

20498 vol. 2
May 31, 2001

PHILIPPINES POVERTY ASSESSMENT

Volume II: METHODOLOGY



The World Bank

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Poverty Reduction and Economic Management Unit
East Asia and Pacific Region



The World Bank

Currency Equivalents

(As of May 31, 2001)

Currency Unit = Peso
\$1.00 = 50.58 Pesos

1.00 peso = \$0.019

Fiscal Year

January 1 - December 31

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Abbreviations and Acronyms

ADB	Asian Development Bank
APIS	Annual Poverty Indicators Survey
ASEM	Asia-Europe Summit
ARMM	Autonomous Region of Muslim Mindanao
CARL	Comprehensive Agrarian Reform Law
CARP	Comprehensive Agrarian Reform Program
CBPIMS	Community-Based Poverty Indicators Monitoring System
CDA	Cooperative Development Authority
CDF	Cumulative Distribution Function
CHED	Commission on Higher Education
CIDSS	Comprehensive and Integrated Development of Social Services
CMP	Community Mortgage Program
CPI	Consumer Price Index
DAR	Department of Agrarian Reform
DECS	Department of Education, Culture and Sports
DENR	Department of Environment and Natural Resources
DHS	Demographic and Health Survey
DILG	Department of Interior and Local Government
DOH	Department of Health
EGS	Employment Guarantee Scheme
ERAP	Enhanced Retail Access for the Poor
FGT	Foster-Greer-Thorbecke
FIES	Family Income and Expenditure Survey
GASTPE	Government Assistance to Students for Private Education
GDP	Gross Domestic Product
GNP	Gross National Product
HDI	Human Development Index
IMF	International Monetary Fund
IRA	Internal Revenue Allotment
LG	Livelihood Groups
LGC	Local Government Code
LFS	Labor Force Survey
LGU	Local Government Unit
MBN	Minimum Basic Needs
MBN-CBIS	Minimum Basic Needs-Community-Based Indicator System
MOOE	Maintenance and Other Operating Expenditures
MTPDP	Medium-Term Philippine Development Plan

NA	National Accounts
NAPC	National Anti-Poverty Commission
NCR	National Capital Region
NEAT	National Elementary Achievement Test
NEDA	National Economic and Development Authority
NFA	National Food Authority
NGO	Non-Government Organization
NPR	National Protection Rate
NSAT	National Secondary Achievement Test
NSCB	National Statistical Coordination Board
NSO	National Statistics Office
OL	Operation Leasehold
OLS	Ordinary Least Square
OLT	Operation Land Transfer
PD	Presidential Decree
PO	People's Organizations
QR	Quantitative Restrictions
SIR	Slum Improvement and Resettlement
SRA	Social Reform Agenda
SUC	State Universities and Colleges
SWS	Social Weather Stations
UNDP	United Nations Development Programme
US	United States
WTO	World Trade Organization

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PROFILE OF THE POOR

1.1 A quarter of the Filipino population, or about 18.2 million Filipinos, were deemed to be poor in 1997 (Table 1.1). The rural poverty incidence about 37 percent while the urban incidence is about 12 percent. The national poverty gap index is estimated at 6.4 percent which, with a headcount index of 25 percent, implies that on average the consumption of the poor is about three-quarters of the poverty line.

1.2 These poverty estimates are based on data from the 1997 Family Income and Expenditure Survey (FIES), and are constructed using consumption per person as a measure of welfare (see Box 1.1). The poverty line is based on a given standard of living, which is fixed across space and time. Provincial poverty lines are constructed following the widely used cost of basic needs approach. This involves: (i) setting a food bundle in each province based on the average consumption pattern of a reference group of poor households fixed *nationally* in terms of their per capita consumption; (ii) adjusting this bundle to satisfy the minimum nutritional requirement of 2,000 calories per person per day; (iii) valuing the adjusted bundle at consumer prices prevailing in each province to derive provincial food poverty lines; (iv) constructing the non-food poverty line for each province as the non-food spending of those households whose *total* spending is in the neighborhood of the food threshold; and, (v) finally, deriving the provincial poverty lines as the sum of food and non-food poverty lines. The approach fixes the standard of living used for provincial comparisons but not the composition of the consumption bundle used in each province. Differences in composition may arise as a result of spatial differences in tastes or relative prices faced by households.¹



	Headcount index (Incidence)	Poverty gap index (Depth)	Squared poverty gap index (Severity)
1997	25.1	6.4	2.3
Rural	36.9	10.0	3.6
Urban	11.9	2.6	0.9
1998 (projection)*	27.8	7.6	2.9
1999 (projection)*	26.3	6.9	2.5

*Note: The headcount index measures the share of population with consumption (income) levels below the poverty threshold. This measure gives the prevalence of poverty, but is silent on how poor the poor are. The poverty-gap index is defined as the mean distance below the poverty line as a proportion of that line (where the non-poor are counted as having zero poverty gaps), and gives a measure of the "depth" of poverty. The squared poverty gap index is defined as the mean of the squared proportionate poverty gaps, is sensitive to distribution below the poverty line, and reflects the "severity" of poverty. All poverty measures are expressed as percentages. * Projections based on 1997 FIES data and growth rates for agriculture, industry and services sectors for 1998 and 1999 taken from the national accounts. The projections assume no change in relative inequalities within sectors.*

Source: Staff estimates based on 1997 FIES data and national accounts data from NSCB.

1.3 The estimates of poverty based on this approach are substantially lower than the official estimates. For instance, the official incidence of poverty for 1997 is 36.8 percent (NSCB, 1999a). The difference is mostly due to the higher official poverty lines, rather than the use of per capita income as the measure of welfare in the official estimates. For instance, the application of basic needs poverty lines (underlying Table 1.1) to per capita income yields a headcount of 22.1 percent (Balisacan, 1999a). On the other hand, the official regional poverty lines are 15-68 percent higher than the basic needs poverty lines used in this Report. The higher official poverty lines reflect the use of a relatively more expensive food bundle, which corresponds to the *average* food bundle within a region rather

Box 1.1: Choosing a Welfare Measure

Identification of the poor requires the use of an indicator of a household or individual's standard of living. Several such indicators are used in the literature on poverty. One popular approach uses consumption or income as the relevant indicator; this so called "money metric utility" approach conceives well-being as the ability to fulfill certain preferences which are represented in terms of equivalent income or consumption. Much of the analysis in this report is based on this approach.

Income or Consumption? Both measures are used in the literature and by various countries in tracking poverty. There are some conceptual as well as practical reasons to favor a consumption-based standard over one using income. First, income may overestimate or underestimate living standards. If a person can borrow or use his savings, his level of living is not constrained by current income. Even in underdeveloped regions, households typically have some ability to buffer their welfare against temporary variations in income through saving or borrowing. Second, a strong case can be made for preferring consumption over income as a broad indicator of welfare based on practical data considerations. It is more difficult to acquire accurate information on income than on consumption. For example, one has to undertake multiple household visits or use recall data to obtain reasonably accurate estimate of annual income whereas consumption over, say, the previous few weeks can provide a satisfactory measure of welfare. Moreover, households may understate their incomes to avoid future problems with tax agencies – a common practice especially among self-employed professionals. The difficulty also extends to imputing "incomes" of households, which consume part of their production, such as the case for the large majority of the farming population. Owing partly to cost considerations, the survey instrument used by statistical agencies to acquire information on households is often short on details needed to accurately estimate "net income" from own-production activities, especially farming.

It is useful to supplement income/consumption based measures of welfare with others which are derived from a capabilities-based approach to welfare; the most commonly used ones relate to educational attainment and measures of health. In this framework, education and health are important not only because they influence well-being in the income space but also because they are desirable in their own right. An individual who dies prematurely or suffers from severe ill health is thus deemed poor in the capabilities space. This report also makes use of non-income indicators of well being.

Other approaches to welfare emphasize the ability to participate in activities and enjoy living standards that are customary or widely accepted in society (social exclusion approach) and are akin to the concept of relative deprivation. Further, the poor themselves appear to focus prominently on social deprivation, as exemplified by the lack of dignity, self respect, security and justice, in defining poverty. In a participatory study conducted at 486 sites in 23 countries, poor people were asked to analyze and share their ideas of well-being and ill-being. Well-being was variously described as happiness, harmony, peace, freedom from anxiety, and peace of mind whereas people described ill-being as lack of material things, as bad experience, and as bad feeling about the self. The self-rated poverty indices analyzed in this report come closest to measuring this aspect of deprivation. Moreover, the report's discussion of inequality with respect to assets and their returns is also grounded in part in a concern over relative deprivation. The analysis of these wider dimensions of well being in this report is nonetheless limited, for want of readily available and reliable data.

Source: World Bank (2000f); Balisacan (1999b).

than the food bundle of the poor in the region.² Similarly, the differential between the official and basic needs poverty lines tends to be greater for the richer regions,³ again reflecting the relatively more expensive food bundles typically consumed in the richer regions. Since the allowance for basic non-food expenditure (i.e., the non-food poverty line) is tied to the food threshold itself, the higher food poverty line under the official approach further translates into a higher overall poverty threshold.

1.4 1997 is the most recent year for which the FIES data are available.⁴ However, projections for 1998 and 1999 can be made using these data and the sectoral growth rates available from the national accounts. Assuming that relative inequalities within sectors do not change and that average consumption growth for households in a given sector mirrors the growth of value added within that sector, the projected levels of poverty for 1998 and 1999 are shown in Table 1.1. The poverty estimates indicate that with the contraction due to the crisis (a 2.7 percent decline in per capita GDP in 1998), the incidence of poverty increased in 1998 to 27.8 percent,⁵ while subsequent recovery (a 1.1 percent increase in per capita GDP during 1999) helped bring the poverty incidence down though still somewhat higher than its pre-crisis level. The agricultural sector played an important role in both the contraction and the subsequent recovery. The growth rates of value added in agricultural, industrial and service sectors were -6.8, -1.9, and 3.5 percent, respectively during 1998, and 6.7, 0.5, and 3.9 during 1999.

1.5 Both the poverty estimates reported in Table 1.1 and the official poverty estimates in turn are substantially below the estimates of self-rated poverty based on surveys conducted by the Social Weather Stations (SWS).⁶ The average rates of self-rated poverty incidence for the years 1997 through 1999 were 59.3, 61.0 and 61.7 percent, respectively. Self-rated poverty is based on households responses to the question as to where they would place their family on a card marked "not poor," "on the line," and "poor" (SWS, 1999). This is not a measure of abso-

lute poverty; the poverty threshold varies from household to household based on their own perception of their poverty status. The main reason why self-rated poverty incidence is so much higher than the income or consumption-based poverty is that the self-rated poverty thresholds are generally considerably higher than the thresholds used for estimating income/consumption poverty. Thus, for instance, for the National Capital Region (NCR), the median self-rated poverty threshold for June-September 1997 was PhP10,000 per month, while the basic needs and the official 1997 poverty lines for NCR were PhP4,495 and PhP6,077 per month respectively.

1.6 There are also very large urban-rural differentials in the self-rated poverty thresholds. For June-September 1997, the median urban threshold for NCR (Metro Manila) was twice as high as the median threshold in each of Luzon, Visayas and Mindanao regions. Since there are urban areas within these regions, the typical urban-rural differential would be even higher. This differential seems to be significantly higher than the cost of living differential implied by the official or the basic needs poverty lines. The official NCR poverty line was 24 percent higher than Luzon poverty line, 53 percent higher than the Visayas line and 35 percent higher than the Mindanao line. Similarly, with the basic needs poverty lines, these differentials were 21, 42 and 42 percent, respectively. Thus, the urban-rural differential in self-rated poverty thresholds is two to five times higher than the cost of living differential, and it almost certainly reflects the higher aspirations of city dwellers. Some of these higher aspirations may also be fueled by the relatively higher levels of inequality in urban areas; urban Gini indices of per capita consumption in 1997 were about 30 percent higher than the Ginis in rural areas. If urban people aspire for higher living standards, it is not surprising then to find that the rural-urban differentials in self-rated poverty rates are considerably narrower (55 percent urban against 70 percent rural during March-October 1999) than those implied by the non-self-rated poverty measures.

WHO ARE THE POOR?

1.7 Poverty in the Philippines is still a largely rural phenomenon despite rapid urbanization in recent years. The rural poor account for about 77 percent of the poor (Table 1.2). Other poverty measures show the same order of magnitude. Within rural areas, poverty is largely agriculture-driven. While agriculture-dependent households represent only 40 percent of the total population, the sector accounts for over two-thirds of the poor, simply because poverty incidence is higher in agriculture than in any other sector of the economy. Agriculture accounts for an even higher share of the depth and severity of poverty (Table 1.2).

1.8 There are pronounced regional differences in poverty rates reflecting only in part differential levels of urbanization and reliance on agriculture for income. The poverty headcount ranges from 3.5 percent in Metro Manila where 14.1 percent of the country's population resides, to 87.5 percent in Sulu province in ARMM (with less than 1 percent of the population). Among the regions, Bicol hosts the largest number of poor although poverty incidence is somewhat higher in Eastern Visayas and ARMM.

Household characteristics

1.9 Household welfare varies systematically with certain demographics, including the household head's

educational attainment and experience, sex, civil status, and economic sector of employment, at least in the short term. But the educational attainment of the household head is the single most important contributor to the observed variation in household welfare.

1.10 The traditional characterization of the poor is that the poorest of them are the landless and those dependent mainly on wage incomes (see for example, Hayami, et. al., 1990). Surprisingly, Table 1.3 shows that the depth and severity of poverty among the self-employed are at least as high as "wage" households. In agriculture, the poor self-employed heads of households include primarily lessees, tenants, and small owner-cultivators. They account for over 50 percent of the country's poor population. Any serious effort aimed at addressing the poverty problem in the Philippines must grapple with both the fundamental causes of underdevelopment in agriculture and rural areas and the relatively slow pace of structural transformation from an agriculture-based economy to one which is more reliant on the higher productivity industrial and service sectors.

1.11 It is interesting to note that while 12.7 percent of the population live in households where the head is unemployed or not working, poverty in this segment of the population is substantially below the national average; the headcount index is 25 percent for the country as a whole and only 12.1 percent for

	Share among the poor (%)	Share in total population (%)
<i>Households living in:</i>		
Rural areas	77.4	52.5
Metro Manila	2.0	14.1
Central Luzon	5.4	10.3
Bicol	12.8	7.1
Eastern Visayas	10.3	5.1
ARMM	6.0	3.1
<i>Households whose head is:</i>		
Employed in Agriculture	67.8	40.1
Self-employed	62.6	46.7
Elementary graduate or less	75.6	51.1
Male	92.4	87.8
Age 30-50	65.2	55.7
Age 60+	10.5	15.5

Source: Based on 1997 FIES data; Balisacan (1999a).

	Population Share	Poverty			Contribution to total poverty*		
		Incidence	Depth	Severity	Incidence	Depth	Severity
<i>Wage earners</i>	52.7	17.6 (0.36)	4.2 (0.11)	1.5 (0.05)	37.2	34.6	34.4
Agriculture	7.8	43.8 (1.25)	11.7 (0.47)	4.4 (0.24)	13.7	14.3	14.9
Non-agriculture	44.9	13.1 (0.34)	2.9 (0.10)	1.0 (0.04)	23.5	20.3	19.5
<i>Self-employed</i>	46.7	33.5 (0.46)	8.9 (0.16)	3.3 (0.08)	62.6	64.6	66.8
Agriculture	32.0	42.1 (0.59)	11.4 (0.21)	4.3 (0.11)	53.9	57.0	59.8
Non-agriculture	14.7	14.8 (0.62)	3.3 (0.17)	1.1 (0.08)	8.7	7.6	7.0

Note: Figures in parentheses are robust standard errors (corrected for sample design effect). Source: Balisacan (1999a) based on 1997 FIES.

Table 1.4: Poverty by Sector of Employment, 1997

	Poverty				Contribution to total poverty*		
	Population Share	Incidence	Depth	Severity	Incidence	Depth	Severity
<i>Employed HH head</i>							
Agriculture	40.1	42.3 (0.53)	11.5 (0.19)	4.3 (0.10)	67.8	71.9	74.5
Mining	0.6	30.0 (4.21)	10.0 (2.02)	4.5 (1.15)	0.7	0.9	1.1
Manufacturing	7.0	13.5 (0.90)	2.7 (0.24)	0.9 (0.10)	3.8	2.9	2.6
Utility	0.7	9.5 (2.17)	2.4 (0.62)	0.9 (0.28)	0.3	0.3	0.3
Construction	7.7	23.1 (1.03)	5.0 (0.30)	1.6 (0.13)	7.1	6.1	5.4
Trade	8.8	13.5 (0.76)	2.9 (0.20)	0.9 (0.08)	4.7	4.0	3.5
Transport	8.0	13.7 (0.82)	2.8 (0.23)	0.9 (0.10)	4.4	3.5	3.2
Finance	1.9	3.0 (0.70)	0.5 (0.13)	0.1 (0.04)	0.2	0.1	0.1
Services	12.5	9.9 (0.59)	2.2 (0.16)	0.7 (0.07)	4.9	4.4	4.0
<i>HH head not employed*</i>	12.7	12.1 (0.61)	2.9 (0.18)	1.0 (0.08)	6.1	5.9	5.3
<i>Total Population</i>	100.0	25.0 (0.29)	6.4 (0.01)	2.3 (0.05)	100.0	100.0	100.0

Note: *Includes unemployed as well as those not working. Figures in parentheses are robust standard errors (corrected for sample design effect).

Source: Balisacan (1999a) based on 1997 FIES.

those not employed (Table 1.4). While available data do not allow us to distinguish the unemployed from those not in the labor force, it is possible to split the non-working heads category into younger and older (those above and below the age of 60) cohorts. The non-working older cohorts are more likely to be outside the labor force while the younger non-working cohorts are more likely to be unemployed. However, the poverty incidence for both groups turns out to be very similar: 11.9 percent for the younger non-working cohort and 12.3 percent for the older non-working cohort. This is consistent with two observations. First, it is in line with the oft-quoted statement for low income countries that “the poor cannot afford to be unemployed.” It is also consistent with the finding that the rate of unemployment in the Philippines increases with the level of schooling, and peaks among those who reach but fail to finish college. In January 1997, the unemployment rate among those with elementary education was 5.6 percent while it was as high as 12.8 percent among those with some college education. Second, it re-

flects the importance of private transfers for households with unemployed or elderly heads. Regression analysis of determinants of transfers using 1997 data finds that having an unemployed or elderly head of household has a large and significant positive impact on transfers received by the household, almost all of which are from private sources. With regard to unemployment, while the relatively high rates may signal certain inefficiencies in the labor market, they do not appear to present an important poverty concern, in part because informal/private transfers may be playing an important safety net function.⁷

1.12 Private transfers may be dampening poverty for two additional categories of households that are commonly targeted through public programs, especially in developed countries: households headed by females and the elderly. Poverty is higher for male-headed than for female-headed households in the Philippines, irrespective of the poverty measure and age of the household head. Similarly, the elderly (households where the head is aged 60+) have a lower than average incidence of poverty (Table 1.2 and 1.5). This positive association between household living standards and female/elderly headship holds even after controlling for other characteristics (Table 1.6). Both results may be reflecting the importance of private safety nets in reducing poverty in these segments of the population. Regression analysis of the determinants of transfers suggests that female-headship has a large and significant positive impact on transfers received by the household. Similarly, (private) transfers increase significantly for households headed by individuals aged 60+ after controlling for pensions. This however should not be construed to imply that poverty is not an issue for women and the elderly in general, because both these groups often belong to poor households and also because intra-household allocations could be biased against them even within non-poor households.

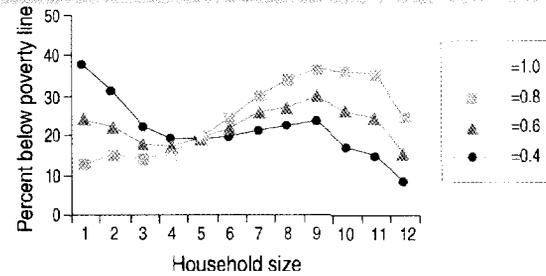
1.13 The educational attainment of the household head is negatively correlated with poverty status, as expected. The poorest households are those whose heads did not receive any formal schooling,

although these contribute less than 10 percent to national poverty. It is the households whose heads had no more than elementary education that contribute the bulk — about 75 percent — of total poverty, when poverty is decomposed by the educational attainment of the head.

1.14 Poverty appears positively correlated with household size, such that it is highest among households with seven or more members, while families with five or more members, account for over three-fourths of total poverty (Table 1.5). But this result is driven by the use of *per capita* consumption as the welfare measure, which is increasingly questioned in the literature because it does not adjust for household size and composition (Lanjouw and Ravallion, 1995; Deaton and Paxson, 1998; Deaton and Zaidi, 1999). The use of per capita income or consumption as the welfare measure makes two assumptions: (i) that all household members have the same needs, regardless of whether they are adults or children (all members are adult equivalent); and, (ii) that for any given composition, a household's needs increase proportionally with household size (no scale economies in household size).⁸

1.15 Sensitivity analysis using a plausible range of parameters (for adult equivalence and scale economies) shows that the link between household size and poverty is tenuous. It turns out that while the positive relationship between poverty and household size is quite robust to alternative values for the equivalent scale parameter, it is quite fragile with respect to the assumed magnitude of economies to household size. Figure 1.1 shows how the relationship changes for values of scale economies parameter ranging from one (i.e., the per capita case), to 0.8, 0.6, and 0.4, while the adult-equivalence parameter is fixed at 0.8 (i.e., children's needs⁹ are fixed at 80% of adult needs). The results show that as economies of scale are allowed to increase, the positive poverty-household size relationship first flattens out, tending to vanish for the scale economies parameter of 0.6. Then, for still greater economies of scale (lower values of the scale economies parameter θ , in Figure 1.1), the relationship turns into a negative one. The

Figure 1.1: Poverty and Household Size in the Philippines, 1997

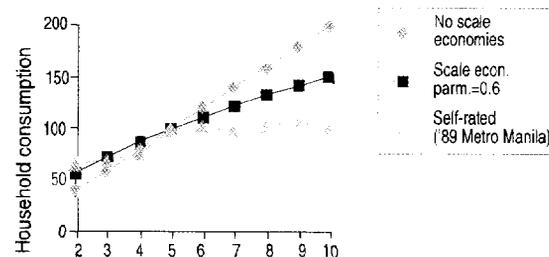


Note: θ is the parameter for scale economies in household size: a value of 1 implies no economies and a value of 0 implies perfect economies. The graphs also assume that children needs are 80% of adult needs. The last household size category is 12 and above. Source: Staff computation based on 1997 FIES data.

results for measures of the depth and severity of poverty are similar. This pattern also holds at other values of equivalent scales; for instance, it also holds if children's needs are set at half of those for adults.

1.16 What does a value of 0.6 for the scale economies parameter imply? Some illustrative calculations may be helpful. For instance, if the minimum requirements for a family of 5 were fixed at, say, 100 units, then $\theta = 0.6$ would imply that the requirements for a family of 10 would be 152 (and not 200 as implied by the per capita rule), and 58 for a family of 2 (not 40 as with the per capita rule). The critical value of 0.6 at which the poverty-household size relationship between tends to disappear is similar to that obtained for Pakistan (Lanjouw and Ravallion, 1995), though it is higher than the critical value of 0.4 obtained for Mozambique (Datt, et. al., 2000). For the Philippines itself, there is some evidence that bears on this issue, based on surveys of self-reported poverty thresholds conducted by the

Figure 1.2: Poverty Thresholds and Household Size



Source: Staff computations. Self-rated poverty threshold based on Mangahas (1992).

Table 1.5: Poverty Profile and Household Characteristics, 1997							
	Population	Poverty			Contribution to total poverty		
	Share	Incidence	Depth	Severity	Incidence	Depth	Severity
National	100.0	25.0	6.4	2.3	100.0	100.0	100.0
<i>Sex and age group</i>							
Male	87.8	26.4 (0.32)	6.7 (0.11)	2.4 (0.05)	92.4	92.5	92.7
Below 20	0.0	17.5 (7.93)	5.8 (3.14)	2.5 (1.59)	0.0	0.0	0.0
Between 20 to 30	6.8	27.0 (0.99)	6.3 (0.30)	2.1 (0.14)	7.3	6.7	6.2
Between 30 and 40	24.7	32.4 (0.63)	8.8 (0.23)	3.3 (0.12)	31.9	33.8	35.3
Between 40 and 50	26.5	28.8 (0.63)	7.4 (0.21)	2.7 (0.10)	30.4	30.9	30.9
Between 50 and 60	18.2	20.1 (0.66)	4.9 (0.20)	1.8 (0.09)	14.6	14.1	13.8
Greater than 60	11.6	17.5 (0.72)	3.8 (0.20)	1.3 (0.09)	8.1	7.0	6.3
Female	12.2	17.0 (0.67)	3.8 (0.21)	1.3 (0.10)	7.6	7.5	7.3
Below 20	0.0	9.6 (8.98)	2.8 (2.60)	0.8 (0.75)	0.0	0.0	0.0
Between 20 to 30	0.5	9.7 (2.45)	1.8 (0.58)	0.6 (0.24)	0.2	0.1	0.1
Between 30 and 40	1.9	15.7 (1.76)	4.6 (0.66)	1.8 (0.33)	1.2	1.4	1.4
Between 40 and 50	2.6	16.4 (1.53)	4.6 (0.52)	1.7 (0.24)	1.7	1.9	1.9
Between 50 and 60	3.2	15.8 (1.35)	3.6 (0.39)	1.2 (0.17)	2.0	1.8	1.7
Greater than 60	3.9	15.6 (1.12)	3.7 (0.33)	1.3 (0.15)	2.4	2.3	2.1
<i>Marital status</i>							
Single	2.0	9.6 (1.24)	2.2 (0.34)	0.8 (0.15)	0.8	0.7	0.7
Married	86.7	26.1 (0.32)	6.7 (0.11)	2.4 (0.05)	90.3	90.6	91.0
Widowed	10.1	20.4 (0.82)	5.1 (0.25)	1.8 (0.11)	8.2	8.0	7.7
Divorced/Separated	1.1	14.6 (2.16)	3.8 (0.71)	1.3 (0.28)	0.6	0.7	0.6
Unknown	0.1	27.3 (10.74)	5.5 (2.81)	1.9 (1.19)	0.1	0.0	0.0
<i>Educational attainment</i>							
No education	3.8	46.2 (1.48)	13.8 (0.59)	5.5 (0.31)	7.0	8.1	9.0
Elem. Undergraduate	22.8	41.6 (0.70)	11.4 (0.26)	4.4 (0.14)	37.8	40.8	42.9
Elementary graduate	24.5	31.4 (0.66)	7.8 (0.22)	2.8 (0.10)	30.8	29.9	29.2
HS undergraduate	11.5	24.4 (0.86)	5.7 (0.26)	1.9 (0.12)	11.2	10.3	9.5
High school graduate	18.6	13.5 (0.53)	2.9 (0.15)	0.9 (0.06)	10.0	8.5	7.5
College undergraduate	10.5	6.3 (0.47)	1.2 (0.10)	0.3 (0.04)	2.6	1.9	1.5
Degree holder	8.2	1.7 (0.31)	0.30 (0.07)	0.1 (0.02)	0.6	0.4	0.3
Not reported	0.2	3.1 (3.05)	0.0 (0.04)	0.0 (0.0)	0.0	0.0	0.0
<i>Family size</i>							
1-2	10.4	8.3 (0.39)	1.7 (0.10)	0.5 (0.04)	3.5	2.8	2.5
3-4	32.4	15.8 (0.37)	3.3 (0.10)	1.0 (0.04)	20.4	16.9	14.4
5-6	32.2	28.0 (0.52)	6.9 (0.17)	2.4 (0.08)	36.0	35.0	34.0
7-8	16.9	39.4 (0.90)	11.4 (0.33)	4.5 (0.17)	26.6	30.0	32.7
9 & above	8.2	41.3 (0.15)	11.8 (0.53)	4.6 (0.27)	13.6	15.2	16.5
<i>Type of household</i>							
Single family	73.2	27.7 (0.34)	7.2 (0.12)	2.6 (0.06)	80.9	82.2	82.8
Extended family	26.4	18.0 (0.54)	4.3 (0.16)	1.5 (0.07)	18.9	17.6	16.9
With unrelated members	0.4	7.1 (2.27)	2.6 (1.02)	1.2 (0.58)	0.1	0.2	0.2

Note: Figures in parentheses are standard errors corrected for sample design effect.
Source: Balisacan (1999a), based on the 1997 FIES.

Social Weather Stations (SWS). This evidence suggests that the implicit scale economies may be even higher, i.e., a value of the scale elasticity parameter below 0.6. This is shown in Figure 1.2 by the flatter slope of the self-rated poverty threshold for Metro Manila based on the September 1989 SWS Survey (Mangahas, 1992). There is no conclusive evidence however in favor of higher scale economies because the self-rated poverty thresholds themselves tend to increase with household living standards. Overall, therefore, while we do not have a precise estimate of scale economies for the Philippines, larger households may no longer be poorer once an allowance is made for such economies within what appears to be a plausible range.

Determinants of living standards

1.17 The foregoing discussion focused on individual correlates of poverty. In many policy contexts, it is also important to know if the correlation with a particular attribute holds up when controlling for other attributes. This can be explored through multivariate regression analysis. The results of such an analysis confirm a number of observations made above concerning spatial and household correlates of poverty (Table 1.6).¹⁰ Given other factors, for instance, the household head's educational attainment and experience (proxied by the household head's age) positively influence household welfare. Households headed by males have lower welfare levels than those headed by females, holding other factors constant. Household size negatively influences household welfare as does the proportion of children in the household, all other things remaining the same (subject to the caveats discussed above). But given household size, the number of employed household members positively affects welfare. Together, household composition and the household head's characteristics, especially educational attainment, account for roughly three-fourths of the variance explained by the model.

1.18 Economic sector and location characteristics account for another one-fourth of variance explained by the model. Employment in agriculture is negatively associated with household welfare. This

Variable	Regression Coefficient	t-stat.	Contribution to variance explained
Constant	9.918	250.30	
HOUSEHOLD HEAD			40.9
AGE	0.011	7.87	4.2
AGESQ	0.000	-6.31	-3.4
MALE	-0.057	-4.39	0.8
MARRIED	0.085	7.01	-1.0
ELEM	0.160	21.13	-3.5
HIGHSCH	0.427	47.32	10.1
COLLEGE	1.025	64.29	33.7
HOUSEHOLD COMPOSITION			29.8
FSIZE	-0.068	-39.83	12.7
CHRRATIO	-0.538	-30.27	3.9
EMPRATIO	0.248	14.00	7.2
ECONOMIC SECTOR			11.9
AGRI	-0.196	-15.38	9.6
MINING	-0.103	-2.99	0.0
EGW	0.230	6.05	0.3
CONST	-0.137	-8.84	0.5
TRADE	0.029	1.99	0.2
TRANSP	-0.029	-2.02	-0.1
FINANCE	0.127	3.82	0.6
SERVICES	0.018	1.26	0.3
UNEMP	0.038	2.48	0.5
LOCATION			17.4
URBAN	0.162	23.20	7.2
REG1	-0.159	-9.84	-0.3
REG2	-0.279	-16.29	0.4
REG3	-0.173	-13.13	-0.6
REG4	-0.203	-16.11	-0.9
REG5	-0.409	-26.19	2.2
REG6	-0.155	-10.86	-0.2
REG7	-0.362	-22.47	1.0
REG8	-0.467	-28.45	3.2
REG9	-0.238	-13.79	0.5
REG10	-0.179	-10.50	0.1
REG11	-0.205	-12.89	0.0
REG12	-0.272	-15.91	0.4
CAR	-0.119	-7.15	-0.2
ARMM	-0.408	-25.33	3.8
CARAGA	-0.307	-17.51	0.7
Sample size	39,520		
R-square	0.534		

Note: Dependent variable is natural logarithm of (cost-of-living-adjusted) per capita household expenditure. The model is estimated using Stata's "svyreg" procedure, which takes into account sample design effects (i.e., stratification and weights assigned to each observation). See Table A1.1 for the definition of variables used. Source: Balisacan (1999a).

factor in fact contributes the bulk — about 80 percent — of the variance explained by the employment variables. Households located in urban areas tend to have higher welfare levels than those in rural areas. Location appears to be an important deter-

minant of poverty even after controlling for sector of employment and education level (Table 1.6). Households in regions other than Metro Manila have lower welfare levels than those in the capital region, all else remaining the same. The location variable captures a variety of economic, political and social factors that may be influencing overall welfare levels, including the state of infrastructure, productivity of land, proximity to markets, and quality of government.

Regional dimension and social indicators

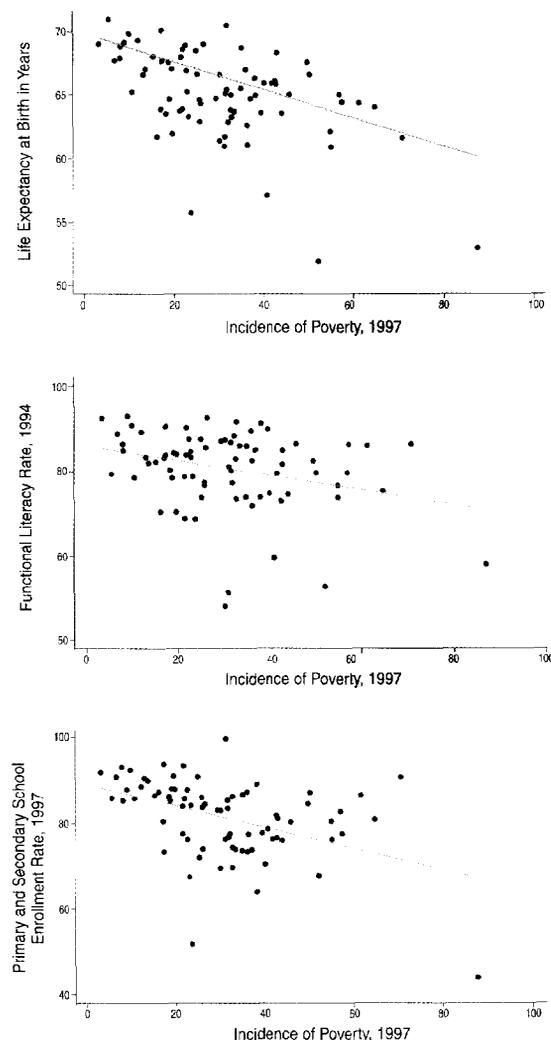
1.19 The regional differences in poverty rates are mirrored in equally profound differences in other social indicators. Functional literacy ranges from a low of 48 percent in the province of Basilan in Western Mindanao, to a high of almost 93 percent in Cavite in Southern Luzon. Enrollment rates in primary and secondary school range from 43 percent in the province of Sulu in the ARMM to 99 percent in the Mountain Province of the Cordillera Administrative Region. And, life expectancy ranges from a low of 52 years in the province of Tawi-Tawi in the ARMM to a high of 71 years in the province of Pampanga in Central Luzon (Annex B, Volume II). Moreover, as Figure 1.3 shows, and as confirmed by formal statistical analysis, functional literacy, school enrollment rates, and life expectancy are all significantly correlated with poverty: poorer provinces in the Philippines also have significantly lower educational attainment and worse health outcomes. This correlation points to the instrumental value of improving social indicators in combating income/consumption poverty, but an improvement in these indicators, especially in regions where they have lagged behind, is important in and of itself.

WHAT DOES IT MEAN TO BE POOR?

1.20 Poverty is a way of life. It affects what people do with their time and money, how they live, their command over resources, their status in the community, their relations with the government and their sense of self-worth (Table 1.7). Typically, the poor save less of their income and spend more on

Figure 1.3: Poverty and Social Indicators, 1997

Poorer provinces in the Philippines also have lower levels of life expectancy, literacy and school enrollment.



Source: UNDP, Human Development Report, 1999; 1997 FIES.

food. Not surprisingly, housing is a problem for the poor as 11 percent of the population in the bottom three expenditure deciles are either squatters or live in poor quality housing (Table 1.8). What is surprising is the extent to which housing is a problem for the population as a whole: the prevalence of illegally occupied housing is highest for those in the middle of the distribution and remains high even among the wealthiest (2.5 percent for the 9th decile). It is quite likely that housing, especially insecurity of tenure, is a problem particularly in urban areas and more specifically in Manila.

	The Poor	Total Population
Save (% of income) ^{1/}	-5.6	18.9
Rely on transfers (% of pre-transfer income) ^{2/}	43.0	12.9
Spend on food (% of consumption) ^{3/}	64.4	44.7
Live in sub-standard housing ^{3/}	11.0	8.8
Obtain credit ^{4/}	22.5	24.3
Belong to cooperatives	7.7	12.9
Use modern contraceptives ^{5/}		
Urban	21.4	29.5
Rural	19.3	27.1

Note: 1/ The poor are ranked by income. When ranked by consumption the savings rate is 11.8 percent. 2/ Transfer includes public and private transfers from both domestic sources and abroad but not pensions. The poor are defined as the bottom 30 percent of the population and ranked by pre-transfer income. 3/ The figure for the poor is that for the bottom 30 percent of population. 4/ As share of population in families with entrepreneurial activities. 5/ Share of married persons using modern contraceptive methods. Poor defined as bottom 20 percent of the population and the average for the total population is assumed to be represented by the middle quintile.

Source: Based on 1997 FIES; 1998 APIS; 1998 DHS; Balisacan (1999a); Alba (2000).

Decile	Percentage of people in decile living in			
	Improvised houses	Houses with roofs made of makeshift materials	Houses with walls made of makeshift materials	Illegally occupied houses (squatters)
First (poorest)	1.4	2.2	2.8	3.2
Second	1.7	2.1	2.9	3.4
Third	2.6	2.9	3.5	4.4
Fourth	2.1	2.5	2.9	3.8
Fifth	2.3	2.8	3.3	3.9
Sixth	1.7	1.9	2.0	4.0
Seventh	1.3	1.6	1.9	3.7
Eighth	1.0	1.1	1.5	3.5
Ninth	0.6	0.8	0.7	2.5
Tenth (richest)	0.2	0.2	0.3	1.0
PHILIPPINES	1.5	1.8	2.2	3.3

Source: Balisacan (1999a), based on the 1997 FIES data.

1.21 Fertility rates in the Philippines have come down but remain high by regional standards — 3.7 births per woman in 1995 down from 6.4 in 1970.¹¹ Within the East Asia region, comparable rates are 3.4 in Malaysia, 2.7 in Indonesia and 1.8 in Thailand. An important correlate of high fertility rates is the low use of modern contraceptive methods. Although married women of reproductive ages have considerable awareness of contraceptive methods (90 percent report awareness, 1998 APIS) and almost all who are aware know where to avail of services (97 percent), contraceptive use is low. There is negligible difference between rural and urban ar-

reas while the poor are less likely to use contraception but not so overwhelmingly (Table 1.7). Differences in the pattern of use among different segments of the Philippine population are dwarfed by the large differences between the Philippines and Vietnam, for example, where almost 60 percent of married women in rural areas use modern contraceptives. There are clearly deep cultural and religious forces at work, which overwhelm income effects.

1.22 Another finding relates to the low level of association among the poor. The poor are less likely to belong to a cooperative (Table 1.7) and fewer of them are also members of people's organizations or non-government organizations. It is not clear whether this is a symptom of poverty or has some causal effect on welfare: low membership in cooperatives may lead to less information and lower bargaining power for the poor with negative impact on economic activity while the findings on POs and NGOs may suggest that the poor may be inadequately served by these important intermediaries.

1.23 The poor rely heavily on transfers which play a significant role in reducing poverty in the Philippines. In addition, they are equalizing and benefit vulnerable groups more than proportionately. Transfers are large in the Philippines and are mostly private (Table 1.9). They have also been increasing over time. They accounted, on average, for 13 percent of pre-transfer household incomes in 1997 with 57 percent coming from abroad. Data from the balance of payments puts worker's remittances at PhP134 billion (US\$7.7 billion) for the same year,

	Pesos per capita
Total transfers received	3347
Transfers from abroad	1922
Domestic transfers	1424
Private	1404
Government	20
Transfers given	238
Net transfers received	3109
Transfers as percent of expenditure	14.1%
Transfers as percent of pre-transfer income	12.9%

Source: Based on 1997 FIES data.

equivalent to 7.6 percent of personal consumption reported in the national accounts and up from less than one percent in 1988.

1.24 Transfers are highly progressive, benefiting more households with low levels of (pre-transfer) income per capita. For the poorest quintile (ranked by pre-transfer incomes), transfers received constitute almost 60 percent of pre-transfer incomes (Table 1.10). For a large number of households, private transfers are the tickets out of poverty. Income poverty would have been much higher in the Philippines in the absence of transfers: the headcount index would have been 32 percent rather 25 percent.¹² The distributionally sensitive measures would have been even higher suggesting that transfers help some of the poorest among the Philippine households. This is a crude estimate in that it assumes that household behavior would be the same with and without transfers — that is, work effort would remain unchanged — but it serves to underscore the importance of transfers in reducing poverty.

