ADB

The Revised Social Protection Index
Methodology and Handbook

Asian Development Bank

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Foreword

The Asian Development Bank (ADB) approved its Social Protection Strategy in 2001. The strategy supports ADB's developing member countries in their efforts to reduce poverty and vulnerability, and to provide their populations with effective social protection.

Systematic and rigorous monitoring and impact assessment of social protection is a prerequisite for improving the existing systems and developing new policies and programs. Most developing member countries have limited institutional and technical capacity to carry out regular monitoring and evaluation. ADB's social protection index (SPI), developed in 2005, summarizes the extent of social protection in the countries.

In 2010, ADB adopted a revised SPI. Significantly, the index can be disaggregated or decomposed in different ways, such as by depth and breadth of coverage; by category, including social insurance, social assistance, and labor market; by poor and non-poor beneficiaries; and by gender. This disaggregation can be combined in various ways to provide a rich analysis of social protection at the country and regional levels.

The revised SPI was not explicitly designed for ranking the relative performance of countries, although it is internationally comparable. Rather, it was designed for practical use to assess the nature of social protection programs in countries and to identify these programs' broad impact on the poor and vulnerable. It is a useful analytical and assessment tool for countries' social protection programs.

This document provides social protection background and offers guidance for preparing social protection country assessments, which can pave the ground for further activities.

ADB, in collaboration with International Labor Organization (ILO) and Organization for Economic Cooperation and Development (OECD)/Korea Policy Center, is pleased to present the methodology and handbook on the revised SPI. We hope it will be useful for policymakers and development practitioners in analyzing social protection programs in Asia and the Pacific.

Xianbin Yao
Director General
Regional and Sustainable Development Department
Asian Development Bank

Acknowledgments

Abbreviations and Acronyms

ADB   –   Asian Development Bank

GDP   –   gross domestic product

HIES   –   household income and expenditure survey

ILO   –   International Labour Organization

PPP   –   purchasing power parity

PTR   –   poverty targeting rate

SP   –   social protection

SPI   –   social protection index

STR   –   sex targeting rate

I. The Revised Social Protection Index: Methodology

A. Background

The publication and adoption of ADB's *Social Protection Strategy* in 2001, along with the social protection (SP) strategies adopted by other international organizations and bilateral donors, heralded a growing recognition that the Millennium Development Goals for poverty reduction cannot be achieved purely through the promotion of economic growth and the development of physical and social infrastructure. Interventions are also necessary to address the needs of the poorest and to prevent members of vulnerable groups from falling into poverty following community-wide or household-specific shocks.

Until then, few attempts had been made to date to comprehensively assess SP programs in developing countries and quantify the impact of SP activities. The International Social Security Association maintains a database with basic information on formal social security schemes, and the International Labour Organization (ILO) launched in 2003 the Social Security Inquiry, which provides national and scheme-level administrative data on social security around the world through a government self-reporting mechanism. Only a few countries in Asia and the Pacific produced high-quality statistics in SP programs.[1]

The Asian Development Bank (ADB) developed a social protection index (SPI) for Asia and the Pacific in 2005–2008. This original SPI was a tool that helped assess, measure, and compare SP programs in each of the study countries. It provided policymakers with a tool to analyze SP programs from the perspective of expenditures on SP, coverage, distribution, and impact on the poor and vulnerable population.

The original SPI was a summary measurement tool that systematically and consistently quantified national SP activities in Asia and the Pacific

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[1]   In 2010, the World Bank developed AdePT software. It examines how the beneficiaries and benefits of social protection programs and private transfers are distributed among the population.

(Wood 2010). It was a composite index, with four components: a social protection expenditure indicator (SPEXP), a social protection coverage indicator (SPCOV), a social protection distribution indicator (SPDIST), and a social protection impact indicator (SPIMP).

SPEXP showed the percentage of a country's gross domestic product (GDP) spent on SP programs. SPCOV showed the percentage of the reference population that received SP benefits. SPDIST (called the poverty targeting rate) showed the percentage of the poor that received SP benefits. SPIMP showed the per capita SP benefits going to the poor expressed as a proportion of the national poverty line. A summary SPI was constructed on the basis of normalizing each of these four indicators on a scale of 0 to 1 and adding them with equal weights.

B. Revising the Social Protection Index

The frequent update of SPI is important to provide recent information on the use of social protection programs in developing countries. Therefore, at a technical meeting[2] in Manila, 6–7 July 2010, it was decided to include the size of benefits and the percentage of the reference population receiving benefits in one combined indicator in the SPI. The original considered the percentage of the population receiving SP as a separate indicator from the indicator registering the size of their benefits, but as, for instance, a large share of the reference population could receive very small benefits or a small share of the reference population could receive very large benefits, neither a high degree of coverage nor a large size of received benefits would necessarily be desirable on its own.

An additional concern was that the first indicator (SPEXP) compared the magnitude of SP benefits to the size of GDP instead of the number of beneficiaries. Hence it gave only an indirect indication of the impact of the expenditures on human well-being.

The technical meeting wanted SP to be targeted at the vulnerable as well as the poor. But this approach implied that the poverty focus of SP should be placed within a broader social context (in the original SPI, its broad impact—the first two indicators—and its impact on the poor—the second two, were placed side by side).

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[2] ADB social protection specialists, representatives of national statistics offices of Armenia, Bangladesh, Indonesia, Mongolia, the Philippines, and Viet Nam, and of development partners (ILO and Organisation for Economic Co-operation and Development) took part in the meeting.

The revised SPI, adopted in early 2010, takes a more unitary approach, based on highlighting the impact of expenditures on all beneficiaries. It is not a composite index, though it can be disaggregated in various ways for analytical purposes.

The general formula of the SPI takes the form:

Total social protection expenditures per total reference population divided by a regional poverty line

The term in the numerator, "total social protection expenditures per total reference population," can be disaggregated into two multiplicative components:

(Total expenditures/Total beneficiaries) times (Total beneficiaries/ Total reference population)

In turn, the first component, "total expenditures/total beneficiaries," denotes the "depth" of coverage of SP. The second component, "total beneficiaries/ total reference population," denotes the "breadth" of SP.

C. Normalizing the Revised Social Protection Index

Since calculating the revised SPI continues to rely on local currency units to express the expenditure data that consultants collect at the country level, it is necessary to identify a common means to normalize these expenditures by another monetary variable expressed in local currency units. For example, the original SPI used GDP as the normalization variable for SPEXP.

Since the current indicator (expenditures per reference population) for the revised SPI is expressed in per capita terms, a corresponding per capita normalization variable is needed. One obvious candidate is GDP per capita, though this would have two main drawbacks. First, it would make the ratio (and thus the overall SPI) relatively small. Second, it would not carry much normative significance since no one would plausibly argue that SP expenditures should approximate average income per person.

International poverty lines, such as the line based on $1.25 purchasing power parity (PPP) per person per day, are other possible normalization variables. They avoid the problem of variable national poverty lines by setting one international line in PPP terms for every country. However, because such a line is expressed in PPP terms (based on average international prices), it does not necessarily reflect national conditions. Moreover, if a PPP estimate were used, every other monetary variable used in the revised SPI would need to be converted to dollars.

The revised SPI uses a simpler and more transparent solution: a relative poverty line for each country that approximates the average of national poverty lines across the 27 countries in Asia and the Pacific for which social protection data are available. The regional average for the 27 national poverty lines is about 28% of GDP per capita. Hence, a poverty line for each country that is 25% of its GDP per capita is used for the revised SPI. This poverty line is expressed in per capita terms since it denotes the threshold of total expenditures that each person needs to exceed to be considered nonpoor.

The choice of such a line is not unusual. A threshold of 50% of GDP per capita has often been used as a poverty line. The standard that is used in this SPI calculation is much stricter since it represents half the usual amount. Such a uniform relative poverty line is easier to implement than one using PPP estimates because its results are largely derived from national conditions.

The choice of a uniform percentage of GDP per capita mitigates the problem that some countries set their national poverty lines very low while others set them very high. For example, Malaysia sets its poverty line at 9.2% of GDP per capita but Cambodia at 57.3%. Countries such as Malaysia, with low poverty lines (that is, with a smaller denominator), would have unusually high SPIs while countries such as Cambodia, with high poverty lines, would have unusually low SPIs. Countries' performance would vary simply because they set low or high standards for themselves.

Unlike the original SPI, the revised SPI is not normalized to lie within a range of 0 to 1. Instead, the SPI can be interpreted more directly and concretely as SP expenditures per potential beneficiary as a percentage of per capita poverty line expenditures. It is possible that a country allocates such a large amount of SP benefits that the ratio could exceed 1. But based on current methods and data, no country comes close to doing so.

Though the numeraire, i.e., the uniform relative poverty line, allows one to mathematically normalize the scale of national expenditures on SP, it can also play a normative function. It allows national policymakers to roughly gauge the magnitude of SP expenditures relative to the poverty needs of their population. There is no presumption, however, that all SP should be targeted at the poor. As said, a significant proportion of SP expenditures could justifiably be allocated to the vulnerable nonpoor.

D. Defining the Reference Populations for the Revised Social Protection Index

Before turning to various proposed disaggregations of the revised SPI, there is a need to look at other important issues. One is the definition of the reference

population. The tradition of the original SPI in employing broad reference populations for each SP program still holds. The reference population is the proportion of the population that could qualify for SP benefits from a particular program.

The revised SPI categorizes all SP programs as social insurance, social assistance, or labor market programs. At the technical meeting in July 2010 in Manila, it was agreed to exclude microfinance as a form of SP since it does not involve a transfer in cash or kind. Beneficiaries incur loans (debt) instead of transfers. Hence, microfinance is no longer included in calculating the revised SPI.

By eliminating microfinance from the coverage of SP programs, three major programs are left:

  (i)   social insurance, that is, the categories of old-age insurance, programs for the disabled, and health expenditures on insurance and pensions;

  (ii) social assistance, that is, the categories of noncontributory health insurance, conditional cash transfers, child protection, and unconditional cash transfers; and

  (iii) labor market programs.

For most forms of social protection, the reference population can be defined easily by subcategory. For old-age insurance, the population aged 60 years or older is the reference group. For assistance to the disabled, the disabled population is the reference group. For child protection, children aged 0–14 years are the reference group.[3] For social assistance, the poor population is the reference group.

For labor market and health programs, the choice of the reference population is more challenging. For labor market programs, if a very broad definition of the reference population is chosen, the employed population or the entire labor force could be used. But the narrower definition used in the original SPI—namely, the unemployed and the underemployed—has been retained. The underemployed are defined as those who are working fewer than 35 hours a week, are unpaid family workers, or are seasonal workers.

The most difficult designation of the reference population is for health insurance. The total population could be used as the reference population in this case, as everyone could, potentially, qualify for health insurance.

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[3] This reference population differs from that of the original SPI, which specified poor children aged 5–14 years.

However, the SPI is not designed to cover all health expenditures. The effort to formulate the SPI employs a narrow definition of SP with regard to health. It includes health insurance (against risk) and health assistance (as a form of social assistance) but not other forms of public expenditures on health. Table 1 gives a sense of the scale of all public health expenditures.

Table 1   Public Health Expenditures (% of GDP)

Country	Public Health Expenditures (% of GDP)
Armenia	1.8
Azerbaijan	1.0
Bangladesh	1.2
Bhutan	2.6
Cambodia	2.3
People's Republic of China	1.8
Fiji	3.1
India	1.0
Indonesia	0.8
Japan	6.6
Kazakhstan	2.3
Republic of Korea	2.7
Kyrgyz Republic	2.3
Lao People's Democratic Republic	0.8
Malaysia	2.2
Maldives	5.0
Mongolia	3.6
Nepal	1.4
Pakistan	0.7
Philippines	3.5
Papua New Guinea	1.4
Sri Lanka	1.9
Tajikistan	0.9
Tonga	3.8
Uzbekistan	2.3
Vanuatu	2.6
Viet Nam	1.5

GDP = gross domestic product.

Source: Country sources.

With a few exceptions, health insurance is accessed mainly by formal sector workers (usually those employed in the public sector or sizable private firms). Similarly, health assistance is normally provided only to the needy (the poor and perhaps near poor). In most countries, health insurance accounts for a much larger proportion of expenditures than health assistance.

Not only would the choice of the total population as the reference population for health insurance appear to diverge widely from reality in many Asian countries, but the inclusion of such a reference population in the SPI would give health insurance an unduly heavy weight in the denominator. Given such factors, the revised SPI uses the employed population as the reference for health insurance. This can be estimated by multiplying the ratio of the employed to the total population—one of the newly added Millennium Development Goal indicators—by the total population.

The reference populations selected for each of the subcategories of SP programs are summarized in Table 2.

