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Poverty in the Philippines: An Update and Reexamination

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Abstract

What is known, based on official poverty data, about spatial poverty profiles (regional, provincial, or rural vs. urban) as well as poverty changes in recent years, is not quite robust. The main problem is that the official practice for poverty comparison is somewhat inconsistent. This paper proposes a practical approach to measuring poverty for spatial/subgroup comparison, as well as for performance monitoring of efforts to reduce absolute poverty. The approach is employed to construct new poverty profiles based on nationwide household surveys covering the late 1990s. The paper also examines how initial living standards and socioeconomic characteristics have influenced household responses to the Asian economic crisis.

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1. Introduction

Efficient targeting of resources to achieve poverty reduction objectives requires information about the poor and their circumstances—who they are, where they live, what social and economic conditions they face, and how they respond to programs and projects intended for them. If it is known, for example, that poverty is concentrated in a few geographic pockets of a country, it may be possible to reduce the cost of poverty reduction programs by focusing poverty alleviation efforts on these areas. Put differently, if the poverty profile is known, it should be possible to exploit this information to maximize the benefits—measured in terms of, say, reduction in national poverty—of poverty budgets through improved design and implementation.

Construction of poverty profiles not only requires good data but also analytically sound procedures for measuring poverty. Perhaps the most controversial aspect of poverty measurement is the construction of a poverty standard, which is used to identify the poor in a given population. Oftentimes, ambiguity in policy objective adds to the confusion in poverty measurement. For example, while absolute poverty

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reduction is the central thrust of development policy in the Philippines, the official approach to constructing poverty lines for spatial and intertemporal comparison falls short of fully capturing this concern [Balisacan 2000]. Poverty profiles based on these lines may thus fail to inform policy and program choices vis-à-vis reduction of absolute poverty. As shown in this paper, poverty profiles are quite sensitive to poverty norms employed in poverty measurement.

A number of previous studies have characterized the profile of poverty in the Philippines (e.g., Intal and Bantilan [1994]; Balisacan [1994, 1995, 1999a]; Marquez and Virola [1997]; Monsod and Monsod [1999]; World Bank [1995]). However, these studies have either been outdated, thereby failing to capture the impact of structural and policy shifts in the economy, or fallen short of the demand for comprehensive and accurate data necessary to inform policy responses to macroeconomic shocks, particularly the Asian economic crisis.

The Asian economic crisis is largely over, but its full impact on various social and economic groups will likely linger in the years to come. Yet, not much is known about the profile of population groups most adversely hit by the crisis. Even less is known about the conditions making some population groups more vulnerable than others to a shock, as well as the factors shaping their responses to this shock. Indeed, beyond anecdotal evidence and dubious "rapid appraisals," data on differential impact on, and household responses to, the Asian crisis are virtually non-existent.

To be sure, a number of reports describing the causes and impact of the Asian crisis on Philippine households have appeared since the crisis erupted in late 1997 (e.g., Lim [1998]; Reyes et al. [1999]; World Bank [1999]). Discussions in these studies have, however, been limited by the lack (or inadequacy) of nationwide household data that could be used to describe changes in the economic well-being of various household groups: their economic conditions before the crisis, changes in these conditions during the crisis, and the impact of government policies and programs implemented to address the crisis. Moreover, none of these studies has systematically explored the factors that make some households more vulnerable than others to macroeconomic shocks, such as the Asian economic crisis.

Our main objective in this paper is to construct new poverty profiles based on recent nationwide household surveys covering the late 1990s. Specifically, we aim to: (1) assess the official approach to poverty measurement vis-à-vis consistency with development policy objectives; (2) examine how average living standards and absolute poverty in the Philippines have evolved in recent years; (3) generate spatial and socioeconomic profiles of poverty which can be used as a partial guide for poverty targeting; and (4) examine how initial living standards and socioeconomic characteristics have influenced household responses to the Asian crisis.

In the section that follows, we describe the empirical approach and data employed in the paper to measure poverty. We then discuss differences in average living standards, inequality, and absolute poverty across space and socioeconomic groups, especially in the wake of the crisis. Next we, attempt to examine how certain

household characteristics influence the impact of the crisis and the households' responses to it. Finally, in the last section, we provide conclusion and discuss implications for policy and research.

2. Poverty measurement

Long-held measurement practices and data considerations partly reflect what we know – wrongly or rightly – about inequality and poverty in the Philippines. Some of these practices have neither been well justified nor informed by recent developments in poverty measurement. Yet, these are the profiles that often inform policy discussions, including proposals for engendering "growth with equity," fostering "adjustment with a human face," and "empowering the poor." This section briefly discusses some measurement issues – choice of a broad indicator of economic well-being, choice of income scales for inter-household comparison, construction of poverty standards, and procedure for summarizing household information on well-being into a single aggregate measure – that have important implication for inequality and poverty comparisons, as well as for policy design, in the Philippines.[1]

2.1 Choosing a welfare indicator

Identification of the poor requires the use of a broad indicator of a household's standard of living. The Philippine Government uses current household income in its poverty assessment. However, as is well known, 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 capability to buffer their welfare from temporary variations in income, such as by saving money or goods. Moreover, a household that can share in the income of others may have a higher welfare level than its current income would permit.[2]

Using standard arguments in microeconomic theory, it can be claimed that since welfare level is determined by "life-cycle" or "permanent" income, and since current consumption is a good approximation of this income, current consumption can be justified as a better measure of current welfare. Of course, this does not suggest that consumption does not vary over time. Consumption changes over the life cycle and the changes are sometimes large. This is especially true among the poor who do not have access to capital markets (or to inter-household transfers) and whose current consumption is constrained by current instead of life-cycle income. However, even

[1] Extensive discussions of the conceptual and measurement issues are available elsewhere (see, in particular, Ravallion 1994, 1996; Deaton 1997; Foster and Sen 1997). For a discussion of these issues in the Philippine context, see Balisacan [1999].

[2] Cox and Jimenez [1995] found evidence of substantial interhousehold income transfers – typically from the relatively rich households to poor households – in the Philippines.

in this case, current consumption is as good an approximation of life-cycle income as current income.

An even stronger case for preferring consumption to income as a broad indicator of welfare rests on practicality and data. Acquiring accurate information is more difficult for income than for consumption [Deaton 1997: 148-9; Ravallion and Chen 1997]. For example, one has to undertake multiple household visits or use recall data to obtain reasonably accurate estimates of annual income, given that such estimates are required for a satisfactory measure of individual welfare, whereas one has to rely only on consumption over, say, the previous few weeks to get a satisfactory measure of individual welfare. Moreover, households may understate their incomes to avoid future problems with tax agencies – a quite common practice especially among self-employed professionals [Krugman et al. 1992; Manasan 1988]. The difficulty also extends to imputing "incomes" of households that 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 a common practice to lump in just a few questions the respondent's estimate of *total* costs and gross revenues from all entrepreneurial activities). In short, measurement errors can be expected to be greater for income than for consumption.

Thus, on both conceptual and practical grounds, consumption is preferred to income as a broad indicator of a person's living standard. For this reason, this paper employs consumption as the relevant welfare measure.

2.2 Adjusting for household size and composition

The chosen indicator of living standards has to capture differences in household needs, as well as scale economies in household consumption. Households may vary in their needs depending on their size or composition. The needs of children, for example, may be less than the needs of adults since children typically have lower nutritional and clothing needs. Scale economies in household consumption, on the other hand, arise from the fact that certain household expenditures are public goods (e.g., housing or electricity), suggesting that, for reaching a given welfare level, per capita cost decreases as household size increases. For a given household size, the extent of scale economies depends on the importance of public goods in total household expenditure.