1.25 Furthermore, analysis of the determinants of transfers suggests that having an unemployed, elderly or female-head has a large and significant positive impact on transfers received by the household. On the whole, private transfers or informal safety

Income Quintile (ranked by income before transfers)	Income per capita before gross transfers (Php)	Gross transfers per capita received (Php)	Share of transfers in pre-transfer income (%)
Quintile 1	6066	3549	58.5
Quintile 2	10877	2183	20.1
Quintile 3	16203	2594	16.0
Quintile 4	25353	3224	12.7
Quintile 5	70935	5185	7.3
Average	25887	3347	12.9
<i>Poverty and inequality indices</i>			
Incidence	32.0	25.2	
Depth	10.7	7.2	
Severity	5.0	2.9	
Theil	0.52	0.49	
Log of variance	0.71	0.64	

Source: Based on 1997 FIES data.

Table 1.11: Public Services and the Poor, 1998

	Percent of the poor	Percent of total population
Go to Public Schools ^{1/}	94.8	74.5
Receive Assistance for Tertiary Education ^{2/}	1.6	2.8
Visit Public Health Facilities ^{3/}		57.9
Delivery by a Medically Trained Person ^{4/}		
Urban	36.1	82.2
Rural	18.9	59.5
Receive extension services ^{2/}	3.4	3.0
Benefit from CARP ^{2/}	1.9	1.7
Benefit from housing program	2.0	4.4

Note:

1/ Share of 6-24 year olds who were attending school

2/ Share of total population

3/ Share of those who visited a health facility

4/ Share of deliveries in the five years prior to the survey. Poor defined as bottom 20 percent of the population and the average for the total population is assumed to be represented by the middle quintile.

Source: Based on 1998 APIS, 1998 DHS, Alba (2000).

nets have been a powerful anti-poverty force in the Philippines.

ACCESS TO PUBLIC SERVICES

1.26 How well do public services reach the poor, in particular, sectors that are crucial for building human capital or for programs that are specifically designed to help the poor? This section gives an overview of the targeting of some basic public services.

1.27 Table 1.11 gives a summary of the targeting record of some publicly-provided social services.¹³ Table 1.11 shows that the poor are more likely to go to public schools; public assistance for tertiary education, however, benefits more the wealthier segments of the population. The poor are also more likely to visit public health facilities, but have less access to a medically-trained person during delivery. Two programs designed to benefit the poor have very different targeting profiles: the land reform program (CARP) appears successful in reaching the poor whereas the housing program benefits more the wealthier groups.

1.28 Table 1.12 gives a similar picture using the *barangay* as the unit of observation, when *barangays* are ordered by median per capita consumption. Placement of infrastructure is regressive if wealthier

	Progressive (+) Regressive (-)	Significance level ^{2/}	P-value
Street pattern	-	**	
Access to main roads	-	**	
Town hall	-	*	
Church	+		0.17
Park	-	***	
Cemetery	+	***	
Market	-	*	
Primary school	+	***	
High school	-	*	
College	-	*	
Library	-	*	
Hospital	-	*	
Clinic	-	*	0.18
Housing program	-	*	
Phone	-	**	
Telegraph	-	*	
Postal service	-	***	
Water	-	*	

Note: ^{1/} Determined by a PSU-level OLS regression of the presence of a public infrastructure dummy on the median per capita expenditure (Manila prices), using robust standard errors.

^{2/} *** significant at 1 percent level, ** at 5 percent level, * at 10 percent level

Source: Based on 1998 APIS data.

areas are better endowed; it is progressive if more infrastructure is placed in poorer areas.

1.29 Table 1.12 shows that road access, town halls, markets, high schools, colleges and libraries, hospitals, housing programs, communication services and clean water are found more frequently in wealthier areas. Cemeteries and primary schools can be found more often in poorer areas and churches and clinics are distributed independently of wealth. Note that one should not use the results in Table 1.12 to make inferences about causality. Hence, areas may be wealthier because they have access to main roads, or wealthier neighborhoods may be in a better position to influence decision makers to have greater access to main roads.

Table A1.1: Definition of Variable Used in the Log Consumption Model (Table 1.6)

Notation	Variable Description
<i>Household head attributes</i>	
AGE	Age of household head
AGESQ	AGE squared
MALE	Dummy variable, household head is male
MARRIED	Dummy variable, household head is married
COLLEGE	Dummy variable, household head is at least a college graduate
HIGHSCH	Dummy variable, household head is at least high school graduate but did not complete college
ELEM	Dummy variable, household head is at least elementary graduate but did not complete high school
<i>Household composition</i>	
FSIZE	Family size
CHRATIO	Ratio of dependent (below 15 years old) to total number of children
EMPRATIO	Ratio of employed to total household members
<i>Economic sector of household head</i>	
AGRI	Agriculture, Fishery, and Forestry dummy variable
CONST	Construction dummy variable
FINANCE	Finance and Banking dummy variable
MINING	Mining and Quarrying dummy variable
TRADE	Trade dummy variable
TRANSP	Transportation and Communication dummy variable
SERVICES	Services dummy variable
EGW	Electricity, Gas, and Water dummy variable
UMEMP	Unemployed
<i>Location</i>	
REG1	Ilocos Region dummy variable
REG2	Cagayan Valley dummy variable
REG3	Central Luzon dummy variable
REG4	Southern Tagalog dummy variable
REG5	Bicol dummy variable
REG6	Western Visayas dummy variable
REG7	Central Visayas dummy variable
REG8	Eastern Visayas dummy variable
REG9	Western Mindanao dummy variable
REG10	Northern Mindanao dummy variable
REG11	Southern Mindanao dummy variable
REG12	Central Mindanao dummy variable
ARMM	ARMM dummy variable
CAR	CAR dummy variable
CARAGA	CARAGA dummy variable
URBAN	Dummy variable, household lives in an urban area

Endnotes

- 1 Details of the approach and its implementation are given in Annex A, Volume II.
- 2 Another difference potentially contributing to the relatively higher official food poverty lines is that while the basic needs food poverty line is anchored to the norm of 2000 calories per person per day, the official line is calibrated to both that caloric norm as well as the recommended daily allowance (RDA) for proteins and 80% of the RDA for vitamins, minerals and other nutrients (NSCB, 1999, and Balisacan, 1999a).
- 3 There are other differences between the estimates reported here and the official estimates. An important one is the use of per capita income rather than consumption as the welfare measure in the official methodology. This however contributes in the direction of lower official poverty estimates reflecting some positive savings even among those below the poverty line. Using income per capita and the basic needs poverty lines, poverty incidence is estimated to be 22.1%. See Annex A, Volume II, and Balisacan (1999a) for further discussion of the difference between the two approaches.
- 4 While there is more recent survey that is available, viz., the 1998 APIS, income and consumption modules in the APIS are not comparable with those in the FIES.
- 5 This estimate is consistent with the estimated impact of the crisis, as discussed further in Chapter 5. For instance, the estimates in Chapter 5 indicate a 9 percent increase in the incidence of poverty due to the crisis.
- 6 The Philippines is unique among developing countries in that Social Weather Stations (SWS), an NGO, has regularly collected survey data on self-rated poverty since 1985 (Mangahas, 1995). Between 1985 and 1991, surveys were fielded once to twice a year, and since 1992, surveys have been carried out at least once every quarter.
- 7 There may be measurement issues surrounding the unemployment rate in the Philippines. The unemployed are defined to include all persons 15 years old and above, who did not work even for one hour during the past week, and who reported actively looking for work. Also considered as unemployed are persons without a job or business who are reported not looking for work because of their belief that no work was available or because of temporary illness/disability, bad weather, pending job application or waiting for job interview. This is a more inclusive definition of unemployment than used in some other countries.
- 8 One convenient way to parameterize a more general measure of welfare is as follows:

$$x^* = x / (A + \gamma C)^\theta$$
 where x is total household expenditure, A and C are the number of adults and children, γ is the adult-equivalence parameter and θ is the scale economies parameter. Both parameters lie between zero and one. If both γ and θ equal one, the familiar per capita measure is obtained. On the other hand, as θ declines to zero, there are increasing scale economies. Similarly, a decline in γ implies a smaller allowance for children's needs relative to adults.
- 9 Defined to be below 15 years of age.
- 10 Strictly speaking, one can only interpret the estimates in Table 1.6 as explaining the variation in household welfare conditional on past decisions concerning employment and human capital development. They do not explain the process by which households have chosen employment or have accumulated human capital. To the extent that selectivity in employment and human asset accumulation takes place, the benefit to a typical household of finding employment or owning a certain asset could be overstated.

- 11 Fertility rates are high for poorer households (6.5 for the lowest quintile in rural areas) but the measure of welfare used in the DHS survey, which is based on per capita assets rather than income or consumption, suffers from the same problems discussed earlier regarding economies of scale and household composition.
- 12 This calculation estimates pre-transfer consumption corresponding to pre-transfer income using a consumption function estimated from the survey data where pre-transfer income is the income net of transfers. The results for consumption poverty are less striking than those for income poverty because the consumption function predicts higher propensity to consume at low income levels.
- 13 For the first time, information on access to services is available from a national household survey. The discussion in this section exploits information available in the DHS and the APIS on use of public services.

GROWING OUT OF POVERTY

"The progress of the past few years has not raised the standard of living of the majority of Filipinos to decent levels. I campaigned on a platform of growth with equity. These twin objectives were based on the realization that growth is a precondition for reducing poverty. On the other hand, the fruits of such growth should be equitably shared." Joseph E. Estrada, Foreword to the Medium-Term Philippine Development Plan, 1999-2004.

2.1 Economic growth is widely recognized as the engine of poverty reduction (World Bank, 1990, 2000g). It has also been widely recognized that while growth generally reduces poverty, the extent of poverty reduction and welfare improvement associated with a given rate of economic growth can vary enormously from one situation to another. There is nothing axiomatic about the quality of growth, and one has to look at the actual country experience to assess how far has growth delivered the promised poverty reduction. This would nonetheless be of limited use if it only served as an exercise in evaluation of past performance. The more important reason for engaging in such a review is that it should offer insights into how the current development trajectory may have to be modified to yield greater returns in future poverty reduction.

2.2 The first chapter presented is the recent profile of the poor. This chapter reviews the track record of growth and poverty reduction in the Philippines since the mid-1980s. The mid-eighties is a useful benchmark. The period marked the return to formal democracy in the country. It also marked the beginning in 1997 of the first Medium-Term Philippine Development Plan (MTPDP), mandated



by the Constitution, as an effort in coordinated implementation of programs and policies for national development. The period since the mid-1980s also witnessed important changes in Philippines economic policy with a shift to greater outward orientation as the country sought to embrace the still unfolding East Asian Miracle. At a more practical level, this period also marked the beginning of a series of nationally representative household surveys, conducted every three years by the National Statistics Office (NSO), that enable a more systematic monitoring of the distribution of household living standards in the country.

2.3 While poverty is inherently multi-dimensional in character, poverty measures based on consumption, or consumption poverty for short, offer a useful first assessment of how distribution of living conditions has evolved. This assessment is later supplemented with both income and non-income based, including self-rated, measures.

CONSUMPTION POVERTY

2.4 Consumption poverty appears to have declined significantly since the mid-1980s up to the onset of the economic crisis in late 1997. Based on data from five Family Income and Expenditure Surveys over the period 1985-97, and using per capita consumption as a measure of welfare, the incidence of absolute poverty is estimated to have declined by about 39 percent, from about 41 percent of the Filipino population in 1985 to 25 percent in 1997 (Table 2.1).¹ The decline in poverty was not confined to those in the neighborhood of the poverty line, but was shared more widely among those below the poverty line. This is apparent from the evolution of the depth and severity of poverty, which declined even more rapidly than the proportion of the poor.

2.5 Impressive as it may appear, this record needs to be put in perspective. The rate of poverty reduction since the mid-1980s up to the Asian crisis has been slower in the Philippines than in several other countries in the region and in the region as a

Table 2.1: Average Living Standards, Poverty and Inequality, 1985-1997

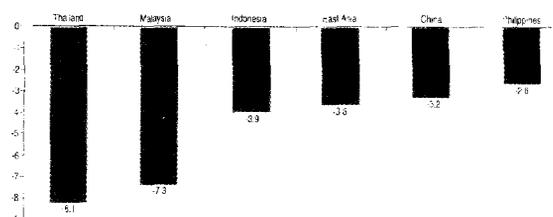
	1985	1988	1991	1994	1997
Mean living standard (per person per year at 1997 prices)	17,197	18,926	20,049	19,600	23,694
		(9.9)	(5.5)	(-2.4)	(14.3)
Poverty					
Incidence (percent)	40.9	34.4	34.3	32.1	25.0
		(-11.2)	(-0.1)	(-4.5)	(-15.6)
Depth (percent)	13.2	10.1	10.6	8.7	6.4
		(-12.8)	(2.5)	(-9.9)	(-14.6)
Severity (percent)	5.8	4.2	4.5	3.4	2.3
		(-12.1)	(3.3)	(-11.3)	(-12.8)
Inequality					
Gini	0.412	0.400	0.428	0.397	0.427
Theil T	0.330	0.298	0.363	0.302	0.376
Theil L	0.282	0.264	0.306	0.260	0.303

Notes: Living standards are defined as household consumption expenditures adjusted for family size and provincial cost-of-living differences. Poverty estimates are based on spatially fixed poverty norm and on per capita consumption expenditures adjusted for provincial cost-of-living differences (see Balisacan 1999a for details). Figures in parentheses are t-ratios for reference year against previous period. The t-test for the significance of poverty difference is based on the methodology proposed by Kakwani (1993). Source: Balisacan (2000).

whole. Figure 2.1 shows this for the “two-dollar a day” poverty line, although the same comparative pattern also holds for the “dollar a day” poverty line.

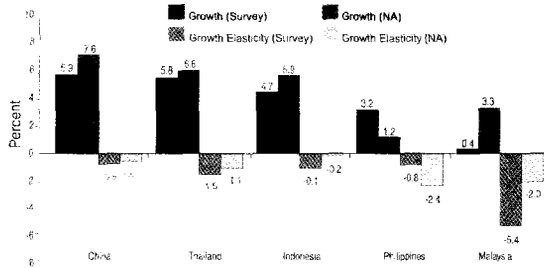
2.6 This begs the question: has slower poverty reduction been on account of slower growth in the Philippines or rather due to growth being less pro-poor? The evidence based on household survey data suggests that probably both factors have been at work (Figure 2.2).² Growth was certainly slower in the Philippines (with the exception of Malaysia), whether measured by per capita private consumption from the national accounts (NA) or by per capita house-

Figure 2.1: Annual Rate of Decline in Poverty Incidence in East Asia, mid-1980s to the mid-1990s



Note: The graph shows the annual rate of decline in the proportion of population living below \$65.48/month at 1993 PPP dollars. This is the “two-dollar a day” poverty line. The estimates are based on nationally representative household survey data for the following years: China (1987, 1996), Indonesia (1984, 1996), Malaysia (1987, 1995), Philippines (1985, 1997), Thailand (1988, 1996), and East Asia (1987, 1996). The estimates for China and Malaysia are income-based; those for China are adjusted by the ratio of private consumption to GDP. For further details on methodology, see World Bank (2000a). Source: Computed from distribution data used in World Bank (2000a).

Figure 2.2: Pro-Poor Growth in East Asia mid-1980s to the mid-1990s?



Note: The growth rate is the annual compound growth rate in mean per capita consumption expenditure over the survey years as reported in Notes to Figure 2.1. The empirical growth elasticity is the ratio of percentage change in the headcount index to the percentage change in mean consumption from the survey. NA denotes National Accounts. Source: Based on staff estimates and those in World Bank (2000a).

hold consumption from the household surveys. But how the Philippines fared in terms of the responsiveness of its poverty to growth (the growth elasticity of poverty) depends on whether the elasticities are calculated with respect to NA or survey-based growth rates. Based on the national accounts, the Philippines appears to have the most pro-poor growth because relatively small rates of per capita consumption growth over the period (1.2 percent per annum) appear to be generating substantial poverty reduction. But if elasticities are calculated using survey-based growth rates (3.2 percent per annum over the period), the Philippines ends up with the least pro-poor growth of all (the same deflator is used for calculating both the survey and NA growth rates).

2.7 Which is correct? It is likely that the discrepancy between consumption growth from the national accounts and the surveys is the result of different measurement conventions. For instance, such a discrepancy could arise if, with a declining share of the informal unincorporated enterprises in the economy, expenditures of this group, which were included in the residually estimated private consumption in the national accounts, are now increasingly excluded. However, there is no independent evidence for this, and the per capita GNP growth rates are equally below the per capita survey consumption growth rates. This discrepancy is not easily resolved, but it is likely to be grounded more in measurement problems rather than in changing economic realities. Moreover, since there is no independent

reason to suspect a systematic bias in the survey-based growth rates, it may be more “correct” to relate trends in poverty to changes in survey-based mean consumption because the poverty rates are necessarily derived from the survey data. In either case, it is clear that growth is an undeniable part of the story. It is equally clear that how that growth is distributed matters greatly for the poor.

GROWTH, INEQUALITY AND TRICKLE DOWN?

2.8 Over the period 1985-97 as a whole, how much did the poor gain from the growth that did occur? The elasticity of the headcount index for the whole period to real mean consumption growth was negative one. This is less in absolute terms than the elasticity that would be expected under distribution neutral growth, which would have been -1.2. Put differently, had growth been shared equally by all consumption groups, the headcount index would have declined from 41 percent in 1985 to 22.7 percent by 1997, relative to the actual value of 25 percent. Thus, over the period as a whole, the beneficial effects of growth on poverty reduction were mitigated by an adverse distributional change, but only by a small magnitude. The effects of adverse redistribution on the depth and severity of poverty were even more limited. On the other hand, if there had been no growth in mean consumption, poverty incidence would have *increased* to 43 percent. Thus, contrary to some popular claims, insofar as growth occurred, it was poverty reducing.

2.9 The importance of growth for poverty reduction is also confirmed by the evolution of growth and poverty across regions and within a region (Figure 2.3). At both the inter- and intra-regional levels, a strong negative relationship is exhibited between growth in mean consumption and changes in poverty during 1988-97.

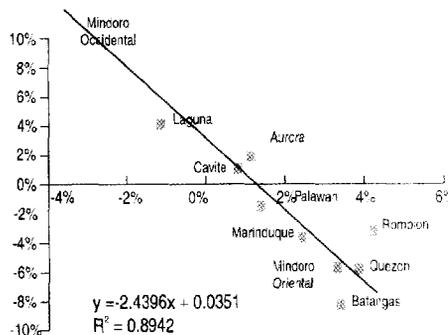
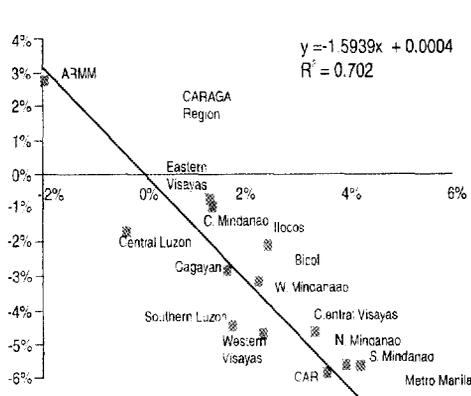
2.10 There has been some concern that inequalities have been widening in the Philippines in recent years. The data on consumption and income distribution does not show a consistent pattern. Irrespec-

Figure 2.3: Growth and Poverty Reduction, 1988-1997

Economic growth is a powerful force for poverty reduction...

...across regions within the Philippines...

...and across provinces within Southern Luzon.

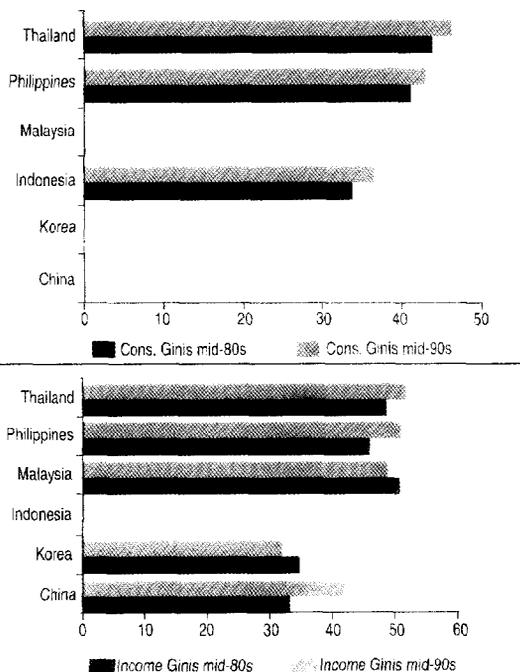


Note: The graph plots annual percentage change in the headcount index in a region (province) against percentage change in mean consumption in that region (province) during 1988-97. Source: Staff estimates based on 1988 and 1997 FIES data.

tive of the measure used, inequality seems to have fluctuated without any significant trend. In particular, the rise in inequality during the most recent period, 1994-1997, should not be confused with a trend increase. This holds for consumption as well as income inequality.

2.11 How do the levels of inequality in the Philippines compare with other countries in the region? The results are shown in Figure 2.4. The levels of inequality in the Philippines are comparable with those in Thailand and Malaysia, but seem to be higher than those in Korea and China. As for changes since the mid-1980s, with the exception of Korea and Malaysia, inequality seems to be increasing in most countries. Although as already noted above, increase in the case of the Philippines is misleading as it depends heavily on the end-years chosen for comparison.

Figure 2.4: Income and Consumption Inequality, mid-1980s and mid-1990s

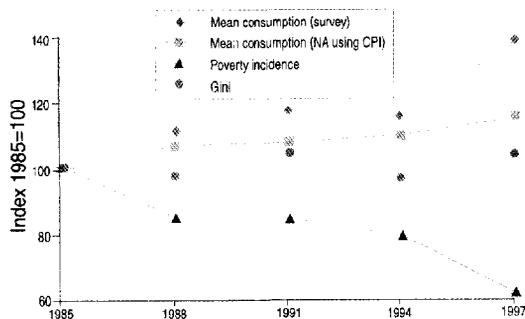


Note: The graph shows Gini indices (in percentages) for nominal per capita income or consumption. The estimates are based on nationally representative household survey data for the following years: China (1985, 1995), Korea (1988, 1993), Indonesia (1984, 1996), Malaysia (1984, 1995), Philippines (1985, 1997) and Thailand (1988, 1996). Source: Computed from distributional data used in World Bank (2000a).

SUSTAINED POVERTY REDUCTION?

2.12 It is apparent from Table 2.1 and Figure 2.5 that poverty reduction in the Philippines was anything but sustained during 1985-1997. Most of the decline in poverty was confined to the first and last three years of this period. The decline in the headcount index during 1985-1988 and 1994-1997, for instance, accounted for more than 85 percent of the total decline during 1985-1997. Similarly, the decline in the depth and severity of poverty during the two sub-periods accounted for a little under 80 percent of the total decline.

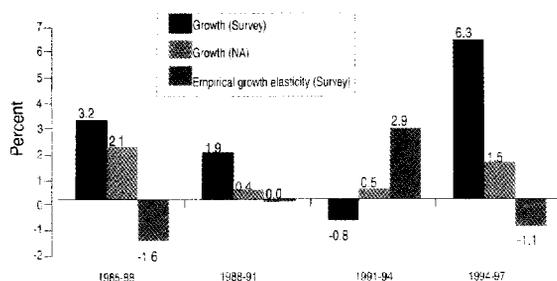
2.13 The decline in poverty during 1985-1988 may however be somewhat misleading since 1984-1985 was a year of sharp economic contraction. Per capita GDP shrank by an average of 10 percent a year during 1984-1985. Based on FIES data, real

Figure 2.5: Evolution of Growth, Inequality and Poverty in the Philippines, 1985-1997

Source: Based on FIES data.

mean consumption in 1988 was 10 percent higher than that in 1985, although arguably still much lower than the level prevailing at the beginning of the 1980s.

2.14 Underlying the uneven performance in poverty reduction was the uneven growth performance. For instance, survey-based mean consumption per person grew by 3.2, 1.9, -0.8 and 6.3 percent per annum over 1985-1988, 1988-1991, 1991-1994 and 1994-1997, respectively (Figure 2.6). However, this growth was also of varying quality for the poor. Thus, over the same sub-periods, the elasticity of the headcount index with respect to growth in mean consumption also fluctuated from -1.6, -0.1, 2.9 to -1.1. The growth elasticities of the poverty gap and the squared poverty gap indices display a similar pattern. Thus, neither growth nor the pro-poor quality of growth was sustained over this period.

Figure 2.6: Pro-poor Growth in the Philippines, 1985-1997

Note: The empirical growth elasticity is the ratio of percentage change in the headcount index to the percentage change in (survey-based) mean consumption. "Growth (Survey)" is the annual compound growth rate in mean consumption estimated from the surveys and "Growth (NA)" is the annual compound growth rate in per capita personal consumption estimated from the National Accounts (NA). Both survey-based and NA consumption are deflated by the Consumer Price Index for all commodities.

Source: Based on FIES data, and National Accounts data, NSCB.

2.15 Some simple calculations are illustrative of both the importance of sustained growth and the sustained quality of growth. Thus, for instance, if the 1994-1997 highest growth rate in per capita consumption of 6.3 percent were maintained over the whole period, the incidence of poverty would have declined to 12.9 percent (compared with the actual value of 25.1 percent). But, if the highest empirical elasticity of poverty incidence with respect to growth (of -1.58 during 1985-1988) were maintained over the entire period, then the existing growth rates would have implied a decline in the headcount index to 16.5 percent by 1997.

INCOME VS. CONSUMPTION POVERTY

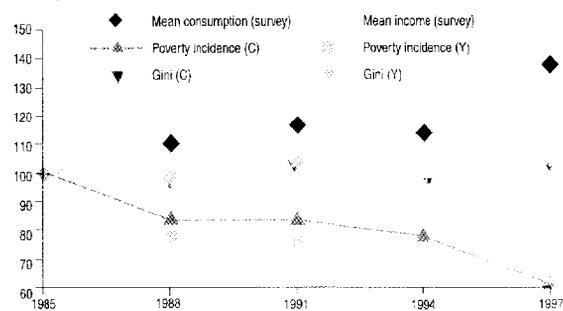
2.16 An important issue in the measurement of poverty concerns the choice of a metric of individual welfare. Two key contenders here are consumption- and income-based measures. Either income or consumption is a defensible measure of an individual or household's command over goods and services, though practical considerations in collecting reliable survey data in developing countries often lead to a preference for consumption-based measures (see Ravallion, 1994; Deaton, 1997; and Box 1.1 in Chapter 1 for further discussion). Even if consumption may be considered the preferred measure, it is useful to check if the evolution of income poverty has been similar to that of consumption poverty. An additional reason for focusing on the income dimension is that the official poverty estimates for the Philippines have been based on per capita income (NSCB, 1999).

2.17 In order to compare income and consumption poverty, we use an income poverty line that is calibrated to generate the same national headcount index of 25.1 percent in 1997 as obtained with the consumption poverty lines. The income poverty lines over time and space however maintain the same relative values as for the consumption poverty lines. Thus, for instance, if the 1985 Manila consumption poverty line was 30.5 percent of the 1997 Manila consumption poverty line, then the 1985 Manila income poverty line is also fixed at 30.5 percent of the 1997 income poverty line for Manila.

2.18 The choice of the welfare metric makes some difference to the assessment of how living standards have evolved in the Philippines. The following points are notable.

- (a) For the period 1985-1997 as a whole, the decline in income and consumption poverty rates is comparable (Figure 2.7). Thus, for instance, both consumption and income headcount indices declined from about 41 percent in 1985 to about 25 percent in 1997. The rates of decline were also comparable for measures of depth of poverty, and were only marginally higher for income-based measures of the severity of poverty (Figure 2.7).
- (b) Average income and consumption growth followed the same pattern over this period, with the exception of years 1985-1988 when income growth appears to have outpaced consumption growth. This is consistent with some consumption smoothing by households during 1985 in response to the economic contraction during the same and the preceding year.
- (c) The inequality measures for income were consistently higher than consumption inequality measures which is unsurprising, but the evolution of income and consumption inequality over time was remarkably similar as shown in Figure 2.8. This is true for a range of inequality measures, not just the Gini indices.
- (d) However, there are some differences over sub-periods. In particular, income poverty declined more rapidly during 1985-88, at about the same rate during 1988-1994, and more slowly during 1994-1997. This probably reflects the households' attempts to smooth consumption over

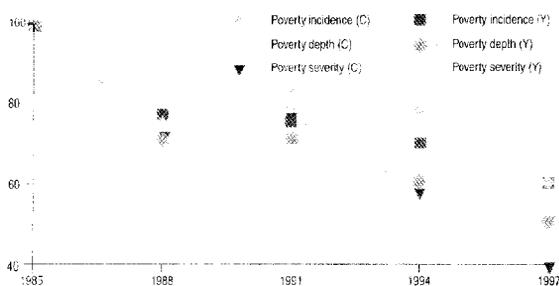
Figure 2.8: Income vs. Consumption Growth and Inequality: Does It Matter?



Note: (C) Refers to consumption estimates, (Y) refers to income estimates. Source: Based on FIES data.

a period marked by erratic growth. The period 1988-94 was a period of relative stagnation. Both GNP and personal consumption per capita were stagnant, and this is also reflected in both income and consumption poverty measures which changed little. On the other hand, both 1985-1988 and 1994-1997 were periods of growth, although the first spell was more in the nature of a recovery from the immediately preceding contraction of 1984-1985. To the extent the poor tried to protect their consumption in 1985, their consumption growth over the subsequent recovery during 1985-88 could be expected to lag behind the income growth, as they reduce dissavings (or increase savings). This would lead to a smaller decline in consumption poverty relative to income poverty. The period 1994-1997 was however a more normal growth spell which was probably associated with some decline in precautionary savings by the poor, causing a relatively larger decline in consumption poverty.

Figure 2.7: Income vs. Consumption Poverty: Does It Matter?



Note: (C) Refers to consumption estimates, (Y) refers to income estimates. Source: Based on FIES data.

SOCIAL INDICATORS AND SELF-RATED POVERTY

2.19 Has human and social development kept pace with the progress in reducing income and consumption poverty? The evidence suggests an answer in the affirmative: the Philippines has achieved steady improvement in a number of social indicators over the 1980s and 1990s (Table 2.2). Thus, life expectancy has improved, and illiteracy has declined for both males and females. Similarly, immunization and

Social indicator	1987	1998
Life expectancy at birth, female (years)	65.9	70.5
Life expectancy at birth, male (years)	62.2	66.8
Illiteracy rate, adult total (% of people 15+)	8.4	5.2
Illiteracy rate, adult female (% of females 15+)	9.1	5.4
Immunization, measles (% of children under 12 months)	68.0	83.0 **
Low-birth weight babies (% of births)	18.0*	8.7 ***
Malnutrition prevalence (% of children under 5)	32.9	29.6 ***
Mortality rate, infant (per 1,000 live births)	45.0	32.2
Safe water, rural (% of rural population with access)	67.7*	81.0 ****
Safe water, urban (% of urban population with access)	80.5*	91.0 ****

Note: * refers to 1988, ** 1997, *** 1993, and **** 1996 respectively.
Source: World Bank (2000).

access to safe drinking water in both rural and urban areas has improved, while child malnutrition and infant mortality rates have declined. These improvements are also reflected in the Human Development Index (HDI) for the Philippines, which rose from 0.683 in 1985, to 0.711 in 1990, to 0.740 in 1997 (UNDP, 1999). This is all the more creditable as it occurred during a period of relative stagnation in per capita GDP.

2.20 Significant as these gains are, they may or may not be reflected in people's own perception of their welfare. As mentioned in Chapter 1, Volume II, the Philippines is unique among developing countries in having a data base on self-rated poverty based on regular surveys conducted by the Social Weather Stations (SWS) since 1985 (Mangahas, 1995). Between 1985 and 1991, surveys were fielded once to twice a year, and since 1992, surveys have been carried out at least once every quarter. How do these data on self-rated poverty supplement the picture on the evolution of poverty presented above? As a first step it is important to understand the notion of self-rated poverty used in the SWS surveys.

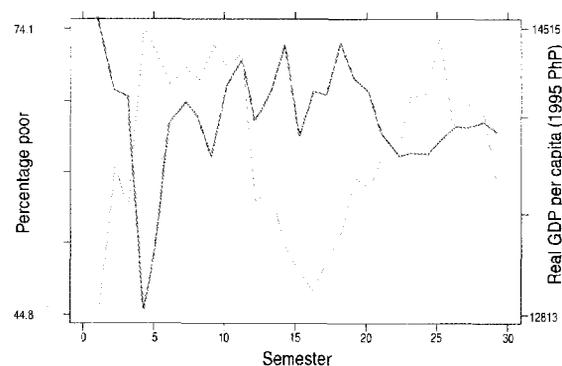
2.21 Three questions in the SWS surveys are of particular interest for an understanding of self-rated poverty. First, households are asked about whether they consider themselves "poor," "borderline," or "not poor." Second, households who classify themselves as poor are asked the following question: "In your opinion, how much money would your family need for home expenses each month in order not to be called poor anymore?" Similarly, households who

classify themselves as not poor or borderline are asked: "For a family as large as yours but poor, how much money do you think it would need to spend each month for home expenses in order not to be considered poor anymore?" One way to understand these two questions about a "minimum basic income" is that they provide information on a subjective or self-rated poverty line, as identified by poor and non-poor households themselves (Ravallion, 1994).

2.22 Four important conclusions emerge from an analysis of these data on self-rated poverty.

- Unlike absolute poverty, there is no trend decline in self-rated poverty over the period 1985-1999 (Table A2.1). But there is essentially no trend in real GDP per capita over the period. Hence, the fraction of people who consider themselves poor (essentially) remained unchanged during a period of (essentially) no change in real GDP per capita.³
- But, self-rated poverty does respond to fluctuations in real GDP per capita (see Figure 2.9 and Table A2.2).⁴ In this sense, self-rated poverty behaves like absolute poverty. There is a clear negative relationship between self-rated poverty and real GDP per capita. Specifically, a PhP100 (at 1995 prices) increase (decrease) in real GDP per capita is associated with a 0.67 to 0.74 percentage point decrease (increase) in poverty. There is no relationship between self-rated

Figure 2.9: Subjective Poverty and Seasonally Adjusted Real GDP Per Capita



Note: The 29 semesters refer to 6-month spells from the second half of 1985 to the second half of 1999.

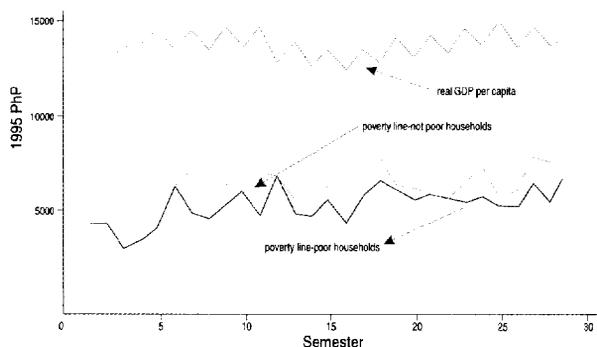
Source: Based on SWS and National Accounts data from NSCB.

- poverty and unemployment, and self-rated poverty is only weakly affected by changes in inflation.
- (c) The threshold level which poor and non-poor households regard as a “minimum acceptable income” has risen dramatically during the period (Figure 2.10; Table A2.1). This suggests that the self-rated poverty lines cannot be thought of as absolute poverty lines, which remain fixed in real terms over time. This is important in thinking about the potential use of self-rated poverty estimates for policy purposes.
- (d) Why do the self-rated poverty lines increase over time? The answer cannot be found in changes in mean income, as approximated by real GDP per capita from the national accounts, because real GDP per capita does not show a significant trend over this period (Table A2.3).⁵ The unemployment rate does not appear to influence self-reported poverty lines either and changes in inflation are significant for only one of the two lines. A further puzzle is that it is difficult to reconcile the responses given to the two questions — about poverty levels and the poverty line — in a context of essentially stagnating GDP per capita. Taken together, these indicate that there has been no change in the proportion of households that consider themselves poor even while the poverty line has gone up during a period of stagnant incomes. In the

absence of important distributional changes which favor the poor, secular increases in the self-rated poverty line should lead to (significant) increases in the number of poor if there are no (significant) increases in mean income. It is possible that these responses are consistent with household survey-based mean incomes which show a significant rising trend over the 1985-1997 period. An explanation could be that self-rated poverty lines track increasing mean incomes as captured in the surveys such that these lines approximate relative poverty in the Philippines which has remained largely unchanged over the period, as reflected in the absence of a trend in self-rated poverty estimates. Unfortunately, it is not possible to check this hypothesis because while self-rated poverty estimates are available on a quarterly basis, survey-based income data are available only every three years and therefore for five points in time during this period.

2.23 A better understanding of the relationship between self-rated and absolute poverty is important for the design of public policies in the Philippines. The recent March 2000 survey carried out by SWS, in collaboration with the World Bank, includes both the standard questions on self-rated poverty and poverty lines, and a consumption module identical to that included in the 1998 APIS. Careful analysis of these data would provide useful insights that will complement the insights available from the analysis of absolute poverty based on income/consumption surveys.

Figure 2.10: Subjective Poverty Lines and Real GDP Per Capita



Note: The 29 semesters refer to 6-month spells from the second half of 1985 to the second half of 1999.

Source: Based on data from Social Weather Stations, International Monetary Fund and International Financial Statistics.

RURAL-URBAN TRENDS

2.24 One useful disaggregation of the consumption or income poverty data is by urban and rural sectors. Poverty in the Philippines is, for example, often described as a largely rural phenomenon (Balisacan, 1999a; also see Chapter 1, Volume II). Progress in reducing rural poverty will thus go a long way in advancing the overall poverty reduction goal. Yet, tracking progress in rural and urban poverty reduction is not as straightforward as it seems. As noted in Annex A, rural/urban poverty indicators

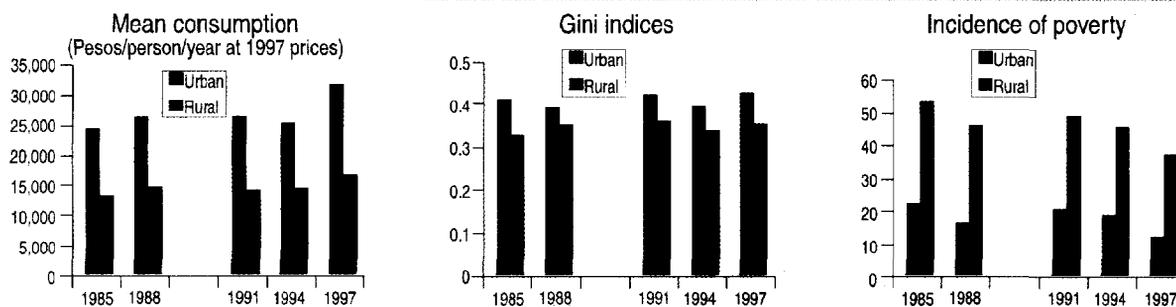
constructed from the FIES for the 1980s are not comparable with those for the 1990s owing to the urban-rural reclassification problem.⁶ Thus for instance, the share of urban households in all Filipino households estimated from successive rounds of the FIES were 38 percent in 1985, 38 percent in 1988, 50 percent in 1991, 50 percent in 1994 and 48 percent in 1997. The sudden jump in the proportion of urban households in 1991 is on account of a large-scale reclassification of erstwhile rural areas into urban areas. Thus, inter-year comparisons for rural and urban areas are only valid within the decade of the 1980s and 1990s separately (since the sampling frame and the rural-urban classification of geographic areas are common for individual decades) but not across decades.

2.25 Despite the problem of comparability across the two decades, certain patterns are clear. There are large and persistent urban-rural disparities. Average living standards are significantly higher (about twice) and poverty levels are significantly lower (about one-third) in urban areas. Thus, in 1997 a person in the rural sector was three times more likely to be poor than a person in the urban sector, and the rural poor accounted for 77 percent of all poor in the country. The levels of urban poverty are lower despite the higher levels of urban inequality (Table 2.3 and Figure 2.11). Moreover, there are indications of widening urban-rural disparities in poverty rates over the most recent period 1994-97, although it is difficult to characterize it as a trend because of the area reclassification problem mentioned above.

