condition).
- Payment will be linked to respect for environmental, food safety, animal and plant health and animal welfare standards as well as the requirement to keep farmland in good agricultural and environmental condition.
- A strengthened rural development policy with more EU money and new measures to promote animal welfare and to help farmers' meet EU production standards starting in 2004.
- A reduction in direct payments for bigger farms to finance new rural development policy.

- A mechanism for financial discipline to ensure that the farm budget (fixed until 2013) is not overshot.
- Revisions to the market policy of CAP concerning the milk, cereals, rice, durum wheat, nuts, starch potatoes and dried fodder sectors.

The 2003 amendments to the Rural Development Regulation reinforced the rural development policy by increasing the range of accompanying measures as provided for in the Regulations. In particular, chapters were introduced concerning standards required of farmers with regard to agri-environmental issues, animal welfare, and food quality (EC, 2003b).

All of the elements of the Community rural policy conform to one or more of the principles of EU operation, notably decentralization, devolution or subsidiarity. These include: an overarching goal of sustainable development including environmental, social and economic objectives; an 'integrated' and holistic approach to development at the territorial level; and recognition of the huge and increasing diversity of rural Europe and hence the need for policy flexibility at the EU level. This is an area of increasing co-regulation (Bryden, 2001).

In 1999, the EU Ministers responsible for Spatial Planning approved a **European Spatial Development Perspective (ESDP)**, which aims to ensure a balanced (equitable) and sustainable (efficient) development of the EU territory. The ESDP argues for integrated and diversified development of rural areas that can ultimately overcome the traditional dualism between the city and the countryside. Sustainable agriculture has been identified as one policy objective that can contribute to this goal. Integrating environmental concerns into wider agricultural policy has been emphasised so far in debates about rural development. However, a shift in emphasis from considering narrow agri-environmental issues towards wider issues of sustainable rural development at a territorial level is occurring. This will be encouraged by EU enlargement, where key priorities concern economic diversification, including the marketing and processing of a wide range of local produce, and service provision in rural regions. Environmental issues will remain very important, but will extend beyond the level of individual farmers to be considered as a pre-condition for sustainable development of rural areas, including the quality of life for those living in them (Bryden, 2001).

Arising from these policy developments is the need to be able to perform in-depth analysis of the regionally specific conditions and tendencies within rural areas as they undergo significant change. The data needs that arise from both recent policy development and current proposals relate to:

- The economic and social changes taking place in different types of rural areas, in different political contexts, information on which is essential for the monitoring of rural changes and the development of future policy approaches.
- The spatial levels that are necessary to reflect the diversity of rural Europe and at which policy is increasingly being implemented and devised (Bryden, 2001).

Although indicators have come to play a significant role with respect to environmental and other policy areas such as health and education, much less progress has been made with respect to rural development. In the past, rural development objectives were broad, multifaceted and subsumed within a range of other wider policy objectives. A variety of rural development issues, as highlighted in the CAP 2000 document, continue to be treated at the sectoral level rather than at the territorial level in Member States. The RDR provides a major opportunity for the development of policy (response) indicators yet there remains a need to identify descriptive and analytical indicators that can meet the data needs identified above.

There have been significant developments in rural policy in the past two decades at EU level. It is increasingly accepted that 'rural' is no longer synonymous with agriculture. Having said this, however, the maintenance of agricultural practice is still important even if it is often as much for the protection of the environment and natural heritage rather than as a direct employer and contributor to the rural economy. Nonetheless, policy is recognizing that rural areas are diverse, and that a territorial approach is required to deal with the changing nature of rural society (Hay, 2002).

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## ANNEX 3

### RESULTS OF UNECE SURVEY ON METHODS USED FOR MEASURING RURAL DEVELOPMENT STATISTICS IN UNECE AND OECD MEMBER COUNTRIES

#### **Rural Development Statistics Questionnaire**

##### Rural Development Statistics

- 1) Which organisation(s) is/are responsible for statistics on rural areas?
- 2) What variable(s) is/are used to distinguish rural from non-rural areas?
- 3) Are there any subdivisions of rural areas relating to the degree of rurality?
- 4) What is the threshold value that classifies an area as rural?
- 5) What is the smallest territorial unit/area on which the definition of rural is based i.e. postcode areas, community districts, communities, districts or regions?
- 6) What is the percentage of the population that are classified to live in rural areas?
- 7) What is the percentage of the total land area that is classified as rural?
- 8) Is there a set of core indicators used to monitor rural development policy?
- 9) Can rural development statistics be found on the Internet and if so where?

##### Availability of statistics for small areas

- 10) What is the smallest area for which statistics are available and what is the average size of this area (e.g. average population size, average area, range of population sizes or range of area)?
- 11) What statistics are available for this smallest area?
- 12) Are statistics on urban settlements/urban land use available?

##### Rural Development Policy

- 13) Which organization(s) is/are responsible for rural development policy?
- 14) What are the aims/objectives of rural development policies?
- 15) What are the main themes of rural development?

**Rural Development Statistics Questionnaire**  
**Question 1**

<b>Which organisation(s) is/are responsible for statistics on rural areas?</b>	
Australia	Australian Bureau of Statistics (responsible for national statistics for all areas including rural areas); Australian Bureau of Agricultural and Resource Economics (ABARE), State Government agencies and some Industry Associations also collect statistics on various aspects of rural activity.
Bulgaria	National Statistical Institute; Ministry of Agriculture and Forestry
Canada	Statistics Canada; other federal agencies; provincial, territorial and local agencies;
Czech Republic	Czech Statistical Office (Agricultural and Environment, Family Accounts and Population Statistics)
Denmark	Statistics Denmark; Ministry of the Environment; Ministry of Food, Agriculture and Fisheries
Estonia	Statistical Office
Finland	Statistics Finland; Ministry of Agriculture and Forestry (joint Finnish Rural Indicators Project)
France	INSEE; Ministry of Agriculture, Food, Fisheries and Rural Affairs
Germany	Federal and Regional Statistical Offices
Hungary	Hungarian Central Statistical Office; Tax and Financial Control Administration; Research and Information Institute for Agricultural Economics; Institute for Geodesy, Cartography and Remote Sensing; Ministry of Agriculture and Rural Development
Ireland	Central Statistics Office Ireland
Italy	Istituto Nazionale di Economia Agraria/National Institute for Agricultural Economics (INEA), Istituto per Studi, Ricerche e Informazioni sul Mercato Agricolo/Institute for Analysis, Research and Information on the Agricultural Market (ISMEA); Istituto Nazionale di Statistica/National Statistical Institute (ISTAT)
Kazakhstan	Agency of Statistics
Kyrgyzstan	National Statistical Committee of the Kyrgyz Republic
Latvia	Central Statistical Bureau of Latvia
Lithuania	Statistics Lithuania
Netherlands	Statistics Netherlands
Norway	Statistics Norway
Romania	National Institute of Statistics; Ministry of Development and Prognosis; Ministry of Agriculture, Food and Forestry; Ministry of Education and Research; Ministry of Health and of the Family; Life Quality Research Institute; Institute of Agrarian Economy
Russian Federation	Local statistical committees are responsible for statistics on rural areas. Local data are aggregated in regional, territorial and republican committees and in Goskomstat for the country as a whole.
Slovakia	Statistical Office of Slovakia
Sweden <sup>1)</sup>	National Rural Development Agency; Swedish Board of Agriculture
Switzerland	Swiss Federal Statistical Office (Agricultural Statistics Section, Spatial Data Section and Population Census)
Turkey	Regional Statistics Division of the State Institute of Statistics
United Kingdom	Defra and Devolved Departments responsible for Rural Affairs/Development; Office for National Statistics; Countryside Agency; Office of the Deputy Prime Minister; and others
United States	U.S. Census Bureau; Bureau of Labor Statistics; Bureau of Economic Analysis; Economic Research Service; National Agricultural Statistics Service

1) no official statistics for rural areas, thus no responsible organisation but some information provided by these organisations

**Rural Development Statistics Questionnaire**
**Question 2**

What variable(s) is/are used to distinguish rural from non-rural areas?	
Australia	Population density and population level; remoteness from services and goods
Bulgaria	Population density and population level in the biggest town of the municipalities
Canada	Population level and population density; population level and intensity of commuting to a major urban centre within a labour market radius; population density; population level
Czech Republic	Number of permanent residents in the municipality (population level)
Denmark	Population level of municipalities
Estonia	Administrative distribution; population level
Finland	Various i.e. Urban Network Study
France	Number of jobs and commuting pattern
Germany	Population level of urban centres and population density of surrounding areas of urban centres
Hungary	Population level and population density at settlement level
Ireland	Population level
Italy	Population density (no single official definition though)
Kazakhstan	Population level and share of population engaged in agriculture
Kyrgyzstan	The status of every settlement/village is defined by Jogurky-Kenesh - the Parliament of the Kyrgyz Republic
Latvia	In Latvia the rural area is the total land area excluding urban areas. Rural areas will be in the Draft Law on Agriculture and Rural Development which is not yet approved by the Cabinet of Ministers).
Lithuania	Population level, characteristics of towns
Netherlands	No official statistics to monitor rural policy yet. Discussions started with the Ministry of Agriculture, Nature and Food Quality on possible definitions. Possibly for different aims of rural development policy different definitions of rurality are appropriate.
Norway	At present there is no official definition of rural/non-rural in Norwegian statistics. However, Norway has a Standard Classification of Municipalities based on industry, population density and centrality.
Romania	The 'rural' status for a settlement is established by law without taking into account the demographic size or population density
Russian Federation	Various variables among others types of activities i.e. crop and livestock production
Slovakia	Population density and population level; municipalities that have no urban status and have got a characteristic settlement and economical structure based on agriculture, forestry and that have got less developed infrastructure.
Sweden	Population level of settlement
Switzerland	All the areas outside isolated towns and agglomerations are considered as rural (population level, commuting pattern, population growth rates, built-up area, population/job density and employment in the primary sector are used delimit agglomerations and isolated towns).
Turkey	Population level
United Kingdom	A variety of definitions, including one based on settlement size and one based on socio-economic variables
England	A variety of definitions, including one based on settlement size and one based on socio-economic variables
Scotland	Population density; settlement size
Wales	All rural except for a small list of communities in towns and cities that were deemed to be entirely non-rural; population density
Northern Ireland	n/a
United States	Population level of urban centre and commuting pattern; Population density

**Rural Development Statistics Questionnaire**  
**Question 3**

<b>Are there any subdivisions of rural areas relating to the degree of rurality?</b>	
Australia	No subdivision for rural area definition but subdivision of remoteness division (major cities, inner regional, outer regional, remote, very remote)
Bulgaria	See Annex C.
Canada	Yes, both major rural definitions currently used in Canada have subdivisions.
Czech Republic	Yes.
Denmark	No.
Estonia	No.
Finland	Yes.
France	Yes.
Germany	Yes.
Hungary	Yes.
Ireland	No.
Italy	No.
Kyrgyzstan	No (except high mountain rural population)
Latvia	No.
Lithuania	n/a
Netherlands	n/a
Norway	No official subdivision. However, rural areas may, for example, be classified according to level of centrality.
Romania	Yes.
Russian Federation	n/a
Slovakia	Yes.
Sweden	Yes.
Switzerland	No, not yet (but subdivision into agricultural, wooded and unproductive area)
Turkey	Yes.
United Kingdom	Yes. England Yes. Scotland Yes. Wales Division into severely disadvantaged, disadvantaged and other but this is not really related to the degree of rurality. Northern Ireland n/a
United States	Yes.

**Rural Development Statistics Questionnaire**  
**Question 4**

What is the threshold value that classifies an area as rural?		
Australia	Rural/urban definition	There is not distinct threshold as such, since rural areas are defined at those areas other than urban centre. Smaller urban centres are conglomerations with Census Collection Districts with a total population of 1,000 or more and containing a discernible urban pattern of population distribution such as formed streets, etc. Thus, an approximate threshold is 1,000 people.
	Remoteness definition	n/a
Bulgaria		Population density of less than 150 people per square kilometre and the biggest town of the municipality of less than 30,000 inhabitants.
Canada	OECD Definition	A region is defined as rural if 50 per cent or more of the population live in a community with less than 150 people per square kilometre.
	Rural and Small Town Methodology	Areas under 10,000 people outside the commuting zone of a Census Metropolitan Area and Census Agglomeration Area
Czech Republic		Less than 2,000 residents in the municipality
Denmark		Areas that are not urban (all villages of 200 and more inhabitants are defined as urban).
Estonia		2500 inhabitants
Finland		n/a
France		Settlements with less than 2,000 inhabitants
Germany		Regions with a population density of 100 inhabitants per square kilometre with an urban centre of 100,000 and more and regions with a population density of below 150 inhabitants per square kilometre without a urban centre of 100,000 or more.
Hungary	Narrow definition	Less than 120 inhabitants per square kilometre or under 10,000 residential population at settlement level.
	Broader definition	Predominantly rural at NUTS IV level if 50 per cent of residential population live in a settlement with a population density of under 120 inhabitants per square kilometre and significantly rural if 15 to 50 per cent live in a settlement with a population density of under 120 inhabitants per square kilometre.
Ireland		Outside clusters with a population of more than 1,500 inhabitants
Italy		100 inhabitants per square kilometre
Kazakhstan		A village with at least 50 people of which at least half is engaged in agriculture production
Kyrgyzstan		No threshold as rural is defined by the parliament.
Latvia		n/a
Lithuania		Small towns (population less than 3000) and villages (other residential areas having no characteristic features of towns) are attributed to rural residential areas.
Netherlands		n/a
Norway		No official definition, thus no official threshold.

**Rural Development Statistics Questionnaire**  
**Question 4 (concluded)**

Romania		No threshold as rural is defined by law without taking the demographic size or population density into account
Russian Federation		n/a
Slovakia		100 inhabitants per square kilometre; rural settlement is a municipality with less than 5000 permanent residents.
Sweden		All settlements with less than 1000 inhabitants are rural.
Switzerland		Agglomerations of 20,000 or more inhabitants and isolated towns of 10,000 or more are considered urban. To delimit agglomerations, the number of jobs (at least 2,000) and the commuting pattern (of the economically active population 85 per cent or more work in the agglomeration). Commuting pattern, population growth rates, built-up area, population/job density and employment in the primary sector are used to decide if municipalities are part of an agglomeration or not.
Turkey		Less than 2,000 inhabitants.
United Kingdom		n/a
	England	All areas outside settlements with a population of 10,000 or more.
	Scotland	All areas outside settlements with a population of 10,000 or more.
	Wales	All areas are rural except those of a small list of communities in towns and cities that were deemed to be entirely non-rural; 150 people per square kilometre
	Northern Ireland	n/a
United States	Census Bureau Definition	The Census Bureau classifies as "urban" all territory, population, and housing units located within an urbanized area (UA) or an urban cluster (UC). It delineates UA and UC boundaries to encompass densely settled territory, which consists of core census block groups or blocks that have a population density of at least 1,000 people per square mile and surrounding census blocks that have an overall density of at least 500 people per square mile.
	ERS Metro and non-metro classification	Non-metropolitan areas that contain (1) core counties with one or more central city of at least 50,000 residents or with a Census Bureau - defined urbanized area (and a total metro area population of 100,000 or more), and (2) fringe counties that are economically tied to the core counties. Non-metropolitan counties are outside the boundaries of metro areas and have no cities with as many as 50,000 residents.
	Official Federal definition	Rural areas comprise places (incorporated or unincorporated) with fewer than 2,500 residents and open territory.

**Rural Development Statistics Questionnaire**  
**Question 5**

<b>What is the smallest territorial unit/area on which the definition of rural is based i.e. postcode areas, community districts, communities, districts or regions?</b>	
Australia	Census Collection District i.e. census enumeration area.
Bulgaria	Municipality i.e. well-defined system settlements/villages around a municipality centre (municipalities consist of between 1 and 134 villages).
Canada	Census sub-division (CSD); Census consolidated sub-division (CCS); Census division (CD)
Czech Republic	Municipality
Denmark	Address
Estonia	Municipalities but the Territory of Estonian Administrative Division Act divides rural municipalities further into settlements.
Finland	Municipalities (NUTS 5)
France	Municipality (NUTS 5)
Germany	Kreis (NUTS 3)
Hungary	Settlement (NUTS 4)
Ireland	District Electoral Division (DED)
Italy	n/a
Kazakhstan	A village with at least 50 people of which at least half is engaged in agriculture production
Kyrgyzstan	Village
Latvia	Parishes and rural areas
Lithuania	Post code areas
Netherlands	n/a
Norway	No official definition of rural, however, density and centrality variable is mostly applied at municipality level.
Romania	Village/municipality
Russian Federation	Farm, village, selo (rural town)
Slovakia	Municipality
Sweden	Geographical coordinates/address
Switzerland	Community (municipality)
Turkey	Village.
United Kingdom	Land parcel/address; Ward; in future: Census Output Area (COA); Unit postcode; county England Land parcel/address; Ward; in future: Census Output Area (COA) Scotland Unit postcode Wales County (NUTS 3) Northern Ireland n/a
United States	Census block (Census Bureau definition); County (ERS definition)

**Rural Development Statistics Questionnaire  
Question 6**

<b>What is the percentage of the population that are classified to live in rural areas?</b>	
Australia	12.84 per cent
Bulgaria	41.9 per cent (11.2 per cent in less developed rural areas)
Canada	22 to 38 per cent depending on the definition used
Czech Republic	26.5 per cent
Denmark	14.7 per cent
Estonia	32.6 per cent
Finland	43 per cent (27 per cent excluding urban adjacent rural areas)
France	24 per cent
Germany	13.03 per cent
Hungary	Narrow definition: 47.35 per cent; broader definition: predominantly rural 31.3 per cent and significantly rural 43.2 per cent
Ireland	n/a
Italy	n/a
Kyrgyzstan	65 per cent
Latvia	47.5 per cent
Lithuania	33.1 per cent
Netherlands	n/a
Norway	22.3 per cent (population not living in urban settlements)
Romania	45.4 per cent
Russian Federation	27 per cent
Slovakia	29.9 per cent (OECD definition at NUTS 4 48 per cent in predominantly rural areas)
Sweden	35 to 40 per cent
Switzerland	32 per cent
Turkey	35.1 per cent
United Kingdom	n/a England 20 per cent (settlement based definition); 28 per cent (ward based definition) Scotland 30.9 per cent <sup>1)</sup> Wales 32 per cent Northern Ireland n/a
United States	21 per cent (Census Bureau definition); 20 per cent (ERS definition)

1) <http://www.gro-scotland.gov.uk/grosweb/grosweb.nsf/pages/scosett#res>



## Rural Development Statistics Questionnaire

## Question 7

What is the percentage of the total land area that is classified as rural?	
Australia	99.74 per cent
Bulgaria	83.7 per cent
Canada	99.8 per cent 'rural' and 95 per cent 'predominantly rural' (OECD definition)
Czech Republic	73.7 per cent
Denmark	n/a
Estonia	98.4 per cent
Finland	95 per cent (83 per cent if urban adjacent rural areas)
France	82 per cent
Germany	30.35 per cent
Hungary	Narrow definition: 88.3 per cent; broader definition: predominantly rural 58.3 per cent and significantly rural 37.7 per cent
Ireland	n/a
Italy	n/a
Kyrgyzstan	28.8 (53.9) per cent of the land is agricultural land and land of rural settlements (about 90 per cent of the territory lays higher than 1,500m above sea level).
Latvia	98.2 per cent
Lithuania	97 per cent
Netherlands	n/a
Norway	99.3 per cent (land outside urban settlements)
Romania	89 per cent
Russian Federation	n/a
Slovakia	76.7 per cent (OECD definition 59.5 per cent in predominantly rural areas)
Sweden	more than 95 per cent
Switzerland	77 per cent (approximately)
Turkey	n/a
United Kingdom	n/a
England	93 per cent (settlement based definition); 87 per cent (ward based definition)
Scotland	n/a
Wales	82 per cent
Northern Ireland	n/a
United States	97 per cent (Census Bureau definition); 80.8 per cent (ERS definition)

## Rural Development Statistics Questionnaire

### Question 8

<b>Is there a set of core indicators used to monitor rural development policy?</b>	
Australia	Not at present but work is underway. The Australian Government is investigating the feasibility of a whole-of-government framework to attempt to measure rural/regional policy and outcomes and indicators will be developed in support of this.
Bulgaria	There is a core set of indicators to monitor the implementation of the Special Accession Programme for Agriculture and Rural Development (SAPARD).
Canada	No official core set of indicators. An integrated Canadian national rural database is currently considered as a developmental component of the National Framework of Rural Policies (NFRP). Sets of indicators for monitoring rural communities usually start with the major variables for demography, labour force, income and health status but each list differs.
Czech Republic	There is no specific set of indicators used only for rural areas. There are several key indicators surveyed jointly in both, rural and urban areas, but they are not strictly divided according to rural or urban area.
Denmark	n/a
Estonia	The most comprehensive system for monitoring and evaluating has been developed for the Special Accession Programme for Agriculture and Rural Development (SAPARD). The indicators used for monitoring the programme are agreed with the Monitoring Committee of the SAPARD that regularly reviews the programme progress on the basis of these indicators.
Finland	Yes, there are the indicators of the Finnish Rural Indicators project. See annex A.
France	Legislation is in preparation and should come into force end of 2003. Indicators should then be set up to monitor this policy.
Germany	Indicators to monitor the EU rural development plan agreed between EU and Member States.
Hungary	Set of indicators is being developed in relation with the National Development Plan, Agricultural and Rural Development Operational Programme and the National Rural Development Plan.
Ireland	Under development. <sup>1)</sup>
Italy	n/a

**Rural Development Statistics Questionnaire**  
**Question 8 (concluded)**

Kazakhstan	The development is monitored by the Agency for Statistics through individual farm accounting on the approved form and the collection of statistical data twice a year from each farm record. It questions members of farms about all social issues and gathers information on current plantings, farms' own property (cattle, poultry and buildings) and sampling data on crop and livestock output. Information for State-owned agricultural enterprises is compiled on the basis of State statistical reporting.
Kyrgyzstan	No but there are a few indicators used for monitoring rural development these include poverty and extreme poverty levels, poverty gap and severity, gini coefficient, children school enrolment, adult literacy level, life expectancy, unemployment level, access to drinking water, access to medical service, average per capita calorie intake.
Latvia	The Ministry of Agriculture uses a set of indicators for drawing up the Rural Development Plan.
Lithuania	No.
Netherlands	n/a
Norway	No.
Romania	There is a set of core indicators used in monitoring rural areas (see 'Carta Verde of rural development in Romania' by the Romanian Ministry of Agriculture and Food and the European Commission).
Russian Federation	The following indicators can be used for monitoring rural development policy: income levels, employment/unemployment, prices of goods and services, the level of development of social, market and utilities infrastructure.
Slovakia	Not yet. There are plans to use data from the Ministry of Agriculture, from the payment agency and from beneficiaries to monitor rural development policy.
Sweden	No.
Switzerland	No, not yet.
Turkey	In the Household Labour Force Survey settlements with 20,000 or less are defined as rural. Numbers of persons employed in rural areas by sex, age, educational status etc are gathered regularly.
United Kingdom	No. England No. Scotland n/a Wales Yes. The main sections are demographics, economy, agriculture, education, health, personal social services, local government finance, housing, transport, law and order, environment, tourism, deprivation, etc. Northern Ireland n/a
United States	No.

1) See paper submitted for the Food and Agriculture Meeting held in Geneva 2-4th July 2003.

**Rural Development Statistics Questionnaire**  
**Question 9**

<b>Can rural development statistics be found on the Internet and if so where?</b>	
Australia	Some small area statistics on <a href="http://www.abs.gov.au">www.abs.gov.au</a> (themes then regional statistics). There is concern however that rural/regional statistics are not visible enough on the ABS website and the home page is currently being redeveloped to include a regional portal.
Bulgaria	Not yet but database is under construction. Some information can be found on the website of the Ministry of Agriculture <a href="http://www.mzgar.government.bg">www.mzgar.government.bg</a>
Canada	No systematic collection on a given site but three (partial) views are available at: a) the Canadian Rural Partnership <a href="http://www.rural.gc.ca">www.rural.gc.ca</a> b) The Rural & Small Town Canada Analysis Bulletins at <a href="http://www.statcan.ca/english/freepub/21-006-XIE/free.htm">www.statcan.ca/english/freepub/21-006-XIE/free.htm</a> c) community profiles of census data at <a href="http://www12.statcan.ca/english/profil01/PlaceSearchForm1.cfm">www12.statcan.ca/english/profil01/PlaceSearchForm1.cfm</a>
Czech Republic	No.
Denmark	Population data etc can be found at <a href="http://www.statistikbanken.dk">www.statistikbanken.dk</a>
Estonia	Rural development statistics/regional statistics are available on the homepage of the Statistical Office at <a href="http://www.stat.ee">www.stat.ee</a> at local government unit, county and NUTS 3 level.
Finland	No.
France	Statistics on rural and urban zones can be found at <a href="http://www.insee.fr">www.insee.fr</a> under 'territoire'.
Germany	Information on the publication 'Aktuelle Daten zur Entwicklung der Städte, Kreise und Gemeinden' (up-to-date information on the development of towns, districts and municipalities) at <a href="http://www.bbr.bund.de">www.bbr.bund.de</a> . Information on regional data at <a href="http://www.destatis.de/themen/d/thm_regional.htm">www.destatis.de/themen/d/thm_regional.htm</a>
Hungary	No data available on the website of the Hungarian Central Statistical Office. Some selected data are available at the Internet site of the Ministry of Agriculture and Rural Development in the supplement of Hungary's SAPARD Plan at <a href="http://www.fvm.hu/english/annex2.pdf">www.fvm.hu/english/annex2.pdf</a>
Ireland	n/a
Italy	n/a
Kazakhstan	<a href="http://www.stat.kz">www.stat.kz</a>
Kyrgyzstan	<a href="http://www.stat.kg">www.stat.kg</a>
Latvia	Yes, the Agricultural Census 2001 and Population Census 2000 data base are available at <a href="http://www.csb.lv/">http://www.csb.lv/</a>

**Rural Development Statistics Questionnaire**  
**Question 9 (concluded)**

Lithuania	www.std.lt/: General statistics - agricultural statistics by county (NUTS 3); Population and social statistics - average annual number of rural population, main indicators of employed population and earnings by economic activity; Agriculture - main indicators of agricultural activity; Environment - water consumption according to needs.
Netherlands	n/a
Norway	No rural statistics as such but regional statistics can be found at <a href="http://www.ssb.no/english/subjects/00/00/02">http://www.ssb.no/english/subjects/00/00/02</a>
Romania	No.
Russian Federation	Yes: Ministry of agriculture <a href="http://www.aris.ru/DBASE/">www.aris.ru/DBASE/</a> ; Goskomstat Russia <a href="http://www.gks.ru/">www.gks.ru/</a> ; Agro-industrial complex Market <a href="http://www.apkmarket.ru/">www.apkmarket.ru</a>
Slovakia	No.
Sweden	No.
Switzerland	Scattered information can be found under <a href="http://www.bfs.admin.ch">www.bfs.admin.ch</a>
Turkey	The press releases and the results of the Household Labour Force Survey are available on the website of the State Institute of Statistics <a href="http://www.die.gov.tr">www.die.gov.tr</a>
United Kingdom	Defra Internet site under construction at <a href="http://www.defra.gov.uk/esg/work_html/publications/cs/ruralinfo_web/default.asp">www.defra.gov.uk/esg/work_html/publications/cs/ruralinfo_web/default.asp</a> . Small area statistics at <a href="http://www.neighbourhood.statistics.gov.uk">www.neighbourhood.statistics.gov.uk</a> England see United Kingdom Scotland n/a Wales Yes, in the report 'Statistical Focus on Rural Wales' ( <a href="http://www.wales.gov.uk/keypubstatisticsforwales/content/publication/compedia/2001/sb49-2001/sb49-2001.htm">http://www.wales.gov.uk/keypubstatisticsforwales/content/publication/compedia/2001/sb49-2001/sb49-2001.htm</a> ), in the Rural Development Plan and in the statistics by Local Authority area on the Local Government Data Unit website <a href="http://www.lgdu-wales.gov.uk/">http://www.lgdu-wales.gov.uk/</a> Northern Ireland n/a
United States	Data related to rural development can be found at a) U.S. Census Bureau at <a href="http://www.census.gov">www.census.gov</a> b) Bureau of Labor Statistics at <a href="http://www.bls.gov">www.bls.gov</a> c) Bureau of Economic Analysis <a href="http://www.bea.gov">www.bea.gov</a> d) Economic Research Service <a href="http://www.ers.usda.gov">www.ers.usda.gov</a> e) National Agricultural Statistics Service <a href="http://www.nass.usda.gov">www.nass.usda.gov</a>

**Rural Development Statistics Questionnaire**  
**Question 10**

<b>What is the smallest area for which statistics are available and what is the average size of this area (e.g. average population size, average area, range of population sizes or range of area)?</b>	
Australia	Census Collection District (CD) i.e. census enumeration area (average size in rural areas 100 dwellings, in urban areas 220 dwellings, area ranges from under 1,000 square metres to 230,000 square metres)
Bulgaria	Municipality (well defined system of settlements/villages around a municipality centre which may be a bigger village or a small town; between 1 and 134 villages).
Canada	Census subdivision (CSD) which are generally incorporated towns and incorporated municipalities. There are 5,600 CSDs with a population range from 0 to 2.38 million (average about 5,360).
Czech Republic	Municipalities.
Denmark	Addresses.
Estonia	Local Government Unit (average population 5494 with Tallinn, 3903 without Tallinn, range 56 to 396879; average area 176 square kilometres, range 1.8 to 582 square kilometre).
Finland	Sub-regional units (NUTS 4).
France	Municipalities.
Germany	Municipalities (average population about 5,900).
Hungary	Settlements (municipality?) (average population about 3230).
Ireland	District Electoral Division (DED) (average population 1096)
Italy	n/a
Kazakhstan	Private and state-owned farms
Kyrgyzstan	Districts, villages; for agricultural statistics usually the county within a district (between 4,000 and 20,000 inhabitants)
Latvia	Parishes (NUTS 5)
Lithuania	Rural settlement (village) (average size 53 inhabitants, range from 1 to 4700); Rural municipality (average size 24.4 thousand inhabitants, range 6.6 to 83.6 thousand inhabitants; average land area 135.3 thousand hectares, range 43.6 to 220.9 thousand hectares)
Netherlands	District (average population about 1500, range 0 to 30,000; average area 3 square kilometre, range from under 1 to 130 square kilometres); for statistics for funding purposes: statistics based on territorial unit of 500m square
Norway	Basic (statistical) units (subdivision of municipalities, there are about 14,000 basic statistical units in Norway; they are a flexible basis for the work with and presentation of regional statistics)
Romania	Villages (average population about 800)
Russian Federation	n/a
Slovakia	Municipality (average population 1844, range 10 to 117227)
Sweden	Individuals/households.
Switzerland	Hectare or commune - depending on the statistics.
Turkey	Village (average population about 640)
United Kingdom	Census Output Areas (average population about 250) England Scotland Wales Electoral districts; Small Agricultural Area for agricultural statistics (about 1000 farms) Northern Ireland
United States	Census Blocks (there are 7,017,427 census blocks)

**Rural Development Statistics Questionnaire**  
**Question 11**

<b>What statistics are available for this smallest area?</b>	
Australia	Every five years, full range of variables from the Census of Population and Housing (demographics, employment, income, characteristics of dwellings). In non-census years data are only available for larger spatial units. Very few economic variables are available for small areas but agricultural commodity data are available for Statistical Local Areas every five years and for Statistical Divisions in other years.
Bulgaria	Data for age structure, inhabitants, area, population density, employment/unemployment levels, education level etc.
Canada	All Census of Population variables, however, data for census subdivisions with fewer than 200 inhabitants are typically suppressed for questions in the long questionnaire which contains the major variables on educational attainment, labour force participation, income etc.
Czech Republic	Only a limited number of indicators such as population, land area, social and cultural variables, health service and trade possibilities and for some environmental matters such as water supply network, public sewage system, waste collection.
Denmark	n/a
Estonia	The Estonian Rural Development Database contains official statistics on population, stock of urban streets and local roads at the local government unit level. It also contains non-official data on entrepreneurs, local budget revenue and expenditure, income tax, state budgetary relief fund, appropriations for investment, local government debt, dwelling completions, non-residential building completions, subsistence allowances, registered unemployed and the number and areas of fires. Non-official data on the number of schools and students, local land stock, main indicators on libraries and distance of local government unit from the capital and the county centre will be added soon.
Finland	The indicators of the Finnish Rural Indicators project which relate to population and migration, structure and function of the economy, living conditions and welfare, sustainable development.
France	Population census data, agricultural census data, municipality inventory, business survey results, services and facilities available to inhabitants of the municipalities, movements of inhabitants in municipalities lacking facilities.
Germany	Various statistics are available for municipalities, others for Kreise (districts) details can be found at <a href="http://www.brandenburg.de/statreg/regio-stat-katalog_2003.pdf">www.brandenburg.de/statreg/regio-stat-katalog_2003.pdf</a>
Hungary	There are about 400 variables collected annually for each settlement.
Ireland	Population statistics, agricultural statistics.
Italy	n/a
Kazakhstan	Individual farm records.
Kyrgyzstan	Statistics on agriculture, wages, population number, selected variables of transport statistics, finances are produced at the level of rural councils. The population census data are available by each town, urban-type settlement and village.

