



ICP 2011 INTERNATIONAL COMPARISON
PROGRAM IN ASIA AND THE PACIFIC

PURCHASING POWER PARITIES AND REAL EXPENDITURES

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PURCHASING POWER PARITIES AND REAL EXPENDITURES

August 2014

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Printed in the Philippines.

ISBN 978-92-9254-590-1 (Print), 978-92-9254-591-8 (e-ISBN)
Publication Stock No. RPT146710-2

Cataloging-in-Publication Data

Asian Development Bank.
Purchasing power parities and real expenditures.
Mandaluyong City, Philippines: Asian Development Bank, 2014.

1. Purchasing power parity. 2. Asia and the Pacific. I. Asian Development Bank.

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 Printed on recycled paper

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Foreword

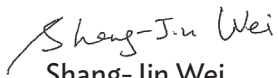
The International Comparison Program (ICP) is a global statistical initiative set up on the recommendation of the United Nations Statistical Commission to enable comparisons of economic aggregates. From a modest beginning with just 10 economies participating in 1970, the ICP has expanded to cover 199 economies in the latest 2011 benchmark comparisons. The ICP, organized along regional lines, is coordinated by the ICP Global Office in the World Bank. The Asian Development Bank (ADB) is the regional coordinating agency for Asia and the Pacific. The 2011 ICP for Asia and the Pacific follows a successful benchmark comparison in 2005 and a subsequent update of these results to 2009.

Twenty-three economies in Asia and the Pacific region participated in the 2011 ICP. These economies included Bangladesh; Bhutan; Brunei Darussalam; Cambodia; the People's Republic of China; Fiji; Hong Kong, China; India; Indonesia; the Lao People's Democratic Republic; Macao, China; Malaysia; the Maldives; Mongolia; Myanmar; Nepal; Pakistan; the Philippines; Singapore; Sri Lanka; Taipei, China; Thailand; and Viet Nam. Among the distinguishing features of the 2011 ICP were the participation of Myanmar for the first time; the national coverage of the People's Republic of China price surveys compared to 11 capital cities in the 2005 ICP; and the increased coverage of the price surveys in India and Indonesia.

The purchasing power parities (PPPs) obtained through the ICP or benchmark PPPs enable *real comparisons* of total and per capita gross domestic product (GDP), both across economies within Asia and the Pacific and with other participating economies. The term *real comparisons* refers to the comparison of volumes of final goods and services between economies, which are free from exchange rate distortions. They also allow cross-economy comparisons of the major components of the *real* final expenditures on GDP—household consumption expenditure, government consumption expenditure, actual final consumption by household, collective consumption expenditure by government, gross capital formation, and net external trade; and the various subcomponents of these major aggregates. The *real comparisons* also provide a more reliable picture of relative living standards across economies at a point in time.

This publication presents the 2011 Asia and the Pacific regional PPPs and summary results of *real* GDP and its major components for the 23 participating economies. Several improvements and innovations in methodology and data validation, over the 2005 ICP, have been employed at the regional (and global) level in this round. These developments were designed to improve the accuracy and reliability of the results, and ADB is confident that these goals have been achieved. Through the ICP, ADB has also enhanced the capacities of staff of national implementing agencies in national accounts and price statistics and reaffirmed their collaboration and commitment to the program.

Sincere appreciation goes to all those who have contributed to the success of this project: the international experts and national consultants who have assisted ADB in many ways; the dedicated staff of the Development Indicators and Policy Research Division of the Economics and Research Department under the leadership of Douglas Brooks, assistant chief economist; and most importantly, the national implementing agencies in each of the 23 participating economies for their in-kind contributions, cooperation, and hard work.



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Acknowledgments

The 2011 International Comparison Program (ICP) for Asia and the Pacific was carried out with funding from the Asian Development Bank (ADB) through a regional technical assistance project. The invaluable support and cooperation of the governments and national statistical offices of the 23 economies that participated in the 2011 ICP contributed to the successful completion of the project.

The project vastly benefited from the technical contributions provided by international experts in various stages of the project. They include Sultan Ahmad; Eric Bruggeman; Derek Blades; Paul McCarthy; Jim Meikle; Arturo Pacificador, Jr.; Prasada Rao; and Sergey Sergeev. The ICP Global Office in the World Bank provided extensive technical advice, particularly Yuri Dikhanov; and ICP Global Manager, Michel Mouyelo-Katoula, for guidelines and updates on the overall ICP program.

ADB expresses its thanks to the heads of the national implementing agencies for their support for the project. The national implementing agencies are Bangladesh Bureau of Statistics; National Statistics Bureau, Bhutan; Department of Economic Planning and Development, Brunei Darussalam; National Institute of Statistics, Cambodia; National Bureau of Statistics of China; Fiji Bureau of Statistics; Census and Statistics Department, Hong Kong, China; Ministry of Statistics and Programme Implementation, India; Badan Pusat Statistik, Indonesia; Lao Statistics Bureau, the Lao People's Democratic Republic; Statistics and Census Service, Macao, China; Department of Statistics, Malaysia; Statistics Division, Department of National Planning, the Maldives; National Statistical Office of Mongolia; Ministry of National Planning and Economic Development, Myanmar; Central Bureau of Statistics, Nepal; Pakistan Bureau of Statistics; National Statistics Office of the Philippines; Department of Statistics, Singapore; Department of Census and Statistics, Sri Lanka; Directorate General of Budget, Accounting and Statistics, Taipei, China; Bureau of Trade and Economic Indices, Thailand; and General Statistics Office, Viet Nam.

ADB also extends special thanks to the ICP national coordinators: Abul Kalam Azad, Bangladesh; Tshering Dorji and Penjor Gyeltshen, Bhutan; Edwin Khalid Salleh and Siti Kamariyah Mohamad, Brunei Darussalam; Khin Song, Cambodia; Shi Ting, the People's Republic of China; Peni Waqawai, Fiji; Wai-Kong Tang and Ka-Lin Chan, Hong Kong, China; Ashish Kumar, India; Sasmito Hadi Wibowo, Indonesia; Kor Yang Pamah, the Lao People's Democratic Republic; Teng Yin Wong, Macao, China; Sa'adiah binti Ahmad, Malaysia; Mariyam Niyaf, the Maldives; Batjargal Badamtsetseg, Mongolia; San Myint and Thway Thway Chit, Myanmar; Ganesh Prasad Acharya, Nepal; Shahid Mahmood Butt and Arif Mehmood Cheema, Pakistan; Rosie Sta. Ana, the Philippines; Chau Wun, Singapore; D. C. A. Gunawardena, Sri Lanka; Chou-Ying Tsuei, Taipei, China; Prayoth Benyasut, Thailand; Nguyen Duc Thang, Viet Nam; and the national teams supporting them for their hard work, active participation, and timely submission of required price data and gross domestic expenditure estimates.

The overall guidance provided by the members of the ICP Asia and the Pacific Regional Advisory Board is also gratefully acknowledged: National Statistician of the Philippine Statistics Authority as Chair; ADB Chief Economist as Co-Chair; Commissioner of Census and Statistics Department, Hong Kong, China as Vice Chair; the following members: Director General, National Institute of Statistics, Cambodia; Director General, International Statistical Information Center, National Bureau of Statistics of China; Chief Statistician, Central Statistics Organization, India; Chief Statistician, Badan Pusat Statistik, Indonesia; Chief Statistician, Department of Statistics, Malaysia; Director, Bureau of Trade and Economic Indices, Thailand; the institutional members: Head, Prices Branch, Australian Bureau of Statistics; Director, Statistics Division, United Nations Economic and Social Commission for Asia and the Pacific; and Director, United Nations Statistical Institute for Asia and the Pacific; and the ex-officio members: ICP Global Manager, World Bank; and ADB Assistant Chief Economist.

The regional project was implemented by the Development Indicators and Policy Research Division of the Economics and Research Department in ADB. Chellam Palanyandy, lead statistician, provided leadership and guidance, and served as the regional coordinator, of the 2011 ICP project for Asia and the Pacific. Eileen Capilit, economics and statistics officer, supervised the implementation of the project as well as provided substantive technical inputs. Rhea-Ann Bautista, Dennis Sorino, and Julieta Magallanes served as national consultants while Clarita Truong provided administrative assistance. Eileen Capilit and Chellam Palanyandy performed manuscript and copy editing while Leticia de Leon proofread the report. Typesetting was done by Principe Nicdao and cover was designed by Rhommel Rico who also took charge of the preparation of the the web files for upload. This report was published with the support of the ADB Printing Unit.



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Abbreviations

ADB	Asian Development Bank
AFCH	actual final consumption by household
BOCC	basket of construction components
BOQ	bills of quantities
COFOG	Classification of the Functions of Government
COICOP	Classification of Individual Consumption According to Purpose
CPD	country-product-dummy
CPI	consumer price index
CV	coefficient of variation
EKS	Eltető-Köves-Szulc
FISIM	financial intermediation services indirectly measured
GDP	gross domestic product
GEKS	Gini-Eltető-Köves-Szulc
GFCE	government final consumption expenditure
GFCF	gross fixed capital formation
GK	Geary-Khamis
HDI	human development index
HFCE	household final consumption expenditure
HK\$	Hong Kong dollar
ICP	International Comparison Program
LCU	local currency unit
M&E	machinery and equipment
NEX	net expenditure of residents abroad
NIA	national implementing agency
NPISH	nonprofit institutions serving households
NSO	national statistical office
OECD	Organisation for Economic Co-operation and Development
PCT	price collection tool
PDC	price determining characteristic
PLI	price level index
PPP	purchasing power parity

PRC	People's Republic of China
RCA	regional coordinating agency
SD	statistical discrepancy
SNA	System of National Accounts
SPD	structured product description
SUT	supply and use tables
TAG	technical advisory group
TSA	Tourism Satellite Accounts
XR	exchange rate

General Background



Introduction

The Asia and Pacific is a dynamic region that includes some of the fastest-growing economies in the world and is home to 3.9 billion people comprising over a half of the world population (Asian Development Bank [ADB], 2013). Measuring the size of the region's economy, and identifying the shares of major economies in the region and the real incomes of people across economies are critical to informed and evidence-based policy making at the national, regional, and global levels. Comparative analysis of standards of living of people and study of levels of inequality and poverty are essential in understanding their needs and in formulating policies to accelerate economic growth and alleviate poverty.

The International Comparison Program (ICP) is a major international statistical initiative designed to provide researchers, governments, and international organizations with comparable data and information on major economic aggregates for all economies in the world. The ICP started as a small research project at the University of Pennsylvania in 1968 and has grown into a global project. In 2005, the ICP covered 146 economies from all regions of the world; and in the current round of ICP, 199 economies are covered.

Asia and the Pacific has played an active role in the development of the ICP over the last 4 decades. In the initial phases of the ICP, several economies of the region, which included India, Japan, the Republic of Korea, and Malaysia, participated in international comparisons in their own capacities. In the recent phases of the ICP, ADB facilitated the participation of Asia and the Pacific. ADB played a significant role as the regional coordinating agency in the

implementation of the 2005 ICP in Asia and the Pacific and continued this role in the 2011 ICP.

This chapter of the report provides an overview of the ICP as a whole and the 2011 ICP in Asia and the Pacific, and the applications of its results. This is the first time in the history of ICP that back-to-back international comparisons on a global basis was made available within a short span of 6 years. And providing meaningful comparisons of the results from the 2005 and 2011 ICP benchmark rounds will be important for economic and social analyses and policy making in the region. More detailed results of the 2011 ICP round are presented in various sections of this report.

Purchasing Power Parities: A Historical Background

Purchasing power parities (PPPs) have achieved considerable significance since the 1970s, and several projects had examined the implications of bypassing exchange rates to observe activity levels between economies. It was begun by Gilbert and Kravis (1954) who made binary comparisons between the United States and Belgium, France, Germany, Italy, and the United Kingdom. The project was commissioned by the Organisation for European Economic Cooperation (OEEC) in Paris. Thus, the OEEC became the first international organization involved in international comparisons and the compilation of PPPs. In the 1960s, there were several experimental comparisons in various regions in the world. The United Nations (UN) Statistical Commission in its meetings in 1968 accepted a recommendation of the UN Statistical Office to investigate the issues associated with the use of exchange rates for converting national accounts aggregates. Following

these recommendations, a joint research project under the stewardship of Professor Irving Kravis was established at the University of Pennsylvania. This marked the inception of the International Comparison Project.¹

Table 1 shows the milestones in the history of ICP. Phase I of the initial study had 1970 as benchmark year and covered 10 economies; Phase II had benchmark year 1973 and covered 16 economies; and Phase III covered 1975 as benchmark year with 34 economies. The 1975 ICP round led to the publication of *World Product and Income: International Comparisons of Real GDP* (Kravis, Heston, and Summers; 1982),

an influential monograph on ICP that shaped the development of ICP in subsequent periods.

The UN assumed control of the ICP and expanded the project: Phase IV in 1980 covered 60 economies and Phase V in 1985 covered 64 economies. Between these two phases, important developments also occurred. Phase IV was essentially a global approach while Phase V was the first time a regional approach was used. The regions included Africa, Asia, the Caribbean, and the Organisation for Economic Co-operation and Development (OECD)/Eurostat. The core economy approach was used in linking the regional comparisons. In 1985, the OECD and

Table 1. Participation of Asia and the Pacific in the International Comparison Program

ICP Phase	Benchmark Year	Total No. of Participating Economies	Participation of Asia and the Pacific Economies
I	1970	10	India and Japan ^a
II	1973	16	India, Islamic Republic of Iran, Japan, ^a the Republic of Korea, ^a Malaysia, and the Philippines
III	1975	34	India, Islamic Republic of Iran, Japan, ^a the Republic of Korea, ^a Malaysia, the Philippines, Pakistan, Sri Lanka, and Thailand
IV	1980	60	Hong Kong, China; India; Indonesia; Japan, ^a the Republic of Korea, ^a Pakistan; and Sri Lanka
V	1985	64	Bangladesh; Hong Kong, China; India; Islamic Republic of Iran; Japan, ^a the Republic of Korea, ^a Nepal; Pakistan; the Philippines; Sri Lanka; and Thailand
VI	1993	117	Bangladesh; Hong Kong, China; Indonesia; Japan, ^a the Republic of Korea, ^a the Lao People's Democratic Republic (Lao PDR); Malaysia; Nepal; Pakistan; the Philippines; Sri Lanka; Thailand; and Viet Nam
VII	2005	146	Bangladesh; Bhutan; Brunei Darussalam; Cambodia; the People's Republic of China (PRC); Fiji; Hong Kong, China; India; Indonesia; Islamic Republic of Iran; the Lao PDR; Macao, China; Malaysia; the Maldives; Mongolia; Nepal; Pakistan; the Philippines; Singapore; Sri Lanka; Taipei,China; Thailand; and Viet Nam
VIII	2011	199	Bangladesh; Bhutan; Brunei Darussalam; Cambodia; the PRC; Fiji; Hong Kong, China; India; Indonesia; the Lao PDR; Macao, China; Malaysia; the Maldives; Mongolia; Myanmar; Nepal; Pakistan; the Philippines; Singapore; Sri Lanka; Taipei,China; Thailand; and Viet Nam

ICP = International Comparison Program.

^a Japan and the Republic of Korea were included in the Organisation for Economic Co-operation and Development comparison in the 2005 and 2011 benchmark years.

Source: ADB, 2007.

¹ Over time, the project has come to represent the International Comparison Program.

Eurostat established a Eurostat-OECD PPP program covering their member economies; and since then, their program has been conducted much more frequently than was the case with the ICP. Phase VI, the 1993 benchmark, was a global comparison that had 117 economies but the linking of regions in that exercise was not systematic and generally considered a “weak” phase of the ICP. Phase VII, the 2005 ICP, was a truly global statistical project covering 146 economies and all regions of the world. A significant increase in the participation of economies from Africa (48) and Asia and the Pacific (23 economies) was a major achievement of the 2005 ICP. Other hallmarks of this ICP round were the participation of the People’s Republic of China (PRC) for the first time although it covered only 11 capital cities and adjacent areas; and India had rejoined the ICP after it last participated in 1985. The inclusion of the PRC and India improved the coverage of ICP both in terms of world population and world economic activity. This welcome trend continued in Phase VIII of the ICP, the latest round with 2011 as the benchmark year and coverage increasing to 199 economies. In this round, the PRC expanded the coverage of its participation to the whole economy, thus increasing the reliability of PPPs.

The compilation of PPPs has become a major statistical activity covering most economies in the world. In addition to the ICP exercises under the auspices of the UN, PPPs were made available by Eurostat-OECD through its regular comparisons roughly once in 3 years. Another significant source of PPPs for researchers has been the Penn World Table (PWT), which was initially compiled by Summers and Heston (1991) and more recently by Heston, Summers, and Aten (2012). PWT provided PPPs for an extended set of 189 economies covering the period 1950 to 2010 and valuable information for non-benchmark years and frequently used by researchers and economists. The latest publication of PWT is version 8.0, which was released in 2013 and includes new results that show how the Penn effect is not emergent but a stable relationship over time as shown by Feenstra, Inklaar, and Timmer (World Bank, 2013). The World Bank produces extrapolated PPPs and real aggregates in

its World Development Indicators database (World Bank, 2011).

Economy Participation in the 2011 ICP for Asia and the Pacific

ADB member economies were formally invited to participate in the ICP Asia and the Pacific. ADB established a framework of partnership, which defined the roles and responsibilities of the parties involved and emphasized that the success of ICP was dependent on all parties taking ownership of the project.

Twenty-two member economies of ADB agreed to participate in the 2011 ICP: Bangladesh; Bhutan; Brunei Darussalam; Cambodia; the PRC; Fiji; Hong Kong, China; India; Indonesia; the Lao People’s Democratic Republic; Malaysia; the Maldives; Mongolia; Myanmar; Nepal; Pakistan; the Philippines; Singapore; Sri Lanka; Taipei, China; Thailand; and Viet Nam. Macao, China is not a member of ADB but was part of the 2005 ICP round; and it again participated in the 2011 comparisons. Including Macao, China, 23 economies in the region were covered in the 2011 ICP comparisons.

Japan and the Republic of Korea are not included in ICP Asia and the Pacific as they have traditionally been included in the Eurostat-OECD comparisons. Except for Fiji, no other Pacific island economy participated in Asia and the Pacific comparisons. All the regions are linked by the ICP Global Office at the World Bank in its comparisons for all economies in the world; hence, comparisons between these economies and those participating in Asia and the Pacific were made possible.

The 23 participating economies in Asia and the Pacific have a population of 3.6 billion with economic activity totaling \$12,604 billion in nominal terms in 2011 (World Bank, 2014).

Table 1 shows the participation of Asia and the Pacific region in the ICP from 1970 to 2011. From the list, the highest number of economies covered in the region was in the 2005 and 2011 ICP rounds

with 23 participating economies. While the number is the same in both rounds, the difference in 2011 is the participated of Myanmar for the first time; and the exclusion of the Islamic Republic of Iran which participating on its own as a singleton economy in the global program. A separate comparison in the 2011 ICP covering 16 Pacific island economies was facilitated by the Australian Bureau of Statistics. However, the Pacific comparison was limited to the household consumption expenditure aggregate of the national accounts.

Grouping of Economies

Given the diversity of the economies in the region, the 23 participating economies in the 2011 ICP in the region were grouped into four clusters, especially for purposes of data validation:

High Income: Brunei Darussalam; Hong Kong, China; Macao, China; Taipei, China; and Singapore.

Mekong: Cambodia, the Lao People's Democratic Republic, Myanmar, Thailand, and Viet Nam.

South Asia: Bangladesh, Bhutan, India, the Maldives, Nepal, Pakistan, and Sri Lanka.

Southeast Asia and others: the PRC, Fiji, Indonesia, Malaysia, Mongolia, and the Philippines.

Participation of Large Economies

The ICP in Asia and the Pacific includes three of the most populous economies in the world: the PRC (1.34 billion), India (1.22 billion), and Indonesia (0.24 billion). In terms of gross domestic product (GDP), these three economies are also large in size with the PRC and India in the top 10 economies of the world. Hence, their full participation made the ICP in Asia and the Pacific comparisons truly global in nature and more credible at the regional and global levels. It also merits to note the nationwide coverage of the ICP price survey in the PRC which collected prices from both urban and rural areas in 30 of its 31 provinces. In contrast, its collection in the 2005 ICP was limited to 11 capital cities and surrounding rural areas. The other important development in the region relates to the improved and extended price surveys in India and Indonesia.

The success of the program in the region critically depended on the active participation of these economies in the entire ICP process. The ensuing section highlights the distinguishing features of these biggest economies in Asia and the Pacific. Reference to population and expenditure data in this section are from the *Purchasing Power Parities and Real Expenditures of World Economies: Summary of Results and Findings of the 2011 International Comparison Program, 2014* (World Bank, 2014).

People's Republic of China

The PRC is the most populated of the economies in the region with 1.34 billion people in 2011, which accounts for 19.9% of the global population (World Bank, 2014). It has undergone a rapid transition over the last 3 decades with 51.3% of its population living in urban areas. Beijing, Guangzhou, Shanghai, and Tianjin in the PRC are among the 20 biggest cities in the world. The PRC has been in the top 10 economies in the world in terms of size, since 1992; and its economy in 2011 was 13,496 billion international dollars in PPP terms with real per capita GDP of 10,057 international dollars. The PRC has been the fastest growing economy over the period 2006 to 2011, posting an annual average growth of 10.8%. The PRC also belongs to the group of medium human development economies in terms of the Human Development Index (HDI),² and is ranked 101 (out of 187 economies) in the world with a value of 0.695 in 2011. Since 2005, the HDI in the PRC has been increasing at an annual average growth rate of 1.4%.

The PRC first participated in the 2005 ICP—even though ICP technically started in 1968—but it agreed to a limited participation in the ICP in Asia and the Pacific. Until 2005, there were no official estimates of PPP and real GDP for the PRC. The only sources of PPPs that facilitated conversion of nominal GDP into real GDP for international comparisons were the studies by Kravis, Ruoen and Kai. Kravis (1981)

² United Nations Development Programme. Human Development Index (HDI) value. <https://data.undp.org/dataset/Human-Development-Index-HDI-value/8ruz-shxu> (accessed 22 May 2014).

provided a comparison of the PRC and the United States based on price data he collected during his visits to the PRC. Kravis comparisons for 1975 showed that the PRC's real per capita GDP was 12.3% of that of the United States. The study by Ruoen and Kai (1999) was a more detailed comparison, which was undertaken using a methodology similar to that used in the ICP. Most researchers and analysts relied on the PWT for estimates of PPPs and real per capita GDP in the PRC. PWT provided extrapolated series covering the period 1950 to 2005 and the most recent series (PWT 7.1 and 8.0) extended it to 2011.

India

India is the second most populated economy in the region with an estimated population of 1.22 billion in 2011, accounting for 18.1% of the world population. It has been growing at an impressive rate over the last decade while the pace of its urbanization is quite low with only 31.8% of the population in urban areas. Delhi, Kolkata, and Mumbai are among the 20 largest cities in the world. The size of the Indian economy is relatively small with an estimated size of 5,758 billion international dollars in 2011 accounting for 6.4% of the global economy. India is among the top 10 economies in the world but it is relatively low in rank in terms of real per capita income, which is estimated at 4,735 international dollars. India has posted fairly impressive growth rates over the decade with an annual average growth in real GDP of 8.2% over the 5 years prior to 2011. India is in the group of economies under medium human development. In 2011, its HDI is 0.551, which is below that of the PRC (0.695) and Indonesia (0.624) and ranked 136 in the world out of 187 economies. Between 2005 and 2011, India's HDI grew by an annual average of 1.3%.

India has been active in the ICP since its inception in 1970. It was the only economy out of 10 participating economies in the very first ICP comparison in the 1970 phase, and remained in the current list of 23 participating economies in Asia and the Pacific. India continued its participation in all the comparisons until the 1985 benchmark year when it did not participate in the 1993 comparison. India again fully participated

in the 2005 ICP and continued its commitment in the 2011 ICP.

Indonesia

Indonesia is the third most populous economy in the region with a population of 241 million, accounting for 3.6% of the global population in 2011. It is a large archipelago but nearly 50% of its population is urbanized. Its capital city, Jakarta, is among one of the 20 largest cities of the world. The size of the Indonesian economy is estimated at 2,058 billion international dollars; its real per capita GDP is 8,539 international dollars, well above the average observed for India. Indonesia has been growing at spectacular growth rates, except in 2009 when the global financial crisis in 2007–2008 affected the economy. Between 2005 and 2011, its real GDP grew at an impressive annual average rate of 5.8%. Indonesia is categorized as medium human development based on HDI, with a value of 0.624 in 2011 and ranked 124 (out of 187 economies) or 12 ranks above India and 23 ranks below the PRC. Since 2005, the index has been growing at an average annual rate of about 1.3%.

Coverage by type of outlet and location for household price surveys by economy for the 2011 ICP are provided in Appendix 1. Meanwhile, details of the survey framework used in all economies, including the PRC, India, and Indonesia, are in Part IV of this report.

Purchasing Power Parities of Currencies

The ICP is designed to compile comparable measures of economic activities and standards of living across economies. Expenditures on GDP and its components form the basis for international comparisons within the ICP. It is compiled by national statistical offices in most economies on a quarterly and/or annual basis and reported in national currencies. *Market exchange rates* are commonly used in converting values expressed in national currency units into a desired currency denomination. Exchange rates can be used to convert GDP for international comparisons in an

operational sense, but PPPs generated from the ICP are recognized as clearly superior means of converting GDP data from different economies.

Earlier studies have demonstrated the divergence between exchange rates and PPPs, and highlighted the need to use PPPs for making international comparisons of real GDP and its components and per capita expenditures. At the same time, increased availability of reliable PPPs for a large number of economies has enabled the utilization of PPPs in diverse areas. As exchange rates do not reflect price level differences across economies, nominal exchange rates cannot provide any indication of the standards of living in different economies. For comparison of standards of living, it is necessary to adjust price level differences across economies. This is achieved through the use of PPPs of currencies.

What is Purchasing Power Parity?

The PPP of currency of an economy is defined as *the number of currency units required to purchase a basket of goods and services that can be purchased with one unit of the currency of a reference or base country* (World Bank, 2007). This definition clearly indicates that PPP of a currency can be determined only when the (i) currency of the base economy or reference currency is fixed, and (ii) goods and services that are of interest in assessing PPP are identified.

For example, in Asia and the Pacific, Hong Kong dollar (HK\$) is selected as the reference or base economy currency into which expenditures in all the other

economies are converted. Suppose a basket of goods and services costs HK\$100 to purchase in Hong Kong, China. If the same basket of goods and services costs 250 Indian rupees (Rs) to buy in India, then the PPP between HK\$ and Rs is $Rs2.50 = HK\$1.00$.

As per definition, PPPs can, therefore, be defined for a single commodity such as rice, bread, or milk; or for a basket of goods and services such as food and nonalcoholic beverages and medical services; or all products that enter gross fixed capital formation; or all the goods and services that make up GDP from expenditure side.

Table 2 shows the price of rice in Malaysia and Hong Kong, China and gives a PPP of RM0.26 per HK\$ ($=3.82/14.59$). This implies that rice is relatively cheaper in Malaysia than the same quality and quantity of rice in Hong Kong, China. Based on the price of one dozen eggs, the PPP is RM0.20 per HK\$. Obviously, PPPs for ringgit would look different if a different currency is used as the reference currency.

The point of interest to note from Table 3 is that PPP for ringgit varies depending upon the goods selected. If the interest is to compute a single PPP for both of the items together, the two PPPs need to be averaged using weights reflecting the importance of these products. If weights are not known for these products, one may use a simple average of these two PPPs. However, if rice is considered to be an important item in both economies, it is important that some weights are attached to these commodity-specific PPPs. The concept of “importance” of a commodity

Table 2. Purchasing Power Parities for Two Selected Commodities

Commodity	Price in Malaysia (RM)	Price in Hong Kong, China (HK\$)	Purchasing Power Parity (RM per HK\$)
Rice, white (1 kg)	3.82	14.59	0.26
Eggs (12)	4.51	23.11	0.20

HK\$ = Hong Kong dollar, kg = kilogram, RM = ringgit.

Source: Numbeo. Cost of Living Comparison Between Hong Kong and Kuala Lumpur. http://www.numbeo.com/cost-of-living/compare_cities.jsp?country1=Hong+Kong&country2=Malaysia&city1=Hong+Kong&city2=Kuala+Lumpur (accessed 22 May 2014).

Table 3. Big Mac Index for Hong Kong, China and Malaysia

Economy	Currency	Price (LCU as of January 2014)	Exchange Rate (LCU per HK dollar)	PPP (HK dollar numeraire currency)	PLI (Hong Kong, China=100)
Hong Kong, China	Hong Kong dollar	18.00	1.00	1.00	100
Malaysia	ringgit	7.40	0.39	0.41	105

LCU = local currency unit, PLI = price level index, PPP = purchasing power parity.

Source: The Economist. The Big Mac Index. www.economist.com/content/big-mac-index (accessed 28 March 2014).

and how it is used in the computation of PPPs are explained in the section on the survey framework for PPPs.

Some important aspects of PPPs are the following:

- (i) PPP is always measured relative to a *reference* economy. The currency of the reference economy is referred in economics parlance as the *numeraire* currency. In the example in Table 3, Hong Kong, China is the reference economy and Hong Kong dollar (HK\$) is the numeraire or reference currency. Sometimes, it is also referred to as the *base* economy.
- (ii) PPP is measured with respect to a basket of goods and services; and, therefore, can be different for different baskets of goods and services. As a result, PPPs are computed for specific expenditure groups, such as household consumption expenditure, government expenditure, and investment.
- (iii) PPPs are also computed for commodity groups, such as food, clothing, housing, and health and education.

A simple example of a PPP is the Big Mac index compiled by The Economist on a regular basis. According to the website on Big Mac Index Converter, one Big Mac costs HK\$18.00 in Hong Kong, China; and RM7.40 in Malaysia. If Big Mac is the only item in the basket of goods and services of interest, then, the PPP between these two currencies is given by HK\$1.00 = RM0.41. A simple illustration is shown in Table 3.

The question one may ask is the suitability of the Big Mac index as a PPP in general. As Big Mac is a

product that has the same quality in both Hong Kong, China and Malaysia, the PPP based on the price of Big Mac is based on a comparable product. Here, price comparison is made on the basis of like with like. However, on the negative side, the Big Mac PPP cannot be used to convert household consumption expenditure as it is not an item that is typical of consumption in either of the economies. Therefore, the Big Mac PPP is not representative of the consumption basket. In some developing economies, Big Mac may even be considered a luxury item. Thus, PPP based on Big Mac prices is not useful for adjusting expenditures for general price level differences and conversion into a common currency unit.

Focusing on international comparisons of GDP and its components, if PPP for Indian rupees (Rs) with Hong Kong dollar (HK\$) as the reference currency is found to be 2.35, then Rs2.35 are deemed to have the purchasing power equivalent to that of HK\$1.00 when the basket of goods and services represents the whole of GDP. PPP between Rs and HK\$ can thus be used in converting GDP into *real* expenditure, and the resulting expenditures in these economies can be compared and the differences in living standards can be assessed.

A note of caution is necessary in using and interpreting PPPs. In converting expenditure aggregates to eliminate price level differences, PPPs can be used. However, PPPs are not a direct measure of price levels between the two economies. This means that a PPP of Rs2.35 to HK\$1.00 does not mean prices in India are 2.35 times that of the observed prices in Hong Kong, China. It simply means that in terms of currency units,

Rs2.35 are needed to purchase the items that can be purchased with HK\$1.00. Are prices higher or cheaper in India relative to Hong Kong, China? This question is answered using the *price level index* measure.

Price Level Index

A measure of considerable practical significance from the ICP is based on the concept of price level index (PLI). Based on the following exposition, PPP is a measure of the amount of currency of a given economy that can purchase the goods and services with one unit of the reference economy currency. Suppose the PPP of Indian rupees (Rs) with Hong Kong dollar (HK\$) is 3 for the commodity group *Bread and Cereals*. This means that Rs3 are needed to buy in India that can be bought for HK\$1 in Hong Kong, China. What can be said about the price level in India relative to that in Hong Kong, China? PPPs cannot answer this question. PLI is the concept in ICP specifically designed to answer this question.

Price Level Index with Reference Economy Equal to 1

PLI, a measure of price level in a given economy for a basket of goods and services, is defined as the ratio of PPP for that particular basket of goods and services to the market exchange rate for the currency. Both PPP and exchange rate must be measured with respect to the same reference currency. Let PPP_j and XR_j represent, respectively, the PPP for a commodity group and exchange rate of currency of economy j .³ Then the PLI for economy j , with respect to the commodity group, is given by

$$PLI_j = \frac{PPP_j}{XR_j} \quad (1)$$

A value of PLI equal to 1 implies that the price levels in economy j and the reference economy are the same. A value less than 1 implies that the prices level in

economy j is less than that in the reference economy and vice versa.

Continuing with the example of PPP of Indian rupee with respect to bread and cereals, the current market exchange rate between these currencies is Rs7.729 = HK\$1. Then, the PLI for India is 0.388. This means that prices of bread and cereals are in aggregate lower than those in Hong Kong, China, and the price level in India is 38.8% (just above one-third) of that in Hong Kong, China. This PLI has intuitive interpretation. For example, a tourist from Hong Kong, China is visiting India. Upon arrival, the tourist can exchange HK\$1 and get Rs7.729 from any bank. However, when the tourist goes to market to buy bread or cereals, only Rs3 are needed to buy any item for HK\$1 in her home economy. The tourist then finds bread and cereals to be quite cheap in India compared to Hong Kong, China. The concept of PLI in essence captures this phenomenon.

A few important points about PLI worth noting are the following:

- (i) By definition, PLI in the reference economy (Hong Kong, China in the example) is always 1.
- (ii) For PLI to be meaningful, it is necessary to specify the reference economy, as well as the basket of goods and services. PLI for one commodity group could be less than 1; and for some other commodity groups, the PLI could be greater than 1.
- (iii) In standard presentations, PLIs are shown with PLI for the reference economy equal to 100. The index in equation 1 is simply multiplied by 100.
- (iv) When PLI for India equals 0.388, it is difficult to know whether the prices in India are generally low or if the prices in Hong Kong, China are too high. PLIs cannot answer this question. To address this question, PLIs defined relative to the regional average, shown below, are more appropriate.

³ As the reference economy is the same for both PPP and XR, it is not included in the notation.

Price Level Index with Regional Average Equal to 1

The equation below shows PLI defined relative to the reference economy, Hong Kong, China (HKG).

$$\begin{aligned}
 PLI_{HKG} &= \frac{PPP_{HKG}}{XR_{HKG}} = 1 = \frac{PPP_{HKG} \cdot GDP_{HKG}}{XR_{HKG} \cdot GDP_{HKG}} \\
 &= \frac{GDP_{HKG} / XR_{HKG}}{GDP_{HKG} / PPP_{HKG}} \quad (2) \\
 &= \frac{\text{Nominal GDP of HKG}}{\text{Real GDP of HKG}}
 \end{aligned}$$

This means that for the reference economy, $PLI = 1$ implies that its nominal and real GDP are equal.

There are several ways in which PLIs relative to reference economy can be normalized so that regional average is equal to 1. For example, all the PLIs can be divided by the simple average of PLIs of different economies defined relative to a reference economy. However, the approach followed in ICP Asia and the Pacific is such that the total nominal GDP of the whole region, i.e., sum of nominal GDPs of all the economies, is equal to total real GDP of the whole region when GDPs are converted using PPPs defined relative to the reference currency.

Suppose the PLI of Hong Kong, China relative to the regional average equal to 1 is 1.55, and the PLI of India with respect to regional average is 0.601. This means that Indian price level is 60% of the regional price level whereas Hong Kong, China's price level is 55% above the regional level.

The PLIs offer useful information to policy makers in the participating economies. PLIs for different commodity groups can be quite different and therefore it is important that PLIs specific to the groups are considered. For example, in the 2005 ICP Asia and the Pacific, Hong Kong, China's PLI for GDP is 180 relative to the regional average of 100; household consumption, 205; and machinery and equipment, 98. These PLIs indicate that household consumption

items have relatively high prices but below regional average prices for machinery and equipment. In contrast, Bhutan's PLIs for these three groups are 88 for GDP and 92 for household consumption, both of which are below regional average prices; and 128 for machinery and equipment, which is above regional average prices. Similar patterns can be seen for other low-income economies.

Real and Nominal Expenditures

GDP on the expenditure side is the main focus of ICP. National accounts data from all the economies are in national currency units; and, therefore, expenditure aggregates cannot be compared across economies. Suppose the interest is in expenditure aggregate E_j (e.g., consumption, investment, government, etc.) in economy j . The expenditure aggregate needs to be converted into a common currency using exchange rates. Let NE_j represents nominal expenditure in economy j , then

$$NE_j = \frac{E_j}{XR_j} \quad (3)$$

The term *nominal* indicates that expenditure is converted to a common currency but no adjustment is made for price level differences.

The real expenditure, which is also referred to as volume measure, is obtained by converting the expenditure aggregates through an adjustment for price level differences across the economies. As PPPs represent purchasing power of currencies as reflected by the prices prevailing in different economies, the volume measure denoted by Q_j is given by

$$\begin{aligned}
 Q_j &= \text{volume measure} \\
 &= \text{real expenditure} = \frac{E_j}{PPP_j} \quad (4)
 \end{aligned}$$

The concepts of nominal and real expenditures (and volume measures) are used in presenting the results from the 2011 ICP in Asia and the Pacific.

Some Significant Uses and Applications of Purchasing Power Parities

The first and foremost use of PPPs relates to its origins in the works of Colin Clark (1957) and Gilbert and Kravis (1954), which demonstrated the divergence between exchange rates and PPPs. Their studies stressed the need to use PPPs for making international comparisons of real per capita incomes and GDP and its components. The use of market exchange rates continued for a long period since these seminal works; now, the current practice is to use PPPs for all international comparisons. Volatility in exchange rates reflecting large capital flows between economies in a globalized world, and the practice of fixed or managed exchange rates, have ensured the discontinuation of the use of exchange rates. At the same time, the increased availability of reliable PPPs for a large number of economies has become significant in the utilization of PPPs.

The reliance and significance of PPPs came to the fore after the release of PPP data from the 2005 ICP, which implied considerable revisions to PPPs that were available in terms of extrapolations published by the World Bank through its World Development Indicators and the Penn World Table. The size of the world economy was found to be smaller by 30% in 2005 PPPs compared to the conventional wisdom. Deaton and Heston (2010) and more recently Feenstra, Ma, Neary, and Rao (2013) looked into various reasons for the shrinkage of the world economy. The major revisions to the size of the world economy included the PRC and India. The real per capita income in PPP terms of the PRC was revised downward from \$6,757 to \$4,088 as published in the 2007 *World Development Indicators* that were obtained from the 2005 ICP released in 2008; and for India, from \$3,453 to \$2,222.

The 2005 ICP PPPs resulted in significant revisions to global inequality and poverty. According to Milanovic (2009), the new PPPs led to 5–6 percentage points increase in inequality. The World Bank even made more profound revisions to estimates of global poverty. Chen and Ravallion (2010) in their paper,

The Developing World is Poorer than We Thought, But No Less Successful in the Fight Against Poverty, showed that poverty incidence at \$1.25/day (equivalent to \$1/day in 1993) was around 1.4 billion people in 2005 compared to the estimate of 931 million people according to earlier PPP estimates. These extensive revisions to the size of the world economy, as well as to global inequality and poverty, underscored the need for reliable and timely availability of PPPs.

PPP data are also used in studying and comparing cross-economy productivity differentials. Using internationally comparable data on GDP from the ICP, coupled with data on labor and capital, led to considerable research on productivity growth and convergence. Maddison (1995, 2007) used the published PPPs from 1990 to construct a long time series of GDP and other aggregates to study economic progress and performance over the last 2 millennia. The Groningen Growth and Development Centre researchers made use of ICP PPPs at the basic heading level to construct PPPs to compare real output and productivity from the production side of GDP. Inklaar and Timmer (World Bank, 2013) illustrated how expenditure side PPPs from ICP can be used for sector output and productivity comparisons.

The International Monetary Fund has been using PPP-based GDP measures since 1993, and has recently started using these measures in the formula to determine quota subscriptions of its member economies. A similar practice has been adopted by the European Union (EU) for over 2 decades; and, due to the importance attached to PPPs from the ICP, the EU has a methodology for PPP compilation in its statutory framework.

Results from the ICP for various components of GDP are of considerable interest in making meaningful comparisons of standards of living enjoyed by households in different economies. According to the results of the 2005 ICP for the same year, the economies with the highest real per capita income (GDP) were Luxembourg at 780% of the world average, followed by Qatar at 766%, Norway at 530%,

Brunei Darussalam at 529%, and Kuwait at 501%. Per capita income in the United States was only 465% of the world average. As some of these economies are oil rich economies with a significant proportion of GDP representing exports, it is more appropriate to compare *per capita actual consumption by households* (consumption by households plus consumption by government on behalf of households) for comparing welfare or standards of living. When this measure is used, Luxembourg is still ranked first with 553% of world average consumption, followed closely in the second place by the United States with 525% of the world average. In contrast, Qatar's actual consumption level dropped to 207% of the world average.

Information generated by ICP on PLIs is of considerable importance to economies. For example, the PLI for India in 2005 was only 41% of the world average price level and Luxembourg had PLI of 142%. Generally, PLI has a strong positive link with real GDP per capita income. PLIs for construction and machinery and equipment for developing economies are also important as many of the products in these categories are imported; and the global price levels, exchange rates, transport costs, and marketing margins considerably influence the price levels. Dwyer, Forsyth, and Rao (2009) showed how the basic heading PPPs from the ICP can be combined with expenditure patterns of tourists in deriving the competitiveness of several Asian economies as tourist destinations.

In broad terms, PPPs should be used to

- (i) calculate volumes or real expenditures of GDP for deriving partial productivity measures, such as real GDP per person employed or per hour worked;
- (ii) calculate volumes of components of GDP, such as consumption, gross fixed capital formation, and collective government expenditure;
- (iii) calculate price levels and study patterns in PLIs;
- (iv) convert international poverty lines such as \$1.25/day and \$2/day, and estimate global inequality and poverty incidence; and
- (v) study the size of the global economy and the shares of regions in the global economy.

A Word of Caution to Users

One may ask whether there is still a role for exchange rates in the international economy. Certainly, exchange rates are most relevant in valuing an economy's exports to determine its ability to purchase imports, and the balance of payments and current account balance; and in using financial data including share prices. The local-currency-based aggregates also have a major role in the analysis of growth rates in GDP or its components; domestic inflation rates, such as consumer price index (CPI) and GDP deflators; and structure of GDP and important derived ratios, such as the government budget deficit to GDP or government debt to GDP.

The ultimate purpose of ICP is to provide volume or real expenditure measures as described in equation (4). Users of published results on real expenditures from the ICP need to recognize that there are two factors that drive the estimate of real expenditure. First, the numerator in equation (4), E_j , is the expenditure for a given aggregate in economy j and expressed in national currency units. National accounts are the main sources of data on E_j . Second, the denominator, PPP_j , is the PPP of currency of economy j obtained from ICP based on data collected as part of the ICP. Therefore, the quality of the estimated real expenditure from the ICP depends on the quality of both components shown in equation (4). A seemingly implausible estimate of real expenditure for an aggregate of interest could be entirely due to the fact that the national accounts data for this aggregate are either implausible or incorrect, or the PPP for the aggregate is not meaningful, or it could be a combination of both. So a caution to the reader is that in judging the quality and meaningfulness of real expenditure or volume measures from ICP, both the quality of national accounts data and the PPP estimates must be taken into account.

In conclusion, PPPs are of considerable use in studying and analyzing the size and structure of the global economy. It is important to use the right PPP to study a given problem as PPPs refer to specific basket of goods and services. Despite the need for PPPs, there is

also a role for exchange rates, especially in measuring and studying price levels in different economies. Users must be cautious in using PPPs published at different points of time. PPPs from the ICP cannot be used directly in making statements about price levels in the economies.

Main Results and Analysis



Introduction

This part of the report highlights the results from the 2011 International Comparison Program (ICP) in Asia and the Pacific. The ICP encompasses all components of gross domestic expenditure and provides the results of real income comparisons across economies, and at the detailed level covering 155 basic headings of the national accounts. Like most economic indicators and estimates, however, results at the detailed level tend to be less reliable. Hence, results are reported at a higher level of aggregation which is consistent with the recommendations of the 2011 ICP Executive Board.

The results of the 2011 ICP for Asia and the Pacific in this report presents the salient features of the findings that include the key concepts used; and the summary results for gross domestic product (GDP) and its major expenditure aggregates covering household and its components, government, and capital formation. With differences in approach and coverage, the results of any two benchmark ICPs, such as the 2005 and 2011 benchmark ICPs, are not directly comparable; but where appropriate, the 2011 ICP results are compared with the 2005 ICP. Disaggregated results at the 26 publication levels are also presented in Part V while the latest 2005 ICP tables arising from revisions and/or updates in the national accounts data of the participating economies are in Appendix 4 of this report.

Key Concepts

To better understand and appreciate the results, a few of the key concepts used in the compilation

are briefly reviewed. Detailed descriptions of these concepts can be found in Part III of this report. All results are for the calendar year 2011.

Numeraire currency. The currency in which purchasing power parities (PPPs) and final expenditures on GDP are expressed is called the *numeraire currency* and is used interchangeably with *reference currency*. In the 2011 Asia and the Pacific comparisons, as in the case of 2005 comparisons, Hong Kong dollar is used as the numeraire currency since

- (i) Hong Kong, China has a broad-based economy where prices are available for many products;
- (ii) it has a strong statistical system for both prices and national accounts; and
- (iii) Hong Kong dollar is well-recognized in the region and is relatively stable and rarely influenced by market fluctuations.

It must be noted however that as the PPPs are measured using a transitive method, choice of the *numeraire* has no influence on relative prices or real expenditures.

Market exchange rates. Also known as exchange rates, the market exchange rates are the rates at which currencies can be exchanged through financial institutions. These are the rates that are commonly used for converting values expressed in national or local currency units into a common currency unit. As market exchange rates fluctuate on a daily basis and the 2011 ICP spans the whole year, the exchange rates used in this report are annual average rates drawn from the International Financial Statistics produced by the International Monetary Fund.

Price level index. The ratio of PPPs to exchange rates of the currency of a given economy, measured with respect to a common currency, is known as the price level indexes (PLIs). These are generally expressed relative to a base of 100 for the reference economy, such as Hong Kong, China for Asia and the Pacific. PLIs provide a relative measure of price levels across participating economies.

Real expenditures or volumes. In the context of ICP, *real expenditures or volumes* are the expenditure in local currency units converted into the currency units of the *numeraire* or *reference* economy. When the price level differences between two economies have been eliminated after the use of PPPs, the expenditure aggregates are referred to as *real expenditures*. Following the System of National Accounts guidelines, real expenditures are also referred to as *volumes*.

Nominal expenditures. The expenditure aggregates expressed in local currency units and converted into a common currency using exchange rates are called *nominal expenditures*. The resulting GDP and aggregates after conversion are generally referred to as nominal expenditures since the effect of price level differences across economies has not been adjusted for.

Per capita. Apart from looking at the aggregate measures of GDP and its components in real or nominal expenditures, measures adjusted for population size are also very useful for analysis such as measures of well-being or standard of living. The resulting measures are variables expressed on per capita basis. For purposes of analysis, results in the report are presented on per capita basis. After deriving the per capita for each expenditure aggregate, the relative position of each economy is determined by expressing the per capita measures either relative to the per capita average of the region or of a given economy, such as Hong Kong, China. In the case of Asia and the Pacific comparison, the relative per capita measures are in most cases expressed relative to the regional average in index form. This implies that the regional average takes the index value of 100 for most relative measures.

Besides the key concepts, Box 1 presents some “special notes” that readers should keep in mind when looking at the ICP results for Asia and the Pacific. The limitations of the estimates and some important characteristics are also provided.

Size and Distribution of Asia and the Pacific Economy

The main objective of the ICP is to provide estimates of real GDP and its major aggregates for each participating economy of Asia and the Pacific. The real expenditures are derived using PPPs compiled for each of the major aggregates that comprise GDP. These real expenditures are in contrast to the nominal aggregates derived by converting the specific aggregates of economies in their local currency units (LCUs) into a common reference currency using market exchange rates.

Table 4 presents the summary of the results from the 2011 ICP benchmark year for the 23 participating economies in Asia and the Pacific. The currency units for the different economies are listed in column 2 while the GDP figures expressed in terms of their local or national currency are presented in column 3. These figures are neither comparable across the economies nor can they be added to provide subregional totals because these are in LCUs and the GDP figures are influenced by different price levels prevailing in different economies.

Nominal GDP

The market exchange rates in column 5 are used in converting GDP in LCUs in column 3 into Hong Kong dollar (HK\$), which is the reference currency. Column 7 shows nominal GDP in millions of Hong Kong dollars, which are comparable across economies. In nominal terms, the total size of Asia and the Pacific economy in 2011 is HK\$98.1 trillion. The People’s Republic of China (PRC) is the largest economy with about HK\$57.0 trillion, followed by India with HK\$14.5 trillion and Indonesia with HK\$6.6 trillion. Together, these three biggest

Box 1. Special Notes

- Twenty-three economies participated in the 2011 International Comparison Program (ICP) in Asia and the Pacific. Myanmar joined the ICP for the first time in the 2011 ICP round. The Islamic Republic of Iran, which participated in the 2005 ICP in Asia and the Pacific, is now participating as a singleton economy in the global program. Japan and the Republic of Korea are in Asia and the Pacific but historically have been a part of the ICP at the Organisation for Economic Co-operation and Development.
- In the tables, Asia and the Pacific refers only to the 23 participating economies in the 2011 ICP Asia and the Pacific and coverage of the Pacific is limited to Fiji.
- In the tables and analysis, real refers to purchasing power parity-adjusted values.
- Results presented in this report are exclusively based on price and national accounts data provided by all economies participating in the 2011 ICP Asia and the Pacific. Purchasing power parities (PPPs) and real expenditures were compiled in accordance with established ICP principles and procedures recommended by the Technical Advisory Group for the 2011 ICP. However, it should be noted that the National Bureau of Statistics (NBS) of China expresses reservations over some aspects of the methodology employed and does not agree to publish the headline results for the People's Republic of China (PRC). The results for the PRC are estimated by the 2011 ICP Regional Office in the Asian Development Bank and the 2011 ICP Global Office in the World Bank. The NBS does not endorse these results as official statistics. The users of ICP results should recognize that ICP is a complex and major statistical exercise and that the methodology for the ICP is being constantly refined and improved.
- In most economies, data for nonprofit institutions serving households (NPISH) were merged with households data because it is difficult to segregate NPISH data. For the economies that provided expenditure data on NPISH, these were broken down into health, education, and other components. The health and education components of NPISH data were merged with the health and education categories of household consumption. Other NPISH expenditures were distributed proportionately among the basic headings for household consumption based on the classification of the purposes of NPISH.
- The net expenditures (NEX) of residents abroad were distributed proportionately among the relevant basic headings under individual consumption expenditures by households. The distribution of NEX is based on the assumption that the net amount was all tourism-related. The starting point for the allocation was the Tourism Satellite Accounts framework with focus on products that are mainly related to international tourism.
- PPP results were based on data submitted as of December 2013.

Source: ADB, 2014.

economies account for about 79.6% of the total GDP for Asia and the Pacific. The smallest economy in the region is Bhutan with a nominal GDP of HK\$14.3 billion, followed by the Maldives (HK\$16.8 billion), and Fiji (HK\$29.2 billion) and they have a combined share to total GDP of a mere 0.1%.

Purchasing Power Parities, Exchange Rates, and Price Levels

PPPs of currencies of the 23 economies are presented in column 4 of Table 4. For example,

PPP of Bangladesh shows that Tk4.24 is equivalent in purchasing power to HK\$1.00. A quick glance at columns 4 and 5 of Table 4 shows significant differences between PPPs and exchange rates, with the PPPs uniformly lower than the exchange rates for all the economies with the exception of Hong Kong, China since the Hong Kong dollar is the reference currency; and Singapore has almost the same PPP and exchange rate values. Since the ratios of the PPP over Hong Kong dollar exchange rate equivalents are less than 100, then these imply that the price levels in 21 of the 23 participating economies relative to Hong Kong, China are much lower.

Table 4. Summary Results for Gross Domestic Product, 2011
(Hong Kong, China as base)

Economy (1)	Currency (2)	Gross Domestic Product (million LCU) (3)	Purchasing Power Parity (4)	Exchange Rate (LCU per HK dollar) (5)	Price Level Index (Asia and Pacific = 100) (6)	Nominal GDP (million HK dollars) (7)	Real GDP (million HK dollars) (8)	Population (thousand) (9)	Per Capita Nominal GDP (HK dollars) (10)	Per Capita Real GDP (HK dollars) (11)	Per Capita Real Expenditure Index (regional average = 100) (12)
Bangladesh	taka (Tk)	9,702,910	4.24	9.53	67	1,018,544	2,289,582	149,700	6,804	15,294	37
Bhutan	ngultrum (Nu)	85,948	3.09	6.00	78	14,335	27,849	708	20,240	39,320	94
Brunei Darussalam	Brunei dollar (B\$)	20,997	0.13	0.16	123	129,927	159,836	393	330,290	406,324	976
Cambodia	riel (KR)	52,068,693	246.65	521.39	72	99,865	211,102	14,226	7,020	14,839	36
China, People's Republic of	yuan (CNY)	47,310,400	0.64	0.83	117	56,993,942	73,709,156	1,341,981	42,470	54,926	132
Fiji	Fiji dollar (F\$)	6,730	0.19	0.23	126	29,214	35,263	854	34,197	41,278	99
Hong Kong, China	Hong Kong dollar (HK\$)	1,936,083	1.00	1.00	152	1,936,083	1,936,083	7,072	273,783	273,783	658
India	Indian rupee (Re)	86,993,084	2.77	6.00	70	14,509,265	31,445,329	1,215,957	11,932	25,861	62
Indonesia	rupiah (Rp)	7,422,781,201	660.35	1,126.73	89	6,587,922	11,240,667	241,038	27,331	46,634	112
Lao People's Democratic Republic	kip (KN)	64,727,059	451.84	1,031.61	66	62,744	143,253	6,385	9,827	22,436	54
Macao, China	pataca (MOP)	295,046	0.84	1.03	124	286,428	351,184	557	514,234	630,492	1,515
Malaysia	ringgit (RM)	884,461	0.27	0.39	103	2,249,883	3,310,259	28,964	77,679	114,289	275
Maldives	rufiyaa (Rf)	31,584	1.56	1.88	126	16,837	20,230	325	51,783	62,220	149
Mongolia	togrog (MNT)	12,546,757	98.35	162.58	92	77,173	127,577	2,679	28,805	47,618	114
Myanmar	kyat (MK)	45,128,010	43.02	105.08	62	429,477	1,048,928	60,380	7,113	17,372	42
Nepal	Nepalese rupee (NRe)	1,449,519	4.51	9.51	72	152,433	321,449	26,494	5,754	12,133	29
Pakistan	Pakistan rupee (PRe)	19,187,866	4.46	11.09	61	1,729,818	4,304,442	177,110	9,767	24,304	58
Philippines	peso (P)	9,706,268	3.27	5.56	89	1,744,357	2,969,222	94,185	18,521	31,525	76
Singapore	Singapore dollar (S\$)	334,093	0.16	0.16	153	2,067,600	2,046,788	5,184	398,866	394,851	949
Sri Lanka	Sri Lanka rupee (SLRe)	6,542,663	7.08	14.20	76	460,616	924,446	20,869	22,072	44,298	106
Taipei, China	NT dollar (NT\$)	13,709,074	2.77	3.79	111	3,621,152	4,954,438	23,225	155,917	213,324	513
Thailand	baht (B)	11,120,518	2.26	3.92	88	2,838,871	4,909,768	67,597	41,997	72,633	175
Viet Nam	dong (D)	2,779,880,236	1,228.43	2,634.86	71	1,055,039	2,262,952	87,840	12,011	25,762	62
Asia and the Pacific					100	98,111,525	148,749,803	3,573,724	27,454	41,623	100

GDP = gross domestic product; LCU = local currency unit.

Notes:

1. Real refers to purchasing power parity-adjusted values.
 2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.
- Source: ADB estimates.

Real Gross Domestic Product

Real GDP is obtained by converting GDP in LCUs into the reference currency, Hong Kong dollar, using PPPs in column 4 of Table 4. The total real GDP of Asia and the Pacific economy represented by the 23 participating economies is HK\$148.7 trillion (column 8). As real GDP in principle adjusts for price level differences across economies, total real GDP is referred to as the *size of Asia and the Pacific economy*. The size of nominal GDP of the region is HK\$98.1 trillion (column 7). The difference in the real and nominal GDP of the region is due to the effect of exchange rates on the PPPs, and therefore due to price level differences in the participating economies.

Distribution of Real GDP in Asia and the Pacific Economy

The size of real GDP of Asia and the Pacific economy in 2011 is HK\$148.7 trillion while the nominal GDP is HK\$98.1 trillion. In terms of population, the region's total (consisting of 23 participating economies) is 3.6 billion. As shown in Table 5, the most populous economies in the region are the PRC, with 37.6% share to the regional total population; India, 34.0%; Indonesia, 6.7%; and Pakistan 5.0%. The PRC is also the largest economy in the region in 2011 in nominal terms (58.1%) and real terms (49.6%). Thus, the share of the PRC economy in the region is larger than its population share. Contrasting the shares of India, it is only 21.1% of the real GDP of the region while its population share is 34.0%.

Meanwhile, the high-income economies of Brunei Darussalam contributes only 0.1% of the region's real GDP and Macao, China has about 0.2% share to the region's total GDP. But the same economies also have the least shares to the region's population of 0.01% for Brunei Darussalam and 0.02% for Macao, China.

Differences in real and nominal shares are shown in Figure 1. Hong Kong, China and Singapore also have higher shares of the real GDP of the region at 1.3% and 1.4% respectively, compared to their population shares

(0.20% of Hong Kong, China and 0.15% of Singapore). The largest 12 economies in population size account for 98.3% of the population and 96.0% of real GDP.

The differences in the shares of the economies in nominal and real terms are essentially due to their price levels. The PRC is one of the few economies whose percentage shares in nominal GDP are larger than their real shares. The reverse is true for most of economies, such as India, Indonesia, Pakistan, Thailand, and Viet Nam. Hong Kong, China, and Singapore, have larger nominal shares than their real shares. Those economies that have PLI above 100 when expressed relative to the Asia and Pacific average equal to 100, will have real shares less than their nominal shares.

Real Gross Domestic Product per Capita

To compare the standards of living of people in different economies, it is necessary to adjust the size of economies to the size of their populations. In Table 5 it is clear that the largest economies—the PRC, India, and Indonesia—are also the most populous economies. Per capita real GDP, often referred to as *per capita real income*, is used as a yardstick for comparison of level of living. Per capita real GDP figures are presented in column 11 of Table 4 at HK\$41,623 for Asia and the Pacific. The economy with the highest per capita real income is Macao, China (HK\$630,492); followed by Brunei Darussalam (HK\$406,324); Singapore (HK\$394,851); Hong Kong, China (HK\$273,783); and Taipei, China (HK\$213,324). Among the biggest economies both in GDP size and population, the PRC per capita real income of HK\$54,926 is higher than the regional average while India with HK\$25,861 is well below the regional average. The poorest economies in terms of per capita real GDP are Nepal with HK\$12,133, Cambodia with HK\$14,839 and Bangladesh with HK\$15,294. From highest to lowest per capita real GDP in 2011, the PRC ranked 9th among the 23 participating economies; and India, 16th. Based on the revised and updated 2005 GDP and population values in Appendix 4, the PRC was ranked 11th and India was 19th among the economies. These represent an improvement

Table 5. Comparison of Real and Nominal Gross Domestic Product, Levels and Economy Shares to Total Asia, 2011
(Hong Kong, China as base)

Economy (1)	Gross Domestic Product (billion HK dollars)		Share in Total GDP of Asia and the Pacific (%)		Population (thousand) (6)	Share in Total Population of Asia and the Pacific (%) (7)
	Real (2)	Nominal (3)	Real (4)	Nominal (5)		
China, People's Republic of	73,709	56,994	49.55	58.09	1,341,981	37.55
India	31,445	14,509	21.14	14.79	1,215,957	34.02
Indonesia	11,241	6,588	7.56	6.71	241,038	6.74
Pakistan	4,304	1,730	2.89	1.76	177,110	4.96
Bangladesh	2,290	1,019	1.54	1.04	149,700	4.19
Philippines	2,969	1,744	2.00	1.78	94,185	2.64
Viet Nam	2,263	1,055	1.52	1.08	87,840	2.46
Thailand	4,910	2,839	3.30	2.89	67,597	1.89
Myanmar	1,049	429	0.71	0.44	60,380	1.69
Malaysia	3,310	2,250	2.23	2.29	28,964	0.81
Nepal	321	152	0.22	0.16	26,494	0.74
Taipei, China	4,954	3,621	3.33	3.69	23,225	0.65
Sri Lanka	924	461	0.62	0.47	20,869	0.58
Cambodia	211	100	0.14	0.10	14,226	0.40
Hong Kong, China	1,936	1,936	1.30	1.97	7,072	0.20
Lao People's Democratic Republic	143	63	0.10	0.06	6,385	0.18
Singapore	2,047	2,068	1.38	2.11	5,184	0.15
Mongolia	128	77	0.09	0.08	2,679	0.07
Fiji	35	29	0.02	0.03	854	0.02
Bhutan	28	14	0.02	0.01	708	0.02
Macao, China	351	286	0.24	0.29	557	0.02
Brunei Darussalam	160	130	0.11	0.13	393	0.01
Maldives	20	17	0.01	0.02	325	0.01
Asia and the Pacific	148,750	98,112	100.00	100.00	3,573,724	100.00

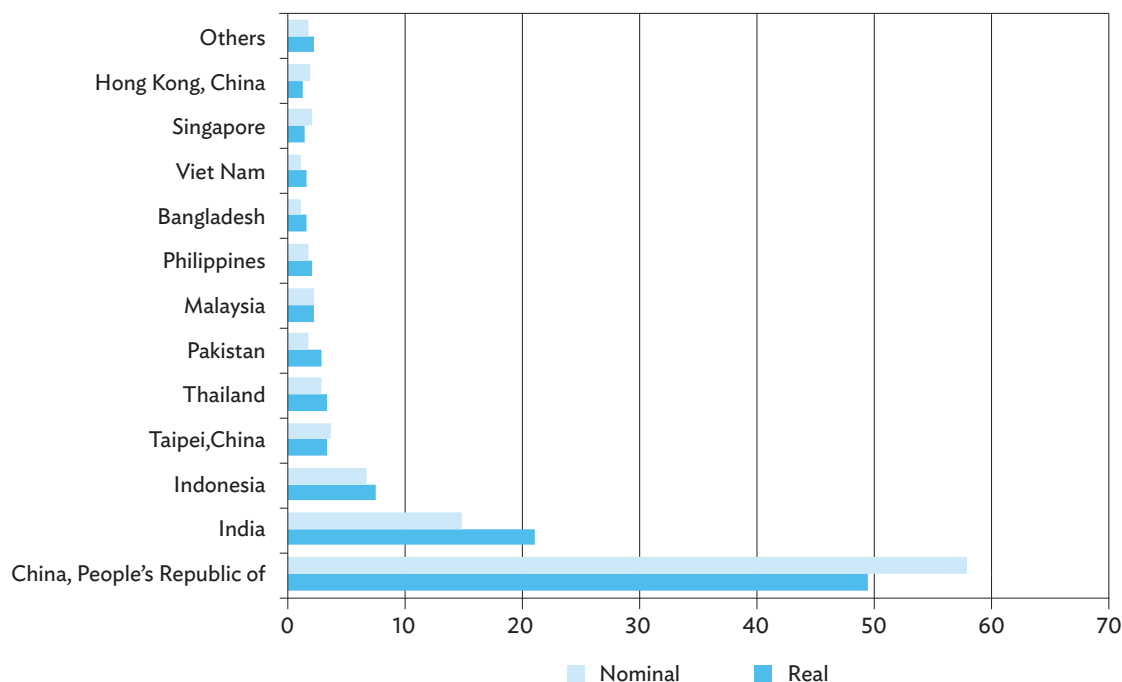
GDP = gross domestic product.

Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

Source: ADB estimates.

Figure 1. Comparison of Economy Shares within Asia and the Pacific, Real and Nominal Gross Domestic Product, 2011 (%)



Note: Real refers to purchasing power parity-adjusted values.

Source: ADB estimates.

in the rankings of both economies between 2005 and 2011.

Figure 2 shows per capita real GDP for each economy expressed relative to the regional average, which is set to 100. The poorest economies are Nepal, Cambodia, and Bangladesh, in that order; whereas the richest economies are Macao, China; Brunei Darussalam; Singapore; Hong Kong, China; and Taipei, China, in that order as well. The PRC, Malaysia, the Maldives, Mongolia, and Thailand may be considered as middle-income economies. India is among the low-income economies, including Pakistan, the Philippines, and Viet Nam with incomes that are well below the regional average.

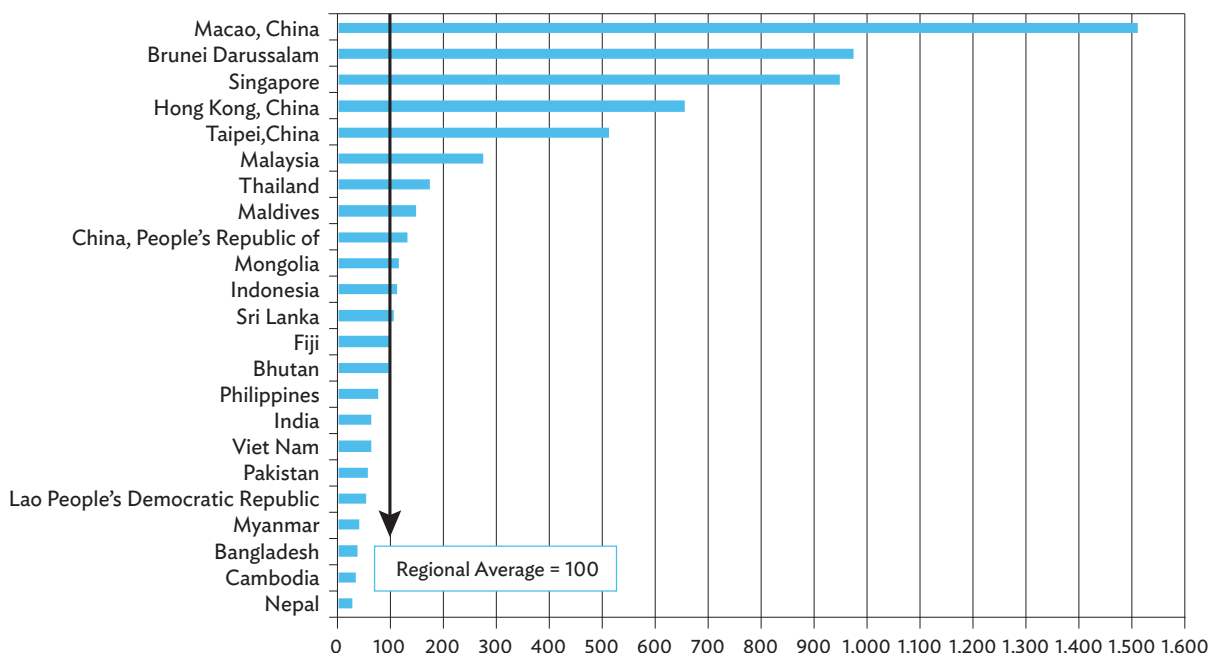
Disparities in Per Capita Real GDP and Inter-Economy Inequality

Per capita GDP in columns 10 and 11 of Table 4 and the shares presented in Table 5 provide useful information

on disparities between participating economies. Regional disparities may be examined using a range of measures that include the (i) relative sizes of the economies; (ii) differences between the lowest and highest per capita real GDP among the economies; (iii) coefficient of variation in real GDP, and in per capita real GDP; (iv) standard deviation of logarithms of incomes, which is a standard measure of inequality; and (v) Gini coefficient.

The first observation that can be made is that disparities are wider when nominal aggregates are used rather than when real aggregates are used. A quick look at columns 10 and 11 of Table 4 shows that per capita real GDP of the richest economy Macao, China is 52 times the real GDP per capita of Nepal, the poorest economy. But the disparity between Macao, China and Nepal is even wider in terms of nominal per capita GDP obtained using the exchange rate, i.e. 89 times that of Nepal. A general observation is that use of real GDP (based on PPP) tends to reduce

Figure 2. Per Capita Real Gross Domestic Product Indexes, 2011
(Regional Average = 100)



Note: Real refers to purchasing power parity-adjusted values.
Source: ADB estimates.

disparities obtained using nominal GDP based on exchange rates.

Table 6 shows various measures of disparity for the years 2011 and 2005; it can be used in assessing whether inequality has increased between 2005 and 2011. All dispersion and inequality measures presented in Table 6 are population-weighted measures. For consistency and analytical purposes, only the 22 economies which are in both the 2005 and the 2011 ICP are included in estimating Gini coefficients for both years. Myanmar, which only joined in the 2011 ICP round, and the Islamic Republic of Iran, which participated as a singleton country, are both excluded. The main focus is on columns/rows that pertain to 2011. Disparity in real GDP is quite large with the largest economy at 3,644 times the smallest economy. From Table 4, these two economies are the PRC and the Maldives, respectively. However, when per capita real GDP is used, disparities are much smaller; the highest per capita real GDP is only

52 times larger than the economy with the lowest per capita income. From Table 4, these two economies are Macao, China and Nepal, respectively. These disparities are further confirmed by large values for the coefficient of variation (CV) measure.

The Gini measure of inequality⁴ trends evident in Table 6 are useful in assessing whether inequality had increased between the two ICP benchmark years in 2005 and 2011. The range as measured by the ratio of the highest to the lowest incomes shows an increase over the period, to 52.0% in 2011 from 43.2% in 2005 although, the standard deviation of logarithms of incomes remained almost the same at 0.21 in 2011 from 0.20 in 2005. As expected, Gini coefficient also shows that inequality remained practically unchanged at 0.256 in 2011 from 0.262 in 2005. These figures are

⁴ This Gini coefficient measures inequality between per capita incomes of different economies only and does not account for inequality within each of the economies. This measure is known as a measure of international inequality.

Table 6. Measures of Disparity in Real Gross Domestic Product and Per Capita Real Gross Domestic Product, 2005 and 2011

Item	Population (thousand)			Real GDP (million HK dollars)			Per Capita Real GDP (HK dollars)		
	2005 ^a	2011 ^a	2011 ^b	2005 ^a	2011 ^a	2011 ^b	2005 ^a	2011 ^a	2011 ^b
Asia and the Pacific	3,275,989	3,513,344	3,573,724	67,427,706	147,700,875	148,749,803	20,582	42,040	41,623
Ratio of Highest to Lowest	3,842.83	4,127.46	4,127.46	3,148.94	3,643.56	3,643.56	43.17	51.97	51.97
Weighted									
Coefficient of variation				99.88	99.89	99.89	91.94	68.88	69.40
Standard deviation				17,822,247	40,385,778	39,720,867	18,923	28,955	28,885
Number of economies				22	22	23	22	22	23
Logarithmic									
Mean				7.25	7.61	7.60	4.31	4.62	4.62
Variance				0.34	0.37	0.40	0.04	0.05	0.05
Standard deviation				0.58	0.61	0.63	0.20	0.21	0.22
Gini Coefficients							0.262	0.256	0.260

GDP = gross domestic product.

^a For 22 overlapping economies in 2005 and 2011 only. The Islamic Republic of Iran is excluded in the 2005 estimates and Myanmar is excluded in 2011.

^b For 23 participating economies in 2011.

Source: ADB estimates.

quite surprising considering the rapid growth in the region. The Asia and the Pacific economy based on the 22 economies expanded by 52% over the period 2005 to 2011.

As GDP includes consumption by households as well as general government, gross fixed capital formation, change in inventories and net acquisition of valuables, and net balance of exports, it may be useful to focus on consumption of households as basis in welfare comparisons. Disparities in consumption are presented and discussed later in this section.

Price Levels in 2011

The price level index (PLI) for an economy is defined as the ratio of PPP to the market exchange rate. As Hong Kong dollar is used as the numeraire currency, the PLI for Hong Kong, China would be 1 and all other PLIs are derived using the estimated PPPs and exchange rates. For example, from columns 4 and 5 in Table 4, the PLI for Bangladesh with Hong Kong, China as reference economy would be the ratio

of 4.24 (PPP) to HK\$9.53 (exchange rate), which equals 0.44. Since the PLI is less than 1, it implies that price levels in Bangladesh are less than half of that in Hong Kong, China. However, price levels in participating economies relative to a base economy like Hong Kong, China, do not provide any indication on whether prices in the economy are low or prices in Hong Kong, China are high. Hence, the PLIs for the 23 participating economies are expressed with Asia and the Pacific as the base or an index of 100 is assigned for the region. Deriving the average price level for the region (Asia and the Pacific = 100) is described in Appendix 4 of this report.

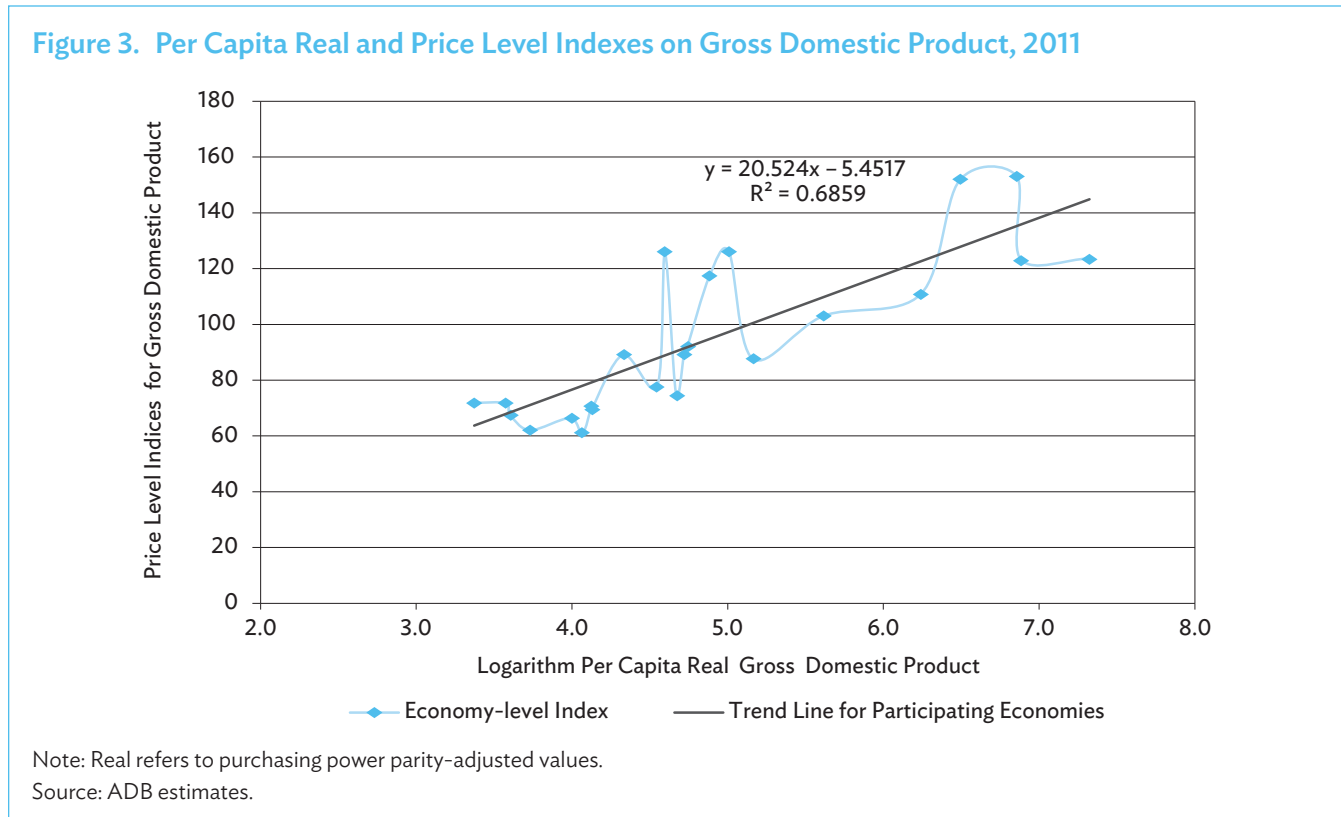
Column 6 of Table 4 shows the PLIs in the economies relative to Asia and the Pacific average price level of 100. In general, the price levels of high-income economies are higher than those of low-income economies. As shown in the table, all high-income economies have price levels that are higher than the regional average with Singapore posting the highest PLI of 153 and closely followed by Hong Kong, China with 152. Island economies such as Fiji (126) and the

Maldives (126) also have PLIs higher than the average for Asia and the Pacific partly due to their being small island economies. In addition, most of goods in these economies are imported, and transport costs to and within the economies are usually large.

