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Poverty and Inequality in a Growing Economy

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ACRONYMS AND ABBREVIATIONS

| | | | |
|------|--|--------|---|
| ALMP | Active Labor Market Programs | IMF | International Monetary Fund |
| BSM | Budget of Subsistence Minimum | IMR | Infant Mortality Rate |
| BYR | Belarusian Ruble | IVD | Intravenous Drugs |
| CAE | Consumption per Adult Equivalent | LFPR | Labor Force Participation Rate |
| CBN | Cost of Basic Needs | MCB | Minimum Consumption Budget |
| CEE | Central and Eastern Europe | MDG | Millennium Development Goal |
| CHD | Cardiovascular Heart Disease | ME | Ministry of Economy |
| CIS | Commonwealth of Independent States | MLSP | Ministry of Labor and Social Protection |
| CPI | Consumer Price Index | MoSA | Ministry of Statistics and Analysis |
| CVD | Cardiovascular Diseases | NBB | National Bank of Belarus |
| EBRD | European Bank for Reconstruction and Development | NIS | New Independent States |
| ECA | Europe and Central Asia Region | OECD | Organization for Economic Cooperation and Development |
| FSU | Former Soviet Union | PAYG | Pay-as-you-go |
| GDP | Gross Domestic Product | SP | Social Protection |
| GIC | Growth Incidence Curves | TB | Tuberculosis |
| GMI | Guaranteed Minimum Income | TSA | Targeted Social Assistance |
| GOB | Government of Belarus | UNICEF | United Nation's Children Fund |
| HIES | Household Income and Expenditure Survey | WB | World Bank |
| ILO | International Labor Organization | WHO | World Health Organization |

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Executive Summary

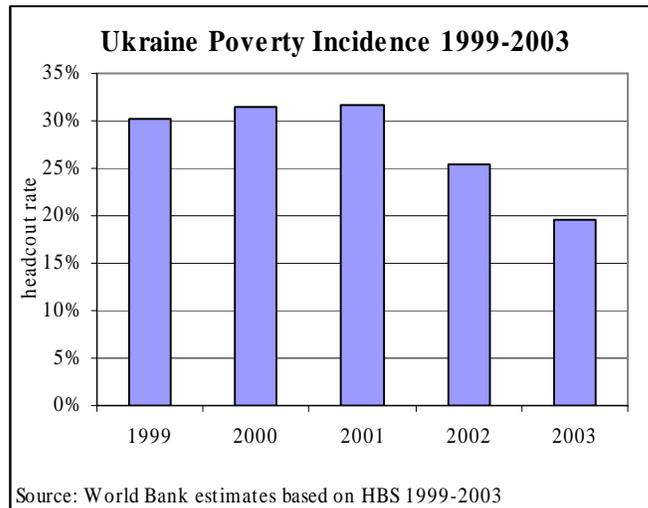
This Poverty report is aimed to improve the understanding of poverty in Ukraine, and provide linkages between growth, evolution of economic sectors, and poverty. The report summarizes also a joint assessment of the official method for poverty estimation in Ukraine by the World Bank staff and experts involved in poverty analysis and legislation in Ukraine. The report applies the suggested improvements on methodological areas with direct relevance on inequality measurement.

The main findings can be summed up as follows:

- An absolute poverty line and a revised consumption aggregate -- jointly developed with Ukraine experts -- indicate that **around 19 percent of the population lived in poverty by 2003**. Poverty incidence has declined recently after several years of rapid economic growth, from more than 30 percent in 2000.
- The **reduction of poverty has been faster in Ukraine than in some neighboring countries**. While in 1999 Ukraine had a poverty incidence higher than Poland, Russia, Lithuania, or Bulgaria, by 2003 it was the lowest compared with these countries.
- The overall improvement, however, has been paralleled by an **increasing poverty gap between rural and urban households, reflecting the fast but unbalanced economic growth**: large cities have benefited from rapid industrial growth coupled with increased activities in construction and services, but rural areas have faced irregular weather and major restructuring of agricultural organizations. These developments have also defined a geographic picture of poverty where the more urban and industrial Eastern region have slightly lower poverty rates than those in the more rural and agricultural Western ones.
- The **growth experience has not changed the rather stagnant level of employment**. The improvement in labor markets are associated to gains in productivity and efficiency with resulting wage gains. There is also increased differentiation within workers since the fraction of **underemployment has also increased, reflecting partly the subsistence agriculture, and precarious labor markets in some small towns**.
- **The combined effects of higher productivity but lower employment in commercial farms left real incomes in agriculture lagging behind other sectors**. Rural areas had a slower reduction in poverty due to the combined effect of weather shocks, and restructuring in agriculture. Land reform increased the private sector role in agriculture, making it more efficient by shedding excess labor and modernizing machinery. The excess labor was absorbed by household farms with lower productivity and limited marketing opportunities. Major weather shocks have increased uncertainty in harvest and prices, and imperfect land and crop markets have not protected poor households from the adverse effects of uncertainty in agriculture.
- The **government has played a critical role in reducing poverty by increasing substantially the social insurance transfers**. Pensions have increased faster than other income sources except wages, and represent more than one fourth of average household incomes, particularly for families in small towns. In fact, the late reduction of poverty in rural areas – where are larger proportion of elderly live-- is also associated with the rapid increase of pensions after 2002. Pensions, however, are a very costly transfer mechanism for poverty reduction. Other government transfers have become better targeted but still have very limited coverage. The reduction of poverty, however, provides a window of opportunity to reform the safety net system in order to effectively target the poor.

Poverty incidence has declined in the recent years

Figure 1: Ukraine Poverty



After initial years of persistent levels of poverty around 30 percent, by 2003 the population below the poverty line was less than 20 percent. Poverty is defined as those individuals whose consumption falls below a level sufficient to cover the cost of a food basket of about 2500 calories per day, plus a significant allowance for non-food goods and services. This level of calories reflects the country's minimum calorie requirements according to the consumption patterns and the demographic composition of the populations. The cost of this basket is UAH 151 per person per

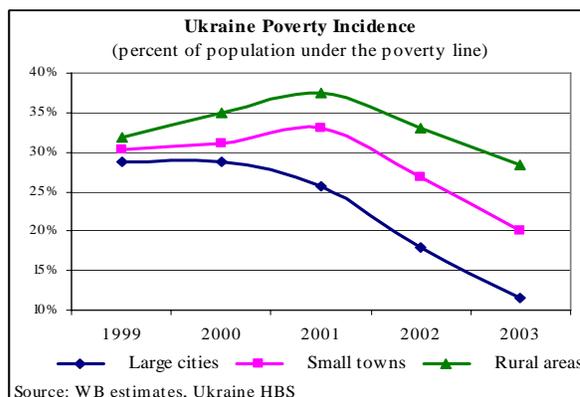
month in 2003.

Poverty reduction in Ukraine was faster than in comparable countries. Using poverty lines that are comparable across countries, poverty incidence in Ukraine is among the lowest of the region, much lower than Russia, Poland, Bulgaria or Lithuania. In fact, the reduction of poverty in Ukraine has been somewhat faster than in those countries since by 1999 Ukraine showed higher poverty. The poverty reduction after the nineties has been as dramatic as in Belarus or Hungary where poverty rate were reduced by 40 to 50 percent.

Inequality in Ukraine is stable in the recent years. Household consumption levels show lower inequality than other indicators such as income or total expenditures. The Gini coefficient for consumption is about 0.28 in 2003 and rather stable in the last years, despite small increases between 1999 and 2001. Inequality measures of other indicators of wellbeing such as expenditures or income are around 0.30 and with similar stability during the period. Gini estimates, however, are mainly driven by the changes in the middle of the distribution.

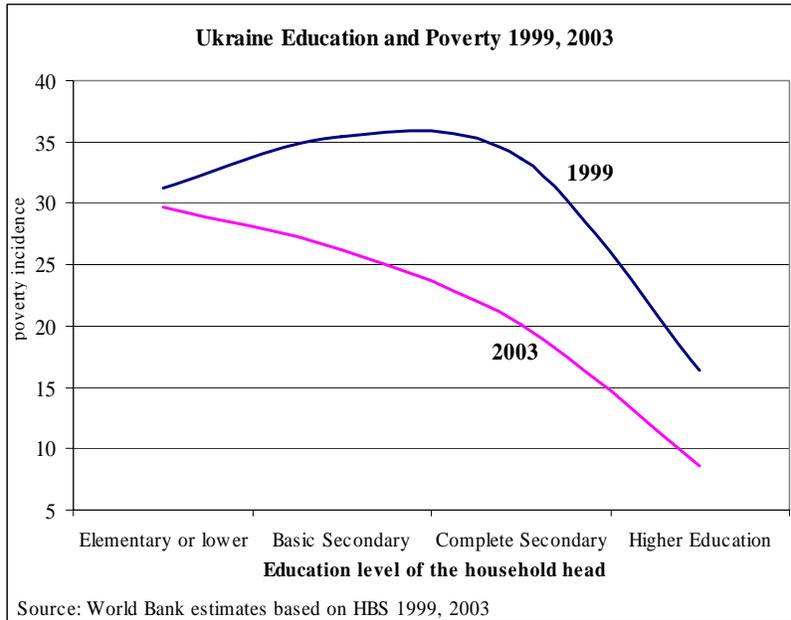
The major reduction in overall poverty incidence and relatively stable inequality measures, however, hide emerging differences in poverty and living conditions.

Figure 2: Regional Poverty Incidence



Despite overall poverty reduction there are increasing disparities across different types of settlement. Poverty reduction has been slower in rural areas and small town compared to large cities. Starting from similar levels of poverty across locations in 1999, poverty incidence in rural areas in 2003 is more than twice that of large cities, increasing the regional disparities in living conditions. The capital city, Kyiv, has the

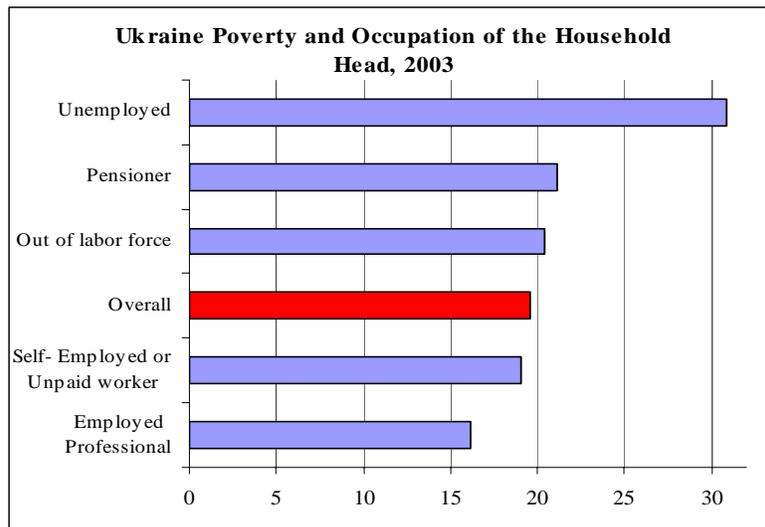
Figure 4: Poverty and Education



Poverty is closely associated to education of the household head and the relationship has strengthened over time. Ukraine's population has very good educational achievements, since more than 78 percent of the population lives in households with heads that completed Secondary or Higher education. Still, 21 percent of the population lives with heads with basic Secondary education or less, and this fraction is even large among the poor (30 percent). Most of the poor live under a head with Secondary education

Figure 4 shows the poverty incidence for education level of the household head for 1999 and 2003. Between 1999 and 2003 poverty was reduced across all education levels of household heads, but the reduction in poverty was larger for those in better educated households: poverty for those with heads with Elementary or lower attainment remained almost unaltered around 30 percent. The more direct link between education and poverty, partly reflects the increased of returns to education in a more dynamic labor market.

Figure 5: Poverty and Employment



Most of the poor live with employed or pensioner heads, but the risk of poverty is the highest among those with unemployed household heads. While most of the poor live with household heads that are either employed (42 percent) or pensioners (35 percent), still a significant fraction live with unemployed heads (17 percent). The risk of poverty is twice for unemployed (31 percent) compared to those employed (16 percent).

This, however, hides some differences across regions since in small towns, a larger fraction of the poor lives with unemployed heads (22 percent). In rural areas the poor are equally distributed between households with pensioner or employed heads (39 percent) given the rapidly aging profile of rural settlements.

II. Poverty dynamics reflect fast, though unbalanced, economic growth.

Ukraine experienced fast economic growth in the last years averaging about 7 percent per year. Growth was initially driven by a strong external demand, particularly for manufactured products, due to the depreciation of the domestic currency, and the economic recovery in Russia and other CIS countries. The positive external context was also accompanied by key elements in domestic policy such as macroeconomic stability, budget discipline, and financial transparency; consolidation of privatization efforts, and external liberalization; and, reform in agriculture, among other factors.

Table 1: Ukraine Real GDP Growth (bi-annual average, % change)

| | 1998-99 | 2000-01 | 2002-03 |
|------------------|-------------|------------|------------|
| GDP | -1.1 | 7.5 | 7.3 |
| <i>of which:</i> | | | |
| Industry | 3.0 | 8.1 | 10.1 |
| Construction | -3.5 | 0.6 | 9.5 |
| Agriculture | -7.5 | 11.3 | -4.1 |
| Trade | 2.9 | 24.9 | 13.5 |
| Transportation | -3.1 | 3.9 | 9.9 |
| Other Services | -2.3 | 7.3 | 6.5 |

Source: IMF Ukraine Statistical Appendix (2004).

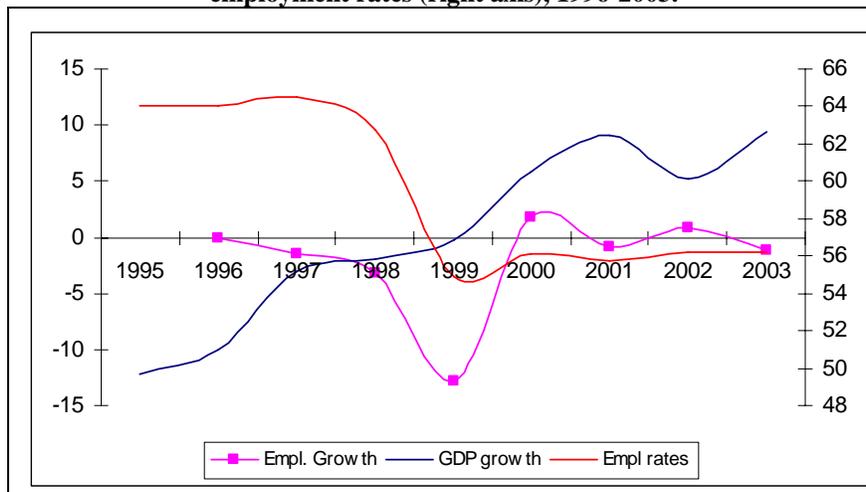
capital investment that has even outpaced GDP growth in recent years.

Economic growth, however, has been uneven across economic sectors. The recent years are characterized by very rapid growth in industry and trade. While industrial growth was led by machinery production for export between 1998 and 2000, it has shifted towards the domestic market after 2001. The production of machinery directed to the internal market is due to the expansion of food and machine-building activities, which reached close to 40 percent of all industrial manufacturing by 2003. This also reflects the rapid growth in fixed

The recent growth has not yet paid off in terms of employment in Ukraine. Overall employment has remained stagnant. In fact, employment rates – the share of population aged 15-70 that are actually employed – fell significantly in 1999 and remained at stable levels (Figure 6). In spite of another year of high output growth in 2003 (9.4 percent), employment numbers have still not shown any sign of reinvigoration. Unemployment has declined in recent years from almost more than 11 percent in 2000 to 9.1 percent in 2003, and preliminary estimates for 2004 suggest even further decreases. The paradox between declining unemployment rates and stagnant employment rates is partly explained by the sustained out-migration – that declined in 2002 and 2003 -- and declines in labor force participation.

The stagnant aggregate employment numbers hide important sectorial shifts. An important shift in labor has occurred between the public and the private sector, since the period 1999-2002 saw a doubling in private employment, while public employment and especially collective employment fell. Yet, state owned organization, entities or institutions remained the single largest source of employment in 2002, still absorbing 47 percent of all employment. Collective enterprises (mostly farming enterprises in rural areas) accounted for 10 percent, while only one in five workers were employed in a private company. This mimics the privatization process during the last years where a substantial number of public enterprises have been privatized.

Figure 6: GDP growth and employment growth (left axis) 1/, and employment rates (right axis), 1996-2003.



Source: World Development Indicators, Statistical State Committee of Ukraine (SSC).
1. Annual percentage change, for age groups 15-70.

The increasing role of the private sector has also resulted in shifts within economic sectors. One sector of particular interest is agriculture, where the land reform process has converted a number of farms into private organizations. Once under private ownership, firms have gained in productivity by increasing investment and modernizing the existing machinery while reducing excess labor by almost a million workers between 2000 and 2003, the largest sectoral reduction in labor in this period (about a third of the agricultural workforce). In turn, most of these workers have turned into their own household lands and turned self-employed workers: more than 60 percent of the former farm labor is now occupied in cultivating their own lands. Industry, despite rapid growth, has not increased its importance in the economy keeping constant levels around 19 percent of workers.

The dynamics in labor market participation and unemployment closely follow the poverty profile. Labor force participation is larger in large cities compared to small towns and rural areas: in 2003 labor force participation rates reached 78 percent in Kiev and 73 percent in other big cities, compared to 64 percent in rural areas. Declines in labor market participation in rural areas and small towns have widened this gap in recent years. Unemployment rates have declined since 1999 but the youth face much higher risks. While participation rates among the youth (15-24 years) are the lowest compared to other age groups because of their alternative education activities, unemployment rates for this age group are twice that of the rest of the adult population, reflecting the lack of capacity to absorb new cohorts of labor market entrants.

The decline in unemployment is partly due to decreasing participation but to rising underemployment as well. This report uses the Household Budget Survey (HBS) to establish links between sectoral development, such as employment, and poverty. This survey provides alternative measures of labor market performance, such as underemployment which is defined in this report as those workers that report labor incomes lower than the minimum wage but declared themselves as unemployed. In the Ukraine HBS workers in *underemployment* has increased, from 8.4 percent to 9.2 percent of the population between 1999 and 2003. This important fraction of population who still define themselves as unemployed in spite of earning some income suggests that many more would like to be fully employed than is currently the case. Underemployment also shows concentration in rural areas, particularly in agricultural and retail

trade activities where most of poor are involved. These factors evidence the increasing importance of the link between poverty and labor markets. Individuals from better off households have better access to labor markets and show lower unemployment rates than those in poorer ones, and this gap has not declined over time.

Labor markets in some sectors like industry show increasing dynamism: job markets in the industrial sector are significantly more dynamic in Ukraine than previous years and more than other countries. Evidence from a rich industrial firm-level census-type panel dataset provides a dynamic picture of job dynamics in Ukraine. After the initial years of transition when job destruction rates were larger than those of job creation in 2001 net employment growth turned positive for the first time since independence. Given the continued high rates of job destruction, excess job reallocation also jumped. These are signs that not only employment is growing, but there is also an important reallocation process going on, with jobs simultaneously being created and destroyed (Table 2). Moreover, job flows are becoming less and less of a primarily a temporary phenomena: some 8 out of 10 newly created jobs in 2000 remained filled in 2001, while 8 out of 10 jobs destroyed in 2000 remained unfilled on year later. This is also evidence of a positive trend, as the persistence rate of job creation has increased significantly over time, while that of job destruction is declining. In all, this implies that workers who get a job also get to keep it over time, and that long-term unemployment on the other hand is on decline. In sum, the job market appears to have responded to economic growth with increased dynamism, more employment growth and higher job turnover.

Table 2: Aggregate job flows, Ukraine and comparators

| Country | Year | Creation | Destruction | Gross job reallocation | Net | Excess job reallocation | No. firms |
|----------------|-------------|-------------|-------------|---------------------------|----------------------|----------------------------|-------------|
| | | | | | employment growth | | |
| Ukraine | 2001 | 10.6 | 8.2 | 18.8 | 2.4 | 16.4 | 7281 |
| Ukraine | 1996-2000 | 2.2 | 10.0 | 12.1 | -7.8 | 4.3 | 7000 |
| Russia | 1996-2000 | 3.5 | 8.7 | 12.2 | -5.2 | 7.0 | 16500 |
| Estonia | 1994 | 10.1 | 11.0 | 21.1 | -0.9 | 20.2 | n/a |
| USA | 1973-1986 | 9.2 | 11.3 | 20.5 | -2.1 | 18.4 | n/a |

Source: Chapter 3.

The job market dynamics reflect job reallocation from firms with low labor productivity and low wages, to firms with higher productivity and higher wages. Job dynamics differ by firm size, type of enterprise, region and type of ownership. Large enterprises are least dynamic in terms of job turn-over, and are associated with low job turnover and less severe net employment losses than other types of firms. Private firms stand out for high positive net employment and high job reallocation rates. Moreover, this trend has strengthened over time, as job creation has increased markedly since 1999 while job destruction has fallen somewhat. State firms see the lowest levels of job destruction – probably for the same reasons as large firms above –and, surprisingly, job creation has increased over time since most of new jobs are created in the industrialized Eastern region. While job creation rates have increased in all regions, the Western region is diverging negatively from other regions since job creation is not strong enough to offset the job lost. In the South, where job turnover is also high, job creation has offset job destruction since 2001 and net employment growth is positive. Yet, most of job dynamics occur at the firm level, rather than due to reshuffling between sectors, regions, or firms of different size categories. A decomposition of sources of job reallocation shows that these dynamics are linked more to differences between firms within sectors, within regions, within type of ownership and within size categories, than between these categories. More than half of the excess job

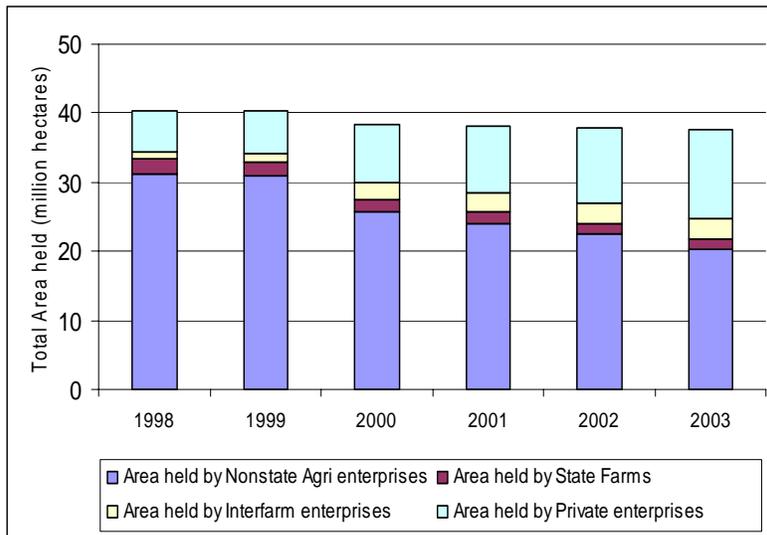
reallocation is due to shifts between firms in each of these classifications and this is due to high job destruction in low productivity firms and high job creation rates among high productivity firms.

Economic growth and employment dynamics have supported the rapid poverty reduction in Ukraine, despite the lack of employment growth. The slower reduction of poverty in rural areas, however, underscores other issues that are critical from a poverty perspective.

III. Poverty in rural areas reflects the slow dynamics and market imperfections

Agriculture is a key sector in understanding growth and poverty in rural areas. The poverty profile and the nature of employment in rural areas employment indicates that agricultural development is closely linked to poverty in Ukraine. In fact, Ukraine has over 40 million hectares of agricultural land, most of which are arable and agriculture represents almost 23 percent of the employment and about 10 percent of GDP.

Figure 7: Ownership Structure in Agriculture 1998-2003



Land reform has changed the ownership structure in rural areas. In 1999 the Government started a land reform process to make agriculture more efficient and stimulate growth. State farms were converted into collective ownership farms, and this land was later distributed to households. Households rented most of the received land back to different types of agricultural organizations. The most important types of organizations are: *agricultural companies*, private entities

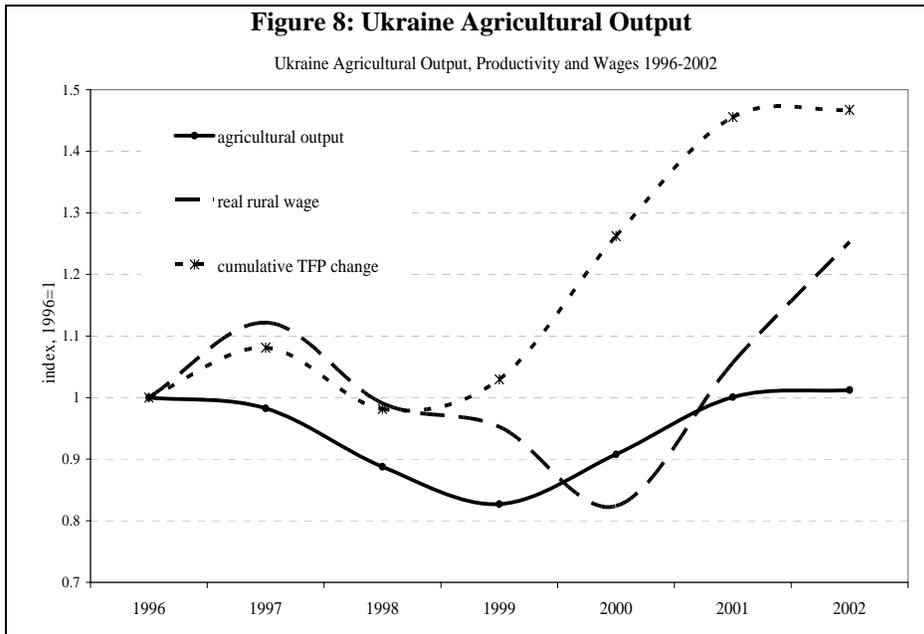
with ownership distributed across a number of shareholders; *private enterprises* where ownership and labor were clearly separated; and *agricultural cooperatives*. The size of land managed by private enterprises and agricultural companies has increased by more than 14 million hectares, which is mainly the result of households renting land out to these new agricultural organizations.

Despite an egalitarian land distribution, access to markets and managerial capacity affect the patterns of land use. According to the HBS, the land reform process has distributed land in an equal fashion across income groups. In 1999 the poorest 40 percent of the rural population owned about a third of the land in households' possession. By 2003 the fraction of total land in under these households' ownership is about 35 percent. The use of the land is where differences emerge between poorer and better off households. While most of the distributed land is being used by existing agricultural organizations by renting out from households, only 40 percent of rural households reported renting at least one plot their land. This suggests that other households are either involved in self cultivating their land or renting from other households for commercial purposes. Differences in renting patterns are associated with poverty since poorer households are more likely to rent than better off ones, suggesting that differences in asset

holdings, education and managerial capacity, and access to markets are playing an increasing role in entrepreneurial agricultural activities.

The new agricultural organizations exhibit quite large variation in agricultural efficiency and productivity, which are associated to type of ownership. The newly created *private enterprises* exhibited larger efficiency levels than other types of agricultural organizations. The gains in productivity are associated to increases in direct investment as well as reduction in the existing oversupply of labor since employment in agriculture was reduced. Wages across agricultural organizations are closely associated with productivity reflecting the differences in management practices and in land types.

Agriculture has gained a lot on efficiency grounds but agricultural wages are lagging behind the rest of the economy.



behind the rest of the economy.

The gains in efficiency are reflected in major gains in total factor productivity between 1999 and 2002 (Figure 8). These gains are due to both modern machinery and shedding of excess labor in the former farms.

Productivity gains and the recovery in

agricultural output until 2002 have translated into better wages in agricultural jobs but still a fraction of labor and land is not managed in an efficient manner. HBS evidence indicates that income from wages in rural areas increased faster than other income sources except pensions. Wages in agriculture are still the lowest in the Ukraine economy and have had the slowest progress in recent years. Agricultural wages were about 58 percent of the average in 1999 but only 47 percent in 2003.

Leasing incomes have been stagnant in real terms, partly reflecting the imperfection in land markets in the villages and the large degree of uncertainty in agriculture. Incomes from assets, such as land leasing, represent about 23 percent of average income for households in villages but evidence large differences between the poor and the non poor. Leasing rates that are larger for better-off households reflect their better capacity to bargain prices, and higher reservation prices given their own capital to cultivate the land. Evidence suggests that there are still significant factors limiting access to markets like transportation and license costs, in addition to the opportunity costs of marketing. These costs have a larger burden on poor households.

Cash incomes have increased in importance, due to wages effectively paid in agriculture and rental incomes. The increase in wages and pensions has increased cash incomes in rural areas. While real consumption from own production has remained stable

between 1999 and 2003, incomes from agricultural sales and other entrepreneurial activities has increased as fast as wage incomes doubling its importance in rural household incomes. Still, only 11 percent of households market their own production.

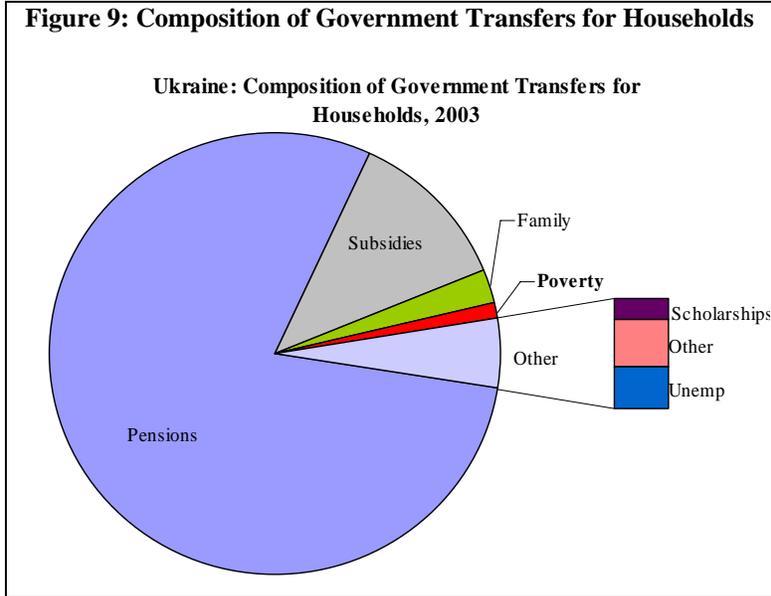
Rural households and economic organizations in Ukraine still face significant risks in agricultural activities. The drought of 2003 evidenced the lack of market and infrastructure instruments to restore market equilibrium. In 2003 the harvest of grain, the most important agricultural product in Ukraine, was about 5 million TM, compared to an average of 20 million TM in 2001 and 2002, which represented an economic loss of about 2.5 percent of GDP. The decline in grain harvest in 2003 due to bad winter weather conditions produced an increase in grain prices that affected urban consumers. The price increase, however, only marginally translated into higher agricultural incomes, leaving rural households with the same level of incomes but higher prices in other goods and services.

The overall gains in productivity coupled with shifts in rural employment shifts have produced little change in rural poverty. The combined effect of increased productivity and wages in agricultural organizations, with agricultural employment shifting from privatized farms to family farming has left rural households with real incomes that have not increased at the same pace as other sectors in the economy. The modernization process in agriculture that would expand the gains from higher productivity and efficiency to agricultural workers needs to be coupled with better off-farm economic opportunities for the resulting excessive labor. Better market and infrastructure would also provide the basis for increased competition in land and crop markets in the rural sector.

IV. The role of government transfers in poverty reduction

The government has three main transfer mechanisms that cover about 76 percent of the population: pensions, subsidies and a number of other social transfers. *Pensions* are directed to the elderly with age- related eligibility criteria and more than half of the population lives in households with pension beneficiaries. *Subsidies* are waivers provided to households to partially cover their utility bills. *Social transfers* can take the form of family benefits, poverty transfers, unemployment and other occupational benefits. Public resources into these programs are massively dominated by pensions, followed by subsidies. The rest of social transfers are very small, including a poverty benefit (Figure 9).

Figure 9: Composition of Government Transfers for Households

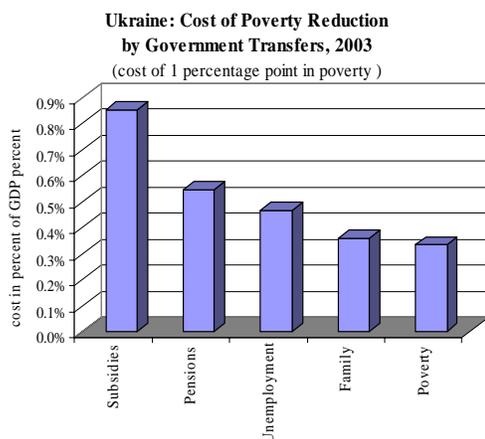


Pensions represent the largest transfer with benefits relatively uniform across beneficiaries which represent 25 percent of incomes among the poor. Even though the fraction of population benefited from pensions is similar across income groups, and benefit levels are similar as well, households from the better off quintiles get twice as much benefit than the poorest households, partly due to the presence of two pensioners in better off beneficiary households. Pensions are a very regressive transfer since the poorest quintile only gets

12 percent of all pension expenditures. Pension incomes, however, represent about 29 percent of the consumption of the poor, compared to only 17 percent for the top quintile. Real pensions have increased more than 16 percent per year, for the last four years. Poor households with pensioners have then benefited from increased public transfers, particularly in rural areas. Pension benefits, as other transfers, do have poverty reduction effects and in the case of pensions it is their magnitude, not their targeting, that drives these effects. Reducing poverty through expansion of pension is the one of the most expensive mechanism compared to other transfers, since one-percentage point reduction of poverty costs more than half percent of GDP (Figure 10).

Utility subsidies, while originally aimed to protect the poor population from large energy expenditures, but mainly benefit the better-off quintiles in large cities. The allocation

Figure 10: Cost efficiency of social transfers



of subsidies for energy is conditional on energy consumption given that the subsidy is transferred to the utility company. Households are eligible when their expenditures on energy are 20 percent or more than their income and about half of the population receive these benefits. The distribution of the beneficiary population, however, is concentrated in large cities where coverage is the highest (60 percent) compared to rural areas (42 percent). In fact, subsidies are mostly captured by households in large cities (53 percent of transfers) or small towns (30 percent). Even within large cities, better-off households do capture four times more

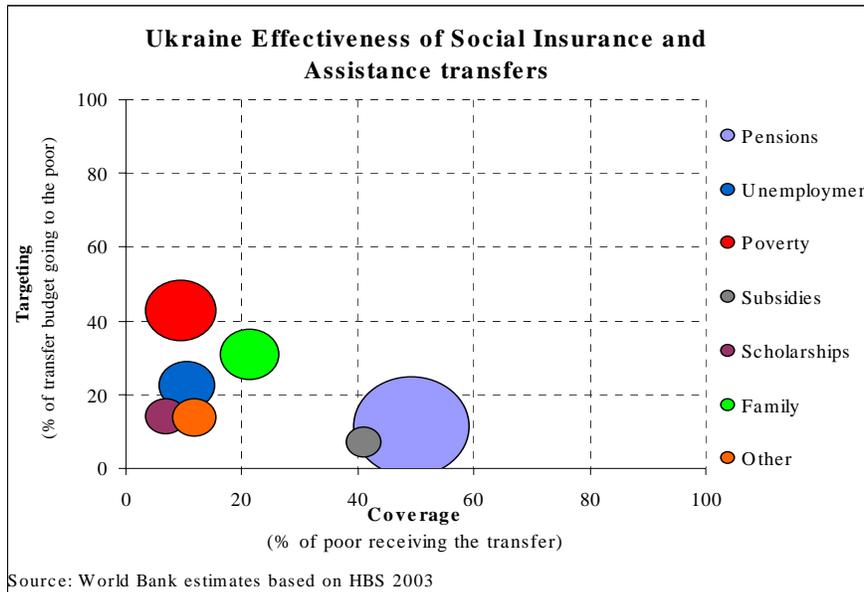
than the poorest households in the same locations. The urban bias in utility subsidies is due to the eligibility criteria that combines the utility cost as reported in the bills and reported or estimated income subject to major underestimation. This way, households in areas with fewer utility services -- due to lack of centralized heating in rural areas, for example -- are less likely to qualify

for the subsidy since there is no objective evidence about their expenses on energy. Since 29 percent of the population are users of solid fuel, mostly in rural areas, and they have the highest poverty incidence, subsidies are the most costly government transfer for the poor.

Social assistance transfers comprise a number of small benefits with little coverage but efficient poverty reduction effects. Among social assistance transfers there are scholarships, family transfers (child benefits), poverty targeted transfers, and unemployment benefits. These programs have relatively low coverage of the population although some of them improve their coverage among the poor. Recent changes in legislation have introduced income testing criteria for eligibility into these programs. There are two programs that evidence significant focus on the population with lower incomes: poverty targeted assistance and family benefits. The *poverty targeted transfer* has very low coverage (only 4 percent of the population) but still reaches 12 percent of the population under the poverty line, particularly in rural areas. The average benefit during 2003 is around UAH 70 per month compared to more than UAH 200 in pensions. Despite coverage limitations and the level of benefits, more than half of the poverty transfer reaches the poorest quintile despite significant leakages to better off households. This program is the most cost-effective in terms of poverty reduction, but expansion of programs usually involve targeting efficiency losses. This program can be an opportunity to expand social assistance to the poorest population if the targeting mechanism is systematically revised to reduce the inclusion of non poor households. *Family benefits* also have an income filter that has improved their targeting in recent years. The average benefit of UAH 50 resulted from collapsing previous benefits to specific demographic groups, or for certain family events such as births. By 2003 this transfer covered about 12 percent of the population and about 30 percent of the benefits went to the poor. Only 8 percent of benefits were captured by households with the highest incomes (fifth quintile).