A common method of handling household heterogeneity is to construct a set of equivalence scales, intended to reflect the extent to which income must increase (decrease) as household size and/or composition changes in order for welfare level to reach that of the reference household. Put differently, the equivalence scale for the i-th household is simply the ratio of the i-th household income to the income for the reference household, such that welfare level is the same for both households. Suppose

the reference household is that of a single-adult household. Then, as in Cutler and Katz [1992], the equivalence scale for the i-th household with A number of adults and K number of children can take the form: $N^* = (A+cK)^e$, where N^* is the number of adult equivalents, c is a constant reflecting the resource cost of a child relative to an adult, and e reflects the overall economies of scale in household size.[3]

Several procedures have been suggested in the literature to estimate equivalence scales from household expenditure survey data [Buhmann et al. 1988; Deaton 1997: 241-69]. However, there is still no preferred estimation procedure: Any particular procedure involves cardinal assumptions about which there may not be general agreements. Put differently, there exists many different utility functions which may be consistent with the observed data, implying that the estimation of equivalence scales always involves an element of arbitrariness [Pollak and Wales 1979; Lanjouw and Ravallion 1995; Deaton 1997]. Thus, for our purposes, we stick to the common practice of adjusting the chosen household welfare indicator only for household size ($c = 1$, $e = 1$), i.e., use per capita expenditure in our welfare comparison.[4] In taking this track, we are also assuming that each individual in a household gets a welfare value equal to the per capita consumption of that household.[5]

2.3 Setting poverty lines

When the objective of poverty measurement is to inform policy choices for reducing *absolute* poverty, an appealing property of a poverty line is that it should not depend on the subgroup to which the person with that standard of living belongs [Ravallion 1994, 1998]. Put differently, poverty lines constructed for various subgroups must be fixed in terms of a given living standard. Thus, two persons deemed to have exactly the same standard of living in all relevant aspects but located in different regions would have to be treated as either both poor or both nonpoor. The poverty lines are then said to be consistent; they imply the same command over basic consumption needs.

The Philippine Government's approach (hereafter referred to as *official* approach) to constructing poverty lines starts with the construction of representative food menus for urban and rural areas of each region of the country. The menus, prepared by the Food and Nutrition Research Institute (FNRI), consider local consumption patterns and satisfy a minimum nutritional requirement of 2,000 calories per person per day and 80 to 100 percent of recommended daily allowance for vitamins and minerals.

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[3] Lanjouw et al. [1998] refers to e as *economies of size* and to c as *equivalence scale*. They refer to the two together as *economies of scale*. We stick to convention in referring to the two together as *equivalence scale*. In practice, it is not simple to separate the two concepts from household data.

[4] Kakwani [1986] argues that, for most practical purposes, this is a valid assumption.

[5] For an exploration of the sensitiveness of welfare comparison to alternative specifications of equivalence scales, particularly in reference to inequality comparison in the Philippines, see Balisacan [1999].

The menus for 1985 were based on FNRI's 1982 Food Consumption Survey, while those for 1988 on the 1987 Food Consumption Survey. Menus for 1991 and 1994 were the same as those for 1988. Evaluated at local prices, the menus form the *food poverty thresholds*.[6] The Family Income and Expenditures Survey (FIES) is then utilized to determine the average expenditure share of households whose incomes fall within a ten percent band around the food threshold. This share is used to divide the food threshold to come up with the poverty line (food plus nonfood thresholds).

By construction, the official approach tends to yield poverty lines that are not consistent, that is, the standard of living implied by the poverty lines varies for each of the regions as well as over time. It is well known that as household incomes rise, consumption of cheap sources of calories tends to decline as consumers shift to higher quality and more varied – but not necessarily more nutritious – food sources.[7] The shift is invariably associated with improvements in the standard of living. Hence, since the official approach starts with the local consumption pattern in the construction of food threshold for the urban/rural area of each region of the country, estimates of food (as well as nonfood) thresholds tend to be higher for the economically more progressive regions/areas than for the economically backward regions/areas. Moreover, since consumption patterns prevailing in various years inform the construction of food thresholds, estimates of food thresholds also tend to rise with improvements in overall living standards (as what may happen during episodes of economic growth). In short, the food poverty lines employed for the various regions and years are not comparable since they imply different levels of living standards. They are, therefore, not suitable for either national poverty monitoring or assessing comparative performance across regions, provinces, or areas of the country – if the main *policy objective is to reduce absolute poverty*.

For this paper, we have followed an alternative, albeit practical, approach to deriving poverty lines. The approach respects the consistency feature of an absolute poverty line, i.e., it is assumed that the main purpose of poverty comparison is to monitor progress in the reduction of absolute poverty. Its implementation requires (1) setting a food bundle in each province which is the average consumption of a reference group fixed *nationally* in terms of their expenditure, (2) adjusting this bundle to satisfy the minimum nutritional requirement of 2,000 calories per person per day, (3) valuing the adjusted bundle at consumer prices prevailing in each province, and (4) 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

[6] It should be noted that the food menus have not been validated by any of the statistical agencies.

[7] Put differently, the income elasticity of demand for calories is typically much lower than that for food as a group. See, for example, Bouis and Haddad [1992] and Subramanian and Deaton [1996].

used in each province. Differences in composition may arise as a result of spatial differences in relative prices faced by households.[8] Details of the approach and its implementation are given in Appendix A.

At the outset it should be pointed out that the objective of this exercise 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 (absolute) poverty status across provinces, regions, or socio-economic groups, as well as for monitoring performance in absolute poverty reduction over the medium term (say, 5-10 years). The underlying assumption of the exercise is that the main objective of development policy is to reduce absolute poverty across space and over time. A poverty indicator and monitoring system must, therefore, be capable of adequately capturing comparative performance in terms of the changes over time, or differences across space, in absolute poverty.

Figure 1 shows our estimates and the official estimates of 1997 poverty lines for the country's 15 regions, including the two autonomous regions of Cordillera (CAR) and Muslim Mindanao (ARMM).[9] The regions are arranged in ascending order of adjusted mean per capita expenditure in 1997, where the adjustment takes into account regional cost-of-living differences. Evident in this figure is the lack of correlation between our estimates (hereafter referred to as "absolute" lines) and the official estimates, as expected. Moreover, the absolute lines do not rise with mean living standard, as also expected. On the other hand, the official lines tend to rise with mean living standard.[10] The elasticity of official poverty line with respect to mean living standard is 0.31, while that of the absolute line is not significantly different from zero.

2.4 Aggregating the information on the poor

In aggregating the information on the poor into a single measure of poverty, a common procedure is to simply count the proportionate number of the population deemed poor. The resulting head-count index, conventionally interpreted as a measure of the "incidence" of poverty, is what appears in official reports on poverty in the

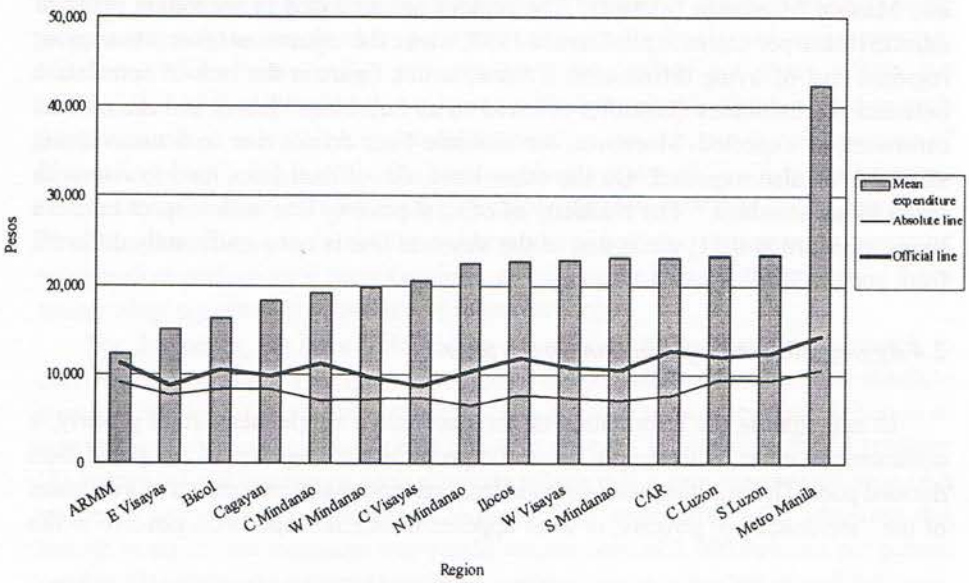
[8] In an earlier work, Balisacan et al. [1998] applied the same procedure, except that they assumed the substitution effect to be zero. The conclusion reached in that work vis-à-vis poverty lines is qualitatively similar to what was reached here.

[9] There are no official estimates of provincial poverty lines. For comparison, the regional absolute poverty lines shown in Figure 1 are weighted averages of provincial lines, where the weights are provincial population shares. In the interest of brevity, the provincial poverty lines are available for the contry's 78 provinces are not reported here but are are available from the author upon request.

