# Poverty Comparison in the Philippines:

## Is What We Know about the Poor Robust?

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## I. 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, how they respond to programs and projects intended for them, etc. 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 a given poverty reduction by focusing poverty alleviation efforts to 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 requires not only good data but also analytically sound procedures for measuring poverty. Perhaps the most controversial aspect of poverty measurement is the construction of poverty standard that 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 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 1999b). 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.

This paper has two main objectives. The first is to reexamine the official approach to measuring poverty in light of measurement theory and practice in household welfare comparison, especially in relation to the construction of poverty norms for poverty comparison. The second is to reconstruct poverty profiles, both spatial and intertemporal, in the Philippines in an effort to improve understanding of recent development experience vis-à-vis economic growth and poverty reduction. The reconstruction involves developing an alternative approach to poverty measurement, one that addresses the inconsistency in official poverty comparison and, hence, the inadequacy of the current approach for monitoring performance in the reduction of absolute poverty.

The rest of the paper is organized as follows. Section II discusses measurement issues relevant to poverty comparison in the Philippines. Section III then describes certain poverty profiles to highlight the difference that measurement approach makes on what is known about poverty in the Philippines, especially in relation to economic growth and poverty. Finally, the fourth section gives concluding remarks.

## II. Poverty Measurement

Partly reflecting what we know—wrongly or rightly—about inequality and poverty profiles in the Philippines are long-held measurement practices and data considerations. 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 human face," and "empowering the poor." This section briefly discusses two measurement issues: (i) choice of a broad indicator of economic well-being and (ii) construction of poverty standards, which have important implications for inequality and poverty comparisons, as well as for policy design, in the Philippines.[1]

### A. Choosing a Welfare Indicator

Identification of the poor requires the use of a broad indicator of a household's standard of living. In determining the magnitude of poverty and inequality in the Philippines, the government uses current household incomes generated from nationally representative household surveys. 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. 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. This does not, of course, suggest that consumption does not vary over time. It does, and the change over the life cycle is sometimes large. This is especially true among the poor who do not have access to capital markets (or to interhousehold transfers) and whose current consumption is

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 and related issues in the Philippine context, see Balisacan (1999a, 1999b).

2. Cox and Jimenez (1995) found evidence of substantial interhousehold income transfers, typically from the relatively rich households to poor households, in the Philippines.

constrained by current instead of life-cycle income. But even in this case, current consumption is as good an approximation of life-cycle income as current income.

An even stronger case for preferring consumption over income as a broad indicator of welfare rests on practicality and data. Acquiring accurate information proves to be more difficult for income than for consumption (Deaton 1997, 148-9; Ravallion and Chen 1997). For example, multiple visits and recall are required in obtaining information on household's annual income, 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 (Krugman et al. 1992, Manasan 1988). Owing partly to cost considerations, the survey instrument used by statistical agencies to acquire information on households is often short of details needed to accurately estimate "net income" from own-production activities, especially farming. In short, measurement errors could be expected to be greater for income than for consumption.

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

A desirable feature of the chosen indicator of living standards is its ability 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. 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. While several procedures have been suggested in the literature to estimate so-called equivalence scales to account for household heterogeneity (see, e.g., Buhmann et al. 1988; Deaton 1997, 241-69), still no preferred estimation procedure stands out. Thus, for our purposes, we stick to the common practice of adjusting the chosen household welfare indicator only for household size, i.e., use per capita expenditure in our welfare comparison.[3] 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.

3. Kakwani (1986) argues that, for most practical purposes, this is a valid assumption.

### B. Setting Poverty Lines

When the objective of a 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 to constructing poverty lines starts with the construction of representative food menus for urban and rural areas in 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. The menus for 1985 were based on FNRI's 1982 Food Consumption Survey, while those for 1988 were 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*.[4] The Family Income and Expenditures Survey (FIES) is then utilized to determine the average expenditure share of households whose incomes fall within a 10 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.[5] The shift is invariably associated with improvement in 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

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

5. 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).