The set of government transfers still require better coverage of the poor and better targeting of transfers. Because of its broad coverage, pension is the transfer that covers most of the poor even if the poor capture only a small fraction of those transfers. The poverty targeted transfer (red circle) displays the best targeting performance since almost half of its resources end up in households in poverty. The program, however, is still limited in its coverage.

Figure 11: Effectiveness of Social transfers



V. Poverty monitoring and analysis capacity in Ukraine is very strong

The increased differentiation in Ukraine and the rapidly changing profile of the poor require strong technical capacity and better instruments. The Government of Ukraine, in particular the State Statistical Committee, and other non governmental research organizations have excellent technical capacity to assess the levels and nature of poverty in the country. The joint development of a revised methodology to monitor poverty provides additional elements to better assess the qualitative changes over time. Given the strong geographical patterns in poverty and the increased differentiation within regions, such as poverty pockets in Eastern region, Ukraine requires better instruments to identify the poor, and to design and evaluate policies targeted to the reduce poverty. Estimation of poverty at the local level, such as districts, is a technical challenge in Ukraine but combining available Census and HBS data other countries have successfully produced poverty maps that are intensively used for policy purposes.

Emerging disparities in access or utilization of other social services require better instruments to measure wellbeing. The documented disparities and geographic patterns in poverty are also reflected in enrolment of children in upper secondary education, where those in rural areas and small towns dropout of school earlier and faster than those in large cities. Some of these patterns may evidence differential funding across facilities, like in the health sector, where more rural oblasts receive less expenditure per capita on health than more urban ones despite their higher costs. These other dimensions of poverty need improved monitoring instruments to inform policy makers. The existing HBS instrument, however, does not provide enough information to obtain accurate information on human and other social dimensions of poverty such as enrolment rates. The pilot Education and Health HBS module introduced in June 2004 should be revised and fielded in 2005 in order to provide a dynamic picture of these rapidly changing outcomes.

Chapter I: Profile and Dynamics of Poverty and Inequality

1.1 *Poverty Measurement in Ukraine: A new approach*

The Government of Ukraine defined poverty as a notion of *absolute* basic needs concept but operationalized it with a *relative* measure. The Government explicitly recognized the problem of poverty as the inability of the household to provide itself with basic needs (Decrees of August 15, 2001 and December 21, 2001). This definition of poverty coincides with the concept of an *absolute* threshold of consumption below which individuals could not satisfy their basic needs and are, thus, in poverty. The Government, however, established an official methodology with a *relative poverty line* at the level of well-being that equals 75% of median expenditures per equivalent adult will be used. This means that the headcount index will be equal to the share of the population whose well-being is below this level. According to this relative measure, however, the resulting poverty incidence did not show any variation despite economic growth between 1998 and 2002 (UCSR, 2003). The monitoring of poverty needed in the context of the Millennium Development Goals (MDG) agreement has relied on other measures that are unrelated to the concept of basic needs, such as the use of a \$4.30 line adjusted for purchasing power parity (Ministry of Economy, 2003).

In addition, another *absolute* measure of minimum consumption has been established but lacks relevance due to its normative nature. An official *Subsistence Minimum* is the cost of a consumption basket that is administratively defined to reach a *desirable* level of consumption from different items. This consumption basket is defined for the main social and demographic population groups.¹ The major weaknesses of the subsistence minimum are its disconnection with consumption levels and patterns of the Ukraine population and the valuation of such basket. While average consumption of meat in the subsistence minimum is about 7 kg per month, the average consumption per capita observed in the household survey has been between 3 and 4 kg between 1999 and 2003. In addition, the valuation of the subsistence minimum basket is done with average prices across all the population and not the prices that are faced by those close to the poverty line. This way, the estimated cost of the Subsistence Minimum in Ukraine reaches about UAH 342 per month in 2002, representing more than 70 percent of the population. In any case, a fixed consumption basket is very likely to change as relative prices and consumer preferences vary over time and new products are introduced in a dynamic transition economy.

A joint assessment of the poverty methodology by Ukraine experts and World Bank staff suggests that the relative measure, while useful for its simplicity, may not provide an accurate description of dynamics of poverty. Some of the major disadvantages of the existing *relative line* are: (i) it does not enable comparisons over time, making the linkages with growth and sectoral development very unclear; (ii) it is not linked with any notion of minimum consumption, lacking any real content in terms of living standards; (iii) the relative line could be affected by distributional changes without changes in the fraction below an absolute poverty line. A relative line, however, could be effectively used for poverty targeting purposes since it provides a threshold to identify certain targeted population. Of course, the threshold could be adjusted responding to budgetary reasons and may not reflect the actual needs of the population.

¹ The law on subsistence minimum was adopted on 15 July 1999, with the subsequent approval of the Methodology for Calculating Individual Subsistence Minimum for Main Socio-Demographic Groups (May 17, 2000, #109/95/157).

Moreover, in rapidly growing economies where inequality in incomes (and consumption) usually emerge the relative measurement of poverty may provide a distorting picture.

The joint team of Ukraine experts and World Bank staff derived an alternative methodology that incorporates best practices on poverty estimation. The joint team addressed major issues regarding the two central elements in poverty analysis: the welfare aggregate and the poverty line. The State Statistical Committee of Ukraine (SSCU) has been collecting a detailed amount of information on households' incomes and expenditures and aggregate measures of expenditures and incomes have been produced for 1999-2003. The joint Ukraine-World Bank team exploits these rich datasets in this report to refine the measurement of poverty and characterize the problem of poverty.²

The welfare aggregate

The new welfare aggregate reflects long term consumption by avoiding lumpy purchases and accounting for regional price differences. Estimation of wellbeing is complicated by the existence of different indicators such as income, cash expenditures or consumption. Consumption is usually described as the best measure of long-run wellbeing since it already incorporates behavioral responses to buffer shocks in income (such as lack of employment) or expenditures (such as catastrophic health expenses). Following Deaton and Zaidi (2002) and other best international practices the new consumption aggregate in Ukraine captures current expenditures that represent increases in wellbeing and hence did not include tax expenditures, durables, health expenditures, and repayment of debts and interests. In addition, the consumption aggregate accounts for regional prices differences. Prices differences across economic regions and types of settlement are significant and have been accounted for in the new consumption aggregate by using disaggregated regional price indexes. This way, individuals consuming the same quantity of specific items but facing differences in prices will not differ in their value of consumption and hence in their poverty level.

The poverty line

The new absolute poverty line reflects the consumption level and structure of the Ukraine population, especially that of the poor. Following the nutritional guidelines and specific caloric requirements for different demographic groups, the average requirement per person per day in Ukraine is 2,508 calories.³ The cost of the corresponding food basket is estimated using the consumption structure and prices of households around the calorie threshold. Average consumption per capita for those around the calorie threshold is lower than that specified in the Subsistence Minimum as seen in Table 1.1. Moreover, there is a very different composition of food since those around the calorie threshold rely more on carbohydrates (breads, cereals, potato) rather than meat and fruit consumption as suggested by the official guidelines.

In addition, the 2,508-calorie basket is valued at the “prices of the poor.” Different socioeconomic groups differ in their consumption patterns and in the quality of products consumed. In fact, there is abundant evidence in other countries that prices -- as observed in household surveys -- show significant variation across income groups. Some of this variation is associated with quality choices but also to different purchase patterns (such as bulk purchases).

² A detailed discussion of the new methodology and alternative methods is found in Libanova et al (2004).

³ The average requirement reflects the need by different demographic groups and the demographic composition of the Ukraine population.

In assessing the value of the food basket, the revised methodology used the prices faced by the households in the lower consumption groups to reflect their quality choices and purchasing patterns. The resulting value of the food basket is UAH 101 per month in 2002 and 106.3 per month in 2003. If the same basket is valued at the prices of the average population, the cost of the basket would be 12 percent more expensive.

Table 1.1: Ukraine Cost of the subsistence minimum basket and the 2,508-calorie basket in 2002
(costs based on 2002 UAH)

| Foodstuffs list | Subsistence Minimum | | | 2508-calorie food Line | | |
|---------------------------------|---------------------|--------------|---------------|------------------------|--------------|---------------|
| | kg p/c | UAH p/c | % of cost | kg p/c | UAH p/c | % of cost |
| Bread products and cereals | 9.8 | 17.6 | 9.9% | 9.8 | 16.5 | 16.4% |
| Meat and meat products | 6.9 | 65.5 | 36.8% | 2.2 | 18.7 | 18.5% |
| Fish and seafood | 0.9 | 5.0 | 2.8% | 1.1 | 5.0 | 4.9% |
| Milk and milk products | 12.3 | 22.9 | 12.9% | 6.9 | 10.6 | 10.5% |
| Eggs, count | 18.0 | 4.6 | 2.6% | 15.4 | 3.9 | 3.8% |
| Butter | 0.5 | 4.7 | 2.6% | 0.2 | 2.0 | 2.0% |
| Margarine and other animal fats | 0.1 | 0.8 | 0.4% | 0.7 | 4.1 | 4.1% |
| Vegetable oil | 0.5 | 2.4 | 1.3% | 1.0 | 4.3 | 4.2% |
| Fruit | 5.6 | 10.2 | 5.7% | 2.9 | 4.7 | 4.7% |
| Vegetables | 8.6 | 14.9 | 8.4% | 6.9 | 10.0 | 9.9% |
| Potatoes | 8.0 | 8.1 | 4.5% | 8.4 | 7.6 | 7.6% |
| Sugar and confectionery | 2.6 | 11.6 | 6.5% | 2.6 | 10.8 | 10.7% |
| Sauces, seasonings, spices | 0.3 | 1.2 | 0.7% | 0.5 | 1.2 | 1.2% |
| Coffee, tea, cocoa | 0.1 | 2.3 | 1.3% | 0.0 | 0.0 | 0.0% |
| Soft drinks and juices | 5.9 | 6.4 | 3.6% | 1.6 | 1.6 | 1.6% |
| Total | | 178.2 | 100.0% | | 101.0 | 100.0% |

Source: Libanova et al. (2004)

In addition, a non-food allowance is estimated using the share of non food consumption for the same population around the calorie threshold. The share on food consumption in the consumption aggregate is close to 70 percent. The allocation of a proportional non-food allowance aims to reflect the overall budget for non food items without specifying the exact items that may differ across regions and households according to their preferences and needs.

The resulting poverty line is UAH 151.1 per person per month in 2003 (UAH 1,812 per year), and the underlying food basket is valued at UAH 106.3 per person per month.

1.2 Poverty and Inequality Levels in 1999-2003

In 2003 about 19 percent of the population consumed less than the absolute line of UAH 151 per capita. By 2003 about 9 million people lived in poverty in Ukraine, this is with levels of consumption that did not suffice to cover a food basket of 2,500 calories per day and a non food allowance (about UAH 151 per month or UAH 1,812.8 per year). Using the cost of the

food basket as an extreme threshold for poverty measurement less than 5 percent of the population, or 2.3 million, consumed less than the cost of the food basket (Table 1.2).⁴

Closing the poverty gap, the distance between actual consumption of the poor and the poverty line, would cost about 1.3 percent of GDP in 2003. The average consumption deficit for those below the poverty line is about UAH 31 per person per month (UAH 376 per year) which, consolidated across households, would represent about 1.3 percent of GDP (Table 2). By another measure the average relative poverty gap, given as the ratio of the poverty gap to the poverty headcount, for Ukraine is 0.207. This measure of poverty gap is comparable to that found in other countries such Poland (0.253), Belarus (0.255), but much lower than Russia with 0.321 (World Bank, 2005). The actual cost of closing the poverty gap, however, may be higher because of imperfect targeting, mobility in the poverty pool, and costly administrative delivery mechanisms. The cost of the gap to the food line is much smaller and reflects that three out of four in poverty are above the food line.

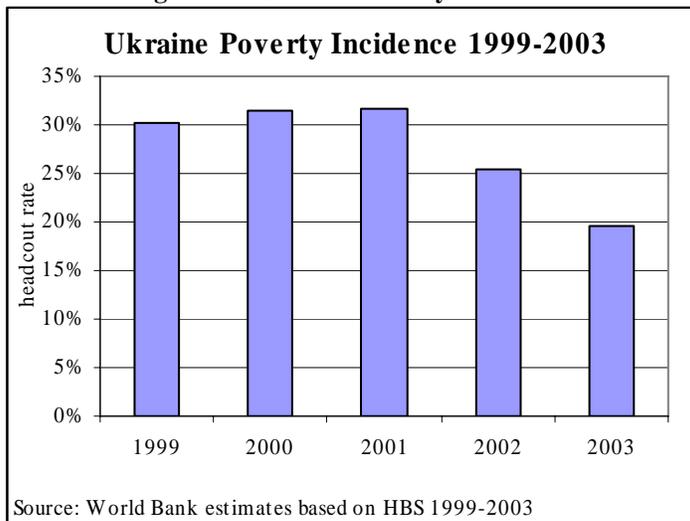
Table 1.2: Ukraine Poverty Headcount and Poverty Gap, 2003
(figures in UAH per year, except when noted)

| | Poverty Line | Food Line |
|--|--------------|-----------|
| Cost of minimum consumption level | 1,812.8 | 1,275.0 |
| Poverty headcount (% below line) | 18.8% | 4.8% |
| Number of poor (thousands) | 8,934 | 2,293 |
| <i>Memo items:</i> | | |
| Average consumption deficit for the poor | 376.3 | 238.8 |
| Aggregate poverty gap (in million UAH) | 3,362 | 548 |
| Aggregate poverty gap as % of GDP | 1.3% | 0.2% |
| GDP 2003 (billions UAH) | 264.2 | 264.2 |
| Population (thousands) | 47,442 | 47,442 |

Source: World Bank estimates.

⁴ The cost of the food basket is used an extreme poverty line given that alternative estimates of upper and lower poverty lines using different estimates of share of non food, as suggested in Ravallion (1998), do not provide enough difference in their levels.

Figure 1.1: Ukraine Poverty Incidence



Poverty incidence has been reduced by almost 40 percent between 2000 and 2003. Figure 1.1 shows the fraction of population below the poverty line between 1999 and 2003. Poverty incidence in Ukraine stayed slightly above 30 percent between 1999 and 2001, despite fast economic growth. Only in 2002 and 2003, a very rapid poverty reduction was observed in Ukraine. The close to 40 percent drop in the poverty headcount is one of the fastest reductions in the region and associated with fast economic

growth of more than 7 percent per year. This declining trend is corroborated by subjective indicators of well-being where poverty is measured as lack of resources for certain expenditures. According to his subjective indicator, the fraction of households lacking resources for food declined from one half in 1999 to less than one third by 2003 (Oksamynta and Khmelko, 2004).

Compared to other transition countries using comparable welfare measures and poverty

**Table 1.3: ECA Poverty Headcount Rates
(% of population below \$4.3 PPP Poverty Line)**

| | 1998-99 | 2002-03 |
|----------------|-------------|-------------|
| Moldova | 93.0 | 85.0 |
| Kazakhstan | 82.6 | 75.6 |
| Albania | . | 69.7 |
| Romania | 62.5 | 62.0 |
| Turkey | . | 59.3 |
| Russia | 46.4 | 41.4 |
| Bulgaria | 17.3 | 30.6 |
| Lithuania | 22.5 | 29.7 |
| Poland | 23.2 | 27.2 |
| Ukraine | 29.4 | 22.2 |
| Belarus | 48.4 | 21.4 |
| Hungary | 19.6 | 12.4 |

Source: World Bank (2000), and World Bank (2005a). Note: All poverty estimates using 2000 PPPs, except Lithuania and Ukraine 1998-99 for which the 1996 PPP line was used. No major differences are found for these countries in using different PPP estimates.

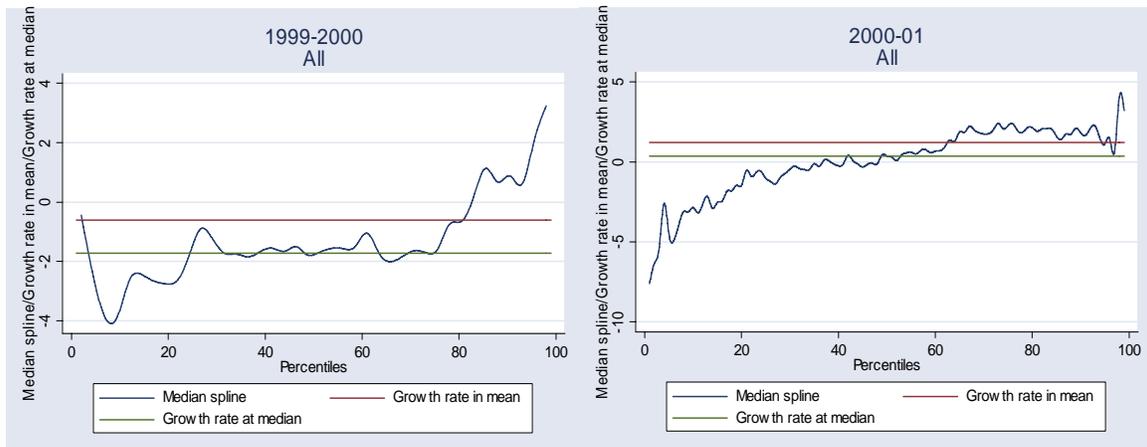
lines, Ukraine has one of the lowest poverty rates in the region. Comparison of poverty levels is always difficult due to differences in measurements of welfare across countries or differences in their specific poverty lines. The World Bank has recently estimated comparable welfare measure and poverty lines that enable to compare the incidence of poverty across countries (World Bank, 2005a). Table 1.3 shows estimates of poverty incidence using a line of US\$4.30 adjusted for purchasing power parity. Poverty incidence in Ukraine is among the lowest of the region, much lower than Russia, Poland, Bulgaria or Lithuania.⁵ In addition, the

⁵ Notice the poverty headcount rate showed by Ukraine does not match the poverty rate in 2003 because a different poverty line is used in the referred study.

reduction of poverty in Ukraine has been faster than in those countries since by 1999 Ukraine showed slightly higher poverty. The poverty reduction after the nineties has been as dramatic as in Belarus or Hungary where poverty rate were reduced by 40 to 50 percent.

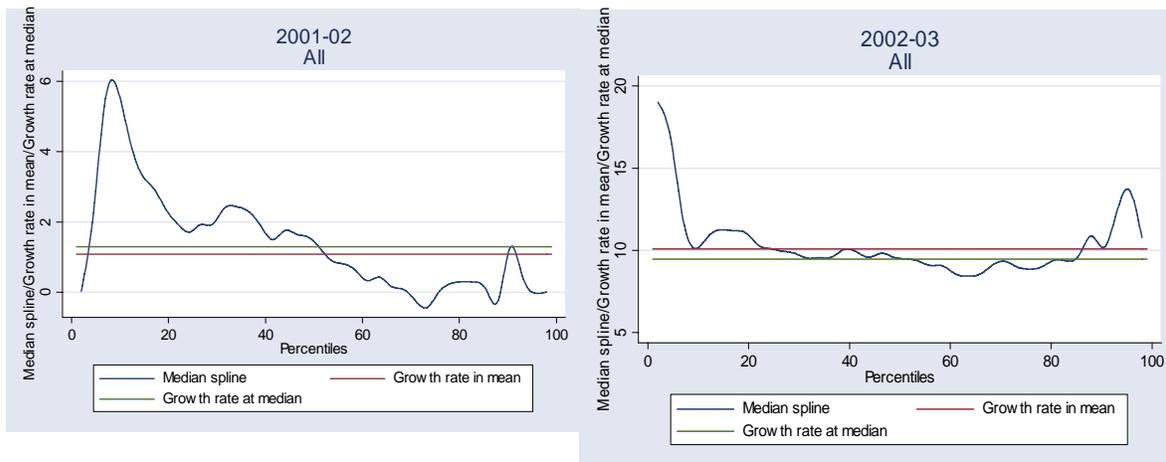
Poverty-growth linkages show two different stages in the recovery process. These two periods, 1999-2001 and 2001-2003 are distinctively different in their linkages with growth and distribution. While the overall 1999-2003 span was characterized by fast growth of more than 7 percent per year, during the first part the benefits of such growth were disproportionately going to the better off. The growth-incidence curves (Figures 1.2 and 1.3) show the increase in real consumption across the consumption distribution (Ravallion and Chen, 2002). Those individuals in the upper percentiles of the welfare distribution (80 and above in the horizontal axis) evidence not only the larger gains in consumption but the only positive ones. This reflects that growth between 1999 and 2001 was not fully translated into better incomes, and it was only translated into higher consumption for the top of the welfare distribution. A decomposition of changes in poverty due to changes in growth and changes in inequality corroborates that the poverty-reduction effects of growth were fully offset by increasing inequality during these years.

Figure 1.2: Ukraine Growth-Incidence Curves 1999-2001



The period 2001- 2003 shows a pro-poor pattern. In the next years, particularly between 2001 and 2002, a pro-poor growth is observed. In both years all percentiles of welfare had positive changes in welfare, but the poorest groups -- left segment of the horizontal axis -- had larger gains in consumption. Noticeably, these larger changes in consumption for the poor were simply catching up with previous losses while the better off households continued benefiting from growth. Between 2002 and 2003 all households from different welfare groups benefited from growth in the same proportion. In any case, the same relative gains for the poor and the better off represent larger absolute gains for those households with higher welfare.

Figure 1.3: Ukraine Growth Incidence Curves 2001-2003



Inequality in Ukraine is among the lowest in the region but showed a rapid spike in 2001. Inequality can be measured using three different dimensions: incomes, expenditures and the new consumption aggregate (Table 1.4). Household consumption levels show lower inequality than expenditures, due to the exclusion of consumption components that may increase the dispersion in consumption such as durables and the better reflection of real consumption once regional price differences are accounted for. The estimated consumption Gini coefficient is about 0.27 compared to almost .30 in expenditures. Other indicators of inequality such as the ratio of welfare measures between the top and bottom quintiles corroborate this finding. Inequality measures for Ukraine are among the lowest in the region, bettering countries like Belarus (0.29), Poland (0.32), Russia (0.34), and Lithuania (0.30), though still behind Hungary (0.25) (World Bank, 2005a). Between 1999 and 2001 inequality in expenditures per capita evidence a small but distinguishable increase from 0.285 to 0.303, only to be controlled back to 0.289 by 2003 (Annex 1). The evidence from growth-incidence curves is corroborated by inequality information showing the potential inequality trends in a growing economy.

Table 1.4: Ukraine Inequality measures, 2003 (all in per capita terms)

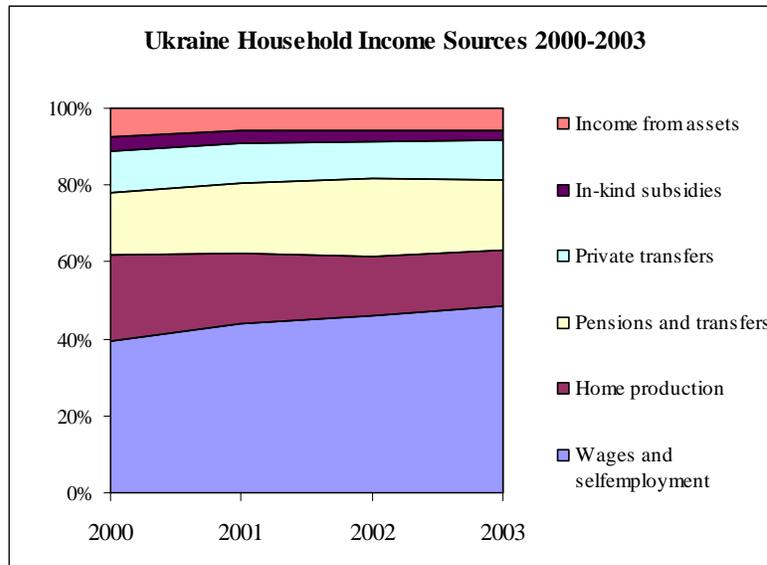
| | Expenditures | Consumption | Income |
|-------------|--------------|-------------|--------|
| Gini | 29.8 | 27.4 | 27.1 |
| Q5/Q1 ratio | 4.4 | 3.9 | 3.8 |
| Theil E(0) | 14.6 | 12.3 | 12.1 |
| Theil E(1) | 15.8 | 12.7 | 13.2 |

Source: WB estimates. The Theil "mean log deviation index" E(0) captures inequality at the bottom of the distribution while Theil "entropy" E(1) captures inequality at the top of the distribution.

among the lowest in the region, bettering countries like Belarus (0.29), Poland (0.32), Russia (0.34), and Lithuania (0.30), though still behind Hungary (0.25) (World Bank, 2005a). Between 1999 and 2001 inequality in expenditures per capita evidence a small but distinguishable increase from 0.285 to 0.303, only to be controlled back to 0.289 by 2003 (Annex 1). The evidence from growth-incidence curves is corroborated by inequality information showing the potential inequality trends in a growing economy.

1.3 Income Structure of the population

Figure 1.4: Income Structure of households

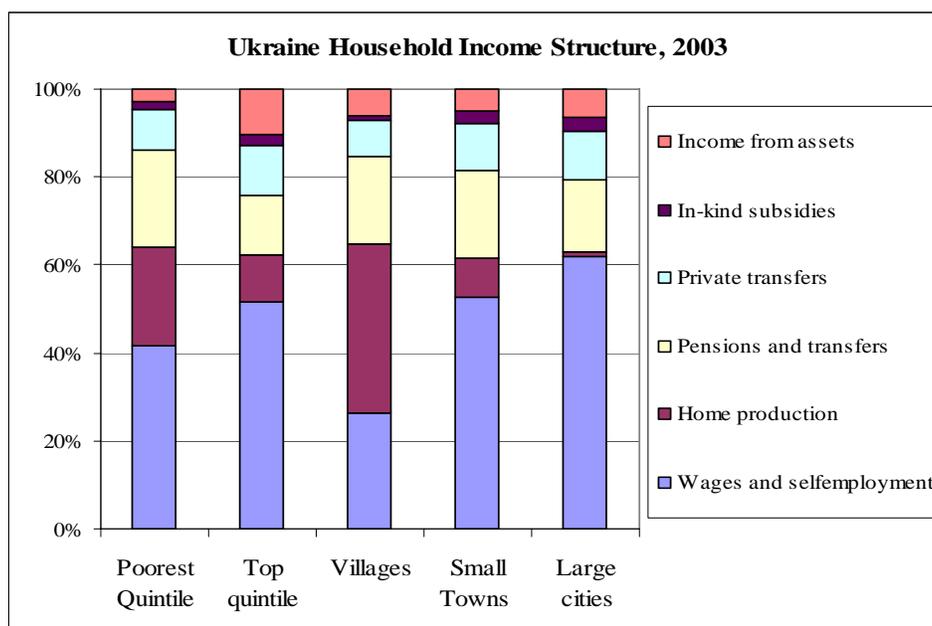


Incomes in Ukraine are increasingly in cash, reducing the incidence of barter trade. The bulk of incomes in Ukraine are coming from wages and salaries (more than 44 percent), pensions and other transfers (almost 20 percent) and income from home productive activities (cash and in-kind). As can be seen in Figure 1.4, wages and salaries, and pensions are the fastest income components in Ukraine. The fast growth of wages and salaries between 1999 and 2003 has increased its

share in the households' income from 34 to 44 percent of their incomes. Real pensions declined more than 8 percent per year between 1998 and 2000. Since 2001 pensions showed a very fast increase and by 2003 pensions in real terms were more than twice those of 2001. The fast increase of pensions, however, was below the increase in labor earnings and only maintained their relative importance in the household income. Interestingly, the share of home production incomes (including in-kind consumption and sales from agriculture) has declined over time given the increased role of land and harvest markets in rural areas. In-kind consumption (a component of home production income) represents only 9 percent across all households, but it is 23 percent in villages and more than 15 percent among the poor. Still, these shares are about one half of their level in 1999.⁶

⁶ See Annex 2 for detailed description of households' income by type of settlement and consumption quintiles.

Figure 1.5: Ukraine Household Income Structure



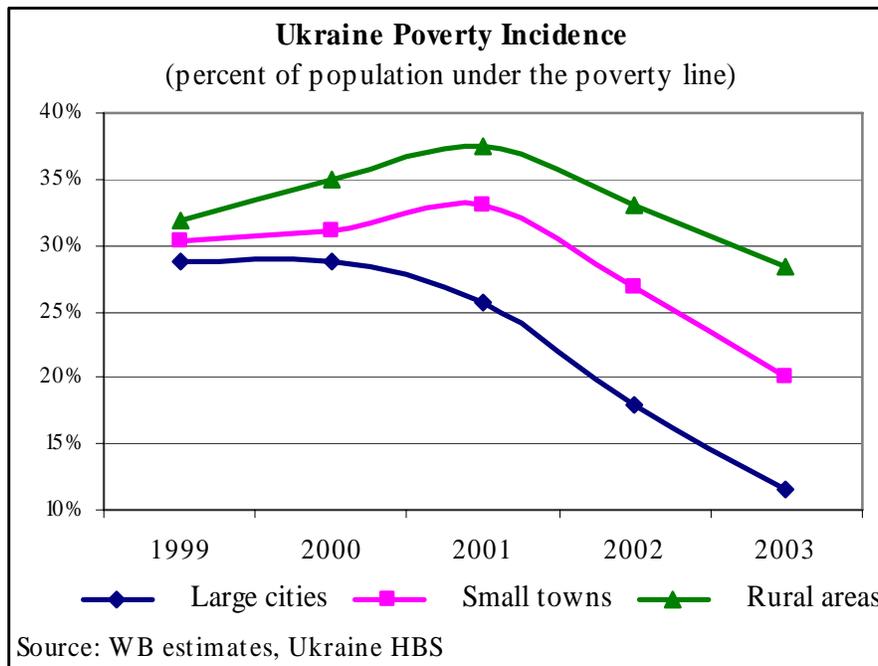
The role of wage and pension incomes is not as important for the poor. Among the poor, average household incomes are mainly coming from by wages, salaries and income from self-employment (slightly more than 40 percent), cash and in-kind incomes from agriculture (23 percent), pension and social assistance transfers (21 percent), and other incomes. While real wages and pensions increased about 17 percent per year between 2000 and 2003, incomes from sale of agricultural products almost doubled in the same period, still representing a small fraction of their incomes. The rapid decline in household size in rural areas and among the poor, partly due to out-migration, has improved per-capita measures of income over time but not as fast as the increases for other areas where households are smaller.

1.4 Who Are the Poor?

Poverty is an increasingly rural phenomenon. Evolution of poverty in Ukraine is marked by increasing disparities between types of settlements: large cities, small towns and villages in rural areas. Poverty reduction has been slower in rural areas and small towns compared to large cities. In 1999 these types of settlements had similar levels of poverty across locations, partly because large cities and some small towns were facing the short run effects of the Russian crisis, as other countries in the region.⁷ By 2003 poverty rate in rural areas was more than twice that of large cities, increasing the regional disparities in living conditions. The capital city, Kyiv, has the lowest poverty incidence in 2003 with less than 6 percent.

⁷ Moldova is another country where the direct effects of the Russian crisis were mainly observed in urban areas (World Bank, 2004c).

Figure 1.6: Ukraine Poverty Incidence



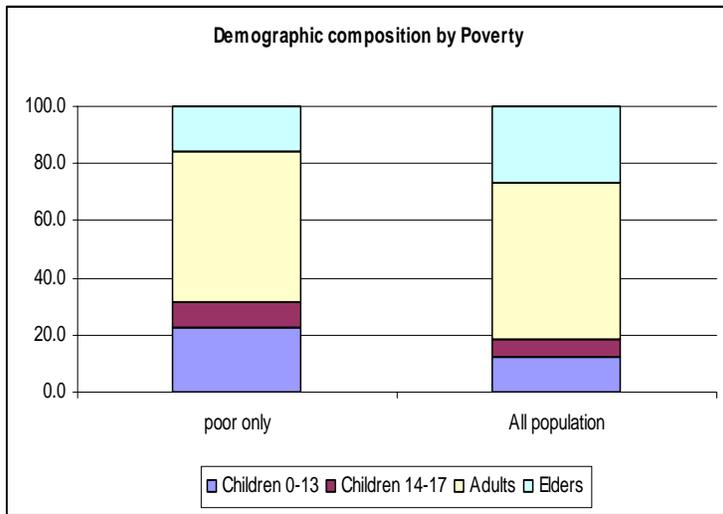
Disparities across economic regions reflect these emerging gaps in poverty. Economic regions in Ukraine also show a pattern of differentiated poverty levels (Figure 1.7) that are associated to their urbanization levels and type of economic activity. While most of the regions have poverty levels around the national average, regions in Eastern Ukraine such as Sumy, Kharkiv, and Poltava, have lower than the average (light orange). These are more urban oblasts and where industrial centers are located. The Western and the Black Sea Coast regions, where more agricultural and rural oblasts are located, have higher poverty rates than the average (dark orange). These differences on poverty incidence across economic regions, however, are blurred by variation within regions, such as settlement types or municipalities.

Still there are pockets of poverty within some regions. The Donetsk economic region (including Donetsk and Lugansk oblasts) corresponds to the Donbass, the traditional center of coal mining in Ukraine. This is a heavily industrialized and densely populated area where two municipalities, Gorlovka and Stakhanov, suffered from mine closures at large scale during the nineties. While this region shows an average poverty rate, there are large pockets of poor population in former mining towns that showed significantly higher levels of poverty according to evidence comparable to that of the Household Budget Survey as well as qualitative information (Haney and Shkaratan, 2003). The estimation of poverty at the local level, such as municipalities, requires other methods to accurately describe the relative importance of poverty compared to other municipalities.

Figure 1.7: Ukraine Relative risk of poverty



Figure 1.8: Demographic composition of Poverty



The differentiated reduction of poverty has changed the profile of the poor in Ukraine. In 1999 about 36 percent of the poor lived in large cities, 35 percent in rural areas and less than 30 percent in small towns. The large proportion of poor in large cities in 1999 reflected, in part, the effects of the Russian crisis that affected mostly urban areas in the region. By 2003, instead, almost half of the poor in Ukraine live in rural areas and still 30 percent in

small towns. Still, in regions with average levels of poverty there are large pockets of poverty, particularly in one-company towns or other mining towns in the Donetsk region. The economic regions with the larger number of poor are Black Sea Coast (1.45 million), Carpathians (1.33 million), Donetsk (1.30 million), and Polissya (1.22 million).

The poor live in larger households with more children and youth. About 20 percent of the population lives in households with 4 members or more, but these individuals living in large households represent about 40 percent of the poor. This partly reflects the importance of children and youth among the poor: 42 percent of the poor are children and youth (0-24)

compared to only 30 percent in the overall population. The rest of the poor are 47 percent adults (25-64) and 11 percent elderly (65 or more years). The increasing importance of younger populations among the poor and the rapidly aging population in rural areas and small towns suggest a more interesting dynamics within rural areas. In rural areas, about 21 percent of the rural population is elderly (more than 65 years of age) and about half of the rural population lives with an elderly at home. However, the elderly are only 12 percent among the poor. Larger and younger families in rural areas have highest poverty rates, despite the pension benefits that the elderly members can obtain (if present at all).