[10] Regressing the logarithmic values of official lines with the logarithmic values of mean expenditure gives a slope coefficient estimate (i.e., poverty line elasticity) of 0.31, which is significantly different from zero at 2 percent significance level. Similar regression for the absolute poverty lines gives a coefficient of 0.14, which is not significantly different from zero. Using real GDP per capita as an instrument for regional mean living standard, the elasticity is 0.16 (significant at 2 percent) for the official-line regression and not significantly-different-from-zero for the absolute-line regression.

Philippines, as well as in most international poverty comparisons. This measure, however, is silent about the depth and severity of poverty. We report, as the need arises, two other statistical measures to capture these aspects of poverty. The poverty-gap index, defined by the mean distance below the poverty line as a proportion of that line (where the nonpoor are counted as having zero poverty gap), gives a measure of the "depth" of poverty, while the distribution-sensitive measure, defined as the mean of the squared proportionate poverty gaps, reflects the "severity" of poverty. The latter index pertains to the familiar Foster-Greer-Thorbecke (FGT) measure incorporating a society's "moderate" aversion to poverty [Foster et al. 1984]. From hereon, we refer to the head-count index, poverty-gap, and the distribution-sensitive FGT measure as incidence, depth, and severity measures, respectively.

Figure 1
Mean Expenditure and Poverty Line



Note: All figures pertain to 1997.
Mean expenditure is average per capita household expenditure adjusted for regional cost-of-living differences.

3. Household data

The main data sets for this study are the two most recent nationwide household surveys: the *1997 Family Income and Expenditures Survey* (FIES) and the *1998 Annual Poverty Indicator Survey* (APIS), both of which were conducted by the

National Statistics Office. The FIES is the main survey data employed in the generation of poverty and income distribution statistics on the Philippines. Conducted every three years, the 1997 survey covers a sample of 39,520 households and uses urban and rural areas of each province as principal domains. The survey captures a wide range of implicit expenditures, such as use value of durable goods (including owner-occupied dwelling units), consumption of home-produced goods and services, and gifts and assistance or relief in goods and services received by the household from various sources. This makes these data valid for economic welfare comparisons among provinces, between urban and rural areas, and among socioeconomic groups.

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 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.

Intended to be run every year beginning in 1998, the APIS 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 are for the second and third quarters of the year, while those of the FIES are 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 track changes in poverty for the intervening years when there are no FIES data.

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 gain information about 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.

4. Poverty profile

To be effective, anti-poverty programs need to be informed by sound understanding of the nature and causes of poverty. This section employs the measurement approach discussed above to update what is known about the poverty profile in the Philippines. Explaining the causes of poverty is beyond the scope of this paper.[11]

4.1 Poverty in 1994 and 1997

Table 1 shows estimates of the three dimensions of poverty – incidence, depth, and severity – for 1994 and 1997. Estimates based on the official poverty lines are also shown for comparison.[12] Note, however, that the interest here is not on the absolute magnitude of poverty for any particular year, but the *change* in poverty depicted by each of the two approaches in measuring poverty. Recall that the approach adopted in this paper, hereafter referred to simply as *preferred approach* (PA), differs from the official one in three respects: (1) it makes use of current consumption expenditure rather than current income as a broad indicator of household/individual welfare; (2) it imposes consistency in the construction of absolute poverty lines; and (3) it does not depend on a food consumption survey – for food menu construction – independent of the household expenditure survey used for identifying household welfare levels.

Both sets of estimates show a reduction in national poverty during 1994-1997, regardless of the particular aspect of poverty depicted. However, the percentage-point reduction portrayed by the PA estimates is higher than that by the official estimates. Thus, the overall reduction in absolute poverty during the growth period of 1994-97 is much higher than that reflected in official estimates. This reduction – approximately two percentage-points per year – is not entirely unexpected considering that real per capita household expenditure grew by an average of seven percent a year during this period. This suggests that, contrary to common claims in policy discussions (presumably aided by officially available poverty statistics), income growth in recent years was a pro-poor growth.[13]

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[11] See Balisacan and Fujisaki [1999] for a recent examination of various themes on the nature and causes of poverty and inequality in the Philippines. See also World Bank [1995, 1998]

[12] The official lines applied for 1997 are, in real terms, the same lines applied for 1994. In this paper, what are referred to as "official estimates" pertain not to officially published estimates but to our own estimates using official methodology, i.e., using official lines as poverty norm and per capita household income as welfare indicator. All poverty estimates reported in this paper pertain to total population.

[13] The same conclusion was arrived at by an earlier paper [Balisacan 2000] in which the poverty lines were also fixed in real terms but the "food menu" was invariant to geographic area.

Table 1
National Poverty Estimates, 1994 and 1997

	Mean Real per capita expenditure		Mean Real per capita income		1994			1997			Pop'n share (1997)	Contribution to Total Poverty		
	1994	1997	1994	1997	Incidence	Depth	Severity	Incidence	Depth	Severity		Incidence	Depth	Severity
National	19,600	23,694	24,016	29,214							100			
Preferred approach					32.1 (0.35)	8.7 (0.13)	3.4 (0.07)	25.0 (0.29)	6.4 (0.10)	2.3 (0.05)		100.0	100.0	100.0
Official approach					40.6 (0.36)	13.5 (0.16)	6.1 (0.10)	37.4 (0.30)	12.5 (0.13)	5.6 (0.08)		100.0	100.0	100.0
Absolute MBN lines & income					25.8 (0.33)	7.2 (0.12)	2.9 (0.06)	22.1 (0.28)	6.0 (0.10)	2.3 (0.05)		100.0	100.0	100.0
Urban	25,093	31,657	31,082	39,994							47.5			
Preferred approach					18.6 (0.37)	4.4 (0.11)	1.5 (0.05)	11.9 (0.26)	2.6 (0.07)	0.9 (0.03)		22.6	19.5	17.6
Official approach					28.0 (0.41)	8.8 (0.17)	3.9 (0.10)	21.9 (0.33)	6.4 (0.12)	2.7 (0.06)		27.8	24.4	22.5
Absolute MBN lines & income					14.0 (0.33)	3.5 (0.11)	1.3 (0.05)	9.4 (0.24)	2.2 (0.07)	0.7 (0.03)		20.2	16.2	17.8
Rural	14,153	16,475	17,010	19,441							52.5			
Preferred approach					45.4 (0.55)	13.0 (0.21)	5.2 (0.12)	36.9 (0.48)	9.8 (0.17)	3.6 (0.08)		77.4	80.5	82.4
Official approach					53.1 (0.54)	18.2 (0.26)	8.3 (0.16)	51.4 (0.48)	18.0 (0.22)	8.3 (0.13)		72.2	75.6	77.5
Absolute MBN lines & income					37.5 (0.54)	10.8 (0.21)	4.4 (0.12)	33.6 (0.47)	9.5 (0.17)	3.8 (0.09)		79.8	83.8	82.2

Note: Figures in parentheses are robust standard errors computed using "svymean" procedure in Stata.
Source: Author's estimates.

What could account for the difference in the two sets of estimates? One wou expect that the choice of expenditure, as opposed to income, as indicator of livir standard would lead to higher poverty estimates since incomes are usually high than expenditures, even at the bottom ranges of the consumption expenditu distribution.[14] On the other hand, the use of absolute poverty lines should yield low poverty estimates since, as shown above, these are generally lower than the offici lines. These expectations are borne out by the estimates in Table 1. Table 2 gives th relative contribution of these two influences to the difference in estimates of poverl change. Clearly, the bulk – from 83 to 87 percent, depending on the aspect of poverl being measured – of the difference in the two estimates come from the difference i the choice of welfare indicator.

Table 2
Sources of the Difference in Estimates of Poverty Change

	Incidence	Depth	Severity
Poverty change			
Official approach	-3.2	-1.0	-0.5
Preferred approach	-7.1	-2.3	-1.1
Difference in poverty change	-3.9	-1.3	-0.6
% contributed by:			
Difference in welfare indicator	87.2	84.6	83.3
Difference in poverty lines	12.8	15.4	16.7

Source: Author's estimates.

Why does the choice of welfare indicator matter so much to poverty change The answer has to do with the contrasting evolution of income and expenditur across the income distribution during the period of interest. As shown in Table 3, fo the bottom 30 percent of the population, the rates of increase in real consumptio expenditure (our indicator of living standard) are about twice higher than those i real income (the official indicator) between 1994 and 1997. Moreover, while th Gini ratio for the two indicators both increased during the period, the percentag increase in the income Gini is slightly higher than that in the consumption Gini.

