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Poverty Incidence in the Asian and Pacific Region: Data Situation and Measurement Issues

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Foreword

The *EDRC Briefing Notes* are developed from notes prepared by staff of the Economics and Development Resource Center to brief Management and the Board of Directors. The *Notes* aim to provide succinct, nontechnical accounts of salient, current policy issues. They are not meant to be in-depth papers, nor intended to contribute to the state of current scientific knowledge. While prepared primarily for Bank readership, the *EDRC Briefing Notes* may be obtained by interested external readers upon request. The *Notes* reflect strictly the views and opinions of the staff and do not reflect Bank policy.

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INTRODUCTION

The United Nations (UN) has declared 1997-2006 as the Decade for the Eradication of Poverty (UN 1995). It is hard to find a more appealing vision. However, pragmatically speaking it will be very difficult to completely eradicate poverty. The Asian countries most seriously affected by the economic crisis will have to spend the first years of the coming millennium trying to return to their precrisis levels of poverty incidence.

The World Bank's vision is "A World Free of Poverty; a call to action… to change the world so that many more may have enough to eat, adequate shelter, access to education and health, protection from violence, and a voice in what happens in their communities" (World Bank 1999a). A difference from the UN vision is that the World Bank's has not come with a fixed deadline as yet.

Reducing by half the proportion of people in extreme poverty by 2015 through a global partnership is one of six key strategic goals in a 1996 policy paper of the Organisation for Economic Co-operation and Development/Development Assistance Committee (OECD/DAC) (OECD 1996). The 20-year horizon, targeting instead the proportion of the number of poor, and specifying not just poverty but extreme poverty, give the OECD/DAC vision a stronger sense of pragmatism. As an example, consider the Asian Development Bank's (ADB) five biggest developing member countries (DMCs) (People's Republic of China [PRC], India, Indonesia, Bangladesh, and Pakistan), and their own estimates of poverty incidence in 1985 and 1998 (Table 1).[1] The proportion of people in poverty in these five countries declined from 25 to 21 percent during those 13 years. Meanwhile, the population increased by 25 percent, from 2,162 million to 2,710 million. As a consequence, the number of people in poverty increased from 549 million to 572 million. Thus, the war against poverty in percentages was being won, although very slowly, but not so in numbers.

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[1]The five countries comprise 85 percent of the total population of DMCs and 45 percent of the world's population.

During its 1999 Annual Meeting, the Bank made poverty reduction in DMCs as its overarching goal (Chino 1999). The ADB is now reformulating its approach to reducing poverty. The results of these efforts will serve as inputs for a poverty reduction strategy that is currently being prepared. How to define poverty and the metric to use in measuring poverty and in monitoring the implementation and impact of the strategy are still being considered.

This note aims to highlight some of the data and measurement issues that the Bank will have to consider in formulating and implementing its poverty reduction strategy. After presenting some critical data and measurement issues in the next section, the note outlines a statistical information strategy to address specific areas in poverty reduction where these issues have a strong bearing. For the sake of brevity and for keeping the principal issues in sharper focus, the note almost exclusively uses the headcount ratio or poverty incidence (the proportion of people below the poverty line) to measure poverty.

Table 1. Change in Poverty Incidence in ADB's Five Biggest DMCs, 1985 to 1998

	1985			1998		
DMC	**Population (million)**	**Poor (%)**	**Poor (Million)**	**Population (million)**	**Poor (%)**	**Poor (Million)**
China, People's Rep. of	1,051	12	125	1,243	6	75
India	751	44	330	975	36	351
Indonesia	165	17	28	204	24	50
Bangladesh	99	43	43	149	44	66
Pakistan	96	24	23	139	22	31
Total	**2,162**	**—**	**549**	**2,710**	**—**	**572**
Weighted Mean	**—**	**25**	**—**	**—**	**21**	**—**

DMC - developing member country.
Sources: Asian Development Bank (1998, 1999).

CRITICAL DATA AND MEASUREMENT ISSUES

The issues that follow confront, at one time or another, those who study poverty. They arise mainly from the strong element of relativity inherent to current perceptions of deprivation (Box 1). These issues can be tackled immediately. However, unless attended to, they will continue to be bottlenecks in the efforts to reduce poverty.

Scarcity of Poverty Data

For most of the DMCs, estimating poverty is a recent phenomenon (Table 2). Poverty has become almost a nonissue in the newly industrialized economies and explains the absence of estimates (except in Taipei,China where the poverty incidence is estimated at 1 percent). The data situation has improved significantly between 1985 and 1998. Targets of priority assistance for developing poverty data sources are countries or subregions where data are still not available, including Afghanistan, Bhutan, Myanmar, Tajikistan, and Uzbekistan in Asia and all the Pacific DMCs except The Republic of Fiji Islands and Papua New Guinea.

Consistency and Quality of Available Data

Consistency ensures a meaningful comparison of estimates of poverty within a country over time. Inconsistency is the result of various factors, including changes in the instruments for data collection, reference period, poverty variable used, unit of analysis, and estimation procedure for deriving poverty lines.

