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Growth and Equity in the Philippines

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GROWTH AND EQUITY IN THE PHILIPPINES

Arsenio M. Balisacan

Abstract

The paper reexamines the nature of the growth-poverty-inequality nexus in the Philippines during the second half of the 1980s and first half of the 1990s. It gives give new estimates of national and spatial poverty, assesses the relative contributions of growth and redistribution to the observed changes in poverty measures, and examines the determinants of regional poverty using a consistently assembled regional data set for the period. Among other things, it finds that, contrary to popular perception, the growth process in recent years and across regions of the country has not had strongly adverse impact on the position of the poor. Poverty responds elastically to growth, although the economy's ability to translate growth to poverty reduction appears weaker than for the "average" developing country.

1. Introduction

The Philippine economy's current episode of growth starting in 1993 appears to have a fundamentally different character from previous ones. During most of the last three decades, each episode of boom, fueled largely by massive foreign borrowing and capital-intensive import-substituting industrialization, was soon followed by bust and stagnation. The period also saw heavy government regulation of the market economy, as well as political instability, natural disasters, and major shocks in global trade and finance. For these reasons, the country acquired the unenviable image as Asia's "sick man." In contrast, the current growth is taking place in an environment of political stability, economic deregulation, and institutional reforms. While policy coordination problems (e.g., in public investments) still persist, it can not be denied that the country is now closer to a market economy than it ever was in the past.

Doubts linger, however, as to whether the present growth has the desired quality consistent with poverty alleviation and equity objectives. Indeed the common themes in policy discussions of the growth-inequity-poverty nexus are that (i) economic growth has not been broadly based and that (ii) the growth has not been benefiting the poor. Unfortunately, official data on poverty have not helped much in informing the discussion. As elaborated elsewhere (Balisacan, 1997), the official approach to assessing poverty appears to be yielding not only relatively high poverty lines but also inconsistent ranking of spatial and intertemporal poverty profiles—"inconsistent" in the sense that two persons with the same command over basic consumption goods are not treated the same way. The official estimates show, for example, that poverty incidence is about thrice higher in the Philippines than in Indonesia, even though the former is either ahead of (or at par with) the latter in terms of almost all other aspects of human development.[1]

Critics of development policy in the Philippines often point to the relatively large mean income differences between Metro Manila (the country's capital) and neighboring Southern and Central Luzon regions, on the one hand, and the other regions of the country, on the other, as a prime cause of the high income inequality and poverty in the Philippines (ILO, 1974; Lamberte et al., 1993). The widely held view is that development policy has favored Luzon and discriminated against Visayas and (especially) Mindanao. Moreover, the poor performance of the Philippine economy over the last three decades has been attributed partly to the relatively large variation in access to infrastructure and social services between the major urban centers and rural areas (e.g., Ranis and Stewart, 1993; Balisacan, 1993; Bautista and Lamberte, 1996). Spatial variation in certain summary measures of human development—particularly those incorporating literacy rate, mortality rate, and poverty incidence—is also evident (UNDP, 1996).

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[1]The official estimate of the proportion of the population deemed poor was about 14% in 1993 and 11% in 1996 for Indonesia, while this was 40% in 1994 for the Philippines. Using an internationally comparable poverty line of one US dollar (at 1985 purchasing power parity) per capita per day, the World Bank (1996b) estimated the poverty incidence in the early 1990s to be about 15% for Indonesia and 20% for the Philippines.

If indeed spatial income disparities are at the core of the poverty problem in the Philippines, then policy reforms aimed at reducing these disparities have to be central elements of the country's poverty reduction program. This may also promote efficiency goals: Important dynamic externalities can arise from targeting by area or sector-specific characteristics (Bardhan, 1996; Ravallion and Jalan, 1996). Investment in physical infrastructure (like roads, communications, and irrigation) in backward areas, or in the rural sector in general, may improve the productivity of private investment, influence fertility through its effect on labor allocation and educational investment decisions, promote the development of intangible "social capital" (in the form of social networks, peer group effects, role models, etc.), and mitigate erosion in the quality of life in urban areas through its effect on rural-urban migration decisions. In Taiwan, public investment in rural areas appears to have induced such externalities, thereby contributing to the country's broadly based pattern of economic growth during the last three decades (Park and Johnston, 1995).

However, if disparity in incomes and human achievements *within* each of the regions or areas of the country is itself the major problem, a different approach to poverty reduction would have to be found. It is possible, for example, that systematic differences in levels of human capital between low- and high-income groups within a geographic area translate into considerable differences in earning opportunities between these groups. Indeed, as shown in Balisacan and Bacawag (1994), differences in living standards within regions dominate differences between regions. In this case, the policy prescription to reduce overall income inequality and poverty would have to involve expanding the access of the low-income groups to basic social services, technology, and infrastructure.

This paper re-examines the nature of the growth-poverty-inequality nexus in the Philippines during the second half of the 1980s and first half of the 1990s, a period of economic liberalization and institutional reforms. The next two sections give new estimates of national and spatial poverty during the period, assess the relative contributions of growth and redistribution to the observed changes in poverty measures across space and over time, and examine the link between growth and poverty, as well as between growth and income inequality. The paper then examines the determinants of regional poverty, using a consistently assembled regional data set for the period. The final section provides concluding remarks.