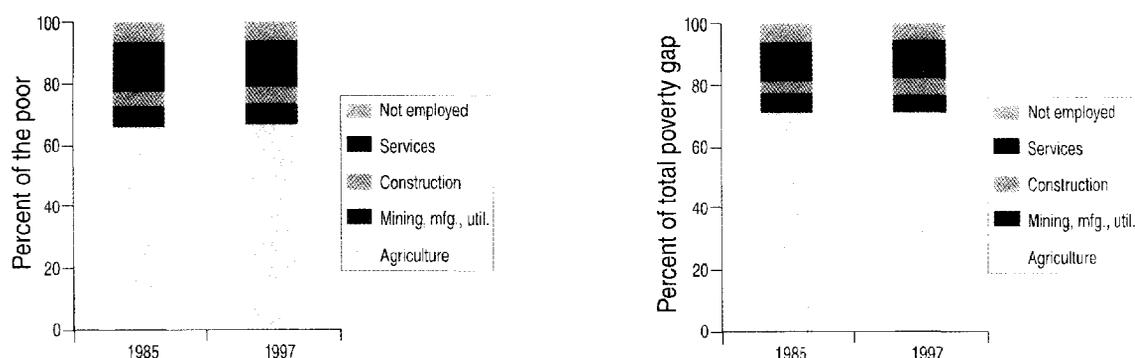
	1985	1988	1991	1994	1997
Urban					
Mean living standard (per person per year at 1997 prices)	24,099	26,283	26,213	25,093	31,657
		(6.2)		(-3.2)	(11.5)
Dimension of poverty					
Incidence (percent)	21.7	16.0	20.1	18.6	11.9
		(-8.1)		(-2.9)	(-14.8)
Depth (percent)	5.9	3.8	5.7	4.4	2.6
		(-9.0)		(-7.2)	(-13.3)
Severity (percent)	2.3	1.4	2.3	1.5	0.9
		(-8.2)		(-8.7)	(-11.1)
Inequality					
Gini	0.410	0.390	0.421	0.392	0.425
Theil T	0.327	0.286	0.355	0.295	0.379
Theil L	0.280	0.253	0.300	0.255	0.303
Rural					
Mean living standard (per person per year at 1997 prices)	12,838	14,414	13,864	14,154	16,475
		(10.2)		(1.8)	(14.4)
Dimension of poverty					
Incidence (percent)	53.1	45.7	48.6	45.4	36.9
		(-9.4)		(-4.0)	(-11.7)
Depth (percent)	17.8	14.0	15.6	13.0	9.8
		(-11.1)		(-8.0)	(-11.8)
Severity (percent)	8.0	5.9	6.8	5.2	3.6
		(-10.7)		(-8.8)	(-10.6)
Inequality					
Gini	0.352	0.350	0.359	0.336	0.352
Theil T	0.226	0.217	0.238	0.205	0.230
Theil L	0.204	0.200	0.211	0.183	0.202

Notes: Poverty and inequality estimates are based on per capita consumption expenditures adjusted for provincial cost-of-living differences. The derivation of provincial poverty lines is described in Annex A, Volume II. Figures in parentheses are t-ratios for differences between poverty measures for the reference year and the previous year.
Source: Balisacan (1999a).

Figure 2.11: Urban-Rural Disparities: Mean Living Standards, Inequality and Poverty, 1985-1997



Note: Due to reclassification of rural into urban areas, the figures for the 1980s are not comparable with those for the 1990s.
Source: Balisacan (2000), based on FIES data.

Figure 2.12: Sectoral Shares in the Number of Poor and the Aggregate Poverty Gap, 1985-1997

Source: Based on Balisacan (2000).

2.26 An apparent trend is the rising share of the rural sector among the poor. This share has increased both over the 1980s and the 1990s, apparently driven by fact that during the two growth spells of 1985-1988 and 1994-1997, urban poverty fell faster than rural poverty. However, due to the reclassification of rural into urban areas, it is difficult to make definitive statements about trends in the rural-urban composition of poverty.

SECTORAL COMPOSITION OF POVERTY

2.27 What was the sectoral composition of growth and poverty reduction? Table A2.4 summarizes the evolution of poverty by economic sectors.⁷ Poverty declined significantly in all sectors, though more in some sectors than others. The sector where it declined the most (measured by percentage change between 1985 and 1997) was finance, insurance, real estate and business services; this is true for all poverty measures. The sector with the least decline was agriculture, fishing and forestry for the headcount index, and mining and quarrying for measures of the depth and severity of poverty.

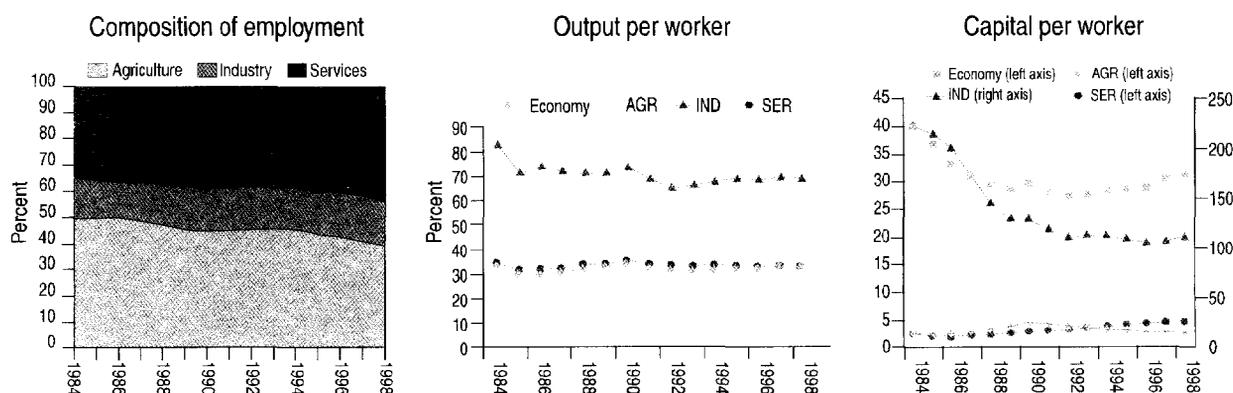
2.28 Despite the differential rates of poverty reduction, the sectoral composition of the poor has remained remarkably stable since the mid-1980s (Table A2.4). Agriculture, fishing and forestry accounted for two-thirds of the poor in 1985; it still accounted for two-thirds of the poor in 1997 (Figure 2.12). This is because the occupational distribu-

tion of the population shifted in favor of sectors where poverty has declined relatively more rapidly, thus leaving the sectoral shares in aggregate poverty relatively stable. For instance, while the incidence of poverty declined least rapidly in the agricultural, fishing and forestry sector, the population share of this sector also declined from 47 percent in 1985 to 40 percent in 1997.

2.29 The overall decline in poverty can be decomposed into a within component for the decline in poverty within sectors and a between component for the shift of population across sectors (including an interaction element for how the change in poverty within sectors covaries with shift in population). Over the 13-year period, 1985-1997, the overwhelming proportion of the decline in poverty in the Philippines was due to poverty reduction within sectors, accounting for 88 percent of the overall decline in poverty incidence and 91 and 93 percent of the total decline in the depth and severity of poverty.

2.30 In terms of the sectoral contribution to the overall poverty decline during 1985-97, it is the agriculture sector that dominates, accounting for 46 percent of the total decline in the incidence of poverty. This is despite the relatively slower decline in poverty within this sector, and mainly reflects the large share of this sector among the poor. The contribution of this sector to the decline in the depth and severity of poverty is even higher at 59 and 67 percent, respectively.

Figure 2.13: Sectoral Development of the Economy, 1984-98



Source: Staff computations based on various data sources.

2.31 The large share of the agricultural sector in total poverty (two-thirds of the incidence and about three-fourths for the severity of poverty) is the joint product of the high levels of poverty in this sector and the high (though declining) share of population dependent on this sector for its livelihood. This has two policy implications for future poverty reduction strategy. First, in the short to medium term, there is no getting away from the task of agricultural development if significant inroads are to be made into the problem of poverty reduction in the Philippines. And the reason is as simple as the fact the 67-75 percent of the poverty problem rests in the agricultural sector. Second, poverty reduction over the medium to long-term will require structural shift of employment and output from agriculture to the more productive non-agricultural sectors of the economy.

2.32 There has been only a limited shift in employment from the agriculture to the service sector since the mid-1980s (Figure 2.13). The share of the industrial sector has remained virtually constant at about 15 percent. Labor productivity in the economy as a whole, has been stagnant since 1984, as has also been the case in agriculture and the services sector. Labor productivity in the industrial sector has actually declined since the mid-1980s, which reflects the decline in capital intensity in that sector. There has been a decline in overall capital intensity in the economy largely reflecting the decline in the industrial sector, and in

spite of the service sector becoming more capital intensive. In the case of the industrial sector itself most of the decline in capital intensity is on account of the rapid decline in the share of (capital-intensive) utilities sector in total capital stock.

2.33 The decline in capital intensity has thus come at the expense of a decline in worker productivity which mitigated its potential contribution to poverty reduction. At the same time, there are large sectoral differentials in worker productivity which points to the large untapped potential of structural shift in employment and output scope for securing gains in living standards for large segments of the population.

REGIONAL DISPARITIES

2.34 Regional disparities in living standards and poverty have been an important policy concern in the Philippines. For instance, while the poverty incidence in 1997 was 3.5 percent in Metro Manila, it was 71 percent for the Eastern Samar province in Eastern Visayas. In a similar vein, poverty incidence in the poorest 10 provinces (which accounted for 7.9 percent of the national population) was 59.5 percent while it was 5.5 percent in the 10 least poor provinces (accounting for 25.2 percent of the population).⁸ In other words, a person living in the poorest 10 provinces was ten times more likely to be poor than a person living in one of the 10 least poor provinces

2.35 In 1988, poverty incidence in the poorest 10 provinces was 73 percent while these provinces accounted for 8.8 percent of the population; and it was 6.4 percent in the 10 least poor provinces where 21.3 percent of the population lived. This suggests there has been some reduction in regional disparities in poverty levels.

2.36 There was also significant re-ranking of provinces by their poverty levels. For instance, the poorest 10 provinces in 1988 and 1997 had only four provinces that were common, and the poorest 15 had only seven common ones. The rank correlation coefficient between 1997 and 1988 poverty rates was about 0.6 for measures of incidence, depth and severity. Re-ranking is also borne out by the graph in Figure 2.14 which plots poverty incidence in 1997 against that in 1988. Most of the points are below the 45° line indicates that poverty incidence fell in most (55 out of 76) provinces between 1988 and 1997. However, the graph is not monotonically increasing which implies re-ranking. In particular, every downward-sloping segment indicates a re-ranking of provinces in terms of their poverty incidence between 1998 and 1997. The graph shows that there was a lot of re-ranking.

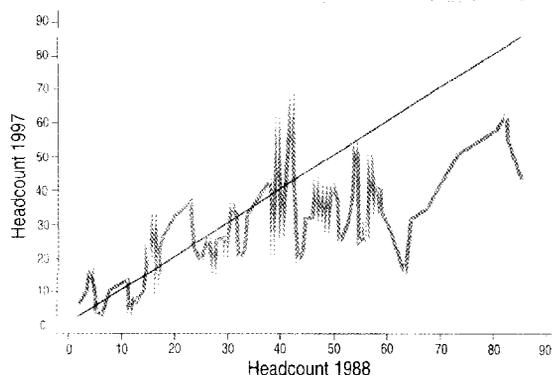
2.37 There is some evidence that points to convergence of living standards across provinces over this period. For instance, this is suggested by the decomposition of inequality in per capita consumption into within and between province components.

In general, inequality rose between 1988 and 1997 (Table 2.4). However, this was due to the increase in inequality within provinces. Inequality between provinces actually declined.

2.38 One can further examine the evidence for convergence by testing whether the rate of poverty reduction during 1988-97 has been greater in provinces that had higher poverty levels to begin with. The results show that percentage change in poverty was indeed negatively related to the 1988 poverty levels (Table 2.5) suggesting convergence over this decade. A similar convergence result also holds for the average standard of living and a measure of inequality.

2.39 However, these broad convergence results hide a more complicated pattern of change in regional disparities. First, despite the substantial decline in national poverty, poverty increased in 21 of the 75 provinces. Of course, in many of these cases the increase is not statistically significant, but it is nonetheless true that poverty failed to decline in these provinces. Second, it turns out that the poverty convergence results do not hold if one were to restrict attention to the 55 provinces where poverty declined. Rather, the overall convergence in poverty levels seems to be driven by the 21 provinces where poverty increased; in other words, within this set of provinces, poverty increased less in provinces that had higher levels of poverty to begin with (Table 2.5).

Figure 2.14: Change in Poverty Incidence Across Provinces, 1988-97



Source: Based on FIES data.

Table 2.4: Decomposition of Inequality in Per Capita Consumption, 1988-1997

Inequality Measure*	1988		1997			
	Total	Within Provinces	Between Provinces	Total	Within Provinces	Between Provinces
Generalized entropy (0)	0.2642	0.2034	0.0608	0.3026	0.2433	0.0593
Generalized entropy (1)	0.2981	0.2368	0.0613	0.3762	0.3120	0.0642
Atkinson (1)	0.2322	0.1847	0.0583	0.2611	0.2256	0.0458
Atkinson (2)	0.3816	0.3028	0.1131	0.4069	0.3543	0.0815

Note: * The parameter value for the Generalized Entropy (GE) measure shown in the parentheses indicates sensitivity of the measure to different parts of the distribution. GE(0) is more sensitive to the bottom of the distribution than GE(1). The GE(1) measure is the same as the Theil T measure. Higher parameters for the Atkinson measure indicate greater aversion to inequality. Source: Computed from 1988 and 1997 FIES data.

	All Provinces			Provinces Experiencing Decline in Poverty			Provinces Experiencing Increase in Poverty		
	Mean Cons.	Poverty Incidence	Theil Index	Mean Cons.	Poverty Incidence	Theil Index	Mean Cons.	Poverty Incidence	Theil Index
Log initial (1988) value	-0.4872 (5.99)	-0.3678 (4.78)	-0.4647 (5.46)	-0.3119 (4.78)	0.0636 (0.78)	-0.6273 (6.57)	-0.1848 (0.95)	-0.3150 (2.88)	-0.1551 (0.87)
R-square	0.33	0.24	0.29	0.30	0.01	0.45	0.05	0.30	0.04
No. of provinces	76	76	76	55	55	55	21	21	21

Note: Log initial (1988) value refers to the natural logarithm of the 1988 value of either mean (real) consumption per capita, or the poverty inequality measures for the corresponding equation. The data exclude the province of Rizal which was not surveyed in 1988. Absolute t-ratios are in parentheses.

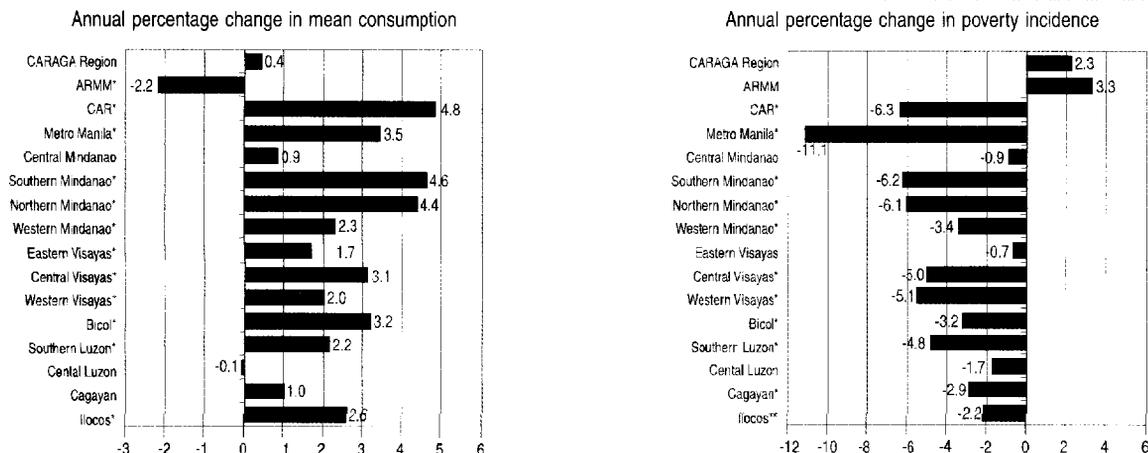
Source: Based on FIES data.

2.40 Thus, while there is quite a lot of re-ranking of provinces, there is no strong overall evidence for convergence of poverty levels, and clearly a number of provinces failed to participate in the significant poverty reduction observed at the national level. Given the mixed picture at the provincial level, it is also useful to look at how poverty evolved across the 16 regions. In particular, despite inter-provincial variation, did some regions as a whole lag behind? Figure 2.15 summarizes the situation.

2.41 There is a large variation in both growth in mean consumption and rates of poverty reduction across the 16 Philippine regions. In terms of poverty reduction, five regions have clearly lagged behind. These are the ARMM, the CARAGA Region,

Eastern Visayas, Central Mindanao, and Central Luzon. In the case of four of them, this seems to be driven by the lack of significant growth in mean consumption. For Eastern Visayas, there was significant growth (though still low in comparison with most other regions), but the poor failed to share adequately in the benefits of growth due to an increase in inequalities. Together, these five regions accounted for 25 percent of the total population and 30 percent of the total number of poor in 1997. The lack of poverty reduction in these regions points to a major failure of the growth process to deliver widely shared benefits. It also points to the need for a regional focus to the poverty alleviation strategy which accords high priority to the development of these poor and lagging regions.

Figure 2.15: Evolution of Poverty and Living Standards Across Regions, 1988-97



Note: * denotes significant change between 1988 and 1997 at the 5 percent level of significance. ** denotes significant change at the 10 percent level. The standard errors are corrected for sample stratification and clustering.

Source: Based on 1988 and 1997 FIES data.

Variable	Trend component	Seasonal component
Self-rated poverty	-0.0694 (0.1358)	-1.506 (2.273)
Self rated poverty line (poor households)	70.27*** (18.12)	96.22 (303.32)
Self rated poverty line (not poor households)	73.32*** (19.38)	-40.82 (324.47)
Real GDP per capita	17.13 (11.34)	-913.30*** (189.82)
Inflation rate	0.0184 (0.1053)	-0.2715 (1.762)
Unemployment rate	-0.0604*** (0.0217)	1.542 (0.3640)

Note: * indicates significance at the 10 percent level; ** indicates significance at the 5 percent level; *** indicates significance at the 1 percent level. Standard errors are reported in parentheses. A constant was calculated but is not reported.

Source: Based on the data from the Social Weather Stations, International Monetary Fund, International Financial Statistics; and Philippines National Statistics Office.

	Bivariate model	Bivariate model	Bivariate model	Multivariate model
Real GDP per capita (x100)	-0.6683 (0.1912) ***			-0.7416 (0.1969) ***
Inflation rate		0.4128 (0.2351) *		0.3705 * (0.2018)
Unemployment rate			0.1257 (1.201)	-0.9307 (1.063)
Number of observations	29	29	29	29
R-square	0.286	0.102	0.000	0.435
Dickey-Fuller test statistics	-3.638 **	-3.918 ***	-3.645 **	-4.263 ***

Note: * indicates significance at the 10 percent level; ** indicates significance at the 5 percent level; *** indicates significance at the 1 percent level. Standard errors are reported in parentheses. A constant was calculated but is not reported.

Source: Based on data from the Social Weather Stations, International Monetary Fund, International Financial Statistics and Philippines National Statistics Office.

Table A2.3: Correlates of Self-Rated Poverty Lines				
	Bivariate model	Bivariate model	Bivariate model	Multivariate model
POOR HOUSEHOLDS				
Real GDP per capita (x100)	-8.922 (30.70)			-14.77 (28.31)
Inflation rate		99.57*** (27.02)		96.16** (29.02)
Unemployment rate			-156.62 (157.50)	-66.77 (152.80)
Number of observations	29	29	29	29
R-square	0.003	0.335	0.035	0.344
Dickey-Fuller test statistics	-4.701***	-5.901***	-5.225***	6.081**
NOT POOR HOUSEHOLDS				
Real GDP per capita (x100)	-2.79 (32.89)			-17.86 (35.43)
Inflation rate		46.41 (34.29)		36.15 (36.32)
Unemployment rate			-204.45 (166.96)	-195.88 (191.20)
Number of observations	29	29	29	29
R-square	0.000	0.064	0.053	0.102
Dickey-Fuller test statistics	-3.401***	-3.790***	-3.681**	-3.860**

Note: * indicates significance at the 10 percent level; ** indicates significance at the 5 percent level; *** indicates significance at the 1 percent level. Standard errors are reported in parentheses. A constant was calculated but is not reported.

Source: Based on the data from the Social Weather Stations, International Monetary Fund, International Financial Statistics and Philippines National Statistics Office.

Table A2.4: Sectoral Poverty Profile, 1985-1997

	Incidence					Depth					Severity				
	1985	1988	1991	1994	1997	1985	1988	1991	1994	1997	1985	1988	1991	1994	1997
	Agriculture	57.7	51.2 (-7.3)	51.9 (0.8)	49.9 (-2.5)	42.3 (-9.7)	20.0	15.9 (-10.0)	16.9 (2.7)	14.5 (-7.1)	11.5 (-10.1)	9.2	6.7 (-9.9)	7.4 (3.1)	5.8 (-8.2)
Mining	46.4	34.4 (-1.8)	44.7 (1.7)	37.1 (-1.2)	30.0 (-1.1)	13.8	8.9 (-1.9)	12.5 (1.6)	7.4 (-2.4)	10.0 (1.1)	6.0	3.5 (-1.7)	4.9 (1.3)	2.1 (-2.9)	4.5 (1.9)
Manufacturing	31.4	21.9 (-4.8)	20.9 (-0.6)	16.5 (-3.0)	13.5 (-2.2)	9.3	6.0 (-4.5)	6.3 (0.5)	3.8 (-4.7)	2.7 (-0.5)	3.9	2.4 (-3.9)	2.6 (0.8)	1.3 (-4.9)	0.9 (-2.6)
Utility	17.5	10.8 (-1.0)	12.5 (0.3)	9.5 (-0.7)	9.5 (0.0)	4.3	3.0 (-0.6)	3.8 (0.5)	2.3 (-1.0)	2.4 (0.1)	1.4	1.2 (-0.2)	1.4 (0.2)	1.0 (-0.5)	0.9 (-0.2)
Construction	39.6	33.8 (-2.2)	33.8 (0.0)	34.5 (0.3)	23.1 (-6.7)	11.7	9.2 (-2.6)	9.9 (0.9)	8.9 (-1.4)	5.0 (-6.8)	4.7	3.7 (-2.0)	4.1 (1.0)	3.3 (-2.2)	1.6 (-6.1)
Trade	27.3	18.6 (-4.9)	21.3 (1.7)	17.8 (-2.4)	13.5 (-3.5)	6.9	4.7 (-3.9)	5.6 (1.7)	4.0 (-3.4)	2.9 (-3.0)	2.6	1.7 (-3.0)	2.1 (1.6)	1.3 (-3.7)	0.9 (-2.5)
Transportation	27.8	24.1 (-1.8)	22.5 (-0.8)	21.2 (-0.8)	13.7 (-5.3)	7.0	5.4 (-2.4)	6.0 (1.0)	4.7 (-2.3)	2.8 (-4.6)	2.6	1.8 (-2.5)	2.4 (1.9)	1.6 (-2.8)	0.9 (-3.6)
Finance	13.2	8.5 (-1.7)	6.9 (-0.7)	7.1 (0.1)	3.0 (-2.5)	2.4	1.6 (-1.1)	1.9 (0.4)	0.9 (-1.6)	0.5 (-1.5)	0.8	0.5 (-0.7)	0.7 (0.7)	0.2 (-1.8)	0.1 (-1.1)
Services	20.0	15.4 (-3.5)	15.2 (-0.2)	12.7 (-2.4)	9.9 (-3.1)	5.2	4.0 (-2.8)	4.0 (0.1)	2.8 (-3.3)	2.2 (-2.2)	1.9	1.5 (-2.0)	1.5 (0.2)	1.0 (-3.1)	0.7 (-2.0)
Unemployed	21.5	18.3 (-2.3)	16.8 (-1.2)	17.1 (0.3)	12.1 (-5.2)	6.1	4.9 (-2.5)	4.5 (-0.9)	4.1 (-1.3)	2.9 (-4.1)	2.6	1.9 (-2.6)	1.8 (-0.4)	1.4 (-2.3)	1.0 (-3.2)

Note: Figures in parentheses are t-ratios of the difference between the poverty measure for the current year and that for the previous year.

Source: Balisacan (2000).

Endnotes

- 1 These estimates are based on a poverty line that is calibrated to a nutritional norm of 2,000 calories per person per day and allows for basic non-food expenditure (defined as the actual nonfood expenditure of households who can just afford the food poverty line, or whose total expenditure is in the neighborhood of the food poverty line). For further details, see Annex A, Volume II, and Balisacan (1999a).
- 2 Figures 2.1 and 2.2 present estimates for the so-called “a dollar a day” poverty line, but a similar pattern also holds for the “two dollars a day” poverty line. Also note that for the Philippines, these poverty estimates differ from those in Table 2.1 both on account of the different poverty lines used and also due to the use of spatial (provincial) cost of living differentials in the construction of estimates in Table 2.1.
- 3 One limitation of the data on self-rated poverty and self-rated poverty lines is that, prior to 1992, information on self-rated poverty is not available for a number of quarters. This concern was addressed by condensing the data into semesters, so that the first semester runs from January to June, and the second semester from July to December. Simple averages over two quarters are taken of inflation and unemployment, and of self-rated poverty when data at more than one point in time within a semester are available. GDP per capita in a given semester is simply given by the sum of GDP per capita in the two quarters in question. GDP per capita and the subjective poverty lines were normalized by dividing through by the consumer price index, so that all reported figures are in 1995 Pesos. Finally, to facilitate comparisons between the self-rated poverty line and real GDP per capita, the self-rated poverty lines have also been transformed into per capita (rather than per-household), per semester (rather than per month) poverty lines. Results in Table A2.2 are based on regressions of the following form:

$$Y_t = \alpha + \beta T_t + \delta_1 S1_t + \varepsilon_t,$$

where T_t is a linear time-trend, $S1_t$ is a dummy variable for the first semester, and ε_t is an error term.

- 4 Figure 2.9 graphs de-trended, de-seasoned measures of self-rated poverty and de-trended, de-seasoned measures of real GDP per capita. Results in Table A2.1 are based on regression analysis to estimate the relationships between real GDP per capita, unemployment, inflation, and self-rated poverty, using regressions of the following form:

$$\text{Poverty}_t = \phi + \gamma_0 \text{GDP}_t + \gamma_1 \text{inflation}_t + \gamma_2 \text{unemployment}_t + \varepsilon_t$$

where all of the variables have had the trend and seasonal components removed. Two sets of regressions were considered, corresponding to those which include only one explanatory variable (real GDP per capita, inflation, or unemployment), and those which consider all three. Removing the trend and seasonal components from all variables makes sense from an econometric perspective to correct for possibly spurious relationships. Consider, for example, a scenario in which self-rated poverty and real GDP per capita both have trend components. A regression of self-rated poverty on real GDP per capita might well find a significant relationship between the two. It may be, however, that no true underlying relationship exists, and the trend component in self-rated poverty is actually explained by trend components in other variables—say, an increase in education levels. From an economic point of view, de-trending and de-seasoning may also be sensible. During the 1985-1999 period real GDP per capita in the Philippines exhibits a small, insignificant positive trend, and a predictable “saw-tooth” pattern, generally being highest in the 4th quarter and lowest in the 1st quarter of the year. Secular increases in real income may do little to explain self-rated poverty if the self-rated poverty line itself increases with income—something which has been observed elsewhere (Ravallion 1994; Kapteyn et. al., 1988). Also, if households do not associate predictable seasonal patterns in real GDP with changes in their underlying welfare, we would expect seasonally adjusted estimates of real GDP to be better predictors of self-rated poverty.

- 5 Table A2.1 presents the results of regression analysis of the de-trended, de-seasoned poverty lines in terms of the de-trended, de-seasoned values of real GDP per capita, unemployment, and inflation.
- 6 Balisacan (1993) demonstrated that the failure to take account of the “shifting of physical areas” arising from reclassification of villages would distort the overall picture on the actual performance of rural areas from the late 1980s to the early 1990s. The sampling frame for the 1985 and 1988 FIES was based on the 1980 population census, while that for the 1991 FIES was based on the 1990 census. Both censuses applied the same set of criteria in classifying villages into “urban” and “rural” areas.
- 7 The sectors are identified by the primary occupation of the head of the household.
- 8 In general, larger provinces tended to be less poor. For instance, there was a significant negative correlation of -0.37 between provincial poverty incidence and population shares in 1997.

SOCIAL SERVICES AND THE POOR

3.1 The poor in most settings have few assets other than their own labor power. A key reason for their poverty is that their labor has low productivity and earns low returns in the market. Building their human capital through better education and health is thus a powerful instrument for their escape from poverty. It is valuable in its own right too: it directly enhances the ability of the poor to lead better lives and ensure better lives for their children. It also empowers them to make better use of institutions to avail of the existing economic and social opportunities.

3.2 An equitable provision of social services in education and health is an important means of investing in the human capital of the poor. How well do these social sector services reach the poor in the Philippines? This chapter focuses on the education and health sectors. It examines the degree of inequality in education and health endowments, assesses the extent to which government spending is progressive in these sectors, and in the case of education, looks at how differential endowments play out in the labor market.

EDUCATION, LABOR MARKETS, AND POVERTY

3.3 This section reviews the evidence on education, wages, and poverty in the Philippines. The five basic conclusions are: first, the broad pattern of public education spending in the Philippines is mildly progressive. Poor households receive a higher fraction of benefits than the non-poor. However, the extent to which spending is progressive varies a great deal by level, so that spending on primary education



is progressive, spending on secondary education is neutral, and spending on tertiary education is regressive. Second, given its per capita income level, the Philippines has achieved impressively high enrollment rates in primary and secondary education; as a result, the average number of years of schooling completed has increased over time, and is high compared to other countries in the region. Third, however the high averages mask large differences by region and by income quintile in educational attainment; providing high quality education to some traditionally disadvantaged groups should therefore be an important priority for the future. Fourth, there appear to be large differences in the rate of return to education across levels. Specifically, the private rate of return is much higher for college than for primary school or secondary school. This suggests either that the basic education which is provided is not of sufficiently high quality and raises productivity by only a moderate amount, or that the structure of the economy is such that it does not reward lower levels of education. Fifth, there is no evidence of gender discrimination in access to education; but the same cannot be said for the labor market, where women appear to earn less than would be expected given their education and experience.

PATTERNS OF EXPENDITURE ON EDUCATION

3.4 The Philippines government spends 2.9 percent of GDP on education (Table 3.1); this is below spending levels in Thailand (4.8) and Malaysia (0.2) but substantially above those in Indonesia (1.4) and China (2.3).¹ The overall pattern of spending is mildly progressive.²

3.5 Figure 3.1 plots the cumulative share of benefits from public education (y-axis) against the cumulative share of the population ranked by consumption (x-axis). This requires information on frequency of service use by sub-category and unit cost information for the relevant sub-categories. The 45° line represents neutrality in the distribution — if, for example, the poorest 20 percent of the population accounts for 20 percent of public spending on el-

	Million Php	% of Total government expenditure
Elementary	43,804	8.9
Secondary ^a	13,268	2.7
Tertiary ^b	13,800	2.8
Vocational ^c	1,300	0.3
Other ^d	2,152	0.4
Total	74,324	15.1
As percentage of GNP (%)	2.9	

Note:

^a represents allocation at regional level, including GATSPE and school building program;
^b SUCs and CHED;

^c vocational education is under TESDA since 1968;

^d pre-school and non-formal programs after 1994.

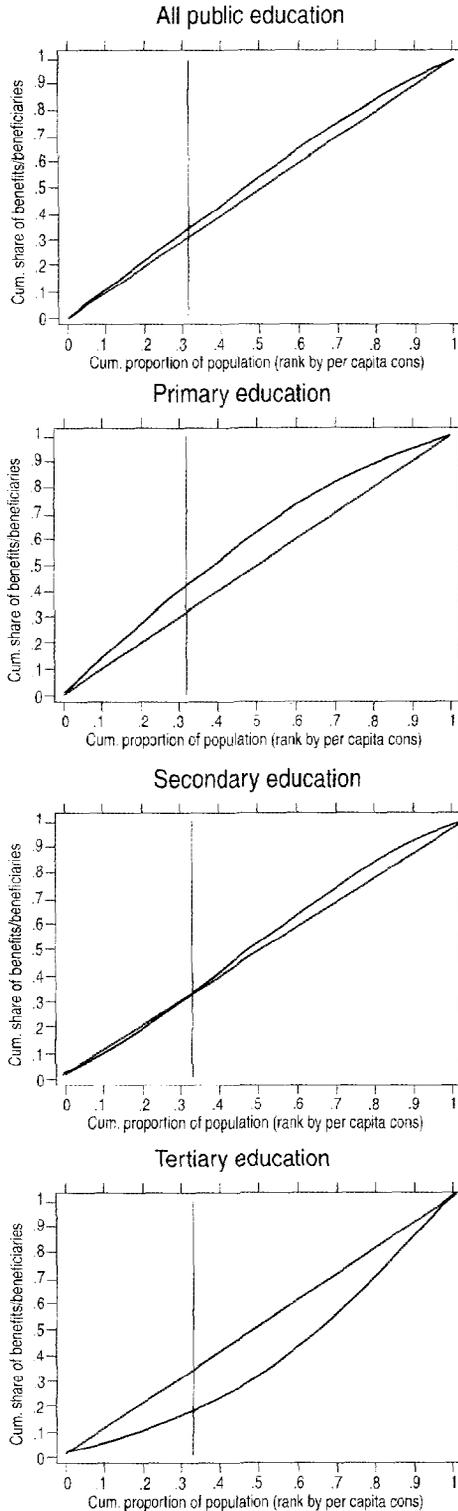
Source: World Bank (1996c), Philippines: Social Expenditure Priorities, based on DBM data.

ementary school - and therefore any deviation from that line suggests that the distribution of benefits varies by income; public spending is progressive if the curve is concave (above the 45° line) and regressive, if it is convex (below the 45° line). Because the analysis uses a standard unit cost per level of school, the incidence of spending for a given level of schooling simply reflects the pattern of utilization of that level of schooling by income category. Incidence analysis (that is, unit cost information) becomes important when assessing the distribution of aggregate education spending because costs vary widely by level of schooling.

3.6 The fact that overall public spending on education is mildly progressive hides important differences in the incidence of expenditures at different levels: spending on primary education is pro-poor; the distribution of expenditures on secondary education is largely neutral; and public spending on tertiary education is highly regressive. Approximately 20 percent of the education budget is spent on tertiary education which caters to less than one million students from relatively wealthier backgrounds. The scholarship programs of the government do not attenuate the pro-rich bias of tertiary education; they appear instead to be equally skewed (Figure 3.2). This may be driven, in part, by the fact that government scholarships are handed out on the basis of merit, rather than need, and children from poorer households are less likely to have access to the high-quality secondary education which would allow them to perform best on standardized tests.³

Figure 3.1: Public Spending on Education

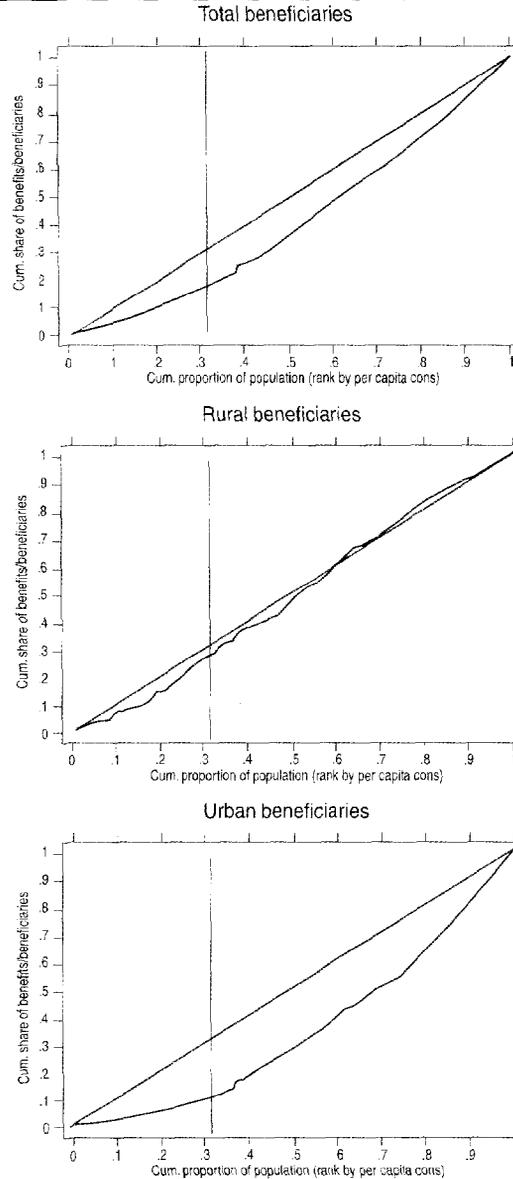
Overall public spending on education is mildly progressive but tertiary education benefits the well-off, 1998.



Note: The vertical line in these graphs represents the poverty headcount which was estimated at 31.8 % in 1998 using the APIS dataset; note, however that this is not comparable to the 25 % headcount estimated for 1997 using FIES data.
Source: Staff calculations based on 1998 APIS data.

Figure 3.2: Tertiary Scholarships

Scholarships for tertiary education overwhelmingly benefit the better off in urban areas, 1998.



Source: Staff calculations based on 1998 APIS data.

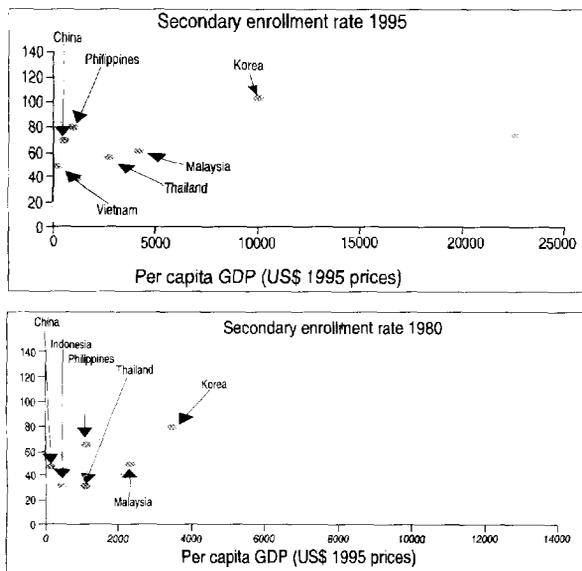
3.7 Incidence analysis is useful in gauging the extent to which programs are able to target the poor but they cannot tell the full story because they are necessarily silent on the quality of services provided. It is possible to have highly progressive government spending which delivers low quality education or low quality healthcare; in fact, if the services are of low quality, public facilities are more likely to be successful in targeting the poor who will have fewer options than the wealthy in seeking alternative service providers.

Educational attainment

3.8 Are Filipino children and adults well-educated by international standards? The answer to this question clearly depends on both the access which children have to education, and the quality of the education which they receive. Figure 3.3 graphs gross secondary enrollment as a function of per capita income for a sample of developed and developing countries in 1980 and in 1995. Figure 3.3 suggests that access to secondary education in the Philippines, as measured by secondary enrollment rates, has been and remains high.⁴

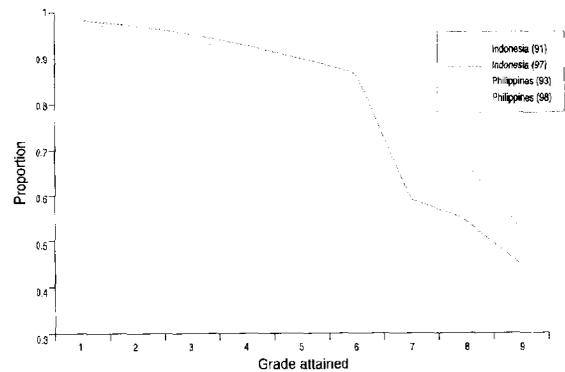
3.9 The high enrollment rates achieved in the Philippines are confirmed in Figure 3.4, which shows the educational attainment of 15 to 19-year olds for the Philippines and Indonesia, two countries in the region with similar per capita incomes. The x-axis of the graph corresponds to a given grade in primary or secondary school, while the y-axis measures the proportion of 15 to 19-year olds who have attained at least that grade. Figure 3.4 suggests that the fraction of children who continue after elementary school is higher in the Philippines than in Indonesia. There are no important changes in educational attainment in the Philippines between 1993 and 1998.⁵

Figure 3.3: Gross Secondary Enrollment and Income, Various Countries



Source: World Development Indicators, various issues.

Figure 3.4: Educational Attainment, Ages 15-19

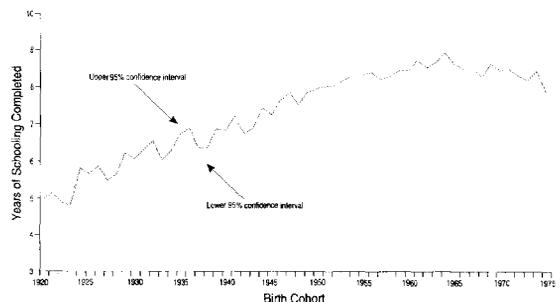


Source: Filmer (1999b), based on Demographic and Health Surveys (DHS) for both countries.

3.10 Figure 3.5 graphs the mean years of schooling completed by different age cohorts in the Philippines. Figure 3.5 clearly shows that older individuals are much less likely to have high levels of education than their younger counterparts: for example, the mean educational attainment of the 1920 birth cohort is about 5 years of schooling, compared to almost 9 years of schooling for the 1965 cohort. Still, even today, fewer than two-thirds of Filipino children who enter the primary cycle in Grade 1 finish Grade 6 (Asian Development Bank and World Bank, 1999, p. 23).