**Rural Development Statistics Questionnaire**  
**Question 11 (concluded)**

Latvia	Some agricultural, population and social statistics.
Lithuania	Rural settlements - number of population; Rural municipality - majority of agricultural, demographic and social statistics; Total municipality - majority of agricultural, demographic, social, industry, transport and service statistics.
Netherlands	Population data (number, gender, age class, population density, household composition, immigrants (first and second generation) from non-western countries); address density; residences (number and average value for tax); income (average per head, average per person receiving income, persons with high income (percentage), persons with low income (percentage), persons aged 15 to 64 with social security as main source of income (percentage); land area and total area (including water); land use (e.g. urban and rural area, traffic, built-up, semi-built-up recreational, agricultural, forest, nature).
Norway	Mainly population statistics. Furthermore, coordinates or basic statistical unit code identify most enterprises in the Business Register and almost all agricultural holdings are identified by coordinates.
Romania	Various statistics which can be found in the settlement/locality file.
Russian Federation	n/a
Slovakia	Statistics on a limited number of indicators are available (population, land acreage, social and cultural facilities, health service and trade possibilities etc) and for some environmental matters (water supply network, public sewage system, water waste treatment, waste collection, expenditures on environmental protection).
Sweden	Examples: number of inhabitants, number of households, migration, age distribution, educational level, unemployment, disposable income.
Switzerland	For the hectare Swiss land use statistics; for the commune/municipality the population, agricultural and enterprise statistics as well as the Swiss land use statistics.
Turkey	Social, demographic and economic characteristics of population are available for villages from the 2000 Population Census. Information about age and sex structure, literacy, fertility, labour force, occupation, economic activity and employment status is also available.
United Kingdom England Scotland Wales Northern Ireland	Census data, some survey data will be made available at this level.  Data for Electoral Districts are only available for data collected in the 2001 Population census. Most socio-economic indicators are only reliable at the Local Authority Level.
United States	Basic population and housing data. More information available at census tract level.



**Rural Development Statistics Questionnaire**  
**Question 12**

<b>Are statistics on urban settlements/urban land use available?</b>	
Australia	Yes, the full range of Census of Population and Housing variables is available for urban settlements.
Bulgaria	Yes, on urban municipalities.
Canada	Yes, data are available for urban settlements, but urban land use data is only available from specialised surveys on a case by case basis.
Czech Republic	Statistics on urban settlement and land use are available (in the statistical office and the cadastral office)
Denmark	Yes.
Estonia	Yes, on urban municipalities.
Finland	One of the area types is rural areas.
France	Yes, at the level of municipalities to follow the development of the different zones which are recalculated after every population census. At a more aggregated level through the LUCAS surveys.
Germany	Yes, updated every four years.
Hungary	Yes.
Ireland	n/a
Kazakhstan	A sample survey is held for urban settlements once a year.
Kyrgyzstan	Yes.
Latvia	Yes.
Lithuania	Yes, demographic statistics and urban land use statistics.
Netherlands	Yes, land use statistics are produced every 3 or 4 years. Delineating urban settlements on the basis of urban land use statistics is a research project for the next months. In principle, coding addresses to urban settlements is possible and is also subject to research.
Norway	Yes.
Romania	Yes.
Russian Federation	n/a
Slovakia	Yes, statistics on urban settlement and urban land use are available in the cadastral office/land registry and in the statistical office.
Sweden	n/a
Switzerland	Yes.
Turkey	No. However, a project is under way on Land Use by Using CORINE methodology. The aim of the project is to classify 44 classes of land use as applied in the CORINE project. At the end of this project some information on urban settlements will be available.
United Kingdom	Yes. England Yes. Scotland n/a Wales Yes. Northern Ireland n/a
United States	Yes, some data are available.

**Rural Development Statistics Questionnaire**  
**Question 13**

<b>Which organization(s) is/are responsible for rural development policy?</b>	
Australia	At federal level mainly the Ministry of Agriculture, Fisheries and Forestry, Australia (AFFA - responsible for agricultural policy which impacts significantly on rural areas) and the Department for Transport and Regional Services (responsible for regional development in general and this includes rural areas). Economic development in rural/regional Australia is devolved to State/Territory Governments.
Bulgaria	Ministry of Agriculture and Forestry (MAF)
Canada	The federal Rural Secretariat had the task of co-ordinating the federal approach to rural development because all government departments have policies and programs directed to rural citizens. Similarly, each provincial government has a lead agency with a mandate to co-ordinate the approach of provincial government ministries to rural development. Finally, there are regional and rural development groups within most provinces.
Czech Republic	Ministry for regional development and regional authorities.
Denmark	Ministry for the Interior and Health
Estonia	Ministry of Agriculture
Finland	Ministry of Agriculture and Forestry; Rural Policy Committee
France	Ministry of Agriculture, Food, Fisheries and Rural Affairs
Germany	The 16 federal Länder governments have the main responsibility for rural development policy. Within the Länder governments, it is the Ministries with responsibility for agriculture, regional policies, environment, protection of nature and transport that influence rural development most directly.
Hungary	Ministry of Agriculture and Rural Development.
Ireland	Department of Community, Rural and Gaeltacht Affairs.
Italy	The 20 Italian Regions
Kazakhstan	Ministry of Agriculture.
Kyrgyzstan	At present, on the instructions of the President of the Kyrgyz Republic and in pursuance of the goals of the Comprehensive Development Framework the Kyrgyz Republic has started to prepare a set of documents aimed at comprehensive rural development. Almost all ministries and agencies are preparing relevant documents in their respective fields.
Latvia	Ministry of Agriculture

**Rural Development Statistics Questionnaire**  
**Question 13 (concluded)**

Lithuania	Ministry of Agriculture is responsible for rural development policy; Ministry of Social Affairs and Labour is responsible for social aspects including rural areas; Ministry of Internal Affairs is responsible for coordinating National Regional Policy.
Netherlands	Ministry of Agriculture, Nature and Food Quality; Ministry of Housing and Spatial Planning and the Environment; Ministry of Economic Affairs, Social Affairs and Employment; Regional Governments/Provinces (at NUTS 2 level).
Norway	Ministry of Local Government and Regional Development (main responsibility and co-ordination); Ministry of Agriculture; Ministry of Fisheries; Ministry of Transport and Communication; Ministry of Trade and Industry.
Romania	Ministry of Agriculture, Food and Forestry and Ministry of Public Finance; Inter-ministry Committee for Agriculture and Rural Development.
Russian Federation	Republics, territories and regions and coordinated by the Government and the Ministry of Agriculture.
Slovakia	Ministry of Agriculture
Sweden	Ministry of Industry, Employment and Communication.
Switzerland	Federal Office for Spatial Development (ARE)
Turkey	State Planning Organization (SPO) is responsible for project planning; Ministry of Agriculture and Rural Affairs is responsible for monitoring rural projects.
United Kingdom	Department for Environment, Food and Rural Affairs and devolved Departments. England Department for Environment, Food and Rural Affairs Scotland Scottish Executive Environment and Rural Affairs Department Wales Welsh Assembly Government Agriculture and Rural Affairs Department Northern Ireland Department for Agriculture and Rural Development Northern Ireland
United States	The Rural Development (RD) Mission Area of the U.S. Department of Agriculture (USDA) operates as the main rural development programs in the United States. However, other Federal development programs critical to rural development are operated by other Federal and State agencies. USDA-RD is responsible for co-ordinating the rural aspects of these programs, to the extent this is possible. USDA also participates in and supports the National Rural Development Partnership, which includes representatives of Federal, State, and non-governmental organizations with an interest in rural development.

**Rural Development Statistics Questionnaire**  
**Question 14**

<b>What are the aims/objectives of rural development policies?</b>	
Australia	To improve the economic performance of rural and regional areas so that the potential for them to contribute to the wealth and competitiveness of Australia as a nation is maximised.
Bulgaria	See annex C.
Canada	Generally to improve the well-being of rural communities.
Czech Republic	Rural development means creating of administrative and economic conditions to support the rural area residents in their harmonised development of healthy environment, in their care about natural and cultural worth of rural landscape and in the development of environment-friendly systems of farming.
Denmark	n/a
Estonia	The main objective of the pre-accession programme for agricultural and rural development (SAPARD) is to contribute to the implementation of aquis communautaire concerning the common agricultural policy and related policies and to solve priority and problems for the sustainable adaptation of the agricultural sector and rural areas in Estonia.
Finland	The Rural Policy Committee has been structured around five permanent priorities: (1) reform of the economic activities in rural areas (2) development of know-how and human resources (3) strengthening the existing service network (4) development of the quality of the residential environment and community structure in rural areas (5) sustainable utilisation of natural resources
France	n/a
Germany	The directive Nr 1257/1999 put the main focus on the promotion of the multifunctionality of agriculture. However, increasing emphasis was also given to non-agricultural activities, aspects of sustainability and the employment.
Hungary	(1) More competitive economy (2) Better utilisation of human resources (3) Better quality environment, more balanced regional development.
Ireland	Improving the physical, economic and social conditions of people living in the open countryside, in coastal areas, towns and villages and in smaller urban centres outside of the five major urban areas.
Italy	Enhance the competitiveness and viability of rural areas (the objectives stated in the regulations of the second pillar of the Common Agricultural Policy)
Kyrgyzstan	Development of small towns and remote districts.

**Rural Development Statistics Questionnaire**  
**Question 14 (continued)**

Latvia	(1) Promotion of dynamic development of rural economy, thus ensuring the increase in the level of welfare of the rural population (2) Maintenance of the population living in rural areas and ensuring the availability of various social infrastructure services in rural territory equivalent to the level available in towns (3) Ensuring the sustainable and efficient utilisation of rural resources by maintaining and preserving a tended and biologically diverse rural environment and landscape for future generations.
Lithuania	According to the Law on Regional development of the Republic of Lithuania (adopted in 2000) the main aims are to reduce the social and economic inequality between the regions and within the regions and to stimulate the equal and stable development of all regions. The Law on Agriculture and Rural Development of the Republic of Lithuania (2002) gives legal basis for the main principles of agricultural and rural development. It seeks to create a cooperative and competitive agricultural sector oriented towards the market; to increase agricultural income and to improve the quality of life of rural people as well as to meet their individual, social, economic and cultural needs; to ensure that high quality and safe agricultural and food products reach the market; to expand exports of agricultural and food products; to guarantee as high as possible self-sufficiency of agricultural and food products; to develop a sustainable food industry in which integrated agriculture has a main share; to save the environment by using agri-environmental methods and to induce sustainable use of renewable resources.
Netherlands	Objective for rural development of the Ministry of Agriculture, Nature and Food Quality: The creation of a living and sustainable countryside, allowing space for the various functions of living, work and recreation; to enhance liveability while preserving the existing qualities of the countryside. This is realised through the four policy fields of agriculture, nature, recreation and landscape.
Norway	To maintain the central features of the population settlement pattern and to have equal living conditions throughout the country.
Romania	The strategic objective proposed by the PNADR (Plan National of agriculture and rural development?) are the following: the sustainable development of agri-food competitive sector by modernisation and improvement of processing and marketing of agricultural and fish products; increasing of the living standard in rural areas by the improvement and development of social infrastructure and by defining and establishing good agricultural practice as a need for a sustainable agriculture and rural development; the development of rural economy by establishing and modernising buildings for private agricultural and forest exploitations, the development and diversification of economic activities, in order to maintain and/or create alternative/additional incomes and new employment; the development of human resources by improving professional training of agricultural producers and forest owners and by building institutional capacity consolidation.

**Rural Development Statistics Questionnaire**  
**Question 14 (concluded)**

Russian Federation	The social components of reforms in agriculture is one of the most important objectives of rural development policy.
Slovakia	The improvement of the quality of life of the rural population, provision of sufficient number of jobs and adequate income. To preserve environment and sustainable development for rural areas.
Sweden	Good living conditions and development opportunities for rural areas and rural populations.
Switzerland	The Confederation's policy in respect of spatial and transport planning, sustainable development and the alpine conservation convention has been prepared and implemented by the Federal Office for Spatial Planning since 1 June 2000. The remit of the Federal Office includes the following: (1) Strategies for spatial and transport planning and for sustainable development (2) Principles for spatial planning, general and leisure traffic, sustainable development and the alpine conservation (3) Liaison between federal authorities on projects affecting land use and transport (4) Collaboration with the cantons in all official tasks (5) Assisting with coordination to solve problems connected with agglomeration policy and equalisation measures in rural areas (6) Information (7) Monitoring spatial planning from a legal viewpoint.
Turkey	The aims of rural development are to support and encourage rural activities to increase income of the rural population by diversification and intensification of agricultural activities; to encourage agro-industry and finally to increase capacity building in those areas.
United Kingdom	<p>England The target is to reduce the gap in productivity between the least well performing quartile of rural areas and the English median by 2006, and improve the accessibility of services for rural people. The evidence for poor economic and social conditions in some rural areas is both compelling and measurable. Our target is to lay solid foundations to achieve sustainable and long term regeneration in these areas.</p> <p>Scotland n/a</p> <p>Wales (1) To create a stronger agriculture and forestry sector (2) To improve the economic competitiveness of rural communities and areas (3) To maintain and protect the environment and rural heritage</p> <p>Northern Ireland n/a</p>
United States	Rural development policies have a variety of objectives. The general aim is to improve quality of life in rural areas. More specifically, USDA's RD programs cover infrastructure, business, and housing assistance, plus several comprehensive assistance programs, including the rural empowerment zone program.

**Rural Development Statistics Questionnaire**
**Question 15**

What are the main themes of rural development?	
Australia	Two over-arching themes are evident in Australian regional/rural policy: (1) place-based issues of economic growth and development and ultimate competitiveness, and the concomitant natural resource management and environmental impact issues (sustainable development) (2) socially focussed issues - the quality of life and well being of people who reside in rural/regional/remote Australia
Bulgaria	See annex C.
Canada	Creating a favourable environment for rural development by improving infrastructure; supporting the renewal of communities through innovation; support building community capacity potential.
Czech Republic	Development of agricultural activities and processing of the production; reestablishment of handicrafts, trade and business activities and services and tourism; support and development of employment opportunities; improvement of the municipality facilities for residents (schools, health services, etc.); maintenance of the public open space (including care of lawns and water areas)
Denmark	Economic activities and environmental aspects.
Estonia	Promotion of rural entrepreneurship; living conditions in rural areas; infrastructure and land improvements; private forestry and cooperative activities; research, training and advisory system.
Finland	According to the Rural Policy Committee outlines for rural policy are: there is a wide range of economic activities in the rural areas; the possibility to use modern information technology should be made available to everybody, the development of the environment for innovation in rural areas is one of the cornerstones in rural policy, multifunctional agriculture and pluriactive farms are special characteristics of the Finnish rural areas; the connection between culture and development is understood and recognised in all rural development work; curbing and reducing the differentiation of municipalities; in order to for the rural policy to succeed in securing the viability of the rural areas, watertight development systems are needed not only in the municipalities but also at the level of villages and sub-regional units; new means to advance the justice to the citizens and equality between the regions should be found for regional development; the urban, interaction and rural policies constitute an extensive and functioning whole for the regional development that is the best suited for the Finnish conditions
France	n/a
Germany	Improvement of the competitiveness of the agricultural sector; rural development; environment and compensatory measures
Hungary	Modernisation of agricultural production; improving human conditions of production; modernisation of food processing; improving the economic potential of rural areas; increasing employment; making rural areas more attractive; maintenance of agricultural land use in areas with unfavourable conditions and under environment protection restrictions; environment-friendly agricultural production, landscape protection and agricultural environment protection; maintaining the economic, ecological and social role of forests.
Ireland	Vibrant sustainable communities; sufficient income and employment opportunities; adequate access to education, training and social and other services and infrastructure; effective participation in structures and decision-making processes in an inclusive society; a situation where cultural identity including language, traditions and a sense of community are valued and retained; sustainable development and respect for the environment.

**Rural Development Statistics Questionnaire**  
**Question 15 (continued)**

Italy	Investment in competitiveness, rural viability, quality of life and sustainable agriculture, animal welfare, food quality.
Kyrgyzstan	(1) Development of effective local governments (2) Social development of local communities (3) Development of rural social and engineering infrastructure (4) Provision of sustainable growth in rural areas
Latvia	see annex B
Lithuania	<p>Investment in primary agricultural activity: reconstruction and equipment of farm buildings, purchase of agricultural machinery, creation of specialized farming; investment in agricultural and fish products processing and development of marketing; development and diversification of farm activities: stimulation of small businesses, processing of agricultural product produced on farm, rural tourism, non-traditional economic activities in rural areas; diversification of farm activities including processing; development of rural infrastructure for general use; development of forestry, of forestry infrastructure, afforestation of non-agricultural land; stimulation of ecological farming; professional agricultural training; support for preservation and breeding of rare fish, for breeding and seed farming, for purchase of seeds and pedigree material; support for establishment of young farmers; registration and identification of farm animals; creation and introduction of agricultural information system, development and consultation services; development of food quality control, veterinary and plant protection control</p> <p>including border control; direct payments for declared crop area of cereal, flax, rape, rich in starch potatoes and other agricultural crops, in animal production direct payments for suckling cows, ewes and animals to be slaughtered and to dairy farms; compensatory payments for farming in areas not favourable to farming.</p>
Norway	Development in population, economic development in general, business investments, establishment of new enterprises, employment/unemployment, service provisions, infrastructure.
Netherlands	Our most important policy tasks regarding the physical quality of the rural area are: putting the water system in order; realising the National Ecological Network; making agriculture more sustainable and more in tune with the wishes of society; preserving and developing a valuable living environment; specific tasks regarding specific landscapes (sandy areas, grasslands in the peatlands area and the riverlands).
Romania	The measures proposed by the SAPARD Regulations is as follows: processing and marketing of agricultural and fisheries products; improving the structures for quality veterinary and plant health controls, foodstuffs and consumer protection; development and improvement of rural infrastructure; management of water resources for agriculture; investment in agricultural holdings; setting up producer groups; agri-environmental measures; development and diversification of economic activities, multiple activities, alternative income; forestry; improving the vocational training; technical assistance.
Russian Federation	The main directions of rural development are defined in the Federal programme 'Social development in rural areas until 2010'.



**Rural Development Statistics Questionnaire**  
**Question 15 (concluded)**

Slovakia	SAPARD: Priority 1 Improvement of the agricultural production sector including food industry (measures: Investment in agricultural enterprises, improvement of processing and marketing of agricultural and fish products, setting up of producer groups) Priority 2 Sustainable rural development (measures: diversification activities in rural areas, forestry, agricultural production methods designed to protect the environment and maintain the countryside, land consolidation) Priority 3 Development of human activities (measures: development of human resources, technical assistance)
Switzerland	Decentralised settlement and conservation of the cultural heritage of the landscape; assisting with coordination to solve problems connected with agglomeration policy and equalisation of measures in rural areas.
Sweden	n/a
Turkey	Employment, rural infrastructure, human resources, settlement patterns, organisational arrangements, sustainability of rural development.
United Kingdom	n/a
England	The white paper focuses on: investing in quality services (schools, education and child care places, health care, internet access); improvements in service delivery (extended service provision by post offices, cash machines, support schemes for village shops, pubs and garages, etc.); affordable homes; better transport; rejuvenating market towns and creating a thriving modern economy; new future for traditional industries (i.e. agriculture); ensuring that everyone can enjoy the countryside (tourism); protecting what makes the countryside special (environment)
Scotland	n/a
Wales	(1) Income and employment of people found on farms (2) The environmental aspects of land use. The most significant strands of the Rural Development Plan for Wales are (1) support for farmers in disadvantaged areas (2) agri-environmental payments. Less important strands are the investment on farms for improving the holding and on-farm diversification, improving processing and marketing of agricultural products, forestry. Support for non-agricultural businesses and community development is not strong.
Northern Ireland	n/a
United States	Sustainable community development; 'bottom-up' policies in the sense that they support the community's own plans and goals for development, rather than a policy solution imposed by a higher level of government; Federal assistance targeted to places that need help the most; Federal assistance should 'leverage' assistance from other sources to get 'the most for the buck'

## **Annex A: The indicators of the Finnish Rural Indicators project.**

### POPULATION AND MIGRATION

Population density, inhabitants/km<sup>2</sup>

Distribution of population by types of area, %

Increase of population

Excess of births

Internal net-migration, total

Internal net-migration by age group

Area's population as percentage of whole Mainland Finland's population

Population by sex and age group

Men's relative proportion of population aged 25-64

Demographic dependency ratio

Summer residents' relative proportion of regular population (summer residents refers to the total number of persons in the household-dwelling units of free-time residence owners)

Free-time residences per 1000 inhabitants

### STRUCTURE AND FUNCTION OF THE ECONOMY

Number of labour force

Proportion of labour force in the population of working age

Economic dependency ratio

Unemployment rate, total

Change of unemployment rate

Workplaces by industry

Change of number of all workplaces

Ratio between number of jobs in an area and number of employed living in an area

Number of commuters (commuters are defined as persons who cross the municipal border to get from their place of residence to their place of work)

Percentage of commuters to employed living in an area

Net-commuting

Net income flow of commuting

Value added, whole country = 100

Value added per capita, whole country = 100

Number of establishments of enterprises by size category of personnel

Number of establishments of enterprises per 1000 inhabitants

Number of establishments of enterprises by industry

Number of enterprise openings and closures by industry

Number of active farms

Average area of arable land of active farms, ha

Average income subject to state taxation of farms by source of income

Commercial roundwood removals of private forests, m<sup>3</sup>

Local income tax rate in municipal taxation

Average total tax revenues of municipalities per inhabitant

### LIVING CONDITION AND WELFARE

Average income subject to state taxation per income recipient

Persons in receipt of living allowance as percentage of population

Population aged 15 years or over by level of education

### SUSTAINABLE DEVELOPMENT

Arable land under cultivation and uncultivated arable land of all farms

Organic farms as percentage of all active farms

Organically farmed area as percentage of all arable land of active farms

**Annex B: Latvia - Answer to Question 15:****Main Themes**

Economic activities not related with the agriculture, forestry or fishery (in line with the National Programme for the Development of Small and Medium Size Enterprises, National Employment Plan, the actions listed in the action strategy of the Ministry of Agriculture for the years 2003-2005, etc.):

- efficiently utilises all resources available in rural environment, thus contributing to the employment and welfare of the rural population;
- maintains and develops the rural environment as an attractive life, work and recreational place for everyone;
- ensures the flexibility of rural economy with respect to the changes in the foreign and domestic markets, and maintains a stable welfare standard of the rural population.

*Tourism* (in line with the Rural Tourism Development Programme) -

- ensures the availability of the cultural and historical heritage and landscape qualities featuring the rural environment of Latvia to everyone ;
- ensures the good quality and environmentally adequate economic infrastructure for the needs of mobility, communications and economic activity of the population (in line with the Regional Development Law);
- improves, enhances and diversifies the professional skills of the rural population (in line with the National Employment Plan and the Strategy for Investments to Welfare Sector for the Years 2003-2007 and the Concept for Crediting of Students)
- creates and supports the groups / organisations of economic cooperation promoting and supporting the economic development of rural areas, involving socially outcast groups of population in business activity thus reducing the poverty in line with the Commercial Law of the Republic of Latvia, Cooperative Societies Law, Agricultural Law, the Strategy for Investments to Welfare Sector for the Years 2003-2007).

The measures implemented and/or planned for implementation under the objective 'Maintenance of population in rural areas and ensuring the availability of various social infrastructure services in rural territory equivalent to the level available in towns' are aimed at:

- rationalising and developing the services of social infrastructure (education and training systems, healthcare and social security systems, culture, etc.) and tending and maintaining the historical and cultural values / heritage (in line with the National Investment Programme);
- creating and supporting the local initiatives for the activation of economic and social life in the territory, encouraging the cooperation among inhabitants in the implementation of social and economic activities in the territory, and minimising the outcast of various social groups in rural villages / communities;
- establishing and supporting various social matters groups / organisations for dealing with social assistance issues and initiation of economic activities in rural territories (in line with the Strategy for Investments to Welfare Sector for the Years 2003-2007);
- improving and rationalising the operations of local administrative, regional authorities by securing the exchange of information and minimising the outcast of informative character in the periphery (in line with the Regional Development Law of the Republic of Latvia and the Administrative-Territorial Reform Law).

The attainment of the objective - *Ensuring the sustainable and efficient utilisation of rural resources by maintaining and preserving a tended and biologically diverse rural environment and landscape for future generations* - is supported by adoption of certain Regulatory enactments and strategic documents - laws of the Republic of Latvia, Cabinet Regulations, and by implementation of the National Biodiversity Programme (1999). Latvia has ratified different international conventions, and is proceeding with the harmonisation of its national legislation with the Directives of the European Union in the sphere of environment, with a view to:

- ensuring, in all kinds of economic activity, an environmentally friendly management meeting the environmental requirements to cause a minimum negative impact on the ecology of rural environment (nature, air, climate, soil, water) and maintaining a tended landscape characteristic to the countryside of Latvia;
- preserving, protecting and promoting the variety of wildlife populations, species and biotopes recognised both nationally and internationally;
- protecting and maintaining the historical, cultural and landscape (reserves, nature parks, coastline, etc.) values recognised both nationally and internationally.
- protecting, enhancing and promoting the local origin breeding animals of important breeds of agricultural animals and cultivated plants, which are recognised as endangered populations both nationally and internationally.