Most DMCs use a kind of household survey as a source of basic data to derive the poverty incidence estimates. Examples are the suvey sosial ekonomi nasional (SUSENAS or socioeconomic survey) in Indonesia and the family income and expenditure survey (FIES) in the Philippines that are conducted at three-year intervals. The use of one type of survey tends to reduce variation between measures. However, changes in the contents (e.g., including details) or manner of collection (e.g., use of the vernacular) from one survey to the next to enhance responses do occur and, in the name of

Box 1. Poverty Lines and Measures

Measuring poverty begins with some form of threshold, typically called the poverty line. Units of observation (usually households) falling below the threshold are considered poor; those at the threshold or above it are nonpoor. The poverty line can be defined in many ways, and mostly in terms of some monetary value, such as 50 percent of median income or 65 percent of minimum wage. These result in different counts of the poor. To reduce the arbitrariness, some poverty lines are defined as the monetary value at which certain nutritionally adequate diet requirements are met. Others add a nonfood component by direct estimation, or indirectly from the food ratio. Poverty lines are sometimes further adjusted to account for variations in family size (the most common being the per capita adjustment) or age of members. As geographical locations and regional price differences contribute to variations in the estimation, region-specific poverty lines have been constructed.

In practice, the living standard indicator against which the poverty line is compared is either income or consumption expenditure collected from household income and/or expenditure surveys. This type of survey collects data describing the consumption patterns, incomes, some demographic features, and sometimes housing characteristics of households or families. An exercise estimating the headcount index without a household survey, using instead only readily available aggregate economic and social indicators, yielded at best only a rough idea of the prevalence of poverty, and nothing of its extent (Ravallion 1992).

Concerning poverty measures, the class proposed by Foster, Greer, and Thorbecke (1984) is currently the most popular, and with reasons. To this class belongs the simplest measure, the headcount ratio (P_0), which measures the prevalence of poverty. Other measures are the poverty-gap index (P_1) related to the depth of poverty, and (P_2), the severity of poverty.

In addition to measuring poverty directly using household income or expenditure data, efforts have been made to measure the poverty level

improvement, are regarded as permissible. The common criticism in using a household survey is income underreporting and/or expenditure overreporting that is determined through cross validation with national income accounting. Moreover, because this is a household survey, it leaves out a growing segment of society typically associated with poverty: the homeless. It also leaves out the institutional population that includes those in hostels, nursing homes, military barracks, and other nonhousehold institutions.

The quality of data is hard to assess. One form of manifestation is through sampling errors or, conversely, the precision of

of a country in conjunction with a set of social indicators. A number of indicators have been proposed as included in the minimum basic needs indicators (MBN), UN minimum national social data set (MNSDS), and OECD's Strategy 21 indicators. The MNSDS, which was proposed in 1996, is a list of 15 indicators to form a suggested minimal set of social indicators for a particular country. It covers indicators such as life expectancy, mortality (infant, child, and maternal), percentage of underweight infants, average number of years of schooling, gross domestic product (GDP) per capita, household income per capita, unemployment rate, and access to safe water and sanitation. In 1990, the United Nations Development Programme (UNDP) introduced a composite index called the human development index (HDI) (UNDP 1990). HDI, which is an improvement over the physical quality of life index (PQLI), is based on three indicators: longevity, as measured by life expectancy at birth; educational attainment, through a combination of adult literacy and gross enrollment ratio; and standard of living, as measured by real GDP per capita expressed in purchasing power parity (PPP) in constant dollars. UNDP later developed the Human Poverty Index (HPI) (UNDP 1997). This index deals with deprivations in three dimensions of human life as reflected in the HDI: longevity, knowledge, and a decent standard of living. The deprivation in longevity is approximated by the percentage of people expected to die before reaching age four and the deprivation in knowledge, by the percentage of illiterate adults. The level of a decent standard of living is determined through a combination of three variables: the percentage of people without access to health services, percentage without access to safe water, and percentage of underweight children under five years. While the HDI measures progress in a community or country, the HPI indicates the extent of deprivation (UNDP 1998). However, it is to be noted that neither HDI nor HPI could be associated with a proportion, number, or segment of the population in poverty or deprivation.

estimates from sample surveys. For sample surveys from large populations, what matters is not the sampling rate but the sample size. And the sample size determinations for a desired level of precision are, or should be, made for the smallest areas (where separate estimates are required)—not the whole country or population. This is why total sample size for Indonesia's SUSENAS, for example, is 200,000 households.

Precision is not synonymous with accuracy of estimates from sample surveys. Accuracy includes both sampling error (precision) and nonsampling error. The latter, sometimes referred to as bias, is

Table 2. DMCs' Own Estimates of Poverty Incidence

DMC	1985[a]	1998[a]
NEWLY INDUSTRIALIZING ECONOMIES		
Hong Kong, China		
Korea, Rep. of		
Singapore		
Taipei,China		1.0
CHINA, PEOPLE'S REP. of and MONGOLIA		
China, People's Rep. of	12.0	6.0
Mongolia		29.0
CENTRAL ASIAN REPUBLICS		
Kazakhstan	15.0	34.6
Kyrgyz Republic		40.0
Tajikistan		
Uzbekistan		
SOUTHEAST ASIA		
Cambodia		36.0
Indonesia	17.4	23.8
Lao People's Dem. Rep.		46.1
Malaysia	15.5	9.6
Myanmar		
Philippines	49.3	37.5
Thailand	18.0	13.1
Viet Nam		15.7
SOUTH ASIA		
Afghanistan		
Bangladesh	42.7	44.3
Bhutan		
India	44.5	36.0
Maldives		40.0
Nepal	42.6	42.0
Pakistan	24.0	22.3
Sri Lanka	40.6	35.3
PACIFIC DMCs		
Cook Islands		
Fiji Islands, The Rep. of the		25.0
Kiribati		
Marshall Islands		
Micronesia, Fed. States of		
Nauru		
Papua New Guinea		21.7
Samoa		
Solomon Islands		
Tonga		
Tuvalu		
Vanuatu		