Figure 1.9: Household structure of poor and non-poor households

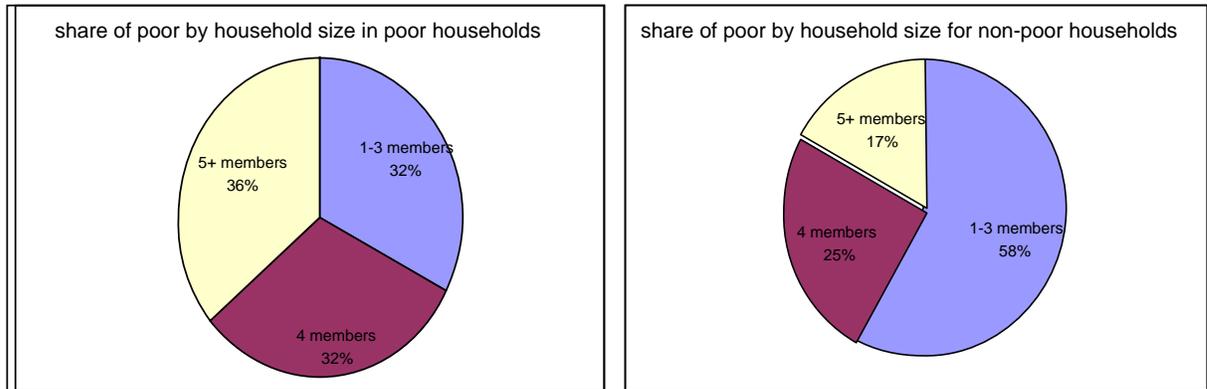
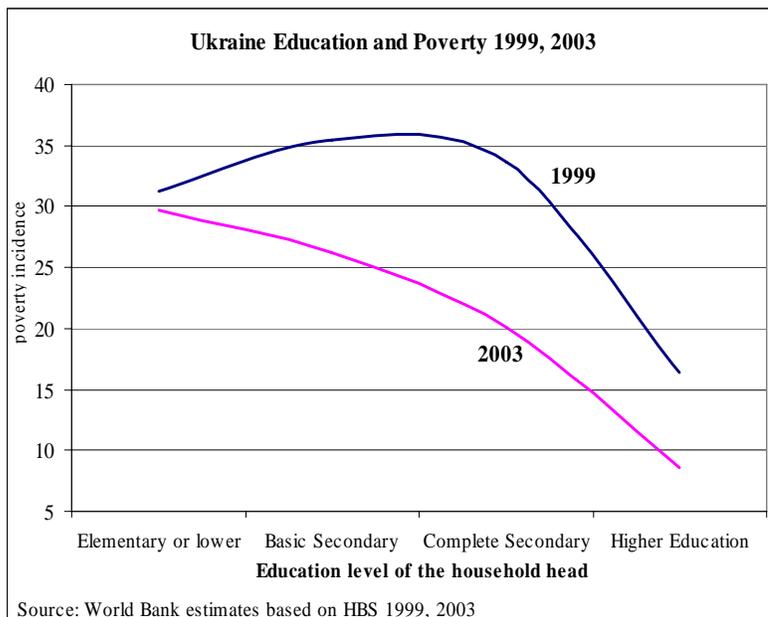


Figure 1.10: Poverty and Education 1999-2003

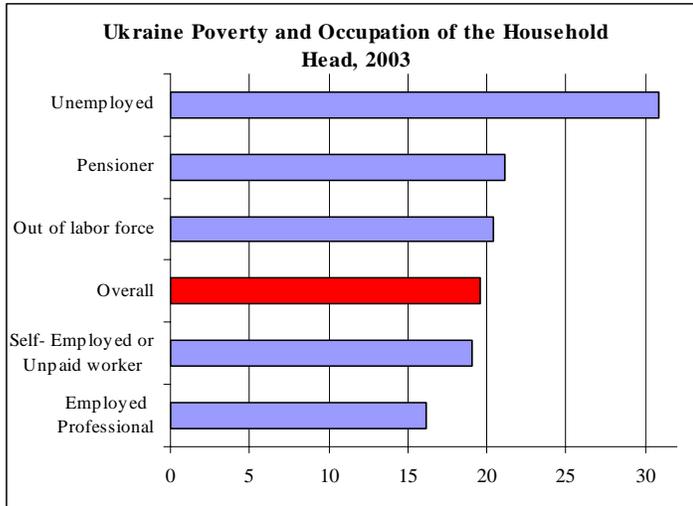


Poverty is closely associated to education of the household head and this relationship has strengthened over time. Ukraine's population has very good educational achievements, since more than 78 percent of the population lives in households with heads that completed Secondary or Higher education. Still, 21 percent of the population lives with heads with basic Secondary education or less, and this fraction is

even large among the poor (30 percent). Figure 1.10 shows the poverty incidence for education level of the household head for 1999 and 2003. Between 1999 and 2003 poverty was reduced across all education levels of household heads, but the reduction in poverty was larger for those in better educated households: poverty for those with heads with Elementary or lower attainment

remained almost unaltered around 30 percent. The more direct link between education and poverty, partly reflects the increased of returns to education in a more dynamic labor market.

Figure 1.11: Poverty and employment



Most of the poor live with employed or pensioner heads, but the risk of poverty is the highest among those with unemployed household heads. While most of the poor live with household heads that are either employed (42 percent) or pensioners (35 percent), still a significant fraction live with unemployed heads (17 percent). The risk of poverty is twice for those with unemployed heads (31 percent) compared to those with employed ones (16

percent). This, however, hides some differences across regions since in small towns, a larger fraction of the poor lives with unemployed heads (22 percent). In rural areas, the poor are equally distributed between households with pensioner or employed heads (39 percent) given the rapidly aging profile of rural settlements.

1.5 What Factors Contribute Most to Poverty?

Different factors are associated with consumption and poverty, and these factors vary depending on the location in the consumption distribution. Factors that affect the level of consumption range from geography, household demographic characteristics, and labor market opportunities, but the role each of these factors play is different for the poor and the non poor. Using regression analysis by consumption quintiles the variation of consumption is decomposed among different factors that are described next.⁸

Location and economic region play key role in the poverty profile. People living in urban areas have, *ceteris paribus*, a significantly higher consumption than people living in rural areas. In 1999, people living in large or small towns had, on average, 10 percent higher consumption than those living in villages. This difference between urban and rural has become more pronounced over the years. By 2003, people living in large towns had, on average, 18 percent higher consumption than those in villages, while people in small towns had 7 percent higher consumption than rural population. Interestingly, these differences by settlement are more marked among those with higher levels of consumption suggesting that the poor in urban areas, although being a small fraction, are equally worse off as those in rural areas.

While most of the variation in poverty is associated to the type of settlement, there are some economic regions that have distinctive levels of consumption and poverty. While most

⁸ See Annex 3 for the detailed results of the regression analyses.

economic regions have rather similar levels of consumption, people living in Kiev city had on average, 27 percent higher consumption than the rest. On the other hand, in 1999, consumption in the Donetsk region was 8 percent lower than the average consumption; however, this difference became insignificant by 2003. For most part of the period between 1999 and 2003, people living in Carpathians region consumed more than the average partly because it includes -- which includes the Transcarpathians a region with better agricultural productivity and human development outcomes (UNDP, 2002). Those in the Black Sea Coast region fared worse than their counterparts in other regions and this gap has been constant over time.

Working age adults, and children in large families play opposite effects on welfare of the poor. Controlling for regional and other household factors, households with higher share of working age adults showed higher consumption levels. The gains due to working age members increase over time, and particularly at the lower tail of the distribution (showing an increased benefit for the poor). This may reflect the increasing role of labor markets in a growing economy, and the gains from labor market participation among the poor. People living in households with a high share of children tend to have lower consumption and, again, these demographic patterns are more pronounced for the poor. The effects are aggravated when households are large, but the household size effects have decreased over time.

Pensioners have an important income effect but may not be important if they are the main source of income. The fraction of pensioners in a household has positive effects on welfare and these effects have increased over time and among the poor partly due to the higher pension incomes in recent years. These positive effects, however, are offset by a negative effect of pensioner heads reflecting the lack of other active labor market members in the household and the household main reliance on pension incomes. In 2003 households with a pensioner head had about 10 percent lower consumption, compared to only 5 percent in previous years.

Less educated, unemployed and female heads significantly reduce the consumption of the household. People living in households where the household head had completed secondary education had 16 percent higher consumption than those living in households where the head had only completed elementary education. Consumption gains to higher education are even larger (more than 30 percent than those with elementary). On the other hand, unemployed household heads had a large negative impact on the household's consumption, with household members consuming 17 percent less than households where the household head was employed. Worse still, the unemployment status of the household head affected the consumption of the poor more than the consumption of the rich. In 2003, the people in the bottom tail with unemployed household head consumed 27 percent less than those with employed household heads; the people at the top of the distribution with unemployed household heads, on the other hand, only consumed 16 percent less than those with employed household head. Gender differences are small but significant since male headed households had 6 percent higher consumption than those living in female headed households.

The national accounts and household survey evidence indicates that that the rapid growth was associated with unequal distribution of the gains in the early period (1999-2001) that benefited the better off, while in the second part (2002-2003) the poorer income groups recovered the lost welfare but still lagging behind in absolute terms. After several years of rapid growth, distinctive geographic patterns of poverty have emerged where the gap between rural and urban areas is increasing. The next two chapters provide some evidence that explains these unbalanced poverty reduction in Ukraine.

Chapter II: Growth, Employment and Regional Dynamics

2.1. Growth and Employment in Ukraine

After experiencing the negative effects of transition and the Russian crisis in the late nineties, Ukraine experienced fast economic recovery averaging about 7 percent per year. Growth was initially driven by a strong external demand, particularly for manufactured products, due to the depreciation of the domestic currency, and the economic recovery in Russia and other CIS countries. The positive external context was also accompanied by key elements in domestic policy such as macroeconomic stability, budget discipline, financial transparency, consolidation of privatization efforts, external liberalization, and, reform in agriculture, among other factors (World Bank, 2004a).

The recent rapid growth was driven by industry and trade, and followed by construction. By 1999 industry and trade were the only sectors growing in a stagnant economy, and by 2003 these sectors were growing at 14 and 20 percent per year, respectively. While industrial growth was led by machinery production for export between 1998 and 2000, it shifted towards the domestic market after 2001. The production of machinery directed to the internal market is due to the expansion of food and machine-building activities, which represented close to 40 percent of all industrial manufacturing by 2003. This also reflects the rapid growth in fixed capital investment that has even outpaced GDP growth in recent years. Other sectors such as agriculture, however, evidence a mixed growth record due to weather anomalies and structural changes in farm organizations. While in 2000 and 2001 agricultural growth was more than 10 percent per year, it only reflected the recovery from previous bad years and improved credit conditions. Finally, the extreme winter weather in 2003 dropped agricultural GDP by 10 percent.

Table 2.1: Ukraine Real GDP Growth (percentage change)

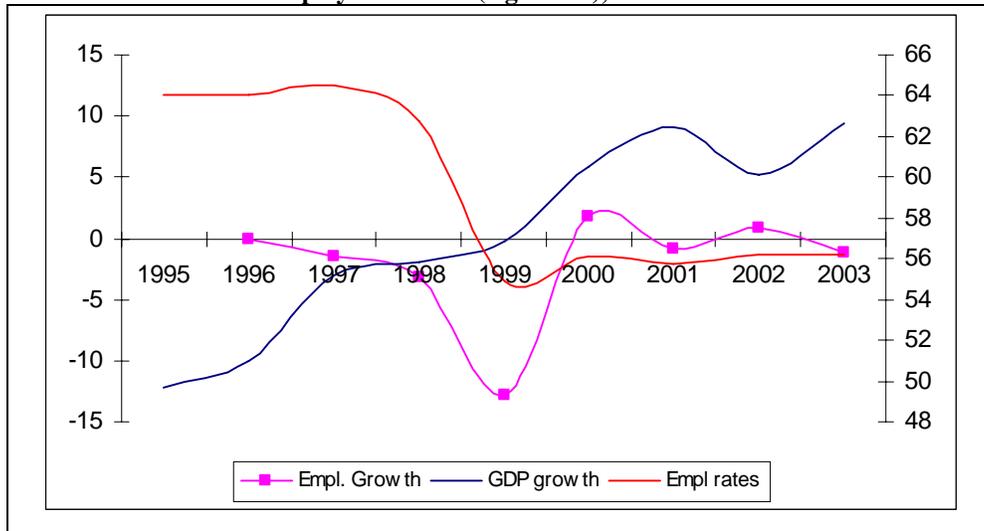
| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|------------------|-------|------|------|------|------|------|
| GDP | -1.9 | -0.2 | 5.9 | 9.2 | 5.2 | 9.4 |
| <i>of which:</i> | | | | | | |
| Industry | 0.0 | 6.0 | 5.0 | 11.3 | 6.8 | 13.6 |
| Construction | -0.4 | -6.6 | -6.1 | 7.8 | -2.6 | 23.1 |
| Agriculture 1 | -11.2 | -3.7 | 12.5 | 10.2 | 2.0 | -9.9 |
| Trade 2 | -1.7 | 7.8 | 9.1 | 43.0 | 7.8 | 19.6 |
| Transportation 3 | 1.2 | -7.3 | 2.8 | 5.1 | 7.4 | 12.4 |
| Other Services | -1.3 | -3.2 | 2.2 | 12.7 | 6.7 | 6.3 |

Source: IMF Ukraine Statistical Appendix (2004). Notes: 1. Agriculture includes forestry. 2. Freight and passenger transport, including communications. 3. Includes public catering, material procurement, sales and provisioning

The recent growth has not yet paid off in terms of employment in Ukraine. Overall employment has remained stagnant. In fact, employment rates – the share of population aged 15-70 that are actually employed – fell significantly in 1999 and remained at stable levels (Figure 2.1). In spite of another year of high output growth in 2003, employment numbers have still not shown any sign of reinvigoration. Unemployment has declined in recent years from almost more than 11 percent in 2000 to 9.1 percent in 2003, and preliminary estimates for 2004 suggest even further decreases. The paradox between declining unemployment rates and stagnant employment rates is partly explained by the slow but steady declines in labor force participation. In addition,

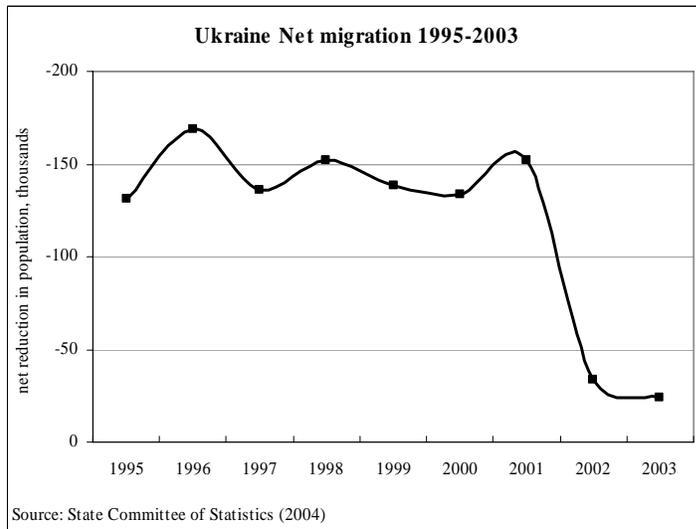
the country experienced significant emigration during the last decade, reducing the number of labor market participants.

Figure 2.1: Ukraine GDP growth and employment growth (left axis) 1/, and employment rates (right axis), 1996-2003.



Source: World Development Indicators, Statistical State Committee of Ukraine (SSC).
1. Annual percentage change, for age groups 15-70.

Figure 2.2: Migration in Ukraine



Source: State Committee of Statistics (2004)

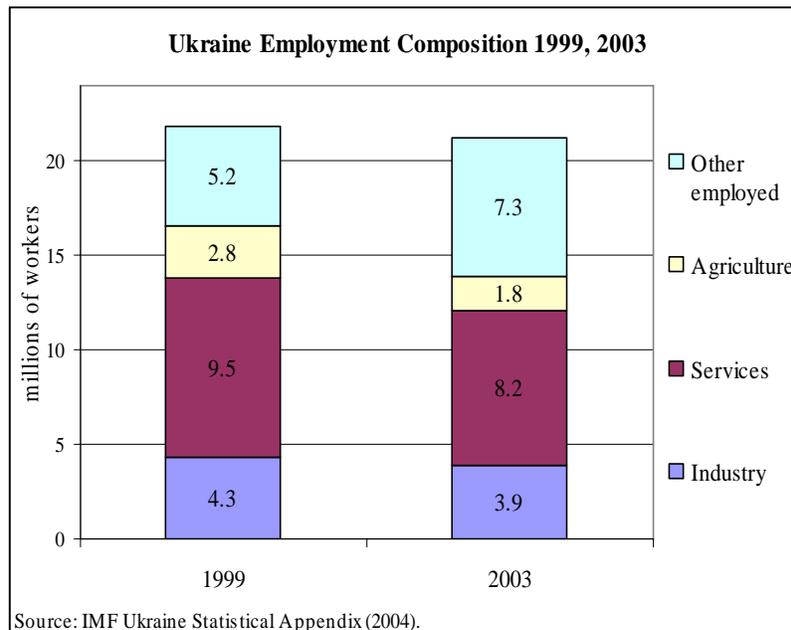
The stagnant labor participation is partly explained by significant migration abroad during the nineties, representing more than 1.2 million individuals between 1994 and 2003. Official accounts of migration -- that usually underestimate the real magnitude of this phenomenon -- indicate that, on average, more than 140 thousand Ukrainians left the country each year between 1995 and 2001 (Figure 2.2). In 2002 and 2003 out migration slowed significantly to 34 and 24 thousand respectively (State Committee of Statistics, 2005).

Even though these levels of international migration seem moderate there is evidence suggesting that temporary migration maybe more spread. According to a survey about 5 percent of the population aged 20 to 49 years migrated during 2000, many of them conducting labor trips (Libanova and Poznyak, 2002). Different patterns of migration are observed in Ukraine, where migrants of 40 or above tend to migrate to the Russian Federation and other CIS states, while younger migrants move to Europe and other Western countries. Overall estimates suggest that there are between 2 and 5 million Ukrainians working abroad (Malynovska, 2004). The oblasts of Chernihiv, Rivne and Volyn are the ones that send more migrants abroad relative to their

populations, although oblasts like Zakarpattya and Luhansk send more than 28 percent of the official migrants (SSCU, 2005).

The stagnant aggregate employment numbers hide important sectoral shifts. An important shift in labor has occurred between the public and the private sector, since the period 1999-2003 saw a doubling in private employment, while public employment and especially collective employment fell. Yet, state owned organization, entities or institutions remained the single largest source of employment, still absorbing 47 percent of all employment. Collective enterprises (mostly farming enterprises in rural areas) accounted for 10 percent, while only one in five workers were employed in a private company. This mimics the process during the last years where a substantial number of public enterprises have been privatized.

Figure 2.3: Employment Composition by Sector



The increasing role of the private sector has also resulted in shifts within economic sectors. Overall employment in Ukraine has remained at about 21 million workers. One sector of particular interest is agriculture, where the land reform process has converted a number of farms into private organizations. Once under private ownership, firms have gained in productivity by increasing investment and modernizing the existing machinery while reducing excess labor by almost a million workers between 2000 and 2003, the largest sectoral reduction in labor in this period (about a third of the agricultural workforce). In turn, most of these workers have turned into their own household lands and turned self-employed workers: more than 60 percent of the former farm labor that was laid off is now occupied in cultivating their own lands. Industry, despite rapid growth, has not increased its importance in the economy keeping constant levels around 19 percent of workers or about 4 million workers.

2.2. Trends in labor market indicators

This report uses a revised definition of unemployment and a definition of underemployment. The analysis of employment, unemployment and labor force participation in this paper is largely based on data from the Household Budget Survey using corroborative evidence from the Labor Force Survey (LFS).⁹ One important difference between the HBS and the LFS is in the definition of unemployment. In the HBS, unemployment is simply based on whether the respondent answered that he or she was unemployed at the time, while in the LFS, it is deduced from questions relating to whether the person worked for at least one hour in the week preceding the interview (that is following the ILO definition). Unemployment rates based on self-identification in HBS data are about twice as high as suggested by LFS numbers – most likely because people who do engage in casual work activities and/or subsistence farming are not counted as unemployed according to the LFS definition. But it is likely that many of those with irregular income sources of this kind would have preferred a regular job and so to some extent should be considered unemployed or at least not optimally employed.¹⁰ The key definitions are as follows:

- Labor force participants are defined as those who declared to be either unemployed or employed in the survey.
- The core unemployed are defined as those who (i) declared to be unemployed and (ii) reported no income from any workplace.
- The employed are all other labor force participants.
- The *underemployed* are defined as a subcategory of the employed, namely those who (i) declared to be unemployed and (ii) reported income, but less than the minimum wage for the year in question. As a result of this upper limit on earnings, there are some people in the HBS who defined themselves as unemployed but, since they earned more than the minimum wage, are defined as employed in this study.¹¹

Labor Force Participation

A larger share of the population in active age has dropped out of the labor market. According to the LFS, between 1998 and 1999, *labor force participation rates* – the share of population in active age that were either employed nor looking for work - fell quite drastically, from 71 to 62 percent, leveling out at around 63 percent between 1999 and 2003. HBS data show

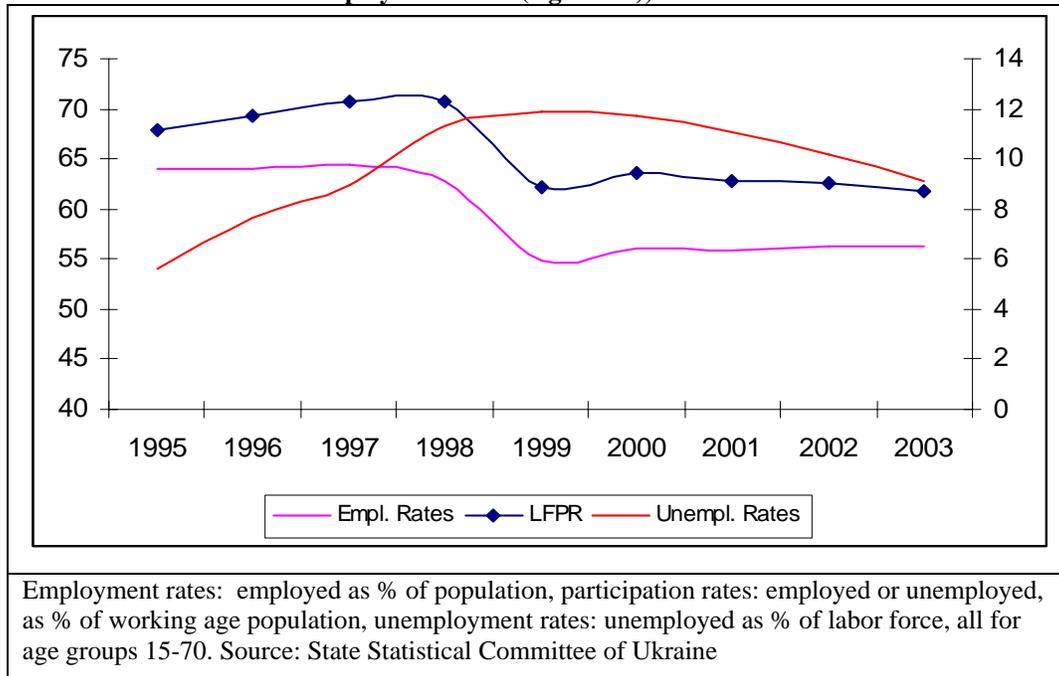
⁹ LFS data generally has several advantages over the HBS, since it is collected specifically for the purpose of measuring labor market activity and contains much more detailed information on wages, hours worked, type of contract, and other important aspects. For example, the HBS does not detail what sector of industry a worker is employed in, nor are there ways of tracking issues like sectors of informality, wage rates or incidence of wage arrears. In addition, a good overview of labor market conditions using the LFS is provided in World Bank (2003).

¹⁰ Indeed this is suggested by the fact that many who report income from a primary or secondary work place simultaneously identify themselves as unemployed in the HBS. Annex 5 discusses in detail some different possible methods and the implications in terms of analysis.

¹¹ Using the minimum wage as an upper threshold of what could reasonably be expected to be unsatisfactory employment is clearly somewhat arbitrary. The most logical alternative would be to include all those who defined themselves as unemployed and earned income as underemployed. Since income tends to be underreported in most surveys, there is also probably an upward bias in our definition of underemployment.

labor force participation rates at a slightly higher level (69 percent in 2003), and also suggest a marginal decline between 1999 and 2003.

Figure 2.4: Labor Force Survey: Employment rates and participation rates (left axis), unemployment rates (right axis), 1995-2002.1/



Employment

The non-agricultural sector - especially the services sector - continues to increase its share of employment, due to a changing labor market structure in rural areas. According to household data, in 2001, agriculture accounted for 13 percent of all employment, industry for 25 percent, construction for 5, and services for 57 percent.¹² Compared to 1999, this represents a small shift away from the agricultural sector and towards the services sector, mostly on account of dynamics in the rural employment structure. Although the agricultural sector still accounted for a large share of total employment in rural areas in 2001 (43 percent), its importance has significantly reduced since 1999, when it accounted for 50 percent of all jobs. The services sector, in turn, increased its share of employment to 44 percent, at par with agriculture. In contrast, the employment structure in urban areas remained fairly static. By 2001, services accounted for 62 percent of all jobs, industry for 29, and construction for 5 and agriculture for a negligible 3 percent (Table 2.2).

¹² 2001 is the latest year for which there is data available on sector of work in the HBS.

Table 2.2: Employment by economic sector (%), rural and urban areas.

| | Rural areas | | | Urban areas | | |
|--|-------------|------|------|-------------|------|------|
| | 1999 | 2000 | 2001 | 1999 | 2000 | 2001 |
| Agriculture | 50 | 47 | 43 | 4 | 4 | 3 |
| Industry | 8 | 8 | 10 | 29 | 30 | 29 |
| Construction | 3 | 2 | 3 | 6 | 5 | 5 |
| Services, of which: | 39 | 42 | 44 | 61 | 61 | 62 |
| Transports and communications | 7 | 7 | 7 | 10 | 10 | 10 |
| Commerce | 3 | 5 | 4 | 9 | 10 | 11 |
| Health, education and social protection | 18 | 18 | 22 | 18 | 18 | 18 |
| Other | 11 | 12 | 11 | 23 | 23 | 23 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 |
| Memo: rural/urban share of total national employment (%) | 27 | 26 | 25 | 73 | 74 | 75 |

Source: Staff calculations based on HBS. Note: This table includes only those who reported that they were employed and reported in which sector they were employed.

Unemployment and Underemployment

High and long duration unemployment on average, may have contributed to discouraging workers from actively looking for a job. In fact, the drop in labor force participation rates is probably partly a consequence of increasing unemployment during the mid-1990s, as discouraged workers unable to find jobs over a sustained period of time, decide to drop out of the labor force and stop looking for a new employment. There is also evidence of an increase in the number of job seekers who remain unemployed for more than one year (see Box 2.1).

The slow but steady decline in unemployment since 1999, has given way to rising underemployment instead. Unemployment, as measured in the LFS, doubled from 5.6 percent in 1995 to 11.9 percent of the labor force in 1999, and has seen only a small decline since, to 9.1 percent in 2003. *Core unemployment*, as derived from HBS data, is at a lower level and also indicates a stronger improvement between 1999 and 2002, when rates fell from 8.7 to 5.8 percent of the labor force. But this decline is partly the result of the way unemployment rates are defined: instead, *underemployment* has increased, from 8.4 percent to 9.2 percent of the population. The stagnating labor force participation and a rising share of population who still define themselves as unemployed in spite of earning some income suggests that many more would like to be fully employed than is currently the case.

Box 2.1. Unemployment duration in Ukraine

Generally, CIS countries like Ukraine have been thought to have lower levels of open unemployment and shorter spells of unemployment duration compared to transition countries in Central Europe, due to lower relative wages, higher wage flexibility, and to the fact that rather than firing workers, total labor costs have been adjusted through wage arrears, unpaid forced leave and similar practices. But recent evidence from Ukraine for the years 1999-2001 suggests that most of the unemployed remain so for more than one year – average unemployment duration is almost two years – and that unemployment duration has increased since 1999.

Econometric analysis suggests that the likelihood of exiting unemployment sooner rather than later is linked to the likelihood of being employed in the first place. Thus, married people with higher education levels, living in larger cities and in regions with relatively low unemployment, are more likely to find a job than other groups. In addition, unemployment benefits do not appear to play an important role in discouraging active job search or raising reservation wages. Instead, people who do receive income from causal work activities or tend private plots remain unemployed longer before finding a regular job.

Source: Kupets (2004b)

2.3. Poverty and labor market opportunities.

The dynamics in labor markets closely follow the poverty profile. Though standard labor market indicators such as labor force participation rates and unemployment numbers suggest a relatively stable labor market in Ukraine, there is a growing diversity between different categories of workers. This section discusses the recent trends from a poverty perspective to assess where and for whom there is employment, and how this labor market profile has changed over time. The fact that core unemployment has fallen for most workers is an encouraging sign, however, there are two accompanying and relatively worrying trends: the increasing lack of employment opportunities in rural areas, and more specifically a rise in underemployment, as well as for people in poorer consumption groups, relative to all other groups.

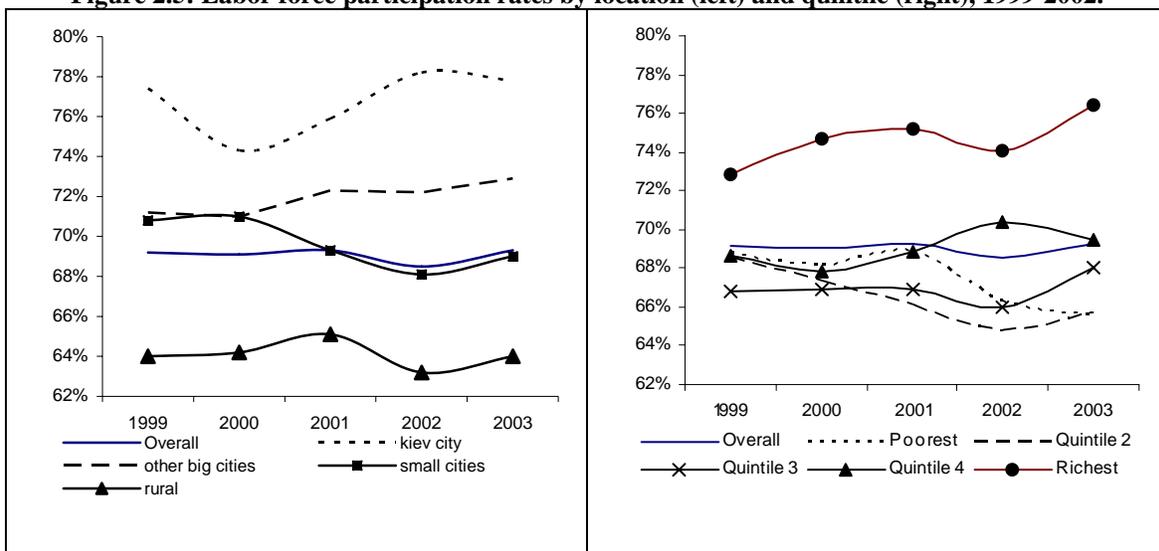
Labor Force Participation and Poverty

Participation in labor markets show rural areas are lagging behind; however, the Southern region is continually doing better compared to other regions. Labor force participation is larger in large cities compared to small towns and rural areas: in 2003 labor force participation rates reached 78 percent in Kiev and 73 percent in other big cities, compared to 64 percent in rural areas (Figure 2.5). Declines in labor market participation in rural areas and small towns have widened this gap in recent years. The Southern region, which in 1999 had the highest labor force participation rate at 70.3 percent, has seen an even greater increase, from 70.3 to 72.0 percent in 2002.

The poor have less access to the labor market, and the gap between poorer and richer has not narrowed over time. Labor force participation rates differ, though not remarkably, between richer and poorer, ranging from 65.6 percent for workers belonging to the poorest consumption quintile to 76.4 percent for the richest quintile in 2003 (Figure 2.5). Moreover, the poorest two quintiles have seen a drop in labor force participation rates since 1999, while the three richest quintiles have seen an increase. There is a shift in the role of factors

underlying these participation differences: initially participation gaps were closely associated to location (settlement type and region), but since 2003 poverty is playing an increasing role.¹³

Figure 2.5: Labor force participation rates by location (left) and quintile (right), 1999-2002.



Source: Staff calculations, based on HBS data

Women, especially in rural areas, are less active in the labor market than men, and the gender gap has also widened slightly since 1999. About 76 percent of all men aged between 15 and 70 were active in 2003, compared to 63.5 percent of all women. Overall, women appear to enter the labor market at a later age and leave earlier than men, as witnessed in more important gender gaps for ages 15-34 and 55-70. These disparities are also considerably larger in rural areas than in urban areas and are not driven by marital status or levels of education. Household demographic composition seems to play an important role for females since the share of elderly or children aged 0-13 in the household is a strong damper for labor participation. Lack of alternatives for child care, as well as elderly care, are likely to be a binding constraint for many women. The lack of child care opportunities has been already raised by other reports focused on gender equality, such as those assessing the Millennium Development Goals (Ministry of Economy, 2003).

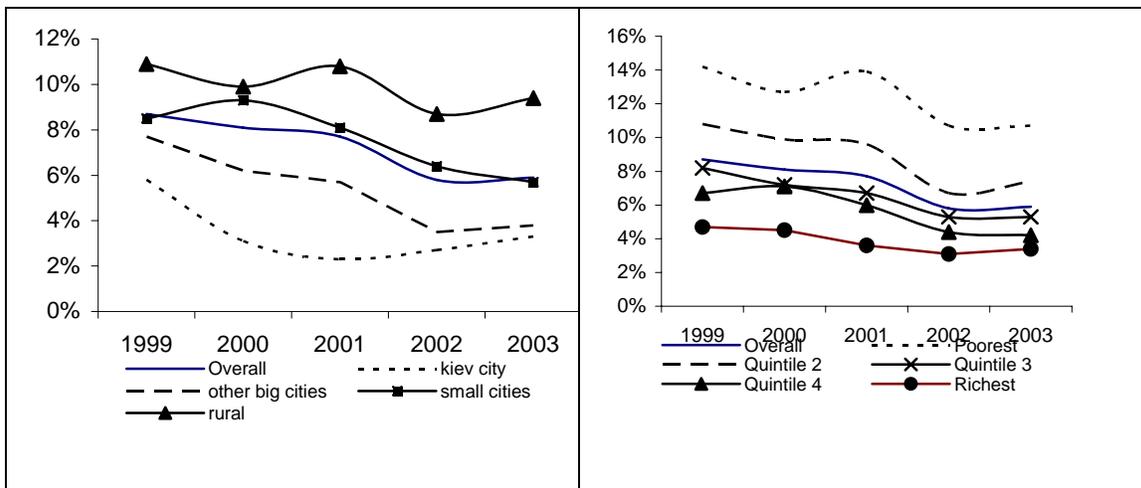
Employment rates have stagnated for the poorer, especially in small and rural settlements, and poor workers have moved from industry to services. In rural areas, and more so for the poor, the combination of falling labor force participation and slower reduction in core unemployment illustrated above has translated into relatively static employment rates. Yet, there have been structural shifts within sectors of employment. The poor were, by 2001, particularly over-represented in agriculture, but also in construction and commerce. This pattern marked a shift since 1999 of poor workers out of the industrial sector, and into commerce.

¹³ A detailed analysis of labor force participation is in Annex 6.

Unemployment, underemployment and poverty

Core unemployment rates have fallen since 1999, especially in urban areas, but there are still important -- and increasing -- differences between rural-urban and poorer-richer groups. Core unemployment is very low in urban areas, but remains an issue in rural areas. In 2002, core unemployment rates – the share of people who declared to be unemployed and who reported no work income – reached 9.4 percent in rural areas and 5.7 percent in small settlements, compared to 3.3 and 3.8 percent in Kiev and other big cities, respectively. The rural-urban gap also widened since 1999: rural unemployment rates remained stagnant between 1999 and 2001, while larger urban settlements saw a continuous decline, and only in 2002 did rural unemployment rates see a reduction only to rise again in 2003 (Figure 2.6). Core unemployment has fallen in all four regions, but the Western region retains the highest level of unemployment, at 9.1 percent in 2002.

Figure 2.6: Core unemployment rates by location (left) and quintile (right), 1999-2002.



Source: Staff calculations, based on HBS data

Unemployment is more prominent among women than men but the gap has narrowed since 1999. Female unemployment rates at 6.6 percent exceed male unemployment rates at 5.2 percent, but the two have converged since 1999. Both men and women in the age group 15-24 run the highest risk of being unemployed compared to other age groups. The probability of being unemployed for older workers (55-70) is in turn very small, probably because these people drop out of the labor market or are retired, if there are no opportunities for work.

Core unemployment is correlated with lack of education, but unemployment among workers with secondary education is relatively high. For men as well as women, and for all age groups, having completed tertiary education increases the probability of finding a job: unemployment rates are only 1.7 percent for men who have completed higher education and 2.4 for women. But, importantly, those with basic or completed secondary levels of education have the highest levels of core unemployment of all. Higher level of education also pays off significantly in terms of unemployment – workers who have completed higher education have much lower rates of core unemployment than those with lesser levels of education. The

multivariate analysis confirms that as in the case of labor force participation, the significant premium to education only kicks in at the level of higher education, especially in rural areas.