There is a pattern of relationship between PLIs and the level of income. Usually high-income economies exhibit high PLIs whereas low-income economies have below average PLIs. There is a large body of literature that focuses on explanations for the deviations between PPPs and exchange rates or deviations of PLIs from 1. These explanations rely heavily on the PPP theory and the Balassa-Samuelson effect (Balassa, 1964; Samuelson, 1964). The essential focus is to explain variations in PLIs using levels of tradable and non-tradable goods and productivity level differences between low- and high-income economies. The general argument is that higher productivity in the traded sector tends to drive up wages in the non-traded

sector and in the general economy and if productivity growth in the non-traded sector is limited, then prices in non-traded sector will tend to rise. This in turn leads to the conclusion that generally an economy's PLI is expected to increase with real income, known as the static Penn effect.⁵ In the discussion below, PLIs from the 2011 ICP are used in examining the presence of both *static* and *dynamic* Penn effects.

Figure 3 shows the relationship between PLIs and real incomes from the 2011 ICP Asia and the Pacific, and clearly manifests the presence of Penn effect. The regression equation fits quite well with an R² of 0.6859. There are several outliers in the middle, i.e., the PRC (117), Fiji (126), and the Maldives (126), which exhibit PLIs above the regression fit, and at the top end of the spectrum are Macao, China with PLI of 124 and Brunei Darussalam with PLI of 123 compared to higher PLIs observed for Singapore (153) and Hong Kong, China (152).



⁵ See Ravallion and Inklaar (World Bank, 2013) for more formal discussions on the *static* and *dynamic* Penn effects.

Major Aggregates

This main features of the results for the three major components of GDP from the 2011 ICP for Asia and the Pacific refer to household final consumption expenditure (HFCE), government final consumption expenditure (GFCE), and gross fixed capital formation (GFCF). As welfare of the individuals and households depends both on consumption expenditures incurred by the households, as well as expenditure incurred by the government on behalf of the households, the essence of the role of general government on household welfare is captured by the *actual final consumption by household* (AFCH) measure. Introduced in the 1993 System of National Accounts (1993 SNA), per capita AFCH is considered as a better indicator for measuring and comparing welfare of individuals and households.

The presentation and discussion of the results focus on the 2011 ICP for Asia and the Pacific. While these were not compared with those obtained in the 2005 ICP, detailed results based on updates and/or revisions in the national accounts values are in Appendix 4.

Household Final Consumption Expenditure

Table 7 presents the results for HFCE which include individual consumption expenditure by households and by nonprofit institutions serving households.

Apart from Hong Kong, China, which is the base economy and having a PPP of 1.0 for all indicators, the PPPs for HFCE (Table 7) and GDP (Table 4) for six economies are very close with the PRC even having the same PPPs for GDP and HFCE of 0.64. However, this is not true for all the other participating economies. For example, for Singapore PPPs for HFCE and GDP are respectively 0.20 and 0.16, which means that HFCE PPP is about 25% higher than that of GDP PPP. At least 16 economies recorded HFCE PPPs that are higher than their GDP PPPs while five economies exhibited the opposite relationship. India's GDP PPP is about 6% higher than HFCE PPP while that of Bhutan is about 5% higher.

HFCE PPPs and National and Regional Poverty Measurement

The HFCE PPPs play a significant role in the compilation of poverty measures at the regional and global levels. Usually an international poverty line is set in US dollars. For example, the World Bank uses \$1.25/day and \$2/day poverty lines in its compilation of the flagship numbers on poor. These poverty lines need to be converted to national currency units by using PPPs instead of market exchange rates. But the question then is which PPP to use. The World Bank uses PPPs for HFCE in converting \$1.25/day and \$2/day poverty lines. Given the important role played by these PPPs, it is necessary to compile reliable measures of PPPs for HFCE.

ADB (2008) provided an overview of the issues and methods relevant to the compilation of PPPs for poverty measurement; including empirical evidence following on the recommendations of the 2005 ICP Poverty Advisory Group. Chen and Ravallion in their chapter on poverty measurement in the ICP Book (World Bank, 2013) outlined the methodology used by the World Bank in setting the poverty lines and subsequently converted them into national currency units and in compiling estimates of regional and global poverty. Deaton and Duprez (World Bank, 2013) articulated an alternative strategy to use poverty purchasing power parity exchange rates.

Real per Capita HFCE and its Distribution in the Region

Figures in Table 8 can be used in examining the relative disparities at the GDP and HFCE levels. The per capita real GDP would by definition be higher than per capita HFCE as it represents only one of the four major components of GDP. In Asia and the Pacific, per capita real HFCE is roughly 47% of per capita real GDP. An interesting feature is the variability of the ratio reported in the last column. For low-income economies this ratio is likely to be high and low for high-income economies. Pakistan has the highest ratio of 82.6% implying that GFCF and

Table 7. Summary of Household Final Consumption Expenditure, 2011
(Hong Kong, China as base)

Economy (1)	Population (thousand) (2)	Exchange Rate (LCU per HK dollar) (3)	Local Currency Unit (millions) (4)	Purchasing Power Parity (5)	Household Final Consumption Expenditure ^a					Per Capita Real Expenditure Index (Asia and the Pacific = 100) (10)
					Nominal (million HK dollars) (6)	Real (million HK dollars) (7)	Per Capita Nominal (HK dollars) (8)	Per Capita Real (HK dollars) (9)	Per Capita Real Expenditure Index (Asia and the Pacific = 100) (10)	
Bangladesh	149,700	9.53	7,154,283	4.32	751,007	1,656,478	5,017	11,065	57	
Bhutan	708	6.00	37,567	2.95	6,266	12,742	8,846	17,990	93	
Brunei Darussalam	393	0.16	4,089	0.15	25,302	27,588	64,321	70,132	362	
Cambodia	14,226	521.39	41,431,046	265.50	79,463	156,048	5,586	10,969	57	
China, People's Republic of	1,341,981	0.83	16,254,663	0.64	19,581,685	25,302,539	14,592	18,855	97	
Fiji	854	0.23	4,792	0.21	20,801	22,662	24,349	26,528	137	
Hong Kong, China	7,072	1.00	1,224,823	1.00	1,224,823	1,224,823	173,203	173,203	893	
India	1,215,957	6.00	48,648,208	2.60	8,113,860	18,690,743	6,673	15,371	79	
Indonesia	241,038	1,126.73	4,053,363,578	711.21	3,597,471	5,699,249	14,925	23,645	122	
Lao People's Democratic Republic	6,385	1,031.61	36,750,116	506.62	35,624	72,539	5,579	11,361	59	
Macao, China	557	1.03	60,503	0.95	58,736	63,731	105,450	114,418	590	
Malaysia	28,964	0.39	418,264	0.28	1,063,975	1,517,241	36,734	52,384	270	
Maldives	325	1.88	10,184	1.86	5,429	5,489	16,698	16,881	87	
Mongolia	2,679	162.58	6,885,507	102.60	42,352	67,108	15,808	25,048	129	
Myanmar	60,380	105.08	28,760,013	47.94	273,705	599,905	4,533	9,935	51	
Nepal	26,494	9.51	1,114,594	4.48	117,212	248,951	4,424	9,397	48	
Pakistan	177,110	11.09	15,712,188	4.42	1,416,480	3,557,055	7,998	20,084	104	
Philippines	94,185	5.56	7,132,581	3.28	1,281,829	2,174,354	13,610	23,086	119	
Singapore	5,184	0.16	130,167	0.20	805,565	639,568	155,403	123,381	636	
Sri Lanka	20,869	14.20	4,568,393	7.34	321,624	622,569	15,412	29,832	154	
Taipei, China	23,225	3.79	8,235,409	2.78	2,175,323	2,962,361	93,663	127,551	658	
Thailand	67,597	3.92	6,076,105	2.23	1,551,122	2,721,720	22,947	40,264	208	
Viet Nam	87,840	2,634.86	1,638,345,515	1,325.28	621,796	1,236,227	7,079	14,074	73	
Asia and the Pacific	3,573,724				43,171,448	69,281,690	12,080	19,386	100	

LCU = local currency unit.

Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics. Source:

^a Includes individual consumption expenditure by households and nonprofit institutions serving households.

Source: ADB estimates.

Table 8. Per Capita Real Gross Domestic Product and Real Household Final Consumption Expenditure, 2011

Economy	Per Capita Real GDP (HK dollars)	Per Capita Real HFCE ^a (HK dollars)	Ratio of HFCE to GDP
Bangladesh	15,294	11,065	72.3
Bhutan	39,320	17,990	45.8
Brunei Darussalam	406,324	70,132	17.3
Cambodia	14,839	10,969	73.9
China, People's Republic of	54,926	18,855	34.3
Fiji	41,278	26,528	64.3
Hong Kong, China	273,783	173,203	63.3
India	25,861	15,371	59.4
Indonesia	46,634	23,645	50.7
Lao People's Democratic Republic	22,436	11,361	50.6
Macao, China	630,492	114,418	18.1
Malaysia	114,289	52,384	45.8
Maldives	62,220	16,881	27.1
Mongolia	47,618	25,048	52.6
Myanmar	17,372	9,935	57.2
Nepal	12,133	9,397	77.4
Pakistan	24,304	20,084	82.6
Philippines	31,525	23,086	73.2
Singapore	394,851	123,381	31.2
Sri Lanka	44,298	29,832	67.3
Taipei, China	213,324	127,551	59.8
Thailand	72,633	40,264	55.4
Viet Nam	25,762	14,074	54.6
Asia and the Pacific/Regional Average	41,623	19,386	46.6

GDP = gross domestic product, HFCE = household final consumption expenditure.

Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households and nonprofit institutions serving households.

Source: ADB estimates.

government expenditure are quite low in Pakistan. Other low-income economies like Bangladesh (72.3%), Cambodia (73.9%), and Nepal (77.4%) have significantly large ratio of HFCE to GDP.

However, some exceptions to this general finding are the low ratios observed for Viet Nam (54.6%);

the PRC (34.3%) and the Maldives (27.1%). Most of the middle-income economies have a ratio of around 50% to 60% while high-income economies generally have low shares of around 30% to 65%. Notable exceptions are Brunei Darussalam with a ratio of only 17.3% and Macao, China with 18.1%. These economies may be labeled as *income rich but*

consumption poor economies. For example, Macao, China’s GDP is influenced by tourism and gambling revenues whereas Brunei Darussalam’s high GDP is due to exports of oil.

Figure 4 shows a strong log-linear relationship between per capita real GDP and HFCE with an R² of 0.8852. Elasticity of consumption with respect to income (per capita GDP) is 0.7328 implying that a 1% increase in income will result in a 0.73% increase in HFCE.

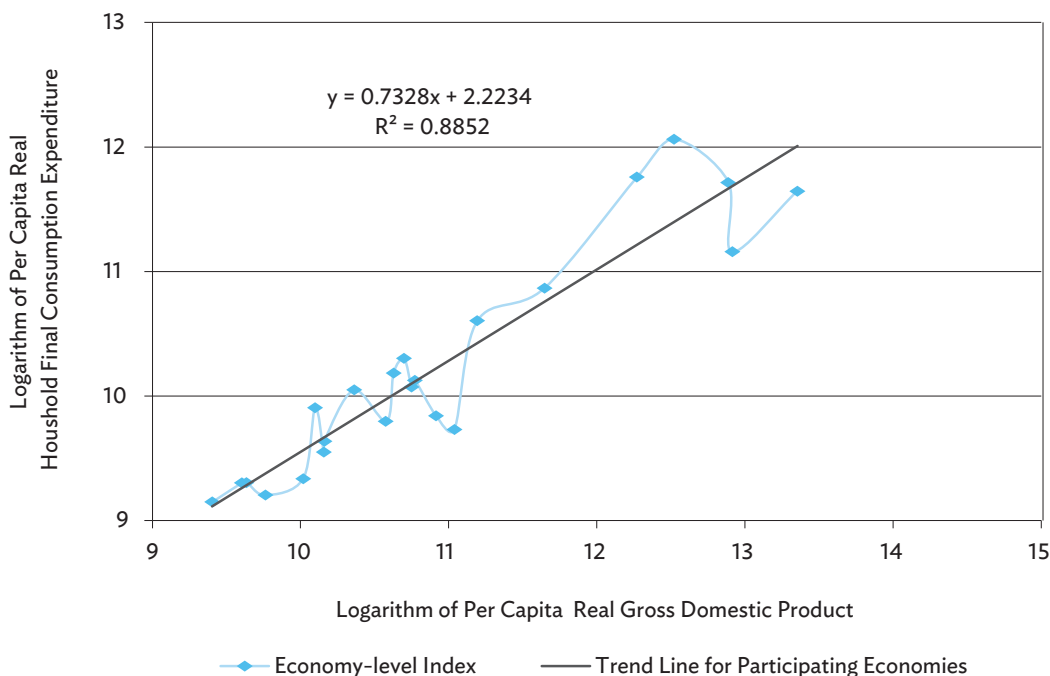
Disparities and Inequality in Household Consumption

Disparities in per capita real household consumption expenditure are less pronounced compared to disparities in real GDP per capita. Minimum per capita

real HFCE is observed for Nepal at HK\$9,397 and the maximum for Hong Kong, China at HK\$173,203. For per capita real GDP, minimum is HK\$12,133 for Nepal compared to the maximum of HK\$630,492 for Macao, China. For HFCE, the maximum per capita consumption is more than 18 times the minimum observed for Nepal while for per capita real GDP, the maximum is about 52 times larger than the minimum indicating even wider disparities in the region in terms of real income distribution.

Dispersion in per capita real household final consumption (Table 9) is less than that of the observed per capita real GDP (Table 6). The coefficient of variation in per capita real HFCE is 67.5 compared to 69.4 observed for per capita real GDP. The standard deviation of logarithms, as a standard

Figure 4. Per Capita Real Gross Domestic Product and Per Capita Real Household Final Consumption Expenditure, 2011



Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People’s Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

Source: ADB estimates.

Table 9. Measures of Disparity in Real Household Final Consumption Expenditure and Per Capita Real Household Final Consumption Expenditure, 2011

Item	Population (thousand)	Real HFCE (million HK dollars)	Per Capita Real HFCE (HK dollars)
Asia and the Pacific	3,573,724	69,281,690	19,386
Ratio of Highest to Lowest	4,127.46	4,610.06	18.43
Weighted			
Coefficient of variation		99.87	67.53
Standard deviation		16,660,391	13,092
Number of economies		23	23
Logarithmic			
Mean		7.22	4.29
Variance		0.28	0.02
Standard deviation		0.53	0.14
Gini Coefficients			0.18

HFCE = household final consumption expenditure.

Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

Source: ADB estimates.

measure of inequality is 0.14 for per capita real HFCE, significantly lower than 0.22 (Table 6) observed for per capita real GDP. The Gini measure of inequality for household consumption is 0.18 which is nearly 31% lower than 0.26 (Table 6) observed for per capita real GDP. This means that real household consumption is more equally distributed in the region compared to real income.

Government Final Consumption Expenditure

Government final consumption expenditure (GFCE) is divided into two components: government expenditure on behalf of individuals; and collective expenditure. The summary of comparisons is in Table 10.

The first point to note is the difference between PPPs for government expenditure and those for household

consumption (Table 7). As a major portion of government expenditure is in the form of government compensation, PPPs for government expenditure are largely driven by relative wages of government employees across participating economies. In the 2011 ICP Asia and the Pacific, productivity adjustments were made for government salaries before PPPs were computed. The general observation is that PPPs for government expenditure are generally lower than the PPPs for HFCE and differences are significantly large for low-income economies.

In terms of per capita real government expenditure (Column 9 in Table 10), Brunei Darussalam (HK\$100,546) has the highest level which is 13 times the average for Asia and the Pacific (HK\$7,472). Besides Brunei Darussalam, Singapore and Macao, China also showed high levels of per capita GFCE of more than six times the regional average. The lowest per capita real GFCE index of 17 is noted for

Table 10. Summary of Government Final Consumption Expenditure, 2011
(Hong Kong, China as base)

Economy (1)	Population (thousand) (2)	Exchange Rate (LCU per HK dollar) (3)	Local Currency Unit (millions) (4)	Government Final Consumption Expenditure						Per Capita Real Expenditure Index (Asia and the Pacific = 100) (10)
				Purchasing Power Parity (5)	Nominal (million HK dollars) (6)	Real (million HK dollars) (7)	Per Capita Nominal (HK dollars) (8)	Per Capita Real (HK dollars) (9)		
Bangladesh	149,700	9.53	504,736	2.68	52,984	188,028	354	1,256	17	
Bhutan	708	6.00	17,048	1.71	2,843	9,988	4,015	14,102	189	
Brunei Darussalam	393	0.16	3,567	0.09	22,070	39,552	56,105	100,546	1,346	
Cambodia	14,226	521.39	4,380,906	114.37	8,402	38,305	591	2,693	36	
China, People's Republic of	1,341,981	0.83	7,004,977	0.48	8,438,764	14,634,631	6,288	10,905	146	
Fiji	854	0.23	776	0.12	3,370	6,503	3,945	7,612	102	
Hong Kong, China	7,072	1.00	168,487	1.00	168,487	168,487	23,826	23,826	319	
India	1,215,957	6.00	10,027,101	2.06	1,672,384	4,873,432	1,375	4,008	54	
Indonesia	241,038	1,126.73	668,582,850	409.46	593,386	1,632,825	2,462	6,774	91	
Lao People's Democratic Republic	6,385	1,031.61	6,258,389	168.08	6,067	37,235	950	5,832	78	
Macao, China	557	1.03	20,883	0.80	20,273	26,047	36,397	46,763	626	
Malaysia	28,964	0.39	115,067	0.18	292,707	625,642	10,106	21,601	289	
Maldives	325	1.88	7,431	0.79	3,961	9,384	12,184	28,862	386	
Mongolia	2,679	162.58	1,623,595	42.60	9,986	38,116	3,727	14,227	190	
Myanmar	60,380	105.08	4,620,871	14.58	43,976	317,026	728	5,251	70	
Nepal	26,494	9.51	146,406	3.30	15,396	44,328	581	1,673	22	
Pakistan	177,110	11.09	1,940,973	2.78	174,982	697,750	988	3,940	53	
Philippines	94,185	5.56	941,836	2.68	169,262	351,713	1,797	3,734	50	
Singapore	5,184	0.16	34,594	0.14	214,089	245,998	41,300	47,456	635	
Sri Lanka	20,869	14.20	967,709	3.42	68,129	282,720	3,265	13,547	181	
Taipei, China	23,225	3.79	1,696,548	2.15	448,131	788,097	19,295	33,933	454	
Thailand	67,597	3.92	1,818,587	1.71	464,253	1,064,271	6,868	15,744	211	
Viet Nam	87,840	2,634.86	288,815,939	494.37	109,613	584,208	1,248	6,651	89	
Asia and the Pacific	3,573,724				13,003,515	26,704,287	3,639	7,472	100	

LCU = local currency unit.

Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

Source: ADB estimates.

Bangladesh. Difference in per capita real GFCE index is also evident between the large economies with the PRC having an index relative to the regional average of 146, while India has an index of 54.

Actual Final Consumption by Household

A better measure of welfare and standard of living of the population is obtained when actual final consumption by households is captured. *Actual final consumption by household* (AFCH) is a concept designed in the 1993 SNA to capture HFCE on goods and services plus expenditures by government on services predominantly on education and health services provided to households. Government services such as police, fire fighting, and defense are classified as *collective consumption* because they are provided to the population as a whole, and it is rarely possible to identify the actual service provided to any individual.

GDP is made up of AFCH, collective expenditure by government, gross fixed capital formation (GFCF), change in inventories and net acquisition of assets, and net exports. Table 11 shows per capita real AFCH in decreasing order by economies. AFCH makes up 50% to 80% of GDP in all but a few economies of the region. The share of AFCH in per capita real GDP at the regional level is about 54.7%. Pakistan has the largest share of AFCH in real GDP per capita in the region of more than 90%, followed by Cambodia (85.6%) and Nepal (85.0%). The share of AFCH in GDP can vary significantly, particularly when economies have very high investment and sizeable net exports (either positive or negative). The smallest shares of AFCH to GDP are observed for Macao, China (20.9%); Brunei Darussalam (21.5%); the Maldives (34.8%); and Singapore (34.9%). The PRC has a ratio of 44.0% while India has 65.2%.

While the overall picture for AFCH is broadly the same as that based on per capita real GDP, some economies change their position by several places when their investment and/or net international trade differs significantly from their overall average share

within GDP. The same group of five economies with the largest per capita real GDP, that are significantly above the others in Asia and the Pacific, remain at the top but the order changes when the comparison is based on per capita real AFCH (Table 11). Another interesting observation is that the range of differences in per capita real AFCH between economies is much less than is the case for per capita real GDP and that the economies' ranking change significantly. Per capita real AFCH in Hong Kong, China, the highest in the region that is 17.7 times larger than Nepal, which has the lowest AFCH. However, in terms of per capita real GDP, Macao, China is on the top spot with per capita GDP of HK\$630,492 that is about 52 times higher than that of Nepal's per capita GDP of only HK\$12,133.

The concepts of disparities in per capita nominal and real HFCE and AFCH are essentially unchanged although their concepts differ in their coverage. For example, the Gini coefficients for real AFCH and HFCE both round up to 0.18.

Components of Actual Final Consumption by Household

AFCH constitutes a major portion of GDP in nominal and real terms. It is useful to examine the components of household expenditure. The following subsections provide details of selected major subaggregates of AFCH and detailed results for 26 analytical categories.

Consumption of Food Expenditures

Per capita real expenditures on AFCH and the shares of expenditures within AFCH vary significantly throughout the region. Table 12 presents an interesting perspective on the composition of food consumption in Asia and the Pacific. It shows the index of per capita real expenditures on food and nonalcoholic beverages; and its four major components that includes bread and cereals, meat and fish, fruits and vegetables, and other food and nonalcoholic beverages—all are expressed relative to the average for Asia and the Pacific (regional average=100). The economies are sorted in descending order of their index of per capita real AFCH.

Table 11. Per Capita Real Actual Final Consumption by Households, 2011

Economy	Per Capita Real GDP (HK dollars)	Per Capita Real AFCH ^a		Ratio of Per Capita Real AFCH to GDP
		Levels (HK dollars)	Index (regional average = 100)	
(1)	(2)	(3)	(4)	(5)
Hong Kong, China	273,783	182,399	801	66.62
Taipei, China	213,324	140,222	615	65.73
Singapore	394,851	137,961	606	34.94
Macao, China	630,492	131,946	579	20.93
Brunei Darussalam	406,324	87,518	384	21.54
Malaysia	114,289	61,841	271	54.11
Thailand	72,633	47,317	208	65.15
Sri Lanka	44,298	35,680	157	80.55
Mongolia	47,618	30,696	135	64.46
Fiji	41,278	30,109	132	72.94
Indonesia	46,634	26,814	118	57.50
Philippines	31,525	25,058	110	79.49
China, People's Republic of	54,926	24,164	106	43.99
Bhutan	39,320	22,298	98	56.71
Pakistan	24,304	21,902	96	90.12
Maldives	62,220	21,668	95	34.83
India	25,861	16,861	74	65.20
Viet Nam	25,762	16,685	73	64.77
Lao People's Democratic Republic	22,436	13,065	57	58.23
Cambodia	14,839	12,704	56	85.61
Myanmar	17,372	12,683	56	73.01
Bangladesh	15,294	11,927	52	77.98
Nepal	12,133	10,307	45	84.95
Asia and the Pacific	41,623	22,784	100	54.74

AFCH = actual final consumption by households, GDP = gross domestic product.

Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

Source: ADB estimates.

Table 12 shows a strong positive correlation between AFCH and expenditure on food and nonalcoholic beverages. It is also evident from the table that relative disparities are low. The maximum value of the index is 393 for Hong Kong, China and the lowest is 65 for

Viet Nam, indicating disparities by a factor of six. The two largest economies of the region, the PRC with an index of 82 and India's index of 85 are below the regional average of 100; they also have the second and third lowest value of the index.

Table 12. Per Capita Real Expenditure Indexes on Food and Nonalcoholic Beverages, 2011
(regional average = 100)

Economy	AFCH ^a	Food and Nonalcoholic Beverages	Bread and Cereals	Meat and Fish	Fruit and Vegetables	Other Food and Nonalcoholic Beverages
Hong Kong, China	801	393	170	940	165	334
Brunei Darussalam	384	320	351	445	157	350
Taipei, China	615	275	239	353	276	242
Macao, China	579	228	163	439	176	161
Sri Lanka	157	221	302	190	247	162
Thailand	208	194	154	217	207	191
Singapore	606	187	124	249	105	263
Malaysia	271	182	97	263	142	220
Fiji	132	176	113	223	117	232
Philippines	110	174	214	313	54	153
Indonesia	118	163	178	140	136	189
Pakistan	96	144	134	58	105	248
Mongolia	135	133	58	235	27	219
Bhutan	98	111	129	63	118	124
Regional Average	100	100	100	100	100	100
Nepal	45	95	175	65	77	77
Bangladesh	52	94	181	73	73	66
Maldives	95	92	76	146	36	121
Cambodia	56	90	133	114	52	71
Myanmar	56	88	92	134	97	49
Lao People's Democratic Republic	57	85	151	140	56	23
India	74	85	80	34	108	105
China, People's Republic of	106	82	73	123	85	55
Viet Nam	73	65	85	109	40	37

AFCH = actual final consumption by households.

Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

Source: ADB estimates.

Real expenditure indexes for the components of food reflect the diversity in consumption habits in the 23 participating economies due to differences in per capita real GDP, tastes and preferences, and climatic conditions. Of particular note is that Nepal, with the lowest indexes in per capita real GDP and AFCH, has

bread and cereals index of 175 that is 75% higher than the regional average. Similarly, Indonesia (178), the Lao People's Democratic Republic (151), Pakistan (134), Bhutan (129), and other economies have bread and cereals consumption well above the regional average. In many of these economies consumption of cereals like

rice and wheat are quite prevalent. For meat and fish, the PRC and Mongolia are examples of economies that have per capita real consumption above the regional average. This reflects the climatic conditions and greater availability of meat in Mongolia and both meat and fish for the PRC. On the other hand, India has the lowest index of 34, which reflects a large segment

of the population as vegetarians. Consistent with this observation, the consumption of fruit and vegetables in India has an index of 108, about 8% more than the regional average; while its consumption of other food items is 5% above the regional average. An interesting note is that Pakistan's index of 248 is well above those of economies at similar level of development.

Table 13. Per Capita Real Expenditure Relatives of Components of Actual Final Consumption by Household, 2011
(regional average = 100)

Economy	AFCH ^a	Nondurables	Semidurables	Durables	Services
Hong Kong, China	801	385	923	1,982	1,184
Taipei, China	615	340	897	1,346	784
Singapore	606	206	515	1,175	983
Macao, China	579	226	594	902	887
Brunei Darussalam	384	248	500	745	360
Malaysia	271	191	233	343	350
Thailand	208	181	228	236	227
Sri Lanka	157	223	104	27	125
Mongolia	135	134	99	93	140
Fiji	132	168	99	79	128
Indonesia	118	152	105	57	108
Philippines	110	135	62	66	132
China, People's Republic of	106	86	93	155	97
Regional Average	100	100	100	100	100
Bhutan	98	110	111	74	73
Pakistan	96	150	62	33	84
Maldives	95	113	55	71	74
India	74	84	101	27	78
Viet Nam	73	75	54	72	75
Lao People's Democratic Republic	57	83	31	52	39
Cambodia	56	76	28	38	46
Myanmar	56	78	25	9	40
Bangladesh	52	88	33	17	42
Nepal	45	81	16	17	33

AFCH = actual final consumption by households.

Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

Source: ADB estimates.

Nondurables, Semidurables and Services

The classification of HFCE in the 1993 SNA is based on the Classification of Individual Consumption According to Purpose (COICOP). In addition to classifying individual expenditures into many detailed classes, it groups expenditures into four broad categories: nondurables, semidurables, durables, and services. Table 13 presents per capita real expenditure indexes of total AFCH and these four broad categories sorted by descending order of the total.

Hong Kong, China (801), which has the highest AFCH per capita index relative to the regional average, also has the highest index for all broad categories. Of the four categories, durables exhibit the largest dispersion: the highest index for Hong Kong, China (1,982) is almost 20 times the regional average while Myanmar (9) has the lowest index. The per capita durable expenditure of Hong Kong, China is more than 200 times that observed for Myanmar. The five richest economies—Hong Kong, China; Taipei, China; Singapore; Macao, China; and Brunei Darussalam—and Malaysia (271), Thailand (208), Fiji (132), and the PRC (106) all have above average per capita real AFCH.

The results in Table 13 show that the disparities for durables are very high compared with semidurables and nondurables. The spread between the highest and lowest for the services component also appears to be lower than those observed for durables and semidurables. The lower level of disparity in services may partly be attributable to the contribution of government expenditures in health and education, which both form a major portion of spending on services in low-income economies.

Education and Health

Education and health are two major expenditure categories where government expenditure on behalf of individuals are important. It is expected that relative disparities in per capita real expenditure on education and health are likely to be lower compared to aggregates like transport and communication and recreation.

In Table 14, the top five economies according to AFCH in descending order also have per capita real expenditure index for education and health above the regional average. The minimum range of the per capita real expenditure index on education is 47 for India while the maximum of 695 is for Brunei Darussalam, which is roughly 15 times that of the minimum. For health expenditure, the range is from minimum of 18 for the Lao People's Democratic Republic to a maximum of 669 for Taipei, China, which implies that the maximum is 37 times that of the minimum. Therefore, per capita real expenditures on health exhibit larger dispersion and inequality compared to expenditure on education.

A closer examination of Table 14 indicates that Brunei Darussalam (695); Macao, China (541); Taipei, China (523); and Singapore (519) have the highest indexes for education. Surprisingly, Hong Kong, China, the first ranked economy according to per capita real AFCH, has an index of 222 for education that is well below the remaining top-ranked economies and less than that for Malaysia (366). An unexpected finding is the high index value of 334 for Mongolia. The PRC's index of 110 for education places it just above the regional average while only five economies—India (47), Bangladesh (50), Nepal (51), Pakistan (76), and Cambodia (99)—are below the regional average. India has the lowest per capita real expenditure on education.

The relative positions of the 23 economies in terms of their per capita real expenditure on health differ significantly from their positions based on expenditure on education. Hong Kong, China (420) is ranked second after Taipei, China (669), followed by Singapore (399); and Macao, China (313). The PRC is above the regional average with an index of 157. Twelve economies have health indexes less than the regional average expenditure with the Lao People's Democratic Republic (18), Bangladesh (23), the Philippines (28), Nepal (29), and Indonesia (34) occupying the bottom five positions in terms of health expenditure.

Transport and Communication Expenditures

Transport and communication expenditures are usually discretionary unlike other household expenditures

Table 14. Per Capita Real Expenditure Indexes on Education and Health, 2011
(regional average = 100)

Economy	AFCH ^a	Education	Health
Hong Kong, China	801	222	420
Taipei, China	615	523	669
Singapore	606	519	399
Macao, China	579	541	313
Brunei Darussalam	384	695	181
Malaysia	271	366	146
Thailand	208	251	152
Sri Lanka	157	197	112
Mongolia	135	334	112
Fiji	132	122	69
Indonesia	118	161	34
Philippines	110	130	28
China, People's Republic of	106	110	157
Regional Average	100	100	100
Bhutan	98	126	110
Pakistan	96	76	93
Maldives	95	212	84
India	74	47	53
Viet Nam	73	180	93
Lao People's Democratic Republic	57	112	18
Cambodia	56	99	59
Myanmar	56	206	56
Bangladesh	52	50	23
Nepal	45	51	29

AFCH = actual final consumption by households.

Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

Source: ADB estimates.

on food, clothing, housing, health, and education. Consequently, the expectation is that per capita real expenditures on these categories of goods and services would exhibit larger dispersion and greater inequality in the distribution over the 23 economies.

Table 15 shows the significant differences across the economies on the combined expenditures on

transportation and communication. Taipei, China (883); Brunei Darussalam (818); and Singapore (812) have the highest per capita real expenditures that are at least eight times the regional average. Of the 23 economies, 11 have per capita real expenditures that are below the regional average. While the PRC has an index of 103, slightly higher than the regional average, India's index of 84 is about 16% below the regional

Table 15. Per Capita Real Expenditure Indexes on Transportation and Communication, 2011
(regional average = 100)

Economy	AFCH ^a	Transportation and Communication	Transportation
Hong Kong, China	801	771	704
Taipei, China	615	883	807
Singapore	606	812	932
Macao, China	579	699	671
Brunei Darussalam	384	818	980
Malaysia	271	422	422
Thailand	208	271	309
Sri Lanka	157	114	115
Mongolia	135	215	261
Fiji	132	97	128
Indonesia	118	90	97
Philippines	110	117	137
China, People's Republic of	106	103	86
Regional Average	100	100	100
Bhutan	98	108	107
Pakistan	96	56	57
Maldives	95	66	53
India	74	84	99
Viet Nam	73	45	54
Lao People's Democratic Republic	57	45	48
Cambodia	56	32	41
Myanmar	56	15	13
Bangladesh	52	19	19
Nepal	45	11	9

AFCH = actual final consumption by households.

Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

Source: ADB estimates.

average. Nepal (11), Myanmar (15), Bangladesh (19), Cambodia (32), Viet Nam (45), and the Lao People's Democratic Republic (45) have indexes that are less than half the regional average. These per capita real expenditure indexes clearly support the notion of existence of digital divide in the region. The economy with the highest index, Taipei, China, is around 80 times that of Nepal which has the lowest index of 11.

Disparities are less pronounced when only the transport sector is considered where 11 economies have per capita real expenditure that are below the regional average. A surprising feature is that India is just 1% shy of the regional average whereas the PRC index of 86 has a wider gap of 14% compared with the regional average. Brunei Darussalam has the highest index of per capita real expenditure on transportation

with a value of 980 whereas Nepal has the lowest value of 9, indicating a divergence of more than 100 times between them.

Expenditures on Recreation and Culture and on Restaurants and Hotels

Expenditure on recreation and culture may be classified as luxury items for the citizens of a number of economies in the region. As these expenditure

aggregates consist of inessential goods and services, the general expectation is that there is a high degree of dispersion and inequality in per capita real expenditure on recreation and culture and on restaurants and hotels. From Table 16, the highest-spending economy is Hong Kong, China (2,875) that is 29 times the regional average, followed by Singapore (2,211) for having an index 22 times the regional average. The lowest value is registered for Bangladesh with a per

Table 16. Per Capita Real Expenditure Indexes on Recreation and Culture; and Restaurants and Hotels, 2011
(regional average = 100)

Economy	AFCH ^a	Recreation and Culture	Restaurants and Hotels
Hong Kong, China	801	2,875	1,809
Taipei, China	615	1,401	819
Singapore	606	2,211	1,734
Macao, China	579	1,548	2,348
Brunei Darussalam	384	614	346
Malaysia	271	244	547
Thailand	208	202	413
Sri Lanka	157	48	85
Mongolia	135	71	44
Fiji	132	137	69
Indonesia	118	54	176
Philippines	110	40	85
China, People's Republic of	106	160	125
Regional Average	100	100	100
Bhutan	98	125	26
Pakistan	96	22	16
Maldives	95	48	55
India	74	21	28
Viet Nam	73	66	68
Lao People's Democratic Republic	57	25	29
Cambodia	56	32	57
Myanmar	56	12	54
Bangladesh	52	7	24
Nepal	45	24	19

AFCH = actual final consumption by households.

Notes:

1. Real refers to purchasing power parity-adjusted values.

2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

Source: ADB estimates.

capita real expenditure index of only 7. Thirteen out of the 23 economies have per capita real expenditure index value less than 100. The PRC has an above average index of 160 whereas India has an index value of 21, the third lowest index of real expenditure on recreation and culture.

The range of per capita real expenditures on restaurants and hotels is somewhat narrower than that on recreation and culture, with Macao, China (2,348) having an index that is more than 23 times the regional average. The case of Macao, China is hardly surprising since it is a major tourist destination for many overseas visitors. In contrast, Pakistan has the lowest index of 16 or 84% lower than the regional average. Fourteen out of the 23 economies have an index below the regional average. The PRC has an average index of 125 whereas India has 28.

Gross Fixed Capital Formation

GFCF comprises machinery and equipment, residential and nonresidential construction, and civil engineering. Specifically, it consists of investment in residential and other buildings, roads, bridges, railways, ports, electricity networks, and the like; and purchases of machinery and equipment. GFCF is also important in promoting an economy's productive capacity and potential for future growth. High-income economies generally invest more on a per capita basis than low-income economies.

Table 17 presents per capita real GFCF in the 23 participating economies in terms of levels in decreasing order, and index expressed relative to the regional average set at 100. On per capita basis, Singapore invested HK\$37,841 in machinery and equipment, and HK\$66,984 on construction.

The levels in columns 2, 3, and 4 in Table 17 should be interpreted with caution. Although machinery and equipment and construction make up GFCF, the real values for these two aggregates, expressed in Hong Kong dollars (or any other reference currency), do not add up to the total for GFCF, mainly due to the use of the Gini-Eltető-Köves-Szulc (GEKS) aggregation

method, which is not additive. To discuss real shares of construction and machinery and equipment in total GFCF, it is necessary to use results derived using an additively consistent aggregation method such as the Geary-Khamis (GK) or Iklé method. Despite this lack of additivity, columns 3 and 4 in Table 17 clearly show that construction is the dominating component of GFCF. This is also true for the economies with below average per capita real GDP. In some of the low-income economies, construction is three to four times the machinery and equipment aggregate. As machinery and equipment constitute a major component of productive capital, the low levels of per capita real expenditure on this component may be indicative of, possibly, labor-intensive technologies used in these economies.

Relative price levels of machinery and equipment should be considered in examining real expenditures. Expenditure share in local currency units may be large in many low-income economies; however, it may not always reflect real per capita indexes as price levels for machinery and equipment goods are usually higher than those for other goods and services. Machinery and equipment goods are usually imported; and, thus, generally have relatively higher price levels than locally produced goods and services. Per capita real expenditure on machinery and equipment exhibits large variation than construction. Singapore has surprisingly large per capita expenditure on machinery and equipment of 37,841, which is more than 11 times the regional average. In terms of index, the lowest is for Nepal at 9 while the highest index value is 1,153 for Singapore that is more than 129 times than that of Nepal and over 11 times than the regional average.

On construction, Singapore records the highest per capita real expenditure of HK\$66,984, which is 6 times the regional average and about 58 times than that of Cambodia, which has the lowest index of 10. The other high-income economies including Macao, China (559); Brunei Darussalam (290); and Hong Kong, China (271) also have indexes that are at least twice that of the regional average. The PRC also has notably higher than the regional average for

Table 17. Per Capita Real Gross Fixed Capital Formation, 2011
(regional average = 100)

Economy	Per Capita Real Gross Fixed Capital Formation (GFCF)					
	GFCF	Machinery and Equipment	Construction	GFCF	Machinery and Equipment	Construction
	Levels (HK dollars)			Indexes (regional average = 100)		
Singapore	105,704	37,841	66,984	753	1,153	600
Macao, China	73,809	17,424	62,382	526	531	559
Hong Kong, China	64,349	28,366	30,260	458	865	271
Brunei Darussalam	46,181	13,282	32,332	329	405	290
Taipei, China	42,219	17,223	21,238	301	525	190
Maldives	31,298	10,602	22,024	223	323	197
Malaysia	23,912	6,808	14,672	170	208	131
China, People's Republic of	23,806	5,426	18,631	170	165	167
Bhutan	20,258	5,136	17,355	144	157	156
Mongolia	18,295	7,941	8,738	130	242	78
Thailand	18,185	8,143	8,172	130	248	73
Indonesia	15,076	1,633	16,678	107	50	149
Regional Average	14,038	3,281	11,160	100	100	100
Sri Lanka	9,231	1,818	8,155	66	55	73
Fiji	8,827	3,304	4,048	63	101	36
Lao People's Democratic Republic	6,956	1,191	5,201	50	36	47
India	6,541	1,606	5,370	47	49	48
Viet Nam	6,369	1,065	6,052	45	32	54
Philippines	5,609	1,435	3,870	40	44	35
Bangladesh	3,750	533	4,027	27	16	36
Myanmar	3,600	988	2,528	26	30	23
Pakistan	2,322	441	1,665	17	13	15
Nepal	1,985	294	1,496	14	9	13
Cambodia	1,531	453	1,158	11	14	10

GFCF = gross fixed capital formation.

Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

Source: ADB estimates.

construction with an index of 167, which is consistent with significant infrastructure investments in the economy. Per capita construction expenditure of HK\$18,631, along with a large population of about 1.3 billion, implies major construction activities in the PRC. Another interesting result is that of Bhutan with a relative per capita construction expenditure index of

156, well above the levels observed in Indonesia (149), Malaysia (131), Thailand (73), Sri Lanka (73), and India (48). This result is entirely due to major construction projects, especially on hydropower plants, in Bhutan. Most low-income economies have below regional average expenditure on construction with Cambodia (10), Nepal (13), and Pakistan (15) having the lowest

index of less than 16% of the regional average. India with per capita construction outlays amounting to only HK\$5,370 has a per capita index relative to the regional average of only 48.

Price Levels for GDP and Its Components

Price level index (PLI), the ratio of PPP to the corresponding exchange rate, shows how the price levels of economies compare with each other, and can be used in establishing the price competitiveness of various economies. PLIs are expressed relative to a reference economy or with respect to the regional average. A PLI of more than 100 (regional average) implies that the price level in the particular economy is above the regional average. As a general rule high-income economies have a relatively high PLI while low-income economies have PLIs lower than the regional average. This is partly explained by the Balassa-Samuelson effect discussed in the context of explaining PLIs at the GDP level.

It is expected that PLIs would vary significantly across major aggregates, as well as minor aggregates. Therefore, it is important to carefully study their differences before drawing conclusions and making major policy decisions.

In Table 18, the 23 participating economies have been ordered according to PLI for GDP. Singapore has the highest PLI of 153 at the GDP level and Pakistan the lowest PLI of 61. A notable feature of the table is the close alignment among the PLIs for GDP, AFCH, and HFCE for most of the low-income economies. As consumption expenditure has a major share in GDP in low-income economies, PLIs for HFCE and GFCE are close to PLI for GDP. PLIs for final government expenditure are quite variable but high-income economies, such as Hong Kong, China and Singapore, where wages and salaries of government employees tend to be quite high, show price levels double that of the regional average.

A close examination of the last two columns also shows different patterns of PLIs for machinery and equipment and construction. In particular, PLIs for machinery and equipment tend to move in a narrow

range with the highest value of 111 observed for Bhutan and the lowest value of 87 observed for Macao, China. As the items priced under machinery and equipment are all freely traded between economies around the world and these products are imported by low-income economies, their prices would be similar across economies in the world, which, in turn, means that PLIs would be similar and around 100. Prices of goods tend to be equalized when they are freely traded between economies across the world.

To highlight the differential nature of PLIs of the economies for different aggregates, Figures 5 to 8 show the relationship between PLIs and real GDP per capita for AFCH, final government consumption expenditure, machinery and equipment, and construction.

Regressions for PLIs are very similar with high R^2 values of 0.7057, 0.6366, and 0.7585, respectively. These regressions support static Penn effect that PLIs for high-income economies tend to be high and decreasing for low-income economies. The regression for PLI of machinery and equipment in Figure 7 shows that per capita real GDP has no effect on PLIs. These are all bunched up around 1, implying that the PPP for machinery and equipment is close to the market exchange rate, which is consistent with the highly traded nature of these goods. The elasticities of PLIs with respect to real per capita GDP are around 0.2520 for AFCH (Figure 5), 0.2547 for construction (Figure 8), and 0.3651 for GFCE (Figure 6). These elasticities are much lower than the elasticities observed for HFCE shown in Figure 4.

Conclusion

This part of the report presents some of the major observations and analysis of the results from the 2011 ICP Asia and the Pacific. The results are also designed to reinforce measures of PPPs, real expenditures, PLIs at the GDP level and selected national income aggregates. The ICP is a rich source of data for cross-economy comparative analysis of performance, standard of living, inequality, and poverty. The results and analysis illustrate to the reader the rich tapestry of the economic geography of Asia and the Pacific.

Table 18. Price Level Indexes for Gross Domestic Product and Its Major Components, 2011
(Asia and the Pacific = 100)

Economy	Gross Domestic Product	Actual Final Consumption by Household ^a	Household Final Consumption Expenditure ^b	Government Final Consumption Expenditure	Gross Fixed Capital Formation		
					Total	Machinery and Equipment	Construction
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Singapore	153	203	202	179	121	96	145
Hong Kong, China	152	164	160	205	135	102	174
Maldives	126	148	159	87	113	97	126
Fiji	126	143	147	106	101	99	107
Macao, China	124	149	148	160	117	87	135
Brunei Darussalam	123	148	147	115	127	100	146
China, People's Republic of	117	124	124	118	110	105	114
Taipei, China	111	117	118	117	104	90	121
Malaysia	103	110	113	96	98	94	102
Asia and the Pacific	100	100	100	100	100	100	100
Mongolia	92	93	101	54	100	104	100
Philippines	89	93	95	99	84	95	77
Indonesia	89	97	101	75	78	90	74
Thailand	88	90	91	90	83	95	75
Bhutan	78	77	79	58	90	111	79
Sri Lanka	76	78	83	49	88	103	80
Nepal	72	73	76	71	81	90	77
Cambodia	72	76	82	45	72	90	61
Viet Nam	71	75	81	39	76	89	70
India	70	69	70	70	76	90	69
Bangladesh	67	70	73	58	69	88	62
Lao People's Democratic Republic	66	72	79	33	68	90	57
Myanmar	62	64	73	28	71	96	57
Pakistan	61	62	64	52	74	94	63

Note: Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

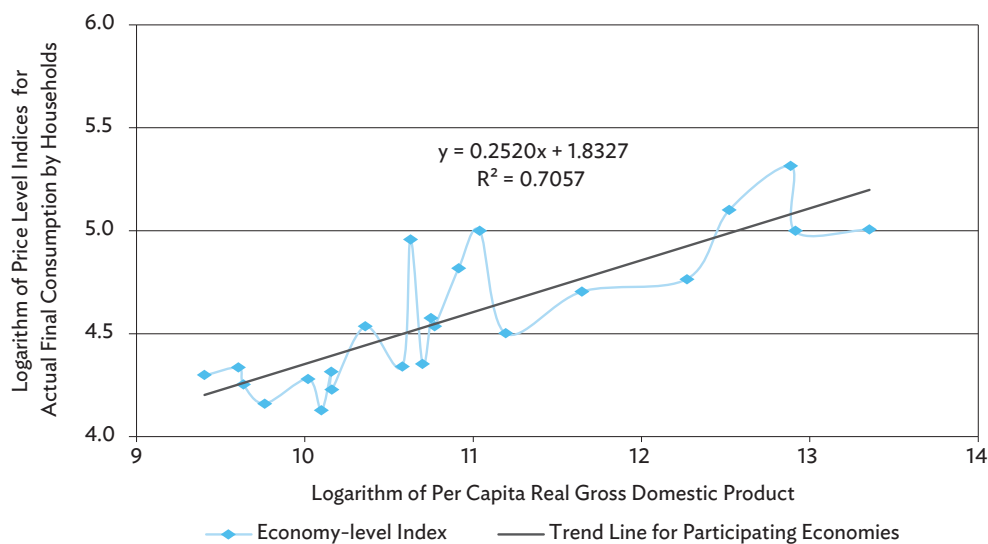
^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

As the ICP in 2005 and 2011 are designed for comparisons across the 23 participating economies in Asia and the Pacific only at a given point of time and for the benchmark years, the results cannot be directly compared over time. Exposition of the 2005 and 2011 ICP results in this part of the report are limited

to comparisons of the measures of disparities in real and per capita GDP due to space limitations. Readers are, however, encouraged to make use of the full set of results for 26 publication level aggregates presented in Part V of this report along with the revised 2005 ICP results in Appendix 3.

Figure 5. Per Capita Real Gross Domestic Product and Price Level Indexes for Actual Final Consumption by Household, 2011

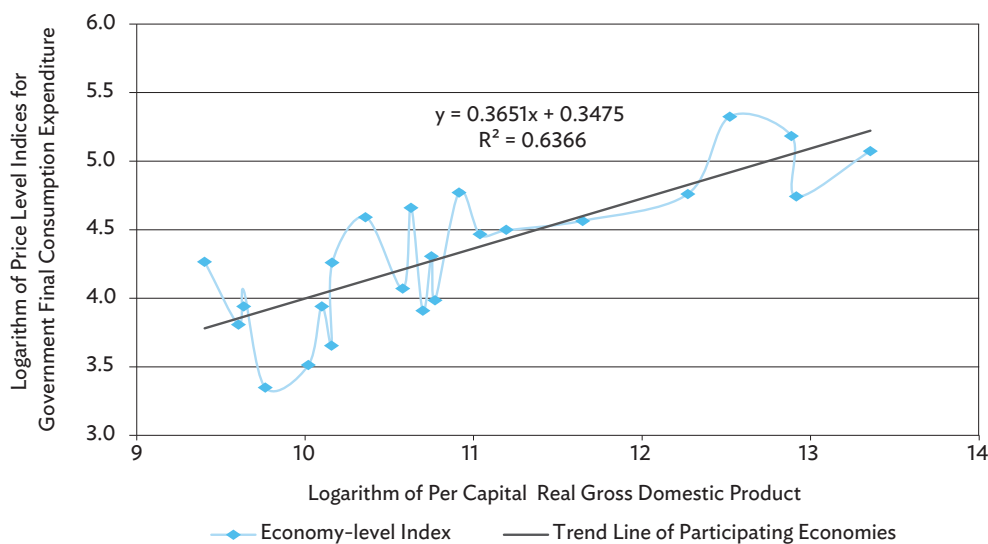


Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

Source: ADB estimates.

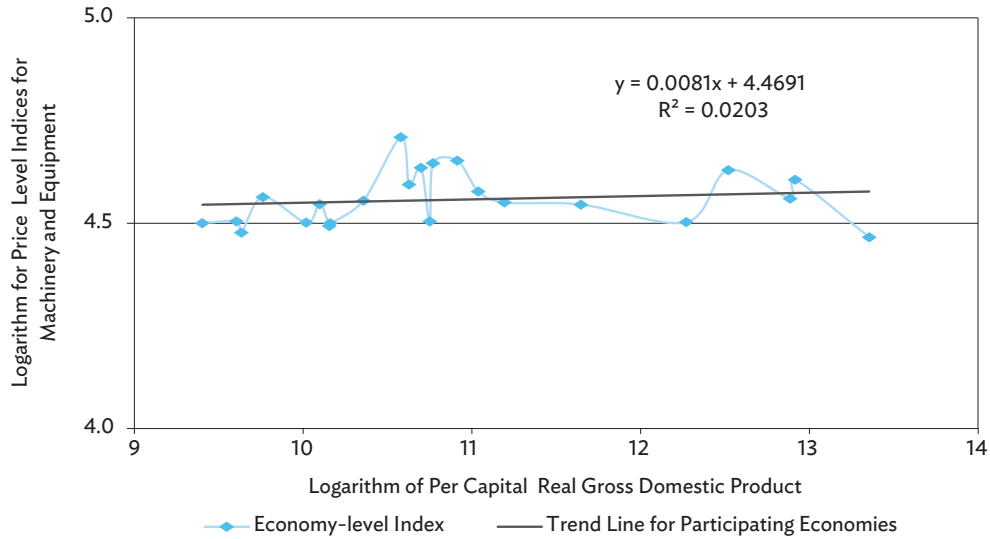
Figure 6. Per Capita Real Gross Domestic Product and Price Level Indexes for Government Final Consumption Expenditure, 2011



Note: Real refers to purchasing power parity-adjusted values.

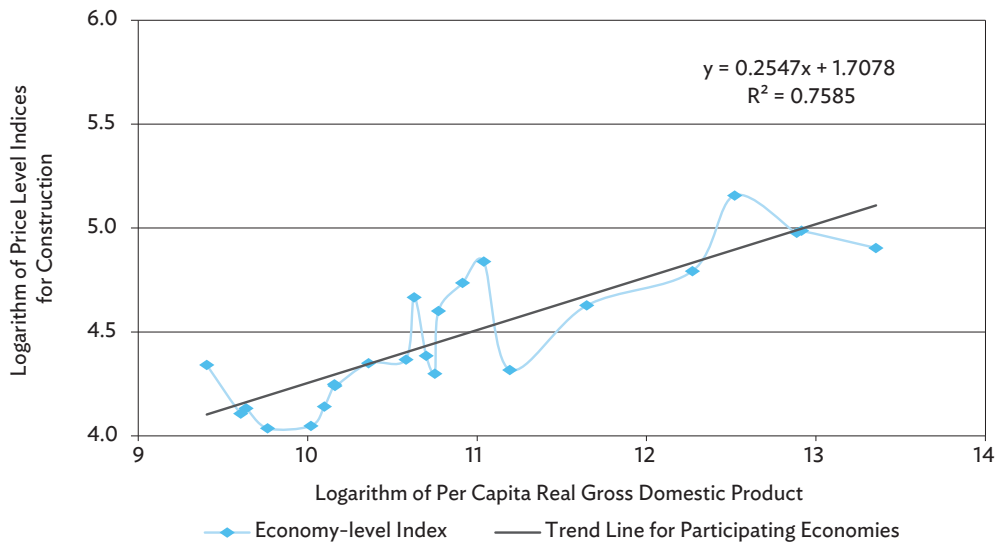
Source: ADB estimates.

Figure 7. Per Capita Real Gross Domestic Product and Price Level Indexes for Machinery and Equipment, 2011



Note: Real refers to purchasing power parity-adjusted values.
Source: ADB estimates.

Figure 8. Per Capita Real Gross Domestic Product and Price Level Indexes for Construction, 2011



Note: Real refers to purchasing power parity-adjusted values.
Source: ADB estimates.

2011 International Comparison Program in Asia and the Pacific— Governance and Methodology



Introduction

The Asian Development Bank (ADB) renewed its commitment to the International Comparison Program (ICP). It also agreed to serve as the regional coordinating agency (RCA) for Asia and the Pacific as part of the global effort toward the implementation of the 2011 round of the ICP. After the successful completion of the 2005 ICP, ADB continued its activities and initiatives to further enhance the statistical capacity of the participating economies, and to strengthen the infrastructure necessary to conduct ICP in the region. ADB has undertaken several projects to enhance and mainstream awareness of ICP and its results in Asia and the Pacific. The main vehicle for ADB's efforts is its flagship publication, *Key Indicators for Asia and the Pacific*, which regularly features special tables based on purchasing power parities (PPPs). ADB had completed a special research project to explore the methodologies for extrapolating 2005 ICP results to 2009 without the need to conduct extensive price surveys. In parallel to the 2005 ICP Asia and the Pacific, ADB had also completed a project on PPPs for the measurement of regional poverty and published the findings of the project (ADB, 2008).

Undertaking international comparisons in Asia and the Pacific is both complex and challenging. It has the world's two most populous economies, the People's Republic of China (PRC) and India which account for over one-third of global population and nearly 20% of global economic activity. The region has some of the fastest growing economies in the world and several transition economies, such as Cambodia, the Lao People's Democratic Republic, and Viet Nam. The region has some of the rich economies with very high per capita incomes: Brunei Darussalam; Hong

Kong, China; Macao, China; and Singapore.⁶ The region includes geographically very small economies that include Hong Kong, China and Singapore; and island economies, such as Fiji and the Maldives. The region exhibits considerable disparities in levels of living. According to the 2005 ICP Report (ADB, 2007), Brunei Darussalam had real per capita income in PPP terms of HK\$269,971, which is 13 times the regional average (HK\$20,432); whereas Nepal, the poorest economy, had real per capita income of only HK\$6,146. The ratio of the highest to the lowest income economies is 44:1.

The economies in Asia and the Pacific are also diverse in their consumption patterns and levels of development. The 23 participating economies in the region belong to East Asia, Mekong, South Asia, Southeast Asia, and the far flung island of Fiji in the Pacific. Such diversity means that there are significant differences in the types of goods and services commonly consumed in these economies. Their differences are seen in types of dwellings, labor productivity, range and mixture of capital goods (machinery and equipment), and types of construction projects. Thus, these differences make regional comparisons of prices and levels of living across the participating economies challenging that parallel comparisons at the global level.

ADB, in its role as the RCA, had to balance its commitment to the general approaches and guidelines provided by the Global Office at the World Bank, and the need to fine-tune the methodologies suggested to meet the specific needs of Asia and the Pacific. Consequently, there are subtle differences in

⁶ Economies of Australia, Japan, the Republic of Korea, and New Zealand are not included in Asia and the Pacific for purposes of ICP as they traditionally participate in the Organisation for Economic Co-operation and Development (OECD) comparisons.

the methods employed, and departures in some areas were made by the RCA from the guidelines provided by the Global Office.

This part of the report provides the details of the methods and procedures followed in the 2011 ICP in Asia and the Pacific. First, it describes the governance and organizational structure established for the 2011 ICP. Second, it explains in detail the framework that underpins the methodology used in the ICP, and describes the role of national accounts and the concepts of PPPs and volumes or real expenditure measures. The last section explains the methodology used in linking Asia and the Pacific and other regions participating in the ICP to form global comparisons compiled and published by the World Bank.

Governance and Organization of the 2011 International Comparison Program

The governance structure of the 2011 ICP is similar to that established for the 2005 ICP. As 2005 ICP was the first truly global comparison since 1985 and following reviews of the ICP by Ryten (1999), it was necessary to establish a formal governance structure for the ICP. Upon the recommendation of the United Nations Statistical Commission in 2002, the Global Office was established at the World Bank as the overall coordinating body for the ICP. Figure 9 shows the overall governance structure for the 2011 ICP.

The RCA played a critical role as the essential link between the Global Office at the World Bank and the national implementing agencies in the participating economies. The Global Office was responsible for decisions on the broad framework and methodology used for ICP at the regional and global levels while the RCA was responsible for the implementation of the procedures and methods in the region. In the process, the RCA had the responsibility of identifying problems arising during the implementation of the ICP, and for seeking regional solutions to such problems. In some instances, the RCA initiated discussions with

the Global Office to find solutions to such issues. The RCA had a difficult role of ensuring the full cooperation of the national implementing agencies in the implementation of the ICP and consistency with other economies within the region and across different regions.

General Governance of 2011 ICP

ICP Executive Board

At the recommendation of the United Nations Statistical Commission, the Executive Board was established in 2002 to oversee the ICP activities at the Global Office and in the regions. The Executive Board provided strategic leadership and established the priorities, standards, and work program of the ICP at the global level. The ICP Global Manager provided regular reports to the Executive Board on the progress made, and foreshadowed any issues that arise from the implementation of the ICP. Membership of the Executive Board comprised the senior members of the Global Office, the Global Manager, and representatives of various international organizations that include the following:

- African Development Bank (AfDB);
- Asian Development Bank (ADB);
- Economic and Social Commission for Western Asia (ESCWA);
- Economic Commission for Latin America (ECLAC);
- Ecole Nationale Supérieure de Statistique et d'Économie Appliquée (ENSEA) [National Higher Institute of Applied Statistics and Economics];
- European Union (EU);
- International Monetary Fund (IMF);
- Intersate Statistical Committee of the Commonwealth of Independent States (CIS-STAT);
- Ministry of Statistics and Program Implementation (MOSPI), India;
- National Bureau of Statistics (NBS) of China;
- Office for National Statistics (ONS), the United Kingdom;

- Organisation for Economic Co-operation and Development (OECD);
- Russian Federation Federal State Statistics Service (Rosstat);
- Statistics Canada (STATCAN);
- Uganda Bureau of Statistics (UBS);
- United Nations Statistics Division (UNSD); and
- World Bank.

The Executive Board, among other activities, appointed members of the Technical Advisory Group to provide advice to the Global Office on technical matters arising out of the implementation of the ICP.

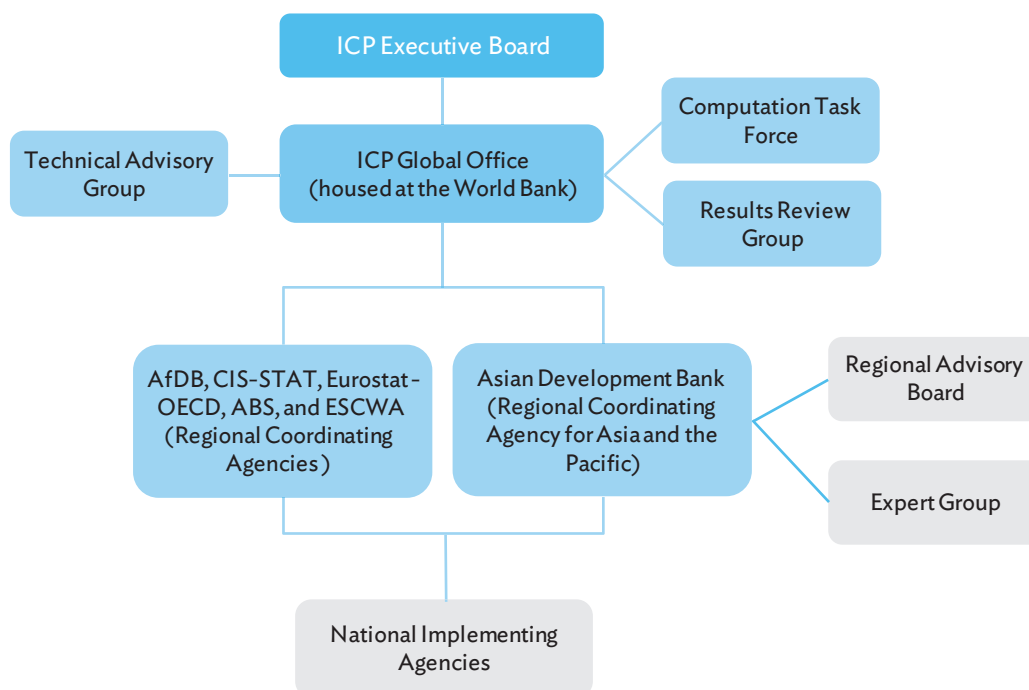
ICP Global Office

At the apex of the structure shown in Figure 9 is the Global Office, which is located at the World Bank and reports to the World Bank on its activities. The

Global Manager was responsible to the director of the Development Data Group (DECDG) at the World Bank. The Global Office coordinated the activities of all the RCAs to ensure smooth progress of ICP and its timely completion. It was involved in developing ICP standards and disseminating them through such publications as the *ICP 2003–2006 Handbook* (World Bank, 2007), and the more recent *ICP Book* (World Bank, 2013). The main activities of the Global Office include the

- development of the framework for the 2011 ICP;
- preparation of the global core list for household, which is used for linking the regional household consumption PPPs in the 2011 ICP;
- preparation of global lists for comparison-resistant services, including education, health, government compensation, construction, machinery and equipment, and dwellings;

Figure 9. Governance Structure of the 2011 ICP



ABS = Australia Bureau of Statistics; AfDB = African Development Bank; CIS-STAT = Interstate Statistical Committee of the Commonwealth of Independent State, ESCWA = Economic and Social Commission for Western Asia, ICP = International Comparison Program; OECD = Organisation for Economic Co-operation and Development.

Source: World Bank, 2013; ADB.

- (iv) development of structured product descriptions of goods and services for the global list to be priced by economies across all regions;
- (v) development of appropriate methods necessary for the aggregation of price data undertaken at the regional and global levels;
- (vi) production of software for the collection and validation of data collected, and provision of technical assistance to the regions and economies as need arises;
- (vii) development of data dissemination protocols and procedures; and
- (viii) custodianship of the data generated by the ICP.

The World Bank and Global Office were responsible for mobilizing financial resources to fund projects at the global level and providing assistance to regions as needed. The Global Office was also responsible for advocacy of the ICP, and routinely carried out activities to publicize the work and results of the ICP to the wider community.

Technical Advisory Group

The Technical Advisory Group was a group of eminent statisticians and economists appointed by the Executive Board to provide advice on all matters relating to the methods used in the ICP, including the

- (i) methods for aggregating price data to yield PPPs at the basic heading level and at higher levels of aggregation;
- (ii) approaches and position papers on comparison-resistant goods and services, such as on dwellings, health, education, government consumption and construction, and machinery and equipment;
- (iii) methods for linking regional comparisons in compiling global comparisons;
- (iv) methods for validating data; and
- (v) assessment of preliminary results at various stages.

Governance of 2011 ICP in Asia and the Pacific

ADB used the same governance apparatus it set up for the 2005 ICP for the 2011 ICP, and formed

the regional office at ADB's headquarters in Manila. The lead statistician in the Development Indicators and Policy Research Division of the Economics and Research Department (ERD) in ADB assumed the role of regional coordinator. The ADB ICP team led by the regional coordinator was responsible for coordinating the activities of the participating economies in the region to ensure the quality and timeliness of data used in the computation of PPPs and real incomes. The principal activities of the RCA are the following:

- (i) preparation of product lists;
- (ii) conduct of training sessions and workshops on ICP methods, ICP sampling framework designs, and national accounts;
- (iii) provision of technical advice on price surveys;
- (iv) data validation and editing;
- (v) conduct of data review workshops;
- (vi) conduct of economy review missions;
- (vii) computation of regional results, including analysis and assessment;
- (viii) organization of Expert Group meetings to discuss comparison-resistant goods and services (dwellings, government compensation, construction, equipment prices) and other matters relating to ICP; and
- (ix) liaison with the Global Office on technical issues and matters relating to global linking of the regional results.

ICP is a resource intensive exercise with costs to the RCA, as well as to the national implementing agencies (NIAs). Through the regional technical assistance for the 2011 ICP for Asia and the Pacific,⁷ ADB provided funding for the implementation of the ICP activities in the region, and assigned its regular staff and regional coordinator to provide in-kind support to the participating economies. The NIAs also provided in-kind support, including their staff and office resources, while several of the economies supplemented the seed funds provided by ADB with additional funds from their national governments. The ICP Global

⁷ ADB. 2010. Technical Assistance for the 2011 International Comparison Program for Asia and the Pacific. Manila (TA 7507-REG).

Office at the World Bank provided in-kind support as well through technical resource persons during the conduct of technical evaluation meetings and review workshops in the region.

Regional Advisory Board

ADB set up the Regional Advisory Board (RAB) similar to the Executive Board at the global level, whose main role was to serve as the highest policy-making body for the 2011 ICP in the region. It also ensured smooth conduct of the ICP in the region, periodically reviewed progress made against milestones set, and reviewed and approved the methods and procedures implemented. The membership of the board was chosen from a mix of main stakeholders, regional agencies, and NIAs.

Membership of the Regional Advisory Board

Chair

National Statistician, National Statistics Office⁸ of the Philippine Statistical Authority, Philippines

Co-Chair

Chief Economist, ADB

Vice Chair

Commissioner, Census and Statistics Department, Hong Kong, China

Members

Director General, National Institute of Statistics, Cambodia

Director General, International Statistical Information Center, National Bureau of Statistics of China, the People's Republic of China

Chief Statistician, Ministry of Statistics and Program Implementation, India

Chief Statistician, Badan Pusat Statistik (Statistics Indonesia)

Chief Statistician, Department of Statistics, Malaysia

Director, Bureau of Trade and Economic Indices, Thailand

Institutional Members

Head, Prices Branch, Australian Bureau of Statistics

Director, Statistics Division, Economic and Social Commission for Asia and the Pacific

Director, Statistical Institute for Asia and the Pacific

Ex-officio Members

ICP Global Manager, World Bank

Assistant Chief Economist, Development Indicators and Policy Research Division, Economics and Research Department, ADB

Member Secretary

Regional Coordinator, ICP Asia Pacific, ADB

The specific responsibilities of the RAB were to

- (i) provide guidance on regional goals, priorities, and objectives of the ICP, taking into consideration the statistical needs of the RCA and participating economies;
- (ii) monitor and guide annual work programs prepared by the RCA;
- (iii) review the methods and procedures adopted by the RCA and provide advice;
- (iv) review reports on ICP progress;
- (v) advise on the sustainability of the work programs; and
- (vi) assist in shaping the vision of ICP for future directions.

National Implementing Agencies

Each of the 23 economies that participated in the 2011 ICP in the region had a national implementing agency (NIA), which was the national statistics office in most instances and played a vital role in ensuring the implementation of the ICP at the national level. The

⁸ In 2013, the Philippine Statistics Authority, was formed out of the major statistical agencies that included the National Statistical Coordination Board, National Statistics Office, Bureau of Agriculture Statistics, and Bureau of Labor and Employment Statistics.

NIA, in collaboration with the RCA, handled day-to-day operational matters, including the management, coordination, project development, preparation, and implementation of the 2011 ICP. These included liaising with the regional coordinator to ensure the successful completion of the ICP.

The NIAs handled the most critical and challenging ICP work in the governance chain that involved the

- (i) provision of inputs and assistance in the review and finalization of the product lists;
- (ii) set-up of comprehensive plan of action for effective implementation of the ICP at the national level;
- (iii) design and implementation of the price surveys for derivation of annual national average prices for all expenditure components of GDP;
- (iv) compilation of national accounts estimates for the required 155 basic headings GDP breakdown in accordance with the 1993 (or 2008) System of National Accounts (SNA) recommendations;
- (v) data collection for items with agreed upon specifications, geographic coverage, and outlets to be surveyed; and
- (vi) submission of price data to the RCA according to the basic principles on data access policies as agreed at the onset of the 2011 ICP round.

The NIAs also participated in regional data review and evaluation workshops and periodic technical discussions for intra- and inter-economy data validation, and in resolving queries arising from data analysis by the regional coordinating agency. NIAs also had the sole responsibility of building-up and maintaining their national ICP databases that include microdata and metadata archives.

Transparency, ownership, and bottom-up approach involving all participating economies were the guiding principles adopted in implementing the 2011 ICP in Asia and the Pacific. At all times, the RCA involved all the participating economies and their respective NIAs in data validation and editing, and in assessing the results obtained at various stages of the ICP. All methods and procedures adopted in the region were also presented to and discussed with the stakeholders

that included the participating economies, ICP experts, and Technical Advisory Group at the World Bank.

Basic Framework for the International Comparison Program

The framework for the ICP in Asia and the Pacific is the same as the general approach to the ICP. The principal objective of the ICP is to provide policy makers, international organizations, economists, researchers, and the wider public with comparable measures of economic activity as measured by gross domestic product (GDP) and its components.⁹ The main problem for international comparisons is that data on GDP and its components are published in national currency units by national statistical offices, making it difficult to compare across economies. GDP aggregates from economies are also influenced by differences in prices of goods and services that comprise GDP. The common practice on, and an intuitive approach to, international comparisons have been the use of market/official exchange rates to convert GDP data from economies into a common currency unit such as the United States dollar. While the use of exchange rates eliminates the problem of currency units, it fails to adjust for price level differences; this forms the crux of the problem encountered and effectively resolved in the ICP.

The starting point for the ICP is the observed GDP in each economy expressed in its national currency unit. The ICP provides a decomposition of GDP into quantity and price components, which can be written as

$$\begin{aligned} &\text{GDP in economy } j \\ &(\text{in national currency units}) = Q_j \cdot P_j \end{aligned} \quad (4)$$

⁹ The 2009 Sen-Fitoussi-Stiglitz Report of the Commission on the Measurement of Economic Performance and Social Progress (OECD, 2009) offers a critique of the suitability of GDP as a measure of economic well-being, and several alternative measures. The new measures suggested are still being operationalized and will take several years before they are commonly available and used.

where Q_j represents the quantity component of GDP, which is usually referred to as volume measure or real GDP; and P_j represents the price component. As ICP is a comparison across economies, the price component is referred to as the PPP of currency of economy j (PPP_j) that provides the means of converting the GDP of economy j into a common currency unit. Thus, we have

$$\text{GDP in economy } j \text{ in national currency units} = \text{Real GDP}_j \cdot \text{PPP}_j = \text{Volume}_j \cdot \text{PPP}_j \quad (5)$$

In summary, the ICP provides estimates of

- (i) PPPs of currencies of the participating economies (PPP_j),
- (ii) volume or real GDP measures, and
- (iii) PPP and volume measures for the components of GDP.

National Accounts and the ICP

The ICP focuses on (i) GDP and its components, and (ii) the compilation of internationally comparable aggregates through suitable conversion factors. The concept of GDP and its measurement is undertaken in various economies based on the internationally accepted standard, which is the 1993 SNA published by the United Nations, the Commission of the European Communities, the International Monetary Fund, the Organisation for Economic Co-operation and Development, and the World Bank. The 2011 ICP is based entirely on the 1993 SNA even though more recent revisions of SNA are currently available; and some economies in the region, such as Malaysia, has already adopted the 2008 SNA recommendations.

GDP is a widely accepted measure of economic activity. According to the SNA, GDP can be measured using three different methods: production approach, income approach, and expenditure approach.

Production approach. It is the value of gross output minus intermediate consumption plus any taxes minus subsidies not already included in the value of the output. This measure is the sum of the value added of all classes of enterprises. The production approach

is the most common and standard approach used in Asia and the Pacific to measure GDP. If production approach is used for ICP, then price data is needed for the final output, as well as intermediate consumption broken down into detailed categories. This type of information is difficult to obtain, and therefore the production approach is not used in the ICP.

Income approach. It computes GDP as the sum of the value of compensation of employees and gross operating surplus and taxes on both production and imports. Operating surplus is a measure of surplus accruing from production processes before deducting any explicit or implicit interest charges, rent or other property incomes payable on financial assets, land, or other natural resources required to carry out production. Business profits are a large part of the gross operating surplus. Hence, GDP from income side is basically the sum of all producers' incomes and that of their employees. While it is possible to obtain price data for compensation of employees in terms of wages and salary, there are no obvious price measures related to gross operating surplus. As a result, income approach has not been used in the ICP.

Expenditure approach. It is the sum of expenditures on final consumption by households and by government, gross capital formation, and exports and subtracting imports. As the main components of GDP under this approach are expenditures within different categories, it is possible to collect data on prices paid by the purchasers for goods and services belonging to different groups. The data on expenditures plus prices make it possible to complete price and quantity or volume components of GDP. Thus, the expenditure measure of GDP has been the preferred measure for purposes of ICP since its inception in 1968.

Structure and Components of GDP

The main expenditure aggregates used in the ICP are the following:

- (i) Individual Consumption Expenditure by Households
- (ii) Individual Consumption Expenditure by Nonprofit Institutions Serving Households

- (iii) Government Expenditure
 - a. Individual Consumption Expenditure by Government
 - b. Collective Consumption Expenditure by Government
- (iv) Gross Fixed Capital Formation
- (v) Changes in Inventories and Acquisitions less Disposals of Valuables
- (vi) Balance of Exports

Individual consumption expenditure by government relates to services produced by the government for the benefit of individual households, such as education and hospital services. This component also includes those goods and services produced by other producers but acquired by the government and distributed to households. In contrast, collective consumption expenditure by government relates to services provided simultaneously to all members of the community or all households living in a particular state or province within the economic territory.

Actual Final Consumption by Household

The ICP uses the concept of actual final consumption by household (AFCH) introduced in the 1993 SNA to represent the total values of goods and services acquired by households for final consumption either directly purchased by the consumer or those provided by the government or expenditure by nonprofit institutions serving households (NPISH) to provide services to the households. As AFCH represents total consumption by households, this is the most appropriate measure for comparisons across economies with different arrangements for provision of services by the government.

Basic Headings: ICP Building Blocks

The ICP methodology is designed to provide volume measures for any desired component of GDP. Therefore, it is necessary to identify the level of disaggregation that is permitted within the ICP. As ICP provides measures of PPPs that convert a given aggregate into volume or real expenditure, the first

and foremost requirement is to have an expenditure measure available at the aggregate being considered.

Basic headings are the lowest level of aggregation of items in the GDP breakdown for which expenditure data are available. They are the basis for estimating PPPs at higher level of aggregations, and are therefore known as the building blocks for ICP. Below the basic heading level, it may be possible to collect prices of items that make up the basic heading but estimates of expenditures are not usually available and/or not produced by most national statistics offices. For basic headings to be meaningful, it is necessary to group goods and services that are similar. However, in practice, basic headings may cover a broader range of products than what is desirable. Table 19 provides a view on the homogeneity of item composition for the basic heading, “rice.”

The ICP in Asia and the Pacific uses 155 basic headings following the Global Office recommendations. In principle, the ICP methodology can be used to derive volume measures at each of the 155 basic headings or at aggregates that make up the basic headings. The ICP uses a hierarchical approach as shown in Figure 10.

The number of basic headings that are used in defining classes, groups, and categories are shown in Table 20. The full list of 155 basic headings is in Appendix 2 of the report.