3.11 Average educational attainment can hide important differences by region, income group, or gender. Figure 3.6 shows the average number of years of school completed by 15 to 19-year olds, broken down by gender, and place of residence. It shows that the educational attainment of women is higher than that of men, in both urban and rural areas. It

Figure 3.5: Educational Attainment by Birth Cohort



Source: Staff calculations based on 1998 APIS data.

also shows that there are very large differences between the educational attainment of urban and rural residents. Young men in rural areas, in particular, drop out of school early, presumably to take up employment in agriculture.⁶

3.12 Figure 3.7 graphs the proportion of children aged 6 to 14 who are currently enrolled in school. Three different lines are presented — corresponding to the wealthiest 20 percent, the middle 40 percent and the poorest 40 percent of the population.⁷ Figure 3.7 shows that at any given age, the proportion of poor children who are enrolled is substantially below the corresponding fractions for children from the better-off households.

3.13 Finally, Figure 3.8, graphs the average years of schooling attained by age and income quintile for children aged 6 to 16.⁸ It shows large differences in the educational attainment of children in different income quintiles, especially after ages 12-

13 (roughly corresponding to graduation from elementary school). By age 16, children in the richest income quintile have completed two more years of schooling than their counterparts in the poorest income quintile. Note that these differences could be driven both by higher repetition rates and higher drop-out rates among the poor.

3.14 A recent study states that the “foremost issue in education is the lack of equity between those in the Philippines “who have” and those who “have not” (Asian Development Bank and World Bank, 1999, p. 24). Given the clear relationship between education and living standards, it is important that access to education in the Philippines be extended to traditionally disadvantaged groups — in particular, to poor households in rural areas. Access to basic education may be determined, in part, by physical access — that is, whether there is a primary or secondary school nearby. As discussed earlier, secondary schools are less likely to be located in poorer barangays.⁹ However, there are clearly other factors which determine educational attainment, including the language of instruction, which may make it more difficult for children from households where Filipino is not the mother tongue to make satisfactory progress; the direct private costs of education, which may be important for poorer households; the quality of education; the difficulties which poor households face in making the transition from secondary to tertiary levels; and the higher discount rates of poor households, which would lead them to value the income they can earn in the labor market now

Figure 3.6: Educational Attainment, Ages 15-19, by Gender and Place of Residence, 1998

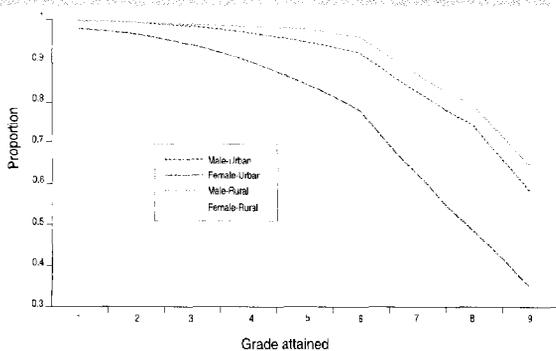
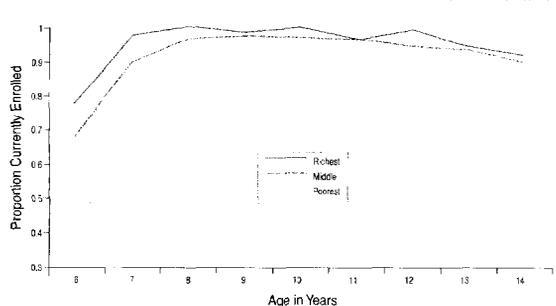
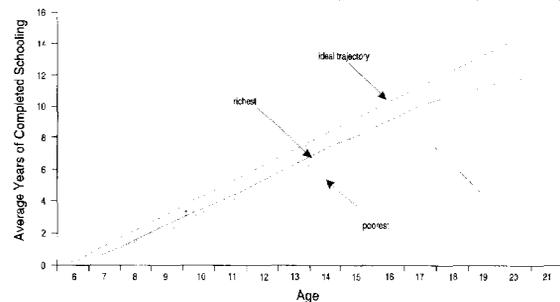


Figure 3.7: Proportion Currently Enrolled, Ages 6-14, by Wealth Group, 1998



Source: Filmer (1999b), based on 1998 DHS.

Figure 3.8: Average Years of Schooling Attained, by Age and Income Quintile, 1998



Source: Alba (2000), based on 1998 APIS data.

more than the higher income they could earn in the future if they received more education.

3.15 Children in better-off households receive more education in the Philippines. Poor households are doubly disadvantaged; however, if the quality of education they receive is lower than the quality of education received by the non-poor. Differences in the quality of education received by poor and non-poor households may result in eventual differences in productivity. If so, the poor may not receive as high a labor-market premium to an additional year of schooling as the non-poor.¹⁰

3.16 There is good reason to suspect that children from poor households receive lower quality education than their better-off counterparts in the Philippines. A larger fraction of non-poor students are enrolled in private institutions, where quality appears to be higher: almost one-half (46%) of 6 to 24-year olds who are enrolled in school in the richest income quintile attend a private school, compared to less than 5 percent of 6 to 24 year olds in the poorest income quintile. The fact that a large fraction of those who can afford to send their children to private schools likely reflects underlying differences in quality between the public and private systems. Indeed, cohort-survival rates, and the performance of students on standardized tests are both higher in private than in public schools. Quality in the public sector is also compromised by the fact that a very high — and growing — fraction of total expenditures in the sector are devoted to teacher salaries, at the expense of maintenance and other operating expenditures (MOOE). In per-pupil terms, maintenance and other operating expenditures was only PhP135 in 1997 (less than US\$4), which was only about a quarter of what it had been in 1990 (Asian Development Bank and World Bank, 1999).

3.17 The problem of quality differentials in the schooling received by poor and non-poor children is compounded by differences in the amount spent per student. Table 3.2 summarizes the amount spent by households in different consumption quintiles per

child in primary, secondary and tertiary school.¹¹ Table 3.2 shows that there are very large differences in the private unit costs of education by consumption quintile. The richest households spend more than 20 times as much as the poorest households for every child enrolled in primary school, and more than 10 times as much for every child enrolled in tertiary education. These extremely large differences across quintiles are driven, in part, by the fact that poorer households are much less likely to send their children to private schools, where the unit costs faced by households are much higher than in the public system.¹² However, there are also large, significant differences by quintile in the amount spent by households per student within the public (or private) systems: households in the richest quintile, for example, spend 12 times as much per student enrolled in public primary school as households in the poorest quintile, 6 times as much per student in public secondary school, and 9 times as much per student in public university. This suggests that better-off households spend more per student on vital education inputs such as textbooks and learning materials — all of which have an important effect on the amount of learning which takes place in the classroom and, ultimately, on the productivity of workers.

Table 3.2: Direct Private Costs of Education, by Education Level and Consumption Quintile

	All HH	Quintile				
		1 (poorest)	2	3	4	5 (richest)
Primary						
Unit costs (per student)	898	270	69	771	1589	5536
% of total HH consumption	0.7	0.6	0.7	0.9	1.3	2.0
Secondary						
Unit costs (per student)	2745	661	1263	1696	3052	7295
% of total HH consumption	2.0	1.5	1.9	1.9	2.4	2.6
Tertiary						
Unit costs (per student)	13334	1879	3487	5690	8512	20355
% of total HH consumption	9.7	4.1	5.3	6.5	6.8	7.2

Note: Quintiles are 1997 per capita consumption quintiles.

Source: Staff calculations based on 1997 FIES (FIES) and 1998 APIS data.

Labor market outcomes

3.18 Education is a key determinant of wages, and wage income is an important source of income for poor households. This section examines the relationship between education and wages in the Philippines and tries to provide answers to three questions: first, what are the private rates of return to education? Second, is there evidence of discrimination by gender in the Philippine labor market? Third, are certain kinds of education associated with particularly high or low premia in the labor market?¹³

3.19 The basic approach to estimating the private returns to education taken in this report is to use a regression framework to decompose the relationship between (the log of) hourly wages on the one hand, and years of education and experience on the other.¹⁴ Results from this estimation are summarized in Table 3.3.¹⁵ Column 1 presents the basic regression results for all wage-earners aged 25 to 65 in the sample; column 2 limits the sample to household heads as a partial correction for selection into the labor market. This is an issue because not all people who receive education enter the labor market: many work on their own farms, or do housework at home. We therefore observe wages only for a self-selected group of potential wage earners. If, as appears likely, these wage earners are fundamentally different from non-wage earners, estimated results may be inaccurate;¹⁶ column 3 limits the sample to siblings in households in which there are at least two siblings who report wage income, and includes an additional term for the average years of education of all siblings in a household who report wage income. If people who earn higher wages do so, at least in part, because they are more able, and ability is not properly measured, a “simple” regression framework would (incorrectly) attribute all of the differences in earnings to differences in schooling. The approach we take to partly correct for unobserved ability is to assume that this ability is shared by some members in a household — say, all siblings. This means, in effect, that we estimate the rates of return to education by comparing siblings

	Specification			
	Basic mincerian	Household heads only	Within- family estimates	Adults without children
Years of education	0.133*** (0.002)	0.124*** (0.002)	0.114*** (0.006)	0.124*** (0.003)
Experience	0.027*** (0.002)	0.025*** (0.003)	0.054 (0.007)	-0.022** (0.008)
Experience squared (x100)	-0.033*** (0.004)	-0.034*** (0.005)	0.004 (0.019)	0.129*** (0.026)
Constant	1.157*** (0.034)	1.374*** (0.048)	1.331*** (0.104)	1.559*** (0.077)
R-square	0.291	0.278	0.265	0.243
N	25,231	13,719	3,023	9,061

Note: The dependent variable in every specification is the log of the hourly wage. Standard errors corrected for heteroskedasticity and clustering are reported in parentheses. All adults aged 26-65 who report earning wages are included in specification 1; specification 2 is limited to household heads aged 25-65 only; specification 3 is limited to siblings in households in which there are at least two siblings who report wage income, and includes an additional term for the average years of education of all siblings who report wage income, and includes an additional term for the average years of education of all siblings in a household who report wage income; specification 4 is limited to adults aged 25-35 who are household heads or spouses in households which have no members whose relation to the household head is “son or daughter,” and household members whose relationship to the household head is reported as “son, daughter, son-in-law, or daughter-in-law” in households where there are no members whose relationship to the household head is reported as “grandson or granddaughter.”

*** significant at the 0.1% level; ** significant at the 1% level; * significant at the 5% level. Source: Staff calculations based on the 1998 APIS data.

within a given household.¹⁷ Column 4 finally, addresses an important concern, namely, the fact that the measure of experience in the regression is a measure of “potential experience” rather than “observed experience,” where potential experience is defined as age minus years of schooling minus six. Actual experience is rarely measured in household surveys in the Philippines or elsewhere, so including “potential experience” in a wage regression is a common compromise. Unfortunately, “potential experience” may seriously over-estimate the number of years of experience of women if women who are currently in the labor market have taken time out at an earlier point in their career to raise children. This is a particular source of concern for estimates of gender discrimination. We correct this problem by limiting the sample to men and women who are extremely unlikely to have had any children. Specifically, we run regressions which include only household heads and their spouses aged 25 to 35 years

old in households where the household head reports having no children, as well as children and children-in-law of the household head aged 25 to 35 years old in households where the household head reports having no grandchildren.¹⁸

3.20 Three points are worth noting on the results in Table 3.3. First, the estimated coefficients show that education has a large, significant effect on wage earnings in the Philippines. On average, an additional year of education increases hourly wage earnings by 12 to 14 percent.¹⁹ These estimates are high by international standards. A global review by Psacharopoulos (1994) reports a mean rate of return to education of 10.1 percent for the world, and of 9.6 percent for a sample of Asian countries. Education increases wage income by a large amount in the Philippines, and should therefore be a key ingredient in any strategy designed to reduce poverty. Second, the estimated coefficients are quite similar across specifications. It therefore appears that selection, unmeasured ability, and the imperfect nature of our measure of experience do not result in large biases in the estimates. Third, the coefficients on experience and experience squared show a familiar hump-shaped pattern, whereby additional experience is rewarded for the first 40 to 45 years, and is associated with lower mean earnings thereafter.

3.21 We next turn to estimates of the presence (or absence) of labor market discrimination against women in the Philippines. Specifically, is there evidence that women earn lower wages than we would expect them to, given their characteristics? The basic approach we take decomposes observed differences in mean hourly wages between men and women into “explained” and “unexplained” components.²⁰ The observed difference is simply the difference in mean hourly wages between men and women in the sample. To break this observed difference down into “explained” and “unexplained” components, we run regressions similar to those for Table 3.3, separately for men and women. The estimated coefficients on the regressions for one group — say, men — are then applied to the mean years of education and experience of the other group — say,

women. This gives the “explained” difference in earnings — that is, the predicted wages which women would earn if their characteristics were rewarded in the labor market in the same way that they are for men. The remaining difference in mean wages is unexplained, and may be a result of labor market discrimination.²¹

3.22 In the Philippines, the mean hourly wage of women is above the corresponding wage for men. For example, in the full sample of wage-earners in the APIS survey, women earn, on average, about 6 percent more than men per hour. At face value, this would seem to suggest that there is no discrimination against women in the labor market. However, women in this sample also have an average of almost two more years of education than men. The question, therefore, is whether the differential in mean hourly wages between men and women would be larger even if men and women were rewarded in the labor market in the same way for education and experience.

3.23 Table 3.4 presents estimates of the explained and unexplained components of wage differentials in the Philippines. The upper panel gives the estimated rates of return to education and experience for men and women, for the full sample (columns 1 and 2), for the sample of household heads only (columns 3 and 4), and for the sample of young adults without children (columns 5 and 6). A number of things should be noted about these results. First, the rate of return to education is substantially higher for women than for men: an additional year of education leads to an increase in mean hourly wages earned by women of 16 percent to 18 percent, compared to an increase of 12 percent to 13 percent for men. Elsewhere, it has also frequently been observed that the rates of return to education for women are higher than the corresponding rates for men. In the review by Psacharopoulos (1994), for example, the average rates of return for all countries in the sample are 11.1 percent for men’s education, and 12.4 percent for women’s education. Philippine data show, however, that the rates of return for both men and women are large by international standards, as is the

	Basic mincerian		Specification household heads only		Adults without children	
	M	W	M	W	M	W
Years of education	0.123*** (0.002)	0.166*** (0.003)	0.123*** (0.002)	0.153*** (0.006)	0.111*** (0.004)	0.167*** (0.007)
Experience	0.031*** (0.002)	0.017*** (0.003)	0.025*** (0.003)	0.011 (0.009)	-0.019 (0.010)	-0.030* (0.013)
Experience squared (x100)	-0.039*** (0.004)	-0.016 (0.006)	-0.031*** (0.005)	0.009 (0.015)	0.110*** (0.033)	0.177*** (0.054)
Constant	1.248*** (0.040)	0.758*** (0.051)	1.391*** (0.50)	1.019*** (0.143)	1.720 (0.099)	0.965*** (0.128)
R-square	0.253	0.392	0.269	0.398	0.207	0.323
N	16,738	8,493	12,472	1,247	6,163	2,898
Observed mean hourly wage	17.83	18.02	18.54	17.50	15.93	18.14
Observed % difference ($W_i^0 - W_m^0$)/ W_m^0		1.1%		-5.6%		13.9%
Predicted mean hourly wage	17.83	21.73	18.54	21.39	15.93	20.19
Predicted % difference ($W_i^p - W_m^p$)/ W_m^p		21.9%		15.4%		26.7%
Residual % difference ($W_i^p - W_i^0$)/ W_m^0		20.8%		21.0%		15.5%

Note: The dependent variable in every specification is the log of the hourly wage. Standard errors corrected for heteroskedasticity and clustering are reported in parentheses. All adults aged 26-65 years old who report earning wages are included in specification 1; specification 2 is limited to household heads aged 25-65 years old only; specification 3 is limited to adults aged 25-35 years old who are household heads or spouses in households which have no members whose relation to the household head is "son or daughter," and household members whose relationship to the household head is reported as "son, daughter, son-in-law, or daughter-in-law" in households where there are no members whose relationship to the household head is reported as "grandson or granddaughter."

"Observed % difference" is the observed difference in mean hourly wages between women and men, as a percentage of men's observed mean hourly wages. "Predicted % difference" is the predicted difference in mean hourly wages if women were paid according to men's salary structure, as a percentage of men's predicted mean hourly wages. "Residual % difference" is simply the difference between the observed and predicted differences in mean hourly wages.

*** significant at the 0.1% level; ** significant at the 1% level; * significant at the 5% level.

Source: Staff calculations based on the 1998 APIS data.

difference between them. High rates of return to female education likely encourage women to get more schooling. Education is therefore a particularly important vehicle for women to earn income and escape poverty. Moreover, higher levels of female education and higher wages, which are associated with them, are likely to have other beneficial effects. International evidence suggests that both women's education and the contribution of women's income to total household income improve child health outcomes, and increase the proportion of the household budget that is devoted to expenditures in education and health.

3.24 A second point in Table 3.4 is that there do not appear to be large differences in the way in which labor market experience is rewarded for men and women. Separate calculations show that the returns to experience for any given level of education are

similar for men and women. The third point worth noting about the top panel of Table 3.4 is the constant in the regression. This constant gives the mean expected log hourly wage for men and women with zero years of experience and no education. This estimated "starting" wage is consistently higher for men than it is for women. For example, in the full sample, the expected hourly wage for men with no education and no experience is PhP3.48, while the comparable wage for women is PhP2.13. Additional years of experience add to the wages of men and women in much the same way, and additional years of education add more to the wages earned by women than they do to those earned by men. However, women enter the labor market at a substantial disadvantage.²²

3.25 The lower panel in Table 3.4 decomposes the differences in mean hourly wages between men

and women into the explained (or predicted) percent difference and the unexplained (or residual) percent difference. Table 3.4 clearly shows that although the mean hourly wages of women in the Philippines are higher than those of men, women would make even more in relation to men if their characteristics were rewarded in the labor market in the same way. Specifically, we would “expect” to see a wage gap of between 15.4 percent and 26.7 percent, rather than the observed wage gap of negative 5.6 percent to 13.9 percent. Note finally, that the difference between the observed and predicted differences in wages is smallest for the sample of childless men and women. In columns 5 and 6, the observed difference in wages is about one-half the predicted difference. This suggests that much, but by no means all, of the very high gap between observed and predicted wage differences for women in the full sample can be attributed to the fact that our measure of “potential experience” is unlikely to coincide perfectly with actual experience for women who have borne children.

3.26 In conclusion, there are large, unexplained differences in the earnings of men and women in the Philippines. There are numerous possible explanations for these differences. First, women may be penalized by employers for the fact that they could drop out of the labor market in the future to raise families. Second, the wage differentials at very low education levels could be explained by the fact that the productivity of men in sectors which require physical labor — such as construction, or agriculture — is higher than that of women. This proposition cannot be verified in the absence of gender-disaggregated data on productivity for these sectors. Third, it is possible that employers simply discriminate against women because of their gender.

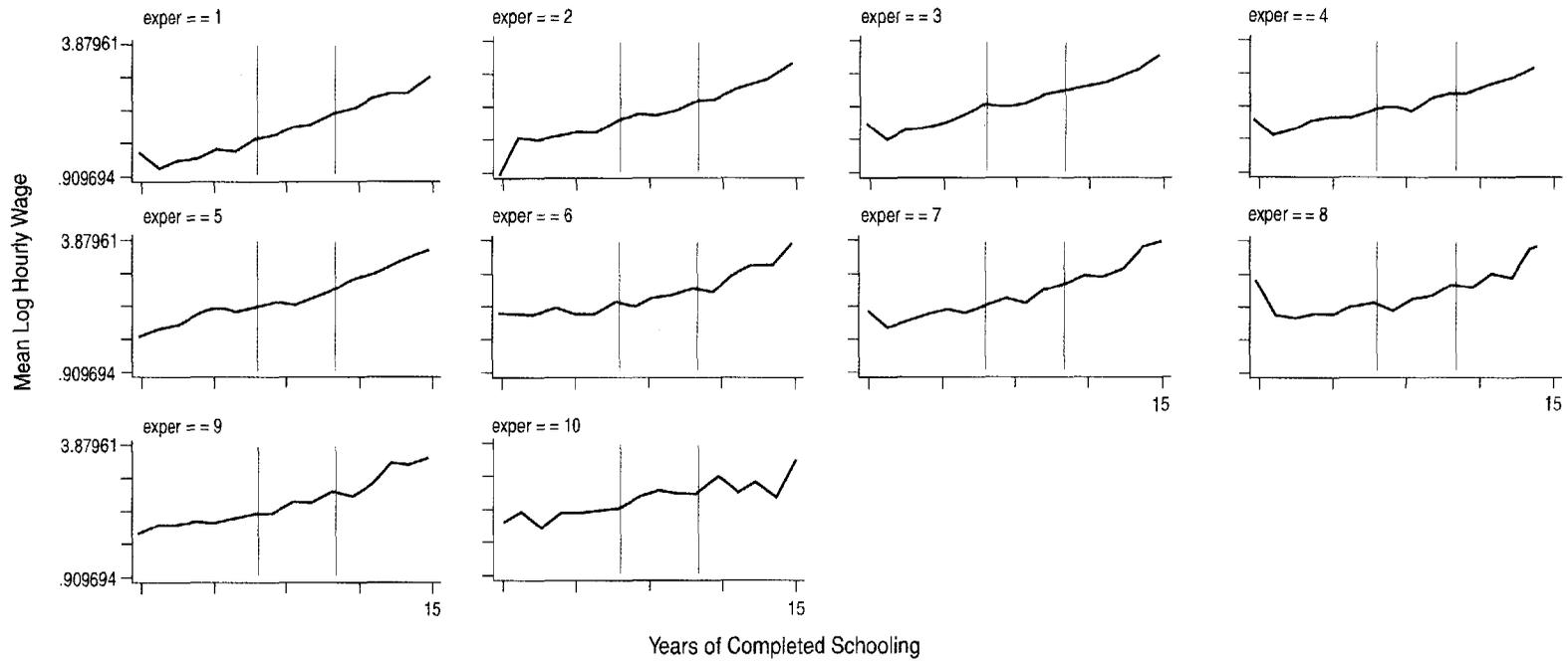
3.27 All the results in Table 3.3 assume a constant marginal return to education — that is, they assume that the percentage increase in wages is the same from an additional year of education, regardless of whether this year of education is, say, the first, the sixth, or the ninth. For example, taking the

first column of Table 3.3 as a reference point, our results would suggest that (controlling for experience) workers with one year of schooling would earn, on average, an hourly wage which is 14 percent higher than their counterparts with no education, just like those who have completed primary school would have an hourly wage which is 14 percent higher than that earned by workers who have only completed fifth grade. It is not clear whether this is a reasonable assumption to make in the Philippine context. This is a critical issue because differences in the marginal rate of return to education may have an important effect on the amount of schooling chosen by households of different characteristics.

3.28 In Figure 3.9, we graph the relationship between wages and education, for different levels of experience; years of experience have been lumped together into five-year groups, such that the first group (experience = 1) corresponds to workers with 0 to 5 years of experience, the second group (experience = 2) corresponds to workers with 6 to 10 years of experience, and so on. Each point on a graph corresponds to the observed mean wages for a given combination of education and experience.²³ The vertical lines in each graph correspond to graduation from primary and secondary school.

3.29 Figure 3.9 shows that the log-linear regression model which was used as the basis of the estimations in Tables 3.3 and 3.4 is, in general, a reasonable approximation to observed earnings patterns in the Philippines. However, there are some patterns in the data that would not be captured by a simple regression such as that which is the basis for the estimations in Table 3.3. First, in many of the graphs, especially those which correspond to the earlier experience cohorts, the slope of the earnings function appears to be less steep for primary school and (less clearly) for secondary school than for university education. Second, the step-size for the last year of schooling within a given level (primary school, secondary school, and university) often appears to be much larger than for other years. This suggests that

Figure 3.9: Mean Log Hourly Wages, by Education and Experience



Source: Staff calculations based on the 1998 APIS survey. Years of experience have been lumped together into five-year groups, such that the first group (experience = 1) corresponds to workers with 0 to 5 years of experience, the second group (experience = 2) corresponds to workers with 6 to 10 years of experience, and so on. Each point on a graph corresponds to the observed mean wages for a given combination of education and experience.

there are large wage premia to graduation from a given level of education — wage premia which far exceed completion of any other year.

3.30 Separate estimation of a model which allows the rate of return to education to vary by level shows that the mean rate of return to education in the Philippines is lowest for primary school (7.2%), higher for secondary school (10.4%), and highest for college (19.3%). This estimation also shows that there are significant increases in wages from completing the last year within any given level: on average, wages of a primary school graduate are 9.9 percent higher than those of a comparable worker with only five years of education. Likewise, a secondary school graduate earns 13.4 percent more than someone with three years of secondary education, while a university graduate earns 26.6 percent more than a comparable worker with four years of university education.²⁴ These results suggest that credentials, in particular, a university degree, are themselves rewarded in the Filipino labor market.

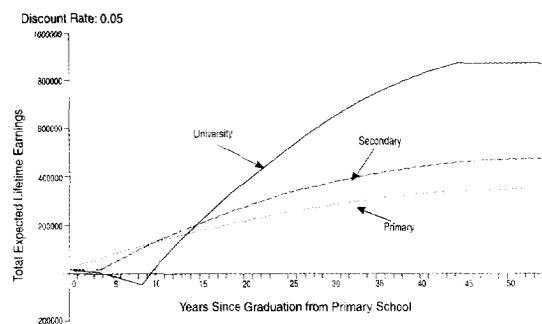
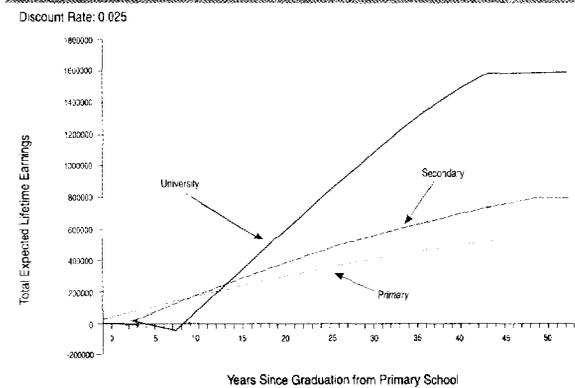
3.31 The graphs in Figure 3.9 can be combined with information on the costs of education to estimate the net present value of total lifetime earnings for individuals with different levels of education. In Figure 3.10, we present estimates of these earning streams for individuals who have completed primary, secondary, and tertiary education, respectively. We show graphs corresponding to two different discount rates of 0.025 and 0.05. (The discount rate is a measure of the extent to which income now is valued relative to income in the future).²⁵

3.32 Figure 3.10 shows that most Filipino children would be well-served by seeking additional schooling beyond primary school: only those who expect to be in the labor market for less than nine years should stop their schooling after graduation from primary school. Indeed, university education is the dominant strategy for all those who expect to spend at least 15 years after graduation from primary school seeking additional education or in the labor market. The explanation for this finding is

(primarily) that there are very high rates of return to university education in the Philippines.

3.33 One concern with the graphs in Figure 3.10 is that they may not accurately reflect the relative costs and benefits of additional education if the probability of employment differs for primary school, secondary school, and university graduates. For example, if university graduates are much more likely to be unemployed than secondary school graduates, young people will factor this in when they make decisions about whether to seek additional schooling. Specifically, economic theory predicts that the “expected” payoff to additional schooling would be given by the product of the rate of return and the probability of employment. The APIS survey suggests that there are, indeed, differences in unemployment by education level: the unemployment rates are 2.2 percent, 15.3 percent, and 17.2 percent for workers with primary education, secondary education, and university education, respectively. The large difference in unemployment rates between workers

Figure 3.10 Total Expected Lifetime Earnings by Educational Attainment



Source: Staff calculations based on the 1998 APIS data.

with primary school and secondary school — 13 percentile points — would tend to make secondary education less attractive to primary school graduates. On the other hand, the small difference in unemployment rates between workers with secondary school and university— 2 percentile points — should have a much smaller effect on the decisions made by secondary school graduates. Incorporating differences in the probabilities of unemployment into the analysis confirms that secondary education is poorly rewarded in the Filipino labor market.

3.34 A number of conclusions can be drawn from Figures 3.9 and 3.10. First, further education, in particular, university education, appears to be a worthwhile investment in the Philippines. Second, the direct private costs of secondary education, and even university education, are more than offset by the higher expected income stream of workers with more education. Even so, the direct private costs of tertiary education may be too high for the poor to afford — especially since they are unlikely to be able to borrow against future income. A program of targeted scholarships for tertiary education for promising high school graduates from poor families may therefore be appropriate. This is a recommendation that has been made in earlier reports (Asian Development Bank and World Bank, 1999).

HEALTH SERVICES AND THE POOR

3.35 The Philippine government spends about 1.6 percent of GNP on providing health care (Table 3.5), close to levels in Thailand (1.7) and Malaysia (1.3) but substantially above Indonesia (0.6) (World Bank, 2000f). Access to health services shows a distribution profile similar to education (Figure 3.11). Overall spending on public health facilities is progressive. However, not all types of public health spending is progressive.²⁶ The overall incidence reflects a combination of a pro-poor distribution of barangay health facilities and rural health centers but regressive distribution of government hospital services. As in education, the information on public facility use and incidence of spending presented here

does not fully capture actual and differentials in the quality of care received by the poor and non-poor. To the extent that the quality of services is higher in private facilities which the non-poor tend to prefer, the poor may suffer from lower health status despite having reasonably good access to public facilities. In fact, the inferior quality of public facilities, especially of non-hospital facilities, probably accounts for their ability to target the poor effectively.

3.36 A recent draft report by the Department of Health (DOH) concludes that “the health sector in the Philippines is not doing well.”²⁷ This report identifies three main problem areas: (i) the inappropriate service delivery system; (ii) the inadequate regulatory mechanism; and, (iii) the poor structure of financing. While many of the problems in the health sector have a negative effect on the entire Philippine population, some have consequences, which are particularly devastating for the poor. The DOH report points out, for example, that while the overall physician-to-population ratio in the Philippines is comparable to that in Taiwan, and exceeds the ratios in Thailand and Indonesia, these physicians are not distributed evenly across the country: only 10 percent of the doctors, dentists and pharmacists, 20 percent

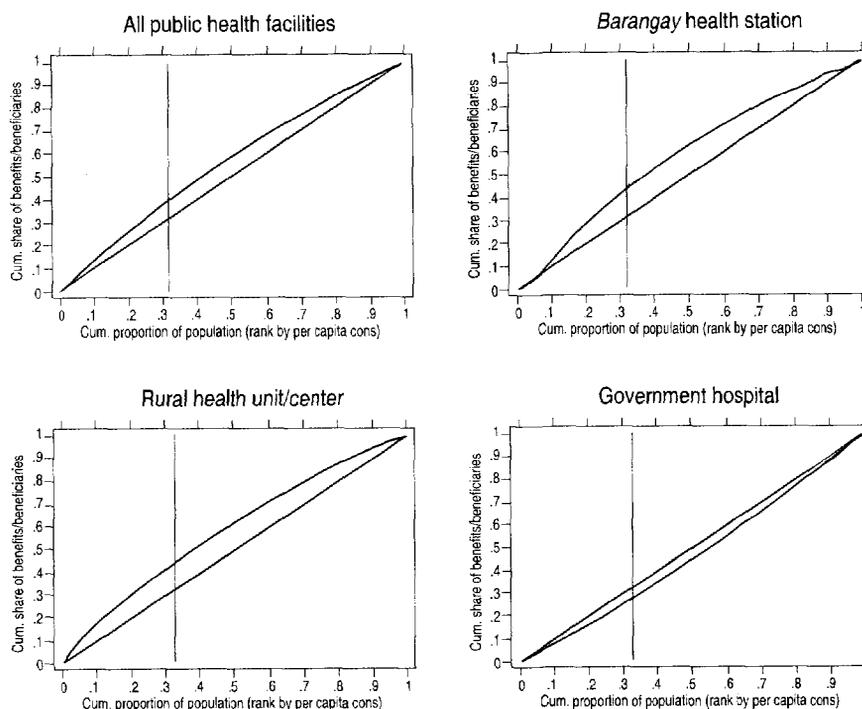
Table 3.5: Total Government Spending on Health

	Personal health care	Public health care	Others	Total	% Share
1991 (billion PhP)					
National Government	7.19	2.09	2.95	12.23	71.9
Local Government Units	0.28	0.73	0.38	1.39	8.2
Social insurance	1.82		1.57	3.39	19.9
Total Government	9.29	2.82	4.9	17.01	100.0
% share	54.6	16.6	28.8	100.0	
Total Govt. as % of GNP	0.7	0.2	0.4	1.4	
1997 (billion PhP)					
National Government	9.89	4.07	4.67	18.63	46.0
Local Government Units	3.92	7.88	3.68	15.48	38.3
Social insurance	3.87		2.49	6.36	15.7
Total Government	17.68	11.95	10.84	40.47	100.0
% share	43.7	29.5	26.8	100.0	
Total Govt. as % of GNP	0.7	0.5	0.4	1.6	

Note: National government includes the Department Health (DOH) and other national agencies; for example, the Defense Department. Personal health care includes hospital-based services. Social insurance includes the national health insurance program. “Others” includes general administration and other support services.

Source: Solon, et. al. (1999).

Figure 3.11: Public Health Spending Benefits the Poor Overall, 1998



Note: The vertical line in these graphs represents the poverty headcount which was estimated at 31.8 % in 1998 using the APIS dataset; note, however that this is not comparable to the 25 % headcount estimated for 1997 using FIES data.

Source: Staff calculations based on the 1998 APIS data.

of nurses and medical technicians, and 35 percent of nurses practice in rural areas in the Philippines, where the vast majority of the poor live. Moreover, even when the poor can visit a doctor or nurse, the cost of drugs and medicine is often prohibitive.

3.37 Poor health status both contributes to and is an outcome of poverty. Inequality in access to quality care is reflected in large variances in important indicators of health status (Table 3.6). The poor experience much higher rates of infant and child mortality than their wealthier counterparts. There are negligible rural-urban differences in infant mortality among the poor but the poorest in rural areas experience higher child mortality; note that the lowest quintile is nationally defined so that rural-urban differences that exist are not driven by consumption differentials. The data suggest that the health status of the middle quintile is lower in urban than in rural areas; this may reflect poor sanitation conditions among the urban poor who may well be in the middle

Table 3.6: Health Status and the Poor					
Consumption Quintiles ^{1/}	Lowest	Second	Middle	Fourth	Highest
Infant mortality rate ^{2/}					
Urban	49.7	40.1	37.6	24.8	17.7
Rural	48.7	38.7	28.4	25.1	(35.5)
Under 5 Mortality rate ^{3/}					
Urban	70.5	62.9	57.9	33.2	26.9
Rural	81.2	59.2	38.8	33.7	(39.8)

^{1/} quintiles are based on the entire population; ^{2/} deaths under age 12 months per thousand births; ^{3/} deaths under 5 years per thousand births; Figures in parentheses indicate large sampling errors due to small number of cases.

Source: Filmer (1999b), based on 1998 Philippines DHS.

of the national wealth distribution; however, this requires more analysis.

3.38 The incidence analysis also suggests that the devolution of health spending may have contributed to making the overall pattern of health spending more pro-poor. This is the result of a change in the composition of public health spending, with a near doubling of the share of public health care in

total (public) health spending since the devolution, from 17 percent in 1991 to about 30 percent in 1997 (Table 3.5). This tends to make the overall spending more pro-poor because public health care spending refers largely to spending on facilities other than hospitals, which were found to benefit particularly the poor. The shift in the composition of overall spending mainly reflects the dramatic increase in public health care spending by local government units (LGU), whose share in the total health budget increased from 8 to 38 percent over the same period. With the devolution, public health care spending by LGUs was expected to rise faster than that by the national government, but the rise in LGU spending more than compensated for the slower rise in national government spending.

3.39 While devolution may have helped make the pattern of public health spending more pro-poor, the current health system still has a pronounced personal health care bias, especially at the level of national government. As noted above, national government's relatively higher spending on personal health is partly the intended consequence of devolution. But how the personal health care budget is allocated both functionally and geographically, also makes an important difference to the distribution of benefits from that spending. For instance, the Department of Health spends more than half of its budget on about 50 hospitals, which concentrates the benefits of this large component of the national health budget to the limited catchment areas of these hospitals.

3.40 Overall, devolution appears to have been a mixed blessing. The DOH report concludes that the "ineffective mechanism for providing public health programs" in the Philippines is, in part, due to "the fragmentation of the primary health care system

brought about by the devolution of health services (DOH, p. 5). Other assessments of the devolution experience in health care delivery note several deficiencies (Solon, et. al., 1999). These include substantial increases in the burden on local health systems; continued problems with procurement and logistics (documentation requirements for the procurement of drugs, medicines and hospital supplies can require from 30 to 60 signatures); and problems of health financing which have also been compounded by the passage of several laws since the 1993 devolution mandating increases in salaries and benefits of health workers. In many respects, these problems are not unique to the Philippines. International experience suggests that devolution is a complex policy intervention where success depends on a large number of factors (see Box 3.1).

3.41 There remain important challenges for the health sector in the Philippines. As mentioned above, the Department of Health has already identified some key areas for future reform. In operationalizing the sector's future reform agenda, perhaps the most important challenge would be realizing the considerable unexploited potential for better targeting of the benefits of health services to the poor in a decentralized setting. There also remain important gaps in our knowledge, which points to a large agenda for future analytical work including: analysis of the determinants of health outcomes (disaggregated for rural and urban areas), the most important of which may lie outside the sector (e.g., water, education); review of the experience with decentralization to determine impact on the quality of services provided, and success in reaching the poor; review of the geographic and functional distribution of spending by the Department of Health; and, review of the program of health insurance.

Box 3.1: Redistribution and the Provision of Social Services

Efforts to decentralize various government functions, including the provision of social services, are underway in scores of developing countries. Perhaps the most important economic appeal of decentralization is that it can result in increases in allocative efficiency if lower tiers of government have better information about household preferences. Because decentralization can make more apparent the connection between taxes collected and services provided, it may increase consumers' willingness to pay for these services. Decentralization can also provide better opportunities for local residents to participate in decision-making, resulting in greater accountability of public officials, and strengthening democratic processes. On the other hand, decentralization may lead to increases in regional disparities and greater inequity. Moreover, if local governments do not have adequate capacity, some of the expected increases in efficiency could fail to materialize. There is no cookbook recipe for successful decentralization, but the following issues require consideration.

The function or service to be decentralized: Decentralization is not an "all-or-nothing" proposition. In many instances, efficiency gains may be possible without increases in inequality if the central government keeps primary responsibility for financing while local governments take over responsibility for spending decisions, inputs, and implementation. Some social services may inherently be more difficult to decentralize than others. Economic theory suggests that redistribution may best be carried out by higher levels of government, because labor mobility will make attempts by lower jurisdictions to change the distribution of income self-defeating as the poor gravitate to areas of high redistribution, while the rich cluster in areas of low redistribution. Still, even if central governments take primary responsibility for financing of safety nets, and establish the criteria which determine eligibility for transfers, local governments may have an informational advantage in screening applicants. Decentralization of the health sector is also complicated because of the need for effective referral across levels—from health posts which provide basic services, to high-technology hospitals. Unless these inter-linkages are considered carefully, decentralization can result in a deterioration of some aspects of the services provided, as may have happened in the Philippines, Bolivia, and Zambia.

The level of the sub-national government to which responsibilities are decentralized: Economists often argue that decentralization should follow the principle of "subsidiarity," whereby decisions are made at the lowest level of government consistent with allocative efficiency. This often involves a careful parsing out of responsibilities. In education, for example, national governments are often responsible for setting standards, curriculum development, and textbook production and distribution; and local governments, communities, and parent-teacher associations are responsible for construction and maintenance of school facilities, and the day-to-day running of schools, as what happens in a multitude of countries, from the United States to Bhutan. International experience suggests that efficiency gains in the provision of social services frequently materialize when the central government devolves responsibilities to the community or facility level, but rarely when they are devolved to provinces or regions. In every instance, it is important that revenues for social services follow responsibilities for their delivery.

The extent of community mobilization and oversight: Increases in allocative efficiency in the delivery of social services can only take place if more accurate local information can reach decision-makers, and if there are mechanisms whereby these decision-makers are held accountable for their performance. In Colombia, accountability to constituents pushed local mayors to concentrate more on training and hiring effective civil servants. In Northeast Brazil, community oversight and fear of job loss helped motivate civil servants.

Initial conditions: The initial distribution of income is important. If income is distributed more unevenly within jurisdictions than across them, decentralization could be equalizing if local authorities have the capacity to transfer income to the poor and share the equity objectives of the center. On the other hand, if there are large initial differences in capacity or jurisdictions do not share the same equity objectives, some sub-national governments may not effectively target the poor. Central governments may therefore have to target poverty funds themselves or create stronger incentives for sub-national governments to do so.