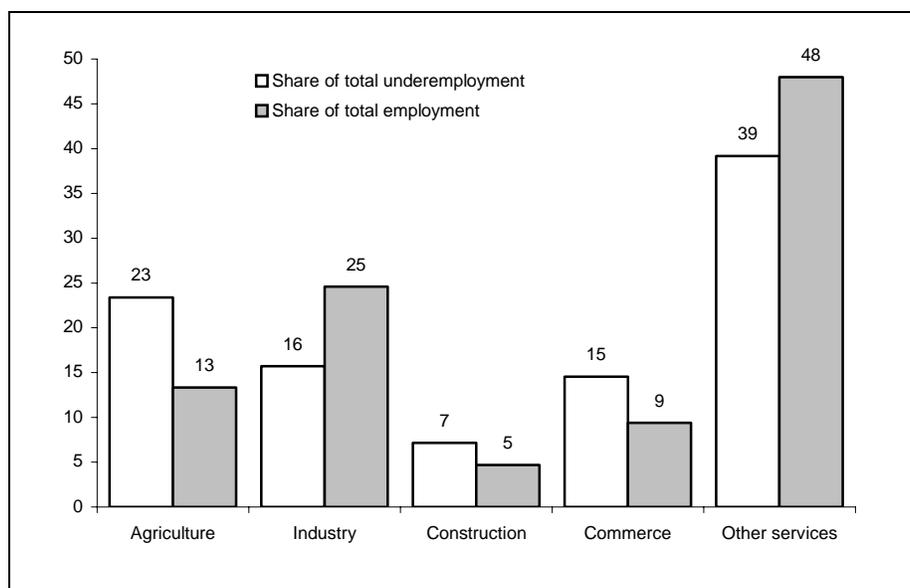
The active poor have more difficulties finding a job than the non-poor. Core unemployment rates are negatively correlated with income/consumption levels: the poorest quintile has by far the highest unemployment rate, 10.7 percent compared to 7.4 percent for the second quintile, and then successively falling down to 3.4 percent for the richest quintile (figure 5). Though all groups have been seeing falling unemployment rates, the gap between the poorest and the richest has increased somewhat since 1999. The poor in Kiev areas have the highest core unemployment rates of all (18.2 percent), but the gap between poor and rich is in fact decreasing over time. Workers from the poorest 20 percent of the population are remarkably more vulnerable to core unemployment than any other quintile.

Underemployment is becoming more widespread in rural areas, among young males and less educated individuals. In 2003, 13.1 percent of the rural active labor force was underemployed, compared to 10 percent in small cities, and 4.8 and 4.7 percent in Kiev and other big cities. Following the trend in unemployment, the rural-urban gap has also widened since 1999. This urban-rural dimension is, in fact, explained by differences in economic activity across regions, since underemployment has also increased in the Southern and Western regions. The underemployment problem is especially clear for young males and less educated. Though women are over-represented among the core unemployed compared to men, they suffer relatively less from underemployment.¹⁴ The key factor behind the worsening underemployment rates for men, and indeed the overall rising trend in underemployment, is the worsening situation for men in rural and semi-urban settlements. Like unemployment, underemployment is negatively correlated with age, and especially young men fall into this category. The pattern for underemployment further underscores the links between access to employment and levels of education. Returns to education (in terms of securing an employment) are higher for mid age workers (25-54) than younger or older age groups. This suggests that the youth, and in rural areas, are a groups of high risk of labor market exclusion.

And poverty is fundamentally linked to inferior forms of employment. Unsurprisingly, poverty is critically linked to underemployment: between 1999 and 2003, underemployment rates increased for all but the three richest quintiles. As a result, the gap between poorest and richest quintiles increased from underemployment rates of 13.4 vs. 4.9 percent in 1999, to 17.6 vs. 3.4 percent in 2003. Again, the poor in rural areas are universally worst off, though the gap between rich and poor is actually more pronounced in urban centers. The linkage with poverty is again corroborated by the incidence of underemployment in agriculture and commerce sectors. There is a fair amount of underemployment in the agricultural sector, relative to its share in total unemployment, which is reflecting the alternative to tend a private plot. There is also more underemployment in construction, relative to overall employment, and in commerce (Figure 2.7). These are also sectors where a relatively higher share of the poor work.

¹⁴ Thus, if core unemployment rates and underemployment rates are added up (to include all those defining their socio-economic status as unemployed and earning less than the minimum wage), male unemployment rates are higher than female.

Figure 2.7: Share of total employment and total underemployment, by economic sector



Source: HBS. Note: Total employment – underemployment.

But what about the labor demand side? This growing diversity begs the question whether there are similar dynamics on the labor demand side, i.e. in enterprises. For example, the analysis of the HBS shows that there is a high and in many cases growing premium to higher education in terms of labor market access, which suggests that more productive workers are becoming increasingly attractive. This is likely to be evidence of some restructuring process, as enterprises are forced to look for more productive workers to stay competitive. Against this background, the following section looks at job dynamics in enterprises in Ukraine in recent years.

2.4. Job Dynamics and Productivity

The recent surge in economic growth might have resulted in higher job turnover rather than higher net employment growth. High rates of job creation and destruction can therefore be evidence of more dynamic product *and* labor markets, with higher flexibility, improved efficiency, and changing job characteristics, even if net employment numbers are stagnant. However, if there are remaining distortions in the economy, there may be little reallocation of jobs, or even reallocation from efficient to more inefficient sectors and firms. A previous study on job creation and destruction (Brown and Earle, 2002) compared Russia and Ukraine during 1996-2000, and concluded that more and faster economic reforms in Russia had paid off in terms of better job creation. A more recent study (Konings et al, 2003) indicated that between 1998 and 2000 there was a net negative employment effect in Ukraine, a pattern found in early stages of transition in other countries. New private establishments had stronger employment growth and also reallocated more jobs than state-owned and privatized establishments, and both import competition and export growth helped firms to grow. A stronger trade openness with the EU and non-CIS countries enhanced net job creation, while sectors linked to CIS-oriented trade had little job destruction but no job creation either. This section provides an overview of the recent pattern of job dynamics in Ukraine. The analysis is based on a rich industrial firm-level

census-type panel dataset, and as opposed to previous studies includes both a period of low growth between 1997 and 1999 and the subsequent period of high growth 2000-2001. The detailed analyses and description of the data used can be found in Annex 4.

Box 2.2 Job creation and job destruction: key concepts:

Gross job creation in one year (in a particular sector) is the sum of all employment gains that year in firms (in that sector) that start up or expand between in a year.

Gross job destruction is, similarly, the sum of all employment losses in firms that contract or shut down (in that sector), during the year.

Net employment growth is simply the difference between gross job creation and gross job destruction.

Gross job reallocation is the sum of gross job creation and gross job destruction, and is considered to be a useful measure to characterize the dynamics (extent of job creation and job destruction) of the labor market.

Excess job reallocation is the difference between the gross job reallocation and the absolute value of the net employment growth. This measure captures the amount of “churning” by firms, i.e. how much actual job reallocation exceeds what would be necessary to accommodate the net actual change in employment. Again, this measure is an important indicator of the extent of dynamism in the labor market.

These indicators are usually expressed as rates, i.e. divided by total employment numbers (in a particular sector).

The one or two year persistence of job creation (destruction) in a year is the fraction of newly created (destroyed) jobs that remain filled (do not reappear) one or two years later.

Source: Kupets (2004b)

Though job destruction dominated until the end of the 1990s, job creation and job turn over has increased since 2000, pointing to a more dynamic job market in Ukraine. The job market appears to have responded to economic growth with increased dynamism, more employment growth and higher job turnover. Gross job reallocation rates increased quite dramatically between 2000 and 2001, due to a jump in job creation. As a result, net employment growth became, for the first time, positive in 2001. Given the continued high rates of job destruction, excess job reallocation also jumped. In all, these are signs that not only is employment growing, but there is also an important reallocation process going on, with jobs simultaneously being created and destroyed (Table 2.3). Moreover, job flows are becoming less and less of a primarily a temporary phenomena: some 8 out of 10 newly created jobs in 2000 remained filled in 2001, while 8 out of 10 jobs destroyed in 2000 remained unfilled on year later. This is also evidence of a positive trend, as the persistence rate of job creation has increased significantly over time, while that of job destruction is declining. In all, this implies that workers who get a job also get to keep it over time, and that long-term unemployment on the other hand is on decline.

Table 2.3: Aggregate Job flows (rates) and persistence in Ukrainian industry

| Year | 1998 | 1999 | 2000 | 2001 |
|-------------------------|-----------|------------------|------|------|
| | Job flows | | | |
| Job creation | 2.2 | 3.0 | 4.1 | 10.6 |
| Job destruction | 9.1 | 9.4 | 8.1 | 8.2 |
| Gross job reallocation | 11.3 | 12.4 | 12.2 | 18.8 |
| Net employment growth | -6.9 | -6.4 | -4.0 | 2.4 |
| Excess job reallocation | 4.5 | | 8.1 | 16.4 |
| On year creation | 72.9 | 6.0 | 85.9 | – |
| Two year creation | 64.1 | Flow persistence | – | – |
| One year destruction | 94.3 | 91.8 | 84.3 | – |
| Two year destruction | 88.8 | 80.0 | – | – |
| No. firms | 7671 | 9066 | 8074 | 7281 |

Source: Kupets (2004a)

The job market in Ukraine appears quite vigorous, in the sense that net employment growth is positive, while job reallocation is high. Job creation rates have in fact increased to levels comparable in other advanced countries. Job destruction rates remain lower, however, suggesting that the Ukrainian labor market is still not functioning in the same manner as more developed market economies.

Table 2.4: Aggregate job flows, Ukraine and comparators.1/

| Country | Year | Creation | Destruction | Gross job reallocation | Net employment growth | Excess job reallocation | No. firms |
|---------|-----------|----------|-------------|------------------------|-----------------------|-------------------------|-----------|
| Ukraine | 2001 | 10.6 | 8.2 | 18.8 | 2.4 | 16.4 | 7281 |
| Ukraine | 1996-2000 | 2.2 | 10.0 | 12.1 | -7.8 | 4.3 | 7000 |
| Russia | 1996-2000 | 3.5 | 8.7 | 12.2 | -5.2 | 7.0 | 16500 |
| Estonia | 1994 | 10.1 | 11.0 | 21.1 | -0.9 | 20.2 | n/a |
| USA | 1973-1986 | 9.2 | 11.3 | 20.5 | -2.1 | 18.4 | n/a |

Source: Annex 4. 1. All data refer to manufacturing sector firms. Sources of comparators are: Ukraine and Russia 1996-2000: Brown and Earle (2002), Estonia 1994: Haltiwanger and Vodopivec (2002), USA 1973-1986: Davis and Haltiwanger (1992).

Job dynamics differ considerably between different types of firms and sectors, with a pattern of job reallocation from low labor productivity (and low wages) firms to firms with higher productivity and higher wages. Within the manufacturing sector, sub-sectors differ greatly in degree of job dynamics. The manufacturing sector shows tremendous heterogeneity in

terms of job creation and destruction. First, only one in four sectors have positive net employment growth - these are oil, gas and metal extraction, water and electricity, metal industry and oil and coke refinement, and tobacco – while all other sectors evidence net job losses. The sectors most affected by restructuring, i.e. that see large net employment losses, are electric machinery, textiles and leathers, wood and furniture manufactures. Second, measures of job turnover also differ greatly: gross job reallocation rates range from 35 percent in extractive oil industries to 8 in refinement industries (of oil, coke and nuclear products), while excess job reallocation ranges from 2 percent in extractive industries to 13 percent in manufacturing of wood products, where job destruction is very high but where there is also considerable job creation. As table 4 below suggests, there is also a weak tendency for sectors which account for a larger share of employment (bold in the table) to see both negative employment growth and relatively low job turnover -for example mining of coal and lignite together with machinery and equipment manufacturing, which together account for 25 percent of all employment. In fact, the only sector with relatively large share of employment (9 percent) that does see a high degree of job creation is manufacturing of basic metals.

Table 2.5: Manufacturing sectors classified by gross job allocation, employment growth and share of total industry employment

| | High gross job reallocation | Low gross job reallocation |
|--------------------------------|--|--|
| Positive net Employment growth | Extraction of petroleum and natural gas Recycling Water collection, purification and distribution | Basic metals Electricity, gas, steam and hot water Mining of metal ores Tobacco products Manufacture of coke, refined petroleum products and nuclear fuel |
| Negative net employment growth | Food products and beverages Textiles Metal products Radio, television and communication equipment Leather and leather products Wood and wood products Rubber and plastic products Office machinery and computers Medical, precision and optical instruments, watches and clocks Furniture; manufacture n.e.c. | Mining of coal and lignite Chemicals and chemical products Other non-metallic mineral products Machinery and equipment Manufacture of other transport equipment Clothing Other mining and quarrying Pulp, paper and paper products Publishing, printing, reproduction of recorded media Motor vehicles, trailers and semi-trailers |

Source: Kupets (2004). Note: High gross job reallocation is defined as above the industry median (15 percent), while large share of employment is defined as above industry median share of employment (2 percent).

Large enterprises are least dynamic in terms of job turn-over, suggesting that there are some obstacles to the transition process. ¹⁵ Though very large firms may be in greater need of downsizing than others, they are also likely to face higher trade union power and political resistance to job destruction. ¹⁶ As a result, these types of enterprises are still associated with low job turnover and less severe net employment losses than other types of firms. Firms with less than 250 employees see more than twice the job turnover and excess job reallocation rates than do

¹⁵ Sharp declines in employment volatility with size is a finding consistent with Faggio and Konings (2001) for transition countries and Davis and Haltiwanger (1992) for the US.

¹⁶ See e.g. Brown and Earle (2002).

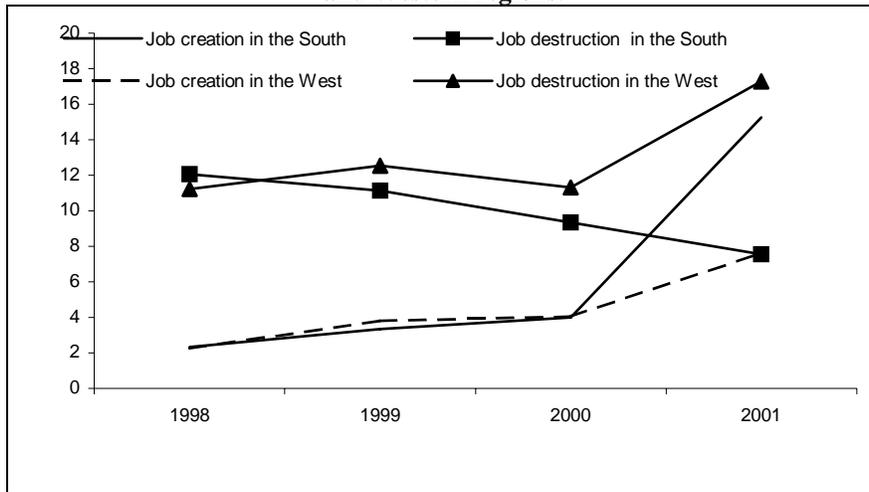
firms with more than 1000 employees. These high turnover rates are partly reflecting higher job creation rates, but mostly significantly higher job destruction rates.

Private firms see high job turnover, driven more by job creation than job destruction, and therefore also see net employment growth. As mentioned, the distinction between private, collective, and mixed private-state ownership is not really clear in this dataset, which unfortunately complicates the analysis of ownership type job dynamics. With this caveat in mind, in the manufacturing industry, *private firms* stand out for two reasons: high positive net employment and high job reallocation rates. Moreover, this trend has strengthened over time, as job creation has increased markedly since 1999 while job destruction has fallen somewhat. *State firms* see the lowest levels of job destruction – probably for the same reasons as large firms above –and, surprisingly, job creation has increased over time, while job destruction has actually fallen. This trend, suggesting an increasing resistance to downsizing in the public sector, is problematic in view of the need for restructuring of larger state enterprises. *Collectively owned enterprises*, on the other hand, see significantly higher job reallocation rates than state enterprises, due to higher job destruction rates, and as a result see lower employment gains. The trend for *foreign firms*, finally, is puzzling. In 1998, foreign owned firms saw almost as high rates of job creation, job turnover and net employment gains as private firms, but by 2001, job creation and job destruction had equalized, resulting in no net employment gains.

Job creation rates have increased in all regions, but the Western region is diverging negatively from other regions. Traditionally, the Ukrainian economy has been characterized by regional clustering of industries, with the most significant shares of large and state-owned enterprises concentrated to the east, the largest (though still very small) shares of private and foreign enterprises concentrated to the West, and the largest share of small enterprises in the Southern region. Given these different regional profiles, there is substantial – and rising – variation of job flows by regions. Most of new jobs are created in the industrialized Eastern region, though the Southern region accounts for the largest share of relative employment creation (conditional upon its share in employment). Job creation rates increase in all four regions between 1998 and 2001, with highest increase in the South and least significant increase in the Western regions, and only in the Western region was net employment growth negative in 2001. In addition, excess job reallocation increases significantly in 2001, for all regions. Thus, though job turnover is high in both the South and the West, as of 2001, divergent trends in job destruction are resulting in job losses in the West and job gains in the South (figure 2.8). These results are very much consistent with the indications from the household budget survey that total employment rates are falling in the West and rising most rapidly in the South.

Yet, most of job dynamics occur at the firm level, rather than due to reshuffling between sectors, regions, or firms of different size categories. In spite of this high inter-sector heterogeneity, a decomposition of sources of job reallocation shows that these dynamics are linked more to differences between firms within sectors, within regions, within type of ownership and within size categories, than between these categories. Thus, even if firms are defined simultaneously by sector, by region and by size – a fairly narrow categorization – more than half of the excess job reallocation is due to shifts between firms in each of these classifications. This is an important result as it suggests that the reshuffling of jobs is not primarily a result of a transition from one type of e.g. sector structure or type of ownership to another but is happening along other characteristics.

Figure 2.8: Trends in job creation and destruction rates in the Southern and Western regions.



Source: Kupets (2004a)

Low productivity firms are destroying more jobs than others. Instead, within the sector, region, size and ownership categorizations, high wage, high productivity firms see high job creation rates and positive employment growth, while low wage, low productivity sectors see high job turnover, basically driven by high job destruction. Importantly, these differences have arisen since 1999, and especially in 2001 is there an important divergence with a productivity premium for job creation (figure 2.9). When looking at the *rate of growth* of labor productivity among firms, the relationship with job dynamics is not so linear, however. In fact, the least dynamic sectors – that also account for the highest levels of net job creation – are the median productivity growth firms, while job turnover and excess job reallocation increases towards the extremes. Importantly, firms with low productivity growth have the highest rates of job turnover and churning, and see large net employment losses, due to phenomenally high job destruction rates (figure 2.10). The fact that firms with low productivity levels, or with low productivity growth, are destroying jobs, is in fact very good news as it is evidence of a more creative reallocation of resources, as unproductive jobs are being weeded out.¹⁷

¹⁷ Indeed, in multivariate analysis of net employment growth, most estimated coefficients on size and ownership type become insignificant once labor productivity and wage effects are controlled for. Moreover, changes in the macroeconomic environment (approximated by year dummies for 2000 and 2001) appear to be a significant external influence on net employment growth of firms.

Figure 2.9: Trends in job creation, by labor productivity quintile

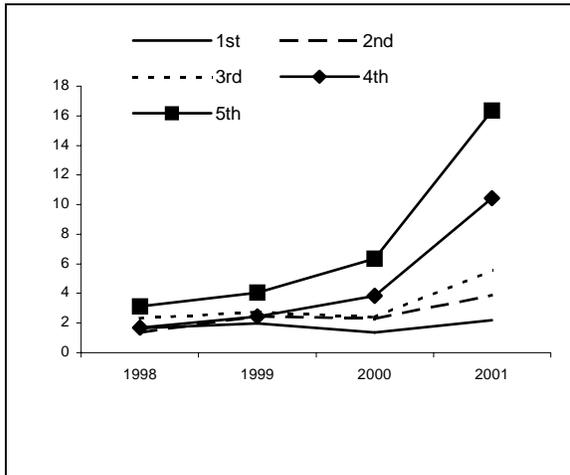
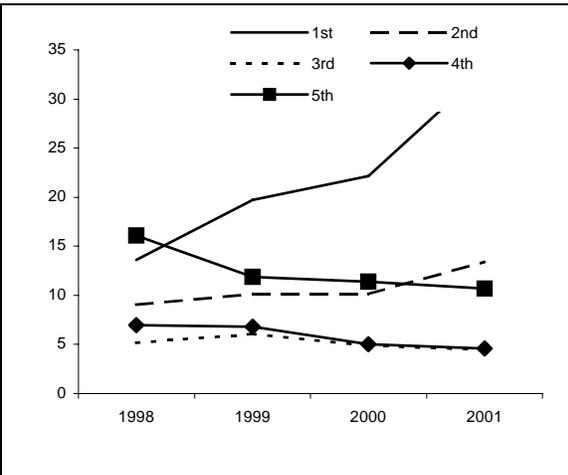


Figure 2.10: Trends in job destruction, by labor productivity growth quintile



Source: World Bank estimates using HBS data.

Productivity levels are related to wages and to regional patterns of poverty. The wage pattern is consistent with regional income differentials. In 2001, overall, wages were highest in the East, followed by the Center and South. The Western regions had the – by far– lowest average wage levels, and this holds for all size classes of enterprises, and for all types of ownership. Unsurprisingly, wages tended to be lower the smaller the size of the enterprise. In the Western region, wages were highest for state firms and foreign firms. This is also true for the Southern and Eastern region, while the Central region, private and especially foreign firms had exceptionally high wage rates. The period 1998-2001 nonetheless saw some wage convergence: wages picked up most in the West, followed by the Center. In the Central region especially, private and foreign firms saw phenomenally high growth rates in wages. In other regions, the pattern was more uneven, but compounded state firms and municipal enterprises saw the smallest average wage increases (charts 1 and 2).

The pattern of labor productivity mirrors that of wages. In 2001, labor productivity was higher the larger the firm and was also much higher for private and especially foreign firms than other types of ownership. Labor productivity was highest in the East, followed by the Center and the South. All three remained very close - but the West was much further behind in terms of labor productivity. Importantly, however, labor productivity for private as well as foreign enterprises in the West was higher than for the South. As expected, total labor productivity increased between 1998 and 2001, with a substantial jump between 1999 and 2000 in connection with the jumpstart in economic growth. The trend was evident in all regions but not for all size classes or types of ownership. First, small firms increased their productivity substantially, catching up with other types of firms. And second, state firms and municipal firms, as opposed to other types of ownership, did not see an increase in productivity. It is perhaps surprising that the public ownership category was not obliged to increase labor productivity as other firms did. On the other hand, since wages did not increase either, profitability may have been preserved (charts 3 and 4).

Average wages by size class of enterprise (chart 1, left) and by region (chart 2, right), for 1998, 1999, and 2001.1/

Chart 1

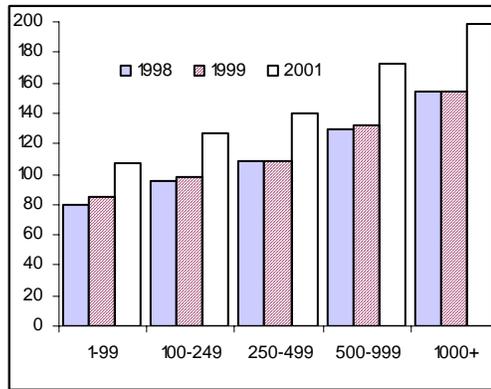
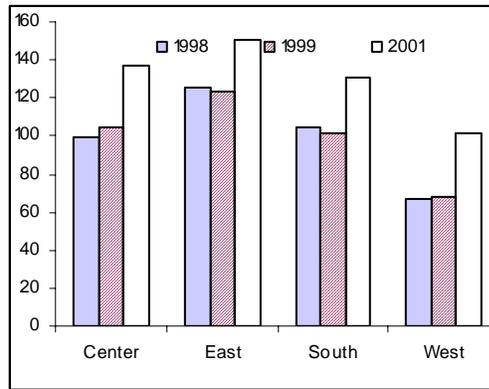


Chart 2



1. No wage data available for 2000.

Average labor productivity by size class of enterprise (chart 3, left) and by region (chart 4, right), for 1998, 1999, and 2001.1/

Chart 3

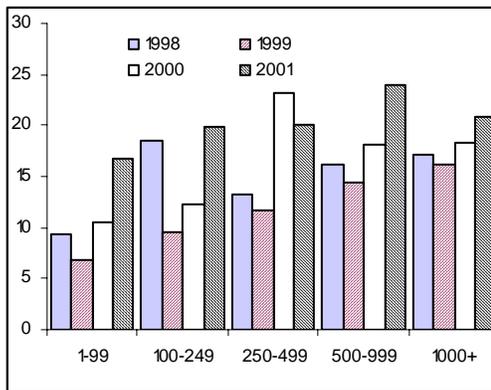
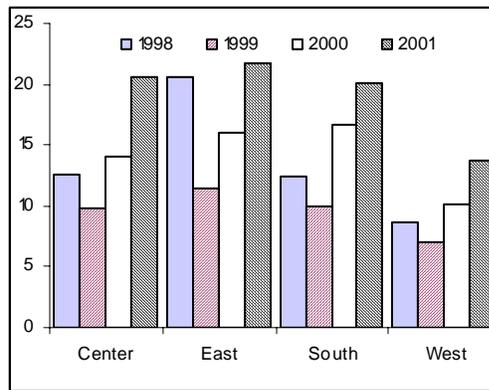


Chart 4



1. No wage data available for 2000.

In sum, labor markets are increasingly differentiated and this coincides with the poverty dynamics in the country. The analysis of labor supply as well as labor demand side suggest that though net employment remains relatively flat, there are important dynamics with very diverse patterns hiding underneath aggregate numbers. While increased dynamics are a positive sign, there is strong evidence that poor people, especially in more remote areas, are not taking part in the process. The jump in job creation and in the persistence of created jobs are good news, and are consistent with the overall reduction in unemployment rates witnessed since 1999, especially the rapid pick-up in 2000 and 2001. Yet, the increase in job turnover is taking place parallel with an increase in unemployment duration. Since the increases in gross job turnover and excess job reallocation are in fact driven by job creation - while job destruction rates are falling - it is likely that those that do find themselves unemployed have a harder time re-entering the labor market, and the turnover in the unemployment pool is in fact going down. Such a polarization is also evident in a divergence between the poorer Western oblasts and others, and in the concentration of job creation to high wage, high productivity firms.

Still, certain labor market rigidities need to be addressed to broaden the gains from increased dynamism. The comparatively low rates of job destruction in some types of firms as well as evidence elsewhere are suggesting that Ukrainian labor demand adapted to transition less by job destruction (which would have resulted in a massive increase in open unemployment) and more by a dramatic fall in real wages, unpaid leave, wage arrears, and deterioration of working conditions and quality of jobs (World Bank, 2004). Though labor resources on the whole are being reallocated to firms with higher productivity, labor hoarding in state firms and large firms is suggesting that there are some obstacles remaining to more flexible markets. One constraint may be the lack of a vibrant private sector to take the place of larger state firms, resulting from a difficult investment climate.¹⁸ A 2001 survey of small enterprises showed that lack of current assets, high taxes and a complicated tax system, together with an overregulated and uncertain regulatory environment, was among the key difficulties facing these firms (BIZPRO, 2001). Another reason for labor hoarding is relatively high firing costs. A recent study showed that in a group of some 85 developed and developing countries, Ukraine surpassed other transition countries in terms of labor regulation. In fact, Ukraine had among the top five highest levels of legal employment protection, and only three Scandinavian countries had more generous social security laws (Botero et al, 2003). However, a recent study on employment creation in the Europe and Central Asia region found that for countries like Ukraine, Russia or Kazakhstan the three most important obstacles perceived by businesses are licensing and operating permits, tax administration, and access to land rather than labor rigidities, suggesting low compliance to such regulations (World Bank, 2005b). A third reason may be that within country mobility is low in Ukraine, hindering the flow of workers. Potential explanations for the unwillingness of workers to find jobs elsewhere are lack of housing, shrinking public transport connections, and the fact that most medical services and social benefits are restricted to the place of residence.

¹⁸ There is strong evidence from more advanced countries that vibrant job creation in non-agricultural sectors is linked to regulatory reform not only in labor markets but also in product markets. See Nicoletti et al. (2001).

Chapter III: Rural Poverty, Land Reform, and Productivity

3.1. Role of agriculture in the Ukraine economy

Agriculture makes up a significant, though declining proportion of GDP. Ukraine has over 40 million hectares of agricultural land, of which 33 million hectares (about 80 percent) is arable.¹⁹ Accounting for 13 percent of GDP in 2002, agriculture is a major employer (23 percent of total employment in 2002) and gives Ukraine the potential to be a significant export earner.

The transition process has presented major costs to rural areas. Ukraine's agriculture suffered from the impact of the dissolution of production and distribution networks that operated during the Soviet Union. Agricultural output declined through the decade of transition due to a number of reasons. In early transition (1989-1992) most of the agricultural decline was attributable to reduced modern inputs and weather variability (Kurkalova, et al, 2003a). The rest of the decade was also characterized by worsening agricultural output prices relative to input prices (ratio declined by about 80 percent between 1992 and 1999); reduction of government subsidies for capital investments and input supply (government expenditures on agriculture as a percent of GDP declined in Ukraine from 2 percent in 1995 to 0.2 percent in 1998); and recurrent weather anomalies. Between 1991 and 1999, agricultural GDP declined by 51 percent recovering in 2000 and 2001 and declined again in 2003 due to bad weather conditions (IERPC, 2003b).

Table 3.1: Macroeconomic view of Agriculture Sector in Ukraine

| | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 |
|--|-------|-------|-------|-------|-------|-------|
| GDP (UAH in current prices) | 102.6 | 130.4 | 170.1 | 204.2 | 225.8 | 264.2 |
| <i>of which:</i> | | | | | | |
| Agriculture (as a % of GDP) | 11.9 | 11.7 | 14.4 | 14.4 | 13.0 | 10.9 |
| Real % change in Agriculture | -11.2 | -3.7 | 12.5 | 10.2 | 2 | -9.9 |
| Real % change in total investment in Agriculture | -24.2 | -8.3 | -11.4 | 53.3 | 16.6 | 5 |
| Share of employment in Agriculture as % of total | 22.4 | 22.9 | 23 | 23.8 | 23.3 | 21.4 |
| <i>of which:</i> | | | | | | |
| % Employed in personal farms | 42 | 44 | 44.9 | 52 | 58 | 60.8 |

Source: Ukraine: Statistical Appendix, IMF, 2004

3.2. Land reform and the restructuring of agricultural organizations

Ukraine adopted a gradual land reform process. To move from the former state owned enterprises into a private and competitive agricultural sector, Ukraine started changes in land ownership and entitlement as early as 1990, when the Land Code was adopted, in order to liquidate the state monopoly to create effective land management. In 1992 the State Committee of Ukraine on Land Resources was established to oversee the implementations of land reform. The period from 1991-1995 was characterized by transfer of agricultural land from state to collective ownership. The aim was not to establish private ownership of land, but to redistribute the land by providing land to citizens and collective agricultural enterprises (CAEs) under the right of

¹⁹ More than 50 percent of arable land is high quality black *chernozem* soil.

permanent use. The right of permanent use was also complemented by the right to pass land by *inheritance*, thereby creating a quasi-permanent structure of devolution of ownership of land from state to private hands.

Even at the end of the decade of transition, collective farm structures still dominated agricultural units. Following the abolition of the collective ownership of agricultural enterprises, the period between 1995-2000 was characterized by the transfer of land from collective to private ownership wherein land and property shares in the form of *certificates* (as against physical land shares) were given to each member of the CAE.²⁰ These measures however, did not lead to change in ownership structure and led to minimal internal restructuring of the farm. The sector was still dominated by collective farm structures and land certificates could not be traded or leased and shareholders could not exit from collective farms easily.

In 1999 the Government emphasized the role of agriculture by introducing land reform instruments to make it more efficient and to stimulate growth. December 1999 marks the beginning of the second stage of land reform in Ukraine when the collective farm system was formally dismantled by requiring that all collectively owned farm enterprises be transformed into entities based on private property.²¹ In addition, the Presidential Decree guaranteed the right to exit from collective farm and declared this right unconditional (i.e. no permission from any authority or approval of other members of the collective was needed to do so). At the same time, *land titles* called State Acts for Land were issued to individual landowners in rural areas for clearly demarcated plots of land (Korchakova, 2002).²²

State and collective farms were transformed into a wide variety of legal farms. Following the Presidential decree of 1999, most of the *State farms* were converted into entities such as *Cooperatives*, *Agricultural Companies*, and *Private Enterprises*. *Agricultural companies* are business entities whose Statutory Fund is divided into shares the size of which is defined in the Founder's Agreement. The number of founders fluctuates from two to over 100. Ownership and management in agricultural companies are clearly separated from labor participation. *Private enterprises* are entities usually founded by the former manager of a collective agricultural enterprise. In small private enterprises management, ownership and labor are, as a rule, not separated. The owner of the private enterprise makes all business decisions unilaterally. *Cooperatives* are collective agricultural enterprises that followed the least demanding path of restructuring and emerged as a result of cooperation of the former members of the CAE. Management, ownership and labor are not separated in cooperatives, i.e. members are also employees of the cooperative. Thus, each legal form is characterized by different management, ownership and labor relationships and must create a different set of incentives for efficient production (Galushko, 2004).

By early 2002 only 4 percent of the arable land was still owned by the State. About 30 percent of land was privately owned and used by rural residents for subsistence farming while members of farm enterprises owned the rest 65 percent (World Bank, 2004b). By February 2002 nearly 2.4 million land shareholders had received land titles in exchange for their land shares, while an additional 1.2 million land titles were in various stages of preparation. As a result of

²⁰ These certificates gave the right to the member to an un-demarcated parcel of land equal in value to the parcels received by all other members of the CAE.

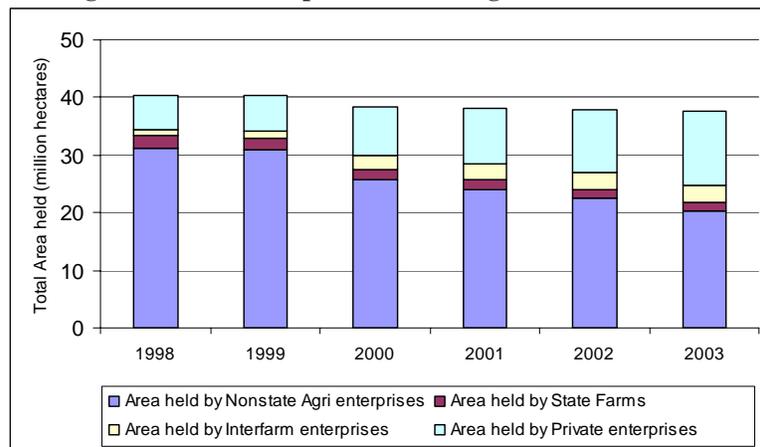
²¹ One of them is the Presidential Decrees "On Stimulation of Agricultural Development for 2001–2004."

²² Land itself was allocated free of charge, but the cost of a state deed for land is 60-80 hryvna

land titles being awarded, the market for *lease*, and consolidation through sale and purchase of land, has been created.

Private household plots, some of which were managed by Agricultural Companies, played an important role in agriculture, producing more than half of the agricultural output. The private sector in Agriculture in Ukraine can broadly be categorized into large Private farms and Household Plots. According to the draft law, farms larger than 2 ha not registered as legal entities (i.e. partnerships, cooperatives etc) are defined as independent private farms. The number of independent private farms has grown from 82 in 1991 to more than 43 thousand in 2003, also increasing in size from an average of 24.3 ha to 66 ha. The other categorization of individual private farms is household plots, which are widely distributed throughout Ukraine. There is a great incentive to focus on the distribution, utilization, and productivity of Private household plots. In 2002 they produced almost 60 percent of the gross agricultural output. According to the State Committee for Land Resources of Ukraine, as of Jan 1, 2003 there were 62,148,000 household plots, and they farmed more than 3.2 million ha of agricultural land (Korchakova, 2002).

Figure 3.1: Ownership Structure in Agriculture 1998-2003



Source: Ukraine Statistical Appendix, IMF, 2004

While employment in agriculture has fallen, productivity has improved. As a result of the restructuring of state owned enterprises, about 1 million people were separated from agricultural units between 1998 and 2003. At the same time, the number of people employed in family farms increased by 0.7 million. Productivity, however, as measured by Total Factor Productivity (TFP) increased by 6.6% annually between the period 1996 to 2002.²³ Interestingly, this growth in productivity is largely driven by the technological innovations and not efficiency gains. Since the land reform was initiated technical efficiency of agricultural enterprises has not improved, which suggests that land reform has not led to effective significant restructuring and a more efficient allocation of resources.²⁴

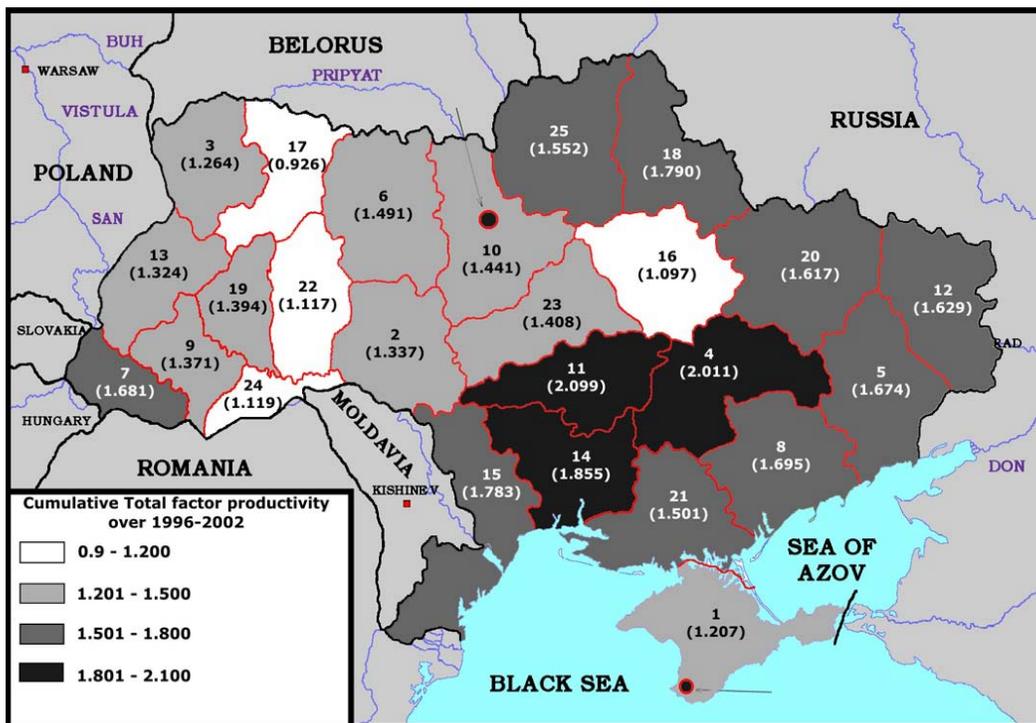
Productivity gains were more pronounced in the eastern regions of Ukraine. Eastern oblasts of Ukraine enjoyed the highest TFP growth over 2000-2002, which is quite surprising considering that restructuring took place in the Western Ukraine first. Several factors contributed

²³ Galushko (2004) employs the Malmquist Productivity Index to analyze Total Factor Productivity (TFP) changes in Ukrainian agriculture over 1996-2002.