## Annex C: Bulgaria

### Answer to question 3: Are there any subdivisions of rural areas relating to the degree of rurality?

At present, Bulgaria doesn't have legislation to regulate assistance for agricultural producers in less favorite areas, compatible with EU analogues. Legal acts, which regulate similar matters are:

**The Farmer Support Act (published SG 58/22. 05. 1998)**

The Regional Development Act (SG 26/23. 03. 1999)

The Agricultural Land Protection Act (SG 35/24. 04. 1996)

*The Farmer Support Act.*

*The provisions of this law are closest to the provisions in Council Regulation 1257/1999 on support for rural development from the EAGGF. This law regulates the state support to farmers for the production of market oriented agricultural produce. One of the purposes of state support is the development of agricultural produce in regions with deteriorating social and economical characteristics, or in regions with unfavorable environmental conditions. These regions have been defined in the Final provisions to the law as follows:*

- **"Regions with deteriorating social and economical characteristics"** are regions threatened by depopulation or regions of low population density, with restricted employment possibilities, which accelerated rate of decline threatens the economic vitality of the specific region and its population in the long run.
- **"Regions of unfavourable environmental conditions"** for agricultural development are regions where there are permanent natural limitations on agricultural development, due mainly to the poor soil qualities, with cultivated land situated on steep slopes, and short vegetation periods. Such limitations can be overcome at high costs leading to high agricultural production cost, which prohibits the generation of incomes by agricultural producers in such areas, comparable to the incomes of agricultural producers occupied in the same kind of agricultural activity in other regions of the country.

The indicators in the Ordinance identifying the "less developed rural areas" are similar to these, used to define "less favored areas" in Article 19 from Council Regulation 1257/1999. According to the Ordinance the "less developed rural areas" cover municipalities or groups of municipalities with predominantly rural way of life, specialized in farming and forestry, with low level of economic development, underdeveloped technical infrastructure and workforce qualification, suffering from acute social problems such as high unemployment rate, low-income per capita, and rapid depopulation.

The criteria for the identification of less developed rural areas are as follows:

1. Absence of a big, very big or medium-sized city or town in the area – the biggest town in the area is with population below 30 000 people;
2. Income per capita during two of the last three years should amount to less than 30 % of country's average in the preceding year;
3. Average unemployment rate in two of the last three years should amount to over 50 % of the country's average in the respective year;

4. Population density below 75% of the country average, expressed in “persons per square km.”;
5. The relative share of agricultural or forestlands should exceed by 20 % the relative country’s average;
6. The relative share of employment in farming and forestry within total number of employed should amount to over 20 % of the country’s average for the preceding year.

According to Ordinance No 14 (SG, No 35/2003) on defining of settlements in rural and mountainous areas, the mountainous areas are defined as follows:

“Mountainous areas are areas with altitude above 600 m., with depth of relief segmentation above 200 m. measured between the lowest and highest point on 1 sq.km., while the density of relief segmentation is above 2 sq.km., and the area slopes are above 12° steep. Mountainous are municipalities, in which more than a half of their settlements territories are mountainous territories”.

With the completion of the Twinning Light Project BG/2001/IB/AG/03/TLF “Strengthening the administrative capacity of the Rural Development Directorate of MAF to implement chapter V of EC Regulation 1257/1999” under the Twinning Light Facility BG 0105.02, we have the methodology for defining of less-favored areas and areas with environmental restrictions in Bulgaria. Criteria for the definition of mountainous municipalities, which give the following indicators, have been prepared:

- Average altitude above 600 m;
- Average area slope above 10° (17,6);
- Average altitude from 500 m to 600 m, combined with an average area slope above 7 ° (12,3 %).

The criteria for the definition of other less-favored areas are as follows:

- Population density less than country’s average – 71 person/sq.km;
- Employed in Agriculture more than 10 % during the last 3 years;
- Low productivity of the agricultural lands with indicators – an average category of the soil less than 6<sup>th</sup> (country’s average - 5,5);
- Principle of the homogenization: next municipalities with a category of the agricultural land at least 5<sup>th</sup>.

#### **Answer to question 14: What are the aims/objectives of rural development policies?**

The main objectives of the NARDP (National Agriculture and Rural Development Plan 2000-2006) as follows:

- Improvement of agricultural production efficiency and promotion of a competitive food-processing sector by better market and technological infrastructure and strategic investment policies ultimately aimed at reaching EU standards.
- Sustainable rural development consistent with the best environmental practices by introducing employment, diversification of economic activity and establishment of the

necessary infrastructure. This in turn will improve the living conditions and standards of rural communities, generate fairer income and open up employment opportunities.

The main objective of the National Agriculture and Rural Development Plan (NARDP), which is under preparation, is achievement of strategic objectives of the National Development Plan of Bulgaria for the period 2007-2013, namely:

*Achievement and maintenance of high economic growth through a dynamic economics of knowledge in compliance with the principles of sustainable development.*

Increase of the potential of human capital and achievement of levels of employment, incomes and social integration thus ensuring high quality of life.

On the basis of the strategic guidelines of the Community regarding the policy in the field of rural areas development for the period 2007-2013 and in order to realize the main priorities of EU regarding employment, growth and stability (Lisbon, Göteborg), to guarantee that it complements the other policies of EU (cohesion, environment; especially, coordination with the Structural funds and management of the natural resources in the rural areas) and on the basis of the social-economic conditions, prevailing in the rural areas of Bulgaria, their strengths and potential, the following objectives of the National Agriculture and Rural Development Plan for the period 2007 – 2013 were defined:

1. Development of competitive agriculture, forestry and food-processing sector through support of productions adding value to the agricultural products and by transfer of innovations in small and medium enterprises, production quality improvement and development of human potential.
2. Conservation of the natural resources and protection of the environment in the rural areas through sustainable land and forestry management in compliance with the international commitments, ecological strategies and legislation environment protection.
3. Improvement of the quality of life in rural areas through of creation of employment opportunities in non-agricultural activities, development of services and building of the necessary infrastructure considering nature conservation and protection.

All of the three objectives are intended to improve the economic and social conditions in the rural areas. They complement each other and correspond to the final objective of the National Agriculture and Rural Development Plan. They are clearly directed to improve the competitiveness of the agricultural structures and market effectiveness and to increase the standard of living in the rural areas.

#### **Answer to question 15: What are the main themes of rural development?**

The main themes are:

1. Improvement of the conditions for production while taking account of animal welfare , food safety and quality in accordance to the EU requirements; fostering innovation in the processing and adding value, as well as support to organic production.
2. Environment protection and sustainable land management.

3. Sustainable development of the rural areas through the creation of employment and improvement of the infrastructure.
4. Investments in human resources.
5. Investments in the local communities in the rural areas development.





## ANNEX 4

## EUROPEAN UNION RURAL INDICATORS

<b>Table 1: Key Rural Development Indicators suggested in the PAIS report</b>			
<b>Theme</b>	<b>Issue</b>	<b>Indicator name</b>	<b>No.</b>
Population and Migration	Demography	Population density	1
		% population aged 16 or under	2
		% population aged 65 or over	3
		Infant mortality rate	4
	Population change	Average annual population change	5
		Regional net migration balance	6
Social well-being	Service provision	Accessibility to public services	7 <sup>1</sup>
	Employment	% resident workforce working outside area	8
		Rural employment rate	9 <sup>2</sup>
	Quality of employment	% low skilled and high skilled workers	10 <sup>3</sup>
		% of part-time workers	11
		% of employees on short-term contract and long-term contracts	12
		% workforce self-employed	13
	Income	% of households in receipt of social payments	14
		Average earnings per capita	15
		Household disposable income	16
	Housing accessibility	No. of second homes	17
		Average house price deviation from national average	18
		Affordability gap <sup>4</sup>	19
Rate of transactions (house sales)		20	
% turnover in rented sector		21	
Economic Structure & Performance (competitiveness)	Enterprise	Average no. of patents	22
		No. of patent applications	23
		R&D expenditure	24
		New business formation rate	25
		GVA per capita in manufacturing	26
		% GVA in high-technology sectors	27
	Human capital	No. of university students	28
		Share of workforce with higher qualification	29

<b>Table 1: Key Rural Development Indicators suggested in the PAIS report</b>			
<b>Theme</b>	<b>Issue</b>	<b>Indicator name</b>	<b>No.</b>
	Business infrastructure	Supply of broadband services	30
Economic Structure & Performance (diversification of rural economies)	Sectoral shares	Sectoral employment shares: high and low tech manufacturing	31
		Sectoral employment shares: shift share analysis	32
		% foreign owned companies	33
		% employment in foreign owned companies by sector (manufacturing and tradable services)	34
		Enterprise size structure by employee numbers	35
		Net revenue by enterprise sector	36
	Farm households	% share of pluriactive farm households	37
		% income from non-farming activities	38
		% income from off-farm activities	39
	Tourism & recreation	No. of bedspaces per 1,000 inhabitants	40
		No. employed in rural tourism accommodation providers	41
		Accommodation occupancy rate	42
		Share of rural enterprises in total tourism turnover	43
	Economic Structure & Performance (Addressing the primary sector)	Agriculture	Farm size distribution (area/output)
Total gross output			45
Gross value added			46
Farm net value added per holding, hectare and AWU <sup>5</sup>			47
Farm business employment			48
Forestry		Employment (permanent/temporary)	49
		% area forested (on-farm/off-farm)	50
		Total gross output	50
		Total value added	51
		Value of total annual gross fellings	52
Fisheries, aquaculture & fish processing		Total gross output	53
		Total value added (% of GDP)	54
		Employment by home port	55
		Value of landings (by local registered boats)	56
		CFP Dependency Indicator <sup>6</sup>	57

**Table 2**  
**Indicators suggested in the Hay report**

**1. Demographic characteristics and changes**

ISSUES	INDICATORS	VARIABLES
Population change	Average population	Population year 1, population year 2
Population density	Population density	Population year 1, area (square km)
Age structure	Elderly and young population	% of 55+ to total population % of age group 14 and under to total population % of age group 14 and under to age group 55+
Migration	Age specific migration	Interregional migration
Natural population change	Birth/death ratio and % change	Total deaths year 1, total deaths year 2 Total births year 1, total births year 2

**2. Employment and human capital**

ISSUES	INDICATORS	VARIABLES
Human capital	Education levels	% Population aged 25-59 having attained only secondary education or less
Change in employment	Employment growth	Total employment by age and sex year 1 Total employment by age and sex year 2
Employment and economic activity	Employment rate Unemployment level Activity rate	Employed persons aged 15-64/working age population Unemployment rate – total population Active population working population
Opportunities for women	Employment rate by gender	Employed females aged 15-64/working age population – national level Employed males aged 15-64/working age population – national Employed females aged 15-64/working age population – regional Employed males aged 15-64/working age population – regional

**3. Welfare, income and quality of life**

ISSUE	INDICATOR	VARIABLES
Economic prosperity	Average income and growth/decline	GDP per capita year 1, GDP per capita year 1, GDP per capita year 2
Quality of work opportunities	Proportion of employment part-time or seasonal	% of part-time employment as % of total employment % of seasonal employed as % of total employment
Access to services	Proximity to hospital, school, postal services, bank	
Deprivation	Jobless households Dependence upon state aid	Share of households in which no member is in employment Poverty rate before social transfers (original income) Poverty rate after social transfers (total income) % Income from social transfers
Health	Life expectancy at birth	Life expectancy of females at birth Life expectancy of males at birth

**4. Agricultural adjustment and structural change**

ISSUES	INDICATORS	VARIABLES
Changing agricultural employment	Agricultural labour force and change	Total agricultural labour force in AWU year 1 Total agricultural labour force in AWU year 2
	Changing intensity	Average number of AWU by holding/total holdings Average number of AWU by 100ha/total holdings Number of AWU/Total UAA Yr 1, year 2
	Family labour	Total family labour force in AWU/ Total labour force in AWU
Pluriactivity	Holders with other gainful activities	Holder's being a natural person: work time>0to<25% - persons Holder's being a natural person: work time>25to<50% - persons Holder's being a natural person: work time>50to<75% - persons - as a % of - Holder's being a natural person: sex = female (persons) Holder's being a natural person: sex = male (persons)
Ageing of farmers	Proportion of older holders and change	Holder's being a natural person 55-64 years AWU year 1, year 2 Holder's being a natural person 65+ AWU, year 1, year 2/ Holder's being a natural person AWU
Agricultural viability	Income from agriculture and % change	Average standard gross margin per hectare
Structure of agricultural holdings	Farm size (business size)	Total UAA/ Total agricultural area
	Farm Size (Area)	Total standard gross margin (ESU)/ Total number of holdings
	Intensity	% of agricultural area as irrigated area Standard gross margin per annual work unit SGM per UAA
	Importance of livestock	ESUs from livestock

**5. Multifunctionality of agriculture**

ISSUES	INDICATORS	VARIABLES
Uptake of agricultural policy	Farms with agri-environment schemes	% of holdings in area with agri-environmental scheme
	Farms in designated areas	% holdings in area covered by designated area status
Importance of forestry	% of farms with forests	Number of holdings with woodland/ Total number of holdings
Farms with pluriactivity	Holders with other gainful activities	Holder's being a natural person: work time>0to<25% - persons Holder's being a natural person: work time>25to<50% - persons Holder's being a natural person: work time>50to<75% - persons - as % of - Holder's being a natural person: sex = female - persons Holder's being a natural person: sex = male - persons
Uptake of organic farming	% of organic farms In region	Total number of holdings/ Number of organic farms

**6. Rural economic diversification**

ISSUES	INDICATORS	VARIABLES
Dominance of primary sector activities?	Relative importance of primary sector	Total employment in primary sector/total employment
Development of new activities	Employment in manufacturing etc	Total employment in secondary sector/total employment
	Employment in business etc	Total employment in tertiary sector/total employment
	Value added locally	% of labour force in food processing
	Accommodation capacity and change	Number of tourist beds in region
		% Employed in restaurants and hotels Year 1, % Employed in restaurants and hotels Year 2
Dependence on public sector employment	Strength of the public sector	% Employed in public sector

**7. Innovation and enterprise**

ISSUES	INDICATORS	VARIABLES
Innovation and research	Patent applications	Total international patent applications per inhabitant
	Research and development expenditure	% GDP spent on research and development – government sector % GDP spent on research and development – business sector % GDP spent on research and development – higher education sector
New enterprise	Investment and creation of new business	Gross fixed capital formation by the private sector as % of GDP Gross business start-ups
Importance of telecommunications	ICT Expenditure	Information & communications technology expenditure/GDP
	Citizens with Internet access at home	% of citizens with Internet access Total population

**8. Policy<sup>7</sup>**

ISSUES	INDICATORS	VARIABLES
Region eligible for EU aid	Presence of objective 1 or 2 in region	
Importance of rural development regulation	Uptake of rural development regulation	EU spending on agricultural support - the 'Rural development regulation' National spending on agricultural support Number of approved RDR approved applications in region Amount of money awarded to region for uptake of the RDR Amount allocated to Article 33 (Non-agricultural measures)
Region eligible for LEADER funding	Use of LEADER II and LEADER +	EU spending on LEADER II and LEADER+ National spending on LEADER II and LEADER+ Presence of 1 or more LEADER local action groups within territory
Mountain areas & less favoured areas	Proportion of area covered by mountain and less favoured area status	% of area covered by less favoured area status  % of area classified as mountainous
Farmers leaving agriculture prematurely	Farmer retirement scheme	% uptake of farmer retirement scheme
Dependency of Farm-Payments	CAP support	CAP support/total SGM

**9. Rural environment and landscapes**

ISSUES	INDICATORS	VARIABLES
Type and scale of farming	Average farm size (area) Main farm type	Total standard gross margin (ESU)/ Total number of holdings (See farm type classification in farm structure survey)
Levels of exploitation of natural resources	% of farm with forest	Number of holdings with woodland/ Total number of holdings
Landscape and biodiversity	Environmental designations	% of area covered by special protection status % of area covered by EC Birds directive % of area covered by EC Natural habitats directive

**10. Infrastructure and peripherality**

ISSUES	INDICATORS	VARIABLES
Peripherality	Peripherality index Road quality Rail transport Existence of airport in region Distance to airport from centre point of region	Presence of motorway link to nearest large town Presence of rail link to nearest large town Presence of international airport in region Presence of airport serving national destinations in region

<sup>7</sup> The main policy areas would include: Structural and Cohesion Policy, The Rural Development Regulation, LEADER +, and Mountain and Less-Favoured Areas.

**Table 3**  
**Specification of Eurostat indicators (as laid down in an ESTAT discussion document)**

**1. Demographic data**

Level of geographic detail: NUTS 5

ISSUE	INDICATOR	VARIABLE
Population change	<b>Average total population</b> (this is for a first screening, if there is a change, one should go deeper)	Population year 1 Population year 2
Migration	<b>Age specific migration</b> (active out and in movement has reasons Who migrates and why?)	Immigration Outmigration Across NUTS 5 borders
Natural population change	<b>Birth/death ratio and % change</b> (reflects also the age structure and social well-being)	Total births year 1 Total births year 2 Total deaths year 1 Total deaths year 2
Population density change	<b>Population density year 1</b> <b>Population density year 2</b> (pressure on open space?)	Population year Area in km <sup>2</sup>
Age structure changes	<b>Age structure year 1</b> <b>Age structure year 2</b> (report e.g. ageing of the population. The ratio 5 – 14 and 55 -64 builds the indicator “demographic labour pressure”)	Minimum 5 – 14 years and 55 – 64 and 65 and older
		Number of households

**2. Employment and economic data**

Level of geographic detail:

ISSUE	INDICATOR	VARIABLE
Forms of employment	<b>Percentage of self-employed persons</b> (this rate is higher where small and medium-sized businesses exist; generally the rate is also higher in rural areas due to farmers etc.)	Number of self-employed persons
Importance of different sectors	<b>Employment in primary, secondary and tertiary sector</b> (is the area shaped by agricultural activities; is there a change to the tertiary sector visible already)	Average total employment in primary/secondary/tertiary sector (By NACE subsection at the work place)
Importance of public sector	<b>Percentage of employment in public sector</b>	Employment in public sector Total employment
Human capital	<b>Educational level of employees / self-employed people</b> (Is the workforce well educated?)	Number of people with higher education (According to the International Standard Classification of Education , ISCED)

<b>Change in employment</b>	<b>Employment growth</b>	Total employment year 1 Total employment year 2 (By age and gender)
<b>Relative changes of employment</b>	<b>Employment rate year 1</b> <b>Employment rate year 2</b> (incl. part-time employment and seasonal employment)	Employed persons aged 15-64 (By gender)
<b>Relative changes of unemployment</b>	<b>Unemployment rate year 1;</b> <b>Unemployment rate year 2</b>	Unemployed persons aged 15-64 (By age and gender)
<b>Potentially available human resources</b>	<b>Activity rate year 1</b> <b>Activity rate year 2</b>	Active population / working population
<b>Importance of commuting</b>	<b>Change in commuter figures</b> (might give information on the function of the region)	Number of commuters (Number of people crossing NUTS5 borders regularly)
<b>Dynamic of the local economy</b>	<b>Business formation rate</b> (is the area attractive for start-ups? Are incentives given for new businesses?)	Total number of businesses Number of new businesses
<b>Importance of tourism</b>	<b>Importance of tourism</b> (covers both agri-tourism and conventional tourism)	Number of tourist beds Number of over night stays

### 3. Infrastructure data

Level of geographic detail:

<b>ISSUE</b>	<b>INDICATOR</b>	<b>VARIABLE</b>
<b>Accessibility of the region</b>	<b>Road network, railway, airport</b> (accessibility of the region; in certain regions of Europe the railway network becomes smaller, e.g. certain connections are closed)	<b>Distance in km to next motorway or similar road</b> <b>Distance to next railway station</b> <b>distance to next airport</b> (From gravity points? Or time to be spend to reach sth.)
<b>Development of transport infrastructure</b>	<b>Investments in transport network last 5 years</b>	<b>EU and national subsidies spent in millions of Euros</b>
<b>Access to services</b>	<b>Proximity to services (banks, post, shops, restaurants, schools, doctors, hospitals, pharmacy etc.,)</b> (attractiveness of the region)	<b>Presence and distance to them</b>
<b>Availability of telecommunications</b>	<b>Internet access, mobile phone cover</b> (these are basic parameters for new businesses)	<b>Number of households /businesses with internet access</b> <b>number of registered mobile phones</b>
<b>Potential for new business formation</b>	<b>Availability of land for industry and other businesses</b>	<b>Area of industrial estates in ha</b>



**4. Welfare data**

Level of geographic detail:

ISSUE	INDICATOR	VARIABLE
Deprivation	Dependence upon social aid (difficult variable because the threshold to receive social aid varies between member states)	Number of people receiving social aid
Quality of life?	Percentage of people living in self-owned property	Total number of people living in own property Total number of people
	Poverty rates	

**5. Agriculture and structural change**

Level of geographic detail:

ISSUE	INDICATOR	VARIABLE
	Structure of Agricultural Holdings	
	Total number of holdings	
	Average age of owners of holdings	
	Farm Size (area),	Average AWU per holding
	Intensity	% of area irrigated % of area under ecological farming LSUs per ha
	Main farm type	According to the classification of the FSS
	Importance of family labour	
	Percentage of part-time farmers	
Pluriactivity		Holders with other gainful activities
Importance of Forestry	Percentage of farms with forests	Total number of farms Number of farms with forest

**Table 4**  
**EU questionnaire on which common indicators for monitoring rural development programming are constructed**

**Common cross-cutting evaluation questions**  
(related to the individual chapters of the Council regulation)

1. To what extent has the assistance influenced the population level, composition and distribution in rural areas?
2. To what extent has the assistance been conducive to securing employment?
3. To what extent has the assistance been conducive to provide an appropriate level of income to the rural community?
4. To what extent has the market situation been improved through the assistance especially from redeploying production, improving quality and competitiveness?
5. To what extent have environmental concerns been integrated into rural development programming so as to improve the environmental aspects of activities in rural areas, including agricultural practices?
6. To what extent have programming and implementation helped in producing the anticipated impacts?

**Common chapter-specific evaluation questions**  
(related to the individual chapters I to IX of the Council regulation)

**Chapter I - Investments in agricultural holdings**

- I.1.- To what extent have the investments improved the income of those farmers receiving them?
- I.2.- To what extent have the investments contributed to the improvement of efficiency on holdings?
- I.3.- To what extent have the investments contributed to the reorientation of farming through the redeployment of production and the diversification of activities?
- I.4.- To what extent have the investments improved the quality of farm products?
- I.5.- To what extent has the diversification of on-farm activities originating from the investments helped maintain employment?
- I.6.- How significant are the impacts of the investments on the rural environment?
- I.7.- To what extent have the investments improved the quality of the production process, notably by improving working conditions, animal welfare and hygiene?

**Chapter II - Setting up of young farmers**

- II.1.- To what extent has the “setting up” aid covered the costs arising from setting up?
- II.2.- To what extent has the “setting up” aid contributed to the earlier transfer of holdings?
- II.3.- To what extent has the aid influenced the number of young farmers of either sex to set up?
- II.4.- To what extent has the setting up of young farmers actually achieved new employment or safeguarded existing employment?
- II.5.- How significant was the synergy with the aid for early retirement in achieving earlier transfer? (cf., question IV.4)

### **Chapter III - Training**

- III.1.- To what extent has vocational training of individuals of either sex assisted in achieving efficient and competitive structures?
- III.2.- To what extent has the improved level of training contributed to increased employment and the enhancement of job quality?
- III.3.- To what extent has vocational training promoted environmentally sustainable management and practice in agriculture and forestry?
- III.4.- To what extent has vocational training enabled farmers to conform to standards of hygiene and animal health in the field?
- III.5.- To what extent has vocational training been conducive to the uptake of rural development activities?

### **Chapter IV - Early retirement**

- IV.1.- To what extent has the aid for early retirement contributed to the earlier transfer of farms and the rejuvenation of the agricultural population?
- IV.2.- Was the income offered to individuals with a holding to transfer and to farm workers appropriate in terms of offering them a fair standard of living and making them abandon farming?
- IV.3.- To what extent has the reassignment of released land to non-agricultural activities contributed to the quality of the environment and the preservation of the landscape?
- IV.4.- To what extent has the aid for early retirement in conjunction with the aid for setting up of young farmers contributed to the improvement of agricultural structures? (cf. question II.5)

### **Chapter V - Less favoured areas and areas with environmental restrictions**

- V.1.- To what extent have the allowances contributed to farm income?
- V.2.- To what extent have the allowances helped in ensuring a continuation of the agricultural land use?
- V.3.- To what extent have the allowances in less favoured areas helped in maintaining the farming population?
- V.4.- To what extent have the allowances contributed to the protection of the environment?
- V.5.- To what extent has differentiation of the allowances with respect to specific natural handicaps and environmental problems and according to the regional, sectoral and structural situation, improved the effectiveness and efficiency of the assistance?

### **Chapter VI - Agri-environment**

- VI.1.- Biodiversity (habitats and damage to them from farm pollution)
- VI.2.- Rural landscapes (biophysical features, appearance of habitats and agricultural ecosystem, cultural & historical features)
- VI.3.- Natural resources (soil, water).

### **Chapter VII - Improving the processing and marketing of agricultural products**

- VII.1.- To what extent have the investments helped increase the competitiveness and value added of agricultural products?
- VII.2.- To what extent have the producers of basic agricultural products benefited from the investments?
- VII.3.- To what extent have the investments improved human health conditions thanks to the higher quality of the products and the improvement in working conditions?
- VII.4.- How significant are the impacts of the investments on the environment and natural resources?

### **Chapter VIII - Forestry**

- VIII.1.- To what extent would forest resources be improved or safeguarded in the short, medium or long term due to the aid?
- VIII.2.- To what extent has the economic function of forests been improved in a sustainable manner?
- VIII.3.- To what extent have the forestry measures contributed to other socio-economic or social functions?

VIII.4.- To what extent has biological diversity been preserved or improved?

VIII.5.- To what extent have the protective functions of forests been better ensured?

VIII.6.- How significant is the anticipated stocking of carbon dioxide due to reforestation and forest improvement on a time scale relevant to international protocols?

#### **Chapter IX - Promoting the adaptation and development of rural areas**

IX.1.- Have the actions, specifically those undertaken to improve the living conditions in rural areas, contributed to the maintenance of the population in rural areas?

IX.2.- To what extent has diversification of activities originating from the assistance contributed to the maintenance or creation of employment in rural areas?

IX.3.- To what extent have the actions contributed to the maintenance or improvement of the income of the rural population?

IX.4.- How significant has the assistance been to the improvement of the rural environment?