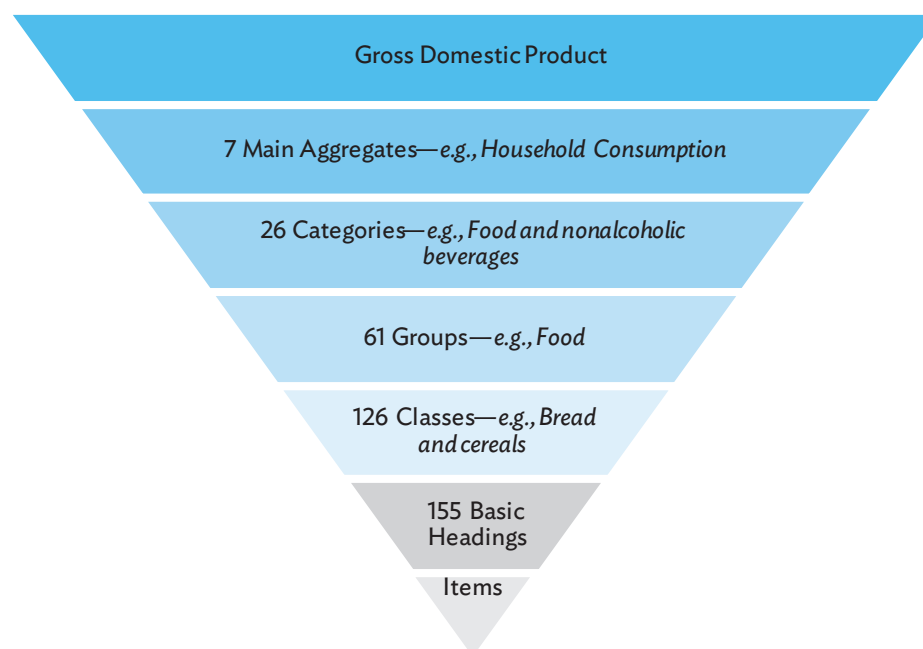
Expenditure Weights

For the implementation of ICP, it was necessary to have a breakdown of GDP into 155 basic headings. However, in practice, the participating economies may have national accounts that classify final expenditure into fewer expenditure categories than the 155 basic headings in the ICP. In some economies, detailed breakdown may be available but may not correspond to that of the ICP requirements. For example, Hong Kong, China and Indonesia use slightly different classifications from the Classification of Individual Consumption According to Purpose (COICOP).

Table 19. Basic Heading for Rice and Item Composition

Code	Basic Heading 1101111: Rice	Code	Basic Heading 1101111: Rice
1101111011	Coarse #3	11011110122	Long grain rice, Parboiled
11011110110	White rice #3	11011110123	Long grain rice, Not parboiled
11011110111	White rice #4	11011110124	Basmati Rice
11011110112	White rice #5	11011110125	White rice #11
11011110113	White rice #6	11011110126	Short-grained rice
11011110114	White rice #7	1101111013	Coarse #2
11011110115	White rice #8	1101111014	Coarse #6
11011110116	White rice #9	1101111015	Coarse #5
11011110117	White rice #10	1101111017	Brown rice
11011110118	Premium rice #1	1101111018	White rice #1
11011110119	Premium rice #2	1101111019	White rice #2
11011110120	Premium rice #3	11011110201	Glutinous Rice
11011110121	Premium rice #4		

Source: ADB. 2011 International Comparison Program Product Catalog, 2011 – Households. Unpublished.

Figure 10. Hierarchical Structures for Main Gross Domestic Product Aggregates

Source: World Bank, 2013.

An important step was to harmonize the expenditure data and ensure that comparable expenditure data for the 155 basic headings are available. This was a major undertaking for the economies and an important task

for the RCA. Several sources and methods were used in compiling GDP expenditure breakdown for the ICP. Workshops and training sessions were also conducted as part of the 2011 ICP in the region.

Table 20. Number of Categories, Groups, Classes, and Basic Headings by Main Aggregates

Main Aggregates	Categories	Groups	Classes	Basic Headings
11.00 Individual Consumption Expenditure by Households	13	43	90	110
-01 Food and nonalcoholic beverages		2	11	29
-02 Alcoholic beverages, tobacco and narcotics		3	5	5
-03 Clothing and footwear		2	5	5
-04 Housing, water, electricity, gas and other fuels		4	7	7
-05 Furnishings, household equipment and routine maintenance of the house		6	12	13
-06 Health		3	7	7
-07 Transport		3	13	13
-08 Communications		3	3	3
-09 Recreation and culture		6	13	13
-10 Education		1	1	1
-11 Restaurants and hotels		2	2	2
-12 Miscellaneous goods and services		7	10	10
-13 Net purchases abroad		1	1	2
12.00 Individual Consumption Expenditure by Nonprofit Institutions Serving Households	1	1	1	1
13.00 Individual Consumption Expenditure by Government	5	7	16	21
-01 Housing		1	1	1
-02 Health		2	7	12
-03 Recreation and culture		1	1	1
-04 Education		2	6	6
-05 Social protection		1	1	1
14.00 Collective Consumption Expenditure by Government	1	1	5	5
15.00 Gross Fixed Capital Formation	3	6	11	12
-01 Machinery and equipment		2	7	8
-02 Construction		3	3	3
-03 Other products		1	1	1
16.00 Changes in Inventories and Acquisitions less Disposals of Variables	2	2	2	4
-01 Changes in inventories		1	1	2
-02 Acquisitions less disposals of valuables		1	1	2
17.00 Balance of Exports and Imports	1	1	1	2
Gross Domestic Product	26	61	126	155

Source: World Bank, 2007.

The breakdown of expenditure into the basic headings and aggregates at various levels shown in Appendix 2 can be used in computing expenditure weights or shares that reflect the importance of a given basic heading or of a given expenditure aggregate. These weights are used in the process of aggregating price data.

The expenditure data and weights submitted by the participating economies were validated. Average expenditure structures for the whole region, as well as the structures for the subgroups on high-income, Mekong, South Asia, and Southeast Asia, were computed and used to validate the expenditure structures of each economy. Prior to inter-economy validation, the expenditures were validated within economy by contrasting the 2011 ICP with the 2005 ICP and 2009 PPP Update for the same levels and aggregates. The control totals were also compared with other published tables, such as the economy's website and the United Nations official economy data, among others.

For obvious reasons, expenditure share weights at the most detailed 155 basic heading level were less reliable than weights at higher levels. Similarly, larger weights were likely to be more reliable than groups with smaller weights. For example, the weights for important basic headings, such as rice, fruit and vegetables, meat, or garments were likely to be more accurately estimated by the statistical offices than those for small basic headings, such as repair of furniture, furnishings, and floor coverings; or small tools and miscellaneous accessories. Inaccuracies of weights for smaller basic headings are not likely to influence PPPs for broad categories, and hence, the reason for caution when comparing per capita real expenditures at the detailed or finer levels. This was also one of the reasons for the publication of results of the 2011 ICP Asia and the Pacific at an aggregated level with details for only 26 broad groups including GDP.

Methods for Computing Purchasing Power Parities

Computation of PPP is a key element in the ICP. Whether of interest is the comparison of real expenditures under different categories at the GDP level, or the comparison of price levels across the economies in the region, reliable and carefully compiled PPPs are essential. The price levels across economies were based on both PPPs and exchange rates of currencies, on the other hand, real expenditures required reliable expenditure data from the national accounts of the participating economies and PPPs based on prices of goods and services that made up the expenditure aggregate of interest.

This section describes the index number methods commonly used in the computation of PPPs and those recommended for use in the ICP. The methods vary depending on the level of aggregation associated with a given expenditure aggregate. Broadly, these methods differ only at two different levels of aggregation. The finest level at which price comparisons can be made is at the item level; however, expenditure data are not available from the national accounts. The next level is the aggregation of item level prices to obtain price comparisons at the basic heading level. It is useful to recall that *basic heading* is the lowest level of aggregation at which expenditure data are available from the national accounts. This is the second tier in the hierarchical structure in Figure 10. The next step is to derive price comparisons at any desired level of aggregation. The most commonly used aggregate is GDP, followed by 7 main aggregates and 26 categories representing broadly defined goods and services. The list of these categories is in Table 20.

Index Number Methods for the ICP

For the compilation of PPPs, index number methods differ for comparisons at the following three levels:

- (i) Price comparisons at item level,
- (ii) PPPs at the basic heading level, and
- (iii) PPPs for aggregates above the basic heading level.

The methods differ due to the nature of aggregation involved and the availability of expenditure data. At the item level when only one product was involved, any complex method of aggregation is not necessary. At the basic heading level, price data for all the prices that comprise a given basic heading needed to be combined to produce a single PPP for the basic heading. However, no expenditure data were available at the item level. Finally, for higher levels of aggregation, the index number methods recognized the availability of expenditure data for each of the basic headings that made up the aggregate under consideration.

Reflecting the growing prominence of international comparisons and the ICP since the 1970s, there has been considerable research on index number methods especially suited for international price comparisons. A review of the methods relevant for the ICP can be found in the recently published *ICP Book* (World Bank, 2013). The exposition is limited to the concepts and methods that are immediately relevant for the ICP in Asia and the Pacific. First, the distinction between binary and multilateral comparisons, that are critical to ICP is explained. Second, the basic properties to be satisfied by index numbers used in ICP are discussed. Third, the recommended method for aggregating price data leading to PPPs at the product and basic heading levels, and, finally, the method used in deriving PPPs for higher level aggregates are described.

Bilateral versus Multilateral Price Comparisons

Bilateral comparisons involve only two time periods or two economies or regions. In this case, prices of a large number of products are used in making comparisons between two entities. Multilateral comparisons, on the other hand, are between all pairs of economies that are involved in ICP. For example, in the 2011 ICP there were 23 participating economies; and as part of the ICP, we were interested in comparisons of prices across all pairs of economies. One may be interested in the People’s Republic of China–India comparison; someone else could be interested in Singapore–Hong Kong, China comparison; or comparison

between any two selected economies out of the 23 participating economies.

Price comparisons are made through estimation of PPPs of currencies. Let PPP_{jk} represent the parity of currency of economy k with economy j as the reference economy. In all our descriptions and examples, we consider PPPs for currencies of economies with Hong Kong dollar as the reference currency; and as a result, subscript for Hong Kong, China has not been included in the notation. However, the expectation is that ICP will facilitate comparisons of PPPs of currencies between all pair of economies. Thus, it is expected that ICP produces estimates of all the elements in the following matrix:

$$PPP = \begin{bmatrix} PPP_{11} & PPP_{12} & \dots & PPP_{1,23} \\ PPP_{21} & PPP_{22} & \dots & PPP_{2,23} \\ \dots & \dots & \dots & \dots \\ PPP_{23,1} & PPP_{23,2} & \dots & PPP_{23,23} \end{bmatrix}$$

Assuming economies 1, 2, and 23 represent Bangladesh, Bhutan, and Viet Nam, respectively; then the PPP matrix includes elements of the type

$$PPP_{\text{Bangladesh, Bhutan}}, PPP_{\text{Bhutan, Viet Nam}}, \text{ and } PPP_{\text{Bangladesh, Viet Nam}}$$

The ICP methods of aggregation are designed to provide values for each of the elements of the PPP matrix. If only two economies, instead of 23, are involved, then there is no need to have especially designed methods; and one could simply use the standard index number formula, such as Laspeyres, Paasche, Fisher, or Tornqvist indices.¹⁰ The PPPs derived using any aggregation formula must provide PPPs in the matrix above that are internally consistent and expected to satisfy a few other basic requirements as described below.

¹⁰ These are commonly used index numbers and formulas that can be found in any standard book on index numbers or from the Economic Commission for Europe Consumer Price Index Manual.

Transitivity

Transitivity is the most important property for international comparisons. Transitivity requires that a directly computed PPP of currencies of two economies should be the same as an indirect comparison of the currencies through a third economy. In technical terms this is stated as follows: the matrix of multilateral comparisons in PPP is said to satisfy *transitivity* if for any three economies j , k , and l , the PPPs satisfy

$$PPP_{jk} = PPP_{jl} \cdot PPP_{lk} \quad (6)$$

For example, if Hong Kong, China; India; and Malaysia are three economies considered, then transitivity guarantees that

$$\begin{aligned} & PPP_{\text{Hong Kong, China; India}} \cdot PPP_{\text{Hong Kong, China; Malaysia}} \\ & \text{and } PPP_{\text{Malaysia, India}} \end{aligned} \quad (7)$$

From Table 4 of ADB (2007), which reported the results of the 2005 ICP,

$$\begin{aligned} & PPP_{\text{Hong Kong, China; India}} = 2.58; \quad PPP_{\text{Hong Kong, China; Malaysia}} \\ & = 0.31; \quad \text{and } PPP_{\text{Malaysia, India}} = 8.32 \end{aligned}$$

A useful implication of the transitivity property is that if all the elements of the PPP matrix satisfy transitivity, then it is sufficient if we know PPPs in one of the rows or columns. That is if we know the PPPs for all the economies relative to Hong Kong dollar, then PPPs between all pairs of currencies can be derived as an implication of transitivity property. This is the reason why ICP publications, including ADB (2007) and this report, provide PPPs for currencies of all the economies against a selected reference currency, which is Hong Kong dollar in the case of Asia and the Pacific comparisons.

Base Economy Invariance or Symmetry

This property is important in the context of international comparisons. It simply states that all economies involved in the comparison should be considered symmetrically and equally in deriving PPPs such that the resulting PPPs are base invariant.

It also implies that no economy is accorded special status and that the relative PPPs and price levels between economies will be the same regardless of the choice of the base economy. This property is satisfied by the country-product-dummy (CPD), which was used in calculating PPP for Asia and the Pacific; and the Gini-Eltető-Köves-Szulc (GEKS), used at the basic heading and higher level aggregates. It should be noted that transitivity does not necessarily imply economy symmetry, and it is therefore imperative to ensure that the PPPs estimated between economies will be the same regardless of the choice of base economy.

Characteristicity

The basic idea underlying characteristicity is that when transitivity is satisfied by a matrix of PPPs, then each binary comparison in the matrix is influenced by the comparisons involving all the other economies. This is particularly evident in the above example where a comparison between Hong Kong, China and India can be derived through Malaysia; and therefore the comparison is influenced by price data and weights observed for Malaysia, and by implication all other economies in the comparison. This means that comparisons between two economies are to a degree distorted by imposing transitivity property. Characteristicity requires that the distortion is kept to a minimum by choosing an appropriate index number formula. The GEKS method used in ICP satisfies this property. Further details are provided in the material that follows.

Additivity

Additivity is another desirable property associated with index number formulas for international comparisons. As ICP converts observed national income aggregates in national currency units into a common currency unit and provides real expenditure aggregates, additivity property is designed to retain the additivity of national accounts aggregates. Basically, additivity means that the real expenditure aggregates derived by converting the expenditure aggregates in national currency units into common currency units

using PPPs should add up to the real GDP obtained by converting GDP using PPP at the aggregate level. Additivity makes it possible to examine the structure of GDP in real terms. However, additivity imposes certain theoretical restrictions that are not desirable. The *ICP Book* (World Bank, 2013) describes these issues in detail. However, additive methods have been in vogue for over 50 years, and the two most commonly used methods are the Geary-Khamis method and the Iklé-Dikhanov-Balk method.

In addition to these four important properties expected of methods used in international comparisons, there are many more desirable properties discussed in the *ICP Book* (World Bank, 2013).

PPPs at the Item Level

It is a simple matter to construct PPPs at the item level as there is no necessity for aggregation. Suppose p_{ij} and p_{ik} are the prices of product i in economies j and k , respectively. Obviously these prices are in respective currencies of economies j and k . Then PPP between currencies of the two economies is given by

$$PPP_{jk} = \frac{p_{ik}}{p_{ij}} \quad (8)$$

Definition in equation (8) is consistent with the definition of PPP adopted and it gives the number of currency units of economy k required to buy the amount of good i that can be purchased with one unit of currency of economy j . The PPP in equation (8) is simply the price relative or ratio for good i .

We note here that the PPP in equation (8) will vary with the commodity under consideration. It is easy to see that PPP in equation (8) satisfies the transitivity property, i.e.,

$$PPP_{jk} = \frac{p_{ik}}{p_{ij}} = \frac{p_{ik}}{p_{im}} \cdot \frac{p_{im}}{p_{ij}} = PPP_{jm} \cdot PPP_{mk} \quad (9)$$

PPPs at the Basic Heading Level

In computing PPPs based on price data for all products under a given basic heading, the main feature of aggregating at this level is that there are no expenditures or weights associated with different products that belong to the basic heading. Another feature is that not all products that belong to a basic heading are priced in all economies. It can be seen from Appendix 2 that there are 20 types of rice included in the *rice* basic heading. Out of the 23 participating economies, the average number of rice items priced is 8, the maximum number priced by any of the economies is 20, and only 1 variety is priced by one economy. The most common case encountered is when there are gaps in the prices of products collected in different economies.¹¹

Suppose a given basic heading consists of N products. Let p_{ic} represent the price of i -th commodity in economy c ($=1,2,\dots,23$). There are two competing approaches to the computation of PPPs at the basic heading level. The first is GEKS method, which is used in the comparisons undertaken by OECD and Eurostat.¹² The second method, known as CPD method, is recommended by the Technical Advisory Group for the 2011 ICP for use by all the regions, except OECD and Eurostat. These two methods and their variants are described in detail in the *ICP Book* (World Bank, 2013) on the computation of basic heading PPPs.

The CPD method is the aggregation procedure employed in the 2011 ICP in Asia and the Pacific. It was first proposed in Summers (1973) as a method for filling gaps in data tableau. The method was used by Kravis and his team as the aggregation method at the basic heading level in the first three phases of ICP (Kravis, Heston, and Summers; 1982) and subsequent comparisons undertaken at the United Nations.

¹¹ Obviously, if there is only one product in the basic heading, that needs to be collected by all the economies. Otherwise, there will be some gaps in PPPs for that basic heading.

¹² Eurostat uses GEKS method as it is a statutory requirement for PPP computations for European Union economies.

Country-Product-Dummy Model

The CPD model makes use of the *law of one price* and it postulates that the observed price of a product in an economy reflects the general purchasing power of the currency of the economy and the relative price of the product under consideration. Letting PPP_j represent the PPP of currency of economy j and P_i represent the international price of i -th product, then the observed price p_{ij} in the CPD model is stated as

$$p_{ij} = PPP_j \cdot P_i \cdot u_{ij} \quad j = 1, 2, \dots, 23; i = 1, 2, \dots, N \quad (10)$$

where u_{ij} represents a random disturbance term, which represents deviations of the observed price from the *law of one price*. If these deviations are large and variable, then the PPPs from the CPD model have less reliability. This is the basis for using residuals of the CPD model as a data editing tool.¹³

Our interest is in deriving estimates of PPP_j based on observed price data p_{ij} .

Country-Product-Dummy Regression Model

Taking logarithms on both sides of equation (10), we have

$$\begin{aligned} \ln p_{ij} &= \ln PPP_j + \ln P_i + \ln u_{ij} \\ &= \pi_j + \eta_i + v_{ij} \end{aligned} \quad (11)$$

To estimate, this equation is written using dummy variables for economies and commodities. In this case, equation (11) can be written as

$$\begin{aligned} y_{ij} = \ln p_{ij} &= \pi_1 D_1 + \pi_2 D_2 + \dots + \pi_{23} D_{23} \\ &+ \eta_1 D_1^* + \eta_2 D_2^* + \dots + \eta_N D_N^* + v_{ij} \end{aligned} \quad (12)$$

where D_j is an economy dummy variable, which equals 1 if the price observation is from economy j and 0 otherwise; D_i^* is a commodity dummy variable,

which equals 1 if the price observation refers to i -th commodity and 0 otherwise.

Parameters of the CPD model are estimated by running the regression in equation (12) with log of observed price, $\ln p_{ij}$, as the dependent variable and the explanatory variables are the economy and commodity dummy variables D_j ($j=1,2,\dots,23$) and D_i^* ($i=1,2,\dots,N$) using least squares method.¹⁴ To identify the parameters of the model, it is necessary to impose one restriction on the parameters. The most common restriction, or normalization, imposed is to let one of the π 's equal to zero. As $\pi_j = PPP_j$, the zero restriction is equivalent to setting one of the PPP_j 's equal to 1. For example, in the case of Asia and the Pacific comparisons, PPP corresponding to Hong Kong, China, which is set to 1 as Hong Kong dollar, is selected as the reference currency in which all the PPPs are expressed.

Suppose $\hat{\pi}_j$ is the estimator of parameter π_j , then the estimate of PPP for j -th economy for the given basic heading is

$$PPP_j = \exp(\hat{\pi}_j) \quad (13)$$

The main advantage of the CPD approach is that the PPPs are obtained using stochastic specification, and therefore it is possible to make use of a range of econometric techniques to handle a variety of situations. In particular, in the CPD model it is possible to introduce weights if they were available, and to make adjustment if prices were collected from different outlets and if such information was available.

Several features of the CPD model are worth noting:

- (i) If all the products in the basic heading are priced in all the economies, then the CPD estimate of PPP is identical to the GEKS-based estimate of PPP used in the OECD-Eurostat comparisons.

¹³ These residuals are used in the Dikhanov Table in identifying outliers in price data.

¹⁴ The least squares method gives the best linear unbiased estimator of the parameters of the model. If the disturbances in model (11) are log normally distributed, then the least squares estimator is also the best unbiased estimator.

Thus, in this particular case both procedures give the same PPP estimates for the basic heading.

- (ii) However, if some products are not priced in some economies, then the CPD and GEKS estimates are different. In such cases, Rao (2004) showed that CPD produces more efficient estimates of PPPs than the GEKS method.
- (iii) Further, the CPD method can be used in deriving measures of reliability of the estimated PPPs. Deaton (2012) used CPD residuals in deriving standard errors for more commonly used indexes, like the Laspeyres, Paasche, and Fisher indexes.

Gini- Eltetö-Köves-Szulc Method

The CPD method described was used in deriving PPPs for each of the 155 basic headings. These PPPs are like prices of the composite commodity represented by the basic heading. If *poultry* is the selected basic heading, PPPs for the basic heading are like prices paid in different economies for what HK\$1 can buy in Hong Kong, China. Therefore, these can be treated like prices for these basic headings.

At the basic heading level, expenditure data were available for each of the basic headings in each of the participating economies. We let p_{ij} represent the PPP for i -th basic heading in economy j . Also let e_{ij} represent the expenditure for the i -th basic heading in economy j expressed in its own currency units. In our case, we have $i=1,2,\dots,155$ and $j=1,2,\dots,23$.

To compute PPPs at aggregates above the basic heading level, it was necessary to nominate the particular aggregate of interest. Suppose we are interested in the *Food and Nonalcoholic Beverages* aggregate. From Table 3.2, we note that this aggregate comprises 29 basic headings. In this case, we aggregate data on PPPs and expenditures for the 29 basic headings belonging to this aggregate.

For ease of exposition, we use the example of aggregating all the 155 basic headings to derive a PPP for the GDP, which is the main aggregate of

interest. We have the following data for the purpose of computing this PPP:

$$\text{price data} = p_{ij}; \text{ expenditure data} = e_{ij};$$

$$\text{implicit quantity} = q_{ij} = \frac{e_{ij}}{p_{ij}}$$

$$\text{for } i = 1,2,\dots,155; j = 1,2,\dots,23$$

The GEKS method is named after Gini (1924), Eltetö and Köves (1964), and Szulc (1964).¹⁵ The main reason why GEKS is preferred to other methods is that it maintains *characteristicity*. The GEKS method uses comparisons between pairs of economies as building blocks to derive transitive PPPs at the GDP level. The GEKS method uses the Fisher index to compute PPPs for binary comparisons. Following are the steps involved in the computation of PPPs from GEKS method:

First, for each pair of economies j and k , PPP of currency of economy k with currency of economy j as the reference currency is computed using the Fisher index along with the price and quantity data for each of the basic headings. Thus

$$PPP_{jk}^{Fisher} = \left[\frac{\sum_{i=1}^{155} p_{ik} q_{ij}}{155} \times \frac{\sum_{i=1}^{155} p_{ik} q_{ik}}{155} \right]^{\frac{1}{2}} \quad (14)$$

Fisher index is simply the geometric average of the Laspeyres and Paasche index numbers that are commonly used in national statistical offices.

Second, the Fisher index in equation (14) does not satisfy transitivity. However, Fisher index has many desirable statistical, axiomatic, and economic theoretic properties. Diewert (1976, 1992) showed that the Fisher index is *superlative* and it is also known

¹⁵ The method was known as the Eltetö-Köves-Szulc (EKS) method for a long period until the work of Gini in 1924 was discovered and since then referred to as GEKS method. Eurostat still refers to this method as the EKS method.

as the *almost ideal index number*. The GEKS approach generates PPPs that are transitive and also close to the Fisher binary PPPs in equation (14). That means the GEKS approach maintains the essential features of the binary index while generating a transitive set of PPPs.

Third, PPPs based on GEKS method denoted by PPP_{jk}^{GEKS} is then given by

$$PPP_{jk}^{GEKS} = \left[\prod_{\ell=1}^{23} (PPP_{j\ell}^{Fisher} \cdot PPP_{\ell k}^{Fisher}) \right]^{\frac{1}{23}} \quad (15)$$

The GEKS PPP has a simple intuitive interpretation. If we want a price comparison between two economies j and k , it is possible to compare these indirectly through a third economy ℓ , which can be one of any of the 23 economies in the comparison. As Fisher index is not transitive, all these indirect comparisons yield different answers. The GEKS approach is to take a simple geometric average of all these indirect comparisons leading to the formula in equation (15).

As mentioned earlier, the GEKS-based PPPs do not satisfy additivity property. There are two additive methods, the Geary-Khamis and Iklé-Dikhanov-Balk methods that are often used in compiling additively consistent PPPs and real expenditures. In the 2005 ICP Asia and the Pacific, comparisons based on the Geary-Khamis method were published in Appendix 6 of the ICP publication (ADB, 2007). In the African region, Iklé method was used in producing an alternative set of results included in the final report for the ICP in the African region. Details of the Geary-Khamis and Iklé-Dikhanov-Balk methods can be found in the *ICP Book* (World Bank, 2013) on aggregation methods above the basic heading level.

Data Collection: Sources and Methods

The quality and reliability of the data used in the ICP underscore the meaningfulness of the resulting estimates of PPPs and real expenditures. Therefore,

data collection and subsequent validation are critical steps in the ICP. No sophistication in the methodology used can compensate for the lack of quality in data that enters the computations. In recognition of the need for good quality data, the RCA, allocated significant amount of resources for assembling good quality data. As the required data were collected by the participating national statistical offices and submitted to the RCA, and eventually to the Global Office, the responsibility for ensuring quality of data relied on all organizations involved in different tiers of the ICP implementation.

The ICP data requirements are mainly on the prices of goods and services underlying the different expenditure aggregates, and the expenditures for different components of the national accounts. Data collection focuses therefore on prices and national accounts expenditure weights. As the issues and procedures used in the compilation of expenditure aggregates and the collection of price data differ significantly, these are dealt with separately.

National Accounts Data

National accounts data are at the core of international comparisons and serve two roles in the ICP. The primary objective of ICP is to provide comparable real expenditure aggregates obtained by converting expenditures in different economies expressed in their own currency units into a common currency unit. National accounts are the only source of data on expenditures in different categories at the national level. Therefore, the primary role of national accounts is to provide reliable estimates of expenditures. The ICP starts with the basic headings as the level at which expenditures are available and deemed reliable for most economies. The second role of national accounts is to provide weights necessary for aggregation of price data. The weights are the expenditures on each basic heading expressed as a share of GDP. As PPPs are computed using the national accounts, the accuracy and comparability of national accounts values and weights can impact on the accuracy and comparability of the PPPs.

National Accounts Expenditure Levels

Comparability of national accounts statistics from the participating economies is paramount for the ICP. To ensure international comparability of national accounts statistics, all participating economies are required to submit national accounts data based on the 1993 SNA (Commission of the European Communities et al., 1993). However, several economies had difficulty with some aspects of the 1993 SNA. In particular, the major challenges refer to the treatment of expenditure by enterprises and government on software, which is recommended to be treated as part of gross fixed capital formation; and the allocation of financial intermediation services indirectly measured (FISIM) to both intermediate consumption and final users. The RCA assisted the economies in addressing these types of conceptual issues.

The accuracy of the national accounts depends on the experience and statistical capacity of the government agencies responsible for their compilation, and on the size and level of development of the participating economies. The economies in the 2011 ICP Asia and the Pacific are quite diverse. There are small city-states like Hong Kong, China; Macao, China; and Singapore. There are geographically large economies with large populations like the PRC, India, Indonesia, and Pakistan. There are also economies at both ends of the spectrum of economic development: high-income economies like Hong Kong, China and Singapore; and low-income economies like the Lao People's Democratic Republic, Myanmar, and Nepal. An indication of the accuracy and reliability of the national accounts is the extent of revisions undertaken to the 2005 GDP estimates by the economies since their participation in the 2005 comparisons. There have been significant revisions for Bangladesh and the Maldives. GDP for the Maldives at current prices was revised upward by nearly 46%. After the completion of the 2005 ICP, 21 economies had revisions in their GDP values, of which 17 economies made upward revisions and 6 downward revisions (Appendix 4.1).

For purposes of the 2011 ICP, all estimates used were for the calendar year. Bangladesh and Pakistan

compile their national accounts for *fiscal years*, from 1 July to 30 June; Myanmar and India, from 1 April to 31 March; and Nepal, from 16 July to 15 July. These economies were required to convert their national income aggregates to a calendar year based on their quarterly estimates.

National Accounts Expenditure Weights

As basic heading is the lowest level of aggregation, expenditure weights were required for the 155 basic headings. Table 20 shows the major expenditure categories and the basic headings that comprise each of the categories. The major problem in obtaining reliable expenditure weights at the basic heading level was that many economies had expenditures for far fewer categories. In some cases, where breakdown was available, the classifications did not match the ICP classification. The task of providing expenditure breakdown and weights for 155 basic headings was a major undertaking. The RCA facilitated this process by organizing workshops and training sessions on national accounts. Sources that included household expenditure surveys, consumer price index (CPI) weights, government expenditure accounts, and capital expenditure accounts were used in arriving at meaningful breakdowns.

There are three issues relating to the derivation of weights. First issue is on the allocation of expenditure of NPISH to various categories in household consumption. The NPISH expenditures for 14 economies were eventually allocated to 13 basic headings (Table 47): actual and imputed rentals, pharmaceutical products, other medical products, therapeutic appliances and equipment, medical services, dental services, paramedical services, hospital services, recreational and sporting services, cultural services, education, social protection, and other services. Second issue dwells on the allocation of expenditures abroad by resident households and expenditures by foreign visitors in the domestic economy in eight economies. These expenditures were subsequently allocated to 52 basic headings, of which 29 were on food and nonalcoholic beverages. Third issue relates to the allocation of statistical discrepancies.

Price Data

The most important input into the computation of PPPs is the price data. In concept, PPPs are summary measures of prices of goods and services in the participating economies. Therefore, considerable efforts were exerted on the collection and validation of price data used in the computation of PPPs. As ICP covers the whole of GDP, which comprises household consumption expenditure, government consumption expenditure, and gross capital formation, it is necessary to devise price collection and validation procedures that are specific to each of these aggregates.

This section is divided into four subsections. The first deals with the requirements to arrive at valid price and volume comparisons; the second focuses on the scope and coverage of price surveys; the third describes the development of product lists and elaborates on the structured product descriptions introduced in the 2005 ICP; and, the fourth describes specific approaches for developing the product list for each main GDP aggregates.

Requirements for Valid Price and Volume Comparisons

The price data collected were used in price comparisons in the form of PPPs, and subsequently used in converting GDP expenditure aggregates into real expenditures or volume measures. These premises imply that PPPs used in converting a particular expenditure aggregate must reflect the prices of goods and services that make up the aggregate under consideration. Therefore, to have PPPs that are meaningful, the prices collected must be consistent with national accounts practices. And the products priced must be *representative* of the aggregate under consideration, and at the same time *comparable* so that the price comparisons obtained are appropriate for converting value aggregates into volume measures.

Consistency of Price Measures with National Accounts

Consistency refers to the relationship between the prices used in the computation of PPPs and the expenditure aggregates to which these PPPs are applied in deriving volume measures. This is the same principle used in price deflators for deriving volume measures or aggregates at *constant* prices in time series context. For example, consider the case of expenditure on dwelling services. Suppose rental approach is used by national accountants in deriving the expenditure aggregate for dwelling services. Then, in this case, rental prices are appropriate price measures that should be used to estimate actual and imputed rental of dwelling services. However, if the qualities of dwellings vary significantly across economies in terms of their characteristics, then use of simple rental prices may not yield meaningful comparisons. It would be necessary to use *hedonic* approach to adjust for quality differences. Therefore, prices to be collected should be consistent with the prices underlying the GDP expenditure estimates, which have important implications in determining the product lists for price collection. To decide on the products to be priced, it is necessary to examine the coverage of the particular aggregate in the national accounts and then to identify the products. In this context, the property of *representativity* becomes important.

Representativity and Importance

An important criterion in the preparation of product list is that items selected for pricing are representative of the products purchased in the economy to adequately represent the particular GDP expenditure aggregate under consideration. While this is an intuitive and technical requirement, implementation in practice is challenging due to inevitable differences in goods and services that enter a basic heading across economies. Asia and the Pacific is economically and culturally diverse; and, therefore, there are significant differences in the type and quality of products within the basic headings. To be able to derive meaningful price comparisons, it is necessary to achieve a desirable degree of overlap in the products priced.

Representativity is an important criterion in the ICP. Prices of nonrepresentative products tend to exhibit price relativities that deviate from the general price level differences. For example, if an item priced is a high-quality product like *Uncle Toby's oats* and is not commonly consumed as a cereal product in a particular economy, then it is likely that the price level for that product is higher than the cereals that are commonly consumed. Similarly, products like *beef* or *pork*, which are not consumed in some economies due to religious or other reasons, are likely to be more expensive than other meat products consumed. Therefore, if one economy priced representative products while another priced unrepresentative products under the same basic heading, then price comparisons between the economies for the basic heading are likely to be distorted. As a result, a fair degree of judgment is required to identify several products in the basic heading that would be classified as representative of each basic heading across the region. Some guidelines are provided to assist the process. For example, best selling products in each category are likely to be representative. Similarly, any product that is included in the CPI basket of an economy could be considered as representative.

In the case of household consumption, the 2011 ICP recommended the use of the concept of *importance* of products priced within each basic heading. Products priced are to be labeled as *important* or *less important*. In the 2011 ICP Asia and the Pacific, as was the case in the 2005 ICP, the RCA facilitated the process of including representative items through a series of workshops on the preparation of product lists. Participating economies were given every opportunity to identify products representative of consumption in their economies that can be included in the regional product list for price surveys.

Comparability

Comparability of products to be priced is a requirement designed to ensure that the derived PPPs provide meaningful measures of price level differences across the economies. If products priced are not comparable across economies, then the price relatives based on

the prices collected for such products will not satisfy the ICP criterion of comparing like with like items.

The *ICP 2003–2006 Handbook* defines comparability as: “Two or more products are said to be comparable either if their physical and economic characteristics are identical, or if they are sufficiently similar that consumers are indifferent between them” (World Bank, 2007). Two similar products may be considered comparable if consumers are indifferent as to which of the two they consume. This implies that consumers are not prepared to pay more for one product than the other.

Implementing the comparability criterion is difficult in any region. In Asia and the Pacific, the RCA organized several workshops for the preparation of product lists to ensure that the final list is acceptable to all participating economies. The starting point for this exercise was to use detailed specifications for each product to be priced recognizing the need for different specifications relevant for different subregions. For example, rice is an important consumption item in South Asia whereas noodles are staple diet in East Asia economies. Recognizing this difference, the Asia and Pacific product list used detailed specifications for these two items. To facilitate this process, the concept of *structured product descriptions* (SPDs) first introduced in the 2005 ICP was adopted. The concept and implementation of SPDs are further explained in the following subsection.

The Eurostat, in its comparisons for the European Union region, strictly adheres to the comparability criterion and provides detailed specifications for products that almost uniquely identify the products. The approach works well in that region as the participating economies are at similar levels of economic development and have similar tastes and preferences. In Asia and the Pacific, this is a difficult principle in practice. If the products are tightly specified then either such products are not available in some of the economies; or where available, they are not commonly purchased and consumed and hence not representative. The approach used in the 2011 ICP Asia and the Pacific provided specifications

that were not as tightly specified as desirable, but being pragmatic so that products retain comparability to ensure meaningful price comparisons. However, loose specifications posed problems during data validation.

From the discussion on representativity and comparability, it is clear that these are two competing criteria; and it is difficult to achieve high levels in both unless the economies in the comparison are similar in their consumption patterns and characteristics. In a diverse region like Asia and the Pacific and also in the context of global comparisons, it is necessary to strike a balance between these two criteria. Comparability is at the core of international comparisons of prices; it is difficult to make sensible comparisons unless the products are comparable. On the other hand, representativity is critical as the products priced must be closely associated with the national accounts aggregate it refers to.

Achieving a good balance between these two criteria requires good judgment when preparing the product lists and collecting prices. The RCA provided training on ICP concepts and principles for the participating economies, and held several workshops for preparing and finalizing the product lists in a collective fashion.

Scope and Coverage of Price Surveys

The scope and coverage of prices collected are to be consistent with national accounts practices. As annual national accounts are the basis for ICP, the aggregate expenditures in the national accounts cover the whole calendar year for ICP purposes. This implies that prices used in the computation of PPPs must be annual national average prices. As the national accounts are for the whole economy, prices collected and used must also represent the whole economy.

Ideally, annual national average prices for the ICP should be obtained for each product as its average unit value for the benchmark year. The unit value is the value of the product sold during the year divided by the number of units sold across the whole economy. In practice, however, it is impossible to obtain detailed

data necessary to calculate unit values; thus, the survey framework adopted by the NIAs should be designed to be able to obtain reliable estimates of the underlying unit values.

The prescribed procedure is to collect prices of products in different quarters of the year to obtain meaningful annual average prices. Pricing the products over different quarters is appropriate for products like fresh fruits and vegetables that exhibit seasonality. However, for some of the aggregates, it is sufficient to collect prices at some point in the year. Data on wages and salaries paid to government employees or the price of water and electricity or even prices for items in machinery and equipment can be collected once in a year.

The most important consideration is to ensure that the prices are representative of the whole economy. This means that prices must be collected from a range of outlets, including wet markets, open markets, supermarkets, and local stores; from both rural and urban areas of the economy; and from all the provinces or regions within the economy. This requires that the survey framework adopted in each economy must be designed to ensure national coverage. Different outlets and locations should ideally be assigned appropriate weights to reflect the “volume of sales” by outlets and by locations, including rural and urban areas. However, it is often not possible to accord such weights. The alternative is to implement self-weighting designs whereby more price quotations are obtained from outlets and locations where most of the transactions take place.

As a result of several discussions between and among the economies, RCA, and Global Office, the scope and coverage of the list of items included in the 2011 ICP were expanded compared with the 2005 ICP list. Table 21 provides a summary of the comparative changes in scope and coverage in Asia and the Pacific region between 2005 ICP and 2011 ICP.

In contrast to the framework used for collecting prices of goods and services in household consumption, prices for nonhousehold sectors were collected only

Table 21. Scope, Coverage, and Frequency of Price Collection by Main Gross Domestic Product Aggregates, 2005 and 2011 International Comparison Program

Aggregate	2005	2011
Household Final Consumption Expenditure	<p>656 items in the product list</p> <p>Coverage: Nationwide except for PRC which collected prices from 11-cities</p> <p>Frequency: Monthly and quarterly for most items but more frequently for items with more volatile prices (e.g., weekly for fruits and vegetables) Biannually or annually for less volatile items such as utilities</p>	<p>923 items in the Asia and Pacific list 2011 International Comparison Program (ICP) list was taken from the 2005 and 2009 product lists updated for obsolescence and supplemented with poverty-specific items</p> <p>Coverage: Nationwide</p> <p>Frequency: same as in 2005</p>
Government Final Consumption Expenditure	<p>Compensation of employees for 50 government posts (18 posts for individual expenditure by government and 32 for collective government services) from administrative records; 42 items were included in the PPP computation</p> <p>Coverage: Nationwide</p> <p>Frequency: One time collection from administrative records</p>	<p>Average compensation of employees for 44 government posts; 38 items included in the purchasing power parity (PPP) computation as approved by the 2011 ICP in Asia Pacific Regional Advisory Board.</p> <p>Coverage: Nationwide</p> <p>Frequency: One time collection from administrative records</p>
Gross Fixed Capital Formation (GFCF) in Construction	<p>34 construction components and basic input items from the global list</p> <p>Coverage: Major Capital Cities</p> <p>Frequency: one time price collection in June 2006</p>	<p>46 input items from the global list; one uniform relevant indicators matrix for each type of construction</p> <p>Reference PPPs from aggregate machinery and equipment for PPPs for rental of equipment</p> <p>Coverage: Major Capital Cities</p> <p>Frequency: one time price collection in July 2011</p>
GFCF in Machinery and Equipment	<p>106 items in the global product list</p> <p>Coverage: Major Capital Cities</p> <p>Frequency: June 2006</p>	<p>177 items from global list</p> <p>Coverage: Major Capital Cities</p> <p>Frequency: July 2011</p>
Changes in Inventories and Net Acquisitions of Valuables	<p>Reference PPPs using PPPs for durable and nondurable goods; and GFCF, excluding reference PPPs basic headings</p>	<p>same as in the 2005 ICP</p>

Source: ADB, 2007, 2014.

once in 2011. As prices of machinery and equipment goods do not vary much throughout a calendar year and across provinces within an economy, a onetime midyear 2011 price collection in major capital cities was recommended. For construction, prices were also collected in July 2011 in capital and major cities to reflect the national average prices. The required data for dwellings and rentals were culled from the census of population and housing and/or rental survey results. In economies where rental surveys were not regularly conducted, the NIAs were advised to collect rental data following the 2011 ICP SPDs in June and December 2011 and in capital and major cities. Data on compensation of government employees by occupation were based on administrative reports.

Developing the Products Lists

Background

Identifying goods and services that enter household consumption is easier than determining the list of goods and services for *comparison-resistant* aggregates, such as collective government expenditure, dwellings, construction, and machinery and equipment. The preparation of product lists appropriate for each of these consumption categories, determination of the survey framework, and collection and validation of price data are important steps for ICP. These steps increase users' confidence on the reliability of the PPP estimates—that prices for each item and for each economy are reflective of annual national averages and the resulting values are comparable across economies.

Structured Product Descriptions

The concept of SPDs was introduced in the 2005 ICP as an approach for product classification and identification. These were used in the preparation of product lists at the regional level, as well as at the global level. The SPDs were essentially a list of price determining characteristics used in product specifications. In the context of household consumption items, SPDs were determined using the

Classification of Individual Consumption According to Purpose (COICOP). As the ICP made use of a classification with 155 basic headings, the COICOP structure was mapped to the structure of 155 basic headings. The next major step in constructing SPDs was to add details of the price determining characteristics for products within each basic heading. The price determining characteristics for SPDs of the global product list, which included the global core lists for household consumption, machinery and equipment, construction, and government compensation of employees, were prepared by the Global Office. The RCA from each region developed the SPDs for the regional lists for household consumption; and further modified the lists for household and nonhousehold sectors to improve the comparability and reliability of PPP estimates in the region. Approaches adopted for each sector are further explained in the ensuing subsections.

The global core list for household consumption prepared by the Global Office used the coding system of the Bureau of Labor Statistics (BLS) of the United States in its CPI compilation as the starting point for identifying the price determining characteristics of each item. The BLS used a checklist to identify the specifications of the products being priced. The checklists varied with the product under consideration. The initial SPDs for each BLS product group were prepared by the Global Office and then reviewed by the RCAs to ensure that the product characteristics reflect the realities of the economies in their region.

Similar SPDs were prepared by the Global Office for the nonhousehold consumption items of machinery and equipment, construction, and government compensation of employees. Asia and the Pacific RCA further expanded the SPDs of the global core list for household, machinery and equipment, and construction to include further clarifications in specifications. For example, it specified specific brands and models, especially for pharmaceutical items, clothing, footwear, and household durable items; and Asian marques, which are unique and common to the region. The use of SPDs since the 2005 round represented a major shift in the approach

in preparing the product lists for the ICP. Typical SPDs from the global core list contain the following broad price determining characteristics:

- (i) **Quantity and packaging.** For example, 1 kilogram versus 100 grams; and packed versus loose
- (ii) **Source.** Local versus imported;
- (iii) **Outlet.** Markets, small shops, and supermarkets
- (iv) **Region.** Rural versus urban
- (v) **Seasonal availability.** Available seasonally or available year-around
- (vi) **Product characteristics.** In the case of rice characteristics, long versus short grain, brown versus white, and fine versus coarse varieties
- (vii) **Branded versus unbranded.** Brands playing an important role; but, in many economies, national brands may have similar quality characteristics.

Asia and the Pacific region adopted the same SPD approach in drawing up the regional lists for household, machinery and equipment, and construction for the 2011 ICP. The 2005 ICP regional lists with SPDs and price determining characteristics of items served as the initial lists for the 2011 ICP. Updates in specifications especially for household durables, such as fast evolving electronic items, were introduced to capture the changes in the market and in the consumption pattern of households.

The use of SPDs in the ICP thus far had been limited to its role in the preparation of the product lists. In the future rounds of ICP, the role of SPDs may be expanded to allow relaxing the comparability aspect by using models similar to the hedonic models in price comparisons of products such as television units, computers, and cameras. The ensuing section describes the preparation of product lists for all the major GDP expenditure aggregates.

Household Final Consumption: Regional and Global Core Lists

The participating economies collected price data for household items from two product lists, one for the regional list and the other for the global core list. The

regional list was prepared in joint consultation with all the participating economies in the region. The starting point in the preparation of the 2011 ICP list was the product list used in the 2005 ICP in Asia and the Pacific. After a critical review of the list and cognizant of the lessons learnt from the experience of the 2005 ICP, the list was expanded to include relevant subregional items. For example, in women's clothing, Muslim headgear was included since it is a standard item of women's clothing in the subregions with sizeable Muslim population. The SPDs for all items were constructed and finalized during workshops and training sessions dedicated to the preparation of the product lists.

As the product lists were based on subregional consumption habits and tastes, a number of products relevant in a subregion may be priced in other subregions but may not be considered *important* or *representative* in those economies. In view of this, the concept of *importance* was introduced by the Global Office. All items priced in each economy were supposed to be designated as *important* or *less important*. The concept of *importance* and its use in the construction of PPPs at the basic heading is discussed further below.

The global core list of products was prepared by the Global Office and priced by all the economies of the world participating in the ICP. In preparing the global core list, the Global Office made use of the ring list of products used in the 2005 ICP comparisons along with inputs from the different regions. The main purpose of the global core list was to derive robust and reliable linking factors for the household consumption expenditure aggregate to arrive at global results. It included items not only comparable across different regions but also representative of the consumption in the different regions. As the global comparison links regions like the OECD-Eurostat with Asia and Africa, the global core list also included branded products to ensure comparability. The notion of *importance* was also applied to the global core list.

The regional and global lists constituted two separate lists for slightly different purposes. As a result, these

two lists were not the same but overlaps existed. Taking into consideration overlaps, products in the household consumption list was divided into three groups:

- (i) **Asia and the Pacific (AP).** This list of items has nothing in common with the global core list. The items are completely region-specific products.
- (ii) **Asia and the Pacific and Global core (AG).** This list contains products that are common to both the lists.
- (iii) **Global core (GC).** The list covers products that are in the global list but not in the regional list.

The division between these product lists is illustrated using two basic headings in Table 22.

In *rice* basic heading, there are 20 items that belong to the AP list, of which 4 are also in the GC. Of the 20 items, 16 belong to the AP list and 4 belong to the common AG list. On the other hand, another 5 items are in the GC only. Men's and Women's clothing list is more interesting. The AP clothing list is quite comprehensive; it includes items that can be classified as underclothing, nightwear, and winter garments; and dress items that are region- and subregion-specific. Examples are sarong or lungi, saree, and Muslim headgear. The GC list, which is designed for global price comparisons, includes branded items, such as sportswear from Adidas, Nike, Puma, Reebok, and others.

Given the clear distinction in the objectives that underpin the Asia and the Pacific and global lists, one

Table 22. Sample Basic Headings and Product List of Household Consumption

Code	Description	Code	Description
1101111	Rice	1103121	Garments (Men's and Women's Clothing Only)
Asia and the Pacific List			
1101111011	Coarse #3	11031210411	Underwear / briefs, men's (Hanes)
11011110110	White rice #3	11031210412	Underwear / briefs, men's (Others)
11011110111	White rice #4	11031210421	Undershirt, men's (Hanes)
11011110112	White rice #5	11031210422	Undershirt, men's (Others)
11011110113	White rice #6	1103121061	Kurta, men's
11011110114	White rice #7	1103121062	Pajama set, men's
11011110116	White rice #9	11031211021	T-shirt with collar, men's (Hanes)
11011110117	White rice #10	11031211022	T-shirt with collar, men's (Jockey)
11011110118	Premium rice #1	11031211023	T-shirt with collar, men's (Others)
11011110119	Premium rice #2	1103121105	Dress Shirt, men's, above 80% cotton
11011110120	Premium rice #3	1103121112	Sweater or pullover, men's 50–80% wool
1101111013	Coarse #2	1103121113	Sweater or pullover, men's above 80% wool
1101111014	Coarse #6	1103121122	Jeans, men's, Levi's original
1101111015	Coarse #5	11031211231	Shorts, men's (Hanes)
1101111018	White rice #1	11031211232	Shorts, men's (Others)
11011110201	Glutinous Rice	1103121125	Slacks/pants/ trousers, men's, above 80% cotton
		1103121131	Sarong or Lungi, men's
		1103121172	Outerwear, women's
		1103121181	Winter dress, women's
		1103121191	Cardigan, women's
		1103121192	Sweater or pullover, women's
		1103121201	Blouse, women's, Western style

continued on next page

Table 22. Sample Basic Headings and Product List of Household Consumption (continued)

Code	Description	Code	Description
		11031212021	T-shirt, women's (Hanes)
		11031212022	T-shirt, women's (Others)
		1103121231	Slacks/pants/ trousers, women's, 50–80% cotton
		1103121233	Shorts, women's
		1103121241	Suit, jacket and pants, women's
		1103121251	Bra, basic
		1103121261	Underwear/panties, women's
		11031212621	Underwear/panties, women's, Triumph
		11031212622	Underwear/panties, women's, Others
		1103121271	Nightgown, women's, 50–80% cotton
		1103121272	Kurta, women's
		1103121281	Pantyhose, women's
		11031212911	Socks, women's (Hanes)
		11031212912	Socks, women's (Others)
		1103121301	Swimsuit, women's
		1103121321	Saree 5.5m, polyester
		1103121322	Women's Muslim Headgear
Asia and the Pacific and Global Core List: Common Items			
11011110115	White rice #8	1103121011	Suit, jacket and pants, men's
11011110121	Premium rice #4	11031210511	Socks, Men's (Hanes)
1101111017	Brown rice	11031210512	Socks, Men's (Others)
1101111019	White rice #2	1103121103	T-shirt without collar, men's
		1103121104	Dress Shirt, men's 50–65% cotton
		1103121124	Slacks/pants/ trousers, men's, 50–80% cotton
		1103121126	Jeans, men's, brand other than Levis
		1103121211	Jacket, women's
		1103121221	Skirt, women's
		1103121232	Jeans, women's
Global Core List			
11011110122	Long grain rice, Parboiled	1103121203	Blouse, Women's, close fitted
11011110123	Long grain rice, Not parboiled	1103121234	Slacks/pants/ trousers, women's, 100% polyester
11011110124	Basmati Rice	1103121273	Nightgown, women's, 100% cotton
11011110125	White rice #11	11031213111	Sportswear, women's (Adidas)
11011110126	Short-grained rice	11031213112	Sportswear, women's (Nike)
		11031213113	Sportswear, women's (Puma)
		11031213114	Sportswear, women's (Reebok)
		11031213115	Sportswear, women's (Others)
		1103121323	Shawl

Note: To limit the size of the table, boy's and girl's clothing items are not included in the list.

Source: ADB. 2011 International Comparison Program for Asia and the Pacific Product Catalog for Household and Nonhousehold Sectors. Unpublished.

may ask the question whether PPPs computed for economies within the region based on region-specific and global product lists are similar in magnitudes. This is considered later in this section.

Distribution of Items by Broad Categories and Economy Coverage

Household consumption is the biggest national accounts aggregate comprising 110 basic headings. Product lists are necessarily long to be able to cover each of the basic headings adequately. Initial list for price collection by the economies included 1,142 products in Asia and the Pacific and global core lists. After sorting out the products that overlap with the global core list and eliminating products that had outlier price data, the distribution of items by origin is shown in Table 23.

Table 23. Distribution of Items by Origin, Household Consumption

Aggregate	2011
Asia and the Pacific list only (AP)	657
Asia and the Pacific and Global Core lists Overlap (AG)	266
Global Core list only (GC)	219
Total	1,142
Asia and the Pacific list (AP + AG)	923
Global list (GL + AG)	485

Source: ADB. 2011 International Comparison Program for Asia and the Pacific Product Catalog for Household and Nonhousehold Sectors. Unpublished.

It is clear in the table that Asia and the Pacific list is quite exhaustive, consisting of 923 products in the AP and AG lists while the GC added another 219 products.

The product list for the region is extensive due to the diverse nature of the region, reflecting differences in tastes, preferences, and cultures and religions. It is thus expected that not all products will be priced in all the economies. Table 24 shows the distribution of coverage of items priced after the completion of price surveys and validation of price data.

Table 24 further shows that the largest economies also have the most number of products in the regional list—

PRC with 689 and India with 716. The lowest number of items are in two island economies of the Maldives with 424 products and Fiji with 445; and others are in small economies such as the Lao People's Democratic Republic with 443 items and Bhutan with 470 items.

Health and Education

Health and education expenditures are difficult aggregates to compare across economies and labeled as comparison-resistant in the literature. These expenditures are incurred by both households and the general government on behalf of households. There is a broad spectrum of health and education arrangements across the participating economies. In a few economies, households are fully responsible for their health and education expenses, and services are purchased in the market by paying for health services and fees for education. In some economies, health and education expenses are completely covered by the government, and services are offered free of charge. In a majority of the economies, there is a mix of private and government provision of health and education services.

Health

There are two sets of basic headings that cover health in the ICP: one set is under household consumption and the other set belongs to government consumption or expenditure. Household consumption covers all expenses associated with the purchase of health goods and services from the market. Government consumption covers government expenditure associated with the purchase of goods and services by the government on behalf of households and expenditure associated with direct provision of health services through public hospitals. Table 25 lists all relevant basic headings for health.

Individual consumption expenditure by households has a number of basic headings covering medical products, appliances, and equipment; outpatient services; and hospital services. Products priced include items from both AP and GC lists. Pricing

Table 24. Number of Items Priced for Household Consumption by Economy, 2011

Economy	Number of Items Priced					
	AP	AG	GC	Total	Regional List (AP + AG)	Global List (AG + GC)
Bangladesh	459	201	146	806	660	347
Bhutan	312	158	107	577	470	265
Brunei Darussalam	358	202	126	686	560	328
Cambodia	372	194	119	685	566	313
China, People's Republic of	472	217	166	855	689	383
Fiji	278	167	99	544	445	266
Hong Kong, China	374	203	172	749	577	375
India	497	219	189	905	716	408
Indonesia	438	215	157	810	653	372
Lao People's Democratic Republic	277	166	86	529	443	252
Macao, China	379	208	155	742	587	363
Malaysia	452	219	184	855	671	403
Maldives	261	163	103	527	424	266
Mongolia	364	201	167	732	565	368
Myanmar	409	190	140	739	599	330
Nepal	370	175	103	648	545	278
Pakistan	412	192	144	748	604	336
Philippines	456	225	182	863	681	407
Singapore	370	200	152	722	570	352
Sri Lanka	385	194	131	710	579	325
Taipei, China	384	201	159	744	585	360
Thailand	427	217	165	809	644	382
Viet Nam	411	208	124	743	619	332
Total Household Consumption Items	657	266	219	1,142	923	485

AP = Asia and the Pacific list, AG = overlap of Asia and the Pacific and global core lists, GC= global core list.

Source: Economy sources.

health products was problematic as prices are subsidized in some of the economies and at different levels. The basic principle is that prices should reflect the full price paid regardless of the individual or institution paying for the goods and services. The list includes branded items; and generic pharmaceutical items, which are prevalent in many economies in the region. Hospital services cover medical services, pharmaceuticals, food, and accommodation provided to patients who stay overnight in a hospital during the course of their treatments. The quality and type of provision of

these services varied widely across the participating economies and across regions/states/provinces within an economy. For that reason, a reference PPP is used for hospital services. Table 26 shows the number of products for each of the basic headings under health for households.

Product specifications were provided to the participating economies in the form of SPDs. The product list is the same for the corresponding basic headings listed under *health benefits and reimbursements* under individual consumption

Table 25. Basic Headings for Expenditures on Health Services

Basic Heading Code	Description	Basic Heading Code	Description
1101111	Rice	1103121	Garments (Men's and Women's Clothing Only)
Individual Consumption Expenditure by Households		Individual Consumption Expenditure by Government	
Medical products, appliances, and equipment		Health benefits and reimbursements	
1106111	Pharmaceutical products	1302111	Pharmaceutical products
1106121	Other medical products	1302121	Other medical products
1106131	Therapeutic appliances and equipment	1302131	Therapeutic appliances and equipment
		1302211	Outpatient medical services
Outpatient services		1302221	Outpatient dental services
1106211	Outpatient medical services	1302231	Outpatient paramedical services
1106221	Outpatient dental services	1302311	Hospital services
1106231	Outpatient paramedical services		
		Production of health services	
Hospital services		1302211	Compensation of employees
1106311	Hospital services	1302221	Intermediate consumption
		1302231	Gross operating surplus
		1302241	Net taxes on production
		1302251	Receipts from sales (minus)

Source: World Bank, 2013.

Table 26. Number of Items for Price Surveys under Different Health Basic Headings for Household Consumption

Basic Heading Code	Description	No. of Items
1106111	Pharmaceutical products	117
1106121	Other medical products	15
1106131	Therapeutic appliances and equipment	12
1106211	Outpatient medical services	7
1106221	Outpatient dental services	4
1106231	Outpatient paramedical services	9
1106311	Hospital services	Reference PPP

PPP = purchasing power parity.

Source: ADB. 2011 International Comparison Program for Asia and the Pacific Product Catalog for Household and Nonhousehold Sectors. Unpublished.

expenditure by government. The following guidelines were used in collecting prices for these goods and services:

- (i) The same set of national average prices is used to estimate PPPs for basic headings for both household and government expenditures. No separate price collection is undertaken for government health expenditure for the basic headings under *health benefits and reimbursements*.
- (ii) Full market price must be recorded for each of the products even if the costs are shared by the household and government. The prices reflect the overall value of the product. In practice, this may not pose a major problem as long as there are markets for these products and services.

Table 27 shows that Malaysia and Bangladesh, collected prices for more than 90 health items while the Lao People's Democratic Republic and Bhutan priced less than 20 health items.

Table 27. Number of Items Priced for Health by Economy, 2011

Economy	Number of Items Priced					
	AP	AG	GC	Total	Regional List (AP + AG)	Global List (AG + GC)
Bangladesh	57	25	9	91	82	34
Bhutan	8	3	0	11	11	3
Brunei Darussalam	34	23	3	60	57	26
Cambodia	24	12	3	39	36	15
China, People's Republic of	45	18	3	66	63	21
Fiji	26	11	4	41	37	15
Hong Kong, China	53	25	4	82	78	29
India	52	23	8	83	75	31
Indonesia	51	20	9	80	71	29
Lao People's Democratic Republic	8	6	0	14	14	6
Macao, China	40	20	5	65	60	25
Malaysia	64	25	9	98	89	34
Maldives	38	19	7	64	57	26
Mongolia	38	25	9	72	63	34
Myanmar	55	20	9	84	75	29
Nepal	37	15	7	59	52	22
Pakistan	51	23	5	79	74	28
Philippines	46	21	8	75	67	29
Singapore	35	19	3	57	54	22
Sri Lanka	53	20	9	82	73	29
Taipei, China	49	22	9	80	71	31
Thailand	61	24	4	89	85	28
Viet Nam	29	17	3	49	46	20
Total Health Items	118	37	9	164	155	46

AP = Asia and the Pacific, AG = overlap of Asia and the Pacific and global core lists, GC = global core list.

Source: Economy sources.

Health services produced by the government and provided to individuals through public hospitals and dispensaries were treated differently. The main components of government expenditure in the production of health services were compensation of employees, intermediate consumption, and gross operating surplus (Table 25). Compensation of employees of government was based on data on wages and salaries of government employees in health. PPPs for individual consumption expenditure by households on the domestic market were used

as reference PPPs for intermediate consumption. PPPs for gross fixed capital formation were used as reference PPP for gross operating surplus. The general approach was to collect data on wages and salaries for a large number of types of employees in the health sector, and to construct PPPs after making suitable adjustment for productivity differentials of health sector employees across the participating economies. Individual consumption expenditure on health by government included those goods and services that are procured by the government from market

producers and provided to individuals. Goods and services purchased by the government were treated the same way as the purchases by individuals, and the same product lists and prices were used to make price comparisons.

For the remaining basic headings, reference PPPs were used as it was difficult to collect suitable prices for the goods and services that belong to these basic headings. These *reference PPPs* for health are listed in Table 28.

Education

The general concepts, methodologies, and procedures adopted for pricing *education* services are similar to those used in the context of health. A distinction is made between individual expenditure on education by households and individual expenditure on education by government. Sum of the expenditures by households and government makes up the *actual expenditure on education*. The structure for the basic headings is shown in Table 29 followed by Table 30 for

Table 28. Reference Purchasing Power Parities Used for Health

Basic Heading Code	Description	Reference Purchasing Power Parities
Individual Consumption Expenditure by Households		
1106311	Hospital services	Weighted average of purchasing power parities (PPPs) from household medical services; Dental services; and Paramedical services
Individual Consumption Expenditure by Government		
1302124	Hospital services	PPP for hospital services from household
1303221	Intermediate consumption	Weighted PPPs for household final consumption expenditure (HFCE) on the domestic market (excluding reference PPPs basic headings)
1302231	Gross operating surplus	Weighted PPPs for gross fixed capital formation
1302241	Net taxes on production	Weighted PPPs for HFCE on the domestic market (excluding reference PPPs basic headings) and PPP for compensation of employees for the production of health services by government
1302251	Receipts from sales	Weighted PPPs for HFCE on the domestic market (excluding reference PPPs basic headings) and PPP for compensation of employees for the production of health services by government

Source: ADB, 2014.

Table 29. Basic Headings for Expenditure on Education Services

Basic Heading Code	Description	Basic Heading Code	Description
1101111		1103121	
Individual Consumption Expenditure by Households		Individual Consumption Expenditure by Government	
1110111	Education	Education benefits and reimbursements	
		1304111	Education benefits and reimbursements
		Production of education services	
		1304211	Compensation of employees
		1304221	Intermediate consumption
		1304231	Gross operating surplus
		1304241	Net taxes on production
		1304251	Receipts from sales (minus)

Source: World Bank, 2013.

Table 30. Product List for Education

Item Code	Description
11101111	Primary Education
11101112	Secondary Education
11101113	Tertiary Education, Computer Science - Total Course Fee
11101114	Tertiary education, excludes degrees in Computer Science and in Natural Sciences, such as physics, biology, botany, medicine - Total Course Fee
11101115	Other Education Programs, Foreign Language course or lessons
11101116	Other Education Programs, Private Lessons in Mathematics outside School Hours
11101117	Tertiary Education, Computer Science - First Year Only
11101118	Tertiary Education, excludes degrees in Computer Science and in Natural Sciences, such as physics, biology, botany, medicine - First Year Only

Source: ADB. 2011 International Comparison Program for Asia and the Pacific Product Catalog for Household and Nonhousehold Sectors. Unpublished.

the list of items used to cover education expenditure by households.

Out of the eight education services, six are from the AP list (with two overlaps) and two are from the GC list. Table 31 indicates that with the exception of Fiji and Myanmar, the rest of the economies in the region priced at least 50% of the education services. Five economies—Hong Kong, China; India; Mongolia; the Philippines; and Thailand—priced all education services in the list.

PPP for the *education* basic heading under individual expenditure on education by households was computed using price data calculated for the products listed in Table 30. Basic headings under government expenditure on education used reference PPPs in Table 32.

Government Services and Compensation of Employees

General government, according to the 1993 SNA, consists of central, federal, regional, state, and local

government units. The armed forces and nonprofit institutions controlled and funded mainly by government are also included. The main functions of government and the level of service provision vary across economies. For purposes of international comparisons, it is important that PPPs for general government are computed accurately.

General government services can be broadly classified into individual and collective services. Individual services are consumed by individuals, and are in addition to services purchased by households from private providers. Individual services provided by government include running schools, universities, medical clinics, and hospitals. Collective services by government are provided to every citizen on an equal basis. Examples are law and order services provided by the police; defense services; environmental protection; economic affairs; and provision of recreational, cultural, and religious services including maintenance of public parks and facilities. The distinction between individual services and collective services is based on the Classification of the Functions of Government (COFOG) (UNSD, 2000). The following are the broad COFOG groups that cover individual and collective services by general government:

- 01 – General public services;
- 02 – Defense;
- 03 – Public order and safety;
- 04 – Economic affairs;
- 05 – Environment protection;
- 06 – Housing and community amenities;
- 07 – Health;
- 08 – Recreation, culture and religion;
- 09 – Education; and
- 10 – Social protection.

PPPs for health and education benefits and reimbursements are the same as PPPs computed for individual expenditure on health and education by households that are sourced from private providers at market prices. The main components that make up production of health and education services, which are not covered in the previous section, are compensation of employees working in the health and education sectors. On collective services provided

Table 31. Number of Items Priced for Health by Economy, 2011

Economy	Number of Items Priced					
	AP	AG	GC	Total	Regional List (AP + AG)	Global List (AG + GC)
Bangladesh	2	4	0	6	6	4
Bhutan	2	2	2	6	4	4
Brunei Darussalam	2	3	0	5	5	3
Cambodia	2	4	0	6	6	4
China, People's Republic of	2	4	0	6	6	4
Fiji	1	0	0	1	1	0
Hong Kong, China	2	4	2	8	6	6
India	2	4	2	8	6	6
Indonesia	2	4	0	6	6	4
Lao People's Democratic Republic	1	3	0	4	4	3
Macao, China	2	3	2	7	5	5
Malaysia	2	4	0	6	6	4
Maldives	2	3	0	5	5	3
Mongolia	2	4	2	8	6	6
Myanmar	0	2	0	2	2	2
Nepal	2	4	0	6	6	4
Pakistan	2	3	0	5	5	3
Philippines	2	4	2	8	6	6
Singapore	2	3	0	5	5	3
Sri Lanka	1	4	1	6	5	5
Taipei, China	2	3	2	7	5	5
Thailand	2	4	2	8	6	6
Viet Nam	2	4	0	6	6	4
Total Education Items	2	4	2	8	6	6

AP = Asia and the Pacific list, AG = overlap of Asia and the Pacific and global core lists, GL = global core list.

Source: Economy sources.

Table 32. Reference Purchasing Power Parities Used for Education

Basic Heading Code	Description	Reference Purchasing Power Parity
Individual Consumption Expenditure by Government		
1304111	Education Benefits and Reimbursements	Purchasing power parity (PPP) for education from household
1304221	Intermediate Consumption	Weighted PPPs for household final consumption expenditure (HFCE) on the domestic market (excluding reference PPPs basic headings)
1304231	Gross Operating Surplus	Weighted PPPs for gross fixed capital formation
1304241	Net Taxes On Production	Weighted PPPs for HFCE on the domestic market (excluding reference PPPs basic headings) and PPP for compensation of employees for the production of education services by government
1304251	Receipt From Sales: Education	Weighted PPPs for HFCE on the domestic market (excluding reference PPPs basic headings) and PPP for compensation of employees for the production of education services by government

Source: ADB, 2014.

by the government, the following are the major expenditure categories identified for ICP purposes:

- (i) Compensation of employees,
- (ii) Intermediate consumption,
- (iii) Gross operating surplus,
- (iv) Net taxes on production, and
- (v) Receipt from sales.

Of these five components, PPPs were computed only for compensation of employees while reference PPPs were used for the remaining four components.

Government Occupations

The list of standard occupations used in the ICP included 7 occupations in health, 6 from education sector, and 29 from collective services. A few examples of occupations are doctor, head of department; doctor (20 years experience); primary teacher; university lecturer; data entry clerk; fire fighter; policeman/woman; librarian; and so on. After preliminary analysis of data collected by the participating economies, problems were identified for several occupations. At the recommendation of the Regional Advisory Board, it was decided to drop these occupations from the surveys: member of Parliament, senior government official, army commander of infantry regiment, navy commander of frigate, air force fighter pilot/wing commander, army private of infantry, navy able seaman, and air force airman (ground crew).

Table 33 provides a summary of the coverage of the occupations in the 23 participating economies. The coverage of data they provided ranged from full coverage of all the 36 occupations by the People's Republic of China (PRC), India, Indonesia, and Pakistan; to having the lowest coverage of 21 occupations by Brunei Darussalam.

Machinery and Equipment

Expenditure on machinery and equipment (M&E) is a major component of, and the second largest within, gross fixed capital formation (GFCF). The selection of M&E items for pricing, and the preparation of SPDs for M&E items, were undertaken by the Global Office

Table 33. Number of Occupations Priced for Government by Economy, 2011

Economy	Number of Items Priced			
	Total	Health	Education	Collective
Bangladesh	34	9	4	21
Bhutan	26	7	5	14
Brunei Darussalam	21	5	4	12
Cambodia	32	9	4	19
China, People's Republic of	36	9	6	21
Fiji	25	8	4	13
Hong Kong, China	25	7	3	15
India	36	9	6	21
Indonesia	36	9	6	21
Lao People's Democratic Republic	30	8	6	16
Macao, China	34	8	6	20
Malaysia	35	9	6	20
Maldives	26	6	6	14
Mongolia	33	8	6	19
Myanmar	35	8	6	21
Nepal	30	7	5	18
Pakistan	36	9	6	21
Philippines	35	9	5	21
Singapore	28	8	6	14
Sri Lanka	35	9	5	21
Taipei, China	33	8	6	19
Thailand	27	7	5	15
Viet Nam	35	9	5	21
Total	36	9	6	21

Source: Economy sources.

in consultation with experts in the field and further discussed at the meetings of the RCAs and Technical Advisory Group.

M&E are purchased by producers, including private enterprises, government, and nonprofit institutions. Whether a particular purchase of M&E is classified as GFCF depends upon the purchaser and the use made of the item. For example, a computer or a

car purchased by a household will be included in household consumption but a purchase of the same item by a producer will be included in M&E within GFCF. Several important aspects of M&E were considered when the specifications for pricing were drawn up. As M&E are used in production processes, technical characteristics that determine performance, such as torque, power, speed, lifting capacity, etc., are important. These characteristics needed to be reflected in the SPDs. As M&E may be imported in many economies, it was important to identify the model and the producer clearly. In those economies that are large enough in size to have domestic production of M&E, it was important to have a clear distinction of marques and whether the item was imported or domestically produced.

The pricing of M&E items, as with other goods priced for the ICP, had to be consistent with the valuation of these goods in the national accounts. The valuation of these goods must be made at purchasers' price. The following rules must be observed in pricing M&E goods:

- (i) Where the prices of equipment goods do not include transport costs either from where they are made or at the port of entry (for imports) and delivered at the factory, the transport cost incurred must be estimated and included in the price.
- (ii) The cost of installation of fixed equipment, including physical installation as well as costs associated with testing and calibrating equipment, must be included.
- (iii) The prices should include only nondeductible product taxes. In many economies, taxes on capital good are deductible.
- (iv) The price reported must be less any discounts received by the purchaser that is customarily available to most purchasers.

The M&E aggregate has eight basic headings:

- 1501111 – Fabricated metal products, except machinery and equipment
- 1501121 – General purpose machinery
- 1501131 – Special purpose machinery
- 1501141 – Electrical and optical equipment

- 1501151 – Other manufactured goods, n.e.c.
- 1501211 – Motor vehicles, trailers and semitrailers
- 1501212 – Other road transport
- 1503111 – Other products

The M&E list has 300 items with very specific product characteristics that include the details on the make, model, and country-of-origin; and the technical specifications of the product. Table 34 shows the numbers of items priced by the economies under different basic headings. The global core list only has 171 items but the “total” number of items for the region in Table 34 already includes split items.

Coverage is different across basic headings and across the participating economies. Generally, the coverage of M&E is low as compared with the other sectors. The highest percentage of products priced was observed in the PRC with coverage of about 50% of the total list in the region while the lowest was in Macao, China at 7%.

Construction

Construction is a major component of GFCF, which is divided into three major components or basic headings that make up the construction aggregate (World Bank, 2013):

Residential construction or dwellings. These are buildings used entirely or primarily as residences. Examples are detached and semidetached houses, apartments, houseboats, mobile homes, and caravans used as principal residences of households.

Nonresidential buildings. These are buildings other than dwellings, which are used for commercial purposes. It includes barns, warehouses, industrial buildings, commercial buildings, buildings for public entertainment, hotels, restaurants, schools, hospitals, churches, and stadiums.

Civil engineering works. These include highways, suburban roads, railways, airfields, bridges, tunnels, hydroelectric projects, waterways, harbors, dams, sewer systems, mines, pipelines, communication

Table 34. Number of Items Priced for Machinery and Equipment by Economy, 2011

Economy	Items Priced by Basic Heading									% to Total Items	
	1501111	1501121	1501131	1501141	1501151	1501211	1501212	1503111	Total	Regional	Global
Bangladesh	5	12	20	29	3	3	2	8	82	27	49
Bhutan	1	1	5	15	1	4	0	5	32	11	20
Brunei Darussalam	1	6	7	6	2	2	3	2	29	10	18
Cambodia	5	13	16	24	3	2	1	6	70	23	42
China, People's Republic of	9	18	45	41	8	15	3	12	151	50	89
Fiji	9	19	39	35	5	14	3	12	136	45	81
Hong Kong, China	2	11	16	31	4	9	3	4	80	27	48
India	5	19	21	32	7	5	1	12	102	34	61
Indonesia	6	22	38	37	6	13	3	14	139	46	82
Lao People's Democratic Republic	7	12	22	27	5	2	1	11	87	29	52
Macao, China	0	2	1	13	1	0	0	5	22	7	14
Malaysia	5	17	28	52	9	12	5	15	143	48	85
Maldives	2	6	5	25	1	0	1	11	51	17	31
Mongolia	5	15	19	19	4	8	2	11	83	28	50
Myanmar	4	14	18	16	2	3	1	8	66	22	40
Nepal	2	7	11	9	2	4	0	12	47	16	28
Pakistan	4	16	20	42	3	9	0	3	97	32	58
Philippines	5	11	23	24	4	4	2	9	82	27	49
Singapore	2	3	7	18	5	2	1	6	44	15	27
Sri Lanka	4	7	13	14	5	3	0	8	54	18	33
Taipei, China	7	11	13	8	5	0	1	12	57	19	34
Thailand	4	15	22	30	4	6	0	9	90	30	54
Viet Nam	6	16	23	34	6	13	2	13	113	38	67

Source: Economy sources.

cables, transmission lines, power plants, transmission lines, etc.

Difficulties were encountered in the specification of weights at different stages of implementing the Basket of Construction Components (BOCC) approach¹⁶ introduced and implemented in the 2005 ICP. Learning from these difficulties, the Global Office

¹⁶ The BOCC approach used in 2005 ICP was designed to use different weights in each economy for aggregating the basic and composite components to systems to reflect the relative importance of each within the construction system in each economy.

decided to simplify the procedure to compute PPPs for construction. The approach was based on an input approach to construction, and PPPs were computed directly from price data observed for various inputs. There were three categories of inputs: materials with 41 inputs; equipment rental, 5; and labor, 7. Prices of inputs were collected by the participating economies adhering to the SPDs provided by the Global Office. Table 35 shows the items priced in all the economies.

In terms of coverage, most economies priced a reasonable number of construction inputs with at least

Table 35. Number of Items Priced for Construction by Economy and by Input Types, 2011

Economy	Material	Equipment Rental	Labor	Total
Bangladesh	38	5	7	50
Bhutan	22	1	7	30
Brunei Darussalam	25	3	7	35
Cambodia	40	5	7	52
China, People's Republic of	36	5	7	48
Fiji	36	5	7	48
Hong Kong, China	37	5	7	49
India	41	3	7	51
Indonesia	32	5	7	44
Lao People's Democratic Republic	32	5	7	44
Macao, China	23	5	7	35
Malaysia	37	5	7	49
Maldives	26	2	7	35
Mongolia	36	5	7	48
Myanmar	31	3	7	41
Nepal	26	3	7	36
Pakistan	35	5	7	47
Philippines	31	4	7	42
Singapore	32	4	6	42
Sri Lanka	37	5	7	49
Taipei, China	27	5	7	39
Thailand	36	5	7	48
Viet Nam	38	5	7	50

Source: Economy sources.

50 of the 53 items included in the list. They include Cambodia (52), India (51), Bangladesh (50), and Viet Nam (50). Price information for equipment rental and labor items was available for most economies with the exception of Bhutan (1 item priced) and the Maldives (2) for equipment hire, and Singapore for labor (6 out of 7 items). Of the 41 materials, 3 items were eventually dropped due to the lack of comparable prices. Hence, only the remaining 38 materials inputs were included in the PPP computations.

Dwellings

Dwelling services comprise one of several comparison-resistant services in the ICP. Measuring the volume of dwelling services and making international comparison of real per capita expenditure on dwelling services were difficult tasks. The 2011 ICP Technical Advisory Group recommended two standard approaches for measuring dwelling services: *quantity indicator and rental price*. While the reference volume method was ultimately used in the 2005 and 2011 ICP rounds for Asia and the Pacific, the data required for the recommended approaches to valuing dwelling services collected from all participating economies in the region.

The quantity indicator approach measures per capita volume directly from data collected on dwellings from participating economies. Under this approach, six indicators—three each for quality and quantity indicators—were required to arrive at relative volumes of dwelling services. The three indicators used as measures of dwelling volumes include the (i) number of dwellings per 100 people, (ii) number of rooms per 100 people, and (iii) square meters of floor space available per person. These were combined with three quality indicators measured by the number of dwellings with safe water, inside toilets, and electricity. These quality indicators reflected basic necessities and were useful in discriminating dwellings at the lower end of the spectrum of dwellings; and are also among the many indicators used to measure progress of the Millennium Development Goals.