The contrast in the conclusion drawn from the poverty profile of urban and rura areas is also apparent in Table 1. Official incidence estimates suggest that rura poverty hardly changed between 1994 and 1997, while the PA estimates suggest tha it did – and substantially, from 45 percent to 37 percent. The two other poverty measures suggest the same conclusion. On the other hand, in the case of urban areas the percentage-point reduction in poverty shown by the two estimates is quite similar

[14] For example, based on the 1994 FIES, mean income for the bottom (poorest) 20 percent of the populatio exceeds mean expenditure for the comparable group by about 6 percent

Table 3
Mean Expenditure and Income, by Decile, and Gini Index
(in 1997 pesos, except for Gini index)

Decile	1994	1997	% change
1. By per capita expenditure			
First (poorest)	5,447	6,087	11.7
Second	7,707	8,567	11.2
Third	9,383	10,570	12.7
Fourth	11,118	12,682	14.1
Fifth	13,129	15,044	14.6
Sixth	15,471	17,859	15.4
Seventh	18,528	21,581	16.5
Eighth	22,935	27,102	18.2
Ninth	30,809	36,670	19.0
Tenth (richest)	61,478	80,787	31.4
Gini Index	39.7	42.6	7.3
2. By per capita income			
First (poorest)	5,580	5,952	6.7
Second	8,323	8,873	6.6
Third	10,410	11,287	8.4
Fourth	12,625	13,826	9.5
Fifth	15,139	16,714	10.4
Sixth	18,106	20,411	12.7
Seventh	22,061	25,367	15.0
Eighth	27,921	32,754	17.3
Ninth	38,173	45,970	20.4
Tenth (richest)	81,827	110,939	35.6
Gini Index	43.4	47.7	9.9

Note: Mean expenditure and income are adjusted for provincial cost-of-living indices (see Annex A). The Gini index ranges from 0 (perfect equality) to 100 (perfect inequality).
Source: Author's estimates.

In any case, rural poverty accounts for a significant proportion – about three fourths – of national poverty. Thus, poverty in the Philippines is still a largely rural phenomenon despite rapid urbanization in recent years. This is apparent for poverty measurement approaches that respect the consistency feature of a poverty norm (i.e., that two individuals with the same standard of living are treated the same way regardless of their geographic location), such as the one suggested in this paper.

The rather remarkable performance of rural areas in poverty reduction during the 1994-97 period deserves elaboration. Real mean consumption in rural areas rose by 16 percent during this period. If the growth was distributionally neutral (i.e., the percentage increases in consumption were the same for all population sub-groups), the reduction in poverty incidence would have been 14 percentage points.[15] The actual reduction was 8.5 percentage points, suggesting that inequality in the

[15] Conceptually, a change in poverty measure can be decomposed into growth and redistribution components. The growth component is the change in poverty measure due to a change in mean consumption per capita while holding the consumption distribution constant at some reference level. The redistribution component, on the other hand, is simply the change in consumption distribution while keeping the mean consumption constant at some reference level. On this sort of decomposition, see Datt and Ravallion [1992].

distribution of consumption increased. Indeed, the consumption Gini rose by 1 percentage points, from 33.6 percent in 1994 to 35.2 percent in 1997. We nc however, that the initial Gini for rural areas was lower than that for urban are (39.2 in 1994). The increase in the Gini index during this period was also higher urban areas (3.3 percentage points). Thus, the impact of a given mean consumpti growth on a poverty measure is expected to be greater for rural than for urban are

4.2 Regional and provincial profiles

The official approach to poverty measurement also provides a remarkat different picture of the regional poverty profile from that given by our preferr approach. As shown in Table 4, only in 4 of the 15 regions are the ranks identical f both PA and official estimates of poverty incidence. In some cases, the two approacl provide substantially different poverty ranks. For example, if the regions are arrang in ascending order of poverty incidence, official estimates would show that Centi Visayas is the 5th least poor region, but the PA estimates would indicate that tl region is the 5th poorest in the country. On the other hand, official estimates shc that CAR is ranked 11th (i.e., one of the 5 poorest regions), but the PA estimat indicate that the region is just a step away from being one of the 5 least-poor regior Overall, the rank correlation between the PA estimates and official estimates is 0.(for the incidence index and 0.54 for the depth index.

Rank inconsistency also hounds the provincial profile. This is seen in Table which lists the 10 poorest and the 10 richest provinces based on incidence estimate Only four of the 10 poorest provinces based on PA estimates appear in the list of poorest provinces based on official estimates. The match is significantly better f the other end of the poverty spectrum, i.e., top 10 provinces with lowest pover incidence. Here based on official estimates, only three of the 10 provinc characterized as least poor do not come from the list based on PA estimates.

The above estimates thus show that what is known about the spatial profile poverty is not quite robust. Put differently, given that the policy objective is reductic of absolute poverty, the practice of using official estimates of regional poverty inform policy decisions vis-à-vis geographic allocation of public investments stan on shaky ground.

It is clear that there is a substantial interprovincial variation in poverty incidenc and living standards, defined as mean per capita household expenditure adjusted f provincial cost-of-living differences, exists even within a region. Figure 2 shov that this correlation is quite high: Provinces with high average living standards hav relatively low poverty incidence. Note, however, the substantial variation arour the "average" line, suggesting the importance of factors other than average livir standards in poverty reduction. A strikingly similar picture emerges for the oth two poverty measures (not shown).

Table 4
Regional Profile, 1997

	Incidence			Depth		
	Preferred approach	Official	Reranking*	Preferred approach	Official	Reranking*
Metro Manila	3.5 (0.41)	8.7 (0.57)	0	0.6 (0.09)	1.7 (0.15)	0
Ilocos	20.8 (0.13)	44.3 (1.42)	2	4 (0.33)	15 (0.65)	3
Cagayan	30.1 (0.15)	37.9 (1.53)	-5	7.5 (0.48)	10.8 (0.58)	-4
Central Luzon	13.2 (0.79)	19.4 (0.87)	0	2.5 (0.19)	4.8 (0.27)	0
Southern Luzon	19.6 (0.77)	30.2 (0.84)	0	4.5 (0.22)	9.2 (0.33)	-2
Bicol	45.6 (1.35)	57.8 (1.28)	1	12.6 (0.52)	20.4 (0.63)	0
Western Visayas	21.8 (1.0)	47.8 (1.12)	4	4.7 (0.29)	16.1 (0.53)	3
Central Visayas	35.2 (1.28)	39.1 (1.28)	-6	10.3 (0.50)	13.2 (0.58)	-7
Eastern Visayas	50.6 (1.38)	45.4 (1.39)	-5	16 (0.61)	15.8 (0.64)	-5
Western Mindanao	35.2 (1.52)	48.7 (1.52)	-4	8.2 (0.51)	16.6 (0.73)	-3
Northern Mindanao	29.9 (1.05)	54.7 (1.06)	4	7.6 (0.35)	20.8 (0.55)	5
Southern Mindanao	27.8 (1.22)	44.6 (1.26)	0	7.1 (0.41)	16 (0.60)	1
Central Mindanao	33.1 (1.49)	55.9 (1.46)	3	9.2 (0.55)	22.5 (0.80)	4
CAR	22.1 (1.36)	49.7 (1.49)	5	4.4 (0.37)	19.1 (0.74)	7
ARMM	50.5 (1.29)	63.1 (1.23)	1	15.1 (0.51)	19.6 (0.53)	-2

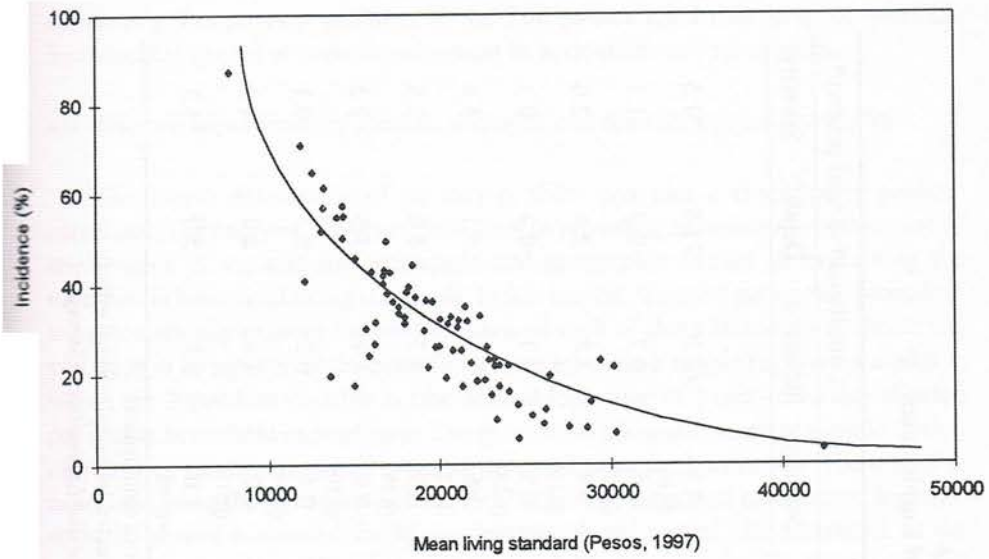
Official rank less preffered approach rank, where rank is from 1(least poor region) to 15 (poorest region).
ote: Values in parentheses are robust standard errors computed using "svymean" procedure in STATA.