²⁴ This section draws heavily from Galushko (2004).

to this. First, the restructuring in the East, even though it started late, primarily involved transformation into private enterprises or agricultural companies, which are much more efficient than cooperatives. The Western oblasts, on the other hand, followed the least demanding path of restructuring: many of the collective agricultural enterprises were transformed into cooperatives that weren't much different from the State enterprises. Second, the major industrial centers including fertilizer producing plants, agricultural machinery buildings are located in the East. After the state's withdrawal from the input supply markets the Eastern oblasts had better access to agricultural inputs markets and, thus, had better opportunities for productivity improvements. The rest of the oblasts have experienced TFP growth, with the growth being slower in the Western part of Ukraine and higher in the South. Measured in average annual changes in TFP, Rivne oblast showed the poorest performance.

Figure 3.2: Regional Productivity in Ukraine



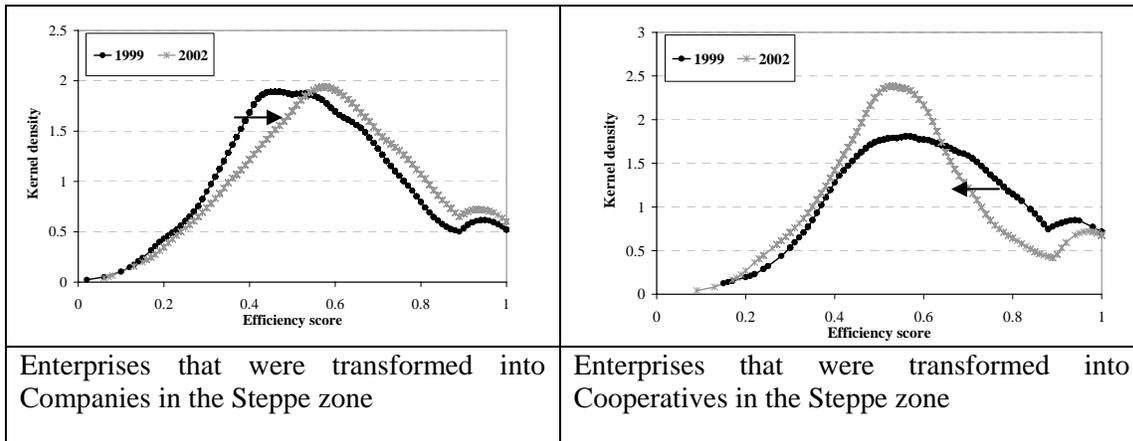
1 – Crimea; Oblasts: 2 – Vinnytsya, 3 – Volyn, 4 – Dnipropetrovsk, 5 – Donetsk, 6 – Zhytomyr, 7 – Transcarpathian, 8 – Zaporizhzhya, 9 – Ivano-Frankivsk, 10 – Kyiv, 11 – Kirovograd, 12 – Lugansk, 13 – Lviv, 14 – Mykolaiv, 15 – Odesa, 16 – Poltava, 17 – Rivne, 18 – Sumy, 19 – Ternopil, 20 – Kharkiv, 21 – Kherson, 22 – Khmelnytsky, 23 – Cherkasy, 24 – Chernivtsi, 25 – Chernigiv.

Source: Galushko, 2004

Private Agricultural organizations are, on average, the most efficient. The transformation of collective and state enterprises into *private enterprises* yielded noticeable improvements in terms of economic efficiency and technical change. Transformation into *cooperative* ownership form is characterized by a lack of effective restructuring, including both management reform and operation adjustments. Contrary to the expectations, the agricultural companies are on average the most efficient, followed by private enterprises, cooperatives and state-owned enterprises. For example, in the Steppe zone, enterprises that were transformed into Companies moved their technology frontier to the right, while those that transformed into Cooperatives actually became less efficient and moved their technology frontier left (see Figure

3.3). A plausible explanation for agricultural companies being the most efficient ownership pattern is that many limited liability companies (and we suspect that these companies form the frontier) are actually private enterprises owned by 2 or 3 persons, who are all family members.²⁵ Thus, these companies are in their essence private enterprises except for the formal name.

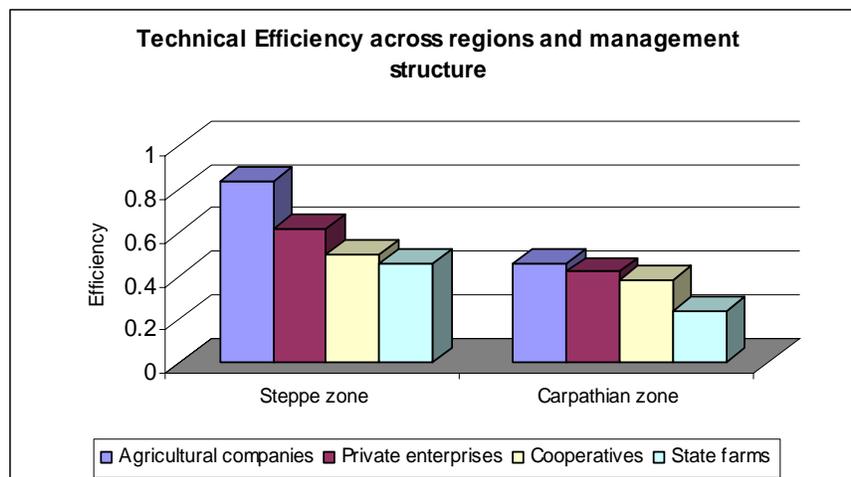
Figure 3.3: Efficiency gains by ownership of enterprise



Source: Galushko, 2004

Southern and Eastern parts of Ukraine seem to have gained most from gains in farm efficiency. With respect to farms' efficiency in different regions agricultural enterprises of the Steppe region (Odesa, Mykolaiv, Kirovograd, Kherson, Donetsk, Dnipropetrovsk, Zaporizhzhya and Lugansk oblasts) appear to perform the best in terms of their ability to extract the same output at the lowest costs. In general, enterprises in the Carpathian region (Lviv, Ivano-Frankivsk, Transcarpathian and Chernivtsi oblasts), irrespective of the ownership form, are the least efficient.

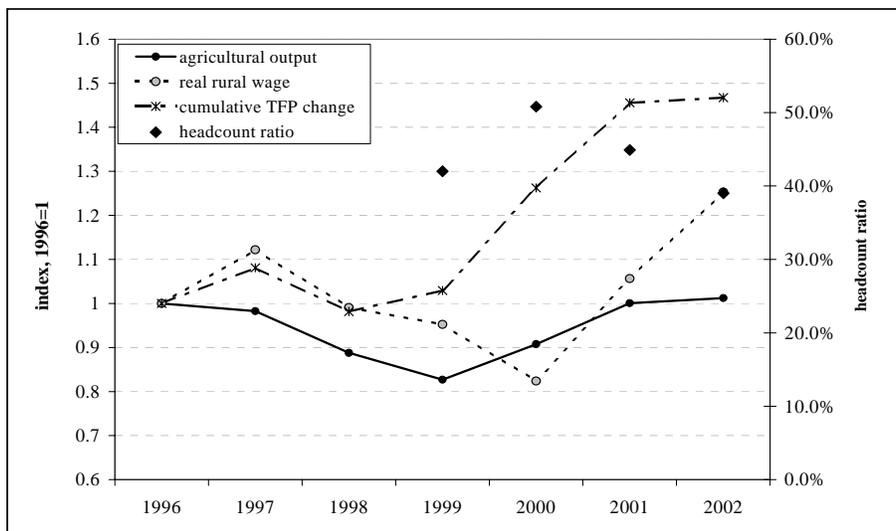
Figure 3.4: Efficiency across regions and management structures



Source: Galushko (2004)

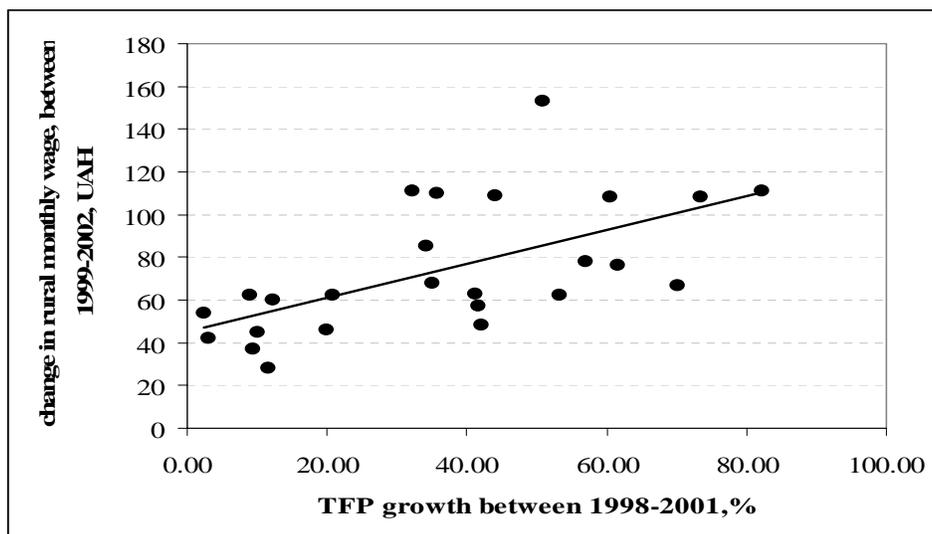
Gains in efficiency and productivity have translated to higher wages for those employed. There are reasons to believe that TFP growth in agriculture pushes rural wages up through still imperfect labor markets. Figure 3.5 shows that TFP in Ukrainian agriculture began to increase significantly in 1999/2000, while agricultural laborers enjoyed increases in real rural wages starting in 2001. Rural poverty declined from almost 38 percent in 2001 to 28 percent in 2003, which can be considered as a successful achievement. This decline is likely to be the result of acceleration of TFP growth. Figure 3.6 describes the relationship between TFP growth over 1998-2001 in all oblasts of Ukraine and change in rural monthly wage between 1999-2002 an apparent feature is that higher TFP growth induced larger increases in rural wages, which, should inevitably have led to a faster reduction in the incidence in rural poverty in oblasts with higher TFP growth.

Figure 3.5: Agricultural output and rural wages



Source: Galushko (2004)

Figure 3.6: Correlation between rural wages and TFP growth



Rural households and economic organizations in Ukraine still face significant risks in agricultural activities. The drought of 2003 evidenced the lack of market and infrastructure instruments to restore market equilibrium. In 2003 the harvest of grain, the most important agricultural product in Ukraine, was about 5 million TM, compared to an average of 20 million TM in 2001 and 2002, which represented an economic loss of about 2.5 percent of GDP. The decline in grain harvest in 2003 due to bad winter weather conditions produced an increase in grain prices that affected urban consumers. The price increase, however, only marginally translated into higher agricultural incomes, leaving rural households with the same level of incomes but higher prices in other goods and services.

While there have been gains in real wages in agriculture, they have lagged behind the average real wage increases in Ukraine. Household survey evidence indicates that income from wages in rural areas increased faster than other income sources except pensions. Wages in agriculture are still the lowest in the Ukraine economy and have had the slowest progress in recent years. In 1999, wages in agriculture were 89 UAH, representing 58 percent of the average wage in Ukraine, and though they had increased to 219 UAH by 2003, their share as a percentage of average wages had dropped to 47 percent.

Figure 3.7: Wages by sector



Source: Ukraine: Statistical Appendix, IMF, 2004

3.3. Household welfare during land reform

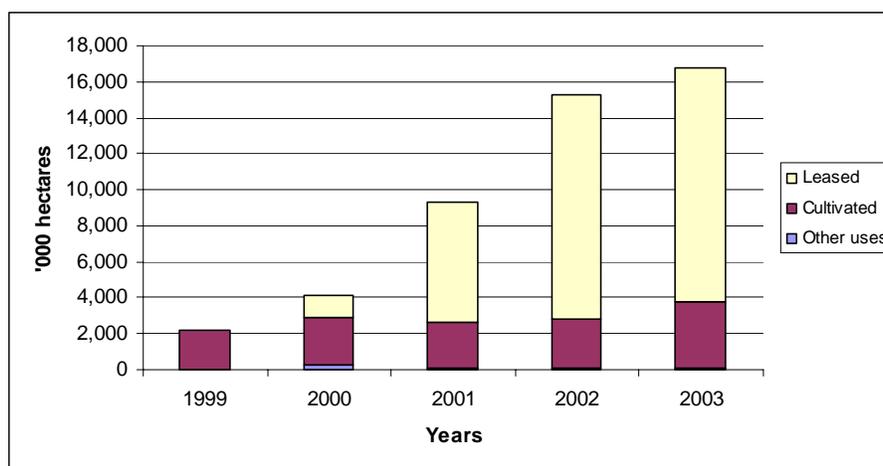
Land reform led to large increases in the land holdings of rural households, with the distribution being relatively egalitarian. There has been a noticeable increase in the number of private household plots and in the average size of these plots; essentially the increase has been observed in the rural areas. The land held in the form of rural household plots quadrupled between 2000 and 2003, from 4.1 million hectares to 16.8 million hectares. In 2003 rural households accounted for 93 percent of all household plots. According to the household budget survey, the land reform process has distributed land in an equal fashion across income groups, with the poorest 40 percent owning approximately 35 percent of the total land held as household plots.

Table 3.2: Ukraine Households' Land and Land Use 1999-2003

| | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|-------|-------|-------|--------|--------|
| Total Land held by rural households ('000 ha) | 2,210 | 4,160 | 9,300 | 15,300 | 16,830 |
| % land owned by poorest 40% | 32.4 | 27.4 | 38.2 | 33.6 | 34.6 |
| % of cultivated land owned by poorest 40% | 32.7 | 29.0 | 34.0 | 32.0 | 27.2 |
| Mean share of land leased out (in %) | 1 | 4 | 21 | 35 | 34 |
| Mean share of land leased by poorest 40% (in %) | 1 | 3.5 | 24 | 37 | 37.5 |

Source: World Bank estimates using Ukraine HBS 1999-2003 State Statistics Committee of Ukraine

Most of the newly acquired land is being leased out, with the poorer households more likely to lease than the richer households. While most of the distributed land is being used by existing agricultural organizations by renting out from households, only 40 percent of rural households reported renting at least one plot their land. This suggests that other households are either involved in self cultivating their land as private family farms or renting from other households for commercial purposes. Differences in renting patterns are associated with poverty since poorer households are more likely to rent than better off ones, suggesting that differences in asset holdings, education and managerial capacity, and access to markets are playing an increasing role in entrepreneurial agricultural activities.

Figure 3.8: Household Land Utilization in Ukraine 1999-2003

Source: World Bank estimates using Ukraine HBS 1999-2003

Even though the poor are more likely to rent out, they receive lower (cash) rental incomes. Leasing cash incomes remained stagnant in real terms and fell in 2003, partly reflecting the imperfection in land markets in the villages and the large degree of uncertainty in agriculture. Incomes from assets, such as land leasing, represent about 23 percent of average income for households in villages but evidence large differences between the poor and the non poor. Some households may also receive in-kind incomes from leasing out their plots; however the data does not allow us to ascertain the amounts received in-kind. Even after controlling for regional variations, the household head's educational qualifications, and the total land area held by the

household, richer households were significantly more likely to receive higher rental incomes per hectare than their poorer counterparts. Coupled with the fact that poorer households are renting a greater share of their land than the richer households and yet, earning a lower income per hectare shows that there is deep seated income disparity in the land lease market in Ukraine. On average, households reported receiving 76 UAH/ha, which corroborates well with the findings from a survey of land-owners and leasers (Rolfes, 2003).

Table 3.3: Lease incomes from renting household plots

| | 1999 | 2000 | 2001 | 2002 | 2003 |
|---|------|------|------|------|------|
| Mean percentage of households leasing (at least one plot) | 3.3 | 4.9 | 23.4 | 39.5 | 39.6 |
| Percentage of poorest 40 % households leasing | 3.2 | 3.9 | 26.9 | 41.8 | 42.4 |
| Average income from leasing (UAH/ha) nominal terms | .. | .. | 91.4 | 92.3 | 76.3 |
| Average income from leasing (UAH/ha) for poorest 40% of households, nominal terms | .. | .. | 88.1 | 76.4 | 61.3 |

Source: World Bank estimates using HBS 1999-2003 State Statistics Committee of Ukraine

Lease incomes (per hectare) reflect both productivity and vulnerability to weather variations. After controlling for the household characteristics, such as welfare status, household head's educational level and plot size, household plots located in the Prydniprovsky region (Kirovograd, Dnipropret, and Zaporzhia oblasts) and Black Sea Coast region received significantly higher rental incomes (per ha) as compared to the other regions. This may be compared with the high TFP growth reported in these oblasts from 1996 to 2002, as shown in Fig 3.2. The regression analysis of lease income on household and regional characteristics showed that Podillya and Carpathians rental rates were affected by the bad weather in 2003, with lease incomes falling relative to other regions, reflecting the low TFP growth registered in these oblasts as well. In all cases, the analysis showed that controlling for all other factors, larger plots still received lower incomes per hectare, reflecting lower productivity of these land holdings.²⁶ This corroborates the evidence from other countries where larger farms are associated to lower productivity, even controlling for land quality (Lamb, 2003). It has also been found that land-owners who own State Acts (titles documents), receive higher rental incomes, and expect better compliance on lease payments than those who own Land Share Certificates (preliminary certificates that are later converted to State Acts). The rental incomes also differed by geographical location, with higher rents going to more productive regions, probably due to the fact that higher proportions of Land Share Certificates were being converted to State Acts in the more productive oblasts than in the less productive ones (Rolfes, 2003).

Summary

The overall gains in productivity coupled with shifts in rural employment shifts have produced little change in rural poverty. The combined effect of increased productivity and wages in agricultural organizations, with agricultural employment shifting from privatized

²⁶ See Annex 8 for the detailed results of the rental rate analysis.

farms to family farming has left rural households with real incomes that have not increased at the same pace as other sectors in the economy. The modernization process in agriculture that would expand the gains from higher productivity and efficiency to agricultural workers needs to be coupled with better off-farm economic opportunities for the resulting excessive labor. Better market and infrastructure would also provide the basis for increased competition in land and crop markets in the rural sector.

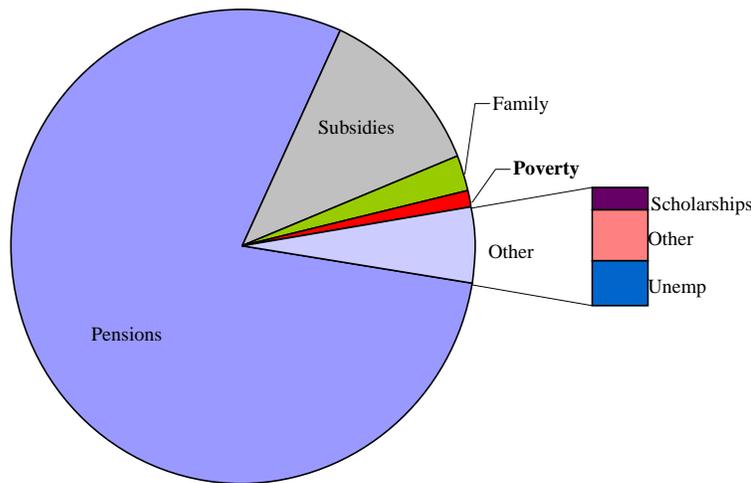
Chapter IV: Public and Private Social Safety Nets

When facing with economic downturns, households respond by using instruments that enable to offset income losses or provide additional consumption. These mechanisms could be either provided by the government or by private networks. In Ukraine, as well as in other transition economies, there are a number of public safety net transfers that have been in the process of reforms in the last years. In addition, social insurance interventions in the form of a broad and generous pension benefit provide a significant amount of income to the elderly. Finally, households responded to the uncertainty during early transition by diversifying their labor resources through migration and hence increasingly benefiting from remittances. This Chapter assesses the role of each of these mechanisms in the process of poverty reduction during the last years.

4.1. Public interventions: social insurance and assistance transfers

In 2003, the Government of Ukraine spent about 40 percent of public expenditures on social security and welfare affairs, mainly on social insurance items. About 40 billion UAH were spent on pensions and social protection transfers to individuals, representing almost

Figure 4.1: Ukraine: Composition of Government transfers for Households, 2003



Source: World Bank estimates using HBS 2003

impact on poverty. Government interventions can be divided into social insurance and social assistance transfers. Social insurance transfers include pensions, unemployment insurance, health benefits and others. Social assistance interventions are composed by a large number transfers that can be organized into housing subsidies and privileges, family benefits, scholarships, and a poverty targeted transfer. Figure 4.1 provides a households' perspective of the different transfers.

15 percent of the GDP (IMF, 2005).²⁷ These expenditures are mainly dominated by pension benefits, which account for 21 billion UAH in 2003. This significant fiscal effort reaches a broad range of households. About 76 percent of the population in Ukraine lives in a household which benefits from one or more public transfer. These transfers, however, significantly differ in their benefit levels, eligibility criteria (targeting) and their

²⁷ This refers to the "Consolidated Budget of Ukraine" that includes budget and non budgetary entities (IMF, 2005) and not only the Central and Local budgets (NBU, 2005).

Overall, pension benefits are the largest transfer followed by subsidies, and family and poverty targeted transfers still playing a very small role in households' economies.

Pension benefits and poverty

More than half of the population benefits from pensions because of the large fraction of households with pensioners. Pensions are targeted to a number of beneficiaries depending on age, disability or survival eligibility criteria, and more than half of the population lives in households with pension beneficiaries, most of them old-age pensioners. The fraction of population that benefits from pensions is similar across income groups and reflects the aging process in Ukraine where almost half of households have an elderly pensioner member. This is clear in rural areas where almost 60 percent of the households have an eligible elderly compared to only 43 percent in urban areas. Despite this, the population coverage of pensions is slightly higher for the non poor (53 percent) than for the poor (49 percent), partly because households with elderly individuals are usually smaller hence limiting their coverage. There is still then a fraction of households without pensioners that did not benefit from the one of the largest and fastest growing transfers in Ukraine.

Figure 4.2: Incidence of Pension Expenditures



The differences in coverage and on pension benefits across income groups result in a regressive incidence. Pension benefits are similar across beneficiary households, with the poor earning 8 percent lower pensions compared to the better off. These smaller pensions, combined with slightly lower coverage of pensions among the poor result in an unequal distribution of benefits (Figure 4.2). The poorest 20 percent of the population receives only 12 percent of pension benefits, while the richest 20 percent get 27 percent. Compared to 1999 the distribution has changed very little, but the second poorest quintile

has increased its share in the benefits from 14 to 18 percent while the higher income quintile (fifth) reduced its share from 31 to 27 percent.

Pension benefits are the largest transfer and have rapidly increased in the last years. Pension incomes are the largest transfers in Ukraine. On average, the pension benefit reported by beneficiary households during 2003 is three times the poverty targeted one, four times the family benefits or 6 times the level of housing subsidies. The level of pensions increased significantly since 2001 due to an active policy of increasing pensions much above the inflation rate: average nominal pensions by 2004 were three times the levels of 1999. This represented almost doubling the real value of pensions between 2000 and 2004.²⁸ At the household level, these increases

²⁸ This includes average pensions for all categories (old-age, disability and widows). For old-age pensions alone, with the most pensioners, the increase was 112 percent, compared to 47 percent of disability pensions.

represented an annual 17 percent increase in average pension incomes between 2000 and 2003, very close to the increase in labor earnings of 19 percent. The increase in real pension incomes was relatively faster for households in rural areas and small towns (about 20 percent per year) compared to those in large cities (12 percent).

Pension incomes represent about 25 percent of household incomes among the poor, compared to only 17 percent among those in the top quintile. The relatively smaller pensions among the poor still represent a substantial component of their incomes and consumption. For households in poverty, pensions in 2003 represented more than 25 percent of the per capita household incomes compared to only 16 percent for households in the top quintile. More importantly, these incomes have increased in importance for the poor from 19 percent in 1999.

Pensions, however, are not designed to reduced poverty, and result in very inefficient allocations. The cost of reducing one percentage point of poverty by increasing pensions without changes in eligibility or benefits would be very expensive given the little capture of benefits among households in the poorest quintile. Although the rapid increase of pensions has played a role in reducing poverty, its potential impact in the future is limited by the fraction of population living without pensioners and their relatively lower benefit levels. Still, the pension system is one of the networks with broader coverage in Ukraine and this network can be exploited in the design and delivery of other poverty related interventions.

Subsidies for housing and communal services

Ukraine has several types of transfers that provide subsidies for housing and utility expenses. First, there are *housing allowances* that are designed to support families to cover their housing and utility costs. An income-based targeting mechanism was introduced in housing allowances early in 1995 but the implementation of this targeting has not been fully studied. Second, there are some *privileges* that provide in-kind benefits for certain occupational groups or categories of individuals, such as war veterans. These *privileges* are aimed to cover expenses on rent, housing maintenance, transportation, phone lines or even automobiles (World Bank, 2003). These two transfers are different in that one is income targeted while privileges are not. This report uses evidence from household surveys that do not distinguish between different *sources* of funding for housing and utility subsidies and, hence, treats all housing and utility subsidies as a single transfer in the analysis.

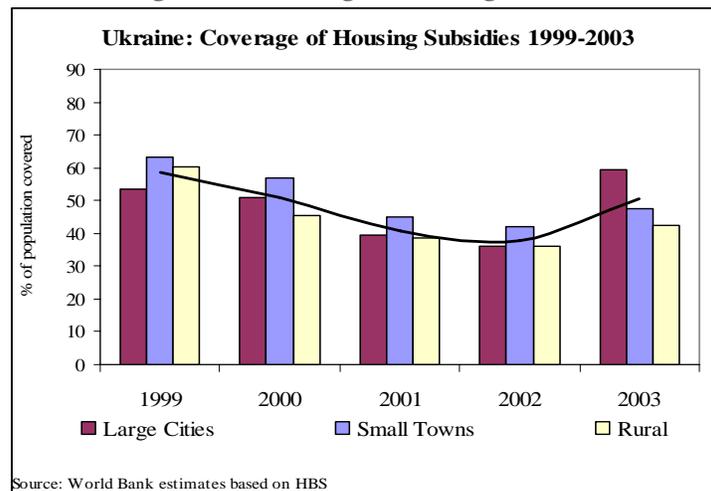
The reduction in the coverage of the subsidies between 1999 and 2002 is associated with increasing costs of such transfers, episodic cuts in budgets, and changes in eligibility. Several policy changes have affected the coverage of housing subsidies. First, in 2000 subsidies for fuel and natural gas purchases were cashed out so local governments (*oblasts*) pay to households directly. Budget allocations for subsidies are transferred to *oblast* authorities after the fiscal decentralization process started in 2001. Then, while the budget for subsidies had modest increases in real terms the cost of energy has been increasing and hence reducing the number of beneficiaries.²⁹ Second, housing subsidies started to use an income testing methodology in the

²⁹ In fact, these subsidies have led to unfunded mandates for municipal heating and electricity companies that have relied on overcharging business customers (World Bank, 2003). Currently, tariff rates for business customers reflect the cost of production, but households still face lower than the cost rates (IMF, 2005b). Evidence from Kyiv oblast between February and June 2000, when housing maintenance tariffs were increased, shows that while the total subsidies rose by more than 9 percent, the number of recipients decreased (Levytsky and Khvaleba).

late 2001 to reduce the number of beneficiary households that were not facing financial constraints to cover their utility bills. Households that spend on energy more than 20 percent of their total income (including estimated income from self employment and even social transfers) are eligible for a subsidy. Third, privileges have been at the center of the reform of social assistance and suffered major budget cuts in 2000 and 2001. Between February and April 2000 the number of households with privileges was reduced by about 40 thousand or 21 percent in Kyiv alone, and the corresponding beneficiary population by more than 50 percent (Levystky and Khaleba). Thus, the combined effect of these changes explains the decline in coverage despite the increasing nominal expenditures (UCSR, 2004). Privileges then reappeared in the 2002 budget and the overall budget increased by 2003 (World Bank, 2003; IMF, 2005a), as reflected in the coverage increase by 2003.

The increase in coverage in 2003 was also associated to small improvements for the poor but subsidies and privileges still benefit more the better-off quintiles in large cities. The rebound in coverage in 2003 despite increasing cost of energy is explained by better overall funding with lower benefits per household. Between 2002 and 2003, the state budget for communal services and energy sources increase by close to 35 percent mainly driven by the increases in heating and electricity services.³⁰ The increased coverage under the existing eligibility changes improved the coverage of the poor from 27.7 to 41.1 percent compared to 41 to 52.8 percent for the non poor. Still, the gap in coverage between the poor and the non poor (about 11 percentage points) is partly due to the concentration of beneficiaries in large cities where coverage is the highest (60 percent) compared to rural areas (42 percent). About 29 percent of the population mainly relies on solid fuels (coal and wood) and they mostly live in rural areas with the highest poverty incidence (Finkel, 2005). The lack of formal billing for energy expenditures (such as wood) and the difficulties in estimating their corresponding subsidy also affects the coverage and benefit to poor households.³¹ This way, the poorest quintile captures less than 8 percent of all subsidies while the top two quintiles capture more than 61 percent of benefits.

Figure 4.3: Coverage of Housing Subsidies



³⁰ The consolidated budget for Housing and Communal Services increased by 30 percent between 2002 and 2003 (Treasury Department of Ukraine, 2005).

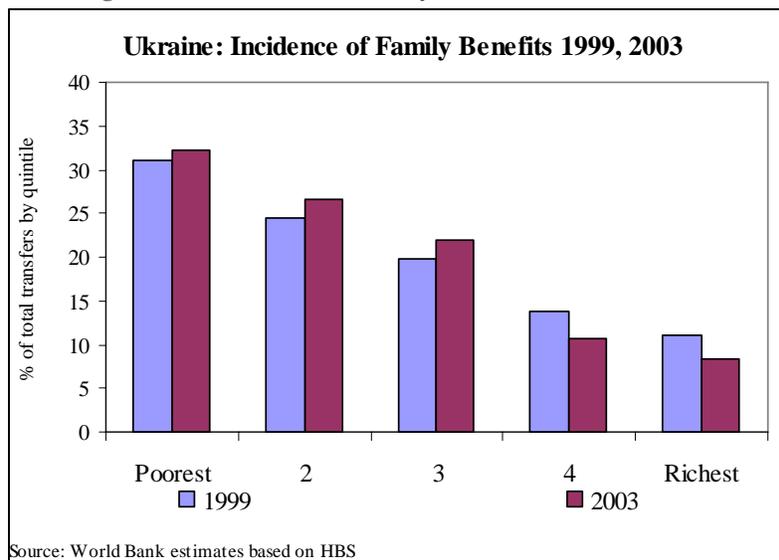
³¹ The subsidy is equal to the excess billing, which is the difference between actual billing and the cost of a standard consumption estimate of fuel and gas for a specific household. The standard consumption of fuel and gas is defined by the oblast state administration.

Social Assistance transfers

The system of social assistance has been in the process of transformation in the last years. Among other social assistance transfers there are family benefits and poverty targeted transfers. As part of the reform process in social assistance, the Government has adopted several measures including the consolidation of different family related benefits, the introduction of a targeting mechanism (or a proxy-means income filter), and new procedures to reduce the process burden on beneficiaries.

Family benefits have an income filter that has improved their targeting in recent years. The consolidation of different benefits and the introduction of an income filter resulted in average benefits of more than UAH 50 in 2003. This transfer covered about 12 percent of the population, including more than 21 percent of the poor. About 32 percent of the benefits went to the poor in 2003 not very different from 1999. The introduction of the income filter, however, has improved the incidence of benefits for the rest of the groups: the share of transfers captured by the 40 percent richest population was reduced by 5 percentage points between 1999 and 2003, benefits that were redirected to households in the second and third quintiles.

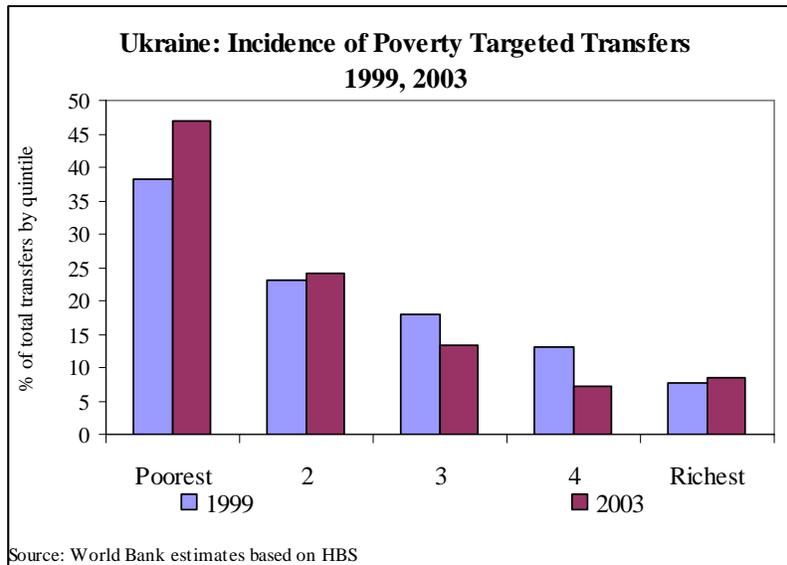
Figure 4.4: Incidence of Family Benefits in 1999 and 2003



The poverty targeted transfer showed major gains in terms of targeting, but requires major coverage expansion. Compared to the family benefit that covers about 12 percent of the population, the poverty targeted transfer covers a much smaller fraction: only 4 percent. Even within the poor, the poverty transfer reaches less than 10 percent of the poor population. The smaller coverage, however, also facilitates the identification of the poor and the transfer of benefits to them. About half of the resources channeled through the poverty benefit reach the poorest 20 percent of the population and this represents a major improvement over the situation in 1999 when only 38 percent was received by this group (Figure 4.5). Unsurprisingly, this benefit is the best targeted one but the level of benefits is also small: the average benefit during 2003 was around UAH 70 per month compared to more than UAH 200 in pensions. Still, leakages are observed in the transfer since more than 15 percent of the program resources end up in the 40 percent with higher income. The challenge of expanding the coverage among the poor while reducing the inclusion of the non-poor is the biggest challenge that this program faces since expansion of programs usually involve losses on targeting efficiency. A targeting instrument that

is responsive to the rapid changes in the economy and differentiated geographic poverty patterns could be effective in achieving this goal.