DMC - developing member country.
a Refers to available data nearest the reference year.
Sources: Country sources; ADB (1998); and World Bank (1999b).

a catch-all term for all errors other than those due to having observed only a sample of the whole population, such as memory bias, nonresponse, systematic errors in instruments used, and processing errors. One reason often cited why expenditure is preferred over income in assessing poverty incidence is that the former can be more accurately reported by households or individuals than the latter. Unlike sampling error, which is inversely proportional to the square root of the sample size, nonsampling error is usually unaffected by sample size. It is not difficult to find situations where increasing the sample size can result in such things as looser control of the sample survey operation, and lower average ability of interviewees, leading to a higher nonsampling error.

Other statistical truisms need to be considered in planning the data collection for poverty monitoring and analysis. These will be taken up in more detail in the section outlining a statistical information strategy.

Intercountry Comparability

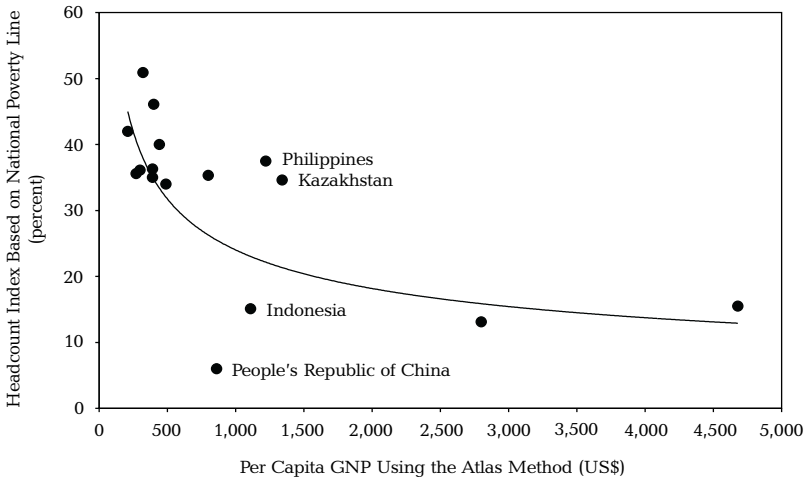
Differences in methodology are more evident when comparisons are made across countries than between measurement periods in the same country. The differences can be as clear-cut as in the choice of variable (e.g., income in the Philippines versus expenditure in Indonesia), or unit of analysis (e.g., household in the Philippines versus individuals in Indonesia). However, often the differences and their causes are difficult to discern, much less to measure. One serious impediment in trying to carry out such investigations is the inadequacy of the details in the documentation by the countries of their methods and databases.

It would be hard to find two countries that have the same perception of poverty and the same data specification and methodology for estimating it. One way to spot noncomparability is by juxtaposing countries' headcount ratios against some known or assumed correlates, such as per capita gross national product (GNP) converted to US dollars using the World Bank's Atlas method (Figure 1). The procedure is rough because the per capita GNPs are known to suffer from distortions so that the deviations from the trend reflect both these distortions and the noncomparability of the

headcount ratios. However, as a preliminary screening procedure, the graph could show any obvious outliers. Thus, the PRC and Indonesia appear to have very low headcount ratios while those of Kazakhstan and the Philippines look higher than the norm for the majority of DMCs. Moreover, the vertical distance between these two groups of DMCs seems disproportionately long relative to the difference in their per capita GNPs.

Comparability is a major weakness of individual country-defined-and-derived poverty incidence estimates. The weakness is of little consequence to an individual country unless it wants to compare itself with other countries. Comparability is of greater concern to multilateral agencies and analysts as it permits additivity of the estimates and, therefore, easier regional and international assessment, monitoring, and analysis. Thus, it could be argued that the burden of conferring comparability to countries' estimates falls largely on multilateral agencies.

Figure 1. Per Capita GNP and Poverty Incidence of DMCs



DMC - developing member country.
GNP - gross national product.

To illustrate, consider the methods of calculating the food poverty line and the (total) poverty line of the five Association of Southeast Asian Nations (ASEAN) countries of Indonesia, Malaysia, Philippines, Thailand, and Viet Nam. The approaches followed by the ASEAN countries in setting the food requirements for estimating the food threshold or food poverty line are similar (except for the most recent methodology used by Thailand). A typical food bundle (menu) for the poor is set up that satisfies a specified nutrient requirement or an energy requirement of about 2,000 calories per capita per day. The items in this food bundle, which vary from country to country with respect to both type and number, are then priced to derive the food poverty line. For Thailand, further adjustments to account for variations in household composition by sex and age are made. Thus, this approach can be used for deriving roughly comparable food poverty lines for ASEAN countries. Nevertheless, differences in the food bundles have been argued to result in incomparability of poverty incidence estimates across countries. For instance, the Philippines' food expenditure is argued to be too generous (fairly diverse with grains contributing 66 percent of the daily caloric requirement, which is lower than that in Indonesia and Thailand), resulting in an inflated poverty incidence compared with those of the other countries (World Bank 1996).