Table 5
Provinces with Highest and Lowest Poverty Incidence

Preferred Approach	Rank	Official Approach	Rank in Preferred Approach
A. 10 provinces with highest incidence (ascending order)			
Sorsogon	*69*	*Mt. Province*	*42*
Tawi-Tawi	70	North Cotabato	63
N. Samar	71	Lanao del Sur	61
W. Samar	72	E. Samar	77 *
Biliran	73	Agusan del Sur	54
Siquijor	74	Ifugao	41
Romblon	75	Abra	25
Masbate	76	Sulu	78 *
E. Samar	77	Masbate	76 *
Sulu	78	Romblon	75 *
B. 10 provinces with lowest incidence (ascending order)			
Metro Manila	1	Metro Manila	1 *
Pampanga	2	Cavite	6 *
Bataan	3	Batanes	24
Laguna	4	Rizal	9 *
Ilocos Norte	5	Bulacan	7 *
Cavite	6	Pampanga	2 *
Bulacan	7	Bataan	3 *
Nueva Viscaya	8	Laguna	4 *
Rizal	9	Batangas	15
Ilocos Sur	10	Zambales	11

*Also included in the 10-province Preferred Approach list.
Source: Author's estimates based on the *1997 Family Income and Expenditures Survey.*

Figure 2
Mean Living Standard vs.Poverty Incidence



4.3 Sectoral and worker class profiles

Households whose heads derive their main source of incomes from agriculture represent about 40 percent of the total population (Table 6). However, this group accounts for almost two-thirds of the country's total number of the poor, simply because poverty incidence is much higher in agriculture than in any other sector of the economy. Agriculture's contribution to total poverty is even higher – about three-fourths – when the severity of poverty in agriculture is taken account of relative to most sectors of the economy. Only mining comes close to agriculture with respect to poverty severity, but this sector accounts for only a small fraction of the total population.

Note that agriculture's contribution to total poverty almost parallels that of the rural sector as a whole (see Table 1). This is not surprising; in rural areas, the agricultural population accounts for 63 percent of the total population. Also, 15 percent of agriculture-dependent households are located in urban areas. In the Philippines, the classification of a geographic area as either "urban" or "rural" has to do more with population density than with economic structure and income normally associated with urban development in more advanced countries [Balisacan 1994b].

The poorest among the poor are the landless and those dependent mainly on wage incomes [see, e.g., Hayami et al. 1990]. Surprisingly, Table 7 shows that the depth and severity of poverty among the self-employed are at least as high as wage-earning 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.

Table 6
Poverty by Sector of Employment

	Population Share	Poverty			Contribution to total poverty*		
		Incidence	Depth	Severity	Incidence	Depth	Severity
Employed HH head							
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
*Unemployed HH head**	12.7	12.1 (0.61)	2.9 (0.18)	1.0 (0.08)	6.1	5.9	5.3

*Includes those who were employed but did not report sector of employment.
Note: Figures in parentheses are robust standard errors (corrected for sample design effect).
Source: Author's estimates based on the *1997 Family Income and Expenditures Survey*.

The above observation suggests that poverty in the country remains not only a rural phenomenon but is also largely agriculture-driven. Any serious effort aimed at addressing the poverty problem in the Philippines must thus grapple with the fundamental causes of underdevelopment in agriculture and rural areas.

4.4 Relative importance of spatial, sectoral, and household characteristics

The above description of poverty profiles provides a snapshot of poverty correlates. The analysis, however, falls short of providing an indication of the *relative importance* of various socioeconomic and geographic factors in explaining the variation in household living standards. In this section, we use a parametric procedure to systematically explore the contributions of each of these factors to the observed variation in living standards. Specifically, we estimate a simple regression model in which the dependent variable is (the natural logarithm of) cost-of-living-adjusted per capita household expenditure. The estimation takes into account sample design effects, i.e., stratification and weights assigned to each observation. The model is estimated using the full sample of the 1997 FIES. The estimated parameters, together with the shares accounted for by the household and spatial characteristics in the total variance explained by the regression model, are summarized in the second and fourth columns of Table 8.[16]

Strictly speaking, one can interpret the estimates in Table 8 as explaining only 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. Despite this limitation, these estimates can reasonably be taken as providing the order of magnitude of the importance of employment and human capital in explaining differences in household welfare.

In general, the regression results shown in Table 8 confirm the observations made above and elsewhere [e.g. Balisacan 1994b, 1997] concerning spatial and household correlates of poverty. 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. And so does the proportion of children in household, all other things remaining the same. However, household size positively affects welfare if household members are employed. Together, household composition and the household head's characteristics, most especially educational attainment, explain roughly three-fourths of the variance explained by the model.

[16] An alternative estimation in which the weights for the primary sampling units are not specified gives generally the same order of magnitude for the variable coefficients, except that their t-ratios are generally higher than those in the weighted specification shown in Table 8.

Location and economic sector characteristics account for another one-fourth of variance explained by the model. Households located in urban areas tend to have higher welfare levels than those in rural areas. Households in regions other than Metro Manila have lower welfare levels than those in the capital region, all else remaining the same. Employment in agriculture is negatively associated with household welfare. This factor in fact contributes the bulk – about 80 percent – of the variance explained by the employment variables.

Table 7
Poverty by Class of Worker

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

Note: Figures in parentheses are standard errors corrected for sample design effect.
Source: Author's estimates based on the *1997 Family Income and Expenditures Survey*.

Table 8
Relative contribution of spatial and household characteristics to variance of living standards

	1997 FIES			1998 APIS		
ible	Regression Coefficient	t-stat	Contribution to variance explained	Regression Coefficient	t-stat	Contribution to variance explained
tant	9.918	250.30		8.675	176.94	
ehold head			*40.9*			*49.1*
	0.011	7.87	4.2	0.028	13.77	10.4
SQ	0.000	-6.31	-3.4	0.000	-9.22	-7.2
E	-0.057	-4.39	0.8	-0.046	-2.96	0.7
RIED	0.085	7.01	-1.0	0.035	2.34	-0.4
M	0.160	21.13	-3.5	0.190	20.48	-4.1
ESCH	0.427	47.32	10.1	0.483	43.53	10.3
LEGE	1.025	64.29	33.7	1.134	67.38	39.4
ehold composition			*29.8*			*21.8*
E	-0.068	-39.83	13.2	-0.109	-58.94	21.8
ATIO	-0.538	-30.27	12.7			
RATIO	0.248	14.00	3.9			
mic sector			*11.9*			*13.0*
	-0.196	-15.38	9.6	-0.201	-16.08	9.3
NG	-0.103	-2.99	0.0	0.091	2.08	0.0
	0.230	6.05	0.3	0.284	6.49	0.3
ST	-0.137	-8.84	0.5	-0.129	-8.27	0.5
DE	0.029	1.99	0.2	0.058	3.70	0.4
NSP	-0.029	-2.02	-0.1	-0.004	-0.25	0.0
ANCE	0.127	3.82	0.6	0.181	5.65	0.8
VICES	0.018	1.26	0.3	0.078	5.54	1.5
EMP	0.038	2.48	0.5	0.039	1.53	0.2
ation			*17.4*			*16.1*
BAN	0.162	23.20	7.2	0.196	22.44	8.2
	-0.159	-9.84	-0.3	-0.117	-5.40	-0.2
	-0.279	-16.29	0.4	-0.158	-7.31	0.0
	-0.173	-13.13	-0.6	-0.206	-12.71	-0.2
	-0.203	-16.11	-0.9	-0.143	-9.42	-0.9
	-0.409	-26.19	2.2	-0.345	-18.18	1.3
	-0.155	-10.86	-0.2	-0.178	-10.15	-0.2
	-0.362	-22.47	1.0	-0.360	-18.49	1.3
	-0.467	-28.45	3.2	-0.409	-19.81	2.1
	-0.238	-13.79	0.5	-0.267	-12.55	0.7
	-0.179	-10.50	0.1	-0.241	-11.75	0.4
	-0.205	-12.89	0.0	-0.210	-10.68	0.0
	-0.272	-15.91	0.4	-0.222	-11.06	0.2
	-0.119	-7.15	-0.2	-0.030	-1.34	-0.1
MM	-0.408	-25.33	3.8	-0.309	-15.29	2.4
AGA	-0.307	-17.51	0.7	-0.357	-16.53	1.0
ple size	39,520			38,710		
red	0.534			0.458		