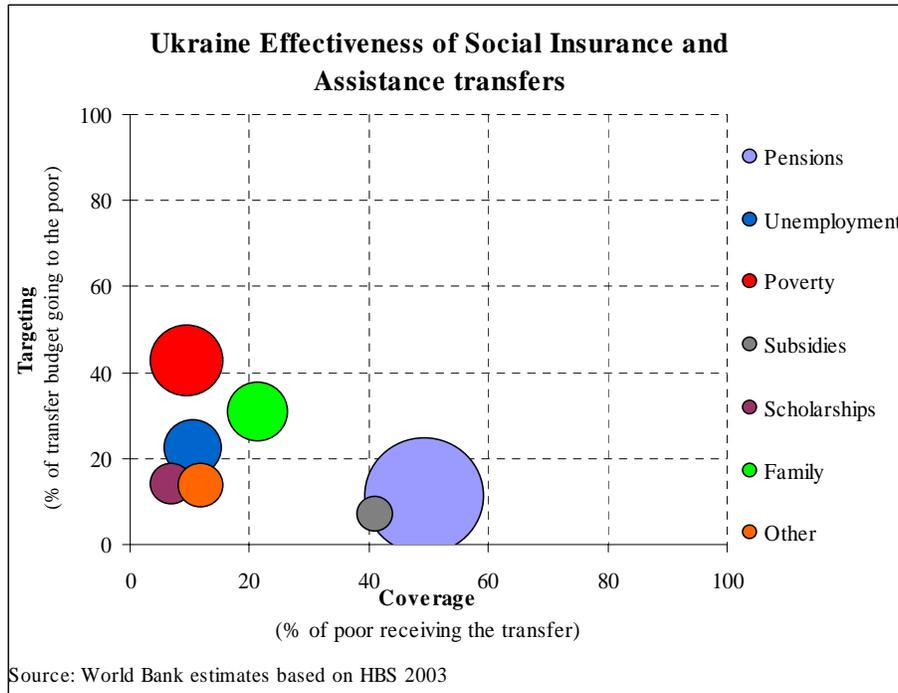
Figure 4.5: Incidence of Poverty targeted transfers in 1999 and 2003



Summary: there are major gaps in terms of coverage and targeting of the poor. Figure 4.6 shows the coverage and targeting of the poor to provide an overview of the public transfers. The horizontal axis measures coverage, the fraction of the poor that are covered by the specific programs. For instance, half of the poor receive (directly or indirectly) pension benefits. Notice that this coverage captures both direct and indirect recipients since the pension transfer will (indirectly) benefit other household members as well. The vertical axis describes the targeting of the benefit, the fraction of total resources that are going to the hands of the poor (the poorest 19 percent of the population in 2003). The size of each symbol represents the average benefit among the poor. While pensions have the highest coverage among the poor, still half of the poor population is not reached by this or other interventions. This underscores the role of the uncovered by government transfers and the need to identify other mechanisms to reach those populations.³² Family and poverty benefits, on the other hand, show better allocation of resources for the poor but lack of coverage of the targeted population (the poor).

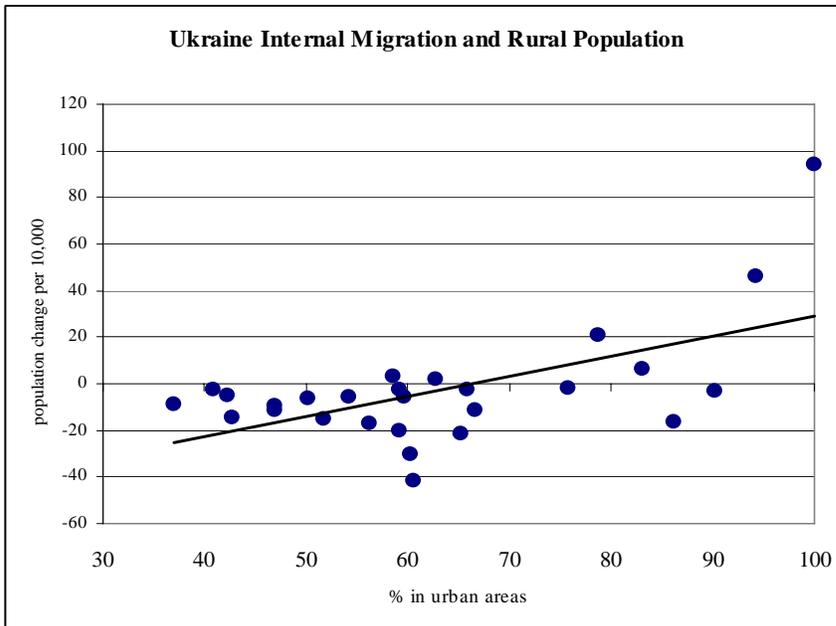
³² In any case, the pension system needs to be take into account in poverty targeting policies, not because of a particular high risk of poverty among pensioners (that is not the case), but as a delivery mechanism towards the population depending on those pensioners and under certain means test criteria.

Figure 4.6: Effectiveness of Social transfers



2.5. Private safety nets: the increasing role of migration and remittances

Figure 4.7: Migration in Ukraine

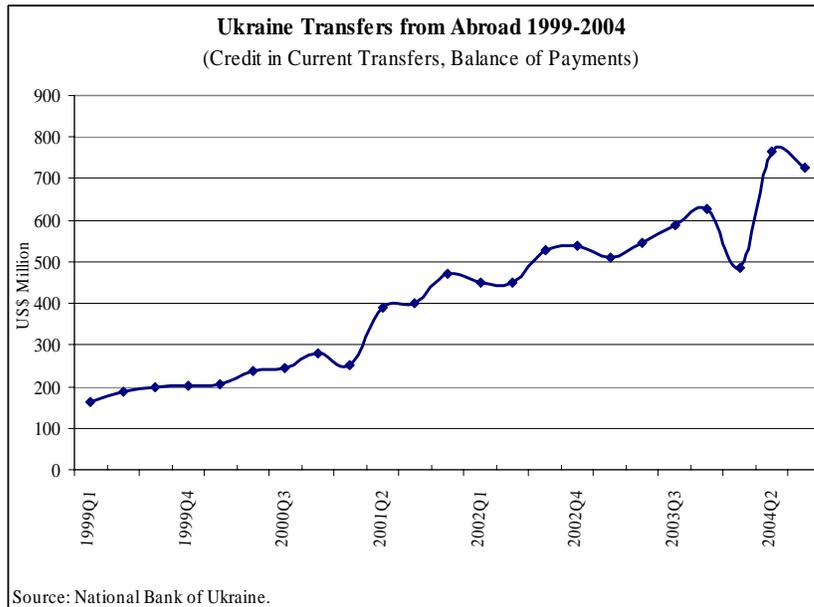


Internal migration is from rural and poor regions to urban and large cities. The evidence suggests that rural areas, or impoverished urban regions, are sending migrants to urban and large cities. The oblasts of Kharkiv and Dnipropetrovsk, and Kyiv and Sevastopol cities evidence the largest reception of internal migrants capturing more than 80 percent of the internal migrants. These regions are either large cities or

have a large urban population (more than 75 percent living in urban areas). Donetsk and Luhansk that have close to 90 percent of urban population are exceptions since they exhibit large outmigration due to the worsening living conditions due to the closure of mines. In fact, Luhansk is one of the oblasts with the largest reductions in population during 2004, only after Kirovohrad. Oblasts with 40 percent or more living in rural areas are the sending areas: Kirovohrad, Kherson,

and oblasts in western Ukraine (Chernihiv, Ternopil, Vinnytsya, Rivne, Khmelnytskyi and Zhytomyr) represent two thirds of the internal migrants. The internal and external migration patterns suggest a strong correlation between poverty and households' allocation of labor resources. Migration is a household risk management behavior since it provides alternative sources of income.

Figure 4.8: Transfers from Abroad



Remittances are becoming an increasingly important factor in the Ukraine economy. Remittances are difficult to estimate since two thirds of incomes are not processed through the formal banking system (Malynovska, 2004). Official statistics, however, provide the amount registered as transfers from abroad as part of the Balance of Payments. Average quarterly transfers have increased from less than US\$ 200

million to almost US\$ 600 million by 2003, representing an increase from 3 to almost 5 percent of GDP (NBU, 2005). Remittances are also captured in the HBS, in the form of financial transfers from relatives and friends (family transfers, hereafter). About 60 percent of the population lives in households that received family transfers. This measure, however, includes both transfers from abroad as well as from within Ukraine. Coincidentally, the importance of these transfers has increased from 3 to more than 6 percent of household per capita income during the same period. In fact, these family transfers are increasing very rapidly in real terms, as fast as wages and salaries -- one of the main drivers of the reduction of poverty.

Despite a poverty related migration, family transfers benefit more the better-off households and those in urban areas. There is an increasing difference between income quintiles: remittances among the top income groups are about twice that of the poorest in 1999, but by 2003 the difference was three times. The rapid increase of remittances among the better off groups does not necessarily reflect the incidence of migration, since we observed more migration in rural and poorer areas. In fact, while in 1999 households in the poorest quintile were less likely to receive family transfers (43 percent) compared to other groups, by 2003 all income groups were equally likely to receive transfers (about 60 percent). The difference is then associated with differences in labor markets opportunities that determine the level of earnings and remittances. In fact a specific survey on migration indicate that while those in rural areas are more likely to migrate, a large part of migrants is involved in seasonal migration on construction, and some in agriculture and other services (Libanova and Poznyak, 2002).

Still, remittances play a role in reducing poverty in Ukraine but they may have reached a limit. In relative terms, family transfers are very important for the poor: on average, transfers represent more than 6 percent of their consumption levels, compared to 5.4 for the middle income groups. Compared to government interventions, the level of the average family transfer is between the poverty and the family benefit (about UAH 60) but the total sum of family transfers among the poor represent as much as the total incomes from the family benefit, the poverty targeted transfer and the housing and utility subsidies combined. The role of remittances requires that the design of public transfers programs (such as the poverty targeted one) takes into account those transfers to minimize the displacement effects of public on private transfers. Otherwise, additional public transfers may simply reduce the level of family transfers and weaken the desired policy effects (i.e. higher incomes and consumption). More detailed analyses of the interaction between public and private transfers in Ukraine are needed to provide policy guidance.

Chapter V: Ensuring a Sustainable Poverty Reduction Process

This report described the levels and dynamics of poverty, and identified the main factors that resulted in a drastic reduction of poverty between 1999 and 2003 while increasing gaps among different types of settlements: poverty reduction was associated to the fast but unbalanced growth across sectors and regions (Panel A in Figure 5.1). The poverty reduction in large cities was led by industrial growth that increased wages -- but not employment -- in urban areas (blue line in Panel B). In rural villages, poverty reduction was characterized by the impact of farm restructuring. Even though agricultural wages (green line in Panel B) are much lower than the average wages in the economy, these recovered after 2001 due to increases in agricultural productivity. The agricultural wage increases, however, were almost offset by employment reduction in the more productive organizations, resulting in little gains in real incomes from agriculture. Rural areas were also affected by the dynamics of pensions since a larger fraction of households live with pensioners in rural villages. Rural households suffered the decline in real pensions between 1999 and 2000, but they also benefited from the significant increase in real terms between 2001 and 2003 (and even more in 2004).

Figure 5.1: Poverty by Location 1999-2003
(percent non-poor)

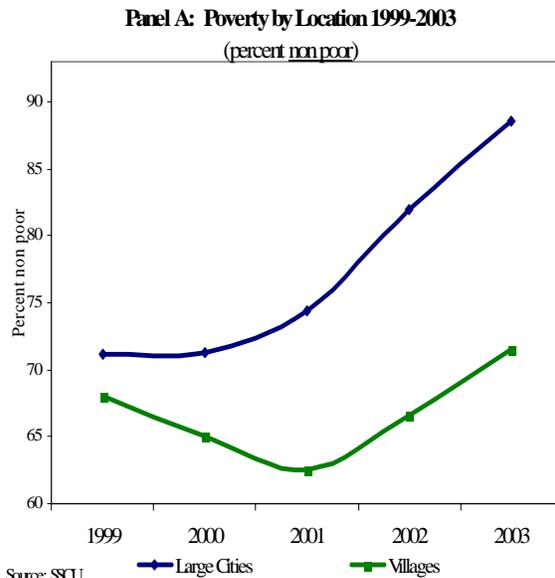
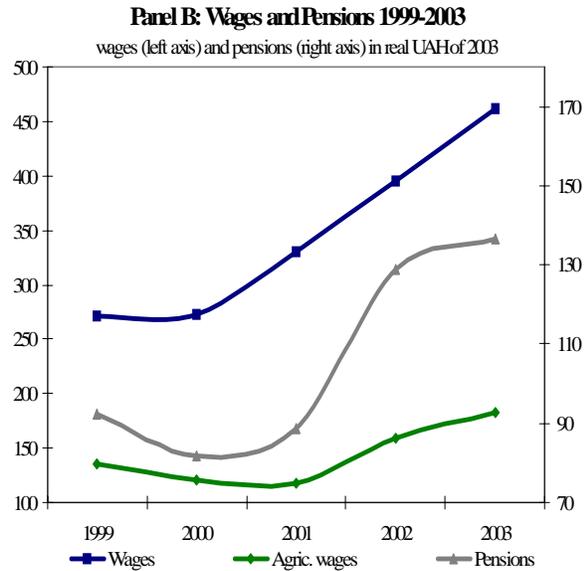


Figure 5.2: Wages and Pensions 1999-2003
wages (left axis) and pensions (right axis) in real UAH of 2003



This section discusses two broader areas where improvements are needed to strengthen the long-term linkages between growth and poverty reduction, and to better inform policy makers about the impact of specific policies. The first area is a set of policies to provide the poor with better economic opportunities to benefit from growth, particularly through employment and in rural areas, and through social safety nets. The second area is to develop a better system of poverty monitoring in order to respond to the changing nature of poverty in the country, and thus, better assess the impact of their policies not only on income poverty dimensions but on other human and social dimensions as well.

5.1. *Improving economic opportunities for the poor*

A better business environment to enhance employment generation. As shown in Chapter 2, the increase in wages and productivity in Ukraine has not been accompanied by additional jobs despite increase job dynamism in the manufacturing sector. The pattern of significant job turnover and restructuring in the private sector, accompanied by rising productivity is similar to what was experienced earlier in Poland, Slovakia or Lithuania, and resulted in growth not being reflected in rising employment in the initial period. Then, employment can start to grow if the environment for private sector development remains favorable. A recent study on employment creation in the Europe and Central Asia region found that for countries like Ukraine, Russia or Kazakhstan it was found that the three most important obstacles perceived by businesses are licensing and operating permits, tax administration, and access to land. Reforms that swiftly address these three obstacles will provide an environment where economic growth could be paralleled by additional employment. Over the medium term, a key aim is to increase labor markets flexibility and competitiveness, while compliance to labor regulations is increased as well. It is required then to examine the labor code to identify potential rigidities that are needed to ease as labor market. To strengthen the link between growth and poverty reduction, job creation has to be broadened even further to provide opportunities to those involved in less productive employment (or underemployment).³³

Strengthening the agricultural reform to provide the better chances for the poor. Agriculture plays a critical role in Ukraine and the proposed accession to the World Trade Organization and to the potentially lucrative high value European markets is an important opportunity to stimulate growth. Chapter 1 described how rural areas are lagging behind the poverty reduction process and then Chapter 3 linked these features to the offsetting effects of reduced employment with increased productivity and wages. Three broader sets of policies are presented: enhancing the environment for rural development; improve the operation of land markets; and increase efficiency and productivity in agricultural organizations. First, sustainable rural development requires an environment that favors investments. Modernization of agriculture has to be accompanied by *better market infrastructure and better off-farm opportunities*. Improving infrastructure and services would will bring down costs and contribute to higher farm gate prices and thus farm incomes. Since the absorption of labor in rural areas is limited by the increasing productivity, off-farm opportunities need to be developed taking advantage of processing activities with high value added. Second, the reform of land needs be deepened to *broaden opportunities to new entrepreneurs and provide fair gains to landowners*. The land reform process has already established a functioning land registration system but the reform has not yet reached other critical non-land assets such as machinery, which has resulted in concentrating the primary means of production in the groups of former collective farm insiders. This, in turn, has the effect of limiting the pool of potential land renters and placing downward pressure on land rental prices. In the longer run it creates the risk of distorted wealth and power structures in rural areas that will result in a rapid concentration of land ownership, with negative social and economic consequences. On the landowners' side, the process of land titling needs to complete the conversion of temporary land titles into State Acts since it would also improve economic conditions for those renting out their land. Third, policies to *enhance productivity and efficiency* are needed in agriculture since agricultural organizations show a large variation of outcomes depending on their size and ownership structure. As wages are increasingly reflecting

³³ The World Bank is currently working in a detailed study of Labor Markets in Ukraine to assess these linkages and provide specific recommendations.

productivity in agriculture, policies to improve technical and economic efficiency at the firm level would translate the improvements in the agricultural sector into better wages and incomes.

Sustainable pension policies and better targeted assistance. While the benefits of additional pension incomes have resulted in large reduction of poverty, they also carried large financial costs that jeopardize the gains from growth. The increased burden due to pension deficits weakens not only the pension system but the fiscal position of the government. The pension system requires a fundamental reform to: (i) ensure the financial sustainability of the insurance component; and, (ii) separate its social insurance component from its social assistance activities. On the first area, the pension system requires a significant reform to avoid increasing fiscal costs. The Government of Ukraine has drafted plans for reform that rely on addressing critical parameters of the system such as the indexation mechanism, retirement age, among others. The second objective is driven by the *social pensions*, benefits that are provided to a small number of pension-aged individuals that lack a contribution history. While small in quantity, social pensions reflect the blurred objectives of the pension system: a difficult balance between social insurance for those contributing and social assistance for those in need. The Government has recently adopted measures to separate these roles, and a component of the social pensions has been transferred to the Ministry of Social Welfare with additional income testing criteria and age constraints.

Major reforms are still needed on social assistance programs to effectively reach the poor and improve the delivery of benefits. Ukraine led the process of introducing targeting mechanisms when, in 1995, income testing criteria were introduced in housing subsidies. This process, however, has not continued its progress and poverty-related social assistance covers a small fraction of the poor. The number of small programs and their diverse targeting criteria does not provide an effective instrument to reach the poor and suggests the need for consolidation strengthening those that are already targeting the poor. In fact, despite the effort in improving targeting in Ukraine, the system has faced operational difficulties in implementing some criteria due to the rapidly changing economy and profile of the poor. This suggests the need to improve the targeting system moving from an income-tested to a proxy-means tested criteria given the increasing importance of other non-formal sources of income and consumption, such as remittances.

One area of future policy reform is addressing the privileges and subsidies for communal services. Subsidies to communal and housing services are channeled mainly to urban areas and disproportionately favor the better-off. This requires a detailed analysis to assess the impact on their original objectives (financial protection of the poor) and devise specific to reform. Broader elements in the reform of in-kind subsidies include cashing-out the transfers for increased transparency and phasing out some of the programs with poor targeting.

5.2. Developing a monitoring and evaluation system to enhance policy design

Improving the poverty monitoring system. The poverty dynamics and its changing profile underscore the need to improve the system of measurement and monitoring. The Government of Ukraine, in particular the State Statistical Committee, and other non governmental research organizations have excellent technical capacity to assess the levels and nature of poverty in the country. The joint development of a revised methodology to monitor poverty provides additional elements to better assess the qualitative changes over time. Improvements in the existing methodology include the formal adoption of an absolute poverty line, revision of the existing consumption aggregate, while introducing some elements to align the social monitoring system with European Union criteria.

Ukraine requires better instruments to identify the poor, and to design and evaluate policies targeted to the reduce poverty. Additional techniques to estimate poverty at the local level, such as districts, pose new technical challenges. This is particularly important given the strong geographical patterns in poverty and the increased differentiation within regions, such as poverty pockets in the Eastern region. Ukraine has available Census and HBS data that can be combined to generate poverty maps that are intensively used for policy purposes. Poverty maps are increasingly used in the design of sectoral policies that involve investments in infrastructure or even in the allocation of resources across regions in fiscally decentralized structures.

Non-income dimensions of poverty need to be included in the poverty monitoring system. Emerging disparities in access or utilization of other social services also require better instruments to measure wellbeing. The documented disparities and geographic patterns in poverty are also reflected in enrolment of children in upper secondary education, where those in rural areas and small towns dropout of school earlier and faster than those in large cities. Some of these patterns may evidence differential funding across facilities, like in the health sector, where more rural oblasts receive less expenditure per capita on health than more urban ones despite their higher costs. These other dimensions of poverty need improved monitoring instruments to inform policy makers. The existing HBS instrument, however, does not provide enough information to obtain accurate information on human and other social dimensions of poverty such as enrolment rates. The pilot Education and Health HBS module introduced in June 2004 should be revised and fielded repeatedly in order to provide a dynamic picture of these rapidly changing outcomes.

Introduce a systematic evaluation of social programs and broader policies. Ukraine has led the design of some social programs and reforms in the region such as the targeting of housing subsidies in 1995. The effects of some policies, however, have not been fully examined and little is known about the real impact on wellbeing and the underlying reasons for their performance. Since the country is embarking on a number of policies to improve the living standards and improve social services, a system of evaluation that accurately describes the impact of specific policies on poverty and other dimensions of wellbeing is required. Learning from their own experiences and improving the design of programs and policies will not only benefit the target population but position Ukraine as a leader in the region from which other countries can benefit as well.

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Annex 1. Poverty and Inequality

| Poverty Rate (ranked in descending order of poverty in latest year) | | | | |
|--|-------------|---------------|-------------|---------------|
| | Survey year | \$4.3 per day | Survey Year | \$4.3 per day |
| Kyrgyzstan | 2000 | 96.9 | 2002 | 96.7 |
| Tajikistan | 1999 | 99.5 | 2003 | 96.1 |
| Armenia | 1999 | 92.0 | 2003 | 92.5 |
| Georgia | 1998 | 79.8 | 2003 | 85.1 |
| Moldova | 1998 | 93.0 | 2003 | 85.0 |
| Kazakhstan | 2001 | 82.6 | 2003 | 75.6 |
| Albania | . | . | 2002 | 69.7 |
| Romania | 1998 | 62.5 | 2002 | 62.0 |
| Turkey | . | . | 2002 | 59.3 |
| Russia | 1998 | 46.4 | 2002 | 41.4 |
| Bulgaria | 1995 | 17.3 | 2003 | 30.6 |
| Lithuania | . | . | 2000 | 29.7 |
| Poland | 1998 | 23.2 | 2002 | 27.2 |
| Ukraine | 2002 | 31.2 | 2003 | 22.2 |
| Belarus | 1998 | 48.4 | 2002 | 21.4 |
| Hungary | 1998 | 19.6 | 2002 | 12.4 |

Note: All poverty estimates using 2000 PPPs

| Ukraine Poverty Incidence (poverty estimates using official consumption aggregate) | | | | | |
|---|-------|-------|-------|-------|-------|
| | 1999 | 2000 | 2001 | 2002 | 2003 |
| Ukraine | 30.3% | 31.5% | 31.7% | 25.5% | 19.5% |
| Large cities | 28.8% | 28.7% | 25.6% | 18.0% | 11.5% |
| Small towns | 30.4% | 31.0% | 33.0% | 26.8% | 20.0% |
| Rural areas | 31.9% | 34.9% | 37.5% | 33.0% | 28.4% |

Source: Ukraine Household Budget Survey (1999-2003). Note: Poverty estimates are based on official consumption aggregate.

| Comparison between official and World Bank measures of wellbeing | | | | |
|---|----------|-------|----------|-------|
| | 2002 | | 2003 | |
| | Official | WB | Official | WB |
| Overall | 25.5% | 25.5% | 19.5% | 18.8% |
| Large cities | 18.0% | 20.1% | 11.5% | 12.7% |
| Small towns | 26.8% | 26.8% | 20.0% | 20.0% |
| Rural areas | 33.0% | 30.5% | 28.4% | 25.1% |

| Ukraine Inequality measures 1999-2003 (Gini coefficients * 100) | | | | | |
|--|------|------|------|------|------|
| | 1999 | 2000 | 2001 | 2002 | 2003 |
| <u>Total expenditures</u> | | | | | |
| Gini per capita expenditure | 28.5 | 29.3 | 30.3 | 29.9 | 29.8 |
| Q5/Q1 | 4.2 | 4.4 | 4.6 | 4.5 | 4.4 |
| Theil E(0) | 13.5 | 14.1 | 15.2 | 14.9 | 14.6 |
| Theil E(1) | 14.1 | 14.9 | 16.2 | 16.4 | 15.8 |
| <u>Consumption Aggregate</u> | | | | | |
| Gini per capita consumption | .. | .. | .. | 27.7 | 27.4 |
| Q5/Q1 | | | | 4.1 | 3.9 |
| Theil E(0) | | | | 12.8 | 12.3 |
| Theil E(1) | | | | 13.0 | 12.7 |
| <u>Total income (resources)</u> | | | | | |
| Gini total income | 30.8 | 31.7 | 31.1 | 29.8 | 30.1 |
| Gini per capita income | 28.2 | 28.8 | 29.0 | 27.7 | 27.1 |
| Q5/Q1 | 4.2 | 4.3 | 4.3 | 4 | 3.8 |
| Theil E(0) | 13.6 | 13.8 | 14.2 | 13.0 | 12.1 |
| Theil E(1) | 14.4 | 14.6 | 16.0 | 14.4 | 13.2 |

Source: WB estimates

Annex 2. Income Distribution

Average resources available to family, by source of income (in real Hryvnia)

| | 1999 | 2000 | 2001 | 2002 | 2003 |
|--|--------|--------|--------|--------|--------|
| Primary employment | 2070.0 | 2240.6 | 2705.3 | 3284.6 | 3822.5 |
| Entrepreneurial activity and self-employment | 161.7 | 145.2 | 202.8 | 244.4 | 296.7 |
| home produced agricultural goods | 230.5 | 318.5 | 363.9 | 382.0 | 460.8 |
| consumption of food produced at home | 1395.5 | 1030.5 | 865.5 | 791.5 | 800.6 |
| Social Insurance (pensions) | 893.0 | 881.4 | 1083.5 | 1445.7 | 1399.7 |
| Social Assistance (unemployment benefits, maternity, stipends etc) | 91.3 | 76.4 | 109.1 | 123.7 | 152.3 |
| financial help from friends and relatives | 179.2 | 225.9 | 294.7 | 378.5 | 421.4 |
| Income from assets and financial instruments | 232.4 | 437.8 | 391.6 | 457.9 | 502.5 |
| Other cash income | 181.3 | 136.5 | 131.0 | 136.7 | 195.2 |
| food received as gift | 343.2 | 307.5 | 266.2 | 221.7 | 240.1 |
| benefits and subsidies on utilities, transport, medical services etc | 286.7 | 226.4 | 213.3 | 210.6 | 211.9 |
| | 6064.9 | 6026.8 | 6627.1 | 7677.3 | 8503.7 |

Average resources available to family, by source of income (in real Hryvnia) in Large Cities

| | 1999 | 2000 | 2001 | 2002 | 2003 |
|--|--------|--------|--------|--------|--------|
| Primary employment | 2847.9 | 3035.6 | 3688.5 | 4514.9 | 5216.9 |
| Entrepreneurial activity and self-employment | 225.2 | 195.0 | 248.0 | 332.2 | 369.7 |
| home produced agricultural goods | 10.2 | 11.5 | 11.8 | 9.3 | 7.5 |
| consumption of food produced at home | 300.8 | 184.2 | 192.2 | 143.9 | 113.6 |
| Social Insurance (pensions) | 1011.9 | 955.7 | 1121.9 | 1399.3 | 1332.4 |
| Social Assistance (unemployment benefits, maternity, stipends etc) | 83.1 | 75.8 | 81.1 | 101.6 | 126.7 |
| financial help from friends and relatives | 226.8 | 281.1 | 365.2 | 472.3 | 554.0 |
| Income from assets and financial instruments | 262.0 | 436.9 | 397.0 | 458.2 | 589.5 |
| Other cash income | 188.1 | 149.5 | 130.2 | 135.5 | 202.6 |
| food received as gift | 314.4 | 303.8 | 263.6 | 215.4 | 248.7 |
| benefits and subsidies on utilities, transport, medical services etc | 319.6 | 251.5 | 258.1 | 257.5 | 276.6 |
| | 5789.7 | 5880.4 | 6757.6 | 8040.0 | 9038.2 |

Average resources available to family, by source of income (in real Hryvnia) in Small Towns

| | 1999 | 2000 | 2001 | 2002 | 2003 |
|--|--------|--------|--------|--------|--------|
| Primary employment | 2077.7 | 2294.5 | 2675.8 | 3193.7 | 3885.7 |
| Entrepreneurial activity and self-employment | 154.0 | 142.3 | 224.8 | 229.9 | 319.7 |
| home produced agricultural goods | 104.0 | 132.7 | 138.1 | 135.5 | 146.4 |
| consumption of food produced at home | 1212.3 | 811.5 | 716.1 | 631.1 | 549.3 |
| Social Insurance (pensions) | 844.2 | 806.7 | 1062.9 | 1466.5 | 1418.8 |
| Social Assistance (unemployment benefits, maternity, stipends etc) | 96.3 | 86.9 | 105.6 | 143.9 | 178.3 |
| financial help from friends and relatives | 187.6 | 236.1 | 316.2 | 349.9 | 370.9 |

| | | | | | |
|--|--------|--------|--------|--------|--------|
| Income from assets and financial instruments | 246.0 | 420.0 | 353.9 | 393.2 | 389.7 |
| Other cash income | 188.8 | 129.2 | 140.7 | 147.4 | 207.9 |
| food received as gift | 373.7 | 367.6 | 293.7 | 244.2 | 275.3 |
| benefits and subsidies on utilities, transport, medical services etc | 336.3 | 268.8 | 245.3 | 239.2 | 228.8 |
| | 5820.9 | 5696.3 | 6273.0 | 7174.6 | 7970.6 |

Average resources available to family, by source of income (in real Hryvnia) in Villages

| | 1999 | 2000 | 2001 | 2002 | 2003 |
|--|--------|--------|--------|--------|--------|
| Primary employment | 1083.8 | 1217.4 | 1517.0 | 1798.9 | 1984.3 |
| Entrepreneurial activity and self-employment | 89.2 | 87.4 | 125.1 | 145.9 | 183.5 |
| home produced agricultural goods | 628.2 | 876.9 | 1022.9 | 1084.7 | 1310.4 |
| consumption of food produced at home | 2947.2 | 2279.9 | 1846.9 | 1765.6 | 1895.1 |
| Social Insurance (pensions) | 789.9 | 864.8 | 1056.4 | 1485.7 | 1469.5 |
| Social Assistance (unemployment benefits, maternity, stipends etc) | 96.7 | 66.6 | 147.4 | 133.3 | 162.6 |
| financial help from friends and relatives | 111.8 | 148.8 | 186.0 | 285.3 | 295.0 |
| Income from assets and financial instruments | 182.4 | 456.4 | 422.2 | 517.2 | 488.0 |
| Other cash income | 165.6 | 127.9 | 122.5 | 128.4 | 174.7 |
| food received as gift | 350.4 | 252.6 | 242.3 | 208.8 | 198.9 |
| benefits and subsidies on utilities, transport, medical services etc | 198.4 | 153.8 | 126.2 | 124.4 | 114.8 |
| | 6643.5 | 6532.6 | 6814.9 | 7678.1 | 8276.8 |

Average resources available to family, by source of income (in real Hryvnia) in Quintile 1

| | 1999 | 2000 | 2001 | 2002 | 2003 |
|--|--------|--------|--------|--------|--------|
| Primary employment | 1508.3 | 1566.5 | 1855.7 | 2386.2 | 2549.9 |
| Entrepreneurial activity and self-employment | 111.3 | 74.8 | 150.5 | 189.3 | 172.8 |
| home produced agricultural goods | 160.7 | 225.0 | 288.9 | 308.8 | 536.9 |
| consumption of food produced at home | 1064.0 | 851.5 | 731.5 | 781.8 | 931.1 |
| Social Insurance (pensions) | 672.6 | 748.4 | 823.1 | 1093.8 | 1191.3 |
| Social Assistance (unemployment benefits, maternity, stipends etc) | 144.3 | 104.2 | 128.8 | 237.4 | 265.0 |
| financial help from friends and relatives | 124.1 | 146.3 | 180.0 | 219.5 | 239.2 |
| Income from assets and financial instruments | 152.5 | 161.3 | 159.3 | 170.9 | 194.8 |
| Other cash income | 169.6 | 128.8 | 115.1 | 124.5 | 193.6 |
| food received as gift | 247.6 | 238.8 | 205.1 | 162.2 | 173.1 |
| benefits and subsidies on utilities, transport, medical services etc | 159.7 | 156.5 | 128.6 | 105.7 | 102.3 |
| | 4514.7 | 4402.2 | 4766.7 | 5780.1 | 6549.9 |

Average resources available to family, by source of income (in real Hryvnia) in Quintile 2

| | 1999 | 2000 | 2001 | 2002 | 2003 |
|--|--------|--------|--------|--------|--------|
| Primary employment | 1866.7 | 1903.6 | 2254.4 | 2724.1 | 3013.8 |
| Entrepreneurial activity and self-employment | 108.1 | 77.8 | 156.0 | 172.3 | 236.3 |
| home produced agricultural goods | 201.6 | 270.6 | 344.5 | 374.7 | 446.6 |
| consumption of food produced at home | 1313.6 | 986.0 | 822.2 | 811.0 | 856.5 |
| Social Insurance (pensions) | 753.1 | 852.4 | 1041.7 | 1379.4 | 1424.4 |

| | | | | | |
|--|--------|--------|--------|--------|--------|
| Social Assistance (unemployment benefits, maternity, stipends etc) | 99.4 | 81.0 | 112.0 | 156.6 | 177.3 |
| financial help from friends and relatives | 159.7 | 135.7 | 214.7 | 258.3 | 280.1 |
| Income from assets and financial instruments | 176.0 | 269.7 | 233.6 | 246.0 | 238.3 |
| Other cash income | 171.1 | 124.8 | 142.2 | 135.7 | 186.2 |
| food received as gift | 301.3 | 247.0 | 245.1 | 199.2 | 208.4 |
| benefits and subsidies on utilities, transport, medical services etc | 245.2 | 180.3 | 186.1 | 173.3 | 153.8 |
| | 5395.8 | 5128.9 | 5752.5 | 6630.4 | 7221.7 |

Average resources available to family, by source of income (in real Hryvnia) in Quintile 3

| | 1999 | 2000 | 2001 | 2002 | 2003 |
|--|--------|--------|--------|--------|--------|
| Primary employment | 1911.8 | 2075.5 | 2340.4 | 2923.2 | 3638.8 |
| Entrepreneurial activity and self-employment | 121.0 | 110.7 | 159.9 | 146.7 | 207.5 |
| home produced agricultural goods | 238.1 | 302.0 | 358.9 | 391.0 | 404.1 |
| consumption of food produced at home | 1441.6 | 1020.5 | 886.1 | 835.5 | 740.0 |
| Social Insurance (pensions) | 907.1 | 887.9 | 1096.2 | 1502.3 | 1403.5 |
| Social Assistance (unemployment benefits, maternity, stipends etc) | 89.8 | 73.2 | 96.6 | 102.2 | 134.3 |
| financial help from friends and relatives | 153.0 | 193.9 | 246.4 | 308.4 | 346.7 |
| Income from assets and financial instruments | 170.6 | 353.1 | 235.4 | 245.3 | 253.0 |
| Other cash income | 180.0 | 139.3 | 118.2 | 116.4 | 181.3 |
| food received as gift | 327.6 | 308.1 | 252.7 | 209.2 | 233.0 |
| benefits and subsidies on utilities, transport, medical services etc | 279.0 | 217.5 | 205.9 | 205.6 | 193.9 |
| | 5819.4 | 5681.6 | 5996.6 | 6985.9 | 7736.2 |

Average resources available to family, by source of income (in real Hryvnia) in Quintile 4

| | 1999 | 2000 | 2001 | 2002 | 2003 |
|--|--------|--------|--------|--------|--------|
| Primary employment | 2102.6 | 2210.7 | 2637.5 | 3326.9 | 3817.7 |
| Entrepreneurial activity and self-employment | 147.2 | 184.1 | 181.6 | 175.1 | 259.0 |
| home produced agricultural goods | 236.7 | 358.2 | 360.6 | 416.4 | 472.2 |
| consumption of food produced at home | 1501.3 | 1047.4 | 897.5 | 793.2 | 831.6 |
| Social Insurance (pensions) | 969.2 | 986.2 | 1164.8 | 1555.2 | 1481.3 |
| Social Assistance (unemployment benefits, maternity, stipends etc) | 72.7 | 65.7 | 84.7 | 91.1 | 117.6 |
| financial help from friends and relatives | 165.7 | 204.1 | 268.4 | 329.8 | 385.7 |
| Income from assets and financial instruments | 171.1 | 386.0 | 289.6 | 334.9 | 400.5 |
| Other cash income | 175.4 | 128.5 | 124.0 | 131.7 | 185.9 |
| food received as gift | 330.2 | 309.6 | 268.0 | 240.3 | 244.8 |
| benefits and subsidies on utilities, transport, medical services etc | 317.0 | 255.2 | 226.6 | 235.4 | 235.6 |
| | 6189.0 | 6135.8 | 6503.3 | 7629.9 | 8432.0 |

Average resources available to family, by source of income (in real Hryvnia) in Quintile 5

| | 1999 | 2000 | 2001 | 2002 | 2003 |
|--|--------|--------|--------|--------|--------|
| Primary employment | 2600.5 | 2997.8 | 3824.3 | 4393.7 | 5255.0 |
| Entrepreneurial activity and self-employment | 265.7 | 223.8 | 314.7 | 456.9 | 510.6 |

| | | | | | |
|--|--------|--------|--------|--------|---------|
| home produced agricultural goods | 277.5 | 382.9 | 426.1 | 390.7 | 460.5 |
| consumption of food produced at home | 1511.9 | 1155.5 | 927.3 | 748.5 | 706.9 |
| Social Insurance (pensions) | 1032.8 | 884.0 | 1179.3 | 1546.4 | 1429.2 |
| Social Assistance (unemployment benefits, maternity, stipends etc) | 73.0 | 68.8 | 126.7 | 83.6 | 114.0 |
| financial help from friends and relatives | 252.9 | 373.9 | 472.4 | 641.8 | 711.5 |
| Income from assets and financial instruments | 408.5 | 814.0 | 835.5 | 1025.2 | 1141.0 |
| Other cash income | 200.1 | 153.2 | 148.2 | 163.9 | 220.9 |
| food received as gift | 445.3 | 384.8 | 323.7 | 263.0 | 301.7 |
| benefits and subsidies on utilities, transport, medical services etc | 364.8 | 279.6 | 273.6 | 275.8 | 308.3 |
| | <hr/> | <hr/> | <hr/> | <hr/> | <hr/> |
| | 7433.1 | 7718.2 | 8851.9 | 9989.5 | 11159.7 |