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 improvement 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 cannot therefore be 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 inform progress in the reduction of absolute poverty. Its implementation requires (i) setting a bundle of food in each province that 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 nonfood 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 predetermined 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. Details of the approach and its implementation, as well as poverty line estimates for the country's 78 provinces are given in Annex 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 socioeconomic 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 have to 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).[6] The regions are arranged in ascending order of adjusted mean per capita expenditure, where the adjustment takes into account regional cost-of-living differences (see Annex A). 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.[7] 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.

The consistency feature of setting poverty lines was likewise adopted by Kakwani (2000) in coming up with poverty estimates for 1998. The poverty thresholds of Kakwani implied a fixed standard of living across regions and were adjusted to capture differences in food needs of household members depending on age and sex.

## III. Poverty Profile

This section employs the measurement approach discussed above to update what is known about the poverty profile in the Philippines. The data sets employed are the 1994 and 1997 rounds of the Family Income and Expenditures Survey (FIES). Conducted every three years since 1985 by the National Statistics Office (NSO), the FIES has been the principal data source for the generation of poverty and income distribution statistics on the Philippines. The 1994 and 1997 surveys cover a total sample size of 24,797 households and 39,520 households, respectively. Both surveys have the urban and rural areas of each province as their principal domains, thereby permitting the generation of poverty statistics by province.

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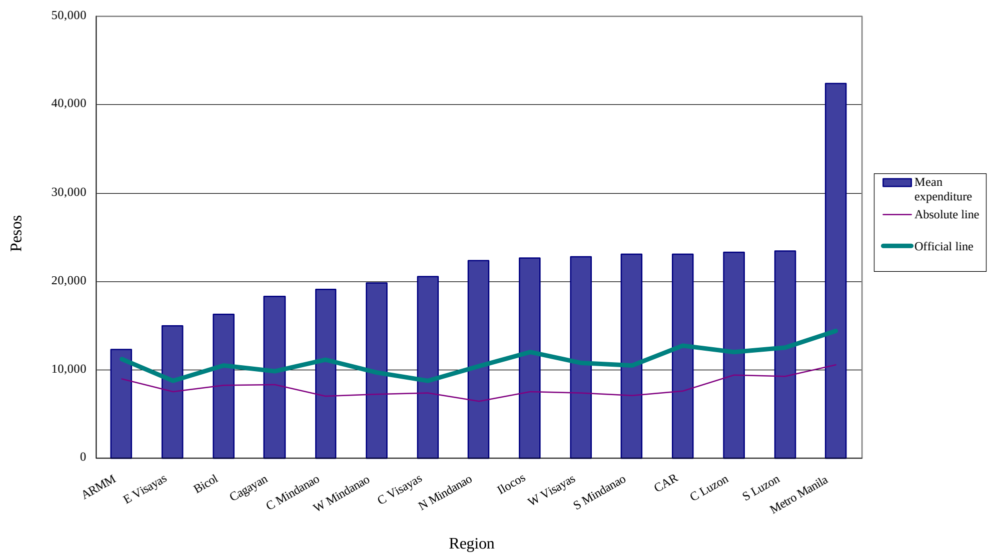
6. There are no official figures for provincial poverty lines. For comparison, our regional absolute poverty lines shown in Figure 1 are weighted averages of provincial lines, where the weights are provincial population shares. Provincial poverty lines are given in Annex A.

7. 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% 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%) for the official line regression and not significantly different from zero for the absolute line regression.