2. Poverty Estimates: Levels, Changes, and Proximate Causes

Identification of the poor requires the use of a broad indicator of a person'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] Current consumption

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

would thus be a better indicator of welfare level than current income. Indeed, 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 thus 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. Hence, in this paper, consumption is preferred to income as a broad indicator of a person's living standard.[3]

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 Philippines. This measure, however, is silent about the depth and severity of poverty. Two other popular measures are reported below 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 FGT (Foster-Greer-Thorbecke) measure incorporating a society's "moderate" aversion to poverty (Foster et al., 1984).

Table 1 provides two sets of estimates of poverty for the 1980s and early 1990s. The first set, referred to as official estimates, reflects the Government's approach to estimating poverty. In brief, the approach uses current household income as indicator of living standards, as well as poverty lines constructed from actual consumption patterns in each region or area of the country. As shown in Balisacan (1997), the problem with the approach is that the poverty lines estimated for the various regions and years tend be inconsistent—"inconsistent" in the sense that two persons with the same command over basic consumption needs are not treated the same way. Put differently, the poverty lines applied for various regions, areas, and years imply different levels of living standards, tending to *systematically* underestimate (overestimate) the reduction (increase) in absolute poverty in economically more progressive (backward) regions or sectors, or during periods when the overall

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[3]For an extensive discussion on conceptual and empirical issues in poverty assessment, see Ravallion (1996).

Table 1
Poverty estimates based on two approaches
(in percent)

Year	Aspect of Poverty		
	Incidence	Depth	Severity
FLOL Approach*			
1985	32.7	9.4	3.8
1988	26.9	6.9	2.5
1991	26.6	7.1	2.7
1994	23.4	5.9	2.1
Official Approach§			
1985	49.2	17.0	7.9
1988	45.3	15.0	6.7
1991	45.2	15.4	7.0
1994	40.2	13.2	6.0

*Based on fixed-level-of-living poverty lines and on consumption expenditure as indicator of living standard.
§Based on official poverty lines and on current income as indicator of living standard.

economy is expanding (contracting).[4] In contrast, the second set of estimates in table 1, hereafter referred to as fixed-level-of living (FLOL) estimates, uses the official norm about nutritional calorie requirement (i.e., 2,000 kilocalories per person per day) but imposes the desirable consistency feature of a poverty norm by holding the poverty line fixed in real terms over time or across regions/areas of the country.[5]

[4]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. Put differently, the income elasticity of demand for calories is typically much lower than that for food as a group (Bouis, 1996; Subramanian and Deaton, 1996). The shift is invariably associated with improvement in living standards. On the implication of this issue on poverty assessment, see Ravallion (1994).

[5]Poverty lines in the official approach is sensitive to overall mean expenditure (income), suggesting that what is partly captured by the poverty assessment is *relative* poverty. Put differently, poverty is intimately identified with the distribution of living standards. In developed countries, poverty assessment is commonly anchored on such notion of poverty. However, for

At least three points are apparent in table 1. First, poverty in the Philippines is much lower than what official figures indicate. The incidence estimates are broadly comparable to those obtained by the World Bank (1996) using an internationally comparable poverty line of one US dollar (at 1985 purchasing power parity) per capita per day. Second, while both estimates show considerable progress in poverty reduction during the period under investigation, the reduction displayed by the FLOL approach is more "impressive" considering that the initial-year poverty level is relatively much lower in the FLOL than in the official approach. Third, the FLOL approach indicates that a good deal of the poverty reduction took place between 1985 and 1988 (a period of considerably high consumption growth), while the official approach shows that this occurred from 1991 to 1994 (a period of low consumption growth).

Clearly, the construction of a poverty norm greatly affects the profile of aggregate poverty. But how robust are the observed *changes* in poverty over time? To check whether the intertemporal poverty pattern is robust to the choice of poverty lines and of poverty index, a first-order dominance test is applied.[6] Figure 1 compares pairs of cumulative distributions of per capita consumption; two non-intersecting cumulative distribution (CD) curves indicate that the change in poverty during the period is unambiguous. This is the case for 1985 and 1988 as well as for 1991 and 1994. In both periods, poverty fell unambiguously, regardless of the assumed (but plausible) poverty norm and the chosen poverty index. Notice that the vertical distance between the 1985 CD curve and the1988 CD curve is wider for almost all levels of per capita expenditure than that between the 1991 CD curve and the 1994 CD curve, suggesting that the poverty reduction in 1985-1988 is greater than in 1991-1994. The possibility of disagreement on the direction of poverty change applies to 1988 and 1991 where the CD curves intersect. Indeed, both the FLOL and the official estimates indicate inconsistent ranking of 1988 and 1991 by the three poverty indices.