#### **References**

European Commission (EC) (2002). “Guidelines for the mid term evaluation of rural development programmes 2000-2006, supported from the European Agricultural Guidance and Guarantee Fund”. Working Document VI/43512/02 FINAL: 26.2.2002: DOC. STAR VI/43517/02.  
<http://europa.eu.int/comm/agriculture/rur/eval/>

## ANNEX 5

### WORLD BANK INDICATORS

(i) *List of indicators*

**I Basic Data**

Annual GDP growth (%)  
 Rural population (millions)  
 Rural population (% of total)  
 Population density, rural (people/sq km arable land)  
 Rural life expectancy (years)  
 GNI per capita (rural), Atlas method (\$)

**II Enabling Environment for Rural Development**

*Empirical evidence indicates that sound overall macroeconomic policy and a supportive institutional framework, good functioning markets and appropriate infrastructural facilities serve as an enabling environment for economic growth and poverty reduction.*

**II.1 Policies and Institutions**

Agricultural subsidies (% of total)  
 Agricultural tariffs (%)  
 Fiscal decentralization (% of budget transferred to local governments)  
 Food price index (1995 = 100)  
 Independence of local courts  
 Land Gini coefficient  
 Local government elections  
 Number of farmers' organizations

**II.2 Markets**

Agricultural raw materials exports (as a % of total merchandise exports)  
 Food imports (as % of total merchandise imports)  
 Food exports (as % of total merchandise exports)  
 Employment in agriculture, female (% of female labour force)  
 Agriculture household net disposable income as a percentage of all household disposable net income  
 Net disposable income per agriculture household member compared to that of members of all households  
 Gross rural domestic savings  
 Percentage of rural households with access to formal credit services in financial institutions  
 Number of market outlets for agricultural input - produce  
 Rural labour force, employed

### **II.3 Infrastructure**

Rural roads (% of rural population with access to motorable roads all year round)  
Rural population with access to electricity (%)  
Rural population with access to communications (%): radios, telephone, newspapers and computers

### **III Broad Based Economic growth for Rural Poverty Reduction**

*Agricultural development plays a central role in poverty reduction in low-income countries. Increased agricultural productivity, driven by technological investment, has a powerful dynamic effect, which benefits the poor. However, without complimentary growth in non-farm rural income and employment, rural poverty reduction initiatives will not be sustained.*

#### **III.1 Poverty**

Rural per capita income  
Rural poverty gap ratio  
Proportion of rural population below \$1 (PPP) a day  
Rural poverty headcount ratio (percentage of rural population below poverty line)  
Rural per capita dietary energy supply (calories per day)  
Rural infants with low birth weight (% of births)  
Rural child malnutrition (% of children under five who are stunted)

#### **III.2 Agriculture**

Agricultural gross value added (% of total GDP)  
Agricultural gross value added (average annual growth, 1980-2000)  
Agricultural productivity (gross value added per worker, 1995\$)  
Number of farm households (narrow definition)  
Number of farm households (broad definition)  
Food production index (1989-91 = 100) and index per capita  
Irrigated land (% of cropland)  
Cropland/ arable land (%)  
Cereal yield (kilograms per hectare)  
Cereal yield (average annual growth)

#### **III.3 Non-farm**

Rural gross fixed capital formation (% of GDP)  
Rural labour force, employed in non-farm activities  
Share of rural women employed in the non-agricultural sector (% of total employment in sector)  
Growth of non-agricultural GDP  
Number of rural businesses  
Number of non-agricultural jobs created (annual)

**IV Natural Resource Management and Biodiversity**

*Sustainable management of natural resources (soil, water, pasture and fisheries) provide the foundation for pro-poor rural development. Agriculture is a heavy consumer of natural resources and innovative approaches have to be found to meet agricultural productivity goods while conserving the natural resource base.*

Forest area (% of total land area)  
 Rural protected areas (% of total land area)  
 Annual deforestation (% change, 1990-2000)  
 Ratio of rural protected area to maintain biological diversity to rural surface area  
 Annual freshwater withdrawal (% of total resources)  
 Agricultural withdrawal (% of total freshwater withdrawal)  
 Emission of organic water pollutants (kg. per day)

**V Social Well-Being (Education and Health)**

*Improving social well-being, and managing and mitigating risks and the vulnerability of rural people is one of the main goals of rural development. To achieve this goal, emphasis should be put on supporting programs that foster human capital (health and education) and social inclusion.*

**V.1 Education**

Rural illiteracy rate (%)  
 Rural literacy rate (% ages 15-24)  
 Ratio of rural literate females to males (% ages 15-24)  
 Net rural enrolment ratio in primary education (% of relevant age group)  
 Ratio of rural girls to boys in primary, secondary, and tertiary educational (%)  
 Proportion of rural pupils who reach grade 5 (% of grade 1 students)  
 Rural primary completion rate (% of relevant age group)

**V.2 Health**

Prevalence of HIV/AIDS (% of rural adults, age 15-49)  
 HIV prevalence among pregnant rural women (ages 15 to 24)  
 Condom use rate of the contraceptive prevalence rate in rural areas  
 Percentage of rural population 15- to 24-years olds with comprehensive correct knowledge of HIV/AIDS  
 Prevalence of child malnutrition (% of rural children under five)  
 Per capita caloric consumption  
 Immunization rate, measles (% of rural children under 12 months)  
 Rural maternal mortality ratio (per 1,000 live births)  
 Rural infant mortality rate (per 1,000 live births)  
 Proportion of rural births attended by skilled health staff (% of total)  
 Rural population with access to improved sanitation (%)  
 Rural population with access to an improved water source (%)  
 Rural population with access to health services  
 Per capita caloric consumption  
 Under-five mortality rate (rural, per 1,000)  
 Immunization rate, measles (% of rural children under 12 months)  
 Prevalence of child malnutrition (% of rural children under five)

**(ii) Definitions of the indicators****I Basic Data****GDP growth (annual %)**

Annual percentage growth rate of GDP at market prices, based on constant local currency. Aggregates are based on constant 1995 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.

**Rural population (millions)**

*Rural population* is calculated as the difference between the total population and the urban population.

**Rural population (% of total)**

*Rural population* is calculated as the difference between the total population and the urban population.

**Population density, rural (people per sq km arable land)**

*Rural population* (see definition above) *density* is the rural population divided by the arable land area. Arable land includes land defined by the FAO as land under temporary crops (double-cropped areas are counted once), temporary meadows for mowing or for pasture, land under market or kitchen gardens, and land temporarily fallow. Land abandoned as a result of shifting cultivation is excluded.

**Rural life expectancy at birth, total (years)**

*Rural life expectancy at birth* indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life in rural areas.

**GNI per capita, rural (Atlas method, current US\$)**

*GNI per capita, rural* (formerly GNP per capita) is the gross national income, converted to U.S. dollars using the World Bank Atlas method (see the Statistical Methods in the 2001 World Development Indicators), divided by the midyear population. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad.

**II Enabling Environment****II.1 Policies and Institutions****Agricultural subsidies (% of total)**

*Agricultural subsidies* as a percentage of total value of agriculture output.

**Agricultural tariffs (%)**

Tariffs on imports of agriculture raw materials and food, percentage of total import value.  
Tariffs on agriculture raw materials and food in major export markets.

**Fiscal decentralization**

*Fiscal decentralization* is the share of total fiscal resources under control of sub-national governments or regional political bodies.



**Food price index (1995 = 100)**

*Food price index* is a subindex of the consumer price index.

**Independence of local courts**

*Independence of local courts* measures the strength of impartiality of the legal system and observance of the law in sub national government. Besides qualitative appreciation, this indicator can also include information about number of appeals and percentage share of appeals won by plaintiffs.

**Land Gini coefficient**

*Land Gini coefficient* measures the extent that land distribution in rural areas, among individuals or households, deviates from a perfectly equal distribution.

**Local government elections**

*Local government elections* measure the existence of a system of free and fair elections that are held on a regular basis at the sub-national level. Besides qualitative appreciation, this indicator can also included information about number of political parties or independents taking part in the election, frequency of election, participation rates, number of appeals to election results etc.

**Number of farmers' organizations**

*Number of farmers' organizations* as a share of the number of active community groups, including civil society's networks existing at regional and national levels. Alternatively, percentage share of farmers belonging to farmers' organizations.

**II.2 Markets****Agricultural raw materials exports (% of merchandise exports)**

*Agricultural raw materials* comprise SITC rev.3, section 2 (crude materials except fuels) excluding divisions 22 (oil seeds and oleaginous fruits), 27 (crude fertilizers and minerals excluding coal, petroleum, and precious stones), and 28 (metalliferous ores and scrap).

**Food imports (% of merchandise imports)**

*Food imports* (% of merchandise imports comprising the commodities in SITC rev.3, sections 0 (food and live animals), 1 (beverages and tobacco), and 4 (animal and vegetable oils and fats) and SITC division 22 (oil seeds and oleaginous fruits).

**Food exports (% of merchandise exports)**

*Food exports* (% of merchandise exports comprising the commodities in SITC rev. 3, sections 0 (food and live animals), 1 (beverages and tobacco), and 4 (animal and vegetable oils and fats) and SITC division 22 (oil seeds and oleaginous fruits).

**Employment in agriculture, female (% of female labour force)**

Percentage share of total female labour force engaged in agriculture as employed or through self-employed households. Women as a percentage of all persons engaged in agriculture. Agriculture includes hunting, forestry, and fishing corresponding to major division 1 (ISIC revision 2) or tabulation categories A and B (ISIC revision 3).

**Agriculture household net disposable income as a percentage of all household net disposable income**

For definition of *agriculture household net disposable income* see Chapter X of the present Handbook. For definition of households, see Chapter IX. Besides comparison with all households, agriculture household net

disposal income could be compared with that of other socio-economic groups, e.g. other self-employed households.

**Net disposable income per agriculture household member compared to that of members of all households**

Household net disposable income is divided by size of household using equivalence scales as suggested in Chapter IX of the present Handbook.

**Gross rural domestic savings per capita, percentage of total gross domestic savings per capita**

*Gross rural domestic savings per capita* is the total savings in the rural area divided by the size of the rural population.

**Percentage of rural households with access to formal credit services in financial institutions**

Number of farmers and percentage of all farmers with credits in financial institutions.

**Number of markets outlets for agricultural input-produce**

*Number of markets outlets for agricultural input-produce* is the total number of all physical outlets where buyers and sellers meet regularly to buy or sell agricultural inputs and products.

**Rural labour force, employed**

*Rural labour force, employed* refers to agricultural employment. This is the number of workers in agriculture, excluding self-employed persons or persons working in cooperatives as partner.

## II.3 Infrastructure

**Rural population with access to roads (%)**

*Rural population with access to roads (%)* is the percentage of rural population with access to roads that can be used by motor vehicles all year round.

**Rural population with access to electricity (%)**

*Rural population with access to electricity (%)* is the percentage of rural population with access to public electricity in a given year.

**Rural population with access to communications (%)**

- Access to radios is the estimated number of radio receivers in use for broadcasts to the general public in a rural area.
- Access to telephone is the access to telephone main lines which are the telephone lines connecting a customer's equipment to the public switched telephone network.
- Access to newspapers is the access to daily newspapers.
- Access to computers is the access to personal computers or public facility computers for personal use in a rural area.

### III Broad Based Economic Growth for Rural Poverty Reduction

#### III.1 Poverty

##### **Rural per capita income**

*Rural per capita income* is the annual GNP per capita based on constant local currency. Aggregates are based on constant 1995 U.S. dollars.

##### **Rural poverty gap ratio (incidence x depth of poverty)**

*Rural poverty gap ratio* is the mean distance separating the rural population from the rural poverty line (with the non-poor being given a distance of zero), expressed as a percentage of the poverty line.

##### **Proportion of population below \$1 (PPP) per day**

*Proportion of rural population below \$1 per day* is the percentage of the rural population living on less than \$1.08 a day at 1993 international prices. The \$1 a day poverty line is compared to consumption or income per person and includes consumption from own production and income in kind. Because this poverty line has fixed purchasing power across countries or areas, the \$1 a day poverty line is often called an “absolute poverty line”.

##### **Rural poverty headcount ratio (% of rural population below the rural poverty line)**

The *rural poverty headcount ratio (% of rural population below the rural poverty line)* is the proportion of the rural population whose incomes are below the official threshold (or thresholds) set by the national government. Rural poverty lines are usually set for households of various compositions to allow for different family sizes. Where there are no official poverty lines, they may be defined as the level of income required to have only sufficient food or food plus other necessities for survival.

##### **Rural per capita dietary energy supply (calories per day)**

*Rural per capita dietary energy supply (calories per day)* refers to the total amount of the commodity available for human consumption during the year.

##### **Rural infants with low birth weight (% of births)**

*Rural infants with low birth weight (% of births)* is the percentage of newborn babies weighing less than 2,500 grams, with the measurement taken within the first hours of life, before significant postnatal weight loss has occurred.

##### **Rural child malnutrition (percentage of children under five who are stunted)**

*Rural child malnutrition (percentage of children under five who are stunted)* is the percentage of children under five whose height for age are more than two standard deviations below the median for the international reference population ages 0 to 59 months. For children up to two years of age, height is measured by recumbent length. For older children, height is measured by stature while standing. The reference population adopted by the WHO in 1983, is based on children from the United States, who are assumed to be well nourished.

## III.2 Agriculture

### **Agriculture, gross value added (% of total GDP)**

*Agriculture* corresponds to ISIC rev. 3 divisions 1-5 and includes forestry, hunting, and fishing, as well as cultivation of crops and livestock production. *Gross value added* is the net output of a sector after adding up all outputs and subtracting intermediate inputs. It is calculated without making deductions for depreciation of fabricated assets or depletion and degradation of natural resources. For definition, see System of National Accounts 1993.

### **Agriculture, gross value added (average annual % growth, 1980-2000)**

Average annual growth rate for agricultural gross value added (for definition, see above) based on constant local currency. Aggregates are based on constant 1995 U.S. dollars.

### **Agricultural productivity (Agriculture gross value added per worker)**

*Agricultural productivity* is measured as agriculture gross value added per worker or hours worked.

### **Number of farm households (narrow definition)**

*Number of farm households (narrow definition)* is the number of households whose main source of livelihood is directly derived from farming activities, including crop cultivation and animal husbandry.

### **Number of farm households (broad definition)**

*Number of farm households (broad definition)* is the number of households whose livelihood is to some extent derived from farming activities, including crop cultivation and animal husbandry.

### **Food production index (1989-1991 = 100) and index per capita**

*Food production index* covers food crops that are considered edible and that contain nutrients. Coffee and tea are excluded because, although edible, they have no nutritive value.

### **Irrigated land (% of cropland)**

*Irrigated land (% of cropland)* refers to areas purposely provided with water, including land irrigated by controlled flooding. Cropland refers to arable land and land used for permanent crops.

### **Cropland/arable land (%)**

Permanent *cropland* is land cultivated with crops that occupy the land for long periods and need not be replanted after each harvest, such as cocoa, coffee, and rubber. This category includes land under flowering shrubs, fruit trees, nut trees, and vines, but excludes land under trees grown for wood or timber. *Arable land* (in hectares) includes land defined by the FAO as land under temporary crops (double-cropped areas are counted once), temporary meadows for mowing or for pasture, land under market or kitchen gardens, and land temporarily fallow. Land abandoned as a result of shifting cultivation is excluded.

### **Cereal yield (kilograms per hectare)**

*Cereal yield*, measured as kilograms per hectare of harvested land, includes wheat, rice, maize, barley, oats, rye, millet, sorghum, buckwheat, and mixed grains. Production data on cereals relate to crops harvested for dry grain only. Cereal crops harvested for hay or harvested green for food, feed, or silage and those used for grazing are excluded.

### **Cereal yield (average annual growth)**

*Cereal yield*, measured as average annual growth is the rate of change of total cereal harvested in a given year.

### III.3 Non-Farm

#### **Rural gross fixed capital formation (% of GDP)**

*Gross fixed capital formation* in rural and non-rural areas is related to GDP.

#### **Rural labour force, employed in non-farm activities.**

*Rural labour force, employed in non-farm activities* is the share of rural labour force employed in non-agricultural activities.

#### **Share of rural women in wage employment in the non-agricultural sector**

*Share of women in wage employment in the non-agricultural sector* is the share of female workers in the non-agricultural sector expressed as a percentage of total employment in the sector.

The *non-agricultural sector* includes industry and services. Following ISIC rev.3, *industry* includes mining and quarrying (including oil production), manufacturing, construction, electricity, gas, and water. *Services* includes wholesale and retail trade; restaurants and hotels; transport, storage and communications; financing, insurance, real estate and business services; and community, social and personal services.

Employment refers to people above a certain age who worked, or held a job, during a reference period. Employment data include both full-time and part-time workers whose remuneration is determined on the basis of hours worked or number of items produced and is independent of profits or expectation of profits.

#### **Growth in non-agricultural GDP**

*Growth in non-agricultural GDP* is the annual growth rate for non-agricultural value added based on constant local currency.

#### **Number of rural businesses**

*Number of rural businesses* is the total number of all newly created businesses in the rural area in a given year. This includes all legal forms of businesses, from sole proprietorships to corporations.

#### **Number of non-agricultural jobs created (annual)**

*Number of non-agricultural jobs created (annual)* is the annual number of newly created jobs in the non-agricultural sector in rural areas.

## IV Natural Resource Management and Biodiversity

#### **Forest area (% of land total area)**

*Forest area (% of total land area)* is the total surface area of the country covered by forest less the area covered by inland waters, like major rivers and lakes. As defined in the Food and Agricultural Organization's (FAO) *Global Forest Resources Assessment 2000*, forest includes both natural forests and forest plantations. It refers to land with an existing or expected tree canopy of more than 10 per cent and an area of more than 0.5 hectare where the trees should be able to reach a minimum height of 5 meters. Forests are identified both by the presence of trees and the absence of other land uses. Land from which forest has been cleared but that will be reforested in the foreseeable future is included. Excluded are stands of trees established primarily for agricultural production, such as fruit tree plantations.

#### **Rural protected areas (% of total land area)**

*Rural protected areas (% of total land area)* are totally or partially protected areas of at least 1,000 hectares that are designated as national parks, natural monuments, nature reserves or wildlife sanctuaries, protected landscapes and seascapes, or scientific reserves with limited public access in rural areas. The data do not include sites protected under local or provincial law. Total land area is used to calculate the percentage of total area protected.

**Annual deforestation change (% change, 1990-2000)**

*Average annual deforestation* refers to the permanent conversion of natural forest area to other uses, including shifting cultivation, permanent agriculture, ranching, settlements, and infrastructure development. Deforested areas do not include areas logged but intended for regeneration or areas degraded by fuelwood gathering, acid precipitation, or forest fires. Negative numbers indicate an increase in forest area.

**Ratio of rural protected area to maintain biological diversity to rural surface area**

*Ratio of rural protected area to maintain biological diversity to rural surface area* is defined as nationally protected area as a percentage of total surface area of a country. The generally accepted IUCN–World Conservation Union definition of a protected area is an area of land or sea dedicated to the protection and maintenance of biological diversity and of natural and associated cultural resources and managed through legal or other effective means.

**Annual freshwater withdrawals (% of total resources)**

Freshwater use refers to total freshwater withdrawals for domestic, industrial, and agricultural use, not counting evaporation losses from storage basins. Total resources refer to total renewable resources, which include internal flows of rivers and groundwater from rainfall in the country, and net river flows from other countries. Withdrawals also include water from desalination plants in countries where they are a significant source. Withdrawals can exceed 100% of total renewable resources where extraction from non-renewable aquifers or desalination plants is considerable or where there is significant water reuse.

**Agricultural withdrawals (% of total freshwater withdrawals)**

*Agricultural withdrawals (% of total freshwater withdrawals)* refer to the total freshwater withdrawals for irrigation and livestock production.

**Emission of organic water pollutant (kg. per day)**

*Emissions of organic water pollutants* are measured in terms of by biochemical oxygen demand, which refers to the amount of oxygen that bacteria in water will consume in breaking down waste. This is a standard water-treatment test for the presence of organic pollutants.

**V Social Well-Being****V.1 Education****Rural illiteracy rate**

*Rural illiteracy rate* is the proportion of rural population age 15 and above, who cannot, with understanding, read and write a short, simple statement on their everyday life.

**Rural Literacy rate of 15–24 year-olds**

*Rural Literacy rate of 15–24 year-olds*, or the youth literacy rate, is the percentage of the rural population ages 15–24 years old who can both read and write with understanding a short simple statement on everyday life. The definition of literacy sometimes extends to basic arithmetic and other life skills.

**Ratio of literate rural females to males 15–24 year olds (% ages 15-24)**

The *ratio of literate rural female to males 15–24 years old* (Literacy Gender Parity Index) is the ratio of the rural female literacy rate to the rural male literacy rate for the age group 15–24.

**Net rural enrolment ratio in primary education (% of relevant age group)**

*Net rural primary enrolment ratio* is the ratio of the number of rural children of official school age (as defined by the national education system) who are enrolled in primary school to the total rural population of

children of official school age. *Primary education* provides children with basic reading, writing, and mathematics skills along with an elementary understanding of such subjects as history, geography, natural science, social science, art, and music

#### **Ratio of rural girls to boys in primary, secondary and tertiary education**

*Ratio of rural girls to boys in primary, secondary and tertiary education* is the ratio of the number of female students enrolled at primary, secondary and tertiary levels in public and private schools to the number of male students in rural areas.

#### **Proportion of rural pupils starting grade 1 who reach grade 5 (% of grade 1 students)**

The *proportion of rural pupils starting grade 1 who reach grade 5*, known as the survival rate to grade 5, is the percentage of a cohort of pupils enrolled in grade 1 of the primary level of education in a given school year who are expected to reach grade 5 in rural areas.

#### **Rural Primary completion rate**

*Rural Primary completion rate* is the ratio of the total number of rural students successfully completing (or graduating from) the last year of primary school in a given year to the total number of children of official graduation age in the population.

### **V.2 Health**

#### **Prevalence of HIV/AIDS (% of rural adults, age 15-49)**

Percentage of rural population aged 15-49 whose blood test samples test positive for HIV.

#### **HIV prevalence among 15–24 year old pregnant rural women**

*HIV prevalence among 15–24 year old pregnant women* is the percentage of pregnant rural women ages 15-24 whose blood samples test positive for HIV.

#### **Condom use rate of the contraceptive prevalence rate in rural areas**

*Condom use rate of the contraceptive prevalence rate in rural areas* is the number of women ages 15–49 in marital or consensual unions who are practicing contraception by using condoms as a proportion of all of women of the same age group in consensual unions who are practicing, or whose sexual partners are practicing, any form of contraception.

#### **Percentage of rural population aged 15–24 with comprehensive correct knowledge of HIV/AIDS**

*Percentage of rural population ages 15–24 with comprehensive correct knowledge of HIV/AIDS* is the share of women and men ages 15–24 who correctly identify the two major ways of preventing the sexual transmission of HIV (using condoms and limiting sex to one faithful, uninfected partner), who reject the two most common local misconceptions about HIV transmission and who know that a healthy-looking person can transmit HIV.

#### **Immunization rate, (rural children under 12 months)**

The *Immunization rate, (rural children under 12 months)* is the percentage of rural children under 12 months of age who have received at least one dose of measles vaccine.

#### **Rural Maternal mortality ratio (per 1,000 live births)**

The *rural maternal mortality ratio* is the number of rural women who die from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the

pregnancy, per 1,000 live births. The 10<sup>th</sup> revision of the International Classification of Diseases makes provision for including late maternal deaths occurring between six weeks and one year after childbirth.

**Rural infant mortality rate**

The *rural infant mortality rate* is the probability (expressed as a rate per 1,000 live births) of a child born in a specified year dying before reaching the age of one if subject to current age-specific mortality rates in rural areas.

**Proportion of rural births attended by skilled health staff (% of total)**

The *proportion of rural births attended by skilled health staff (% of total)* is the percentage of deliveries attended by personnel trained to give the necessary supervision, care and advice to women during pregnancy, labour and the post-partum period; to conduct deliveries on their own; and to care for newborns in rural areas.

*Skilled health personnel* include only those who are properly trained and who have appropriate equipment and drugs. Traditional birth attendants, even if they have received a short training course, are not to be included.

**Rural population with access to improved sanitation (%)**

*Rural population with access to improved sanitation (%)* refers to the percentage of the rural population with access to facilities that hygienically separate human excreta from human, animal and insect contact. Facilities such as sewers or septic tanks, pour-flush latrines and simple pit or ventilated improved pit latrines are assumed to be adequate, provided that they are not public, according to the World Health Organization (WHO) and United Nations Children's Fund's (UNICEF) *Global Water Supply and Sanitation Assessment 2000 Report*. To be effective, facilities must be correctly constructed and properly maintained.

**Rural population with access to an improved water source (%)**

*Rural population with access to an improved water source (%)* is the percentage of the rural population who use any of the following types of water supply for drinking: piped water, public tap, borehole or pump, protected well, protected spring or rainwater. Improved water sources do not include vendor provided waters, bottled water, tanker trucks or unprotected wells and springs.

**Rural population with access to health services**

*Rural population with access to health services* is the proportion of the rural population that can expect treatment from common diseases and injuries, including essential drugs on the national list, within one hour's walk or travel.

**Per capita caloric consumption**

*Per capita caloric consumption* refers to the total amount of the commodity available for human consumption during the year.

**Under-five mortality rate (rural, per 1,000)**

*Under-five mortality rate (rural, per 1,000)* is the probability (expressed as a rate per 1,000 live births) of a child born in a specified year dying before reaching the age of five if subject to current age-specific mortality rates in rural areas.

**Immunization rate, measles (% of rural children under 12 months)**

The *proportion of 1-year-old children immunised against measles* is the percentage of children under one year of age who have received at least one dose of measles vaccine.



**Prevalence of child malnutrition (% of rural children under five)**

*Prevalence of child malnutrition (% of rural children under five)* refers to the percentage of rural children who are stunted. This refers to children under five in the rural area whose height for age is less than minus two standard deviations from the median from the international reference population aged 0-59 months. For children up to two years of age, height is measured by recumbent length. For older children, height is measured by stature while standing. The reference population, adopted by WHO in 1983, is based on children from the United States, who are assumed to be well nourished.



## ANNEX 6

### THE IMPORTANCE OF NATURAL AMENITIES

Historically, rural development has depended on the types of industries present in rural regions and their productivity. Increases and declines in rural well-being were outcomes of changes in agriculture, lumbering and mining, and in some cases manufacturing. It is becoming clear, however, that particularly in more industrialized countries, this jobs approach provides only a limited understanding of rural well-being and the importance of rural regions. The growth of rural tourism, second homes, and retirement populations in many rural areas is a strong indication that rural areas hold an appeal that cannot be understood in traditional economic terms. How is one to understand, for instance, why urban residents sink so much time and money into fixing up old farm houses (or building new houses, for that matter) several hours away from their permanent residences? Why does having an additional home to maintain mean relaxation from the stresses of urban life and not simply more stress?

At least part of the answer is provided by environmental psychology, a field that has developed over the past twenty years and that remains largely unknown to economists and regional scientists. The landmark study on the psychological benefits of nature was done by Ulrich (1984), who examined records of patients with a particular type of gall bladder operation in a hospital for a period of 20 years, comparing the records of those who had views of trees from their windows with those whose rooms faced a blank hospital wall. Patients with a view of trees tended to stay in the hospital just as long, but they used substantially less painkillers and made fewer complaints to the nurses' station. In addition to replicating this study, subsequent research has examined health station visits by prisoners, finding that those with cells facing a rural scene outside the prison made fewer visits than those with cells facing inside the prison.

Wells and Evans (2003) have done one of the more interesting non-institutional studies relating nature to stress reduction. For a sample of over 300 children aged eight to ten in rural New York state, Wells and Evans ascertained home exposure to nature with a simple additive scale based on whether there were live plants in the living room, whether there were views of nature from (a) the kitchen and (b) the living room, and whether the home had a grass yard. Using a stressful life events scale, they found that children with high exposure to nature had far fewer symptoms of psychological distress than children with little exposure to nature, taking differences in household income into account (see Figure 1).

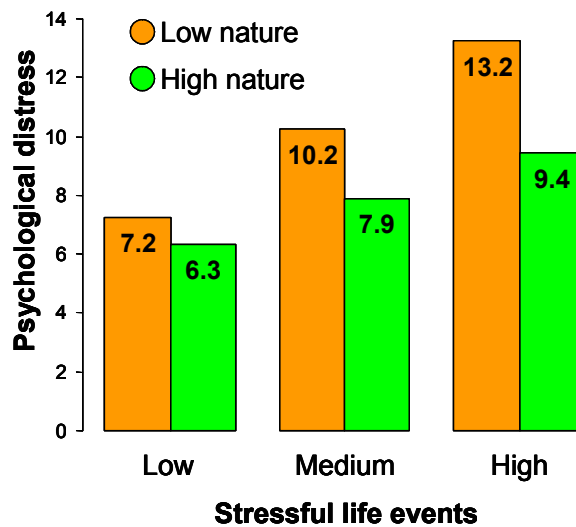
In short, there is now ample evidence that simple exposure to natural scenery reduces the effects of stressful events on psychological well-being. Other research has shown benefits from exercise or recreation, activities often associated with being in a natural setting. In this context, having a second house in a rural area begins to seem rational. It does not explain why, however, contact with nature should be relaxing.

All countryside is not equally appealing. Years of research on landscape aesthetics, often done in conjunction with public land use planning, have shown that people most prefer landscapes that contain open, traversable vistas, clumps of trees, a water source (pond, lake, or stream), and a hint of mystery - a suggestion that there is more around the corner. These preferred scenes often show up in landscape paintings. For instance, the picture below (see Figure 2) is in a lobby of the private building in which the U.S. Department of Agriculture's Economic Research Service is currently located. The picture has all the ingredients of a preferred landscape: clumps of trees, a water source, an open vista, and, with a green pathway extending around the corner, a hint of mystery.