**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.

## A. Poverty in 1994 and 1997

Table 1 shows estimates of the three dimensions of poverty—incidence, depth, and severity—for 1994 and 1997.[8] Estimates based on the official poverty lines are also shown for comparison.[9] 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: (i) it makes use of current consumption expenditure rather than current income as broad indicator of household/individual welfare; (ii) it imposes consistency in the construction of absolute poverty lines; and (iii) it does not depend on a

8. For this paper, we use the familiar headcount index, defined simply as the proportion of the population deemed poor, as a measure of the *incidence* of poverty. For the *depth* of poverty, we employ 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). Finally, for the *severity* of poverty, we employ the distribution-sensitive FGT (Foster-Greer-Thorbecke) index, defined as the mean of the squared proportionate poverty gaps. This index incorporates a society's "moderate" aversion to poverty (Foster et al. 1984).

9. 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.

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. The incidence index, for example, falls by about seven percentage points for the PA estimates compared with about three percentage points for the official estimates. This conclusion holds true for the other two poverty measures. Thus, the overall reduction in absolute poverty during the growth period of 1994-1997 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.[10]

What could account for the difference in the two sets of estimates? One would expect that the choice of expenditure, as opposed to income, as indicator of living standard would lead to higher poverty estimates since incomes are usually higher than expenditures, even at the bottom ranges of the consumption expenditure distribution.[11] On the other hand, the use of absolute poverty lines should yield lower poverty estimates since, as shown above, these are generally lower than the official lines. These expectations are borne out by the estimates in Table 1. Table 2 gives the relative contribution of these two influences to the difference in estimates of poverty change. Clearly, the bulk—from 83 to 87 percent, depending on the aspect of poverty being measured—of the difference in the two estimates come from the difference in the choice of welfare indicator.

Why has the choice of welfare indicator mattered so much to poverty change? The answer has to do with the contrasting evolution of income and expenditure across the income distribution during the period of interest. As shown in Table 3, for the bottom 30 percent of the population, the rates of increase in real consumption expenditure (our indicator of living standard) are about twice higher

10. The conclusion holds true for other poverty lines for so long as these respect the principle of consistency suggested in this paper (Balisacan 1999c, 2000).

11. For example, based on the 1997 FIES, mean income for the bottom (poorest) 10 percent of the population exceeds mean expenditure for the same group by about 12 percent

than those in real income (the official indicator) between 1994 and 1997. Moreover, while the Gini ratio for the two indicators both increased during the period, the percentage 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 rural areas is also apparent in Table 1. Official incidence estimates suggest that rural poverty hardly changed between 1994 and 1997, while the PA estimates suggest that 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.

Table 1. **National Poverty Estimates, 1994 and 1997**

| | **Mean Real per capita expenditure** | | **Mean Real per capita income** | | **1994** | | | **1997** | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1994 | 1997 | 1994 | 1997 | Incidence | Depth | Severity | Incidence | Depth | Severity |
| National | 19,600 | 23,694 | 24,016 | 29,214 | | | | | | |
| Preferred | | | | | 32.1 | 8.7 | 3.4 | 25.0 | 6.4 | 2.3 |
| Approach | | | | | (0.35) | (0.13) | (0.07) | (0.29) | (0.10) | (0.05) |
| Official | | | | | 40.6 | 13.5 | 6.1 | 37.4 | 12.5 | 5.6 |
| approach | | | | | (0.36) | (0.16) | (0.10) | (0.30) | (0.13) | (0.08) |
| Urban | 25,093 | 31,657 | 31,082 | 39,994 | | | | | | |
| Preferred | | | | | 18.6 | 4.4 | 1.5 | 11.9 | 2.6 | 0.9 |
| approach | | | | | (0.37) | (0.11) | (0.05) | (0.26) | (0.07) | (0.03) |
| Official | | | | | 28.0 | 8.8 | 3.9 | 21.9 | 6.4 | 2.7 |
| approach | | | | | (0.41) | (0.17) | (0.10) | (0.33) | (0.12) | (0.06) |
| Rural | 14,153 | 16,475 | 17,010 | 19,441 | | | | | | |
| Preferred | | | | | 45.4 | 13.0 | 5.2 | 36.9 | 9.8 | 3.6 |
| approach | | | | | (0.55) | (0.21) | (0.12) | (0.48) | (0.17) | (0.08) |
| Official | | | | | 53.1 | 18.2 | 8.3 | 51.4 | 18.0 | 8.3 |
| approach | | | | | (0.54) | (0.26) | (0.16) | (0.48) | (0.22) | (0.13) |

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

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.