An even more significant contributor to the discrepancy is traced in the procedures used to adjust the food poverty line into a (total) poverty line (Box 2). In this regard, the ASEAN countries can be grouped into two. The Philippines and Viet Nam (also Thailand in the past) follow the Orshansky approach by dividing the food poverty line by the food share of the "poor group."[2] However, this methodology has a serious drawback. If the food share of the poor group declines (indicating an improvement in income), the food poverty line is divided by a ratio that becomes progressively smaller over time so that the total poverty line would likewise be pushed to a progressively higher level. Thus, the poverty incidence would

[2]Poverty line = food poverty line / (fe/te), where fe and te are the food expenditure and total expenditure of the poor group; the poor group may be plus or minus 10 percentiles of the previous poverty line in the income expenditure distribution. The fact is that $0<fe/te<1$ tends to impart more volatility or instability on the poverty line than if the poverty line is computed as the sum of the food poverty line and the expenditures for a bundle of essential nonfood items.

remain unnecessarily high. Indonesia and Malaysia belong to the second group where the absolute expenditure for a predetermined list of essential nonfood items is added to the food poverty line to arrive at the total poverty line. However, the essential nonfood item specifications differ between the two countries.

Aside from DMCs themselves, the World Bank has done the most work on monitoring and analyzing poverty in Asia and the Pacific. Basic data collection is done through the living standards measurement surveys (LSMSs), which are usually cofinanced by the UNDP and implemented by a country's planning ministry or national statistics office. If implemented consistently, LSMSs ensure the uniformity of concepts, definitions, and methods across countries. LSMSs have been the first or only source of poverty information in some countries. However, there were occasions when the World Bank produced estimates and poverty assessments that did not agree with the countries' own (David et al. 1999).

Box 2. 1984-1988 Poverty Incidence: Indonesia and the Philippines

In the 1980s, Indonesia and the Philippines were very similar in many respects based on their socioeconomic indicators. However, their headcount ratios showed an astonishing difference of 37 percentage points, with Indonesian estimates pointing to a much lower poverty incidence. A study that reviewed the methodologies used by the two countries in deriving their poverty estimates revealed that the way the nonfood component was computed in the poverty line contributed largely to the discrepancy (Asra and Virola 1992). In Indonesia, the Central Bureau of Statistics used a certain percentage of the food poverty line to account for the nonfood component. The percentage adjustment was derived as the proportion of the expenditure on a fixed bundle of basic nonfood items to total expenditure of the class where the food poverty line lies. In the Philippines, the total poverty line was calculated by dividing the food poverty line with the ratio of food expenditure to total expenditure. Indonesia's poverty line was 11 percent more than the food poverty line while it was 87 percent for the Philippines. Using the survey records, the study then recalculated Indonesia's poverty incidence by adopting as closely as possible the methodology used by the Philippines. The results showed that only between 4 and 8 percentage points separated the two estimates. This underscored the risks in comparing the countries' poverty estimates, as well as the need for caution in interpreting and using the countries' own estimates.

The World Bank has proposed $1/person/day at 1985 PPP prices as an international poverty line (World Bank 1990, Ravallion et al. 1991). The idea has gained the attention of analysts and international agencies because of its pioneering nature. However, it is not clear whether it has gained acceptance in individual countries. Some familiarity with its beginning and empirical underpinning could help potential users decide on its merits. The starting points are the countries' poverty lines that were converted to a common currency using PPP indexes based on consumption data in 1985 prices, indicated as z in $/person/month. The mean per capita private consumption, indicated as u (also in $/person/month in 1985 PPP prices), were likewise derived from the individual countries' national accounts data. Ordinary least squares regression of log(z) on (u and u^2)provided a good fit to the data. Assuming that the u's are reasonably accurate, their strong empirical relationship with the z's implies that the z's are accurate as well. Somalia and India are at the bottom of this relationship, with z at $23/person/month, which may be interpreted as the line of extreme absolute poverty; further up the regression line is a group of countries (Bangladesh, Indonesia, Kenya, Morocco, Nepal, and Tanzania) that clusters around $31/person/month, a more generous and representative absolute poverty line. The next step is to fit a Lorenz curve on the monthly income or expenditure (survey) data of each country, likewise adjusted to 1985 prices, and then estimate the headcount ratio corresponding to $31/person/month (or any income point) or $1/person/day.

Headcount ratios from national poverty lines of DMCs and the corresponding estimates based on the $1/person/day definition are shown in Table 3 and Figure 2. Deviations from the 45-degree line of perfect match are naturally expected because, while the international poverty line is constant, the national poverty lines vary according to the local perceptions of what poverty means and the methods used to quantify it. Still, interesting observations emerge. The majority of the points fall below the 45-degree line, indicating that national estimates exceed the $1/person/day estimates, and often by considerable margins. A conspicuous exception is the PRC in 1995, in which the international poverty line gave an estimated poverty incidence (22 percent) at 3.5 times the national estimate (6 percent). In India, the international estimate (47 percent) was

likewise 12 percentage points higher than the national estimate (35 percent).[3] Conspicuously large deviations appear on the other side as well, including Kazakhstan (35 percent national estimate versus less than 2 percent international estimate), Sri Lanka (35 percent versus 4 percent), Pakistan (34 percent versus 12 percent), and Thailand (13 percent versus less than 2 percent).