: Dependent variable is natural logarithm of (cost-of-living-adjusted) per capita household expenditure. See Annex Table 1 for ion of variables. The model estimation takes into account sample design effects (i.e., stratification and weights assigned to servation).

As noted earlier, the household expenditure data in the 1998 APIS are not dire comparable with those in the 1997 FIES owing to differences in reference periods survey details. However, the APIS consumption data may still be useful for a parame investigation of the *relative* importance of certain location and household characteris in explaining the variation in household welfare. The last three columns of Tab summarize the results of such investigation. As in the FIES regression, the exercise u the full sample of the 1998 APIS. In doing the regression, it is assumed that measurement errors in the dependent variable – per capita household expenditure adju for provincial cost-of-living differences – are not systematically related with any of explanatory variables. Both dependent and explanatory variables come from the sa survey.

The regression results for the APIS data set have some common elements with th for the FIES, although the two data sets are not strictly comparable. Househ composition and characteristics pertaining to the household head, for example, acco for roughly three-fourths of the total variance explained by the regression mode Location characteristics contribute another 16 percent. As in the FIES regressi educational attainment is the single most important explanatory variable, contribut about one half of the variance explained by the regression model.

5. Poverty profile in the wake of the Asian economic crisis: nationwide panel data

The 1998 APIS includes two questions pertaining to the crisis. The first quest inquires whether or not the household was affected by price increases, loss of jo reduced wages and the El Niño phenomenon. The second question inquires about t response of households and pertains only to those households affected by the cris Responses to the two questions could yield useful information on the differential welfa impact of, and household responses to, the crisis. Is there a systematic link betwee household response to a macroeconomic shock and certain socioeconomic characteristi including initial household living standard?

In addressing this issue, we exploit the panel feature of the 1997 FIES and the 19 APIS. As noted in Section 2 above, both surveys have a sample overlap of about percent, i.e., over one half of the sample households interviewed for both surveys c be formed into panel or longitudinal data.[18] In Tables 9 and 10, households respondi to the APIS crisis questions are linked with their relative position in the expenditu distribution prior to the crisis (i.e., using the panel portion of the 1997 FIES).

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[17] Only family size could be included for family composition. At the time of this writing, it has not l possible to extract CHRATIO and EMPRATIO from the APIS data made available to the author. He caution should be exercised in interpreting the relative magnitude of each variable's contribution to the vari explained, as well as in comparing the regression estimates from the two survey data.

[18] The construction of the panel data has benefited from an earlier paper (Balisacan and Edillon [1999] which examines unemployment spells during a macroeconomic shock.

Table 9
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

Source: Panel data (23, 150 households) constructed from the *1997 Family Income and Expenditure Survey* and the *1998 Annual Poverty Indicator Survey*.

Table 10
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

Source: Panel data (23, 150 households) constructed from the *1997 Family Income and Expenditures Survey* and the *1998 Annual Poverty Indicator Survey*.

The number of households affected by price increases and the El Niño phenomer seems to vary with the relative location of households in the expenditure distributi There were more households coming from poorer households who were affected by pr increases. Loss of jobs within the country, as well as reduction in wages, seems to ha affected more of the middle deciles, while loss of jobs overseas affected more of the up expenditure deciles.

Most households responded to the crisis by changing their eating patterns. Howev the proportion decreases as one considers households from the upper expenditure decil Increasing work hours also seems to be a major response, especially for households in t lower deciles. A disturbing trend is the greater proportion of households coming from t poorest decile who took their children out of school.

The proportion of households who received assistance from relatives and friends w more than the proportion of those who received assistance from the government. Interesting for private income transfers, responses across expenditure deciles exhibit little variatio suggesting that recipients of such transfers do not have to be the poorest groups in socie

The above results suggest a possible link between a household's pre-crisis livi standard and its response to a macroeconomic shock. More generally, one could ask: there a systematic link between the household's socioeconomic characteristics, includi pre-crisis living standards, and its response to an economic shock? Put differently, wh are the household attributes and economic conditions that make some households mo vulnerable than others to economic shocks?

In formally examining this issue, we employ a Probit regression technique on t panel data, regressing the qualitative responses to the crisis-related APIS questions wi household attributes, including location and living-standard variables, observed in the 199 FIES.[19] The regression results are summarized in Table 11. Variable definitions are given i Appendix Table 1.

The probability of households changing their eating patterns, taking children out c school, and increasing working hours is inversely related with pre-crisis living standard. thus appears that a macroeconomic shock, such as the Asian crisis, tends to systematicall hit hardest the poorest groups in society. On the other hand, the probability of receivin assistance/relief from the public sector, as well as other households, is not significantl related with pre-crisis living standard. This suggests that, during an economy-wide crisis social safety nets, whether from formal or informal sources, do not have a pro-poor bias.[2] It is, of course, possible that the amount of income transfers received by the poor is highe (in absolute terms or as a proportion of their pre-transfer incomes) than that received b the non-poor. Unfortunately, the data do not contain information on the type and amount o income transfer received from either the public or the private sector.

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[19] The regression model is estimated using the "svyprobt" procedure in Stata. In contrast to the standar Probit regression, this procedure takes into account sample design effect, i.e., stratification and weight assigned to each observation.

[20] When the model is estimated using the standard Probit procedure (i.e., not allowing for sample desig effects), the opposite result is obtained, i.e., the probability of income transfers is negatively related wit pre-crisis living standard.

Table 11
Socioeconomic Determinants of Household Responses to Shocks
(Weighted Probit Regression Estimates based on Panel Data)