Endnotes

- 1 See World Bank (2000f).
- 2 Unit cost estimates are from the 1998 Philippine Education Sector Study (1999), Table B12, and are for 1997. The enrollment information used in this analysis is from 1998 APIS. While survey data and administrative data on primary enrollment in public schools are quite close, there is a large gap for tertiary education. Survey data show 60 percent more students in public colleges and universities in 1998 than administrative data for 1997. The overall incidence of public spending on education would likely be more progressive using administrative enrollment data given that they show smaller number of students in the most regressive and costly level of education.
- 3 There is a huge discrepancy between survey data and administrative data on scholarship recipients. 339,000 families responded positively to the question in the survey on whether any members of the family had received tertiary education assistance. This suggests that a minimum of 339,000 had received some assistance compared with 36,551 from administrative data. There are some difficulties in interpreting the survey question: it could be interpreted to include private assistance and it is not limited to currently enrolled students.
- 4 These graphs are based on administrative data kept by the countries themselves. See World Development Indicators, 1998.
- 5 Figures 3.4, 3.6 and 3.7 are based on data from Demographic and Health Surveys conducted in the Philippines and Indonesia (Filmer, 1999b); by contrast, Figures 3.1 and 3.2 are based on the APIS survey.
- 6 Similar graphs for Indonesia show an even larger gap between the educational attainment for residents of urban and rural areas, and no difference by gender.
- 7 The DHS do not collect information on income or consumption. They do, however, collect information on a number of measures of household assets — for example, whether a household owns a car, bicycle, clock, and so on — as well as information on the characteristics of living quarters — for example, the number of rooms in a home, and the material used for construction of the floor, walls, and roof. Principal components can be used to aggregate these data into an “assets composite” which provides a measure of the wealth of the household, and households can be sorted into wealth quintiles accordingly. See Filmer and Pritchett (1998).
- 8 This graph is based on the 1998 APIS survey, and households can therefore be sorted into income quintiles.
- 9 Note that one cannot simply regress enrollment rates or measures of educational attainment on the presence (or absence) of a school if program placement is responsive to local conditions, and if these local conditions are imperfectly measured. For example, if schools are placed in areas where there is a high demand for education, simple cross-sectional regressions may over-estimate the impact of educational infrastructure because these areas would have had better education outcomes even without a school. Conversely, if schools are placed in poorer areas with poor education outcomes, simple cross-sectional regressions may under-estimate the impact of educational infrastructure because education outcomes in these areas would have been even worse in the absence of a school. A discussion of these issues can be found in Pitt, Rosenzweig, and Gibbons (1993), and Paxson and Schady (1999).

- 10 The low quality of education in the Philippines is an oft-voiced concern. A recent report states that “education quality in the Philippines is not nearly as good *on average* as it could be, and there is evidence that average quality has fallen in recent years” (Asian Development Bank and World Bank, 1999, p.24). In the 1996 Third International Mathematics and Science Study, which measured the mathematics and science achievement of basic education students in 41 countries, the Philippines ranked 39th in mathematics, and 40th in science. This comparison may not be altogether fair because the Philippines was one of only four lower income and lower middle income countries in the sample. But even in domestic tests, students perform well below the expectations of the examination section of the Department of Education, Culture and Sports (DECS) (Asian Development Bank and World Bank, 1999, p.25).
- 11 Disaggregated data on the private costs of education per household are available in the 1997 Family Income and Expenditure Survey (FIES), but not in the 1998 APIS, while data on household composition, including the number of children attending different education levels are available in the APIS, but not in the FIES. Fortunately, 60 percent of the households in the APIS were also surveyed in the FIES, so a panel can be constructed. This feature of the data is used to estimate the private unit cost of primary, secondary, and tertiary education by running an auxiliary regression of the total amount spent by a household on education in 1997 on the number of children attending each education level in 1998: $Ex_h = \beta P_h + \gamma S_h + \delta T_h + \epsilon_h$, where Ex is the total amount spent by household h on education in 1997, and P , S , and T are the total number of children who are attending primary, secondary, and tertiary education in 1998, and the constant in the regression has been suppressed. The parameters β , γ , and δ will provide a reasonable approximation to the private unit costs, by level, if household composition, the fraction of children who are attending school at every level, and actual (rather than estimated) unit costs remained constant between 1997 and 1998. There is no reason to suppose that household composition or unit costs changed in the Philippines between 1997 and 1998. Attendance rates may have dropped, however, because of the effect of the East Asian crisis on incomes in 1998, even though the Philippines was much less affected by the crisis than other countries in the region. Administrative data show no significant impact of the crisis on *enrollment* rates in primary or secondary school; but attendance rates may still have fallen if households were more likely to keep their children at home or doing odd jobs. A weaker assumption for the calculation of unit costs is that attendance rates in primary, secondary, and tertiary school in 1998 are a constant *fraction* of attendance rates in 1997, such that $E_p^{98} = \psi E_p^{97}$, $E_s^{98} = \psi E_s^{97}$, and $E_t^{98} = \psi E_t^{97}$, where the subscripts stand for education levels, superscripts for years, and the parameter ψ is less than one. Under this assumption, our estimation procedure will over-estimate unit costs by a factor $1/\psi$, but will produce accurate estimates of the *ratio* of unit costs across levels.
- 12 Note that these are the unit costs faced by households, rather than the total unit costs, which would (obviously) include the public costs as well (see, for example, Asian Development Bank and World Bank, 1999, p.117).
- 13 The analysis in this section is based on the 1998 APIS survey, and is a summary of a more detailed discussion found in Schady (2001).

- 14 Specifically, we estimate the basic Mincerian wage regression $\log W_i = \alpha + \beta S_i + \chi X_i + \delta X_i^2 + \varepsilon_i$, where S is the years of completed schooling, X is the number of years an individual has worked since completing schooling, ε is an error term, and the subscript i refers to individuals in the labor market who earn non-zero wages. This is the standard approach to estimating the private rates of return to education (see, for example, World Bank, 2001).
- 15 The APIS gives seven categories for class of worker: (i) worked for private household; (ii) worked for private establishment; (iii) worked for government / government corporation; (iv) self employed without any employee; (v) employer in own family operated farm or business; (vi) worked with pay on own family-operated farm or business; and, (vii) worked without pay on own family-operated farm or business. The analysis is restricted to workers whose main job is in categories (i), (ii), (iii), and (vi) above, and to the wages earned from this main job only.
- 16 An oft-used solution to this selection problem, first proposed by Heckman (1976), is to specify the nature of the selection process itself, and use this to correct the estimates in the wage equation. Unfortunately, these “corrected” estimates can be as (or more) inaccurate as the simple OLS estimates if a number of stringent econometric assumptions are not met. Specifically, the Heckman correction involves finding a variable which affects the probability of participation in the labor market but does not have an independent effect on wages. One possible candidate for such a variable is the amount of non-wage income available to members of a household, including public transfers, pensions, interest and dividends. Unfortunately, in the APIS sample, these variables are not significant predictors of participation in the labor market conditional on age and education. Moreover, even when such an identifying variable can be found, the corrected Heckman estimates will only be unbiased if there is homoskedasticity and joint normality in the residuals from the switching and wage regressions, which may not be the case. For this reason, we do not attempt to implement the Heckman correction. Rather, we present a series of estimates in which the sample is limited to household heads only. Household heads may be less able to “choose” not to work for wage income if they have to provide for other household members, so that these estimates of the rate of return to education may be more accurate than OLS estimates for the full sample.
- 17 A general discussion of these issues can be found in World Bank (2001). An application of such “within” estimators to the evaluation of child health and family planning programs in the Philippines can be found in Rosenzweig and Wolpin (1986). Behrman and Deolalikar (1995) use such within estimators to estimate rates of return to education for men and women in Indonesia. Another option to purge the OLS estimates of the biases induced by both unobserved ability and measurement error is to use instrumental variables (IV) estimators. IV estimates are based on a variable, the instrument, which is correlated with schooling but uncorrelated with the error term in the wage regression. In a recent paper which uses data on the Bicol region in the Philippines, Maluccio (1998) instruments years of completed education with measures of school proximity and household wealth at the time schooling took place, and concludes that the estimates of the rates of return to schooling derived from simple OLS regressions are not biased up. Rather, they may be biased down by as much as 80 percent because measurement error biases all coefficients, including the estimated coefficient on education, towards zero.

- 18 The confusion between “actual” and “potential” experience may also introduce biases in the estimation of the effects of experience on earnings -- for example, if children start school late, or if repetition rates are anything other than zero. “Potential experience” will then tend to overstate actual experience, and the estimates from the regression will therefore under-estimate the increases in wages which are associated with increases in actual experience. In general, we do not think that this is a big source of concern as we are primarily interested in estimating the rates of return to education, not experience, and these rates of return to education should be unaffected by the confusion of actual and measured experience.
- 19 To convert the coefficients on years of schooling to percentages, calculate $100*(\exp(\beta)-1)$.
- 20 This approach was developed by Oaxaca (1971), and has since been applied to many different contexts and countries (for example, Malkiel and Malkiel, 1973; Altonji and Blank, 1999).
- 21 There is some debate in the literature as to whether one should control for job categories or occupation in these regressions (see for example, Altonji and Blank, 1999). Introducing these controls will lead to an under-estimate of discrimination if the choice of job is itself dictated, in part, by societal attitudes about gender. Failing to control for job category or occupation, on the other hand, will lead to an over-estimate of discrimination if differences in the choice of jobs by men and women are driven, in part, by differences in “preferences” or “abilities.” Ideally, one would present both sets of estimates -- with and without controls. However, detailed breakdowns of occupation categories for individuals sampled in the APIS was not available for this report. Estimating the extent of discrimination within job categories in the Philippines should be an important priority for the future.
- 22 These figures are, to some extent, a construct: Given that experience is defined as $X \equiv A - S - 6$, workers with zero years of education and zero years of experience would have to be seven years old, and are therefore not even within the sample, which is limited to those aged 25 and older. Given that experience is rewarded in much the same way for men and for women, however, one way to understand the *differences* between the intercepts in the regressions is as a measure of the premium paid to men with no education over those paid to women with no education at any level of experience.
- 23 This is equivalent to estimating a very flexible regression model in which the log of the individual wage rate is regressed on a set of 15 schooling dummy variables, 10 experience dummy variables, and 150 interactions between experience and schooling:

$\log W_{isx} = \eta_x S_{is} + \theta_s X_{ix} + \lambda_{sx} (S_{ie} * X_{ix}) + v_{isx}$, where the subscripts i , s , and x stand for individuals, years of schooling, and experience cohort. This model therefore estimates 160 coefficients, rather than the three in the model which is the basis for Tables 3.2 and 3.3 (fifteen dummy variables have to be dropped to avoid perfect co-linearity). We group experience into five-year brackets to avoid the very small sample sizes which would have resulted if we had created dummy variable for every year of experience. Similarly, to avoid having some cells with very small sample sizes, we do not include individuals who report having postgraduate education, or post-secondary education other than college.

- 24 The following model, based on a linear spline function, is used to estimate rates of return to schooling by education level: $\log W_i = \alpha + \chi X_i + \delta X_i^2 + \beta S_i + \theta[(S_i-6)*D6_i] + \lambda[(S_i-10)*D10_i] + \nu_i$, where S is the years of completed schooling, X is years of "potential experience", $[(S_i-6)*D6_i]$ is an interaction term between a dummy variable for those who have completed at least six years of schooling and $S-6$, $[(S_i-10)*D10_i]$ is an interaction term between a dummy variable for those who have completed at least ten years of schooling and $S-10$, and ν_i is the error term in the regression. The rate of return to primary education is then given by the coefficient β ; the rate of return to secondary education is given by the sum of the coefficients β and θ ; and the rate of return to tertiary education is given by the sum of the coefficients β , θ , and λ . To test for so-called "sheepskin effects" -- particularly high rates of return for the completion of the *last* year of primary, secondary, or tertiary education -- dummy variables for those who have achieved at least 6, 10, and 15 years of education, respectively, are also included in the model: $\log W_i = \alpha + \chi X_i + \delta X_i^2 + \beta S_i + \eta D6_i + \theta[(S_i-6)*D6_i] + \gamma D10_i + \lambda[(S_i-10)*D10_i] + \zeta D15_i + \nu_i$. In this discontinuous spline function, the coefficients η , γ , and ζ give the increases in log wages which are associated with the last year of primary, secondary, and tertiary school, respectively. These effects are often interpreted as the rewards to a credential or degree above and beyond the inherent value of the education. See Hungerford and Solon (1987); Park (1994); and World Bank (2001).
- 25 Non-parametric regressions (specifically, Fan regressions) of log wages on experience for (separately), primary school graduates, secondary school graduates, and college graduates are the basis for these calculations. The expected earnings stream is given by the area below these curves, appropriately discounted. These calculations assume that: (i) the earnings profiles of current labor market participants can be applied to future labor market entrants. This may not hold if there have been systematic changes in the structure of the economy with corresponding changes in the relative premia paid to workers with different levels of education, or changes in the relative quality of some forms of education over others; and (ii) that there is no correlation between schooling and other characteristics which can affect earnings, such as unmeasured ability. For example, if people with more schooling are also more able, the earnings stream of these more able people may not provide an accurate representation of the earnings streams which less able people would have had even if they had received more schooling. If there is self-selection on schooling of this sort, the calculations presented will likely over-estimate the expected earnings of college graduates compared to secondary school graduates, and of secondary school graduates compared to primary school graduates.
- 26 For this incidence analysis, the unit costs of government hospitals, and *barangay* health facilities and rural health centers are based on the 1997 public spending estimates and the number of visits to different facilities estimated from the 1998 APIS survey. Unit cost of government hospitals is based on spending on personal health care which is mainly hospital-based, while the unit costs for *barangay* health facilities and rural health centers are based on public health care spending. Using these data, a ratio of 3.3:1, of unit costs of personal to public health care is derived. This ratio is used in deriving the incidence of overall health spending. This ratio is likely to be an underestimate because some hospital-based spending is probably also included under public health care. To that extent, results on the overall incidence may overstate the progressivity of public health spending.
- 27 Department of Health, "Health Sector Reform Agenda," p. 1.

TARGETED POLICIES AND THE POOR

4.1 Social sector spending tends to be broadly targeted in that universal coverage is often a guiding objective in the social sectors, as frequently encapsulated in phrases like “education and health for all.” Such spending can still be targeted to the poor if it is concentrated on services that matter most to the poor (for example, basic education and basic health care). Chapter 3 looked into the incidence of spending on such broadly targeted public spending.

4.2 This chapter directs attention to a set of policies that are more expressly redistributive in nature. There is, of course, a large number of such interventions in the Philippines, including a plethora of small programs aimed at specific target groups. A comprehensive review of these programs is beyond the scope of this study. Instead, this chapter selectively takes a fresh look at a few key policies in the areas of rice trade and distribution, land reform, housing, and inter-governmental allocations. While these policies have a redistributive core, to view them as just that would however be taking a very narrow view of these interventions. For instance, the limited pace of structural transformation of the Philippine economy towards the non-agricultural sectors is partly on account of limited economic growth over the last two decades, but is possibly also delayed by policies supporting high levels of protection of the agricultural sector. Similarly, efficiency gains and higher growth through greater investment in agriculture are



Table 4.1: Nominal Protection Rates of Major Agricultural Commodities

	1980-84	1985-89	1990-94	1995	1996	1997	1998
Rice	-13	16	19	63	91	82	34
Corn	26	67	76	104	54	96	72
Sugar	42	154	81	91	93	66	99
Coconut Oil	-4	7	18	10	5	0	0
Pork	-9	43	31	44	n.a.	n.a.	n.a.
Chicken	46	39	74	84	n.a.	n.a.	n.a.

Source: David (1999).

important among the expected outcomes of land reform programs. More equitable inter-governmental transfers can similarly also serve as an important means of fostering growth in poor and lagging areas. While they may work through multiple channels, this chapter highlights the key distributive implications of these policies on the welfare of the poor.

RICE POLICY

4.3 Food staples have often been deemed “political commodities” where the interests of producers and consumers are pitted against each other. Producers want higher prices, while consumers want low prices. In the Philippines, rice has been a key political commodity. There are two main dimensions to the rice price policy in the Philippines. The first has to do with prevailing high levels of protection, mainly by way of quantitative restrictions; the National Food Authority (NFA) has statutory monopoly on the import of rice. The second has to do with NFA operations in the domestic rice market, where it procures rice domestically with a view to setting a protective floor for producer prices faced

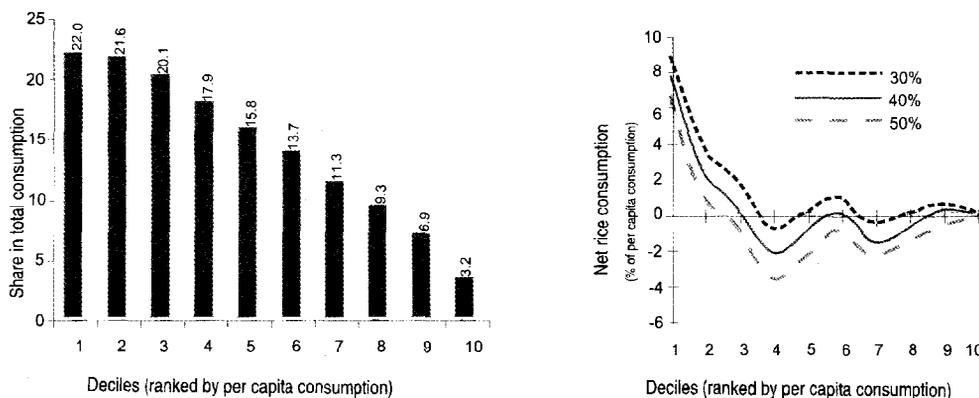
by rice farmers, and it sells rice to consumers at a subsidized price. These two elements of the price policy have different implications for the poor.

Agricultural protection

4.4 Nominal protection rates (NPR) for rice, and agricultural commodities, in general, have been high and increasing over the 1990s (see Table 4.1).¹ For instance, the average NPR for rice over the 1990s up to the 1997 crisis was about 41 percent, and for the period 1995-97, it was nearly 80 percent. The devaluation of the Peso following the financial crisis brought this down to 34 percent in 1998.

4.5 What are the distributional implications of this protection? Standard economic theory tells us that such high levels of protection favor the producers at the expense of the consumers. On the consumption side, it is clear that rice is an important component of poor people’s consumption; for instance, it accounts for about 22 percent of total consumption of the poorest two deciles (Figure 4.1). Rice budget share declines slowly for higher deciles,

Figure 4.1: Share of Rice in Total Consumption and Net Consumption of Rice, by Deciles, 1997



Note: The deciles are deciles of population ranked by per capita consumption, adjusted for spatial cost of living differentials. The 30, 40 and 50% refer to assumptions on the mark-ups on farm-gate prices used to adjust the value of rice produced (valued at farm gate prices) to make it comparable with the value of rice consumed (valued at local retail prices). Source: Balisacan (2000), and calculations based on 1997 FIES data.

and is about 14 percent even for the sixth decile. This has two implications: while it is clear that the poor would derive *proportionately* larger consumption benefits from a lower price of rice, a large share of total consumption benefits would still accrue to the non-poor on account of their large share in total rice consumption.

4.6 The distributive impact of protection critically depends on who the *net* consumers of rice are, and where they are located in the overall income distribution. Estimates based on the 1997 FIES data suggest that the poor in the Philippines are net consumers of rice. Figure 4.1 shows how the net consumption of rice as a proportion of total per capita consumption varies across deciles (ranked by per capita consumption), under three alternative assumptions on the differential between retail and farm gate prices.² The figure shows that under each of the three assumptions, it is reasonable to conclude that the poor (bottom one-fourth of the population) are net consumers of rice, while the net producers are spread over the middle and higher deciles. Overall, therefore, a reduction of implicit tariffs on rice is likely to have progressive welfare effects, and in particular, is likely to be beneficial to the poor.³

NFA domestic market operations

4.7 The effects of a protective rice regime could be potentially mitigated by the other element of NFA operations, viz., its domestic market interventions, which involve both domestic procurement of rice at support prices aiming to set a floor price for the rice farmers, as well as distribution of rice to consumers at below market prices. On the procurement side, the size of NFA operations is miniscule, accounting for less than one percent of total production during 1995-98 (Table 4.2). At this level of op-

	1995	1996	1997	1998	Average
Quantity procured ('000 mt)	8.19	124.31	100.47	97.41	82.60
As % of total production	0.08	1.10	0.95	1.14	0.81
Quantity distributed ('000 mt)	256.70	731.40	622.80	1628.20	809.80
As % of total consumption	3.60	9.30	7.90	22.20	10.70

Source: Bureau of Agricultural Statistics.

eration, NFA procurement is unlikely to have any discernible effect on the producer price for rice. The main channel of protection to the producers is by way of restrictions on the import of rice.

4.8 On the consumption side, the story is more complex. First, the NFA rice distribution operations are more substantial, in recent years, accounting for about 10 percent of total consumption on average (Table 4.2). However, it is not clear if this level of operation has had any effect on the market price of rice. There are indications that the cheaper rice sold in NFA stores is actually inferior quality rice, even more inferior than that imported by the NFA (Roumasset, 1999). It is likely then that the NFA operation has little influence on the price of this inferior quality rice since the traders are likely to dilute the quality of rice till its effective market price approximates the announced NFA rice price. In this case, the NFA subsidy is not really a subsidy to the consumers either, because they are either consuming inferior quality rice or, in fact, paying the cost of propping up prices for rice producers.

4.9 NFA tends to import whenever there is production shortfall, and in deficit years, these imports can be a significant fraction of the total supply, as for instance, recently during 1998 when rice production was hit by the El Niño drought. During 1998, NFA rice distribution amounted to 22 percent of total consumption. While this level of distribution is clearly important and has potential price stabilization benefits for the consumers, it is unclear why the same function would not have been performed by private traders if quantitative restrictions on rice imports were relaxed.

4.10 The potential benefits of NFA rice distribution are also limited by its largely untargeted nature. The distribution of NFA rice across regions has little relation to the regional poverty levels (Table 4.3). For instance, during 1995-98, 36 percent of NFA rice went to Southern Luzon, which only accounted for 12.5 percent of the poor in the Philippines. Moreover, the Southern Luzon includes the National Capital Region, which appears to account

	% Share in NFA rice distribution (1995-98)	% Share in the number of poor (1997)
Ilocos	3.6	4.6
Cagayan	2.0	4.7
Central Luzon	12.4	5.4
Southern Luzon (including NCR)	36.0	12.5
Bicol	9.2	12.8
Western Visayas	2.7	7.5
Central Visayas	5.6	10.1
Eastern Visayas	6.1	10.3
Western Mindanao	3.8	5.6
Northern Mindanao	5.0	7.0
Southern Mindanao	5.4	7.8
Central Mindanao	3.4	4.3
CAR	2.3	1.6
ARMM	2.5	5.8

Source: Bureau of Agricultural Statistics, and 1997 FIES data.

for the bulk of NFA rice in that region (almost 70% during 1991-93). There could be an element of self-targeting if the subsidized rice were of an inferior quality, as typically consumed by the poor.

LAND REFORM AND HOUSING

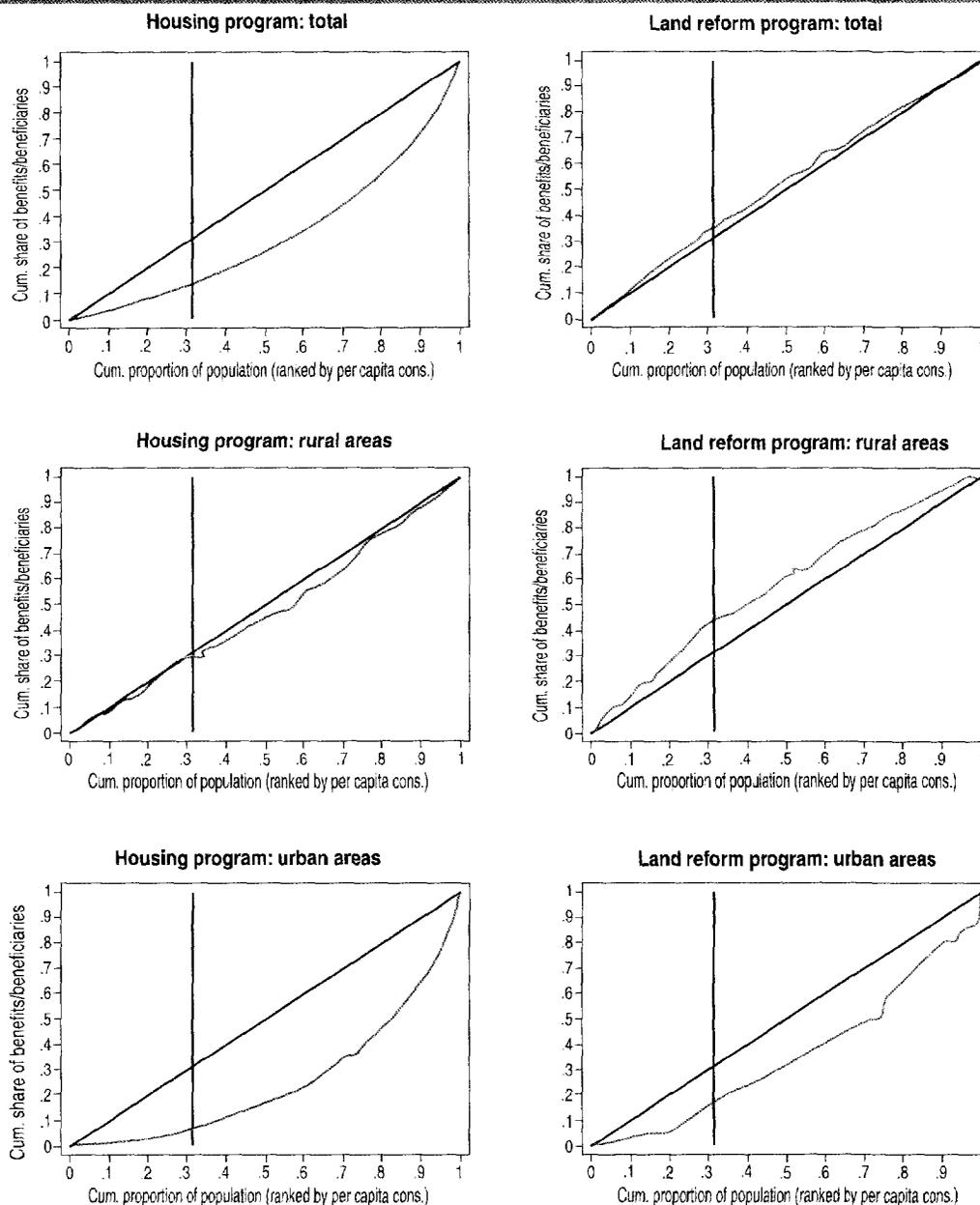
4.11 The government's land reform and housing programs are among the most important public efforts to remedy constraints faced by the poor in acquiring assets and improving their living conditions; a third set of policies and programs around rice production and consumption were discussed earlier. Survey results show that the land reform program had reached 1.2 million, mainly rural beneficiaries (77%), while 3.14 million, mainly urban people (65%) benefited from the housing program. The distributional profile of these two programs designed to target the poor is very different: the land reform program is progressive, overall, whereas the housing program fails starkly in reaching the poor, especially the urban poor (Figure 4.2). Since the analysis here does not impute value to the housing assistance received, it is quite likely that the distribution of benefits is even more skewed than simple access to the program.

4.12 There is a long history of efforts to provide housing and slum upgrading to low income

groups in the Philippines. A number of such programs were implemented nationally in the 1970s and 1980s, including the Slum Improvement and Resettlement (SIR) program, and the Community Mortgage Program (CMP). Since the 1990s, many of the public resources for housing have been channeled through local governments. In 1998, for example, local governments spent PhP3.8 billion on housing programs, and the central government spent a further PhP2.1 billion. Based on the 1998 APIS data, the housing program benefited 3.2 million persons, of whom 2.1 million were urban and 1.1 million were rural. These resources have apparently been directed through a multitude of programs — including the *Abot-Kaya Pabahay* Fund, the Group Land Acquisition Program, the Local Housing Fund, the LGU Resettlement Assistance Program, the LGU *Pabahay* Fund of *Pag-ibig*, and others. Data from the APIS are not disaggregated enough to allow for a comparison of these (and other) housing programs. The question asked in the survey is: "Did you avail your house and its lot through the assistance of the government housing program or financing program?" Analysis of responses suggests however, that in the aggregate, these housing programs have not been pro-poor at all. A serious evaluation to assess which, if any, publicly-funded housing programs actually benefit the poor in the Philippines should be an important priority for the future.

4.13 Assessing the effectiveness of programs in reducing poverty or improving well-being requires going beyond examining targeting efficiency. It requires evaluating the net impact of a program on beneficiaries over time as against the counterfactual without the intervention. It also requires weighing the program benefits against the costs of the program which should include not just the financial but also the economic costs of program implementation. For example, a significant cost of a wage subsidy program which is intended to increase overall employment levels is the deadweight loss (i.e., companies would have hired the employees even in the absence of the wage subsidy) and the displacement cost (companies do not increase the overall number of employees hired but choose those who come

Figure 4.14 Housing and Land Reform: The Tale of Two Targeted Programs



Note: The vertical line in these graphs represents the poverty headcount which was estimated at 31.8 percent in 1998 using the APIS dataset; note, however that this is not comparable to the 25 percent headcount estimated for 1997 using FIES data.
 Source: Staff estimates based on 1998 APIS data.

with a subsidy over those who do not) associated with the program. Overall benefits will be understated unless these broader impacts are taken into consideration. Fortunately, we are able to look into some detail at the Evidence on some of the associated costs is, however, less favorable and suggests that there is a need to rethink certain parameters of the current program.⁴

4.14 Land reform in the Philippines is a hotly debated policy issue, the beginnings of which date back almost one century ago.⁵ In addition to political and social justice arguments for land reform, there is a thriving theoretical literature and a growing body of empirical work that suggests there may be good economic reasons for undertaking land reform. Recent cross-country level work is pointing to the

existence of a negative relationship between the inequality in the distribution of assets and subsequent growth.⁶ At the micro level, low initial wealth and the ensuing borrowing constraints have been shown to limit households' ability to make productive investments, acquire human capital, and start-up enterprises.⁷ There is also growing evidence for the presence of "poverty traps," i.e., situations in which poverty is perpetuated not because of lack of ability but lack of endowments.⁸ Finally, globalization may have increased the premium on asset ownership as this is seen as a critical determinant of households' ability to utilize the economic opportunities opened up through macro liberalization. As asset transfers go, land reform has traditionally been viewed as an ideal redistributive policy: in view of the immovability and indestructibility of land, land reform may actually provide a basis for a non-distortionary lump-sum transfer that could have a major impact on the welfare of the poor.

4.15 What has been the Philippines experience with land reform? This question can be answered at several different levels, including success at reaching

quantitative redistribution targets, effectiveness of targeting the poor, attainment of higher productivity, and longer term gains through increased investment. Available information suggests: (i) that the Philippines land reform program has fallen short of attaining its quantitative targets; (ii) that it has helped increase security of tenure among those who have access to land but has not succeeded in reducing landlessness; (iii) that it is reasonably well-targeted towards the poorer landed households; (iv) that increased security of tenure has a significant positive impact on household income; and, (v) that land reform beneficiaries have invested, more than non-beneficiaries, in physical capital and the education of their children. These are powerful results in favor of continued implementation of land reform. Evidence on some of the associated costs is, however, less favorable and suggests that there is a need to rethink certain parameters of the current program.

4.16 Modern land reform programs in the Philippines have two distinct phases, relating to the Presidential Decree 27 of 1972 and the Comprehensive Agrarian Reform Law (CARL) of 1988. (Box 4.1)

Box 4.1: Land Reform in the Philippines

The foundation for "modern" land reform in the Philippines was laid by the 1972 Presidential Decree (PD) 27 which provided the basis for "Operation Land Transfer" (OLT) and "Operation Leasehold", respectively, and the 1988 Republic Act (RA) 6657, also known as the Comprehensive Agrarian Reform Law (CARL).

PD 27, the applicability of which is limited to rice and corn lands, consists of two key provisions. First, it calls for a land ownership ceiling of 7 hectares and the mandatory sale of all land that is owned in excess of this limit to tenants. Second, it outlaws share tenancy and mandates the conversion of tenants on landholdings below 7 hectares to leaseholders with a rent ceiling of 25% of crop revenue after appropriate deductions for inputs.

The 1988 CARL expands the scope of land reform in two respects. First, land reform was no longer limited to rice and corn land but expected to cover the whole country, with implementation expected to occur in three main phases over the subsequent 10 years and to be funded by a special "Agrarian Reform Fund" that would be constituted from confiscation of ill-gotten wealth in the Marcos era. Second, the range of beneficiaries was to be increased to include not only cultivators but, at least in principle, landless households. Finally, full land ownership was to be granted automatically to all the beneficiaries who had benefited from the earlier land reform under PD 27. Implementation of these measures was expected to proceed in three distinct steps over a total period of 10 years. A first phase, expected to last 4 years, aimed to complete coverage of tenanted rice and corn lands, transfer ownership to PD 27 beneficiaries, and include lands voluntarily offered for sale, alienable public lands, and holdings with a size above 50 hectares. A second phase of three years' duration, was to cover agricultural holdings between 24 and 50 hectares. Finally, land reform was to be completed during the last 3-4 years through redistribution of lands between 5 and 24 has. Agribusiness operations and plantations were exempted from land reform for a period of 10 years to allow recovery of fixed investments and supposed to be treated once the remainder of CARP had been implemented.

Table 4.4: Land Distribution Status by Land Type and Mode of Coverage, 1972-1997

Land Type	Target	Accomplishment	% Accomplishment	Balance
Department of Agrarian Reform				
Tenanted Rice/Corn	579,520	500,643	86.39	78,877
Voluntary Offer-to-Sell	396,684	265,744	66.99	130,940
Voluntary Land Transfer	284,742	276,307	97.04	8,435
Govt. Financing Institution-owned	229,796	148,900	64.80	80,896
Compulsory Acquisition: >50 has.	456,588	74,687	16.36	381,901
Compulsory Acquisition: >24-50 has.	312,355	6,251	2.00	306,104
Compulsory Acquisition: >5-24 has.	736,420	20,483	2.78	715,937
Kilusang Kabuhayan at Kaunlaran lands	657,843	606,347	92.17	51,496
Settlements	662,727	662,727	100.00	0
Total DAR	4,316,675	2,562,089	59.35	1,754,586
Department of Environment and Natural Resources				
Public Alienable & Disposable Lands	2,502,000	927,734	37.08	1,574,266
Integrated Social Forestry areas	1,269,411	832,651	65.59	436,760
Total DENR	3,771,411	1,760,385	46.68	2,011,026
Total CARP	8,088,086	4,322,474	53.44	3,765,612

Source: Deininger, Lara Jr., Maertens and Quisumbing (2000).

After 25 years of land reform and ten years after the promulgation of CARL, i.e., at a point where land reform should already be a thing of the past, achievements on quantitative targets remain well below expectations (Table 4.4). Even if the historical pace of implementation were to be maintained, completing the government's targets would take more than 17 years. Financial constraints may lead to even more protracted implementation because unlike much of the land redistributed earlier, almost all of the remaining land is privately-owned and will require compensation. Also, large parts of land that could be redistributed remain outside the scope of CARL, either, because they were artificially subdivided or because they were held under special arrangements to which the land reform legislation is not applicable.⁹ This suggests a need to review experience, to date, and to evaluate alternative options.

4.17 Analysis of the impact of land reform presented in this report relies on data from five villages in Central Luzon and Iloilo — typical of the rice and corn growing areas that were the focus of the 1972 land reform.¹⁰ Between 300 and 400 households in these study villages were surveyed three times, in 1985, 1989, and 1998. With an equivalent of US\$311 in 1998,

average household expenditure in five villages is above the poverty line (US\$266) but close to or significantly below this line in the marginal villages — Rizal with US\$266 and Signe with US\$212 (Table A4.1).

4.18 Comparison of changes in land tenure between 1985 and 1998 suggests that, in the aggregate, there is a significant increase in the number of owners from 25 to 37 percent, and a reduction of the proportion of share tenants from 12 to 8 percent (Table A4.2).¹¹ But there are large differences in tenure structure and the level of land reform implementation across villages and legislative intervention does not appear to have been successful in eliminating share tenancy in marginal environments. Land reform was implemented most quickly and effectively in favorable environments — share tenancy was already virtually non-existent in Gabaldon and Maragol in 1985 and was completely eliminated thereafter. By contrast, land reform was much less successful in eliminating share tenancy in marginal areas where between one-sixth and one-third of landowners continued to remain share tenants. More importantly, land reform implementation following the 1988 Comprehensive Agrarian Reform Program (CARP) appears to have consolidated the gains from

Table 4.5: Original Tenure Status of Households Who Benefited from Land Reform, 1972-1988

Highest tenure In 1972	Total	Non- Beneficiaries	Beneficiaries	% of Group	% of Beneficiaries
Owner	98	83	15	15	16
Amortizing owner	12	6	6	50	6
Leaseholder	72	47	25	35	26
Share-tenant	86	40	46	53	48
Landless	69	66	3	4	3
Total	337	242	95		

Source: Deininger, Lara Jr., Maertens and Quisumbing (2000).

the first phase of land reform but was much less successful in reducing landlessness.

4.19 Who benefited from land reform? Evidence on the original status of land reform beneficiaries indicates that in line with program design, the 1972 land reform has not benefited the landless but rather share tenants and leaseholders (Table 4.5). Almost 50 percent of beneficiaries from this land reform effort came from the ranks of share tenants, one quarter from leaseholders, and another quarter from the class of owners. In the absence of information on income in 1972, it is difficult to assess how well the program targeted poor households. But based on available information, analysis suggests that the early phase of land reform benefited households with low levels of education and low land assets — not an outstanding targeting performance since those with no land were largely excluded but a reasonably good one, given program objectives.

4.20 What were the benefits of land reform? Between 1985 and 1998, profits before payment of rent and family labor increased by about 80 percent due largely to diversification and real price movements. A larger share of these profits actually benefited producers — profits after payment of rent increased faster than profits before rent payment — suggesting that rent payments declined, thanks to land reform. In addition, because tenure status appears to have a significant impact on incomes in the Philippines, measures aimed at increasing ownership and improving security of tenure would be expected to benefit the poor: compared to land ownership, less secured forms of tenancy are associated with sig-

nificantly lower incomes, holding asset ownership and education levels constant. Incomes are 60 percent lower and statistically significant for share tenants and the landless in 1998, compared to landowners (Table 4.6). In addition, if greater security of tenure is associated with higher levels of investment and therefore asset accumulation, land reform would have an even greater impact on welfare in the long-run because returns to assets appear to have increased over time, from 10.6 to 18 percent between 1985 and 1998 (Table 4.6).

4.21 Indeed, land redistribution appears to have had a strong impact on investment in physical as well as in human capital and, in the longer term on growth of income, productivity, and investment. There are two channels through which a one-off asset transfer could induce higher levels of accumulation of physical and human capital. First, the increased security of property rights associated with

Table 4.6: Determinants of Income, 1985 and 1998

	1985		1998	
	Coefficient	t-statistics	Coefficient	t-statistics
Log of assets	0.11	2.85	0.18	3.55
Education	0.04	2.24	-0.02	-0.90
CLT holder	-0.16	-0.71	-0.23	-1.04
Leaseholder	-0.18	-1.12	-0.24	-1.46
Share tenant	-0.63	-2.75	-0.60	-2.35
Landless	-0.06	-0.27	-0.65	-3.68
Maragol	0.13	0.69	-0.46	-2.52
Pandon	-0.06	-0.29	-0.76	-3.45
Rizal	0.14	0.69	-0.71	-3.50
Signe	-0.79	-2.95	-0.92	-3.20
Intercept	3.82	12.01	4.75	10.90
Adjusted R ²	0.17		0.17	

Source: Deininger, Lara Jr., Maertens and Quisumbing (2000).

the transition from tenancy to ownership is likely to increase the payoff to investments, especially for those relying on family labor. Second, by increasing beneficiaries' level of asset ownership and thereby eliminating credit constraints, land reform may expand their ability to make investments that require credit access.

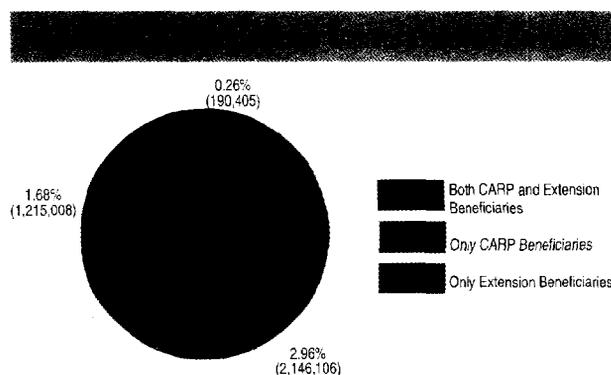
4.22 The analysis relies on assessing the net impact of land reform by comparing the behavior and achievements of households who benefited from land reform with those of a control group who did not. The results suggest that land reform made a significant and quantitatively important contribution to non-land investment, the magnitude of which varied between US\$1,486 and US\$860 (Table A4.3). Land reform participation is, in effect, equivalent to an increase in the household head's initial levels of education of between 5.8 and 11.5 years, implying a doubling or more of initial levels of education in the sample (6.2 years). This suggests that land redistribution which increases households' endowments could make a significant contribution to poverty reduction in countries where households' levels of education are high but were not able to make productive use of their abilities due to prevailing socio-economic conditions and lack of access to productive assets.