Table 3. Selected National and International Poverty Incidences, 1990-1996 (percent)

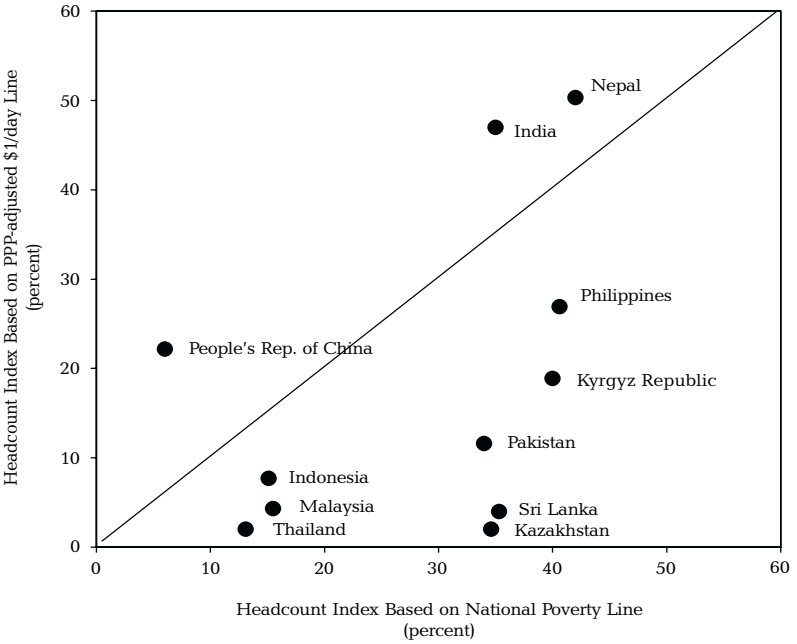
DMC	National		$1/person/day	
Nepal	42.0	(1995-1996)	50.3	(1995)
Philippines	40.6	(1994)	26.9	(1994)
Kyrgyz Republic	40.0	(1993)	18.9	(1993)
Sri Lanka	35.3	(1990-1991)	4.0	(1990)
India	35.0	(1994)	47.0	(1994)
Kazakhstan	34.6	(1996)	<2.0	(1993)
Pakistan	34.0	(1991)	11.6	(1991)
Malaysia	15.5	(1989)	4.3	(1995)
Indonesia	15.1	(1990)	7.7	(1996)
Thailand	13.1	(1992)	<2.0	(1992)
China, People's Rep. of	6.0	(1996)	22.2	(1995)

DMC - developing member country.
Source: World Bank (1999b).

Large deviations in both directions are the exceptions rather than the rule for Asia's developing countries, which raises several questions: Are the international poverty estimates for the individual countries useful, and for what purpose? Would a funding agency, such as the ADB, make use of 12 percent or 34 percent as a benchmark estimate in planning a poverty reduction strategy, for example,

[3]Deviations in the estimates for PRC and India take on added significance because 7 out of 10 persons in the region live in these two countries.

Figure 2. Poverty Incidence in DMCs



DMC - developing member country.
PPP - Purchasing Power Parity.

for Pakistan? Would Pakistan agree to replacing its 34 percent poverty incidence estimate with 12 percent? Are the World Bank estimates meant mainly as inputs to regional and global aggregations?

How do developing countries regard international poverty estimates? Consider an Asian developing country that last participated in an International Comparison Program (ICP) PPP price survey in 1985.[4] Through models using other countries' data and its own GDP in local currency as inputs, its GDP in PPP prices and the PPP of its currency keep getting extrapolated to later years (at the World Bank or University of Pennsylvania). The World Bank obtains the country's most recent poverty line and private consumption

[4]Fifteen Asian countries participated in the 1993 round of ICP price surveys. The results from these surveys seem to have not been incorporated in the PPP-based calculations of comparable GDP and poverty incidence, at least not through 1997.

GDP and combines these with other countries' to compute a global regression estimate of the poverty line as a function of private consumption in 1985 PPP prices. The World Bank uses the regression equation to predict the Asian developing countries' internationally comparable poverty line. The World Bank derives an empirical cumulative distribution function and Lorenz curve using either its own LSMS or the country's household income and expenditure survey (HIES) data set, and plugs into it the predicted poverty line to finally arrive at the proportion of the country's population below the international poverty line. More often than not, this figure turns out to be significantly different from the country's original estimate (Figure 2). Will the country find enough use for the international poverty line to continue supporting the exercise's data requirements? In other words, will the country renew its participation in ICP PPP surveys as well as continue its own HIES and poverty line estimation?

The incidence estimates based on the international poverty lines are rather dated because they require survey data from the countries as input (Table 3). Other reasons include the complexity of the estimation procedure and that the efforts were centralized outside the developing countries. Thus, in its present formulation, the international poverty line approach has limited applicability in quick monitoring of the impact of a crisis or a program on a country or group of countries.

Sensitivity of Poverty Incidence to Economic Events

The following account provides insights on poverty incidence as a measure in tracking the situation of the poor during the recent economic crisis.

Thailand's estimation of the increase in poverty incidence in 1998 was rigorous. Because Thailand used the same methodology as in previous years, comparability was maintained with those estimates (National Economic and Social Development Board 1999). While the number of poor was reduced dramatically from 17.9 million in 1988 to 6.8 million in 1996, they increased to 7.9 million in 1998. In percentage terms, the incidence increased from 11 percent in 1996 to 13 percent in 1998.