Variable	Changed Eating Pattern		Took Children Out of School		Migrated to Another Place		Received Assistance From Other HH		Received Assistance From Government		Increased Working Hours	
	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio
Intercept	1.144	4.4	-1.713	-5.0	-2.974	-8.6	-0.538	-1.8	-1.202	-3.6	-0.043	-0.2
Household attributes												
AGE	0.014	2.9	0.045	6.2	0.022	3.2	0.002	0.4	-0.004	-0.6	-0.002	-0.4
AGESQ	0.000	-3.1	0.000	-6.2	0.000	-2.5	0.000	0.7	0.000	0.9	0.000	-0.6
MALE	0.054	1.2	-0.091	-1.4	-0.201	-3.2	-0.142	-2.9	-0.065	-1.1	0.140	3.0
MARRIED	0.052	0.8	0.128	1.4	0.110	1.2	0.079	1.1	0.086	1.0	0.055	0.8
WIDOW	0.096	1.4	0.077	0.8	-0.096	-1.0	0.016	0.2	0.017	0.2	0.119	1.6
SPOUSEWK	-0.025	-1.0	0.005	0.1	-0.045	-1.3	-0.026	-0.9	0.038	1.2	0.016	0.6
ELEM	-0.065	-2.4	-0.081	-2.4	-0.015	-0.4	-0.022	-0.7	-0.062	-1.8	-0.025	-0.9
HIGHSCH	-0.151	-4.9	-0.137	-3.5	-0.042	-1.0	-0.039	-1.1	-0.083	-2.0	-0.065	-2.0
COLLEGE	-0.146	-3.1	0.019	0.3	0.153	2.6	0.074	1.4	0.107	1.8	0.035	0.7
FSIZE	0.011	2.0	0.057	8.2	0.015	2.0	-0.029	-4.5	-0.015	-1.9	0.015	2.6
CHRATIO	0.154	2.5	-0.374	-4.6	-0.049	-0.6	0.085	1.2	0.156	1.9	0.063	1.0
EMPRATIO	0.063	1.0	0.002	0.0	0.040	0.5	-0.207	-3.0	0.070	0.9	0.169	2.6
OWNNO	-0.119	-2.0	-0.122	-1.6	-0.023	-0.3	-0.081	-1.2	0.076	1.0	0.199	3.3
OWNWT	-0.193	-2.6	-0.078	-0.8	-0.092	-1.0	-0.078	-1.0	0.003	0.0	0.099	1.3
WAGEG	-0.080	-1.2	-0.099	-1.1	-0.121	-1.4	-0.117	-1.5	0.186	2.1	-0.019	-0.3
WAGEP	0.013	0.2	-0.059	-0.8	-0.056	-0.7	-0.056	-0.9	0.051	0.7	0.056	0.9
Pre-crisis living standard												
LNPCEX	-0.161	-7.8	-0.056	-2.1	0.111	4.1	-0.024	-1.0	0.008	0.3	-0.066	-3.1
Economic sector												
AGRI	-0.026	-0.6	-0.061	-1.0	-0.082	-1.3	0.128	2.5	-0.028	-0.5	-0.067	-1.4
CONST	0.040	0.8	0.042	0.6	-0.009	-0.1	0.158	2.7	-0.061	-0.9	-0.003	-0.1
MINING	-0.019	-0.1	-0.100	-0.6	-0.596	-2.8	-0.481	-2.6	0.325	2.0	0.142	1.1
UTILITY	0.042	0.3	0.169	1.1	-0.092	-0.6	0.007	0.1	0.038	0.2	-0.083	-0.7
TRADE	-0.021	-0.4	-0.062	-0.9	-0.076	-1.1	0.080	1.4	-0.095	-1.4	-0.078	-1.5

Table 11 (Continued)

Variable	Changed Eating Pattern		Took Children Out of School		Migrated to Another Place		Received Assistance From Other HH		Received Assistance From Government		Increased Working Hours	
	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio
TRANSP	-0.025	-0.5	0.061	0.9	0.056	0.8	0.144	2.5	-0.012	-0.2	0.10	2.1
FINANCE	-0.042	-0.5	0.029	0.3	-0.007	-0.1	0.021	0.2	-0.070	-0.7	-0.05	-0.6
SERVICES	0.016	0.3	-0.011	-0.2	0.027	0.4	0.119	2.0	-0.091	-1.4	-0.05	-0.9
UNEMP	-0.024	-0.3	-0.034	-0.4	-0.017	-0.2	0.083	1.0	0.092	1.0	-0.07	-0.9
Location												
URBAN	0.091	3.9	0.041	1.4	0.009	0.3	0.118	4.6	-0.012	-0.4	-0.06	-2.7
REG1	-0.286	-5.5	-0.521	-6.4	-0.343	-4.3	-0.038	-0.7	-0.307	-4.2	-0.15	-2.8
REG2	-0.550	-9.3	-0.236	-3.1	-0.190	-2.4	-0.367	-5.4	-0.534	-6.4	-0.01	-0.3
REG3	0.256	5.8	-0.063	-1.2	0.060	1.1	0.061	1.3	-0.202	-3.6	0.14	3.1
REG4	0.204	5.0	-0.032	-0.6	-0.006	-0.1	-0.026	-0.6	-0.150	-2.8	0.13	3.1
REG5	-0.093	-1.8	0.057	0.9	0.226	3.4	0.056	1.0	-0.040	-0.6	0.24	4.7
REG6	0.220	4.7	0.044	0.7	0.250	4.1	0.131	2.6	-0.029	-0.5	0.13	2.8
REG7	-0.278	-5.5	-0.008	-0.1	0.261	4.0	-0.179	-3.1	-0.151	-2.2	-0.09	-1.7
REG8	0.230	4.2	-0.074	-1.0	0.195	2.8	-0.193	-3.1	-0.428	-5.4	-0.05	-1.0
REG9	0.099	1.7	0.422	6.5	0.722	10.9	0.355	5.8	0.437	6.6	0.40	6.8
REG10	0.178	3.4	-0.261	-3.7	-0.145	-1.9	-0.286	-4.4	0.096	1.4	-0.05	-1.0
REG11	0.321	6.1	0.094	1.5	-0.095	-1.3	-0.166	-2.8	0.734	12.4	0.07	1.4
REG12	0.055	1.0	0.018	0.3	-0.164	-2.0	0.084	1.3	0.742	11.3	0.00	0.1
CAR	-0.711	-11.7	-0.023	-0.3	0.076	1.0	-0.019	-0.3	-0.058	-0.8	0.25	4.2
ARMM	-0.164	-2.9	-0.207	-2.7	-0.173	-2.0	-0.236	-3.5	-0.150	-2.0	0.18	3.1
CARAGA	0.021	0.4	-0.202	-2.6	0.328	4.4	-0.272	-3.9	-0.277	-3.4	-0.01	-0.3
F-stat	26.02		10.91		12.13		9.71		20.84		12.51	

Note: The regression model is estimated using the "svyprobt" procedure in Stata, which takes into account sample design effects (i.e., stratification and weights assigned to each observation). Dependent variables are crisis responses based on the 1998 APIS, while values of regressors are based on the 1997 FIES. See Annex Table 1 for variable definitions.

Migration as a household response to the crisis is positively related with pre-crisis living standard. This may suggest that there are fixed costs of migration and that, for the poor, financing this cost through credit channels during a crisis could be extremely difficult.

As shown earlier, some households, especially the poor ones, responded to the crisis by taking their children out of school. The response is not significantly related with the economic sector upon which the household head mainly depends for income. But it is with the geographic location of the household. The probability of child withdrawal is, for example, lower for households in Regions 1 (Ilocos), 2 (Cagayan Valley), 10 (Northern Mindanao), ARMM, and CARAGA than for those in Metro Manila (the control variable).

Compared to a rural household, an urban household has higher probability of receiving assistance from other households. However, this is not the case for government assistance: pro-urban bias during a crisis is not evident. The bias is more evident between regions. But, again, it bears noting that the data do not show the total amount of such transfers and, therefore, it is not possible to determine precisely their geographic effects on living standard.

6. Concluding remarks

If the main objective of poverty measurement is to inform policy choices for reducing absolute poverty across space and over time, then the current official practice of poverty comparison falls short of adequately informing those choices. This paper has shown that what is known, based on official poverty data, about spatial poverty profiles (regional, provincial, or rural vs. urban), as well as poverty changes in recent years, is not quite robust. This result is rather disturbing since it is these profiles that often inform policy discussions, including proposals for engendering "growth with equity," fostering "adjustment with human face," and "empowering the poor." The main problem is that the official practice is somewhat inconsistent – in the sense that poverty norms applied for various subgroups/areas are not fixed in terms of a given living standard.

The paper has proposed an alternative, albeit practical, approach to measuring poverty for spatial/subgroup comparison, as well as for performance monitoring in the war against absolute poverty. The approach differs from the official practice in the following respects: (1) it makes use of current consumption expenditure rather than current income as broad indicator of household/individual welfare; (2) it imposes spatial consistency in the construction of absolute poverty lines; and (3) it does not depend on a food consumption survey – for the construction of food menus – independent of the household expenditure survey used for identifying household welfare levels. Apart from new poverty profiles, the paper has generated provincial cost-of-living indices that could prove useful for spatial comparison of average living standards.

Salient results from the updated poverty comparison are the following:

- Contrary to common claim in policy discussions (presumably aided by officially available poverty data), income growth between 1994 and 1997 was a pro-poor growth.
- Rural poverty responded strongly to the overall income growth – also contrary to common claim that income growth in rural areas did not benefit the rural poor.
- Poverty in the Philippines is still a largely rural phenomenon despite rapid urbanization in recent years. The rural poor account for about 80 percent of the poor. Other poverty measures indicate the same order of magnitude.
- While the poverty status of a province is inversely related with mean living standard, the variation in poverty across provinces, even for those with more or less the same living standards, is quite substantial, suggesting the importance of factors other than mean living standards in poverty reduction.
- Poverty in the country is still largely agriculture-driven. While agriculture-dependent households represent now only 40 percent of total population, the sector accounts for over two-thirds of the poor, simply because poverty incidence (as well as depth and severity) is higher in agriculture than in any other sector of the economy.
- 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.