Viewed from an international perspective, the rate of poverty reduction during the second half of the 1980s and early 1990s was broadly comparable to those for China and Indonesia, but much slower than the average for developing Asian and Pacific countries (table 2). However, this

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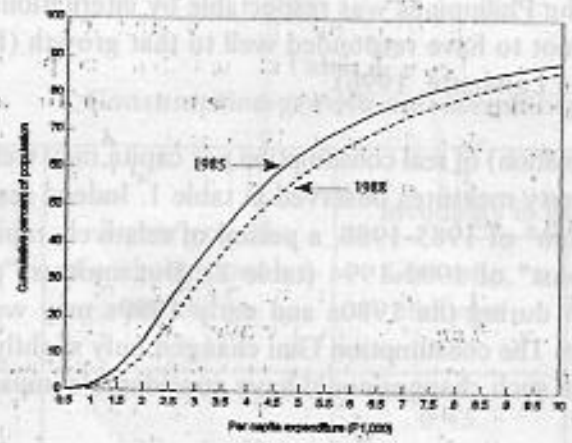
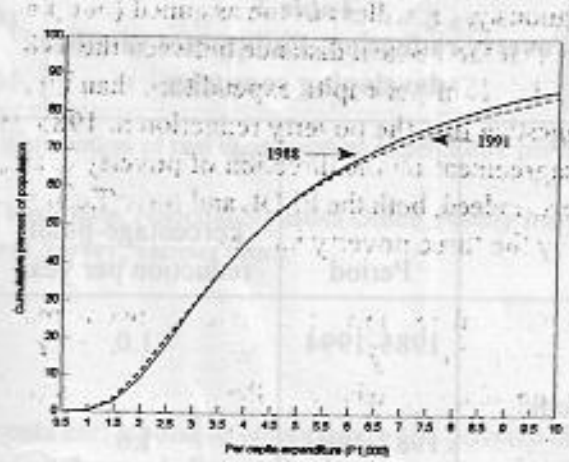
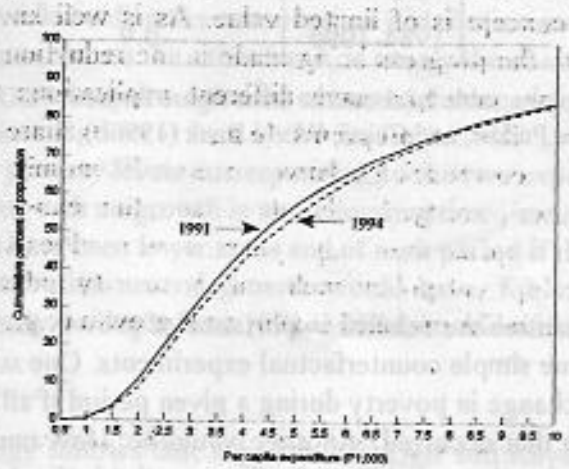
developing countries such as the Philippines where the immediate policy concern is the reduction of *absolute* poverty, this concept is of limited value. As is well known, a relative measure of poverty may underestimate the progress being made in the reduction of absolute poverty. From a policy viewpoint, the two concepts have different implications for the choice of poverty reduction strategies. Redistributive programs (e.g., social welfare payments) characterize a development policy focused on reducing relative poverty. Economic growth alone may not help much in reducing this type of poverty. On the other hand, the reduction of absolute poverty may require no less than overall expansion of employment opportunities sustained over a long period of time. In this case, development policy anchored on poverty reduction may have to focus on creating a favorable environment for sustained employment growth (e.g., investment in infrastructure and human capital).

[6]On the application of stochastic dominance theory to poverty assessment, see Foster and Shorrocks (1988).

Figure 1
Cumulative distribution of real per capita consumption (at 1988 prices)







performance is remarkable considering that economic growth during this period was considerably lower in the Philippines than in virtually all developing East Asian and Pacific countries, especially China and Indonesia. Even more significant is the contrast of this period with the 1960s and 1970s when economic growth in the Philippines was respectable by international standards, but poverty during the period appeared not to have responded well to that growth (Ranis and Stewart, 1993; Balisacan, 1993; Bautista and Lamberte, 1996).

The growth (and stagnation) of real consumption per capita may well have been an important factor in the changes in poverty measures observed in table 1. Indeed real consumption per capita grew fastest during the "boom" of 1985-1988, a period of relatively rapid poverty reduction, and slowest during the deep "bust" of 1991-1994 (table 2). But another "proximate" cause for the observed poverty reduction during the 1980s and early 1990s may well be the changes in the distribution of living standards. The consumption Gini changed only slightly during this period (table 3), but as shown below, even such changes could have considerable impact on aggregate poverty.

Table 2
Poverty reduction, Philippines vs other developing countries

Country	Period	Percentage-point reduction per year	Growth of GNP per capita, 1980-94 (%/year)
Philippines	1985-1994	1.0	1.7
East Asia and the Pacific (excluding China)	1987-1993	1.6	6.9
China	1987-1994	0.7	7.8
Indonesia	1984-1996	0.9	6.0

Sources: For the Philippines, table 1 (about the same figure for both FEOL and official estimates; East Asia, the Pacific, and China, World Bank (1996b); Indonesia, Hill (1996) and BPS (1997).