It is worth underlining the methodological point that the numerator of the revised SPI (total SP expenditures per total reference population) is created by adding all the beneficiaries in the major SP programs and then dividing that total by the sum of the reference populations across the same major SP programs. Put differently, the revised SPI is self-weighting by population shares.[4] Hence SP programs with larger reference populations have more weight in the total SPI.

The revised SPI is also constructed to register the fact that a household member could be a beneficiary of two different SP programs, and he or she would be included twice in the numerator (which registers beneficiaries) and counted twice in the denominator. There seems to be no mathematical problem inherent in belonging to two reference populations.

Table 2   Subcategories of Social Protection Programs and Reference Populations

Program Subcategory	Reference Population
Labor Market Programs	Unemployed and Underemployed
Old-age Insurance	Population aged 60 years and above
Health Insurance/Assistance	Employed Population
Social Assistance	Poor Population
Programs for the Disabled	Disabled Population
Child Protection	Children aged 0–14 years

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4   The revised SPI is not constructed by creating ratios of expenditures to population for program subcategories and then adding them based on relative weights.

E. Relative Weights of Beneficiaries and Reference Populations in the Revised Social Protection Index

For the revised SPI, what are the relative weights of beneficiaries and reference populations in the total?

First, the relative weights of beneficiaries need to be examined. Table 3 shows that health insurance has the largest share of all beneficiaries, at 40.5%, followed by social assistance, at 33%. Disability programs account for the smallest share, at 3.2%.

The relative weights of the reference populations (the potential beneficiaries) are somewhat different. Labor market programs could reach 7.7% of all SP beneficiaries even though they currently reach only 5.9% of all actual beneficiaries. The opposite appears to be the case for social assistance. While such programs are designed to reach 12.7% of all potential beneficiaries, they reach 33% of all actual beneficiaries. This disproportionate coverage could be due to several factors. A likely major explanation is that social assistance programs cover a large number of nonpoor beneficiaries.

For both actual and potential beneficiaries, health insurance is by far the largest SP program. However, while this category's reference population—the employed—accounts for almost 47.1% of the total, the actual beneficiaries account for only 40.5% of the total.

Table 3   Beneficiaries and Reference Populations

Item	27 Countries	In % of Totals
Number of Beneficiaries by Subcategory		
Labor Market Programs	79,258,356	5.9
Old-Age Insurance	133,780,608	9.9
Health Insurance	546,848,364	40.5
Programs for the Disabled	43,419,352	3.2
Social Assistance	445,680,999	33.0
Child Protection	100,141,557	7.4
Reference Populations		
Unemployed/Underemployed	351,893,224	7.7
Population 60+	338,974,629	7.4
Employed Population	2,148,133,928	47.1
Disabled Population	169,831,857	3.7
Poor Population	577,649,538	12.7
Children 0–14 Years	971,752,900	21.3

F. Empirical Results for the Revised Social Protection Index

Table 4 shows that the revised SPI ranges widely, from 0.538 (Japan) to 0.002 (Papua New Guinea). These results suggest that when Japan's total SP expenditures are averaged over all potential beneficiaries, the country allocates a little over half of per capita poverty line expenditures to SP. In contrast, Papua New Guinea allocates a mere 0.2%.

Table 4   The Revised Social Protection Index

Country	SPI
Armenia	0.145
Azerbaijan	0.174
Bangladesh	0.046
Bhutan	0.017
Cambodia	0.017
People's Republic of China	0.139
Fiji	0.081
India	0.112
Indonesia	0.059
Japan	0.538
Kazakhstan	0.156
Republic of Korea	0.284
Kyrgyz Republic	0.211
Lao People's Democratic Republic	0.019
Malaysia	0.148
Maldives	0.043
Mongolia	0.285
Nepal	0.048
Pakistan	0.046
Philippines	0.065
Papua New Guinea	0.002
Sri Lanka	0.112
Tajikistan	0.021
Tonga	0.037
Uzbekistan	0.235
Vanuatu	0.014
Viet Nam	0.095
Minimum	*0.002*
Maximum	*0.538*
Mean	*0.117*
Median	*0.081*

SPI = social protection index.

Following Japan, Mongolia has an SPI of 0.285 and the Republic of Korea 0.284. Uzbekistan and the Kyrgyz Republic have SPIs higher than 0.2, while Azerbaijan and Kazakhstan have SPIs higher than 0.15. Transition economies thus tend to perform fairly well in providing SP.

The countries with SPIs ranging between 0.10 and 0.15 (or close to the mean) are Armenia, the People's Republic of China, India, Malaysia, and Sri Lanka. Joining Papua New Guinea with SPIs less than 0.02 are Bhutan, Cambodia, the Lao People's Democratic Republic, and Vanuatu.

These general results suggest that outside developed and transition economies, SP expenditures in Asia and the Pacific are relatively small, even by the standards of poverty line expenditures.

G. Disaggregating the Revised Social Protection Index

A significant feature of the revised SPI is that it can be disaggregated or decomposed in various ways. As standard practice, the SPI should be disaggregated in three main ways, which will help explain the general results and highlight policy implications.

1. Disaggregating by Depth and Breadth of Coverage

The first major decomposition is to disaggregate the SPI into measures of depth and of breadth of coverage. The measure of depth is represented by the first term in the SPI, total expenditures/total beneficiaries, which has to be normalized by the value of the relative poverty line because it is a monetary variable. Hence it can be interpreted as the average expenditures per actual beneficiary as a percentage of poverty line expenditures.

The measure of breadth of coverage is represented by the second term in the SPI, total beneficiaries/total reference population. This is a nonmonetary coverage indicator, and thus can be expressed as a simple percentage.

The SPI represents the multiplication of the depth by the breadth measures (Table 5), in Japan's case, 0.538. Japan therefore performs well on its SP programs' depth (the average benefits) and their breadth (the proportion of potential beneficiaries actually reached).

Some countries perform well on the measure of depth but poorly on the measure of breadth. This signifies that the relatively small share of the reference population that receives SP benefits enjoys fairly sizable benefits. The depth of expenditures in Pakistan, for example, is fairly high at 0.769 (almost three-quarters of poverty line expenditures), but as a share of the

total reference population, actual beneficiaries are only about 5.9%, giving Pakistan an SPI of only 0.046.

In the Republic of Korea, the opposite is the case: breadth is superior to depth of coverage. Its measure of depth is modest at 0.337 (about one third of poverty line expenditures), but its beneficiaries represent 84.2% of the total combined reference populations for SP. So its SPI is fairly high, at 0.284.

Table 5   Social Protection Index, Depth, and Breadth

Country	SPI	Depth	Breadth
Armenia	0.145	0.312	0.465
Azerbaijan	0.174	0.290	0.601
Bangladesh	0.046	0.193	0.240
Bhutan	0.017	0.055	0.314
Cambodia	0.017	0.100	0.172
People's Republic of China	0.139	0.310	0.448
Fiji	0.081	0.471	0.172
India	0.112	0.227	0.492
Indonesia	0.059	0.111	0.537
Japan	0.538	0.566	0.950
Kazakhstan	0.156	0.346	0.450
Republic of Korea	0.284	0.337	0.842
Kyrgyz Republic	0.211	0.274	0.768
Lao People's Democratic Republic	0.019	0.114	0.171
Malaysia	0.148	0.292	0.507
Maldives	0.043	0.165	0.259
Mongolia	0.285	0.368	0.774
Nepal	0.048	0.247	0.194
Pakistan	0.046	0.769	0.059
Philippines	0.065	0.161	0.401
Papua New Guinea	0.002	0.076	0.021
Sri Lanka	0.112	0.270	0.416
Tajikistan	0.021	0.050	0.423
Tonga	0.037	0.415	0.090
Uzbekistan	0.235	0.389	0.604
Vanuatu	0.014	0.132	0.106
Viet Nam	0.095	0.196	0.486
Minimum	*0.002*	*0.050*	*0.021*
Maximum	*0.538*	*0.769*	*0.950*
Mean	*0.117*	*0.268*	*0.406*
Median	*0.081*	*0.270*	*0.423*

SPI = social protection index.

2. Disaggregating by Category (Social Insurance, Social Assistance, and Labor Market Programs)

The classification of SP programs is streamlined in the revised SPI, as an outlier program. Microfinance, has been excluded because it does not involve cash or in-kind transfers, even though many such programs are purportedly targeted at the poor. That leaves three main SP programs: social insurance, social assistance, and labor market programs.

The definition of social insurance underlying the construction of the original SPI has been retained in the revised SPI. Thus social insurance includes "programs [that] cover the risks associated with unemployment, sickness, maternity, disability, industrial injury and old age" (ADB, 2008, p. 9). Social insurance programs therefore include old-age insurance, health insurance (though not health assistance), unemployment insurance, and programs for disabled workers under the general rubric of social insurance. For programs directed at the unemployed and underemployed, such as food-for-work schemes, they are retained in the separate category called labor market programs. There is also no change in the definition of social assistance. So under social assistance are included not only social assistance programs but also programs for old-age and health assistance, disaster relief, and child protection. Programs directed at the unemployed and underemployed, such as food-for-work schemes, are classified as labor market programs.

The disaggregation of the SPI into SPI–social assistance (SPI_{sa}), SPI–social insurance (SPI_{si}), and SPI–labor market programs (SPI_{lm}) is not as straightforward as the disaggregation of the SPI into depth and breadth of coverage. Although the total expenditures on SP could easily be disaggregated into the three categories, the reference population for each is different.

The formula for the SPI of each of these three categories of SP can be illustrated by the formula for SPI_{si}:

$$SPI_{si} = (SI\ expenditures/SI\ beneficiaries)\ times\ (SI\ beneficiaries/ \\ SI\ reference\ population)\ times\ (SI\ reference\ population/all\ SPI\ reference \\ populations)\ times\ 1/poverty\ line$$

The first two terms are similar to that used for the SPI as a whole. But the third is a population weight, representing the weight of the social insurance reference population relative to the total weight of all SP reference populations. Once each of the three program categories is multiplied by its respective population weight (and divided, as always, by the regional poverty line), the terms for SPI_{si}, SPI_{sa}, and SPI_{lm} will add up to equal the SPI.

Labor market programs are a relatively small component of SP in Asia and the Pacific (Table 6). Their mean value is just 0.4% of poverty line expenditures.

Only in a few countries, such as Bangladesh, Bhutan, the People's Republic of China, India, Nepal, and Viet Nam, do such programs approximate even 1% of poverty line expenditures.

Table 6   Social Protection Index Disaggregated by Social Insurance, Social Assistance, and Labor Market Programs

Country	SPI	Social Insurance	Social Assistance	Labor Market Programs
Armenia	0.14	0.08	0.06	0.00
Azerbaijan	0.17	0.11	0.07	0.00
Bangladesh	0.05	0.01	0.03	0.01
Bhutan	0.02	0.00	0.01	0.01
Cambodia	0.02	0.01	0.01	0.00
People's Republic of China	0.14	0.12	0.01	0.01
Fiji	0.08	0.02	0.06	0.00
India	0.11	0.07	0.03	0.01
Indonesia	0.06	0.04	0.02	0.00
Japan	0.54	0.43	0.11	0.00
Kazakhstan	0.15	0.12	0.03	0.00
Republic of Korea	0.22	0.17	0.04	0.01
Kyrgyz Republic	0.21	0.13	0.08	0.00
Lao People's Democratic Republic	0.02	0.01	0.01	0.00
Malaysia	0.15	0.14	0.01	0.00
Maldives	0.04	0.03	0.01	0.00
Mongolia	0.28	0.21	0.07	0.00
Nepal	0.05	0.03	0.01	0.01
Pakistan	0.05	0.04	0.00	0.00
Philippines	0.06	0.06	0.00	0.00
Papua New Guinea	0.00	0.00	0.00	0.00
Sri Lanka	0.11	0.09	0.02	0.00
Tajikistan	0.02	0.01	0.01	0.00
Tonga	0.04	0.03	0.00	0.01
Uzbekistan	0.23	0.17	0.06	0.00
Vanuatu	0.01	0.01	0.00	0.00
Viet Nam	0.09	0.05	0.03	0.01
Minimum	*0.002*	*0.00*	*0.000*	*0.000*
Maximum	*0.538*	*0.430*	*0.107*	*0.013*
Mean	*0.114*	*0.080*	*0.030*	*0.004*
Median	*0.081*	*0.054*	*0.015*	*0.002*

SPI = social protection index.

The largest component of the three SP categories is social insurance, which has a mean value of 8% of poverty line expenditures. Social assistance is appreciably smaller, with a mean value of only 3% of such expenditures.