How did living standards and poverty evolve in the wake of the Asian economic crisis? There were household income and expenditure surveys covering the period (i.e., 1997 FIES and 1998 APIS), but, as explained above, neither the income nor the expenditure data in these surveys are comparable. Fortunately, the two surveys have a substantial sample overlap, i.e., households interviewed for both surveys can be formed into panel or longitudinal data. This paper has exploited this feature of the two data sets to examine the influence of pre-crisis living standards and certain household characteristics on the impact of, and household responses to, the crisis, as subjectively reported by survey respondents (in the 1998 APIS).

One key finding is that households reporting to have experienced the adverse effects of the crisis (increased prices, reduced earnings), as well as the El Niño phenomenon (at least for some regions), have come disproportionately from the poorer households. Loss of domestic jobs has affected more of the middle deciles of the expenditure distribution, while loss of overseas jobs has affected more of the upper expenditure deciles.

Households have responded differently to the crisis and the El Niño phenomenon, depending on their household attributes, most importantly pre-crisis living standards, and location. 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. It thus appears that a macroeconomic shock, such as the Asian crisis, tends to systematically hit hardest the poorest groups in society. 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 an economy-wide crisis, social safety nets, whether from formal or informal sources, do 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 transfer received from either the public or the private sector.

For a public policy aimed at providing safety nets to the poorest groups during a macroeconomic crisis to succeed, it must be informed by a clear understanding of the sources of household vulnerability to shocks, the channels through which a crisis affects the economic well-being of various population groups, and their responses to the shock. The above results contribute to building that information, although they need to be verified and further examined for robustness.

An additional note on the government's poverty monitoring and indicator system is in order. At present, the system falls short of enabling decision-makers to assess program performance as well as sharpen the focus of efforts toward the attainment of poverty alleviation objective. As discussed above, the official approach to poverty measurement is not suitable for either national poverty monitoring or assessing comparative performance across regions, provinces, or areas of the country, even more so if the policy objective is to reduce absolute poverty. The approach proposed in this paper is a modest step to improve the system.

Appendix A

Construction of poverty lines and cost-of-living indices for spatial comparison of absolute poverty

This Appendix outlines a simple, nonparametric approach to 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 living standard. 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 the medium term (say, 5-10 years). 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.[21]

The approach involves (1) setting a bundle of food in each province which is the average consumption of a reference group fixed *nationally* in terms of their expenditure, (2) adjusting this bundle to satisfy the minimum nutritional requirement of 2,000 calories per person per day, (3) valuing the adjusted bundle at consumer prices prevailing in each province, and (4) 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.

A.1 Food thresholds

As in the official approach, the estimation of poverty lines proposed in this study starts with specification of food bundle for each province, which would generate the nutritional norm for good health?[22] The differences in food bundle reflect substitution effects arising from differences in relative prices, not differences in real incomes.[23] 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

[21] The approach closely resembles that suggested by Ravallion [1994, Appendix 1; 1998].

[22] See Section 2 for a discussion of the official approach.

[23] 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 model.

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.

The main source of data for fixing the reference group is the *1997 Family Income and Expenditure Survey* (FIES) of the National Statistics Office (NSO). 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.

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.[24]

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.

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.

A.2 Nonfood component

The official approach to estimating the nonfood 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

[24] These are the same prices used in the computation of the current CPI series.

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.

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. However, in the present context, the issue is whether the procedure to construct poverty lines used for spatial or subgroup comparison is consistent with the policy objective. The rest of this annex implements a procedure – first proposed by Ravallion [1998] – that respects the demand of consistency for spatial comparison.

The 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.

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 above procedure of estimating poverty lines gives what Ravallion [1998] refers to as lower-bound line. One may also set – though not pursued in this paper – an upper bound by also appealing to the same notion of needs hierarchy 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: (1) spending on food exceeds survival needs, and (2) 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.

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.

A.3 Real expenditures and cost-of-living indices

Poverty measurement requires combining poverty lines with information on consumption expenditures. If individual data on money incomes are given, the straightforward way to do this is to simply 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.

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 paper as "living standard"). Thus, a person is deemed poor if that person's real expenditure is less than the base (reference) poverty line.

For brevity, the resulting food thresholds, non-food thresholds, poverty lines, cost-of-living indices (with Metro Manila as the base) and living-standard averages for provinces and regions are not reported here but are available from the author upon request. For use in future comparative work on household welfare, Appendix Table 2 incorporates price increases over time to the regional cost-of-living indices. This was done by applying the official CPI to the regional cost-of-living index. The resulting indices for 1985-1998 indicate substantial regional variation in any given year, as well as marked regional differences in rates of price increases during the period.

Appendix Table 1
Variable Definitions

Notation	Variable Description
Household attributes	
AGE	Age of household head
AGESQ	AGE squared
MALE	Dummy, household head is male
MARRIED	Dummy, household head is married
WIDOW	Dummy, household head is widow
SPOUSEWK	Dummy, household head's spouse works
COLLEGE	Dummy, household head is at least a college graduate
HIGHSCH	Dummy, household head is at least high school graduate but did not complete college
ELEM	Dummy, HH is at least elementary graduate but did not complete high school
OWNNO	Dummy, HH is own account worker with no employees
OWNWT	Dummy, HH is own account worker with employees
WAGEG	Dummy, HH is wage/salary worker in government
WAGEP	Dummy, HH is wage/salary worker in private establishment
FSIZE	Family size
CHRATIO	Ratio of dependent (below 15 years old) to total number of children
EMPRATIO	Ratio of employed to total HH members
Location	
REG1	Ilocos Region dummy
REG2	Cagayan Valley dummy
REG3	Central Luzon dummy
REG4	Southern Tagalog dummy
REG5	Bicol dummy
REG6	Western Visayas dummy
REG7	Central Visayas dummy
REG8	Eastern Visayas dummy
REG9	Western Mindanao dummy
REG10	Northern Mindanao dummy
REG11	Southern Mindanao dummy
REG12	Central Mindanao dummy
ARMM	ARMM dummy
CAR	CAR dummy
CARAGA	CARAGA dummy
URBAN	Dummy, HH lives in an urban area
Economic Sector	
AGRI	Agriculture, Fishery, and Forestry dummy
CONST	Construction dummy
FINANCE	Finance and Banking dummy
MINING	Mining and Quarrying dummy
TRADE	Trade dummy
TRANSP	Transportation and Communication dummy
UTILITY	Electricity, Gas, and Water dummy
Pre-crisis living standard	
LNPCEX	Log of cost-of-living-adjusted per capita expenditure

Appendix Table 2
Regional Cost-of-Living Indices
(NCR 1997 = 100)

	1985 classification of provinces						1997 classification of provinces	
ion	1985	1988	1991	1994	1997	1998	1997	1998
R	30.5	38.1	58.5	79.9	100.0	110.2	100.0	110.2
ocos	27.2	30.5	45.5	58.8	72.8	80.3	71.5	78.9
agayan Valley	30.4	32.7	48.3	61.0	76.0	83.1	78.6	86.0
ntral Luzon	32.6	38.3	57.5	71.7	89.3	98.4	89.3	98.4
uthern Luzon	33.4	36.8	56.4	70.2	87.4	96.0	87.4	96.0
col	27.7	31.3	48.4	60.3	78.1	85.1	78.1	85.1
estern Visayas	26.5	29.9	46.9	57.8	70.0	75.4	70.0	75.4
ntral Visayas	24.4	27.3	44.8	55.6	69.9	77.3	69.9	77.3
stern Visayas	26.8	29.6	44.1	56.2	71.6	77.5	71.6	77.5
estern Mindanao	29.6	32.9	50.3	62.7	79.0	86.8	68.7	75.4
orthern Mindanao	24.8	26.8	39.0	49.2	61.5	67.8	59.5	65.7
outhern Mindanao	28.8	31.3	43.2	53.7	66.8	73.0	66.9	73.2
entral Mindanao	25.1	28.3	43.4	54.1	66.0	72.1	66.6	72.7
R							72.3	77.8
M							85.0	93.7
RAGA							65.2	71.0

ce: Author's estimates.

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