Rental price data can be used in making allowance for quality differences in dwellings that were not otherwise captured by the three quantity indicators. As rental prices varied with the quality of the dwellings, it was possible to make comparison using rents paid for dwellings after making appropriate adjustment for quality differences. To facilitate this process, the Global Office prepared a list of types of dwellings along with the price determining characteristics, including the availability of air-conditioning. The participating economies provided data on rental prices based on

the questionnaire supplied to them by the RCA. PPPs for expenditure on dwelling services could be computed using the rental price data provided by the participating economies. Table 36 shows the extent of rental survey data provided by the participating economies for the 2011 ICP in Asia and the Pacific.

The rental data supplied was generally sparse while the most rental observations were for villas and attached houses. It is interesting to note that the highest number of rental quotations were submitted by low-income economies, such as Bangladesh (52), Sri Lanka (54), Indonesia (59), and Viet Nam (64).

Extensive validation checks were conducted on rental price data; and the data was assessed to be of poor quality, resulting in implausible PPPs and meaningless price level indexes.

Price Survey Framework

Collection of prices is the most important step in the ICP. The national implementing agencies (NIAs) had the primary responsibility to design and conduct price surveys and provide the RCA with price data in the form of national average prices. They also provided additional information on the number of quotations and the standard errors associated with the average

Table 36. Number of Items Priced for Rental Survey by Dwelling Type and by Economy, 2011

Economy	Villa	Attached House	Studio Apartment	One-Bedroom Apartment	Two-Bedroom Apartment	Typical/Traditional Dwelling	Total
Bangladesh	12	4	8	8	8	12	52
Bhutan	2	0	0	1	1	0	4
Brunei Darussalam	6	8	0	0	1	0	15
Cambodia	6	0	0	8	8	0	22
China, People's Republic of	15	11	8	8	8	0	50
Fiji	8	0	8	8	8	0	32
Hong Kong, China	0	0	0	4	4	0	8
India	2	0	0	2	2	0	6
Indonesia	16	12	4	8	8	11	59
Lao People's Democratic Republic	9	6	2	2	4	1	24
Macao, China	0	0	0	2	2	0	4
Malaysia	9	11	0	3	4	0	27
Maldives	1	0	0	2	2	0	5
Mongolia	0	2	4	2	2	2	12
Myanmar	3	0	0	2	2	0	7
Nepal	4	6	0	4	4	0	18
Pakistan	4	3	2	2	2	0	13
Philippines	8	6	4	5	5	0	28
Singapore	1	1	0	0	2	0	4
Sri Lanka	16	11	6	4	5	12	54
Taipei, China	2	3	2	2	2	0	11
Thailand	15	9	0	8	6	0	38
Viet Nam	16	12	8	8	8	12	64

Source: Economy sources.

prices, which were used by the RCA to validate data submissions.

The main requirement from the NIA was to adhere to the conceptual framework and basic principles that underpin the ICP, and to provide reliable estimates of prices of goods and services that are subsequently used in the computation of PPPs. Two important decisions needed to be made by the national coordinators in the participating economies: (i) the number of products to be priced for each basic heading, and (ii) the number of price quotations to be obtained for each product priced.

The determination of the number of products to be priced was complex and a range of factors had to be considered by the NIAs. As in the 2005 ICP round, the issues behind collecting the prices for the products specified in the regional and global lists differed to some extent. It depended on whether the products were for expenditures of households, or for aggregates of GFCF, or government expenditure. In each case, the prices were collected from sample outlets in the sample locations. Given the complexity and the larger variability in prices for household items, the ensuing sections focus on the number of products to be priced for households and the number of quotations that will ensure the annual national average prices correspond to expenditures reported in the national accounts.

Number of Products to be Priced

The number of products to be priced within a basic heading depended on the importance of the basic heading as reflected by its expenditure share in the national accounts. For example, the garments basic heading with 87 products is an important basic heading under clothing group. In the 2011 ICP in Asia and the Pacific, total share of clothing group to GDP was about 2.5%, the bulk in garments basic heading, one of the few basic headings with such a high expenditure share with a total share to GDP of 2.1% accounting for 84% of clothing. Based on the size and importance of this basic heading, it was expected that the participating economies will price a large number

of products. This is confirmed by the actual number of products priced. Out of the 72 products belonging to this group, on average 51 products were priced in the region, with 33 minimum and 60 maximum number of products.

A closely related criterion was the diversity of products in the basic heading. Diversity implies that there are a large number of products that the household can choose from. In the case of garments, products in this basic heading belong to three subheadings—garments for men, women, and children (boys and girls), which can be further classified into outer (shirts, dresses, trousers, etc.) and inner or under garments (vests, bras, etc.). As prices of these products are quite different, it is important to cover the whole range of garments included in the basic heading.

Finally, as the prices of products selected are intended to be used for comparisons across economies in the region, it was necessary to ensure a good degree of overlap of products priced in the participating economies. The NIAs were encouraged to price products that are not only considered important in their economies but also those products considered as less important to facilitate and strengthen comparisons across economies.

To ensure that each survey framework adheres to the basic ICP principles, the RCA engaged the services of a sampling expert who reviewed the household survey frames of the participating economies. Through technical guidance from the sampling statistician, preliminary survey frames submitted by NIAs were further improved after the Technical Discussion Workshop on Sampling Design held in Kuala Lumpur, Malaysia, in October 2010. In summary, the household survey framework submitted to RCA by each economy had captured the annual national average prices required for ICP.

Number of Price Quotations

Variability in prices across the whole economy influenced the decisions on the number of quotations and their allocation to the rural and urban areas,

geographical subregions of the economy, and outlets. The RCA did not make any specific recommendations on these and it was largely left to the NIAs in the participating economies. However, it advised the NIAs to ensure that both rural and urban areas were covered and to make use of the survey frameworks and infrastructure adopted for collection of prices for the CPI and for other price indexes such as wholesale and retail prices.

The survey designs and number of price quotations relied on standard statistical principles and sampling techniques to deliver a given level of precision. Asia and the Pacific has both large and small-size economies, which reflect their geographic area and population size. Therefore, the sampling designs employed in each economy took into account economy-specific considerations. The overriding principle for all the NIAs to follow was that the target price is the annual national average price for each product.

For large economies such as the PRC, India and Indonesia, with sizeable rural and urban areas and in some cases consisting of a large number of provinces, multistage stratification may be appropriate. Sample size determination depended on the variability of prices of the products across different regions of the economy. For instance, if the product priced is regulated in a given economy, e.g., petrol or postage stamp, only one price quotation is sufficient regardless of the importance of the product or basic heading.

Apart from geographic stratification, it was also necessary for economies to consider stratification by type of outlets. The NIAs were advised to determine the allocation and decide on the number of quotes to be obtained from the different types of outlets. The main consideration was the importance of a certain type of outlet for a given product. In the case of fresh fish, the general markets or wet markets in many of the economies in Asia and the Pacific account for most of the sales. Hence, most of the price quotations must be obtained from the wet markets and not from supermarkets even if it may be much easier to

collect prices from them. Some useful considerations provided for the selection of outlets by type are the

- (i) volume of sales for the product under consideration,
- (ii) variability within and between outlets,
- (iii) location of the outlets in the rural and urban domains, and
- (iv) level of desired precision.

Data Validation Procedures

Reliable and accurate price data are paramount to the compilation of meaningful PPPs. The importance of achieving high level of accuracy and maintaining data quality was conveyed at the very outset to the participating economies. The Regional Advisory Board strongly placed emphasis on data quality, and stressed that no amount of sophistication in the index number methodology could make up for low quality of the price data. The RCA thus focused on data validation and editing, providing significant amount of human and financial resources for these activities. Several workshops were organized to involve the participating economies in the process, and for them to take ownership over the price data that enter into the PPP computations.

Data validation is a complex task, requiring the price data to be checked and verified at different levels of the ICP process. In Asia and the Pacific, validation was undertaken within economy (intra-economy) and across economy (inter-economy).

A battery of tests and techniques were used at each of these levels to ensure price parity and to identify *outliers* that can unduly influence the price comparisons. Outliers identified at each stage were brought to the attention of the NIAs to cross-check, verify, and correct. The price may have been identified as an outlier because of non-sampling errors, such as reporting, unit of measure, or data entry error. The SPDs were used to make sure that the same product was priced in all the economies to ensure comparability.

Eurostat and OECD have long been using Quaranta tables for data validation. The Global Office has also been using the Dikhanov Tables developed during the 2005 ICP. Both Quaranta and Dikhanov Tables make use of standard statistical techniques in identifying outliers in samples. The RCA used the Dikhanov Tables for data validation. In addition to these standard techniques, the RCA made novel use of data available from the back-to-back ICP rounds in 2005 and 2011. The new technique, which was first introduced in the 2009 PPP Update (ADB, 2012a), is explained in considerable detail.

Intra-Economy Validation

Validation of price data is an important first step in producing high quality price data. The NIAs had information on the survey design, and access to individual price quotations and information on the outlets and geographical regions from where the prices were collected. They conducted initial *intra-economy* validation of prices for all sectors to ensure that there are no outliers in the price data. The following checks and statistical techniques were recommended for intra-economy validation:

- (i) **Number of quotations.** NIAs have to see to it that each item will have a minimum of 15 quotations for every collection period for the entire economy. The number of quotations is expected to be more for larger economies and for items that are deemed available and important throughout the economy, such as basic food items, and those whose prices are highly volatile. On the other hand, the minimum number of quotations is expected for items available only in selected markets, such as household durables (e.g., television, furniture, etc.).
- (ii) **Scope and coverage.** Since ICP is interested in capturing the annual national average prices, the NIAs must ensure that the number of quotations from each domain include prices from urban and rural areas. They must also review the completeness of coverage vis-à-vis the submitted survey framework.
- (iii) **Ratio to average price test.** The price observation for a given product is compared as a ratio to the average price for the product over all the quotations. Ratios outside the range between 0.5 and 1.5 are to be checked.
- (iv) **Minimum-maximum test.** The ratio of the minimum to maximum of the price quotations is used as indication of reliability of prices. If the ratio is less than 0.33, then the data is to be examined closely to identify possible outliers.
- (v) **Coefficient of variation.** This is the standard deviation of the price quotations divided by the average price. Coefficient of variation (CV) in excess of 30% flags a review of the prices to identify any possible extreme values.
- (vi) **Inter-quarter price movements.** A review of the inter-quarter profile of prices collected is required. First introduced by ADB in the 2005 ICP, the procedure encouraged the NIAs to look at priced items across quarters. For two quarters, say Quarter 1 and Quarter 2, ICP items with price increases/decreases of more than 15% are flagged for review. The rationale is that quarter-on-quarter price movements for like with like items are not deemed to fluctuate by more than 15%. Hence, the NIA officers and staff have to review the prices for such items at the quotation level to ascertain that these are valid outliers. Depending on the outcome of the investigation, prices at the quotation or product level may either be edited or deleted.
- (vii) **ICP and CPI temporal price movement.** The trends of the ICP price movements for each quarter are compared with the movement in prices of the CPI for the same quarters, at the most detailed level possible. First introduced in the 2009 PPP Update (ADB, 2012a), the procedure represented additional validation for ICP prices. If there are differences in price trends of CPI and ICP (e.g., prices are increasing in CPI and decreasing in ICP) or a significant difference in increase or decrease among similar items or groups in the CPI and ICP (e.g., both exhibiting the same trend but the CPI inflation/deflation is higher/lower than ICP by about $\pm 20\%$), economies are advised to review and/or document the reasons for such variations in ICP

and ICP price trends. This is further explained in the ensuing sections

- (viii) **Spatial price validation.** This procedure looks at the differences between urban and rural prices, as well as the differences in price levels across provinces, regions, or the sampling domains defined by the NIAs. Given the number of items in the 2011 ICP Asia and the Pacific product lists, it is important to prioritize the items that are deemed “*more problematic*” than the others. To facilitate the review process, the first step is to *estimate subnational PPPs at the basic heading level*. Price diagnostics based on the Dikhanov Tables are derived to automatically identify outlier basic headings and prices. The *average price of each province/region/state* for each item is also compared with the national average prices. Areas with average price ratios relative to the national average that are either greater than 1.1% or less than 0.9% are forwarded to concerned provinces for further verification. To ensure *coverage of urban and rural areas*, each item average price for urban area is divided to the corresponding rural average price. Items with average price ratios greater than 1.2% or less than 0.80% are flagged for further review and verification.

The indicators and procedures listed above are pure statistical measures used in flagging the presence of outliers at the national level. It is important to note that a given outlier may not really be an outlier. An explanation may come from a unit of measure error, for example pricing one egg instead of one dozen eggs; or price data entry error, for example leaving out or including a decimal point. Hence, adjusting for the units and price will make the price acceptable. Table 37 is an example of the typical intra-economy validation summary sheet in the 2011 ICP in Asia and the Pacific.

Both the NIA and RCA closely looked at indicators and reliability of estimates derived from intra-economy validation to ensure that prices were suitable for inclusion in the calculation of regional PPPs. The same thorough intra-economy validation and parameters

used at the national level validation were employed by the RCA. The process of review and validation took several rounds until all parties agree that the remaining outliers are “acceptable” or can be explained by the concerned economy.

Inter-Economy Validation

Making use of price data from different economies, the RCA can verify if the average prices are comparable across economies. It can also ascertain that price statisticians in different economies have interpreted the product specifications correctly, and the price collectors have priced the products in accordance with the SPDs. There are two standard methods of analyzing and detecting outliers: the Quaranta Tables and Dikhanov Tables, which were used in the 2005 ICP. However, for purposes of the 2011 ICP, only the Dikhanov Tables and the new method of comparing ICP and CPI price trends developed by RCA for Asia and the Pacific are described in the following sections.

Dikhanov Tables

A simpler and more straightforward approach to the identification of outliers is provided by Dikhanov Tables; the approach was developed by Yuri Dikhanov of the World Bank and was first introduced and implemented in the 2005 ICP. Dikhanov Tables have the foundations in the *country-product-dummy* (CPD) method used to estimate PPPs at the basic heading level. The CPD model makes use of the following regression model given in equation (12):

$$y_{ij} = \ln p_{ij} = \pi_1 D_1 + \pi_2 D_2 + \dots + \pi_{23} D_{23} + \eta_1 D_1^* + \eta_2 D_2^* + \dots + \eta_N D_N^* + v_{ij}$$

Here logarithm of price of each product in each of the economies is used in the regression model, which represents the “law of one price” that underpins the CPD method. Residuals from the estimated model are computed using

$$\text{residual}_{ij} = \ln p_{ij} - \hat{\pi}_j - \hat{\eta}_i \tag{16}$$

Table 37. Intra-Economy Validation Summary

Particulars	Annual	Sem1	Sem2	Q1	Q2	Q3	Q4	Particulars	Annual	Sem1	Sem2	Q1	Q2	Q3	Q4	
Products with Quotations																
1	0	0	0	6	5	3	4	Products with CV (in %) equals 0 0 < CV ≤ 5 5 < CV ≤ 10 10 < CV ≤ 20 20 < CV ≤ 30 CV > 30 30 < CV ≤ 40 40 < CV ≤ 50 50 < CV ≤ 60 60 < CV ≤ 70 > 70	309	354	309	361	356	312	314	
2	0	5	2	7	7	7	11		33	51	31	31	51	53	38	36
3-5	5	9	10	36	34	39	36		86	117	72	72	124	114	86	75
6-10	13	33	36	67	62	53	64		286	281	272	268	268	278	271	268
11-14	18	21	22	49	46	42	48		337	273	344	255	266	266	305	349
15-30	46	97	89	159	155	167	179		81	56	104	73	65	120	90	90
31-90	184	249	264	219	229	230	220		64	43	87	58	52	102	102	69
> 90	563	377	406	246	253	288	266		11	10	12	11	11	11	14	14
Subtotals										3	3	2	3	2	2	3
≥ 15	793	723	759	624	637	685	665		1	0	1	1	1	0	0	0
< 3	0	5	2	13	12	10	15		2	0	2	0	0	0	0	4
< 15	36	68	70	165	154	144	163									
Total Number of Products Priced	829	791	829	789	791	829	828		Inter-Quarter Profile	Q2/Q1	Q3/Q1	Q4/Q1	Q3/Q2	Q4/Q2	Q4/Q3	
Total Number of Quotations	447,054	223,788	223,266	112,148	111,640	120,507	102,759	1. Overlapping Items	789	789	789	791	791	828		
Products Min-Max Ratio < 0.33	129	26	126	26	25	82	37	2. Within Limit (0.85 < Price Ratio ≤ 1.15)	778	730	726	748	731	790		
Urban/Rural Dimension								2. Outside the Limit (0.85 < Price Ratio ≤ 1.15)	11	59	63	43	60	38		
Overlapping Items	696	643	690	624	628	678	666									
Priced in Urban	829	791	829	789	791	829	828									
Priced in Rural	696	643	690	624	628	678	666									
Price Ratios																
0.80 < Price Ratio ≤ 1.20	733	703	726	702	705	725	723									
Price Ratio < 0.8 or > 1.2	96	88	103	87	86	104	105									

CV = coefficient of variation, Min-Max = minimum-maximum, Q = quarterly, Sem = semester.
Source: ADB estimates.

where $\hat{\pi}_j$ and $\hat{\eta}_i$ are the estimates of parameters of the CPD model. The residuals of the CPD model are used in the Dikhanov Tables. There are two different sets of Dikhanov Tables in the *2003–2006 ICP Handbook* (World Bank, 2007) as described in the ensuing paragraphs.

Figure 11 contains a short description of the Dikhanov Table. An extract of a typical output is also shown with several basic headings and eight economies (only the upper part of the actual table is shown). The Dikhanov Table can be used at different levels of aggregation. Figure 12 exhibits the scopes of processing for various characteristics (for example, the economy-specific characteristics such as the standard deviation of CPD residuals and number of items prices are computed based on all items priced in that economy—see the gray out area under Econ3).

The Dikhanov Table is organized in two sections: the general section at the top of the table and the item section at the bottom. The general section describes the overall characteristics pertaining to the whole set of items under investigation: PPP, overall standard deviation of the CPD residuals, price level index, number of items and exchange rate by economy, and the overall standard deviation of residuals and number of items for the whole price tableau. (Note that the GDP PPP is estimated here as the CPD PPP utilizing the whole set of prices and products, and thus does not take into account basic heading expenditures. The advantage is that the CPD PPP at the aggregate level can be estimated before the actual basic heading weights are known, and it will still provide a ballpark estimate of the final PPP for the GDP).

The lower section of the Dikhanov Table describes characteristics of the individual items: CPD residual, standard deviation of CPD residuals by item, and number of economies pricing the item. The CPD computations are done at the level specified by the user (basic heading or higher level aggregate including GDP). In addition, the cells in the report with CPD residuals are color-coded to facilitate visual diagnostics. The first two columns of the table refer to the standard deviation of the residuals by item and

number of economies that priced a particular item. Thus, in this particular single basic heading case, the diagnostics coming from the two tables are very similar. The differences will be more obvious once the scope of analysis extends beyond a single basic heading, as explained in the next section.

Dikhanov Table 1

This table is constructed for each of the basic headings. For a given basic heading, the CPD model is estimated using price data collected for items belonging to the basic heading, and residuals are computed and tabulated to form Dikhanov Table 1. The outputs are CPD residuals for each item within the basic heading. Item residuals of the CPD Model for Dikhanov Table 1 are shown in the Table 38.

All residuals with absolute values below 0.25 are considered acceptable. Residuals in the range 0.25 to 0.75 are highlighted in yellow; those in the range 0.75 to 2.0 are marked in red; and those above 2.0 are in black. Note that these cut-offs are in logarithms. When translated into the original prices, a residual of 0.25 in the log-model implies that the observed price is 25% above the predicted value; 0.75 implies that the observed price is twice the predicted price; and a residual of 2.0 implies that the observed price is over seven times the predicted price. The prices associated with residuals highlighted are flagged for further review and validation by the participating economies.

Dikhanov Table 2

The second Dikhanov Table is constructed the same way as Dikhanov Table 1 described above, except that the CPD model is applied to all the 96 basic headings belonging to household consumption (Table 39). The rationale for this table is somewhat weak compared to the first table. Basic headings generally contain products that are similar in nature and the CPD model in equation (12) is expected to fit it better.

Comparing ICP and CPI Temporal Price Movements for Household Data Validation

Additional validation procedures were implemented by the RCA for the 2011 ICP household price data for

Asia and the Pacific. This procedure was conducted after the review and validation of price data based on the standard Dikhanov Tables; and the exchange-rate-based price analyses, which are designed to identify price outliers within and across economies. These procedures were not used in the 2005 ICP round since these methods were used to validate consistency in temporal movement of prices in the ICP (2005 and 2011) with those observed in the national CPIs for the same period.

Notably, the method of validating data between two collection years in Asia and the Pacific was introduced by ADB in its 2009 PPP Update (ADB, 2012a). The comparison, however, was limited to a core list of items since the 2009 household product list only had 279 items or a subset of 658 household items of the 2005 ICP in the region. The other limitation besides looking only at price movements from a core or subset of items was in terms of coverage. To explore alternative approaches to extrapolating PPP other than the conventional way of using annual movement of GDP deflators of an economy with the base or reference economy, price collection for the 2009 PPP Update was limited to the capital cities of each economy; and, therefore, only the capital city price movements of ICP and CPI data were compared.

Background

For the first time in the history of ICP, two consecutive rounds of ICP were conducted within a span of 6 years. The 2005 and 2011 ICP rounds have similar framework for international comparisons, including the specification of products to be priced in the participating economies; and with the same target of finding a representative national average price for each product priced. Further, in Asia and the Pacific, specifications of a large number of items included in household consumption are identical across the 2005 and 2011 rounds. The basic principle of *representativity* of the items priced while maintaining *comparability* of the products was also strictly adhered to in these two rounds.

Given the consistency in approach followed in these two rounds, it was possible to obtain measures of price movements for items belonging to different *basic headings* over the period 2005 and 2011 for each of the participating economies. For the same period, observed price movements from national CPIs (for household consumption) were available from national sources or national publications for broadly defined commodity groups. As such, for each commodity group, two independent measures of price change over the period 2005 to 2011 became available. Movements in the prices of goods and services in household consumption in the ICP and CPI baskets are strongly interrelated, reflecting the macroeconomic fundamentals prevailing in the economies under consideration. Under this premise, *the expectation is that the 2005 and 2011 ICP-based measures of price change and the CPI-based measures of price change would be broadly aligned except for random (nonsystematic) measurement errors and noise.*

Asia and the Pacific had taken the lead and initiative to make comparisons between national CPI- and ICP-based price movements for broad commodity groups for each participating economy. Surprisingly, in the case of several participating economies, there had been fairly significant and systematic differences in price movements based on the ICP products and the national CPI counterparts. These observed systematic and significant differences between national CPI and implicit ICP inflation observed for the participating economies call for a closer examination and possible data editing based on these observed price differences.

Implicit Quality Differences

During the course of numerous discussions with price statisticians from the NIAs, it became clear that a possible driver of the differences in the national CPI and ICP inflation could be due to differences in the quality of the products priced. The main dimensions of quality, which is of importance, are (i) differences in the interpretation and pricing of products that

Figure 11. How to Read the Dikhanov Tables

GENERAL PART:
Computed using all available items (918 in this example) and all economies (8) computed at the selected level (PPP is computed at the household level)

ITEM-SPECIFIC PART:
Computations for individual items (products), out of 918 lines in this example, first 34 lines are shown, grouped by basic headings.

Computed at the selected level (household total in this case)

			STD	CNT	Econ1
Purchasing Power Parity					1.00
Standard Deviation (STD)			0.25		0.25
Number of items priced				918.00	575.00
Price Level Index					100.00
Exchange Rate (LCU/Hong Kong dollar)					1.00
BH Code	Product Code	Product Name			
1101111	1101111011	Coarse #3	0.18	3.00	-
1101111	11011110110	White rice #3	0.13	16.00	-
1101111	11011110111	White rice #4	0.15	7.00	-
1101111	11011110114	White rice #7	0.07	7.00	0.05
1101111	11011110115	White rice #8	0.17	9.00	0.00
1101111	11011110116	White rice #9	0.16	8.00	0.05
1101111	11011110117	White rice #10	0.22	11.00	0.11
1101111	11011110118	Premium rice #1	0.15	9.00	0.08
1101111	11011110119	Premium rice #2	0.26	16.00	-0.06
1101111	11011110120	Premium rice #3	0.14	7.00	-
1101111	11011110121	Premium rice #4	0.19	13.00	-0.22
1101111	1101111013	Coarse #2	0.54	3.00	-
1101111	1101111014	Coarse #6	0.06	4.00	-
1101111	1101111015	Coarse #5	0.12	5.00	-
1101111	1101111017	Brown rice	0.24	14.00	-
1101111	1101111018	White rice #1	0.17	15.00	-
1101111	1101111019	White rice #2	0.17	11.00	-
1101111	11011110201	Glutinous Rice	0.19	14.00	-
1101112	1101112011	Wheat flour, prepacked	0.27	21.00	0.35
1101112	11011120110	Dhal, Khesari	0.20	6.00	-
1101112	11011120111	Dhal, Musur	0.24	9.00	-
1101112	11011120112	Dhal, Split Peas	0.28	10.00	-
1101112	11011120113	Sattu	0.32	6.00	-
1101112	1101112012	Wheat flour, loose	0.20	15.00	-
1101112	1101112013	Wholemeal flour, Atta	0.31	12.00	-
1101112	1101112014	Semolina, Suji	0.26	6.00	-
1101112	1101112016	Corn/Maize flour, prepacked	0.26	18.00	0.02
1101112	1101112017	Rice flour	0.20	17.00	-0.12
1101112	1101112018	Bajra Flour	0.07	2.00	-
1101112	1101112019	Corn/Maize Flour, loose	0.23	9.00	-
1101112	1101112021	Cake mix	0.28	20.00	0.17
1101112	11011120311	Oats, Quaker	0.27	12.00	-0.17
1101112	11011120312	Oats, Others	0.30	3.00	-
1101112	1101112032	Cornflakes, Nestle	0.26	18.00	-0.25

- = magnitude equals zero, 0.00 = magnitude is less than half of unit employed, BH = basic heading, CNT = count, CPD = country-product-dummy, Econ = economy, ER = exchange rate, LCU = local currency unit, PPP = purchasing power parity, STD = standard deviation.

Source: ADB estimates; World Bank, 2007.

Econ2	Econ3	Econ4	Econ5	Econ6	Econ7	Econ8	
0.17	1.05	0.19	2.97	5.09	3.36	3.06	Economy Name
0.27	0.26	0.25	0.22	0.26	0.25	0.24	
533.00	579.00	559.00	578.00	636.00	466.00	705.00	
105.92	102.14	116.73	78.32	53.41	56.01	51.00	
0.16	1.03	0.16	3.79	9.53	6.00	6.00	
-	-	-	-	-0.23	0.04	-	
0.13	0.04	-	-	0.14	0.14	-0.13	PPP based on CPD index ran on all products and economies in the region
-	-	-	-	-0.07	-0.16	-0.02	
-	-	-	-	-0.03	-	0.05	
-	-	-	-	-0.33	-	0.27	STD of residuals for the economy
-	-0.16	0.21	-0.07	-0.30	-	0.11	
-	-0.09	-0.45	0.06	-0.34	-	0.25	
-	-0.28	-	-	0.16	-0.00	0.26	
-	-0.02	-0.10	-0.27	0.62	-	0.32	Number of products priced in the economy
-	-	-	0.05	0.05	-	0.09	
0.08	-0.09	-0.00	-	0.37	-	0.32	
-	-	-	-	0.41	-	-0.77	
-	-	-	-	-0.02	-	-0.06	
-	-	-	-	-0.13	-	-0.07	Exchange rate versus Hong Kong dollar
-	0.41	0.32	-0.03	-0.47	0.20	-0.05	
-	0.01	-	0.11	0.37	-0.05	-0.19	Price level index (PPP/ER ratio)
-	-	-	-	-0.13	-	0.05	
-0.21	0.19	0.02	0.14	-	-	-0.27	
0.08	0.63	0.23	0.11	-0.11	-0.34	0.00	
-	-	-	-	-0.29	0.31	-0.04	
0.27	-	-	-	0.13	-0.01	-0.01	Number of items priced in the region
0.31	-	-	-	-0.12	0.33	-0.00	
-	-	-	-	-0.36	-0.31	0.27	
-	0.29	-	0.17	0.09	-0.13	-0.05	
-	-	-	-	-0.16	-0.14	-0.03	Overall STD of residuals in the region: uses whole tableau of CPD residuals
-0.52	-	-	-	0.04	0.01	-0.23	
0.09	-0.13	0.25	-	0.54	0.07	-0.25	
-0.29	-0.48	-0.00	0.23	-0.01	-	0.08	
-	-	-	-	-	-	0.07	Number of economies pricing the product
-	-	-	-	0.05	-0.05	-0.11	
-0.39	0.04	0.02	-0.10	0.02	0.48	0.41	
-0.01	-0.35	-0.08	-0.12	0.44	-	-	STD of residuals for the product
-	-	-	-	-	-	0.25	
-0.58	-	-	-0.12	-	0.17	0.12	CPD Residual

Figure 12. Scope of Data Processing in the Dikhanov Table

	STD	CNT	Econ1	Econ2	Econ3	Econ4	Econ5	Econ6	Econ7	Econ8
Purchasing Power Parity			1.00	0.17	1.05	0.19	2.97	5.09	3.36	3.06
Standard Deviation (STD)	0.25		0.25	0.27	0.26	0.25	0.22	0.26	0.25	0.24
Number of items priced		918.00	575.00	533.00	579.00	559.00	578.00	636.00	466.00	705.00
Price Level Index			100.00	105.92	102.14	116.73	78.32	53.41	56.01	51.00
Exchange Rate (LCU/Hong Kong dollar)			1.00	0.16	1.03	0.16	3.79	9.53	6.00	6.00
BH Code	Product Code	Product Name								
1101111	1101111011	Coarse #3	-	-	-	-	-	-0.23	0.04	-
1101111	1101111010	White rice #3	-	0.13	0.04	-	-	0.14	0.14	-0.13
1101111	1101111011	White rice #4	-	-	-	-	-	-0.07	-0.16	-0.02
1101111	1101111015	Coarse #5	-	-	-	-	-	-0.13	-	-0.07
1101111	1101111017	Brown rice	-	-	0.41	0.32	-0.03	-0.47	0.20	-0.05
1101111	11011110201	Glutinous Rice	-	-0.21	0.19	0.02	0.14	-	-	-0.27
1101112	1101112011	Wheat flour, prepacked	0.35	0.08	0.63	0.23	0.11	-0.11	-0.34	0.00
1101112	11011120110	Dhal, Khesari	-	-	-	-	-	-0.29	0.31	-0.04
1101112	11011120111	Dhal, Musur	-	0.27	-	-	-	0.13	-0.01	-0.01
1101112	11011120112	Dhal, Split Peas	-	0.31	-	-	-	-0.12	0.33	-0.00
1101112	1101112017	Rice flour	-0.12	-0.29	-0.48	-0.00	0.23	-0.01	-	0.08
1101112	1101112018	Bajra Flour	-	-	-	-	-	-	-	0.07
1101112	1101112019	Corn/Maize Flour, loose	-	-	-	-	-	0.05	-0.05	-0.11
1101112	1101112021	Cake mix	0.17	-0.39	0.04	0.02	-0.10	0.02	0.48	0.41
1101112	11011120311	Oats, Quaker	-0.17	-0.01	-0.35	-0.08	-0.12	0.44	-	-
1101112	11011120312	Oats, Others	-	-	-	-	-	-	-	0.25
1101112	1101112032	Cornflakes, Nestle	-0.25	-0.58	-	-	-0.12	-	0.17	0.12

- = magnitude equals zero, 0.00 = magnitude is less than half of unit employed, BH = basic heading, CNT = count, CPD = country-product-dummy, Econ = economy, LCU = local currency unit, PPP = purchasing power parity, STD = standard deviation. Source: ADB estimates; World Bank, 2007.

are systematically of higher quality; and (ii) pricing similar products but from more expensive, high-end, or boutique outlets.¹⁷ There is also the possibility of relying on a higher percentage of urban prices in computing the national average price.

Based on these considerations, the following measure of quality differences in the products priced over the two benchmark years 2005 and 2011 was proposed:

$$\text{Implicit Quality Index (IQI)} = \frac{\text{average ICP price change}}{\text{CPI price change}} \quad (17)$$

From the basic notion that underpins IQI defined above, value of IQI will vary across items and commodity groups. It is also clear that ICP price change can be computed between 2005 and 2011, at item and/or commodity group levels. The CPI is typically available only for broadly defined commodity groups. As the CPI for a particular commodity group is an aggregate measure of price change for all the products included in the group, one would expect variations in the measure of IQI that are arising purely out of the aggregation process. Therefore, it is necessary to make allowances for such a variation within the commodity group in assessing the level of IQI.

While IQI is certainly new and novel in the context of international comparisons, a similar measure is apparently in use in the context of CPI compilation. In a paper presented at the Meeting of the Ottawa Group on Price Statistics by Jorgen Dalen and Oxana Tarassiouk (World Bank, 2013), entitled *Replacements, Quality Adjustments and Sales Prices*, reference is made in page 14: *An important tool for analysing QA methods is the so called Implicit Quality Index (IQI) defined by dividing the Average Price Change (APC) by the Adjusted Price Index (API, after applying a certain QA method).*¹⁸

¹⁷ Most of the evidence to support the higher quality pricing hypothesis was anecdotal, although it was also corroborated during price review/validation visits made to economies by the ADB ICP team.

¹⁸ This quote is an indication that it is certainly not out of line to

Conclusion

Data validation procedures based on temporal movements in the ICP prices and their comparison with CPI movements were used in bilateral discussions with the participating economies. No formal editing procedures based on temporal movements in ICP prices were used in the 2011 ICP Asia and the Pacific. The procedure in the context of the 2011 ICP in the region was mainly used to support or better explain the findings from established validation technique such as the Dikhanov Tables.

ICP Asia Pacific Software Suite for Data Management and Validation

The complexity of the tasks involved in the ICP process is enormous. The RCA recognized the need for user-friendly, simple, and functional software to meet its needs, as well as that of the participating economies. The RCA developed the 2011 ICP Asia and the Pacific Software Suite (ICP APSS), which was relatively simple to use and able to accommodate the basic routines required for ICP, including survey questionnaire generation, data management, processing and validation. The ICP APSS was developed in-house by the ADB ICP Team who had the advantage of knowing and understanding the ICP process and desired results. Having this set-up facilitated the design and development of the software. There was also greater flexibility in enhancing and modifying the features of the software to improve its functionalities as necessary.

On the part of users, ICP APSS catered to multiple functions: generating the survey questionnaires, including product mapping; data entry; basic data editing, validations and diagnostics; and lists of items and quotations to be prioritized for review based on set of criteria and parameters. The software also minimized non-sampling errors, as it inhibited entering units of measures that are not within specified range.

consider measures of implicit quality differences reflected in two alternative measures of the same phenomenon, that is, price change over a given period of time.

Table 38. Illustrative Dikhanov Table 1: Processed at the Basic Heading Level

			STD	CNT	Econ1
Purchasing Power Parity					1.00
Standard Deviation (STD)			0.25		0.25
Number of items priced				918.00	575.00
Price Level Index					100.00
Exchange Rate (LCU/Hong Kong dollar)					1.00
BH Code	Product Code	Product Name			
1101111	1101111011	Coarse #3	0.18	3.00	-
1101111	11011110110	White rice #3	0.13	16.00	-
1101111	11011110111	White rice #4	0.15	7.00	-
1101111	11011110114	White rice #7	0.07	7.00	0.05
1101111	11011110115	White rice #8	0.17	9.00	0.00
1101111	11011110116	White rice #9	0.16	8.00	0.05
1101111	11011110117	White rice #10	0.22	11.00	0.11
1101111	11011110118	Premium rice #1	0.15	9.00	0.08
1101111	11011110119	Premium rice #2	0.26	16.00	-0.06
1101111	11011110120	Premium rice #3	0.14	7.00	-
1101111	11011110121	Premium rice #4	0.19	13.00	-0.22
1101111	1101111013	Coarse #2	0.54	3.00	-
1101111	1101111014	Coarse #6	0.06	4.00	-
1101111	1101111015	Coarse #5	0.12	5.00	-
1101111	1101111017	Brown rice	0.24	14.00	-
1101111	1101111018	White rice #1	0.17	15.00	-
1101111	1101111019	White rice #2	0.17	11.00	-
1101111	11011110201	Glutinous Rice	0.19	14.00	-
1101112	1101112011	Wheat flour, prepacked	0.27	21.00	0.35
1101112	11011120110	Dhal, Khesari	0.20	6.00	-
1101112	11011120111	Dhal, Musur	0.24	9.00	-
1101112	11011120112	Dhal, Split Peas	0.28	10.00	-
1101112	11011120113	Sattu	0.32	6.00	-
1101112	1101112012	Wheat flour, loose	0.20	15.00	-
1101112	1101112013	Wholemeal flour, Atta	0.31	12.00	-
1101112	1101112014	Semolina, Suji	0.26	6.00	-
1101112	1101112016	Corn/Maize flour, prepacked	0.26	18.00	0.02
1101112	1101112017	Rice flour	0.20	17.00	-0.12
1101112	1101112018	Bajra Flour	0.07	2.00	-
1101112	1101112019	Corn/Maize Flour, loose	0.23	9.00	-
1101112	1101112021	Cake mix	0.28	20.00	0.17
1101112	11011120311	Oats, Quaker	0.27	12.00	-0.17
1101112	11011120312	Oats, Others	0.30	3.00	-
1101112	1101112032	Cornflakes, Nestle	0.26	18.00	-0.25

- = magnitude equals zero, 0.00 = magnitude is less than half of unit employed, BH = basic heading, CNT = count, Econ = economy, LCU = local currency unit.
 Source: ADB estimates; World Bank, 2007.

Econ2	Econ3	Econ4	Econ5	Econ6	Econ7	Econ8
0.17	1.05	0.19	2.97	5.09	3.36	3.06
0.27	0.26	0.25	0.22	0.26	0.25	0.24
533.00	579.00	559.00	578.00	636.00	466.00	705.00
105.92	102.14	116.73	78.32	53.41	56.01	51.00
0.16	1.03	0.16	3.79	9.53	6.00	6.00
-	-	-	-	-0.23	0.04	-
0.13	0.04	-	-	0.14	0.14	-0.13
-	-	-	-	-0.07	-0.16	-0.02
-	-	-	-	-0.03	-	0.05
-	-	-	-	-0.33	-	0.27
-	-0.16	0.21	-0.07	-0.30	-	0.11
-	-0.09	-0.45	0.06	-0.34	-	0.25
-	-0.28	-	-	0.16	-0.00	0.26
-	-0.02	-0.10	-0.27	0.62	-	0.32
-	-	-	0.05	0.05	-	0.09
0.08	-0.09	-0.00	-	0.37	-	0.32
-	-	-	-	0.41	-	-0.77
-	-	-	-	-0.02	-	-0.06
-	-	-	-	-0.13	-	-0.07
-	0.41	0.32	-0.03	-0.47	0.20	-0.05
-	0.01	-	0.11	0.37	-0.05	-0.19
-	-	-	-	-0.13	-	0.05
-0.21	0.19	0.02	0.14	-	-	-0.27
0.08	0.63	0.23	0.11	-0.11	-0.34	0.00
-	-	-	-	-0.29	0.31	-0.04
0.27	-	-	-	0.13	-0.01	-0.01
0.31	-	-	-	-0.12	0.33	-0.00
-	-	-	-	-0.36	-0.31	0.27
-	0.29	-	0.17	0.09	-0.13	-0.05
-	-	-	-	-0.16	-0.14	-0.03
0.52	-	-	-	0.04	0.01	-0.23
0.09	-0.13	0.25	-	0.54	0.07	-0.25
-0.29	-0.48	-0.00	0.23	-0.01	-	0.08
-	-	-	-	-	-	0.07
-	-	-	-	0.05	-0.05	-0.11
-0.39	0.04	0.02	-0.10	0.02	0.48	0.41
-0.01	-0.35	-0.08	-0.12	0.44	-	-
-	-	-	-	-	-	0.25
-0.58	-	-	-0.12	-	0.17	0.12

Table 39. Illustrative Dikhanov Table 2: Processed at the Household Consumption Level

			STD	CNT	Econ1
Purchasing Power Parity					1.00
Standard Deviation (STD)			0.36		0.41
Number of items priced				918.00	575.00
Price Level Index					100.00
Exchange Rate (LCU/Hong Kong dollar)					1.00
BH Code	Product Code	Product Name			
1101111	1101111011	Coarse #3	0.12	3.00	-
1101111	11011110110	White rice #3	0.29	16.00	-
1101111	11011110111	White rice #4	0.12	7.00	-
1101111	11011110114	White rice #7	0.21	7.00	-0.09
1101111	11011110115	White rice #8	0.18	9.00	-0.15
1101111	11011110116	White rice #9	0.17	8.00	-0.08
1101111	11011110117	White rice #10	0.28	11.00	-0.06
1101111	11011110118	Premium rice #1	0.25	9.00	-0.03
1101111	11011110119	Premium rice #2	0.30	16.00	-0.19
1101111	11011110120	Premium rice #3	0.22	7.00	-
1101111	11011110121	Premium rice #4	0.32	13.00	-0.28
1101111	1101111013	Coarse #2	0.60	3.00	-
1101111	1101111014	Coarse #6	0.17	4.00	-
1101111	1101111015	Coarse #5	0.12	5.00	-
1101111	1101111017	Brown rice	0.26	14.00	-
1101111	1101111018	White rice #1	0.24	15.00	-
1101111	1101111019	White rice #2	0.24	11.00	-
1101111	11011110201	Glutinous Rice	0.31	14.00	-
1101112	1101112011	Wheat flour, prepacked	0.39	21.00	0.34
1101112	11011120110	Dhal, Khesari	0.27	6.00	-
1101112	11011120111	Dhal, Musur	0.23	9.00	-
1101112	11011120112	Dhal, Split Peas	0.29	10.00	-
1101112	11011120113	Sattu	0.29	6.00	-
1101112	1101112012	Wheat flour, loose	0.31	15.00	-
1101112	1101112013	Wholemeal flour, Atta	0.39	12.00	-
1101112	1101112014	Semolina, Suji	0.34	6.00	-
1101112	1101112016	Corn/Maize flour, prepacked	0.33	18.00	0.00
1101112	1101112017	Rice flour	0.22	17.00	-0.16
1101112	1101112018	Bajra Flour	0.04	2.00	-
1101112	1101112019	Corn/Maize Flour, loose	0.34	9.00	-
1101112	1101112021	Cake mix	0.26	20.00	0.18
1101112	11011120311	Oats, Quaker	0.29	12.00	-0.14
1101112	11011120312	Oats, Others	0.40	3.00	-
1101112	1101112032	Cornflakes, Nestle	0.27	18.00	-0.26

- = magnitude equals zero, 0.00 = magnitude is less than half of unit employed, BH = basic heading, CNT = count, Econ = economy, LCU = local currency unit.

Source: ADB estimates; World Bank, 2007.

Econ2	Econ3	Econ4	Econ5	Econ6	Econ7	Econ8
0.17	1.05	0.19	2.97	5.09	3.36	3.06
0.42	0.38	0.41	0.33	0.37	0.32	0.37
533.00	579.00	559.00	578.00	636.00	466.00	705.00
105.92	102.14	116.73	78.32	53.41	56.01	51.00
0.16	1.03	0.16	3.79	9.53	6.00	6.00
-	-	-	-	-0.16	0.05	-
-0.63	-0.10	-	-	0.33	0.27	-0.06
-	-	-	-	0.05	-0.10	-0.01
-	-	-	-	0.10	-	0.08
-	-	-	-	-0.20	-	0.29
-	-0.34	0.16	0.07	-0.16	-	0.14
-	-0.30	-0.54	0.17	-0.23	-	0.25
-	-0.44	-	-	0.32	0.10	0.31
-	-0.21	-0.16	-0.14	0.76	-	0.35
-	-	-	0.17	0.17	-	0.11
-0.64	-0.20	0.01	-	0.58	-	0.43
-	-	-	-	0.45	-	-0.84
-	-	-	-	-0.07	-	-0.22
-	-	-	-	-0.03	-	-0.08
-	0.26	0.29	0.13	-0.30	0.32	0.01
-	-0.16	-	0.26	0.52	0.04	-0.15
-	-	-	-	0.01	-	0.08
-0.93	0.09	0.04	0.36	-	-	-0.16
0.12	0.74	0.20	0.30	-0.36	-0.43	-0.22
-	-	-	-	-0.43	0.33	-0.15
0.42	-	-	-	-0.00	0.01	-0.12
0.49	-	-	-	-0.23	0.37	-0.09
-	-	-	-	-0.42	-0.22	0.23
-	0.42	-	0.37	-0.13	-0.20	-0.25
-	-	-	-	-0.34	-0.17	-0.19
0.71	-	-	-	-0.05	0.08	-0.30
0.13	-0.02	0.21	-	0.29	-0.03	-0.47
-0.28	-0.40	-0.06	0.38	-0.29	-	-0.18
-	-	-	-	-	-	0.04
-	-	-	-	-0.09	-0.03	-0.22
-0.33	0.16	0.00	0.10	-0.21	0.41	0.21
0.07	-0.20	-0.06	0.11	0.24	-	-
-	-	-	-	-	-	-0.04
-0.54	-	-	0.06	-	0.08	-0.10

While the default language was English, the RCA accommodated the request by economies to integrate item SPDs in their national languages in the ICP APSS. In such instances, the NIAs were requested to provide the necessary translations of SPDs for all product lists.

System Requirements and Installation

ICP APSS was designed for use by economies in Asia and the Pacific, which are at various levels of economic development and varying levels of availability of technology. Recognizing these differences, the ICP APSS had minimal system requirements that included

- (i) Windows 2000 or higher,
- (ii) Microsoft Excel 2003 or higher,
- (iii) Intel Pentium-4 1.3 GHz processor or equivalent,
- (iv) 256MB of RAM (500 MB recommended), and
- (v) 150MB of available hard disk space on the drive for installing the database and ICP APSS.

The software was made available in compact discs with a simple installation process implemented through ICPSsetup.exe.

Instruction manuals were prepared and distributed along with the software to all the NIAs. The manuals provided the details on the installation procedures, protocols for data entry (and security) and validation, and report preparation.

Economy and Regional Modules

The economy modules were designed for use by the participating economies in generating price survey instruments and for subsequent data entry and preparation of reports and Excel worksheets for export to the RCA. Separate tools were developed for household price data, construction, machinery and equipment, and government compensation (Table 40).

The tools for each of the aggregates were specially designed to suit the special features and needs of the particular aggregate. For example, the household consumption items had associated information regarding availability and importance of the products; and in the case of machinery and equipment, the tool was designed to facilitate splitting the products and for entry of price data for split items.

The price analysis model had built-in tools to identify outliers based on simple and prespecified parameters, and the following features:

- (i) **Summary statistics for each item.** Each summary statistic derived from the set of prices collected from the ICP price surveys is compared with a set of standard price analysis parameters.
- (ii) **Quotations column.** Cell is highlighted in red if the value is less than 15.
 - a. **Coefficient of Variation column.** Cell is highlighted in red if the value is greater than 30%.

Table 40. International Comparison Program Asia Pacific Software Suite Economy Modules

Household ICP APSS	Machinery and Equipment PCT	Construction PCT	Compensation PCT
1. Update Products and Outlets Reference Database	1. Data Entry	1. Data Entry	1. Data Entry
2. Export Household Database to MS Excel file	2. Price Analysis	2. Price Analysis	2. Validation
3. Import Household Database from MS Excel file	3. Generate Reports	3. Generate Reports	
4. Outlet-Product Mapping			
5. Generation of Questionnaires			
6. Data Entry			
7. Price Analysis			
8. Generate Reports			
9. Generate Product Catalogue			

APSS = Asia Pacific Software Suite, ICP = International Comparison Program, PCT = price collection tool.

Source: ADB, 2014.

- b. **Minimum–Maximum Ratio column.** Cell is highlighted in red if the value is less than 0.33.

Each module generates the following reports:

- Report 1. Number of Available Products by Basic Heading
- Report 2. Number of Outlets by Location and by Outlet Type
- Report 3. Number of Quotations by Product, Location, and Location Type
- Report 4. Number of Outlets with at least one Price Quotation
- Report 5. Number of Quotations by Product and Outlet Type
- Report 6. Summary Statistics by Product
- Report 7. Summary Statistics by Location
- Report 8. Temporal Analysis
- Report 9. Spatial Analysis
- Report 10. Country–Product–Dummy Diagnostics

Machinery and Equipment

- Report 1. Number of Quotations by Area
- Report 2. Number of Quotations by User
- Report 3. Summary Statistics

Construction

- Report 1. Number of Observations by Contractor
- Report 2. Summary Statistics

Compensation

- Report 1. Number of Observations by Type of Occupation
- Report 2. Summary Statistics

The regional modules consisted mainly of CPD diagnostics and average price tables for detecting outliers based on Dikhanov Tables and subsequent data editing. For comparability, average prices reported in national currencies were converted into Hong Kong dollar, and these were usually referred to in the tables as XR or exchange rate prices. These tables were generated for household consumption, machinery and equipment, construction, and compensation of government employees. In household consumption, the ICP APSS price collection tool also provided

detailed tables with spatial and temporal analysis used in detecting outliers.

The participating economies found ICPAPSS a valuable tool in their implementation of the ICP. The user-friendly interface developed for ICP APSS, along with its minimal system requirements, made it more accessible to all the participating economies. Through various capabilities built into the software, the economies found it easier to navigate through the complex channels and steps involved in the implementation of the ICP. The ICP APSS may be considered a major innovation and important contribution of the RCA in the implementation of the 2011 ICP.

Expenditure Data from National Accounts: Compilation and Validation

Compilation of reliable and internationally comparable national accounts data is an essential prerequisite in the computation of PPPs and real expenditures. The RCA has channeled resources to ensure high quality and comparability of GDP expenditure data across economies. This section describes the activities undertaken by the RCA toward this goal and also outlines the procedures used in reviewing and editing the GDP expenditure data submitted by the participating economies.

System of National Accounts

Standardization of national accounts has been achieved through the evolution of national accounting principles through various versions of the United Nations System of National Accounts (SNA). The earlier version of 1968 was followed by the 1993 SNA and the most recent version was adopted in 2008. For 2005 and 2011 ICP, the 1993 SNA formed the basis for the ICP in Asia and the Pacific albeit some of the participating economies have adopted the 2008 SNA. Differences in the adoption of different versions of SNA have the potential to raising comparability issues. Fortunately, revisions in the 1993 SNA have

relatively minor impact on the ICP, which largely concerns the treatment of *financial intermediation services indirectly measured* (FISIM) and the inclusion of expenditure on *research and development* (R&D) in gross fixed capital formation (GFCF). For the 2008 SNA, a major recommendation is more on capitalizing all defense-related expenditures. Table 41 shows the adoption of different SNA versions by the participating economies.

Most of the participating economies in Asia and the Pacific follow 1993 SNA whereas Fiji; Hong Kong, China; India; Macao, China; Malaysia; and Thailand have adopted the 2008 SNA. ADB also facilitated

the adoption of 1993 SNA in the region through the successful implementation of the Supply and Use Tables (SUT [ADB, 2012b]) project, which was initiated in the last quarter of 2008. The SUT project represented a major national accounts capacity building exercise and was designed to ensure the availability of quality national accounts data on the 1993 SNA framework for the 2011 ICP in the region. The project enabled 18 economies, all of which participated in the 2011 ICP, to compile their SUT tables leading to an improved 1993 SNA conceptual compliance and to provide a springboard for the adoption of the 2008 SNA recommendations. The 18 economies that participated in the SUT project were

Table 41. System of National Accounts Compliance by Participating Economies

Economy	2005 ICP Round	2011 ICP Round	
	2005	Revised 2005	2011
Bangladesh	1993	1993	1993
Bhutan	1968/1993	1968/1993	1968/1993
Brunei Darussalam	1993	1993	1993
Cambodia	1993	1993	1993
China, People's Republic of	1993	1993	1993
Fiji	1993	1993	2008
Hong Kong, China	1993	1993	2008
India	1968/1993	1968/1993	1968/1993/2008
Indonesia	1968/1993	1968/1993	1968/1993
Lao People's Democratic Republic	1993	1993	1993
Macao, China	1993	2008	2008
Malaysia	1993	1993/2008	1993/2008
Maldives	1993	1993	1993
Mongolia	1993	1993	1993
Myanmar ^a	...	...	1968/1993
Nepal	1968/1993	1968/1993	1993
Pakistan	1993	1993	1993
Philippines	1993	1993	1993
Singapore	1993	1993	1993
Sri Lanka	1993	1968/1993	1968/1993
Taipei, China	1993	1993	1993
Thailand	1993	2008	2008
Viet Nam	1993	1993	1993

... = data not available, ICP = international comparison program.

^a Myanmar joined ICP in the 2011 round.

Source: Economy sources.

Bangladesh; Bhutan; Brunei Darussalam; Cambodia; the People's Republic of China; Fiji; Hong Kong, China; India; Indonesia; Malaysia; the Maldives; Mongolia; Nepal; Singapore; Sri Lanka; Taipei, China; Thailand; and Viet Nam. ADB provided a detailed account of the methodology for the construction of SUT and its implementation (ADB, 2012b).

Various aspects of SNA implementation are shown in Table 42. Contents of the table were compiled from the responses of the participating economies to a questionnaire designed as part of the survey conducted for the Quality Assurance Framework for the National Accounts.

A high degree of compliance achieved by the participating economies is observed in Table 42. This is particularly reassuring as the table implies a considerable degree of comparability of data across economies.

Fiscal versus Calendar Year GDP Estimates

The reference year for the ICP is the calendar year; hence, the price data in the form of annual average prices and national accounts data in the form of GDP expenditure aggregates values and weights must be presented for calendar year 2011. Five economies of the region—Bangladesh, India, Myanmar, Nepal and Pakistan—publish their official national accounts on a fiscal year basis. In their cases, the economies were required to convert their fiscal year data into calendar year. The recommended procedure was to use quarterly national accounts if they are available; otherwise, the use of an average of the two adjacent years or the use of pro-rata allocation from the 2 years covered by the fiscal year was recommended.

Expenditure Weights

An important national accounts requirement of the ICP is the breakdown of GDP expenditure into 155 basic headings with broad classifications used in the ICP as reflected in Table 43.

Most economies, in their own national accounts publications, have fewer than 155 basic headings for GDP expenditure details. Therefore, providing expenditure values or weights at the detailed level was a major undertaking. In many cases, expenditures at higher levels of aggregations required to be split. A variety of sources including expenditure weights taken from the CPIs, household expenditure surveys, government expenditure accounts, and capital expenditure surveys were used to accomplish this. In some cases, the economies used the weights calculated for the 2005 ICP and 2009 PPP Update. The GDP structure by the 7 major aggregates for the 23 participating economies is shown in Table 44.

The expenditure structures reveal interesting patterns. Generally, about 50% of GDP is represented by actual final consumption (by individuals and by government on behalf of households). Brunei Darussalam and Macao, China have very low shares of HFCE in GDP of about 20% while their net exports account for more than 50% of their GDP. Within these major aggregates, changes in inventories and net acquisition of valuables and net exports can have negative values. This implies negative weights for the aggregates, thus affecting the comparability of share patterns across economies. In the ICP, price data are not collected for goods and services that enter inventories or net exports while reference PPPs are used for these two aggregates. Market exchange rates are used for net exports, and PPPs for durable and nondurable goods and GFCF (excluding reference PPP basic headings) are used for changes in inventories and net acquisition of valuables.

The average expenditure weights for the region at a more detailed level are shown in Table 45. Household final consumption expenditure accounts for 44.0% of GDP. When expenditure by government on behalf of households is also included, the actual final consumption by household (AFCH) is 50.6%. Of this expenditure, food and nonalcoholic beverages account for 12.0%, followed by health and education, 9.3%; and housing and utilities, 7.4%. GFCF accounts for 37.8% of the GDP while collective consumption by government accounts for only 6.6%. These are regional

Table 42. Quality Assurance Framework: Summary of Responses from Asia and the Pacific Participating Economies, 2011

No.	Questions/Particulars	Yes	No
1	Do you treat expenditure on software by producers as capital formation?	19	2
2	Do you treat mineral exploration as capital formation?	17	1
3	Do you treat government expenditure on military durable goods other than weapons as capital formation?	17	4
4	Do you assign consumption of FISIM to households as well as to producers?	14	7
5	Do you estimate net acquisitions of valuables?	7	14
6	Do you impute rents to owner-occupiers?	21	0
	If yes:		
7	Do you use actual rents for similar dwellings?	14	5
8	Do you use rents estimated by owner-occupiers?	11	6
9	Do you apply the "user cost method"?	7	8
10	Other method explain (under "Explanatory Notes")	1	5
11	Do you show NPISH separately in your national accounts?	9	13
12	Do you include consumption of fixed capital in final consumption expenditure of government?	18	4
13	Do you include consumption of fixed capital in final consumption expenditure of NPISH?	12	9
14	Do you include estimates for own-construction of dwellings?	16	3
15	Do you include estimates for own-construction of other buildings?	15	3
	If you answered "Yes" to 14 or 15: do you value such construction at basic prices?	9	4
16	Is gross fixed capital formation (except for own-construction) valued at purchasers' prices?	22	0
17	Do you classify government, NPISH, and households in line with the 1993 SNA?	19	3
18	Do you include goods produced for own consumption?	17	2
19	If yes: do you value goods produced for own consumption at basic prices?	11	5
20	Is income in kind valued at purchasers' prices if the employer has purchased the goods or services and at producers' prices if the goods or services have been produced by the enterprise itself?	20	2
21	Are the purchases of goods and services by government which are passed on to households without any further processing by government valued at purchasers' prices?	21	0
22	Is change in inventories valued as the change in the physical quantities at the beginning and end of the year?	11	8
	If yes: do you value the physical change using:		
23	average prices of the year?	9	3
24	prices prevailing in the middle of the year?	1	4
25	Do you maintain and disseminate methodological notes about your national accounts compilation process?	19	2
	If Yes:		
26	Published (Yes/No)?	15	1
27	Write the name of the publication under "Explanatory Notes"	2	0
28	Specify language/s used for publication (if published) or documentation (if unpublished) under "Explanatory Notes"	3	0
29	Published (Yes/No)?	13	1
	Write an Internet address of the publication/methodological notes under "Explanatory notes"	4	2
30	Has your country compiled SUTs?	18	5
	If yes,		
31	What is the reference year of the latest one?		
32	How many products (rows) are shown in the SUT?		
33	What is the reference year of your most recent household expenditure/budget survey?		

FISIM = financial intermediation services indirectly measured, NPISH = nonprofit institutions serving household, SNA = system of national accounts, SUT = supply and use table.

Source: Economy sources.

Table 43. Aggregation Levels of Gross Domestic Expenditure

Code Level	Aggregate	Number
2-digit level	Main Aggregates	7
4-digit level	Categories	26
5-digit level	Groups	61
6-digit level	Classes	126
7-digit level	Basic Headings	155

Source: World Bank, 2007.

averages and these shares show significant variability across the economies as reflected in Table 45.

Three aggregates have not been treated systematically by the participating economies: net expenditure of residents abroad (NEX), expenditures by NPISHs, and statistical discrepancy.

Statistical Discrepancy

In several economies, the published breakdown of expenditures included a statistical discrepancy component. It generally arises because economies consider that their best estimate of GDP is obtained by adding up the value added of different kinds of industries (GDP from production approach) rather than by adding up their expenditure estimates (GDP from expenditure approach). Statistical discrepancy is usually distributed on a pro-rata basis over all the expenditure components; and, therefore, the weights are calculated as shares of GDP minus the statistical discrepancy. For ICP in Asia and the Pacific, while allocation of statistical discrepancy was left to the discretion of the economies, several guidelines were proposed. Options for the allocation of weights of statistical discrepancy are: (i) distributing over all the GDP expenditure aggregates on a pro-rata basis; (ii) including its shares to changes in inventories and net acquisitions of valuables, which are considered the weakest estimates among the main GDP expenditure aggregates; (iii) distributing it to major expenditure categories or groups with the highest expenditure shares. After allocating the statistical discrepancy, the participating economies were advised to review the GDP aggregate and components

to ensure that the data made economic sense. For instance, adjusted expenditure shares should not be negative or too high after the allocation of statistical discrepancy.

Net Expenditure of Residents Abroad

The expenditures of residents abroad and expenditures of nonresidents on domestic market were not handled consistently in the national accounts of the participating economies. In the 2011 ICP, 15 economies reported zero expenditure for this item, implying that it was included elsewhere or distributed across relevant components of household final consumption expenditure (HFCE). The remaining 8 economies reported entries under net expenditure of residents abroad (NEX) with Fiji reporting the largest negative share of 15.4% and Sri Lanka having the highest positive share of 4.6%.

To provide consistency across the region, the RCA recommended the distribution of NEX across a number of basic headings in household final consumption, which is consistent with the approach adopted in the 2005 ICP. The participating economies were encouraged to effect the allocation of NEX based on knowledge of their respective economy and/or the approach recommended by the RCA. In the 2005 and 2011 ICP, NEX was allocated to 52 basic headings, of which 29 were under food group and the remaining 23 were for nonfood groups.

The distribution of NEX was based on the assumption that the net amount was all tourism-related. The starting point for the allocation was the Tourism Satellite Accounts (TSA) framework. The TSA definitions were complicated by the definition of tourism since it includes domestic and international tourism. Therefore, the focus was on those basic headings mainly related to international tourism. Products in the TSA were split into “characteristic goods and services” and “connected goods and services.” Those defined as “characteristic” have a high incidence of tourist purchases while the “connected” had a degree of tourism purchases but somewhat less than for “characteristic” products.

Table 44. Shares of Nominal Gross Domestic Product by Main Aggregates within Each Economy, 2011

Economy	GDP	HFCE	GFCE	GFCF	INV	X-M
Bangladesh	100.00	73.73	5.20	28.33	0.55	-7.81
Bhutan	100.00	43.71	19.84	66.52	-0.37	-29.69
Brunei Darussalam	100.00	19.47	16.99	13.10	-0.67	51.11
Cambodia	100.00	79.57	8.41	11.59	0.53	-0.11
China, People's Republic of	100.00	34.36	14.81	45.59	2.68	2.57
Fiji	100.00	71.20	11.53	19.35	3.00	-5.09
Hong Kong, China	100.00	63.26	8.70	23.50	0.61	3.92
India	100.00	55.92	11.53	30.93	7.29	-5.67
Indonesia	100.00	54.61	9.01	31.97	3.01	1.41
Lao People's Democratic Republic	100.00	56.78	9.67	35.69	1.48	-3.62
Macao, China	100.00	20.51	7.08	12.41	1.44	58.57
Malaysia	100.00	47.29	13.01	22.29	0.98	16.43
Maldives	100.00	32.25	23.53	50.36	0.00	-6.14
Mongolia	100.00	54.88	12.94	47.11	12.04	-26.96
Myanmar	100.00	63.73	10.24	26.73	0.01	-0.71
Nepal	100.00	76.89	10.10	20.66	15.98	-23.63
Pakistan	100.00	81.89	10.12	12.93	1.60	-6.54
Philippines	100.00	73.48	9.70	18.72	1.74	-3.65
Singapore	100.00	38.96	10.35	23.77	-1.19	28.10
Sri Lanka	100.00	69.82	14.79	27.09	2.85	-14.55
Taipei, China	100.00	60.07	12.38	20.91	-0.05	6.70
Thailand	100.00	54.64	16.35	26.74	0.56	1.71
Viet Nam	100.00	58.94	10.39	29.75	5.06	-4.13

GDP = gross domestic product, GFCE = government final consumption expenditure, GFCF = gross fixed capital formation, HFCE = household final consumption expenditure, ICP = international comparison program, INV = changes in inventories, X-M = exports less imports.

Note: Gross domestic product are entirely based on the 1993 SNA although some economies in the region have already adopted 2008 SNA recommendations in the 2011 ICP.

Source: ADB estimates.

Ideally, the two gross flows underlying NEX—the expenditures of residents abroad and the expenditures of nonresidents in the economic territory—would be distributed on the basis of the TSA framework in each economy. However, few economies had TSAs, and hence, the allocation was rather arbitrary. To minimize the effect of any misallocations, a broad range of products was included so that no PPP for a basic heading would have a big impact on the overall result. For example, most food basic headings were included because food is a major

expenditure of tourists, and it was not possible to narrow the types of food items likely to be purchased by tourists.

“Characteristic” products excluded from the allocation were those most likely to be purchased mainly by domestic consumers, such as motor vehicles, major durables for outdoor and indoor recreation, and similar basic headings. Apart from the “typical” services and items consumed by tourists, economies in Asia and the Pacific have witnessed increases in medical tourism

Table 45. Gross Domestic Product and Its Structures: Number of Basic Headings and Products and Average Expenditure Shares in Asia and the Pacific, 2011

Category	Reference	Number of Basic Headings	Number of Products	Average Share in GDP (%)
GROSS DOMESTIC PRODUCT	= a + l + m + n + o	155	1,200	100.0
Actual Final Consumption by Household	a = b + k	132	955	50.6
Household Final Consumption Expenditure	b = c to j	110	923	44.0
Food and Nonalcoholic Beverages	c	29	258	12.0
Clothing and Footwear	d	5	96	3.0
Housing, Water, Electricity, Gas and Other Fuels	e	7	14	7.4
Health and Education	f	8	161	9.3
Transportation and Communication	g	16	83	5.7
Recreation and Culture	h	13	91	2.3
Restaurants and Hotels	i	2	21	2.5
Other Consumption Expenditure Items	j	30	199	8.4
Individual Consumption Expenditure by General Government	k	22	32	6.6
Collective Consumption Expenditure by General Government	l	5	22	6.6
Gross Fixed Capital Formation	m	12	223	37.8
Changes in Inventories and Net Acquisitions of Valuables	n	4	Ref ^a	3.0
Balance of Exports and Imports	o	2	Ref ^a	1.9

GDP = gross domestic product.

^a Reference purchasing power parities were used.

Source: ADB estimates.

in recent years. While there are planned medical or dental procedures by tourists, quite a number of health services contain the types of expenditures that most tourists hope not to incur. Inevitably though, tourists fall sick or have a dental problem needing immediate treatment, or are involved in an accident requiring paramedical and/or hospital services. Therefore, on balance, all four health services included in the list of basic headings for NEX, were allocated. Table 46 shows the basic headings distributed, in proportion to the expenditures recorded in national accounts.

Allocation of Expenditures by Nonprofit Institutions Serving Households

Nonprofit institutions serving households (NPISHs) consist of nonmarket nonprofit institutions that are not controlled by the government. They provide goods and services to households free or at prices that

are not economically significant. Examples are health services, education services, social and sports clubs, trade unions, charities, and some types of research bodies and environmental groups. Most goods and services produced by NPISHs belong to individual or household final consumption. However, NPISHs may also provide collective services, like research institutes that provide researches freely available. The practice of allocating all NPISH expenditures to individual consumption was established in the 2005 ICP and maintained in the 2011 ICP. The economies were requested to submit available data for the disaggregation of expenditures by NPISHs. Where this information could not be provided, NPISH expenditures were proportionally distributed to the relevant household consumption expenditures based on the Classification of the Purposes of Nonprofit Institutions Serving Households (COPNI). In the 2011 ICP, NPISH expenditures were allocated to 13 basic headings for 14 economies. Table 47 provides

Table 46. Basic Headings for Allocation of Net Expenditures of Residents Abroad, 2011

No.	Code	Basic Headings	No.	Code	Basic Headings
1	1101111	Rice	27	110119	Food products n.e.c.
2	1101112	Other cereals, flour and other cereal products	28	110121	Coffee, tea and cocoa
3	1101113	Bread	29	110122	Mineral waters, soft drinks, fruit and vegetable juices
4	1101114	Other bakery products	30	110211	Spirits
5	1101115	Pasta products	31	110212	Wine
6	1101121	Beef and veal	32	110213	Beer
7	1101122	Pork	33	110220	Tobacco
8	1101123	Lamb, mutton and goat	34	110311	Clothing materials, other articles of clothing and clothing accessories
9	1101124	Poultry	35	110312	Garments
10	1101125	Other meats and meat preparations	36	110621	Medical services
11	1101131	Fresh, chilled or frozen fish and seafood	37	110622	Dental services
12	1101132	Preserved or processed fish and seafood	38	110623	Paramedical services
13	1101141	Fresh milk	39	110630	Hospital services
14	1101142	Preserved milk and other milk products	40	110731	Passenger transport by railway
15	1101143	Cheese	41	110732	Passenger transport by road
16	1101144	Eggs and egg-based products	42	110733	Passenger transport by air
17	1101151	Butter and margarine	43	110734	Passenger transport by sea and inland waterway
18	1101153	Other edible oils and fats	44	110735	Combined passenger transport
19	1101161	Fresh or chilled fruit	45	110820	Telephone and telefax equipment
20	1101162	Frozen, preserved or processed fruit and fruit-based products	46	110830	Telephone and telefax services
21	1101171	Fresh or chilled vegetables other than potatoes	47	110911	Audio-visual, photographic and information processing equipment
22	1101172	Fresh or chilled potatoes	48	110941	Recreational and sporting services
23	1101173	Frozen, preserved or processed vegetables and vegetable-based products	49	110942	Cultural services
24	1101181	Sugar	50	110943	Games of chance
25	1101182	Jams, marmalades and honey	51	111120	Accommodation services
26	1101183	Confectionery, chocolate and ice cream	52	111250	Insurance

n.e.c. = not elsewhere classified

Source: ADB, 2007.

a list of basic headings where NPISH expenditures were allocated.

Validation of GDP Weights

The tool kit available for the validation of GDP weights is somewhat limited compared to the battery of tests

and procedures available to validate price data using intra-economy, inter-economy, and inter-temporal differences in price quotations and average prices. The general recommendation to assess the quality of basic heading expenditures (or weights) within a given economy was to examine the completeness and plausibility of shares within expenditure aggregates at

Table 47. Basic Headings for Allocation of Expenditures by Nonprofit Institutions Serving Households

No.	Code	Basic Headings
1	110410	Actual and imputed rentals
2	110611	Pharmaceutical products
3	110612	Other medical products
4	110613	Therapeutic appliances and equipment
5	110621	Medical services
6	110622	Dental services
7	110623	Paramedical services
8	110630	Hospital services
9	110941	Recreational and sporting services
10	110942	Cultural services
11	111000	Education
12	111240	Social protection
13	111270	Other services

Source: ADB, 2007.

various levels (main aggregates, subaggregates, and basic heading), and temporal consistency with data reported in earlier benchmark years. Completeness implied that nonzero expenditure share weights were reported for most of the basic headings. Where weights were missing for a large number of basic headings within an economy, further examination regarding the plausibility of missing or zero weights was examined. Relativities of expenditure shares across basic headings within major consumption categories were explored in assessing validity of the expenditure share data. Structural comparisons of expenditures were also conducted for economies at the same level of development (e.g., high-income economies) or having similar consumption patterns (e.g., similar religious or cultural background).

Data Entry and Validation Tool for GDP

For the ICP 2011 in Asia and the Pacific, expenditure share weights from the 2005 ICP, as well as weights compiled for the 2009 PPP Update and the data from the SUTs, were used in assessing temporal consistency of the weights. As expenditure weights reflect the general consumption patterns, these weights should

ideally not exhibit big shifts over a short period of time. Temporal consistency of weights was an important validation tool adopted. Since GDP expenditure weights from all three sources and the 2011 ICP were close to each other, any major differences in weights between and among each datasets were identified and communicated to the participating economies for further review and/or validation. After several rounds, the 2005 or 2011 ICP data were either revised or maintained, and the metadata and documentation corresponding to each of the identified “outlier” basic heading and/or group were provided to the RCA.

Apart from validating the 2011 GDP expenditure weights with the 2005 ICP weights, 2009 PPP Update weights, and SUT values, GDP data submitted for ICP purposes were validated against information from other official data sources. These included the respective economy websites, United Nations publications, and ADB’s *Key Indicators for Asia and the Pacific*. Discrepancies identified were again referred to the respective economies for confirmation, revision, and/or documentation.

The 2011 ICP round utilized the same procedure in the 2005 ICP GDP weights validation: each basic heading with nonzero weights were matched against the lists of products priced by each of the economies. If there were products priced but no corresponding weights for the basic heading under which the products were classified, the basic heading weights were requested for estimation. In a reverse situation where there were basic heading weights but no products priced, these were queried from the economies. If there were no issues with the weights data, then a reference PPP from a similar basic heading was used to estimate the PPP for the basic heading with missing prices.

The economies were also requested to confirm whether weights were zero or almost zero based on the following criteria: (i) there was really no expenditure for the basic heading; (ii) the basic heading weight was zero since data were not available; and, therefore the expenditures could not be estimated; and (iii) the weight was zero because the weight was small.

Once the basic checks had been performed on the expenditure and weights data, inter-economy comparisons were used in identifying *outliers*. The outliers in expenditure shares were identified using the extended Dikhanov Tables, which capture the CPD analytical ratios and residuals for GDP expenditures. However, routine application of statistical tools might not have led to meaningful results since economies at different stages of economic development tend to exhibit different consumption patterns. For example, food attracts a large share in low-income economies while its share tends to decline for high-income economies. A further complication arose at a more disaggregated level where variations in expenditure shares might have simply reflected the regional preference for certain products. For example, expenditure shares for basic headings like rice, cereals, lamb, beef, and other meat-related basic headings might have simply reflected the tastes and preferences of people in different economies of the region. Any major differences were investigated to identify the source of discrepancy recognizing the fact that data for the earlier years may be erroneous.

To further strengthen findings from inter-economy validation, the RCA organized workshops to validate the expenditure share data provided by the participating economies. Inter-economy validation was based specifically on contrasting national expenditure shares against three different benchmarks as follows:

- (i) Average expenditure pattern for the whole region was computed, and the patterns from each participating economy were compared with the regional average. While this was useful in determining statistical outliers for each basic heading and for different categories, this approach did not take into account any subregional characteristics;
- (ii) Averages were computed for subregions such as South Asia; Mekong; or for subgroups like high-, middle-, and low-income economies. These subgroup averages provided more meaningful benchmarks for assessing the validity of expenditure share data provided by the economies

- (iii) Third, comparisons were made for patterns within broad groups so that assessment was not affected by errors made at a higher level of aggregation. Instead of comparing expenditure share of rice out of the total GDP comprising 155 basic headings, it was more meaningful to compare the weights distribution within the category of food and nonalcoholic beverages.

Another measure was used for identifying outliers during inter-economy validation by reviewing the CPD analytical ratios and residuals of expenditure weights across economies calculated from the ICP APSS regional aggregation tools. The same validation technique was used in reviewing the expenditure weights of participating economies in the region in the 2005 ICP. To ensure exhaustiveness of the review process, outliers based on inter-economy validation were identified according to one or more of the cited criteria. The participating economies discussed the findings with the RCA and made adjustments as necessary after consulting with their respective national statistical offices.

Approaches to the 2011 International Comparison Program Asia and the Pacific

Regionalization of ICP was designed to provide the RCA with the flexibility and independence necessary to achieve the best possible set of comparisons of prices and real expenditures within each region. The Global Office set the parameters, guidelines, and frameworks for comparisons to ensure the quality and comparability of regional comparisons, which were in turn linked to provide the final set of global comparisons for the ICP. World Bank (2013) encapsulates the methodology and procedures for the ICP to be followed in different regions. In practice, RCAs had the responsibility for the regional comparisons, and had to be innovative in solving problems encountered in the implementation of the methodology. Often, the RCAs had to modify or devise new methods to deal with practical issues specific to the region.

The participating economies in Asia and the Pacific represented a wide spectrum of development with possible heterogeneous preferences and tastes.

2011 ICP Methodology: Major Contribution of Asia and the Pacific Region

The RCAs played a significant role in the implementation of the methodology developed by the Global Office at the regional level. Frequently, they faced problems arising from implementation, which could have led to modifications in the methodology. Several important and novel innovations and other incremental improvements were introduced by the RCA for Asia and the Pacific.