The indexes for Japan largely determine the upper range for both social assistance and social insurance for all countries. Japan has, for example, the highest SPI, at 0.54. It also has the highest SPI_{si}, at 0.43, and the highest SPI_{sa}, at 0.11. The country with the second-highest SPI, Mongolia, has an SPI_{si} of 0.21 and an SPI_{sa} of 0.07.

Only in a very few countries with relatively low SPIs, such as Bangladesh, Bhutan, and Fiji, does the SPI for social assistance exceed that for social insurance. Some transition economies, such as Armenia, Azerbaijan, the Kyrgyz Republic, and Uzbekistan (in addition to Mongolia) have significant social assistance programs (with an SPI_{sa} of 0.06 or higher).

To understand the basis for the differences among SPI_{sa}, SPI_{si}, and SPI_{lm} more clearly, the three categories could be decomposed into their constituent programs. In addition, SPI_{sa}, SPI_{si}, and SPI_{lm} could be decomposed into measures of the depth and breadth of coverage. In other words, there is greater potential to use these decomposition techniques for analytical purposes than has been presented here.

3. Disaggregating by Poor and Nonpoor Beneficiaries

The original SPI had two indicators, SPDIST and SPIMP, which were designed to determine the distributional impact of SP expenditures on the poor. SPDIST supplied information on the poverty targeting rate, namely, the percentage of the poor who received SP benefits.

SPIMP showed the SP benefits per person received by the poor as a share of the national poverty line. In other words, while SPDIST focused on a type of coverage rate (a measure of the breadth of SP with regard to the poor alone), SPIMP supplied a measure of the depth of coverage among the poor alone.

For the original SPI, in each country a team gathered the necessary information for each major program to make calculations of the number of poor who received benefits and the size of such benefits. However, household income and expenditure surveys (HIESs) were available only in six countries, and even in this smaller set of countries, data were available on only a few SP programs. Since ministries very rarely gather information on the distribution of SP benefits by poverty status, many of the SPDIST and SPIMP calculations were based on rough estimates (using professional judgment).

Given such difficulties, only a modestly framed disaggregation of the SPI in accordance with the impact of SP expenditures on the poor and the nonpoor was developed for the revised SPI.

In particular, an arithmetic disaggregation of the SPI into two indexes is suggested:

(i) SPI_p, which gauges total expenditures per poor beneficiaries as a ratio to the total reference population (both poor and nonpoor); and

(ii) SPI_{np}, which gauges the ratio of total expenditures per nonpoor beneficiaries as a ratio to the total reference population (both poor and nonpoor).

Thus SPI_p takes the following form (parallel to the SPI itself):

(Total expenditures on the poor/Total poor beneficiaries) times (Total poor beneficiaries/Total reference population)

Correspondingly, SPI_{np} takes the following form (also parallel to the SPI):

(Total expenditures on the nonpoor/Total nonpoor beneficiaries) times (Total nonpoor beneficiaries/Total reference population)

In both cases, the resultant ratio is divided by the relative regional poverty line (as is done for the SPI).

The mathematics behind these simple ratios is a little more complicated. For example, both SPI_p and SPI_{np} are composed of three ratios. Let us take SPI_p as an example:

(Total expenditures on the poor/Total poor beneficiaries) times (Total poor beneficiaries/Total poor population) times (Total poor population/ Total reference population)

This complexity is mentioned because the last term (total poor population/ total reference population) is a population weighting term that enables SPI_p and SPI_{np} to be added to equal SPI as a whole. This is why when the denominator of the total reference population is used for both SPI formulations, summing the two ratios will give the SPI itself. An example illustrates this mathematical property. India's SPI is 0.112. Its SPI_p is 0.025 and its SPI_{np} is 0.087, which add to 0.112.

Table 7 shows that SPI_{np} is generally larger than SPI_p. For example, the mean across our sample of 27 countries for SPI_{np} is 0.083 and that for SPI_p is 0.033, or about 40% of the former. By itself, however, this comparison does not provide adequate information on how effectively SP programs reach the poor.

Table 7   Social Protection Index by Poor and Nonpoor Beneficiaries

Country	SPI	SPI: Poor	SPI: Nonpoor	Poverty Focused
Armenia	0.145	0.089	0.055	1.51
Azerbaijan	0.174	0.061	0.114	1.74
Bangladesh	0.046	0.032	0.014	1.74
Bhutan	0.017	0.011	0.007	1.91
Cambodia	0.017	0.012	0.005	1.99
People's Republic of China	0.139	0.008	0.130	0.79
Fiji	0.081	0.034	0.047	1.02
India	0.112	0.025	0.087	1.03
Indonesia	0.059	0.006	0.053	0.61
Japan	0.538	0.142	0.396	1.77
Kazakhstan	0.156	0.031	0.125	2.01
Republic of Korea	0.284	0.043	0.241	1.43
Kyrgyz Republic	0.211	0.120	0.091	1.28
Lao People's Democratic Republic	0.019	0.009	0.010	1.20
Malaysia	0.148	0.007	0.141	0.84
Maldives	0.043	0.008	0.035	0.91
Mongolia	0.285	0.120	0.165	1.17
Nepal	0.048	0.001	0.047	0.08
Pakistan	0.046	0.005	0.041	0.37
Philippines	0.065	0.003	0.062	0.16
Papua New Guinea	0.002	0.000	0.001	0.47
Sri Lanka	0.112	0.015	0.097	0.65
Tajikistan	0.021	0.019	0.002	1.39
Tonga	0.037	0.005	0.033	0.55
Uzbekistan	0.235	0.072	0.163	1.16
Vanuatu	0.014	0.004	0.010	0.52
Viet Nam	0.095	0.017	0.079	0.89
Minimum	*0.002*	*0.000*	*0.001*	*0.08*
Maximum	*0.538*	*0.142*	*0.396*	*2.01*
Mean	*0.117*	*0.033*	*0.083*	*1.08*
Median	*0.081*	*0.015*	*0.055*	*1.03*

SPI = social protection index.

To judge effectiveness, the national poverty rate in each country is needed. For example, if the poverty rate (the proportion of the population that is poor) in a particular country were 50%, then SPI_p should at least roughly correspond to SPI_{np}.

This is the reason that an additional indicator, called a poverty focus indicator, is included in the last column of Table 7. Mathematically it represents:

$$(SPIp/SPI) \text{ times } (1/National\ poverty\ rate)$$

The interpretation is that this indicator compares the proportion of SP expenditures going to the poor (relative to those going to the total reference population) with the national poverty rate. If, for example, the proportion of SP expenditures going to the poor were 60% of the total and the national poverty rate were 50%, the poverty focus indicator would be 60/50 = 1.20.

Take India as an example. While its SPI is 0.112, its poverty focus indicator is 1.03. This suggests that SP expenditures going to the poor roughly approximate their share of the total population. Compare this result to that for Sri Lanka, which also has an SPI of 0.112. But its poverty focus indicator is only 0.65. So its SP expenditures disproportionately go to the nonpoor.

Bangladesh provides a contrasting outcome. While its SPI is relatively low at 0.046, its poverty focus indicator is 1.74, indicating that although its SP programs are much smaller than those in either India or Sri Lanka, the benefits that they do provide are going disproportionately to the poor.

This disaggregation is a useful tool for policymakers and analysts to roughly assess the degree to which SP expenditures reach the poor vis-à-vis the nonpoor. At present, because of data constraints, this disaggregation can only be approximated. However, a longer-term effort is under way in most countries to improve the collection of data on SP programs through the vehicle of HIESs, beginning in some pilot countries.

If analysts wanted to delve deeper into the differences between SP_{lp} and SPI_{np}, they could examine social insurance, social assistance, and labor market programs separately. They might presume, for instance, that social assistance is better targeted at the poor. However, such an outcome might not prevail in all countries or for all social assistance programs.

In addition, analysts could investigate differences in the poverty-related depth and breadth of coverage of SP programs. Here, the depth of coverage would refer to the ratio of total expenditures on the poor to total poor beneficiaries and the breadth of coverage would refer to the ratio of total poor beneficiaries to the total reference population.

A similar logic would apply to the ratio of total expenditures on the nonpoor to total nonpoor beneficiaries and the ratio of total nonpoor beneficiaries to the total reference population.

4. Sex Disaggregation of the Revised Social Protection Index

There is the potential to apply the methodology for disaggregating beneficiaries by poor and nonpoor to disaggregating beneficiaries by sex. If further data are collected, such disaggregation should be feasible.

For the original SPI, sex disaggregation was not included because the data collected during the original 2004–2005 round did not specify whether the beneficiaries were men or women. For the revised SPI, the collection of sex-disaggregated information for each major SP program will be extremely useful.

In some cases where official data are unavailable for sex-disaggregation of beneficiaries, SPI country consultants will have to make estimates based on the best available evidence.[5] This was the procedure followed in collecting information on poor and nonpoor beneficiaries for the original round in 2004–2005. Similar to poverty disaggregation, therefore, sex disaggregation will be based on approximate estimates. Over time, the reliability of such estimates can be strengthened.

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[5]   If available data show that 65% of salaried civil servants are male and 35% female, for example, this sex ratio can be taken and applied to the health insurance program under study.

II. A Handbook for Calculating the Revised Social Protection Index

A. Introduction

1. Key Features of the Revised Social Protection Index

This chapter contains the handbook for obtaining the required information and for calculating a country's SPI. It was prepared to update the SPI (some background to the original SPI is in chapter I). It is directed at SPI country consultants. There is usually one consultant per country.

The revised SPI keeps the original definition of SP: "The set of policies and programs that enable vulnerable groups to prevent, reduce and/or cope with risks, and that (i) are targeted at the vulnerable groups; and (ii) involve cash or transfers in kind".

The primary target groups for SP policies are in Table 8.

Unlike the original SPI, which had four separate indicators (chapter I), the revised SPI is one simple, unitary indicator, which can be disaggregated in various ways for analytical purposes. The revised SPI is not designed for the relative ranking of countries in Asia and the Pacific. It is regarded more as a useful analytical and assessment tool for SP programs at the country level.

The revised SPI is calculated by dividing total SP expenditures per total potential beneficiaries by 25% of GDP per capita (representing average poverty line expenditures). In other words, the total SP expenditures spread across all potential beneficiaries are compared to poverty line expenditures in each country.

The revised SPI can be immediately disaggregated into two components, one for the *depth* of coverage and the other for the *breadth* of coverage of SP programs. The first indicator is the total SP expenditures divided by the total actual beneficiaries (i.e., the average size of benefits actually received). The

second indicator is the total actual beneficiaries divided by the total potential beneficiaries (i.e., the proportion of potential beneficiaries actually reached).

Table 8   Social Protection Categories and Types of Programs

Social Protection Category/ Type of Program	Comments
Social Insurance Programs	
Pensions	
Unemployment benefits	
Health insurance	But not universal health insurance
Other social insurance (maternity, disability benefits)	
Social Assistance	
Assistance for the elderly (e.g., noncontributory basic allowances for the elderly, old-age allowances)	
Health assistance (e.g., reduced medical fees for vulnerable groups)	
Child protection (school feeding, scholarships, fee waivers, allowances for orphans, street children initiatives)	
Family allowances (e.g., in-kind or cash transfers to assist families with young children to meet part of their basic needs)	Excluding any transfers through the tax system
Welfare and social services targeted at the sick, the poor, the disabled, and other vulnerable groups	
Disaster relief and assistance	
Cash/in-kind transfers (e.g., food stamps, food aid)	
Temporary subsidies for utilities and staple foods	Only if imposed in times of crisis and if targeted at particular vulnerable groups. General subsidies are excluded even if their rationale is to assist the poor.
Land tax exemptions	

Table 8 *continued*

Social Protection Category/ Type of Program	Comments
Labor Market Programs	
Direct employment generation through public works programs	Including food for work programs
Direct employment generation through loan-based programs	Included if loans are subsidized and/or job creation is an explicit objective of the program
Labor exchanges and other employment services	
Unemployment benefits	If distinct from social insurance and including retrenchment programs
Skills development and training	Included if targeted at particular groups, e.g., the unemployed or disadvantaged children. General vocational training is excluded

Sources: Adapted from Ortiz, I., ed. 2002. *Defining an Agenda for Poverty Reduction – Proceedings of the First Asia and Pacific Forum on Poverty*. Manila: ADB; ADB. 2001. Social Protection Strategy. Manila: ADB.

The revised SPI can also be disaggregated by the three categories of SP programs: social insurance, social assistance, and labor market programs. When the total expenditures per total potential beneficiaries for each major program are weighted in population terms, the program SPIs add up to the total SPI.

The revised SPI can also be disaggregated by expenditures per potential poor and nonpoor beneficiaries. Additionally, once further data collection efforts have taken place, it is hoped that the revised SPI can be disaggregated by gender.

The Appendix shows and further explains algebraic formulations of the revised SPI and its disaggregation.