It is possible to determine the relative importance of growth and distributional change to poverty measures through some simple counterfactual experiments. One such experiment would be: What would have been the change in poverty during a given period if all consumption groups had shared equally in the growth that occurred? Another would be: How much further would poverty have increased (decreased) during the period if not for the growth (decline) that did occur? The latter

experiment requires simulating the poverty measures that would have been observed at the end-year of the period if mean consumption did not change but inequality did as actually observed.

Table 3
Consumption growth and inequality

Period	3-year growth of real consumption per capita (%)	Inequality in living standards[5]	
		Gini ratio, end year	Ratio of richest 20% to poorest 20%, end year
1985		0.43	7.9
1985-1988	10.3	0.42	7.1
1988-1991	6.0	0.45	8.9
1991-1994	1.6	0.42	8.2

[5]Based on distribution of real consumption expenditure per capita.

Sources of basic data: National Statistics Office, *Family Income and Expenditures Survey*, various years.

The two experiments correspond to components of a poverty change, i.e., the growth and the redistribution components of observed changes in the poverty measures employed in this paper.[7] Put differently, the growth component is the change in the 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.

The end-period poverty levels corresponding to the two experiments—one with no change in inequality and the other, with no growth in mean consumption—are summarized in table 4. Clearly, poverty measures would have been lower at the end of each period if the distribution of consumption did not change. A distribution-neutral growth would have, for example, led to a drop of 5.4 percentage points in poverty incidence from 1991 to 1994, instead of 3.2 percentage points. Similarly,

[7]The methodology follows that suggested by Datt and Ravallion (1992) for decomposing poverty change into growth and redistribution components.

during the "boom" years of 1985-1988, the drop in poverty incidence would have been 8.5 percentage points, instead of 5.8 percentage points. The other poverty indices show generally comparable qualitative results.

Table 4
Simulated poverty measures

	Aspect of Poverty		
	Incidence	Depth	Severity
1985-1988			
1985 (actual)	32.7	9.4	3.8
1988 (actual)	26.9	6.9	2.5
1988 (with no change in inequality)	24.2	6.1	2.3
1988 (with no growth in mean consumption)	36.2	10.4	4.2
1988-1991			
1988 (actual)	26.9	6.9	2.5
1991 (actual)	26.6	7.1	2.7
1991 (with no change in inequality)	24.9	6.1	2.2
1991 (with no growth in mean consumption)	28.6	7.9	3.0
1991-1994			
1991 (actual)	26.6	7.1	2.7
1994 (actual)	23.4	5.9	2.1
1994 (with no change in inequality)	21.2	5.2	1.8
1994 (with no growth in mean consumption)	28.4	7.7	3.0

It is thus *the changes in real mean consumption, rather than changes in its distribution, that have mainly contributed for the observed changes in poverty in recent years*. This result runs counter to the common claim in policy dialogues that recent episodes of growth have largely not benefited the poor.

3. How Much Can Growth Performance Explain Regional Poverty Reduction?

Poverty varies considerably across regions of the country (table 5).[8] Metro Manila, which accounts for about 14% of the population, had the lowest poverty and contributed not even one percent of the national poverty in 1994. This is true for both incidence and severity indicators of poverty. On the other hand, Bicol, the Visayas regions, and Western and Northern Mindanao had much higher poverty levels than the average for all regions of the country; these regions contributed about 60%-70% of the national poverty, depending on the year and the poverty measure employed. Poverty was particularly more severe in Bicol and Central Visayas than in any other region of the country, as indicated by the marked increase in the contribution of the two regions to national poverty when the assessment moved beyond head count to include as well the distribution of poverty among the poor.

It might be expected that achieving a given absolute reduction of poverty would be easier (more difficult) for regions with initially high (already low) poverty levels. The correlation, however, is rather weak (table 6). Bicol and Western Mindanao, two of the poorest regions, had lower poverty reduction than the average for all regions. It was not that growth was absent in the two regions. The observed consumption growth during the period would have reduced poverty in both regions by more than the reduction achieved for the entire country if the growth were distributionally neutral, which was not. In Western Mindanao, the poverty-increasing effect of a rise in consumption inequality almost totally wiped out the poverty-decreasing effect of growth, hence the little reduction in poverty between 1985 and 1994. In Central Mindanao, the effect of growth on poverty was insufficient to offset the poverty-increasing effect of redistribution. Ilocos Region and Southern Tagalog had initially low levels of poverty vis-à-vis the average for all regions, but the observed poverty reduction in the two regions was higher than the national average. In both cases, the growth effect was considerably high vis-à-vis the redistribution effect. In Western and Central Visayas, two of the poorest regions, the positive effect of improved distribution on poverty complemented that of growth.

To what extent do differences in mean living standards account for the variation in regional poverty estimates? The data set for the four survey years and 13 geographic regions of the country shows a strong negative relationship between the consumption mean and the three poverty indices (figure 2). It is also apparent that the relationship is not linear. Taking logs of the variables deals

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[8] For reasons indicated in the preceding section, this section uses spatial poverty estimates based on the fixed level-of-living (FLOL) approach.