Annex 3 Determinants of Household Consumption

| 1999 | OLS | 10th percentile | 25th percentile | Median | 75th percentile | 90th percentile |
|---|---------------------|--------------------|--------------------|---------------------|---------------------|---------------------|
| Share of children 0-13 in household (OV share of children 14-17 in household) | -0.019 (0.460) | 0.015 (0.230) | -0.029 (0.460) | 0.027 (0.490) | -0.067 (1.110) | -0.141 (1.710) |
| Share of adults in household | 0.258 (6.42)** | 0.275 (3.94)** | 0.266 (4.27)** | 0.24 (4.53)** | 0.284 (4.89)** | 0.196 (2.46)* |
| Share of elders in household | 0.201 (4.61)** | 0.309 (4.24)** | 0.265 (3.96)** | 0.177 (3.11)** | 0.165 (2.62)** | 0.067 (0.780) |
| log (household size) | -0.454 (32.70)** | -0.42 (19.06)** | -0.44 (21.54)** | -0.462 (26.50)** | -0.442 (22.87)** | -0.492 (18.62)** |
| log (age) of household head | 0.004 (0.080) | -0.113 (1.200) | -0.134 (1.510) | 0.062 (0.820) | 0.078 (0.940) | 0.139 (1.200) |
| household head is male | 0.052 (5.34)** | 0.07 (4.48)** | 0.063 (4.29)** | 0.065 (5.06)** | 0.039 (2.79)** | 0.022 (1.130) |
| head has higher education (OV = head has elementary edu) | 0.29 (14.58)** | 0.331 (10.50)** | 0.277 (9.59)** | 0.247 (10.01)** | 0.269 (10.01)** | 0.274 (7.29)** |
| head has secondary | 0.103 (5.96)** | 0.106 (3.91)** | 0.087 (3.52)** | 0.079 (3.73)** | 0.09 (3.87)** | 0.097 (3.10)** |
| head has basic secondary | 0.031 (1.610) | 0.074 (2.64)** | 0.033 (1.230) | -0.006 (0.260) | 0.014 (0.540) | 0 (0.010) |
| head is self employed or worker without pay (OV = employed) | 0.024 (0.570) | -0.039 (0.640) | -0.039 (0.570) | 0.046 (0.800) | 0.028 (0.480) | 0.055 (0.810) |
| head is pensioner | -0.069 (4.34)** | -0.094 (3.57)** | -0.063 (2.55)* | -0.077 (3.72)** | -0.051 (2.23)* | -0.069 (2.29)* |
| head is unemployed | -0.139 (8.98)** | -0.187 (7.57)** | -0.124 (5.28)** | -0.132 (6.35)** | -0.143 (6.23)** | -0.09 (2.76)** |
| head is other/housewife/student | 0.026 (0.980) | 0.028 (0.670) | 0.008 (0.190) | -0.002 (0.050) | 0.025 (0.620) | 0.069 (1.230) |
| log (land held by household) | 0.025 (9.08)** | 0.03 (7.33)** | 0.027 (6.55)** | 0.026 (7.24)** | 0.018 (4.42)** | 0.02 (3.52)** |
| livestock owned by household | 0.073 (4.94)** | 0.144 (6.36)** | 0.094 (4.49)** | 0.079 (4.19)** | 0.059 (2.79)** | 0.04 (1.360) |
| Donetsk (OV Eastern region) | -0.078 (4.37)** | -0.108 (3.91)** | -0.108 (4.17)** | -0.085 (3.80)** | 0.003 (0.110) | -0.01 (0.310) |
| Prydniprovsky | -0.05 (2.78)** | -0.081 (2.79)** | -0.048 (1.790) | -0.05 (2.11)* | -0.018 (0.670) | 0.023 (0.630) |
| Black Sea Coast | -0.002 (0.120) | -0.041 (1.430) | -0.052 (1.960) | -0.014 (0.600) | 0.036 (1.400) | 0.083 (2.34)* |
| Podillya | -0.022 (1.050) | -0.076 (2.46)* | -0.039 (1.340) | -0.049 (1.900) | -0.002 (0.080) | 0.059 (1.530) |
| Central (w/o Kiev) | -0.019 (0.870) | -0.055 (1.610) | -0.038 (1.160) | -0.058 (2.04)* | 0.034 (1.070) | 0.03 (0.670) |
| Carpathians | 0.043 (2.33)* | 0.024 (0.850) | 0.018 (0.670) | 0.013 (0.540) | 0.072 (2.81)** | 0.083 (2.37)* |
| Polissya | -0.011 (0.550) | -0.063 (2.12)* | -0.024 (0.870) | -0.023 (0.930) | 0.022 (0.820) | 0.036 (0.990) |

| 1999 | OLS | 10th percentile | 25th percentile | Median | 75th percentile | 90th percentile |
|------------------------|---------------------|------------------------|------------------------|---------------------|------------------------|------------------------|
| Kiev City | 0.326 (12.96)** | 0.249 (5.94)** | 0.233 (5.51)** | 0.351 (9.33)** | 0.405 (9.41)** | 0.405 (7.18)** |
| Big town (OV villages) | 0.097 (5.21)** | 0.167 (6.16)** | 0.115 (4.42)** | 0.103 (4.32)** | 0.056 (2.11)* | 0.082 (2.15)* |
| Small town | 0.092 (6.00)** | 0.129 (5.61)** | 0.118 (5.45)** | 0.103 (5.26)** | 0.049 (2.29)* | 0.072 (2.42)* |
| Constant | 7.445 (142.16)** | 6.826 (81.76)** | 7.195 (92.76)** | 7.447 (109.29)** | 7.714 (103.24)** | 8.056 (77.05)** |
| Observations | 9216 | 9216 | 9216 | 9216 | 9216 | 9216 |

Absolute value of t statistics in parentheses

* significant at 5%; ** significant at 1%

| 2000 | OLS | 10th percentile | 25th percentile | Median | 75th percentile | 90th percentile |
|---|---------------------|------------------------|------------------------|---------------------|------------------------|------------------------|
| Share of children 0-13 in household (OV share of children 14-17 in household) | -0.163 (4.00)** | -0.13 (1.740) | -0.179 (2.76)** | -0.228 (4.04)** | -0.207 (3.33)** | -0.11 (1.530) |
| Share of adults in household | 0.259 (6.40)** | 0.26 (3.50)** | 0.295 (4.62)** | 0.223 (4.11)** | 0.151 (2.57)* | 0.263 (3.77)** |
| Share of elders in household | 0.169 (3.82)** | 0.29 (3.67)** | 0.245 (3.57)** | 0.101 (1.720) | -0.021 (0.340) | 0.09 (1.200) |
| log (household size) | -0.427 (30.20)** | -0.368 (15.19)** | -0.392 (17.99)** | -0.416 (22.82)** | -0.473 (23.59)** | -0.49 (21.84)** |
| log (age) of household head | -0.209 (3.47)** | -0.367 (3.53)** | -0.378 (4.00)** | -0.184 (2.31)* | 0.094 (1.060) | -0.111 (1.090) |
| household head is male | 0.028 (2.74)** | 0.051 (2.81)** | 0.022 (1.430) | 0.014 (1.080) | 0.016 (1.040) | 0.035 (1.98)* |
| head has higher education (OV = head has elementary edu) | 0.286 (13.35)** | 0.285 (7.99)** | 0.308 (10.08)** | 0.288 (10.83)** | 0.283 (9.49)** | 0.26 (7.28)** |
| head has secondary | 0.089 (4.61)** | 0.075 (2.35)* | 0.08 (2.92)** | 0.092 (3.88)** | 0.089 (3.27)** | 0.067 (2.07)* |
| head has basic secondary | 0.021 (1.050) | 0.037 (1.200) | 0.039 (1.400) | 0.037 (1.470) | 0.042 (1.460) | 0.021 (0.590) |
| head is self employed or worker without pay (OV = employed) | 0.044 (0.920) | 0.071 (0.860) | 0.123 (1.720) | 0.085 (1.270) | 0.019 (0.250) | 0.028 (0.290) |
| head is pensioner | -0.065 (3.93)** | -0.044 (1.420) | -0.024 (0.940) | -0.049 (2.21)* | -0.106 (4.13)** | -0.083 (2.73)** |
| head is unemployed | -0.158 (9.88)** | -0.18 (6.13)** | -0.162 (6.59)** | -0.177 (8.13)** | -0.131 (5.43)** | -0.135 (4.84)** |
| head is other/housewife/student | -0.046 (1.680) | -0.037 (0.780) | -0.04 (0.900) | -0.043 (1.200) | -0.033 (0.830) | -0.093 (2.03)* |
| log (land held by household) | 0.009 (6.75)** | 0.007 (3.01)** | 0.009 (3.61)** | 0.01 (5.29)** | 0.01 (5.44)** | 0.006 (3.07)** |
| livestock owned by household | 0.082 (5.61)** | 0.126 (4.82)** | 0.119 (5.31)** | 0.069 (3.63)** | 0.059 (2.88)** | 0.06 (2.51)* |
| Donetsk (OV Eastern region) | -0.051 | -0.107 | -0.087 | -0.034 | -0.022 | 0.02 |

| 2000 | OLS | 10th percentile | 25th percentile | Median | 75th percentile | 90th percentile |
|------------------------|------------|------------------------|------------------------|---------------|------------------------|------------------------|
| | (2.78)** | (3.20)** | (3.12)** | (1.420) | (0.830) | (0.620) |
| Prydniprovsky | -0.007 | -0.059 | -0.038 | -0.015 | 0 | 0.029 |
| | (0.360) | (1.770) | (1.300) | (0.620) | (0.010) | (0.860) |
| Black Sea Coast | -0.032 | -0.089 | -0.06 | -0.038 | -0.038 | 0.027 |
| | (1.740) | (2.82)** | (2.18)* | (1.550) | (1.370) | (0.820) |
| Podillya | 0.016 | 0.024 | 0.017 | 0.014 | -0.018 | 0.032 |
| | (0.770) | (0.700) | (0.550) | (0.510) | (0.590) | (0.910) |
| Central (w/o Kiev) | 0.018 | -0.05 | 0 | 0.016 | 0.052 | 0.055 |
| | (0.810) | (1.280) | (0.010) | (0.520) | (1.360) | (1.370) |
| Carpathians | 0.055 | 0.064 | 0.048 | 0.055 | 0.028 | 0.076 |
| | (2.88)** | (1.940) | (1.700) | (2.22)* | (1.040) | (2.31)* |
| Polissya | 0.011 | -0.044 | 0.008 | 0.011 | 0.007 | 0.045 |
| | (0.540) | (1.250) | (0.260) | (0.420) | (0.230) | (1.280) |
| Kiev City | 0.333 | 0.248 | 0.307 | 0.35 | 0.356 | 0.366 |
| | (12.98)** | (5.16)** | (7.40)** | (9.67)** | (8.70)** | (7.80)** |
| Big town (OV villages) | 0.059 | 0.076 | 0.075 | 0.04 | 0.051 | 0.036 |
| | (3.24)** | (2.40)* | (2.66)** | (1.670) | (1.98)* | (1.220) |
| Small town | 0.061 | 0.083 | 0.056 | 0.045 | 0.033 | 0.039 |
| | (4.09)** | (3.13)** | (2.40)* | (2.24)* | (1.500) | (1.540) |
| Constant | 7.86 | 7.285 | 7.565 | 7.879 | 8.191 | 8.48 |
| | (147.91)** | (77.07)** | (93.54)** | (111.81)** | (103.10)** | (92.15)** |
| Observations | 9286 | 9286 | 9286 | 9286 | 9286 | 9286 |

Absolute value of t statistics in parentheses

* significant at 5%; ** significant at 1%

| 2001 | OLS | 10th percentile | 25th percentile | Median | 75th percentile | 90th percentile |
|---|------------|------------------------|------------------------|---------------|------------------------|------------------------|
| Share of children 0-13 in household (OV share of children 14-17 in household) | -0.197 | -0.243 | -0.227 | -0.168 | -0.133 | -0.312 |
| | (4.74)** | (2.70)** | (3.12)** | (2.73)** | (1.770) | (3.47)** |
| Share of adults in household | 0.325 | 0.268 | 0.308 | 0.368 | 0.333 | 0.129 |
| | (7.98)** | (3.14)** | (4.48)** | (6.36)** | (4.83)** | (1.620) |
| Share of elders in household | 0.227 | 0.319 | 0.242 | 0.246 | 0.173 | -0.04 |
| | (5.02)** | (3.45)** | (3.25)** | (3.88)** | (2.29)* | (0.470) |
| log (household size) | -0.394 | -0.321 | -0.385 | -0.396 | -0.436 | -0.451 |
| | (26.94)** | (10.22)** | (16.64)** | (20.01)** | (19.01)** | (17.64)** |
| log (age) of household head | -0.022 | -0.025 | -0.192 | -0.043 | 0.133 | 0.149 |
| | (0.350) | (0.200) | (1.860) | (0.500) | (1.290) | (1.300) |
| household head is male | 0.039 | 0.059 | 0.03 | 0.034 | 0.057 | 0.025 |
| | (3.78)** | (2.65)** | (1.780) | (2.36)* | (3.23)** | (1.280) |
| head has higher education (OV = head has elementary edu) | 0.359 | 0.422 | 0.348 | 0.342 | 0.344 | 0.346 |
| | (15.81)** | (9.53)** | (10.34)** | (11.72)** | (9.60)** | (8.58)** |
| head has secondary | 0.161 | 0.186 | 0.137 | 0.158 | 0.154 | 0.155 |
| | (8.00)** | (4.97)** | (4.70)** | (6.17)** | (4.86)** | (4.26)** |
| head has basic secondary | 0.066 | 0.079 | 0.066 | 0.067 | 0.08 | 0.033 |
| | (3.16)** | (2.08)* | (2.25)* | (2.51)* | (2.41)* | (0.890) |

| 2001 | OLS | 10th percentile | 25th percentile | Median | 75th percentile | 90th percentile |
|---|---------------------|------------------------|------------------------|--------------------|------------------------|------------------------|
| head is self employed or worker without pay (OV = employed) | 0.055 (1.340) | -0.005 (0.060) | 0.074 (1.120) | 0.107 (1.790) | -0.006 (0.080) | 0.069 (0.950) |
| head is pensioner | -0.064 (3.72)** | -0.074 (2.12)* | -0.053 (1.950) | -0.056 (2.34)* | -0.07 (2.44)* | -0.038 (1.210) |
| head is unemployed | -0.172 (10.81)** | -0.261 (6.81)** | -0.216 (7.72)** | -0.186 (7.96)** | -0.131 (4.65)** | -0.042 (1.310) |
| head is other/housewife/student | -0.016 (0.620) | -0.057 (1.010) | -0.058 (1.280) | 0.026 (0.670) | 0.011 (0.240) | 0.017 (0.310) |
| log (land held by household) | -0.001 (1.500) | -0.002 (1.000) | -0.001 (0.630) | -0.001 (0.420) | -0.002 (1.030) | -0.001 (0.620) |
| livestock owned by household | 0.086 (5.79)** | 0.135 (4.19)** | 0.134 (5.36)** | 0.089 (4.32)** | 0.044 (1.840) | 0.016 (0.640) |
| Donetsk (OV Eastern region) | -0.065 (3.46)** | -0.087 (2.24)* | 0.002 (0.050) | -0.085 (3.20)** | -0.086 (2.68)** | -0.033 (0.940) |
| Prydniprovsky | -0.029 (1.530) | -0.02 (0.520) | -0.002 (0.070) | -0.086 (3.19)** | -0.056 (1.730) | 0.022 (0.590) |
| Black Sea Coast | -0.099 (5.35)** | -0.123 (2.98)** | -0.032 (0.990) | -0.102 (3.75)** | -0.146 (4.52)** | -0.129 (3.61)** |
| Podillya | -0.038 (1.750) | -0.043 (0.870) | 0.013 (0.370) | -0.099 (3.25)** | -0.081 (2.26)* | -0.003 (0.070) |
| Central (w/o Kiev) | 0.012 (0.530) | 0.011 (0.240) | 0.066 (1.690) | -0.045 (1.360) | -0.022 (0.550) | 0.015 (0.350) |
| Carpathians | -0.044 (2.27)* | 0.009 (0.230) | 0.031 (0.990) | -0.08 (2.94)** | -0.125 (3.78)** | -0.068 (1.820) |
| Polissya | -0.037 (1.790) | -0.007 (0.170) | 0.018 (0.540) | -0.075 (2.62)** | -0.065 (1.860) | -0.011 (0.280) |
| Kiev City | 0.287 (11.03)** | 0.289 (5.04)** | 0.341 (7.49)** | 0.25 (6.35)** | 0.287 (6.00)** | 0.225 (4.30)** |
| Big town (OV villages) | 0.055 (2.94)** | 0.054 (1.390) | 0.065 (2.13)* | 0.045 (1.750) | 0.035 (1.160) | 0.032 (0.970) |
| Small town | 0.013 (0.860) | 0.02 (0.600) | 0.024 (0.940) | 0.009 (0.410) | -0.036 (1.450) | -0.027 (0.980) |
| Constant | 7.824 (142.13)** | 7.149 (65.11)** | 7.552 (81.09)** | 7.83 (100.28)** | 8.152 (87.37)** | 8.604 (78.55)** |
| Observations | 9292 | 9292 | 9292 | 9292 | 9292 | 9292 |

Absolute value of t statistics in parentheses

* significant at 5%; ** significant at 1%

| 2002 | OLS | 10th percentile | 25th percentile | Median | 75th percentile | 90th percentile |
|---|--------------------|------------------------|------------------------|--------------------|------------------------|------------------------|
| Share of children 0-13 in household (OV share of children 14-17 in household) | -0.106 (2.66)** | -0.148 (1.660) | -0.07 (1.210) | -0.184 (2.87)** | -0.056 (0.920) | -0.034 (0.500) |
| Share of adults in household | 0.445 (11.58)** | 0.427 (5.36)** | 0.47 (8.74)** | 0.338 (5.72)** | 0.446 (7.90)** | 0.549 (8.56)** |
| Share of elders in household | 0.356 (8.45)** | 0.453 (5.53)** | 0.406 (7.10)** | 0.237 (3.69)** | 0.262 (4.23)** | 0.389 (5.52)** |

| 2002 | OLS | 10th percentile | 25th percentile | Median | 75th percentile | 90th percentile |
|---|---------------------|------------------------|------------------------|---------------------|------------------------|------------------------|
| log (household size) | -0.385 (28.10)** | -0.356 (12.97)** | -0.361 (18.83)** | -0.374 (17.92)** | -0.425 (22.26)** | -0.412 (18.72)** |
| log (age) of household head | -0.089 (1.520) | -0.258 (2.09)* | -0.061 (0.760) | 0.042 (0.470) | 0.127 (1.500) | 0.039 (0.400) |
| household head is male | 0.044 (4.42)** | 0.022 (1.080) | 0.035 (2.61)** | 0.047 (3.07)** | 0.059 (4.10)** | 0.056 (3.28)** |
| head has higher education (OV = head has elementary edu) | 0.298 (13.66)** | 0.332 (7.90)** | 0.293 (10.89)** | 0.292 (9.46)** | 0.323 (10.71)** | 0.287 (7.88)** |
| head has secondary | 0.089 (4.54)** | 0.113 (3.01)** | 0.107 (4.46)** | 0.08 (2.91)** | 0.106 (3.83)** | 0.07 (2.01)* |
| head has basic secondary | 0 (0.020) | 0.066 (1.800) | 0.003 (0.130) | -0.006 (0.200) | -0.013 (0.440) | -0.029 (0.770) |
| head is self employed or worker without pay (OV = employed) | 0.047 (1.190) | 0.103 (1.320) | -0.04 (0.770) | 0.013 (0.210) | 0.062 (1.090) | 0.087 (1.320) |
| head is pensioner | -0.069 (4.15)** | -0.039 (1.180) | -0.07 (3.10)** | -0.084 (3.35)** | -0.08 (3.37)** | -0.081 (2.92)** |
| head is unemployed | -0.178 (11.48)** | -0.194 (6.02)** | -0.186 (8.74)** | -0.165 (6.89)** | -0.156 (6.83)** | -0.107 (4.33)** |
| head is other/housewife/student | -0.037 (1.550) | -0.138 (2.91)** | -0.04 (1.130) | -0.033 (0.860) | 0.022 (0.600) | 0.08 (1.900) |
| log (land held by household) | 0.001 (1.780) | -0.001 (0.450) | 0.002 (2.16)* | 0.002 (1.870) | 0.002 (1.770) | 0.002 (1.170) |
| livestock owned by household | 0.1 (6.82)** | 0.166 (5.70)** | 0.123 (5.94)** | 0.086 (3.89)** | 0.06 (2.95)** | 0.058 (2.46)* |
| Donetsk (OV Eastern region) | -0.071 (3.99)** | 0.027 (0.730) | -0.077 (3.21)** | -0.055 (2.00)* | -0.103 (3.84)** | -0.082 (2.63)** |
| Prydniprovsky | -0.031 (1.680) | 0.025 (0.630) | -0.093 (3.62)** | -0.058 (1.97)* | -0.004 (0.160) | 0.072 (2.19)* |
| Black Sea Coast | -0.063 (3.55)** | -0.028 (0.680) | -0.092 (3.73)** | -0.052 (1.870) | -0.063 (2.33)* | -0.019 (0.590) |
| Podillya | 0.03 (1.440) | 0.082 (1.880) | 0.021 (0.740) | 0.034 (1.060) | 0.011 (0.340) | 0.037 (0.980) |
| Central (w/o Kiev) | 0.03 (1.360) | 0.017 (0.360) | -0.025 (0.840) | 0.039 (1.150) | 0.038 (1.180) | 0.126 (3.24)** |
| Carpathians | 0.001 (0.060) | 0.065 (1.570) | -0.031 (1.200) | -0.014 (0.470) | -0.01 (0.330) | 0.038 (1.060) |
| Polissya | -0.022 (1.090) | 0.042 (1.000) | -0.05 (1.890) | -0.011 (0.370) | -0.035 (1.180) | -0.025 (0.730) |
| Kiev City | 0.301 (12.02)** | 0.324 (6.13)** | 0.27 (7.84)** | 0.294 (7.34)** | 0.293 (7.58)** | 0.292 (6.60)** |
| Big town (OV villages) | 0.164 (8.96)** | 0.177 (4.85)** | 0.197 (7.97)** | 0.159 (5.78)** | 0.128 (4.96)** | 0.144 (4.64)** |
| Small town | 0.078 (5.03)** | 0.094 (3.03)** | 0.094 (4.41)** | 0.075 (3.21)** | 0.039 (1.770) | 0.038 (1.390) |
| Constant | 7.785 (148.26)** | 7.181 (66.43)** | 7.419 (105.24)** | 7.807 (97.62)** | 8.043 (105.29)** | 8.237 (88.10)** |

| 2002 | OLS | 10th percentile | 25th percentile | Median | 75th percentile | 90th percentile |
|--------------|------------|------------------------|------------------------|---------------|------------------------|------------------------|
| Observations | 9379 | 9379 | 9379 | 9379 | 9379 | 9379 |

Absolute value of t statistics in parentheses

* significant at 5%; ** significant at 1%

| 2003 | OLS | 10th percentile | 25th percentile | Median | 75th percentile | 90th percentile |
|---|---------------------|------------------------|------------------------|---------------------|------------------------|------------------------|
| Share of children 0-13 in household (OV share of children 14-17 in household) | -0.12 (3.01)** | -0.11 (1.190) | -0.168 (2.82)** | -0.082 (1.610) | -0.104 (1.900) | -0.129 (1.460) |
| Share of adults in household | 0.394 (10.27)** | 0.423 (4.86)** | 0.354 (6.41)** | 0.43 (9.03)** | 0.395 (7.55)** | 0.446 (5.28)** |
| Share of elders in household | 0.292 (6.85)** | 0.411 (4.55)** | 0.322 (5.43)** | 0.33 (6.42)** | 0.224 (3.91)** | 0.212 (2.28)* |
| log (household size) | -0.374 (28.19)** | -0.342 (12.08)** | -0.346 (19.00)** | -0.359 (23.08)** | -0.411 (23.96)** | -0.428 (15.23)** |
| log (age) of household head | 0.013 (0.210) | -0.003 (0.020) | -0.112 (1.400) | -0.001 (0.010) | 0.229 (2.97)** | 0.169 (1.360) |
| household head is male | 0.036 (3.70)** | 0.059 (2.82)** | 0.028 (2.04)* | 0.025 (2.16)* | 0.034 (2.67)** | 0.025 (1.240) |
| head has higher education (OV = head has elementary edu) | 0.35 (15.55)** | 0.305 (7.29)** | 0.347 (11.79)** | 0.317 (12.61)** | 0.34 (12.41)** | 0.402 (9.71)** |
| head has secondary | 0.158 (7.82)** | 0.175 (4.75)** | 0.145 (5.58)** | 0.135 (6.06)** | 0.145 (5.80)** | 0.166 (4.52)** |
| head has basic secondary | 0.046 (2.24)* | 0.057 (1.470) | 0.057 (2.17)* | 0.045 (1.950) | 0.051 (1.910) | 0.047 (1.100) |
| head is self employed or worker without pay (OV = employed) | 0.004 (0.120) | -0.05 (0.730) | -0.045 (0.910) | -0.022 (0.560) | -0.017 (0.400) | 0.06 (0.920) |
| head is pensioner | -0.1 (6.01)** | -0.123 (3.65)** | -0.106 (4.45)** | -0.097 (4.88)** | -0.133 (6.26)** | -0.086 (2.41)* |
| head is unemployed | -0.199 (12.89)** | -0.271 (7.45)** | -0.198 (8.60)** | -0.162 (8.16)** | -0.148 (6.89)** | -0.161 (4.66)** |
| head is other/housewife/student | 0.001 (0.060) | -0.012 (0.230) | -0.011 (0.300) | 0.027 (0.890) | 0.006 (0.170) | -0.091 (1.730) |
| log (land held by household) | 0.001 (1.500) | -0.001 (0.400) | -0.001 (1.080) | 0.002 (2.22)* | 0.003 (2.90)** | 0.002 (1.610) |
| livestock owned by household | 0.071 (4.68)** | 0.077 (2.03)* | 0.076 (3.41)** | 0.052 (2.89)** | 0.067 (3.44)** | 0.053 (1.690) |
| Donetsk (OV Eastern region) | -0.02 (1.140) | -0.02 (0.540) | -0.012 (0.470) | -0.042 (1.97)* | -0.063 (2.62)** | -0.068 (1.750) |
| Prydniprovsky | 0.043 (2.40)* | 0.016 (0.420) | 0.033 (1.290) | 0.009 (0.390) | 0.009 (0.390) | 0.056 (1.420) |
| Black Sea Coast | 0.003 (0.180) | 0.04 (1.090) | 0.054 (2.18)* | 0.001 (0.040) | -0.048 (2.01)* | -0.059 (1.580) |
| Podillya | 0.071 (3.55)** | 0.074 (1.760) | 0.059 (2.12)* | 0.057 (2.36)* | 0.046 (1.690) | 0.043 (0.950) |
| Central (w/o Kiev) | 0.025 (1.140) | -0.032 (0.610) | 0.046 (1.470) | 0.024 (0.900) | 0 (0.020) | -0.028 (0.610) |
| Carpathians | 0.082 (4.45)** | 0.145 (3.71)** | 0.141 (5.47)** | 0.053 (2.37)* | 0.042 (1.680) | 0 (0.010) |
| Polissya | -0.002 | 0.027 | 0.027 | 0.002 | -0.04 | -0.084 |

| 2003 | OLS | 10th percentile | 25th percentile | Median | 75th percentile | 90th percentile |
|------------------------|---------------------|------------------------|------------------------|---------------------|------------------------|------------------------|
| Kiev City | 0.287 (11.95)** | 0.267 (5.35)** | 0.277 (8.14)** | 0.315 (10.63)** | 0.259 (7.92)** | 0.258 (4.86)** |
| Big town (OV villages) | 0.179 (9.83)** | 0.17 (3.64)** | 0.154 (5.44)** | 0.172 (7.52)** | 0.205 (8.34)** | 0.191 (4.92)** |
| Small town | 0.074 (4.71)** | 0.052 (1.330) | 0.035 (1.460) | 0.076 (3.89)** | 0.109 (5.20)** | 0.116 (3.62)** |
| Constant | 7.816 (144.80)** | 7.214 (62.95)** | 7.604 (100.69)** | 7.799 (121.63)** | 8.056 (116.18)** | 8.357 (74.36)** |
| Observations | 9667 | 9667 | 9667 | 9667 | 9667 | 9667 |

Absolute value of t statistics in parentheses

* significant at 5%; ** significant at 1%

Annex 4 Labor Force Indicators and methodology

The ILO definition and HBS constraints

Since microdata from the Labor Force Survey 2002 was not available at the time of producing this report, the labor market analysis was largely based on data from the Household Budget Survey. The HBS is a survey that is not specifically designed to analyze labor force participation or other socio-economic indicators related to labor-force activity: for example, it does not detail what sector of industry a worker is employed in, nor are there ways of tracking issues like informality (since type of contracts are not available), wage rates (since we do not know the total number of hours worked), or wage arrears. However, it does contain a section that captures each individual's current socio-economic status (although self-defined), his/her sector of work, classification of employer, and a section on the individual's source of income, if any. These indicators, in combination with other characteristic variables such as the individual's age, gender, highest education level, marital status, and the household's characteristics to which he/she belongs, provide the basis for undertaking the labor force analysis.

Since the HBS does not give the amount of time spent at work, the definition of "employment" cannot be fit into the ILO definition which states that "for operational purposes, the notion of 'some work' may be interpreted as work for at least one hour". According to the ILO, persons are considered employed if they performed 'some work' during the brief period of one week or one day. In all instances of work, persons are considered employed if they worked for wage or salary, in cash or in kind. Similarly the self-employed should be considered employed if they worked for a family gain or profit, in cash or in kind.

Given that the HBS does not present data either on the hours of work, or on the person's activity during a short reference period of one week/one day, the various definitions evolved for analysis are based on a self-definition, moderated by information on total wage income. All household members, 6 year and over, were asked a question on self-definition of their social economic status which required them to choose from one of the following statuses:

| | |
|--|------------------------------|
| Employee | Pensioner |
| Business owner | Student (in college) |
| Member of co-operative | Student (pre-college) |
| Family member working for a family enterprise | Unemployed |
| Self-employed | Housewife |
| | Child |
| | Does not know status/ Others |

This question was answered by 93.2% of all members 6 years and older in the survey in 1999, by 92.5% in 2000, 92% in 2001, and 94% in 2002.³⁴

³⁴ In 2002, another category, "Person not present at time of interview" was added to the list of possible responses to the question.

Standard definitions for analysis of the labor force

For all labor force analysis the following standard definitions were used:

- The Working Age Population is defined as persons 15-70 years old (both years inclusive) who have answered the question on self-identification of socio-economic status.
- Labor Force – sum total of Employed and Unemployed
- Labor Force Participation Rate (LFPR) is defined as the number of people in the Labor Force, as a percentage of the Working Age Population
- Employment Rate is defined as the number of people Employed, as a percentage of the Working Age Population
- Unemployment rate is defined as the number of people Unemployed as a percentage of the total Labor Force (Employed + Unemployed)

Alternate definitions for categorization of labor force participants and non-participants

Using self-reporting of socio-economic status proved difficult in the HBS. More specifically, unemployment rates based on self-definition are significantly higher than official unemployment rates. In 2002, official (LFS based) unemployment rates reached 10.7 percent of the labor force, compared to 21.0 percent using the HBS self-reported information. A cross-check reveals that a large number of those who considered themselves unemployed or inactive also reported income from a primary or secondary workplace, self-employment, or other work. Information on how people perceive their employment status is important - high self-reporting of unemployment may imply that people consider themselves unemployed or at least are in-optimally employed where they are and would rather have e.g. a full-time job if they could find one. We therefore decided to combine this information with reported labor related income to arrive at a more detailed picture of the labor market situation in Ukraine.³⁵ Table A1.1 indicates the different categories from this cross-tabulation and reports the numbers for 2002. (note that the estimated working age population of 34.4 million people is lower than that estimated from the Labor Force Survey, at 36.3 million people in 2002).

On the basis of table A1.1, different definitions were employed to estimate the basic set of labor force indicators – labor force participation rate, employment and unemployment rate, and underemployment rate. The underemployment numbers were intended to capture the notion of people who might want to work more than they are actually doing.

³⁵ The individual incomes that were aggregated to calculate *income* are:

- Salary at primary workplace
- Dividends, compensation, allowances at primary workplace
- Salary in kind at the primary workplace
- Salary at other workplace (except primary) in cash
- Income from entrepreneurial activity
- Income from self-employment
- Income from other temporary work

Table A1 1. Cross-tabulation: Self-reported income / self-reported socio-economic status, million of people, 2002

| Reported income (rows) | Reported socio-economic status (columns) | | | |
|---|--|------------|-------------|-------------|
| | Employed 1/ | Unemployed | Inactive 2/ | TOTAL |
| Earning minimum wage or above | 10.7 | 1.0 | 0.4 | 12.1 |
| Earning income but less than minimum wage | 5.4 | 2.2 | 1.8 | 9.3 |
| Not earning income | 0.8 | 1.4 | 10.8 | 13.0 |
| TOTAL | 16.8 | 4.5 | 13.0 | 34.4 |

In each case, the definition for labor force non-participants was kept unchanged, and only the classification of people within the active labor force was defined in different ways. As described earlier, the HBS is not a tool that is designed specifically for labor force analysis and therefore using the existing dataset we developed different definitions for the employed, the unemployed and the underemployed. For each of these definitions the labor force indicators were derived. The different simulations allowed us to gauge differences in absolute labor force indicators, and provided us with the opportunity to check the robustness of the trends in these labor force rates. Though significant differences were observed in the absolute values of the labor force indicators, it is comforting to note that the trends were usually similar, regardless of the definition used. The different definitions employed to analyze the labor force are described below.

Labor Force Non-Participants:

Persons are considered to be out of labor force if they report their socio-economic status to be: Pensioner, student (school or college), housewife, child, or doesn't know his/her status. For each of these self-categorizations, persons are considered to be out of the labor force as long as they do not report any income. If the person reports himself/herself as any of the above but also reports an income, he/she is considered to be in the labor force.

Labor Force Participants:

The employed and unemployed were defined in three different ways and then compared. We used the minimum wage as one cut-off for measuring what is a reasonable income for a working person.

*Definition No. 1*³⁶

- The unemployed are defined as those persons in the labor force who answered the question on self-definition of social-economic status as “unemployed” and did not receive any work-related income. These may therefore be considered to be the “core unemployed”.
- The employed persons are therefore defined as all persons who are in the labor force but not unemployed.

³⁶ Definition No. 3 has been used throughout the chapter for a detailed study of the labor market.

- Further, the underemployed have been defined as those persons who receive income, but less than the minimum wage, and who but still identify themselves in the question on socio-economic status to be “unemployed”.

Using the structure from table A1.1, this implies the following labeling of different cells.

Table A1 2. Definition 1.

| Reported socio-economic status Reported income | Employed | Unemployed | Inactive |
|---|----------|---------------|----------|
| Earning minimum wage or above | Employed | Employed | Employed |
| Earning income but less than minimum wage | Employed | Underemployed | Employed |
| Not earning income | Employed | Unemployed | Inactive |

Definition No. 2

- The unemployed are defined as those persons in the labor force who answered the question on self-definition of social-economic status as “unemployed”.
- The employed persons are therefore defined as all persons who are in the labor force but not unemployed.
- The underemployed are defined as those persons who were employed but received an income less than the min wage

Table A1 3. Definition 2.

| Reported socio-economic status Reported income | Employed | Unemployed | Inactive |
|---|---------------|------------|---------------|
| Earning minimum wage or above | Employed | Unemployed | Employed |
| Earning income but less than minimum wage | Underemployed | Unemployed | Underemployed |
| Not earning income | Underemployed | Unemployed | Inactive |

Definition No. 3

- The employed are defined as those persons in the labor force who reported an income³⁷>0.