4.23 In addition to contributing to higher accumulation of physical capital, land reform appears to have also enabled households to increase their level of human capital accumulation. The educational advance of children "affected by land reform" was between 0.60 and 0.83 years higher than that of non-beneficiaries (Table A4.3). This is over and above a very strong overall convergence effect whereby overall educational expansion is estimated to have helped children from lower educated families to make up for between 70 and 76 percent of their shortfall.¹² Thus, over and above the impact on accumulation of physical capital, the one-time asset transfer implicit in land reform appears to have induced beneficiary households to significantly increase investment in their children's education. There is also evidence that beneficiaries' income grew at a

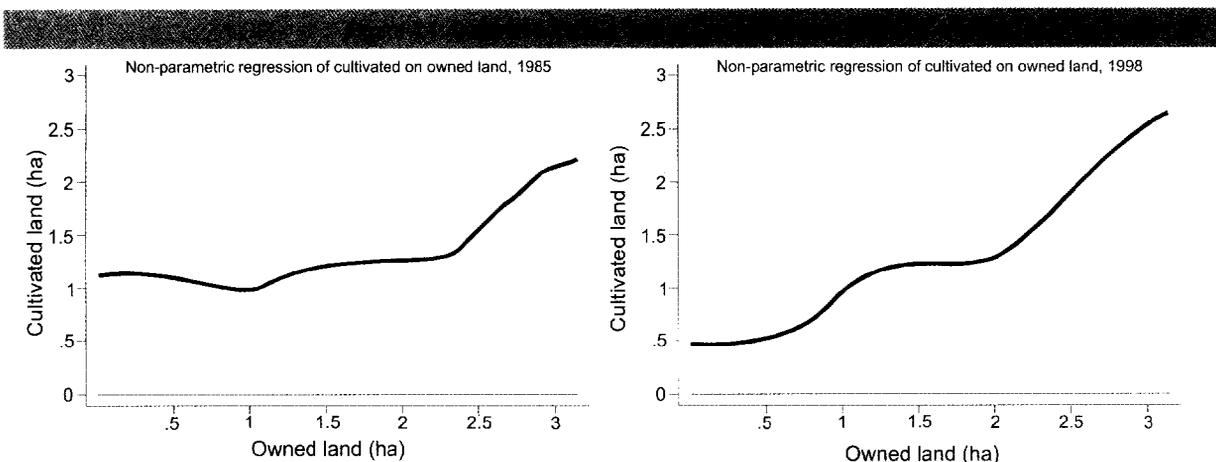
faster rate in 1985-98 than that of non-beneficiaries, by some US\$73-92 or more than half of the original income level. A long-term impact on rice yields is also notable: households who benefited from the 1972 land reform programs increased their rice yields by between 565 and 637 kilograms more than non-beneficiaries. These results support the hypothesis that a transfer of productive assets to the poor acted as a catalyst to facilitate a permanent change in households' pattern of asset accumulation as well as in their welfare and productivity.

4.24 The benefits of land redistribution under CARP could have been enhanced further if the redistribution effort was coordinated with the provision of agricultural extension services. The evidence (based on the 1998 APIS) suggests that these two programs have operated with virtually no overlap (Figure 4.3). Only 16 percent of the CARP beneficiaries also benefited from agricultural extension services, while only 9 percent of the beneficiaries of extension services were also CARP beneficiaries. Better provision of agricultural extension to land reform beneficiaries should be viewed as part of the general revamp of the entire agricultural extension program that has been lagging in performance since its decentralization under the Local Government Code (LGC).

4.25 While the land reform program generated significant benefits for those who participated, a positive social return requires that the costs, both direct and indirect, be lower than the benefits. The



Source: Based on 1998 APIS data.



Source: Deininger, Lara Jr., Maertens and Quisumbing (2000).

survey data used in this analysis suggest that there was reduced land rental market activity between 1985 and 1998 and that as a result, the landless experienced a decline in their access to land. Figure 4.4 shows that there is a strong relationship between ownership and cultivated land in 1998 where only a weak one existed in 1985, suggesting reduced land rental market activity in 1998. In 1985, land markets appear to have been functioning relatively well. Almost everybody seems to have converged to an "optimal" operational farm size of slightly more than one hectare, and even landless households (i.e., those with an owned land endowment of zero) do not seem to have faced significant barriers in land access, cultivating about the same amount of land as those who owned much larger plots. Things are different in 1998. The slope of the overall regression line is much steeper, implying that households' cultivation decision was more closely linked to their land endowment, and that larger land holders were

less likely to rent out while small ones were less likely to rent in.¹³ At the same time, land access for the landless has decreased significantly and is estimated to be less than half of what it was in 1985. Although the data at hand do not allow us to distinguish whether this was due to CARP or to some other factors, they provide a first indication that land access might indeed have decreased during the period under consideration.

4.26 The notion of a structural shift in land access related to CARP legislation is corroborated by transition matrices for the 1971-89 and the 1989-98 periods (Tables 4.7A and 4.7B). In the first phase, land markets were still relatively active and there was considerable upward movement not only among leaseholders and share tenants, but also among the landless: 50 percent of the landless were able to move up the agricultural ladder, about 20 percent making it to leaseholder or beyond, about 20 percent mov-

Table 4.7A: Transition Matrix for Movement in Land Tenure Status Between 1971 and 1988

Tenure Status in 1988	Tenure Status in 1971					Total	As % of Total in 1988
	Owner	Amortizing owner	Lease holder	Share tenant ¹	Landless		
Owner	90	-	4	5	4	103	30
Amortizing owner	1	12	20	10	1	44	13
Leaseholder	6	-	37	31	8	82	24
Share tenant	1	-	3	30	13	47	14
Pawning out	-	-	6	2	5	13	4
Pawning in	-	-	1	-	3	4	1
Landless	1	-	4	8	34	47	14
Total	99	12	75	86	68	340	-
As % of Total in 1971	29	3	22	25	20		

¹ Includes sub-tenants and sub-leaseholders

Table 4.7B: Transition Matrix for Movement in Land Tenure Status Between 1988 and 1998

Tenure Status in 1998	Tenure status in 1988							Total	As % of Total in 1998
	Owner	Amortizing owner	Lease- holder	Share tenant ¹	Pawning out	Pawning in	Landless		
Owner	53	13	16	8	1	2	1	94	38
Amortizing owner	-	12	12	1	-	-	-	25	10
Leaseholder	8	6	25	8	1	1	3	52	21
Share tenant	5	-	1	13	-	-	-	19	8
Landless	4	6	8	4	10	1	23	56	23
Total	70	37	62	34	12	4	27	246	
As % of Total in 1988	28	15	25	14	5	2	11	-	

Source: Deininger, Lara Jr., Maertens and Quisumbing (2000).

ing to share contracts, and the remainder engaging in pawning transactions.¹⁴ Thus, even though the 1972 Land Reform legislation did not make provision for landless non-cultivators (e.g., agricultural wage workers) to become direct beneficiaries, this group was able to improve its tenure status by moving up the ladder through the regular land market.

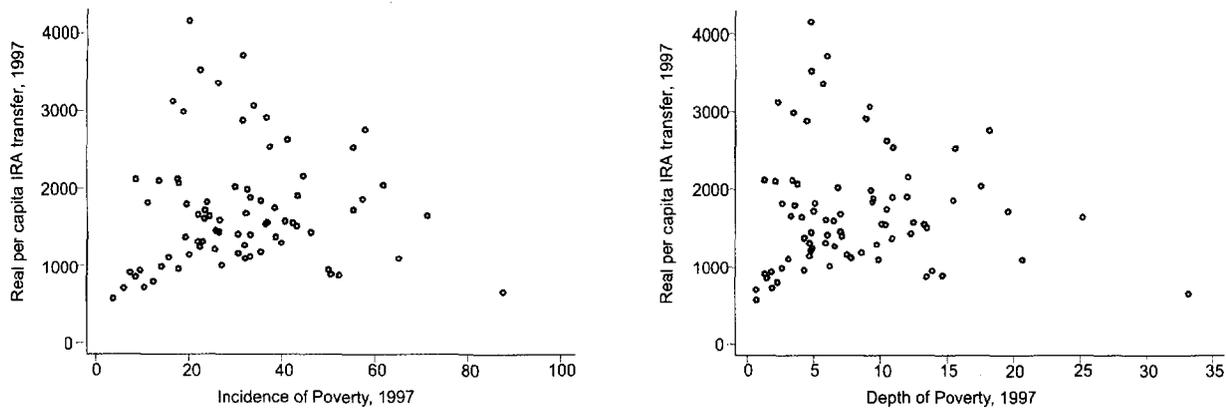
4.27 The transition matrix for the 1989-98 period illustrates that in the wake of CARP legislation, the ability of the poor and landless to gain access to land through established markets has worsened. Even though landless non-cultivators were now explicitly included as potential beneficiaries, their opportunities have declined significantly.¹⁵ It is important to note that this phenomenon was not due to a general lack of movements up and down the "agricultural ladder;" in fact, large portions of leaseholders and amortizing owners moved towards full ownership and a significant population of share tenants managed to improve their tenure status. There is, however, hardly any upward movement for the landless.¹⁶ These results suggest that even though land reform has helped improve the lives of its direct beneficiaries, its unintended consequences may have been costly, in particular as they were borne by the landless who are among the most vulnerable in the rural population. This is a disturbing finding. There is clearly a need to undertake additional analysis to check if the findings from this small survey in five villages is robust.

INTERGOVERNMENTAL TRANSFERS

4.28 As noted earlier, there are important and persistent geographic differences in social and economic outcomes in the Philippines, including the distribution of income-based poverty, malnutrition, health indicators such as infant mortality, enrollment and educational attainment. Public policies can affect the extent to which these geographic differences are corrected. For example, social expenditures can be targeted geographically, and transfers from the central government to local governments can be designed in such a way as to favor poorer provinces and municipalities.

4.29 The main block grant from the central government to local governments in the Philippines is the Internal Revenue Allotment (IRA). IRA transfers to provinces, cities, and municipalities are based on a formula which considers the population, area, and an "equal share" component, while IRA transfers to *barangays* only take into account population and the equal share component. There is, therefore, no redistributive intent in the IRA formula. To see whether IRA transfers are redistributive in practice, we aggregate transfers to provinces, cities, municipalities, and *barangays* for every province, and graph the per capita transfers to provinces as a function of the incidence and depth of poverty. Figure 4.5 shows that there is essentially no relationship between poverty and IRA allocations, suggesting that the main

Figure 4.5: IRA Allocations are Limited to Poverty



Source: *Balisacan (1999a)* and staff calculations.

block grant from the central government to local governments does not help to reduce regional inequalities.

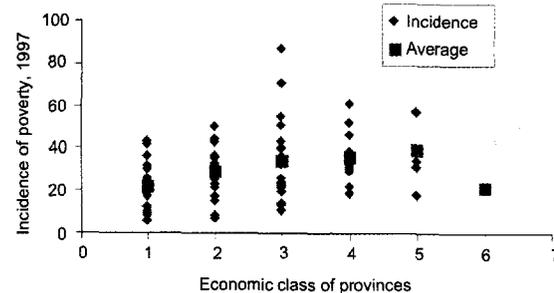
4.30 Intergovernmental grants are an important source of revenues for subnational governments in most developing countries. The design of these transfers affects the efficiency and equity of local service provision. Box 4.2 summarizes some considerations which should be taken into account for the design of an optimal scheme of intergovernmental grants. One important objective of intergovernmental transfers in many countries is to reduce regional fiscal disparities without providing disincentives to local resource mobilization. One recommendation of this report is that the Philippine Government consider incorporating an explicitly redistributive component into the IRA scheme to enable all local governments to provide adequate social services to their constituents.

4.31 Allocation of central government resources is sometimes also guided by the economic classification of local government units under the Local Government Code from 1 to 6, with 1 considered the most well-off and 6 the least well-off. How well does this classification reflect poverty incidence at the provincial level? Figure 4.6 shows the results.

4.32 On the average, provincial classification under the LGC is correlated with poverty incidence but there is large variation within a given class (Figure 4.6). Hence, there is a large number of provinces that are in class 3 and above which are less poor than many provinces in classes 1 and 2. This is not altogether surprising because the economic classification of Local Government Units (LGUs) is based on total revenues at the disposal of LGUs, of which IRA is by far the largest component. As discussed above, the allocation of IRA itself was not found to be correlated with poverty levels. Reliance on the economic classification under the LGC for targeting of anti-poverty programs is therefore not advisable; there is sufficient information for more effective targeting at the provincial level.

Figure 4.6: Poverty and Economic Classification of Provinces

On average, provinces are poorer as the economic classification moves from 1 to 5 but large variation within a given class suggests considerable room for improved targeting.



Source: *Staff calculations.*

Box 4.2: The Design of a System of Intergovernmental Grants

The design of the most appropriate formula for intergovernmental transfers is a difficult issue, and often reflects some combination of the desire to equalize fiscal capacity or to reduce disparities in the levels of public service and to encourage local governments to mobilize resources.

First, the formula may be designed to reflect differences in expenditure needs. Different indicators can be used to measure expenditure needs:

- Population.
- Indicators of physical factors that may lead to greater costs of service provision, e.g., land area, population density, urbanization.
- Measures to reflect the concentration of high cost population in the local government area, for example, the percent of families living below the poverty line, the percent of the population on pensions, the percent of school aged children.
- Indicators of infrastructure needs, such as the miles of paved highways, percent of households with access to adequate water supply, etc.

Second, the intent is income or fiscal capacity equalization, which means an equalization in the capacity of local governments to finance a given level of services. The grant formula attempts to provide more money to those local governments with a lower capacity to raise taxes. Such a formula may allocate funds according to the level of average income in the local area. Since this provides no incentive for the recipient government to increase its tax effort, the formula often includes a measure of tax effort, or requires the maintenance of some level of revenue mobilization as a condition of receiving the grant.

Third, the grant formula could reflect a balance between revenue raising capacity and expenditure needs.

But once local governments get additional resources, there is no guarantee that these resources are used to finance services that the poor value. Different types of intergovernmental grants can be used to influence the allocation of local government resources. For example, if national governments want to ensure minimum standards of service provision, grants could be provided conditional on the funds being used for a particular purpose, such as basic health services, and with conditions on standards of service and access. Such transfers ensure that the recipient government spending on a particular category will at least be equal to the amount of the grant.

There are alternative grant types, such as matching grants or cost-sharing programs, which are conditional transfers that require funds to be spent for specific purposes and the recipients match the funds to some degree. Such transfers have an income effect, as the subsidy gives the community more resources, and a price or substitution effect, since the subsidy reduces the relative price of the subsidized service. Matching transfers may change local priorities, which may be the desired outcome if the objective is to achieve national policy objectives. This type of grant has the potential to be inequitable, since richer communities can raise matching funds more easily. But this effect can be offset by adjusting matching rates to local government wealth.

Source: Bahl (1999).

Table A4.1: Socio-Economic Characteristics and Land Tenure Status in Sample Villages Across Three Generations

	Total sample	Central Luzon		Panay Island		
		Gabalidon	Maragol	Pandon	Rizal	Signe
GENERATION I						
Year of birth	1909	1906	1912	1909	1907	1907
Males (number)	678	127	198	110	147	96
Born in the <i>municipio</i>	37.6%	45%	19%	44%	38%	70%
Mean educational level (years)	3.78	4.24	3.71	3.75	3.88	3.23
Main occupation, farmer	79.3%	81%	88%	59%	73%	92%
Main occupation, agricultural laborer	2.7%	4%	3%	5%	2%	0%
Main occupation, permanent non-ag.	6.3%	4%	4%	11%	10%	3%
Main occupation, temporary non-ag.	11.4%	11%	6%	25%	13%	4%
Females (number)	674	127	194	110	147	96
Born in the <i>municipio</i>	32.5%	25%	24%	51%	32%	50%
Mean educational level (years)	3.26	3.99	2.74	3.36	3.39	3.04
Main occupation, housekeeper	91.3%	87%	89%	92%	93%	99%
Main occupation, agricultural laborer	1.6%	2%	2%	4%	0%	0%
Main occupation, permanent non-ag.	0.3%	0%	1%	0%	1%	0%
Main occupation, temporary non-ag.	4.3%	8%	6%	5%	1%	1%
GENERATION II						
Year of birth	1940	1944	1942	1938	1937	1938
Males (number)	344	64	100	57	74	49
Born in the <i>municipio</i>	49.4%	55%	47%	37%	66%	37%
Mean educational level (years)	6.22	6.47	6.21	6.67	6.42	5.1
Main occupation, farmer	79.1%	78%	84%	61%	76%	96%
Main occupation, agricultural laborer	7.6%	9%	12%	11%	3%	0%
Main occupation, permanent non-ag.	2.6%	0%	1%	5%	5%	2%
Main occupation, temporary non-ag.	8.7%	12%	3%	14%	14%	2%
Females (number)	299	54	97	45	62	41
Born in the <i>municipio</i>	45.8%	37%	49%	40%	61%	32%
Mean educational level (years)	6.32	6.31	5.89	7.09	7.05	5.44
Main occupation, housekeeper	79.3%	76%	80%	67%	79%	95%
Main occupation, agricultural laborer	6.0%	11%	8%	7%	2%	0%
Main occupation, permanent non-ag.	3.0%	2%	3%	4%	5%	0%
Main occupation, temporary non-ag.	7.0%	7%	4%	18%	8%	0%
GENERATION III						
Year of birth	1966	1968	1967	1966	1965	1966
Males (over 14 years old) (number)	645	109	198	105	122	111
Mean educational level (years)	8.32	7.86	8.46	9.08	8.44	7.65
Main occupation, farmer	30.6%	26%	37%	9%	42%	32%
Main occupation, agricultural laborer	19.8%	20%	28%	10%	7%	27%
Main occupation, permanent non-ag.	6.6%	6%	7%	6%	11%	4%
Main occupation, temporary non-ag.	20.9%	25%	13%	36%	18%	21%
Still in school	20.0%	23%	13%	36%	19%	14%
Residing in the <i>municipio</i>	71.6%	65%	83%	63%	67%	51%
Residing in other region:	11.3%	8%	2%	13%	20%	27%
Mindanao	3.4%	1%	1%	4%	12%	5%
Manila	6.0%	6%	2%	4%	7%	15%
Residing in other country	1.2%	0%	1%	4%	0%	2%
Females (over 14 years old) (number)	600	101	183	92	136	88
Mean educational level (years)	9.37	8.75	9.40	10.24	9.92	8.27
Main occupation, farmer	4.7%	5%	10%	0%	2%	1%
Main occupation, housekeeper	36.1%	38%	30%	40%	36%	43%
Main occupation, agricultural laborer	7.7%	9%	14%	2%	6%	2%
Main occupation, permanent non-ag.	9.0%	4%	8%	17%	10%	6%
Main occupation, temporary non-ag.	21.5%	25%	16%	21%	21%	30%
Still in school	8.4%	20%	19%	16%	21%	12%
Residing in the <i>municipio</i>	60.0%	48%	65%	38%	56%	44%
Residing in other region:	13.7%	14%	7%	19%	22%	25%
Mindanao	1.7%	1%	1%	5%	2%	1%
Manila	9.5%	12%	6%	9%	16%	16%
Residing in other country	3.0%	2%	3%	6%	3%	4%

Table A4.2: Household Income, Assets, and Production Structure, in Sample Villages, 1985 and 1998

	1998					
	Total sample	Central Luzon		Pandon	Panay Island	
		Gabalton	Maragol		Rizal	Signe
Income and expenditure						
Total expenditure	311.6	344.7	321.4	393.7	266.4	211.6
Total income, wet season	281.7	348.6	329.0	203.8	264.8	161.8
Farm income (wet season)	194.3	180.2	262.0	127.6	171.3	127.9
Rice farm income	110.6	101.6	201.0	54.1	49.9	33.2
Other crop farm income	24.3	31.8	17.4	14.2	32.8	32.4
Livestock income	59.4	46.8	43.6	59.3	88.5	62.3
Non-farm income (wet season)	87.4	168.3	66.9	76.2	93.5	33.8
Off-farm income	24.1	92.3	17.2	9.3	9.1	2.4
Non-farm income	23.1	19.9	25.8	10.4	32.1	14.7
Unearned income	40.2	56.2	23.9	56.5	52.3	16.7
Assets						
Total assets	7021.9	2721.9	8467.9	7845.8	7680.1	5576.8
Land	2674.5	878.7	4234.8	1922.8	2198.1	2164.8
Housing	2500.4	827.2	1960.1	3705.6	3876.5	1739.7
Productive assets and savings	848.9	467.8	1279.9	1200.6	463.7	295.3
Animals	513.7	369.1	420.3	307.8	605.3	1215.9
Consumer durables	484.5	179.2	572.8	709.0	536.5	161.1
Production						
Farm size (ha.)	1.26	1.24	1.46	1.05	1.07	1.37
Rice yields (kg/ha.)	3357.4	4040.5	4527.7	3344.7	1934.9	1847.7
Profits per ha. before rent	422.4	605.1	644.8	381.4	141.7	154.8
Profits per ha. after rent	354.5	526.8	587.4	272.5	85.6	92.2
Land Tenure Structure						
Owners	38%	24%	39%	32%	45%	48%
CLT holders	10%	18%	17%	8%	0%	0%
Leaseholders	21%	21%	20%	27%	24%	4%
Share tenants	8%	0%	0%	5%	11%	43%
Landless	23%	37%	23%	27%	19%	4%
1985						
Income						
Total income, wet season	136.1	140.5	151.9	110.7	153.6	62.2
Farm income (wet season)	87.4	89.9	108.6	53.5	95.7	34.4
Rice farm income	68.8	74.8	88.6	34.9	76.9	15.5
Other crop farm income	3.7	3.2	4.7	1.9	1.2	9.7
Livestock income	15.0	12.0	15.2	16.7	17.6	9.3
Non-farm income (wet season)	48.7	50.5	43.4	57.2	57.9	27.7
Off-farm income	11.9	20.8	10.9	6.6	13.4	5.7
Non-farm income	20.7	11.8	18.4	34.9	21.1	20.3
Unearned income	16.1	17.9	14.1	15.6	23.4	1.8
Assets						
Total assets	4547.7	2814.2	5960.9	4027.4	4783.1	2360.8
Land	2839.8	1240.9	3264.2	2873.2	3752.3	1703.1
Housing	667.1	431.2	967.5	630.9	447.5	338.3
Productive assets and savings	581.2	727.8	1024.1	360.2	188.4	69.8
Animals	210.9	274.6	199.9	108.9	249.9	210.4
Consumer durables	248.6	139.7	505.2	54.3	145.0	39.1
Production						
Farm size (ha.)	1.65	1.83	2.14	1.02	1.29	1.13
Rice yields (kg/ha.)	3395.4	3274.6	3612.0	4189.4	3306.9	2063.8
Profits per ha. before rent	233.1	232.9	194.8	297.5	297.3	158.8
Profits per ha. after rent	167.5	175.9	132.1	205.1	239.5	81.7
Land Tenure Structure						
Owners	25%	21%	13%	22%	37%	48%
CLT holders	13%	24%	24%	3%	0%	0%
Leaseholders	34%	39%	48%	30%	24%	9%
Share tenants	12%	0%	2%	16%	13%	39%
Landless	17%	13%	11%	30%	23%	4%

Note: Expenditures are in adult equivalents. Incomes, expenditures, assets and profits are expressed in 1998 US\$.

Table A4.3: Impact of the Land Reform on Human Capital Formation, Asset Accumulation, and Long-Term Productivity and Income

Dependent variable	Independent variables	OLS		Robust Regression		Median Regression	
		Coefficient	t-statistics	Coefficient	t-statistics	Coefficient	t-statistics
Asset accumulation: Inherited to 1988 (1998 US\$)	Beneficiary	1486.50	3.21	860.99	3.94	1138.84	3.51
	Education	258.18	3.51	43.71	1.26	96.19	1.59
	Initial assets	0.81	0.48	1.49	1.85	0.82	0.48
Asset accumulation: Inherited to 1988 (1998 US\$)	Beneficiary	1525.74	3.24	996.95	4.38	1330.26	4.22
	Education	258.52	3.51	51.43	1.49	116.24	1.67
	Initial assets	1.37	0.68	1.71	1.81	2.15	0.89
	Initial assets* Beneficiary	-1.91	-0.52	-39.54	-1.75	-1.51	-0.07
Increase in education (years)	Beneficiary	0.60	1.83	0.74	2.37	0.83	1.80
	Initial education	-0.76	-14.19	-0.70	-13.66	-0.75	-9.42
Increase in income (1998 US\$) 1985-98	Beneficiary	86.12	2.08	73.84	2.76	92.24	2.82
	Education	-0.57	-0.09	-2.32	-0.55	-1.72	-0.24
	Income in 1985	-0.68	-6.76	-0.48	-7.40	-0.57	-2.63
Asset accumulation (1998 US\$) 1985-98	Beneficiary	605.18	0.78	525.57	1.77	612.67	2.28
	Education	263.77	2.01	124.41	2.48	165.93	2.25
Increase in rice yields (kg/ha.) 1985-98	Beneficiary	637.91	2.26	580.16	2.28	565.45	1.67
	Education	8.18	0.17	-11.31	-0.26	14.46	0.29
Increase in profits (1998 US\$) 1985-98	Beneficiary	102.40	1.88	79.56	1.65	82.07	1.89
	Education	-0.84	-0.09	-3.63	-0.44	-5.81	-0.60

Source: Deininger, Lara Jr., Maertens and Quisumbing (2000).

Endnotes

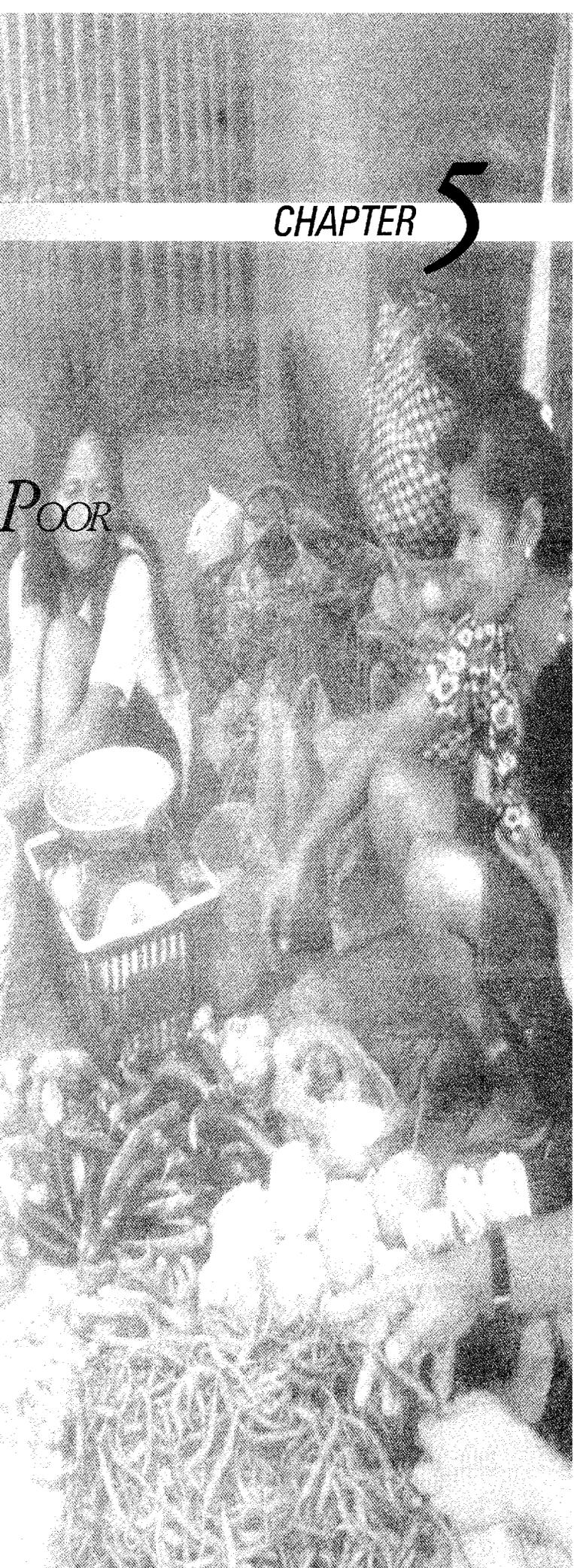
- 1 The effective protection rates have been increasing even faster given the declining protection rates for agricultural inputs (David, 1999).
- 2 The FIES survey values the household production of rice at farm gate prices while household consumption of rice is valued at local retail prices. An (upward) adjustment therefore needs to be made to the value of rice produced in order to make it comparable with the values of consumption. Using data on farm gate and retail prices from the Bureau of Agricultural Statistics and Roumasset (1999) and using a 65% recovery rate for rice (from palay), the effective differential between retail and farm gate rice price is estimated to range between 30-50% (of farm gate price). Thus, three alternative adjustment factors of 30, 40 and 50% are used to derive estimates of the value of rice production, and hence of the value of *net* consumption of rice.
- 3 For a similar analysis for Thailand, see Deaton (1989).
- 4 This section draws on a background paper by Deininger, et. al., on "Redistribution, investment and human capital accumulation: the case of Agrarian Reform in the Philippines."
- 5 The first systematic attempt at land redistribution, undertaken by the US colonial government in 1903, involved the purchase of about 166,000 hectares from the Catholic Church. It was followed by the 1933 Rice Share Tenancy Act which limited share rent to 50% and imposed a ceiling of 10% per annum on credit extended by the landlord and two major pieces of Agrarian Reform legislation under the Magsaysay administration, namely, the 1954 Agricultural Tenancy Act and the 1955 Land Reform Act. The former aimed to improve the situation of tenants by limiting share rent to 30%, further reducing the interest ceiling to 8-10%, and improving the enforcement of existing legislation. The latter was to provide for expropriation of large estates, but in practice remained rather ineffective (Riedinger, 1995).
- 6 Birdsall and Londono (1997); Deininger and Squire (1998).
- 7 Blanchflower and Oswald (1998).
- 8 Fafchamps and Pender (1997); Jalan and Ravallion (1998).
- 9 An additional issue is that subdivision and renting out of land that had been received under the land reform program is strictly prohibited. Many of the beneficiaries who received land in 1972 are by now too old to farm themselves and there is considerable anecdotal evidence suggesting that their children have acquired education and taken on non-agricultural jobs (e.g., Hayami, Marciano and Kikuchi, 1998). If this is true, elimination of these restrictions would be vital to ensure not only efficiency of land use but also the ability of a "second generation" to benefit (at least indirectly) from the earlier land reform.
- 10 One of the villages in each province (Maragol in Central Luzon and Pandon in Iloilo) represents favorable agro-climatic environments with irrigated rice production. Two other villages in less favorable environments combine reliance on rain-fed production with supplemental irrigation during the dry season. The fifth village (Signe) is located in a mountainous and marginal environment.
- 11 The analysis is based only on panel households interviewed both in 1998 and 1985.

- 12 In addition, for 68 beneficiary households who had both children who completed their schooling before receiving land and children who did so after the household benefited from land reform, the same test was conducted “within” the same household. A simple t-test points towards an even higher and highly significant ($t = 5.01$) difference of 3.32 years, although other factors may of course come into play such as unobserved ability and life-cycle phenomena unrelated to land reform (households taking their first child out of school early to have a secured successor and send the others to school later).
- 13 Note that the ability to make inferences about large landholders is constrained by the fact that in a survey people are unlikely to admit to owning more than the legal maximum of land.
- 14 24 of the 75 leaseholders (30%) moved up to become either amortizing or full owners, and 36% of the share tenants in the sample moved up to become leaseholders, with another 18% becoming either full owners or CLT holders.
- 15 Descriptive evidence indicates that the majority of cultivators moved “down” the tenancy ladder – mostly to give up farming—did so voluntarily, mainly because they receive remittances from kin who had moved out of the village. Neither age nor intergenerational transfers appear to be able to explain the phenomena observed—only about 10% of households had bestowed part of their landholdings to their offspring and excluding them does not change the substantive conclusions reported here.
- 16 Note that it is not possible to discern which of the upward movements were due to land reform and which ones were due to other events.

THE CRISIS AND THE POOR

5.1 When devaluation of the Thai Baht in July 1997 marked the beginning of the Asian financial crisis, the Philippine economy was in relatively good shape. In the three years prior to the crisis, the Philippines was enjoying favorable economic growth, inflation had returned to manageable levels after the double-digit rates of 1988-91, the Peso was stable against the US dollar, net international reserves had grown to comfortable levels, and the budget was in surplus. Poverty rates had been declining as well, with the incidence of poverty falling from 32 percent in 1994 to 25 percent in 1997.

5.2 Nonetheless, the Thai financial crisis was rapidly transmitted to the Philippine economy as large capital outflows instantly created downward pressure on the Philippine Peso by the last quarter of 1997, and the Philippine economy stalled in 1998. Real GDP shrank by 0.4 percent in 1998. Per capita real GDP declined by 2.6 percent (Table 5.1). The financial crisis was compounded by the worst drought in 30 years caused by the El-Niño beginning September 1997. This was reflected in the 1998 sectoral growth rates. Agriculture contracted the most, by 6.6 percent, while industrial production fell by 1.7 percent.



	Pre-crisis	1998
Per capita GDP Growth	0.4 (1990-96)	-2.6
Per capita private consumption growth	1.0 (1990-96)	1.3
Inflation (CPI)	9.8 (1990-96)	9.7
Unemployment Rate	8.6 (1996)	10.1
Poverty Incidence	25.0 (1997)	
Government Spending (as % of 1997)		
Education		102.6
Health		97.6

Source: World Bank (2000e).

5.3 With the slowdown in output growth came the slowdown in employment. Unemployment rates increased to double-digit levels during 1998 (averaging 10.1 percent in 1998 against 8.7 percent in 1997); underemployment also rose. Inflation accelerated to double-digit levels. With the plummeting of agricultural output, food prices increased even faster than the general level of prices. The crisis also reduced government revenues which constrained public spending despite an overall counter-cyclical fiscal policy adopted by the government. However, the government was successful in protecting expenditures in the social sectors.

WELFARE IMPACT OF THE CRISIS

5.4 What was the impact of these macroeconomic developments on household welfare? With smaller output falls than any of the other crisis-affected countries in the region, the Philippines escaped the worst of the regional financial crisis.¹ But relatively little is known about the distribution impact of the crisis, which for the Philippines turned out to be a combination of financial and weather-related shocks. For other countries in the region, the distribution impact of the crisis has been analyzed based on household survey data before and after (or during) the crisis, in some cases involving the construction of a counterfactual based on a predicted value from past trends and in another, also exploiting the existence of panel data.² For the Philippines, the latest available household survey is the 1998 Annual Poverty Indicators

Survey (APIS) conducted by the National Statistics Office (NSO).³ The 1998 APIS survey was designed to be a longitudinal survey forming a panel with the 1997 FIES. Twenty-three thousand one hundred fifty households (59.8 percent of the APIS sample) were thus common to both surveys. While these data could in principle provide a direct measure of welfare change, the potential usefulness of the longitudinal nature of these data was seriously impaired by problems of comparability of income and consumption across the two surveys.⁴ As a result, it is virtually impossible to separate how much of any observed decline in consumption or income would be attributable to a real crisis-related welfare shock versus how much is simply on account of measurement.

5.5 The analysis here is based on exploiting a separate section of the APIS survey, where households were asked if they were adversely affected by the crisis in different ways.⁵ The results suggest that the impact of the crisis was modest relative to what has been estimated for other crisis-affected countries in the region, leading to a 5 percent reduction in average living standards and a 9 percent increase in the incidence of poverty, with higher increases indicated for the depth and severity of poverty. The impact on measures of overall inequality was minimal. However, these results could underestimate the full impact of the crisis to the extent they do not factor in the effects of the price shock reported by nearly 90 percent of the population. On the other hand, there may also be an element of overestimation of the impact on account of potential measurement error in the self-reported shocks.

5.6 The largest share of the overall impact on poverty is attributable to the El Niño shock as opposed to shocks mediated through the labor market. Not all households were equally vulnerable to the crisis-induced shocks and the distribution impact of the two shocks was different: while the labor market shock was progressive (inequality reducing), the El Niño shock was regressive (inequality increasing). Ownership of land made households more susceptible to the El-Niño shock (which is

unsurprising) but higher levels of education made them more vulnerable to wage and employment shocks. The impact of the crisis increased with the level of commercial development of the community but the crisis dampened the positive effects on the living standards of the households' social network (such as membership in co-operatives and NGOs) and community social capital (such as a town hall, a church, a park or library in the community). Finally, occupational diversity within the household helped mitigate the adverse impact of crisis-related shocks.

5.7 Despite the relatively small magnitude of the overall impact of the crisis, households did try to protect their consumption. For three-fourths of the affected households, consumption impacts were smaller in magnitude than the income impacts; the median consumption impact was about one-third lower, while the mean consumption impact was about four-fifths of the income impact. But the ability of the poor to protect their consumption was more limited: the mean consumption to income shock ratio for the non-poor was 78 percent whereas it was 94 percent for the poor.

5.8 Five potential shocks were identified in the APIS questionnaire. Households were asked: "During the past six months, did the following problems affect you and your family?"

- (i) increasing prices of food and other basic commodities;
- (ii) loss of job within the country;
- (iii) loss of job due to retrenchment of migrant/overseas workers of the family;
- (iv) reduced wages; and,
- (v) drought or "El Niño."

5.9 It is not entirely clear what is meant by being "affected by a problem." The allusion to being affected by a "problem" rather than just an "event" is indicative of the intent to elicit responses on potentially adverse impact. But the responses from the households are in yes/no format and do not

incorporate a measure of the intensity of the effect of any one of these shocks.

5.10 Virtually everyone — nine out of every ten persons — reported being affected by the price shock (Table 5.2). However, a large share of the population was also hit by other shocks. For instance, about two-thirds of the population reported being hit by at least one of the other four shocks. In addition, most households reported being affected by more than one shock. For instance, less than 30 percent of the population was reportedly affected by only a single shock. If one were to disregard the price shock, which was experienced by virtually everyone, less than 3 percent of the population reported being affected by only a single shock. The multiplicity of shocks reported by the households reflects both the multidimensional nature of

Table 5.2: The Incidence of Crisis-Related Economic Shocks

Crisis-related shocks	Percent of sample households affected	Percent of population affected
Price shock	89.9	91.4
Domestic employment shock	18.4	20.3
Overseas/migrant employment shock	4.3	4.9
Wage shock	15.5	16.7
Drought/El Niño shock	56.6	59.8
Price shock only	28.2	26.0
Domestic employment shock only	0.16	0.16
Overseas/migrant employment shock only	0.02	0.02
Wage shock only	0.23	0.19
Drought/El Niño shock only	2.36	2.28
Hit by at least one of the five shocks	93.0	94.4
Hit by at least one of the four shocks other than the price shock	64.8	68.4
Labor market shock (regardless of the price shock)	8.1	8.6
El-Niño shock (regardless of the price shock)	39.0	40.4
Both El-Niño and labor market shocks (regardless of price shock)	17.6	19.4

Source: Calculated from 1998 APIS data.

the crisis as well as the multiple sources of income within the household.

5.11 Because the universal nature of the price shock makes the identification of its impact virtually impossible (the size of the sub-sample not affected by the price shock is far too small to construct a credible control group), the analysis of impact focuses on the remaining two main categories of shocks: the labor market shock applying to households who experienced either reduced wages or a loss of job within the country or overseas (this combines shocks ii, iii and iv above); and the drought or El-Niño shock (shock v above). Further, given that some households experienced both types of shocks, three mutually exclusive categories of shocks were constructed, viz., (i) labor market shock alone, (ii) El-Niño shock alone; and, (iii) joint labor market and El-Niño shocks. Using these definitions, about 9 percent of the population (8 percent of sample) was affected by the labor market shock, about 40 percent (39 percent of sample) by the El-Niño shock, and about 19 percent (18 percent of sample) was affected by both. Altogether, the three shocks account for more than two-thirds of the Filipino population (Table 5.2).

5.12 The analysis tries to identify the impact of being affected by one of these three categories of shocks on household welfare after controlling a large number of household attributes, the attributes of the communities they live in and the geographic fixed effects (Model 1 in Table A5.2).⁶ Household characteristics include household demographics, characteristics of household head, education level of adults, occupational characteristics, including a measure of diversity of employment,⁷ and access to land, electricity, social networks and public assistance. Community or barangay characteristics include three indices based on barangay or community-level data: one for infrastructure capital, one for community social capital, and one for commercial capital. The infrastructure capital index is constructed as an average of binary variables indicating the presence in the *barangay* of a phone, a telegraph, postal services, a laid-out street pattern and access to national roads.