2. Important Points

What each country consultant will need to do to calculate the revised SPI is not technically complex. It will require, however, diligent work as most data needed are unlikely to be available from centralized or easily accessible sources.

The SPI country consultant will need to contact numerous government agencies, obtain and review many reports and statistical digests, undertake follow-up visits, and do a lot of double checking. At various times, he or she will need to exercise professional judgment when making final decisions.

The work of the consultant will be facilitated by:

- The automated Excel workbook entitled SPI CALCULATION-revised.xlsx (available and downloadable from www.adb.org/SocialProtection). This workbook greatly reduces data synthesis and SPI calculation (see section C, *Data Synthesis and Calculation Procedures*).
- An emphasis on obtaining the necessary information from the largest SP programs from a few key agencies. The data for the revised SPI are confined to government or government-supported programs. Experience from the original SPI shows that the largest programs essentially determine the final values of the SPI.

The consultant needs to have a good knowledge of Excel. Experience with analyzing HIES data will also be helpful.

B. Data Collection

1. General

This section describes the information that needs to be collected to calculate the revised SPI, the likely sources of this information, difficulties that may be encountered in its collection, and some suggestions on the approach to adopt in interviews with officials in the agencies or organizations responsible for SP programs.

The information required falls into two general categories: basic statistics and indicators, and data on expenditures and number of beneficiaries of SP programs.

Data for the basic statistics need only be collected for the reference year. Data on SP programs should be collected for the three most recent calendar or fiscal years.

2. Basic Statistics and Indicators

To obtain SP indicators that are comparable across countries, we need to divide the data on SP activity in each country by common denominators. The Basic Statistics spreadsheet (Spreadsheet S1), lists the basic statistics that are required with the likely sources.

Spreadsheet S1   Basic Statistics

Statistic	Preferred Source	Alternative Source
GDP (current prices)	National accounts	
GDP per capita (current prices)	National accounts	
GNI (current prices)	National accounts	
Total population	Current estimate from statistical abstract	Extrapolation from most recent census using estimated growth rate
Number of unemployed and/or underemployed[a]	Labor force survey	Application of unemployment and/or underemployment rates to current estimate of labor force
Population aged 60 years and over	% in most recent census applied to current population estimate	
Employed population	Labor force survey	
Population living below national poverty line	Current official estimate applied to current population estimate	
Disabled population	Census question on disability or national disability report	Census or labor force survey information on population stating invalidity or disability as the reason for nonactivity
Children aged 0 to 14 years	The percentage in the most recent census applied to current population estimate	
Per capita poverty line expenditure (annual)	Current official estimate	Extrapolation using the consumer price index from the poverty line used in the most recent household income and expenditure survey, whose date should also be stated
Average household size	Census or recent national household survey	
Exchange rate	Central bank	

GDP = gross domestic product, GNI = gross national income.

[a] Defined for purposes of consistency as those working under 35 hours per week, unpaid family workers and seasonal workers.

In every case, the data for the reference year should be used. When they are unavailable, estimates need to be made using simple interpolations or extrapolations. If such adjustments are impossible, the data for the latest available year should be used. This information should be entered into Spreadsheet S1 in the SPI calculation spreadsheets.

3. Data on Social Protection Programs

a. Relevant Programs

Table 8 (page 20) lists the types of programs on which information needs to be collected.

Points to note:

(i)   The key criteria for inclusion are that programs must (a) be clearly targeted at groups in need of SP (e.g., the poor, the unemployed, the old, the sick, the disabled, and children); and (b) involve direct transfers in cash or in kind to beneficiaries.

(ii)   SP activities not amenable to quantification are excluded, such as legislation on labor standards, women and children's rights, as well as empowerment and consciousness-raising initiatives.

(iii)   Programs that are generally seen as falling within the health or education sectors, such as health care (including HIV/AIDS and reproductive health), immunization, nutrition, preschool education, and general vocational and technical education are excluded. Programs to improve the quality of teaching or health care in poor areas are also excluded.

(iv)   Programs that fall within the general category of rural and/or community development are excluded along with those that concentrate on the construction of physical assets or social infrastructure, e.g., roads, water supply and irrigation networks, schools, or clinics.

(v)   Microcredit finance programs are excluded because they do not involve a transfer in cash or in kind to households or individuals but involve them incurring a liability.

b. Data to be Collected

The key data for each relevant SP program are annual expenditure for the three most recent fiscal or calendar years; number of beneficiaries for those three years; proportion of women beneficiaries; and proportion of beneficiaries who are poor, based on the current national poverty line.

Other data to be collected (using the checklist contained in Table 9) are a description of each SP program, including the implementing agency, objectives, target group, eligibility criteria, and benefits provided.

Table 9   Checklist for Information on Social Protection Programs

Asian Development Bank: Social Protection Index Social Protection Program – Information Checklist			
Interviewer and date (including any follow-ups):			
	Details of person interviewed		
Name of Program:	Name: Position: Department/Division: Organization:		
Responsible Agency:	Contact Details Tel: Email:		
Years program first implemented	**Funding Sources (approx. %)**	**Govt.**	**Internat'l**
		..%	..%
Program Description (including objectives, target group(s), activities, contributory/noncontributory, level of government [national, state, local]):			
Main eligibility criteria and characteristics of beneficiaries:			
Description of Benefits Provided (in cash and in kind, regular or periodic, for individual or household, unconditional or conditional):			
	Year		
Expenditure and Beneficiaries	**2008**	**2009**	**2010**
No. of persons participating (for insurance schemes)			
No. of beneficiaries (i.e., actually receiving benefits)			
Annual cost/expenditure (in local currency, excluding administrative/operating costs)			
Any other relevant information (e.g., Other sources of information)			

Note: The consultant will probably need to use two pages for the larger programs as well as appending any detailed statistical information. The years 2008, 2009, and 2010 are the last three calendar or fiscal years considered.

Points to note:

The data need to be collected from qualifying programs operated by governments or from government-supported programs financed by international development agencies.

- Where possible, expenditure data should exclude administrative and operating costs and reflect actual transfers to beneficiaries. This is usually not a problem for social assistance programs, as most government budgets put administrative costs under a separate heading. However, it may be more difficult for government programs run by other bodies, such as social insurance agencies, whose total budgets will include administrative and overhead costs. In these cases, the country consultant should try to obtain a more detailed budget and exclude administrative and other operating costs.

- Extrapolations are necessary when information is only available for a sample of a certain type of program, e.g., the total number of residents of orphanages can be estimated by multiplying the number of such orphanages by the average number of occupants.

- E-mail and/or telephone contacts of informants should be obtained, for clarifications, additional information, and follow-up.

Points to note:

- **Social insurance:** Care must be taken to obtain information that disaggregates expenditure and beneficiaries by the different types of benefit, e.g., old age (pensions), sickness, maternity, and invalidity. The information on the annual contributions and number of contributors should also be collected.

- **Health insurance (including microinsurance):** Total membership (including family members where these are also covered) is the key item, not the number of actual beneficiaries in that year. Annual expenditure (i.e., amount of benefits paid) is the key expenditure variable.

More detailed descriptions of the data required for calculating the revised SPI are given, in section C, *Data Synthesis and Calculation Procedures* and section D, *Analysis of Household Income and Expenditure Survey Data.*

c. Data Sources

The following sources should be considered for data: government statistics and reports, reports by international financial institutions and bilateral agencies, discussions and interviews with agencies responsible for SP programs, and household survey data.

Experience from the original SPI suggests that most data will come from direct interviews with program operators. Virtually no countries have centralized or easily accessible information on SP programs, particularly beneficiary numbers and characteristics.

The emphasis should be on obtaining information for the major programs. These programs vary by country but often include the following: job creation programs (public works, employment guarantees, food for work); social insurance (usually including health insurance); social assistance and/or welfare programs operated by the government, e.g., the ministry of social welfare; health care assistance, either through the issuance of health certificates or enrollment at reduced or no cost in health insurance schemes; and educational assistance.

The initial priority should therefore be for the country consultant to contact the agencies responsible for these programs, namely the ministries of labor, social welfare, health, education,[6] and the social insurance agency[7] (if independent from a government ministry).

Consultants are expected to collect information only on SP programs operated by governments or on government-supported programs financed by international development agencies. The SP activities of nongovernment organizations (which are typically quite small) are not included in the revised SPI (unlike the original SPI).

Some countries have decentralized the administration of some SP programs to local governments, though the central government often still collects adequate information. However, when these programs are financed out of local budgets, the country consultant should visit two or three local governments (starting with the capital city) to collect information on the types of programs administered locally. The consultant will need to judge whether these programs are large enough to affect the summary results. If the answer is "no," nothing else needs to be done; if the answer is "yes," additional visits and extrapolation need to be made to produce national estimates of expenditures and number of beneficiaries for these programs. Based on the previous SPI exercise, it is unlikely that SP programs financed by provincial governments will be significant except in the largest countries, such as the People's Republic of China, India, and Indonesia.

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[6]   These are generic names and vary from country to country.
[7]   In some countries, there may be several such agencies with responsibilities for different sections of the population, e.g., civil servants and the military. In these cases, each agency needs to be contacted.

d. Data Collection

Data should only be collected with agreement from the national government, which will appoint a person or agency to be the prime contact point. Before collection starts, there should therefore be a meeting with this person or agency. If the ministry of social welfare is the prime contact point, the ministry should be able to provide direct access to data on most social assistance programs. It may also provide contacts and introductions to the other agencies just mentioned. International finance institutions may also provide useful contacts and introductions, although protocol may restrict their help.[8]

Not all the information is likely to be made available during the first visit to a ministry or agency. It is also undesirable to request detailed information on SP programs from senior officials. The recommended procedure is therefore to explain the objectives of the study to a senior official in the agency; to request the name of someone more junior who can spend time describing the programs and providing the data; and to identify and obtain any departmental reports and statistics that can provide the information, and thus reduce the time needed for meetings. Much of the required information will be available in the form of annual budgets and other annual reports, reducing the work for all concerned.

Once these reports have been reviewed, follow-up meetings, telephone calls, and/or e-mails can be used to seek clarifications and request additional items of information.

The key data are not extensive and should be available, even if not in an easily accessible form. However, experience from the original SPI indicates that obtaining them requires persistence in following up, clarifying, and double checking.

Professional judgment is also likely needed at times. Any assumptions should be cross-checked with those responsible for program implementation, to confirm their appropriateness (as shown in the next section).

To reiterate, the emphasis should be on obtaining information for the largest SP programs in terms of expenditure, number of beneficiaries, gender, and poverty.

At the end of data collection, the country consultant must be confident that she or he has identified all the major SP programs and obtained the best information possible on each program.

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8   In the data collection exercises for the original SPI, country consultants' personal contacts with individuals and agencies were also shown to be extremely important, but should not be solely relied upon.

C. Data Synthesis and Calculation Procedures

1. General

This section describes the procedures to be used in synthesizing the data and calculating the revised SPI. The revised SPI is calculated by dividing total SP expenditures by total potential beneficiaries (the reference population) and normalizing by 25% of GDP per capita. The decomposition of the SPI by depth and breadth requires additional data on the actual number of beneficiaries, while the decomposition of the SPI by broad categories of SP programs requires that SP programs be carefully and consistently categorized. Similarly, the decompositions of the SPI by gender and poverty status require additional information.

These procedures are facilitated by incorporating them into a series of linked spreadsheets in the Excel file SPI CALCULATION-revised.xlsx (available and downloadable from www.adb.org/SocialProtection). There are 10 spreadsheets in six areas: Basic Statistics, Expenditures, Beneficiaries, Poverty Focus, Sex-Disaggregated Focus, and SPI.

This section presents illustrative examples of these tables, using programs and numbers in a hypothetical country ("Asiatica"). ***When modifying the spreadsheets for a country, do not alter the cells highlighted in gray because they contain formulas or data that must not be changed.***

The spreadsheets have been designed to accommodate 30 SP programs without the need for reformatting. In practice, however, we expect that 10–15 larger SP programs will be identified in most countries—of which only five or six will exert a significant influence on the SPI.

2. Basic Statistics Spreadsheet

The Basic Statistics spreadsheet (Spreadsheet S1) contains information on a country's national income (GDP and gross national income in current prices), its population, and the various subpopulations (reference populations) that are used in calculating the SPI, plus other key demographic and economic variables (average household size and the exchange rate). For countries that have the same fiscal and calendar year, midyear estimates (i.e., 30 June or 1 July) should be entered for the reference populations. For countries that have noncalendar fiscal years, similarly, the midpoint of the fiscal year should be used for the reference population.[9] Most of this information will be available

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[9]   The formula to estimate this is $p_n = p_0(1 + r)^n$; where p_n is the population at time n, p_0 is population at time 0, r is the annual average population growth rate, and n is the difference between time n and time 0 (in years). See the example in the Appendix.

in published sources such as the national accounts, the latest census or population projections, and the labor force survey.