³⁷ The individual incomes that were aggregated to calculate *income* are:

- Salary at primary workplace
- Dividends, compensation, allowances at primary workplace
- Salary in kind at the primary workplace

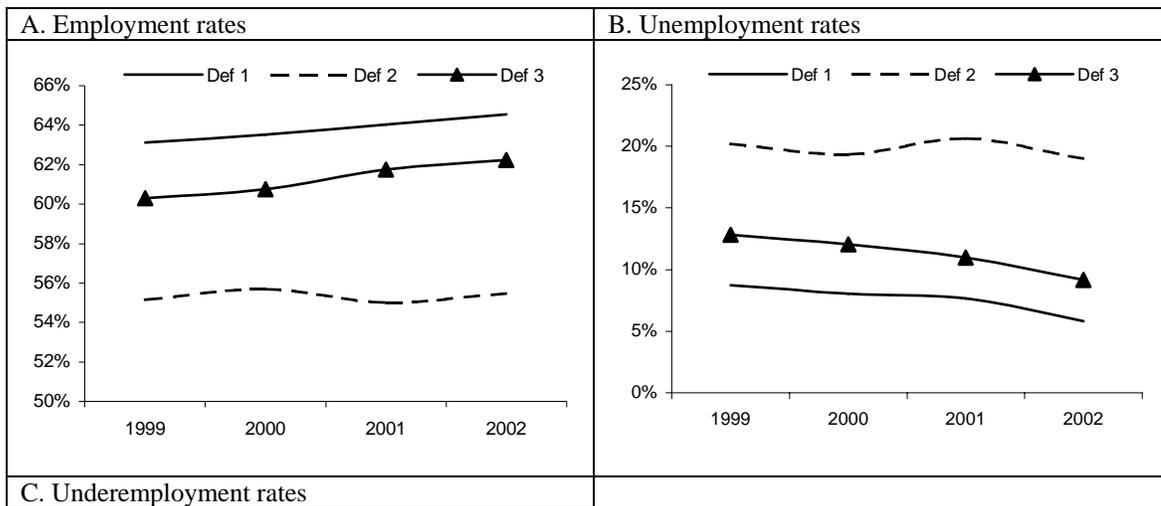
- The unemployed persons are therefore defined as all persons who are in the labor force but are not employed.
- The underemployed are defined as those persons who were employed but received an income less than the min wage

Table A1 4. Definition 3.

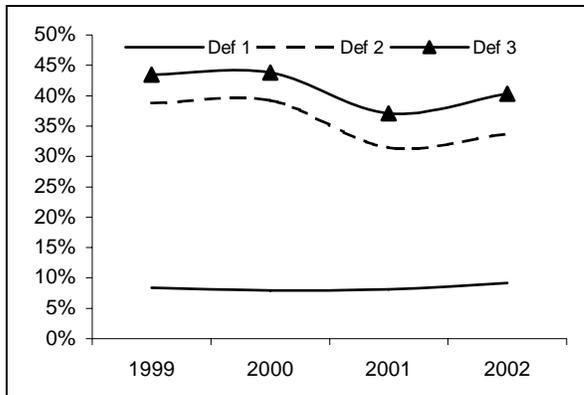
| Reported socio-economic status Reported income | Employed | Unemployed | Inactive |
|---|---------------|---------------|---------------|
| Earning minimum wage or above | Employed | Unemployed | Inactive |
| Earning income but less than minimum wage | Underemployed | Underemployed | Underemployed |
| Not earning income | Unemployed | Unemployed | Inactive |

The results from using these three different combinations of self-reported socio-economic status and reported labor-related income are shown Figure A1.1. below. As can be seen, the trends in employment and unemployment rates are similar for definitions 1 and 3, while definition 1 results in substantially lower underemployment rates than definition 2 or 3.

Figure A1 1. Employment rates, unemployment rates and underemployment rates using different definitions, 1999-2002.



- Salary at other workplace (except primary) in cash
- Income from entrepreneurial activity
- Income from self-employment
- Income from other temporary work



We chose to apply definition 1 to the analysis in the paper, considering those who consider themselves unemployed and earn no income to be the core unemployed, and those who earn less than the minimum wage but consider themselves to be unemployed to be underemployed, somewhere in the gray area between employment and unemployment. The main disadvantage of definitions 2 and 3 is that these include those who are employed but earn less than the minimum wage among the underemployed. This would suggest that all the poorer workers in fact are underemployed, which is not a reasonable assumption- the fact that one earns little does not mean that one is not fully occupied. On the other hand, people who earn more than the minimum wage from work-related income, cannot reasonably be considered unemployed (as is the case in definition 2) though they might be looking for work elsewhere.

| Labor Force Participation Rate, using definition 3 | | | | |
|---|-------|-------|-------|-------|
| | 1999 | 2000 | 2001 | 2002 |
| <i>Overall</i> | 69.2% | 69.1% | 69.3% | 68.5% |
| <i>By gender</i> | | | | |
| males | 75.6% | 75.0% | 75.4% | 75.3% |
| female | 64.0% | 64.3% | 64.4% | 63.0% |
| <i>By location</i> | | | | |
| Kiev city | 77.4% | 74.3% | 75.9% | 78.2% |
| other big cities | 71.2% | 71.0% | 72.3% | 72.2% |
| small cities | 70.8% | 71.0% | 69.3% | 68.1% |
| rural | 64.0% | 64.2% | 65.1% | 63.2% |
| <i>By Quintiles</i> | | | | |
| Poorest | 68.8% | 68.1% | 68.9% | 66.3% |
| Quintile 2 | 68.5% | 67.3% | 66.1% | 64.8% |
| Quintile 3 | 66.8% | 66.9% | 66.9% | 66.0% |
| Quintile 4 | 68.6% | 67.8% | 68.9% | 70.4% |
| Richest | 72.8% | 74.7% | 75.2% | 74.1% |

| Unemployment Rate, using definition 3 | | | | |
|--|------|------|------|------|
| | 1999 | 2000 | 2001 | 2002 |
| <i>Overall</i> | 8.7% | 8.1% | 7.7% | 5.8% |
| <i>By gender</i> | | | | |

| Unemployment Rate, using definition 3 | | | | |
|--|-------|-------|-------|-------|
| | 1999 | 2000 | 2001 | 2002 |
| males | 7.3% | 6.9% | 6.5% | 5.1% |
| female | 10.2% | 9.1% | 8.8% | 6.5% |
| <i>By location</i> | | | | |
| Kiev city | 5.8% | 3.1% | 2.3% | 2.7% |
| other big cities | 7.7% | 6.2% | 5.7% | 3.5% |
| small cities | 8.5% | 9.3% | 8.1% | 6.4% |
| rural | 10.9% | 9.9% | 10.8% | 8.7% |
| <i>By Quintiles</i> | | | | |
| Poorest | 14.2% | 12.7% | 13.9% | 10.7% |
| Quintile 2 | 10.8% | 9.9% | 9.6% | 6.7% |
| Quintile 3 | 8.2% | 7.2% | 6.7% | 5.3% |
| Quintile 4 | 6.7% | 7.1% | 6.0% | 4.4% |
| Richest | 4.7% | 4.5% | 3.6% | 3.1% |

| Unemployment Rate, using definition 3 | | | | |
|--|-------|-------|-------|-------|
| | 1999 | 2000 | 2001 | 2002 |
| <i>Overall</i> | 63.1% | 63.5% | 64.0% | 64.6% |
| <i>By gender</i> | | | | |
| males | 70.1% | 69.8% | 70.5% | 71.5% |
| female | 57.5% | 58.4% | 58.7% | 59.0% |
| <i>By location</i> | | | | |
| Kiev city | 72.9% | 72.0% | 74.1% | 76.1% |
| other big cities | 65.7% | 66.5% | 68.2% | 69.6% |
| small cities | 64.8% | 64.4% | 63.7% | 63.7% |
| rural | 57.0% | 57.9% | 58.1% | 57.7% |
| <i>By Quintiles</i> | | | | |
| Poorest | 59.0% | 59.4% | 59.4% | 59.3% |
| Quintile 2 | 61.1% | 60.6% | 59.8% | 60.5% |
| Quintile 3 | 61.4% | 62.1% | 62.4% | 62.5% |
| Quintile 4 | 64.0% | 62.9% | 64.7% | 67.3% |
| Richest | 69.3% | 71.4% | 72.5% | 71.8% |

| Underemployment Rate, using definition 3 | | | | |
|---|-------|-------|-------|-------|
| | 1999 | 2000 | 2001 | 2002 |
| <i>Overall</i> | 8.4% | 8.0% | 8.1% | 9.2% |
| <i>By gender</i> | | | | |
| males | 9.2% | 9.1% | 9.3% | 11.2% |
| female | 7.6% | 6.9% | 7.0% | 7.2% |
| <i>By location</i> | | | | |
| Kiev city | 4.4% | 5.0% | 3.0% | 4.0% |
| other big cities | 7.2% | 6.4% | 6.1% | 5.7% |
| small cities | 9.0% | 8.1% | 8.1% | 9.8% |
| rural | 10.0% | 10.3% | 11.7% | 14.0% |

| Underemployment Rate, using definition 3 | | | | |
|---|-------|-------|-------|-------|
| | 1999 | 2000 | 2001 | 2002 |
| <i>By Quintiles</i> | | | | |
| Poorest | 13.4% | 13.5% | 15.3% | 17.4% |
| Quintile 2 | 9.2% | 8.7% | 11.0% | 11.2% |
| Quintile 3 | 8.1% | 7.4% | 7.3% | 9.0% |
| Quintile 4 | 6.9% | 6.6% | 5.3% | 6.6% |
| Richest | 4.9% | 4.8% | 3.5% | 3.8% |

Annex 5 Determinants of labor force participation, unemployment and underemployment

The determinants of labor force participation, unemployment and underemployment are obtained from probit regressions on a set of individual and household characteristics. For all regressions on the marginal probability of participation in the labor force, the individual characteristics used are - age, age-squared, gender, marital status, highest level of education completed – while the household characteristics are – (log of) household size, share of children 0-13 in the household, share of pensionable age persons in the household, household welfare status, and location, i.e., oblast and urban/small city/rural location to which the household belongs. The definition of active labor force is based on all individuals between, and including, the ages of 15-70, and therefore the regression is performed for these individuals only. The same regressors are used in the probits that restrict the samples to females only and to individuals belonging to rural households only. In the regression restricted to rural households only, a new variable – (log of) total plot area held by household – is also included.³⁸

The determinants of unemployment and underemployment are estimated by following the same methodology as described for estimating the marginal probability of labor force participation, with two basic differences (i) a new variable that captures regional (cluster) effects of market variations is also included, and (ii) the analysis is restricted to individuals between the ages of 18-70. The ‘cluster effect’ variable is generated for each oblast’s urban/small city/rural location; that is, 81 dummies are created, one for each of the 27 oblasts interacting with the 3 locations.³⁹ The reason that the sample excludes individuals between the ages of 15 and 18 is that it is difficult to accurately identify the socio-economic status of these individuals, as they may or may not be interested in pursuing higher education, and their inclusion would thus increase the error in our estimates.

| Marginal probability of participating in the active labor force – all individuals aged 15-70 | | | | |
|---|----------------------|----------------------|----------------------|----------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Small City | 0.006 (0.010) | 0.003 (0.010) | -0.024** (0.010) | -0.015 (0.011) |
| Rural Area | -0.002 (0.011) | -0.017 (0.011) | -0.027** (0.011) | -0.035*** (0.011) |
| Age | 0.089*** (0.002) | 0.090*** (0.002) | 0.090*** (0.002) | 0.093*** (0.002) |
| Age-square | -0.001*** | -0.001*** | -0.001*** | -0.001*** |
| Male | 0.000 | 0.000 | 0.000 | 0.000 |
| Unmarried | 0.160*** (0.008) | 0.162*** (0.008) | 0.178*** (0.008) | 0.183*** (0.008) |
| Divorced | -0.056*** (0.015) | -0.046*** (0.016) | -0.063*** (0.017) | -0.034* (0.017) |
| | 0.074*** (0.014) | 0.069*** (0.014) | 0.035** (0.016) | 0.076*** (0.014) |

³⁸ On an average over the period 1999-2002, 98.2% of rural households reported owning land.

³⁹ The coefficients of cluster dummies have not been presented in this chapter in order to economize on space.

| Marginal probability of participating in the active labor force – all individuals aged 15-70 | | | | |
|--|----------------------|----------------------|----------------------|----------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Widower | 0.014 (0.016) | 0.001 (0.017) | 0.026 (0.016) | 0.045*** (0.016) |
| Log (household size) | 0.009 (0.011) | 0.006 (0.012) | -0.035*** (0.012) | -0.018 (0.012) |
| Share of children 0-13 yrs in household | -0.022 (0.029) | -0.044 (0.030) | -0.037 (0.030) | -0.02 (0.032) |
| Share of pensionable age people in household | -0.087*** (0.017) | -0.119*** (0.018) | -0.092*** (0.018) | -0.071*** (0.018) |
| Second Quintile | 0.003 (0.012) | -0.018 (0.013) | -0.012 (0.013) | -0.021 (0.013) |
| Third Quintile | -0.01 (0.013) | -0.022* (0.013) | -0.024* (0.013) | -0.003 (0.013) |
| Fourth Quintile | 0.003 (0.012) | -0.014 (0.013) | -0.009 (0.013) | 0.035*** (0.013) |
| Richest Quintiles | 0.027** (0.012) | 0.029** (0.013) | 0.027** (0.013) | 0.026* (0.013) |
| Completed higher education | 0.099*** (0.011) | 0.101*** (0.011) | 0.104*** (0.011) | 0.090*** (0.012) |
| Basic higher education | 0.008 (0.010) | 0.032*** (0.010) | 0.036*** (0.010) | 0.024** (0.011) |
| Basic Secondary education | -0.135*** (0.013) | -0.142*** (0.014) | -0.142*** (0.013) | -0.131*** (0.013) |
| Elementary general education | -0.224*** (0.019) | -0.267*** (0.023) | -0.259*** (0.024) | -0.294*** (0.026) |
| No education | -0.159*** (0.046) | -0.345*** (0.059) | -0.608*** (0.051) | -0.416*** (0.078) |
| Observations | 18608 | 17986 | 17723 | 17394 |
| Excluded dummy variables – large city, female, married, poorest quintile, complete secondary education | | | | |
| Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1% | | | | |

| Marginal probability of participating in the active labor force – female individuals aged 15-70 | | | | |
|--|---------------------|----------------------|----------------------|----------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Small City | 0.013 (0.015) | 0.012 (0.015) | -0.015 (0.015) | -0.014 (0.016) |
| Rural Area | -0.031* (0.016) | -0.051*** (0.017) | -0.071*** (0.017) | -0.076*** (0.017) |
| Age | 0.102*** (0.003) | 0.105*** (0.003) | 0.101*** (0.003) | 0.105*** (0.003) |
| Age-square | -0.001*** | -0.001*** | -0.001*** | -0.001*** |
| Unmarried | 0.000 (0.021) | 0.000 (0.023) | 0.000 (0.023) | 0.000 (0.024) |
| Divorced | 0.140*** (0.018) | 0.114*** (0.019) | 0.094*** (0.020) | 0.151*** (0.018) |

| Marginal probability of participating in the active labor force – female individuals aged 15-70 | | | | |
|--|----------------------|----------------------|----------------------|----------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Widower | 0.050** (0.020) | 0.025 (0.022) | 0.081*** (0.021) | 0.086*** (0.021) |
| Log (household size) | 0.01 (0.016) | -0.005 (0.017) | -0.048*** (0.017) | -0.037** (0.017) |
| Share of children 0-13 yrs in household | -0.167*** (0.041) | -0.133*** (0.042) | -0.168*** (0.042) | -0.110** (0.044) |
| Share of pensionable age people in household | -0.147*** (0.026) | -0.167*** (0.027) | -0.132*** (0.028) | -0.132*** (0.027) |
| Second Quintile | 0.012 (0.018) | -0.02 (0.019) | -0.016 (0.019) | -0.012 (0.019) |
| Third Quintile | -0.011 (0.019) | -0.016 (0.019) | -0.021 (0.019) | -0.002 (0.019) |
| Fourth Quintile | 0.004 (0.019) | -0.005 (0.019) | -0.006 (0.019) | 0.042** (0.019) |
| Richest Quintiles | 0.03 (0.019) | 0.033* (0.019) | 0.022 (0.020) | 0.046** (0.020) |
| Completed higher education | 0.152*** (0.016) | 0.138*** (0.017) | 0.129*** (0.017) | 0.144*** (0.017) |
| Basic higher education | 0.039*** (0.014) | 0.051*** (0.014) | 0.059*** (0.014) | 0.062*** (0.015) |
| Basic Secondary education | -0.119*** (0.019) | -0.113*** (0.020) | -0.142*** (0.019) | -0.108*** (0.019) |
| Elementary general education | -0.205*** (0.027) | -0.212*** (0.032) | -0.277*** (0.035) | -0.230*** (0.035) |
| No education | -0.088 (0.059) | -0.318*** (0.078) | -0.628*** (0.039) | -0.233** (0.102) |
| Observations | 10233 | 9879 | 9763 | 9684 |
| Excluded dummy variables – large city, married, poorest quintile, complete secondary education | | | | |
| Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1% | | | | |

| Marginal probability of participating in the active labor force –individuals aged 15-70, in rural areas only | | | | |
|---|----------------------|---------------------|----------------------|---------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Age | 0.104*** (0.004) | 0.105*** (0.004) | 0.099*** (0.004) | 0.114*** (0.005) |
| Age-squared | -0.001*** | -0.001*** | -0.001*** | -0.001*** |
| Male | 0.000 | 0.000 | 0.000 | 0.000 |
| Unmarried | 0.253*** (0.015) | 0.259*** (0.016) | 0.295*** (0.015) | 0.298*** (0.016) |
| Divorced | -0.101*** (0.030) | -0.035 (0.033) | -0.126*** (0.033) | -0.013 (0.033) |
| Widower | 0.005 (0.039) | 0.04 (0.036) | 0.051 (0.035) | 0.086** (0.035) |
| | 0.044 | -0.071* | 0.038 | 0.04 |

| Marginal probability of participating in the active labor force –individuals aged 15-70, in rural areas only | | | | |
|---|----------------------|----------------------|----------------------|----------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Log (household size) | 0.025 (0.030) | -0.004 (0.037) | -0.012 (0.032) | -0.045* (0.034) |
| Share of children 0-13 yrs in household | -0.189*** (0.022) | -0.116* (0.023) | -0.104* (0.022) | -0.009 (0.024) |
| Share of pensionable age people in household | -0.129*** (0.033) | -0.250*** (0.035) | -0.096*** (0.034) | -0.135*** (0.035) |
| Second Quintile | -0.032 (0.026) | -0.035 (0.026) | -0.006 (0.024) | -0.027 (0.024) |
| Third Quintile | -0.060** (0.026) | -0.038 (0.026) | -0.053** (0.025) | -0.011 (0.026) |
| Fourth Quintile | -0.050* (0.026) | -0.084*** (0.027) | -0.02 (0.025) | 0.04 (0.025) |
| Richest Quintiles | -0.067** (0.028) | -0.034 (0.028) | -0.008 (0.027) | -0.003 (0.028) |
| Completed higher education | 0.099*** (0.032) | 0.132*** (0.029) | 0.142*** (0.026) | 0.076** (0.032) |
| Basic higher education | 0.007 (0.021) | 0.059*** (0.021) | 0.057*** (0.021) | 0.046** (0.022) |
| Basic Secondary education | -0.125*** (0.022) | -0.129*** (0.023) | -0.130*** (0.021) | -0.094*** (0.022) |
| Elementary general education | -0.188*** (0.029) | -0.277*** (0.035) | -0.271*** (0.036) | -0.228*** (0.039) |
| No education | -0.215*** (0.062) | -0.299*** (0.080) | -0.376*** (0.085) | -0.424*** (0.095) |
| Log (Total plot area held by household in 100 sq. mts.) | -0.008 (0.011) | -0.001 (0.009) | 0.004 (0.006) | -0.009* (0.006) |
| Observations | 6359 | 6185 | 6239 | 6061 |
| Excluded dummy variables – female, married, poorest quintile, complete secondary education | | | | |
| Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1% | | | | |

| Marginal probability of unemployment - all persons aged 18-70 | | | | |
|--|----------------------|----------------------|----------------------|----------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Small City | -0.077** (0.033) | -0.048 (0.039) | 0.125* (0.067) | 0.269 (0.215) |
| Rural Area | -0.059** (0.026) | -0.033 (0.051) | 0.088 (0.084) | 0.291 (0.198) |
| Age | 0 (0.001) | -0.005*** (0.001) | -0.002 (0.001) | -0.001 (0.001) |
| Age-square | -0.000* (0.000) | 0.000*** (0.000) | 0 (0.000) | 0 (0.000) |
| Male | -0.031*** (0.005) | -0.030*** (0.004) | -0.031*** (0.004) | -0.020*** (0.004) |

| Marginal probability of unemployment - all persons aged 18-70 | | | | |
|--|----------------------|----------------------|----------------------|----------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Unmarried | 0.035*** (0.010) | 0.032*** (0.010) | 0.021** (0.009) | 0.020** (0.008) |
| Divorced | 0.022** (0.009) | 0.014 (0.009) | -0.009 (0.007) | 0.001 (0.006) |
| Widower | 0.009 (0.014) | -0.011 (0.012) | -0.002 (0.012) | -0.016** (0.008) |
| Log (household size) | 0.011 (0.006) | 0.011* (0.006) | 0.011* (0.006) | -0.001 (0.005) |
| Share of children 0-13 yrs in household | -0.056*** (0.015) | -0.062*** (0.015) | -0.025* (0.014) | -0.041*** (0.013) |
| Share of pensionable age people in household | 0.013 (0.012) | -0.002 (0.011) | 0.023** (0.011) | 0.008 (0.009) |
| Second Quintile | -0.021*** (0.005) | -0.013** (0.006) | -0.017*** (0.005) | -0.017*** (0.004) |
| Third Quintile | -0.034*** (0.005) | -0.034*** (0.005) | -0.030*** (0.005) | -0.024*** (0.004) |
| Fourth Quintile | -0.041*** (0.005) | -0.028*** (0.005) | -0.034*** (0.005) | -0.028*** (0.004) |
| Richest Quintiles | -0.055*** (0.005) | -0.045*** (0.005) | -0.048*** (0.005) | -0.036*** (0.004) |
| Completed higher education | -0.031*** (0.006) | -0.038*** (0.005) | -0.036*** (0.005) | -0.027*** (0.004) |
| Basic higher education | -0.004 (0.005) | -0.016*** (0.005) | -0.019*** (0.004) | -0.014*** (0.004) |
| Basic Secondary education | 0.020** (0.009) | 0.001 (0.008) | 0.01 (0.007) | 0.008 (0.006) |
| Elementary general education | 0.013 (0.018) | 0 (0.020) | -0.005 (0.019) | -0.008 (0.015) |
| No education | -0.031 (0.038) | | 0.065 (0.102) | |
| Observations | 12714 | 12188 | 12008 | 11581 |
| Excluded dummy variables – large city, female, married, poorest quintile, complete secondary education | | | | |
| Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1% | | | | |
| Missing values denote that the variable had too few observations for analysis | | | | |

| Marginal probability of unemployment – females aged 18-70 only | | | | |
|---|-------------------|----------------------|----------------------|---------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Small City | 0.004 (0.080) | 0.194 (0.171) | -0.078 (0.055) | 0.225 (0.221) |
| Rural Area | -0.009 (0.061) | 0.235 (0.168) | -0.087*** (0.027) | 0.049 (0.150) |
| Age | -0.003 (0.002) | -0.010*** (0.002) | -0.006*** (0.002) | -0.004** (0.002) |
| Age-square | 0 (0.000) | 0.000*** (0.000) | 0.000* (0.000) | 0 (0.000) |

| Marginal probability of unemployment – females aged 18-70 only | | | | |
|---|----------------------|----------------------|----------------------|----------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Unmarried | 0.017 (0.013) | -0.006 (0.012) | -0.005 (0.011) | -0.008 (0.009) |
| Divorced | -0.009 (0.011) | -0.011 (0.010) | -0.032*** (0.008) | -0.014* (0.007) |
| Widower | 0.016 (0.019) | -0.008 (0.016) | 0.002 (0.015) | -0.029*** (0.008) |
| Log (household size) | 0.024** (0.010) | 0.017* (0.010) | 0.022** (0.009) | -0.007 (0.008) |
| Share of children 0-13 yrs in household | -0.060*** (0.021) | -0.058*** (0.022) | 0.004 (0.020) | -0.029 (0.018) |
| Share of pensionable age people in household | -0.042** (0.020) | -0.041** (0.020) | 0.013 (0.018) | 0.004 (0.014) |
| Second Quintile | -0.030*** (0.008) | -0.022*** (0.009) | -0.008 (0.009) | -0.023*** (0.006) |
| Third Quintile | -0.037*** (0.008) | -0.038*** (0.008) | -0.027*** (0.008) | -0.029*** (0.006) |
| Fourth Quintile | -0.039*** (0.008) | -0.030*** (0.009) | -0.029*** (0.008) | -0.032*** (0.006) |
| Richest Quintiles | -0.059*** (0.008) | -0.049*** (0.008) | -0.047*** (0.008) | -0.040*** (0.006) |
| Completed higher education | -0.038*** (0.009) | -0.045*** (0.008) | -0.047*** (0.007) | -0.028*** (0.006) |
| Basic higher education | -0.003 (0.008) | -0.016** (0.007) | -0.029*** (0.006) | -0.018*** (0.006) |
| Basic Secondary education | 0.01 (0.014) | 0.008 (0.014) | -0.007 (0.010) | -0.011 (0.008) |
| Elementary general education | 0.008 (0.029) | -0.028 (0.026) | -0.036* (0.022) | -0.041*** (0.009) |
| Observations | 6441 | 6167 | 6120 | 5778 |
| Excluded dummy variables – large city, married, poorest quintile, complete secondary education | | | | |
| Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1% | | | | |

| Marginal probability of unemployment – persons aged 18-70, in rural areas only | | | | |
|---|----------------------|----------------------|----------------------|----------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Age | -0.005* (0.003) | -0.010*** (0.003) | -0.002 (0.003) | -0.004 (0.003) |
| Age-squared | 0 0.000 | 0.000*** 0.000 | 0 0.000 | 0 0.000 |
| Male | -0.042*** (0.009) | -0.048*** (0.009) | -0.035*** (0.010) | -0.027*** (0.009) |
| Unmarried | 0.037** (0.019) | 0.033* (0.019) | 0.038* (0.020) | 0.012 (0.017) |
| Divorced | 0.092*** | -0.006 | 0.013 | -0.006 |

| Marginal probability of unemployment – persons aged 18-70, in rural areas only | | | | |
|---|------------------------------|------------------------------|-----------------------------|------------------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Widower | (0.029) -0.001 (0.026) | (0.019) -0.023 (0.022) | (0.021) 0.004 (0.027) | (0.017) -0.004 (0.023) |
| Log (household size) | 0.008 (0.013) | 0.005 (0.013) | 0.005 (0.013) | -0.022* (0.013) |
| Share of children 0-13 yrs in household | -0.045 (0.030) | -0.064** (0.030) | -0.034 (0.030) | -0.03 (0.031) |
| Share of pensionable age people in household | 0.004 (0.024) | -0.002 (0.023) | 0.005 (0.025) | 0.037* (0.020) |
| Second Quintile | -0.024** (0.012) | -0.019 (0.012) | -0.042*** (0.010) | -0.028*** (0.010) |
| Third Quintile | -0.045*** (0.011) | -0.040*** (0.010) | -0.055*** (0.010) | -0.040*** (0.010) |
| Fourth Quintile | -0.052*** (0.011) | -0.044*** (0.011) | -0.048*** (0.011) | -0.039*** (0.010) |
| Richest Quintiles | -0.042*** (0.012) | -0.038*** (0.012) | -0.047*** (0.012) | -0.030*** (0.011) |
| Completed higher education | -0.034** (0.015) | -0.047*** (0.012) | -0.051*** (0.013) | -0.065*** (0.009) |
| Basic higher education | -0.003 (0.011) | -0.007 (0.010) | -0.014 (0.011) | -0.011 (0.010) |
| Basic Secondary education | 0.028* (0.015) | 0.017 (0.015) | 0.026* (0.014) | 0.016 (0.013) |
| Elementary general education | 0.023 (0.027) | -0.025 (0.028) | 0.026 (0.043) | 0.015 (0.036) |
| No education | -0.032 (0.054) | | | |
| Log (Total plot area held by household in 100 sq. mts.) | -0.006 (0.006) | 0.004 (0.005) | 0 (0.004) | -0.001 (0.003) |
| Observations | 4019 | 3896 | 3937 | 3647 |
| Excluded dummy variables – female, married, poorest quintile, complete secondary education | | | | |
| Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1% | | | | |
| Missing values denote that the variable had too few observations for analysis | | | | |

| Marginal probability of underemployment – all persons aged 18-70 | | | | |
|---|--------------------|---------------------|---------------------|---------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Small City | 0.118* (0.067) | 0.144 (0.196) | 0.002 (0.044) | 0.028 (0.142) |
| Rural Area | 0.133 (0.147) | 0.188 (0.217) | -0.033 (0.043) | 0.103 (0.182) |
| Age | 0 (0.001) | -0.001 (0.001) | 0.001 (0.001) | 0.008*** (0.002) |
| Age-square | -0.000* 0.000 | 0 0.000 | -0.000** 0.000 | -0.000*** 0.000 |
| Male | 0.011** (0.004) | 0.018*** (0.004) | 0.017*** (0.004) | 0.026*** (0.005) |

| Marginal probability of underemployment – all persons aged 18-70 | | | | |
|--|----------------------|----------------------|----------------------|----------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Unmarried | 0.032*** (0.009) | 0.042*** (0.010) | 0.034*** (0.010) | 0.077*** (0.013) |
| Divorced | 0.031*** (0.010) | 0.036*** (0.010) | 0.042*** (0.011) | 0.034*** (0.010) |
| Widower | 0.001 (0.014) | 0.004 (0.015) | -0.015 (0.012) | 0.017 (0.016) |
| Log (household size) | -0.021*** (0.006) | -0.028*** (0.006) | -0.015** (0.006) | -0.013** (0.006) |
| Share of children 0-13 yrs in household | -0.021 (0.014) | -0.003 (0.014) | -0.023* (0.014) | -0.049*** (0.015) |
| Share of pensionable age people in household | -0.039*** (0.012) | -0.029** (0.012) | -0.020* (0.012) | -0.022* (0.012) |
| Second Quintile | -0.023*** (0.005) | -0.027*** (0.005) | -0.017*** (0.005) | -0.028*** (0.005) |
| Third Quintile | -0.029*** (0.005) | -0.036*** (0.005) | -0.038*** (0.005) | -0.036*** (0.005) |
| Fourth Quintile | -0.036*** (0.005) | -0.040*** (0.005) | -0.051*** (0.004) | -0.050*** (0.005) |
| Richest Quintiles | -0.048*** (0.005) | -0.053*** (0.005) | -0.061*** (0.005) | -0.069*** (0.005) |
| Completed higher education | -0.043*** (0.005) | -0.032*** (0.005) | -0.023*** (0.006) | -0.038*** (0.006) |
| Basic higher education | -0.011** (0.005) | -0.011** (0.005) | -0.014*** (0.005) | -0.016*** (0.005) |
| Basic Secondary education | 0.016* (0.009) | -0.001 (0.008) | 0.005 (0.007) | 0.015* (0.008) |
| Elementary general education | 0.023 (0.019) | -0.014 (0.019) | -0.004 (0.020) | 0.023 (0.027) |
| No education | -0.015 (0.053) | | 0.013 (0.075) | |
| Observations | 12724 | 12218 | 12056 | 11691 |
| Excluded dummy variables – large city, female, married, poorest quintile, complete secondary education | | | | |
| Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1% | | | | |
| Missing values denote that the variable had too few observations for analysis | | | | |

| Marginal probability of underemployment – females aged 18-70 only | | | | |
|--|-------------------|------------------|---------------------|----------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Small City | 0.106 (0.208) | 0.075 (0.088) | -0.039 (0.039) | -0.03 (0.042) |
| Rural Area | 0.133 (0.231) | 0.068 (0.109) | -0.069* (0.041) | -0.027 (0.032) |
| Age | -0.001 (0.002) | 0 (0.002) | 0.003 (0.002) | 0.007*** (0.002) |
| Age-square | 0 (0.000) | 0 (0.000) | -0.000** (0.000) | -0.000*** (0.000) |

| Marginal probability of underemployment – females aged 18-70 only | | | | |
|---|----------------------|----------------------|----------------------|----------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Unmarried | 0.026** (0.012) | 0.037*** (0.014) | 0.021* (0.012) | 0.066*** (0.017) |
| Divorced | 0.015 (0.010) | 0.025** (0.010) | 0.017* (0.010) | 0 (0.009) |
| Widower | -0.009 (0.014) | 0.008 (0.015) | -0.018 (0.011) | 0.005 (0.014) |
| Log (household size) | -0.014 (0.008) | -0.031*** (0.008) | -0.011 (0.008) | -0.017** (0.008) |
| Share of children 0-13 yrs in household | -0.029 (0.018) | 0.007 (0.017) | -0.01 (0.017) | -0.03 (0.018) |
| Share of pensionable age people in household | -0.025 (0.017) | -0.022 (0.016) | -0.037** (0.017) | -0.036** (0.016) |
| Second Quintile | -0.019** (0.008) | -0.019*** (0.007) | -0.009 (0.007) | -0.028*** (0.006) |
| Third Quintile | -0.019** (0.008) | -0.024*** (0.007) | -0.028*** (0.006) | -0.029*** (0.006) |
| Fourth Quintile | -0.027*** (0.007) | -0.033*** (0.006) | -0.037*** (0.006) | -0.047*** (0.006) |
| Richest Quintiles | -0.041*** (0.007) | -0.044*** (0.006) | -0.050*** (0.006) | -0.059*** (0.006) |
| Completed higher education | -0.042*** (0.007) | -0.031*** (0.007) | -0.016** (0.007) | -0.034*** (0.007) |
| Basic higher education | -0.007 (0.006) | -0.009 (0.006) | -0.012** (0.006) | -0.01 (0.006) |
| Basic Secondary education | 0.015 (0.012) | 0.005 (0.012) | 0.003 (0.010) | 0.006 (0.011) |
| Elementary general education | -0.015 (0.021) | -0.016 (0.025) | -0.006 (0.033) | 0.019 (0.036) |
| No education | 6433 | 6090 | 6064 | 5908 |
| Excluded dummy variables – large city, married, poorest quintile, complete secondary education | | | | |
| Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1% | | | | |

| Marginal probability of underemployment – persons aged 18-70, in rural areas only | | | | |
|--|---------------------|---------------------|---------------------|---------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Age | -0.003 (0.003) | -0.003 (0.003) | -0.002 (0.003) | 0.011*** (0.003) |
| Age-squared | 0 0.000 | 0 0.000 | 0 0.000 | -0.000*** 0.000 |
| Male | 0.033*** (0.008) | 0.043*** (0.009) | 0.042*** (0.010) | 0.058*** (0.011) |
| Unmarried | 0.031* (0.017) | 0.058*** (0.021) | 0.038* (0.021) | 0.149*** (0.029) |
| Divorced | 0.061** (0.027) | 0.043* (0.026) | 0.090*** (0.029) | 0.093*** (0.031) |

| Marginal probability of underemployment – persons aged 18-70, in rural areas only | | | | |
|---|----------------------|----------------------|----------------------|----------------------|
| | 1999 | 2000 | 2001 | 2002 |
| Widower | -0.035* (0.021) | -0.026 (0.025) | 0.038 (0.035) | 0.008 (0.037) |
| Log (household size) | -0.025** (0.012) | -0.024* (0.013) | -0.007 (0.013) | -0.023 (0.016) |
| Share of children 0-13 yrs in household | -0.04 (0.028) | 0.015 (0.029) | -0.031 (0.031) | 0.025 (0.037) |
| Share of pensionable age people in household | -0.100*** (0.025) | -0.059** (0.025) | -0.053* (0.027) | -0.032 (0.027) |
| Second Quintile | -0.014 (0.012) | -0.034*** (0.011) | -0.027** (0.012) | -0.029** (0.013) |
| Third Quintile | -0.014 (0.012) | -0.035*** (0.011) | -0.041*** (0.011) | -0.037*** (0.014) |
| Fourth Quintile | -0.022* (0.012) | -0.036*** (0.011) | -0.055*** (0.011) | -0.057*** (0.013) |
| Richest Quintiles | -0.045*** (0.011) | -0.049*** (0.011) | -0.064*** (0.011) | -0.073*** (0.013) |
| Completed higher education | -0.035** (0.014) | -0.043*** (0.013) | -0.059*** (0.013) | -0.048*** (0.017) |
| Basic higher education | 0.008 (0.011) | 0.002 (0.011) | -0.019* (0.011) | -0.034*** (0.013) |
| Basic Secondary education | 0.036** (0.014) | -0.009 (0.014) | 0.013 (0.014) | 0.022 (0.016) |
| Elementary general education | 0.03 (0.028) | -0.004 (0.036) | -0.007 (0.037) | 0.047 (0.052) |
| No education | 0.034 (0.100) | | | |
| Log (Total plot area held by household in 100 sq. mts.) | -0.002 (0.006) | -0.010* (0.005) | -0.011*** (0.004) | -0.011*** (0.004) |
| Observations | 4029 | 3917 | 3937 | 3752 |
| Excluded dummy variables – female, married, poorest quintile, complete secondary education | | | | |
| Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1% | | | | |
| Missing values denote that the variable had too few observations for analysis | | | | |