- (i) **Enhancement of the data validation procedure.** It aimed to determine the quality of price data for products in household consumption aggregate between two periods. First introduced in the 2009 PPP Update (ADB, 2012a), the validation procedure made use of the availability of price data from the 2005 and 2011 ICP benchmarks to construct measures of price changes over 2005 and 2011 for each of the economies. Calculations were made at the most detailed level and at aggregate commodity groups under household consumption. These ICP-based measures of temporal price changes were compared and contrasted with data on price movements available from national sources including movements observed in the CPI. Divergence between these measures was used as a validation check and the economies were encouraged to review their price data in light of these observed divergences.
- (ii) **Clustering method for machinery and equipment.** The problem of domestically produced versus imported machinery was quite serious in the region. Instead of discarding many price data identified as outliers, the RCA developed a quality- and price-based clustering of products method that led to a more efficient use of price data and improved measures of aggregate PPPs. The same method was applied for a number of household items but it mainly focused on brand-clustering.
- (iii) **Compilation of PPPs and volume measures for dwelling services.** In the 2005 ICP, the region utilized data on quantity and quality indicators for dwellings to derive meaningful PPPs and volume measures. In the 2011 ICP round, the RCA with guidance from the ICP Experts, who were mostly members of the technical advisory group and convened in March 2013, developed a new procedure where results from the quantity indicator approach were combined with data on rents for different types of dwellings. The procedure was seen to improve quality-adjusted volume measure of dwelling services. In August 2013, the experts met and identified other methods that were deemed promising; but before these could be adopted, additional research and analytical work were necessary. Consequently, *the reference volume relative approach* was used, which is the same approach as in the 2005 ICP for Asia and the Pacific.
- (iv) **Refinement of measures of productivity.** These measures were used in adjusting salaries of government employees. The RCA made use of long series of investment data available for participating economies to produce more reliable estimates of capital-labor ratios. These were necessary in the estimation of labor productivity for adjusting salaries in government compensation.
- (v) **Development of special software for the 2011 ICP.** The ICP APSS was developed by the ADB ICP Team; and adopted the same principle on data entry, estimation, and validation used in the 2009 PPP Update price collection tool. The ICP APSS was a user-friendly software with minimal system requirements, and provided to all the participating economies. The software package helped the participating economies in the development of the survey questionnaires, as well in the compilation and initial validation of the price quotations supplied. It had special modules for household consumption, machinery and equipment, construction, and compensation of government employees. The software also generated reports for use by the RCA in its validation and editing of price data.

- (vi) **Full participation of the PRC in the 2011 ICP.** The PRC coverage included 30 of its 31 provinces with each province collecting prices from one rural and two urban areas. This was in contrast to its partial participation in the 2005 ICP where price data were collected only from 11 capital cities and adjoining areas.
- (vii) **Participation of Myanmar in the ICP.** For the first time, Myanmar's participation enhanced the coverage of the 2011 ICP for Asia and the Pacific. However, the total number of economies coordinated by ADB in the 2011 ICP remained 23 as in the 2005 ICP, with the exclusion of the Islamic Republic of Iran since it participated as a singleton country in the global comparisons.

Household Prices and Expenditures

Product Splitting

Several products in the final list of products were the result of the process of splitting and brand clustering. In splitting products, the RCA adopted the guidelines provided in the *2011 ICP Handbook*¹⁹ (Chapter 5, para. 57):

"If there are significant differences between the characteristics of the product whose price is reported and the target specifications, it may be impossible to make a satisfactory adjustment for the difference in quality in which case the price may have to be rejected under the matched product approach. However, it often happens that a new type of product appears on the market in several countries at the same time and is reported as a substitute for the targeted product by two or more countries. In this case, the prices should not be rejected as they can be used to make comparisons between the economies concerned. The original specification should be split to recognize a new category of product. Thus, prices should not be rejected prematurely without checking whether other countries are also reporting prices for the same product."

During the regional data validation workshops, there were several products for which product splitting were necessary. The reassignment of prices inputted in the ICP APSS and the product splitting function in the report tool was used. Table 48 lists a few examples of product splitting used in household consumption;²⁰ all the clustering is based on brand clustering. The final list of 1,142 products in the computation of PPPs included only the clustered items and not the original items.

Importance Criterion and Household Consumption

The most basic principle that underpins PPP computations within the ICP is that of comparing like with the like; and that *comparability* of products is imperative in international price comparisons. Structured product descriptions are designed to ensure comparability of products across different economies where they are priced. A major issue associated with this principle was that even though a product with a given set of characteristics might be available in several economies, the product might be representative or important with a significant share of consumption only in a few economies. In others, it might not be important, signifying a relatively small share of expenditure.

In the 2005 ICP, a product was classified as representative or not representative of the basic heading to which the product belongs. While representativity is similar to the general notion of the importance of a product within a basic heading, representativity also implies that the relative price of the product is similar to the basic heading price relativities. However, this was difficult to implement and somewhat circular in concept. To decide whether a product was representative of the basic heading, one needed to know the basic heading PPP; but basic heading PPP could not be computed without the prices and their notion of representativity.

¹⁹ Available at http://siteresources.worldbank.org/ICPINT/Resources/270056-118395201801/icp_Ch5revised.doc

²⁰ The report tool in the ICP APSS was extensively used in splitting products priced in the Machinery and Equipment aggregate.

Table 48. Brand Clustering of Household Items

Code	Product Name	Basic Headings Clustering
1103111	Clothing Materials, Other Articles of Clothing and Clothing Accessories	Basic heading
1103111051	Belt, men's	Original item
11031110511	Belt, men's (Hickock)	Clustered item
11031110512	Belt, men's (Mc Jim)	Clustered item
11031110513	Belt, men's (Others)	Clustered item
1103121	Garments	Basic heading
1103121041	Underwear/briefs, men's	Original item
11031210411	Underwear/briefs, men's (Hanes)	Clustered item
11031210412	Underwear/briefs, men's (Others)	Clustered item
1103121042	Undershirt, men's	Original item
11031210421	Undershirt, men's (Hanes)	Clustered item
11031210422	Undershirt, men's (Others)	Clustered item
1103121051	Socks, Men's	Original item
11031210511	Socks, men's (Hanes)	Clustered item
11031210512	Socks, men's (Others)	Clustered item
1108211	Telephone and Telefax Equipment	Basic heading
1108211012	Digital cordless phone	Original item
11082110121	Digital cordless phone-Panasonic	Clustered item
11082110122	Digital cordless phone-Others	Clustered item
1108211013	Home Phone with Caller ID	Original item
11082110131	Home phone with caller ID-Panasonic	Clustered item
11082110132	Home phone with caller ID-Others	Clustered item

ID = identification.

Source: ADB. "Brand and Price Clustering for Selected Basic Headings of Households." Discussion at the ICP Asia Pacific Expert Group Meeting, Bangkok, Thailand. 6–9 May 2013.

Recognizing the difficulties associated with the notion of *representativity* both in concept and in its implementation, the 2011 ICP replaced representativity with the notion of *importance*. A product was deemed to be important if it was considered to have a higher share out of the products included in the basic heading. The basic idea for the concept of *importance* came from the use of weighted price relatives in the computation of price index numbers.

The Technical Advisory Group (TAG) considered the issue of assigning weights at length and the sensitivity of the basic heading parities to different

weights. Several weights including 1:1 (unweighted); 3:1; 5:1; and 10:1, for important and less important items, were examined. The TAG recommended to use weights of 3:1 (important and less important) in the computation of basic heading PPPs and that these weights be used along with the *weighted CPD* method. The TAG in its recommendation clearly stated that use of unweighted CPD amounts to the assignment of arbitrary weights that are equal to both important and less important products. While the use of 3:1 might be considered arbitrary, the TAG's opinion was that it is still superior to use differential weights than to use equal weights.

To Determine Importance

The overriding characteristic to determine importance is the relative expenditure share of the product. An important product has a large expenditure share within the basic heading to which it belongs. It might have a small expenditure share within the whole consumption basket but what is relevant is its share within the basic heading.

In practice, weights are not available at the product level within a basic heading. A basic heading is defined as the lowest level of aggregation for which expenditure share data are available. Hence, a direct application of the concept of importance using expenditure share is not possible. Chapter 7 of the *ICP Book* (World Bank, 2013) on the ICP Survey Framework provides some guidelines and three basic rules to determine the importance of a given product.

- (i) Is the product in the CPI? If an item is the same as, or very similar to, one of the products listed in the national CPI, the product should be classified as important. Most of the economies stated in their economy reports on price surveys that roughly one-third of the ICP products are common with the CPI products.
- (ii) Use expert judgment or common knowledge. National statisticians can use their own knowledge of what are widely available and commonly purchased brands of products, such as toothpaste, soaps, biscuits, cigarettes, beverages, etc.
- (iii) Get information from the outlets. The shopkeepers are aware of the volume of sales of different products within each of the categories. As the business owners need to make purchase inventory decisions on almost daily basis, their awareness of importance of products can be quite reliable.

To Use or Not Use “Importance” Information

In Asia and the Pacific, basic heading PPPs for household consumption were computed with and without using the importance information. Arguments both for and against the use of importance information

provided by the economies were discussed at length. There was considerable variation in the percentage of products identified as important or less important across the participating economies. This observation was sufficient to cast serious doubts about the validity and application of the concept in the computation of PPPs. Empirical results in Asia and the Pacific, discussed in the meetings of the ICP Asia Pacific Expert Group, also showed minimal impact in using the importance criteria within the weighted CPD. The Expert Group viewed that “either option (to use or not to use importance) can be rationalized given the minimal difference in the PPP results for the region.” The final decision was left to the Regional Advisory Board, which met on 12–13 August 2013 in Manila. In view of the uncertainties associated with the importance data, the arbitrariness of the 3:1 weights, and the minimal effects of using weighted CPD at the aggregate household PPP, the board recommended that for Asia and the Pacific region, unweighted CPD will be used for computing PPP at the basic heading level.

Data Used in PPP Computations for Household Consumption

Table 49 shows the coverage and the number of items priced by different economies under the major categories of household consumption. Unweighted CPD was used in computing PPPs for each of the basic headings that made up the major categories. The table highlights that the percentages of products priced vary across major categories, as well as across the participating economies.

PPPs for Household Consumption

PPPs and price levels (with Hong Kong, China as numeraire) were obtained by aggregating basic heading PPPs using expenditure share weights attached to each of the 110 basic headings that make up household consumption. The basic heading level PPPs were compiled using unweighted CPD method whereas PPPs for household consumption were obtained using the GEKS method.

Table 49. Number of Items Priced by Major Categories for Household Consumption, 2011

Economy	Total Number of Items Priced	1101		1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112
		Food and Nonalcoholic Beverages	Alcohol Beverages, Tobacco and Narcotics	Clothing and Footwear	Housing, Water, Electricity, Gas and Other Fuels	Furnishing, Household Equipment and Routine Maintenance of the House	Health	Transport	Communications	Recreation and Culture	Education	Restaurants and Hotels	Miscellaneous Goods and Services	
Bangladesh	806	244	9	92	15	112	91	66	15	72	6	25	59	
Bhutan	577	176	11	84	12	94	11	39	15	61	6	21	47	
Brunei Darussalam	686	232	1	92	11	107	60	33	11	65	5	17	52	
Cambodia	685	233	17	82	15	105	39	33	18	66	6	24	47	
China, People's Republic of	855	284	19	81	16	116	66	75	18	93	6	25	56	
Fiji	544	165	10	75	7	90	41	36	7	46	1	18	48	
Hong Kong, China	749	222	13	84	13	94	82	53	10	94	8	25	51	
India	905	294	19	99	15	119	83	70	18	99	8	29	52	
Indonesia	810	243	22	99	15	114	80	73	13	72	6	17	56	
Lao People's Democratic Republic	529	180	15	64	10	83	14	36	12	49	4	18	44	
Macao, China	742	220	12	96	9	112	65	39	13	94	7	22	53	
Malaysia	855	261	13	98	13	110	98	65	16	92	6	26	57	
Maldives	527	134	3	55	10	91	64	24	17	60	5	15	49	
Mongolia	732	197	15	94	14	103	72	56	14	88	8	22	49	
Myanmar	739	213	15	87	11	109	84	49	16	82	2	24	47	
Nepal	648	179	19	81	14	104	59	43	14	58	6	19	52	
Pakistan	748	211	9	81	15	113	79	55	18	84	5	23	55	
Philippines	863	251	18	93	14	130	75	66	19	107	8	28	54	
Singapore	722	228	14	89	13	97	57	42	13	88	5	24	52	
Sri Lanka	710	190	18	90	14	110	82	38	15	76	6	21	50	
Taipei, China	744	220	15	90	12	97	80	54	15	83	7	19	52	
Thailand	809	211	19	85	12	132	89	57	20	96	8	26	54	
Viet Nam	743	227	18	89	15	113	49	55	15	76	6	27	53	
Total by Major Category	1,142	321	26	123	16	148	164	94	23	128	8	29	62	

Source: ADB, 2007.

Compensation of Employees for General Government

Compensation of employees is the largest component of the costs of producing government services. The basic framework for price comparisons under this aggregate was to select a number of occupations that are typically found in health, education, defense, and general administration services. The Global Office prepared the list of occupations used by all participating economies in collecting data on compensation for these occupations. The Global Office also developed the detailed SPDs for each of the occupations listed.

Compensation of employees included, in addition to wages and salaries, the employers' and imputed social security contributions, value of free and subsidized food and accommodation, and various allowances. In Asia and the Pacific, it was decided that only allowances payable to all staff regardless of their individual circumstances are included. Therefore, the cost of living allowances was included in compensation but not allowances for dependent persons. Salaries at entry level, at 5–10 years, 10–20 years, and 20 years and above were also collected. Data on hours, days, and weeks worked and number of holidays were collected and used in adjusting data before using in PPP computations.

Construction

In Asia and the Pacific, construction is a fast-growing component that accounts for spectacular growth rates in GDP in these economies. In 2011, the share of construction in GDP averaged 23.4% across the 23 participating economies. Residential construction accounted for 6.2% of GDP; nonresidential construction for 5.4%; and civil engineering for 11.8%, which highlights its importance in the region. For example, Bhutan embarked on a major hydroelectric project that had increased its estimated real per capita construction. According to the 2011 ICP, the real construction per capita in Bhutan in 2011 was HK\$17,355 with a real per capita construction index of 156 relative to the regional average 100. This placed

Bhutan well above that of India with an index of 62 and Nepal with a low index of 13.

Given the importance of construction as reflected by its high share in GDP, it is essential that proper PPPs are derived for construction and its components for meaningful real volume comparisons. However, comparison of construction prices and compilation of PPPs pose special problems for the ICP, specifically the principle of comparability of products priced. Construction projects almost by definition are unique in their design and the final construction depends on the requirements and circumstances. It is almost impossible to identify identical construction projects that can be priced across the participating economies. And it is difficult to undertake meaningful price comparisons leading to reliable PPPs due to the presence of economies that are at different levels of development, different proportions of rural and urban areas, and different climatic conditions and terrains in residential construction.

Two major approaches to collect prices for construction were used in the past: (i) bills of quantities (BOQ), and (ii) basket of construction components (BOCC). BOQ is an out-pricing approach that prices specific hypothetical projects with carefully defined specifications. These projects are then priced by builders or experts and the price includes the costs of construction as well as the project overhead. Details of the BOQ approach can be found in Chapter 6 of the *Eurostat-OECD Methodological Manual on PPPs* (Eurostat and OECD, 2006).

Given the resource intensive nature of the BOQ approach, as well as the problem of representativity of the hypothetical projects priced under the approach, alternative methods were explored. In the 2005 ICP, the BOCC approach was introduced and implemented; it involved pricing outputs but focused on pricing the major, installed components of construction projects. The BOCC approach identified the major components of the project and then specified the most significant elements of each component for pricing. The final prices included the cost of materials, labor cost of completing a particular

task rather than the cost of a fixed amount of labor, and the hire cost of equipment. The materials and relative proportion of labor and equipment used were different depending on the context of the economy concerned. The BOCC approach accounted for variations in the shares of labor and equipment used.

The Global Office provided a list of 23 outputs or components and 11 basic inputs that represented the broad types of construction activity around the world. Productivity differences were taken into account within each of the 23 components. The profit margin for managing the overall projects as a proportion of the total cost of each component was assumed to be identical between economies. The prices for the various components could be aggregated, using different weighting patterns, into totals for different types of projects within an economy. Further details of the BOCC approach can be found in Chapter 13 on construction in the *ICP Book* (World Bank, 2013). Serious problems were encountered in the implementation of the BOCC approach and with the specifications of weights in converting basic input materials into construction components, and then from the construction components to the basic heading level. Recognizing these difficulties, the input approach was adopted for 2011 ICP round.

Relevance Indicators

There are three basic headings under construction: (i) residential construction, (ii) nonresidential construction, and (iii) civil engineering. It is recognized that not all the 38 material inputs would be relevant for all the three basic headings. For example, materials like double glazing units or metal storage tanks and cast iron drain pipes may not be considered relevant for residential construction. Economies were required to consult a construction expert in their respective economies and identify the material inputs relevant to each type of construction. These were consolidated and further verified by the RCA's in-house engineer and architect to provide expert opinion. Based on their recommendations, table of relevance indicators was constructed for all the economies (Table 50). Only those materials considered relevant for a basic heading

were used in computing the corresponding basic heading PPP.

Resource Mix by Type of Construction

It is important to account for differential use of materials, equipment rental, and labor (resource mix) in different types of construction. For example, equipment may not be substantially used in residential construction whereas input costs in civil engineering and nonresidential construction may have a higher share. The participating economies were required to submit the resource mix ratios for each type of construction that were subsequently validated during one of the workshops. For two economies that were unable to provide the resource mix ratios, the ratios of those economies with similar structures were used, at the recommendation of the ICP Asia Pacific Expert Group. The final resource mix data shown in Table 51 were used in computing PPPs for the three basic headings.

Treatment of Overheads and Productivity Adjustments

Treatment of overheads and productivity adjustments for the labor component of the construction inputs were discussed at various TAG and Expert Group meetings. The first issue was on the treatment of margins or project overheads included in the BOQ approach. The TAG recommended not to take into account project overheads as relevant and reliable data may be difficult to collect. The second issue was on productivity adjustment for labor used in construction. Productivity adjustments were implemented for wages and salaries in the context of government compensation but there was no productivity adjustment recommended for labor used on the construction sector. After serious consideration and discussion, the TAG recommended that adjustments for productivity differentials of construction labor component are not warranted.

Using the CPD method, the PPPs for residential, nonresidential, and civil engineering construction were computed. It also took into account the relevant

Table 50. Relevance Indicators for Different Basic Headings for Construction, 2011

No.	Material or Product	Use in		
		Residential Building	Nonresidential Building	Civil Engineering Works
1	Aggregate for concrete	1	1	1
2	Sand for concrete and mortar	1	1	1
3	Softwood for carpentry	1	1	1
4	Softwood for joinery	1	0	0
5	Exterior plywood	1	1	0
6	Interior plywood	1	1	0
7	Chipboard sheet	1	1	0
8	Petrol/gasoline	1	1	1
9	Diesel fuel	1	1	1
10	Oil paint	1	1	0
11	Emulsion paint	1	1	0
12	Ordinary Portland cement	1	1	1
13	Ready-mix concrete	1	1	1
14	Precast concrete slabs	0	1	1
15	Common bricks	1	0	0
16	Facing bricks	1	0	0
17	Hollow concrete blocks	1	1	1
18	Solid concrete blocks	0	1	1
19	Clay roof tiles	1	0	0
20	Concrete roof tiles	1	1	0
21	Float/sheet glass	0	0	0
22	Double glazing units	0	1	0
23	Ceramic wall tiles	1	1	0
24	Plasterboard	1	1	0
25	White wash hand basin	1	1	0
26	High yield steel reinforcement	0	1	1
27	Mild steel reinforcement	1	1	1
28	Structural steel sections	0	1	1
29	Sheet metal roofing	1	1	1
30	Metal storage tank	0	1	0
31	Cast iron drain pipe	0	1	1
32	Copper pipe	1	1	1
33	Electric pump	0	1	1
34	Electric fan	0	1	1
35	Air-conditioning equipment	0	1	0
36	Standby generator	0	0	0
37	Solar collector	0	0	0
38	Electricity	1	1	1
	Total	25	31	19

Source: ADB. 2013. Agreements from the Third Regional Advisory Board Meeting, Bangkok, Thailand. 13–14 May.

Table 51. Resource Mix for Residential, Nonresidential, and Civil Engineering Construction, 2011

Economy	Residential			Nonresidential			Civil Engineering		
	Material	Equipment	Labor	Material	Equipment	Labor	Material	Equipment	Labor
Bangladesh	70	10	20	70	10	20	60	20	20
Bhutan	60	15	25	60	15	25	60	15	25
Brunei Darussalam	57	19	24	56	22	22	50	30	20
Cambodia	73	7	20	65	10	25	67	8	25
China, People's Republic of	69	14	18	71	14	15	74	15	11
Fiji	60	10	30	60	10	30	50	30	20
Hong Kong, China	54	11	35	54	10	36	48	22	30
India	70	5	25	70	5	25	57	29	14
Indonesia	75	11	14	57	16	27	79	7	14
Lao People's Democratic Republic	60	10	30	65	15	20	50	10	40
Macao, China	54	15	32	59	12	29	49	26	25
Malaysia	57	19	24	56	22	22	50	30	20
Maldives	50	10	40	50	10	40	60	20	20
Mongolia	65	10	25	60	25	15	40	45	15
Myanmar	71	6	23	71	5	24	71	9	21
Nepal	68	6	26	68	7	25	65	16	18
Pakistan	58	13	28	57	20	23	55	27	18
Philippines	65	5	30	60	10	30	50	25	25
Singapore	54	15	32	59	12	29	49	26	25
Sri Lanka	57	10	34	53	14	33	56	31	14
Taipei, China	60	15	25	60	20	20	50	30	20
Thailand	60	10	30	60	10	30	50	20	30
Viet Nam	71	10	20	72	8	20	76	7	17

Source: Economy sources.

indicators and weights (resource mix) according to materials, labor, and equipment rental.

Machinery and Equipment

As expected, significant problems were encountered with the validation of prices on machinery and equipment (M&E). Several workshops were conducted by the RCA with the help of an international expert on M&E. Table 52 provides some summary statistics of price data validation in Asia and the Pacific.

Preliminary analysis based on the coefficient of variation revealed serious issues. More detailed

analysis was conducted based on Dikhanov Tables: first, with CPD residuals at the basic heading level; and second, at the global level. At the basic heading level, several price quotations had absolute values in excess of 2.00, indicating that these prices were possible outliers with values that are more than seven times the expected price. A fair number of items (143) reflected CPD residuals in excess of 0.75 in absolute value, which meant that these prices were more than twice the expected prices. Several economies—Bangladesh, Indonesia, Sri Lanka, and Viet Nam—had some of the highest outlier prices. An analysis of the CPD residuals at the global level also reflected a fair number of price quotations with CPD residuals in

Table 52. Summary Statistics on Data Validation for Asia and the Pacific, 2011

Particulars	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO	LAO	MAC	MAL	MLD	MON	MYA	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE
Standard Deviation	0.68	0.34	0.46	0.38	0.37	0.46	0.28	0.72	1.06	0.74	0.71	0.48	0.48	0.63	0.54	0.43	0.26	0.35	0.46	0.67	0.35	0.36	0.44
With Country-Product-Dummy Residuals																							
Aggregate Level Selected: Basic Heading																							
> 2.00 or < -2.00	0	0	0	0	0	2	0	1	1	1	0	1	0	0	0	0	0	0	0	1	0	0	0
> 0.75 or < -0.75	17	0	2	3	6	7	2	9	17	16	2	8	5	7	7	1	0	2	2	12	1	2	10
> 0.25 or < -0.25	49	7	13	21	43	38	20	46	85	53	9	57	23	46	25	19	30	25	20	28	19	41	50
Global Level																							
> 2.00 or < -2.00	0	0	0	0	1	2	0	1	1	4	0	1	0	1	1	0	0	0	0	2	0	0	0
> 0.75 or < -0.75	21	1	3	4	6	8	1	9	20	13	6	11	6	18	8	3	0	4	3	7	2	4	11
> 0.25 or < -0.25	49	17	10	30	60	34	24	59	69	53	20	59	26	52	36	25	34	36	25	31	24	44	56
Price Ratios to Subgroup Averages																							
> +/-1	43	15	8	31	68	67	22	57	82	33	4	67	18	42	33	18	29	57	14	17	26	22	47
< 1	26	8	12	27	86	46	17	27	51	38	13	46	32	37	23	19	34	27	17	31	8	52	34

BAN = Bangladesh; BHU = Bhutan; BRU = Brunei Darussalam; CAM = Cambodia; PRC = People's Republic of China; FIJ = Fiji; HKG = Hong Kong, China; IND = India; INO = Indonesia; LAO = Lao People's Democratic Republic; MAC = Macao, China; MAL = Malaysia; MLD = Maldives; MON = Mongolia; MYA = Myanmar; NEP = Nepal; PAK = Pakistan; PHI = Philippines; SIN = Singapore; SRI = Sri Lanka; TAP = Taipei, China; THA = Thailand; VIE = Viet Nam.

Source: ADB estimates.

excess of 2.00 and 0.75 in absolute value (169 and 14 items, respectively). These results were indicative of serious issues with pricing of products matching the SPDs. Clearly, dropping these prices would lead to considerable reduction in price data that underpin the PPP computations. Detailed analysis was conducted on product by product basis to see if there were clear patterns. Indeed, significant price clustering was found in the price data. For example, prices of a particular product reported by high-income economies would be at high levels whereas the prices from some low- and middle-income economies would be clustered at a lower level. Recognizing these clustering patterns, several options for data editing and product splitting (based on quality/price clustering) were explored.

Identification of Outliers

The procedure followed was to identify prices considered to be outliers with absolute CPD residuals in excess of 0.75. As the CPD method can be applied at the basic heading level as well as at the expenditure aggregate level, identifying outliers was first conducted at the global level and then at the basic heading level. Once these prices were confirmed to be outliers,

these were excluded; and further price variations were addressed by implementing quality/price splitting.

Quality/Price Splitting Procedure

To decide whether *quality/price splitting* was needed, compute summary statistics: average (Avg), standard deviation (STD), and coefficient of variation (CV) for all original items. If original CV is less than or equal to 30, then there is no need to split the item. However, if original CV is greater than 30, then proceed with splitting.

Splitting of items based on quality/price clustering.

For this process, parameters are first established.

- **Economy average (cAvg) price** in Hong Kong dollar
- **Lower bound (LB) price**: regional average price minus 50% of STD
- **Upper bound (UB) price**: regional average price plus 50% of the STD
- Clustering rules used:
 - Low Cluster—if observed cAvg is less than LB
 - Medium Cluster—if observed cAvg is between LB and UB
 - High Cluster—if observed cAvg is above UB.

The following steps were followed in finalizing the quality/price splitting procedure.

- Compute summary statistics, Avg, STD, and CV, for each of the split items.
- If split CV < original CV and split CV ≤ 40 then accept the new split item.
- If split CV is greater than original CV and if it is between (30,50) then
 - Merge the prices of the item with closest group and evaluate the new CV.
 - If the new CV satisfies the condition that split CV < original CV and split CV ≤ 40 then accept the new split item.
 - If no prices within the group can be merged with any split items and would satisfy the condition that split CV < original CV and split CV ≤ 40 , then remove the group prices.
- If split CV > 50, then delete the group prices.

Figure 13 shows an illustration of splitting price data for the item, Water Pump (Stationary)–Centrifugal–Grundfos (Denmark).

The prices were classified as high, medium, and low for the product. India recorded the lowest price and the Lao People’s Democratic Republic recorded the highest price. These price data were clustered into three groups and the lowest price for India was dropped. Table 53 shows the final result of applying the splitting procedure.

The first two columns show the products classified as those with CV ≤ 30 and those with CV > 30. Column (4) shows clusters based on prices with the property that CV ≤ 40 and less than original CV resulting in a total of 452 split products. Of those with CV > original CV and those with $30 < CV < 50$ and following the procedure for splitting for this condition, 15 quality-price-clustered items were identified. As shown under column 9 for additional items, 467 quality-price-clustered items were identified out of those products with CV > 30 (shown in column 2). At the end of the price clustering exercise, a total of 605 products (138 original plus 467 additional items) were formed. Column 10 shows the distribution of the new products by basic headings. Price data for

the clustered products were used in computing basic heading PPPs.

Effect of Price Clustering on Basic Heading PPPs

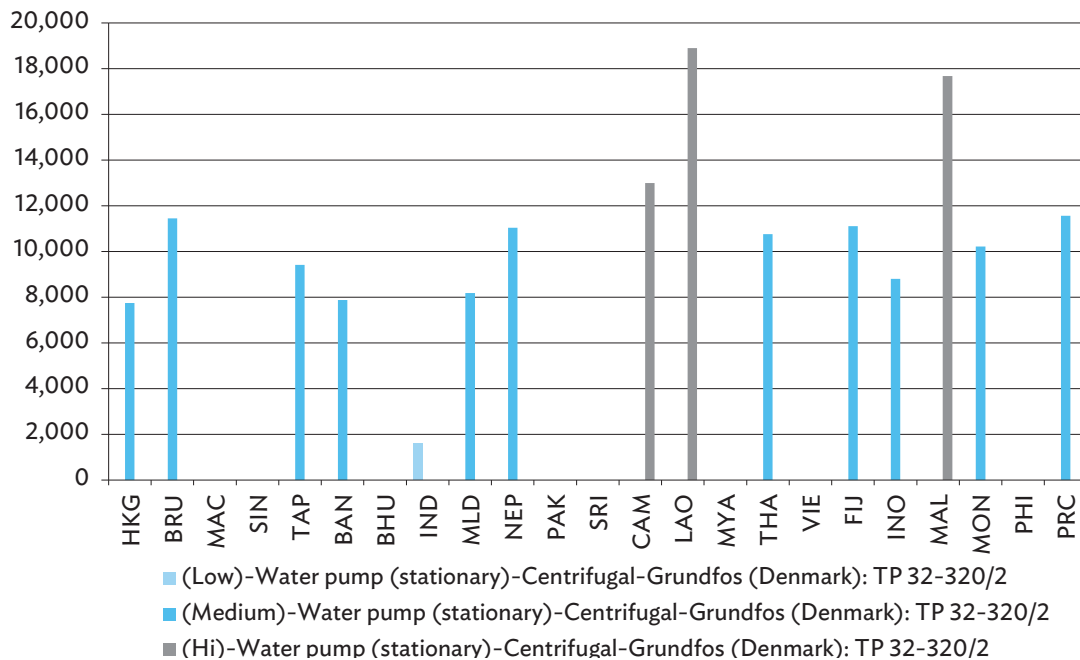
The effects of quality/price clustering on PPPs for different basic headings and the resulting price level indexes were significant. Figure 14 shows the price level indexes before and after price clustering for the basic heading *Other General Purpose Machinery*. It shows that clustering reduced price levels of several economies that include Bhutan, Brunei Darussalam, the PRC, Indonesia, Malaysia, and Sri Lanka. It had a reverse effect on price level indexes for Bangladesh, Cambodia, India, the Maldives, the Lao People’s Democratic Republic, Taipei, China, and Viet Nam.

The price clustering method adopted in Asia and the Pacific enabled the RCA to make the best possible use of all the price data submitted by the economies. Due to splitting and clustering, most of the price data were used in computing PPPs for M&E. The final results in Part II of this report show that the PPPs for M&E are close to the market exchange rates and that the price level indexes are around 100. This is consistent with the intuition that PPPs tend to be closer to exchange rates for goods that are freely traded internationally. In Asia and the Pacific, as most of these goods are imported in most of the participating economies as expected, PPPs for M&E were similar to market exchange rates and the differences could be due to differences in transport costs and marketing margins. Details can be found in the appendix of Chapter 14 on M&E in the *ICP Book* (World Bank, 2013).

Dwellings

Measuring the volume of dwelling services and making international comparisons of real per capita expenditure on dwelling services were difficult tasks. Dwelling services is one of several comparison-resistant services in the ICP. The *ICP Book* (World Bank, 2013) provides a comprehensive overview of the measurement problems encountered in comparing dwelling services. The approach recommended and adopted by the RCA for the 2011 ICP Asia and

Figure 13. Splitting Products Based on Price Clustering, 2011



BAN = Bangladesh; BHU = Bhutan; BRU = Brunei Darussalam; CAM = Cambodia; FIJ = Fiji; HKG = Hong Kong, China; IND = India; INO = Indonesia; LAO = Lao People’s Democratic Republic; MAC = Macao, China; MAL = Malaysia; MLD = Maldives; MON = Mongolia; MYA = Myanmar; NEP = Nepal; PAK = Pakistan; PHI = Philippines; PRC = People’s Republic of China; SIN = Singapore; SRI = Sri Lanka; TAP = Taipei, China; THA = Thailand; VIE = Viet Nam.

Source: ADB. 2013. Agreements from the Third Regional Advisory Board Meeting. Bangkok, Thailand. 13–14 May.

the Pacific comparisons was based on a careful consideration of the alternative approaches and on an evaluation of the quality of data available.

Alternative Approaches

Two standard approaches, *quantity indicator and rental price*, were the methods recommended by the TAG. In addition, two other methods were available: reference PPP and reference volume. The reference volume method was used in the 2005 ICP Asia and the Pacific as the last resort, which was designed to insulate comparisons of all non-dwelling services components of GDP from any errors in the measurement of dwelling services. However, the TAG recommended against the use of the reference volume method for the 2011 ICP, recognizing the importance of dwelling services in household consumption as reflected by significant shares in expenditure.

Quantity Indicator Approach

The quantity indicator approach measures per capita volume directly from data collected on dwellings from the participating economies. Three main indicators used as measures of dwelling volumes are:

- (i) I1, for the no. of dwellings per 100 people;
- (ii) I2, for the no. of rooms per 100 people; and
- (iii) I3, for the square meter (m²) of floor space available per person.

Of these three indicators, I3 was a more accurate measure of dwelling services available per person with the other two indicators providing additional information on dwellings.

As dwellings and accommodation in terms of floor space could differ in terms of quality, it was recommended that some quality indicators be used

Table 53. Price Clustering and Product Splitting for Machinery and Equipment, 2011

Code	Basic Heading Name	Original Items			Average Price Cluster				
		CV < = 30	CV > 30	Total	CV ≤ 40 and less than Original CV	CV > Original CV		Additional Items	Total Items
						30 < CV < 50, split CV ≤ 40	CV ≥ 50		
(1)	(2)	(3)= (1+ 2)	(4)	(5)	(6)	(7)=(4+5)	(8)= (1+4+5)		
1501111	Fabricated metal products, except machinery and equipment	2	12	14	32	0	4	32	34
1501121	General purpose machinery	21	20	41	56	1	3	57	78
1501131	Special purpose machinery	38	46	84	127	6	4	133	171
1501141	Electrical and optical equipment	45	36	81	102	4	2	106	151
1501151	Other manufactured goods, n.e.c.	8	6	14	18	0	0	18	26
1501211	Motor vehicles, trailers and semitrailers	19	17	36	50	1	0	51	70
1501212	Other road transport	1	5	6	15	0	0	15	16
1503111	Other products	4	20	24	52	3	5	55	59
	Total	138	162	300	452	15	18	467	605

CV = coefficient of variation, n.e.c. = not elsewhere classified.

Source: ADB estimates.

in conjunction with the quantity measures. The three quality indicators considered are:

- (i) Q1, for indicating whether clean water is available inside the dwelling;
- (ii) Q2, for indicating whether a toilet is in the dwelling; and
- (iii) Q3, for the availability of electricity to the dwelling.

These quality indicators reflect basic necessities and are useful in discriminating dwellings at the lower end of the spectrum of dwellings. These three quality indicators are also among indicators used to monitor progress of the Millennium Development Goals. Meanwhile, the quantity indicator approach advocates the use of data of all the six indicators—three quantity indicators and three quality indicators—in arriving at measures of relative volumes of dwelling services.

Rental Price Approach

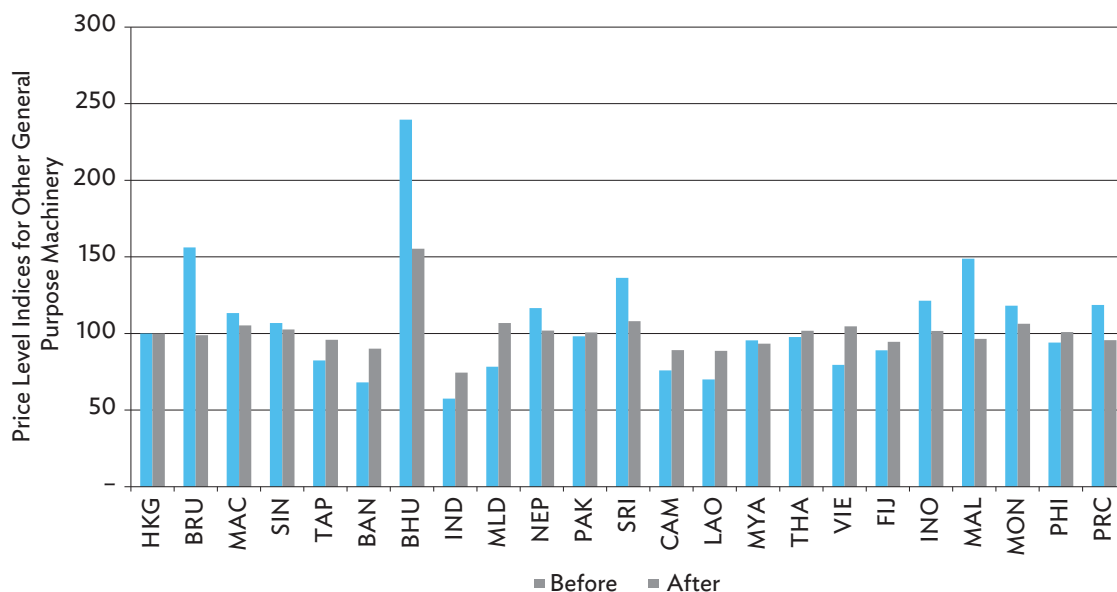
The rental price approach is similar to the standard approach used in determining consumption volumes of other goods and services in individual household consumption. The approach constructs PPPs based on prices paid for dwelling services in the form of *rental prices* for dwellings of *comparable quality* across participating economies. This approach involves the following steps:

Step 1: Prepare a list of dwellings with specifications in terms of the number of bedrooms and other rent-determining characteristics of dwellings.

Step 2: Collect rental prices for the dwellings with specifications matching those in the list.

Step 3: Use imputed rents based on the user cost approach to classes of dwellings for which no rental

Figure 14. Price Level Indexes for Basic Heading: Other General Purpose Machinery, Before and After Clustering, 2011



BAN = Bangladesh; BHU = Bhutan; BRU = Brunei Darussalam; CAM = Cambodia; FIJ = Fiji; HKG = Hong Kong, China; IND = India; INO = Indonesia; LAO = Lao People’s Democratic Republic; MAL = Malaysia; MAC = Macao, China; MLD = Maldives; MON = Mongolia; MYA = Myanmar; NEP = Nepal; PAK = Pakistan; PHI = Philippines; PRC = People’s Republic of China; SIN = Singapore; SRI = Sri Lanka; TAP = Taipei, China; THA = Thailand; VIE = Viet Nam.

Source: ADB. 2013. Agreements from the Third Regional Advisory Board Meeting. Bangkok, Thailand. 13–14 May.

market exists. Examples of such dwellings are traditional houses, which are owner-occupied and are not usually rented.

Step 4: Conduct standard data validation checks and apply editing procedures used in ICP and prepare rental data set for PPP computations.

Step 5: Compute PPPs at the basic heading level or at a level that is appropriate using unweighted CPD method and obtain rental price PPPs.

Step 6: Use rental price PPPs from Step 5 to convert dwelling services expenditures in the national accounts into volume measures of dwelling services and compute per capita volume of dwelling services or per capita real expenditure on dwelling services.

The rental price approach is the most preferred method for comparisons of dwelling services but the procedure can be applied only if reliable and

meaningful rental data are available, which in turn requires the presence of an extensive rental market in the participating economies. A related requirement is the availability of reliable measures of imputed rental and share of owner-occupied dwellings. An equally important further requirement is the availability of accurate data on expenditure shares for dwelling services from the national accounts. In Asia and the Pacific, there were serious issues associated with both rental and national accounts data.

Reference PPP and Reference Quantity Approaches

The reference PPP approach recommends the use of PPP for a related aggregate that is similar to that of dwelling services. The reference PPP is the PPP derived for the whole of household consumption without including dwelling services. A major problem with the use of reference PPP is that the volume measure implied may not be meaningful when expenditure share data from the national accounts are not reliable, as well as meaningful.

Recognizing the limited applicability of reference PPP approach, the RCA made use of the reference quantity approach in the 2005 ICP. It entailed the use of relative volume ratios for household consumption without the inclusion of dwelling services as a reference volume ratio for dwelling services. The implicit assumption was that dwelling services relativities across the economies are similar or identical to the volume relativities for household consumption as a whole. A major attraction of this approach was that the household consumption volume comparisons were unaffected, and therefore considered as a volume neutral approach.

Quantity Indicator and Rental Price Data for the 2011 ICP Asia and the Pacific

Aware of the potential problems in gathering comprehensive, reliable, and comparable data required for this purpose, the 2011 ICP Asia and the Pacific embarked on the collection of data necessary for both the quantity and rental price approaches. Survey instruments developed by the Global Office were used, with some adaptation to meet the nature of dwelling types in the region.

There were gaps in the data provided by the economies on the required quantity and quality indicators. A simple gap filling procedure based on an unweighted CPD regression was used in most economies. The quality indicator data also had missing entries. The United Nations data on Millennium Development Goals were used as a major source to fill data gaps on the availability of water and toilets. The International Energy Association was used as the major source of data on availability of electricity. On the whole, data on quality indicators was considered reasonably adequate. An extensive analysis of the quantity and quality indicators was conducted.

Figure 15 shows that the quality indicator is close to 1.0 indicating that almost all dwellings have all the amenities. Also of interest is the high value of the quality index for Bhutan, Fiji, Sri Lanka, and Viet Nam. The lowest value of the index is observed for Cambodia. Figure 15 also shows that the quality

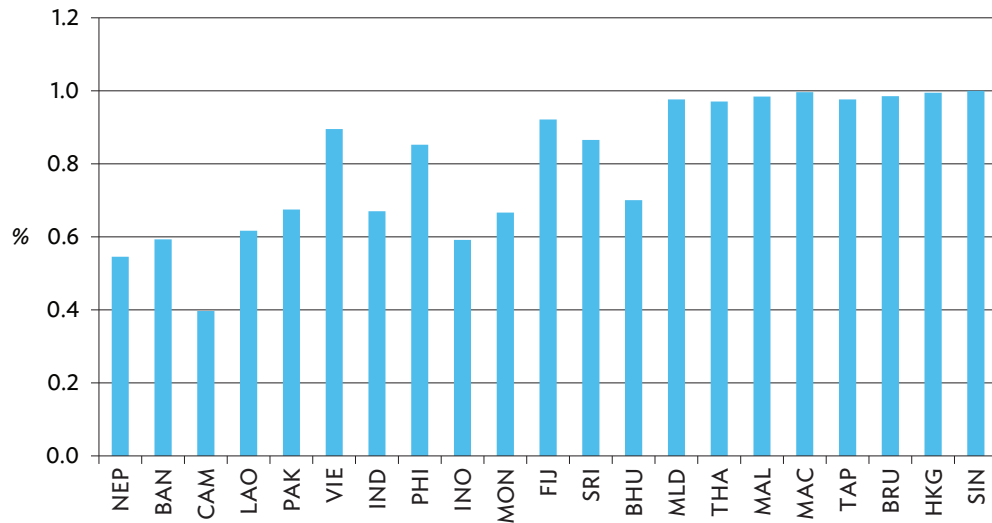
index based on electricity, water, and toilet is the same for all the economies on the right hand side of the chart that include Brunei Darussalam; Hong Kong, China; Macao, China; Malaysia; the Maldives; Singapore; Taipei, China; and Thailand. Consequently, the index implies that dwellings in all of these economies are of similar quality, which means that the index does not provide an adequate adjustment for quality in dwellings. This message is further reinforced in Figures 15–18, showing quality-adjusted quantity indicators.

The quality indicators were consistent with expectations with the increasing percentage of populations in the participating economies with access to the three quality indicators. These quality indicators were useful in assessing the quality for low-income economies but offered no additional insights for middle- and high-income economies where these percentages were close to 100%. The quantity indicators provided more useful insights into the volumes of dwelling services and found to be of reasonable quality. However, a major issue was the adequacy of the quality indicators to compare dwelling services between the high-, middle-, and low-income economies. The general conclusion was that the square meters of floor space (with all the amenities present) in a high-income economy would be of a different quality from the floor space in a low-income economy; and, therefore, the relative volume measures of dwellings from quantity indicator approach may need to be supplemented and modified to account for the presence of such quality differences.

Data for Rental Price Approach

The volume of dwelling services can be derived by expressing expenditure on dwellings in Hong Kong dollar using PPPs for dwelling services. Expenditure on dwellings can be derived using data on the shares of dwellings in national accounts. Therefore, the reliability of the volume measures derived using the rental approach depends upon the rental price data, as well as reliable rental shares in the national accounts. Figure 19 reflects the quality of the expenditure data supplied by the economies, which was assessed by

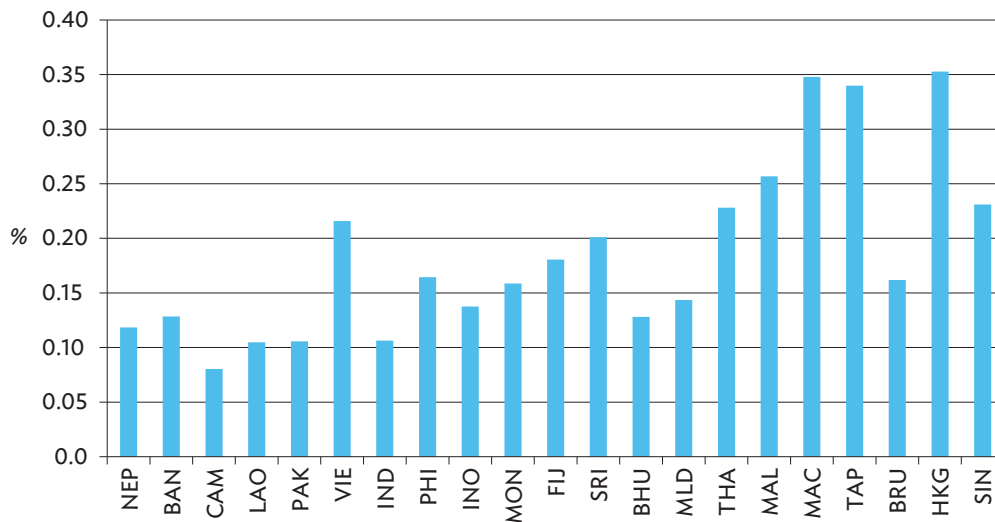
Figure 15. Quality Index (Average of Electricity, Water and Toilet), 2011
in ascending order of per capita GDP



BAN = Bangladesh; BHU = Bhutan; BRU = Brunei Darussalam; CAM = Cambodia; FIJ = Fiji; GDP = gross domestic product; HKG = Hong Kong, China; IND = India; INO = Indonesia; LAO = Lao People's Democratic Republic; MAC = Macao, China; MAL = Malaysia; MLD = Maldives; MON = Mongolia; NEP = Nepal; PAK = Pakistan; PHI = Philippines; SIN = Singapore; SRI = Sri Lanka; TAP = Taipei, China; THA = Thailand; VIE = Viet Nam.

Source: D. Blades. 2013. 2011 Dwelling Services for Asia and the Pacific. Presentation for the 2011 ICP Asia Pacific Experts' Group Meeting. Bangkok, Thailand. 6–9 May.

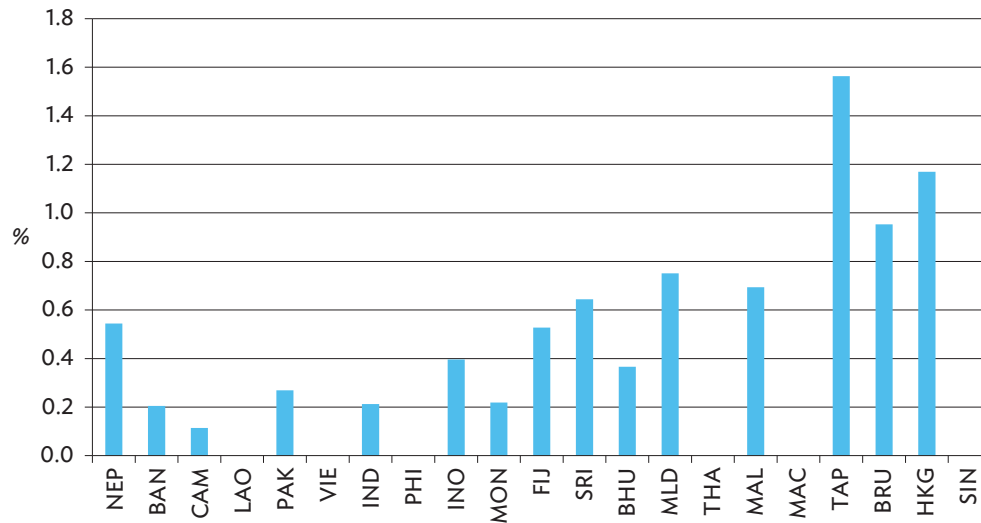
Figure 16. Quality-Adjusted Dwellings, Per Capita Gross Domestic Product, 2011
in ascending order of per capita GDP



BAN = Bangladesh; BHU = Bhutan; BRU = Brunei Darussalam; CAM = Cambodia; FIJ = Fiji; GDP = gross domestic product; HKG = Hong Kong, China; IND = India; INO = Indonesia; LAO = Lao People's Democratic Republic; MAC = Macao, China; MAL = Malaysia; MLD = Maldives; MON = Mongolia; NEP = Nepal; PAK = Pakistan; PHI = Philippines; SIN = Singapore; SRI = Sri Lanka; TAP = Taipei, China; THA = Thailand; VIE = Viet Nam.

Source: D. Blades. 2013. 2011 Dwelling Services for Asia and the Pacific. Presentation for the 2011 ICP Asia Pacific Experts' Group Meeting. Bangkok, Thailand. 6–9 May.

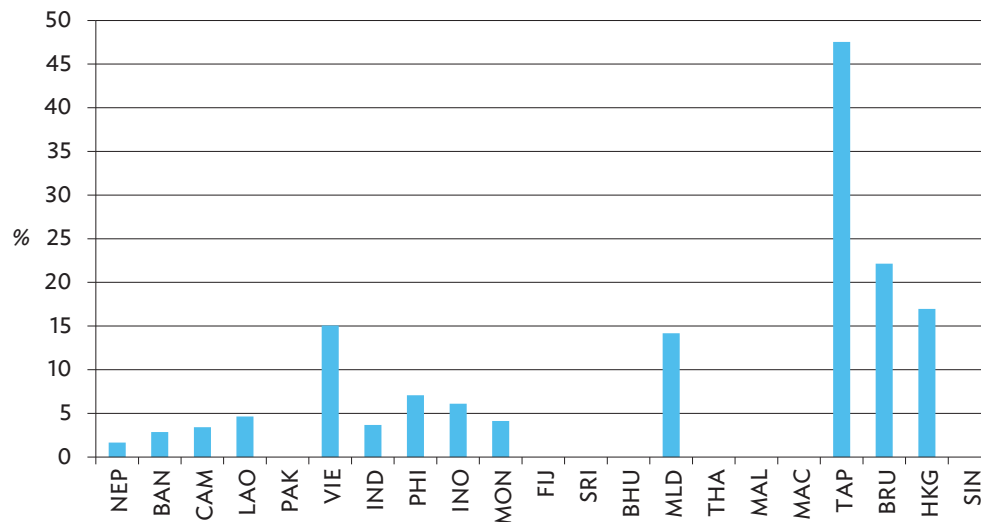
Figure 17. Quality-Adjusted Rooms, Per Capita Gross Domestic Product, 2011
in ascending order of per capita GDP



BAN = Bangladesh; BHU = Bhutan; BRU = Brunei Darussalam; CAM = Cambodia; FIJ = Fiji; GDP = gross domestic product; HKG = Hong Kong, China; IND = India; INO = Indonesia; LAO = Lao People’s Democratic Republic; MAC = Macao, China; MAL = Malaysia; MLD = Maldives; MON = Mongolia; NEP = Nepal; PAK = Pakistan; PHI = Philippines; SIN = Singapore; SRI = Sri Lanka; TAP = Taipei,China; THA = Thailand; VIE= Viet Nam.

Source: D. Blades. 2013. 2011 Dwelling Services for Asia and the Pacific. Presentation for the 2011 ICP Asia Pacific Experts’ Group Meeting. Bangkok, Thailand. 6–9 May.

Figure 18. Quality Adjusted Floor Space, Per Capita Gross Domestic Product, 2011
in ascending order of per capita GDP



BAN = Bangladesh; BHU = Bhutan; BRU = Brunei Darussalam; CAM = Cambodia; FIJ = Fiji; GDP = gross domestic product; HKG = Hong Kong, China; IND = India; INO = Indonesia; LAO = Lao People’s Democratic Republic; MAC = Macao, China; MAL = Malaysia; MLD = Maldives; MON = Mongolia; NEP = Nepal; PAK = Pakistan; PHI = Philippines; SIN = Singapore; SRI = Sri Lanka; TAP = Taipei,China; THA = Thailand; VIE= Viet Nam.

Source: D. Blades. 2013. 2011 Dwelling Services for Asia and the Pacific. Presentation for the 2011 ICP Asia Pacific Experts’ Group Meeting. Bangkok, Thailand. 6–9 May.

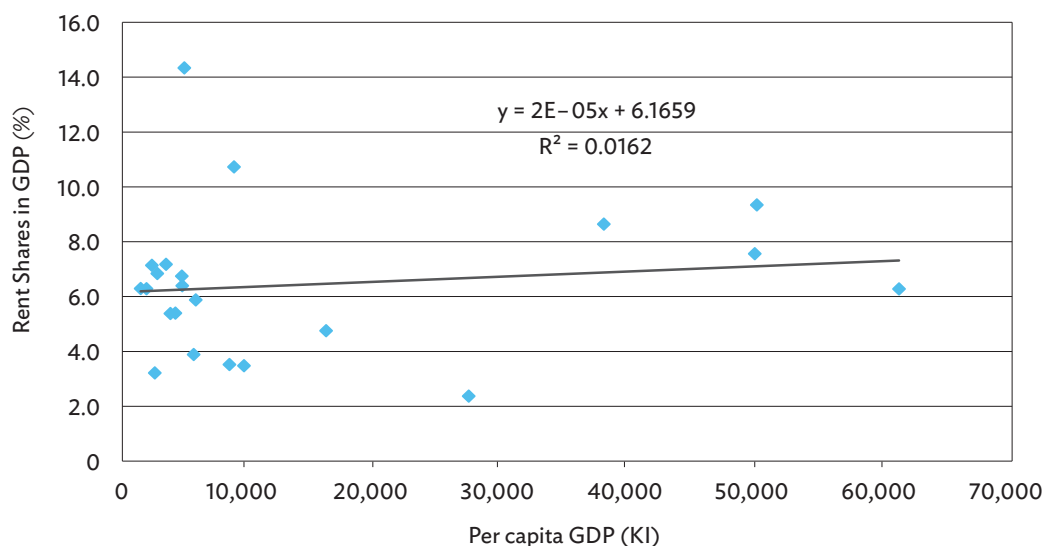
examining the expenditure share on dwellings and their relationship with per capita GDP. The figure presents a scatter plot of shares of dwelling services in economies in Asia and the Pacific on per capita GDP and an estimated regression relationship fitting the scatter plot.

Figure 19 does not show significant relationship. These shares appear to (if any) follow a pattern that is counter to the expected pattern of increasing expenditure shares with increase in real income. Shares of rental in national accounts showed large variability at given income levels, especially at the lower-income levels. For example, the shares of dwellings show a wide range from 2.5% to 14% in some of the low-income economies whereas the average share for high-income economies is around 8%. Use of this data along with PPPs from rental data would give a misleading picture of the volume relativities. This analysis of expenditure shares of dwellings and their relationship with per capita GDP casts doubt about the quality of the national accounts data on dwelling services.

After an in-depth analysis and close examination of the rental price data, the general conclusion was that the rental price was not of sufficient quality for use in deriving comparisons of dwelling services for economies in the region. Data for a few economies were found to be reasonable but on the whole not of sufficient quality to be used in the computation of PPPs for rental. The RCA tried another approach, i.e., use a mixture of these two approaches making optimum use of the available data from these two sources. This procedure had three stages below.

- (i) In the first stage, the quantity indicator data were used in deriving per capita measures of real dwelling services across the participating economies.
- (ii) The second stage involved an adjustment for quality differences using selected link economies from three income groups. The second stage adjustment made use of rental price data to make a volume comparison between the selected link economies. As rental price PPPs were based on rental data for dwellings of matched quality across economies, PPPs and the resulting volume

Figure 19. Rent Shares and Per Capita Gross Domestic Product, 2011



GDP = gross domestic product.

Source: D. Blades. 2013. 2011 Dwelling Services for Asia and the Pacific. Presentation for the 2011 ICP Asia Pacific Experts' Group Meeting. Bangkok, Thailand. 6-9 May.

relativities for the selected link economies would represent similar quality of dwelling services.

- (iii) In the third and final stage, the per capita volume measures from first stage (based on quantity indicators) were adjusted using the factor derived in the second stage.

The actual procedures used in the three stages are described in the ensuing section.

Grouping of High-, Middle-, and Low-Income Economies

The 23 participating economies were ranked according to their real per capita GDP in the 2005 ICP Asia and the Pacific. Based on the ranking provided in Figure 3 on page 32 of ADB (2007), the following groups in Table 54 were formed .

Steps in the Mixed Quantity Rental Approach

Two alternative methods of using the quantity indicator data were considered. The first approach involved the construction of a single quantity indicator, which is a weighted (geometric) average of the three quantity indicators, and the resulting indicator was then adjusted for quality using an unweighted geometric average of percentages of

dwellings with the three different amenities. As the construction of such an indicator requires mixing up indicators of different types (size measures like square meter of floor space with measures like the number of rooms and number of dwellings per capita) and since there were missing data, it was decided to use

- (i) CPD method in aggregating quantity indicator data;
- (ii) weighted CPD with the following weights: 0.5 to floor space; 0.33 to number of rooms; and 0.17 to number of dwellings, reflecting the appropriateness of the three indicators as measures of volumes of dwelling services;
- (iii) weights based on percentages of dwellings with the three different varieties of amenities in the CPD method; and
- (iv) the resulting indicator to be labeled as “real volume” of dwelling services.

Results of the CPD approach are presented in Table 55, showing per capita real quantity of dwelling services of 37 for Hong Kong, China, under the high-income group; 21 for Thailand, in middle-income group; and 7 for Nepal, in low-income group. The main assumption was that volumes associated with economies within an income group were comparable but not comparable across different income groups. The main reason was a square meter of floor space in a high-income economy is not the same as the floor space in a middle- or low-income economy. Volume figures in Table 55 for different income groups needed to be linked using a volume ratio derived using rental data where rentals for dwellings from economies with matching quality were used.

Derivation of Linking Factor Using Rental Price Data

The linking between different income groups is through a pair of economies for which reliable PPPs and dwelling service volumes can be derived. This implies that the economies selected for linking must have reliable rental price data along with good coverage of dwellings of different types and qualities, and expenditure weight for dwellings in the national accounts. In assessing the reliability of PPP and

Table 54. Economy Income Groups, 2005

High	Middle	Low
Brunei Darussalam	Bhutan	Bangladesh
Hong Kong, China	China, People's Republic	Cambodia
Macao, China	Fiji	India
Malaysia	Indonesia	Lao People's Democratic Republic
Singapore	Maldives	Mongolia
Taipei, China	Sri Lanka	Nepal
	Thailand	Pakistan
		Philippines
		Viet Nam

Source: ADB, 2007.

Table 55. Country-Product-Dummy Quantity Approach for Developing Services, 2011

Economy	Dwellings per 100 Persons	Rooms per 100 Persons	Floor Space per Person	Quantity	Electricity	Water	Private Toilet	Quality	Real Volume
Bangladesh	22	35	5	12	41	81	56	57	7
Bhutan	18	52	-	13	70	96	44	67	8
Brunei Darussalam	16	92	21	33	100	98	98	99	32
Cambodia	20	29	9	15	24	64	31	36	5
China, People's Republic of	31	93	35	47	90	70	70	76	36
Fiji	20	57	-	22	96	98	83	92	20
Hong Kong, China	36	118	17	37	99	100	100	99	37
India	16	32	5	12	75	92	34	62	7
Indonesia	23	67	10	22	65	82	31	55	12
Lao People's Democratic Republic	17	-	8	14	55	67	63	61	9
Macao, China	35	-	-	36	99	100	100	100	36
Malaysia	26	70	-	27	99	100	96	98	27
Maldives	14	71	13	23	98	98	97	98	23
Mongolia	24	33	6	14	67	82	51	65	9
Myanmar	14	37	6	13	13	83	76	43	6
Nepal	22	100	3	14	44	89	31	49	7
Pakistan	16	40	-	10	62	92	48	65	7
Philippines	19	-	8	16	90	92	74	85	14
Singapore	23	-	-	24	100	100	100	100	24
Sri Lanka	23	75	-	17	77	91	92	86	15
Taipei, China	35	160	49	68	99	97	97	98	67
Thailand	23	-	-	22	99	96	96	97	21
Viet Nam	24	-	17	27	98	95	76	89	24

- = data not available.

Source: ADB estimates.

real volume estimates from rental price data, five different sets of dwelling types were considered and the robustness of the results for the link economies were assessed. These groupings are:

- (i) **All:** All dwellings (national);
- (ii) **S1:** All dwellings (urban prices only);
- (iii) **S2:** All dwellings (capital prices only);
- (iv) **S3:** Excluding row house and studio apartment (national); and
- (v) **S4:** Excluding villas, row house, and studio apartment (national).

In particular S1 and S4 were considered important. On the basis of these considerations, Hong Kong, China, in high-income group, and Thailand, in middle-income group, were selected. For these two economies, the per capita volume measures under S1 were 219 for Hong Kong, China and 107 for Thailand; and under S4 were 170 for Hong Kong, China and 83 for Thailand. The relativities are almost identical when S1 and S4 coverage was used. Hence, Hong Kong, China and Thailand were used in linking high- and middle-income groups.

A thorough examination of results for the low-income economies failed to provide a proper link from the middle- to low- or from rich- to low-income groups. Using the high- and low-income grouping for Hong Kong, China for linking the high-income and Thailand for middle- and low-income, was also explored. Although very promising, the simulated results were deemed unacceptable at their current state given data limitations and time constraints. Further research and investigation were required before the results can be accepted.

Conclusion

This section provides the reader with a description of the data, methodology, and steps taken and investigated in compiling real per capita consumption of dwelling services in ICP Asia and the Pacific using both the quality-adjusted quantity indicators and rental price data. But because a proper link between middle- and low-income economies or between high- and low-income economies could not be identified, it was concluded that there was insufficient reliable data from the rental price surveys to provide such a link. In its absence, linking the high-income economies and the rest of the other economies through Hong Kong, China and Thailand was not acceptable. Although the procedure described is considerably superior to the methods described earlier, it was not recommended by the ICP experts. The RCA therefore took a decision, with the approval of the Regional Advisory Board, to use the reference volume ratio, as was used in the 2005 ICP. The main consideration was the neutrality of the approach in insulating the comparisons of all the non-dwelling services expenditures from any errors in the measurement of dwelling services.

General Government and Compensation of Government Employees

Wage Relativities and Need for Productivity Adjustment

Wages and salaries data from the economies were used in computing PPPs for three basic headings:

(i) health, (ii) education, and (iii) general government expenditure on collective services. When hourly compensation data for 2011 were compared after converting using exchange rates across the 23 participating economies, disparities in the ratio of 120:1 between Hong Kong, China and the Lao People's Democratic Republic were found. These disparities can be more clearly seen from the price level indexes for health and education across the 23 economies shown in Figure 20.

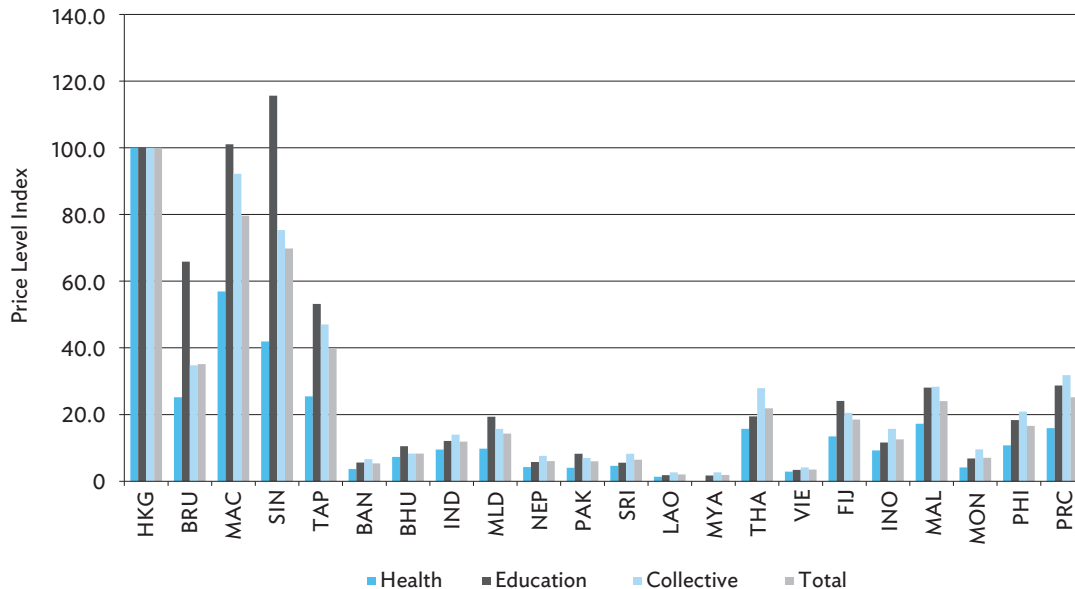
Figure 20 clearly demonstrates the enormous differences found in wages and salaries received by government employees in the participating economies. While the wages and salaries data that underpin the PPP and price level calculations may be accurate, it is unclear if the real expenditures and volume of general government services derived using PPPs were realistic. Given the large size of general government in some of these economies, use of these PPPs was likely to increase the real per capita GDP to unrealistic levels.

An explanation for the observed disparities in wages and salaries is that productivity of labor employed in government could be low in low-income economies like Cambodia and the Lao People's Democratic Republic compared to high-income economies like Hong Kong, China and Singapore. Recognizing the productivity levels as possible source of wage differentials, Asia and the Pacific was the first region to introduce productivity adjustments for wages and salaries in general government.

Productivity Adjustment Methodology

The ICP Asia and Pacific region devised and implemented an adjustment for differences in labor productivity across the participating economies to obtain meaningful PPPs for wages and salaries in the government sector in the 2005 ICP. Appendix 4 of ADB (2007) provides a brief description of the method used. Heston (World Bank, 2013) discussed productivity adjustments for government sector compensation, and explained the linking procedure

Figure 20. Price Level Indexes for Health, Education, and Collective Services, 2011
(Hong Kong, China = 100)



BAN = Bangladesh; BHU = Bhutan; BRU = Brunei Darussalam; FIJ = Fiji; GDP = gross domestic product; HKG = Hong Kong, China; IND = India; INO = Indonesia; LAO = Lao People’s Democratic Republic; MAC = Macao, China; MAL = Malaysia; MLD = Maldives; MON = Mongolia; MYA = Myanmar; NEP = Nepal; PAK = Pakistan; PHI = Philippines; PRC = People’s Republic of China; SIN = Singapore; SRI = Sri Lanka; TAP = Taipei,China; THA = Thailand; VIE= Viet Nam.

Source: ADB estimates.

followed by the Global Office in the 2005 ICP. The method described below can be applied to any sector of the economy or for the whole economy and in other regions of the world.

The basic logic that underpins the productivity adjustment method is that labor productivity is determined by *capital intensity* or the amount of capital available per labor unit in the production process. As rich economies tend to have more capital in the production process, labor is considered to be more productive. Productivity adjustments are derived using a simple production function framework. Let Y represent output, or GDP, and let K and L be the two factors involved. The production function is then postulated as

$$Y = f(A, K, L) \tag{18}$$

where A is referred to as the efficiency factor in a cross-sectional context, which is appropriate in the case of international comparisons; and its value over time is interpreted as technical change. The production function in (18) is assumed to be of the Cobb-Douglas functional form. Further assume that the production function exhibits constant returns to scale technology with Hicks-neutral technical efficiency/change. In this case, the production function can be expressed as

$$Y = AK^\alpha L^{1-\alpha} \tag{19}$$

where α is output elasticity of capital. Labor productivity, measured as output per unit of labor used, can then be expressed as

$$\frac{Y}{L} = A \left(\frac{K}{L} \right)^\alpha \tag{20}$$

which is written as

$$y = Ak^\alpha \text{ where } y = \frac{K}{L} \text{ and } k = \frac{K}{L} \quad (21)$$

Productivity comparisons in economies i and j can be made if k and α are known for the two economies. Typically for economy i , labor productivity is given by

$$y_i = A_i k_i^{\alpha_i} \quad (22)$$

These productivity levels can be compared relative to a “reference” or base economy. However, such binary comparisons between pairs of economies are not transitive²¹ and not internally consistent. In a recent paper by Timmer and Inklaar (World Bank, 2013), they made use of the procedure suggested by Caves, Christensen, and Diewert (Caves, Christensen, and Diewert; 1982) to produce transitive relative productivity measures. The CCD approach suggests that productivity in each economy is compared to a hypothetical economy, which represents the average of all the participating economies. Expressing (22) in logarithmic form and taking averages yields

$$\ln y_i = \ln A_i + \alpha_i \ln k_i \text{ for each economy } i \quad (23)$$

and

$$\ln \bar{y} = \ln \bar{A} + \bar{\alpha} \ln \bar{k} \text{ for the average economy} \quad (24)$$

In the equation, \bar{y} , \bar{A} , and \bar{k} are the geometric averages of all the values corresponding to the economies in the comparisons. Then relative labor productivity in economy i relative to the average is given by

$$P_i = \ln \left(\frac{y_i}{\bar{y}} \right) = \ln \left(\frac{A_i}{\bar{A}} \right) + \frac{1}{2} (\alpha_i + \bar{\alpha}) \left(\frac{\ln k_i}{\ln \bar{k}} \right) \quad (25)$$

In (25) a further assumption is that efficiency levels in all the economies are the same. In this case $A_i = \bar{A}$ and the productivity adjustment then simplifies to

$$P_i = \frac{1}{2} (\alpha_i + \bar{\alpha}) \left(\frac{\ln k_i}{\ln \bar{k}} \right) \quad (26)$$

Once the relative labor productivities are computed for each of the economies, then the adjustment factor relative productivity differential for economy i relative to a reference economy b denoted by $F_{b,i}$ can be computed using

$$F_{b,i} = \frac{\exp(P_b)}{\exp(P_i)} \quad (27)$$

From equation (26), it is clear that the relative productivity adjustment factors depend upon output elasticity of capital, α_i and capital intensity, k_i , in economy i ($=1,2,\dots,23$). The resulting adjustment factors that can be used in adjusting PPPs derived for government compensation is

$$\text{Adjusted } PPP_{b,i}^w = PPP_{b,i}^w \times F_{b,i} \quad (28)$$

Suppose productivity level in the base economy is 10 times productivity in economy i , then the adjustment to PPP implied in equation (28) is that the unadjusted PPP based on observed wages and salaries for economy i with reference economy b should be multiplied by a factor of 10.

The productivity adjustment method described is slightly different from the methodology used in the 2005 ICP Asia and the Pacific. The procedure described in Appendix 4 of ADB (2007) does not satisfy transitivity whereas the procedure described here and the adjustment factor given in equation (27) produces PPP adjustments that are invariant to the choice of the reference economy. Calculation and implementation of the adjustment factors typically depend on output elasticity of capital and capital-labor ratios.

²¹ Transitivity simply requires that productivity level relativity between two economies i and j should be the same as relative productivity between economy i and l multiplied by relative productivity between l and j .

Implementation of Productivity Adjustment in Asia and the Pacific

Implementation of productivity adjustments for the government sector based on equations (21), (26), and (27) typically require capital–labor ratios and output elasticity of capital in the government sector. However, such information is difficult to compile for the government sector. Therefore, the approach followed by the RCA, and the approach recommended by the TAG at the Global Office, are to use economy-wide estimates of capital–labor ratios and output elasticity of capital for the whole economy, and use these as proxies for the government sector.

Under the assumption of competitive labor and capital input markets, the output elasticity of capital is the same as the share of capital income in GDP. Timmer and Inklaar (World Bank, 2013) provided the details of how capital share can be computed. In general, capital share is computed as one minus the share of labor income in GDP. For many economies, labor shares can be computed using national accounts statistics.²² In Asia and the Pacific, relevant information is compiled from the *Key Indicators for Asia and the Pacific* publication of ADB from the past years.

Once the capital income share, α , is determined, the next step is to obtain whole-economy capital–labor ratios for each of the participating economies. The RCA obtained estimates of capital stock compiled using the *perpetual inventory* method and investment series at constant prices for all the participating economies from 1982 to 2011. Where necessary, imputations were made using interpolation of investment series. Labor force figures were obtained from employment series. Using these information, RCA compiled estimates of capital and labor for the 23 participating economies.

After validating the labor income share data, as well as capital stock and resulting estimates of capital–output ratios, the following estimates were used in the

computation of productivity adjustments for Asia and the Pacific:

- (i) The labor income shares are set at 0.7 for high-, 0.6 for middle-, and 0.5 for low-income economies of the region. Malaysia and Thailand are included in the group of high-income economies for this purpose.
- (ii) Capital–output ratios for all the economies were computed and the results for Bhutan; Fiji; Macao, China; and Myanmar were considered to be outliers. At the recommendations of the Expert Group, India’s capital–output ratio was used for Bhutan; the geometric mean of the ratios for the Maldives and Sri Lanka were used for Fiji; and the geometric mean of rich-income and low income subgroup were used as proxies for Macao, China and Myanmar respectively.

Table 56 shows the data on labor shares and capital–output ratios used in the final calculations.

Computation of Adjustment Factors

Information contained in Table 56 is sufficient for computing the productivity adjustment factors. The method employed by the RCA in the 2005 ICP Asia and the Pacific differs slightly from the method described in equations (21), (26), and (27). An iterative procedure that makes use of the labor share and capital–output ratios using the following equation derived from equation (12) was used.

$$\frac{Y}{L} = A \left(\frac{K}{L} \right)^\alpha = A \left(\frac{Y}{L} \cdot \frac{K}{Y} \right)^\alpha \quad (29)$$

Starting from an initial value of Y/L , the right hand side is computed using data on K/Y ; and α would give a value for the left hand side, which is used back on the right hand side in an iterative process. However, this process is computationally cumbersome and can pose problems in using this procedure in subsequent linking with other regions.

After a careful consideration of the issues involved, the TAG in its September 2013 meeting recommended

²² For further details, see Timmer and Inklaar (World Bank, 2013).

Table 56. Labor Shares and Capital–Output Ratios, 2011

Economy	Labor Coefficient	Capital Ratio
Bangladesh	0.50	2.38
Bhutan	0.50	3.39
Brunei Darussalam	0.70	2.65
Cambodia	0.50	1.66
China, People's Republic of	0.60	2.82
Fiji	0.60	2.53
Hong Kong, China	0.70	2.63
India	0.50	2.51
Indonesia	0.60	2.31
Lao People's Democratic Republic	0.50	1.81
Macao, China	0.70	2.51
Malaysia	0.70	2.53
Maldives	0.50	2.75
Mongolia	0.50	2.37
Myanmar	0.50	2.24
Nepal	0.50	2.21
Pakistan	0.50	1.77
Philippines	0.60	2.21
Singapore	0.70	2.40
Sri Lanka	0.50	2.33
Taipei, China	0.70	2.37
Thailand	0.70	2.84
Viet Nam	0.60	2.95

Note: Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 ICP Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

Source: ADB estimates.

the methodology below to be followed by all the regions, with the exception of OECD-Eurostat where no productivity adjustments are made.

- (i) Use of a computationally simple and more straightforward approach using equation (21) in place of the iterative procedure used in the 2005 ICP Asia and the Pacific comparisons shown in equation (27);

- (ii) Computation of transitive adjustment factors derived using equations (25) to (27) instead of the procedure used in the 2005 ICP Asia and the Pacific, which was not transitive; and
- (iii) Use of the regions' own capital–labor ratios derived from their data available instead of using the ratios produced by Timmer and Inklaar (World Bank, 2013), to which the TAG agreed; and for ICP Asia and the Pacific will make use of the ratios shown in Table 56.

Productivity Adjustments for Government Compensation of Employees

Table 57 shows the adjustment factors for wages and salaries derived for the 23 economies based on the 2005 ICP Asia and the Pacific methodology. Therefore, these estimates were indicative and subject to revision when the methodology was brought in line with the TAG recommendations.

These factors were all expressed relative to Hong Kong, China, which has a value of 1. This means that the wages and salaries data from Hong Kong, China were used without any adjustment. But for the others, for example, the wages and salaries data from Macao, China were increased by 21% and Singapore by 7%. In contrast, for most of the middle- and low-income economies, wages and salaries data were scaled down by a large factor. For example, wages and salaries data for Nepal were multiplied by 0.17, roughly one-sixth of the original wages were used in computing PPPs for government compensation.

Conclusion

The methodology used in 2011 ICP in Asia and the Pacific marks significant advances made in the methods used for various components of GDP. The major innovations include

- (i) improved coverage of price surveys;
- (ii) more reliable national accounts data;
- (iii) new techniques for data editing and validation, which were fine-tuned for each of the aggregates in question;

Table 57. Productivity Adjustment Factors, 2011

Economy	Adjustment Factor
Bangladesh	0.21
Bhutan	0.43
Brunei Darussalam	1.11
Cambodia	0.16
China, People's Republic of	0.52
Fiji	0.49
Hong Kong, China	1.00
India	0.35
Indonesia	0.47
Lao People's Democratic Republic	0.24
Macao, China	1.21
Malaysia	0.81
Maldives	0.46
Mongolia	0.38
Myanmar	0.23
Nepal	0.17
Pakistan	0.28
Philippines	0.42
Singapore	1.07
Sri Lanka	0.42
Taipei, China	0.93
Thailand	0.66
Viet Nam	0.39

Note: Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 ICP Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific regional coordinating agency. The National Bureau of Statistics of China does not recognize these results as official statistics.