Figure 1

**Results**

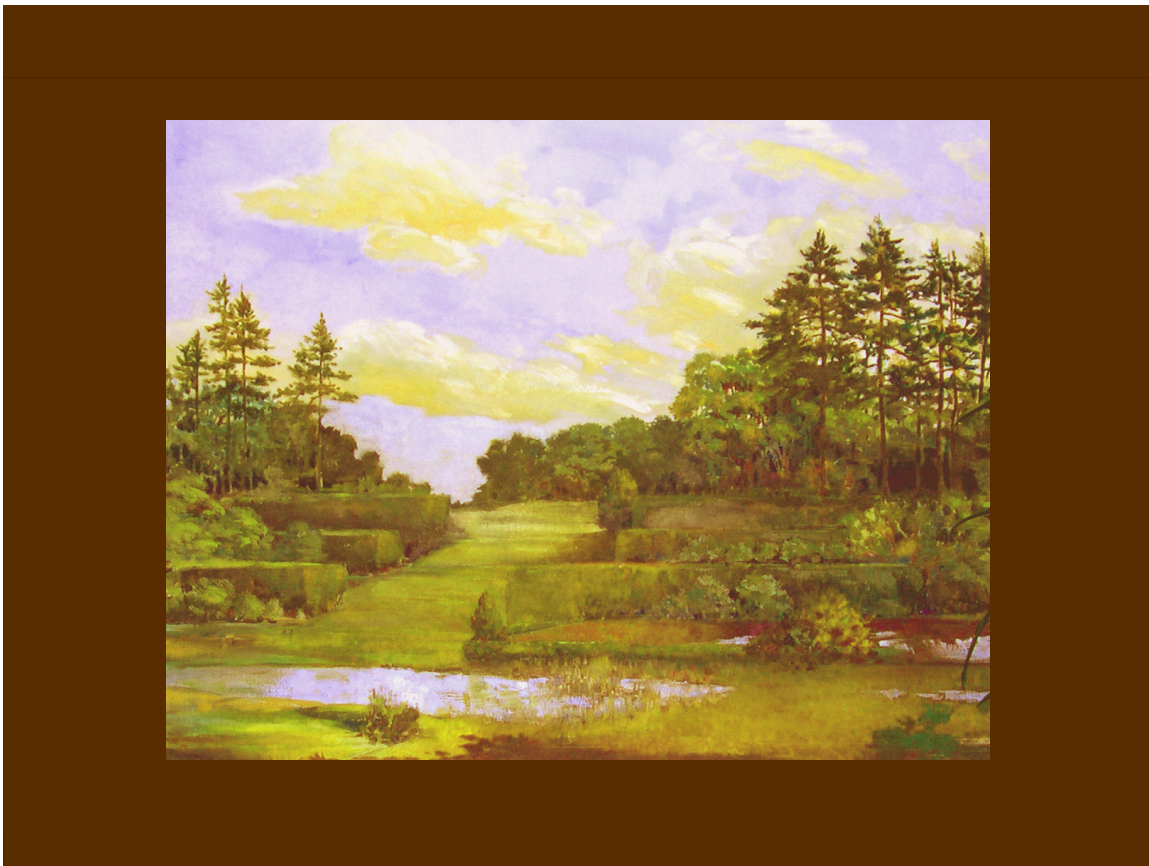
**Nature moderates effects of stressful life events on psychological distress**



Source: N. M. Wells and G. W. Evans, "Nearby Nature: A Buffer of Life Stress Among Rural Children," *Environment and Behavior* 35:3:311-330, 2003.

These preferences are generally consistent across cultures, but they do not necessarily extend to people who have particular occupational or recreational uses that they make of the land. For instance, a recent study comparing three groups of people (rural Chinese, design students in China and U.S. design students) found that the preferences of the Chinese design students (even those that were from rural China) were more like the U.S. design students than the rural Chinese (many of whom were presumably farmers). In general, farmers tend to like agricultural scenes more than others. By the same token, foresters like trees to be evenly spaced and of equal size, while the general public prefers forests that look more natural.

The influence of occupation was also evident in a Netherlands study contrasting local farmers, local residents, and visitors (often bicyclists). Farmers clearly thought agrarian land was more beautiful than "half-open swamp" but local non-farm residents were more like visitors in their preference for the latter.

**Figure 2**

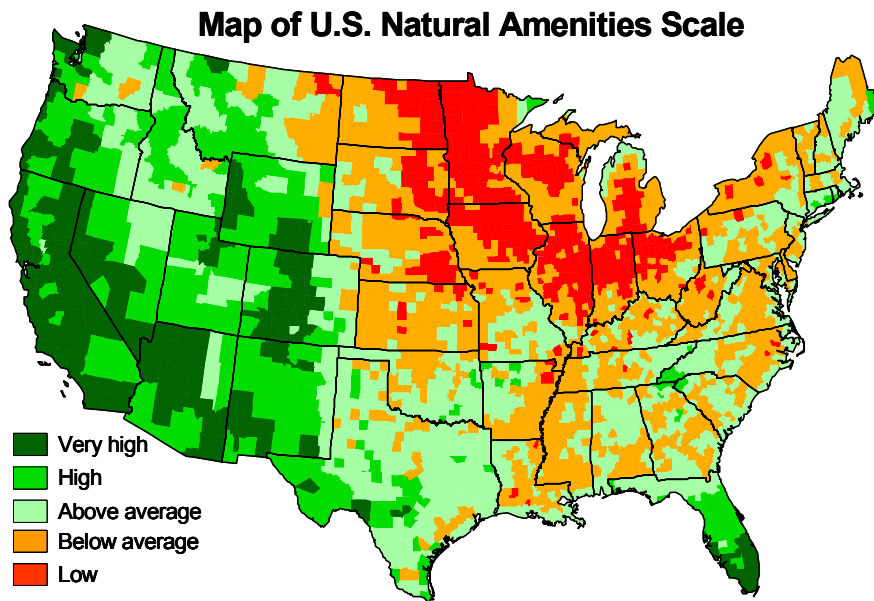
Landscape preference studies have typically been done by asking people to rate pictures of various outdoor scenes. A problem with this approach is that these scenes have varied along several dimensions, so that it is difficult to isolate the important differences. In a recent study of alpine farmland scenery, Hunziker and Kienast digitally altered a single picture, adding and subtracting trees from the scene. This study clearly showed respondents preferences for more forest than there was in the original picture, but not total forestation. Completely cleared land was the least preferred.

The consistency across cultures has suggested to some that there is a vestigial genetic component to landscape preferences. Preferred landscapes, it is argued, are the landscapes that were most suitable to early humans. Other animal species tend to have inherently preferred habitats, why not us? While many are skeptical, no convincing alternative explanations have been forthcoming.

Some attempts have been made to measure natural or landscape evaluation in rural areas. Sjerp de Vries and his colleagues at the Landscape Center in Wageningen in the Netherlands have developed GLAM (GIS-based Landscape Appreciation Model) to reflect landscape attractiveness at a very local level. Their measures include: naturalness (largely forest), historical distinctiveness, urbanization (negative) and skyline disturbance (negative). Two other measures, topographical relief and noise level (negative), proved to be redundant in predicting local evaluations of landscape.

McGranahan developed a scale of “natural amenities” for U.S. counties, based on climate measures (warm, sunny winters; cool, low-humidity summers), water area (ponds, lakes, ocean), and topographic variation (relief). Each measure received equal weight in the overall scale, based on results of regression analyses. Areas scoring high on the scale include the Rocky Mountains and the West Coast (see Figure 3). The lowest scoring areas tend to be the heavily agricultural lands across the centre of the country. Areas with flat, unbroken land, wet winters, and hot humid summers are very good for grains, but tend to inhibit amenity-based development. Counties in the low amenity areas have tended to lose population every decade since 1950. In contrast, high amenity counties have, on average, doubled their populations since 1970.

Figure 3

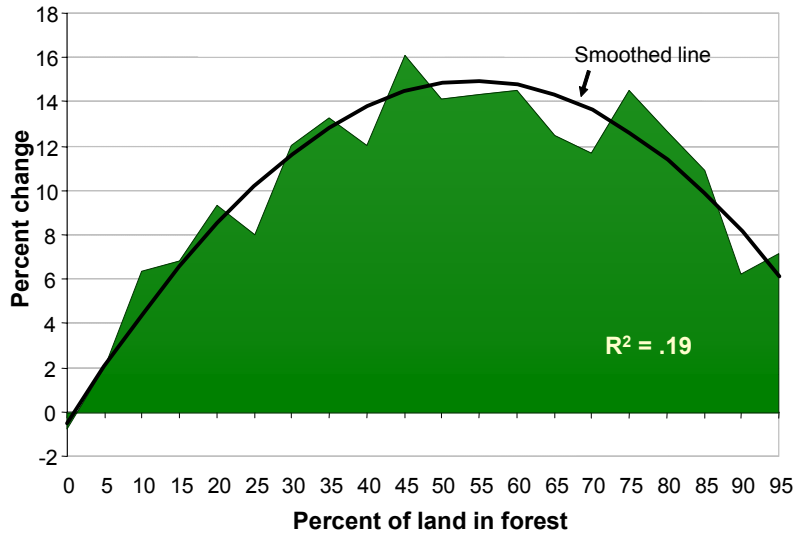


D. A. McGranahan, "Natural Amenities Drive Rural Population Change,"  
AER-781, Economic Research Service, USDA, Washington, DC, 1999

Although forest is correlated with topographical variation, this natural amenities scale does not include land use and there is no measure of forest cover. However, a graph of average county population growth, 1990-2000 by percentage of county land in forest (see Figure 4) closely resembles the inverted “U” of the Hunziker and Keinast study showing preferences in a Swiss agricultural setting (see Figure 5). Partially forested counties had the most rapid growth, while counties with no forest lost population and counties almost completely forested had relatively little growth.

Figure 4

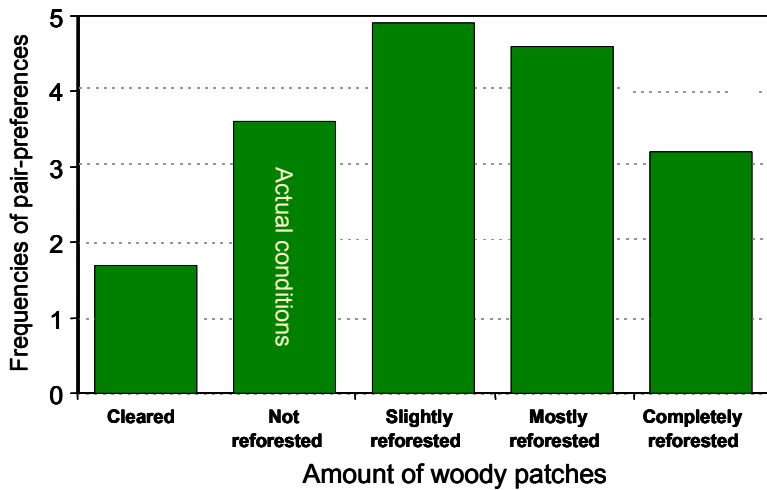
**Land in forest and average rural county population change, 1990-2000**



D. McGranahan and P. Sullivan, "Farm Programs, Natural Amenities, and Rural Development," *Amber Waves* 3:1:28-35

Figure 5

**Preferences in an Swiss agricultural setting**



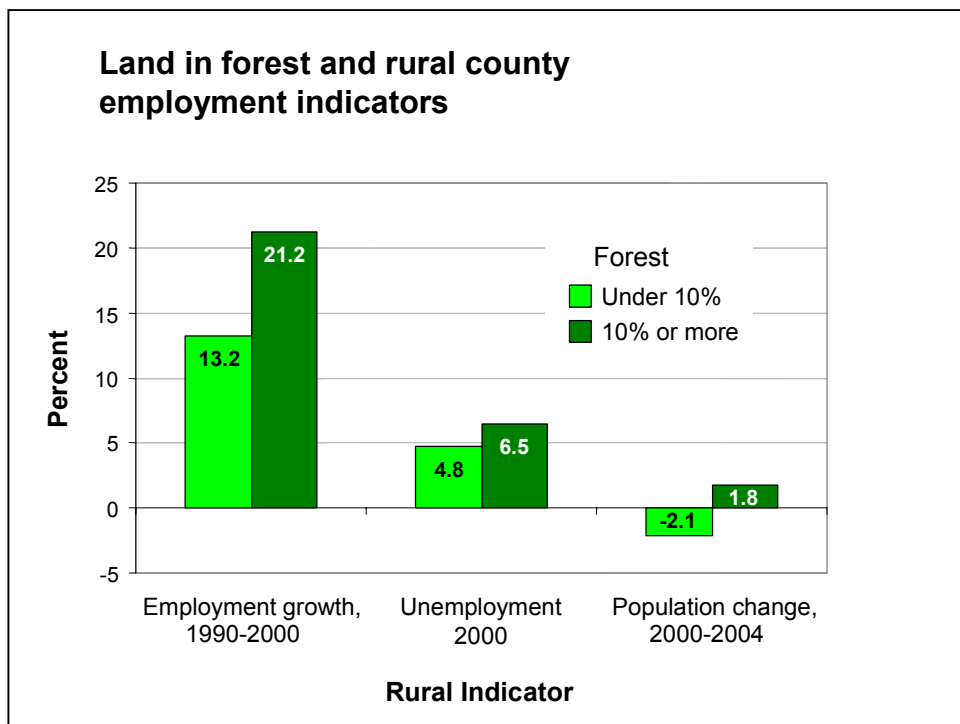
M. Hunziker and F. Kienast, "Potential Impacts of Changing Agricultural Activities on Scenic Beauty: A Prototypical Technique for Automated Rapid Assessment," *Landscape Ecology* 14: 161-176, 1999

The quality of life gains from rural residence, particularly those with attractive landscapes, can generate apparent anomalies in socio-economic statistics. People may be willing to sacrifice economic well-being for residence in an area with beautiful landscapes and a comfortable climate. Economists suggest that the willingness to trade income for quality of life rises with earnings, suggesting that quality of life is likely to play an increasing role in residential location as countries become wealthier, increasing the likelihood of anomalies.

Figure 6 presents an example of an anomaly, using the proportion of land in forest as a simple measure of landscape appeal. Counties with at least 10% forest had much greater employment growth than those without forest from 1990 to 2000. Yet, unemployment rates in 2000 were considerably higher in the more forested counties. Further, even with this higher unemployment, the forested counties gained population in the 2000-2004 period, while those with little or no forest lost population. There are other possible explanations for this pattern. For instance, areas with little forest tend to have more agriculture and in these areas economic hardship may result less in unemployment than in underemployment. Whatever the explanation, the unemployment rate - a key socioeconomic indicator - is of questionable value in many rural contexts.

Amenities, whether natural or man-made, may be reflected in both lower wages (as individuals willingly forgo income for amenities) and higher housing costs (as individuals willingly pay a premium to reside in a high-amenity area). Thus, although household incomes are much the same in low-forest counties as in higher-forest counties, the median value of housing is over 35% higher in the latter counties.

Figure 6





The importance of natural amenities in explaining differences in rural development across rural areas is undoubtedly greater in the U.S. and other countries with wide variations in rural climate and topography than in countries where rural landscapes are more uniform. However, as incomes rise and the importance of national borders diminishes, the future of rural livelihood and well-being may, for certain rural communities, depend increasingly on the scenic appeal of rural landscapes. This will be particularly important for rural areas that are close to urban centres.

The focus here has been on natural landscapes and climate. In many areas, there is a heritage factor as well. For instance, in the China-U.S. comparative study mentioned above, the greatest agreement between the Chinese urban design students and the rural respondents was in the high appeal of a scene evoking traditional rural culture.



## ANNEX 7

### A MORE FORMAL APPROACH TO “FULL INCOME”

From both a behavioral and a policy point of view, it is relevant to take into formal consideration that decisions made by the household unit are conditional on the information sets related to both the production and consumption side of the household economy. What is often neglected is that the production side of the household economy consists of both farming and domestic activities. Both the extended and full income definitions explicitly recognize the contribution of home activities to the formation of household resources. Farm and “home-produced” incomes are traditionally pooled within the family. In order to derive individual incomes, these sources of income are assigned to each worker in proportion to the amount of contributed labour. Estimates can then be made of the relative contribution of the husband and wife to the paid and unpaid sources of household income and to undertake a gender-specific analysis of the income distributions.

The implementation of the Beckerian notion of full income requires evaluating the time endowment, which is employed in both paid and unpaid working activities and leisure, and measuring non-labour incomes derived from returns on non-farm assets and/or pensions. The accomplishment of this task requires the derivation of total farm household and extended incomes along with the evaluation of leisure time. Both farming and home production are family enterprises, the difference being that farm output is marketable, while domestic output, often composed of public components, is sold within the household at an implicit price.

Each member ( $i$ ) of a farm household of size  $N$  can allocate its time endowment among the following activities  $T = (f_i + o_i + h_i + l_i) + I_i = d_i + I_i$ , where  $f_i$  is hours of time devoted to farm labour activities;  $o_i$  is time devoted to off-farm labour either in agriculture or in other sectors (paid at the market wage) and commuting time;  $h_i$  is time devoted to unpaid home production activities;  $l_i$  is time devoted to pure leisure, such as recreational activities;  $I_i$  is time devoted to rest and personal care. The amount of disposable time is  $d_i = f_i + o_i + h_i + l_i$ .

Traditionally, economists define “unpaid work” as the time spent at home doing housework and producing goods and services for the family. Similarly, for farm households, farm labour supplied by household members is not directly paid to farm operators. Farmers remunerate themselves at an implicit wage. The time contributed by farm operators is often referred to as unpaid farm labour (Huffman 1996). Both farm labour ( $f_i$ ) and domestic work ( $h_i$ ) are defined as unpaid work. The availability of individual time-use data permits separating the time devoted to domestic work from the time allocated to pure leisure.

As summarized in the following formula, total farm household income ( $y^m$ ) is the sum of farm, off-farm, non-labour income and social transfers of the  $N$  household members:

$$\begin{aligned} y^m &= \sum_{i=1}^N w_i^f f_i + \sum_{i=1}^N w_i^o o_i + \sum_{i=1}^N y_i^{nl} + y^{tr} = \\ &= \sum_{i=1}^N y_i^f + \sum_{i=1}^N y_i^o + \sum_{i=1}^N y_i^{nl} + y^{tr} = \\ &= y^f + y^o + y^{nl} + y^{tr}, \end{aligned}$$

where  $w_i^f$  is the gender specific implicit farm wage;  $w_i^o$  is the exogenous market wage of individual  $i$ ;  $y_i^{nl}$  is individual non-labour income derived from non-farm assets and property income;  $y^{tr}$  is social transfers and other money incomes, such as universal benefits and social insurance (non-means-tested) transfers (child allowances, social security or retirement, disability insurance, unemployment compensation, workers’ injuries compensation), cash mean-tested welfare payments, inter-household transfers (e.g., inheritances, alimony and child support paid and received, or other forms of intermittent income in cash or in kind, such as child care by relatives).

Disposable farm household income is obtained by deducting from total farm household income, including the value of self-consumption ( $y^a$ ) “sold” by the farm to the household, the value of farm, personal taxes, and social contributions  $t$ ,  $y^n = (y^m + y^a) - t$ . Gross or net extended income ( $y^e$ ) is derived by adding the valuation of domestic activities ( $y^h$ ) to either  $y^m$  or  $y^n$  respectively. Similarly, for pre- or post-tax full income,  $y^F = y^e + y^l$ , which requires the valuation of leisure ( $y^l$ ).

The way in which the various forms of income relate to each other is shown in table 1.

**Table 1**  
**Definition of Total Farm Household Extended and Full Income and Evaluation Methods**

	Income	Evaluation methods
<b>1. Total farm household income -</b>		
	$y^m = y^f + y^o + y^{nl} + y^{tr}$	
a. Net (pre-tax) operating income	<b>Farm income - <math>y^f</math></b>	<ul style="list-style-type: none"> <li>• Accounting</li> <li>• Market - opportunity cost</li> <li>• Shadow wage</li> </ul>
i. From farm self-employment		
ii. From imputed rent for owner-occupied dwellings		
b. Money wage or salary income as <i>dependent</i> employees from off-farm	<b>Off-farm income - <math>y^o</math></b>	<ul style="list-style-type: none"> <li>• Market wage</li> </ul>
i. Agricultural and/or		
ii. Non-agricultural activities and/or		
c. Net income from non-farm self-employment as <i>independent operators</i>		<ul style="list-style-type: none"> <li>• As for 1.a</li> </ul>
Other cash market income (e.g., interests, dividends, rents, private pensions)	<b>Non-labour income - <math>y^{nl}</math></b>	
d. Social transfers or other money income	<b>Social transfers - <math>y^{tr}</math></b>	
<b>2. In Kind earnings (<i>Home own-consumption</i>)</b>		
	$y^a$	<ul style="list-style-type: none"> <li>• Market price</li> </ul>
<b>3. Taxes and contributions - <math>t</math></b>		
	<b>Disposable farm</b>	
a. Property income paid - (Farm business tax)	<b>Household income - <math>y^n</math></b>	
b. Net direct and payroll taxes - (Off-farm personal tax)	$y^n = (y^m + y^a) - t$	
c. Social contributions		
<b>4. Value of domestic production - <math>y^h</math></b> (e.g., food preparation, household chores, child care, etc.)		
	<b>Extended income - <math>y^e</math></b>	<ul style="list-style-type: none"> <li>• Market or opportunity cost approach</li> <li>• Shadow wage</li> </ul>
	$y^e = y^n + y^h$	
<b>5. Value of leisure - <math>y^l</math></b> (e.g., recreational activities, entertainment)		
	<b>Full income - <math>y^F</math></b>	<ul style="list-style-type: none"> <li>• Market or shadow wage</li> </ul>
	$y^F = y^e + y^l$	



## ANNEX 8

### HOUSEHOLD BALANCE SHEET

<b>Assets</b>		<b>Liabilities and Total Net Worth (Owner's Equity)</b>	
<i>Current Assets (Short-term liquidity):</i>		<i>Current Liabilities (Short-term):</i>	
Cash / currency			Accounts Payable
Financial assets / securities (stocks and bonds)			
The current value of all savings forms			
Money or goods lent to other institutions or people outside household			Sales Taxes Payable
Value of the crop output retained as seed (stock of grain)			Payroll Taxes Payable
Accounts Receivable			Accrued Wages Payable
			Dividends Payable
<b>Total Current Assets</b>			
<i>Inventories (liquid assets)</i>			
Raw materials			Unearned Revenues
Intermediate goods / products			Short-Term Notes Payable
(Value of) Unsold (finished) goods / products			Short-Term Bank / Credit Union / Cooperative / Money Lender Loan Payable
<b>Total Inventory</b>			<b>Total Current Liabilities</b>
<b>Non-Farm Assets</b>		<b>Long-Term Liabilities</b>	
<i>Fixed (long-term) Assets:</i>			
Land			Long-Term Notes Payable
Buildings (business or commercial property)			Mortgage Payable
Tools			Long-term Bank Loan
Machinery			Amount owed for leases
Furniture			Bond repayment
Vehicles			Deferred taxes
Equipment			
Depreciation (Machinery)			Other obligations not requiring interest payments
<i>Durable (consumer) goods</i>			
Housing			
Other Durable Consumer Goods Items			
<b>Assets</b>		<b>Total Net Worth (Owner's Equity)</b>	
<b>Farm (Agricultural) Assets</b>		Owner's Equity (Net Worth)	
<i>Agricultural land</i>		Capital / Common Stock	
Owned		Net Profit (Surplus)	
Mortgaged		Retained Earnings	
Rented/sharecropped			
Rented out			
<i>Animals</i>			
Value of livestock			
Value of poultry			
Drafts animals			
Bullocks			
<i>Farm equipment</i>			
Tractors			
Carts			
Vehicles			
Mechanical plough			
Pump			
Mill			
Food processor			
Trailer for truck / tractor			
Trolley			
Fodder cutting machine			
Generator			
<i>Non-mechanical farm tools (implements)</i>			
Hoe			
Spade			
Durable equipment for storage			
<b>Total Farm (Agricultural) Assets</b>			<b>Total Net Worth</b>
<b>TOTAL ASSETS</b>			<b>TOTAL LIABILITIES + TOTAL NET WORTH</b>

Source: UNECE.





## ANNEX 9

### RESULTS OF UNECE SURVEY ON METHODOLOGIES USED FOR MEASURING AGRICULTURE HOUSEHOLD INCOME STATISTICS IN UNECE AND OECD MEMBER COUNTRIES

#### Abbreviations and Symbols

ARMS	U.S. Department of Agriculture's Agricultural Resource Management Survey.
CBS	The Centraal Bureau voor de Statistiek (Central Bureau of Statistics of Netherlands).
CSO	Central Statistical Office.
EU	European Union.
EU-SILC	EU Survey on Income and Living Conditions (EU-SILC).
ESU	Business size is measured in European Size Units (ESU). One ESU was measured as €1,200 of SGM at 1996-1998 values.
HA	Hectare (a unit of measurement of an area of land (10,000m <sup>2</sup> )).
HBS	Household Budget Survey.
HIS	Household Income Survey.
IAHS	Income of Agriculture Household Sector Statistics.
ILO	International Labour Organization (Office).
N/A	Not Applicable (Not applied).
OECD	Organisation for Economic Co-operation and Development.
SER	Sociaal Economische Raad (The Social and Economic Council of the Netherlands).
SGM	Standard Gross Margin [see the Eurostat leaflet "Structure of agricultural holdings in the EU" (Theme 5: 22/2002) in the series "Statistics in Focus."].
STATEC	Le Service central de la statistique et des études économiques (Central Service for Statistics and Economic Studies – Luxembourg).
UNECE	<u>United Nations Economic Commission for Europe.</u>
y	Yes, explicit data.
*	Implied data covered elsewhere.
(y) and (*)	Covered in part.
@	Gross of capital consumption.
(?)	Information needs to be further verified.
y <sup>i</sup>	covered elsewhere for years 1992 and 1993
y <sup>ii</sup>	for some types of socio-professional group, but not agricultural households
y <sup>vii</sup>	number of holdings
*iii	figure for agricultural households included in under that for "all self-employed"

Table 2

Definition of household in non-EU countries

<b>Countries</b>	<b>Definition of 'household'</b>
<b>Albania</b>	No information on definition provided.
<b>Andorra</b>	A household is a person who lives single or a group of people who live in the same place, and who maintain a common budget or, more restrictively, who share food expenses. All members of the family that contribute to and enjoy the family budget belong to the household, whether they live in the house or not.
<b>Armenia</b>	People who usually live together in the household, share the same housekeeping, and have the same budget.
<b>Australia</b>	No information on definition provided.
<b>Azerbaijan</b>	A household is defined as a single person or a group of persons with a common budget and residence (house, flat, etc.). They are not necessarily relatives. In ambiguous or unclear situations, the interviewer must always ask: "Do you eat together and have a common household?"
<b>Belarus</b>	A person or a group of people who have common budget and housing unit; their family relationship is not essential.
<b>Bulgaria</b>	A regular household is considered to be: a) one person living alone, having meals separately and having his/her separate budget, b) two or more persons who live in one dwelling or part of dwelling, having their meals together and having a common budget irrespective of whether they are relatives or not. Persons who are temporarily absent are considered members of the household: children, students, conscripts on compulsory military service, those for treatment in hospitals, sanatoria and other health establishments.
<b>Canada</b>	A household refers to a person or a group of persons (other than foreign residents), who occupy the same dwelling and do not have a usual place of residence elsewhere in Canada. It may consist of a family group (census family) with or without other non-family persons, of two or more families sharing a dwelling, of a group of unrelated persons, or of one person living alone. Household members who are temporarily absent on Census Day (e.g. temporary residents elsewhere) are considered as part of their usual household. For census purposes, every person is a member of one and only one household. Unless otherwise specified, all data in household reports are for private households only.
<b>Croatia</b>	A household is every family or other community of individuals who live together and spend their income together for covering the basic existential needs (accommodation, food etc.).
<b>Georgia</b>	Individual or group of persons living in one dwelling and sharing their budget. If persons are not relatives but satisfy the two conditions above they are treated as one household anyway.
<b>Japan</b>	Household refers to a group of two or more persons sharing living quarters and living expenses or a person living alone or living in a dormitory or a boarding house. 1/
<b>Kazakhstan</b>	A group of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food. A household may consist of one person.
<b>Kyrgyzstan</b>	A household is a group of persons who live together and provide themselves with everything necessary for living. It may consist of relatives or people not related to each other and can also consist of a single person.
<b>Mexico</b>	A household is a group of one or more persons who live in the same place and who share food expenses.

*TABLE TO BE CONTINUED ON THE NEXT PAGE*

Table 2 (concluded)

## Definition of household in non-EU countries

Countries	Definition of 'household'
<b>New Zealand</b>	A household relates to a 'private household' which is defined as a single individual living in a dwelling who makes his or her own housekeeping arrangements or a group of people living in or sharing a dwelling for four or more days a week, who participate in some measure at least in consumption of food purchased for joint use by members. Or who, if not dependent upon a household member, contribute some portion of income towards the provision of essentials of living for the household as a whole.
<b>Norway</b>	A household consists of persons that are permanently resident in the same dwelling (housing unit) or institution. Such a household is called a dwelling household. Census 2001 does not supply any information about housekeeping units, i.e. persons living in the same dwelling with joint board (food expenses?).
<b>Republic of Korea</b>	A household consists of a person who provides for his own food or other essentials for living, or a group of two or more persons who make common provision for food or other essentials for living.
<b>Republic of Moldova</b>	A household, as observation unit, means either one person living separately, keeping the house alone, or a group of persons, not necessarily related, living at the same address with common budget.
<b>Romania</b>	A group of two persons or more, generally relatives, with or without children, that usually live together and are keeping the house in common, integrally or partially take part in forming and using the income and expenditure budget. Persons who live and keep the house by themselves and do not belong to another household represent households comprising one person.
<b>Switzerland</b>	A household is defined as a small group of persons who share the same accommodation, pool all, or some, of their income and wealth and consume certain goods, mainly accommodation and food, collectively. 2/
<b>The former Yugoslav Republic of Macedonia</b>	A household is defined as each single person who lives on their own and does not have any other household in some other place. Family or any community of people who live and spend their incomes together in order to cover their basic costs (those for living, food and etc.) regardless of whether all the members of the household are continually present in the place of residence or whether some of them are staying for a longer time in other places or countries for the purpose of education or employment. Persons who are not members of the family are classified as household members if they work, eat and reside in the same house community (e.g. housemaid, permanent workers on private agricultural holdings). Persons who were absent more than 45 days in the last three months are excluded as members of the household. Pupils and students are considered to be household members irrespective of how much time they spend outside the household.
<b>Turkey</b>	No information on definition provided.
<b>Turkmenistan</b>	A collection of individuals sharing the same living accommodation or part thereof, who may or may not be related, and who together provide themselves with all they need to live by pooling some or all of their resources.
<b>Ukraine</b>	A household is represented by a set of persons who live together in a dwelling or its part and make common provision for living, manage a common economy, completely or partially unite and spend funds. The persons could be relatives or brothers-in-law and sisters-in-law. They could have no relations at all or could be in both situations. Household can consist of one person.
<b>United States of America</b>	A household consists of all persons who occupy a housing unit.