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

| Decile | 1994 | 1997 | Percent change |
|---|---|---|---|
| **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 |
| **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.

The rather remarkable performance of rural areas, where about three fourths of the poor live, in poverty reduction during the 1994-1997 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 subgroups), the reduction in poverty incidence would have been 14 percentage points.[12] The actual reduction was 8.5 percentage points, suggesting that inequality in the distribution of consumption increased. Indeed, the consumption Gini rose by 2.6 percentage points, from 33.6 percent in 1994 to 35.2 percent in 1997. We note, however, that the initial Gini for rural areas was lower than that for urban areas (39.2 in 1994). The increase in the Gini index during this period was also higher for urban areas (3.3 percentage points). Thus, the impact of a given mean consumption growth on a poverty measure is expected to be greater for rural than for urban areas.

### B. Regional and Provincial Poverty Profiles

The pictures on regional poverty profile are also remarkably different between the official approach to poverty measurement and the PA estimates. As shown in Table 4, only in four of the 15 regions are the ranks identical for both estimates. In some cases, the two approaches provide substantially different poverty ranks. Arranged in ascending order of poverty incidence, for example, official estimates would show that Central Visayas is the 5th least poor region, but the PA estimates would indicate that this region is the 5th poorest in the country. On the other hand, official estimates show that CAR is ranked 11th (i.e., one of the five poorest regions), but the PA estimates indicate that the region is just one step from being one of the five least-poor regions. Overall, the rank correlation between the PA estimates and official estimates is 0.69 for the incidence index and 0.54 for the depth index.

Ranking inconsistency also hounds the provincial profile. This is seen in Table 5, which lists the 10 poorest and the 10 richest provinces based on incidence estimates. Only four of the 10 poorest provinces based on PA estimates appear in the list of 10 poorest provinces based on official estimates. The match is significantly better for the other end of the poverty spectrum, i.e., top 10

12. 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) and Kakwani (2000).

provinces with lowest poverty incidence. Here, only three of the 10 provinces characterized as least poor based on official estimates do not come from the list based on PA estimates.

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

## IV. Conclusion

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 to 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.” One aspect of the problem has to do with the choice of a broad indicator of living standard. Another aspect has to do with the construction of poverty norms, i.e., 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.

Table 4. **Regional Profile, 1997**

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

*Official rank less preferred rank, where rank is from 1(least poor region) to 15 (poorest region).
Note: Values in parentheses are robust standard errors.

The paper has proposed an alternative, indeed quite 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: (i) it makes use of current consumption expenditure rather than current income as broad indicator of household/individual welfare; (ii) it imposes spatial consistency in the construction of absolute poverty lines; and (iii) 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.

Table 5. **Provinces with Highest and Lowest Poverty Incidence**

| Preferred Approach | Rank | Official Approach | Rank in Preferred Approach |
|---|---|---|---|
| **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 * |
| **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.

Some important points from the resulting poverty profile should be emphasized. First, contrary to common claims in policy discussions (presumably aided by officially available poverty data), periods of rapid growth, especially between 1994 and 1997, were a pro-poor growth. Second, rural poverty responded strongly to the overall income growth—also contrary to common claims that income growth in rural areas did not benefit the rural poor. Third, 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 tell the same order of magnitude. Fourth, 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 (see Balisacan 1999b), suggesting the importance of factors other than mean living standards in poverty reduction. Finally, 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.

At present, the government's poverty monitoring and indicator system falls short of enabling decisionmakers 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 cannot be 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.

## Annex A

This Annex 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 socioeconomic 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.[13]

### A. 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 that would generate the nutritional norm for good health.[14] The differences in food bundle reflect substitution effects arising from differences in relative prices, not differences in real incomes.[15] 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 paper, 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.

