

Chapter 4

Basic Framework for Purchasing Power Parities for Converting Poverty Lines

Introduction

Purchasing power parities, as described in Chapter 3, are essentially price index numbers specially designed for making comparisons over space, i.e., across regions within a country or across countries. There are essentially three major steps in compiling PPPs. First, determine the basket of goods and services that need to be priced for computing the PPPs. In this step, it is important to ensure that the items selected closely correspond to the aggregate PPP that is being used to convert the aggregate.⁸ Consistency between the purpose for compiling the PPPs on one hand and the product list on the other hand is essential. Second, collect price data based on a survey framework that adequately accounts for the main outlets used for the purchase of items under consideration. Third, determine the weights to be used in the process of aggregating price data. The weights should accurately reflect the relative importance of a particular item or a specific basic heading. This chapter is devoted to the three steps in compiling PPPs for converting the IPL into local currency units.

⁸ PPPs are like a price index. Since the price (P), quantity (Q), and value indexes (V) are supposed to satisfy the relationship $V = P \cdot Q$ or, equivalently, $Q = V/P$, this means that real values or quantities are obtained by dividing the value index by a suitable price index. Therefore, V, P, and Q must refer to the same basket of goods and services.

Product Lists

Based on the meaning accorded to PPPs as *spatial price index numbers*,⁹ the items priced for the purpose of PPPs should closely relate to the purpose for which PPPs are compiled. Poverty-specific PPPs are sought principally for converting a given IPL into a local currency unit. Therefore, such PPPs must reflect the general price levels experienced by the poor. An implication is that it is necessary to identify products, goods, and services that are typically consumed by the poor. In establishing a framework for compiling poverty PPPs, it is useful to examine the available options. Three options are discussed here.

ICP Product Lists

A simple option is to use the product lists of the 2005 ICP Asia Pacific and the list of goods and services that have been identified for price surveys within the ICP. As mentioned in Chapter 3, the ICP covers all components of the GDP, which include household consumption, government consumption, and gross fixed capital formation. As poverty-specific PPPs refer to the consumption of poor households, the most appropriate component of the ICP product list is the product list for HFCE. In the Asia and Pacific region, a total of 656 goods and services have been specified for the purpose of price surveys. Table 3

⁹ See Rao (2004), which discusses spatial price index numbers and PPPs in relation to the compilation of the consumer price index.

shows a summary of the number of basic headings and the number of products used in the 2005 ICP Asia Pacific for the ICEH, while Appendix 2 of ADB (2007b) gives a breakdown of this list by all basic headings. It should be noted that not all items were priced in all the economies, and not all items were considered representative in all the economies.

For the computation of poverty PPPs to convert poverty lines, the product list and the price data collected from the ICP price surveys may be used. The main issue here is that the goods and services considered in the list are not likely to be representative of the consumption patterns of the poor. For example, to maintain a level of comparability across all the 23 economies that participated in the 2005 ICP Asia Pacific, which included Hong Kong, China and Singapore, and at the same time to ensure representativity of the consumption patterns of the general populations of those economies, the products included in the list are generally of higher quality and may not be relevant to the consumption patterns of the poor in the participating economies.

Table 3. Number of Basic Headings and Items for Major Individual Consumption Expenditures by Households

Description	Number of Basic Headings	Number of Specified Items
Food and nonalcoholic Beverages	29	211
Alcoholic beverages, tobacco, and narcotics	5	19
Clothing and footwear	5	71
Housing, water, electricity, and other fuels	7	14
Furnishings, household equipment, and routine maintenance	13	82
Health	7	70
Transport	13	48
Communication	3	14
Recreation and culture	13	61
Education	1	6
Restaurants and hotels	2	21
Miscellaneous goods and services	10	39
Total	108	656

Source: Table 2 and Appendix 2 of ADB (2007b).

The problem of pricing higher quality products may not pose a major problem if the relative levels of prices of items in the ICP list are similar to the relative levels of prices of items that are commonly consumed by the poor. For example, if rice of good quality costs Rs15.00 in India and RM2.00 in Malaysia, then this implies a PPP of Rs7.50/RM1.00. If at the same time, rice of a much inferior quality costs Rs7.00 in India and RM1.00 in Malaysia, then the PPP for the lower quality rice is Rs7.00/RM1.00. In this case, even though the better quality rice is not representative of the consumption pattern of the poor, the PPP based on this item is a reasonable approximation of the PPP based on the lower quality rice.