Source: *UNECE survey on agricultural household income statistics*.

1/ Source: not the questionnaire but <http://www.stat.go.jp/english/data/shakai/2001/yogo2.htm>.

2/ Source: not the questionnaire but translation from [http://www.statistik.admin.ch/stat\\_ch/ber20/erc/download/eve01\\_d.pdf](http://www.statistik.admin.ch/stat_ch/ber20/erc/download/eve01_d.pdf).

Table 3

Definition of agricultural household and treatment of fishery/forestry in EU countries

Country	Definition of 'agricultural household'	Treatment of fishery/forestry
<b>Austria</b>	Primary plus secondary agricultural holdings.	Agricultural activity is deemed to include forestry up to 200ha. Thus the income to the household comprises both that from the production of goods and services that are classed as belonging to agriculture within the framework of the EU's Economic Accounts for Agriculture, and also from forestry.
<b>Belgium</b>	No information on definition used.	Forestry and fishery households excluded.
<b>Denmark</b>	IAHS definition used.	Forestry and fishery households excluded.
<b>Estonia</b>	Not in use.	Forestry and fishery households excluded.
<b>Finland</b>	Not in use.	Forestry and fishery households excluded.
<b>France</b>	Not in use.	Forestry and fishery households excluded.
<b>Germany</b>	IAHS definition used.	Forestry and fishery households excluded.
<b>Greece</b>	IAHS definition used.	Both included with agriculture, as income from these is not separated in the Family Budget Survey, used as the basis for distribution coefficients.
<b>Hungary</b>	No information provided.	Forestry and fishery households excluded.
<b>Ireland</b>	IAHS definition used.	Forestry and fishery households excluded.
<b>Italy</b>	IAHS definition used.	Agricultural households can be defined so as to include or exclude fishing (excluded for IAHS results).
<b>Latvia</b>	Not in use.	
<b>Lithuania</b>	Households in which the main source of income (in cash and in kind) of the head of the household is from independent agricultural activities.	Forestry and fishery households excluded.
<b>Luxembourg</b>	Not currently applied.	
<b>Netherlands</b>	IAHS definition used.	Forestry and fishery households excluded.
<b>Poland</b>	Farm households are those where the exclusive or main source of maintenance is income from independent activity in agriculture.	Forestry and fishery households excluded.
<b>Portugal</b>	N/A.	Agriculture is defined broadly, and also includes forestry, fishing (and hunting).
<b>Slovakia</b>	N/A.	No information provided.
<b>Slovenia</b>	Agricultural households are all households that achieve income with selling of their own agricultural products. According to the definition, agricultural activity also include the manufacturing of own agricultural products (definition of EU-SILC*).	Forestry households are not included if they have forestry as the independent activity. In the case that agricultural households has among agricultural activity also forestry and get some income from that source, they are included.
<b>Spain</b>	Households in which agriculture is the main income source of at least one member of the household.	
<b>Sweden</b>	IAHS definition used.	Forestry and fishery households excluded.
<b>United Kingdom</b>	Present coverage is between the IAHS "narrow" and "broad" definitions. Does not cover operators of farms that are arranged as companies, responsible for about a quarter of total Net Operating Surplus.	

Source: UNECE survey on agricultural household income statistics.

Notes: IAHS definition: agricultural households are those where the income from independent agricultural activity, net of capital consumption, constitutes the main source of the total income of the reference person.

**Austria:** Primary farms are where at least half the income from the labour of the operator and spouse plus members of the family forming part of their household and working together full or part-time in farming or forestry comes from farming or forestry activities.

\* EU Survey on Income and Living Conditions (EU-SILC) is an annual survey conducted by the Central Statistics Office (CSO) to obtain information on the income and living conditions of different types of households. The survey also collects information on poverty and social exclusion. A representative random sample of households throughout the country is approached to provide the required information. The survey is voluntary from a respondents perspective; nobody can be compelled to co-operate. The 2003 survey, the first in the series, commenced on June 16th 2003 (Source: [http://www.cso.ie/eusilc/about\\_eusilc.htm](http://www.cso.ie/eusilc/about_eusilc.htm)).

Table 4

## Definition of agricultural household and treatment of fishery/forestry in non-EU countries

Country	Definition of 'agricultural household'	Treatment of fishery/forestry
<b>Albania</b>	No information on definition provided (only for agricultural holding).	No information provided.
<b>Andorra</b>	No definition provided but in the survey of family budgets the category 'worker in agriculture' is one of the ten socio-professional groups based on the main source of income of the household reference person.	No information provided. Limited availability of economic indicators in Andorra.
<b>Armenia</b>	No information on definition provided.	No information provided.
<b>Australia</b>	Definition not provided (Only 150-250 households holdings (depending on definition ) in the 2000-01 Survey of Income and Household Costs).	No information provided.
<b>Azerbaijan</b>	No information on definition provided. However, the Household Budget Survey has information on main source of income of household head of which one is 'hired workers in agriculture' and one is 'work in household production'.	N/A.
<b>Belarus</b>	Not defined but 97% of rural households (see table with definition of rural household) are engaged in producing agricultural produce for own consumption and partially for sale.	N/A.
<b>Bulgaria</b>	Broad definition from the Manual of Income of Agricultural Households (Rev. 1), 1995. Households cultivating under 0.2 ha are excluded.	Excluded.
<b>Canada<sup>1</sup></b>	One of the residents of the household must be a farm operator, as identified on the Census of Agriculture. (for definition of household see separate table).	Excluded unless household is also involved in agricultural activity.
<b>Croatia</b>	An agricultural household is every household that has an agricultural estate (over 10 ha) and whose members are involved in agricultural production.	Included.
<b>Georgia</b>	No information on definition provided.	No information provided.
<b>Japan</b>	Household having cultivated land of 30 acres or over, or whose annual sales of agricultural products amounts to 500,000 Yen and over.	Excluded.
<b>Kazakhstan</b>	No information on definition provided.	No information provided.
<b>Kyrgyzstan</b>	An agricultural household is a household in a rural area (according to the Territorial Classification of the Kyrgyz Republic SAOTO) and produce agricultural produce.	Excluded?
<b>Mexico</b>	Households in which agriculture is the main income source.	
<b>New Zealand</b>	Not currently applied.	N/A.
<b>Norway</b>	The current statistics on farmers' income and property cover holder and any spouse, registered partner or cohabitant. Cohabitants include only those who belong to the same household and in addition have children in common with the holder. Any children or other family members are not included. The classification uses the amount of utilised agricultural land and number of livestock. An agricultural household may have zero or negative income from agricultural activity and still be included in the statistics.	Households solely engaged in forestry and/or fisheries are not included.
<b>Republic of Korea</b>	If a farm with 10 acres or more is operated during the reference period and household which raises livestock and sells livestock products annual worth more than 500,000.	Excluded.
<b>Republic of Moldova</b>	Household category 'farmers': Households whose heads have their main source of income from individual agricultural activity. Household category 'Employees in agricultural sector': Households whose heads have their main source of income from remunerated agricultural activity.	No information provided.
<b>Romania</b>	A farmer household is a household where the head of household has the occupational status of being self employed in agriculture or is a member of an agricultural association.	Not existing in household budget survey?'
<b>Switzerland</b>	No information on definition provided.	No information provided.

*TABLE TO BE CONTINUED ON THE NEXT PAGE*

Table 4 (concluded)

Definition of agricultural household and treatment of fishery/forestry in non-EU countries

Country	Definition of 'agricultural household'	Treatment of fishery/forestry
<b>The former Yugoslav Republic of Macedonia</b>	A household with its own agricultural holding and all its members able to work are engaged on the holding as agricultural workers. None of the household members is officially employed outside the holding, none of them owns a store for trade and none of them is a pensioner, but one or more of its members can occasionally work outside the holding in order to earn some additional income. It also includes agricultural workers with no land who work regularly on the holdings of other private agricultural workers; agricultural households with elderly members who own a holding, but are not capable of working, regardless of whether they pay for the cultivation of land, lease their land or give it to sharecroppers since their income comes from the holding and they do not have any other income; households whose members have acquired the right to receive agricultural pension on the basis of the Law on Retirement and Disability Insurance; agricultural households whose members are temporarily working abroad.	Included.
<b>Turkey</b>	No information on definition provided (only for agricultural holding).	No information provided.
<b>Turkmenistan</b>	Households can be categorised as urban or rural, depending on the place of residence, but do not belong to the agricultural sector.	Not applicable since there is no definition for agricultural household; only rural household and the definition of rural is geographic.
<b>Ukraine</b>	Not in use. But information on types of activities is available so that households with income from agriculture, fisheries, forestry could be identified.	N/A.
<b>United States of America</b>	A subset of households engaged in the operation of a farm business establishment (land under operating arrangement on which there are or could be sales of at least \$1,000 annual worth of agricultural products). For purposes of the U.S. Department of Agriculture's Agricultural Resource Management Survey (ARMS), the National Agricultural and Statistics Service's Terms and Definitions refer to a household as: American Industry "The operator, spouse and all individuals living in the operators residence who share the financial resources of the farm operator. Students living away from home who are dependent upon the operator's household for support are included."	Excluded. (Forestry and logging and fishing are defined as separate industries in the North American Industry Classification System. Household operating these establishments would not be considered farm households).

Source: UNECE survey on agricultural household income statistics.

Table 5

Broad definition of agricultural household in EU countries

Country	Definition of 'household'
<b>Austria</b>	Primary plus secondary agricultural holdings. Excludes farms outside the SGM# range Austrian shilling 90 000 - 1.5 mio, those with horticulture >25% of total gross profit, and mixed enterprises, such as forestry plantations over 200 ha. Covers only 50% of farms.
<b>Belgium</b>	No information on definition used.
<b>Denmark</b>	*
<b>Estonia</b>	Not in use.
<b>Finland</b>	Household which owns an agricultural holding with at least 2 ha of arable land under cultivation ("broad" definition).
<b>France</b>	Not in use.
<b>Germany</b>	*
<b>Greece</b>	*
<b>Hungary</b>	No information provided.
<b>Ireland</b>	*
<b>Italy</b>	*
<b>Latvia</b>	Not in use.
<b>Lithuania</b>	Household, where income of the head of the household (in cash and in kind) is received from individual agricultural activities.
<b>Luxembourg</b>	Not currently applied.
<b>Netherlands</b>	*
<b>Poland</b>	
<b>Portugal</b>	N/A.
<b>Slovakia</b>	N/A.
<b>Slovenia</b>	Agricultural households are all households that achieve income with selling of their own agricultural products. According to the definition of agricultural activity, the manufacturing of own agricultural products is also included (definition of EU-SILC).
<b>Spain</b>	Households in which agriculture is the main income source of at least one member of the household.
<b>Sweden</b>	*
<b>United Kingdom</b>	Present coverage is between the IAHS "narrow" and "broad" definitions. Does not cover operators of farms that are arranged as companies, responsible for about a quarter of total Net Operating Surplus.

Source: UNECE survey on agricultural household income statistics.

\* IAHS target definition used: households that derive some income from dependent activity in agriculture.  
 # Theoretically the Survey of "Structure of agricultural holdings in the EU" collects data on a comparable basis throughout the EU but in practice there are significant differences, particularly in the threshold for inclusion, ranging from 0.1 ha of agricultural land (Greece) to at least 2 ha (Sweden) or more than 1 European Size Units (ESU) (Netherlands). Average size ranged from 6.3 ESU in Greece to 89.6 ESU in the Netherlands, with the UK average of 47.4 fourth highest; that of Northern Ireland, 21.5 ESU was above the EU average and similar to that in the Irish Republic. (Source: <http://europa.eu.int>).

Table 6

Broad definition of agricultural household in non-EU countries

Country	Broad definition of agricultural household
Albania	N/A.
Andorra	N/A.
Armenia	N/A.
Australia	N/A.
Azerbaijan	N/A.
Belarus	N/A.
Bulgaria	The "broad" definition is applied in surveys. Households that are considered "leisure units" are excluded by using a threshold. This is one of the methodological requirements of EAA97, Rev.1.1. <sup>1</sup>
Canada	Main definition includes every household where at least one member has been identified agricultural operator in the Census of Agriculture and is as such already 'broad'.
Croatia	N/A.
Georgia	N/A.
Japan	N/A.
Kazakhstan	N/A.
Kyrgyzstan	N/A.
Mexico	N/A.
New Zealand	N/A.
Norway	N/A.
Republic of Korea	Full-time farm households: Members of the household engage in farm work only for themselves and for others. Off-farm work is less than a total of 30 days per member during the year. Part-time farm households: Any member of the household engage in paid off-farm work for more than 30 days during the year. Part-time type 1: farm receipts exceed off-farm receipts. Part-time type 2: off-farm receipts exceed farm receipts.
Republic of Moldova	No information provided.
Romania	N/A.
Switzerland	N/A.
The former Yugoslav Rep. of Macedonia	The broad definition includes agricultural households and mixed households. A mixed household is a household with its own agricultural holding in which, in addition to the members who work on the holding, one or more members are permanently employed outside the holding in the public or private sector or are engaged in some non-agricultural service (self-employed craftsmen, catering workers, hauliers etc.). This category also includes households where one or more members receive pension payments. It also includes households which own their own agricultural holding to the stipulated criteria and all its household members able to work hold an employment outside the holding, are self employed craftsmen, pensioners or have other personal income but work on the holding in their spare time or pay for the cultivation of land under their supervision, lease their land or give it to sharecroppers since part of their income comes from agriculture.
Turkey	N/A.
Turkmenistan	N/A.
Ukraine	N/A.
United States of America	N/A.

Source: UNECE survey on agricultural household income statistics.

1. In both the economics accounts for agriculture and income of agricultural households surveys this threshold excludes: 1) units under 0.2 ha of agricultural land; 2) units with only fallow land; 3) units that have land only in the house yard; 4) units with only natural pasture; and 5) units that breed only a limited number of animals (by kind).



Table 7

## Definition of rural household in EU countries

Country	Definition of rural household
<b>Austria</b>	
<b>Belgium</b>	
<b>Denmark</b>	
<b>Estonia</b>	A rural household is a household, which is living in a small town or village. This term is actively in use in annual analyses of the Estonian HBS.
<b>Finland</b>	Not in use.
<b>France</b>	
<b>Germany</b>	
<b>Greece</b>	
<b>Hungary</b>	Rural households are those who live in rural areas (areas with a population density under 120 heads/km <sup>2</sup> or under 10.000 residential population, at settlement level).
<b>Ireland</b>	
<b>Italy</b>	Not in use.
<b>Latvia</b>	Rural households are all households who live in rural areas.
<b>Lithuania</b>	Rural households are those who live in rural areas, that is in areas without any town and city signs. <i>Urban population</i> refers to those persons, who live in cities and towns, i.e. in the population areas with the closely built permanent dwellings and with the resident population of more than 3,000 of which 2/3 of workers are involved in the industry, social infrastructure and business. In a number of towns the population may be less than 3,000 because these population areas had already had the town status before the law was enacted (19 July, 1994).
<b>Luxembourg</b>	
<b>Netherlands</b>	
<b>Poland</b>	Not in use.
<b>Portugal</b>	
<b>Slovakia</b>	Not in use.
<b>Slovenia</b>	Not in use.
<b>Spain</b>	
<b>Sweden</b>	
<b>United Kingdom</b>	

Source: UNECE survey on agricultural household income statistics.

Table 8

Definition of rural household in non-EU countries

<b>Country</b>	<b>Definition of rural household</b>
<b>Albania</b>	No information on definition provided.
<b>Andorra</b>	No definition used.
<b>Armenia</b>	Those who live in rural areas.
<b>Australia</b>	No information on definition provided.
<b>Azerbaijan</b>	No information on definition provided.
<b>Belarus</b>	A rural household is a household living in rural areas.
<b>Bulgaria</b>	No definition used.
<b>Canada</b>	Refers to a person or a group of persons (other than foreign residents), who occupy the same dwelling and do not have a usual place of residence elsewhere in Canada. The dwelling must be located in a rural area. (For full definition of 'household' see table on household definition). An urban area has a minimum concentration of 1,000 persons and a population density of at least 400 persons per square kilometre, based on the current census population count. All territory outside urban areas is classified as rural.
<b>Croatia</b>	A rural household is every household in a rural area or in a dwelling outside settlements. Whether or not these conditions are met is the subjective assessment of the interviewer of the household budget survey.
<b>Georgia</b>	No information on definition provided.
<b>Japan</b>	No definition used.
<b>Kazakhstan</b>	Households living in rural areas. Rural areas are small human settlements ('auls' - villages) where at least 50 per cent of the population is composed of workers engaged in agricultural production and members of their families.
<b>Kyrgyzstan</b>	A rural household is a household in a rural area (according to the Territorial Classification of the Kyrgyz Republic SAOTO).
<b>Mexico</b>	A rural household is a household living in areas with fewer than 2,500 residents.
<b>New Zealand</b>	No definition used.
<b>Norway</b>	No official definition used.
<b>Republic of Korea</b>	No definition used.
<b>Republic of Moldova</b>	No information on definition provided.
<b>Romania</b>	No information on definition provided.
<b>Switzerland</b>	No information on definition provided.
<b>The former Yugoslav Republic of Macedonia</b>	No information on definition provided.
<b>Turkey</b>	No information on definition provided.
<b>Turkmenistan</b>	Households can be categorised as urban or rural, depending on the place of residence.
<b>Ukraine</b>	Households which reside in rural areas.
<b>United States of America</b>	The U.S. Census Bureau defines rural areas as open country and settlements with fewer than 2,500 residents. Farm household incomes as developed from ARMS can be classified by geographic area.

*Source: UNECE survey on agricultural household income statistics.*

Table 9

Treatment of non-personal form of institution in the household sector and of holdings operated as corporate institutions but de facto run as family businesses in EU countries

Country	Treatment of non-personal form of institution in the household sector	Treatment of holdings operated as corporate institutions but de facto run as family businesses
<b>Austria</b>		
<b>Belgium</b>	*	They appear under another category.
<b>Denmark</b>		
<b>Estonia</b>	Not included in household survey.	
<b>Finland</b>	Excluded.	
<b>France</b>		
<b>Germany</b>		
<b>Greece</b>		
<b>Hungary</b>	Institutional households are a part of the households sector in the Hungarian National accounts, but they are not treated as part of IAHS statistics.	
<b>Ireland</b>		
<b>Italy</b>		
<b>Latvia</b>	No information provided.	
<b>Lithuania</b>	Not in use.	
<b>Luxembourg</b>		
<b>Netherlands</b>		
<b>Poland</b>	Not included in household survey.	
<b>Portugal</b>		
<b>Slovakia</b>	Not in use.	
<b>Slovenia</b>	No information provided.	
<b>Spain</b>		
<b>Sweden</b>		
<b>United Kingdom</b>		

Source: UNECE survey on agricultural household income statistics.

Table 10

Treatment of non-personal form of institution in the household sector and of holdings operated as corporate institutions but de facto run as family businesses in non-EU countries

Country	Treatment of non-personal form of institution in the household sector	Treatment of holdings operated as corporate institutions but de facto run as family businesses
Albania	No information provided.	No information provided.
Andorra	No information provided.	No information provided.
Armenia	No information provided.	No information provided.
Australia	No information provided.	No information provided.
Azerbaijan	No information provided.	No information provided.
Belarus	Included.	Included.
Bulgaria	Excluded.	Included for calculation of total income of agricultural households in 2004
Canada	The household for religious colonies is considered to be the collective dwelling. Farming cooperatives are not identified as such on the Census of Agriculture, therefore the households of the agricultural operators of the cooperative would be considered as agricultural households. Community pastures, prison farms and other institutional farms do not have agricultural households associated with them.	A household is considered to be an agricultural household if a farm operator resides there, regardless of whether the farm is a family corporation, non-family corporation, partnership or sole proprietorship.
Croatia	Excluded from household budget survey.	Holdings operated as corporate institutions cannot be identified separately.
Georgia	No information provided.	No information provided.
Japan	Excluded.	Will be covered from 2004 onwards.
Kazakhstan	Excluded from survey.	No information provided.
Kyrgyzstan	Excluded from survey.	Not used.
New Zealand	Excluded.	If a respondent defines themselves as self-employed the net profit from the business is counted as self-employment income.
Norway	No information provided.	See note.
Republic of Korea	Excluded from survey.	Excluded from survey.
Republic of Moldova	No information provided.	No information provided.
Romania	Excluded from household budget survey.	Does not exist in household budget survey.
Switzerland	Income of the agriculture households sector activity removed from statistical programme in 2003.	
The former Yugoslav Republic of Macedonia	Excluded from household budget survey.	The kind of institution that is registered as legal entity is included in the Household Budget Survey and for incomes data on wages from their family business is included.
Turkey	No information provided.	No information provided.
Turkmenistan	N/A.	Not really mentioned - the main source of data is the survey of household budgets. It is therefore assumed that these kind of institutions are excluded.
Ukraine	Not included in household survey.	Household survey but some special treatment for agriculture. Households probably identified as agricultural - not substantial probably anyway.
United States of America	Households of operators of non-family corporations, other legal entities and hired manager households are excluded.	Operators households for farm corporations and partnerships are included in agriculture household income measurement.

Source: UNECE survey on agricultural household income statistics.

*Note concerning Norway:* Holdings organized as general partnership ("group holdings") or legal person (limited company, institution, foundation, government, county, municipality etc.) are not included in the current statistics. Nevertheless, many holdings organized as general partnership are joint operation in milk production. These holdings are not treated as independent units in the context of taxation. Income, property etc. are shared among the partners. Due to the present regulations regarding governmental subsidies in agriculture, many partners participating in joint operations in milk production in addition operate their own individual holding. Income, property etc. for these persons will include both own holding and share from the general partnership (joint operation). As from 2002 changes in the subsidy regulations will reduce this "problem."

Table 11

Criteria for classification of households into socio-economic groups in EU-countries

Country	Classification criteria
<b>Austria</b>	A distinction is made between <i>primary</i> and <i>secondary</i> activity holdings. Primary farms are where at least half the income from the labour of the operator and spouse plus members of the family forming part of their household and working together full or part-time in farming or forestry comes from farming or forestry activities.
<b>Belgium</b>	Grouping is made according to the reference person's main occupation, determined on the basis of the time spent on the occupation and, as a secondary criterion, the income brought in. This system is based on that used for the agricultural census.
<b>Denmark</b>	The reference person system takes agricultural households to be those where the person with the highest gross income has agriculture as his or her industry and employment status as self-employed (independent). The industry of the reference person is determined by the administration (that is, not subjectively by each reference person) according to several criteria, including the composition of income, registration for Value Added Tax and non-receipt of unemployment benefit. Reference persons are allocated to industries if that industry forms more than 50% of the total income of that reference person; total income must be positive.
<b>Estonia</b>	Working household is a household with a least one working member aged 16 or more. <b>Unemployed household</b> is a non-working household with at least one member aged 16 or more who is employed. <b>Retired household</b> is a non-working and non-unemployed household with at least one old-age pensioner. <b>Other inactive household</b> is a non-working, non-unemployed and non-retired household (no member is working, no unemployed members nor pensioners). Until now there was in HBS not in use the division of household by main source of income of the household's reference person. Technically it is possible to separate employee income, received from agricultural activity, but this needs some methodological work, also there has not been interest from users of statistics for this kind of division. To Social Survey questionnaires of future periods one can add some specific questions for better qualifying the income received from agricultural activities.
<b>Finland</b>	The reference person is used for the classification of households into socio-professional groups. First, the reference person are classified as economically active or inactive. Second, economically active persons are further classified as (i) employees or (ii) employers or own-account workers. Classification into socio-professional groups is based on the main activity and occupation of the reference person.
<b>France</b>	Grouping is made according to the industry in which the head (reference person) declares himself/herself to be primarily active.
<b>Germany</b>	* 1/
<b>Greece</b>	* The target system is now used. Two other classification systems are available for comparative purposes. The first is based on the main employment (occupation) of the head of household, as declared to the Household Income Survey (Family Budget Survey). Under this system, heads of agricultural households who are in receipt of retirement pensions are classified as pensioners (that is, not as farmers) even if at the same time they continue to work on their farms. The second is based on the main source of income of the entire household.
<b>Hungary</b>	Based on the main source of income of the household's reference person (holder).
<b>Ireland</b>	*
<b>Italy</b>	Heads declare the branch in which they pursue their main activity. Both time and income factors are taken into account.
<b>Latvia</b>	Not in use.
<b>Lithuania</b>	Socio-economic group is determined by the main income source of the head of the household.

*TABLE TO BE CONTINUED ON THE NEXT PAGE*

Table 11 (concluded)

Criteria for classification of households into socio-economic groups in EU-countries

Country	Classification criteria
<b>Luxembourg</b>	Agricultural households are taken to be those which operate "professional agricultural holdings". These are holdings headed by a person who satisfies all the following conditions: the head of the holding works more than 50% of his time on the holding; he gets from the holding more than 50% of his income; he is affiliated to the agricultural social insurance; he has no other non-agricultural main activity.
<b>Netherlands</b>	Classification is based on the main source of income of the household as a whole. Seven income clusters are used. Independent activity falls within "profit prior to deduction of stock and capital," which in turn leads to class of business being determined.
<b>Poland</b>	Households are qualified for a particular socio-economic group based on the criterion of the source of income earned by household members. If the household members get income from several sources, it is the prevailing income that decides on the socio-economic group of household.
<b>Portugal</b>	Households headed by a self-employed worker in agriculture, including both those with and without paid employees.
<b>Slovakia</b>	No information provided.
<b>Slovenia</b>	Not in use.
<b>Spain</b>	Where there is doubt which is the main occupation of the reference person, the one providing the highest income is recorded. Incomes are used gross of capital consumption in allocating reference persons to socio-professional groups.
<b>Sweden</b>	The classification has been based on the main occupation of the reference person.
<b>United Kingdom</b>	On the basis of the income of the tax case. Up to the 1990/91 year of assessment agricultural cases were those in which self-employment (independent) income from agriculture or horticulture usually constituted the main or principal additional source of <i>self-employment income</i> (not, it should be noted, of total income) of single persons or husbands or the main source of self-employment income of wives. Since then, husbands and wives have been treated separately and included in the analysis only if they <i>as individuals</i> have a main or principal additional source of self-employment income deriving from agriculture or horticulture. Households which operate their farms as corporate bodies, and therefore receive income in the form of compensation from dependent activity rather than as income from independent activity, are therefore not treated as agricultural.

Source: UNECE survey on agricultural household income statistics.

1/ \* The definition used corresponds to the IAHS target: the main source of income of the household's reference person.

Table 12

Criteria for classification of households into socio-economic groups in non-EU countries

Country	Classification criteria
<b>Albania</b>	No information provided.
<b>Andorra</b>	The criterion for classification of households into socio-professional groups is based on the main source of income of the household's reference person. There are 10 socio-professional groups: worker in agriculture, director, manager of company, superior technician, intermediate technician, administrative employee, worker of restoration and personal services, qualified worker, operator of machinery, non-qualified worker.
<b>Armenia</b>	No information provided.
<b>Australia</b>	No information provided.
<b>Azerbaijan</b>	No information provided.
<b>Belarus</b>	Rural household are not classified by socio-professional groups. They are classified by source of income (compensation for labour or pension) and by its size.
<b>Bulgaria</b>	N/A.
<b>Canada</b>	The identification of persons as farm operators on the Census of Agriculture provides the indicator for households or families as agricultural or non-agricultural.
<b>Croatia</b>	The household's main source of income or self-reported agricultural status of the head of household.
<b>Georgia</b>	No information provided.
<b>Japan</b>	Not used.
<b>Kazakhstan</b>	No information provided.
<b>Kyrgyzstan</b>	N/A.
<b>New Zealand</b>	N/A.
<b>Norway</b>	In the current statistics, (agricultural) households are not classified into socio-professional group
<b>Republic of Korea</b>	Main source of income of the household members.
<b>Republic of Moldova</b>	No information provided.
<b>Romania</b>	Households are grouped on the basis of the occupational status of the head of household (employee, employer, farmer, pensioner etc.).
<b>Switzerland</b>	No information provided.
<b>The former Yugoslav Republic of Macedonia</b>	Split into agricultural, mixed or non-agricultural households depending on ownership of an agricultural holding: if all members exclusively work on the holding - agricultural; if some income derived from the holding (includes income from leasing of holding) - mixed; if household does not own an agricultural holding - non-agricultural.
<b>Turkey</b>	No information provided.
<b>Turkmenistan</b>	In sample surveys of household budgets in both urban and rural areas, households are not categorized by social and occupational group.
<b>Ukraine</b>	Household are presently classified only by social characteristics of the household (size and composition) but there are plans to group data according to the main income source of household
<b>United States of America</b>	Data on sources of income or gross sales.