13. The approach closely resembles that suggested by Ravallion (1984, Annex 1; 1998).
14. See Balisacan (1999b) for a discussion of the official approach.
15. 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.

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.[16]

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.

### B. 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. 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. 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.

The procedure that follows to estimate the nonfood component draws from Ravallion (1998). It appeals to the notion that "basic needs" come in hierarchy, beginning with survival food needs, basic nonfood needs, and then basic food needs for economic and social activity. 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 nonfood needs," since she/he is sacrificing basic food

16. These are the same prices used in the computation of the current consumer price index series.

intakes to purchase such nonfood 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 10 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.

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 nonfood component of the poverty line is generated from the FIES. Consistency is thus not ensured in the official approach.

### C. 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.

The cost-of-living indices (with Metro Manila as the base) are given in the last column of Annex Table 1. For use in future comparative work on household welfare, Annex 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.

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

| **Province** | **Food threshold** | **Poverty line** | **Cost-of-Living Index (Metro Manila = 100)** |
|---|---|---|---|
| Metro Manila | 7,669 | ***10,577*** | 100.0 |
| Ilocos | | ***7,561*** | |
| Ilocos Norte | 4,912 | 7,084 | 67.0 |
| Ilocos Sur | 5,829 | 7,906 | 74.7 |
| La Union | 5,702 | 7,669 | 72.5 |
| Pangasinan | 5,645 | 7,542 | 71.3 |
| **Cagayan Valley** | | **8,318** | |
| Batanes | 7,512 | 10,492 | 99.2 |
| Cagayan | 6,573 | 8,717 | 82.4 |
| Isabela | 6,337 | 8,546 | 80.8 |
| Nueva Viscaya | 5,360 | 7,091 | 67.0 |
| Quirino | 4,871 | 6,649 | 62.9 |
| **Central Luzon** | | **9,442** | |
| Bataan | 6,819 | 9,117 | 86.2 |
| Bulacan | 7,204 | 9,935 | 93.9 |
| Nueva Ecija | 7,968 | 10,805 | 102.2 |
| Pampanga | 7,109 | 9,073 | 85.8 |
| Tarlac | 5,950 | 7,834 | 74.1 |
| Zambales | 6,116 | 7,789 | 73.6 |
| Olongapo City | 7,280 | 10,184 | 96.3 |
| **Southern Luzon** | | **9,239** | |
| Aurora | 6,382 | 8,657 | 81.8 |
| Batangas | 6,982 | 9,928 | 93.9 |
| Cavite | 7,426 | 10,510 | 99.4 |
| Laguna | 7,057 | 9,443 | 89.3 |
| Marinduque | 6,404 | 8,544 | 80.8 |
| Mindoro Occidental | 5,426 | 7,020 | 66.4 |
| Mindoro Oriental | 5,994 | 8,123 | 76.8 |
| Palawan | 5,516 | 7,311 | 69.1 |
| Quezon | 6,077 | 8,372 | 79.1 |
| Rizal | 7,717 | 10,804 | 102.1 |
| Romblon | 6,155 | 8,047 | 76.1 |
| **Bicol Region** | | **8,256** | |
| Albay | 6,717 | 9,043 | 85.5 |