According to official sources, Indonesia's poverty incidence also underwent a dramatic decline, from 40 percent in 1976 to 11 percent in 1996, representing an average drop of 1.4 percentage points per year. The number of poor people declined from 54 million in 1976 to 26 million in 1996, or 1.4 million people moving above the poverty line per year. The next official estimate is not due until 1999.[5] In early 1998, the Central Board of Statistics (CBS) in Indonesia projected poverty incidence through mid-1998. To the extent that CBS produces the official poverty statistics, its projections are the closest to what can be regarded as an official or government assessment of the impact of the crisis on poverty incidence. CBS projections put the mid-1998 poverty incidence at 39 percent, or 79 million people (ADB 1999).[6] A SUSENAS-type survey was conducted in December 1998, and the results were released in mid-1999. The poverty estimate indicates that the poverty incidence in December 1998 was 24 percent, meaning about 50 million poor. Although this estimate is not strictly comparable with the mid-1998 projection, some have mistakenly used the figures to indicate that the poverty incidence has declined from 39 percent to 24 percent. What can be inferred is that the poverty incidence increased

[5]Several projections on the impact of the crisis on poverty in 1998 were made by the International Labor Organization (ILO), World Bank, and CBS. ILO projections put the proportion of poor people in 1998 at 48 percent and their number at 99 million, respectively (ILO/UNDP 1998). These estimates are now regarded as grossly pessimistic. The World Bank's projections are much more conservative, putting the 1998 incidence at 14 percent, implying 28 million poor or an increase of only about 6 million from the World Bank's own estimate of the number of people in poverty in 1996 (Sigit and Surbakti 1999).

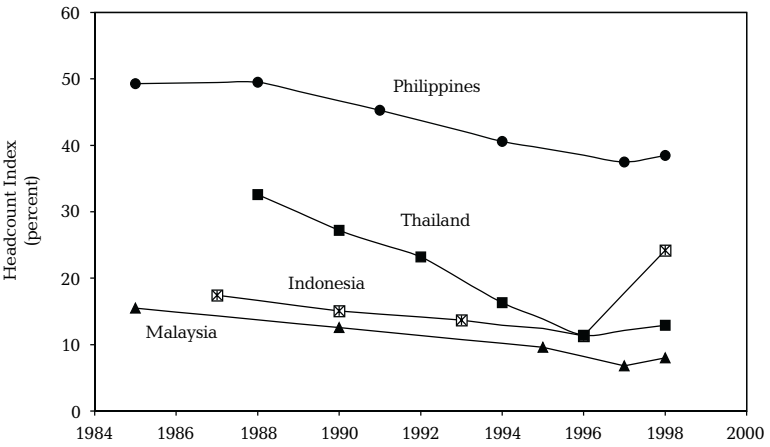
[6]CBS projections invite many conjectures and hypotheses. A sympathetic inference is that the income/expenditure distribution is weighted very heavily on the percentiles just marginally above the poverty line, and the crisis caused these people representing those percentiles to slip under the poverty line. However, a simulation of the sensitivity of the CBS 1996 official poverty lines indicated that the poverty incidence is not that sensitive to changes in the poverty lines (Asra 1998). A 10 percent increase in the urban poverty line, for instance, would lead to an increase of less than 4 percentage points in urban poverty incidence. The same percentage increase in the rural poverty line would bring about an increase of 5 percentage points in the rural poverty incidence. In terms of the number of poor, the 10 percent increase in both urban and rural poverty lines would bring about an additional 9 million poor, an increase of more than 30 percent from around 22.4 million poor. A second conjecture could be that the projections grossly overestimate the impact of the crisis (assuming implicitly that the official poverty incidence series until 1996 is accurate). A third would be the possibility that the projections seem high when compared with the official series, but only because the latter underestimate significantly the real extent of poverty. Some studies lend support to the underestimation of poverty by official estimates, such as that of Asra et al. (1999).

from 11 percent in 1996 to 24 percent in 1998. If accurate, this estimate means that less than two years into the crisis the proportion of poor people slipped back to where it was more than 15 years ago, and the absolute number has increased by 1.5 times during the same period.

In the Philippines, the poverty estimates of the proportion of people below the poverty line declined slowly from 49 percent in 1985 to 38 percent in 1997. The less than 1 percentage point annual decline is overwhelmed by the 2.3 percent annual population growth rate: consequently, the number of poor people increased by one million, from 26.2 million to 27.2 million during the 12 year period (National Statistical Coordination Board 1999).

In the absence of an official estimate, the World Bank estimated that the number of poor people in the Philippines increased by 665,000 in 1998. This figure translates into 27.915 million poor people in 1998 compared with 27.274 million in 1997. Taking population growth into account, the World Bank estimate would cause a 1 percentage point rise in the poverty incidence from the 1997 level.

Figure 3. Poverty Incidence in DMCs in Crisis, 1985-1998



DMC - developing member country.

Malaysia's poverty incidence is estimated to have increased from 6.8 percent in 1997 to 8.0 percent in 1998 (Ali 1999).

In summary, little doubt exists that the crisis worsened poverty incidence in the four countries (Figure 3). The impact is the least in the Philippines and Malaysia, moderate in Thailand, and the greatest in Indonesia, which is the same order as the economic impact of the crisis on these countries.

A STATISTICAL INFORMATION STRATEGY TO SUPPORT THE POVERTY REDUCTION STRATEGY

The crisis and the resulting heightened priority for reducing poverty have drawn attention to the inadequacies of the available statistics on poverty and, therefore, on the need for a poverty statistical information strategy to address these inadequacies. The strategy should meet the information needs of the developing countries and funding agencies as well as those of other stakeholders, such as local governments and nongovernment organizations. The strategy should address the issues in the previous section in the context of poverty profiling, monitoring, and analysis.