Source: ADB estimates.

- (iv) inclusion of “new” products based on splitting and price clustering approaches to household consumption and machinery and equipment;
- (v) development of relevance indicators for materials used in construction-based expert engineering advice; and
- (vi) new methodology for productivity adjustments, including development of regional estimates of labor income shares and capital and labor series.

The RCA is confident that the estimates of PPPs, real expenditures, and associated data in the 2011 ICP round are far more robust than those compiled in earlier rounds because of improved procedures in methodology, as well as in data collection, review, and processing.

Linking Asia and the Pacific to Rest of the World

The ICP follows a regionalized approach whereby each region conducts ICP covering all the participating economies of the region. The Global Office subsequently linked all the regional comparisons leading to global comparisons of prices and real incomes. At the conclusion of the 2011 ICP Asia and the Pacific comparisons, valuable information on: (i) PPPs of currencies in the region expressed relative to Hong Kong, China (used as the reference economy); (ii) price and real per capita GDP levels relative to an Asia and the Pacific average of 100; and (iii) the relative sizes of the economies in the region, were available for use by businesses, national and international organizations, and researchers in the region.

The value of regional comparisons was further enhanced when these comparisons are linked with other regions. Asia and the Pacific ICP comparisons show, for example, the People's Republic of China and India were the biggest economies in the region. The question then arose as to how these two economies compare to economies of the Germany, Japan, Republic of Korea, and United States. Similarly, Brunei Darussalam; Macao, China; Hong Kong, China; and Singapore were some of the high-income economies at the top of the 23 economies in terms of real per capita income. Where do they ranked in the world? Where do some of the lower-income economies like Cambodia, the Lao People's Democratic Republic, and Myanmar ranked among the lower-income economies of the world and how do they compare with economies in Africa? In Asia and the Pacific, Hong Kong, China and Singapore were the economies with the highest price levels for most of the GDP aggregates. In a globalized

world where price competitiveness is essential, it is useful to know the relative price levels of the region compared to economies in Europe, Latin America, and North America. Answers to these important questions rely on world comparisons where all the regional results were combined using a robust linking methodology.

A New Approach to Linking in the 2011 ICP

In the 1993 and 2005 ICP comparisons, regional comparisons were linked through a set of ring economies selected by the Global Office. In the 2005 ICP, 18 ring economies were selected with 6 economies from Africa, 4 from Asia and the Pacific, and 2 each from the Eurostat-OECD and Western Asia regions. The Commonwealth of Independent States region was linked to the Eurostat-OECD using the Russian Federation as the bridge economy. The Global Office was responsible for the preparation of the *ring product list* for household consumption, as well as the product lists for machinery and equipment, compensation of government employees, construction, and dwellings. The ring economies were entrusted with the collection of price data for ring list products for household consumption; and for the other aggregates, data collected by all the economies in all the regions were used by the Global Office.

A brief explanation of the methodology used for regional linking in the 2005 ICP can be found in the World Bank (2008); more technical explanation of linking procedures in Rao (World Bank, 2013), which explained the method of linking at the basic heading level; in Diewert (World Bank, 2013), which presented the linking procedures for aggregation above the basic heading levels; in Vogel (World Bank, 2013), which explained in detail the ring economy; and in Heston (World Bank, 2013), which explained the procedures used in linking dwellings, government compensation, construction, and machinery and equipment.

An ex-post evaluation of the linking methodology adopted in the 2005 ICP by the TAG revealed several problems. After a careful evaluation of the

alternatives, the TAG recommended significant changes to the linking methodology that was used in the 2005 ICP round. The main recommendations and features of the linking methodology for the 2011 ICP are the following:

- (i) Discontinue the use of ring economies and ring product lists;
- (ii) Use global core list of products in household consumption, to be priced by all the participating economies in all the regions, and use importance indicator in the process of linking;
- (iii) Simplified method of making comparisons for construction based on construction materials, and different types of labor and equipment;
- (iv) Make productivity adjustments for government compensation at the point of linking regional comparisons using a set of transitive adjustment factors for productivity compiled by the Global Office; and
- (v) Use a new method of linking above the basic heading level, known as the country aggregation and redistribution of volume (CAR-volume) method.

The “Fixity” Principle

It is important to note that global linking of regional comparisons strictly adhered to the principle of *fixity*; it required the global comparisons, which were obtained by linking separate regional comparisons, to ensure that the *within region relativities* are maintained. The fixity principle ensured that the price relativities, as well as real expenditure or volume relativities, remain unchanged when the regional comparisons are embedded into global comparisons. Table 58 demonstrates the effect of fixity using PPPs, price level indexes, and real per capita GDP expressed relative to the regional and global averages.

Figures in Table 58 clearly demonstrate the adherence to fixity principle in the 2005 ICP global comparisons. If PPPs in column 4 are converted into Hong Kong, China dollar (HK\$) as reference currency by dividing each of the elements by 5.69, then the PPPs shown in column 1, which are derived from regional comparisons, can be obtained demonstrating fixity of regional PPPs within

Table 58. Purchasing Power Parities, Price Levels, and Real Per Capita Gross Domestic Product Indexes for Selected Economies, 2005

Economy	Regional Comparisons			Global Comparisons		
	PPPs	Price Levels	Real per Capita GDP ^a	PPPs	Price Levels	Real per Capita GDP ^a
	(Hong Kong dollar = 1.00)	(Region = 100)	(Region Average = 100)	(United States dollar = 1.00)	(World = 100)	(World Average = 100)
	(1)	(2)	(3)	(4)	(5)	(6)
Hong Kong, China	1.00	180	993	5.69	91	398
China, People's Republic of	0.61	103	114	3.45	52	46
India	2.58	82	59	14.67	41	24
Malaysia	0.31	112	319	1.73	57	128
Thailand	2.80	97	191	15.93	49	77

GDP = gross domestic product, PPP = purchasing power parity.

^a Real refers to PPP-adjusted values.

Sources: ADB. 2007. *2005 International Comparison Program in Asia and the Pacific: Purchasing Power Parities and Real Expenditures*. Manila; World Bank 2008. *2005 International Comparison Program Global Results: Summary Table*. Washington, DC.

global comparisons. Similarly, fixity of regional price levels is reflected in column 5. Real per capita GDP relative to world average in column 6 preserves fixity of real per capita GDP expressed relative to a regional average equal to 100. From columns 3 and 6, it can be inferred that the total real GDP in the 23 participating economies in Asia and the Pacific account for roughly 40% of global GDP covering the 146 economies that participated in the 2005 ICP.

The aggregation procedures described below are designed to maintain fixity of regional results at the basic heading level, as well as at higher levels of aggregation for various GDP aggregates. These include the major aggregates like private consumption, government consumption, gross fixed capital formation; and at the GDP level.

Linking at Different Levels of Aggregation

Linking of regional comparisons leading to global comparisons was made at two levels: first, at the basic heading level where only price data were available; and second, at higher levels of aggregation where expenditures in national currency units are available from each of the participating economies for each of the basic headings. There were 155 basic headings

within the ICP. The linking procedures described below use a simple heuristic example and without any formula or algebraic derivation.

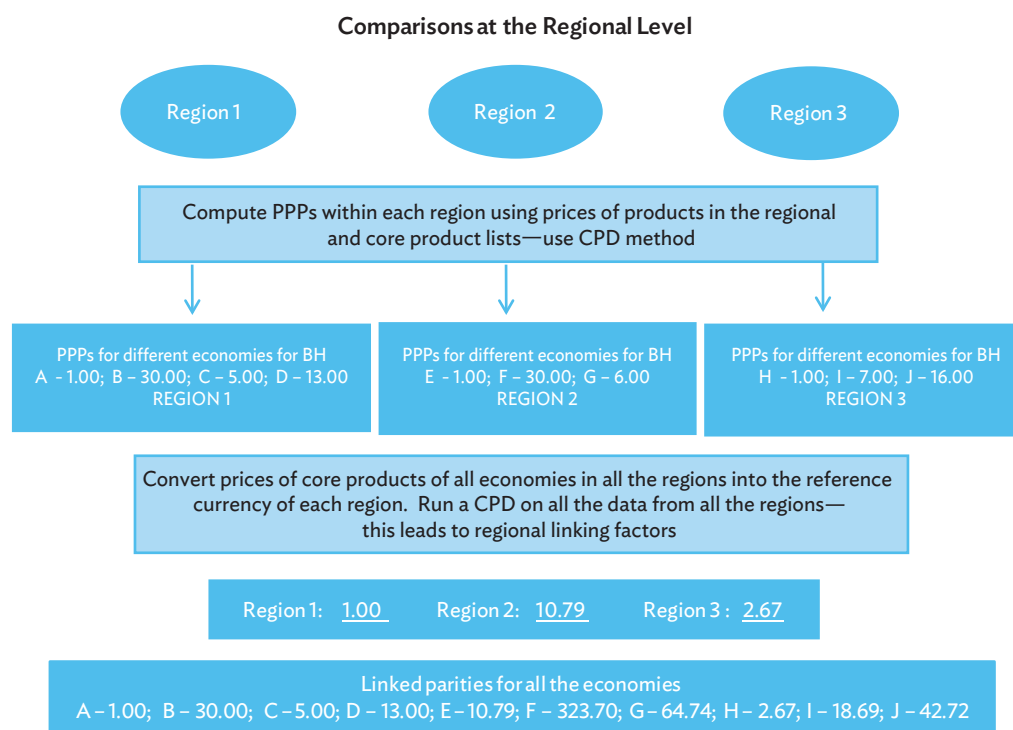
Linking at the Basic Heading Level

The method of linking at the basic heading level recommended by the TAG is described and illustrated using a simple example. The example illustrated in Figure 21 has three hypothetical regions and each region in turn has three regions.

PPPs for the basic heading in each of the regions are computed using economy A in Region 1, Economy E in Region 2, and economy H in Region 3, as reference economies. The regional parities are given in the middle panel. For Region 1, the PPP for economy B is 30.00; economy C, 5.00; and economy D, 13.00.

The next step in the linking process is to convert prices in all the 10 economies into their respective reference currencies using the regional parities. Suppose there are 20 commodities included in the basic heading. Prices of the commodities (only those that are priced by economies) are converted into the currency of the reference economy in each region. This leads to a price matrix for 10 economies and 20 commodities.

Figure 21. Linking Procedure at the Regional Level



BH = basic heading, CPD = country-product-dummy, PPPs = purchasing power parities.

Source: ADB.

The TAG recommended that information on *importance* status of items for household consumption items be used at the stage of linking. The ratio of 3:1 for important weights was recommended for use along with a weighted CPD regression on price data from all the economies of all the regions.

Run a weighted CPD or CPD, as appropriate, using dummy variables for the three regions and price data on 20 items from the 10 economies from three different regions. Suppose Economy A (from Region 1) is used as the reference economy. From the CPD regression, linking factors for the regions are given by the estimated coefficients associated with regional dummy variables. In the illustration above, these factors are:

Region 1: 1.00, Region 2: 10.79, and Region 3: 2.67

This means that for this basic heading, 10.79 units of Region 2 and 2.67 units of Region 3 currency units have the same purchasing power as one unit of Region 1 currency. These are referred to as *linking factors*, which are then used in finally obtaining basic heading parities for global comparisons involving all the 10 economies. Simply multiply regional basic heading parities in the middle panel of the figure above with the linking factors shown on the bottom panel. This leads to basic heading parities for all the 10 economies expressed in terms of the reference currency of Economy A in Region 1:

A - 1.00; B - 30.00; C - 5.00; D - 13.00; E - 10.79;
F - 323.7; G - 64.74; H - 2.67; I - 18.69; J - 42.70

Note that parities for economies A, B, and C are identical to their regional parities as Economy A from this region is selected as the reference economy. It is

easy to check that parities for economies E, F, and G in Region 1 satisfy fixity.

Aggregation Above the Basic Heading Level

The process shown for the basic heading was repeated for all the 155 basic headings. Since expenditure data were available at the basic heading level, available data for aggregation above basic heading level could be represented in the form of the matrix, as shown in Table 59.

The *country aggregation and reallocation of volumes* (CAR-volume) method recommended by TAG involves the following steps. The description below refers to GDP level but can be applied at all other levels of aggregation.

First, each region undertakes regional comparisons using data collected for all the economies in the region. This leads to PPPs for the economies within the region, real GDP for each economy, and for the region expressed in the reference currency of each region. Real GDP shares are computed for economies within each region. These steps are shown in Figure 22 for the 10 examples of economies.

At the end of this step, it is seen that economy A in Region 1 has a large share of 83.5, compared to 5.1 for economy B. Similarly economy E has 5.1; economy F, 6.2; and economy G, 88.7.

The next step in the CAR-volume method is to apply GEKS, the recommended aggregation procedure, on the full matrix of PPPs for the 155 basic headings and their expenditure shares. Once this procedure is applied, this results in PPPs at the GDP level for each of the economies in the world comparisons. In the example above, this provides PPPs for the 10 economies using economy A as the reference economy. In addition, the real GDP, expressed in the currency units of economy A, for each of the economies and for the world as a whole can be computed. Regional totals for the three regions can also be computed as shown in Figure 23.

The top panel shows that the total global GDP (in this example for the 10 economies) is given by 14,647 economy A currency units. The sum total of real GDP for each of the regions can be computed and are given in the middle panel, which shows that 5,991 belongs to Region 1 out of the total real GDP of 14,647, 7,479 to Region 2, and 1,177 to Region 3. Adhering to fixity principle, each regional total is then distributed using economy shares within each region derived at the regional level. This provides real GDP for each economy in each region. The real GDP figures for the 10 economies add up to the global real GDP of 14,647.

At the final step, PPPs for each of the 10 economies at the GDP level are computed by dividing the GDP in national currency units by GDP in PPP terms. This

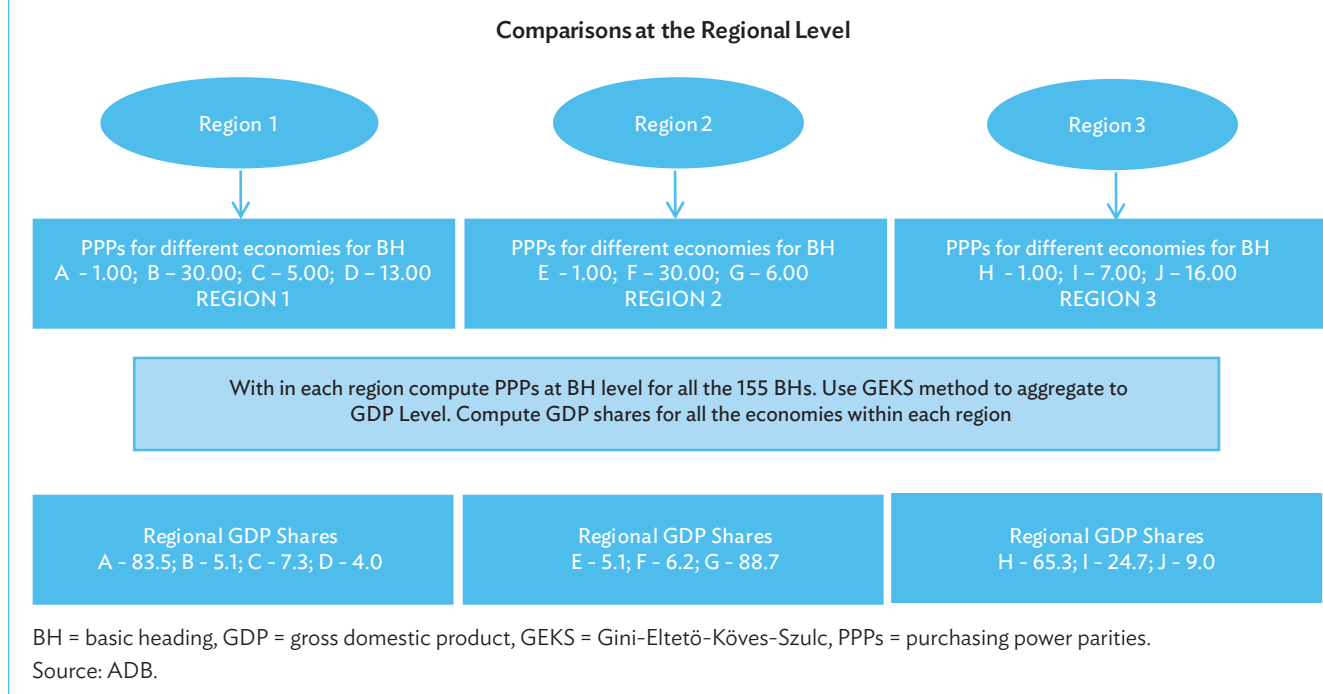
Table 59. Price and Expenditure Table at the Basic Headings Level

Basic Heading	A	B	C	D	E	F	G	H	I	J
BH1	$P_{1,1}$ $e_{1,1}$	$P_{1,2}$ $e_{1,2}$	....	....	....	....	....	....	....	$P_{1,10}$ $e_{1,10}$
BH2	$P_{2,1}$ $e_{2,1}$	$P_{2,2}$ $e_{2,2}$	....	....	....	....	....	....	....	$P_{2,10}$ $e_{2,10}$
BH3										
..										
BH155	$P_{N,1}$ $e_{N,1}$	$P_{N,2}$ $e_{N,2}$	....	....	....	....	....	....	....	$P_{N,10}$ $e_{N,10}$

BH = basic heading, e = expenditure, P = price.

Source: World Bank, 2013.

Figure 22. Economy Shares within Regions



completes the linking process involved in compiling global comparisons.

Global Linking for Different Aggregates

The general methodology for linking was implemented by the Global Office. However, as different regions follow different procedures for different aggregates, the actual implementation of the general linking methodology described above was modified accordingly. For example, the OECD-Eurostat used methods that differ from the generally recommended procedures adopted in other regions. Special features that affect linking for different aggregates are described below.

Household Consumption

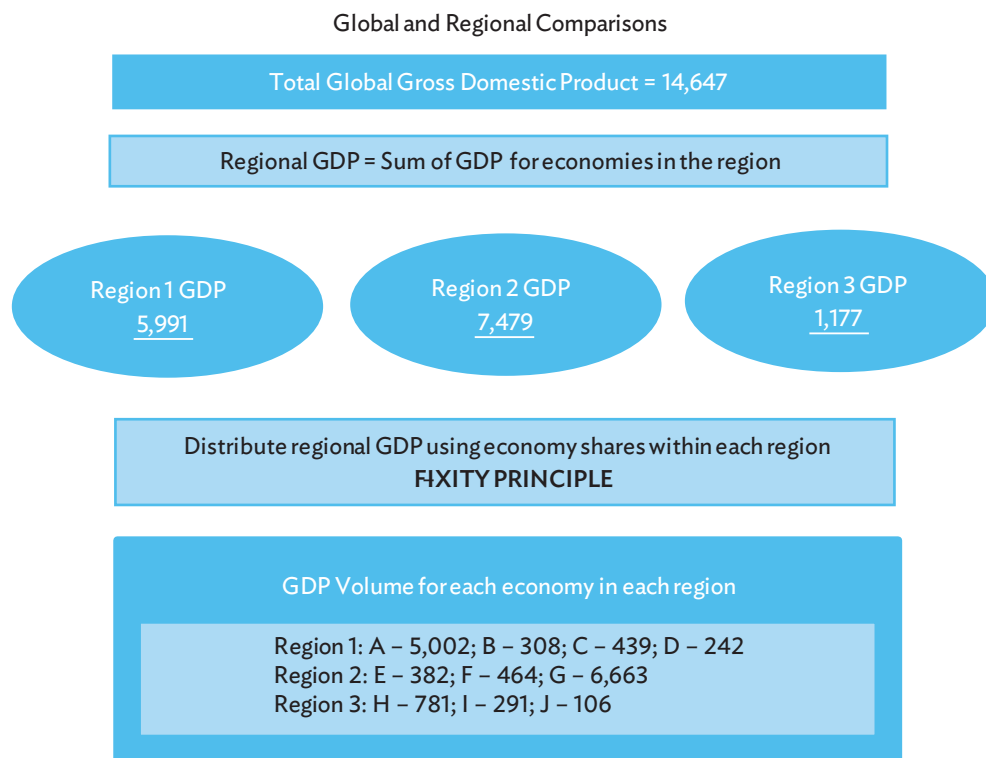
Linking of household consumption was based on price data collected for the *global core list* of products in all economies in all the regions. In addition to price information, all the economies from all regions including the OECD-Eurostat region provided information on the importance of each

of the products in the global core list in each of the economies. Weighted CPD with weights for items classified as important in the ratio of 3:1 was used in computing regional linking factors. At the time of validation of price data, Asia and the Pacific found it necessary to split products based on price clustering. This led to an additional list of products that were not in the global core list. While these split products were used in the regional comparisons, global linking was based entirely on prices for the global core list items.

Machinery and Equipment

The product list and product specifications for machinery and equipment were provided by the Global Office, and all the regions were expected to price items in the global list. As explained in the section on machinery and equipment, Asia and the Pacific found it necessary to use price clustering to split products leading to additional products compared to the global list. While the split products were used in the regional comparisons, the global linking made use of prices of only those products listed in the global list.

Figure 23. Country Aggregation Volume Ratio Approach



GDP = gross domestic product.
Source: ADB.

Construction

Construction was one of the less problematic aggregates for global linking. All the price data on materials, labor, and equipment provided by the regions were used in global linking; and also took into account the information on relevance of materials for residential, nonresidential, and civil engineering construction provided by the respective regions. The OECD-Eurostat region used a different approach for its regional comparisons of construction, the Bill of Quantities method. This means that a simple linking was not affected. In this case, six economies from the OECD-Eurostat region were selected for purposes of linking construction; and these economies conducted price surveys and provided price data on materials, labor, and equipment. Thus, the global linking made use of data from six link economies from the region.

Dwellings

Dwellings were a problem area for linking regions at the global level, as well as in the region. The quantity indicators data, as well as the rental price data provided by all the 199 participating economies of the world, were used in computing linking factors for the regions. As quantity indicators did not use any price information, linking of dwellings did not involve linking of basic heading PPPs based on price data. PPPs at the basic heading level and at the aggregate level for dwellings were obtained indirectly.

Government Compensation

Government compensation was linked using wages and salaries data compiled for several occupations along with their specifications provided by the Global Office. All the regions of the world were collecting wages and salaries data that can be used

in linking at the basic heading level. However, the main complicating factor was the use of productivity adjustments within each of the regions. At its September 2013 meeting, the TAG recommended that a transitive set of productivity adjustment factors compiled by Timmer and Inklaar (World Bank, 2013) form the basis for global linking. For the regional basic heading parities for wages and salaries, which made productivity adjustments to the level of the reference economy in their own region, the TAG recommended to make further productivity adjustment for differences in productivity levels in the reference economies selected in each of the

regions. For example, Hong Kong, China was used as reference economy in Asia and the Pacific and the United States for the OECD region, and then an adjustment for productivity level in Hong Kong, China was made using the United States as the base. Once the basic heading PPPs from each region were adjusted for the productivity differentials, the CPD method was used to compute PPPs for different basic headings under wages and salaries.

The final report of the Global Office for the 2011 ICP included further details of methods and procedures finally used in linking regions. .

IV

Economy Experiences in Implementing the International Comparison Program

Introduction

Part IV of this report provides a summary of the experiences of the 23 participating economies in their implementation of the 2011 round of the International Comparison Program (ICP) in Asia and the Pacific. Their experiences demonstrate the diversity and complexities of the participating economies in the region in terms of their levels of economic and physical development and challenges. While they are at different stages, the participating economies agreed on the importance of the ICP to a wide range of users in making decisions and policies in the economic and social arena. In addition to acquiring ICP as a useful tool for economic analyses, they highly appreciated and welcomed benefits gained from learning and sharing knowledge and lessons with the other participating economies.

The Asian Development Bank (ADB) implemented the 2011 ICP in Asia and the Pacific, in close coordination with 23 national implementing agencies. Their experiences present the various activities carried out for the ICP round; and, to conclude, the challenges faced, lessons learned, and future plans. Specifically, the report of each of the participating economies focuses on the (i) administrative setup, (ii) use of existing infrastructure in collecting ICP data, (iii) survey framework, (iv) gross domestic product (GDP) expenditure value, (v) data validation, (vi) ICP price collection tools, (vii) challenges in implementation, and (viii) lessons learned and future directions.

Bangladesh

Administrative Setup

The Price and Wage Section of the National Accounting Wing, Bangladesh Bureau of Statistics (BBS), is responsible for the collection and compilation of price and wage statistics. The section collects monthly retail prices of selected commodities through price collection surveys for the computation of the consumer price index (CPI). A deputy director, who headed the section, was assigned to undertake the ICP activities. The joint director of the National Accounting Wing served as the national coordinator for the 2011 ICP activities. To undertake the 2011 ICP activities, a core group, consisting of eight officers from the National Accounting Wing, was also formed to help implement the 2011 ICP activities. For the ICP price collection, 24 officers and staff from the BBS headquarters and 130 from the field office were involved.

Use of Existing Infrastructure in Collecting ICP Data

The Price and Wage Section performed the ICP price collection, with staff experienced in price collection surveys for the CPI. By utilizing the same staff for ICP price activities, the costs for data collection, training, and editing of data; and capacity building for future ICP rounds, were minimized. The ICP activities may be institutionalized in the regular price surveys of the Price and Wage Section.

Survey Framework

The 2011 ICP price survey covered the entire economy to provide reliable prices for the ICP product list. For the selection of samples, Bangladesh was divided into two “sub-universes,” which are the urban and rural areas. The urban areas were further subdivided into two strata that include the metropolitan cities; and municipalities, which are primarily district towns/headquarters. Bangladesh had 64 administrative districts.

For the 2011 ICP price survey, 70 areas, in 47 urban and 23 rural areas, were selected. At least one urban and one rural market from each of the 23 districts were chosen (Table 60). The remaining 24 urban markets were allocated in 7 metropolitan cities based on population size; and market transaction in these cities, which comprised Barisal (1), Chittagong (6), Dhaka (11), Khulna (2), Rajshahi (2), Rangpur (1), and Sylhet (1).

The sample markets in both urban and rural areas were those canvassed for the regular monthly price survey for the CPI. Most of the markets were included as samples for the ICP price survey.

There were 370 outlets from urban areas and 200 outlets from rural areas selected, for a total of 570 outlets from 70 sample markets for household goods and services in the 2011 ICP price survey. The collection of prices for food items under two basic headings was conducted on a monthly basis, while nonfood items were gathered on a quarterly basis (middle of each quarter). Prices on health and education were collected from urban areas only.

GDP Expenditure Value

The National Accounting Wing was responsible for the compilation of GDP and other national accounts aggregates. The Expenditure Section conducted the estimation of private consumption expenditure (PCE) through commodity flow approach supplemented by data from the Household Income

Table 60. Number of Sample Areas by Type of Location, Bangladesh

No.	City/District	Total	Location Type	
			Rural	Urban
1	Bagura	2	1	1
2	Bandarban	2	1	1
3	Barisal	3	1	2
4	Chittagong	8	1	7
5	Comilla	2	1	1
6	Dhaka	13	1	12
7	Dinajpur	2	1	1
8	Faridpur	2	1	1
9	Jamalpur	2	1	1
10	Jessore	2	1	1
11	Khagrachori	2	1	1
12	Khulna	4	1	3
13	Kishorganj	2	1	1
14	Kushtia	2	1	1
15	Mymensingh	2	1	1
16	Noakhali	2	1	1
17	Pabna	2	1	1
18	Patuakhali	2	1	1
19	Rajshahi	4	1	3
20	Rangamati	2	1	1
21	Rangpur	3	1	2
22	Sylhet	3	1	2
23	Tangail	2	1	1
	Total	70	23	47

Source: Bangladesh Bureau of Statistics.

and Expenditure Survey (HIES). Estimates from the HIES data were adjusted with the production account of various commodities, and other data sources along with certain conceptual adjustments, to arrive at the final PCE. The consumption expenditure growth rates of various groups were applied to arrive at the estimates for non-HIES years, i.e., the years for which HIES data were not available. There were certain limitations in HIES data, particularly on consumer durable, health, education, and recreation and culture. The data also shows that expenditures on financial services,

nonprofit institutions serving households (NPISH), and other goods and services were minimal. In these cases, some adjustments and indirect methods were applied to derive reliable estimates of these basic headings.

BBS compiled aggregate consumption expenditures by two major groups: government consumption expenditure and PCE. It estimated consumption expenditures for 155 basic headings using HIES data for PCE, government budget, and net export data for financial year (FY) 2004/05 (from 1 July 2004 to 30 June 2005); and published the provisional estimates. At the time of deriving weights/shares of the total expenditure by basic heading, the following problems were encountered:

- (i) Household consumption expenditures, particularly on food and beverage, were fairly good except that expenditures on pasta products and frozen foods were relatively low.
- (ii) There were no disaggregated data for net purchases abroad.
- (iii) Individual consumption expenditure by NPISH data was not directly available.
- (iv) There were no disaggregated data at the basic heading level under gross fixed capital formation.
- (v) Data to estimate financial intermediation services indirectly measured were also not available.
- (vi) Data on changes in inventories and acquisitions less disposal of valuables were almost unavailable.

In these circumstances, indirect methods and other data sources were used to derive the expenditure shares/weights of the basic headings. The weights for the 155 basic headings for FY2004/05 were further reconciled and revised based on lessons learned from the data validation workshop.

Data Validation

Prices of products collected through the ICP price survey were checked against the prices for the CPI items or common items. “Unusual” prices of products were verified during field visits and follow-ups.

Statistical methods were also used to check/validate national average prices of the products. Lessons learned from the data validation workshops were applied in checking price data.

ICP Price Collection Tools

The ICP Asia and the Pacific Software Suite (ICP APSS) was very appropriate for data entry and processing the ICP data. However, there were difficulties encountered in using the ICP APSS. Editing and saving raw data generated in Excel format were time consuming, and handling large amounts of data was difficult. When the ICP APSS was initially used, it did not work using the office computers due to security settings.

Lessons Learned and Future Directions

BBS gained enough experience from implementing the 2011 ICP round to be capable of carrying out future rounds of the ICP. The National Accounting Wing of BBS has plans to institutionalize the ICP in its regular work program as follows:

- (i) For the ICP product lists with structured product descriptions important in Bangladesh economy, a number of products will be included in its regular price collection survey for CPI compilation.
- (ii) GDP expenditures for the 155 basic headings and their shares in total GDP will be compiled on a regular basis and included in BBS publications.
- (iii) Data on compensation of employees will be regularly collected, compiled, and integrated in BBS publications.
- (iv) The Price and Wage Section will compute Producer Price Index for capital goods, and include ICP product in the equipment sector.

Bhutan

Administrative Setup

An ICP unit was set up within the National Accounts and Price Division of the National Statistics Bureau (NSB); it handled ICP-related activities since the 2005 ICP round. The national coordinator for the

ICP was the focal person from the price section in the division while the deputy national coordinator was from the national accounts section. For the 2011 ICP round, the national coordinator supervised three staff from the price section and two from the national accounts section, with approval from the director general.

Use of Existing Infrastructure in Collecting ICP Data

Bhutan participated in the 2005 ICP round and in the 2009 Purchasing Power Parity (PPP) Update. The equipment units (laptops, desktops, printers, and scanners) from these rounds were used for the 2011 ICP round; and the personnel were also involved in the 2011 ICP. Collection of price data for ICP was undertaken by experienced field staff (district statistical officers), who also gathered the monthly data for the CPI. There were no temporary enumerators recruited for data collection. For ICP price collection in the urban area, the existing and some additional CPI outlets were used. In the rural area, the outlets were selected using purposive sampling based on the availability of goods and popularity of outlets to the consumers.

ICP household goods and services were collected by the district statistical officers on a regular basis while nonhousehold items (construction, machinery and equipment, rental, compensation, and dwellings) were collected through special surveys that involved experts and staff from NSB. Out of all ICP items, 35%–40% were included in the new CPI basket 2012. Plans in Bhutan were in place to integrate ICP collection into its CPI work.

Survey Framework

There were 20 data collection centers located across 20 districts in Bhutan, each managed by a field official. The ICP survey covered 2 large cities, 20 urban areas, and all major rural areas. However, a proper sample frame was not available due to the lack of a list of all establishments. The field staff members were guided to use the existing CPI outlets

in the urban areas; and purposive sampling of outlets in the rural areas since there were only few outlets, and an outlet frame was not available. The urban–rural outlet ratio was 75:25 because the outlets in the rural areas were limited (Table 61). For nonhousehold items, price collection was confined to the urban areas.

In general, price collection was carried out on a quarterly basis, except for the following:

- (i) Monthly for fruits, vegetables, and narcotics;
- (ii) Half-yearly for housing, water, electricity, and transportation (purchase of vehicles); and
- (iii) Yearly for education.

Table 61. Number of Sample Outlets by Type of Location, Bhutan

No.	City/District	Total	Location Type	
			Rural	Urban
1	Bumthang	50	12	38
2	Chhukha	27	1	26
3	Dagana	39	8	31
4	Gasa	13	4	9
5	Geleypchu	38	0	38
6	Haa	42	12	30
7	Lhuentse	18	6	12
8	Mongar	42	13	29
9	Paro	36	10	26
10	Pemagatshel	15	3	12
11	Phuntsholing	35	1	34
12	Punakha	24	4	20
13	Samdrupjongkhar	31	0	31
14	Samtse	20	1	19
15	Sarpang	42	13	29
16	Tashiyangtse	28	15	13
17	Thimphu	77	0	77
18	Trashigang	62	24	38
19	Trongsa	24	3	21
20	Tsirang	47	15	32
21	Wangduephodrang	19	0	19
22	Zhemgang	23	3	20
	Total	752	148	604

Source: National Statistics Bureau.

GDP Expenditure Values

Weights for different commodities consumed by the households were derived from the results of the 2012 Bhutan Living Standard Survey. For government final consumption, the sources of data included the annual budget documents provided by the Department of Budget, Ministry of Finance. Data on machinery and equipment were from trade documents produced by the Department of Revenue and Customs. Preliminary tentative ratios were estimated from trade documents to distribute expenditure across the basic headings. On construction, total expenditure was distributed based on ratios derived from the construction worksheet prepared by the National Accounts officers. For changes in inventories, the sources of information were from various establishments. Data on exports and imports were obtained from the balance of payments statistics.

Data Validation

A week-long ICP training was conducted for the enumerators in December 2010; it covered the method for data collection, frequency of price collection, product-outlet mapping, and operation of ICP APSS. Field officials were given training in ICP and provided copies of ICP materials to be used in the field.

Two rounds of in-economy data validation workshops were organized, with the field officials discussing data issues and resolving field problems. During the workshops, the main issues were on product specification and the quality and quantity of available products. For example, in Bhutan, rice is mostly sold loose in kilogram but ICP required in pack of 5 or 10 kilograms; hence, the data was converted.

Regional data validation workshops were very useful for Bhutan. The workshops provided solutions to the issues that were not resolved during the in-economy workshops. The regional workshops served as the platform for solving all ICP data issues. The participants learned from each other, adopted the

experts' advice, and shared knowledge and skills gained with their colleagues in NSB.

ICP Price Collection Tools

The ICP APSS developed for the household data entry by ADB was a simple and powerful tool. This software was user-friendly and easy to operate and generate reports in Excel format. The additional feature, called Add-ins, further made the software very useful for data analysis and generation of subnational PPP data.

The price collection tools (PCTs) developed for machine and equipment, construction, and compensation were also user-friendly and easy to handle. The Excel-based softwares were easy to install and understand by users.

Challenges in Implementation

One of the major challenges faced was the unavailability of items in the market that satisfy the specifications in the ICP product catalog. Except for a few larger commercial towns, it was difficult to find items in other towns and rural areas in Bhutan. Similar items sold in the market did not also meet the specifications, either by make or brand. Hence, there were many missing prices from the districts. A column for remarks was provided in the questionnaire, but most field officials did not fill up the space to be used by the central office for tracing specific concerns.

For nonhousehold products, such as machinery and equipment, construction, compensation, and dwellings and rents, the advice of the experts was sought at the time of data collection. The price for these products was difficult to collect since the enumerators were not fully familiar with the technical specifications. Finally, the issue was resolved during the regional workshops and with the help of domestic experts. Shortage of staff was another problem since there were no additional staff available, and no temporary enumerators were recruited for ICP data collection. To complete the ICP requirements, NSB used its own staff for data collection, entry, and editing.

Lessons Learned and Future Directions

Three rounds of ICP projects had helped strengthen the national statistical system, particularly on national accounts and CPI. The workshops organized by ADB proved very useful in addressing problems and issues encountered on ICP and CPI, which involved data collection methodology and compilation of expenditure weights for CPI and national accounts. For quite some time, a tool pack was used for processing CPI data but it was discontinued later due to some technical problems and the lack of backup services. At NSB, there were only three staff in the price section but one resigned later while another staff was fully engaged with ICP activities. Nevertheless, these issues did not hamper the regular work on CPI.

The new 2012 CPI basket had ample number of ICP items; hence, additional collection will not be required for the future round of ICP. And due to staff shortage, there was no plan to collect ICP prices separately on regular basis. A similar workshop held in Thimphu in June 2011 was planned for policy makers, planners, and researchers in December 2013. NSB expressed interest to compile subnational PPP using the 2011 ICP data, but it needs technical support and guidance from ADB and the World Bank. NSB strongly felt that ICP should continue every 5 years to update PPP data.

Brunei Darussalam

Administrative Setup

The Department of Statistics (DOS) is one of six departments under the Department of Economic Planning and Development, Prime Minister's Office. DOS has three divisions: Real Sector, External Sector, and Social Statistics. The Real Sector Division comprises the National Accounts Section; and the Prices Section, which compiles the CPI. The Prices Section also implemented the ADB-funded regional technical assistance for the 2011 ICP for Asia and the Pacific, and its head served as the national coordinator. An ad hoc working group, which was

headed by the director of statistics and consisted of DOS officers as members, was formed to assist the national coordinator.

Use of Existing Infrastructure in Collecting ICP Data

For the 2011 ICP, CPI infrastructure was used for price collection activities. About 10% of the household items overlapped with the CPI list and were used for the collection. Using CPI infrastructure proved an advantage, with the staff familiar with the collection of prices and in the identification of correct items according to specifications. However, CPI staff experienced additional workload since most of the CPI and ICP items did not match. Additional staff members from other sections of DOS were also assigned to help the CPI staff. The prices for both food and nonfood items were collected for the CPI in early to middle of every month; but for ICP, food items were collected every month while the nonfood items were collected during the last month of every quarter.

Survey Framework

Data collection covered the four districts of Belait, Brunei Muara, Temburong, and Tutong (Table 62). The outlets were selected on the basis of the importance of the items to be priced. They included both big and small outlets covering department stores, retail and service outlets, supermarkets, and stalls of wet market.

The frequency of the survey depended on the price behavior of the item. Those items whose prices were volatile (e.g., perishable food items) were surveyed weekly; while items with more stable prices, such as service and conservancy charges, utility tariffs, bus/air fares, school fees, medical services, and household durables, were priced monthly, quarterly, half-yearly, or as and when the prices/rates change.

GDP Expenditure Values

GDP expenditure values at 155 basic headings were not readily available for Brunei Darussalam. The data

Table 62. Number of Sample Outlets, Brunei Darussalam

No.	District	No. of Outlets	%
1	Belait	4	1.3
2	Brunei Muara	284	95.3
3	Temburong	4	1.3
4	Tutong	6	2.0
	Total	298	100.0

Source: Department of Economic Planning and Development.

sources and methodology adopted in splitting into the required level are as follows:

A. Household Final Consumption Expenditure

- (i) Data sources used for estimating the main aggregates and in breaking them down into basic headings came from the Household Expenditure Survey 2010/2011, Quarterly Survey of Businesses (QSB), balance of payments statistics, and external trade statistics.
- (ii) Methodologies used for compilation were extrapolation, commodity flow method, and direct estimates.

B. Government Final Consumption Expenditure

- (i) Source of estimates for the main aggregates was the Treasury Accounting and Financial Information System. However, the 2009 PPP Update structure was used to break them down into the required basic headings.
- (ii) Methodologies used for compilation were direct estimates and extrapolation.

C. Gross Fixed Capital Formation

- (i) Main aggregates were estimated using the Economic Census 2011, QSB, balance of payments Statistics, and external trade statistics. However, the 2009 PPP Update structure was used to break them down into the required basic headings.
- (ii) Methodologies for compilation were extrapolation, commodity flow method, and direct estimates.

D. Changes in Inventories and Net Acquisition of Valuables

- (i) Main aggregates used direct estimation using data from Economic Census 2011 and QSB. The 2009 PPP Update structure was used to break them down into the required basic headings.

E. Exports and Imports

- (i) Data sources were the balance of payments statistics and external trade statistics.
- (ii) Methodology for compilation was direct estimates.

Data Validation

Similar items in the CPI and ICP were compared to validate price movements. Most of the 2011 ICP prices collected were compared with those collected for the 2005 ICP surveys to check whether the same or similar products were priced. The regional data validation workshops were very useful for discussing and addressing issues encountered on price collection. Interaction with the ADB officials during and before the workshops was important to the success of the regional technical assistance for the 2011 ICP for Asia and the Pacific. Data issues and concerns raised before and during the workshops were revisited either through telephone or personal visit, and responses and comments were always sent to ADB.

ICP Price Collection Tools

The ICP APSS for household prices, and the PCT for machinery and equipment, construction, and compensation, were user-friendly and simple to understand.

Challenges in Implementation

DOS did not engage any domestic expert for machinery and equipment. Instead, it requested for quotations from authorized distributors in Brunei Darussalam. After the items were finalized and sources established, it became easier to collect the

prices. In future equipment price surveys, a domestic expert must be engaged.

Lessons Learned and Future Directions

PPP advocacy activities were useful in promoting wider exposure on this subject by many users in the economy. However, there was no organization or unit that could undertake PPP for Brunei Darussalam. DOS felt that users lack understanding of what PPPs are and how these could be used for policy making.

The units in the DOS directly involved in the 2011 ICP benefited from the regional technical assistance project. Knowledge and experience gained could improve price collection activities. The project also introduced DOS officers to a network of regional counterparts whom they could communicate with for further discussions on related issues. In the future, and for better CPI-ICP surveys integration, it will be important that their lists match and the same pricing period adopted. The data validation techniques were extremely useful, which motivated DOS to introduce similar techniques on CPI. The PCTs were also very useful.

Cambodia

Administrative Setup

The National Institute of Statistics (NIS) created a project core group to implement the 2011 ICP activities. The core group was led by the director general of NIS, with assistance of a national coordinator and a deputy national coordinator for ICP. The core group members consisted of technical staff in the Department of National Accounts, mostly from the Price Statistics Office in NIS; and from the provincial statistics units, which comprised the same 2005 ICP team for the 2011 ICP.

Use of Existing Infrastructure in Collecting ICP Data

The central office and provincial staff responsible for CPI also collected the prices for the same products

in the ICP and CPI lists. The data collectors gathered both ICP and CPI prices during the same visit and from the same outlet.

For all products required in Phnom Penh capital, five quotes were collected; in the provincial town (urban area), two quotes for each product; and in the district towns (rural area), one quote for each product.

Survey Framework

The 2011 ICP survey was carried out nationwide, covering 18 provinces (including Phnom Penh Municipality) out of 24 provinces in Cambodia, and in urban and rural areas. The province served as the primary sampling unit while the outlets in the sample provinces formed the secondary sampling unit (stratify sampling units).

In Cambodia, a city/provincial town, and the district town within the province, are classified as urban areas; while areas not classified as urban are considered as rural. In the urban area, the whole provincial town was identified as a target population/location for the 2011 ICP price collection. All types of outlets within this town were covered (Table 63). In the rural area, except for communes located in district towns that are classified as urban, the markets/outlets in the district were included.

Six provinces were excluded from the sample frame due to budget limitation; geographical difficulties; absence of most of the required products, particularly in remote and mountain provinces; and very small provinces in the same area/price zone. These provinces included Koh Kong, Krong Keb, Mondul Kiri, Oddar Meanchey, Pailin, and Stueng Streng.

GDP Expenditure Values

GDP and household consumption expenditures were used to construct the GDP expenditure weights by 155 basic headings. The socio-economic survey for 2004, 2007, 2008, 2009, and 2011; and GDP by expenditure in 2011 were used to derive 26 major

Table 63. Number of Sample Outlets by Type of Location, Cambodia

No.	Province/City	Total	Location Type	
			Rural	Urban
1	Banteay Meanchey	207	75	132
2	Battambang	298	126	172
3	Kampong Cham	199	78	121
4	Kampong Chhnang	131	55	76
5	Kampong Speu	155	61	94
6	Kampong Thom	157	75	82
7	Kampot	133	30	103
8	Kandal Province	129	58	71
9	Kratie	146	53	93
10	Phnom Penh	578	0	578
11	Preah Vihear	158	71	87
12	Prey Veng	122	50	72
13	Pursat	168	71	97
14	Rattanakiri	90	33	57
15	Siem Reap	142	57	85
16	Preah Sihanouk	155	62	93
17	Svay Rieng	110	32	78
18	Takeo	158	71	87
	Total	3,236	1,058	2,178

Source: National Institute of Statistics.

categories of expenditure in the ICP. The GDP weights in 2005 were then applied to calculate the 2011 GDP weights for the 155 basic headings. These weights reflected the real pattern of Cambodian consumption in 2011 since more data sources were available and more robust methodologies were applied.

Data Validation

The regional validation held by ADB helped validate the consistency of prices in the provinces across the economy. Initially, prices in the questionnaire were checked for item specification, measure, and quantities; and compared with the movement of prices of similar products in the CPI. Checking was then

done by province across the economy. Then, prices were checked and compared with the data collected during the 2005 ICP price survey using the validation worksheet provided by ADB. Data validation using ICP APSS helped NIS in responding to queries during the regional workshops.

ICP Price Collection Tools

Tools used for the collection of prices, such as the survey forms, data management system (program design for data entry and control data operation), and guidelines and manual for data processing and editing, were designed and developed by ADB. The NIS handled the arrangements for the use of existing facilities, such as equipment, network, and office space, for the implementation of the project.

Challenges in the ICP Implementation

In the implementation of ICP activities for the household sector, the difficulty was in finding branded consumer items available in the region, and the quality part of clothing. For the nonhousehold sector, the challenge was the availability of construction materials and machinery and equipment with the same specification and model described in the structured product descriptions (SPD). Similarly, new products for heavy machinery and equipment were not included in price collection as these were not available since secondhand products are more common in Cambodia.

Lessons Learned and Future Directions

The NIS staff had gained and benefited from knowledge and experience from the ICP activities. Importantly, these activities did not impinge on their regular work although the ICP price surveys (household and nonhousehold) have not been integrated into the work plan of NIS as regular survey activities. The NIS has considered undertaking subnational PPP computation in the near future although preparatory works have not been done yet.

People's Republic of China

Administrative Setup

The 2011 ICP network in the People's Republic of China (PRC) was established at several management levels. The Inter-Ministerial Coordinating Group for ICP was established in 2010 for leading and overseeing the 2011 ICP round in the PRC. Members of the group came from the Development Research Center of the State Council, General Administration of Customs, Ministry of Commerce, Ministry of Finance, Ministry of Foreign Affairs, Ministry of Housing and Urban-Rural Development, Ministry of Human Resources and Social Security, National Bureau of Statistics (NBS) of China, National Development and Reform Commission, People's Bank, State Administration of Foreign Exchange, and State Council Leading Group Office of Poverty Alleviation and Development.

The ICP Leading Group was established in the NBS, with the commissioner designated as head of the group. The members included the director-generals from the Administrative Office, Department of Financial Management, Department of International Cooperation, Department of Investment and Construction Statistics, Department of National Accounts, Department of Population and Employment Statistics, Department of Rural Survey, Department of Statistical Design and Management, Department of Urban Survey, International Statistical Information Center (ISIC), and Statistical Education and Training Center.

The ICP Division, which was established in the ISIC under the NBS, was responsible for the survey design; data aggregation; translation; technical assistance for local offices; communication with international organizations, including ADB and the World Bank; and day-to-day activities required for ICP. The ICP provincial leading groups and offices, which were established in the statistical bureaus and survey organizations of 30 provinces, were responsible for data collection and processing.

Use of Existing Infrastructure in Collecting ICP Data

The 2011 ICP price collection used the statistical infrastructure in place in the PRC, which included the CPI survey organization, interviewers, and sample outlets. To improve data quality and reflect the real economic level in the PRC, the 2011 ICP was extended to the cities and outlets for the price surveys across the PRC. Outlets selected for the ICP price surveys were partly from the CPI outlets and new outlets added.

Several advantages were achieved by using the CPI infrastructure for ICP price collection. Cost efficiency, savings in time, and data quality were the most important advantages. By using the same survey organization, price collectors, and many sample outlets for the 2011 ICP work, costs such as administration training, and searching products were reduced. The CPI infrastructure was most appropriate for price collection in the PRC for 2011 ICP work, which was started as soon as possible. The price experts and collectors in CPI survey were fully experienced in price collection activities; thus, data quality was expected.

The products in the 2011 ICP list differed from those used for the CPI. In particular, the scope of the CPI was not as extensive as that of the ICP, requiring some additional price collection to satisfy the demands of 2011 ICP. About two-thirds of ICP products reported by the PRC were collected from special surveys, while the remaining products in the list were directly obtained from the CPI surveys. Some new outlets to the existing CPI outlets were added to cover as many products as needed to accurately represent the national average price. Experts in medical services and medical products, construction, and machinery and equipment were engaged due to technical difficulties in price collection.

Survey Framework

For the 2011 ICP, about 82 prefecture-level regions under 30 provincial-level regions were selected to conduct the price collection, as shown in Table 64. To summarize, the coverage is as follows:

- (i) 26 provinces (autonomous regions), with each province selecting the provincial capital city and 2 prefecture-level regions and for each city selecting 1 urban area and 1 rural area; and
- (ii) 4 municipalities that included Beijing, Chongqing, Shanghai, and Tianjin, each municipality selecting 6 urban areas and 3 rural areas.

The outlets obtained from the CPI samples were classified by level and category. About 30% of the ICP household products were in the CPI list. Prices for food and nonalcoholic beverages were collected on a monthly basis; while prices for alcohol, tobacco and narcotics, clothing and footwear, restaurants and hotels, and miscellaneous items were obtained quarterly. All others were collected on a half-yearly basis.

The distribution of outlets by rural and urban regions shows emphasis on urban outlets, which outnumbered the rural outlets in a ratio of 76:24. There were different types of outlets from which purchases were made. Price and quality of service attached to the purchase of the product varied depending on the type of outlet. The distribution of outlets by type is provided in Table 65.

A quick review of the table suggests that the allocation of outlets by type is not uniform, reflecting differences in the usage of the outlets in sourcing the products. A significant feature of the table is that *specialized shops* and *private service providers* accounted for a large proportion (52%) of outlets used for the price surveys, while *markets* and *street outlets* comprised a small proportion of the outlets (6%).

Frequency of price collection depended on the seasonal nature of the products under different categories. For example, food items were priced

Table 64. Number of Sample Outlets by Type of Location, People's Republic of China

No.	Province/City/Municipality	Total No. of Outlets	No. of Location of Outlets	
			Rural	Urban
1	Anhui	2,452	3	3
2	Beijing	857	6	3
3	Chongqing	1,311	6	3
4	Fujian	1,564	3	3
5	Gansu	864	3	3
6	Guangdong	2,193	3	3
7	Guangxi	2,350	3	3
8	Guizhou	2,698	3	3
9	Hainan	944	3	3
10	Hebei	981	3	3
11	Helongjiang	1,058	3	3
12	Henan	2,301	3	3
13	Hubei	858	3	3
14	Hunan	345	3	3
15	Inner Mongolia	847	3	3
16	Jiangshu	1,827	3	3
17	Jiangxi	2,106	3	3
18	Jilin	388	3	3
19	Liaoning	1,470	3	3
20	Ningxia	1,005	3	3
21	Qinghai	938	3	3
22	Shaanxi	1,316	3	3
23	Shandong	963	3	3
24	Shanghai	1,091	6	3
25	Shanxi	751	3	3
26	Sichuan	1,635	3	3
27	Tianjin	920	6	3
28	Xinjiang	840	3	3
29	Yunnan	1,081	3	3
30	Zhejiang	1,880	3	3
	Total	39,834	102	90

Source: National Bureau of Statistics of China.

monthly whereas clothing and footwear items were priced quarterly; and items belonging to health, transport, communications, and other services were priced on a semi-annual basis. This strategy was consistent with the ICP recommendations.

Table 65. Number of Sample Outlets by Type, People's Republic of China

Type of Outlets	No. of Outlets	%
Large shops	3,262	8.2
Medium and small shops	7,602	19.1
Markets	1,700	4.3
Street outlets	926	2.3
Bulk and discount shops	172	0.4
Specialized shops	8,601	21.6
Private service providers	12,293	30.9
Public or semipublic service providers	4,439	11.1
Other kinds of trade	839	2.1
Total	39,834	100.0

Source: National Bureau of Statistics of China.

GDP Expenditure Values

The estimates of GDP, which are based on the expenditure approach in the PRC and in line with the 1993 System of National Accounts (SNA), are very broad. To date, only five major categories are published. To disaggregate the major GDP aggregates into the required number of basic headings, the PRC estimated the GDP expenditure values at the 155 basic headings by using the existing expenditure data of 16 major categories for 2010 as the control number. The data sources used were the national urban and rural household consumption expenditures, government consumption expenditures, gross fixed capital formation, input-output table, and total investment in fixed assets in the whole economy.

Data Validation

The procedures followed to validate price data collected were at three levels: provincial, national, and Asia and the Pacific region. At the provincial level, data validation was done after the price data were collected. The staff responsible for data validation checked the data collected to ensure that the correct products were priced in each survey city, each product had enough price observations, and the priced products among selected cities were consistent.

At the national level, data validation was done after the price data were submitted from the provincial implementing offices. This stage involved several data validation procedures:

- (i) **Within one quarter.** Coefficient of variations (CVs) and minimum–maximum (min–max) ratios provided by the PCT software were usually employed to check the quotes of individual product or service. Products or services with very high variation (e.g., > 20%) and very low min–max ratio (e.g., < 0.7) were especially checked.
- (ii) **Across quarters.** The prices of products or services that were highly divergent across quarters were also checked. In these cases, if CPI price movements of similar products were available, comparing ICP trend (change in prices) across quarters with the CPI trend provided good insights for the changes.
- (iii) **2005/2009/2011 price trend.** Similar with the validation procedure for across quarters, the CPI price movements between 2005 and 2011, and 2005 and 2009, for similar products were employed in checking the products or services with high price changes.
- (iv) **Other sources.** Data review workshops, market surveys and researches, experts' estimation, and telephone verification were also used in reviewing price data.

At Asia and the Pacific region, data validation was done through participation in the regional data review workshops, and responses to comments from ADB. The NBS raised data issues and concerns unresolved at the economy level during the data validation workshops. If necessary, the NBS organized review workshops to assess if the prices were correctly collected based on product specifications.

ICP Price Collection Tools

For some reasons, ICP APSS was not used in the PRC for household price collection; alternatively, the Tool Kit developed by the World Bank was used for household price data entry and validation. The PCTs for construction and machinery and equipment were used, and were very useful for data analysis.

After entering data, the PCT generated the average price (AVG), number of quotations (QUOTES), CV, minimum price (MIN), maximum price (MAX), and min-max ratio. All of these indicators were also useful, especially for data validation.

In general, the software was simple and easy to operate and contained various functions to meet data processing needs. For further improvements, advanced functions, such as computing price ratios between different areas, may be added to the PCT.

Challenges in the ICP Implementation

ICP implementation in the participating economies strengthened the statistical capabilities of the national statistical offices. This provided the opportunity for the PRC statistical data to achieve international standards. However, some points should be seriously noted.

First, the publication of PPP results should fully respect the opinion of each participating economy. While PPP results have practical use, the same results may have strong political implications, especially when these are not within expectations. Therefore, it is essential to consult the participating economies prior to the publication of regional and global ICP results.

Second, there should be more caution in using ICP results as the ICP methodology is still in the research and experimentation stage. Therefore, the system is encountering many problems. Consequently, the use of PPP results should be limited to research and analysis and not for policy making such as for computing funds share and loan availment.

Third, careful use of time series indicator to corroborate the quality of the space indicator should be observed. The item lists, data sources, and methods of estimation for the 2005 and 2011 ICP and indexes are not comparable. Hence, a simple comparison of these time series from two different indexes would be inaccurate, misleading the decision makers and users.

The input-output approach used for the construction survey for 2011 ICP is not fully applicable to the PRC. For a construction project, the output price includes not only the inputs on materials, equipment, labor, and other basic resources; but also those of nonconstruction costs. There is a large difference among economies in the conversion of prices from input to output, especially in the PRC. The differences between input and output prices are very large, nonconstruction investment accounts for a large proportion in the construction output price. However, this part of investment cannot be calculated in the input price. If converting only the inputs of basic resource to the construction output price, it will underestimate the PRC construction price level; hence, not reflective of the actual situation of construction in the PRC. Moreover, the difference between inputs and outputs is very uneven among economies; it will also lead to imbalance in survey method application among them, the results estimations will be produced the certain mutual influence.

Considering the benefits derived from the PRC's participation in the ICP, it is supportive of continuing efforts at undertaking more in-depth researches to further develop the ICP methodology. It supports the efforts of international organizations toward this end.

Lessons Learned and Future Directions

The PRC actively participated in the 2011 ICP. The NBS integrated the 2011 ICP price surveys in 30 provinces for the monthly price data collection for the household consumption products. Prices for construction, machinery and equipment, housing, and government compensation; and the disaggregation of GDP expenditures, were also collected, submitted, and validated according to ADB requirements.

The benefits gained by the PRC through its participation in this project include the following:

- (i) **Increasing country-level knowledge and enhancing statistical capabilities.** The 2011 ICP implementation in the PRC strengthened the capabilities of its statistical offices. This

also gave the opportunity to improve the PRC statistics to acceptable international standards. Moreover, training provided on survey methods, data validation, and estimation of average prices and subnational PPPs added to country-level knowledge to improve price statistics.

- (ii) **Strengthening the PRC CPI program.** The products in the 2011 ICP lists for which prices had to be collected may well differ from those used for the CPI. Some of the ICP products reported by the PRC were collected from special surveys, including some additional price collection to cover outlets in areas omitted from the CPI. Thus, the 2011 ICP implementation may strengthen the PRC CPI program.
- (iii) **Improving the PRC GDP estimates by expenditure approach.** The NBS enhanced the consistency of different data sources and improved the data quality of basic headings.
- (iv) **Strengthening the PRC ICP institutional and infrastructural building.** The PRC further developed its ICP institutional and infrastructural building through participation in the 2011 ICP. Moreover, the PRC understood the methods and procedures used in international comparison better, and this will be useful when the PRC estimates its subnational PPPs.

Fiji

Administrative Setup

Fiji's Bureau of Statistics is divided into five divisions: Household Survey, Social Statistics, Economics, Coordination Research and Development, and Corporate Services.

The Consumer Price Unit in the Economics Division was responsible for the implementation of the ICP activities. The divisional manager, with support of the senior statistician, designated the national and deputy national coordinators. In the unit, the national coordinator was assisted by four members to coordinate the ICP data. The CPI team was involved with the price collection, which was conducted in

parallel with the ICP price collection. After price collection and data entry, a field visit by the national coordinator followed to check, determine, and amend prices that were identified as outliers.

There was no significant change in the setup from the 2005 ICP round since the CPI unit was the same group directly involved with data collection. However, the only difference was the use of more advanced ICP APSS for data entry compared to the 2005 data entry tool.

Use of Existing Infrastructure in Collecting ICP Data

Since Fiji has a small economy, the same outlets for the CPI were used for the ICP price collection; but additional stalls were included for shoe shine, shoe repair, hair salon, and other related small activities. Transport from the CPI price collection was also used for the ICP since the two surveys were conducted in parallel. Majority of the CPI items were included in the ICP compilation; however, the SPDs did not match those available from the CPI. This required collecting prices for most of the items in the ICP. The Building Material Price Index data were used in some of the ICP nonhousehold goods survey. For house rentals, data were collected from the different types of buildings since the quarterly survey did not cover house types such as villas and flats. The HIES did not also have finer details of the required specification on types of dwellings.

Survey Framework

Only urban areas in the Central, Western, and Northern divisions were covered. These areas were chosen since all major shopping outlets were located in the urban area rather than in the rural area (Table 66). Rural dwellers usually do their shopping in towns and cities. All major outlets were selected by using the top-down approach. This resulted in the inclusion of all existing outlets from the CPI survey. Data were collected twice in every quarter, for 2 to 3 weeks covering both household and nonhousehold sectors.

Table 66. Number of Sample Outlets, Fiji

No.	Division	No. of Outlets	%
1	Central	335	48.7
2	Northern	68	9.9
3	Western	285	41.4
	Total	688	100.0

Source: Bureau of Statistics.

Data for construction and machinery and equipment were collected by an expert from the Public Works Department. Meetings were held to discuss the prices and availability of items with the right unit/specification in the market, and issues encountered such as price variations and ways of minimizing them. In Fiji's case, most purchases of new machinery and equipment were ordered upon request by the buyer.

The Public Works Department was responsible for providing information on all of the machinery and equipment data focusing on the following groups:

- (i) Fabricated Metal Products, except Machinery and Equipment;
- (ii) General Purpose Equipment;
- (iii) Special Purpose Equipment;
- (iv) Motor Vehicles, Trailers and Semitrailers;
- (v) Electrical and Optical Equipment;
- (vi) Other Manufactured Goods, n.e.c.;
- (vii) Other Road Transport; and
- (viii) Other Product.

GDP Expenditure Values

Private final consumption was derived using a supply and use approach. The aggregate figure was split into 110 basic headings using the 2005 ICP structure ratios. Data for the remaining 45 basic headings were sourced from actual survey or administrative sources.

Data Validation

Before price collection started, the CPI Unit made sure that the product descriptions were strictly followed. The officers engaged to collect the prices were trained on the SPDs by visiting the outlets

and physically examining the products before price collection started. The national coordinator was the key person who headed the price collection; and, in this manner, price variation issues were outright solved rather than accumulating matters to be addressed later. Once the prices were collected, the officers compared the prices with those of products from the other divisions and outlets to ensure validity. Outliers, which could be the result of pricing of wrong items or wrong units and specifications, were also immediately addressed.

A lot of experience was gained from attending the validation workshops. The staff understood better the price differences among the participating economies and between subregions within the economy. The prices of most products of an economy, such as Fiji, are high because of its location, adding to prices the costs of freight, insurance, and duty. Data validation workshops thus provided a useful platform in comparing prices across the economies. The workshops also indicated whether price differences could be due to the actual price difference or caused by pricing of wrong item. Useful issues, such as price variation and clarification of SPDs, were solved during the workshops. The staff also learned the methodologies for compiling PPP and its importance to the economy.

ICP Price Collection Tools

The ICP APSS for household, machinery and equipment, construction, and compensation was easy to use and access. Initially, however, there were minor problems in the installation of the software to personal computers due to incompatibility issues. After the staff had uploaded the software to a laptop, all data entry processing was successfully and easily completed.

Challenges in the ICP Implementation

Price collection for the 2011 ICP round took 12 months, since the number of items kept on changing to match the specification or unit. Splitting of items was also done to ensure that the items priced were comparable across economies. These were some of

the challenges faced by the staff, when the pricing officers had to keep up splitting items when requested by ADB.

Lessons Learned and Future Directions

A lot of knowledge was gained from all ICP activities, and it improved the statistical capacity of the staff on price statistics. The introduction of PPP compilation and computation was new for Fiji, noting that it implemented the ICP activities in response to a request from ADB. Fiji's Bureau of Statistics does not have an immediate plan to include the ICP activities to its work plan, but in the near future.

Hong Kong, China

Administrative Setup

ICP data collection in Hong Kong, China was undertaken by the Census and Statistics Department under the supervision of an assistant commissioner, who was also the national coordinator for ICP. A senior statistician was appointed as the deputy national coordinator to assist the national coordinator to implement the project. A team, which consisted of 10 professional and subprofessional staff from the department's Price Statistics Branch and National Income Branch, was involved.

Use of Existing Infrastructure in Collecting ICP Data

The ICP data collection for household sector was integrated into the regular Retail Price Survey, which collects price data for the compilation of CPI, to achieve optimum efficiency and cost-effectiveness. For the household consumption items also covered in the CPI, relevant data could be extracted directly from the CPI database, avoiding duplication in pricing similar items for different programs. For items not covered in the Retail Price Survey, additional data were collected through the same survey to make use of the experience and product knowledge of staff engaged in the regular price survey. Moreover,

additional data were collected from outlets covered in the CPI, as far as possible, to minimize extra effort in outlet recruitment and data collection.

For the nonhousehold sector covering items, such as machinery and equipment, construction, and dwelling, relevant data were collected through several data sources. These sources included special data collection and extraction of data from existing survey returns and administrative records to optimize utilization of resources and minimize respondents' reporting burden.

Survey Framework

Among the household consumption items priced in the ICP, some two-thirds of the items were covered in the CPI. The survey collected price data on household consumption items from about 2,300 outlets throughout the whole territory of Hong Kong, China. Price data were collected from different outlet types, such as market stalls, groceries, small shops, supermarkets, and departmental stores. In general, the outlets selected should be operating in a fixed location on the main streets in busy and accessible areas frequently patronized by households for the purchase of goods/services.

Similar to the household sector, price data for the nonhousehold sector were also collected throughout the whole territory of Hong Kong, China. For machinery and equipment, data were specifically collected from relevant dealers and distributors. For dwelling items, data collection was integrated into the existing survey vehicle with suitable enhancement to meet the ICP data requirements. For construction items, a multipronged approach was adopted to collect the required price information from different data sources. For instance, the material prices and labor rates were anchored to the existing survey vehicles; and the approximate project prices were collated from the relevant works departments and quantity surveying companies in the private sector, among others. Price collection of items was carried out on a monthly basis in general, except for fresh food items, which were collected either weekly or biweekly; some

health and miscellaneous items on a quarterly basis; and education on an annual basis. Highlight of the survey framework is in Table 67.

GDP Expenditure Values

In mapping the 155 basic headings with the existing expenditure breakdowns of the GDP of Hong Kong, China, it was found that direct data were available for most of the basic headings. On the other hand, there were cases of expenditure items relatively less significant in Hong Kong, China; and the detailed breakdowns were not available in its GDP compilation system. The estimates for these items were produced by making reference to comprehensive data collected in the 2009/10 round of the Household Expenditure Survey, as well as imports and re-exports statistics with detailed commodity breakdowns.

Data Validation

Data collected were thoroughly checked before submission to ADB. Particularly, the product specifications of items priced were checked to ensure they matched the ICP requirements exactly. Moreover, the price level of individual products and price relativity between comparable items were

checked to identify possible outliers. In performing these validations, references were made to indicators such as the CV and min-max price ratio of individual items. For some of the items also covered in the 2005 ICP round, the prices in 2011 ICP were compared with the corresponding prices in 2005 ICP for further validation. Price movements of the household consumption items collected for ICP were also compared with price movements of similar products in the CPI to detect abnormal price changes caused by possible outliers or extraordinary events.

ICP Price Collection Tools

Hong Kong, China used the Price Analysis Module and Report Generation Module but not the Data Entry Module because most data were collected for the purpose of CPI compilation; and, thus, data input was performed through the regular CPI compilation system. In general, the PCTs were generally easy to use and provided useful data diagnostics to alert users on possible outliers. It could be further enhanced by

- (i) providing summary reports like the count of items with large price variations by major group or basic heading to facilitate data quality control,
- (ii) supporting different database file formats, and
- (iii) shortening the time required for generating new data files.

Table 67. Number of Sample Outlets by Type, Hong Kong, China

Type of Outlets	No. of Outlets	%
Large shops (e.g., supermarket and department store)	79	3.4
Medium and small shops (e.g., grocery and convenience store)	277	11.8
Markets (e.g., market stall)	312	13.3
Specialized shops (e.g., pharmacy shop and electrical appliance shop)	766	32.7
Private service providers (e.g., private school and restaurant)	788	33.6
Public or semipublic service providers (e.g., water supplies and public bus company)	121	5.2
Total	2,343	100.0

Source: Census and Statistics Department.

Challenges in the ICP Implementation

Although the 2011 ICP was primarily meant for inter-economy or spatial comparison, an additional dimension to the temporal comparison of ICP and CPI price trends between 2005 and 2011 was included at the advanced stage of 2011 ICP implementation. Certain incongruities of ICP and CPI price trends for some of the household consumption items were noted. Further studies indicated that the differences in price trends between the simulated price changes based on ICP data and the official CPI were attributable to (i) different item coverage of ICP and CPI, (ii) different weights for aggregation (i.e., ICP used GDP weights whereas CPI used the weights derived from the Household Expenditure Survey), (iii) CPI inflation affected by government's one-off relief measures,

and (iv) some quality change elements embedded between 2005 and 2011 ICP. With some additional efforts, the studies further affirmed the data quality of ICP and CPI data. In light of this experience, temporal analysis will also be considered as an added diagnostic in future rounds of ICP.

In preparing for the data collection for machinery and equipment items, it was found that the models specified for certain items, especially for those under the basic heading Electrical and Optical Equipment, were not popular or available in Hong Kong, China; but alternative more up-to-date models were abundant. In such case, the respondents (i.e., dealers and distributors) were consulted for replacement models of comparable specifications. However, the prices of some replacement models collected might not be utilized by ADB, unless similar models were also priced by other economies. To achieve better cross-economy comparison, it would be more desirable if a wider range of models could be included for equipment items in future rounds of ICP.

Lessons Learned and Future Directions

Participation in the ICP was a valuable experience. It provided the forum for the price statisticians to exchange experiences and views on price statistics, and to increase understanding of pricing surveys in other economies.

India

Administrative Setup

The overall responsibility for collection, validation, analysis, and coordination with various agencies for ICP activities was delegated to the Prices Unit of the National Accounts Division (NAD) in the Central Statistics Office of the Ministry of Statistics & Program Implementation (MOSPI). The additional director general, as head of NAD, was nominated as national coordinator for ICP; while the in-charge of Prices Unit, the deputy director general, was nominated as deputy national coordinator.

Various agencies/divisions were involved in the ICP. The Field Operations Division of the National Sample Survey Office was entrusted with the responsibility of carrying out all household consumption surveys. Price data were collected and compiled with the cooperation of the Central Public Works Department (CPWD) of the Ministry of Urban Development for construction; and the Department of Industrial Policy and Promotion (DIPP) of the Ministry of Commerce and Industry, for machinery and equipment. The entire work pertaining to testing, operation of ICP APSS, and data entry was done by the Computer Centre of the MOSPI.

In view of the importance of the ICP program, the MOSPI constituted the Expert Committee on ICP to provide technical advice for ICP activities.

Use of CPI Infrastructure in ICP Data Collection

The CPI infrastructure (manpower, markets, outlets, etc.) was utilized for price data collection of household products. As the specifications of the ICP products were quite different from that of the CPI items, separate questionnaires were canvassed.

For nonhousehold data collection, CPWD compiled the prices of specified items of construction from their administrative records. DIPP carried out a separate survey for the collection of prices of machinery and equipment items.

Survey Framework

For household items, two different sampling schemes were adopted for computing annual national average prices. The items pertaining to food, clothing, and footwear were priced from 577 urban markets covering 295 towns and 201 rural markets (villages) (Table 68). Price data were collected quarterly; however, price data for fruits and vegetables were collected monthly during 2011.

For household items other than food, clothing, and footwear, price data were collected twice a year

Table 68. Number of Sample Outlets by Type of Location, India

No.	State/Province	Total	Location Type	
			Rural	Urban
1	Andaman and Nicobar Islands	5	0	5
2	Andhra Pradesh	49	19	30
3	Assam	17	1	16
4	Bihar	26	9	17
5	Chandigarh and Haryana	32	4	28
6	Chhattisgarh	22	7	15
7	Dadra and Nagar Haveli	4	0	4
8	Daman and Diu	5	0	5
9	Delhi	15	0	15
10	Goa	10	0	10
11	Gujarat	41	10	31
12	Himachal Pradesh	14	3	11
13	Jammu and Kashmir	23	7	16
14	Jharkhand	20	4	16
15	Karnataka	45	12	33
16	Kerala	25	7	18
17	Madhya Pradesh	43	16	27
18	Maharashtra	63	18	45
19	Manipur	17	8	9
20	Meghalaya	16	3	13
21	Nagaland	16	3	13
22	Odisha	23	11	12
23	Puducherry	7	0	7
24	Punjab	23	5	18
25	Rajasthan	36	7	29
26	Sikkim	5	0	5
27	Tamil Nadu	45	11	34
28	Tripura	14	3	11
29	Uttar Pradesh	55	20	35
30	Uttarakhand	17	0	17
31	West Bengal	45	13	32
	Total	778	201	577

Source: Ministry of Statistics and Programme Implementation.

(June and December 2011) from 36 towns having population of more than 1 million. The prices of the items pertaining to medicines, postal charges, and railway fares were collected from administrative records.

It is clear from the table that the survey framework utilized a design that allocated markets in proportion to the size of the states/provinces, as well as the size of the rural areas in different states. About 25% of the markets surveyed were located in the rural areas although the rate of urbanization in India was around 35%. However, the selection of markets reflected the proportion of volume of sales that take place in rural and urban markets.

The frequency of price collection varied with the type of items. Fruits and vegetables, which exhibit strong seasonality, were priced on a monthly basis; other food items and clothing and footwear items were priced on a quarterly basis. Other household items were priced half-yearly, and postal charges and electricity prices were collected on an annual basis.

GDP Expenditure Weights

Household consumption expenditure estimates were derived for all 110 basic headings of household consumption using the private final consumption expenditure (PFCE) estimates of 157 items/groups. The estimates were prepared for the national accounts statistics based on detailed concordance between PFCE items and ICP basic headings. Data from the Consumer Expenditure Survey and Annual Survey of Industries were used to estimate weights of some of the basic headings.

Data Validation

Detailed training workshops were conducted for the ICP price surveys. Experienced CPI price collectors were engaged for the price collection, and closely supervised by equally experienced supervisors to ensure the quality of data. Issues raised during data validation workshops conducted by ADB were also communicated to the field for appropriate action.

ICP Price Collection Tool

The ICP APSS and other PCTs were very helpful for scrutiny of the price data. However, frequent amendments in the ICP APSS created problems. There must also be a provision for uploading Excel files (questionnaire) in the software.

Challenges in the ICP Implementation

As in the earlier phases of ICP, the specification of machinery and equipment items were Eurocentric. Prices quoted were for the specifications close to the prescribed SPDs. Data pertaining to stocks and rental of dwelling were not easy to collect, unless a dedicated survey/census had available data. India could provide whatever data were available. After completion of price surveys, SPDs of some of the items were split to minimize the country-product-dummy (CPD) residuals. This also created certain problems in providing price data, which could also lead to significant variations in the PPPs.

ADB emphasized that the participating economy classify the items as important and less important. In the absence of a clear definition or guidance for such identification, very rough classification was attempted.

Lessons Learned and Future Directions

After collection of price data, splitting of items was not done on the basis of CPD residuals. It ensured that the items finally selected for the region provided broadly comparable prices.

The percentage of items priced in the important sector of machinery and equipment by different economies in Asia and the Pacific region was very low. This needed to be taken into account while fixing the items specifications in this sector. Most of the economies in the region could not provide the required housing data on rental and stock. India provided data on this sector but limited. Special and continuous efforts should be taken for collection of comparable data of dwelling services.

Even in the middle of 2013, the weights for the importance matrix and productivity adjustments for government compensation, among others, had not been finalized. It is therefore suggested that methodological aspects should not be decided on the basis of data/results. All these aspects should have also been finalized before launching of the ICP program.

Indonesia

Administrative Setup

Badan Pusat Statistik-Statistics Indonesia, headed by the chief statistician, was the implementing agency for the 2011 ICP round. The director of Price Statistics Directorate was the national coordinator in charge of implementing the ICP activities, while the director of Expenditure Accounts Directorate served as the deputy national coordinator. In the 2005 ICP round, the chief of the Division of Consumer Price Statistics was the deputy national coordinator.

Use of Existing Infrastructure in Collecting ICP Data

ICP and CPI were linked although practical considerations made them different. Products selected for a national CPI are representative of products in the economy. From a sampling perspective, however, products rarely consumed by households are not included in the CPI basket. Prices are collected from different outlets located throughout the economy. The selection of outlets and areas from where prices are collected is based on purposive sampling. CPI covers the urban areas only.

ICP data, on the other hand, covered urban and rural areas, and were collected by different price collectors. But the types of outlets in the urban and rural areas were the same. The survey on construction was conducted in Jakarta, and selected some contractors as respondents. The dwelling survey was conducted in Bekasi, Bogor, and Jakarta while some data were taken from the 2010 Population Census and Housing Survey.