Spreadsheet S1   Basic Statistics

Country: Asiatica

Statistic	Unit[a]	2009 Value	Source of Data	Notes[b]
GDP (current prices)	Millions	900,000	National Accounts	Calendar year
GDP per capita (current prices)	Units	90,000	National Accounts	Calendar year
GNI (current prices)	Billions		National Accounts	Calendar year
Total Population	Millions	10.0	Census	Midyear population estimate
Number of unemployed/ underemployed[c]	Millions	1.0	Labor Force Survey	
Population aged 60 years and over	Millions	0.7	Census	Midyear population estimate
Employed Population	Millions	6.0	Labor Force Survey	
Population living below national poverty line	Millions	3.5	Poverty Assessment	
Disabled population	Millions	0.5	Ministry of Social Welfare	Estimate from MSW
Children aged 0 to 14 years	Millions	1.5	Census	Midyear population estimate
Per capita poverty line income (annual)	Units	25,000	Poverty Assessment	
Average household size	Persons	4.5	Census	
Exchange rate	$1 =		Central Bank	Calendar year

GDP = gross domestic product, GNI = gross national income, MSW = Ministry of Social Welfare.

[a] Insert magnitudes, e.g., billions, millions, thousands, units.

[b] State how statistics are derived if not directly from cited source.

[c] Defined for the purposes of consistency as those working under 35 hours per week, unpaid family workers, and seasonal workers.

For the size of the poor population (people with income or expenditures below the national poverty line) and the poverty line itself, it may helpful to refer to the most recent national poverty assessment or poverty profile. It may be necessary to consult the ministry responsible for social welfare for the size of the disabled population if such information is not available in any published sources.[10]

Before entering data in the Basic Statistics spreadsheet, country consultants should enter the country's name in cell A2, from where it will be transferred to the other spreadsheets. As exchange rates and the size of countries differ, enter the size (billions, millions, thousands) in which each variable is recorded in column B. Similarly, when entering reference population variables, check whether these are mid or end of year estimates, and align them accordingly. Notes on the alignment or derivation of these basic variables can be entered in column E.

Special attention should be paid to the GDP per capita variable, as this is the basis on which each country's SPI is standardized. *GDP per capita should be recorded in nominal (that is, not adjusted for inflation) local currency units.* It should not be converted into purchasing power parity terms or expressed as an index (as some national accounts tables do).

3. Calculating Social Protection Expenditures

The expenditure spreadsheet is used to record and analyze the annual expenditures associated with each of the SP programs in the country along with the names, implementing agencies, and categories. This spreadsheet in turn has two spreadsheets (Spreadsheets S2 and S3). Spreadsheet S2 should be used to enter the data about SP programs in the country, and Spreadsheet S3 produces a summary table of SP expenditures by SP category.

The information to be inserted in the rows of Spreadsheet S2 are:

- Column B: The name of the program

- Column C: The implementing agency

- Column D: The category of program, namely, PEN (Pensions), HI (Health Insurance), UB (Unemployment Benefits), OSI (Other Social Insurance), AE (Assistance for the Elderly), HA (Health Assistance), CP (Child Protection); DA (Disaster Relief and Assistance), OSA (Other Social Assistance), and LMP (Labor Market Programs). Note that

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[10] The ministry's own definition of disability should be used in determining the size of the disabled population. Although the definition of disability may differ between countries, it is this definition that should determine eligibility for disability allowances or benefits.

these codes are provided in the table on the right-hand side of the spreadsheet.

- Columns E, F, and G: Annual expenditure in local currency units for the three most recent fiscal or calendar years. Be sure to enter the currency and magnitudes (e.g., thousands, millions, billions) in which these expenditures are recorded in the heading at the top of this column, which will then be replicated in subsequent spreadsheets.
- Column H: The primary sources of the data.
- Column I: Any notes concerning assumptions made when deriving the expenditures for a program should be made here (for example, if no estimate of total expenditures is available, it might be necessary to multiply the number of beneficiaries by the average level of benefits). Although it would be ideal to differentiate expenditures on beneficiaries from the administrative costs of programs, this would usually be very difficult because of the lack of data. Hence, the country consultant should attempt to collect data on total program expenditures.

The calculation of total SP expenditures in cell C54 and the choice of reference year breakdown by SP category (Spreadsheet S3) is automatic.[11] Spreadsheet S3 is one of the summary tables that should be included in the country report (see section E, *Presentation of Results: Country Report Format*). Once the GDP (in local currency units) for the relevant fiscal year is inserted into the Basic Statistics spreadsheet, cell C55 of the spreadsheet shows total SP expenditures as a percentage of GDP.

It is permissible to group programs into one row of the expenditure sheet, as long as they are implemented by the same agency, targeted at the same group with similar eligibility criteria, and small. Such grouping is most likely to apply to child protection programs (e.g., orphanages) and the smaller government social assistance programs. Programs targeted at the disabled should, however, always be kept separate (as they have a separate reference population).

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[11] In countries where the fiscal year and calendar year are different, data from the closest fiscal year to calendar year 2009 should be transferred to Spreadsheet S3 and subsequent tables. This is done to align the SPI data with the ADB's Statistical Database System which will host the SPI database. The correct fiscal years are as follows: (i) for countries whose fiscal year covers 1 July to 30 June, use the 2008/2009 fiscal year. This applies to Bangladesh, Bhutan, Nauru, Pakistan, Samoa, and Tonga; (ii) for Nepal whose fiscal year is 16 July to 15 July, use the 2008/09 fiscal year; (iii) for countries whose fiscal year is 1 October to 30 September, use the 2008/09 fiscal year. This is for the Lao People's Democratic Republic, Marshall Islands, Micronesia, Palau, and Thailand; and (iv) for fiscal year 1 April to 31 March, use the 2009/10 fiscal year. This applies to Brunei Darussalam, India, Japan, and Singapore.

Spreadsheet S2   Expenditure on Social Protection—Calculation Sheet

SP Prog. No.	SP Programs (as identified for your country)	Implementing Agency	SP Category	2008 Annual Expenditure (LCU millions)*	2009 Annual Expenditure (LCU millions)*	2010 Annual Expenditure (LCU millions)*	Source of Data	Comments (where applicable)
1	Skill training program for destitute women	Ministry of Social Welfare	LMP	156.2	161.2	162.3	Ministry of Social Welfare	
2	Food/Cash for work	Employment Guarantee Fund	LMP	1,682.7	1,752.3	1,852.4	EGF Annual Report	
3	State-owned Enterprise Retrenchment Program	Ministry of Commerce	LMP	2,611.2	2,760.4	2,843.7	National Budget	
4	Employment Creation through Rural Infrastructure Development	Ministry of Rural Development	LMP	1,112.9	1,052.6	873.2	Consultant's estimates	Estimated by multiplying workdays by wage rate
5	Urban Poor Development Program – Training Component	Ministry of Labor	LMP	58.8	60.4	63.2	Ministry of Labor Annual Budget	
6	Labor exchanges	Ministry of Labor	LMP	52.1	52.8	53.5	Ministry of Labor Annual Budget	
7	Civil Service Pensions	Social Insurance Agency	PEN	12,421.5	12,583.4	12,712.8	SIA Annual Report	
8	Health insurance for civil servants	Social Insurance Agency	HI	4,663.2	4,782.0	4,872.1	SIA Annual Report	
9	Recipients of disability benefits	Ministry of Social Welfare	OSI	367.6	377.5	385.6	Ministry of Social Welfare Budget	
10	Assistance for the elderly living on their own	Ministry of Social Welfare	AE	41.9	42.4	44.9	Ministry of Social Welfare Budget	

Spreadsheet S2 *continued*

SP Prog. No.	SP Programs (as identified for your country)	Implementing Agency	SP Category	2008 Annual Expenditure (LCU millions)*	2009 Annual Expenditure (LCU millions)*	2010 Annual Expenditure (LCU millions)*	Source of Data	Comments (where applicable)
11	Widowed and deserted women	Ministry of Social Welfare	OSA	316.7	325.6	338.3	Ministry of Social Welfare Budget	
12	Health care certificates for the poor	Ministry of Health	HA	108.4	113.6	116.3	Ministry of Health Budget	
13	Land tax exemptions	Ministry of Agriculture	OSA	237.4	251.2	268.0	Ministry of Finance	
14	Food-Based Social Safety Net Program	Ministry of Social Welfare	OSA	7,210.5	7,443.7	7,598.7	SSN Program Annual Report	
15	All government disability programs	Ministry of Health	OSA	31.9	33.6	25.1	Ministry of Health Report	
16	Disaster relief	Ministry of Natural Disasters	DA	871.3	442.8	563.0	Annual Budget for Ministry of Disasters	
17	All government child protection programs	Ministry of Social Welfare	CP	24.8	25.9	27.3	Estimate by Ministry of Social Welfare	
18	Food/Cash for Education	Ministry of Education	CP	839.6	847.2	858.6	National Budget	
19	School Feeding Program	Ministry of Education	CP	277.0	298.3	305.4	National Budget	Combines kindergarten with primary schools
20								
	Total SP Expenditures, 2009				**33,407**			

AE = assistance for the elderly, CP = child protection programs, DA = disaster relief and assistance, EGF = Employment Guarantee Fund, HA = health assistance, HI = health insurance, LMP = labor market program, OSA = other social assistance, OSI = other social insurance, PEN = pensions, SIA = Social Insurance Agency, SP = social protection, SSN = Social Safety Net.

Spreadsheet S3   Social Protection Expenditure by Category

SP Category	2009 Annual Expenditure (LCU millions)*	Percent (%)
Pensions	12,583	38
Health Insurance	4,782	14
Unemployment Benefit	0	–
Other Social Insurance (e.g., maternity, disability benefits)	378	1
ALL Social Insurance	17,743	53
Assistance for Elderly	42	0
Health Assistance	114	0
Child Protection	1,171	4
Disaster Assistance and Relief	443	1
Other Social Assistance	8,054	24
ALL Social Assistance	9,824	29
Labor Market Programs	5,840	17
Total SP Expenditure	33,407	100
GDP	900,000	
SP Expenditure Indicator (SPEXP)	3.7%	

GDP = gross domestic product, LCU = local currency unit, SP = social protection.

Care should be taken when estimating the expenditures of labor market programs involving public works (such as food or cash for work). For these programs, only the labor component of the expenditure should be included; the costs of materials, plant, and administration, etc., must be excluded. Obtaining this estimate may require getting an estimate of the number of work days in the last fiscal year, multiplied by the average daily wage.

Annual expenditures need to be used. Where a project lasts several years, total project expenditure needs to be divided among the number of years the project is expected to last. If a year-by-year breakdown of expenditure is not available, divide the total project expenditure by the project's years.

Finally, *the fiscal years to which the expenditure data relate are at the top of the spreadsheet*. As noted earlier, in some countries the fiscal year differs from the calendar year, in which case, alter the headings in Spreadsheet S3 so that the correct fiscal year is stated.

4. Beneficiaries of Social Protection Programs

Spreadsheet S4, Beneficiaries of Social Protection, summarizes the data on the number of beneficiaries of SP programs. While these data are not used directly in calculating the revised SPI, they are used to disaggregate the SPI into depth and breadth, whose formulas both involve the number of beneficiaries. Information on the beneficiaries of each program can also be combined with the information on the populations of potential beneficiaries in Spreadsheet S1 to compute the coverage rates of particular programs. This indicator is no longer used in the revised SPI (it is subsumed under breadth), but coverage rates of particular programs may be useful for diagnostic analysis.

While the data obtained on program beneficiaries are usually from administrative sources, in some cases it can also be estimated if good household survey data on the targeting of SP programs are available (see section D, *Analysis of Household Income and Expenditure Survey Data*).

5. Compilation of Data on Individual Programs (Step 1)

Spreadsheet S4 automatically replicates the SP programs identified in the previous sheet and the detailed SP categories. The following information must then be inserted into columns C to G, and I:

- Columns C to E: the number of beneficiaries of each program for each of the three most recent fiscal or calendar years. Be sure to enter the units (i.e., hundreds, thousands, millions) in which the numbers of beneficiaries are stated at the top of this column, as this will be important for subsequent calculations.
- Column F: the primary source of the beneficiary data.
- Column G: any assumptions that needed to be made in estimating the number of beneficiaries of each program.
- Column I: based on the detailed social protection category in column H, enter the broad category of SP program under which the program falls (see Table 10).