The strategy rests on the assumption of close cooperation between country and funding agency brought about by a common goal. This appears reasonable because poverty reduction or elimination is already a goal of most governments. For example, upon assuming office in 1992, Philippine President Fidel V. Ramos declared his administration's goal was to reduce Philippine poverty incidence from 56 percent to 30 percent by the end of his six-year term. On the supply side, the funding agencies' roles will be funding and actively leading the development and promotion of the concepts and methodologies needed to implement the strategy. The countries will naturally be the producers and analysts of the primary data; any primary data collection by the funding agencies should be mainly for purposes of developing, testing, and demonstrating methodologies. Diluting or crossing over of these roles could work against the long-term sustainability of any strategy. In addition, primary data collection implies high recurrent costs; thus a strong country commitment is a necessary condition for the success of any strategy.

The previous statements essentially reaffirm ADB's technical assistance (TA) philosophy. First, TAs are mainly to build capacity in DMCs and to support studies to advance knowledge for the benefit of DMCs. Second, the capacity built should prove useful and durable, which will only be so if DMCs develop a strong commitment to and ownership of TA activities. What is perhaps new is the suggestion to vigorously apply the Bank's TA resources and philosophy to improving the statistical information requirements of its own poverty reduction strategy.

Profiling Poverty

A poverty profile presents through statistics the nature, breadth, and depth of poverty in an area. It provides a framework useful in resource allocation in terms of type, target, and priority, and the benchmarks to monitor whether the goal is being achieved. To build a profile necessitates defining poverty and choosing some poverty measures to count and identify the poor. Thus, it is worthwhile for the Bank to determine the poverty statistics available in DMCs (including those from other funding agencies), and to undertake a study of the concepts and methods behind them. The Bank needs to develop and set down its procedures for poverty monitoring and analysis, including identifying the information required by the procedures. The advantages of common procedures and data requirements by the funding agencies and countries alike are obvious, more so for the former, which will be highly dependent on the countries for data.

One difficulty encountered by countries attempting to measure poverty is the lack of international standards for defining and measuring poverty. Glewwe and van der Gaag (1990) showed that the way the living standard indicator (such as per capita consumption or the fraction of expenditure on food) is defined yielded different numbers of the poor, even if a constant poverty line of 30 percent is applied. The method employed can likewise be a politically sensitive matter, as in the case of the Philippines. A change in the method of estimating the poverty line was made in the early years of the Ramos administration (by excluding upper-income families as well as tobacco, liquor, and luxury items in computing the food expen-

diture–total expenditure ratio). This caused a 15 percentage point drop in the poverty incidence estimates. The facts that efforts to improve the poverty measurement methodology started even before the Ramos administration, that the decision to change methods was made by the Philippine statistical system based on objective and empirical considerations, and that the reasons were explained and made public did not stop allegations of using statistics to solve the poverty problem. It is therefore important to get the methods right early on, which would reduce the need for later revisions. Precise definitions and their documentation are likewise important. In the Philippines, for instance, the official poverty incidence in 1997 was either 32 percent or 38 percent depending on whether the reference is to the proportion of families or to persons below the poverty line.

Hierarchical allocation of resources in direct proportion to the poverty incidences among the countries in the region, then provinces in a country, and then districts in the province would be optimal. This targeting of areas of high poverty incidence and the consequent identification and formulation of the appropriate kind of poverty reduction assistance will require poverty measures for small areas such as provinces. As mentioned previously, a sample survey or any similar data collection operation designed to generate reasonably useful small area estimates would be very costly. Fortunately, the funding agency would have no justifiable need to revise frequently its small area resource allocation and poverty reduction program.

Except in times of severe economic crises, such as the present one, countries' statistical systems would find it unnecessarily costly to do annual poverty measurements, and even more so for small areas. Thailand updates its headcount ratio estimate every two years, Indonesia and the Philippines every three years, and other countries even less frequently.

Hence, agencies and countries may agree and aim toward updating small area poverty estimates at less frequent intervals, such as five or more years. Depending on individual country situations, monitoring between for example, the quinquennial large-scale surveys could be done once or twice and limited to bigger areas (such as states, urban areas, rural areas, or national). For optimum efficiency and acceptance, the quinquennial updating of small area

benchmarks should be synchronized and merged to the fullest extent possible with the ICP round of price surveys, and fully integrated with the countries' own system of integrated sample surveys and censuses.

Income-based or expenditure-based poverty measures would not be enough to cover the multidimensional nature of poverty. The poverty profile should include some basic needs for survival such as food and nutrition, water and sanitation, health, and clothing; security (e.g., shelter and peace); and empowerment (e.g., education and participation in political process). Indicators of household welfare based not on income or expenditure should be included in the profile as well as a short history of the economic development (such as labor conditions) or development of the place to complement the picture. The poverty profile can be further enriched by including data on children, women, older persons, and beyond households to include the homeless.

Monitoring Poverty

Successful monitoring also requires that the country consistently apply the same concept and methods of poverty assessment from one period to the next. In 1998, the Philippines' National Statistics Office launched what it called an annual poverty monitoring survey (APIS) that is designed to produce poverty-related indicators for each of the country's 78 provinces during the years with no family income and expenditure survey (Africa 1999). The 1998 APIS indicators pointed to a rise in poverty incidence on account of the financial crisis and the drought brought by El Niño. In addition to a rise in unemployment, an estimated 17 percent had to accept a wage cut, 29 percent had to work longer hours, 48 percent had to change their eating patterns, and 7 percent of families had to take their children out of school. However, because the annual poverty monitoring survey is not designed to estimate income distribution, it cannot produce a comparable poverty incidence estimate.