Source: UNECE survey on agricultural household income statistics.

Table 13

Mechanisms used to introduce short-term stability in numbers of agricultural households

Country	Mechanisms used	Information from IAHS document
<b>Austria</b>	Results calculated per holding, not grossed up.	Not yet applicable.
<b>Belgium</b>	Main occupation classification system. Household numbers taken each year from the agricultural census. Numbers of household members for 1987 calculated on the basis of fiscal statistics and extrapolated according to the number of households.	No smoothing apart from the characteristics of the occupation system.
<b>Denmark</b>	Annual classification in income statistics records, but with some experimental averaging.	No regular smoothing.
<b>Estonia</b>	Not in use.	
<b>Finland</b>	Not in use.	
<b>France</b>	Main occupation classification system. Household numbers extrapolated from base years using the annual survey of employment.	Smoothed.
<b>Germany</b>	Numbers established in the five-yearly Income and Consumption Sample Survey, and extrapolated using the annual Microcensus.	Smoothed between base years.
<b>Greece</b>	Numbers taken from the Family Budget Surveys (1982, 1988) and interpolated and extrapolated.	Smoothed between base years.
<b>Hungary</b>	The use of average incomes over several years.	To be used in the future, at the moment there are data for one year.
<b>Ireland</b>	Results only calculated for base years of household budget survey.	Not yet applicable.
<b>Italy</b>	Numbers of households with head working as self-employed in agriculture are extracted from Labour Force Survey.	
<b>Latvia</b>	No information provided.	
<b>Lithuania</b>	Not in use.	
<b>Luxembourg</b>	Results only available for a single year.	Not yet applicable.
<b>Netherlands</b>	Appears to be reclassified annually in the SER according to the household's main source of income.	No smoothing apparently applied.
<b>Poland</b>	Not in use.	
<b>Portugal</b>	Main occupation classification system. Numbers taken from the General Population Census of 1981 and 1991, interpolated and extrapolated.	Smoothed between base years.
<b>Slovakia</b>	Not in use.	
<b>Slovenia</b>	Not in use.	
<b>Spain</b>	Numbers taken from the Family Budget Surveys (1980, 1990) and interpolated and extrapolated.	Smoothed between base years.
<b>Sweden</b>	No smoothing applied. Number of households taken from the Farm Register providing information on all households with an agricultural holding with more than 2,0 hectares of arable land.	
<b>United Kingdom</b>	Classification of cases by taxation authority is believed to take into consideration the normal income composition.	Informal smoothing, though subjective.

Source: UNECE survey on agricultural household income statistics.



Table 14

Mechanisms used to introduce short-term stability in numbers of agricultural households in non-EU countries

<b>Country</b>	<b>Mechanisms used</b>
<b>Albania</b>	No definition of agricultural household provided.
<b>Andorra</b>	Not applicable as no definition of agricultural household used.
<b>Armenia</b>	No definition of agricultural household provided.
<b>Australia</b>	Not applicable as no definition of agricultural household used.
<b>Azerbaijan</b>	No definition of agricultural household provided.
<b>Belarus</b>	Not applicable as no definition of agricultural household used.
<b>Bulgaria</b>	No such mechanism used.
<b>Canada</b>	?
<b>Croatia</b>	No information provided.
<b>Georgia</b>	No definition of agricultural household provided.
<b>Japan</b>	No such mechanism used.
<b>Kazakhstan</b>	No definition of agricultural household provided.
<b>Kyrgyzstan</b>	No such mechanism used.
<b>New Zealand</b>	No such mechanism used.
<b>Norway</b>	No such mechanism used.
<b>Republic of Korea</b>	No such mechanism used.
<b>Republic of Moldova</b>	No information provided.
<b>Romania</b>	No such mechanism used.
<b>Switzerland</b>	No information provided.
<b>The former Yugoslav Republic of Macedonia</b>	No such mechanism used.
<b>Turkey</b>	No information provided.
<b>Turkmenistan</b>	No such mechanism used.
<b>Ukraine</b>	No such mechanism used.
<b>United States of America</b>	No such mechanism used.

Source: UNECE survey on agricultural household income statistics.

Table 15

Equivalence scale used to give consumer units in EU countries

Country	Equivalence scale
<b>Austria</b>	Used, but scale not stated.
<b>Belgium</b>	Not used or reported.
<b>Denmark</b>	1st person in household including and above 17 years = 1, 2nd and following = 0.7, persons ≤ 17 years = 0.5. (Source: <i>OECD Standard</i> ).
<b>Estonia</b>	The equivalence scale used in Estonia is 1: 0,8: 0,8.
<b>Finland</b>	Standard and modified OECD scale.
<b>France</b>	Reference person = 1, additional persons of 14 years and over = 0.7, children (less than 14 years old) = 0.5.
<b>Germany</b>	1st adult in household aged 14 years and above = 1, each additional adult = 0.7, children aged below 14 = 0.5. (Source: <i>SOEC request for Poverty Related Data, 1988, p.8</i> ).
<b>Greece</b>	Head of household = 1.0; other members of 14 years and over = 0.7; members under 14 years = 0.5.
<b>Hungary</b>	Not yet calculated for agricultural households, but the same scale will be used as in the Household Budget Survey. The consumption unit factors applied by the Hungarian Central Statistical Office (Household Budget Survey) are the followings. In the households consisted of active earners and children: the first adult member of the household represent 1.00; any other adult household members = 0.75; the first child = 0.65; second child = 0.50; other children = 0.40 consumption unit. In case of inactive (pensioner) households (if no active earner among the household members) the first adult member represents 0.90, any other persons 0.65 consumption unit.
<b>Ireland</b>	Head of household = 1.0; other members of the household aged 14 years or over = 0.7; children under 14 years of age = 0.5.
<b>Italy</b>	Head of household = 1; other members of the household aged 15 years and over = 0.7; children less than 15 years old = 0.5.
<b>Latvia</b>	No information provided.
<b>Lithuania</b>	Not in use.
<b>Luxembourg</b>	Scale used by STATEC in family budget surveys. Men aged 14-59 = 1.0; women 14-59 = 0.8; men and women 60 years or over = 0.8; children under 2 = 0.2, 2 to 3 = 0.3, 4 to 5 = 0.4, 6 to 7 = 0.5, 8 to 9 = 0.6, 10 to 11 = 0.7, 12 to 13 = 0.8.
<b>Netherlands</b>	Used, but scale not stated.
<b>Poland</b>	The household budget survey results are published as average per capita data with no account for equivalence scales. The OECD equivalence scales is used for the analysis of poverty (based on HBS results).
<b>Portugal</b>	ILO scale. Head of household and other men aged 14-59 = 1; other women aged 14 and over, and men aged 60 and over = 0.8; children aged under 2 = 0.2, 2 and 3 = 0.3, 4 and 5 = 0.4, 6 and 7 = 0.5, 8 and 9 = 0.6, 10 and 11 = 0.7, 12 and 13 = 0.8.
<b>Slovakia</b>	No information provided.
<b>Slovenia</b>	Used a modified OECD scale, but modification not stated.
<b>Spain</b>	Head of household = 1.0; other persons over 14 years old = 0.7; other persons, or those of 14 years and under = 0.5 "Oxford" scale.
<b>Sweden</b>	Not in use.
<b>United Kingdom</b>	None used.

Source: UNECE survey on agricultural household income statistics.

Table 16

Equivalence scale used to give consumer units in non-EU countries

Country	The equivalence scale used to give consumer units
<b>Albania</b>	No information provided.
<b>Andorra</b>	No information provided.
<b>Armenia</b>	Adult man = 1.0; adult woman = 0.8; children under 15 = 0.5 (only used as alternative assessment).
<b>Australia</b>	No information provided.
<b>Azerbaijan</b>	OECD scale equivalence scale used.
<b>Belarus</b>	Head of household = 1.0; other adults = 0.75; children under 14 = 0.5.
<b>Bulgaria</b>	Not used.
<b>Canada</b>	Not used in the agriculture-population linkage database.
<b>Croatia</b>	Modified OECD scale; head of household = 1.0, other adults = 0.5, children = 0.3.
<b>Georgia</b>	Adult man 16 to 60 = 1.00; adolescent 7 to 16 = 1.00(?); pensioner age men 60 and over = 0.88; adult woman 16 to 55 = 0.84; pensioner age woman 55 and over = 0.76; pre-school age child 0 to 7 = 0.64.
<b>Japan</b>	None used.
<b>Kazakhstan</b>	Proposed equivalent scale for households for poverty line calculations: first adult = 1.00, all other members = 0.8 (1+(n-1)*0.8).
<b>Kyrgyzstan</b>	None used.
<b>Mexico</b>	None used.
<b>New Zealand</b>	The Revised Jensen Scale is used.*
<b>Norway</b>	Equivalence scales are normally used in analysis of household income.
<b>Republic of Korea</b>	None used.
<b>Republic of Moldova</b>	First adult in the household = 1.00; other adults = 0.70; children under 16 = 0.50.
<b>Romania</b>	None used.
<b>Switzerland</b>	No information provided.
<b>The former Yugoslav Republic of Macedonia</b>	None used.
<b>Turkey</b>	No information provided.
<b>Turkmenistan</b>	None used in the sample survey of household budgets.
<b>Ukraine</b>	Yes, in relation to poverty issues. First adult = 1.00, all other members including children = 0.70.
<b>United States of America</b>	Not estimated for farm household income measurement.

Source: UNECE survey on agricultural household income statistics.

Notes: \* Jensen Equivalised Annual Household Income is a measure of household income which takes into account household composition. (Source:

[http://www2.stats.govt.nz/domino/external/web/prod\\_serv.nsf/Response/Indicator+16:+Jensen+Equivalised+Annual+Household+Income](http://www2.stats.govt.nz/domino/external/web/prod_serv.nsf/Response/Indicator+16:+Jensen+Equivalised+Annual+Household+Income)).

Table 17

The basis of estimating the value of own consumption  
(of agricultural and non-agricultural goods and services) in EU countries

Country	Basis of estimating the value of own consumption
<b>Austria</b>	
<b>Belgium</b>	Basis not clear. Prices and quantities provided by the Agricultural Economics Institute. Amounts produced by non-farmers from the family budgets survey. Prices the same as LEI data.
<b>Denmark</b>	In principle the sales value of the quantity consumed.
<b>Estonia</b>	Estimate provided by the respondent, at market prices.
<b>Finland</b>	Excluded from 2000 onwards.
<b>France</b>	The Preliminary Information section of the DTT (1990) states that own-consumed goods, as reported in the Family Budget Survey, are valued at market prices. The earlier TIAH report from France (1986) states that these correspond to producer prices, whereas a previous system used consumer prices.
<b>Germany</b>	At producer prices (as in national accounts). Various statistics used for this purpose, including income and consumption sample survey.
<b>Greece</b>	From Household Income (Family Budget) Survey. Agricultural goods valued at ex-farm prices: non-agricultural goods at basic prices.
<b>Hungary</b>	At average market prices.
<b>Ireland</b>	At retail prices in data source (Household Budget Survey), but revalued for the IAHS to farm-gate prices.
<b>Italy</b>	Included, but method of valuation not stated. Various statistics used for this purpose, including REA starting from 1999.
<b>Latvia</b>	No information provided.
<b>Lithuania</b>	Estimate provided by the respondent, at market (retail) prices.
<b>Luxembourg</b>	No details given.
<b>Netherlands</b>	At market prices.
<b>Poland</b>	At market prices.
<b>Portugal</b>	Not stated.
<b>Slovakia</b>	No information provided.
<b>Slovenia</b>	At market prices.
<b>Spain</b>	Self-supply and own-consumption cover goods only, not services. In 1980 only foodstuffs were included. Where goods have been included they have been valued at local retail market prices.
<b>Sweden</b>	At market prices.
<b>United Kingdom</b>	Tax rules apply: some forms of income in kind are subject to taxation, but coverage and valuation probably understates the true value.

Source: UNECE survey on agricultural household income statistics.

Table 18

The basis of estimating the value of own consumption  
(of agricultural and non-agricultural goods and services) in non-EU countries

Country	Basis of estimating the value of own consumption
<b>Albania</b>	No information provided.
<b>Andorra</b>	No income statistics for agricultural households.
<b>Armenia</b>	Value of own consumption is estimated using the mean price at country level.
<b>Australia</b>	No information provided.
<b>Azerbaijan</b>	No information provided.
<b>Belarus</b>	The purchase price of similar goods sold on markets serve as the basis for estimating the value of own-consumption of agricultural goods.
<b>Bulgaria</b>	Value of own consumption is estimated from average weighted prices, calculated from prices of sales both within the agricultural sector and outside the agricultural sector (including direct export from agricultural producers - if any). Data are collected from the survey on economic accounts for agriculture.
<b>Canada</b>	Not used in the agriculture-population linkage database.
<b>Croatia</b>	The value of own-consumption is estimated on the basis of prices of similar goods sold on the regional market.
<b>Georgia</b>	Estimated in market prices.
<b>Japan</b>	Price of agricultural products is the farm gate price based on results of the 'Statistical survey on prices of agricultural products' carried out by the Statistics Department of the Ministry of Agriculture, Forestry and Fisheries.
<b>Kazakhstan</b>	Monetary estimate of consumption by household members of produce from private plots is made using the average prices of goods purchased in shops and on markets in the region (oblast).
<b>Kyrgyzstan</b>	N/A.
<b>Mexico</b>	Not applied. (?)
<b>New Zealand</b>	The value of own consumption is not estimated.
<b>Norway</b>	The value of home consumption of products produced on the holding is included in the tax return data. The values are based either on information reported by the holder or standard values stipulated by the Tax authorities.
<b>Republic of Korea</b>	The value of own-consumption is estimated based on market prices.
<b>Republic of Moldova</b>	The own consumption assessment is done on the basis of average buying prices for similar products in a certain area for the period of reference.
<b>Romania</b>	Lei (monetary) equivalent of own-consumption of food and non-food products (agricultural production, stocks from previous periods, labour, gifts, etc.) is calculated using the medium purchase prices of similar goods in the statistical regions in the reference month.
<b>Switzerland</b>	Income of the agriculture households sector activity removed from statistical programme in 2003.
<b>The former Yugoslav Republic of Macedonia</b>	The value of own-consumption is estimated using data from the survey on quantities of food consumed from own-production. The quantities are multiplied with average prices.
<b>Turkey</b>	No information provided on calculation but own consumption is included in the calculation of agricultural income in the Household Income and Consumption Expenditure Survey.
<b>Turkmenistan</b>	The value of food and non-food items received in kind is estimated using average purchase prices as calculated for each district.
<b>Ukraine</b>	The estimation of the consumed natural revenues is made using the average prices for purchasing the appropriate commodities in the reference period in trade outlets and markets of the given region.
<b>United States of America</b>	Estimates of the value of farm produced goods consumed on farms are self reported.

Source: UNECE survey on agricultural household income statistics.

Table 19

The basis of calculating the imputed rental value of own dwellings in EU countries

Country	
<b>Austria</b>	Not included.
<b>Belgium</b>	Included. Method not specified exactly. Calculations (as) for national accounts and tax data.
<b>Denmark</b>	A percentage of the value of the dwelling; normally considered to be below market value.
<b>Estonia</b>	Imputed rental value, if asked in Household Budget Survey (HBS), was determined by respondents. Because of low quality of the received answers this data were not published and questions were excluded from HBS 2003 questionnaire.
<b>Finland</b>	Included. Measured by the value of actual rents of similar dwellings.
<b>France</b>	Estimated on the basis of local values (actual rents paid by local households). These estimates are based on the characteristics of the dwellings and their locations.
<b>Germany</b>	Computed on the basis of the kind of rent payable per square metre for comparable rented dwellings. Characteristics of (agricultural) own used dwellings, such as surface area, level of fittings and age, are available from buildings and housing censuses, housing sample surveys and supplementary microcensus surveys.
<b>Greece</b>	In the Household Income (Family Budget) Survey (HIS) households are asked to estimate the rental value of their dwelling had it been rented out. Figures on combined real and imputed rents are taken from national accounts, the imputed part derived by applying HIS coefficients and distributed between agricultural and non-agricultural households.
<b>Hungary</b>	Not yet calculated in the IAHS statistics, but in the National accounts it is estimated on a cost basis.
<b>Ireland</b>	Not included. Crude calculations indicate that imputed rents represent on average about 7% of gross household income as measured in the Household Budget Survey.
<b>Italy</b>	Rental values of own dwellings are estimated on the basis of information provided from the household surveys. The values are then compared with the national accounts data (branch: hiring of factory premises).
<b>Latvia</b>	No information provided.
<b>Lithuania</b>	Self-estimated value of rental that a tenant would pay for the same accommodation.
<b>Luxembourg</b>	Imputed rental value of owned dwellings is measured by the value of actual rents of similar dwellings in the countryside, found by an annual survey of rents conducted by STATEC.
<b>Netherlands</b>	CBS (1985). Valued at the economic rentable value, i.e. based on the rental value of an economically equivalent dwelling in the rented sector. Earlier estimates were "according to tax guide-lines ("fiscal laws")."
<b>Poland</b>	In Household Budget Survey imputed rents are planned to estimate starting from 2005. In national accounts, beginning with data for 2003, imputed rental value of owner occupied dwellings is calculated by user cost method. Additionally data for years 1995-2002 have been recalculated using this new method. Shortly, user cost method consists in adding specific cost items like consumption of fixed capital, expenditures on maintenance and repair, taxes, net insurance premiums paid by owner occupants as well as some allowance for net operating surplus.
<b>Portugal</b>	Not stated.
<b>Slovakia</b>	No information provided.
<b>Slovenia</b>	The rental value of the own dwelling is determined by respondents. These data are used only at an aggregate level in the National Accounts.
<b>Spain</b>	A value is imputed similar to the rent which a household would have to pay for a dwelling like the one it occupies if it were a tenant.
<b>Sweden</b>	From income year 1999 an imputed rental value of owner dwellings has been calculated. The total imputed rental value according to National Accounts has been distributed to the households by the tax assessment value for small houses.
<b>United Kingdom</b>	Not included.

Source: UNECE survey on agricultural household income statistics.

Table 20

The basis of calculating the imputed rental value of own dwellings in non-EU countries

Country	
<b>Albania</b>	No information provided.
<b>Andorra</b>	No income statistics for agricultural households.
<b>Armenia</b>	No information provided.
<b>Australia</b>	No information provided.
<b>Azerbaijan</b>	No information provided.
<b>Belarus</b>	No imputation of owner occupied dwellings.
<b>Bulgaria</b>	No imputation of owner occupied dwellings.
<b>Canada</b>	Not used in the agriculture-population linkage database.
<b>Croatia</b>	The estimate is based on an estimate made by the reference person. They are asked in the survey to state the amount they would have to pay if they rented the same type of dwelling.
<b>Georgia</b>	No information provided.
<b>Japan</b>	Based on purchase value of own dwellings: value of own dwellings = present value - depreciation per year.
<b>Kazakhstan</b>	In SNA, the imputed value of housing services in owner-occupied dwellings is calculated on the basis of rentals paid for similar accommodation.
<b>Kyrgyzstan</b>	N/A.
<b>Mexico</b>	The estimate is based on an estimate made by the reference person. They are asked to state the amount they would have to pay/receive if they rented the same type of dwelling.
<b>New Zealand</b>	Imputed rental value of own dwellings is not calculated.
<b>Norway</b>	The value is included in the tax return data. In general, the calculated value is the gross rental value of a similar dwelling in the region concerned. Costs related to the dwelling are deductible. For all kinds of households, the stipulated taxation value of own dwelling is much lower than the real market value.
<b>Republic of Korea</b>	No imputation of owner occupied dwellings.
<b>Republic of Moldova</b>	No imputation of owner occupied dwellings.
<b>Romania</b>	No imputation of owner occupied dwellings.
<b>Switzerland</b>	Income of the agriculture households sector activity removed from statistical programme in 2003.
<b>The former Yugoslav Republic of Macedonia</b>	No imputation of owner occupied dwellings.
<b>Turkey</b>	No information provided.
<b>Turkmenistan</b>	No imputation of owner occupied dwellings.?
<b>Ukraine</b>	No imputation of owner occupied dwellings.
<b>United States of America</b>	USDA measures the rental value of operator dwelling by using direct reported values of the operator dwelling and rent to value ratios obtained from the U.S. Department of Commerce. The product of these two items gives a measure of gross space rent. Survey respondents report expenses on their dwellings except for depreciation which is imputed. Gross rents and expenses are used to calculate an estimate of net rent for operator dwellings.

Source: UNECE survey on agricultural household income statistics.

RESULTS OF UNECE SURVEY ON METHODOLOGIES USED FOR MEASURING AGRICULTURE HOUSEHOLD INCOME STATISTICS  
IN UNECE/OECD MEMBER COUNTRIES

Table 21 (part 1)  
Calculation of Net Disposable Income of Agriculture Households in EU-countries

	Austria (IAHS)	Belgium (IAHS)	Denmark (IAHS)	Estonia	Finland	France (IAHS)	Germany (IAHS)	Greece (IAHS)	Hungary	Ireland	Italy
Number of households	y <sup>n</sup>	y	y	y	y	y	y	y	y	y	y
Number of persons		y	y	y	y	y	y	y	y	y	y
Number of consumer units			y	y	y	y	y	y		y	y
<b>1 FROM INDEPENDENT ACTIVITY</b>	<b>y</b>	<b>y</b>	<b>y</b>		<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y@</b>	<b>y</b>	<b>y</b>
1a From independent agricultural activity									y@		
Net Operating Surplus		y	y	(y) and (*)				y	y@		y
Income	y			y		y	y			y	y
1b From independent non-agricultural activity					y				y@		
Net Operating Surplus		y	y	(y) and (*)				y	y@		y
Income	y			y		y	y			y	y
1c Net Operating Surplus from imputed rental value of owner-dwellings		y	y <sup>i</sup>	@	y	y	y	y			y
<b>2 DEPENDENT ACTIVITY of which</b>	<b>y</b>	<b>y</b>	<b>y</b>		<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>
2a Wages and salaries		y	y	y	y	*	y	y	y	y	
2b Employer's actual social contributions				(y) and (*)		*	y	y <sup>ii</sup>			
2c Imputed social contributions				(y) and (*)		*	y				
<b>3 PROPERTY INCOME RECEIVED of which</b>	<b>*</b>	<b>y</b>	<b>y</b>		<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>
3a Interest	?	y	*	y	y	y	*	y	y	*	
3b Dividends	?	*		y	y	y	*	y	y	*	
3c Withdrawals from quasi-corporations		*	*	(y) and (*)	*	*	(*)	*		*	
3d Property income attributed to insurance policy holders		y		(y) and (*)		y	*	*		*	
3e Rents on land and subsoil assets	*	*	*	y	*	y	*	y		*	
<b>4 NON-LIFE INSURANCE CLAIMS</b>		<b>y</b>				<b>y</b>	<b>y</b>	<b>y</b>			<b>y</b>
4a Claims on capital items		*		(y) and (*)			*				
4b Claims on personal accident		*		(y) and (*)			*				
<b>5 SOCIAL BENEFITS received (other than social transfers in kind)</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>
<b>6 MISCELLANEOUS INWARD CURRENT TRANSFERS</b>		<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>
<b>7 CURRENT RECEIPTS Sum of 1-6</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>(y) and (*)</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>		<b>y</b>
<b>8 PROPERTY INCOME PAID of which</b>	<b>*</b>	<b>y</b>	<b>y</b>		<b>*</b>	<b>y</b>	<b>y</b>	<b>y</b>		<b>*</b>	<b>y</b>
8a Interest on loans for		y	*		*	y		y			
(i) farming purposes		y	*	(y) and (*)	*	*	*	*		*	
(ii) purchase of agriculture land and		*	*	(y) and (*)	*	*	*	*		*	
(iii) other business purposes		*	*	(y) and (*)	*	*	*	*		*	
(iv) private and other credit		y	*	(y) and (*)			y	*		*	
8b Rents on		y			*	y	*	y		*	
(i) agricultural land and buildings		y	*	(y) and (*)	*	*	*	*		*	
(ii) other business land and buildings			*	(y) and (*)	*	*	*	* <sup>iii</sup>		*	
<b>9 NET NON-LIFE INSURANCE PREMIUMS</b>	<b>*</b>	<b>y</b>		<b>(y) and (*)</b>		<b>*</b>	<b>y</b>	<b>y</b>			<b>y</b>
<b>10 CURRENT TAXES ON INCOMES AND WEALTH of which</b>	<b>y</b>	<b>y</b>	<b>y</b>		<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>
10a on income		y		(y) and (*)	*	y	*	y	y	*	
10b on capital gains				(y) and (*)	*	y	*	*		*	
10c on capital or wealth				(y) and (*)	*	y	*	y		*	
10d on private use of vehicles etc.				-		y	*	y			

TABLE TO BE CONTINUED ON THE NEXT PAGE

Table 21 (part 1 concluded)

Calculation of Net Disposable Income of Agriculture Households in EU-countries

	Austria (IAHS)	Belgium (IAHS)	Denmark (IAHS)	Estonia	Finland	France (IAHS)	Germany (IAHS)	Greece (IAHS)	Hungary	Ireland	Italy
<b>11 SOCIAL CONTRIBUTIONS of which</b>	<b>y</b>	<b>y</b>	<b>y</b>		<b>y</b>	<b>*</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>
11a Actual		y			y	*	y	y	y	y	
(i) employers' actual social contributions				(y) and (*)		*	y	* <sup>iiij</sup>			
(ii) employees' social contributions				(y) and (*)	y	*	y	*		*	
(iii) by self-employed and non-employed	y	y		(y) and (*)		*	y	*		*	
11b Imputed				y		*	y	y <sup>ii</sup>			
<b>12 MISCELLANEOUS OUTGOING CURRENT TRANSFERS of which</b>		<b>y</b>			<b>*</b>	<b>*</b>	<b>y</b>	<b>y</b>		<b>y</b>	<b>y</b>
12a to NPISHs				@		*	*	y		*	
12b between households		y		y	*	*	*	y			
12c other		y		y		y	*	y		(*)	
<b>13 NET DISPOSABLE INCOME (7 minus 8-12) OR ANOTHER DEFINED CONCEPT</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>(y) and (*)</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>		<b>y</b>	<b>y</b>
<b>14 SOCIAL TRANSFERS IN KIND</b>				<b>(y) and (*)</b>							
<b>15 NET ADJUSTED DISPOSABLE INCOME</b>				<b>(y) and (*)</b>							

Source: UNECE survey on agriculture household income.

Notes: y = yes, explicit data; \* = implied data covered elsewhere; (y) and (\*) = covered in part; @ = gross of capital consumption.