Table 5
Regional poverty profile, 1985 and 1994
(in percent)

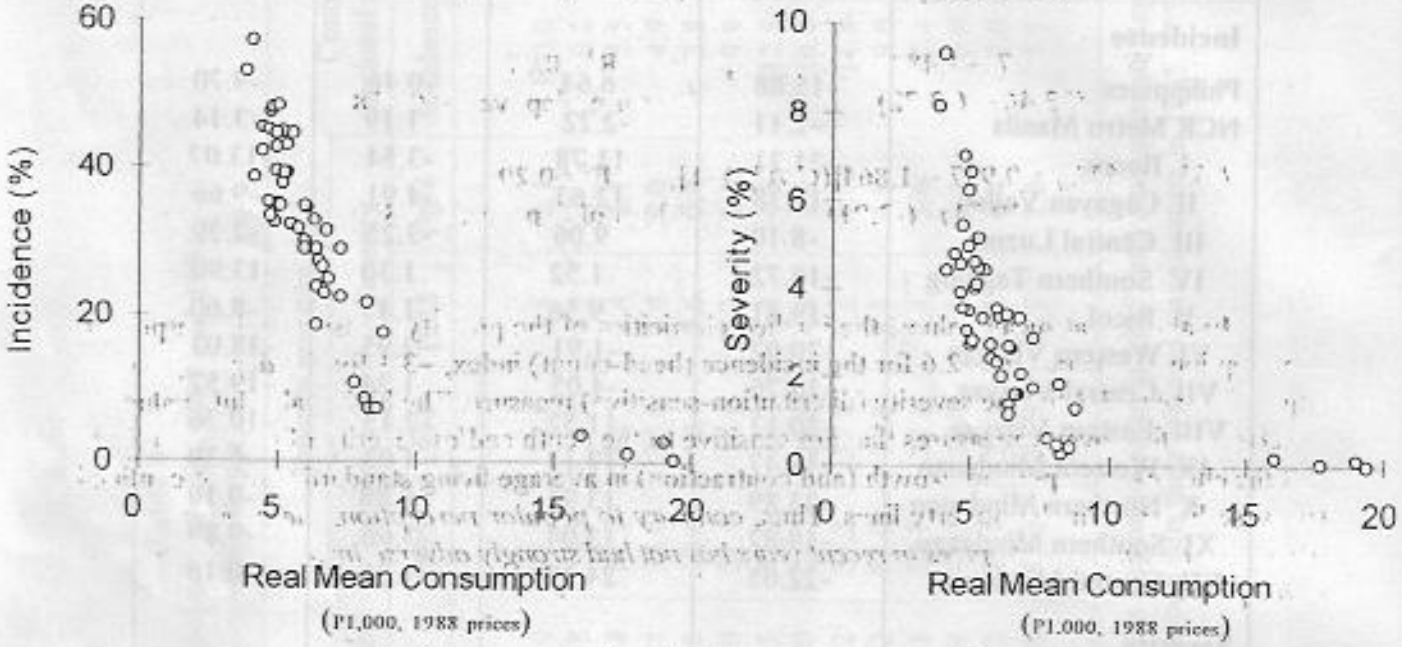
	Population share		Poverty measure				Contribution to national poverty, 1994	
			Incidence		Severity			
	1985	1994	1985	1994	1985	1994	Incidence	Severity
Philippines	100.0	100.0	32.7	23.4	3.8	2.1	100.0	100.0
NCR Metro Manila	14.0	13.8	3.5	0.4	0.2	*	0.2	0.3
I Ilocos	7.2	6.8	31.8	18.7	2.4	1.1	5.5	3.5
II Cagayan Valley	4.6	4.5	34.6	25.0	3.4	2.0	4.9	4.3
III Central Luzon	9.9	10.5	10.6	8.4	0.6	0.4	3.8	2.0
IV Southern Tagalog	12.5	13.0	31.4	17.5	3.3	1.3	9.9	8.0
V Bicol	6.8	7.1	47.7	39.1	5.4	4.5	12.1	15.1
VI Western Visayas	8.9	9.0	44.7	26.6	4.4	1.6	10.4	6.8
VII Central Visayas	7.6	7.2	57.3	37.8	9.3	4.6	11.8	15.7
VIII Eastern Visayas	5.4	5.2	53.0	42.3	8.1	4.8	9.6	11.8
IX Western Mindanao	5.1	5.1	38.7	33.3	4.4	3.6	7.4	8.7
X Northern Mindanao	6.1	5.9	48.3	39.2	7.0	4.1	10.0	11.5
XI Southern Mindanao	7.3	7.2	32.4	22.5	3.3	1.7	7.0	5.8
XII Central Mindanao	4.5	4.8	35.0	34.8	2.7	2.8	7.3	6.4

Note: Provinces under Cordillera Autonomous Region (created in 1987) and Autonomous Region for Muslim Mindanao (created in 1990) were lumped into their regional classification in 1985. "*" denotes less than 0.1%.