Survey Framework

Purposive sampling was used to select samples for the 2011 ICP survey. This method was applied due to budget limitation. However, the samples represented urban and rural areas. In the collection of prices on household items during the 2011 first and second quarters, the allocation of samples covering urban and rural areas throughout the economy is shown in Table 69. Since the third quarter, the coverage of household data collection was expanded, from 9 provinces to 33 provinces in the whole of Indonesia to ensure representativeness of data.

Price data collection for construction, machinery and equipment, health and pharmaceuticals, and government compensation was performed in Jakarta City only.

Market Selection

Purposive sampling was also adopted for the selection of markets of two types:

- (i) Traditional market, where bargaining of prices between the buyer and seller is a normal practice; and
- (ii) Modern market, which consists of department stores/outlets and supermarkets that include hypermarkets and mini markets, and does not practice price bargaining.

For a market to be considered sufficiently representative, it was

- (i) a major market in the city;
- (ii) carrying a wide assortment of goods traded;
- (iii) where most people, especially the middle- and low-income communities, shop;
- (iv) where many traders determine the price (considered as a price leader); and
- (v) capable of ensuring the continuity of recording price data on the market.

From each market, there were three respondent traders for each commodity.

Table 69. Number of Sample Outlets by Type of Location, Indonesia

No.	Province	Total	Location Type	
			Rural	Urban
1	Bali	378	181	197
2	Banten	10	7	3
3	Bengkulu	152	49	103
4	Dista Yogyakarta	9	6	3
5	Dki Jakarta	481	0	481
6	Gorontalo	4	2	2
7	Jambi	6	4	2
8	Jawa Barat	19	10	9
9	Jawa Tengah	19	10	9
10	Jawa Timur	385	375	10
11	Kalimantan Barat	165	3	162
12	Kalimantan Selatan	9	6	3
13	Kalimantan Tengah	11	6	5
14	Kalimantan Timur	9	4	5
15	Kepulauan Bangka Belitung	5	5	0
16	Kepulauan Riau	7	5	2
17	Lampung	9	6	3
18	Maluku	208	142	66
19	Maluku Utara	6	3	3
20	Nangroe Aceh Darussalam	10	5	5
21	Nusa Tenggara Barat	9	6	3
22	Nusa Tenggara Timur	6	4	2
23	Papua	4	1	3
24	Papua Barat	1	1	0
25	Riau	9	6	3
26	Sulawesi Barat	3	2	1
27	Sulawesi Selatan	93	7	86
28	Sulawesi Tengah	8	5	3
29	Sulawesi Tenggara	191	4	187
30	Sulawesi Utara	8	5	3
31	Sumatera Barat	10	7	3
32	Sumatera Selatan	9	6	3
33	Sumatera Utara	392	140	252
	Total	2,645	1,023	1,622

Source: Badan Pusat Statistik-Statistics Indonesia.

Most of the items were priced on a quarterly basis, except for food, beverages, and some restaurant and hotel items, which were collected monthly; while education on half-yearly basis.

GDP Expenditure Values

GDP expenditure was not specified into 155 basic headings; it was disaggregated using the published GDP expenditure described below:

- (i) Two groups of household consumption expenditure (food and nonfood) were split into 110 basic headings (34 food and 76 nonfood), based on the National Socio-Economic Survey, which were corrected by using supply/retail indicators. Correction was made on the outputs of food industry, restaurant, electricity, sales of car, motorcycle, and household equipment, among others.
- (ii) Nonprofit institutions serving households consumption expenditure was obtained from related surveys and directories.
- (iii) Government consumption expenditure was disaggregated into individual and collective expenditures using government financial reports. Individual consumption expenditure was obtained by identifying the function (housing, health, recreation, culture and religion, education, and social protection) of each expenditure item from budget allocation by function. The same procedure was done for collective consumption expenditure.
- (iv) Gross fixed capital formation was derived from GDP expenditure based on output/fixed assets supply (construction, machinery and equipment, and transportation) and public company financial reports to estimate intangible assets. Data from the Ministry of Agriculture was also used to obtain cultivated assets.
- (v) Change in inventories was divided into change of inventories and acquisitions less disposal of valuables, based on high-medium scale industry inventories. Data was obtained from the Indonesian Bureau of Logistics, Indonesian Cement Association, and public company financial reports.
- (vi) Export and import data were obtained from figures on statistics of export-import of goods in the balance of payments statistics.

Data Validation

It was difficult to ensure that the same items, and specifications according to the ICP Product Catalog, were collected. If available, the item priced might have some deviations from the specification. Where the difference was on the unit or quantities of measurement, and if the data were correctly recorded, the quality adjustment was relatively straightforward. To ensure the same specification, outlets were revisited after data collection. For data validation, the rule was based on the CV and min-max ratio. Most of the problems arose from different quantity and data entry. To address these concerns, the following were adopted:

- (i) Evaluation of ICP data using CPI data for selected commodities, especially by comparing the pattern for the same period of time; and
- (ii) Revisiting the outlet to make sure the product specification and price quoted for selected commodities with high CV and min-max ratio were justified if not corrected.

ICP Price Collection Tools

ICP APSS for the Household

It was relatively easy to understand. Overall, there was no problem in ICP APSS application.

PCTs for Machinery and Equipment, Construction, and Compensation

- (i) **Dwelling.** Additional several columns for data revision and supporting information were needed.
- (ii) **Machinery and equipment.** There was confusion initially since the base price was not equal to the total base price when quantity is not equal to 1 for certain commodities. But this was resolved since the instruction was to

provide prices for the indicated quantity. Later, items of this kind, which were not included in the comparison which were deemed not representative in Asia,

- (iii) **Construction and compensation.** The tools were relatively easy to use and implement.

Challenges in the ICP Implementation

The ICP involved collecting very detailed comparable prices and expenditure data, according to agreed standards, and over a short period of time. The ICP requirements and data collection were different from the regular CPI system. The ICP product list was based on the Classification of Individual Consumption According to Purpose (COICOP). However, Indonesia has not yet adopted COICOP for national CPI considering the strong need for the continuity of CPI data overtime. Moreover, in terms of availability of commodities across regions, there will be many missing values in the COICOP. It should be taken into account that Indonesia, being an archipelago, has different commodities across regions that are typically consumed by the local people. Therefore, ICP and CPI could not be compared directly.

Lessons Learned and Future Directions

The staff gained knowledge from the ICP activities, learning the catalyst for improvements in the national price statistics program, national accounts system, and more general aspects of statistics infrastructure.

Badan Pusat Statistik-Statistics Indonesia is considering subnational PPP computation, and it will undertake the following initial activities:

- (i) review the PPP method based on the PPP manual;
- (ii) compute PPP by using a set of sample of 30 cities applied to 6 commodities; and
- (iii) find out the same commodities throughout the economy for which the same quality would be derived among commodities across provinces.

To enable PPP computation, the staffing complement of the price division, including price collectors, should be strengthened through staff training.

Lao People's Democratic Republic

Administrative Setup

The Department of Economics Statistics (DES), under the Lao Statistics Bureau (LSB), Ministry of Planning and Investment (MPI), was appointed for the implementation of the 2011 ICP round of activities under the leadership of the head of LSB. The ICP technical team was created and chaired by the director general of DES. The team comprised the national and deputy national coordinators, technical staff from the Economics and Price Statistics Division, National Accounts Division under DES, and Statistics Methodology and Information Communication Technology divisions under the Data Service Department.

The national coordinator led the team and was responsible for the overall implementation and coordination between ADB, as the regional coordinating agency, and the LSB in the conduct of the household price collection. The deputy national coordinator was responsible for the compilation of GDP by expenditure. The team from the Statistics Methodology and Information Communication Technology divisions were involved in nonhousehold price collection, and served as administrator of the software for data entry. Collectively, the ICP team was responsible for the entire national ICP process, which included data validation and quality control. The team also included CPI price collectors from 12 provincial offices. Throughout the implementation of ICP 2011, the LSB also involved other related agencies, which actively extended their commitments and efforts through data support and sharing of sector expertise.

Use of Existing Infrastructure in Collecting ICP Data

For the 2011 ICP round, the household data collection was based on the existing CPI data collection mechanism and infrastructure in the Lao PDR, particularly for the household consumption items. However, only around 30% of products in the ICP list were covered by the CPI data collection system. To satisfy the SPD requirement for the ICP items, the team conducted additional data collection by adding the ICP product list to the existing CPI outlets, where possible. For items that were not available in the existing outlets, a special survey covered new outlets to collect the prices of items outside of the CPI outlets. For nonhousehold sectors, such as construction, machinery and equipment, dwelling, and rental, data collection was conducted only in Vientiane where products are available due to limited product availability and required SPDs.

Survey Framework

The household price survey covered 17 markets in 12 provinces, of which 7 markets were representative of urban areas and 5 markets for rural areas (Table 70). The prices of important items were collected monthly as part of the regular CPI price collection; while the collection of less important items was done in the third and fourth quarters of 2011, and conducted at least twice in each market. For nonhousehold sectors, price collection was conducted in the capital city as recommended and agreed in the Lao PDR's context.

GDP Expenditure Values

The GDP expenditure was estimated and published only from 2002–2005 due to the limitation of data sources. Since then, GDP expenditure was compiled based on data obtained from surveys and administrative reporting system. The data from the Lao Expenditure and Consumption Survey (LECS) 2007/2008 extensively supported the compilation of GDP expenditure for 2007, then updated/

Table 70. Number of Sample Outlets by Type of Location, Lao People's Democratic Republic

No.	Province	Total	Location Type	
			Rural	Urban
1	Attapue	52	52	0
2	Champasack	106	0	106
3	Khammuane	67	0	67
4	Luangnamtha	75	75	0
5	Luangprabang	94	0	94
6	Oudomxay	77	77	0
7	Saravane	58	58	0
8	Savannakhet	176	0	176
9	Vientiane Capital	334	0	334
10	Vientiane Province	161	0	161
11	Xayabury	115	0	115
12	Xiengkhuang	83	83	0
	Total	1,398	345	1,053

Source: Lao Statistics Bureau.

extrapolated for the 2009 PPP Update. Since LECS is conducted in 5-year interval, LECS 5 was conducted in 2012/2013, and the preliminary results will be available for use or accessible only in mid-2014; thus, the 2011 GDP expenditure was estimated using the most relevant updated data in the Lao PDR statistics system.

Based on LECS 2007/2008, COICOP (110 basic headings) was estimated and consequently extrapolated for missing years that included 2011 by applying the annual population growth and change in CPI. For the estimation of government consumption, data was obtained from budget statistics provided by the Ministry of Finance. From the budget statistics, individual consumption expenditure was derived based on the expenditures of health and education sectors for appropriate itemized costs only (the estimation excluded the administrative costs of the respective ministries and included in collective consumption expenditure). Collective consumption expenditure was the residual between total government expenditure and individual consumption

expenditure. Import and export data were from the balance of payments statistics compiled annually by the Bank of Lao PDR.

The estimation of gross fixed capital formation consisted of total government capital expenditure and household expenditure on residential building construction. The machinery and equipment, and transport equipment, category was derived as total government capital expenditure less nonresidential buildings and civil engineering works.

The level of disaggregation for machinery and equipment and transport equipment was derived using their shares of imports, based on the assumption that most equipment in the Lao PDR was imported.

DES in LSB will update and revise the 2011 gross domestic expenditure estimates using LECS 5, which will be available by the end of 2014.

Data Validation

The LSB conducted training for price collectors, who were experienced on CPI price collection, before the ICP field operation started. The training emphasized the SPDs and data validation techniques for the supervisors and data collectors. After collection in the field, the prices were verified manually by the price collectors and supervisors before submission to LSB. Then LSB checked and compared the prices across markets and provinces before data entry into ICP APSS. Before submission to ADB, LSB held internal meetings on data review and technical issues concerning the prices. Through the regional workshops, the team acquired skills in price validation techniques and was able to apply these techniques in validating the ICP prices. The team was guided in validating the quality of prices collected using ICP APSS and the price analysis tools.

ICP Price Collection Tools

There were difficulties encountered with the installation of the ICP APSS, including data entry errors; but these were resolved immediately through

“patches” sent to the LSB. The ICP team acquired good experience in using the ICP APSS, specifically the price analysis tool that was easier to use than the tool pack used in the 2005 ICP round. Data was conveniently exported to Excel files for checking and validation, and imported back to ICP APSS for database updating. Multiple Excel files could be uploaded to update the database; however, a feature that will facilitate multiple user data entry when the database is on a network is suggested.

Challenges in the ICP Implementation

The ICP was an opportunity to strengthen national statistics but it was also very challenging. It enhanced the capacity of the staff in improving CPI data quality in a systematic manner. However, the challenge was to fully integrate ICP into the national CPI data production system, or adapt the ICP in full scale. The constraints were resource limitation and the availability of items that comply with the ICP SPDs.

While the importance of ICP was acknowledged, the volume of work required extensive resources, creating a burden on, or overloading, the regular work of the staff. The ICP further required extensive knowledge in understanding the SPDs to assess the availability of products. In most cases, the items were not available; and when items were available, these did not exactly match the SPDs and it required appropriate quality adjustment. Understanding the use of PPP data at the economy level was very limited. But to be able to compile national data and disseminate PPP, extensive technical knowledge on these areas was required.

The most challenging part of ICP was the generation of GDP expenditure at the required 155 basic headings due to insufficient data support in the Lao PDR. Information on compensation of employee by occupation and by level of experience was not available; hence, only average salary was submitted. The availability of the type and specification of rental and dwelling posed another difficulty due to cultural and traditional practices. As a result, rental and dwelling accounted for only around 36% of the ICP total list.

Lessons Learned and Future Directions

DES, LSB, and the provincial officers had benefited from the implementation of ICP 2011, with improved knowledge on data validation and coordination systems; obtained experience on ICP validation techniques and methods, which were applied to their CPI work; received assistance and support from ICP Asia and the Pacific through workshops and via online; and learned from exchanges of methodologies with the participating economies. The PCTs were also very useful and effective in checking data collected and across provinces, analyzing results, and comparing with other economies. An appropriate technical team should be established to handle the volume of ICP work.

The experiences in compiling 2011 ICP had provided best practices for improving price collection surveys and data quality, and computing GDP expenditure based on available but limited data sources. GDP expenditure 2011 will be revised; and for 2012 will be estimated, after the results of LECS 5 and other annual administrative official data sources have become available.

The ICP price surveys (household and nonhousehold sectors) have not been integrated into the LSB work plan as regular surveys. DES plans to examine the ICP SPDs on the possibility to partially integrate these into the CPI system. It further plans to improve the CPI weights, expand the data collection coverage for Vientiane Capital and 11 provinces to 16 provinces nationwide, and add more items in the basket of commodities based on the results of LECS 5.

Macao, China

Administrative Setup

The Statistics and Census Service (DSEC) of the Government of Macao Special Administrative Region was responsible for the implementation of ICP activities. A department chief was named as the national coordinator, and a senior officer of DSEC as

deputy national coordinator. Price collection of ICP items was undertaken by the CPI price collectors. The National Accounts Division of DSEC was responsible for providing and verifying the weights of GDP expenditure components. The administrative setup for the 2011 ICP was similar to the ICP round in 2005.

Use of Existing Infrastructure in Collecting ICP Data

Price collection of household items for the ICP had been incorporated into the existing infrastructure of CPI in terms of outlets and price collectors. For the ICP items that overlapped with the CPI basket, the CPI prices were adopted directly; and for those items not covered in the CPI basket, price data was collected directly from the outlets.

Data from the quarterly Construction Materials Survey were taken for use in ICP where appropriate. For items not included in the survey, as well as those of machinery and equipment, fieldwork enumerators were sent to collect data directly from the outlets.

Survey Framework

The entire territory of Macao, China comprised the area frame. In selecting outlets, priority was given to existing CPI outlets but new ones were chosen if certain products were not available in the existing outlets. The type of outlet was determined using information collected from the Wholesale and Retail Survey and Household Budget Survey. The number of prices collected was determined by price variation of the item; for instance, a branded product with little price variation will have fewer number of prices needed. In terms of frequency of data collection, food and beverages prices were collected monthly, except fresh food items that were collected twice a month. Prices for outpatient services, education, and insurance and financial services were collected half-yearly; whereas transport services and postal services were collected yearly. Prices for all other items were collected on quarterly basis. The number of outlets by type, and the schedule of price collection, are shown in Tables 71 and 72.

Table 71. Number of Sample Outlets by Type, Macao, China

Type of Outlets	No. of Outlets	%
Large shops	37	4.3
Medium and small shops	75	8.8
Markets	17	2.0
Bulk and discount shops	0	0.0
Other kinds of trade	0	0.0
Specialized shops	409	48.1
Private service providers	296	34.8
Public or semipublic service providers	17	2.0
Total	851	100.0

Source: Statistics and Census Service.

Table 72. Frequency of Price Collection for Household Sector, Macao, China

Group/Category	Frequency
Food (except fresh items) and beverages	Monthly
Fresh food items such as fruits and vegetables	Twice a month
Clothing and footwear	Quarterly
Furnishings, household equipment, and routine maintenance of the house	Quarterly
Medical products	Quarterly
Outpatient services	Half-yearly
Transport (except transport services)	Quarterly
Transport services (except passenger transport by air and other purchased transport services)	Yearly
Passenger transport by air	Monthly
Other purchased transport services	Quarterly
Postal services	Yearly
Communication equipment and services	Quarterly
Recreation and culture	Quarterly
Education	Half-yearly
Restaurants and hotels	Quarterly
Miscellaneous goods and services	Quarterly
Insurance and financial services	Half-yearly

Source: Statistics and Census Service.

GDP Expenditure Values

GDP expenditure values at 155 basic headings were available. The following highlights the sources of data for the compilation of the expenditure-based GDP at current prices.

Private Consumption Expenditure

The Household Budget Survey, conducted every 5 years, was the main source of data. Quarterly and annual estimates of household final consumption expenditure were based on administrative records and survey results, including demographic information, CPI, retail sales, employment, tourism, external merchandise trade, etc.

Government Final Consumption Expenditure

The primary data source was the government accounts and administrative records of various government departments.

Gross Fixed Capital Formation

Sources of data included the Government Investment and Development Plan; government accounts and administrative records; survey of construction activities of the private sector; information provided by investors of large-scale construction projects; Household Budget Survey; and merchandise trade information on retained imports of transport equipment, and machinery and equipment.

Changes in Inventories

Results were obtained from annual economic surveys.

Exports and Imports of Goods

Information from external merchandise trade was the primary source of data, supplemented with data from annual economic surveys.

Exports and Imports of Services

Sources of data included gaming receipts; results of Hotel Survey, Visitor Arrivals, and Visitor Expenditure Survey, and other tourism-related data; indicators from annual economic surveys; administrative records; quarterly data from large corporations; and data on the finance sector.

Data Validation

The ICP APSS program was useful in data validation. Items with unusual CV ratios and/or min-max ratios could be easily identified and investigated to ensure that the same item was being priced across outlets. The regional validation workshops were important in ensuring uniform understanding of product SPDs across the participating economies.

ICP Price Collection Tools

The ICP APSS was very useful in report generation but the data entry interface could be further improved. The functionality and interface were significantly improved during the course of price collection and data entry. In the final version of the ICP APSS, data entry was performed with relative ease. Data entry of the PCTs for the nonhousehold sector was easier to use, as data were less complicated compared with the household data. There were no major problems encountered in price analysis and report generation.

Challenges in the ICP Implementation

There were difficulties in defining “medium quality,” “medium strata brand,” or “low strata brand,” as “medium” and “low” are relative terms. Different economies might have their own interpretation. There might also be more than one product matching the same SPDs. In such cases, two or three products were selected based on popularity to price.

The importance of SPDs was well understood but some SPDs were very difficult to verify in the market. Despite these challenges, the regional technical workshops were an excellent opportunity not only for

the participating economies to validate data, but also in sharing experiences and best practices.

Lessons Learned and Future Directions

Participating in ICP activities enabled accumulation of experience in undertaking major statistical projects and regional/international cooperation. DSEC looks forward to taking part in future ICP rounds.

Malaysia

Administrative Setup

The Prices, Income and Expenditure Division, in particular the Prices Unit, was responsible for the ICP activities and assisted by the National Accounts Division. The deputy director from the Prices, Income and Expenditure Division was appointed as the national coordinator while the senior deputy director from the National Accounts Division was the alternate coordinator. In the Prices Unit, the national coordinator was assisted by four members to coordinate the ICP data. In the National Accounts Division, the alternate coordinator was assisted by three members.

Use of Existing Infrastructure in Collecting ICP Data

The interviewers in the states were responsible for the price collection. About 30% of the items in the ICP basket (household items) were in the CPI basket. For these items, the price collection for ICP and CPI was done concurrently. The items in the ICP basket were divided into three categories:

- (i) CPI items,
- (ii) Purely ICP items, and
- (iii) Conversion items (already in the CPI basket with different units).

A separate price questionnaire for purely ICP items was created, indicating all the ICP items to be priced from the existing or new outlets. These prices were then captured using ICP APSS and data were transmitted to the central office via e-mail.

The data for construction were obtained by an expert from the Construction Industry Development Board (CIDB), and some items were priced by officers of the Department of Statistics Malaysia (DOSM) from selected outlets. Two meetings were held, for the initial stage to introduce the items and the second meeting to discuss the prices and availability of items with the right unit/specification in the market.

The Public Works Department was responsible for providing information on some machinery and equipment items, focusing on the following groups:

- (i) Fabricated Metal Products except Machinery and Equipment;
- (ii) General Purpose Equipment;
- (iii) Special Purpose Equipment; and
- (iv) Motor Vehicles, Trailers, and Semitrailers.

The DOSM was responsible for pricing the rest of the following groups:

- (i) Electrical and Optical Equipment;
- (ii) Other Manufactured Goods, n.e.c.;
- (iii) Other Road Transport; and
- (iv) Other Products.

As for rental, there was no new survey conducted. The data from the rent survey conducted quarterly for the CPI was used, with selection made on types and floor space areas to suit the requirement of the ICP. These rental data covered both urban and rural areas and represented actual rental data. However, additional information was obtained such as airconditioning, number of rooms, and floor space area.

Data on compensation was obtained from the Public Service Department that met the requirements of the ICP, indicating the number of employees in different levels of years and the salary scales for all levels of promotion. The data submitted for ICP was weighted by the number of employees and level of promotion.

Survey Framework

A one-stage stratified sampling was adopted for this survey with the outlet as the sampling unit and the price quotation as the statistical unit.

Sample size estimation was based on the study of variance produced by items that were identified as proxy to 680 items.

Examples:

Purely ICP Items

Live chicken
Young coconut
Cassava

Proxy CPI Items

Processed chicken
Grated coconut
Sweet potatoes

Sources of Data

The input data used the following as sources for the sampling design:

- (i) Lists of average prices by price collection center, state, and geographical coverage (urban and rural); and
- (ii) Average prices for the period January–June 2010 (CPI lists) for the identified proxy items.

Scope and Coverage and Level of Analysis

The coverage for the sampling unit was the outlets in both urban and rural areas in Peninsular Malaysia, Sabah, and Sarawak (Table 73). Analysis was confined to the zone level with the respective stratum, where six zones were identified as follows:

- (i) East (states of Kelantan, Pahang, and Terengganu),
- (ii) Middle (states of Kuala Lumpur and Selangor),
- (iii) North (states of Kedah, Penang, Perak, and Perlis),
- (iv) South (states of Johor, Malacca, and Negeri Sembilan),
- (v) Sabah, and
- (vi) Sarawak.

Sample Size Determination

Determination of sample size for each item was based on two factors: variable of selection and precision level. The variable of selection was based on the average monthly price for the items collected. For this study, the average price for the months of January to June 2010 was used to calculate the variance for each item across states.

Table 73. Number of Sample Outlets by Type of Location, Malaysia

No.	State	Total	Location Type	
			Rural	Urban
1	Kedah	2,263	499	1,764
2	Kelantan	671	219	452
3	Melaka	1,124	204	920
4	N. Sembilan	751	188	563
5	Pahang	1,377	343	1,034
6	Perak	2,319	527	1,792
7	Perlis	185	93	92
8	Pulau Pinang	894	177	717
9	Sabah	864	254	610
10	Sarawak	1,228	354	874
11	Selangor	755	177	578
12	Terengganu	1,002	241	761
13	Utara	49	0	49
14	Wilayah Persekutuan	406	1	405
15	Wilayah Persekutuan Labuan	94	0	94
	Total	13,982	3,277	10,705

Source: Department of Statistics.

The precision level was based on the importance of items (weights) as follows:

- (i) **Item with higher weight:** 5% relative standard error (RSE) with 95% confidence level; and
- (ii) **Item with lower weight:** 10% RSE with 90% confidence level.

GDP Expenditure Values

Household Final Consumption Expenditure

- (i) GDP expenditure values for the 110 basic headings of household final consumption expenditure (HFCE) for 2011 were not readily available. HFCE was published annually by 2-digit COICOP classification (12 COICOP groups). For ICP, the gross HFCE was adjusted to include residents' expenditure abroad and to exclude nonresidents' expenditure in the domestic market;

- (ii) For the services component of HFCE, the output in supply-side sectors was used. Data was compiled by 4-digit level of COICOP to estimate household consumption expenditure in the domestic market, including nonresidents' expenditure in Malaysia. The balance of payments statistics for residents' expenditure abroad and nonresidents' expenditure in the domestic market were not distributed in detail to 4-digit level of COICOP;
- (iii) For ICP purposes, balance of payments statistics for residents' expenditure abroad and nonresidents' expenditure in the domestic market were distributed to 4-digit level of COICOP, and then by 110 basic headings as required;
- (iv) Data sources were the Household Expenditure Survey 2009/2010, Economic Census 2011 for Services, Distributive Trade Census 2009 and quarterly surveys, Manufacturing Census and annual and quarterly surveys, data from Bank Negara Malaysia, balance of payments statistics for residents' expenditure abroad and nonresidents' expenditure in the domestic market, and external trade statistics; and
- (v) The methodology of compilation used extrapolation, commodity flow method, and direct estimates.

Gross Fixed Capital Formation

- (i) Expenditures on gross fixed capital formation (GFCF) at the basic headings levels for 2011 were readily available since GFCF by type of assets was compiled at 5-digit Central Product Classification;
- (ii) The data sources were Economic Census 2011 for all sectors; Distributive Trade Census 2009 and quarterly surveys; imports; Manufacturing Census and annual and quarterly surveys; data from Bank Negara Malaysia; balance of payments statistics; quarterly construction surveys; Annual Financial Accounts of Federal Government, States, Local Authorities, and Statutory Bodies; and external trade statistics; and
- (iii) The methodology of compilation used extrapolation, commodity flow method, and direct estimates.

Government Final Consumption

- (i) Expenditures on government final consumption at the basic headings levels for 2011 were readily available with details, except for health services (health benefits and reimbursements);
- (ii) Data sources were the Annual Financial Accounts of Federal Government; and the Financial Statement and Budgets for State Governments, Local Authorities, and Statutory Bodies; and
- (iii) The methodology of compilation used direct estimates.

Changes in Inventories and Net Acquisitions of Valuables

- (i) Data on changes in inventories and net acquisition of valuables for 2011 were readily available;
- (ii) Data sources were the monthly manufacturing surveys, monthly rubber statistics, Malaysia Palm Oil Board, Quarterly Survey of Distributive Trade, Department of Veterinary services, and Annual Financial Accounts of Federal Government; and
- (iii) The methodology of compilation used direct estimates.

Exports and Imports

- (i) Data sources were the balance of payments statistics and external trade statistics; and
- (ii) The methodology of compilation used direct estimates.

Data Validation

One of the most important, but the toughest area, was data validation as this involved prices for all selected items from all 16 states in Malaysia. Several training courses were conducted, involving representatives from all states, and making sure that the correct items with the right specifications were derived and discussed. Prices from all states were submitted to the central office and comparison made either within states or inter-state. Queries were made for any prices found to be outliers, caused by either wrong item priced or wrong unit/specification. The comparison

of these prices were made against the master list of prices in the central office, where prices were made available either through observation from outlets or from all brochures obtained from several outlets in Kuala Lumpur and Selangor. Price movements were also checked against that of the CPI movements for the same or similar items within the same basic headings.

Regional validation workshops were very useful as the participating economies were able to compare their prices with those of the other economies. This was the platform used to see whether the price differences could be due to actual price differences between economies; or caused by wrong item, unit, or specification priced. While comparing prices, the economies were also able to indicate the availability of the unit/specification and changes, or the splitting of items to suit this purpose.

ICP Price Collection Tools

ICP APSS was a very good system both for household and nonhousehold items. The only suggestion for improvement was to consider uploading the readily available data captured in the Consumer Price Index System into the ICP APSS system to avoid double data entry and to reconcile the data. DOSM has to find a way to upload the CPI data captured in the CPI existing system to APSS.

Challenges in the ICP Implementation

Prices were collected over a 12-month period covering a total of 856 items; and these numbers kept on changing to suit the requirements, either to match the specification or the unit. Splitting of items was done to make sure that the items priced were comparable across economies. When these occurred, the field enumerators had to be informed of the changes, and new instruction or additional forms were sent to the states for price collection. A major constraint was to make sure that the enumerators know what item was to be priced as indicated in the questionnaire, and all SPDs are followed.

Another challenge was in the data entry system. Malaysia started using ICP APSS only in the second quarter since the Batch Upload was not available. Only the purely ICP items and conversion items (those in the CPI basket with different unit) were captured in the ICP APSS. For the CPI items, the prices were not captured but uploaded in the system using the Excel's V-look up technique. A suggestion was for ADB to tackle this problem and develop a way to integrate and upload the readily available CPI prices captured in the CPI system into ICP APSS. Most economies had their own CPI system to generate the CPI data.

Lessons Learned and Future Directions

Involvement in the ICP had given a lot of new experiences to the staff, especially the Prices Section in the central office and the rest of the prices staff in the states. This had strengthened statistical capacity in compiling price statistics, especially from the exchange of experiences among the participating economies and with useful knowledge during the regional workshops arranged by ADB. Most important was getting involved in the ICP and obtaining help from the international experts and consultants.

The introduction of PPP compilation and computation benefited Malaysia. Prior to this, the calculation of comparative indexes between states was done differently, but now PPP compilation has been adopted based on the ICP concept.

Maldives

Administrative Setup

The ICP 2011 round followed the same administrative setup as in the 2005 round, except for new data collection system for the nonhousehold sector component.

The Statistics Division of the Department of National Planning (DNP) was in charge of ICP activities. The head of the National Accounts and Prices and Economic Statistics Section was the national

coordinator, being in a position to make decisions and having knowledge of both national accounts and prices. Those involved in ICP activities were the existing staff of the Statistics Division. In the capital (Male'), the contracted staff hired undertook solely the ICP survey; while in the islands, the existing staff of CPI carried out the survey.

An expert who had excellent knowledge of the construction industry and the equipment used by the industry was provided by the Maldives Association for Construction Industry to assist in the collection and verification of machinery and equipment and construction data. All ICP data entry and other works on both household and nonhousehold sectors were carried out by the staff of the National Accounts and Prices and Economic Statistics Section.

Use of Existing Infrastructure in Collecting ICP Data

Existing infrastructure was used in collecting data to the extent possible. The same outlets were used to minimize the work burden; but data for CPI was collected from the major shops with wider representation of products, and where majority of the Maldivians shop. For some products and services with the same specification both in CPI and ICP, a single price was obtained from the outlets. Since the task of ICP fell on few staff in the Price and Economic Statistics Unit, those involved in both ICP and CPI were the same staff. This built the confidence of, and motivated, the staff in exploring further into the reasons behind price changes.

Secondary data was used for rental and obtained from the household data set of the 2009/2010 HIES conducted by the Statistics Division. The data set was thoroughly studied prior to final generation of the required information for ICP.

Construction, and machinery and equipment data, were collected by the construction expert attached to the ICP project on the request from DNP. The outlets were determined by the expert in consultation with the national coordinator; and the data were collected

from the identified outlets, following the specifications in the ICP Product Catalog.

Compensation data was obtained through the specific government functions, namely: the Ministry of Health for health related occupations, the Ministry of Education for teachers, the Ministry of Defense and National Security for defense personnel, and the Maldives Police Services for the police force. For general government occupations, the Maldives Civil Service provided the relevant information.

For ICP data collection, staff members were hired and new ones recruited at different frequencies, but they were not retained due to the temporary nature of their jobs. They were also involved in both CPI and ICP data collection and data verification.

Survey Framework

The same geographical coverage as the CPI, i.e., the capital and four major islands, was adopted for ICP price collection. The capital was considered as urban and the islands as rural. The rationale behind the selection was that majority of the products would be available in these islands. According to the 2009/10 HIES data, more than half of the national expenditures concentrated in the five islands. Furthermore, more islands could not be covered due to limited staff and budget constraint.

As for the scope of the survey, food items were collected from the capital, as well as from the four islands on a monthly basis; while prices of nonfood items were collected on a quarterly basis. Construction, machinery and equipment, and compensation data were collected only once during the year. There was no specific data collection done for rental; however, the data of the survey was cross-checked with the data on housing rents obtained for the CPI.

Outlets were selected keeping in mind to cover outlets from all parts of the islands to reflect different consumption patterns (Table 74). However, due to the nature of some products and the smallness of the islands, some items were only available in

Table 74. Number of Sample Outlets by Type of Location, Maldives

No.	Province/City	Total	Location Type	
			Rural	Urban
1	Gaafu Dhaalu Atoll Thinadhoo	29	29	0
2	Haa Dhaalu Atoll Kulhudhufushi	51	51	0
3	Kaafu Atoll Male	342	0	342
4	Lhaviyani Atoll Naifaru	19	19	0
5	Seenu Atoll Hithadhoo	34	0	34
	Total	475	99	376

Source: Statistics Division, Department of National Planning.

specific shops; and in such cases, those outlets had to be selected.

While determining the sample size, expert judgment was exercised. The number of price quotations for an individual item was based largely on the number of shops/outlets selected. Majority of outlets with wide range of products in the selected islands were included in the survey. Any limitations to the survey framework were due to the judgment sampling adopted. This was a good method for a small economy with widespread islands and with majority of them very small.

GDP Expenditure Values

Total GDP expenditure was available for the broad headings of ICP. However, the readily available data was taken from the 2009/10 HIES conducted by DNP.

Household consumption data at purchasers' price were taken from 2009/10 HIES, which were coded using the Central Product Classification (CPC). But slight adjustments were brought with the change in inflation using CPI data for the selected products; and also using imports data for 2011, which were also coded in CPC.

Data on individual consumption expenditure by government were taken from the national budget of the Ministry of Finance and Treasury, and coded using the Classification of the Functions of Government

(COFOG). Gross fixed capital formation (GFCF) data were taken from the foreign trade statistics provided by the Maldives Customs Services. Data on construction, and machinery and equipment, were adjusted using financial statements taken from the Ministry of Economic Development.

The imports and exports of goods and services were taken from the balance of payments data provided by the Maldives Monetary Authority.

Data Validation

Price collectors were given instruction to compare the current price with the previous month's price to ensure there were no significant changes. They were also required to provide the reason for major changes in prices. After entering the price, the analysis tool helped in identifying outliers. Price collectors were further instructed to check the forms and, if necessary, to call the outlets to confirm the prices. Price collectors were given training to ensure that the same product was covered. Monitoring visits were carried out by the senior staff of the price unit to the islands to randomly check and ensure the quality of the price data provided. The questionnaires were printed and distributed with a picture of the specific product, which immensely helped the enumerators in following the same specification and at every point in data collection.

The data validation workshops helped in many aspects of the ICP data collection. First, it assisted in understanding the purpose and importance of the activity undertaken to generate the PPP. Second, it led to a clearer understanding of the differences in local prices with the average of the region and that of the other participating economies; and it assisted in confirming or accepting the price quotations verified. Third, it clarified and emphasized the importance of all the participating economies to adopt the same specification in the ICP product list.

Furthermore, the data validation workshops for the individual economies served as a platform for justifying the price differences among them. In some instances,

the differences were due to high import duties or the products imported to the economy compared to local production. For the Maldives, these workshops were crucial as it provided a forum to clarify the reasons behind the prices provided by the staff. By participating in the workshops, the staff gained more in-depth into price indexes; the technicalities involved; and the immense objective of the task for better and useful statistics in the economy, region, and worldwide.

ICP Price Collection Tools

Entry in ICP APSS was easy as it had a product filter. The program provided alerts if the quantity is not in the range specified. But the disadvantage was that in the entry, the program did not prompt for huge price changes. This in turn may lead to typing errors. It would be helpful if the ICP APPS contained alerts for such huge jumps. Also, it would have been helpful if the staff could see the previous month's price upon data entry. It was further suggested to have a column for writing the brand, which is a very important factor that determines the price and makes a huge difference in prices. This was specifically the case in the Maldives, which imports most of its products. If these could be documented during the initial entry process, it would minimize the need for referring again to the data collection forms. Specifically, when the turnover of staff was high, going back to a form that had been cleared by the staff who worked on it before was difficult. The ICP APPS had a remarks column, which could be used to insert all additional notes; however, it may not be of much use from having many information items in one column.

The price analysis tool was very helpful in enabling the staff to compare prices and filter as required, and identifying outliers and typing errors. The tool further helped in data cleaning and monitoring the changes in CV. Meanwhile, an undo function to restore the data deleted, instead of inputting again the entries, would have been helpful.

The report generation tool in Excel provided all the information required to further check the data. But this tool was available only at the later stages. While

the ICP APPS was easy, there were many errors throughout the ICP that delayed the process. The lack of capacity in the National Accounts and Economic Statistics Section was also a constraint. ADB helped resolve these issues and was prompt in rendering assistance.

Data entry for construction and machinery and equipment was fairly simple and easy since there was only one quotation for each item. But a recommendation was to be able to see the previous price for those which have more quotations. There were also some problems in editing the data. On the price analysis and report generation tools, the staff did not fully benefit from these tools since these items only had one quotation. The validation tool was helpful; and it enabled access to the ADB comments, which facilitated making decisions on the problematic items.

Data entry for compensation was easier in the last Excel version, having the capability to see all occupations in the same page. In the Maldives, generally the salaries do not change over the years, only when the staff moves to a new post. The ICP unit gathered the price in the capital of the Maldives only.

Challenges in the ICP Implementation

In the household sector, the specifications were very detailed that made it very difficult to find items that exactly match the specifications. For example, the packaging type may be different in the Maldives. They also faced other problems with the unit of measure and on availability. Most of the items were imported, which made it difficult to obtain the same item during the following data collection period. At times, the available brand is different in other months of the year. Further, as the Maldives is made up of islands, it is also difficult to visit the outlets to properly monitor the products.

On nonhousehold price collection, such as construction and machinery and equipment, it was not practical to find the price for the products that have the same specification/brand required in the ICP product list. Hence, at most times, a similar product,

and with slight variations, was used. On rental, there were no specific surveys on this; hence, the staff was able to provide very limited data.

On compensation, the concept used in collecting data, e.g., by level and position, was different in the Maldives. Furthermore, understanding the concepts used in ICP for seniority and occupation designation was difficult since the method followed in the Maldives is different with respect to new entrants into high post jobs.

Lessons Learned and Future Directions

The National Accounts and Economic Statistics Section of the Statistics Division benefited immensely from being part of the 2011 ICP. By participating in the initiation workshops, the staff understood better the concept of PPP and the different methodologies used in compiling it. By sharing the methodologies adopted by the different participating economies in their CPI compilation and data collection, the staff learned their methods that could be applied in the Maldives. The data validation carried out by the staff, as well as the discussions during the data validation workshops, clarified significant issues encountered. These forums enabled them to make decisions on issues encountered.

With the small number of staff available in the National Accounts and Economic Statistics Section for all price indexes, the work on ICP burdened the staff. The ICP framework suggested that the outlet (household component) selection be integrated into the CPI system to the extent possible; however, the number of items to be priced impeded their regular work. Furthermore, the many revisits to the outlets to confirm the prices involved more efforts than possible with limited workforce. But the computer software provided at a later stage of the process facilitated verification.

ICP advocacy activities had not been conducted in the Maldives. So far, the staff had shared the status of the ICP 2011 activity only with the statistics coordinating committee in the Maldives. If funds

were available, it is hoped that the ICP teams from ADB and the Maldives could hold a session on the use of PPPs to the policy makers. This will ensure the support and possible participation of the Maldives in future rounds.

Mongolia

Administrative Setup

Unlike in the 2005 ICP where a special working group was organized to implement the ICP project, the Macro Economic Statistics Department (MESD) in the National Statistical Office (NSO) of Mongolia, in particular the Prices Unit and assisted by the National Account Unit, was responsible for the ICP activities for the 2011 round. The director of MESD was appointed as the national coordinator and the price statistician as alternate coordinator. Three staff in the Prices Unit assisted in coordinating the ICP data.

Use of Existing Infrastructure in Collecting ICP Data

About 30 interviewers from the Capital City and 21 *aimags* (administrative units), who also carried out the CPI survey, were responsible for the ICP price collection, although additional staff members were hired to conduct the survey on foodstuffs. The items in the ICP basket were divided into two categories: (i) purely ICP items, and (ii) conversion items or those in the CPI basket with different units of measure. The second category consisted of about 20 items in the ICP basket for household items.

Survey Framework

Training workshop on product definitions and introduction of ICP product catalog was organized for the 30 price collectors. The NSO translated the ICP Product Catalog into Mongolian, and it printed and distributed the catalog to all price collectors. A separate price questionnaire for the ICP items was prepared, indicating all ICP items to be priced from existing or new outlets. The prices were captured

using ICP APSS and data were transmitted to the NSO headquarters via e-mail.

The outlets were selected in both urban and rural areas, using purposive sampling. In terms of geographic coverage, the total number of sampled outlets increased in 2011 by more than 100%. It was important that the sampling frame is well distributed across all districts, to better represent Mongolia's national prices.

A one-stage stratified sampling was adopted in the 2011 ICP price survey, with the outlet as the sampling unit and the price quotation as the statistical unit. For the household items covered, prices were collected from the different outlets as shown in Table 75.

The prices of local and general medicines were collected from 21 *aimags* and the Capital City. As the prices of imported items were very different from the locally produced items, a training for the managers of the large chain pharmaceuticals in the Capital City (Asiafarm, Hurmen, Monemimpeks, Monos, etc.) was held. The training focused on the definition of the medicines in the product list. It was observed during the data collection process that the brand medicines that were widely used in Mongolia were mostly made in Bulgaria, Germany, Russian Federation, and Slovenia. Those from other Asian economies usually used their own or brand medicines. As a result, prices of some medicines in Mongolia tended to be higher.

Data for construction were collected by the officers in the district statistical divisions from the selected outlets. The NSO organized meetings to introduce the items to the officers, and to discuss the prices and availability of items with the right unit/specification in the market. In 2012, the price survey for construction products was conducted in the main districts of the Capital City.

On machinery and equipment, the data on prices focused on the following groups:

- (i) Fabricated Metal Products, except Machinery and Equipment;

Table 75. Number of Sample Outlets by Type of Location, Mongolia

No.	Province/City/District	Total	Location Type	
			Rural	Urban
1	Arkhangai	30	30	0
2	Bayankhongor	60	60	0
3	Bayan-Ulgii	107	107	0
4	Bulgan	34	34	0
5	Darkhan	59	59	0
6	Dornod	75	75	0
7	Dornogobi	27	27	0
8	Dundgobi	37	37	0
9	Gobi-Altai	40	40	0
10	Gobisumber	9	9	0
11	Khentii	17	17	0
12	Khovd	44	44	0
13	Khuvsgul	60	60	0
14	Orkhon	53	53	0
15	Selenge	45	45	0
16	Sukhbaatar	43	43	0
17	Tuv	71	71	0
18	Ulaanbaatar	613	0	613
19	Umnugobi	40	40	0
20	Uvs	106	106	0
21	Uvurkhangai	57	57	0
22	Zavhan	37	37	0
	Total	1,664	1,051	613

Source: National Statistical Office.

- (ii) General Purpose Equipment;
- (iii) Special Purpose Equipment; and
- (iv) Motor Vehicles, Trailers, and Semitrailers.

As for rental, there was no survey conducted. The data needed for the 2011 ICP was derived from the Household Socio-Economic Survey 2011, covering both urban and rural areas and representing actual rental data. The data from the 2010 Population and Housing Census were also compiled for the dwelling quantity indicators. However, additional information from real estate agencies on rent for 14 types of apartments and *gers* (a local traditional dwelling) from 21 *aimags* and the capital was obtained. As

for Mongolia, rents were higher than those in other economies in the region.

Data on compensation was obtained from the Civil Service Council Mongolia, indicating the number of employees in different level of years and salary scales by level of promotion. When compiling data and considering advice from the council, it used the Salary Systems for Civil Administrative, Service, and Special Positions, an Annex to Government Resolution 351 of 2007. The data submitted for the 2011 ICP was weighted by the number of employees and different levels of promotion. Compensation data was validated twice as requested by ADB.

GDP Expenditure Values

The GDP expenditure values at the 155 basic headings for the 2011 ICP round were based on the results of the Supply and Use Table 2010. In general, direct estimation using the data specified below were used to compile the levels at major aggregates using the COICOP and COFOG classifications.

Household Final Consumption Expenditure

- (i) HFCE was available at the basic heading levels for 2011, since the household consumption data of Mongolia were classified according to COICOP.
- (ii) Data sources were mainly from the Household Socio-Economic Survey 2011, Agricultural Census 2010, and Foreign Trade Statistics 2011.
- (iii) For the 2011 data, some expenditures were updated using other sources, such as the commodity flow method. The estimation of imputed rent for dwellings was revised and improved on the basis of the number of dwellings using the Population and Housing Census 2010 of Mongolia.

Government Final Consumption

- (i) Government final consumption expenditure values at basic heading levels for 2011 were available.
- (ii) Data source of government consumption was the General Government Budget Statistics 2011 from

the Ministry of Finance of Mongolia. Budget data were classified by COFOG.

Gross Fixed Capital Formation

- (i) GFCF values at basic heading levels for 2011 were available.
- (ii) Data sources were from the annual surveys of enterprises for all sectors and financial reports by enterprises from the Ministry of Finance.

Changes in Inventories and Net Acquisitions of Valuables

- (i) Changes in inventories and net acquisitions of valuables at the basic headings for 2011 were available.
- (ii) Data sources of the changes in inventories for 2011 were the annual surveys of enterprises for all sectors. For data on net acquisitions of valuables for 2011, the main data were from the Bank of Mongolia, industrial statistics, and foreign trade statistics.
- (iii) The estimation of changes in inventories was reevaluated by the holding gain/losses method.

Exports and Imports

- (i) Exports and imports values for 2011 were available.
- (ii) Data sources were from the balance of payments statistics and foreign trade statistics.

Data Validation

Trainings were conducted involving representatives from all six districts of the Capital City, to ensure that correct items with the right specifications were priced. Prices from all *aimags* were submitted to the NSO central office, after these had been validated within *aimags* and the Capital City. Further queries were made from the outlets for any prices found to be outliers, which might be caused by either wrong item priced or wrong unit/specification. Comparison of these prices was also made against the master list of prices in the Capital City.

Regional validation workshops were very useful as the participating economies were able to compare prices across economies. This was the platform used to see the price differences and the causes for the discrepancies. While comparing prices, the economies were also able to confirm the availability of the unit/specification, changes in prices (if any), or splitting of items if needed.

ICP Price Collection Tools

ICP APSS was a good system for the household items. In the first quarter, the Prices Unit had to devote more time matching outlets and products because it was difficult, nearly impossible, at the *aimags* level. From the second quarter onward, the staff had gained experience on data entry (using ICP APSS); and with assistance from the ADB ICP team, all works were finished successfully.

Challenges in the ICP Implementation

In collecting prices for machinery and equipment, there were very few quotations for some products, as there was only one dealer or distributor in Mongolia. Further, there were companies that did not provide information on products they carried, particularly machinery with high prices. For purely ICP items, separate survey forms were developed, and data collection was done as part of the regular activities.

Lessons Learned and Future Directions

Involvement in the ICP had given the staff a lot of new experiences, especially the Prices Unit of the MESD in the NSO of Mongolia. This had definitely strengthened their statistical capacity and skills in compiling price statistics, which were gained through exchange of experiences among the participating economies and knowledge shared during the workshops organized by ADB. However, the ICP implementation required much time and overloaded the staff. As a result, the Prices Unit was sometimes unable to carry out its regular activities.

On products for the ICP price collection, most of these were not included in the CPI in Mongolia. To be able to generate the required data entailed costly operation, such as in hiring price collectors.

Myanmar

In 2009, the Ministry of National Planning and Economic Development (MNPED) decided to participate in the 2011 ICP round to measure the real size of Myanmar's economy. At the same time, MNPED coordinated with the United Nations Development Programme (UNDP) Myanmar office for support to the ICP. The Department of Planning and Central Statistical Organization (CSO) participated in this ICP round with the support of ADB and UNDP.

Administrative Setup

In Myanmar, the Planning Department served as the implementing agency of the ADB-funded regional technical assistance for the 2011 ICP in Asia and the Pacific, in collaboration with UNDP Myanmar office through its Integrated Household Living Conditions Assessment (IHLCA) Survey and the CSO. The deputy director general of CSO was designated as national coordinator to supervise the ICP price collection; and a director from the Planning Department as the deputy coordinator to coordinate the ICP activities and the compilation of GDP in accordance with the ICP basic headings. The ICP survey team was formed, consisting of staff from the Planning Department and CSO. One supervisor for each state and region was assigned while zone supervisors were designated in Mandalay, Nay Pyi Taw, Taunggyi, and Yangon, which were selected as data processing centers. A technical unit of UNDP provided support for the survey and data validation.

Use of Existing Infrastructure in Collecting ICP Data

Myanmar CPI data collection is based on the expenditure patterns of urban household expenditure from the 2006 HIES. A total of 158 out of 192 products

are included in the CPI basket of goods and services. These products are classified into two major groups: Food (4 subgroups) and Nonfood (4 subgroups). The sampling frame used for CPI has one essential difference compared with that for ICP: CPI measures changes in prices while ICP measures average prices according to SPD.

The UNDP-supported IHLCA project conducted the 2004–2005 and 2009–2010 household surveys in Myanmar. Other forms of information gathering are also undertaken to generate data and information on the socioeconomic living conditions of the Myanmar people in both rural and urban areas. The ICP data collection was based on the IHLCA price survey. The sample outlets were identified within the IHLCA price survey frame; and the price collectors were staff from 61 district planning offices, CSO, and the Planning Department.

Survey Framework

Planning offices in 76 sample townships were asked to prepare a list of municipal markets, and two rural markets or two rural shops (three medium and small shops mostly grocery stores). Two most popular types of outlets were identified in both urban municipal markets and in rural villages.

There were two frames for ICP survey framework. One representative township from each of 61 districts was chosen for the ICP outlet types, such as medium and small shops, markets, and street outlets in both urban and rural areas. There were 33 large cities, including border trade areas, selected for ICP outlet types, such as large shops, medium and small shops, bulk and discount shops, specialized shops, private service providers, public or semipublic service providers, and other kinds of trade. The two frames were combined to obtain a total of 76 sample townships in states and regions. Table 76 shows the sample areas and the types and number of outlets for ICP household items price collection.

Price collection for household items was done based on the group or commodities. Food, beverages,

Table 76. Number of Sample Outlets by Type of Location, Myanmar

No.	City/District	Total	Location Type	
			Rural	Urban
1	Ayeyarwaddy	299	83	216
2	Bago (East)	246	48	198
3	Bago (West)	192	35	157
4	Chin	51	4	47
5	Kachin	277	53	224
6	Kayah	90	0	90
7	Kayin	206	23	183
8	Magwe	216	53	163
9	Mandalay	643	113	530
10	Mon	134	32	102
11	Rakhine	224	32	192
12	Sagaing	485	95	390
13	Shan (East)	223	15	208
14	Shan (North)	264	28	236
15	Shan (South)	185	13	172
16	Tanintharyi	266	35	231
17	Yangon	327	28	299
	Total	4,328	690	3,638

Source: Ministry of National Planning and Economic Development.

tobacco, and narcotics were priced on a monthly basis; while all others were surveyed quarterly.

For machinery and equipment and construction materials and products, the sampling frame selected 76 townships, particularly the capital and major cities that included Mandalay, Mawlamyaing, Nay Pyi Taw, Pyi, Taunggyi, and Yangon. The outlets were then identified to get the national average prices for these materials and products. The identified outlets were project sites, factory, showroom, etc., from which the selected products were priced strictly in accordance with the SPD given by ADB.

GDP Expenditure Values

Individual consumption expenditure by household was estimated from the 2009–2010 IHLCA Survey, adjusted with population and inflation. Some items,

such as recording media and other recreational items and equipment, were taken from trade data. Data on games of chance, such as service charges for lottery, were obtained from the Internal Revenue Department.

Individual consumption expenditure by NPISH was assumed included in the household expenditure. Individual consumption expenditure by government was taken from the Budget Department, which includes expenditures from the Ministry of Education, Ministry of Health, and Department of Human Settlement and Housing Development; while total consumption expenditure by government was based on total government budget data. The collective consumption expenditure of government was derived as the residual difference between total government expenditure and individual government expenditure.

Gross fixed capital formation was estimated from imports, IHLCA survey, and government budget data. Change in inventories and acquisitions less disposals of valuables was taken from the Planning Department. Balance of exports and imports were from trade data.

Data Validation

To ensure data validation, price data collection training was conducted in December 2010, to train 27 supervisors and 76 price collectors from the Planning Department and CSO. Data processing training was also held, and 28 computer supervisors and operators were trained. The price supervisors and collectors were encouraged to take photos of items priced from the sample outlets in 76 townships. The responsible personnel from the Planning Department, CSO, and UNDP technical unit conducted monitoring visits to the field and the four data processing center.

The Planning Department and UNDP sent special instructions in accordance with the ICP manual and guidance to the price collectors and computer operators through the Myanmar regional offices. Price collectors submitted the price data to their respective data processing centers. The computer supervisors and operators carried out data entry and validation,

and checked the price data in the respective data processing centers. After data entry and validation of the quarterly price data in each data processing center, the data were sent to the UNDP technical unit. The unit consolidated all price data, scrutinized the summary statistics, and reviewed and revised the data after consultation with the international and national consultants; and sent the data to ADB every quarter.

The units from the Planning Department and UNDP reviewed the comments made by ADB during the discussion workshops for data accuracy. Data validation workshops were useful in the discussion of data issues, such as prices that are relatively high or low compared with the subgroup averages.

The Myanmar Engineering Society, Planning Department, and UNDP technical unit conducted a training for price collectors of machinery and equipment and construction materials, in December 2011. After that, the pilot survey was done at the industrial zones and construction site. During data collection, monitoring visits were done in the survey area to solve technical and other problems encountered by the field team. Data entry was done using price collection tools. When unreasonable prices were found, the supervisor examined and checked with the photo using the SPDs; and if it was not in accordance with the SPDs and if necessary, price collection was done again within the price collection period.

Government staff salaries submitted by 33 ministries were checked with the list of salaries from the Project Appraisal and Progress Report Department. Other information on allowances, social security contribution, housing, transportation, and regular and actual work hours per week was confirmed with the concerned departments.

ICP Price Collection Tools

ICP APSS for household items and PCTs for nonhousehold items were convenient to use for data entry, analysis, and validation. To be more effective

for data operators, a session on the application of these tools could be included back-to-back with ADB workshops.

Challenges in the ICP Implementation

The 2011 ICP price collection was the first time for Myanmar to be involved in this regional initiative. As expected, the price collectors faced some difficulties since they were unfamiliar with the international unit of measurement. The supervision team distributed the conversion rate for their reference. In the field, the shopkeepers normally did not allow the price collectors to take a photo of the product. When this happened, the administrative officers of the outlets were approached to help in securing the photo of the product.

Lessons Learned and Future Directions

The staff involved in the ICP price survey gained knowledge from the ICP activities, especially the difference between prices for ICP and CPI. Having experienced data collection, they realized that computing ICP required skills on price collection in line with SPD, and that several surveys and sustainability were essential. A survey relating to household and nonhousehold was planned; and awareness activities will follow after obtaining the results from ICP data collection.

Nepal

Administrative Setup

The Central Bureau of Statistics (CBS) is the sole government agency for collection, consolidation, publication, and analysis of data in Nepal. It is headed by the director general, and has 3 divisions and 13 sections. An advisory body was created under the chair of the deputy director general to provide necessary advice and support on economic statistics; and it comprised representatives from the Central Bank and Ministry of Agriculture Development.

The Price Statistics Section under the Economic Statistics Division in the CBS was responsible for implementation of the 2011 ICP round. The section was headed by a director, as the ICP national coordinator; while the deputy national coordinator was from the compiler of national accounts statistics. There were three statistical officers and four assistant level staff in this section. All staff working in this section were engaged in the 2011 price surveys for different types of activities. The national coordinators, as well as other staff of the price statistics and national accounts sections, had made significant contributions to the operation of ICP activities. In addition, the national coordinator served as the focal person for communicating with ADB and the regional coordinator and helped in following the guidelines for the improvement of price statistics.

CBS had not set up any group or team to undertake ICP solely. There were some minor changes in the rotation of staff involved in the 2005 and 2011 ICP rounds. But the setup for the 2011 ICP remained broadly the same as from the 2005 ICP round.

Use of Existing Infrastructure in Collecting ICP Data

The CBS was the implementing agency of ICP while the Central Bank in Nepal carried out the CPI. These two organizations operated their activities independently, and there was no effective body that coordinated CPI and ICP regularly. On top of that, there were no specific surveys from CBS that could support the ICP activities. However, the CBS had tapped the Central Bank for the integration of ICP products in the CPI basket and to be a regular activity of CBS.

CBS has 33 branch offices handling 75 districts. ICP activities were carried out by 23 branch offices, which were fully responsible for price data collection. In the data collection phase, heads of the branch offices were given supervisory responsibility. However, central core staff members were involved in price collection, as well as supervision at the central level.

Survey Framework

Household Sector

Two-stage purposive sampling was adopted for the price survey. The sampling strategy was based on the size of the population, geographical condition, administrative division, and market centers. In the first stage, 30 market centers (18 urban and 12 rural) were selected based on the CPI market centers. There were 25 centers common in ICP and CPI, and the remaining 5 centers were selected from the market centers in the 2005 ICP round. Also in the 2005 round were 16 centers selected.

In the second stage, outlets were selected purposively from the selected market centers. The selection procedure was based on the types of outlets and location (Table 77). The number of outlets selected depended on the availability of the items in the market center.

The frequency of data collection was determined by the nature of items, price volatility, and use of the items; and based on the frequency of data collection in the CPI. Prices of goods or services were collected monthly, quarterly, and half-yearly.

Nonhousehold Sector

This subheading covered the data collection strategy for machinery and equipment, construction, and rental survey. Different data collection strategies were adopted in this sector. Prices of machinery and equipment were collected only from the capital city. The assumption behind the prices in the capital city was that most of the transactions take place in the capital city; and the prices of goods do not vary in other market centers significantly. The outlets were selected purposively. During the survey, an expert on machinery and equipment was needed to understand the specification of the items and to ask the prices of identical items included in the survey.

Table 77. Number of Sample Outlets by Type of Location, Nepal

No.	City/District	Total	Location Type	
			Rural	Urban
1	Bhaktapur	141	0	141
2	Bharatpur	215	0	215
3	Biratnagar	232	0	232
4	Birendra Nagar	189	0	189
5	Birgunj	221	0	221
6	Birtamod	124	124	0
7	Butwal	279	0	279
8	Chapur	83	83	0
9	Dhangadhi	205	0	205
10	Dhankuta	83	77	6
11	Doti - Dipayal	119	0	119
12	Gulmi - Tamghas	50	50	0
13	Janakpur	133	0	133
14	Jumla - Dist Head Quarter	72	72	0
15	Kanchanpur	73	73	0
16	Kanchanpur	214	0	214
17	Kaski - Pokhara	200	0	200
18	Kathmandu	282	0	282
19	Krishna Nagar	76	76	0
20	Lahan	204	0	204
21	Lalitpur	245	0	245
22	Lamahi	95	95	0
23	Lamjung - Besishahar	77	77	0
24	Makawanpur - Hetauda	341	0	341
25	Nepalgunj	234	0	234
26	Nuwakot - Bidur	105	0	105
27	Pyuthan	73	73	0
28	Sindhupalchowk - Bahrabise	86	86	0
29	Taplejung - Dist Head Quarter	79	79	0
30	Udaypur - Katari	47	47	0
	Total	4,577	1,012	3,565

Source: Central Bureau of Statistics.

Five market centers were selected for the construction survey throughout the economy. The selection procedure was purposive based on the construction activities, transaction of the construction materials, and geographical condition. The market centers selected were Biratanagar; Bokhara; Kathmandu; Jumla, which is solely the rural market center; and Nepalganj. The frequency of the price collection was two times in a year, i.e., July and December. An expert on the construction sector was also needed to ensure smooth conduct of the survey.

For the rental survey, only 19 urban areas were selected purposively for collection of rent paid for accommodation. The selection procedure was purposive sampling. This survey was carried out to be able to gather data on the rental prices of dwellings; however, the rental practice of dwellings was different from the rental specifications as provided.

GDP Expenditure Values

The current practice of GDP expenditure rests on estimating HFCE, government consumption expenditure, NPISH consumption expenditure, GFCF, change in stocks, and net exports. It is important to note that change in stocks is residually estimated.

The basic source for household expenditure was the Nepal Living Standards Survey Round III 2010/11. However, further disaggregation of some basic headings of expenditures was based on other sources. Health was apportioned using the National Health Accounts 2008/09 while the disaggregation of transport expenditure was based on structures of the 2005 ICP round. Likewise, the values of financial intermediation services indirectly measured and other services, n.e.c. were imputed from the 2005 Supply and Use Table (SUT). Net expenditure of resident households in the rest of the world was estimated from the balance of payments statistics for 2010/11.

Government expenditures are divided into the required levels. The major data source was the consolidated financial statement for 2010/11 and financial data set for 2011/12, as reported by the Financial Comptroller

General Office. For the primary source of NPISH, the CBS Survey on Nonprofit Institutions for 2011 was used. Obtaining expenditure details for GFCF lacked data; and it was disaggregated by apportioning the published estimate using information from the SUT. Some cases, such as general machinery and equipment and construction, were apportioned based on the previous ICP round. SUT information was applied to get the values of change in inventories and acquisition less disposal of valuables.

Data Validation

Data validation was undertaken at two levels. At the local level, the prices quoted were reviewed by the statistical officer of the branch offices. At the central level, the data submitted were verified by reviewing and editing the price data based on the price movement of the CPI, as well as prices of the 2005 ICP round. The training of field enumeration and field supervision, and analysis of trends of the prices, ensured that the same items and specifications were followed when collecting prices throughout Nepal. The views of experts were also taken into account in validating the prices related to the nonhousehold sector.

Feedbacks from the regional validation workshops were very useful to improve the quality of price data. The workshops served as the platforms for sharing the experiences of different economies and for resolving data issues. However, a data review workshop at the economy level was not organized because of resource constraints.

ICP Price Collection Tools

ICP APSS was found to be very useful for data entry and analysis. The PCTs for the nonhousehold sector were very simple and easy to use for data entry and analysis of recorded prices.

Challenges in the ICP Implementation

Challenges encountered in the ICP process can be broadly categorized into technical, organizational, and institutional.

Technical

- (i) **Pricing like with like items.** It was very difficult to collect the prices of products that have no specific brands, such as rice and garments. In these items, the prices were verified with the price trends;
- (ii) **Items in ICP and CPI basket.** Incorporating ICP products in the CPI was difficult in practice because the criteria for selecting products in the CPI and ICP were not the same, i.e., having different specifications and price determination factors. However, about 200 items among 410 in the CPI basket were included in the ICP;
- (iii) **Importance criteria.** It was noted that items included in the CPI are important in the economy's context. However, the price determination characteristics and SPD were different from the ICP requirement. It was very difficult to identify whether products not included in the CPI basket were important. The staff resorted to economy experiences in classifying the importance of the product;
- (iv) **Specifications of nonhousehold items.** There were many difficulties in understanding the specifications provided by ADB and in finding appropriate respondents. Initially, the prices of many products that were deemed identical, especially machinery and equipment and construction, were taken. Finally, the problems were resolved through feedbacks from the technical workshops, experts, and additional information requested and provided by the respondents; and
- (v) **Usefulness of data review workshop.** At the local level, the data review workshop would be extremely useful in validating the price data. However, the workshops were not organized due to financial and other constraints. However, it was resolved by corresponding to the concerned branch statistics office through e-mail, telephone, letter, and other media.

Organizational

CBS does not produce CPI, which is the key reason for ICP having not been incorporated in other regular price-related statistical activities of CBS.

In this context, CBS faced staff constraints as the ICP implementation was amid the conduct of the Population Census 2011 and Census of Agriculture 2012. As a result, they were unable to collect the prices of household products monthly in the first half of 2011, but they were able to conduct the price collection on quarterly basis for that period. In the second half of 2011, the price collection on monthly basis was conducted as planned. Although significant part of the regular work was piped for CBS and equally recognizing its importance, management with the help of its staff exerted all efforts to meet all deliverables and deadlines set by ADB.

Institutional

As CPI and ICP were undertaken by two different institutions, it was difficult to integrate their data sets and other field-level management. The experiences of the CPI could not be used properly in the ICP.

Lessons Learned and Future Directions

Nepal substantially learned from the ICP, being a global statistical operation. ICP can be taken as a catalyst for improvement of national accounts, price statistics, and CPI. In particular, the experiences gained from the ICP would be useful to strengthen the economy's statistical system. Advantages could also be derived from integrating the CPI and ICP data sets. Thus, it was suggested that CPI and ICP be carried out by the same organization to facilitate the strengthening of price statistics and the organization. Learning from the ICP activity, CBS has planned to accommodate the ICP operation in its regular program.

At the individual level, ICP proved very useful to understanding PPP and its importance, and the impact of the quality of price data in the compilation of PPPs. ICP remained as a good platform to share economy experiences for improvement of the quality of price data. ICP also provided an opportunity to create a database of price and national accounts statistics.

Pakistan

Administrative Setup

ICP is historically run by the national accounts in the Pakistan Bureau of Statistics (PBS). The national coordinator and deputy national coordinator were identified by the director general of the PBS. For the ICP activities, a team was formed consisting of two groups. One group was responsible for technical matters while another group looked after financial matters. Both groups worked under the supervision of the national coordinator. The members of the team for the 2005 ICP changed in 2011 ICP due to transfer and retirement of some staff.

Use of Existing Infrastructure in Collecting ICP Data

ICP data were collected using different means. The CPI infrastructure collected the data for household products in the urban areas. There were 40 cities covered in the CPI while 31 cities were selected for ICP price data collection. CPI covered only the urban areas compared to four rural areas covered in ICP 2011. The prices of CPI items with specifications similar to the ICP SPD were reported in ICP. The prices of remaining items were collected through a survey conducted by price collectors who were trained by the national coordinator.

Survey Framework

Thirty one cities in the CPI survey covering 38 markets and 4 quotations per month per product were covered in the ICP price collection for household products (Table 78). While CPI covered only the urban areas, four markets in the rural area were covered to make the sampling frame more representative. Out of 746 ICP household items, 24% overlapped with the CPI basket.

The prices of nonhousehold items were selected from each main city of the provinces.

Table 78. Number of Sample Outlets by Type of Location, Pakistan

No.	City	Total	Location Type	
			Rural	Urban
1	Abbottabad	476	0	476
2	Bahawalnagar	476	0	476
3	Bahawalpur	476	0	476
4	Bannu	476	0	476
5	Dadu	476	0	476
6	Dera Ghazi Khan	476	0	476
7	Dera Ismail Khan	476	0	476
8	Faisalabad	476	0	476
9	Gujranwala	476	0	476
10	Hyderabad	952	476	476
11	Islamabad	1,428	0	1,428
12	Jhang	476	0	476
13	Karachi	2,380	476	1,904
14	Khuzdar	476	0	476
15	Lahore	1,904	476	1,428
16	Larkana	476	0	476
17	Loralai	476	0	476
18	Mianwali	476	0	476
19	Mingora	476	0	476
20	MirpurKhas	476	0	476
21	Multan	952	0	952
22	Nawabshah	476	0	476
23	Peshawar	952	0	952
24	Quetta	476	0	476
25	Rahim Yar Khan	476	0	476
26	Rawalpindi	1,904	476	1,428
27	Sahiwal	476	0	476
28	Sargodha	476	0	476
29	Sialkot	476	0	476
30	Sukkur	476	0	476
31	Vehari	476	0	476
	Total	21,896	1,904	19,992

Source: Pakistan Bureau of Statistics.

GDP Expenditure Values

The national accounts estimates are compiled on financial year basis but the national accounts estimates are compiled on fiscal year basis. To convert the estimates from fiscal year to calendar year to make it consistent with the ICP requirements, the average of 2010/11 and 2011/12 was used. The Household Integrated Economic Survey (HIES) was also based on fiscal year 2010/11. The weights of which were used to derive the household final consumption expenditure for fiscal year 2010/11 and 2011/12. The average of two years was taken to convert the estimates from fiscal year to calendar year.

The components of GDP were taken from the national accounts. The estimates of household final consumption were disaggregated on the basis of data for the 2010/11 HIES. The estimates of government final consumption were compiled by using the COFOG, and the detail was available in the national accounts. The government final consumption expenditure and GFCF were disaggregated based on the national accounts data. Financial intermediation services indirectly measured was compiled by the national accounts wing, and NPISH was also taken from the national accounts.

The disaggregation of GDP expenditures for 155 basic headings was a difficult task. The director general of PBS who had vast experience in the national accounts and analytical work provided valuable suggestions, along with the national coordinator who had expertise in national accounts. They made the calculation of basic heading values possible.

Data Validation

The price collectors underwent training before the start of price collection. The staff involved in the collection of CPI data were selected for the ICP price collection. The prices were checked/vetted by the supervisor (chief statistical officer/statistical officer) before reporting the prices to the ICP section in the central office. The prices were entered in the ICP APSS and checked by comparing the prices within

cities. The outliers were referred back to the regional/field offices for reverification. Prices were also verified through telephone and the regional/field offices. The regional workshops arranged by ADB were very helpful and fruitful in resolving data issues. The price collectors collected and reported the prices on a monthly basis. The prices for nonhousehold items were collected once only in the main cities. The ICP activity had been integrated into the PBS framework as an additional activity.

ICP Price Collection Tools

The ICP APPS proved very useful for the technical staff, with its features for report generation, summary statistics, and validation of prices. The data entry tool had some problems in the beginning because data entered cannot be saved properly by the software due to Excel row limitation. After few patches to the software, the data entry problem was solved.

Challenges in the ICP Implementation

The pricing of nonhousehold items, especially construction and machinery and equipment, proved a challenge due to the specification of branded items. To resolve this challenge, regional workshops on the collection of nonhousehold items were arranged by the national coordinator at the headquarters. The harmonious relationship between the national coordinator and the ADB ICP team contributed to the success of the project implementation in Pakistan. For future improvements, it would be useful to have PPP advocacy activities for policy makers.

Lessons Learned and Future Direction

The staff involved in ICP activities gained substantial knowledge and learned from the experiences of the other participating economies. They also shared their own experiences with the other economies. However, the integration of ICP activities in the statistical system is not presently being considered. Recognizing the usefulness of the workshops for price surveys and validation, these should be continued in the future.

Philippines

Administrative Setup

The chief of the Economic Indices and Indicators Division (EIID) of the Industry and Trade Statistics Department in the National Statistics Office (NSO) was designated as the national coordinator of the ICP project in the Philippines. EIID was the division in-charge of the compilation of CPI. To assist the national coordinator in facilitating the various administrative and technical phases of ICP (from the preparatory activities to finalization of price survey results), a statistician IV of EIID was designated as the deputy national coordinator of the project. The NSO, as the 2011 ICP project national implementing agency, also requested the technical assistance of the National Statistical Coordination Board (NSCB) in the estimation of GDP using the expenditure approach.

Use of Existing Infrastructure in Collecting ICP Data

Similar with the 2005 ICP round, the same CPI structure and resources were used for the 2011 ICP price surveys. Separate surveys were undertaken for the ICP and CPI because of differences in items to be priced, sample areas, outlet coverage, and timing of surveys. Regular provincial staff undertaking the CPI price collection also conducted the surveys for the ICP in the provinces. Similar with that of the CPI, prices for the ICP were collected from retail sample outlets. For the more difficult sectors of construction and machinery and equipment, the NSO engaged the services of a domestic consultant to conduct the surveys for both sectors.

Survey Framework

The NSO prepared its own operational manual and product catalog for price collection to ensure that the same products were based on the regional product and global lists. The operational manual gave directions on how to do the survey, and edit and validate price data across sample areas within the region. The product catalog showed a colored

picture of the item to be priced, including all the specifications of that item like brand, unit of measure, make, packaging, and imported or manufactured by an international or local company based in the economy. The EIID staff had already determined a national brand for some of the products, especially on clothing, to ensure comparability throughout the economy. Price surveys for household items, including those for education and health, were done in sample areas in the National Capital Region (NCR); and in 16 regions located in areas outside NCR, specifically in provinces considered as regional centers.

Basically, the same CPI sample municipalities and outlets in the urban areas were covered by the ICP surveys, but additional municipalities were taken to satisfy the requirement for rural representation of prices collected.

Like with the CPI, prices for the ICP were collected from the retail sample outlets (outlets or establishments where prices of commodities/services are collected or quoted). The guidelines that the NSO followed are as follows:

- (i) Utilize the CPI sample outlets for urban areas; and
- (ii) Use the following criteria in the selection of sample outlets for rural areas:
 1. Popularity of an establishment along the line of goods to be priced,
 2. Consistency and completeness of stock,
 3. Permanency of outlet, and
 4. Geographical location.

The number of items in the CPI that were included in the ICP was about 16.6% (the overlap). Prices of food items were collected on a monthly basis while nonfood items were priced on a quarterly basis.

Table 79 shows the number of outlets priced in the ICP product list for household items, including health and education.

GDP Expenditure Values

On GDP weights estimation, the NSCB, which was responsible for the generation of the national

Table 79. Number of Sample Outlets by Type of Location, Philippines

No.	Region/Province	Total	Location Type	
			Rural	Urban
1	Agusan del Norte	290	27	263
2	Albay	257	43	214
3	Batangas	470	29	441
4	Benguet	213	26	187
5	Cagayan	271	93	178
6	Caraga	183	25	158
7	Cebu	43	14	29
8	Davao del Sur	414	49	365
9	Iloilo	139	87	52
10	La Union	444	41	403
11	Leyte	586	148	438
12	Maguindanao	148	32	116
13	Misamis Oriental	475	31	444
14	National Capital Region	1,719	28	1,691
15	Pampanga	181	15	166
16	South Cotabato	333	28	305
17	Zamboanga del Sur	185	9	176
	Total	6,351	725	5,626

Source: Philippine Statistics Authority.

accounts of the economy, undertook additional estimation activities to satisfy the disaggregation of the GDP expenditures into the 155 basic headings. The estimation of the ICP weights was derived from the estimates of GDP by expenditure at the aggregate level and its major components, namely: HFCE, government final consumption expenditures (GFCE), capital formation (fixed and changes in inventories), and exports and imports of goods and services.

For HFCE, except for major details available and published in the national accounts, other details following the 110 basic headings were derived using the structures of the latest 2009 Family Income and Expenditure Survey (FIES). The preliminary estimates of the 2009 HFCE using the actual FIES levels were subjected to SUT, an approach to reconcile the GDP production and GDP expenditures. The reconciliation of each subcomponent of GDP production and

GDP expenditure resulted in zero statistical discrepancy. Hence, the resulting annual estimates after the reconciliation formed the final estimates of HFCE.

The breakdown of GFCE between the individual and collective consumption expenditures also considered separate estimates of the individual consumption expenditures of NPISH. Under GFCF, intellectual property products, breeding stocks, and orchard development as major components, which are highlighted in the national accounts, were lumped under “other products.”

On 12 May 2011, NSCB released the revised series (1998–2010) of the national accounts, which considered among others, the implementation of some recommendations of the 2008 SNA; adoption of the updated standard classifications; and shift of the base year from 1985 to 2000, as well as the use of improved estimation methodologies. As a result of the overall revision and rebasing activities, the 2005 and 2011 estimates for ICP were likewise revised to consider these changes in the new series/published GDP.

Data Validation

The NSO used ICP APSS in machine processing and data validation of price data submitted by the field offices. EIID prepared a manual on machine processing to take into account the actual survey setup in the economy. Detailed discussions of the manual and hands-on exercises by the participants were done during the ICP training for field operations activities, manual editing of price data, and machine processing of survey results. During the manual and machine processing at the central office, price quotations that did not meet the parameters set by the software were generally not included in the computation of the average price data after verification was made with the field office. The parameters are the following:

- (i) **QUOTATIONS column.** A cell is marked **red** if the number of price quotations is less than 15.
- (ii) **CV column.** A cell is marked **red** if the value of CV is greater than 30%.

- (iii) **MIN-MAX ratio column.** A cell is marked **red** if the value of the ratio is less than 0.33.

- (iv) A price quotation will be marked **blue** if it is relatively higher compared to the other prices, and marked yellow if it is relatively lower.

Price trends across the regions within a quarter, as well as across quarters, were scrutinized for outliers and revalidated if the price variations were within reasonable bounds.

Attendance to the regional data validation workshops primarily helped the NSO to further improve the quality of price data collected. The participants also gained information and knowledge on the experiences shared by other economies that participated in 2011 ICP.