In assessing the suitability of the items list used in the 2005 ICP Asia Pacific for the purpose of poverty PPPs, it is necessary to examine if the relative price levels for the two baskets—the 2005 ICP Asia Pacific basket and the basket of goods and services that are relevant to the poor—are similar. If the relative price structures for these two baskets are similar, then the 2005 ICP Asia Pacific items list and the prices collected as part thereof may be used. However, there is little empirical evidence that can be used in making such judgments.

ICP Products Representative of the Consumption Patterns of the Poor

Because the list of items used in the 2005 ICP Asia Pacific were drawn up without considering the requirements of the poverty PPPs, one can determine if there is a subset of items that may be considered representative of or relevant to the consumption patterns of the poor. This strategy was tried as part of the study. National statisticians attending various workshops during the course of the 2005 ICP Asia Pacific and the poverty PPP study were requested to provide their *subjective* indication of whether or not a particular item can be considered as representative of the poor in their respective countries. On an experimental basis, the data were collected for items belonging to the two major expenditure groups relevant to the poor, i.e., food and clothing. Table 4 summarizes these information.

Of the 211 items under the food and nonalcoholic beverages in the 2005 ICP Asia Pacific product list, Bangladesh considered 115 as relevant to the general population and only 71 as relevant to the poor. In general, more products were classified as representative of the general population than of the

poor. However, there were exceptions. In Bhutan, 88 items were considered representative of the general population compared with 99 items for the poor. A similar comparison appears to hold for clothing and footwear.

In general, this approach of identifying items representative of the poor from the 2005 ICP Asia Pacific list has not proved useful. Part of the problem stems from the fact that the concept of “representativity” seems to be difficult to grasp and implement.¹⁰ The national statisticians were unable to provide an accurate indication of the representativity of the items included in the 2005 ICP Asia Pacific list. Therefore, the possibility of using a subset of

the items considered relevant to the poor had to be abandoned during the course of the study.

Poverty-Specific Product List

Given that infrastructure is in place for conducting price surveys for the 2005 ICP Asia, it may be possible to identify and price a list of products considered typical of the consumption of poor households in countries participating in the poverty PPPs study. The idea here is to use a separate product list taking into consideration the possibility that the relative price levels across countries may differ for goods and services that are typically consumed by the poor and those consumed by the general population.

The process of identifying the list of items to be priced and establishing a framework for conducting the poverty-specific price surveys is very resource-intensive. The 2005 ICP Asia Pacific product list and the structured product description (SPD) associated with the product specifications can be used as a starting point. These product lists can then be modified using input from national statisticians involved in compiling CPI numbers

¹⁰ The difficulty associated with the concept of “representativity” was also reflected in the price surveys and eventual price data submitted to the Regional Office. In several cases, many commodities that were identified by country representatives as being representative were not priced while, at the same time, several commodities that were identified as not representative were priced and data were submitted. Mainly due to the problem associated with representativity and inconsistencies in the understanding of this concept in the participating countries, the use of the aggregation method, CPRD method, was abandoned.

Table 4. Representativity of Food and Nonalcoholic Beverages and Clothing and Footwear of the General Population versus the Poor Population

Country	Food and Nonalcoholic Beverages		Clothing and Footwear	
	General	Poor	General	Poor
Bangladesh	115	71	34	31
Bhutan	88	99	46	35
Cambodia	125	65	52	37
Fiji Islands	131	127	57	46
India	109	162	53	58
Indonesia	188	89	69	34
Lao People's Democratic Republic	100	35	47	9
Malaysia	159	161	68	68
Maldives	79	65	41	24
Mongolia	94	68	54	42
Nepal	67	80	37	32
Pakistan	105	107	42	26
Philippines	127	78	45	36
Sri Lanka	121	159	55	29
Thailand	151	80	62	30
Viet Nam	166	165	62	60
Number of Products	211		71	

and researchers/statisticians working on measuring poverty in different areas.

Several advantages are associated with this approach.