| | | | |
|---|---|---|---|
| Camarines Norte | 5,422 | 7,495 | 70.9 |
| Camarines Sur | 5,818 | 7,654 | 72.4 |
| Catanduanes | 5,676 | 7,426 | 70.2 |
| Masbate | 6,113 | 8,117 | 76.7 |
| Sorsogon | 7,046 | 9,274 | 87.7 |
| **Western Visayas** | | **7,403** | |
| Aklan | 6,000 | 7,988 | 75.5 |
| Antique | 5,093 | 6,803 | 64.3 |
| Capiz | 5,407 | 7,350 | 69.5 |
| Iloilo | 5,325 | 7,436 | 70.3 |
| Negros Occidental | 5,316 | 7,131 | 67.4 |
| Bacolod City | 5,884 | 7,607 | 71.9 |
| Iloilo City | 6,559 | 9,018 | 85.3 |
| **Central Visayas** | | **7,392** | |
| Bohol | 4,921 | 6,433 | 60.8 |
| Cebu | 5,887 | 7,803 | 73.8 |
| Negros Orient. | 4,949 | 6,158 | 58.2 |
| Siquijor | 5,188 | 6,930 | 65.5 |
| Cebu City | 6,711 | 9,387 | 88.8 |
| **Eastern Visayas** | | **7,570** | |
| Eastern Samar | 6,036 | 8,240 | 77.9 |
| Leyte | 5,896 | 7,746 | 73.2 |
| Northern Samar | 4,920 | 6,584 | 62.3 |
| Western Samar | 5,758 | 7,538 | 71.3 |
| Southern Leyte | 5,679 | 7,595 | 71.8 |
| **Western Mindanao** | | **7,264** | |
| Basilan | 6,072 | 8,558 | 80.9 |
| Zamboanga del Norte | 5,138 | 7,093 | 67.1 |
| Zamboanga del Sur | 4,998 | 6,738 | 63.7 |
| Zamboanga City | 5,542 | 8,061 | 76.2 |
| **Central Mindanao** | | **6,294** | |
| Bukidnon | 4,314 | 5,699 | 53.9 |
| Camiguin | 5,358 | 7,300 | 69.0 |
| Misamis Occidental | 4,946 | 6,593 | 62.3 |
| Misamis Oriental | 4,961 | 6,659 | 63.0 |
| **Southern Mindanao** | | **7,079** | |
| Davao del Norte | 4,934 | 6,605 | 62.4 |
| Davao del Sur | 5,065 | 6,515 | 61.6 |
| Davao Oriental | 4,627 | 6,406 | 60.6 |

| | | | |
|---|---|---|---|
| South Cotobato | 5,190 | 7,301 | 69.0 |
| Davao City | 5,942 | 8,002 | 75.7 |
| General Santos City | 5,712 | 7,548 | 71.4 |
| **Eastern Mindanao** | | **7,042** | |
| Lanao del Norte | 5,264 | 6,906 | 65.3 |
| North Cotobato | 5,108 | 7,077 | 66.9 |
| Sultan Kudarat | 5,119 | 7,024 | 66.4 |
| Cotabato City | 5,366 | 6,979 | 66.0 |
| Marawi City | 6,374 | 8,371 | 79.1 |
| **CAR** | | **7,646** | |
| Abra | 5,053 | 6,474 | 61.2 |
| Benguet | 6,057 | 8,708 | 82.3 |
| Ifugao | 4,667 | 6,447 | 61.0 |
| Mt. Province | 4,827 | 6,558 | 62.0 |
| Baguio City | 7,680 | 10,759 | 101.7 |
| **ARMM** | | **8,990** | |
| Lanao del Sur | 5,452 | 7,618 | 72.0 |
| Maguindanao | 4,900 | 6,357 | 60.1 |
| Sulu | 9,274 | 12,700 | 120.1 |
| Tawi-Tawi | 7,379 | 10,423 | 98.5 |
| **CARAGA** | | **8,990** | |
| Agusan del Norte | 5,304 | 7,048 | 66.6 |
| Agusan del Sur | 4,593 | 6,077 | 57.5 |
| Surigao del Norte | 5,610 | 7,348 | 69.5 |
| Surigao del Sur | 5,154 | 6,931 | 65.5 |

Source: Author’s estimates.

Annex Table 2. **Regional Cost-of-Living Indices**
**(NCR 1997 = 100)**

| | 1985 classification of provinces | | | | 1997 classification of provinces | | | |
|---|---|---|---|---|---|---|---|---|
| **Region** | **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: Author's estimates.

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