Table 6
Decomposition of poverty change between 1985 and 1994, by region
(in percentage points)

	Growth component	Redistribution component	Residual	Total change
Incidence				
Philippines	-15.88	6.64	-0.46	-9.70
NCR Metro Manila	-2.11	-2.22	1.19	-3.14
I Ilocos	-21.31	11.78	-3.54	-13.07
II Cagayan Valley	-17.38	12.63	-4.91	-9.66
III Central Luzon	-8.10	9.06	-3.25	-2.29
IV Southern Tagalog	-16.72	1.52	1.30	-13.90
V Bicol	-19.61	9.56	1.45	-8.60
VI Western Visayas	-20.07	-1.91	3.95	-18.03
VII Central Visayas	-16.76	-4.05	1.24	-19.57
VIII Eastern Visayas	-20.13	11.52	-2.15	-10.76
IX Western Mindanao	-18.47	17.11	-4.03	-5.39
X Northern Mindanao	-23.89	13.91	0.88	-9.10
XI Southern Mindanao	-19.87	13.04	-3.06	-9.89
XII Central Mindanao	-22.65	24.32	-1.83	-0.16
Severity				
Philippines	-2.33	1.58	-0.89	-1.64
NCR Metro Manila	-0.13	-0.12	0.09	-0.16
I Ilocos	-2.03	2.13	-1.39	-1.29
II Cagayan Valley	-2.38	2.26	-1.19	-1.31
III Central Luzon	-0.45	2.60	-2.29	-0.14
IV Southern Tagalog	-2.13	0.37	-0.30	-2.06
V Bicol	-3.20	3.54	-1.28	-0.94
VI Western Visayas	-2.57	-0.14	-0.08	-2.79
VII Central Visayas	-4.63	-0.36	0.32	-4.67
VIII Eastern Visayas	-4.32	2.17	-1.19	-3.34
IX Western Mindanao	-2.92	4.00	-1.93	-0.85
X Northern Mindanao	-4.60	4.21	-2.52	-2.91
XI Southern Mindanao	-2.62	2.86	-1.84	-1.60
XII Central Mindanao	-2.10	5.47	-3.27	0.10

Figure 2
Mean consumption and poverty



well with this nonlinearity; the regression coefficient of the logarithm of a poverty measure on the logarithm of real consumption per capita is −2.5 for the head-count regression, −3.0 for the poverty-gap regression, and −3.4 for the distribution-sensitive measure regression. These estimates indicate a highly elastic response of poverty to changes in average living standards. It is well known, however, that such regressions are likely to be biased since cross-region comparisons of levels are quite prone to problems of measurement and related errors. For example, any omission of region-level fixed effects correlated with the consumption variable will bias the estimate of the impact of consumption growth on poverty. Moreover, since the estimation of poverty uses the information on consumption, any errors in measuring consumption are reflected in the estimates of poverty and, hence, of the regression parameters.

A convenient way to resolve these problems is to focus on *rates* of growth in poverty and consumption, rather than on levels. Differencing eliminates region-level additive fixed effects that may bias conventional regressions. Instead of using survey consumption means, we employ the (largely

independent) estimates of the growth rate in mean consumption per capita reported in the national income accounts. This should take care of the measurement problem noted above. The regression results are[9]

$$H_t/H_{t-1} = 0.923 - 0.935[(C_t/C_{t-1})-1], \qquad R^2 = 0.20$$
$$(30.59)\ (-3.09) \qquad \text{Mean of dep. var.} = 0.880$$

$$PG_t/PG_{t-1} = 0.927 - 1.482[(C_t/C_{t-1})-1], \qquad R^2 = 0.27$$
$$(23.46)\ (-3.72) \qquad \text{Mean of dep. var.} = 0.858$$

$$DSM_t/DSM_{t-1} = 0.937 - 1.864[(C_t/C_{t-1})-1], \qquad R^2 = 0.29$$
$$(19.71)\ (-3.91) \qquad \text{Mean of dep. var.} = 0.850$$

Evaluated at mean values, the implied elasticities of the poverty measures with respect to consumption per capita are −2.6 for the incidence (head-count) index, −3.1 for the depth (poverty-gap) index, and −3.2 for the severity (distribution-sensitive) measure. The higher absolute values of the elasticity for poverty measures that are sensitive to the depth and/or severity of poverty indicate that the effects on the poor of growth (and contraction) in average living standards are not confined to those living near the poverty lines. Thus, *contrary to popular perception, the growth process across regions of the Philippines in recent years has not had strongly adverse impact on the position of the poor.*

However, these elasticities are somewhat low (in absolute values) by "international" standards. Using comparable data on poverty from a cross-section of 16 developing countries in the 1980s, Ravallion (1995) estimated poverty elasticities of −3.4 for the head-count index and −5.6 for the distribution-sensitive measure. Thus, *while poverty in the Philippines responds elastically to growth, the economy's ability to translate growth to poverty reduction appears weaker than for the "average" developing country.* Indeed, the (above) regressions of the rate of change in poverty on the rate of growth of real consumption per capita could account for only 20-30% of the observed variation in poverty changes across regions during the second half of the 1980s and early 1990s.

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[9] Ramset reset test for functional form (using powers of fitted values) gave 1.41 (distributed as F) for the head count, 0.99 for the poverty gap, and 0.62 for the distribution-sensitive measure. The tests are satisfactory, suggesting the appropriateness of the functional form. White-Weisberg test for heteroscedasticity gave 0.03 (distributed as chi-square) for the head count, 0.81 for the poverty gap, and 0.35 for the distribution-sensitive measure. These tests indicate the absence of the heteroscedasticity in the regressions.