Points to note:

- Beneficiaries of job creation programs are those actually working as a result of these programs. Where beneficiary numbers include other family members, these numbers need to be divided by the average household size to give the number of those actually gaining some employment from these schemes.
- Beneficiaries of pension programs are those people aged over 60 years receiving pensions and not the total number of pension scheme

Spreadsheet S4 Beneficiaries of Social Protection—Calculation Sheet

Prog. No.	Program Name	2008 Beneficiaries ('000)	2009 Beneficiaries ('000)	2010 Beneficiaries ('000)	Source of Data	Comments	SP Category (Detailed)	SP Category (Broad)	LMP	SI	SA
1	Skill training program for destitute women	12	14	11	Ministry of Social Welfare		LMP	LMP	14	0	0
2	Food/Cash for work	18	21	19	EGF Annual Report		LMP	LMP	21	0	0
3	State-Owned Enterprise Retrenchment Program	93	100	104	World Bank Report	Those provided with work only	LMP	LMP	100	0	0
4	Employment Creation through Rural Infrastructure Development	50	50	50	Consultants' estimates		LMP	LMP	50	0	0
5	Urban Poor Development Program – Training Component	22	23	25	Ministry of Labor	No. of people trained	LMP	LMP	23	0	0
6	Labor exchanges	6	5	5	Ministry of Labor	No. of those finding jobs estimated by extrapolation from partial data.	LMP	LMP	5	0	0
7	Civil Service Pensions	102	103	104	SIA Annual Report	No. currently receiving pensions	PEN	SI	0	103	0
8	Health insurance for civil servants	148	152	159	SIA Annual Report	No. of people who are covered by health insurance	HI	SI	0	152	0
9	Recipients of disability benefits	4	4	4	Ministry of Social Welfare		OSI	SI	0	4	0
10	Assistance for the elderly living on their own	28	29	28	Ministry of Social Welfare		AE	SA	0	0	29

Spreadsheet S4 *continued*

Prog. No.	Program Name	2008 Beneficiaries ('000)	2009 Beneficiaries ('000)	2010 Beneficiaries ('000)	Source of Data	Comments	SP Category (Detailed)	SP Category (Broad)	LMP	SI	SA
11	Widowed and deserted women	12	12	12	Ministry of Social Welfare		OSA	SA	0	0	12
12	Health care certificates for the poor	270	300	320	Ministry of Health Statistical Yearbook	No. of people covered, incl. family members where applicable	HA	SA	0	0	300
13	Land tax exemptions	783	742	722	Ministry of Finance		OSA	SA	0	0	742
14	Food-Based Social Safety Net Program	9	946		SSN Program Annual Report		OSA	SA	0	0	946
15	All government disability programs	10	11	12	Ministry of Health Statistical Yearbook		OSA	SA	0	0	11
16	Disaster relief	83	52	64	Ministry of Disasters Annual Report		DA	SA	0	0	52
17	All government child protection programs	1	1	1	Estimate by Ministry of Social Welfare		CP	SA	0	0	1
18	Food/Cash for Education	94	97	101	Ministry of Education Statistical Yearbook		CP	SA	0	0	97
19	School Feeding Program	121	131	142	Ministry of Education Statistical Yearbook		CP	SA	0	0	131
20									0	0	0
21									0	0	0
	Total Beneficiaries. 2009		2,793						213	259	2,321

AE = assistance for the elderly, CP = child protection programs, DA = disaster relief and assistance, HA = health assistance, HI = health insurance, LMP = labor market program, OSA = other social assistance, OSI = other social insurance, PEN = pensions, SP = social protection.

Table 10   Broad and Detailed Social Protection Categories

Social Insurance includes	Social Assistance includes	Labor Market Programs include
PEN (Pensions) HI (Health Insurance) UB (Unemployment Benefits) OSI (Other Social Insurance)	AE (Assistance for the Elderly) HA (Health Assistance) CP (Child Protection Programs) DA (Disaster Relief and Assistance) OSA (Other Social Assistance)	LMP (Labor Market programs only)

Note: All programs must be classified into one of the three broad categories; otherwise the subsequent SPI calculations will not add up.

     members. In some countries, people under the age of 60 may also be receiving pensions. If this is the case in your country, you should obtain estimates of "old" and "young" pensioners. "Old" pensioners can be allocated to the PEN category, and "young" pensioners should be assigned to the other social insurance category.

- Beneficiaries of health insurance and other health assistance schemes are those covered and/or who are scheme members and not just those receiving health benefits in the reference year.

Compiling the data on beneficiaries is likely to prove much harder than the data on expenditures, often involving repeated visits to implementing agencies. In some cases, the required information may simply not be available and estimates will have to be made using, for instance, the average level of expenditure per beneficiary or grossing up from partial data with frequent cross-checking to ensure that the results are plausible.

Columns J to L of Spreadsheet S4 automate the calculation of the number of beneficiaries in each of the three categories. The total number of beneficiaries in each broad SP category is then used in disaggregating the SPI.[12]

The original SPI involved considerably more complicated coverage calculations than those involved in this spreadsheet, including the need to estimate the degree of overlap between different SP programs. The reason

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[12]   In countries where the fiscal year and calendar year are different, data from the closest fiscal year to calendar year 2009 should be transferred to the final three columns of Spreadsheet S4.

that it is unnecessary to do this in this revised version is that the numerator of the revised SPI is SP expenditures which, unlike beneficiaries, can be added up across programs.

6. Poverty Focus of Social Protection Expenditures

The Poverty Focus spreadsheet, S5, provides the additional data to disaggregate the SPI by poverty status. The key data to be entered is the poverty targeting rate (PTR), which shows the percentage of SP expenditures on people with incomes or expenditures below the national poverty line ("the poor").

This spreadsheet sets out the calculation procedure. Columns B and C replicate the names of the SP programs and the 2009 expenditures from the Expenditure sheet and need not be entered again.[13] The PTR for each program should then be inserted into column D and a note on the reason for its selection needs to be made in column E. Each program's expenditures on the poor are then automatically calculated in column F by multiplying program expenditures by the PTR for that program. Summing the rows of column F (Cell F32) produces the total SP expenditures on the poor, which is the figure needed for disaggregating the SP by poverty status.

The best way to estimate the PTR is using good HIES data. The procedures for doing this are described in detail in section D, *Analysis of Household Income and Expenditure Survey Data*. However, in some countries, suitable HIES will be either not available or too dated to be useful. In other countries, HIES may be available but they only collect data on a few, broad categories of SP programs. In these cases, estimates of the PTR will need to be made using professional judgment, which requires a thorough knowledge of the objectives and targeting of each program, with the country's poverty profile.

For some SP programs targeted at the very poor, the PTR is likely to be close to 100%. An example of this is the skills training program for destitute women in the first row of the example Poverty Focus spreadsheet (S5). In contrast, contributory pension and health insurance schemes that benefit only government and formal sector employees may be expected to have PTRs that are close to zero (as in rows 7 and 8 of the example spreadsheet, S5). For some major social insurance and assistance programs, it may be possible to obtain estimates of the PTR from reports (by their implementing agencies, international financial institutions, or bilateral agencies) or through discussion with agencies themselves, but the poverty standard to use in

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[13]   In countries where the fiscal year and calendar year are different, data from the closest fiscal year to calendar year 2009 should be transferred to Spreadsheet S5 (see footnote 20).

Spreadsheet S5   Poverty Focus of Social Protection Expenditures—Calculation Sheet

Prog. No.	Name of Program	2009 Annual Expenditure (LCU millions)*	PTR (%)	Notes on Derivation of PTR	SP Expenditure on the poor ('000)
1	Skill training program for destitute women	161	100	Assumed to be 100%	161
2	Food/Cash for work	1,752	80	Estimate by Ministry of Public Works	1,402
3	State-Owned Enterprise Retrenchment Program	2,760	10	Estimate by State Bank	276
4	Employment Creation through Rural Infrastructure Development	1,053	60	World Bank report	632
5	Urban Poor Development Program – Training Component	60	50	UNDP report	30
6	Labor exchanges	53	20	Estimate from Ministry of Labor	11
7	Civil Service Pensions	12,583	0	Based on HIES data	–
8	Health insurance for civil servants	4,782	0	Assumed to be zero	–
9	Recipients of disability benefits	378	20	Estimate by Ministry of Social Welfare	76
10	Assistance for the elderly living on their own	42	100	Assumed to be 100%	–
11	Widowed and deserted women	326	100	Assumed to be 100%	326
12	Health care certificates for the poor	114	90	Based on HIES data	102
13	Land tax exemptions	251	35	Based on HIES data	88
14	Food-Based Social Safety Net Program	7,444	75	Based on HIES data	5,583
15	All government disability programs	34	100	Assumed to be 100%	34
16	Disaster relief	443	75	Estimate by Ministry of Social Welfare	332
17	All government child protection programs	26	100	Estimate by Ministry of Social Welfare	26
18	Food/Cash for Education	847	75	Estimate by Ministry of Education	635
19	School Feeding Program	298	75	Estimate by Ministry of Education	224
20					
21					
	Total	**33,407**	**Total**		**9,936**

HIES = household income and expenditure survey, LCU = local currency unit, PTR = poverty targeting rate, SP = social protection, UNDP = United Nations Development Programme.

determining the PTR is the national poverty line rather than the qualifying criterion of the implementing agency or program. In other cases, it will be possible to identify a particular group of beneficiaries (e.g., civil servants, farmers in rural areas, and unemployed youth in urban areas), so the poverty rate corresponding to that sector may be used as the PTR for these programs.

Breakdowns of the poverty rate by sectors, occupation groups, and other functional categories are often available in the poverty profiles and poverty assessments prepared by national statistics offices and international financial institutions. Finally, when there is no strong reason for believing that a program is targeted toward or away from the poor, the poverty rate corresponding to the geographical region in which the program operates should be used as the PTR.

These procedures for estimating the PTR will seem ad hoc to some. In particular, the implicit assumption is made that SP expenditures are distributed between the poor and nonpoor in the same proportion as their population shares. However, it should be remembered that the PTR is not used for calculating the SPI itself, but for decomposing expenditures between the poor and nonpoor and that the decomposition will be as good as the underlying data. ADB has embarked on a long-term effort to improve the collection of data on SP programs in countries' HIES by designing a social protection module that will be piloted in the HIES of three countries (Indonesia, the Philippines, and Sri Lanka) in 2011–2012.

7. Sex-Disaggregated Social Protection Expenditures

Disaggregating SP expenditures by sex is performed in a similar way to their disaggregation by poverty status. The key information needed to do this is the sex targeting rate (STR), defined as the percentage of program expenditures paid to females. For some programs (such as training programs for destitute women, or social assistance for widowed and deserted women) the STR is obviously 100%. For others, probably the majority, the STR may be less than 50%, especially if the potential beneficiaries are primarily men (for example, unemployment benefits and severance payments). However, as women typically have longer life expectancy than men, pensions and social assistance for the elderly are likely to benefit women disproportionately. Programs that are targeted at entire families (such as disaster and emergency relief) or at males and females equally (such as school feeding programs) will usually have STRs close to 50%.

Data from HIES, where available, should be used in estimating STRs. However, at present, only a few countries collect information on who within the household receives SP transfers. This is one of the conditions which ADB's

long-term effort to introduce SP modules into HIES seeks to improve over time. Labor force surveys and censuses often provide age- and sex-disaggregated data, which may be useful if estimating the STR for specific beneficiary populations. The reports of social insurance agencies may also break down their beneficiaries by sex and, where this information is available, it should be used in estimating STRs.

The Sex-Disaggregated Social Protection Expenditures spreadsheet in Spreadsheet S6 is very similar to the one for Poverty Focus. Columns B and C replicate the names of the programs and 2009 program expenditures from the expenditure sheets,[14] while the estimated STR for each program should then be inserted into column D. Notes on the derivation of the STR should then be inserted into column E. Column F then automatically calculates how much of each program's expenditures are paid to females by multiplying total program expenditures by the STR for that program. The total SP expenditures for female is also automatically calculated.

8. Calculation and Disaggregation of the Social Protection Index

The final set of spreadsheets are the Social Protection Index Calculation spreadsheets, which calculate and disaggregate the SPI (Spreadsheets S7 to S10).[15] As indicated by the yellow shading of the cells, most of the necessary data are transferred automatically into this spreadsheet from previous spreadsheets and the calculations are automated, so do not change any of the underlying formulas.

Pay attention, however, to the unit conversions table in cells H5 to H9 of the sheet. If total SP expenditures in the country are not stated in millions of local currency units, or the numbers of beneficiaries are not in thousands of people, or the total reference populations are not in millions of people, cells H6, H7, and H8 should be changed. It is crucial that these magnitudes are consistent with the magnitudes used in Spreadsheets S2, S4, and S1, otherwise a very small or very large SPI will result. (The SPI is expected to be between approximately 0.002 and 0.538. See chapter I.)