- (i) The main advantage of this approach is that the final set of poverty PPPs can be considered relevant for poverty analysis as the prices explicitly refer to the goods and services that enter the consumption of poor households. To compute the necessary PPPs, these price data can be combined with expenditure weights derived from the HES.
- (ii) Preparing product lists at the regional or subregional level is consistent with the approach used in the 2005 ICP Asia Pacific.
- (iii) The poverty-specific price surveys approach also allows selecting the outlets from which price data are collected. The 2005 ICP Asia Pacific prices are typically national average prices and therefore, prices were collected from all types of outlets. The price quotations were then averaged over outlets and regions to form a national average price. However, for poverty PPPs, price surveys need not cover certain types of outlets that are not typically used by poorer sections of the population. Instead, the poverty-specific price surveys could focus on outlets such as general markets and weekly fairs organized on a regular basis. It is not that higher income households do not buy from these outlets, but that low-income households use mainly these outlets.
- (iv) The poverty-specific price surveys approach also allows collection of prices on both food and nonfood items. While HES can be used in certain instances as a source of data on prices paid by households for food items, such surveys do not provide information on prices paid for nonfood items of expenditure. This issue is considered further in Chapter 6 where unit values for certain consumption

items derived from the household surveys are compared with price data collected as a part of poverty-specific price surveys.

- (v) Involving countries in preparing the product lists for monitoring movements in prices paid by the poor will enhance their participation and create a sense of ownership of the results obtained.
- (vi) Conducting these surveys will strengthen and enhance the statistical capacity of the participating countries. The poverty-specific price surveys may be the basis for the compilation of price index numbers for low-income groups in these countries. This type of information is crucial to the preparation and monitoring of poverty as part of the poverty reduction strategy activities undertaken in many countries as a means of achieving the MDGs.

Two major questions arise if this approach is implemented. First, what are the goods and services that are typical of the consumption patterns of poor households? Without knowing who the poor are, it is difficult to discuss the types of goods and services they purchase. Obviously the information from the HES can help identify the important goods and services through the expenditure shares and give some information on the prices paid by the households. Well-established HES are necessary to establish the product lists suitable for poverty PPP work.

The second question is, are the national statisticians and poverty researchers adequately informed and equipped to establish a judgmental list of products to be priced in markets? Though this is a question that is difficult to answer, it is possible that local knowledge and experience can be useful in preparing a product list for poverty PPP work.

A major milestone for the poverty PPP study in the Asia and Pacific region is the collection and use of price data for products considered relevant to the consumption patterns of the poor. The actual implementation process is described in Chapter 6 of this report.

Price Data

In the 2005 ICP Asia Pacific, price data were collected through extensive price surveys conducted in the participating economies, and national averages of prices of the products were submitted to the Regional Office. Appendix 3 of ADB (2007b) gives detailed accounts of the experiences of the 23 participating economies, including the survey frameworks used.

Two particular aspects of the 2005 ICP Asia Pacific prices may render the collected price data less effective for the purpose of compiling PPPs for converting poverty lines. First, as national average prices, the prices were necessarily collected from all types of outlets, including those that were not patronized by the poor. For example, outlets such as supermarkets are of limited use as far as the poor are considered. Second, prices tend to be influenced by the service aspects associated with the outlets. For example, air-conditioned supermarkets with parking facilities may include the costs of those services in the prices of the products. Thus, the use of national average prices that include price data from outlets that are not generally used by the poor may overstate the prices paid by the poor.

A related and well-researched issue is whether the poor pay higher prices for the purchases they make.¹¹ For the purpose of compiling poverty PPPs, this issue is not directly relevant. What is relevant is if the reason for the higher prices is the typically small quantities of purchases made by the poor. The units of purchases for which price data were collected as part of the 2005 ICP Asia Pacific tended to be a lot larger than what could be relevant to the poor.

Table 5 compares the units of purchases used in the 2005 ICP Asia Pacific and what may be more typical for the poor. The table lists four products that are in the 2005 ICP Asia Pacific product list that could be considered as important items in the consumption patterns of the poor. For example, the poor in many countries in South, Southeast, and East Asia consume coarse rice. However, the 2005 ICP Asia Pacific price surveys priced items that are purchased in quantities of 10 kilograms while the poor typically purchase much smaller quantities.

¹¹ The studies of Musgrove and Galindo (1988); Fabricant, Kamara, and Mills (1990); Rao (2000); and Attanasio and Frayne (2006) are a few that focus on this issue.