Table 21 (part 2)

Calculation of Net Disposable Income of Agriculture Households in EU-countries

	Luxemb. (IAHS)	Latvia	Lithuania	Nether- lands	Poland	Portugal (IAHS)	Slovakia - no info	Slovenia	Spain (IAHS)	Sweden	United Kingdom
Number of households	y	y	y	y		y			y	y	y
Number of persons	y	y	y	y		y			y	y	
Number of consumer units	y			y		y			y		
<b>1 FROM INDEPENDENT ACTIVITY</b>	<b>y</b>	<b>y</b>		<b>y</b>		<b>y</b>		<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>
1a From independent agricultural activity		y	y					y			
Net Operating Surplus	y	y	y	y	-	*(@)			y		
Income		y	y		y					*	y
1b From independent non-agricultural activity			y					y			
Net Operating Surplus	y		y	y	-	*(@)		y	*		
Income		y	y		y					*	y
1c Net Operating Surplus from imputed rental value of owner-dwellings	y	y		y	-	y		y	y	y	
<b>2 DEPENDENT ACTIVITY of which</b>	<b>y</b>	<b>y</b>		<b>y</b>		<b>y</b>			<b>y</b>	<b>y</b>	<b>y</b>
2a Wages and salaries		y	y	y	y			y	y	y	y
2b Employer's actual social contributions			*	y	-			y	y		
2c Imputed social contributions				*	-				y	y	
<b>3 PROPERTY INCOME RECEIVED of which</b>	<b>y</b>	<b>y</b>		<b>y</b>		<b>y</b>			<b>y</b>	<b>y</b>	<b>y</b>
3a Interest	y	y	(y) and (*)	y	y			y	y		*
3b Dividends	y	y	y	y	y			y	*		*
3c Withdrawals from quasi-corporations					y				*		
3d Property income attributed to insurance policy holders					-			*	y		
3e Rents on land and subsoil assets	y	y	y	*	y			y	y		*
<b>4 NON-LIFE INSURANCE CLAIMS</b>	<b>y</b>					<b>y</b>			<b>y</b>	<b>(*)</b>	
4a Claims on capital items	y				y			*			
4b Claims on personal accident	y		y		y			*			*
<b>5 SOCIAL BENEFITS received (other than social transfers in kind)</b>	<b>y</b>		<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>		<b>y</b>	<b>y</b>	<b>y</b>	<b>(y)</b>
<b>6 MISCELLANEOUS INWARD CURRENT TRANSFERS</b>			<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>		<b>*</b>	<b>y</b>	<b>(*)</b>	
<b>7 CURRENT RECEIPTS Sum of 1-6</b>	<b>y</b>		<b>y</b>	<b>y</b>		<b>y</b>			<b>y</b>	<b>y</b>	<b>y</b>
<b>8 PROPERTY INCOME PAID of which</b>	<b>y</b>	<b>y</b>		<b>y</b>		<b>y</b>			<b>y</b>	<b>y</b>	<b>*</b>
8a Interest on loans for				y					y		
(i) farming purposes	y	y	(y) and (*)	*	-			y	*		y
(ii) purchase of agriculture land and buildings		y		*	-				*		*
(iii) other business purposes		y		*	-			y	*		*
(iv) private and other credit	y			*	-			y	*		
8b Rents on				y							
(i) agricultural land and buildings	y	y	y	*	-			y			y
(ii) other business land and buildings				*							*
<b>9 NET NON-LIFE INSURANCE PREMIUMS</b>	<b>y</b>					<b>y</b>			<b>y</b>	<b>(*)</b>	
<b>10 CURRENT TAXES ON INCOMES AND WEALTH of which</b>	<b>y</b>			<b>y</b>		<b>y</b>			<b>y</b>	<b>y</b>	
10a on income	y		y	y	-	*		y	*		
10b on capital gains					-			y	*		
10c on capital or wealth	y			y	y	*			y		
10d on private use of vehicles etc.	y			*	y				y		

TABLE TO BE CONTINUED ON THE NEXT PAGE

RESULTS OF UNECE SURVEY ON METHODOLOGIES USED FOR MEASURING AGRICULTURE HOUSEHOLD INCOME STATISTICS  
IN UNECE/OECD MEMBER COUNTRIES

Table 21 (part 2 concluded)

Calculation of Net Disposable Income of Agriculture Households in EU-countries

	Luxemb. (IAHS)	Latvia	Lithuania	Nether- lands	Poland	Portugal (IAHS)	Slovakia - no info	Slovenia	Spain (IAHS)	Sweden	United Kingdom
<b>11 SOCIAL CONTRIBUTIONS of which</b>	y		y	y		y			y	y	
11a Actual	y		y	*					y		
(i) employers' actual social contributions			(y) and (*)	*	-			y	y		
(ii) employees' social contributions				*	-				y		
(iii) by self-employed and non-employed persons			(y) and (*)	*	-			y	y		
11b Imputed				*	-				y		
<b>12 MISCELLANEOUS OUTGOING CURRENT TRANSFERS of which</b>	y		y	y		y			y	(y)	
12a to NPISHs				*	y				y		
12b between households			(y) and (*)	y	y			y	y		
12c other	y		y	y	y				y		
<b>13 NET DISPOSABLE INCOME (7 minus 8-12) OR ANOTHER DEFINED CONCEPT</b>	y		y	y	7- (8b+10cd +12)	y			y	y	
<b>14 SOCIAL TRANSFERS IN KIND</b>			(y) and (*)		-			*	y		
<b>15 NET ADJUSTED DISPOSABLE INCOME</b>			y		-				y		

Source: UNECE survey on agriculture household income.

Notes: y = yes, explicit data; \* = implied data covered elsewhere; (y) and (\*) = covered in part; @ = gross of capital consumption.

Table 22 (part 1)  
 Calculation of Net Disposable Income of Agriculture Households in non-EU countries

	Albania	Andorra	Armenia	Australia	Azerbaijan	Belarus	Bulgaria	Canada 1/	Croatia
Number of households	y	n/a	n/a	y	y	y	y	y	y
Number of persons	y	n/a	n/a	y	y	y	y	y	y
Number of consumer units	y	n/a	n/a		y	y			(y) and (*)
<b>1 FROM INDEPENDENT ACTIVITY</b>	<b>(y) and (*)</b>	<b>n/a</b>	<b>n/a</b>						
1a From independent agricultural activity		n/a	n/a		y		y		
Net Operating Surplus		n/a	n/a		@		y	y	y
Income		n/a	n/a	1/	y		y		y
1b From independent non-agricultural activity		n/a	n/a		y		y		
Net Operating Surplus		n/a	n/a		@		-	y	y
Income		n/a	n/a	2/	y		-		y
1c Net Operating Surplus from imputed rental value of owner-dwellings		n/a	n/a		@				
<b>2 DEPENDENT ACTIVITY of which</b>	<b>(y) and (*)</b>	<b>n/a</b>	<b>n/a</b>				<b>y</b>	<b>y</b>	<b>*</b>
2a Wages and salaries	(y) and (*)	n/a	n/a	y	y	y	y	y	*
2b Employer's actual social contributions	(y) and (*)	n/a	n/a		y		y		*
2c Imputed social contributions		n/a	n/a		y		-		*
<b>3 PROPERTY INCOME RECEIVED of which</b>	<b>*</b>	<b>n/a</b>	<b>n/a</b>				<b>y</b>	<b>y</b>	<b>*</b>
3a Interest		n/a	n/a	y	y	y	y	y	*
3b Dividends		n/a	n/a	y	y	y	y	y	*
3c Withdrawals from quasi-corporations		n/a	n/a	*	@		-	y	*
3d Property income attributed to insurance policy holders		n/a	n/a		y		y	y	*
3e Rents on land and subsoil assets		n/a	n/a	*	y		y	y	*
<b>4 NON-LIFE INSURANCE CLAIMS</b>	<b>*</b>	<b>n/a</b>	<b>n/a</b>				<b>y</b>		<b>*</b>
4a Claims on capital items		n/a	n/a		@		y		*
4b Claims on personal accident		n/a	n/a		@		y		*
<b>5 SOCIAL BENEFITS received (other than social transfers in kind)</b>	<b>(y) and (*)</b>	<b>n/a</b>	<b>n/a</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>(y) and (*)</b>
<b>6 MISCELLANEOUS INWARD CURRENT TRANSFERS</b>	<b>(*)</b>	<b>n/a</b>	<b>n/a</b>	<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>		<b>*</b>
<b>7 CURRENT RECEIPTS Sum of 1-6</b>	<b>(*)</b>	<b>n/a</b>	<b>n/a</b>		<b>y</b>		<b>y</b>		
<b>8 PROPERTY INCOME PAID of which</b>	<b>(*)</b>	<b>n/a</b>	<b>n/a</b>				<b>y</b>		
8a Interest on loans for		n/a	n/a		y		y		
(i) farming purposes		n/a	n/a		@			y 2/	*
(ii) purchase of agriculture land and		n/a	n/a		@			y 2/	*
(iii) other business purposes		n/a	n/a		@			y 2/	*
(iv) private and other credit		n/a	n/a		@			y 2/	*
8b Rents on	(*)	n/a	n/a				-		
(i) agricultural land and buildings		n/a	n/a	y		y	y		*
(ii) other business land and buildings		n/a	n/a	y					*

TABLE TO BE CONTINUED ON THE NEXT PAGE

Table 22 (part 1 concluded)

Calculation of Net Disposable Income of Agriculture Households in non-EU countries

		Albania	Andorra	Armenia	Australia	Azer- bajjan	Belarus	Bulgaria	Canada 1/	Croatia
<b>9</b>	<b>NET NON-LIFE INSURANCE PREMIUMS</b>	(*)	n/a	n/a		y		y		*
<b>10</b>	<b>CURRENT TAXES ON INCOMES AND WEALTH of which</b>	(*)	n/a	n/a		y		y		
10a	on income		n/a	n/a	y (imputed)	y		y		y
10b	on capital gains		n/a	n/a		@		-		*
10c	on capital or wealth		n/a	n/a		@		y		y
10d	on private use of vehicles etc.		n/a	n/a		@		-		y
<b>11</b>	<b>SOCIAL CONTRIBUTIONS of which</b>	(*)	n/a	n/a				y		
11a	Actual		n/a	n/a		@		-		
	(i) employers' actual social contributions		n/a	n/a		@				*
	(ii) employees' social contributions		n/a	n/a		@				*
	(iii) by self-employed and non-employed		n/a	n/a		@				*
11b	Imputed		n/a	n/a		@		-		*
<b>12</b>	<b>MISCELLANEOUS OUTGOING CURRENT TRANSFERS of which</b>	(*)	n/a	n/a		@		y		
12a	to NPISHs		n/a	n/a		@		-		*
12b	between households		n/a	n/a		y	y	-		*
12c	other		n/a	n/a		y		-		*
<b>13</b>	<b>NET DISPOSABLE INCOME (7 minus 8-12) OR ANOTHER DEFINED CONCEPT</b>	(*)	n/a	n/a		y		y		
<b>14</b>	<b>SOCIAL TRANSFERS IN KIND</b>	(*)	n/a	n/a	y (imputed for HIES only)	y	y	y		(y) and (*)
<b>15</b>	<b>NET ADJUSTED DISPOSABLE INCOME</b>	(*)	n/a	n/a		@		y		

Source: UNECE survey on agriculture household income.

*Australia*: 1/ Number of consumer units could be calculated but isn't.

*Australia*: 2/ Income from independent activity – income from unincorporated business (including sole traders and partnerships) is measured in the survey as the profit or loss of the business. Profit/loss consists of the value of gross output of the enterprise after the deduction of operating expenses (including depreciation). This income is not able to be split by whether it relates to agricultural or non agricultural activity.

*Canada*: 1/ Data in the table is based on the Census of Agriculture. A separate table is available with information on income from all data sources in Canada.

*Canada*: 2/ Property income received and interest loans as a group not individually.

*Croatia*: There is no income data classified by the socio-economic type of the household.

Notes: y = yes, explicit data; \* = implied data covered elsewhere; (y) and (\*) = covered in part; @ = gross of capital consumption.

Table 22 (part 2)  
 Calculation of Net Disposable Income of Agriculture Households in non-EU countries

	Georgia 1/	Japan	Kazakh- stan	Kyrgyz- stan	Mexico	New Zealand	Norway	Republic of Korea
Number of households	y	n	n/a	y	y	y		y
Number of persons	y	n	n/a	y	y	y		y
Number of consumer units	y	n	n/a		y			n
<b>1 FROM INDEPENDENT ACTIVITY</b>			<b>n/a</b>				<b>y</b>	<b>y</b>
1a From independent agricultural activity			n/a		y		y	y
Net Operating Surplus		y	n/a		y*	y* 1/	y	y
Income	y	y	n/a		y		y	y
1b From independent non-agricultural activity			n/a		y		y	y
Net Operating Surplus		y	n/a		y*	y*	y	y
Income	y	y	n/a		y		y	y
1c Net Operating Surplus from imputed rental value of owner-dwellings		y	n/a		y		(y) and (*)	n
<b>2 DEPENDENT ACTIVITY of which</b>			<b>n/a</b>					<b>(y) and (*)</b>
2a Wages and salaries	y	y	n/a		y	y	y	y
2b Employer's actual social contributions		y	n/a		y*			n
2c Imputed social contributions		y	n/a		y*			n
<b>3 PROPERTY INCOME RECEIVED of which</b>	<b>y</b>		<b>n/a</b>					<b>y</b>
3a Interest		y	n/a		y	y	y	y
3b Dividends		y	n/a		y	y	y	y
3c Withdrawals from quasi-corporations		y	n/a		y	(y)	y	n
3d Property income attributed to insurance policy holders		y	n/a		y		y	n
3e Rents on land and subsoil assets		y	n/a		y	y		(y) and (*)
<b>4 NON-LIFE INSURANCE CLAIMS</b>			<b>n/a</b>					<b>(y) and (*)</b>
4a Claims on capital items		y	n/a		y			n
4b Claims on personal accident		y	n/a		y			y
<b>5 SOCIAL BENEFITS received (other than social transfers in kind )</b>	<b>y</b>	<b>y</b>	<b>n/a</b>		<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>
<b>6 MISCELLANEOUS INWARD CURRENT TRANSFERS</b>	<b>y</b>	<b>y</b>	<b>n/a</b>		<b>y</b>	<b>y</b>	<b>y</b>	<b>y</b>
<b>7 CURRENT RECEIPTS Sum of 1-6</b>		<b>y</b>	<b>n/a</b>		<b>y</b>	<b>y (except 4)</b>	<b>y</b>	<b>(y) and (*)</b>
<b>8 PROPERTY INCOME PAID of which</b>			<b>n/a</b>					<b>y</b>
8a Interest on loans for			n/a			y 2/	y	y
(i) farming purposes		y	n/a		y		*	y
(ii) purchase of agriculture land and buildings		y	n/a		y		*	y
(iii) other business purposes		y	n/a		y		*	y
(iv) private and other credit		y	n/a		y		*	y
8b Rents on			n/a			y		(y) and (*)
(i) agricultural land and buildings		y	n/a		y			(y) and (*)
(ii) other business land and buildings		y	n/a		y			(y) and (*)

*TABLE TO BE CONTINUED ON THE NEXT PAGE*

Table 22 (part 2 concluded)

Calculation of Net Disposable Income of Agriculture Households in non-EU countries

		Georgia 1/	Japan	Kazakh- stan	Kyrgyz- stan	Mexico	New Zealand	Norway	Republic of Korea
<b>9</b>	<b>NET NON-LIFE INSURANCE PREMIUMS</b>		y	n/a			y 3/		y
<b>10</b>	<b>CURRENT TAXES ON INCOMES AND WEALTH of which</b>			n/a				y	(y) and (*)
10a	on income		y	n/a			y	y	(y) and (*)
10b	on capital gains		y	n/a				*	(y) and (*)
10c	on capital or wealth		y	n/a		y*		y	(y) and (*)
10d	on private use of vehicles etc.		y	n/a		y		*	(y) and (*)
<b>11</b>	<b>SOCIAL CONTRIBUTIONS of which</b>			n/a					n
11a	Actual			n/a					n
	(i) employers' actual social contributions		y	n/a		y*			n
	(ii) employees' social contributions		y	n/a					n
	(iii) by self-employed and non-employed persons		y	n/a				y	n
11b	Imputed		y	n/a		y*			n
<b>12</b>	<b>MISCELLANEOUS OUTGOING CURRENT TRANSFERS of which</b>			n/a					(y) and (*)
12a	to NPISHs		?	n/a		y			n
12b	between households		y	n/a		y		y	(y) and (*)
12c	other		y	n/a		y			(y) and (*)
<b>13</b>	<b>NET DISPOSABLE INCOME (7 minus 8-12) OR ANOTHER DEFINED CONCEPT</b>		y	n/a		y*	y (7 minus 10a)	y	n
<b>14</b>	<b>SOCIAL TRANSFERS IN KIND</b>		y	n/a		y			n
<b>15</b>	<b>NET ADJUSTED DISPOSABLE INCOME</b>		y	n/a		y			n

Source: UNECE survey on agriculture household income.

*Georgia*: Information not provided in this form but information taken from a different table which was provided.

*Kazakhstan*: Data for money incomes being of low quality, the level of incomes has therefore been evaluated since 2001 on the basis of expenditure on consumption plus a monetary estimate of consumption by household members of produce from private plots.

*Kyrgyzstan*: Net disposable income not calculated.

*New Zealand*: 1/ Net operating surplus doesn't differentiate between agricultural and non-agricultural activity.

*New Zealand*: 2/ Interest on loans and rents are classified as expenditure.

*New Zealand*: 3/ Insurance premiums are estimated.

*Republic of Korea*: Disposable income = Farm household income - non consumption expenditures (taxes & dues, remittance by family, other cash and gift donation, etc).

Notes: y = yes, explicit data; \* = implied data covered elsewhere; (y) and (\*) = covered in part; @ = gross of capital consumption.

Table 22 (part 3)  
 Calculation of Net Disposable Income of Agriculture Households in non-EU countries

	Republic of Moldova	Romania	Switzerland	The former Yugoslav Rep. of Macedonia	Turkey	Turkmenistan	Ukraine	United States of America
Number of households	y	y	n/a	y	n/a	y	y	y
Number of persons	y	y	n/a	y	n/a	y	y	y
Number of consumer units	y	n	n/a		n/a		y	not calculated
<b>1 FROM INDEPENDENT ACTIVITY</b>			<b>n/a</b>	<b>y</b>	<b>n/a</b>		<b>y</b>	<b>y</b>
1a From independent agricultural activity	y		n/a	y	n/a	y		y
Net Operating Surplus	y	n	n/a		n/a			y
Income	n	y	n/a		n/a	y	y	y
1b From independent non-agricultural activity	y		n/a		n/a	y	y	
Net Operating Surplus	y	n	n/a		n/a			
Income	n	y	n/a		n/a	y	y	y
1c Net Operating Surplus from imputed rental value of owner-dwellings	n	n	n/a		n/a		n	y
<b>2 DEPENDENT ACTIVITY of which</b>		<b>y</b>	<b>n/a</b>	<b>y</b>	<b>n/a</b>			<b>y</b>
2a Wages and salaries	y	y	n/a	y	n/a	y	y	y
2b Employer's actual social contributions	n	n	n/a		n/a		?	
2c Imputed social contributions	n	n	n/a		n/a	y		
<b>3 PROPERTY INCOME RECEIVED of which</b>	<b>y</b>	<b>y</b>	<b>n/a</b>	<b>y</b>	<b>n/a</b>			<b>y</b>
3a Interest	y	y	n/a		n/a	y	y	y
3b Dividends	y	y	n/a	y	n/a	y	y	y
3c Withdrawals from quasi-corporations	n	n	n/a		n/a			
3d Property income attributed to insurance policy holders	n	y	n/a		n/a	y		
3e Rents on land and subsoil assets	y	y	n/a	y	n/a	y	y	y
<b>4 NON-LIFE INSURANCE CLAIMS</b>	<b>n</b>	<b>1/</b>	<b>n/a</b>	<b>y</b>	<b>n/a</b>	<b>y</b>		
4a Claims on capital items	n		n/a	y	n/a			
4b Claims on personal accident	n		n/a	y	n/a			
<b>5 SOCIAL BENEFITS received (other than social transfers in kind )</b>	<b>y</b>	<b>y</b>	<b>n/a</b>	<b>y</b>	<b>n/a</b>	<b>(y) and (*)</b>	<b>y</b>	
<b>6 MISCELLANEOUS INWARD CURRENT TRANSFERS</b>	<b>y</b>	<b>2/</b>	<b>n/a</b>	<b>y</b>	<b>n/a</b>		<b>y</b>	<b>y</b>
<b>7 CURRENT RECEIPTS Sum of 1-6</b>	<b>*</b>		<b>n/a</b>	<b>y</b>	<b>n/a</b>		<b>y</b>	<b>y</b>
<b>8 PROPERTY INCOME PAID of which</b>	<b>*</b>		<b>n/a</b>		<b>n/a</b>			<b>y</b>
8a Interest on loans for	*	3/	n/a		n/a			
(i) farming purposes	*		n/a		n/a			y
(ii) purchase of agriculture land and buildings	*	n	n/a		n/a	y		y
(iii) other business purposes	*	4/	n/a		n/a			y
(iv) private and other credit	*	y	n/a		n/a	y		
8b Rents on	n		n/a		n/a			
(i) agricultural land and buildings	n	y	n/a		n/a	(y) and (*)		y
(ii) other business land and buildings	n	y	n/a		n/a	(y) and (*)		

*TABLE TO BE CONTINUED ON THE NEXT PAGE*

Table 22 (part 3 concluded)

Calculation of Net Disposable Income of Agriculture Households in non-EU countries

		Republic of Moldova	Romania	Switzer- land	The former Yugoslav Rep. of Macedonia	Turkey	Turkme- nistan	Ukraine	United States of America
<b>9</b>	<b>NET NON-LIFE INSURANCE PREMIUMS</b>	n	y	n/a		n/a			
<b>10</b>	<b>CURRENT TAXES ON INCOMES AND WEALTH of which</b>	n	n	n/a		n/a			
10a	on income	n		n/a		n/a	y		
10b	on capital gains	-		n/a		n/a			
10c	on capital or wealth	-	n	n/a		n/a			
10d	on private use of vehicles etc.	-	y	n/a		n/a	(y) and (*)		
<b>11</b>	<b>SOCIAL CONTRIBUTIONS of which</b>	-	y	n/a		n/a			
11a	Actual	-	n	n/a		n/a			
	(i) employers' actual social contributions	-		n/a		n/a			
	(ii) employees' social contributions	-		n/a		n/a			
	(iii) by self-employed and non-employed persons	-	y	n/a		n/a			
11b	Imputed	-		n/a		n/a			
<b>12</b>	<b>MISCELLANEOUS OUTGOING CURRENT TRANSFERS of which</b>	y		n/a		n/a			
12a	to NPISHs	n	5/	n/a		n/a			
12b	between households	y		n/a		n/a		?	
12c	other			n/a		n/a		?	
<b>13</b>	<b>NET DISPOSABLE INCOME (7 minus 8-12) OR ANOTHER DEFINED CONCEPT</b>	y		n/a	y	n/a			
<b>14</b>	<b>SOCIAL TRANSFERS IN KIND</b>	-		n/a	y	n/a	y		
<b>15</b>	<b>NET ADJUSTED DISPOSABLE INCOME</b>	y		n/a		n/a			

Source: UNECE survey on agriculture household income.

Romania : 1/ Sums cashed as compensation within the insurance for goods and persons.

Romania : 2/ Amounts received from persons outside the household and amounts received monthly from non-profit societies.

Romania : 3/ The payment of interest for loans taken for own dwellings, loans from banks and from the 'Mutual Benefit fund', from credit co-ops, loans from private people or economic agents etc.

Romania : 4/ Payment of rent for buildings rented from the state, payment of rent for furnished and non-furnished dwellings.

Romania : 5/ Equivalent value of in-kind income obtained by employees, equivalent value of in-kind incomes obtained by beneficiaries of social benefit allowances.

Switzerland : Income of the agriculture households sector activity removed from statistical programme in 2003.

United States : Number of consumer units could be calculated but isn't.

Notes: y = yes, explicit data; \* = implied data covered elsewhere; (y) and (\*) = covered in part; @ = gross of capital consumption.



## ANNEX 10

### FROM AGRICULTURAL TO RURAL STANDARD OF LIVING SURVEYS

In recent years there has been a progressive shift in interest of both of the academic community and policymakers from narrow agricultural support policies to wider rural development policies. This change has prompted a rethink of the data needed to assess the socio-economic impact of the new rural policy programs and to monitor the living standard of the rural population.

#### (i) The statistical data presently available

The statistical information presently available is not very helpful for assessing the socio-economic impact of these new rural policy programs. Graph 1 depicts the portion of the “rural living standard space” covered by the different kinds of surveys that are currently undertaken.

The traditional *agricultural surveys*, such as the FADN/RICA, usually provide only the information needed to capture the economic impact of farm programs at the holding or at the sector level. In contrast, *farm business household surveys*, for example the ARMS of the USDA (see chapter XIV.1) as well as the Italian Ismea survey (see chapter XIV.2), provide the data needed to better understand agricultural household behaviour and to assess their welfare. Accordingly, they can be defined as *agricultural household standard of living surveys*. While these kinds of surveys represent an important advancement in terms of agricultural policy assessment, they are of little help in monitoring and analysing the well-being of the wider rural population. This is particularly true in the industrialized countries, where the agricultural population constitutes only a small subset of the entire rural population.

*Household budget surveys* and *living conditions surveys*, for example the EU-SILC, collect data on the household income of the whole rural population, including both the agricultural and non-agricultural population. As a consequence, these surveys can be used to monitor the overall standard of living in rural areas.

However, there are some problems with these surveys. A first problem is that the agricultural sub-sample is often too small to be statistically significant (see Annex on UNECE survey). A second problem stems from the kind of information they provide: for example, living conditions surveys do not collect data on consumption. In addition, both living condition and consumption surveys do not usually collect data on farm and non-farm businesses that are run by households. As a consequence, their contribution to setting policy goals and priorities and to the evaluation of policy programmes is insufficient due to lack of some of the information needed to model household behaviour.

The most comprehensive survey presently in use is the one proposed by *the Living Standards Measurement Unit of the World Bank*. This survey collects data on the socio-economic condition of households, the business run by the household and the socio-economic environment within which the household operates.

#### (ii) The Living Standards Measurement surveys of the World Bank

The long-term experience that the Living Standards Measurement (LSM) Unit of the World Bank has in the design of surveys aimed at measuring the living standards of both the urban and rural population represents a valuable learning opportunity. The objective of the LSM Unit, originally established by the World Bank in 1980, was to develop new methods for monitoring progress in raising levels of living, to

identify the consequences for households of current and proposed government policies, and to improve communications between survey statisticians, analysts, and policymakers in order to explore ways of improving the type and quality of household data collected by government statistical offices in developing countries (Grosh and Glewwe, 1995). Given the economic environment of the less developed countries, the surveys produced by the LSM Unit are especially concerned with the problems of rural communities and are therefore especially important.

To collect data on many dimensions of household well-being, including consumption, income, savings, employment, health, education, fertility, nutrition, housing and migration the LSMS surveys make usually use of three different kinds of questionnaires.

The first of these questionnaires are *household questionnaires*. These collect detailed information on the household members. Because economic welfare is traditionally deduced from consumption data, the measurement of consumption is usually strongly emphasized. A wide range of income information, such as wages or in kind compensation from principal as well as secondary jobs, is also collected. In addition, agriculture and small enterprise modules are designed to yield estimates of net household income from these activities. Data on other sources of miscellaneous income, such as private or public transfers, are also collected.

In order to limit the length of the household questionnaire a second questionnaire, the *community questionnaire*, is used to obtain information on local conditions that are common to all households in the area. Community questionnaires are normally used only in rural areas, where local communities are easier to define than in urban areas. Key community leaders and groups are asked to give information on the location and quality of health facilities and schools, the condition of local infrastructure such as roads, sources of fuel and water, availability of electricity, means of communication and agricultural conditions and practices.

In countries in which prices vary considerably among regions, a *price questionnaire* is used to gather information on the prices that households are faced with in practice.

A fourth type of questionnaire, the *Special Facility Questionnaires* on schools or health facilities, is sometimes used as well.

### **(iii) A prototypical rural living standard survey**

In order to assess the impact of policy programmes on the standards of living of rural households a new kind of survey has to be designed. This survey has to collect detailed information on both agricultural and non-agricultural household enterprises, as well as on the whole socio-economic environment in rural areas.

Figure 1 demonstrates what kind of information is provided by the surveys that are presently available and how each contributes to the overall coverage needed to represent the socioeconomic dimension of rural space. It is easy to see that none of these surveys covers all the information needed: agricultural surveys such as FADN collect much information on the agricultural production process but not enough detailed information on the agricultural household and on other businesses run by households; the ARMS and Ismea surveys gather the information needed to assess the welfare position of agricultural households but none for all the other rural households; urban/rural surveys on living standards (LSMS) and living conditions (SILC) do not usually provide important information about farm and non-farm enterprises run by rural households.

It is clear that some linkage between these different surveys would provide comprehensive coverage of rural socio-economic conditions. In order to assess the overall welfare of rural households, the multitopic structure used by the LSMS can be integrated with modules providing information on:

- consumption of household members;
- time use of household members;
- real and financial wealth of the household;
- intra-household transfers;
- non-farm business run by the household
- environmental impact of the farm.

A prototypical rural living standard questionnaire, obtained by integrating the LSMS modules with those in use in the Ismea and ARMS surveys is presented in the first column of table 1.

### **References**

Grosh, M. & Glewwe, P. (1996). "A Guide to Living Standards Surveys and Their Data Sets". LSMS Working Paper #120, The World Bank.

**Table 1**  
**A prototypical rural living standard questionnaire**

	Rural	Rural/urban		Agricultural		
		LSMS	SILC	Ismea	ARMS	Rica/FADN
<b>HOUSEHOLD MODULES</b>						
DEMOGRAFIC DATA	X	X	X	X	X	X
CHARACTERISTICS OF HOUSING	X	X	X	X		
EDUCATION	X	X		X	X	
HEALTH	X	X				
EMPLOYMENT	X	X	X		X	
TIME USE	X	X		X	X	
MIGRATION	X	X				
AGRICULTURAL ACTIVITIES	X	X		X	X	X
NON AGRICULTURAL HOUSEHOLD ENTERPRISE	X	X			X	
EXPENDITURE ON FOOD	X	X		X	X	
EXPENDITURE ON NON-FOOD	X	X		X	X	
FERTILITY	X	X				
OTHER INCOME	X	X	X	X	X	
SAVING AND BORROWING	X	X		X	X	
ANTHROPOMETRIC	X	X				
BEQUEST AND PREFERENCES ABOUT CHILDREN	X			X		
TECHNOLOGY AND ENVIRONMENT	X			X		
INTRA-HOUSEHOLD DECISIONS	X			X		
INTRA-HOUSEHOLD TRANSFERS	X			X		
<b>COMMUNITY MODULES</b>						
DEMOGRAPHIC INFORMATION	X	X				
ECONOMY AND INFRASTRUCTURE	X	X				
EDUCATION	X	X				
HEALTH	X	X				
AGRICULTURE	X	X				
<b>PRICE MODULE</b>						
	X	X				
<b>SERVICES</b>						
access, need, reason for not using, satisfaction, type use	X	X				

Figure 1