The four tables in the SPI spreadsheet correspond to the four ways to disaggregate the SPI (described in chapter I). The first (S7) calculates the SPI for social insurance, social assistance, and labor market programs, as well as for all SP programs combined.

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[14]   In countries where the fiscal year and calendar year are different, data from the closest fiscal year to calendar year 2009 should be transferred to Spreadsheet S6.
[15]   This calculation is done for calendar year 2009, or the closest fiscal year to calendar year 2009.

Spreadsheet S6   Sex-Disaggregated Social Protection Expenditures—Calculation Sheet

Prog. No.	Name of Program	2009 Annual Expenditure (LCU millions)*	STR (%)	Notes on Derivation of PTR	SP Expenditure on Females ('000)
1	Skill training program for destitute women	161	100	Assumed to be 100%	161
2	Food/Cash for work	1,752	30	Estimate by Ministry of Public Works	526
3	State-Owned Enterprise Retrenchment Program	2,760	5	Estimate by State Bank	138
4	Employment Creation through Rural Infrastructure Development	1,053	50	Estimated from Ministry of Labor	526
5	Urban Poor Development Program – Training Component	60	50	UNDP report	30
6	Labor exchanges	53	20	Estimate by Ministry of Labor	11
7	Civil Service Pensions	12,583	25	Consultant's estimate	3,146
8	Health insurance for civil servants	4,782	30	Estimate by Ministry of Health	1,435
9	Recipients of disability benefits	378	40	Estimate by Ministry of Health	151
10	Assistance for the elderly living on their own	42	70	Estimate by Ministry of Social Welfare	–
11	Widowed and deserted women	326	100	Assumed to be 100%	326
12	Health care certificates for the poor	114	55	from WHO report	62
13	Land tax exemptions	251	35	from World Bank report	88
14	Food-Based Social Safety Net Program	7,444	40	Consultant's estimate	2,977
15	All government disability programs	34	50	Assumed to be 50%	17
16	Disaster relief	443	50	Assumed to be 50%	221
17	All government child protection programs	26	85	Estimate from Ministry of Social Welfare	22
18	Food/Cash for Education	847	50	Assumed to be 50%	424
19	School Feeding Program	298	50	Assumed to be 50%	149
20					
21					
	Total	**33,407**		**Total**	**10,410**

STR = sex targeting rate, LCU = local currency unit, UNDP = United Nations Development Programme, WHO = World Health Organization.

Spreadsheet S7–S10   Social Protection Index Calculation

Spreadsheet S7: Calculation and Disaggregation of SPI into Depth and Breadth

	Units	Social Insurance	Social Assistance	Labor Market Programs	All SP Programs	Unit Conversions
Total SP Expenditure	millions	17,743	9,824	5,840	33,407	1,000,000
Beneficiaries	'000	259	2,321	213	2,793	1,000
Reference Population	millions	6.700	5.500	1.000	13.200	1,000,000
25% of GDP per capita	units	22,500	22,500	22,500	22,500	1
SPI		0.060	0.033	0.020	0.112	

Spreadsheet S8: Disaggregation by Depth and Breadth

	Social Insurance	Social Assistance	Labor Market Programs	All SP Programs
Depth	3.045	0.188	1.219	0.532
Breadth	0.020	0.176	0.016	0.212
SPI	0.060	0.033	0.020	0.112

Spreadsheet S9: Disaggregation by Poverty Status

	Poor	Nonpoor	Total SPI
SP Expenditure	9,936	23,471	
Reference Population	13	13	
25% of GDP per capita	22,500	22,500	
SPI	0.034	0.079	0.112

Poverty Focus Indicator	0.853

Spreadsheet S10: Disaggregation by Sex

	Women	Men	Total SPI
SP Expenditure	10,440	22,997	
Reference Population	13	13	
25% of GDP per capita	22,500	22,500	
SPI	0.035	0.077	0.112

GDP = gross domestic product, SP = social protection, SPI = social protection index.

The second (S8) disaggregates the SPI in terms of its depth and breadth. When SP benefits are generous, the depth numbers in cells B15 to E15 can exceed 1 (as they do for social insurance and labor market programs in the example spreadsheet for "Asiatica"). However, the breadth numbers in cells B16 to E16 should always be less than one. Note that the last row of this table (cells B17 to E17) should be identical to those in the last row of Spreadsheet S7 (cells C10 to F10).

Spreadsheets S9 and S10 disaggregate the SPI by the poverty status and sex of program beneficiaries. Unless these disaggregations have been based on analysis of a good quality HIES (as discussed in the next section), they will only be approximate. Note that the numbers for the total SPI in cells D24 and I24 should be identical to those in cells F10 and F17, and that the additional poverty focus indicator is calculated automatically in cell B26.

D. Analysis of Household Income and Expenditure Survey Data

1. General

Previous sections referred to the usefulness of HIES data in deriving the data to calculate the SPI, especially the estimation of numbers of beneficiaries and poverty targeting rates. This section describes how to find out whether this information can be used for the country, how to obtain the survey database, and how to carry out the necessary analysis.

Household survey data should be used in the calculation of the SPI wherever possible as it is likely to produce more robust results and will avoid the need to rely on the estimation methods described in the section above, Data Synthesis and Calculation Procedures.

2. Obtaining and Evaluating Household Survey Data

While most countries conduct periodic HIES, these surveys are only useful if the following conditions are met:

(i)   The HIES was conducted within the last few years (otherwise the data generated will not match with those collected on current SP programs);

(ii)   Questions on whether households or individuals benefit from the most important SP programs have been included in the HIES questionnaire;

(iii) It is possible to obtain the unit record (i.e., household) data from the national statistics office including a constructed variable for total expenditure or total income per household. (Note that the published reports and/or summary tables from the HIES are unlikely to provide sufficient information for calculating the beneficiaries and poverty targeting rates for specific SP programs.)

(iv) The person calculating the SPI is either familiar with statistical packages such as Statistical Analysis System (SAS), Statistical Package for the Social Sciences (SPSS), or Stata and has experience of working with household survey data, or can hire someone with the necessary skills and experience to produce the necessary tabulations.

In assessing whether these conditions can be met, the first step, which will address (i) and (ii) above, is to obtain the questionnaire and supporting documentation for the most recent HIES. This survey should be nationally representative and ideally follow a standard methodology (such as the World Bank's Living Standard Measurement Survey or Integrated Household Survey formats).[16]

The survey questionnaire should then be carefully inspected to see if it contains information on whether households benefit (or participate) in different types of SP programs and how much they receive from these programs. This inspection usually involves going through the whole questionnaire page by page, as the questions on the receipt of pensions and other social insurance payments are often in different parts of the questionnaire from those on "participation" in social assistance and labor market programs. In particular, any modules on other (nonemployment) income sources and poverty alleviation programs need to be examined carefully. The ILO's Global Extension of Social Security website provides a very useful listing of questions about social security with links to the questionnaires, reports, and even (in a few cases) the data of HIES and other surveys in 18 Asian countries.[17] Two other useful sources of information, including in most cases downloadable questionnaires and survey documentation, are the International Household Survey Network's Central Catalogue of Surveys (www.ihsn.org) and the World Bank's Living Standard Measurement Survey's website (www.worldbank.org/lsms).

Assuming that the HIES questionnaire includes questions on the most important SP programs in a country, the next step is to approach the national

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[16] See Deaton (1997) or Grosh and Glewwe (2000) for more information on these household surveys.

[17] See www.socialsecurityextension.org/gimi/gess/ShowWiki.do?wid=72

statistics office for access to the unit record data of the survey. This will usually be distributed in a CD containing the responses of each of the several thousand (or more) households that have been surveyed with their names and addresses deleted to protect their anonymity.[18]

Different national statistics offices have different procedures for accessing HIES data. In some countries, HIES data can be purchased simply by contacting the national statistics office, writing a letter explaining where the country consultant intends to use the data, and paying the appropriate fee. In others, a process of approval may be involved and it may be easier to obtain the data by going through an international donor organization or university that already has approved access to the data. In a few countries, access to the unit record data of the HIES is only made available to selected government officials, and in these cases, it may be necessary to either hire one of them to produce the necessary tables—or abandon any attempt to use the HIES.

If it seems likely that the unit record for a recent HIES data can be made available, it is then advisable to check whether several other pieces of information are available on the HIES data files before proceeding further. These are:

(i)   the sampling weights (probably accompanied by cluster and stratification variables) that are used to "weigh" the household records to produce nationally representative statistics;

(ii)   a total expenditure or income variable for each household, constructed from the other modules of the questionnaire;

(iii) the official poverty line(s) to be used in analysis of the survey (these may differ between regions and provinces or between rural and urban areas); and

(iv)   the format of the data files distributed: usually these will be either Statistical Package for the Social Sciences, Statistical Analysis System, or Stata format.

Usually (i) and (ii) are available within the database, although the location and names of these variables may not be obvious. Item (iii) may or may not be available within the electronic data files but can easily be entered once the appropriate information is obtained (either from the HIES documentation or the most recent national poverty assessment). If it is not clear from the documentation, it is important to check whether these poverty lines are expressed on a per capita or a per adult equivalent basis. (Occasionally, a

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[18] For a few Asian countries (e.g., Kyrgyz Republic, Iraq, and Tajikistan), Living Standards Measurement Survey can also be downloaded from the World Bank website (www.worldbank.org/lsms/).

variable relating the poverty status of households will be included in the HIES data files, which will simplify the poverty targeting calculations considerably.)

Once the necessary data have been obtained, it is important to obtain the services of someone who is familiar with analyzing HIES data if the consultant does not have the skills to do this. It would be ideal if that person has experience working with the particular HIES. Analyzing HIES data is a skilled and technical job. However, unless a huge number of SP programs are included in the HIES, an experienced analyst should be able to produce the tabulations required for the computation of the SPI in 1 or 2 days.

3. How to do the Analysis

a. Data Manipulation

HIES data can be used to calculate the number of beneficiaries and poverty targeting rates for all SP programs that are covered by the survey. We assume that the survey is nationally representative and that sample weights[19] and the poverty status of the household are available.

The first step is to construct a poverty status variable indicating whether each household in the HIES is poor or not. This can usually be done quite simply using an IF command, with the indicator variable taking the value 1 if the household's per capita expenditure or income is less than the relevant official poverty line, and 0 otherwise.[20] All survey analysis packages have an IF command.

The second step is to construct a series of indicator variables taking the value 1 if a sample household receives benefits from a different SP program, and 0 otherwise. Note that a separate variable needs to be created for every program (or groups of programs) mentioned in the survey. If the information is provided in the other income section, i.e., in monetary terms, the variable needs to be constructed whenever this variable has a value exceeding 0.[21]

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[19] If the sample weights are not available, the analysis can still be carried out but advice will need to be taken about the representativeness of the results and any biases that may occur.

[20] As mentioned in that section, the poverty targeting calculations should be based on national poverty lines. Usually, these are based on a cost of basic needs methodology and are quoted in per capita expenditure terms. However, sometimes poverty lines are quoted in per adult equivalent terms and sometimes income rather than expenditures is used as the welfare measure. In these cases, the steps described will need to be modified appropriately.

[21] If there are questions on whether income from a program is being received and on the amount received, the variable should be 1 IF 'prog. received' OR IF 'amount received' > 0.

b. Cross-tabulation

Once the variables are set up, producing the results involves a simple cross-tabulation of the program indicator variables against poverty status. Care must, however, be taken to apply the sampling weights to the results in order that the total number of households in the country receiving benefits from each SP program is produced. Table 11 gives an example of how this table would look using data from the 2008 Vietnam Household Living Standards Survey (VHLSS). Note that the categories of SP programs in this table reflect the current design of the VHLSS, and are not necessarily the ideal ones for the calculation of the SPI.[22] Viet Nam has two national poverty lines in common use and the expenditure poverty line used by the General Statistics and World Bank was selected for this analysis. Note also that with most survey analysis packages, individual cross-tabulations have to be produced for each program, which can then be summarized as shown in Table 11.

Table 11   Households Receiving Social Protection Benefits

Program	Households Receiving Program Benefits ('000)		
	Not Poor	Poor	Total
Pensions	2,002.5	48.0	2,050.5
Sickness and Job Loss Allowances	209.3	9.2	218.5
Redundancy Payments	62.4	6.1	6.8
Income from Insurance	75.8	5.0	80.8
Social Welfare Allowances	1,555.7	327.8	1,883.5
Health Assistance	1,260.0	1,068.1	2,328.1
Education Assistance	686.9	712.4	1,399.3
Disaster Assistance	821.3	205.7	1,207.0
Vocational training	52.5	48.9	101.4
All SP programs	**5,224.6**	**1,3888.9**	**6,613.5**
Total Households	**18,363.0**	**2,596.6**	**20.959.6**

SP = social protection.
Source: Calculated from VHLSS 2008 using expenditure poverty line of D3,360,000 per person per year.