Basically the discussion here illustrates why the price data collected as part of the 2005 ICP Asia Pacific price surveys may not be representative of the prices paid by the poor. The question, however, is whether the quantity of purchase and differences in prices paid by the poor and nonpoor will have any real effect on the PPPs. This is one of the central questions pursued in this study, and the question of sensitivity of the results is further considered in Chapters 6 and 7 of this report.

Expenditure Share Weights

The numerical values of PPPs, like any standard price index numbers used in measuring temporal changes in prices, are determined, first, by the price relatives for different items in the product list and, second, by the weights used in aggregating the price relatives. A related determinant is, obviously, the index number formula used in the actual computation. The selection of product lists and the collection of price data in compiling poverty PPPs have been discussed in the previous two sections. This section discusses the suitability of using weights from the 2005 ICP Asia Pacific for the purpose of computing poverty PPPs.

Given the main objective of compiling PPPs for the purpose of converting poverty lines, the weights used in compiling poverty PPPs must reflect the importance that the poor in different countries attach to different commodities and commodity groups. The question is whether the weights used in computing PPPs for the 2005 ICP Asia Pacific adequately represent the purchase patterns as reflected by the expenditure shares of the poor. At the conceptual level, the weights used in the 2005 ICP Asia Pacific are drawn from the national accounts

Table 5. Comparison of Quantities in the 2005 ICP Asia Pacific and in the Poverty-Specific Price Surveys

Product	Item Priced	
	ICP	Poverty
Coarse rice	10 kg	1 kg
Beef — nonspecific cut	1 kg	250 g
Chillis — dried, red	100 g	50 g
Candle	1 piece from a pack of 4–6 candles	1 piece

g = gram; kg = kilogram.

and, therefore, represent the purchase patterns of the general population rather than the patterns of the poor. For example, it is recognized that the expenditure share of food decreases with income level and that for the poor, a large share of expenditure is for necessities.

Table 6 presents expenditure shares at the aggregate level for eight commodity groups. These commodity groups are obtained by collapsing the 110 basic headings used for the consumption aggregate in the 2005 ICP Asia Pacific. Results are presented for the 16 countries participating. Expenditure

weights are provided for three population groups in three different rows. The first row has “National accounts” weights, or weights referring to the whole population in the country and drawn from the national accounts. The national accounts weights are obtained by consolidating the corresponding basic headings in the 2005 ICP Asia Pacific. The second and third rows for each commodity group refer, respectively, to populations that are below the poverty line and people belonging to households within a band around the poverty line.¹² Further clarification

¹²The technical aspects of choosing the bandwidth are

Table 6. Expenditure Share Weights: National Accounts, Households below the \$1/day Poverty Line, and Households around the Indonesian Poverty Line (percent)

HH Expenditure Categories	Weight Source	Bangladesh	Bhutan	Cambodia	Fiji Islands	India	Indonesia
Food and nonalcoholic beverages	National accounts	51.05	44.88	49.95	28.76	36.32	43.56
	Below \$1/day poverty line	62.63	51.13	70.81	45.96	51.66	65.32
	Indonesia poverty line \pm “h”	61.67	51.62	70.23	46.76	52.23	65.15
Clothing and footwear	National accounts	5.91	8.32	1.93	2.57	5.60	3.72
	Below \$1/day poverty line	6.15	9.51	3.27	4.01	9.10	3.81
	Indonesia poverty line \pm “h”	6.40	9.88	3.37	3.89	8.21	4.00
Housing, water, electricity, gas and other fuels	National accounts	17.51	19.92	13.20	28.07	12.39	20.87
	Below \$1/day poverty line	13.63	15.07	8.36	9.50	13.29	12.80
	Indonesia poverty line \pm “h”	13.40	14.08	8.45	9.53	13.37	12.80
Health and education	National accounts	3.31	0.68	6.60	2.88	6.63	3.15
	Below \$1/day poverty line	2.47	11.14	0.52	1.29	4.33	1.39
	Indonesia poverty line \pm “h”	2.53	11.78	0.45	1.45	4.99	1.36
Transportation and communication	National accounts	4.96	3.68	8.62	8.83	18.91	9.06
	Below \$1/day poverty line	3.00	1.31	1.72	13.13	5.20	1.28
	Indonesia poverty line \pm “h”	3.30	1.40	1.76	13.75	5.34	1.19
Recreation and culture	National accounts	7.00	2.62	8.95	10.37	4.93	9.55
	Below \$1/day poverty line	4.00	1.33	2.89	6.95	4.30	3.21
	Indonesia poverty line \pm “h”	4.55	1.32	2.99	6.48	4.43	3.40
Restaurants and hotels	National accounts	1.52	6.00	1.01	0.22	2.62	2.41
	Below \$1/day poverty line	2.14	0.13	0.00	0.90	3.77	3.49
	Indonesia poverty line \pm “h”	2.12	0.13	0.00	0.96	3.57	3.59
Other items	National accounts	8.71	13.82	9.70	18.31	12.67	7.65
	Below \$1/day poverty line	6.01	10.41	12.41	18.24	8.35	8.67
	Indonesia poverty line \pm “h”	6.07	9.80	12.77	17.23	7.87	8.49