Monitoring implies estimation of a difference, for example, of two headcount ratios, $x - y$. From surveys, the estimate of the difference has variance $\hat{V}(\hat{x}) + \hat{V}(\hat{y}) - 2C\hat{o}v(\hat{x}, \hat{y})$. When comparing the incidence between two different areas, the covariance is likely

to be at or near zero; hence the sum of two variances rather than one is being handled. Each variance depends on the choice of sampling scheme, sample size, and estimation procedure (survey strategy). When comparing the difference of the same area between two time periods, the covariance should be positive; and very importantly, the covariance can be increased by judicious choice of survey strategy. Thus, in the hands of a good survey statistician, the variance of the difference can be made very small, smaller even than the variance of either estimate. The sampling error of the estimate, $\hat{x} - \hat{y}$, is the square root of the variance.

Ranged against the sampling error is the difference $\hat{x} - \hat{y}$ itself. Whether the monitoring system could detect a true difference (e.g., a reduction in poverty) depends on the size of the difference relative to the size of the sampling error. In engineering parlance, it is a matter of trying to isolate the signal from the noise. If the signal is weak (as when the poverty reduction strategy is not working well, or the difference is really slight because the monitoring is annual instead of every three years) and the error is large (when the survey strategy is inefficient), then it would appear that the expensive poverty monitoring system would have been a wasted effort. Designing and implementing a poverty monitoring system should be multidisciplinary activities. Involving a country's statistical office and competent survey statisticians are critical success factors.

Analyzing Poverty

Poverty analysis tries to explain poverty. It involves studying the roots of poverty, its correlates and related concepts (such as inequality and social exclusion), and identifying the appropriate action to effectively address it. The usual approaches are through policy setting, legislation, direct intervention, social transfer, and extension of credit.

For funding agencies, the impact of the projects on poverty reduction counts the most, and given limited resources, the availability of comparable measures becomes valuable. This points to the need for a program of synchronized poverty measurement activities (such as through household surveys) at regular intervals. The agency will need country estimates that are comparable so that these

can be combined readily and a regional or subregional assessment can be possible.

The Bank would do well to look for effective, workable programs in the poverty reduction strategies developed by its DMCs. For instance, the PRC government target was to eliminate poverty by 2000. However, the leadership recently stated that "poverty can never be fully wiped out" and a group of hardcore poor (the handicapped and those in remote, destitute areas) "will always exist at any time and in any society." The hardcore poor in the PRC are estimated to number 20 million. The PRC officially estimated the poor to have decreased from 250 million in 1978 to 42 million in 1998 (*Xinhua Daily News* 1999). In terms of proportions, these translate into a phenomenal reduction from 26.1 percent in 1978 to 3.4 percent in 1998. The PRC's target is to lift an additional 22 million out of poverty by 2000, assuming no downward movement below the poverty line occurs. How the PRC will attain this target might prove instructive.

However, the PRC's population accounts for 40 percent of the total population of the DMCs. Thus, whether the Bank's overarching objective to reduce poverty in Asia and the Pacific is ambitious, and whether the time horizon to do this will be reasonably short or interminably long will depend on what numbers are used for the PRC. For example, the official PRC numbers would make the objective appear within easy grasp. On the other hand, the World Bank's $1 international poverty line puts the latest estimate of PRC poverty incidence at 22 percent in 1996. Conversely, Sri Lanka's official estimate of its 1990/1991 poverty incidence was 35 percent, while the World Bank puts it at 4 percent.

SUMMARY

With the exception of the short account of the derivation of the $1/person/day poverty line, this note limited the technical discussion on poverty measurements and focused more on the current data situation compared with the information required to implement a poverty reduction strategy.

Foremost among the issues needing consideration is the uneven regard given to measuring poverty among DMCs. Some DMCs

have not measured poverty at all. A few of these have estimates produced by international organizations. In many cases, those DMCs with their own estimates only have them at the national level. The lack of disaggregated estimates down to lower administrative units makes targeting, designing, and implementing poverty reduction programs difficult. Other DMCs have made poverty monitoring and analysis part of their regular activities but these countries often lack the knowledge base to address the tasks adequately. Many DMCs do not have baseline information that is imperative for monitoring the progress toward achieving the goal of reducing poverty. For funding agencies like the Bank, countries' baseline information (ideally to the lower administrative level) is vital for planning and assessing the impact of their projects on the poor.

Second, the issue of consistency of survey procedures and associated instruments is another important aspect in measuring poverty over time. The most recent examples of poverty figures for countries affected by the economic crisis show that while it can be inferred that the crisis has contributed heavily to increasing the poverty incidence, the magnitude of the increase is still uncertain. Hence, data quality should be addressed to enable DMCs to derive robust conclusions with regard to the poverty profile of the country.

There are issues of comparability across countries, where DMCs use different procedures and methodologies to measure poverty, leading to difficulty in ranking poverty across countries. These issues result, among others, from variations in the timing, design, coverage, and content of the surveys as well as approaches in poverty measurement. Efforts to remedy this situation are required to provide reasonably comparable poverty estimates, at least within Asia and the Pacific, that could guide funding agencies in allocating their scarce resources. The World Bank's $1/person/day approach produced estimates that are rather dated and are significantly different from the countries' own estimates. It is important to note that intercountry comparability of poverty estimates is of lesser consequence to the countries than to the funding agencies. Thus, countries tend to regard the development of methodologies and production of comparable poverty statistics as funding agencies' responsibilities.

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