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[22] For example, the VHLSS 2008 household questionnaire combines sickness and (regular) job loss allowances into a single category and does not distinguish between income from Vietnam Social Insurance (the social insurance agency) and other (mostly private) insurance companies.

**Table 12   Example of Analysis of Household Survey Data
on Social Protection Programs**

Program	% of all households who benefit from SP programs	PTR (poor beneficiaries as % of poor households)
Pensions	9.8	1.8
Sickness and Job Loss Allowances	10.4	0.4
Redundancy Payments	0.3	2.3
Income from Insurance	0.4	0.2
Social Welfare Allowances	9.0	12.6
Health Assistance	11.1	41.1
Education Assistance	4.9	7.9
Disaster Assistance	6.7	27.4
Vocational training	0.5	1.9
All Social Protection Programs	31.5	53.5

PTR = poverty targeting rate, SP = social protection.
Source: Calculated from VHLSS 2008 using expenditure poverty line of D3,360,000 per person per year.

The next step is to calculate the percentage of households benefiting from each category of SP program and their poverty targeting rates (i.e., percentage of poor households receiving benefits from that program). This can either be done within the survey analysis package or by generating the percentages through Excel. Table 12, using the data from Table 11, shows how the results can be presented.

In Armenia and Thailand, the national HIES also collect information on who within the household receives SP payments. This data can be merged with the sex of the household member (usually contained in the household roster) to estimate the STR.

4. How to use the HIES Results

a. Beneficiaries

The data on total beneficiaries from Table 11 should be inserted into column C of the Beneficiaries spreadsheet (S4) of the SPI calculation workbook. These programs then need to be allocated to the detailed and broad SP categories shown in Table 10. The total beneficiaries for each broad category of SP

programs are then calculated automatically. The following points should be noted:

- For social insurance and labor market programs, it may generally be assumed that there is only one beneficiary of each SP program per household, so the number of households can be entered directly into the "Beneficiaries" spreadsheet.

- For social assistance, it can generally be assumed that benefits affect all household members. It is therefore necessary to calculate the number of individuals receiving social assistance before entering the data into Spreadsheet S2. This can be done either by applying individual level sampling weights or multiplying the number of households receiving by the average household size.[23]

- The number of beneficiaries for health insurance cannot generally be calculated from the HIES, as health coverage needs to reflect the number of scheme members and/or potential beneficiaries and not those receiving health benefits in a particular year. HIES data can only be used if it refers to scheme members (which is unlikely).

- It is unusual for all types of SP programs to be enumerated in a household survey. Orphans, disabled people, and others living in institutions are unlikely to be included in the sampling frame of any household survey, while the smallest government programs may be missing from the questionnaire. Therefore, it will be necessary to supplement the data on program beneficiaries and PTRs calculated from the HIES using the information obtained in the checklist interviews. In situations where there are both household survey and interview-based estimates of the number of program beneficiaries, professional judgment should be used in choosing the more reliable estimate.

b. Poverty Targeting

The program-specific PTRs in our example are shown in column of 3 of Table 12. These should be inserted into column D of the Poverty Focus spreadsheet (S5). As with the number of beneficiaries, it unusual for all types of SP programs to be included, so it is useful to note which PTRs have been calculated from HIES data in column E of the spreadsheet. SP expenditure on the poor in column F is then calculated automatically.

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[23] The individual level sampling weights are simply the household level sampling weights multiplied by the size of each household.

E. Presentation of Results: Country Report Format

The data and results should be integrated into a country SP report, containing the following six chapters:

Chapter 1: Introduction

This should describe the objectives of the study as set out in the terms of reference; its background (based on previous country reports); the definition of SP adopted for this study; the structure of the SPI; and its three major disaggregations into depth and breadth, into the three categories of SP programs (social insurance, social assistance, and labor market programs), and into expenditures directed to the poor and the nonpoor; and the report structure.

Chapter 2: Country Overview

This should consist of a brief prose description (3–5 pages) summarizing the main features of the current development situation and recent trends in the country.

Chapter 3: Current Social Protection Programs and Activities

This should start with a brief description of the data collection process, including its objectives, the primary point of contact, the main sources, and any problems or difficulties encountered. A second section should include Table 8: Social Protection Categories and Types of Programs, which sets out the types of programs relevant to this study.

The main content should consist of information on all the identified SP programs presented using the checklist contained in Table 9: Checklist for Information on Social Protection Programs. These should be structured around the three major SP components, namely, labor market programs, social insurance, and social assistance. Where the information was obtained from reports rather than direct interviews, it can be presented in the form of prose descriptions and tables without the need to use the checklist.

The chapter should conclude with a brief overview of SP in the country, concentrating on the major existing government programs.

Chapter 4: The Social Protection Index and Its Disaggregation

Following a brief introduction, this chapter should present the basic structure of the revised SPI. It should then describe the SPI's three major disaggregations: (i) into depth and breadth; (ii) into the three categories of SP programs (labor market programs, social insurance, and social assistance); and (iii) into expenditures directed to the poor and to the nonpoor. The gender focus disaggregation should also be reported, noting the programs for which assumptions or professional judgment has been required.

Chapter 5: Analysis of the Country Results

This chapter should present the basic results of the investigation. Much of it can be in tabular form. The results for Spreadsheets S3, S7, S8, S9, and S10 should be presented and discussed.

Chapter 6: Policy Assessments and Implications

The important concluding chapter should provide a policy assessment of the extent and character of SP programs in the country. It should have a commentary on how the country's results compare with those of other countries in the region. Exemplary or highly problematic SP programs should be highlighted. The chapter should end with a summary of the results and the main policy assessments and conclusions.

Appendixes

These should list the organizations contacted and the references consulted.

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Appendix
Calculating the Social Protection Index

T he revised social protection index (SPI) takes the following general form: Total social protection expenditures per total potential beneficiaries divided by poverty line expenditures.

The term in the numerator, total expenditures per total potential beneficiaries (*i.e., total reference population*), can be disaggregated into two multiplicative components:

(Total expenditures/Total actual beneficiaries) times (Total actual beneficiaries/Total potential beneficiaries)

The first component, "Total expenditures/Total actual beneficiaries," denotes the "depth" of coverage of social protection. The second component, "Total actual beneficiaries/Total potential beneficiaries," denotes the "breadth" of social protection. Hence in its current revised formulation, the SPI takes account of both aspects.

For the term, "Poverty line expenditures," we have chosen the poverty line for each country, that is 25% of its gross domestic product (GDP) per capita. This poverty line is expressed in per capita terms since it denotes the threshold of total expenditures that each person needs to exceed to be considered nonpoor.

$$SPI = \frac{[\Sigma E / \Sigma PB]}{Z}$$

where E = expenditures; AB = actual beneficiaries; PB = potential beneficiaries; and Z = poverty line expenditures (25% of GDP per capita).

Disaggregation into Depth and Breadth

The first major decomposition of the SPI is into a measure of depth and breadth of coverage. As already indicated, the measure of depth is represented by the first term in the SPI, Total expenditures/Total actual beneficiaries, which has to be normalized by the value of poverty line expenditures because it is a monetary variable. Hence, it can be interpreted as the average expenditures per actual beneficiaries as a percentage of poverty line expenditures.

The measure of breadth of coverage is represented by the second term in the SPI, Total actual beneficiaries/Total potential beneficiaries. This is a nonmonetary coverage indicator; thus it can be expressed as a simple percentage.

$$D = \frac{[\Sigma E / \Sigma AB]}{Z}$$

$$B = \frac{\Sigma AB}{\Sigma PB}$$

where D = depth and B = breadth.

Disaggregation by Three Major Programs

For the revised SPI, we examine three major categories of social protection (SP) programs: labor market programs, social insurance, and social assistance. The formula for the SPI of each of these three categories can be illustrated by the formula for SPI_{si}:

SPI_{si} = (SI Expenditures/SI Actual beneficiaries) times (SI Actual beneficiaries/SI Potential beneficiaries) times (SI Potential beneficiaries/ All SPI Potential beneficiaries) times 1/Poverty line expenditures

$$SPI_{si} = \frac{[\Sigma I_{si} / \Sigma AB_{si}] \ \ [AB_{si} / PB_{si}] \ \ [PBI_{si} / PB]}{Z}$$

The first two terms are similar to those used for the SPI as a whole. But the third term is a population weight. In this case, it represents the weight of the potential beneficiaries of social insurance relative to the total weight of all potential beneficiaries of all SP programs. Once each of the three program categories is multiplied by its respective population weight (and each is divided, as always, by poverty line expenditures), then the terms for SPI_{si}, SPI_{sa} and SPI_{lm} will add up to equal SPI.

$$SPI = SPI_{si} + SPI_{sa} + SPI_{lm}$$

Disaggregation by Expenditures on Poor and Nonpoor Beneficiaries

The third major disaggregation of the SPI is an arithmetic disaggregation into two indexes: (i) SPI_p, which gauges the total expenditures per poor actual beneficiaries as a ratio to all potential beneficiaries (both poor and nonpoor); and (ii) SPI_{np}, which gauges the ratio of total expenditures per nonpoor actual beneficiaries as a ratio to all potential beneficiaries (both poor and nonpoor).

Thus SPI_p takes the following form (which is parallel to that of the SPI itself):

(Total expenditures on the poor/Total poor actual beneficiaries) times (Total poor actual beneficiaries/Total potential beneficiaries)

$$SPI_p = \left[\sum E_p / \sum AB_p \right] \left[\sum AB_p / \sum AB \right]$$

Correspondingly, SPI_{np} takes the following form (which is also parallel to that of the SPI itself):

(Total expenditures on the nonpoor/Total nonpoor actual beneficiaries) times (Total nonpoor actual beneficiaries/Total potential beneficiaries)

$$SPI_{np} = \left[\sum E_{np} / \sum AB_{np} \right] \left[\sum AB_{np} / \sum AB \right]$$

In both cases, the resultant ratio is divided by poverty line expenditures (as is done for the entire SPI).

The mathematics behind these simple ratios is a little more complicated. For example, both SPI_p and SPI_{np} are composed of three ratios. Let us take SPI_p as an example: (Total expenditures on the poor/Total poor actual beneficiaries) times (Total poor actual beneficiaries/Total poor population) times (Total poor population/Total potential beneficiaries).

$$SPI_p = \left[\sum E_p / \sum AB_p \right] \left[\sum AB_p / \sum N_p \right] \left[\sum N_p / \sum PB \right]$$

where N_p = Total Poor Population.

We mention this complexity because the last term (Total poor population/Total potential beneficiaries) is a population weighting term that enables SPI_p and SPI_{np} to be added together to equal SPI as a whole. This is why when the denominator of total potential beneficiaries is used for both SPI formulations, summing the two ratios together will give the SPI.

However, just comparing the values of SPI_p and SPI_{np} does not provide us with adequate information about the effectiveness with which SP programs reach the poor. To make a judgment on this matter, we need to know the national

poverty rate in each country. For example, if the poverty rate (the proportion of the population that is poor) in a particular country were 50%, then SPI_p should at least roughly correspond to SPI_{np}.

This is why we have presented an additional indicator, which we call a "poverty focus" indicator. Mathematically, it represents:

(SPIp/SPI) times (1/National poverty rate)

What is the interpretation of this indicator? It compares the proportion of SP expenditures going to the poor (relative to the expenditures going to all potential beneficiaries) to the national poverty rate. If, for example, the proportion of SP expenditures going to the poor were 60% of the total and the national poverty rate were 50%, the poverty focus indicator would be 60/50 = 1.20.

Midyear Population Formula

$$p_n = p_0(1+r)^n$$

where:

p_n = population at time n

p_o = population at time o

r = annual average population growth rate

n = difference between time n and time o (in years)

Example:

Suppose the total population data provided is as of 1 July 2009, and you want the total population for 31 December 2009. If the population growth rate is 1.2%, then

p_n = is the population as of 31 December 2009

p_o : population as of 1 July 2009

n = 183/364

Estimated population as of December 31, 2009 = population as of 1 July 2010*(1.012)$^{(183/364)}$.

The Revised Social Protection Index
Methodology and Handbook

The Asian Development Bank (ADB) developed the Social Protection Index (SPI) in 2005—2008 to address the growing recognition that economic growth is insufficient in addressing the needs of the poor and vulnerable. In 2010, it revised the SPI to highlight the impact of expenditures on all beneficiaries. This revised SPI handbook contains the rationale for the revision, comparing the total social protection expenditure across all potential beneficiaries with the poverty line expenditures in each country, and offers guidelines for preparing social protection country assessments. It provides a useful analytical and assessment tool for social protection programs in countries rather than a relative ranking of countries in Asia and the Pacific.

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