HH = household.

Note: (i) Data for the National Accounts row are drawn from the database of 2005 ICP Asia Pacific. Data for the rows labeled Below Poverty Line and Indonesia Poverty Line \pm h are compiled from the household surveys of the 16 participating countries.

(ii) The expenditure weights for the poor are plutocratic weights, meaning computed using the total expenditures for all the households belonging to a particular group, i.e., households below the poverty line and households around the poverty line.

(iii) Expenditure shares over different commodity groups add to 100 for each country.

(iv) “h” denotes the bandwidth around the poverty line used in capturing the expenditure patterns of households close to the poverty line. The use of a bandwidth is in recognition of the fact that there will not be any households whose expenditure is exactly equal to the poverty line.

is necessary here as to which country's poverty line is used. Since Table 6 is for illustration, the second row refers to \$1/day poverty line while the third row refers to Indonesia's poverty line. Both poverty lines were converted into different local currency units using PPPs derived as part of this study. However, the main conclusions drawn from Table 6 are expected to hold even if the poverty line of some other country is used. The process of computing these PPPs is further explained in Chapters 5 and 7.

considered in detail in Chapter 5 of this report.

The expenditure share weights in Table 6 exhibit some important patterns that are consistent with prior expectations on the spending patterns of the poor versus the patterns of the general population. As expected, the expenditures on food and nonalcoholic beverages by the poor households below the poverty line tended to be significantly larger. The shares of food and nonalcoholic beverages are 62.63% for the poor and 51.05% for the general population in Bangladesh. The share of food expenditure for the general population for Bangladesh tends to decrease as the relative income level of the country increases. The lowest shares for food and nonalcoholic beverages

Table 6. Expenditure Share Weights: National Accounts, Households below the \$1/day Poverty Line, and Households around the Indonesian Poverty Line (percent) (continued)

Lao People's Democratic Republic	Malaysia	Maldives	Mongolia	Nepal	Pakistan	Philippines	Sri Lanka	Thailand	Viet Nam
50.12	19.70	27.51	40.58	50.52	51.03	46.05	39.97	17.74	33.95
76.18	52.88	55.92	72.70	59.09	55.53	63.80	71.32	57.18	55.14
73.95	52.29	53.27	72.17	57.46	54.45	63.42	71.81	57.09	54.73
1.85	2.51	4.25	12.23	6.43	7.84	2.27	10.05	7.78	3.83
1.99	3.38	4.40	5.37	6.28	8.79	2.50	2.67	2.58	4.67
2.33	3.07	4.42	5.69	6.17	9.02	2.53	2.63	2.43	4.74
13.05	19.46	35.63	18.82	14.36	14.18	14.56	8.22	8.01	16.32
10.30	19.13	10.98	7.51	15.46	16.51	14.49	12.64	20.46	16.41
10.77	19.91	10.46	7.55	16.56	17.21	14.57	12.85	20.63	16.48
2.28	2.71	5.89	1.50	7.79	5.90	2.71	2.65	9.92	7.81
1.37	1.10	3.73	0.60	4.25	4.20	1.01	1.50	0.98	3.22
1.45	0.85	3.33	0.51	4.29	4.04	1.01	1.30	0.95	3.15
12.27	21.12	9.66	9.97	4.73	7.48	10.03	20.70	19.54	12.85
2.22	7.00	5.21	2.44	2.02	2.88	3.28	2.07	4.75	4.29
2.63	7.66	5.55	2.50	2.18	3.27	3.31	1.99	5.03	4.77
8.08	13.03	6.01	7.34	5.93	7.00	10.15	3.62	19.10	14.51
2.23	6.61	4.83	1.62	5.29	2.74	5.63	1.52	5.76	5.83
2.75	7.47	7.00	1.82	5.68	2.54	5.81	1.34	5.69	5.89
1.07	1.25	3.83	1.94	1.02	0.40	4.40	0.42	1.86	1.08
0.53	1.48	5.31	1.85	1.04	2.35	3.53	2.00	3.52	1.72
0.63	1.56	5.56	1.81	1.03	2.42	3.59	1.99	3.52	1.81
11.29	20.16	7.22	7.58	9.20	6.19	9.86	14.35	16.06	9.61
5.14	8.38	9.59	7.84	6.60	7.03	5.78	6.25	4.77	8.72
5.50	7.17	10.37	7.96	6.60	7.02	5.74	6.13	4.67	8.47