The community social capital index is constructed as an average of binary variables pertaining to the presence of a town hall, a community hall, a church, or a park in the barangay. The commercial capital index is based on barangay-level variables on the number of financial institutions, industrial establishments and stores⁸ (see Table A5.1 for summary statistics on the model variables). In addition, the analysis allows for variation in the severity of the shock and the ability of the household to cope based on certain household and community characteristics as there is no direct measure of the severity of the shock (Model 2 in Table A5.2).⁹ These include households' endowments of labor, land and human capital, households' social network and employment diversity as measures of their risk-management abilities, community-level indices of infrastructure, and social and commercial capital.

5.13 The results (Model 1 in Table A5.2) suggest that the labor market shock had a 12 percent negative impact on per capita consumption of households affected by that shock alone, and the El-Niño shock reduced the consumption of those affected by 5 percent, while households who were affected by both shocks suffered a negative impact on their consumption of the order of 9 percent. The smaller effect of the joint shock relative to the single labor market shock may appear strange, but it is entirely consistent with the possibility that those hit by the single labor market shock were hit harder than those affected by both shocks. This could reflect the fact that households who reported being hit by more than one shock had more diversified income sources to begin with, which helped them to cope better with the effects of the shocks. Allowing for variation of the household level impact of the various shocks based on household and community attributes yields some interesting patterns (Model 2 in Table A5.2).

5.14 Labor Market Shock. The labor market shock significantly reduces the returns to education. The impact on consumption is greater at higher levels of education (see Model 2 in Table A5.2 for interactive variables for the labor shock). The coefficient on employment diversity is not significant, but

its positive sign points to a mitigating effect on the impact of the shock. The adverse impact of the labor market shock increases significantly with the community's level of commercial development. This suggests that the more commercially-developed communities, by virtue of their superior integration with the rest of the economy, are also likely to be more exposed to shocks associated with macroeconomic and financial crises. Understandably, ownership of land is not a significant factor influencing the impact of the labor market shock.

5.15 *El-Niño Shock.* Not surprisingly, the adverse impact of this shock increases significantly with the ownership of land. The household's educational endowment on the other hand does not seem to have a bearing on the impact of this weather-related shock. The significant negative coefficient on the household social network indicates that the El-Niño shock significantly eroded the beneficial effects of such networks, rather than these networks being able to protect household living standards, possibly reflecting the covariate nature of the shock. A similar effect is also observed for community social capital. However, a greater degree of employment diversity within the household does protect its living standards against the El-Niño shock.

5.16 The results for the joint occurrence of both shocks are somewhere in-between those of the individual shocks. The adverse impact of the joint shock

increases with the level of education, the ownership of land, and the level of the community's commercial development. It decreases with the diversity of employment within the household.

5.17 Since there is no reliable information on the pre-crisis consumption or income level of households affected by the shocks, estimating the overall impact of the shocks on poverty and inequality requires estimating the counterfactual consumption of households in the absence of the crisis. For households who were not affected by any of the three shocks, the impact of the shocks is by definition zero and their counterfactual consumption is the same as their actual consumption. For those affected, the impact of the shock is derived by comparing the level of (predicted) consumption in the absence of the shock with the level of (predicted) consumption having been affected by the shock.¹⁰

5.18 The results indicate a modest impact of the crisis (Table 5.3). There is a negative effect on mean consumption of about 5 percent. This may be compared with the 2.6 percent decline in real per capita GDP but a 1.3 percent increase in per capita personal consumption between 1997 and 1998 estimated from the national accounts (Table 5.1). The impact on the headcount index is of the order of about 9 percent (an increase from 29.1 to 31.7 percent),¹¹ while the poverty gap index is about 11 percent higher due to the crisis, and similarly, the squared

Table 5.3: Impact of the Crisis on Consumption Poverty and Inequality

Poverty/Inequality Measure	Actual	Counterfactual (all shocks zero)	Impact (%)	Counterfactual		
				(without L-shock)	(without E-shock)	(without LE-shock)
Mean consumption* (per capita per year)	26,482	27,859	-4.9	26,837 [25.8]	27,004 [37.9]	26,982 [36.3]
Headcount index (%)	31.7	29.1	8.7	31.2 [17.0]	30.5 [46.5]	30.7 [36.5]
Poverty gap index (%)	9.43	8.47	11.3	9.32 [11.5]	8.91 [54.1]	9.10 [34.4]
Squared poverty gap index (%)	3.93	3.48	13.0	3.89 [9.5]	3.67 [57.0]	3.78 [33.5]
Theil's T-index	0.513	0.512	0.1	0.513	0.513	0.511
Variance of logs	0.628	0.633	-0.9	0.635	0.624	0.631
Generalized entropy measure (e=2)	2.02	1.97	2.4	1.99	2.05	1.98

Note: Figures in square brackets give the relative contribution of the three shocks to the total impact.

* At 1998 Metro Manila prices (nominal values adjusted for inter-province cost of living differences, based on provincial poverty lines developed by Balisacan, 1999a).

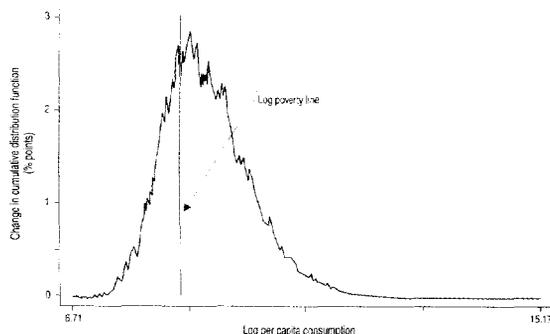
Source: Calculated from 1998 APIS data.

poverty gap index is indicated to be about 13 percent higher. The effects on living standards and poverty are, of course, larger for the crisis-affected population.

5.19 The measured magnitude of the impact of the crisis on poverty depends on the poverty line. To examine this, Figure 5.1 shows how the entire cumulative distribution functions (CDF) shifted as a result of the crisis. The figure plots the difference between the actual (“post-crisis”) and counterfactual (“pre-crisis”) CDFs against log per capita consumption. Thus, for instance, at the poverty line, we can read off a value of 2.6 which confirms the result in Table 5.3 that the crisis induced an increase in the headcount index by 2.6 percent points. But the key point here is that the impact of the crisis could have been higher or lower depending upon where the poverty line is drawn. This comes out even more strongly in Figure 5.2, which shows the ratio of the actual-to-counterfactual distribution functions. Again, while at the poverty line used in this report the crisis appears to induce about a 9 percent increase in the headcount index (Table 5.3), the percentage impact could be much higher for lower poverty lines (up to 16 percent if the poverty lines were halved), and much lower for higher poverty lines (falling down to 3 percent if the poverty lines were doubled).

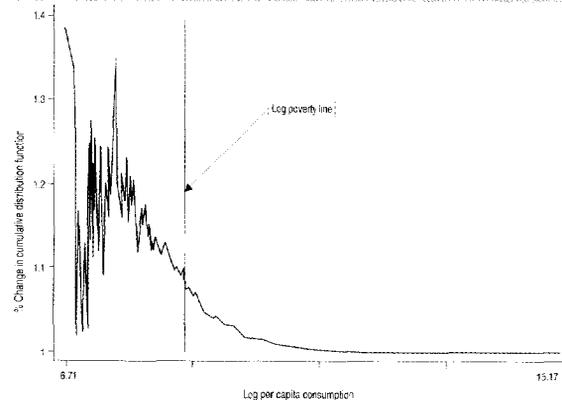
5.20 The crisis appears to have had little effect on measures of overall inequality (Table 5.3). But

Figure 5.1: Change in the Cumulative Distribution Function due to the Crisis



Source: Staff calculations based on the 1998 APIS data.

Figure 5.2: Percentage Change in the Cumulative Distribution Function due to the Crisis



Source: Staff calculations based on the 1998 APIS data.

this masks the contrasting effects of the labor market and El-Niño shocks. The labor market shock is progressive (proportionate impact increases with pre-crisis consumption), while the El-Niño shock is regressive (proportionate impact declines with pre-crisis consumption).¹² This is also evident in Table 5.4 which shows the distribution of the different shocks across the deciles (based on the 1997 FIES).¹³ This is consistent with the notion that the labor market shock affected the relatively better-off wage earners more severely, while the impact of the drought was heavier on the relatively poorer agriculture-based households. The impact of the joint labor market-El Niño shock is found to be neither progressive nor regressive.

Table 5.4: Impact of Economic Crisis and El Niño

Per Capita Expenditure Decile (1997 FIES)	Percent of Households Affected by				
	Price increases	Loss of domestic job	Loss of overseas job	Reduced earnings	El Niño
1 (Poorest)	93.5	17.0	3.8	15.4	78.6
2	91.5	16.6	3.2	13.9	72.7
3	90.9	18.3	2.9	15.5	68.3
4	91.7	18.5	4.1	17.1	64.5
5	90.0	21.5	4.5	17.1	61.7
6	90.2	20.5	3.8	16.8	55.0
7	89.7	20.7	4.7	17.1	51.4
8	89.6	19.4	4.8	15.2	45.2
9	88.3	18.3	5.1	14.2	43.5
10 (Richest)	84.7	14.7	4.8	11.2	37.8
Overall	90.0	18.5	4.2	15.3	57.9

Note: Calculation are based on panel data (23,150 households) constructed from the 1997 FIES and the 1998 APIS.

Source: Balisacan (1999a), based on 1998 APIS data.

5.21 The relative contributions of the three shocks to the total impact on mean consumption and poverty point to the importance of the El Niño shock (Table 5.3). The labor market shock alone accounted for about a quarter of the total impact on mean consumption, the El-Niño shock alone contributed 38 percent and the remaining 36 percent was attributable to the joint labor market-El Niño shock. It is not possible to decompose the last component for the joint shock any further; thus the shares for the individual shocks can be interpreted as lower bounds for the labor market and El Niño shocks. Hence by these estimates, the contribution of the labor market shock was somewhere between 26-62 percent while that of the El Niño shock was somewhere between 38-74 percent.

5.22 The contribution of the El-Niño shock to the total impact is higher for the poverty measures. For instance, this shock alone contributed about 46 percent to the increase in the headcount index. For the poverty gap and the squared poverty gap measures, more than half the impact is on account of the El-Niño shock alone, while the labor market shock alone contributed only about 10-11 percent. About one-third of the total impact is attributable to the joint El Niño-labor market shock. If one were to split this joint shock in proportion with the shares of the individual shocks,

the contribution of the El-Niño shock to the depth and severity of poverty would be upwards of 80 percent.

5.23 An analysis of the crisis impact with respect to income (rather than consumption) shows somewhat larger effects. The impact on incomes for affected households are larger (in absolute terms) than the corresponding consumption impacts: 17, 8 and 15 percent as against 12, 5 and 9 percent for the labor market, El Niño, and the joint labor market-El-Niño shock respectively (Model 1 in Table A5.2). Similarly, the effect on mean income is of the order of -7 percent compared with -5 percent for mean consumption (Table 5.5). The impact on income poverty is correspondingly larger: an increase of 12, 16 and 18 percent in income-based H, PG and SPG measures, as against a 9, 11 and 13 percent increase in corresponding consumption-based measures.¹⁴ Incidentally, the El Niño shock still accounts for the bulk of the total impact on average incomes as well as income poverty.

5.24 The relatively modest difference in the impacts on income and consumption-based measures of living standards and poverty, which are averages for the population as a whole (including those not affected by the shocks), may nonetheless hide some consumption smoothing by those affected by the

Table 5.5: Impact of the Crisis on Income Poverty and Inequality

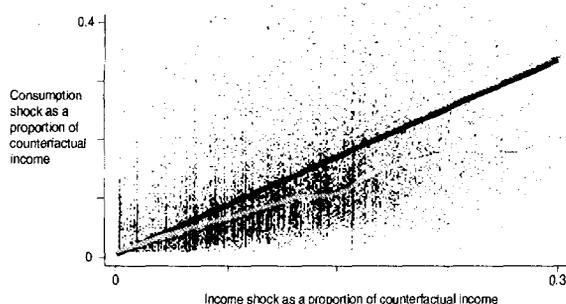
Poverty/Inequality Measure	Actual	Counterfactual (all shocks zero)	Impact (%)	Counterfactual (without L-shock)	Counterfactual (without E-shock)	Counterfactual (without LE-shock)
Mean consumption ¹ (per capita per year)	26,547	28,437	-6.6	27,010 [24.5]	27,254 [37.4]	27,268 [38.1]
Headcount index (%)	31.7	28.3	12.0	31.2 [14.6]	29.9 [53.5]	30.6 [31.9]
Poverty gap index (%)	11.1	9.5	16.0	10.9 [10.4]	10.2 [57.0]	10.6 [32.6]
Squared poverty gap index (%)	5.48	4.67	17.5	5.41 [8.5]	5.00 [59.6]	5.22 [31.9]
Theil's T-index	0.636	0.627	1.5	0.635	0.634	0.631
Variance of logs	0.785	0.779	0.8	0.795	0.770	0.789
Generalized entropy measure (e=2)	2.87	2.76	4.2	2.81	2.92	2.77

Note: Figures in square brackets give the relative contribution of the three shocks to the total impact (not calculated for the inequality measures for which these contributions are not additive).

¹ At 1998 Metro Manila prices (nominal values adjusted for inter-province cost of living differences, based on provincial poverty lines developed by Balisacan, 1999a).

Source: Calculated from 1998 APIS data.

Figure 5.3: The Relative Magnitudes of Income and Consumption Shocks



Source: Staff calculations based on 1998 APIS data.

shock. Figure 5.3 plots the consumption impact as a proportion of (counterfactual) income against the income impact also expressed as a proportion of (counterfactual) income. For nearly three-fourths of the affected households, the estimated consumption impact is smaller than the estimated income impact. If households that experienced an income shock were to curtail their consumption by the proportion of that shock, we would see them clustered around the 45° line. In fact, the (non-parametric regression) line shown in Figure 5.3 lies below the 45° line, implying smaller consumption than income impacts. For all households, the mean consumption to income shock ratio was 83 percent (73 percent for all affected households), suggesting that despite the relatively limited magnitude of the shock, the affected households did resort to actions aimed at smoothing their

consumption. But results also point to the more limited ability of the poor to maintain their consumption in the face of crisis-induced income shocks: the mean consumption to income shock ratio for the income-poor and non-poor was 94 and 78 percent, respectively.

GOVERNMENT AND HOUSEHOLD RESPONSE

5.25 As with other countries in the region, once it became clear that the crisis would have a significant impact on domestic output, the government relaxed its fiscal stance (see Table 5.6 for a timeline of key events and government policies during the crisis). The result was a national government deficit of 1.8 percent of GNP in 1998 from a surplus of 0.1 percent in 1997 (World Bank, 2000b). Much of the increase in the deficit was driven by a sharp fall in revenue collection but the partial lifting of the initial budget cuts, imposed in 1998 through a 25 percent forced savings scheme, helped sustain the level of expenditures.

5.26 The government was, in general, successful in protecting social expenditures during the crisis. As Table 5.7 shows, expenditures on education were essentially unchanged. Expenditures on health dropped marginally, but the drop came mainly in

Table 5.6: Timeline of the Crisis and Response

Pre-July 1997	BSP tries to maintain stable exchange rate by raising interest rates
Jul-97	Currency depreciation starts
Dec-98	BSP reverses its high interest rate policy but market rates still keep increasing
Jan-98	Peso at a low of PhP45 per dollar, treasury rates at a peak of 20 percent
Feb-98	National Economic Summit organized by the government to articulate response to the crisis
Feb-98	Social Accord for Industrial Harmony and Stability signed between government and labor to discourage lay-offs and strikes
Mar-98	BLES reports 43,000 workers being laid off temporarily or permanently during the first quarter of 1998
Mar-98	Interest rates start going down
Mar-98	Philippines enters into a new stand-by arrangement with the IMF of \$1.37 billion
Apr-98	Income tax collection falls PhP8 billion short of target
Apr-98	Rice subsidy program in selected provinces and municipalities; also distribution of iron-fortified rice
May-98	Reflecting the revenue shortfall, national government deficit increases to PhP15 billion
Jul-98	Mandatory savings of 25 percent lifted for spending on health and social services
Jul-98	ERAP <i>Sari-sari</i> stores established to sell basic food commodities at below market prices
Jul-98	Additional funds for rural works program for displaced workers in Mindanao region
Aug-98	Emergency loan package and distribution of rice to displaced sugar workers
Nov-98	Phil Jobnet launched to facilitate job placement and applicant-matching through a computerized system
Dec-98	During 1998, the NFA imported 2 million tons of imported rice to moderate domestic prices
Apr-99	<i>Linis Bayan</i> program launched to provide casual jobs as well as improve local hygiene
Apr-99	Signs of recovery: drop in year-on-year unemployment rates and a drop in inflation during the first quarter

Source: Compiled by staff from several sources.

central government expenditures on curative health, which benefits the poor less than preventive care. The 1999 National Government budget incorporated a fiscal stimulus equivalent to approximately 0.5 percent of GNP. The bulk of this stimulus package was for infrastructure but also included irrigation, basic education, public health and hospital services and housing and community development. It is, however, not clear as to how much has been actually spent in these sectors, given the continued difficulty in mobilizing revenues and the need to contain the budget deficit.

5.27 In addition to attempting to protect social spending, government policy focused primarily on ensuring an adequate supply of cereals during this period. The National Food Authority (NFA) increased imports of rice in 1998 to 2 million metric tons, or equivalent to 25 percent of total consumption (up from 9 percent in 1997) to make up for the shortfall in domestic production (palay pro-

duction fell by 25 percent between 1997 and 1998). As a result, it was possible to contain the increase in the price of rice on the domestic market despite the depreciation of the Peso¹⁵ because domestic rice prices were higher than their world market equivalents. In addition to stabilizing the consumer price level for rice, the government started piloting a targeted rice subsidy program in selected provinces and municipalities, distributed iron fortified rice and established special stores (so-called ERAP sari-sari stores) in poor communities to sell basic food commodities at below market prices. There is no information available on the scale of these operations or their effectiveness.¹⁶

5.28 There is no unemployment insurance system in the Philippines, except for workers in the government sector. The output contraction in the agriculture sector was absorbed largely through higher levels of underemployment (see below). In other sectors of the economy, as in many of the other crisis-affected countries in the region, much of the adjustment is likely to have taken the form of real wage declines, even though unemployment levels also increased during this period. Minimum wages eroded with inflation during the course of the crisis; the annual round of wage adjustment implemented in early 1998 was moderate; and hardly any petitions for wage hikes were received during negotiations in 1999. Labor was more interested in job security than pay increases as reflected also in the two pacts between trade unions and employers in February and November 1998, which emphasized labor retention as a priority.

5.29 One of the few targeted actions in response to the crisis was the setting up of an Emergency Loan Facility for Displaced Workers in 1998. Workers who had lost jobs as a result of the crisis (not earlier than July 1997) were eligible for loans from the facility so long as they were current in their social security contributions. Loans totaling some PhP433 million (out of PhP500 million, or 0.1 percent of the budget) were approved in 1998-99 with

Table 5.7: Social Sector Expenditures, 1997-98
(in 1995 Million PhP)

	1997	1998
Consolidated Government	138.4	141.1
Education	89.8	92.1
Health	22.0	
Labor and Employment	1.5	1.9
Housing and Community Development	5.7	5.9
Social Welfare	18.0	18.3
Other	0.6	
National Government*	116.2	116.1
Education	83.1	84.5
Basic	68.1	67.6
Tertiary	13.0	13.6
Other	2.0	3.2
Health	10.7	
Preventive	1.3	1.1
Curative	6.7	5.9
Other	4.2	3.7
Labor and Employment	1.4	1.4
Housing and Community Development	2.1	2.1
Social Welfare	16.3	16.4
Other	0.6	
Local Government Units	22.3	25.1
Education	6.7	7.6
Health	10.2	
Labor and Employment	0.1	0.4
Housing and Community Development	3.6	3.8
Social Welfare	1.8	1.9

Note: Items may not equal totals due to rounding. * net of transfers to LGUs
Source: Budget of expenditures and sources of financing, 1999 and 2000, Diokno (1999);
Medium-Term Philippine Development Plan, 1999-2004.

the bulk of the funds going to workers in Metro Manila; given the eligibility requirements, it is almost certain that the bulk of the beneficiaries were regular formal sector workers.

5.30 Over the past two decades, the Philippines has made notable attempts to increase labor absorption through public works especially in rural areas. The last major effort focused on rural infrastructure in 1994-96 under the Ramos Administration and targeted the poorest 19 provinces and the fifth and sixth class towns with pooled resources from different government agencies estimated at PhP23 billion.¹⁷ The Estrada Administration's main initiative in this area was to set up an inter-agency task force charged with formulating recommendations on increasing the labor content of the government's infrastructure programs. Beyond the general lip service paid to encouraging labor-based production technologies, little use appears to have been made of the potential of public works programs as a crisis response to provide a safety net for the poor. The government's main contribution towards mitigating the impact of the shocks was a reasonably effective management of macroeconomic policies, and the ability to contain rice price increases through massive imports and maintenance of a flexible wage economy. Targeted interventions were limited in scale and unlikely to have reached the poor. To the extent

that the poor were cushioned from the full impact of the crisis, this appears to have happened through informal safety nets and reliance on household level coping strategies.

5.31 The 1998 APIS includes a second question pertaining to the crisis which inquires about the experience of households affected by the crisis. This information is helpful in assessing household coping responses and the extent of assistance received from the government and other households. Again, because responses to these questions are in the yes/no format, they do not provide insight into the intensity of the response: for example, it is not possible to distinguish between a one-hour and a five-hour increase in working hours or gauge the amount of assistance received. The crude nature of the question makes it difficult to interpret responses and the large number of households that responded in the affirmative on some questions raises doubts about the accuracy of the information. Nonetheless, it appears that most households responded to the crisis by changing their eating patterns (Table 5.8). Data from Indonesia confirm that it is not unusual for households to resort to this coping mechanism: in Indonesia, urban (rural) households reduced real spending on food by 28 (8) percent during the crisis (between 1997 and 1998) but this reflected a large shift from high cost items such as meat, towards

Table 5.8: Household Responses to Crisis

Income Decile (1997 FIES)	Total HHs Responding	Percent of HH Responding to Crisis by:					
		Changing eating pattern	Taking children out of school	Migrating to city or other countries	Receiving assistance from other households	Receiving assistance from government	Increasing working hours
1	2,256	56.7	12.4	7.8	16.5	10.7	37.5
2	2,223	52.3	9.3	5.4	17.1	8.8	36.8
3	2,211	50.7	7.3	5.4	16.3	8.4	33.6
4	2,206	51.0	8.7	5.2	17.0	6.8	33.1
5	2,180	47.8	7.1	4.5	17.2	5.9	29.4
6	2,155	48.3	5.6	3.8	16.4	5.7	27.0
7	2,138	47.0	5.0	3.7	15.0	4.5	26.1
8	2,125	44.1	3.5	3.4	12.5	2.9	22.3
9	2,097	41.4	3.2	3.1	13.8	3.9	23.1
10	2,011	33.3	1.2	3.5	12.0	2.6	18.2
Total	21,602	47.5	6.4	4.6	15.4	6.1	28.9

Note: Calculations are based on panel data (23,150 households) constructed from the 1997 FIES and the 1998 APIS.
Source: Balisacan (1999a), based on 1998 APIS data.

staples, such that the share of food spending on staples increased from 22 (40) percent to 32 (49) percent. Data from the Philippines also suggest that the poor were more likely to change their eating pattern than the non-poor.

5.32 Increasing work hours also seem to be a major response, again especially, for households in the lower deciles. It is difficult, however, to reconcile this response with information from the labor force surveys (Table 5.9). Labor force survey data suggests an increase in labor force participation in 1998. The increase is particularly large when compared with the increase in the working age population; at the margin, 87 percent of the increased working age population in 1998 entered the labor force (compared to an average labor force participation rate of 65 percent) but only 39 percent of them found employment. This is consistent with an increase in hours worked for the household as a unit. But the data also show that underemployment increased during 1997 and 1998 from 19.4 percent in

1996 to 23.7 percent in 1998, with a particularly large increase in rural areas in 1997, presumably reflecting the impact of the El Niño shock. This may or may not be consistent with the APIS responses: higher participation rates could induce an increase in underemployment as existing work is shared among larger number of employed persons and still be consistent with more hours of work at the household level; but this seems unlikely.

5.33 The proportion of households who responded by taking their children out of school is too high to be credible.¹⁸ Administrative data suggest that enrollment rates continued to increase for both elementary (from 95.09 in 1997 to 95.73% in 1998) and secondary schools (from 64.04 in 1997 to 65.22% in 1998) with no perceptible change even in the rate of increase compared to previous years.¹⁹ Data from Indonesia where the crisis and its impact on poverty were much more severe (poverty increased by about 70% between 1996 and 1999), show only a small drop in junior secondary school

In thousands of persons								
	Working Age Population	Labor Force	Employed	Unemployed	Underemployed	Visibly Under-employed 1/		
						Total	Rural	Urban
1994	42670	27488	25171	2317	5261	2618	1170	1448
1995	42770	28042	25700	2342	5089	2519	1111	1408
1996	45034	29635	27440	2195	5323	2771	1156	1616
1997	46214	30256	27879	2377	6356	2927	1853	1074
1998	47415	31306	28290	3016	6705	3565	2071	1494
1996-1995	2264	1592	1739	-147	235	253	45	208
1997-1996	1180	621	439	182	1033	156	697	-541
1998-1997	1201	1050	411	639	348	637	218	419
In percent								
		Labor force participation rate	Employment rate	Unemployment rate	Underemployment rate	Visibly under-employed as % of employed	Rural visibly unemployed as % of total	Urban visibly unemployed as % of total
1994		64.4	91.6	8.4	20.9	10.4	44.7	55.3
1995		65.6	91.6	8.3	19.8	9.8	44.1	55.9
1996		65.8	92.6	7.4	19.4	10.1	41.7	58.3
1997		65.5	92.1	7.9	22.8	10.5	63.3	36.7
1998		66.0	90.4	9.6	23.7	12.6	58.1	41.9
1996-1995		70.3	109.2	-9.2	13.5	14.5	17.8	82.2
1997-1996		52.6	70.7	29.3	235.2	35.5	447.3	-347.3
1998-1997		87.6	39.1	60.9	84.8	155.1	34.2	65.8

1/ Visible underemployment refers to the population that is working less than 40 hours but would like to work longer. Those who are already working 40 hours but would like to work longer make up the rest of the underemployed.

Source: 1999 Philippine Statistical Yearbook.

enrollment. It is possible that households' responses to this question are reflecting an increase in the incidence of absenteeism which would not be captured in the administrative data on enrollments. However, this interpretation would be consistent with the decline in achievement results in 1998, as measured by the national tests (NEAT and NSAT) especially for secondary schools.²⁰

5.34 Households in the Philippines also had access to private and public transfers in response to the crisis. The proportion of households that received assistance from relatives and friends was more than the proportion that received assistance from the government. Only 6 percent of households reported receiving any assistance from the government but 15 percent did receive from other households. Interestingly, for private income transfers, responses across expenditure deciles exhibit little variation, suggesting that recipients of such transfers do not have to be the poorest groups in society.

5.35 The above results suggest a possible link between a household's pre-crisis living standard and its response to a macroeconomic shock. Regression analysis confirms that the probability of households changing their eating patterns, taking children out of school, and increasing working hours is inversely related with pre-crisis living standard. On the other hand, the probability of receiving assistance/relief from the public sector, as well as other households, is not significantly related with pre-crisis living standard. This suggests that during the crisis, existing social safety nets in the Philippines, whether from formal or informal sources, did not have a pro-poor bias. It is, of course, possible that the amount of income transfers received by the poor is higher (in absolute terms or as a proportion of their pre-transfer incomes) than that received by the non-poor. Unfortunately, the data do not contain information on the type and amount of income transfers received from either the public or the private sector.

Table A5.1: Descriptive Statistics of Model Variables (1998 APIS)

Model Variables	Mean	Std. Dev.	Min.	Max.
At least one adult household member				
- in agriculture, fishery or forestry	0.441	0.497	0	1
- in mining or quarrying	0.007	0.084	0	1
- in manufacturing	0.152	0.359	0	1
- in electricity, gas or water	0.010	0.098	0	1
- in construction	0.107	0.309	0	1
- in wholesale or retail	0.243	0.429	0	1
- in transport, storage, communication	0.130	0.337	0	1
- in finance, real estate, business services	0.043	0.202	0	1
- in communal, social, personal services	0.303	0.460	0	1
Produces food for own consumption	0.455	0.498	0	1
Urban household	0.593	0.491	0	1
Member of a cooperative or NGO	0.147	0.281	0	1
Beneficiary of government assistance (extension services/scholarship/housing/land reform)	0.028	0.086	0	1
Owns land	0.178	0.383	0	1
Family size	5.058	2.260	1	24
Family size squared	30.690	27.898	1	576
Head of household is female	0.162	0.369	0	1
Age of head of household	47.246	14.220	6	99
Age of head of household squared*100	2434.4	1460.4	36	9801
Avg. years of education of adult household members	8.063	3.172	0	17
Avg. years of education of adult household members squared	75.064	50.014	0	289
No. of children between 1-6 years	0.762	0.973	0	7
No. of children between 7-14 years	1.051	1.197	0	7
No. of male adults (at least 15 years)	1.571	1.027	0	10
No. of female adults (at least 15 years)	1.572	0.935	0	10
Head of household is single	0.038	0.192	0	1
Head of household is widow(er)	0.128	0.335	0	1
Head of household is divorced	0.015	0.123	0	1
Household has electricity	0.743	0.437	0	1
Social capital index	0.474	0.229	0	1
Infrastructure capital index	0.458	0.285	0	1
Commercial capital index	0.435	0.281	0	1
Diversity of employment	1.476	0.669	1	6
<i>Shock variables:</i>				
Labor market shock: S(L)	0.081	0.273	0	1
El Nino shock: S(E)	0.391	0.488	0	1
Joint labor market-El Nino shock: S(LE)	0.176	0.381	0	1

Note: Number of observations = 38,710.

Source: Calculated from 1998 APIS data.

Table A5.2: The Estimated Consumption and Income Models (1998 APIS)

	Dep. Variable: Log Consumption per Person				Dep. Variable: Log Income per Person			
	Model (1)		Model (2)		Model (1)		Model (2)	
	OLS param.	t-stat	restricted param.	t-stat	OLS param.	t-stat	restricted param.	t-stat
At least one adult household member								
- in agriculture, fishery or forestry	-0.1113	-6.73	-0.1111	-6.71	-0.0041	-0.20	-0.0035	-0.18
- in mining or quarrying	0.0607	1.45	0.0558	1.33	0.2480	5.01	0.2469	4.96
- in manufacturing	-0.0170	-1.00	-0.0150	-0.88	0.2195	10.76	0.2226	10.92
- in electricity, gas or water	0.1769	5.59	0.1765	5.59	0.4380	13.13	0.4406	13.27
- in construction	-0.0991	-5.85	-0.0994	-5.87	0.1737	8.39	0.1739	8.41
- in wholesale or retail	0.0144	0.87	0.0155	0.94	0.2214	11.14	0.2234	11.23
- in transport, storage, communication	-0.0348	-2.06	-0.0336	-1.99	0.1889	9.20	0.1915	9.33
- in finance, real estate, business services	0.1301	5.80	0.1306	5.82	0.3607	14.08	0.3626	14.15
- in communal, social, personal services	0.0384	2.35	0.0375	2.29	0.3214	16.14	0.3212	16.12
Produces food for own consumption	-0.1181	-10.97	-0.1177	-10.98	-0.1203	-10.48	-0.1202	-10.49
Urban household	0.0686	1.05	0.0702	1.08	0.0587	0.92	0.0634	1.00
Member of a cooperative or NGO	0.2584	18.97	0.2945	17.30	0.2203	14.86	0.2030	12.39
Beneficiary of government assistance (extension services/scholarship/housing/land reform)	0.2162	4.86	0.2249	5.06	0.1230	2.54	0.1251	2.59
Owns land	0.1428	13.24	0.1738	9.06	0.0870	7.12	0.1486	6.11
Family size	-0.2939	-28.65	-0.2952	-28.84	-0.2954	-25.57	-0.2970	-25.76
Family size squared	0.0104	23.48	0.0105	23.82	0.0101	20.29	0.0102	20.71
Head of household is female	0.0922	7.17	0.0920	7.15	0.1160	7.59	0.1155	7.57
Age of head of household	0.0122	8.00	0.0121	7.97	0.0109	6.56	0.0109	6.56
Age of head of household squared*100	-0.0001	-6.76	-0.0001	-6.71	-0.0001	-5.85	-0.0001	-5.86
Avg. years of education of adult household members	-0.0627	-13.09	-0.0605	-12.65	-0.0656	-11.71	-0.0625	-11.13
Avg. years of education of adult household members squared	0.0100	32.20	0.0100	32.29	0.0105	29.63	0.0105	29.83
No. of children between 1-6 years	-0.0099	-1.09	-0.0097	-1.06	-0.0022	-0.20	-0.0016	-0.15
No. of children between 7-14 years	0.0384	4.33	0.0381	4.31	0.0311	3.05	0.0309	3.03
No. of male adults (at least 15 years)	0.1005	11.00	0.1020	11.08	0.1326	12.39	0.1335	12.47
No. of female adults (at least 15 years)	0.1047	10.86	0.1090	11.09	0.1183	10.75	0.1215	10.97
Head of household is single	0.0217	1.19	0.0209	1.15	-0.0046	-0.22	-0.0057	-0.28
Head of household is widow(er)	-0.1153	-8.86	-0.1143	-8.80	-0.1218	-7.74	-0.1209	-7.71
Head of household is divorced	-0.1556	-6.43	-0.1563	-6.47	-0.1366	-4.74	-0.1376	-4.78
Household has electricity	0.2578	27.01	0.2581	27.10	0.2161	19.63	0.2145	19.51
Social capital index	-0.0043	-0.12	0.0190	0.48	0.0041	0.14	0.0573	1.63
Infrastructure capital index	0.1384	4.70	0.1360	4.61	0.1413	4.91	0.1371	4.77
Commercial capital index	0.1041	3.33	0.1231	3.76	0.1159	4.14	0.0997	3.17
Diversity of employment	0.0597	3.69	0.0406	2.31	-0.0618	-3.17	-0.0853	-4.20
<i>Shock variables:</i>								
Labor market shock: S(L)	-0.1190	-9.29	0.1238	2.49	-0.1657	-12.19	0.1072	2.24
El Niño shock: S(E)	-0.0502	-5.11	-0.0351	-1.32	-0.0756	-6.90	-0.0930	-3.18
Joint labor - market-El Niño shock: S(LE)	-0.0924	-7.54					-0.1468	-11.96

Table A5.2: The Estimated Consumption and Income Models (1998 APIS)									
Dep. Variable: Log Consumption per Person					Dep. Variable: Log Income per Person				
Model (1) OLS		Model (2) restricted			Model (1) OLS		Model (2) restricted		
param.	t-stat	param.	t-stat		param.	t-stat	param.	t-stat	
S(L)*Avg. years of education of adult household members		-0.0215	-4.93				-0.0217	-4.70	
S(L)*No. of male adults (at least 15 years)		-0.0113	-1.19						
S(L)*No. of female adults (at least 15 years)		-0.0147	-1.45				-0.0226	-2.01	
S(L)*Diversity of employment		0.0263	1.63						
S(L)*Member of a cooperative or NGO									
S(L)*Owns land							-0.0957	-1.80	
S(L)*Social capital index									
S(L)*Infrastructure capital index									
S(L)*Commercial capital index		-0.1092	-2.54				-0.0767	-1.82	
S(E)*Avg. years of education of adult household members									
S(E)*No. of male adults (at least 15 years)									
S(E)*No. of female adults (at least 15 years)									
S(E)*Diversity of employment		0.0287	2.96				0.0408	3.78	
S(E)*Member of a cooperative or NGO		-0.0877	-3.75						
S(E)*Owns land		-0.0395	-1.77				-0.0782	-2.93	
S(E)*Social capital index		-0.0691	-1.58				-0.1034	-2.18	
S(E)*Infrastructure capital index									
S(E)*Commercial capital index							0.0620	1.62	
S(LE)*Avg. years of education of adult household members		-0.0095	-3.53				-0.0184	-6.67	
S(LE)*No. of male adults (at least 15 years)									
S(LE)*No. of female adults (at least 15 years)		-0.0139	-1.67						
S(LE)*Diversity of employment		0.0259	2.28				0.0280	2.41	
S(LE)*Member of a cooperative or NGO							0.0818	2.56	
S(LE)*Owns land		-0.0473	-1.75				-0.0798	-2.43	
S(LE)*Social capital index							-0.0890	-2.18	
S(LE)*Infrastructure capital index									
S(LE)*Commercial capital index		-0.0669	-1.73						
Number of observations		38710		38710			38585		38585
Number of estimated parameters		233		249			233		263
R - square		0.5890		0.5902			0.5890		0.5904
F test				F(14,3917) = 0.65					
Ptob > F				0.83					

Note: The t-statistics allow for design effects due to the stratification and clustering of the APIS sample. The sample has 168 strata and 3378 primary sampling units. Each of the regressions also allows for strata fixed effects and 32 provincial dummy variables to control for missing barangay data. The estimated income models exclude 125 observations with negative reported incomes.

Source: Calculated from 1998 APIS data.

Endnotes

- 1 See, for instance, World Bank (1999).
- 2 See, for instance, estimates in World Bank (2000e). Some of this literature is also reviewed in Booth (1999). For Thailand, see Kakwani and Pothong (1998); for Korea, Kakwani and Prescott (1999) and for Indonesia, Suryahadi, Sudarno, Suharso, and Pritchett (1999).
- 3 A second round of the APIS for 1999 was also recently fielded by the NSO, though data from this survey are not yet available.
- 4 The comparability of income was impaired because the reference period used in the APIS is limited to a six-month period (from April to September 1998), while the FIES incomes relate to the full calendar year (January to December 1997). A partial-year recall of incomes introduces unknown seasonal biases in the estimates of incomes, and has particularly serious implications for estimates of agricultural incomes and incomes from other self-employment which are best defined in annual terms. There is some limited abbreviation of the income module in the APIS, but for the most part, the income modules of FIES and APIS are comparable. The comparability of consumption, on the other hand, was compromised by the use of a much shorter consumption module in the APIS. The APIS uses a two-page module identifying only major categories of consumption while a detailed forty-page consumption module is used in the FIES with a detailed coverage of items within categories. A shorter consumption module generally introduces a downward bias in measured consumption levels (see, Jolliffe, 1999, for instance).
- 5 The analysis is here is based on a background paper by Datt and Hoogeveen (2000).
- 6 Formally, the specification is as follows:

$$\ln C_j = \beta' X_j + \gamma^L S_j^L + \gamma^E S_j^E + \gamma^{LE} S_j^{LE} + \epsilon_j$$

where C_j is the average consumption per person in household j , X_j is a set of household characteristics and other determinants of household j 's per capita consumption, S_j^i are binary variables indicating if the household experienced crisis-related shocks, and ϵ_j is a random disturbance term. As discussed, three measures of shock are distinguished: the labor market shock (S^L), the El-Niño shock (S^E), and both (S^{LE}). Consumption per capita is adjusted for spatial cost of living differentials and is expressed in 1998 Manila prices using spatial price indices estimated by Balisacan (1999a).

- 7 Occupational background of household members is represented by a set of binary variables for different occupational sectors they were employed in. The binary variables take a value of unity if there is at least one household member working in a given sector, zero otherwise. This specification is preferred to one with the number of members in each occupational category because the latter is more likely to be responsive to a shock than the affiliation of at least one member to an occupational category.

- 8 For each of these three indicators, the APIS questionnaire records the actual number if less than 10, and records 10 if there are 10 or more of them in the *barangay*.
- 9 The augmented version of model interacts shock variables with a set of household and community characteristics (Z_j):

$$\ln C_j = \beta X_j + \gamma^L S_j^L + \gamma^E S_j^E + \gamma^{LE} S_j^{LE} + \delta^{L1} Z_j S_j^L + \delta^{E1} Z_j S_j^E + \delta^{LE1} Z_j S_j^{LE} + u_j$$

The interaction terms could also be interpreted as indicative of how the returns to specific characteristics are altered by the shocks related to the crisis. The vector of interacted characteristics, Z_j , could be the same as the set of determinants of consumption, X_j . However, in the interest of maintaining a more parsimonious specification, these are limited Z_j to a subset of X_j .

- 10 The pre-crisis or counterfactual consumption (C_j^*) is thus derived as actual consumption (C_j) minus the impact of the shocks. Thus,

$$C_j^* = C_j - \left[\exp\left(\ln \hat{C}_j \mid S_j^{(c)} = 0\right) - \exp\left(\ln \hat{C}_j\right) \right]$$

where the terms in the square bracket measures the impact of the crisis-related shocks. Strictly speaking, the impact is measured as the maximum of the estimate in the square brackets and zero. There is no guarantee that the estimated parameters of the model would yield a negative impact on consumption for all households reportedly affected by the crisis. In general, a larger number of interaction terms in the model tended to generate a larger number of cases of positive impact. Using the pruned model estimates, the impact turned out to be positive for 1,115 (or 4.4%) of the 25,079 households affected by the three shocks. The impact for these households was set to zero. This makes negligible differences to the results.