4. How Important Are Initial Conditions on Economic Inequality to Rural Poverty Alleviation?

As shown above, poverty alleviation varies substantially across regions. So is the relative importance of growth to poverty changes in recent years. The rural sector accounts for over three-fourths of poverty in virtually all regions. Within each region (excluding Metro Manila), the agricultural sector is the biggest contributor—over 80 percent—to poverty (Balisacan, 1997). It thus appears that the search for solution to the country's poverty problem has to involve an understanding of the conditions and processes impinging on the performance of the rural sector, as well as on the responses of rural areas to certain growth stimuli.

The "initial" conditions of rural areas—distribution of physical and human assets, infrastructure, and institutions—are expected to significantly influence the responses of rural welfare to growth stimuli, such as those provided by agricultural growth and/or export (urban) demand growth. Indeed, success in rural poverty alleviation has been associated with the growth not only of agriculture but also of rural nonfarm activities, especially in economies with fast growing labor force (Ranis and Stewart, 1993; Mellor, 1995; Otsuka, 1996). High inequality in access to land, poor state of rural infrastructure, low level of human capital, and unfavorable policy environment would not only impede rural industrialization and growth but could also disproportionately harm the economic prospects of the poor, especially those in low-productivity agriculture.

How important are these factors in explaining regional differences in poverty alleviation? In systematically addressing this issue, we have estimated reduced-form functions relating to three aspects of poverty—incidence (given by the head-count index), depth (given by poverty-gap index), and severity (given by the distribution-sensitive FGT measure). The poverty data pertain to FLOL estimates using the 1985, 1988, 1991, and 1994 FIES rounds. These data are supplemented by regional indicators obtained from various sources.

In each function, we have included the following (3-year lagged) explanatory variables: functional literacy, defined as the proportion of adult population who can read and write simple messages; land inequality, given by the landholding Gini ratio which has extreme values of one (perfect inequality) and zero (perfect equality); average farm size; incidence of tenancy, defined as the ratio of area of farms under share tenancy to total area of farms; irrigation, expressed as the ratio of irrigated to total farm area; agricultural terms of trade, defined as the ratio of the price of agriculture to the price of non-agriculture; road wealth, quality-adjusted road length per square kilometer of land; and electricity, defined as the proportion of households with access to electricity. The functional-literacy variable reflects the predetermined quality of human capital endowment in the region. The irrigation variable is a proxy for land quality. The terms-of-trade variable reflects the relative price incentives for agriculture. Road wealth and electricity are proxies for access to markets and off-farm employment.[10] Three year-dummy variables are also included to capture significant

[10]Road wealth is preferred to the conventional road-density measure (total road length expressed as a ratio of land area) since the former better reflects regional differences in the quality

differences in political and economic environment during the period of interest: 1985 was a period of severe macroeconomic difficulties (Marcos regime), 1988 was the peak of the short-lived economic recovery in the 1980s (Aquino regime), 1991 was the lowest ebb of the relatively long recession beginning in 1989 (severely weakened Aquino regime), and 1994 was the early period of the economic recovery and of renewed policy and institutional reforms (Ramos regime). All the regression equations take a double-log specification. Hence, the coefficients, except for the dummy variables, can be conveniently interpreted as poverty elasticities. In all regressions Metro Manila is excluded since agricultural production is not an important part of economic activity in the region. The regression results are given in table 7.

Functional literacy is highly significant in all regressions. Its coefficient suggests a very elastic response of poverty to improvement in human capital. Poverty incidence falls by about 15% if functional literacy rate improves by 5%, all other things remaining the same. For the poverty measure capturing the severity of poverty, the reduction would be 23%. These results confirm the popular story emanating from the development experience of the so-called East Asian economic miracles, suggesting that substantial improvements in human capital formed part of the building blocks for sustained economic growth and poverty reduction (World Bank, 1993; Ranis, 1996).

The land-inequality variable is consistently significant in all regressions, thereby also affirming the common observation in development literature concerning the negative association between landholding inequality and rural poverty. Furthermore, the elasticity of poverty with respect to this variable increases with the degree of importance given to the consumption shortfalls of the poor. Thus, for a 5% increase in land Gini index, poverty incidence rises by about 13%, while poverty severity rises by about 20%, all other factors remaining the same. Even more interesting is that these elasticities reflect the national picture, i.e., the responsiveness of national poverty to the consumption Gini index (Balisacan and Bacawag, 1994).

Farm size and irrigation are also important determinants of poverty in regions other than Metro Manila. The consistently negative and significant coefficient of the irrigation variable suggests that improvements in land quality offer an important avenue for reducing poverty, both in agriculture and in rural nonfarm areas.

Road wealth is highly significant in all equations. Electricity is significant for the depth and severity regressions but not for incidence regression. At the very least, both variables suggest that access to markets and off-farm employment opportunities influence poverty. The importance of road wealth in explaining the variation in regional poverty is particularly interesting because previous attempts to capture the effect of market access and off-farm employment opportunities on poverty in agriculture through the use of conventional measures such as road density and urbanization (usually expressed as the ratio of urban population to total population) proved unsuccessful (see Balisacan, 1993).