are observed for Thailand and Malaysia followed by the Maldives and Fiji Islands; the highest shares are recorded in Pakistan, Nepal, Lao PDR, and Cambodia. The trends for households around the poverty line are similar. Table 6 also shows similar trends for other consumption categories such as clothing and footwear and recreation and culture.

The general observations here also apply to other basic headings in general. The expenditure shares for individual basic headings such as rice, other cereals, bread and bakery products, etc., reveal not only the spending patterns of the poor in different countries but also subregional differences in the type of goods consumed. This aspect needs to be adequately accounted for in computing the PPPs.

The expenditure weights in Table 6 show systematic and significant differences in the purchase patterns of the general population and of the poor population below and around the poverty line. This means that the numerical values of the PPPs derived could be significantly affected by the choice of the weights used. If the PPPs are shown to be sensitive to the weights used, then it is necessary to ensure that the weights used can adequately represent the purchase patterns of the poor.

The past World Bank practice of using ICP PPPs for the consumption aggregate implies that the PPPs are derived using price data from the ICP and are aggregated using the expenditure patterns from the national accounts, which essentially reflect the patterns of the general population. It is possible that the numerical values of these PPPs could change if weights based on the expenditure patterns of the poor are used instead. This aspect of the World Bank approach has received considerable attention and criticism from researchers and practitioners.

The Reference Population—Who Are the Poor?

The reference population for compiling PPPs for the 2005 ICP Asia Pacific is clearly the whole population. Price data used in computing the PPPs refer to the national average prices of the items included in the product list. Such prices are based on surveys conducted in the whole country covering the general population. Similarly, the weights used in aggregating from the basic heading level upward are from national accounts and represent the whole

population. There may be practical issues associated with the compilation of weights and collection of prices, but it is clear that the 2005 ICP Asia Pacific covers the whole country and therefore the reference population is the whole population.

If the ICP PPP approach is to be adopted for purposes of poverty PPPs, it is necessary to identify the segment of the population in each of the 16 participating countries for which the poverty PPPs are representative. If price data are to be collected for the purpose of poverty PPPs, these data need to refer to the prices paid by the poor for items that are considered representative of their consumption patterns. Similarly, the expenditure shares are expected to reflect the spending patterns of the poor. In both of these instances, it is necessary to identify the “poor” before the product lists are constructed and price data are collected.

The 2005 ICP Asia Pacific comparisons are less problematic as they cover the whole country, whereas poverty PPP requires some focus on identifying the target population to which the PPPs refer. This step is crucial in that all the subsequent steps—identifying the goods and services that are representative of the consumption patterns of the poor and the expenditure weights needed in the aggregation process—all depend on the reference population.

Circularity is implicit in the process outlined here. The PPPs are being compiled for purposes of identifying the poor in different countries. However, the preceding discussion suggests that it is necessary to first identify the poor so as to derive meaningful PPPs for converting the IPL. This problem has been dealt with by Pradhan (2001) and Deaton (2004). Pradhan examines this issue in the context of setting a poverty line for Indonesia whereas Deaton uses India and Indonesia. The circularity problem can be tackled using an iterative process if some useful convergence properties associated with various approaches could be established. The iterative process consists of three steps.