- 11 Based on provincial poverty lines developed by Balisacan (1999a). In effect, these poverty lines are used to express all nominal consumption values at 1998 Manila prices, and the Manila poverty line of PHP11,677 per person per year is used. This corresponds to a nutritional norm of 2000 calories per person per day and allows for basic nonfood expenditure. See Balisacan (1999a) for more details. The counterfactual poverty level reported here is different (higher) than the actual for 1997 in Chapter 1 because the counterfactual estimate is a prediction based on 1998 APIS data while the 1997 FIES data, and the consumption modules in the two surveys are not comparable.
- 12 This is done by running a simple (tobit) regression of the absolute shock as proportion of pre-crisis consumption on log of pre-crisis consumption.

- 13 Table 5.4 is based on panel households only. As a result figures on proportion of households affected by a given shock are slightly different than those in Table 5.2 which is based on the entire sample.
- 14 Note that for the income-based poverty measures, the poverty line is calibrated to yield the same headcount index as obtained with per capita consumption as the measure of welfare.
- 15 The depreciation of the peso had the effect of reducing the nominal protection rate for rice by reducing the differential in peso terms between the domestic price and the world price.
- 16 The survey on users' perspectives on government services includes questions on NFA rice and the Erap sari-sari stores and should yield some useful information on access and degree of satisfaction.
- 17 Esguerra et. al. (1999).
- 18 Given the formulation of the question, households would have responded with a yes even if they took their children out of school for a day as a result of the crisis.
- 19 Early administrative data had suggested a decline in secondary enrollment (Reyes, De Guzman, Manasan and Orbeta, 1999).
- 20 National Anti-Poverty Action Agenda, NAPC (2000).

Annex A

CONSTRUCTING ABSOLUTE POVERTY LINES: A DISCUSSION OF METHODOLOGY

HOUSEHOLD SURVEYS

1. The main data sets for this study are drawn from the nationwide household surveys conducted by the National Statistics Office (NSO). In particular, the study draws upon five rounds of the *Family Income and Expenditures Survey* (FIES) from the mid-1980s to the late-1990s, and the recent 1998 *Annual Poverty Indicator Survey* (APIS).
2. Conducted every three years since 1985, the FIES is the main survey data employed in the generation of poverty and income distribution statistics on the Philippines. While earlier surveys covering 1961, 1965, and 1971 are also available, these are not included in this study since these are either beset by technical problems or available only in published forms¹. Unit record data are available for the 1985 to 1997 surveys.
3. The 1985 FIES covers a sample of 16,971 households; the 1988 FIES 18,922 households; the 1991 FIES 24,789 households; the 1994 FIES 24,797 households; and the 1997 FIES 39,520 households. The urban and rural areas of each province are the principal domains of the survey. In addition, areas with 150,000 or more population based on the latest Census of Population (POPCEN) are also domains of the survey with urban and rural dimensions. For the 1985 and 1988 FIES, the relevant census is the 1980 POPCEN. For the 1991 and 1994 FIES, it is the 1990 POPCEN. The most recent census, the 1995 POPCEN, applies to the 1997 FIES.
4. The classification into urban or rural areas is based on population density and the presence and number of public infrastructure, facilities, and establishments, i.e., public buildings, plazas, streets, hospitals, etc. Because these indicators can change from census to census, temporal welfare comparison based on this classification may be misleading. The physical area of the "urban sector" is, almost by definition, shifting over time. As population grows and/or economic activity expands, an initially rural area will be classified as urban, sooner or later. While this may not be problematic for purposes of measuring, say, urbanization trends, it tends to create a systematic upward (downward) bias on urban (rural) performance indicators.
5. Thus, when disaggregating by urbanity, the only strictly comparable years are 1985 with 1988, and 1991 with 1994 since, for each pair, the classification is based on the same census. Substantial reclassification of villages occurred between the 1980 and the 1990 POPCEN.² In addition, since not much reclassification appears to have occurred from the 1990 to the 1995 POPCEN, comparison between 1994 and 1997 appears to be valid.
6. Until 1994, the sampling design allows only regional disaggregation. Significantly large standard errors are observed when data are disaggregated

¹ See Balisacan (1994, 1999a) for an extensive discussion on the comparability of the FIES data.

² A large number of initially rural areas in 1980 became urban areas in 1990 when they were found to satisfy the criteria for urban areas. This reclassification, in addition to net migration from rural to urban areas, reduced the population share of FIES rural areas from 62 percent in 1988 to 50 percent in 1991. In contrast, the estimated rural population share based on fixed physical areas was virtually the same – 64 percent – during the same period.

into smaller geographic subgroups. The design since then permits provincial disaggregation.

7. The FIES captures a wide range of implicit expenditures, such as consumption of home-produced goods and services, gifts, assistance or relief in goods and services received by the household from various sources, the value of durable goods (including owner-occupied dwelling units). This makes these data valid for economic welfare comparisons among provinces, between urban and rural areas, and among socioeconomic groups.

8. The APIS, on the other hand, covers variables other than incomes and expenditures, thereby providing more comprehensive indicators of poverty status than income- or expenditure-based poverty indicators that could be generated from FIES. It contains information about the demographic and economic characteristics of individual household members, as well as items related to health, education, family planning, and family access to housing, water and sanitation, and credit. The APIS also includes two questions pertaining to the Asian economic crisis. The first question inquires whether or not the household was affected by price increases, loss of jobs, reduced wages and the El Niño. The second question inquires about the response of households and pertains only to those households affected by the crisis.

9. Intended to be run every year beginning in 1998, the survey does not, however, provide consumption and expenditure data as detailed and robust as the FIES. This is even more so for household expenditures, in which the expenditure items in the survey instrument were reduced to just two pages (27 expenditure lines), compared to over 20 pages (over 400 expenditure lines) in the FIES. Moreover, the APIS reference periods were for the second and third quarters of the year, while those of the FIES were for the first and second semesters. Since there is significant seasonality of economic activities across geographic

areas, especially in agriculture and agriculture-dependent economic activities, comparability of even the income data from the two surveys is a major problem. Thus the two surveys could not be used for welfare comparison between 1997 and 1998. This is indeed unfortunate considering that the APIS is intended partly to inform changes in poverty for the intervening years when there are no FIES data.

10. The 1998 APIS covered 38,710 sample households; the sample households came from the same sampling frame as that of the FIES. Both surveys (1997 FIES and 1998 APIS) have a sample overlap of about 58 percent, i.e., over one half of the sample households interviewed for both surveys can be formed into panel or longitudinal data. We exploit this feature of the two data sets to inform the influence of certain household characteristics (socioeconomic and initial income conditions prevailing in 1997, the year immediately preceding the onset of the Asian economic flu in the Philippines) on the relative welfare impact of, and household responses to, the crisis.

POVERTY LINES

11. The rest of this Annex outlines the approach used for constructing poverty lines. The approach respects the principle of consistency for spatial comparison of absolute poverty, i.e., poverty lines constructed for various areas or population subgroups are fixed in terms of a given standard of living. The intent is not to derive an alternative estimate of the level of national poverty, but rather to come up with a practical approach to constructing poverty lines that can be used for consistently ranking poverty status across provinces, regions, or socio-economic groups, as well as for monitoring performance in absolute poverty reduction over time. The underlying assumption is that the main objective of poverty measurement is to inform policy choices for reducing absolute poverty across space and over time.³

³ The approach closely resembles that suggested by Ravallion (1984, Annex 1; 1998).

12. The approach involves (i) setting a bundle of food in each province which is the average consumption of a reference group fixed nationally in terms of their expenditure, (ii) adjusting this bundle to satisfy the minimum nutritional requirement of 2,000 calories per person per day; (iii) valuing the adjusted bundle at consumer prices prevailing in each province, and (iv) estimating the non-food spending of the reference households in the neighborhood of the point where total spending equals the food threshold. The approach does not require that the same bundle of goods be used in each province; rather it requires that the bundle is typical of those within a pre-determined interval of total consumption expenditure nationally. Put differently, the approach fixes the standard of living used for provincial comparison but not the composition of goods used in each province. Differences in composition may arise as a result of spatial differences in relative prices faced by households.

Food thresholds

13. As in the official approach, the estimation of poverty lines proposed in this study starts with specification of a food bundle for each province which would attain the nutritional norm for good health. The differences in food bundles should reflect substitution effects arising from differences in relative prices, not differences in real incomes.⁴ To this end, the bundle for each province is set as the average consumption of a reference group fixed nationally in terms of their expenditure (adjusted for family size). In this study, the reference group pertains to the bottom 30 percent of the population fixed nationally; the average consumption bundle is obtained for that reference group in each province. Each bundle is then transformed into calories and adjusted to satisfy the food energy requirement of 2,000 calories per person per day.

14. The main source of data for fixing the reference group is the 1997 FIES of the National Statistics Office. This survey captures a wide range of market-purchased and implicit expenditures, such as use value of durable goods (including owner-occupied dwelling units), consumption of home-produced goods and services, gifts and assistance or relief goods and services received by the household from various sources. The urban and rural areas of each province were the principal domains for the survey. This makes these data valid even for welfare comparisons among provinces, between urban and rural areas, and among socioeconomic groups.

15. The FIES data file does not, however, contain information on either average unit values or quantities of goods consumed by the household, which are required to transform the food bundle into calories. In this annex, average provincial prices of commonly purchased commodities, together with calorie conversion ratios obtained from the Food and Nutrition Research Institute (FNRI), were used to "recover" the calorie content of the bundle. The price data, covering 73 provinces and 11 main cities (including Metro Manila), were obtained from the Prices Division of NSO.⁵

16. However, not all food items in the FIES have corresponding price data. Also, for some provinces, the price information on some commodities is missing or appears to have been erroneously recorded. In the first case, these items were dropped in the bundle. In the second case, the prices of those commodities were imputed from the average prices of nearby provinces, i.e., provincial price arbitrage was assumed to hold. After these adjustments, the matched data still have 54 food items. For the reference group, these items account for an average of about 93 percent of the total food expenditures.

⁴ This implies that the food bundles all lie on the same indifference curve. If one knows the demand model, one can easily set the bundle for each price regime (representing a province, say). However, in practice, the demand model is not always known. The approach employed here does not require knowledge of such a model.

⁵ These are the same prices as used in the computation of the current CPI series.

17. To calculate the food expenditures for each province that will just yield the calorie requirement, the cost of the bundle with price information is multiplied by the ratio of the recommended to the computed calories. This assumes that the average cost per calorie of the items without price information is equal to that of the matched items. Furthermore, it is supposed that, within the relevant income range, the composition of the food basket (in terms of expenditure shares) is fixed. The resulting provincial food thresholds are shown in column 1 of Annex Table 1.

Non-food component

18. The official approach to estimating the non-food component of the poverty line utilizes the consumption patterns of households within the ten percentile of the food threshold in the income distribution. The average food share for these households is derived and used to divide the food threshold to arrive at the poverty line. This procedure carries over the inconsistency problem inherent in the estimation of the food threshold. Since the food thresholds reflect the consumption patterns (and hence overall living standards) prevailing in each region, as well as in rural/urban areas within each region, the average food share is expected to be lower in progressive areas or regions of the country than in backward areas or regions. It is well known that food share correlates well, albeit not perfectly, with standard of living. That is, for two households with different food shares, the one with the higher food share tends to have lower standard of living, regardless of their demographic differences (Deaton and Muellbauer, 1980). Thus, by construction, the nonfood component of the poverty lines in economically progressive regions also implies higher level of living standard than that for the economically backward regions.

19. Admittedly, it is unlikely that there exists a procedure to setting the non-food component of the poverty line that does not invite disagreement.

Indeed, of all the data required in measuring poverty, the setting of the non-food line is probably the most contentious. The main issue is whether the procedure to construct poverty lines allows for consistent spatial or subgroup poverty comparisons. The procedure used for constructing nonfood poverty lines closely follows Ravallion (1998).

20. This procedure appeals to the notion that “basic needs” come in hierarchy, beginning with survival food needs, basic non-food needs, and then basic food needs for economic and social activity. This assumes that once survival food needs are satisfied, as total income rises, basic non-food needs have to be first satisfied before basic food needs. Furthermore, once survival food and non-food needs are met, both food and non-food become normal goods. Thus, when a person’s total income is just enough to reach the food threshold, anything that this person spends on non-food items can be considered a minimum allowance for “basic non-food needs,” since she/he is sacrificing basic food intakes to purchase such non-food items. It follows that adding this minimum allowance to the food threshold is a reasonable procedure to setting the poverty line.

21. In practice, the consumption pattern of those sample households whose expenditures are at or near the food line is used in order to estimate this minimum allowance. The estimation takes the weighted average of the households whose per capita expenditures fall within a ten percent band around the food line. The weights are selected so as to decline linearly, the farther the per capita expenditure is from the food line. The resulting poverty lines for each province and region of the country are summarized in Annex Table 1.

22. The above procedure of estimating poverty lines gives what has been referred to as lower-bound line (Ravallion, 1998). One may also set – though not pursued here – an upper bound by also appealing to the same notion of needs hierar-

chy and noting that the assumptions imply that the poverty line cannot exceed the total spending of those whose actual food spending achieves basic food needs. A person with this level of spending must have reached the normative activity level underlying the food energy requirement (i.e., the food threshold), as well as achieved basic non-food needs considered necessary prerequisite to that activity level in a given society. However, at this level of spending, and since total food spending usually does not rise at the same rate as total spending, it is likely that: (i) spending on food exceeds survival needs, and (ii) the amount spent on non-food goods exceed the amount required to achieve basic non-food needs. For this reason, poverty line generated from the total spending of households whose per capita food expenditure achieves the food threshold is deemed a “high” estimate of the poverty line.

23. This manner of establishing the poverty line is in essence similar to the official approach, except that the food threshold for each province is set as the average consumption of a reference group fixed nationally in terms of their expenditure, not by the FNRI-determined food consumption bundle constructed for each province or region. Note that in the approach suggested here, both the food and non-food components of the poverty line make use of information generated from the same household survey, i.e., FIES. In contrast, in the official approach, the “food menu” is prepared by FNRI using information from its food consumption survey, while the non-food component of the poverty line is generated from the FIES. Consistency is thus not ensured in the official approach.

REAL EXPENDITURES AND COST-OF-LIVING INDICES

24. Poverty measurement requires combining poverty lines with information on consumption expenditures. If individual data on money incomes are given, a straightforward way to do this is to compare these money incomes with poverty lines constructed for each region, province, or area. Thus, a household located in province j is deemed to be poor if its per capita money income m is less than the poverty line z for province j .

25. Another way to accomplish the same thing is to deflate each money income m by the “true cost of living index” P , defined for fixed reference prices and reference household characteristics. P is just the ratio of each person’s poverty line to the reference poverty line, the latter defining a household with given demographics at a given location and time. The normalized value m/P gives what is often termed “real expenditure” or “real income” (also referred to elsewhere in this Report as “living standard”). Thus, a person is deemed poor if that person’s real expenditure is less than the base (reference) poverty line.

26. The cost-of-living indices (with Metro Manila as the base), as well as per capita nominal expenditures and per capita living standard averaged for provinces and regions, are presented in Annex Table 2. For the analysis of temporal welfare comparison over the period 1985-97, we have incorporated price increases over time by applying the official regional CPI to the provincial cost-of-living index.⁶ Annex Table 3 summarizes the resulting regional indices for 1985-1997. Clearly, these indices suggest substantial regional price variation in any given year, as well as marked regional differences in rates of price increases during the period.

⁶ CPI data are not available at the provincial level.

**Table Annex A.1: Estimates of Food Thresholds and Poverty Lines: Absolute Cost-of-Basic-Needs Approach
(1997, Pesos per capita per year)**

Province	Food threshold	Poverty line
Metro Manila	<i>7,669</i>	10,577
Ilocos		7,561
Ilocos Norte	4,912	7,084
Ilocos Sur	5,829	7,906
La Union	5,702	7,669
Pangasinan	5,645	7,542
Cagayan Valley		8,318
Batanes	7,512	10,492
Cagayan	6,573	8,717
Isabela	6,337	8,546
Nueva Viscaya	5,360	7,091
Quirino	4,871	6,649
Central Luzon		9,442
Bataan	6,819	9,117
Bulacan	7,204	9,935
Nueva Ecija	7,968	10,805
Pampanga	7,109	9,073
Tarlac	5,950	7,834
Zambales	6,116	7,789
Olongapo City	7,280	10,184
Southern Luzon		9,239
Aurora	6,382	8,657
Batangas	6,982	9,928
Cavite	7,426	10,510
Laguna	7,057	9,443
Marinduque	6,404	8,544
Mindoro Occidental	5,426	7,020
Mindoro Oriental	5,994	8,123
Palawan	5,516	7,311
Quezon	6,077	8,372
Rizal	7,717	10,804
Romblon	6,155	8,047
Bicol Region		8,256
Albay	6,717	9,043
Camarines Norte	5,422	7,495
Camarines Sur	5,818	7,654
Catanduanes	5,676	7,426
Masbate	6,113	8,117
Sorsogon	7,046	9,274
Western Visayas		7,403
Aklan	6,000	7,988
Antique	5,093	6,803
Capiz	5,407	7,350
Iloilo	5,325	7,436
Negros Occidental	5,316	7,131
Bacolod City	5,884	7,607
Iloilo City	6,559	9,018
Central Visayas		7,392
Bohol	4,921	6,433
Cebu	5,887	7,803
Negros Orient.	4,949	6,158
Siquijor	5,188	6,930
Cebu City	6,711	9,387

Table Annex A.1: Estimates of Food Thresholds and Poverty Lines: Absolute Cost-of-Basic-Needs Approach (1997, Pesos per capita per year)		
Province	Food threshold	Poverty line
Eastern Visayas		7,570
Eastern Samar	6,036	8,240
Leyte	5,896	7,746
Northern Samar	4,920	6,584
Western Samar	5,758	7,538
Southern Leyte	5,679	7,595
Western Mindanao		7,264
Basilan	6,072	8,558
Zamboanga del Norte	5,138	7,093
Zamboanga del Sur	4,998	6,738
Zamboanga City	5,542	8,061
Central Mindanao		6,294
Bukidnon	4,314	5,699
Camiguin	5,358	7,300
Misamis Occidental	4,946	6,593
Misamis Oriental	4,961	6,659
Southern Mindanao		7,079
Davao del Norte	4,934	6,605
Davao del Sur	5,065	6,515
Davao Oriental	4,627	6,406
South Cotabato	5,190	7,301
Davao City	5,942	8,002
General Santos City	5,712	7,548
Eastern Mindanao		7,042
Lanao del Norte	5,264	6,906
North Cotabato	5,108	7,077
Sultan Kudarat	5,119	7,024
Cotabato City	5,366	6,979
Marawi City	6,374	8,371
CAR		7,646
Abra	5,053	6,474
Benguet	6,057	8,708
Ifugao	4,667	6,447
Mt. Province	4,827	6,558
Baguio City	7,680	10,759
ARMM		8,990
Lanao del Sur	5,452	7,618
Maguindanao	4,900	6,357
Sulu	9,274	12,700
Tawi-Tawi	7,379	10,423
CARAGA		8,990
Agusan del Norte	5,304	7,048
Agusan del Sur	4,593	6,077
Surigao del Norte	5,610	7,348
Surigao del Sur	5,154	6,931

Source: Balisacan (1999a).

**Table Annex A.2: Mean Expenditure, Cost-of-Living Index and Living Standard, by Province
(1997, Pesos per capita per year)**

Province	Average Expenditure	Cost-of-Living Index (Metro Manila = 100)	Average Living Standard
Metro Manila	42,367	100.0	42,367
Ilocos			
Ilocos Norte	18,435	67.0	27,514
Ilocos Sur	18,321	74.7	24,526
La Union	15,847	72.5	21,858
Pangasinan	15,180	71.3	21,291
Cagayan Valley			
Batanes	23,003	99.2	23,189
Cagayan	13,411	82.4	16,276
Isabela	13,978	80.8	17,299
Nueva Viscaya	17,027	67.0	25,414
Quirino	13,970	62.9	22,210
Central Luzon			
Bataan	26,122	86.2	30,304
Bulacan	21,874	93.9	23,295
Nueva Ecija	16,579	102.2	16,222
Pampanga	21,123	85.8	24,619
Tarlac	17,069	74.1	23,035
Zambales	17,998	73.6	24,454
Olongapo City	25,723	96.3	26,711
Southern Luzon			
Aurora	16,675	81.8	20,385
Batangas	22,063	93.9	23,496
Cavite	25,887	99.4	26,043
Laguna	25,554	89.3	28,616
Marinduque	14,610	80.8	18,081
Mindoro Occidental	14,180	66.4	21,356
Mindoro Oriental	13,783	76.8	17,947
Palawan	13,674	69.1	19,789
Quezon	16,662	79.1	21,065
Rizal	26,759	102.1	26,209
Romblon	10,122	76.1	13,301
Bicol			
Albay	14,432	85.5	16,880
Camarines Norte	12,912	70.9	18,212
Camarines Sur	12,776	72.4	17,646
Catanduanes	13,387	70.2	19,070
Masbate	9,665	76.7	12,601
Sorsogon	12,615	87.7	14,384
Western Visayas			
Aklan	15,616	75.5	20,684
Antique	14,922	64.3	23,206
Capiz	15,793	69.5	22,723
Iloilo	14,554	70.3	20,702
Negros Occidental	13,356	67.4	19,816
Bacolod City	26,353	71.9	36,652
Iloilo City	26,321	85.3	30,857
Central Visayas			
Bohol	10,204	60.8	16,784
Cebu	13,683	73.8	18,540

**Table Annex A.2: Mean Expenditure, Cost-of-Living Index and Living Standard, by Province
(1997, Pesos per capita per year)**

Province	Average Expenditure	Cost-of-Living Index (Metro Manila = 100)	Average Living Standard
Negros Oriental	12,519	58.2	21,510
Siquijor	9,411	65.5	14,368
Cebu City	22,606	88.8	25,457
Eastern Visayas			
Eastern Samar	9,294	77.9	11,931
Leyte	12,224	73.2	16,700
Northern Samar	8,752	62.3	14,048
Western Samar	10,117	71.3	14,190
Southern Leyte	10,830	71.8	15,083
Western Mindanao			
Basilan	12,713	80.9	15,714
Zamboanga del Norte	12,351	67.1	18,408
Zamboanga del Sur	12,081	63.7	18,965
Zamboanga City	16,810	76.2	22,060
Northern Mindanao			
Bukidnon	12,330	53.9	22,876
Camiguin	12,178	69.0	17,650
Misamis Occidental	11,576	62.3	18,582
Misamis Oriental	18,501	63.0	29,367
Southern Mindanao			
Davao del Norte	12,467	62.4	19,978
Davao del Sur	11,263	61.6	18,285
Davao Oriental	10,143	60.6	16,738
South Cotabato	12,086	69.0	17,516
Davao City	24,048	75.7	31,767
General Santos City	18,936	71.4	26,521
Central Mindanao			
Lanao del Norte	14,592	65.3	22,346
North Cotabato	11,460	66.9	17,130
Sultan Kudarat	12,817	66.4	19,302
Cotabato City	17,119	66.0	25,938
Marawi City	11,622	79.1	14,692
CAR			
Abra	14,361	61.2	23,465
Benguet	15,979	82.3	19,416
Ifugao	12,487	61.0	20,470
Kalinga Apayao	13,120	58.7	22,351
Mt. Province	11,120	62.0	17,935
Baguio City	32,880	101.7	32,330
ARMM			
Lanao del Sur	8,813	72.0	12,241
Maguindanao	9,421	60.1	15,676
Sulu	9,313	120.1	7,755
Tawi-Tawi	12,924	98.5	13,121
CARAGA			
Agusan del Norte	13,367	66.6	20,070
Agusan del Sur	11,251	57.5	19,567
Surigao del Norte	11,165	69.5	16,065
Surigao del Sur	12,560	65.5	19,176

Source: Balisacan (1999a).

Table Annex A.3: Regional Cost-of-Living Indices (NCR 1997 = 100)								
Region	1985 Classification of Provinces						1997 Classification of Provinces	
	1985	1988	1991	1994	1997	1998	1997	1998
NCR	30.5	38.1	58.5	79.9	100.0	110.2	100.0	110.2
1 Ilocos	27.2	30.5	45.5	58.8	72.8	80.3	71.5	78.9
2 Cagayan Valley	30.4	32.7	48.3	61.0	76.0	83.1	78.6	86.0
3 Central Luzon	32.6	38.3	57.5	71.7	89.3	98.4	89.3	98.4
4 Southern Luzon	33.4	36.8	56.4	70.2	87.4	96.0	87.4	96.0
5 Bicol	27.7	31.3	48.4	60.3	78.1	85.1	78.1	85.1
6 Western Visayas	26.5	29.9	46.9	57.8	70.0	75.4	70.0	75.4
7 Central Visayas	24.4	27.3	44.8	55.6	69.9	77.3	69.9	77.3
8 Eastern Visayas	26.8	29.6	44.1	56.2	71.6	77.5	71.6	77.5
9 Western Mindanao	29.6	32.9	50.3	62.7	79.0	86.8	68.7	75.4
10 Northern Mindanao	24.8	26.8	39.0	49.2	61.5	67.8	59.5	65.7
11 Southern Mindanao	28.8	31.3	43.2	53.7	66.8	73.0	66.9	73.2
12 Central Mindanao	25.1	28.3	43.4	54.1	66.0	72.1	66.6	72.7
CAR							72.3	77.8
ARMM							85.0	93.7
CARAGA							65.2	71.0

Source: Balisacan (1999a).

Annex B

POVERTY AND SOCIAL INDICATORS

Table Annex B.1: Consumption Distribution in the Philippines, 1985-1997

Decile Ranked by per Capita Consumption	1985		1988		1991		1994		1997	
	Share in Total Consumption	Consump. /Person/Year (PhP)								
	1	2.53	4342	2.63	4984	2.39	4790	2.78	5447	2.57
2	3.75	6444	3.84	7263	3.49	7004	3.93	7707	3.62	8567
3	4.65	8011	4.75	8976	4.42	8860	4.79	9383	4.46	10570
4	5.57	9580	5.65	10687	5.34	10697	5.68	11118	5.35	12682
5	6.57	11308	6.69	12666	6.37	12767	6.70	13129	6.35	15044
7	7.80	13419	7.98	15085	7.63	15299	7.89	15471	7.53	17859
8	9.33	16044	9.57	18118	9.29	18626	9.45	18528	9.11	21581
8	11.63	19982	11.91	22529	11.85	23512	11.70	22935	11.44	27102
9	15.64	26905	15.87	30042	15.74	31898	15.72	30809	15.47	36670
10	32.52	55951	31.12	58929	33.48	67140	31.37	61478	34.10	80787
Gini/Mean	0.412	17197	0.400	18926	0.428	20049	0.397	19600	0.427	23694

Note: Per capita consumption expenditures are expressed at 1997 Metro Manila prices and have also been adjusted for provincial cost of living differentials (Balisacan, 1999). The last row shows Gini indices and mean per capita consumption levels.

Source: Based on 1998 FIES data.

Table Annex B.2: Income Distribution in the Philippines, 1985-1997

Decile Ranked by per Capita Income	1985		1988		1991		1994		1997	
	Share in Total Income	Income /Person/Year (PhP)								
1	2.18	4330	2.18	5105	2.00	4993	2.33	5580	2.04	5952
2	3.31	6566	3.32	7761	3.08	7706	3.46	8323	3.03	8873
3	4.22	8368	4.21	9833	3.96	9907	4.33	10410	3.86	11287
4	5.11	10152	5.09	11911	4.86	12151	5.26	12625	4.73	13826
5	6.09	12089	6.14	14351	5.89	14747	6.30	15139	5.72	16714
7	7.30	14492	7.40	17325	7.19	17981	7.54	18106	6.99	20411
8	8.90	17665	9.15	21416	8.90	22266	9.19	22061	8.68	25367
8	11.18	22197	11.55	27015	11.46	28676	11.63	27921	11.21	32754
9	15.54	30829	15.80	36971	15.85	39645	15.89	38173	15.74	45980
10	36.17	71813	35.17	82292	36.82	92116	34.07	81827	37.99	110990
Gini/Mean	0.453	19848	0.447	23397	0.468	25018	0.434	24016	0.478	29214

Note: Per capita incomes are expressed at 1997 Metro Manila prices and have also been adjusted for provincial cost of living differentials (Balisacan, 1999a). The last row shows Gini indices and mean per capita income levels.
Source: Based on 1998 FIES data.

Table Annex B.3: Provincial Living Standard and Poverty, 1997

Province	Average Living Stds.* (PhP/person/year)	Poverty		Life Expectancy at Birth(years) 1994	Functional Literacy Rate (%) 1994	Primary and High School Enrollment Rate (%) 1997
		Incidence	Depth			
METRO MANILA	42,367	3.5	0.6 (0.08)	69.0	92.41	91.72
1. ILOCOS						
Ilocos Norte	27,514	8.3 (2.42)	1.2 (0.61)	68.9	84.69	85.19
Ilocos Sur	24,526	13.3 (2.19)	2.0 (0.42)	66.6	83.29	90.32
La Union	21,858	22.6 (2.67)	5.8 (0.84)	68.9	87.43	87.51
Pangasinan	21,291	25.2 (1.98)	4.7 (0.49)	68.5	87.38	90.58
2. CAGAYAN						
Batanes	23,189	21.7 (5.13)	3.3 (0.99)	64.1	92.68	84.7
Cagayan	16,276	31.7 (2.70)	6.5 (0.73)	65.1	86.72	85.27
Isabela	17,299	36.1 (2.32)	10.3 (0.84)	67.0	89.45	87.14
Nueva Viscaya	25,414	10.8 (2.59)	2.5 (0.71)	65.2	78.2	85.83
Quirino	22,210	18.5 (3.24)	3.4 (0.79)	63.5	80.14	86
3. CENTRAL LUZON						
Bataan	30,304	7.0 (1.78)	1.2 (0.37)	67.7	88.74	90.71
Bulacan	23,295	10.1 (1.36)	1.8 (0.32)	69.8	90.59	92.22
Nueva Ecija	16,222	26.7 (2.29)	6.1 (0.68)	69.0	92.42	84.26
Pampanga	24,619	5.8 (1.28)	0.6 (0.16)	71.0	79.23	85.82
Tarlac	23,035	15.4 (2.22)	3.0 (0.57)	68.1	82.22	86.28
Zambales	25,399	13.8 (2.49)	2.5 (0.58)	67.0	81.71	89.97
4. SOUTHERN LUZON						
Aurora	20,385	19.2 (2.85)	3.5 (0.65)	64.6	84.16	87.77
Batangas	23,496	17.4 (1.84)	4.2 (0.55)	70.1	90.4	93.83
Cavite	26,043	9.1 (1.44)	1.7 (0.35)	69.1	92.8	87.81
Laguna	28,616	8.2 (1.21)	1.4 (0.25)	67.9	86.09	93.03
Marinduque	18,081	38.2 (3.17)	10.8 (1.19)	64.9	91.25	88.96
Mindoro Occidental	21,356	17.3 (2.42)	3.3 (0.63)	63.9	83.12	80.25
Mindoro Oriental	17,947	32.8 (3.89)	7.7 (1.17)	64.9	91.54	86.16
Palawan	19,789	26.1 (2.46)	5.6 (0.71)	62.9	77.35	83.45
Quezon	21,065	30.3 (2.66)	7.4 (0.79)	66.6	87.25	82.89
Rizal	26,209	12.3 (1.61)	2.2 (0.35)	69.3	89.17	88.55
Romblon	13,301	61.5 (3.51)	17.5 (1.41)	64.3	85.92	86.15
5. BICOL						
Albay	16,880	49.8 (3.12)	13.8 (1.24)	67.6	82.31	84.31
Camarines Norte	18,212	39.5 (3.61)	9.7 (1.21)	63.6	90.01	77.75
Camarines Sur	17,646	35.1 (2.62)	8.5 (0.91)	68.7	85.97	86.34
Catanduanes	19,070	29.6 (4.35)	6.7 (1.35)	64.7	87.01	83.02
Masbate	12,601	64.9 (2.68)	20.6 (1.3)	64.0	75.21	80.69
Sorsogon	14,384	50.3 (2.86)	14.6 (1.16)	66.6	79.38	86.87

Table Annex B.3: Provincial Living Standard and Poverty, 1997

Province	Average Living Stds.* (PhP/person/year)	Poverty		Life Expectancy at Birth(years) 1994	Functional Literacy Rate (%) 1994	Primary and High School Enrollment Rate (%) 1997
		Incidence	Depth			
6. WESTERN VISAYAS						
Aklan	20,684	32.8 (3.20)	7.0 (0.99)	63.8	83.01	74.25
Antique	23,206	23.5 (2.99)	5.0 (0.84)	63.3	78.45	83.97
Capiz	22,723	26.0 (3.05)	4.7 (0.74)	64.6	76.45	85.82
Guimaras	19,002	17.5 (3.47)	3.7 (0.93)	67.7	83.59	73.27
Iloilo	22,749	22.0 (1.71)	4.8 (0.53)	68.6	83.59	85.47
Negros Occidental	22,271	18.8 (1.67)	4.2 (0.50)	67.6	78.30	85.02
7. CENTRAL VISAYAS						
Bohol	16,784	43.0 (2.96)	11.9 (1.15)	68.3	84.86	80.80
Cebu	20,317	31.8 (1.58)	9.8 (0.66)	70.5	80.18	83.35
Negros Orient.	21,510	35.1 (3.16)	9.3 (1.10)	65.5	73.82	73.55
Siquijor	14,368	57.5 (3.96)	18.1 (1.81)	64.4	86.27	77.36
8. EASTERN VISAYAS						
Biliran	13,345	57.0 (4.50)	15.4 (1.83)	65.0	79.45	82.60
Eastern Samar	11,931	70.9 (3.15)	25.1 (1.77)	61.6	86.25	90.68
Leyte	16,700	41.9 (2.46)	13.2 (1.04)	65.9	79.45	75.86
Northern Samar	14,048	55.0 (2.98)	19.5 (1.51)	62.1	73.63	80.29
Southern Leyte	15,083	45.9 (3.50)	12.2 (1.18)	65.0	86.35	80.08
Western Samar	14,407	55.1 (3.05)	15.6 (1.22)	60.9	76.41	76.80
9. WESTERN MINDANAO						
Basilan	15,714	30.2 (2.71)	5.9 (0.68)	61.4	48.08	69.45
Zamboanga del Norte	18,408	44.2 (3.09)	12.0 (1.21)	63.5	74.49	75.95
Zamboanga del Sur	19,871	31.9 (1.96)	6.9 (0.59)	65.4	77.23	76.44
10. NORTHERN MINDANAO						
Bukidnon	22,876	23.1 (2.49)	4.9 (0.72)	65.2	83.15	67.31
Camiguin	17,650	33.6 (4.01)	9.1 (1.48)	63.7	85.90	73.76
Misamis Occidental	18,582	37.1 (2.38)	10.9(0.94)	64.7	84.83	73.84
Misamis Oriental	29,367	22.9 (1.89)	5.8 (0.65)	66.9	84.54	76.02
11. SOUTHERN MINDANAO						
Davao del Norte	19,978	26.2 (2.70)	6.4 (0.87)	64.3	85.49	73.78
Davao del Oriental	16,738	40.2 (4.36)	12.4 (1.64)	65.9	74.61	70.40
Davao del Sur	26,013	21.6 (1.94)	4.6 (0.555)	68.0	68.78	77.27
Sarangani	16,223	38.1 (4.64)	10.4 (1.64)	66.3	73.63	63.85
South Cotobato	20,520	25.4 (3.03)	6.9(1.02)	66.6	73.63	72.02
12. CENTRAL MINDANAO						
Lanao del Norte	22,346	32.9 (2.12)	9.4 (0.79)	63.3	73.39	69.57
North Cotobato	17,130	42.7 (2.77)	13.4 (1.14)	66.0	72.76	81.54
Sultan Kudarat	19,302	21.6 (3.04)	3.2 (0.63)	63.7	78.63	83.68

Table Annex B.3: Provincial Living Standard and Poverty, 1997

Province	Average Living Stds.* (PhP/person/year)	Poverty		Life Expectancy at Birth(years) 1994	Functional Literacy Rate (%) 1994	Primary and High School Enrollment Rate (%) 1997
		Incidence	Depth			
13. CAR						
Abra	23,465	22.0 (3.44)	4.7 (0.87)	63.9	90.11	93.39
Apayao	19,781	19.7 (3.69)	4.7 (1.04)	61.9	70.35	87.64
Benguet	23,808	19.7 (2.20)	4.6 (0.70)	67.0	83.89	90.90
Ifugao	20,470	31.3 (4.17)	4.4 (0.74)	60.9	51.07	76.18
Kalinga	24,066	16.3 (3.06)	2.2 (0.51)	61.7	70.35	87.00
Mt. Province	17,935	31.4 (4.09)	5.9 (1.02)	61.7	81.08	99.10
14. ARMM						
Lanao del Sur	12,520	40.8 (2.42)	10.4(0.89)	57.1	59.31	78.81
Maguindanao	17,043	24.0 (2.16)	4.0 (0.53)	55.8	68.71	51.70
Sulu	7,755	87.5 (1.50)	33.1 (0.90)	52.9	57.73	43.48
Tawi-Tawi	13,121	52.1 (3.62)	13.4 (1.37)	51.9	52.67	67.53
15. CARAGA						
Agusan del Norte	20,070	32.3 (2.38)	9.2 (0.90)	62.9	88.16	77.35
Agusan del Sur	19,567	36.3 (3.30)	8.8 (1.10)	61.1	71.84	73.27
Surigao del Norte	16,065	43.0 (3.30)	10.8 (1.23)	65.8	81.64	76.31
Surigao del Sur	19,176	36.4 (3.33)	10.0 (1.29)	62.6	82.43	77.45

Note: *Mean per capita household expenditure at 1997 Metro Manila prices adjusted for provincial cost-of-living differences. Cities are incorporated in provinces in which they are located. Figures in parentheses are robust standard errors (corrected for sample design effect).
Source: Balisacan (1999) and HDN and UNDP (2000).

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Acknowledgements

This report was prepared by a team of Bank staff comprising Gaurav Datt, Tamar Manuelyan Atinc and Norbert Schady. The team drew upon several background studies, including by Arsenio Balisacan (poverty profile), Michael Alba (access to public services), Gaurav Datt and Hans Hoogeveen (social impact of the crisis), Klaus Deininger (land reform), Norbert Schady (education), and Norbert Schady and Gaurav Datt (self-rated poverty). Martha Ainsworth, Benu Bidani, Joven Balbosa, Shaohua Chen, Hans Hoogeveen and William Rex made valuable contributions to specific sections of the report while Deon Filmer and Emanuela Galasso were generous in sharing their work and responding to queries. David Bisbee provided able assistance with data and Taranaki Mailei and Araceli Tria with the production of the report.

The team gratefully acknowledges the many useful comments received, especially from Emmanuel Jimenez and Jesko Hentschel (peer reviewers). Others who were generous with their comments and time included Vinay Bhargava, Masahiro Kawai, Sanjay Dhar, Bernard Funck, Heidi Hennrich-Hanson, Gurushri Swamy, Vijay Jagannathan, Aniruddha Dasgupta, Rahul Raturi, Syed Husain, Richard Anson, Nor Gonzales, Bhuvan Bhatnagar, Jayshree Balachander and Teresa Ho. The team valued enormously the overall strategic guidance and intellectual support received from Homi Kharas.

The study team would like to express its appreciation for the collaboration received from the National Economic Development Authority in carrying out its work. Ms. Ofelia Templo ably led the Philippine counterpart team, providing valuable input on content and fit with the Government's agenda. The team benefited from many useful insights offered during a video conference with members of the Philippines NGO community to discuss the concept of the study (December 1999) and during several workshops held in Manila (February, June and September 2000) and in Cebu (September 2000) to discuss findings with government officials, academe and civil society. Representatives of the donor community, in particular, of the Asian Development Bank and the United Nations Development Programme, were also generous with their time.

The report could not have been prepared without the good quality data collected by the Philippines National Statistics Office (NSO). The team would like to note the important contribution made to the quality of poverty monitoring in the Philippines by the government's policy of putting survey data in the public domain. The team is grateful to Mr. Tomas Africa and Ms. Josie Perez of NSO for their valuable support and would like to thank Ms. Sotera de Guzman and Mr. Gene Lonica who responded to many data queries. The team would also like to acknowledge the excellent collaboration received from Mr. Mahar Mangahas who has been a leader in the region in the collection and analysis of data on self-reported poverty. Finally, the study team would be remiss if it did not acknowledge the major contribution made by donors to the Asia Europe Meeting (ASEM) trust fund. By supporting the collection of very useful information at the time of the crisis in the Philippines (the first Annual Poverty Indicators Survey), ASEM donors contributed to a better appreciation of the social impact of the crisis and helped shape policies.



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