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of road stock.

Table 7
Poverty determination functions

Explanatory variable	Incidence	Depth	Severity
Functional literacy	-3.120	-4.070	-4.637
	(-5.07)	(-5.38)	(-5.25)
Land inequality	2.579	3.406	3.946
	(6.92)	(7.42)	(7.36)
Farm size	-0.358	-0.468	-0.499
	(-2.82)	(-2.99)	(-2.73)
Tenancy	0.045	0.057	0.080
	(0.43)	(0.44)	(0.53)
Agricultural terms of trade	-0.255	0.137	0.609
	(-0.50)	(0.18)	(0.82)
Irrigation	-0.175	-0.297	-0.404
	(-3.51)	(-5.00)	(-5.63)
Road wealth	-0.427	-0.613	-0.727
	(-3.17)	(-3.70)	(-3.77)
Electricity	-0.148	-0.317	-0.394
	(-1.64)	(-2.11)	(-2.18)
Year-1988 dummy	-0.066	-0.140	-0.184
	(-0.87)	(-1.48)	(-2.68)
Year-1991 dummy	-0.190	-0.209	-0.203
	(-2.05)	(-1.84)	(-1.53)
Year-1994 dummy	-0.230	-0.328	-0.376
	(-2.70)	(-3.13)	(-3.08)
Constant	-0.076	-1.060	-1.858
	(-0.27)	(-3.01)	(-4.52)
Adjusted R^2	0.867	0.887	0.890
F-value	28.97	34.65	35.63

Note: All variables, except year dummies, are in natural logarithms. Figures in parentheses are t-ratios. Data pertain to regional aggregates for rural areas.

The terms-of-trade variable is insignificant. It is possible that this variable could not capture adequately the regional biases of commodity pricing policies and hence the relative profitability of agriculture.

Interestingly, tenancy is not significant in any of the regressions. What this observation, as well as many other recent theoretical and empirical studies (e.g., Hayami and Otsuka, 1993), suggests is that tenancy by itself is not as important and compelling a correlate of poverty as expected: the variation in incomes within tenure classes (reflecting the effect of farm size, yield, cropping intensity, land quality, etc.) has been found to be much greater than the variation between classes.

Finally, note that the year dummy variables are generally significant, indicating that changes in the overall macroeconomic and political regimes influence the incidence, depth, and severity of poverty, as expected.

4. Concluding Remarks

Contrary to popular perceptions, recent episodes of growth in the Philippines have not been anti-poor; the bulk of the poverty reduction since the mid-1980s, a period of wide-ranging economic deregulation and institutional reforms, has come from the beneficial effects of growth on the poor. The importance of growth in poverty alleviation varies greatly, however, across administrative regions and sectors of the economy. For the entire country, the agricultural sector led the way to poverty alleviation during the 1980s and early 1990s despite its sluggish growth (Balisacan, 1997). The self-employed workers, the large majority of whom were dependent on agriculture, gained more than proportionately to the overall growth, mainly because their consumption grew more rapidly than those of other groups. For faster poverty alleviation, the development of agriculture and the rural sector, which still accounts for over three-fourths of the poor, has to be a central element of the country's development strategy. Priority should be given to rural infrastructure development, human capital formation, agricultural research and small- and medium-scale industrial development, and improvement of access to land. As the East Asian experience demonstrates, these investments, together with sound "fundamentals" (i.e., fiscal and monetary restraint), are critical to the building of initial conditions for broad-based growth and development.

The high inequality of landholding weakens, though perhaps not eliminates, the potential of agricultural growth in leading the way to poverty alleviation in rural areas. Several land reform programs have been launched since the 1930s, but their performance have been poor in relation to their objectives, as well as to similar programs undertaken in East Asian countries. In general, their very limited success in promoting either equity or efficiency stems not so much from lack of "political will" but from faulty designs arising from unrealistic expectations and virtual disregard for financial, economic, and political landscapes. It is high time that an alternative paradigm for reforming agrarian relations in the Philippines, as elsewhere in developing Asian countries, be found. The "new" paradigm needs to exploit the virtues of decentralized decision making, rely upon market forces for land transactions, and impose compatibility of incentives with program objectives (i.e., the intended

beneficiaries have the incentive to seek program benefits, while the unintended beneficiaries do not have the incentive to preempt these benefits).

The finding that economic growth in recent years has been beneficial to the poor, even in the short run, is a stark contrast to earlier findings for the 1960s and 1970s when the "trickle down" effects of growth on poverty were comparatively small (see, e.g., Balisacan, 1993; Ranis and Stewart, 1993; Bautista and Lamberte, 1996). It is possible that the structure of the economy has changed in ways that now allow greater participation of the poor during episodes of growth. But what has changed, and how have specific policy reforms in recent years influenced the observed outcomes on poverty? The analysis undertaken in this paper provides some answers, but the story on what explains the country's unenviable record in growth and poverty alleviation is far from complete.

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