Step 1. Start with an initial reference population in each country. This population may refer to all those households with expenditure around the poverty line.¹³ The poverty

¹³The whole population below the poverty line can be used instead of just the population around the poverty line. Deaton (2004) uses Kernel smoothing to determine the optimal bandwidth around the poverty line to determine the households to be included in that group around the poverty

line in each country may be obtained by converting the poverty line of a selected country into the currency of all the other countries using an appropriate currency converter—one may use the Penn World Tables or the World Bank PPP for private consumption as a starting point, or start with just exchange rates.¹⁴

Step 2. Derive PPPs for poverty line conversion using price data from each country and expenditure share weights for those households identified as poor in the first step.

Step 3. The process in Step 1 is repeated by using the PPPs derived in Step 2 to convert the reference country's poverty line into different local currency units. This repetitive process is continued until the PPPs converge.

Several points concerning the iterative method must be noted.

- (i) The three-step approach can be used only for countries where there are well-established and reliable household expenditure or living standard measurement surveys.
- (ii) For purposes of integrating this work with the 2005 ICP Asia Pacific, it is necessary to have data from more recently conducted surveys, if possible within the last 5 years. Several countries in the Asia and Pacific region have data from 1999 or 2000 surveys.
- (iii) It is necessary to further examine the nature of the reference populations resulting from the iterative process. In particular, it is useful to check if the reference populations are insensitive to the choice of the starting poverty lines. If the result shows sensitivity

line. A similar approach needs to be used to determine those households just above the poverty line and to be included in the set of poor households. This issue is discussed further in Chapter 5.

¹⁴ Deaton (2004) converts the Indian poverty line into Indonesian currency and uses the Indian poverty line in Indian rupees and in Indonesian rupiah as the poverty lines for India and Indonesia, respectively. The PPPs from this process may not be invariant to the choice of the country and its poverty line used for purposes of identifying the reference populations in different countries.

then it is necessary to find an alternative approach.

- (iv) It is also necessary to check if the iterative process converges to the same set of PPPs irrespective of which conversion factor is used in converting the reference country's poverty line in Step 1.
- (v) Since the PPPs are likely to be sensitive to the selection of the reference country and its poverty line, a single IPL, the \$1/day or \$2/day poverty line, may be used as a starting point instead of the poverty line of a selected country. (On the basis of the general properties of this iterative method, it is likely that the PPPs for \$1/day and \$2/day could result in two different PPPs.)

The iterative scheme as described forms the basis for all the computations undertaken as part of the study. The actual steps used and all the practical considerations associated with the determination of the reference population are explained in detail in Chapter 5.

Summary of Issues

This chapter has dealt with various building blocks that provide a framework for the computation of PPPs for converting poverty lines for the purpose of international comparisons. The discussion of the issues indicates that while the approach used for the purpose of the 2005 ICP Asia Pacific can provide a conceptual framework for poverty PPPs, the same approach needs to be modified if the resulting PPPs are to provide meaningful converters for poverty lines. The most critical issue is that of identifying the reference population. This problem requires an analytical approach that can simultaneously determine the PPPs and the reference populations through the use of an iterative process.

Data-related issues are also significant. The process underlying the preparation of the product lists for the 2005 ICP Asia Pacific, and the need to achieve balance between representativity and comparability, imply that the goods and services included in the 2005 ICP Asia Pacific product list are not likely to be representative of the purchases made by the poor in the countries under consideration. Therefore, using price information for the products that may not adequately represent the purchases of

the poor is likely to make the PPPs based on such price data less than ideal. In a similar vein, it may be argued that the use of weights from national accounts is also inappropriate when poverty PPPs are compiled. From an index number perspective, it is important that the weights represent the spending patterns of the reference population that is considered poor. As the national accounts weights are for the whole population, it is likely that the patterns for the poor will differ significantly. The expenditure weights compiled for the 16 countries included in this study reveal significant differences between the patterns for the poor and those for the general population.

In summary, it is critical that the compilation of poverty PPPs be rooted in a methodology that is designed specifically for the purpose. The use of PPPs from the 2005 ICP Asia Pacific is inadequate. One, it is not clear how the poverty PPPs actually differ from the ICP PPPs for the consumption aggregate. Two, it is also not clear how sensitive the poverty PPPs are to various approaches used in determining the product lists, price collection, and use of weights and to the choice of the index number formula used for the actual aggregation. These issues of sensitivity are addressed in Chapter 7 of this report.