ICP Price Collection Tools

The NSO generally found the ICP APSS easy to operate. The price analysis module facilitated the process of editing and cleaning of price data. Price observations were automatically shaded with a certain color if they did not meet the parameters set by the system. During the early stage of the application of the ICP APSS, any corrections in the price quotations were not automatically reflected in the price analysis tools in the ICP APSS. The processor/editor had to execute the routine in the “compute summary statistics” portion under the report generation module to reflect the corrections in the summary report. This was, however, corrected/solved thru the series of ICP APSS updates to shorten the process.

ADB provided updated patch to the participating economies from time to time to correct errors in the system. Hence, when ADB provided an updated patch, the NSO central office issued additional guidelines and instructions to the field offices for adoption of the updated patches. However, the additional guidelines sometimes resulted in confusion among the field staff, delaying the submission of survey reports. In addition, errors in operating the system of the computers were encountered due to incompatibility of the software

and hardware requirements between the updated patch and the computer where the ICP APSS was earlier installed.

The knowledge and experiences gained in the processing of the price data using the ICP Tool Pack and ICP APSS had helped improve the monitoring system of price data by sample outlets being used in the current CPI software of the NSO.

Challenges in the ICP Implementation

Problems were encountered during the gathering of data for the volume indicators on dwelling, as some of the indicators were not yet in the latest available census results. Instead, the NSO used the latest available data from the FIES to estimate selected housing indicators. Rental data were also difficult to collect as the size and specifications of the housing units were not common to the economies. Specifications whether these units are rented by locales or foreigners were not clearly stipulated.

The NSO took time to collect the detailed information to complete the data requirements for the compensation of selected government positions. There were also apprehensions that many of the items under machinery and equipment were those used in developed economies, especially in European economies; hence, these items were difficult to find and price.

Lessons Learned and Future Directions

Participation in the ICP project led to plans to study the computation of PPP across regions of the economy. A plan was to replicate the ICP exercise using the CPI data.

In one of the data review workshops held in Manila, the NSO sought the assistance of the international expert in the conduct of a lecture and hands-on training to EIID staff. The training was held on 16–20 July 2012, with support from the World Bank. The expert jumpstarted EIID's activities on the generation of a regional PPP by introducing to the group the

use of the country-product-dummy (CPD) method, an optional special feature or add-in found in the Microsoft Excel.

The assistance provided to NSO enabled the accomplishment of the following targets for EIID:

- (i) mapping of the items across regions to create worksheets,
- (ii) matching of overlap items and editing of specifications to satisfy the requirements of an overlap,
- (iii) preliminary computation of PPP for certain commodity groups,
- (iv) understanding of the different effects of prices of certain items to the CPI and PPP computation,
- (v) understanding how the CPD method works in the imputation of missing data and computation of price ratios and PPP, and
- (vi) learning some knowledge in analyzing the results.

The expert also computed the overall PPP using some reference PPPs for selected groups where items were not yet correctly grouped. The NSO had completed the computation of preliminary PPPs and the results will be provided to the expert for comments.

The knowledge gained by the NSO staff from participation in the 2005 and 2011 rounds of the ICP will go a long way to further improve the quality of inputs and processes used in the generation of the CPI.

Singapore

Administrative Setup

The Department of Statistics (DOS) had the overall responsibility for collecting, validating, and coordinating with various agencies to submit the required data for 2011 ICP. As in the 2005 ICP round, the national and deputy national coordinators and officers from the Consumer Price Indices Section and National Accounts Section were involved in the 2011 ICP. For construction, the Building and Construction Agency (BCA) assisted in the compilation and validation of the required data.

Use of Existing Infrastructure in Collecting ICP Data

About 65% of the price data in the 2011 household consumption list were obtained from CPI regular price surveys. For each of these items, significant effort was exerted to compare the specifications to ensure consistency with the 2011 product list and data comparability with other economies. For items not included in the CPI regular price surveys, additional resources were deployed to collect detailed specifications and relevant price data.

Majority of the items/products required for construction, machinery and equipment, and compensation were not included in the regular surveys of DOS and BCA. Special surveys had to be conducted and significant resources were expended to collect the price data for these items.

Survey Framework

The price surveys for both household and nonhousehold sectors covered the whole economy as Singapore is a small city state. For household consumption products, about 571 outlets were surveyed to obtain price data for around 740 household consumption products (Table 80). For ICP items available from the CPI basket, prices were obtained directly from the regular price surveys. For those ICP items not in the CPI basket, the outlets for these items were selected from existing CPI outlets (if available) or other popular outlets. These outlets included a wide range of retailers and service providers commonly patronized by households. It is also worth highlighting that the effective sample size was actually larger than the 571 outlets, as some of these outlets had many branches spread all over Singapore, with slight or no price variations between them.

In determining the sample size for each product, considerations were given to the price variation between outlets. For items with wider price variations among outlets and deemed relatively more important, more outlets and, hence, more price quotations

Table 80. Number of Sample Outlets by Type, Singapore

Type of Outlet	Number of Outlets	Remarks
Supermarkets and provision shops	15	The supermarkets have many branches spread all over Singapore, with small or no price variations. Hence, the effective sample size was actually larger.
Wet markets	12	
Major departmental stores	9	The departmental stores have many branches spread all over Singapore, with small or no price variations. Hence, the effective sample size was actually larger.
Restaurants and eateries	128	Some of the establishments have many branches spread all over Singapore, with small or no price variations. Hence, the effective sample size was actually larger.
Hospitals and clinics	55	
Others	352	These include tour agencies, banks, pharmacies, educational institutions, relevant government authorities, as well as individual retail stores commonly patronized by consumers, etc.
Total	571	

Source: Department of Statistics.

were obtained. Special efforts were also expended to ensure that the price quotations collected from selected outlets were sufficient and representative.

The frequency of price collection depended on the price behavior of the item. Those items whose prices were volatile (e.g., perishable food items) were surveyed weekly; while items with more stable prices (e.g., utility tariffs, bus/train fares, school fees, medical services, and household durables) were priced monthly, quarterly, half-yearly, or as and when prices change.

For machinery and equipment, the outlets selected were major retailers and distributors. For construction price surveys, prices were obtained from large-sized building contractors, machinery and equipment specialist contractors, and relevant government agencies. To ensure data reliability, the prices of each construction item were obtained from at least 10 survey participants where possible.

GDP Expenditure Values

GDP expenditure by basic headings was generally available from the national accounts. Data on HFCE and GFCF were mainly compiled by the commodity flow approach, with the key data sources from external trade statistics, Census of Manufacturing Activities, Survey of Services, and administrative data. Estimates on government consumption expenditure were compiled by the cost of production approach, using data from government financial statements. Data on exports and imports of goods and services were obtained from the balance of payments statistics.

Data Validation

The product specification of each item priced was examined thoroughly to ensure that they fulfilled the requirements of the ICP. All prices obtained were checked and verified with respondents before providing to ADB. Where possible, the price trends were also compared with those of similar items selected in the CPI basket to ensure data consistency. Data validation based on ADB's guidelines, such as min-max price ratio and CV, was also conducted to ensure price reasonableness and identify possible outliers. References were also made to similar price data submitted previously during the 2005 ICP and 2009 PPP Update.

The regional data workshops were beneficial in addressing the data issues and concerns faced by the participating economies, and provided a good platform for in-depth discussion among them. The data validation guidelines provided by ADB were used as reference to further check the submitted price data

to ensure that the intra-economy and inter-economy variabilities were within acceptable limits.

ICP Price Collection Tools

DOS made use of the PCTs for machinery and equipment, construction, and compensation. However, ADB's in-built restrictions made the experience less efficient and user-friendly. In addition, it was noted that the various PCTs require frequent software patches to resolve the technical bugs experienced during 2011 ICP. A suggestion is to allow economies to have more hands-on experience with the various PCTs before the start of the new ICP round. This will enable the economies to provide more feedback on how to better customize the PCTs, and help minimize the need for software patches during implementation.

Challenges in the ICP Implementation

The number of household consumption products required for pricing 2011 ICP had expanded to more than 1,000 items from less than 800 in 2005 ICP. Significant efforts were required to check the specifications and obtain the prices required, especially for those which were not available from CPI. Specifically, the product specifications for the household consumption items were very detailed and required further verification with respondents to ensure that the specifications of the items priced were consistent and the prices provided were correct.

During the regional data validation workshops, many economies highlighted that the specifications provided for some of the items differ from those commonly available in their economies. It would be efficient if ADB could further review the items under the household consumption product list for future rounds of ICP, and select only those items with product specifications that are commonly available, representative, and comparable across the region.

Most of the items/products required for construction, machinery and equipment, and compensation were not included in the regular surveys of DOS and BCA.

Significant effort was exerted to collate and verify relevant data with various agencies. In addition, the ICP method of comparing construction prices based on a single specification (i.e., using the same list of items) across economies may be subject to data limitations and distortions. Bearing in mind that building specifications could vary significantly across economies, this led to the question on the usefulness of such price comparison. Construction data quality could be further enhanced if the item descriptions could be more detailed and specific in future rounds of ICP.

Lessons Learned and Future Directions

Participation in the 2011 ICP helped enhance the staff's understanding of PPP methodology and estimates. The various regional workshops were useful in raising awareness and understanding of issues and challenges encountered by different national statistical offices on price collection and national accounts compilation.

In the construction survey, the methodology and pricing items were different in the respective 2005 and 2011 ICP rounds and 2009 PPP Update. Hence, this will not facilitate the integration of ICP survey into BCA's regular survey activities. Additional resources had to be deployed to launch the data collection for each ICP survey. Notwithstanding such changes, even if the list of items remained similar over the years, it will not be feasible to integrate the collection of the items in regular surveys and increase the survey burden on the firms. Moreover, the pricing of construction work items in Singapore is based on all-in unit rates, which are not readily available from main contractors.

Sri Lanka

Administrative Setup

The Prices and Wages and National Accounts Divisions of the Department of Census and Statistics (DCS) were responsible for ICP work. The director

of Prices and Wages Division was appointed as the national coordinator for the national ICP program, and the deputy director of National Accounts Division as the deputy national coordinator. The ICP unit in the Prices and Wages Division, and its entire staff, assisted the national coordinator. Statistical officers of the Prices and Wages Division and 40 district officers of the DCS were involved in the data collection for ICP price surveys under the supervision of deputy directors, senior statisticians, and statisticians.

Use of CPI Infrastructure in ICP Data Collection

For CPI compilation, open market retail prices of food and nonfood items are collected weekly, monthly, and quarterly from selected 14 price collection centers within Colombo City and suburbs; and main cities of 25 districts for the price collection program in their areas. Among the four markets within Colombo City limits (Grandpass, Narahenpita Special Economic Center, Pettah, and Wellawatta) and 22 other cities were selected for the ICP price surveys conducted from January 2011 to December 2011. At least 17% of ICP items were available from the CPI price collection program.

Survey Framework

The price collection outlets were purposively selected within the 39 price collection centers (Table 81). Supermarkets, open markets, covered markets, mobile shops, street vendors, pharmacies, private doctors' clinics, private hospitals, private outlets for therapeutic appliances and equipment, and other service providers were covered in the survey. Perishable food items were collected on a weekly basis while other food items were collected on a monthly basis. Prices for household appliances, durable goods and other equipment, health, education, package holidays, catering services, accommodation services, and insurance and financial services basic headings were collected on a semiannual basis. All other nonfood items were collected on a quarterly basis.

Table 81. Number of Sample Outlets by Type of Location, Sri Lanka

No.	Province/City	Total	Location Type	
			Rural	Urban
	Central	269	74	195
1	Kandy	100	28	72
2	Matale	85	46	39
3	Nuwara Eliya	84	0	84
	Eastern	344	116	228
4	Ampara	150	52	98
5	Batticalo	58	11	47
6	Trincomalee	136	53	83
	North Central	131	64	67
7	Anuradhapura	67	0	67
8	Pollonnaruwa	64	64	0
	North Western	294	82	212
9	Kurunagala	209	82	127
10	Puttalam	85	0	85
	Northern	319	62	257
11	Jaffna	159	62	97
12	Mannar	89	0	89
13	Vavuniya	71	0	71
	Sabragamuwa	281	58	223
14	Kegalle	111	58	53
15	Ratnapura	170	0	170
	Southern	359	211	148
16	Galle	76	0	76
17	Hambantota	90	90	0
18	Matara	193	121	72
	Uva	186	99	87
19	Badulla	144	57	87
20	Monaragala	42	42	0
	Western	621	254	367
21	Colombo	408	200	208
22	Gampaha	153	54	99
23	Kalutara	60	0	60
	Total	2,804	1,020	1,784

Source: Department of Census and Statistics.

GDP Expenditure Values

The National Accounts Division of DCS prepared GDP by expenditure for the ICP, and published in the annual bulletin of the National Accounts of Sri Lanka. The components were estimated directly using data from HIES. Individual consumption expenditure by household was the largest final expenditure component of GDP covering 110 basic headings, and the second was for government expenditure in 26 basic headings.

Data Validation

The raw prices with CV >30%, CV between 20% and 30%, CV <20%, and min-max ratio were reviewed at the provincial level through PCT, and validated according to given instructions during data review workshops. Products with high CVs that resulted from justifiable reasons were communicated to ADB.

Collected prices/trends were compared with the similar product/subgroup in the CPI price collection program. The prices collected were also checked if these were within the specified range. If the prices were within the specified range, the prices were further checked for other possible errors. If the prices were outside the specified range, the prices were also checked for data entry errors or other possible errors, such as deviation in product specifications or packaging size.

ICP Price Collection Tools

The PCTs were simple and user-friendly. Price collection schedules were created in multiple products per sheet by using the Tool Pack software. Product characteristics, specifications, and prices to quote in local language were included in the price collection schedules.

Challenges in the ICP Implementation

The price collectors had to perform extra work to be able to provide the price data on time since the listing

operation for the population census was also being carried out during the same time.

Lessons Learned and Future Directions

The staff of the Prices and Wages Division enhanced their technical capacity on price collection and validation, and on the national accounting requirements by participating in the ICP.

Taipei, China

Administrative Setup

The Statistical Department, Directorate General of Budget, Accounting and Statistics (DGBAS), Executive Yuan, which is responsible for national statistics, conducted the implementation of 2011 ICP round. The senior executive officer of the Bureau of Statistics was assigned as the national coordinator, and the chief of Price Statistics Division as the deputy national coordinator.

Most core affairs were undertaken by the staff who specialized in government statistics. However, the scope of the ICP price survey was wide and diverse; thus, professional assistance and advice were sought from experts on machinery and equipment, and a construction research institute in Taipei, China involving machinery and equipment and construction, to ensure the quality of data for the ICP price surveys.

Use of Existing Infrastructure in Collecting ICP Data

The price surveys for ICP adopted largely the existing CPI, Construction Cost Indices (CCI), and rental survey system. It assumed the following approaches:

- (i) If the specifications of CPI/CCI/rental item correspond to the product specifications in ICP, the data is used directly.
- (ii) If no specification of the item matches those in ICP, an additional item survey for ICP will be conducted.

Survey Framework

There are 8 cities and 8 counties, including 34 towns and townships, in the CPI survey areas. The same CPI structure was used to obtain the ICP prices (Table 82). Five specifications for each item were priced in each quarter. Food, beverages, and public services, such as water and electricity, were priced on a monthly basis with 15 quotations in a quarter. For agriculture and fishery goods with huge fluctuation, the pricing frequency was even increased. Prices of out-of-season products, such as oranges having no transactions in summer, were not collected. Other ICP items were priced quarterly.

Table 82. Number of Sample Outlets by Type of Location, Taipei, China

No.	Region	Total	Location Type	
			Rural	Urban
1	Central Area	113	0	113
2	East Area	30	0	30
3	North Area	307	0	307
4	South Area	135	0	135
	Total	585	0	585

Source: Directorate-General of Budget, Accounting and Statistics.

GDP Expenditure Values

Apart from narcotics and prostitution, data in most categories were readily available. However, data for some basic headings categories, such as road transport equipment and other transport equipment, were not available. The main sources used to compute the 155 basic headings required by ICP were the following: Family Income and Expenditure Survey, Survey Report on Visitors Expenditure and Trends, Survey of Travel by Citizens, Survey of Industrial Production Statistics, Trade and Food Services Activity Survey, foreign trade statistics, and balance of payments statistics.

Data Validation

The procedures for data validation implemented in Taipei,China are the following:

- (i) Review the specifications of the items priced to ensure that those products to be surveyed conform with the SPDs;
- (ii) Perform validations with reference to indicators such as CV and min-max price ratios;
- (iii) Check the price level for each product and price relativity with the same item priced in 2005 ICP or 2009 PPP Update, and compare with the elementary aggregation level of CPI;
- (iv) Check if the specifications of the products conform to the descriptions specified in the SPD, and if the specifications and quality of the products surveyed are different from those of other economies;
- (v) Recheck the price and market information on the product, and modify the price surveyed when an error occurred or change the quotation when the price discrepancy resulted from quality issue; and
- (vi) Seek the experts to verify the rationality of the prices for machinery and equipment and construction.

Different conditions and policies among economies will lead to significant variations in prices. For example, the implementation of the National Health Insurance in Taipei,China led to relatively low prices of medicine products. Since these are representative prices, the results of comparison will be biased if they are not adopted.

ICP Price Collection Tools

In the course of conducting the price survey for the ICP, most data were mainly collected through the regular CPI reporting system. The generation of report and analysis of prices were done using the ICP PCTs, which were found helpful in data validation. The ADB ICP team responded effectively to the demands of and recommendations for the ICP; thus, operations and functions were well-managed in general.

Challenges in the ICP Implementation

During the data review process, some difficulties, such as large diversity in the prices of machinery and equipment, came up. It was found that the SPDs of the representative machinery and equipment items varied among the participating economies, and the items available did not perfectly match the ICP requirement. Thus, in the next ICP round, it would be of great help if the Global Office or the regional coordinating agency will directly collect the prices of some common products from leading brand companies. The process of splitting brands on medicine products improved data comparability; however, this caused some national statistics offices to allocate extra resources for the collection, review, and revision of the data.

Lessons Learned and Future Directions

The experience gained from participation in the ICP project enabled the staff to have an insight on related issues, and provided them a valuable opportunity to exchange statistics and experiences with other economies. It strengthened the connection of DGBAS with other national statistical offices through participation in inter-economy meetings and workshops.

The ICP project contributed to the enhancement of data quality by adopting and establishing the SPDs and types of classification of outlets within the context of national setting. Some items for CPI (such as clothing, car, television, etc.) and all items for CCI had been established in the SPDs in Taipei,China; and similar processes had been adopted for the wholesale price indexes. Outlet types had also been established for the products priced for the CPI, which was rebased to 2011=100, with consultation on the outlet types of the ICP and proper adjustment according to the consumption pattern.

Thailand

Administrative Setup

The Bureau of Trade and Economic Indices (BTEI), Ministry of Commerce in Thailand was the national implementing agency for ICP program. The 2011 ICP group, which consisted of six persons, was formed under the supervision of the director of BTEI. Most of the ICP team members worked in the Consumer Price Index Division; however, some members came from other divisions such as the Construction Price Index Division and Business Cycle Division. The major difference from the 2005 ICP round in the 2011 ICP setup was the participation of representatives from other divisions associated in this activity.

The ICP group was responsible for managing issues on ICP matters, such as coordination with price collectors, inputting of data, validation of prices, and implementation of project-related activities. The National Economic and Social Development Board (NESDB), which is responsible for the compilation of GDP, was also involved in ICP relating to the national accounts and GDP expenditure weights estimation.

Use of Existing Infrastructure in Collecting ICP Data

BTEI used some existing surveys, such as the CPI and construction materials and rent surveys, for the ICP price collection. These were incorporated into the ICP data collection framework as follows:

Consumer Price Index Infrastructure

- (i) **Household sector.** It used price collectors in sampled provinces and some outlets for similar products in CPI and ICP.
- (ii) **Rental survey.** It adopted rent samples extracted from the CPI database for certain types of dwelling, e.g., apartment; and conducted additional price collection by the central office staff to gather prices for the reference period and details.

Construction Price Index Infrastructure

There were overlaps between BTEI construction materials and ICP requirement. Monthly price information in sampled provinces was extracted from the BTEI database, and then averaged to an annual price. To further satisfy the ICP program, BTEI initiated the following additional survey and data collection:

- (i) survey for household products on a quarterly basis,
- (ii) related activities for machinery and equipment undertaken by outsourced experts under supervision of the ICP group,
- (iii) compensation data retrieved in collaboration with the Comptroller General's Department in the Ministry of Finance, and
- (iv) some items of information in the construction sector in collaboration with the Department of Public Works and Town and Economy Planning.

After price data collection, price collectors sent the data to the central office or undertaker. Then, the undertaker inputted the data using the ICP APSS provided by ADB, which made the process faster and more systematic.

Survey Framework

The 2011 ICP survey covered four regions—Northern, Southern, Central, and Northeast—plus Bangkok Metropolitan Administration and its nearby location, for a total of 25 areas as shown Table 83.

The outlets were selected by purposive sampling methodology depending on the geographical size (large, middle, or small), economic growth, density of population, and income distribution. Summary is provided below:

- (i) Fresh foods were collected from wet markets or supermarkets in large shops.
- (ii) Consumer products, clothing, health, and household durables were collected from large shops, specialized shops, medium and small shops, markets, etc.

Table 83. Number of Sample Outlets by Type of Location, Thailand

No.	Province/City	Total	Location Type	
			Rural	Urban
1	Ayuthaya	100	0	100
2	Chiangmai	133	0	133
3	Chiangrai	123	0	123
4	Chonburi	112	110	2
5	Chumporn	113	0	113
6	Krabi	93	0	93
7	Loburi	134	0	134
8	Maehongsorn	80	12	68
9	Minburi District	87	0	87
10	Mukdaharn	81	0	81
11	Nongkai	123	0	123
12	Pathumtrani boundary	129	11	118
13	Pethchaburi	142	0	142
14	Pitsanulok	117	0	117
15	Roi-Ed	95	82	13
16	Sapanmai District	93	0	93
17	Satool	100	78	22
18	Supanburi	116	10	106
19	Suratthani	100	0	100
20	Surin	117	0	117
21	Thevej District	73	0	73
22	Trung	136	2	134
23	Ubonratchathani	108	0	108
24	Uttaradit	118	0	118
25	Wongwienyai District	94	0	94
	Total	2,717	305	2,412

Source: Bureau of Trade and Economic Indices.

(iii) Service utilities were collected from specialized shops, private service providers, and public or semipublic service providers.

The frequency of data collection differed for each major product category shown below:

- (i) Household sector
- Each location was assigned a specific month every quarter for which they will collect prices of fresh food on a weekly basis.

- Other consumer products and household durables, including services and utilities, were collected quarterly.

- Insurance and financial services were collected annually.

(ii) Nonhousehold sector

- Machinery and equipment items were collected annually.

- Construction materials were collected monthly from the BTEI database, and then averaged to annual price. Other construction items from the Department of Public Works and Town and Economy Planning were collected annually.

- Rental was collected semiannually.

- Compensation was collected annually.

GDP Expenditure Values

GDP is measured from the expenditure side, consisting of household and government consumption, GFCF, and net exports; and used as weight for PPP compilation. GDP on expenditure of Thailand is broken down into 143 basic headings compared to 155 basic headings based on the ICP manual as indicated below:

(i) Private consumption expenditure was broken down into 105 basic headings while a single basic heading was treated for individual consumption expenditure by NPISH.

(ii) Individual consumption expenditure by government was broken down into 18 basic headings while collective consumption expenditure by government was broken down into 4 basic headings.

(iii) GFCF was broken down by type of product in line with the Statistical Classification of Products by Activity into 12 basic headings.

(iv) Change in inventories was under one basic heading and two basic headings for exports and imports.

The following limitations were encountered in deriving weights for the 155 basic headings:

(i) Private consumption expenditure was classified by COICOP. However, some items, in particular animal-drawn vehicles and combined passenger

transport, do not have these activities in Thailand. Moreover, GDP of Thailand does not include some informal economic activities, particularly illegal activities such as prostitution.

- (ii) Government consumption expenditure was not classified by basic heading under housing item. Net taxes on production could be calculated at total economy level; however, it is not yet recorded at the institution level.
- (iii) For GFCF, net acquisitions of valuables were not calculated. Change in inventories was recorded as flows without beginning and ending stocks.

Data Validation

The ICP training course included data collection for household products to provide the price collectors knowledge, and to understand better the items and specifications in each basic heading. Specifically, the product brands and other characteristics were discussed to ensure that the price collectors were familiar with all requirements.

Data issues and concerns raised during the regional validation workshops could be explained in two cases: correct price data and wrong price data. In the case of correct price data, explanation of the price movements had been prepared for discussion during the workshop. For wrong price data, the price collectors were accompanied by auditors to examine the data to see that the suitable products were chosen, the correct prices were recorded, and the prices were recorded only when the correct variety was available.

At the national level, the ICP team validated the household prices in two dimensions. First, within a sampled province, the price relative of each observation was considered between periods, compared to the respective items in the CPI basket. Second, prices of particular items were compared across sampled provinces, using standard deviation and CV, etc., to identify outliers; and reverted to the price collectors whether they priced a correct specification or comparable products.

The prices of household products were further validated by comparing the price movements of similar products with the CPI items and those collected during the 2005 ICP price surveys.

ICP Price Collection Tools

The ICP APSS and PCTs provided by ADB were user-friendly. It generated summary statistics, which facilitated price validation in terms of price movements or data errors. Additional visual features, i.e., graphs or scatter plot, were helpful in detecting outliers at early stage. The latest ICP APSS incorporated Microsoft Excel that is able to display summary and analytical results, and increased convenience to users. However, a data filter was suggested to customize individual analysis.

Challenges in the ICP Implementation

In the household sector, the most important challenge was the inconsistency of product specification, especially the unit of measure, quality, brand, and size, among others. Patterns and item specifications varied among regions within Thailand, considerably contributing to high variation of national prices. To resolve this concern, the staff monitored the prices and movements; requested an explanation from the price collectors for the cause of variations; and conducted field survey in specific areas by the ICP staff, when necessary.

In the nonhousehold sector, the following difficulties were encountered:

- (i) For machinery and equipment, the difficulty was in the price collection process. First, technological equipment, such as laptop, printing machine, scanner, personal digital assistant, and security camera, have short-lived cycle. The models of those products tend to change rapidly; hence, it was difficult to identify the exact or close specification as indicated in the product catalog. Second, heavy machines are not common and could not be found in Thailand while available ones were mostly secondhand. It would be beneficial if

ADB conduct research on the availability of model and specification of machinery and equipment in each economy, for the most common products. Third, in Thailand, the unit of measure of motor power is horsepower. It had to be recalibrated to align with ICP; however, this entailed some errors and data distortion. Further guidance to address this issue is recommended in the next ICP round.

- (ii) Most of construction materials prices could be retrieved from the construction material index database compiled by BTEI; but some have different units of measure. While recalibration was done, some errors occurred during the process. Further guideline or, preferably, automatic calibration in PCT tools is suggested to avoid this difficulty.
- (iii) For compensation, some items of information such as allowances of the doctors and nurses and other additional charges were not derived from the direct sources of data due to confidentiality.
- (iv) Many items of information were required for dwellings such as age, facility, size, and type of dwelling. The size of some types of dwelling could not be exactly specified due to lack of official records from the samples, and only approximates were provided.

The cooperation of outlets/companies/entrepreneurs, including other agencies, was an important challenge. The more details required, the more it burdened the respondents. Most of them, especially those in the nonhousehold sector, did not commit to providing information to avoid response burden.

Lessons Learned and Future Directions

The benefits and experiences gained from the 2011 ICP round were concrete and valuable. Techniques and new methodologies learned, through the workshops and close coordination and cooperation between ADB and other implementing agencies, will be applied to CPI compilation, item selection, and data validation. These techniques will also be adopted to the ongoing construction of subnational PPP.

Viet Nam

Administrative Setup

In June 2010, the director general of the General Statistics Office (GSO) of Viet Nam signed a decision to establish the GSO ICP working group to implement the 2011 ICP. The working group had eight members, led by the director of the Price Statistics Department as the national coordinator and the deputy director of National Accounts Department as deputy national coordinator. The director of Price Statistics Department had been the national coordinator since the 2005 ICP round; but some of its members who had retired were replaced. The main responsibilities of the 2011 ICP working group were to

- (i) organize and implement the collection of ICP prices at provinces directly under the central government, and
- (ii) process data and estimate GDP in 2010 and 2011 by 155 basic headings.

Use of Existing Infrastructure in Collecting ICP Data

GSO used the CPI price collectors to collect ICP prices. However, ICP outlets were not the same as the CPI outlets in terms of the quality and specification of items and services. Only a few items overlapped between these surveys, primarily food items. The 2011 ICP survey was an additional activity since it did not almost use data from the regular price surveys of GSO.

Survey Framework

The 2011 ICP prices were collected from 17 cities and provinces (Table 84). A maximum of 45 price quotations were collected for each item per month. The outlets included supermarkets, open markets, street outlets, and specialized shops, both in urban and rural areas.

Table 84. Number of Sample Outlets by Type of Location, Viet Nam

No.	Province/City	Total	Location Type	
			Rural	Urban
1	An Giang	7	2	5
2	Binh Thuan	10	4	6
3	Can Tho	21	6	15
4	Da Nang	20	10	10
5	Dong Nai	20	6	14
6	Ha Noi	45	10	35
7	Ho Chi Minh	23	4	19
8	Khanh Hoa	19	12	7
9	Kon Tum	10	4	6
10	Lam Dong	22	8	14
11	Lao Cai	14	3	11
12	Nam Dinh	9	2	7
13	Nghe An	25	8	17
14	Ninh Binh	14	4	10
15	Thai Nguyen	12	4	8
16	Hai Phong	20	6	14
17	Vinh Long	15	2	13
	Total	306	95	211

Source: General Statistics Office.

Price collection was conducted on a monthly basis for household items (Table 85). To summarize, the frequency of price collection is as follows:

- (i) Food and foodstuff: priced on the 5th and 25th of every month
- (ii) Nonfood: priced on the 25th of every month
- (iii) Quarterly price collection conducted for
 1. Construction,
 2. Machinery and equipment,
 3. Medicine and healthcare services,
 4. Government consumption, and
 5. Education.

GDP Expenditure Values

Data sources

Several sources of data used to disaggregate GDP into 155 basic headings are the following:

- (i) SUT table 2007 (112x138),
- (ii) GDP by expenditure,

Table 85. Frequency of Price Collection for Household Sector, Viet Nam

Group/Category	Frequency
Food and Foodstuff; Gas, Other Fuels, Fuels and Lubricants for Personal Transport Equipment	Twice a month
Nonfood and Foodstuff except Gas and Other Fuels	Monthly
Health; Transport except Fuels and Lubricants for Personal Transport Equipment; Appliances, Articles and Products for Personal Care; Other Personal Effects; Communication; Recreation and Culture; Education; and Restaurants and Hotels	Quarterly
Insurance and Other Financial Services n.e.c.	Annual

Source: General Statistics Office.

- (iii) Government expenditure,
- (iv) Export and import,
- (v) Viet Nam Household Living Standard survey (VHLSS),
- (vi) 2009 Viet Nam Population and Housing Census,
- (vii) 2010 quarterly GDP by expenditure, and
- (viii) Enterprise survey.

Methodology

GDP of Viet Nam uses the production approach while the required ICP components of GDP are as follows:

- (i) Final consumption expenditure by households,
- (ii) Government consumption expenditure,
- (iii) Gross capital formation, and
- (iv) Import and export.

To split GDP by expenditure, the steps observed and sources used were the following:

- (i) Final consumption expenditure by households
 1. For heading:
 - Food and nonalcoholic beverages
 - Alcoholic beverages, tobacco, and narcotics
 - Clothing and footwear
 2. Using VHLSS to split household consumption to group of heading

3. Using SUT to split heading to more detail
- (ii) Government consumption expenditure
 1. From data of government expenditure, calculate
 - Individual consumption expenditure by government, and
 - Collective consumption expenditure by government
 2. Using SUT (government activity) to split by
 - Compensation of employees
 - Intermediate consumption
 - Gross operating surplus
- (iii) Gross capital formation
 1. From investment data, calculate gross capital formation in total
 2. Using enterprise survey to breakdown
 - Machinery and equipment
 - Construction
 - Other products
- (iv) Change in inventories
 1. Total using data of GDP by expenditure
 2. Breakdown by structure of SUT
- (v) Export and import
 1. Export and import of goods
 - Data from Customs office
 2. Export and import of services
 - State Bank of Viet Nam
 - Survey

Data Validation

Viet Nam collected ICP prices for household products in 17 selected provinces, which were required to establish survey networks, including outlets at the urban and rural areas, for collecting data. Provincial supervisors trained the enumerators on how to collect the prices of items in the ICP list. The principal rule was to collect the prices of exactly the same items in the list. In addition, GSO stipulated the following frequency to collect ICP prices:

- (i) **Food items:** twice on the 5th and 25th of reporting month, and
- (ii) **Other items:** once on the 25th of reporting month or on the 25th of last month of reporting quarter or once in December 2011.

The prices collected in the provinces were inputted into the ICP APSS provided by ADB. Data were sent on the 25th of the month to GSO, which carefully checked the data and aggregated the prices into average prices of the whole economy. Precise data were sent to ADB on the prescribed date.

Before attending the data validation meeting organized by ADB, the staff rechecked the data and prepared questions or issues for resolution at the meeting. Outlier prices were discussed and checked by comparing with the required item SPDs. Issues that were not easily resolved due to lack of information on hand were noted by the coordinator, who checked the raw data again and sent the justifications or revisions to ADB.

ICP Price Collection Tools

ICP APSS was one of the innovations in the 2011 ICP compared to the 2005 ICP round initiated by ADB. The ICP APSS had almost met the users' needs for data entry, validation, and analysis. The catalogs and survey questionnaires were translated into Vietnamese language; and for the next ICP round, the software could be improved further by allowing the listing of items and its descriptions in Vietnamese language.

Challenges in the ICP Implementation

As the list of ICP items was quite long, finding the exact items in the list was not operationally easy. Among the difficulties were the variations in the type and specification of prices across provinces. Many items required were replaced by other similar items.

Lessons Learned and Future Directions

GSO staff gained knowledge on ICP activities, such as the conduct of spatial price survey being different from the usual GSO surveys. ICP price collection and GDP compilation of 155 basic headings necessitated the involvement of the GSO ICP working group members. Good results were achieved thru effective

coordination that was facilitated by the group. To promote the utilization of ICP, the publication of ICP aggregated data would be helpful to the government of Viet Nam in the area of macroeconomic management.

GSO has considered a plan for provincial PPP calculation (subnational PPI). It also proposed that ADB and the World Bank provide assistance thru technical experts.

2011 International Comparison Program Detailed Tables



This part of the report presents the key results for Asia and the Pacific. The tables include all broad aggregates within GDP, actual final consumption expenditure, collective consumption expenditure by government, gross fixed capital formation, changes in inventories and net acquisitions of valuables, and balance of export and imports. Important components of these aggregates, particularly for household consumption, are also shown in these tables. The Eltetö-Köves-Szulc method was used in deriving the results, hence, real expenditures are not additive within a particular economy.

The following tables are presented in this part:

- Table 86. Gross Domestic Products, 2011
- Table 87. Purchasing Power Parities, 2011
- Table 88. Real Expenditures, 2011
- Table 89. Per Capita Real Expenditures, 2011
- Table 90. Price Level Indexes, 2011 (Hong Kong, China = 100)
- Table 91. Per Capita Real Expenditure Indexes, 2011
- Table 92. Price Level Indexes, 2011 (Asia and the Pacific = 100)
- Table 93. Shares of Real Gross Domestic Product within Each Economy, 2011
- Table 94. Economy Share of Real Expenditure to Asia and the Pacific by Category, 2011

The participating economies are alphabetically arranged in all the tables using the following abbreviations:

BAN	Bangladesh	MLD	Maldives
BHU	Bhutan	MON	Mongolia
BRU	Brunei Darussalam	MYA	Myanmar
CAM	Cambodia	NEP	Nepal
PRC	China, People's Republic of	PAK	Pakistan
FIJ	Fiji	PHI	Philippines
HKG	Hong Kong, China	SIN	Singapore
IND	India	SRI	Sri Lanka
INO	Indonesia	TAP	Taipei,China
LAO	Lao People's Democratic Republic	THA	Thailand
MAC	Macao, China	VIE	Viet Nam
MAL	Malaysia		

Table 86. Gross Domestic Products, 2011
(billion local currency units)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FJI	HKG	IND	INO
GROSS DOMESTIC PRODUCT	9,702.91	85.95	21.00	52,068.69	47,310.40	6.73	1,936.08	86,993.08	7,422,781.20
Actual Final Consumption of Households ^a	7,299.19	44.39	5.01	43,880.59	20,301.32	5.16	1,289.85	51,479.09	4,321,509.53
Food and Nonalcoholic Beverages	3,715.34	12.99	0.91	20,093.05	3,814.90	1.52	139.84	14,485.22	1,635,156.18
<i>Bread and Cereals</i>	1,654.01	3.44	0.18	6,162.43	807.59	0.20	12.49	3,083.37	407,898.23
<i>Meat and Fish</i>	708.47	1.47	0.29	5,946.10	1,233.90	0.43	75.41	1,383.63	282,675.56
<i>Fruits and Vegetables</i>	502.48	3.30	0.15	2,890.60	952.68	0.24	16.48	4,238.16	332,396.42
<i>Other Food and Nonalcoholic Beverages</i>	850.38	4.78	0.29	5,093.92	820.74	0.64	35.47	5,780.05	612,185.98
Clothing and Footwear: of which	437.16	3.26	0.22	837.47	1,403.25	0.12	56.35	3,621.40	161,475.90
<i>Clothing</i>	390.22	2.21	0.19	434.54	1,161.80	0.07	37.73	3,109.54	125,924.11
Housing, Water, Electricity, Gas, and Other Fuels	1,255.44	7.80	0.60	6,511.22	2,813.85	1.27	244.86	6,619.72	879,767.97
Health and Education	661.32	8.88	1.10	6,064.35	5,087.85	0.57	153.63	4,701.84	463,949.24
<i>Health</i>	266.68	4.97	0.28	3,096.92	3,045.47	0.26	108.27	2,395.65	144,792.17
<i>Education</i>	394.63	3.91	0.83	2,967.44	2,042.38	0.30	45.35	2,306.19	319,157.07
Transportation and Communication: of which	340.59	5.29	1.02	3,390.76	1,875.52	0.42	117.96	8,271.38	378,890.53
<i>Transportation</i>	305.63	4.22	0.75	3,281.89	1,186.39	0.40	90.19	7,737.43	295,717.51
Recreation and Culture	52.87	2.74	0.38	1,218.01	1,103.19	0.25	144.44	773.69	83,913.85
Restaurants and Hotels	165.80	0.51	0.25	2,101.91	1,033.56	0.14	129.62	1,283.55	309,883.19
Other Consumption Expenditure Items	670.67	2.91	0.52	3,663.83	3,169.19	0.87	303.15	11,722.30	408,472.67
Collective Consumption Expenditure by General Government	359.83	10.23	2.65	1,931.36	2,958.32	0.41	103.46	7,196.22	400,436.90
Gross Fixed Capital Formation: of which	2,748.61	57.17	2.75	6,035.28	21,568.20	1.30	455.05	26,908.17	2,372,765.83
Machinery and Equipment	652.79	23.62	0.82	2,966.84	6,185.34	0.63	200.59	10,274.42	391,059.23
Construction	2,059.83	33.52	1.73	3,002.58	13,609.78	0.49	213.98	15,618.36	1,923,723.70
Change in Inventories and Net Acquisitions of Valuables	53.11	-0.32	-0.14	277.93	1,266.23	0.20	11.74	6,344.09	223,318.34
Balance of Exports and Imports	-757.83	-25.52	10.73	-56.47	1,216.33	-0.34	75.98	-4,934.48	104,750.60
Household Final Consumption Expenditure ^b	7,154.28	37.57	4.09	41,431.05	16,254.66	4.79	1,224.82	48,648.21	4,053,363.58
Government Final Consumption Expenditure	504.74	17.05	3.57	4,380.91	7,004.98	0.78	168.49	10,027.10	668,582.85
Actual Final Consumption of Households ^a	7,299.19	44.39	5.01	43,880.59	20,301.32	5.16	1,289.85	51,479.09	4,321,509.53
All Goods	5,413.20	25.48	2.15	29,825.51	9,997.77	2.66	465.03	30,073.99	2,676,042.48
Nondurables	4,551.43	17.58	1.08	25,002.29	5,912.93	2.10	197.96	19,664.81	2,093,976.79
Semidurables	593.87	5.52	0.59	2,468.92	2,280.97	0.35	127.74	8,746.02	420,294.79
Durables	267.90	2.37	0.49	2,354.31	1,803.87	0.20	139.33	1,663.16	161,770.90
Services	1,741.09	12.09	1.94	11,605.53	6,256.90	2.13	759.80	18,574.21	1,377,321.10
Exchange Rate (LCU per Hong Kong dollar)	9.53	6.00	0.16	521.39	0.83	0.23	1.0000	6.00	1,126.73
Population (million)	149.70	0.71	0.39	14.23	1,341.98	0.85	7.07	1,215.96	241.04

0.00 = magnitude is less than half of unit employed, LCU = local currency unit.

Note: Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

LAO	MAC	MAL	MLD	MON	MYA	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE
64,727.06	295.05	884.46	31.58	12,546.76	45,128.01	1,449.52	19,187.87	9,706.27	334.09	6,542.66	13,709.07	11,120.52	2,779,880.24
37,958.58	68.97	474.53	11.97	7,613.87	31,485.50	1,164.05	16,296.76	7,467.98	143.18	5,025.15	8,835.70	6,890.04	1,762,838.51
19,378.03	6.59	80.73	2.31	2,176.40	16,452.59	652.54	7,200.18	3,053.35	8.93	2,126.64	1,040.63	1,765.50	455,802.09
8,204.89	1.06	9.95	0.50	237.63	4,193.69	266.73	1,616.39	880.81	1.36	597.41	220.00	341.69	131,511.89
6,764.17	2.80	23.53	0.57	659.05	5,123.95	106.53	650.27	1,078.05	2.89	389.52	300.79	383.80	182,094.64
2,741.69	1.39	18.52	0.36	190.70	3,947.85	110.69	943.10	296.88	1.34	624.28	257.71	492.19	64,085.68
1,667.28	1.35	28.72	0.89	1,089.02	3,187.10	168.59	3,990.41	797.61	3.34	515.43	262.13	547.83	78,109.87
592.65	4.25	8.67	0.24	381.35	971.56	30.39	757.39	100.89	3.80	149.55	375.41	231.92	72,689.93
470.20	3.24	7.50	0.19	356.63	810.91	25.21	623.19	68.84	3.09	129.39	327.17	219.01	60,078.93
4,857.25	10.52	70.06	4.66	1,092.50	4,169.85	150.74	3,159.54	885.04	26.13	682.68	1,461.18	625.89	402,769.15
2,439.44	9.92	77.67	2.27	1,125.11	4,567.98	114.89	1,789.49	768.38	25.37	536.62	1,611.41	1,127.29	279,893.72
857.49	4.92	27.90	0.69	357.28	1,948.85	48.85	1,014.24	236.19	12.07	259.87	842.49	522.70	128,338.76
1,581.95	5.00	49.77	1.57	767.83	2,619.14	66.04	775.25	532.19	13.29	276.75	768.92	604.59	151,554.96
4,475.96	7.91	90.99	0.70	1,419.06	1,515.38	53.10	1,315.82	995.79	20.60	485.19	1,232.54	1,107.28	189,356.57
4,009.97	5.98	62.45	0.46	1,196.28	1,032.99	36.69	1,044.77	770.43	17.91	389.95	918.41	964.32	176,330.65
1,003.51	7.10	18.69	0.24	217.14	360.62	29.33	181.12	129.60	15.49	69.88	842.12	320.61	69,843.08
1,131.53	13.05	39.13	0.21	131.68	1,417.35	24.13	166.25	263.72	14.81	191.80	473.38	538.67	76,959.55
4,080.21	9.62	88.59	1.34	1,070.63	2,030.17	108.94	1,726.98	1,271.22	28.06	782.79	1,799.04	1,172.88	215,524.41
5,049.93	12.41	58.81	5.65	895.23	1,895.39	96.95	1,356.40	606.43	21.58	510.95	1,096.26	1,004.65	164,322.94
23,103.71	36.61	197.18	15.91	5,910.45	12,061.16	299.51	2,481.78	1,817.19	79.40	1,772.51	2,865.97	2,973.50	827,032.18
6,902.80	8.49	71.27	6.14	3,519.11	5,871.99	65.19	796.58	698.75	29.57	542.12	1,334.17	1,992.83	214,706.01
11,301.15	27.79	98.34	9.77	2,181.87	5,231.04	166.62	1,186.39	904.51	46.73	1,118.63	1,297.32	935.09	564,516.51
961.00	4.25	8.66	0.00	1,510.43	5.72	231.58	307.01	168.71	-3.96	186.32	-6.90	62.11	140,574.06
-2,346.15	172.80	145.29	-1.94	-3,383.22	-319.75	-342.58	-1,254.08	-354.05	93.89	-952.27	918.05	190.21	-114,887.46
36,750.12	60.50	418.26	10.18	6,885.51	28,760.01	1,114.59	15,712.19	7,132.58	130.17	4,568.39	8,235.41	6,076.10	1,638,345.51
6,258.39	20.88	115.07	7.43	1,623.60	4,620.87	146.41	1,940.97	941.84	34.59	967.71	1,696.55	1,818.59	288,815.94
37,958.58	68.97	474.53	11.97	7,613.87	31,485.50	1,164.05	16,296.76	7,467.98	143.18	5,025.15	8,835.70	6,890.04	1,762,838.51
30,032.97	22.45	207.67	4.98	3,954.04	22,172.70	851.18	11,151.99	4,389.23	42.60	3,197.32	3,922.36	3,793.69	1,004,482.41
24,292.90	9.13	118.56	3.85	2,883.36	19,824.47	752.45	9,239.48	3,585.52	16.62	2,731.58	1,685.90	2,348.14	686,023.04
2,666.43	7.67	44.40	0.55	766.14	1,795.46	44.79	1,398.12	521.79	10.19	381.00	1,218.43	866.06	138,825.07
3,073.63	5.66	44.70	0.58	304.54	552.77	53.94	514.38	281.93	15.79	84.74	1,018.03	579.49	179,634.29
6,717.15	38.05	210.60	5.21	2,931.47	6,587.31	263.42	4,560.20	2,743.35	87.56	1,371.07	4,313.05	2,282.41	633,863.11
1,031.61	1.03	0.39	1.88	162.58	105.08	9.51	11.09	5.56	0.16	14.20	3.79	3.92	2,634.86
6.39	0.56	28.96	0.33	2.68	60.38	26.49	177.11	94.19	5.18	20.87	23.22	67.60	87.84

Table 87. Purchasing Power Parities, 2011
(Hong Kong, China as base)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	4.24	3.09	0.13	246.65	0.64	0.19	1.00	2.77	660.35
Actual Final Consumption of Households ^a	4.09	2.81	0.15	242.80	0.63	0.20	1.00	2.51	668.63
Food and Nonalcoholic Beverages	5.25	3.27	0.14	312.14	0.69	0.20	1.00	2.79	824.55
<i>Bread and Cereals</i>	5.89	3.62	0.13	314.72	0.79	0.20	1.00	3.07	914.83
<i>Meat and Fish</i>	5.72	2.92	0.15	322.87	0.66	0.20	1.00	2.93	735.84
<i>Fruits and Vegetables</i>	3.25	2.78	0.17	276.30	0.59	0.17	1.00	2.28	719.49
<i>Other Food and Nonalcoholic Beverages</i>	5.74	3.61	0.14	334.72	0.75	0.22	1.00	3.02	896.77
Clothing and Footwear: of which	6.13	3.55	0.23	280.06	1.03	0.22	1.00	2.87	1,159.69
<i>Clothing</i>	6.36	3.56	0.23	286.91	1.07	0.22	1.00	2.84	1,190.51
Housing, Water, Electricity, Gas, and Other Fuels	2.69	2.22	0.11	233.70	0.44	0.23	1.00	1.69	505.43
Health and Education	1.99	1.68	0.11	87.10	0.45	0.11	1.00	1.18	372.25
<i>Health</i>	2.08	1.75	0.11	100.79	0.40	0.12	1.00	1.02	485.81
<i>Education</i>	1.83	1.52	0.10	72.58	0.48	0.10	1.00	1.40	284.58
Transportation and Communication: of which	5.47	3.19	0.15	344.96	0.63	0.24	1.00	3.73	804.94
<i>Transportation</i>	6.01	3.06	0.11	313.07	0.57	0.20	1.00	3.54	698.99
Recreation and Culture	7.28	4.36	0.22	376.56	0.72	0.30	1.00	4.35	901.65
Restaurants and Hotels	4.52	2.67	0.18	253.68	0.61	0.23	1.00	3.67	719.99
Other Consumption Expenditure Items	4.20	3.50	0.20	255.88	0.76	0.21	1.00	3.34	716.91
Collective Consumption Expenditure by General Government	2.91	1.69	0.08	137.38	0.52	0.12	1.00	2.22	448.07
Gross Fixed Capital Formation: of which	4.90	3.98	0.15	277.09	0.68	0.17	1.00	3.38	652.96
Machinery and Equipment	8.18	6.49	0.16	460.32	0.85	0.22	1.00	5.26	993.42
Construction	3.42	2.73	0.14	182.34	0.54	0.14	1.00	2.39	478.54
Change in Inventories and Net Acquisitions of Valuables	5.27	3.83	0.16	310.17	0.73	0.20	1.00	3.24	766.67
Balance of Exports and Imports	9.53	6.00	0.16	521.39	0.83	0.23	1.00	6.00	1,126.73
Household Final Consumption Expenditure ^b	4.32	2.95	0.15	265.50	0.64	0.21	1.00	2.60	711.21
Government Final Consumption Expenditure	2.68	1.71	0.09	114.37	0.48	0.12	1.00	2.06	409.46
Actual Final Consumption of Households ^a	4.09	2.81	0.15	242.80	0.63	0.20	1.00	2.51	668.63
All Goods	5.64	3.47	0.16	340.52	0.78	0.22	1.00	3.15	866.52
Nondurables	4.77	3.11	0.15	316.41	0.70	0.20	1.00	2.64	789.57
Semidurables	6.07	3.58	0.15	315.09	0.93	0.21	1.00	3.64	846.68
Durables	10.85	4.57	0.17	443.58	0.87	0.30	1.00	5.02	1,194.04
Services	3.04	2.57	0.15	194.81	0.53	0.22	1.00	2.15	582.42

Note: Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

LAO	MAC	MAL	MLD	MON	MYA	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE
451.84	0.84	0.27	1.56	98.35	43.02	4.51	4.46	3.27	0.16	7.08	2.77	2.26	1,228.43
455.02	0.94	0.26	1.70	92.58	41.11	4.26	4.20	3.16	0.20	6.75	2.71	2.15	1,202.77
705.80	1.03	0.30	1.54	120.88	61.66	5.15	5.60	3.69	0.18	9.17	3.24	2.67	1,586.55
820.62	1.13	0.34	1.96	146.41	72.99	5.55	6.57	4.21	0.20	9.14	3.82	3.17	1,699.57
664.88	1.01	0.27	1.05	92.23	55.95	5.45	5.59	3.23	0.20	8.64	3.23	2.31	1,677.11
543.91	1.00	0.32	2.16	187.01	47.76	3.86	3.58	4.12	0.17	8.56	2.84	2.48	1,293.60
771.08	1.00	0.30	1.50	123.88	71.84	5.52	6.05	3.69	0.16	10.17	3.11	2.83	1,606.45
558.59	1.34	0.43	1.69	166.25	55.82	5.08	6.35	5.38	0.22	8.48	3.16	2.67	1,458.14
568.00	1.37	0.43	1.81	165.85	57.49	5.23	6.55	5.57	0.21	8.48	3.26	2.75	1,501.08
223.60	0.82	0.17	3.05	81.98	29.56	3.16	2.44	2.38	0.22	4.36	2.49	1.23	1,164.64
117.68	0.68	0.18	0.79	32.61	10.50	1.74	1.85	1.90	0.17	2.74	1.85	1.35	385.79
201.75	0.77	0.18	0.70	32.76	15.70	1.74	1.69	2.45	0.16	3.06	1.49	1.40	429.25
76.22	0.57	0.16	0.79	29.70	7.28	1.67	2.00	1.50	0.17	2.33	2.19	1.23	332.55
726.29	0.94	0.34	1.50	114.14	78.51	8.37	6.08	4.18	0.23	9.41	2.78	2.79	2,234.28
715.21	0.88	0.28	1.48	94.23	72.40	8.35	5.72	3.30	0.20	9.00	2.70	2.54	2,039.26
878.43	1.16	0.37	2.11	159.81	68.22	6.59	6.69	4.86	0.19	9.84	3.64	3.30	1,700.67
610.05	0.99	0.24	1.18	110.65	43.20	4.67	5.91	3.27	0.16	10.65	2.46	1.90	1,271.87
557.69	1.00	0.33	1.28	112.55	59.01	5.05	5.35	3.30	0.23	7.76	2.97	2.76	1,237.76
191.15	0.85	0.19	0.78	48.93	17.92	3.76	2.88	2.89	0.13	3.81	2.17	1.88	533.34
520.18	0.89	0.28	1.56	120.59	55.49	5.69	6.04	3.44	0.14	9.20	2.92	2.42	1,478.29
907.74	0.87	0.36	1.78	165.41	98.38	8.36	10.21	5.17	0.15	14.29	3.34	3.62	2,295.52
340.32	0.80	0.23	1.36	93.20	34.27	4.21	4.02	2.48	0.13	6.57	2.63	1.69	1,061.82
611.52	0.98	0.31	1.64	123.93	60.68	5.49	5.46	3.86	0.18	8.97	2.98	2.67	1,551.00
1,031.61	1.03	0.39	1.88	162.58	105.08	9.51	11.09	5.56	0.16	14.20	3.79	3.92	2,634.86
506.62	0.95	0.28	1.86	102.60	47.94	4.48	4.42	3.28	0.20	7.34	2.78	2.23	1,325.28
168.08	0.80	0.18	0.79	42.60	14.58	3.30	2.78	2.68	0.14	3.42	2.15	1.71	494.37
455.02	0.94	0.26	1.70	92.58	41.11	4.26	4.20	3.16	0.20	6.75	2.71	2.15	1,202.77
690.92	1.06	0.33	1.62	122.01	65.09	5.72	5.55	4.22	0.22	9.07	3.03	2.89	1,652.63
627.75	1.00	0.29	1.44	110.54	58.28	4.84	4.78	3.89	0.21	8.07	2.94	2.65	1,441.45
679.78	1.18	0.34	1.58	147.53	61.91	5.53	6.46	4.53	0.20	9.00	2.99	2.87	1,484.89
931.78	1.13	0.45	2.52	123.14	102.28	12.08	8.84	4.54	0.26	15.21	3.27	3.65	2,838.49
300.13	0.85	0.23	2.37	86.18	30.38	3.33	3.40	2.44	0.19	5.80	2.61	1.64	1,055.12

Table 88. Real Expenditures, 2011
(billion Hong Kong dollars)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	2,289.58	27.85	159.84	211.10	73,709.16	35.26	1,936.08	31,445.33	11,240.67
Actual Final Consumption of Households ^a	1,785.52	15.79	34.43	180.73	32,428.29	25.72	1,289.85	20,502.46	6,463.19
Food and Nonalcoholic Beverages	707.65	3.97	6.35	64.37	5,526.66	7.57	139.84	5,182.62	1,983.10
<i>Bread and Cereals</i>	280.72	0.95	1.43	19.58	1,020.89	1.00	12.49	1,003.64	445.87
<i>Meat and Fish</i>	123.85	0.51	1.99	18.42	1,879.98	2.16	75.41	471.96	384.15
<i>Fruits and Vegetables</i>	154.80	1.19	0.87	10.46	1,616.74	1.41	16.48	1,856.66	461.99
<i>Other Food and Nonalcoholic Beverages</i>	148.25	1.32	2.06	15.22	1,101.24	2.98	35.47	1,915.54	682.66
Clothing and Footwear: of which	71.27	0.92	0.94	2.99	1,363.86	0.56	56.35	1,259.70	139.24
<i>Clothing</i>	61.36	0.62	0.82	1.51	1,085.47	0.34	37.73	1,095.90	105.77
Housing, Water, Electricity, Gas, and Other Fuels	467.06	3.52	5.62	27.86	6,388.90	5.47	244.86	3,922.10	1,740.65
Health and Education	332.42	5.29	9.83	69.62	11,314.08	4.96	153.63	3,991.88	1,246.35
<i>Health</i>	128.01	2.84	2.59	30.73	7,680.23	2.14	108.27	2,342.15	298.04
<i>Education</i>	215.54	2.57	7.91	40.88	4,250.91	3.01	45.35	1,641.78	1,121.50
Transportation and Communication: of which	62.25	1.66	6.96	9.83	2,999.08	1.79	117.96	2,220.35	470.71
<i>Transportation</i>	50.89	1.38	6.99	10.48	2,086.69	1.98	90.19	2,187.49	423.07
Recreation and Culture	7.26	0.63	1.72	3.23	1,529.22	0.83	144.44	177.99	93.07
Restaurants and Hotels	36.72	0.19	1.38	8.29	1,694.19	0.60	129.62	349.68	430.40
Other Consumption Expenditure Items	159.62	0.83	2.59	14.32	4,155.27	4.19	303.15	3,512.53	569.77
Collective Consumption Expenditure by General Government	123.65	6.04	31.90	14.06	5,710.67	3.49	103.46	3,246.11	893.70
Gross Fixed Capital Formation: of which	561.39	14.35	18.17	21.78	31,947.64	7.54	455.05	7,953.10	3,633.88
Machinery and Equipment	79.79	3.64	5.22	6.45	7,281.16	2.82	200.59	1,952.65	393.65
Construction	602.89	12.29	12.72	16.47	25,002.13	3.46	213.98	6,529.94	4,019.98
Change in Inventories and Net Acquisitions of Valuables	10.08	-0.08	-0.90	0.90	1,727.23	1.01	11.74	1,957.85	291.28
Balance of Exports and Imports	-79.55	-4.26	66.41	-0.11	1,465.29	-1.49	75.98	-823.00	92.97
Household Final Consumption Expenditure ^b	1,656.48	12.74	27.59	156.05	25,302.54	22.66	1,224.82	18,690.74	5,699.25
Government Final Consumption Expenditure	188.03	9.99	39.55	38.30	14,634.63	6.50	168.49	4,873.43	1,632.82
Actual Final Consumption of Households ^a	1,785.52	15.79	34.43	180.73	32,428.29	25.72	1,289.85	20,502.46	6,463.19
All Goods	960.04	7.35	13.88	87.59	12,807.16	12.01	465.03	9,560.48	3,088.28
Nondurables	954.98	5.65	7.08	79.02	8,411.53	10.42	197.96	7,451.51	2,652.05
Semidurables	97.80	1.54	3.85	7.84	2,443.03	1.65	127.74	2,400.40	496.40
Durables	24.69	0.52	2.91	5.31	2,073.97	0.67	139.33	331.08	135.48
Services	573.24	4.70	12.85	59.57	11,851.14	9.89	759.80	8,656.23	2,364.83

0.00 = magnitude is less than half of unit employed.

Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

LAO	MAC	MAL	MLD	MON	MYA	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE
143.25	351.18	3,310.26	20.23	127.58	1,048.93	321.45	4,304.44	2,969.22	2,046.79	924.45	4,954.44	4,909.77	2,262.95
83.42	73.49	1,791.17	7.05	82.24	765.82	273.07	3,879.13	2,360.10	715.15	744.60	3,256.65	3,198.48	1,465.65
27.46	6.40	264.97	1.50	18.01	266.82	126.79	1,286.55	826.46	48.88	232.03	321.56	660.49	287.29
10.00	0.94	29.14	0.26	1.62	57.46	48.06	246.21	209.28	6.64	65.39	57.56	107.73	77.38
10.17	2.78	86.47	0.54	7.15	91.58	19.56	116.35	334.27	14.62	45.07	93.09	166.42	108.58
5.04	1.39	58.04	0.16	1.02	82.65	28.65	263.65	72.07	7.67	72.91	90.76	198.11	49.54
2.16	1.34	95.54	0.59	8.79	44.36	30.56	660.04	216.39	20.45	50.69	84.24	193.76	48.62
1.06	3.18	20.27	0.14	2.29	17.40	5.98	119.22	18.75	17.65	17.64	118.76	86.73	49.85
0.83	2.37	17.43	0.11	2.15	14.11	4.82	95.10	12.36	14.76	15.27	100.47	79.72	40.02
21.72	12.84	416.29	1.53	13.33	141.06	47.67	1,294.71	371.72	116.96	156.71	587.41	509.26	345.83
20.73	14.55	439.55	2.88	34.50	435.03	65.98	968.43	405.07	146.84	195.92	870.61	837.74	725.51
4.25	6.35	154.52	1.00	10.91	124.10	28.11	600.16	96.45	75.39	85.04	565.85	374.23	298.98
20.76	8.71	306.63	2.00	25.85	359.62	39.43	387.39	354.63	77.76	118.71	350.78	491.10	455.74
6.16	8.43	264.62	0.46	12.43	19.30	6.34	216.45	238.25	91.11	51.58	443.42	396.99	84.75
5.61	6.77	221.27	0.31	12.70	14.27	4.39	182.72	233.12	87.58	43.31	339.87	379.12	86.47
1.14	6.13	50.18	0.11	1.36	5.29	4.45	27.06	26.68	81.40	7.10	231.10	97.16	41.07
1.85	13.25	160.54	0.18	1.19	32.81	5.16	28.15	80.67	91.07	18.02	192.77	282.92	60.51
7.32	9.67	268.69	1.05	9.51	34.40	21.58	322.82	385.17	124.66	100.93	605.43	424.22	174.13
26.42	14.68	312.85	7.20	18.29	105.75	25.79	470.75	209.55	169.92	134.07	505.86	533.42	308.10
44.41	41.11	692.58	10.18	49.01	217.37	52.60	411.20	528.29	547.94	192.64	980.52	1,229.23	559.45
7.60	9.71	197.18	3.45	21.28	59.68	7.80	78.03	135.17	196.15	37.93	400.01	550.47	93.53
33.21	34.75	424.96	7.16	23.41	152.66	39.62	294.97	364.47	347.23	170.18	493.26	552.39	531.65
1.57	4.32	27.81	0.00	12.19	0.09	42.15	56.25	43.67	-22.30	20.77	-2.31	23.27	90.63
-2.27	167.75	369.59	-1.03	-20.81	-3.04	-36.03	-113.06	-63.63	581.07	-67.04	242.50	48.56	-43.60
72.54	63.73	1,517.24	5.49	67.11	599.90	248.95	3,557.05	2,174.35	639.57	622.57	2,962.36	2,721.72	1,236.23
37.23	26.05	625.64	9.38	38.12	317.03	44.33	697.75	351.71	246.00	282.72	788.10	1,064.27	584.21
83.42	73.49	1,791.17	7.05	82.24	765.82	273.07	3,879.13	2,360.10	715.15	744.60	3,256.65	3,198.48	1,465.65
43.47	21.20	628.18	3.07	32.41	340.67	148.88	2,010.97	1,039.05	196.19	352.42	1,294.49	1,313.03	607.81
38.70	9.14	402.21	2.67	26.09	340.16	155.33	1,932.78	921.63	77.70	338.63	573.49	886.87	475.93
3.92	6.48	131.92	0.35	5.19	29.00	8.09	216.40	115.11	52.22	42.32	407.89	302.24	93.49
3.30	4.99	98.70	0.23	2.47	5.40	4.46	58.20	62.10	60.55	5.57	310.89	158.79	63.29
22.38	44.80	919.01	2.19	34.01	216.80	79.02	1,341.77	1,125.43	462.00	236.23	1,651.90	1,389.36	600.75

Table 89. Per Capita Real Expenditures, 2011
(Hong Kong dollars)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	15,294	39,320	406,324	14,839	54,926	41,278	273,783	25,861	46,634
Actual Final Consumption of Households ^a	11,927	22,298	87,518	12,704	24,164	30,109	182,399	16,861	26,814
Food and Nonalcoholic Beverages	4,727	5,606	16,133	4,525	4,118	8,858	19,775	4,262	8,227
<i>Bread and Cereals</i>	1,875	1,342	3,642	1,376	761	1,168	1,766	825	1,850
<i>Meat and Fish</i>	827	714	5,048	1,295	1,401	2,533	10,663	388	1,594
<i>Fruits and Vegetables</i>	1,034	1,674	2,217	735	1,205	1,651	2,330	1,527	1,917
<i>Other Food and Nonalcoholic Beverages</i>	990	1,867	5,248	1,070	821	3,488	5,016	1,575	2,832
Clothing and Footwear: of which	476	1,297	2,383	210	1,016	651	7,968	1,036	578
<i>Clothing</i>	410	877	2,080	106	809	403	5,336	901	439
Housing, Water, Electricity, Gas, and Other Fuels	3,120	4,972	14,292	1,958	4,761	6,401	34,626	3,226	7,221
Health and Education	2,221	7,470	24,981	4,894	8,431	5,806	21,725	3,283	5,171
<i>Health</i>	855	4,005	6,582	2,160	5,723	2,509	15,311	1,926	1,236
<i>Education</i>	1,440	3,635	20,100	2,874	3,168	3,520	6,414	1,350	4,653
Transportation and Communication: of which	416	2,339	17,686	691	2,235	2,096	16,681	1,826	1,953
<i>Transportation</i>	340	1,947	17,767	737	1,555	2,318	12,754	1,799	1,755
Recreation and Culture	49	887	4,362	227	1,140	974	20,426	146	386
Restaurants and Hotels	245	268	3,508	582	1,262	703	18,330	288	1,786
Other Consumption Expenditure Items	1,066	1,172	6,596	1,006	3,096	4,900	42,868	2,889	2,364
Collective Consumption Expenditure by General Government	826	8,523	81,105	988	4,255	4,089	14,630	2,670	3,708
Gross Fixed Capital Formation: of which	3,750	20,258	46,181	1,531	23,806	8,827	64,349	6,541	15,076
Machinery and Equipment	533	5,136	13,282	453	5,426	3,304	28,366	1,606	1,633
Construction	4,027	17,355	32,332	1,158	18,631	4,048	30,260	5,370	16,678
Change in Inventories and Net Acquisitions of Valuables	67	-116	-2,289	63	1,287	1,186	1,660	1,610	1,208
Balance of Exports and Imports	-531	-6,010	168,817	-8	1,092	-1,741	10,745	-677	386
Household Final Consumption Expenditure ^b	11,065	17,990	70,132	10,969	18,855	26,528	173,203	15,371	23,645
Government Final Consumption Expenditure	1,256	14,102	100,546	2,693	10,905	7,612	23,826	4,008	6,774
Actual Final Consumption of Households ^a	11,927	22,298	87,518	12,704	24,164	30,109	182,399	16,861	26,814
All Goods	6,413	10,379	35,292	6,157	9,543	14,059	65,760	7,863	12,812
Nondurables	6,379	7,975	18,001	5,555	6,268	12,201	27,994	6,128	11,003
Semidurables	653	2,180	9,795	551	1,820	1,929	18,064	1,974	2,059
Durables	165	731	7,407	373	1,545	787	19,702	272	562
Services	3,829	6,631	32,669	4,188	8,831	11,574	107,443	7,119	9,811

0 = magnitude is less than half of unit employed.

Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

LAO	MAC	MAL	MLD	MON	MYA	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE	Average
22,436	630,492	114,289	62,220	47,618	17,372	12,133	24,304	31,525	394,851	44,298	213,324	72,633	25,762	41,623
13,065	131,946	61,841	21,668	30,696	12,683	10,307	21,902	25,058	137,961	35,680	140,222	47,317	16,685	22,784
4,300	11,485	9,148	4,626	6,720	4,419	4,786	7,264	8,775	9,429	11,118	13,846	9,771	3,271	5,036
1,566	1,685	1,006	786	606	952	1,814	1,390	2,222	1,281	3,133	2,478	1,594	881	1,037
1,593	4,983	2,985	1,656	2,667	1,517	738	657	3,549	2,821	2,160	4,008	2,462	1,236	1,135
789	2,489	2,004	506	381	1,369	1,082	1,489	765	1,479	3,494	3,908	2,931	564	1,414
339	2,414	3,299	1,823	3,281	735	1,153	3,727	2,297	3,944	2,429	3,627	2,866	554	1,500
166	5,711	700	441	856	288	226	673	199	3,406	845	5,113	1,283	568	944
130	4,249	602	327	803	234	182	537	131	2,847	732	4,326	1,179	456	780
3,402	23,060	14,373	4,693	4,974	2,336	1,799	7,310	3,947	22,563	7,509	25,292	7,534	3,937	4,713
3,247	26,127	15,176	8,850	12,878	7,205	2,490	5,468	4,301	28,328	9,388	37,486	12,393	8,259	6,238
666	11,394	5,335	3,060	4,071	2,055	1,061	3,389	1,024	14,544	4,075	24,364	5,536	3,404	3,643
3,251	15,643	10,587	6,141	9,648	5,956	1,488	2,187	3,765	15,000	5,688	15,103	7,265	5,188	2,890
965	15,126	9,136	1,423	4,641	320	239	1,222	2,530	17,576	2,471	19,093	5,873	965	2,163
878	12,155	7,640	956	4,739	236	166	1,032	2,475	16,895	2,075	14,634	5,608	984	1,812
179	11,000	1,732	343	507	88	168	153	283	15,704	340	9,951	1,437	468	710
290	23,789	5,543	556	444	543	195	159	856	17,568	863	8,300	4,185	689	1,013
1,146	17,356	9,277	3,235	3,551	570	814	1,823	4,089	24,048	4,837	26,068	6,276	1,982	3,137
4,138	26,353	10,801	22,154	6,828	1,751	973	2,658	2,225	32,780	6,424	21,781	7,891	3,508	3,631
6,956	73,809	23,912	31,298	18,295	3,600	1,985	2,322	5,609	105,704	9,231	42,219	18,185	6,369	14,038
1,191	17,424	6,808	10,602	7,941	988	294	441	1,435	37,841	1,818	17,223	8,143	1,065	3,281
5,201	62,382	14,672	22,024	8,738	2,528	1,496	1,665	3,870	66,984	8,155	21,238	8,172	6,052	11,160
246	7,753	960	0	4,549	2	1,591	318	464	-4,301	995	-100	344	1,032	1,202
-356	301,166	12,760	-3,177	-7,767	-50	-1,360	-638	-676	112,096	-3,212	10,441	718	-496	518
11,361	114,418	52,384	16,881	25,048	9,935	9,397	20,084	23,086	123,381	29,832	127,551	40,264	14,074	19,386
5,832	46,763	21,601	28,862	14,227	5,251	1,673	3,940	3,734	47,456	13,547	33,933	15,744	6,651	7,472
13,065	131,946	61,841	21,668	30,696	12,683	10,307	21,902	25,058	137,961	35,680	140,222	47,317	16,685	22,784
6,808	38,056	21,688	9,446	12,096	5,642	5,620	11,354	11,032	37,848	16,887	55,737	19,424	6,919	9,803
6,061	16,417	13,887	8,227	9,736	5,634	5,863	10,913	9,785	14,990	16,226	24,693	13,120	5,418	7,262
614	11,629	4,555	1,081	1,938	480	305	1,222	1,222	10,075	2,028	17,563	4,471	1,064	1,957
517	8,964	3,408	707	923	90	168	329	659	11,681	267	13,386	2,349	720	994
3,505	80,434	31,729	6,747	12,696	3,591	2,983	7,576	11,949	89,126	11,319	71,126	20,554	6,839	9,071

Table 90. Price Level Indexes, 2011
(Hong Kong, China = 100)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	44	51	81	47	77	83	100	46	59
Actual Final Consumption of Households ^a	43	47	90	47	75	87	100	42	59
Food and Nonalcoholic Beverages	55	55	89	60	83	87	100	47	73
<i>Bread and Cereals</i>	62	60	79	60	95	88	100	51	81
<i>Meat and Fish</i>	60	49	91	62	79	87	100	49	65
<i>Fruits and Vegetables</i>	34	46	104	53	71	75	100	38	64
<i>Other Food and Nonalcoholic Beverages</i>	60	60	86	64	90	94	100	50	80
Clothing and Footwear: of which	64	59	144	54	124	98	100	48	103
<i>Clothing</i>	67	59	143	55	129	93	100	47	106
Housing, Water, Electricity, Gas, and Other Fuels	28	37	66	45	53	101	100	28	45
Health and Education	21	28	69	17	54	50	100	20	33
<i>Health</i>	22	29	66	19	48	54	100	17	43
<i>Education</i>	19	25	65	14	58	44	100	23	25
Transportation and Communication: of which	57	53	91	66	75	102	100	62	71
<i>Transportation</i>	63	51	66	60	68	88	100	59	62
Recreation and Culture	76	73	138	72	87	130	100	72	80
Restaurants and Hotels	47	45	113	49	73	98	100	61	64
Other Consumption Expenditure Items	44	58	125	49	92	90	100	56	64
Collective Consumption Expenditure by General Government	31	28	51	26	62	51	100	37	40
Gross Fixed Capital Formation: of which	51	66	94	53	81	75	100	56	58
Machinery and Equipment	86	108	98	88	102	97	100	88	88
Construction	36	45	84	35	66	61	100	40	42
Change in Inventories and Net Acquisitions of Valuables	55	64	96	59	88	87	100	54	68
Balance of Exports and Imports	100	100	100	100	100	100	100	100	100
Household Final Consumption Expenditure ^b	45	49	92	51	77	92	100	43	63
Government Final Consumption Expenditure	28	28	56	22	58	52	100	34	36
Actual Final Consumption of Households ^a	43	47	90	47	75	87	100	42	59
All Goods	59	58	96	65	94	96	100	52	77
Nondurables	50	52	94	61	85	88	100	44	70
Semidurables	64	60	95	60	112	93	100	61	75
Durables	114	76	103	85	105	131	100	84	106
Services	32	43	93	37	64	94	100	36	52

Note: Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

LAO	MAC	MAL	MLD	MON	MYA	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE
44	82	68	83	60	41	47	40	59	101	50	73	58	47
44	91	67	91	57	39	45	38	57	124	48	72	55	46
68	100	77	82	74	59	54	50	66	113	65	85	68	60
80	110	87	104	90	69	58	59	76	127	64	101	81	65
64	98	69	56	57	53	57	50	58	122	61	85	59	64
53	97	81	115	115	45	41	32	74	108	60	75	63	49
75	97	76	80	76	68	58	55	66	101	72	82	72	61
54	130	109	90	102	53	53	57	97	133	60	83	68	55
55	133	110	97	102	55	55	59	100	130	60	86	70	57
22	80	43	163	50	28	33	22	43	138	31	66	31	44
11	66	45	42	20	10	18	17	34	107	19	49	34	15
20	75	46	37	20	15	18	15	44	99	22	39	36	16
7	56	41	42	18	7	18	18	27	106	16	58	31	13
70	91	87	80	70	75	88	55	75	140	66	73	71	85
69	86	72	79	58	69	88	52	59	127	63	71	65	77
85	113	95	112	98	65	69	60	87	118	69	96	84	65
59	96	62	63	68	41	49	53	59	101	75	65	49	48
54	97	84	68	69	56	53	48	59	139	55	78	71	47
19	82	48	42	30	17	40	26	52	79	27	57	48	20
50	86	72	83	74	53	60	54	62	90	65	77	62	56
88	85	92	95	102	94	88	92	93	93	101	88	92	87
33	78	59	73	57	33	44	36	45	83	46	69	43	40
59	96	79	87	76	58	58	49	69	110	63	79	68	59
100	100	100	100	100	100	100	100	100	100	100	100	100	100
49	92	70	99	63	46	47	40	59	126	52	73	57	50
16	78	47	42	26	14	35	25	48	87	24	57	44	19
44	91	67	91	57	39	45	38	57	124	48	72	55	46
67	103	84	86	75	62	60	50	76	134	64	80	74	63
61	97	75	77	68	55	51	43	70	132	57	78	68	55
66	115	86	84	91	59	58	58	81	121	63	79	73	56
90	110	115	134	76	97	127	80	82	161	107	86	93	108
29	82	58	126	53	29	35	31	44	117	41	69	42	40

Table 91. Per Capita Real Expenditure Indexes, 2011
(Asia and the Pacific = 100)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	37	94	976	36	132	99	658	62	112
Actual Final Consumption of Households ^a	52	98	384	56	106	132	801	74	118
Food and Nonalcoholic Beverages	94	111	320	90	82	176	393	85	163
<i>Bread and Cereals</i>	181	129	351	133	73	113	170	80	178
<i>Meat and Fish</i>	73	63	445	114	123	223	940	34	140
<i>Fruits and Vegetables</i>	73	118	157	52	85	117	165	108	136
<i>Other Food and Nonalcoholic Beverages</i>	66	124	350	71	55	232	334	105	189
Clothing and Footwear: of which	50	137	252	22	108	69	844	110	61
<i>Clothing</i>	53	112	266	14	104	52	684	115	56
Housing, Water, Electricity, Gas, and Other Fuels	66	105	303	42	101	136	735	68	153
Health and Education	36	120	400	78	135	93	348	53	83
<i>Health</i>	23	110	181	59	157	69	420	53	34
<i>Education</i>	50	126	695	99	110	122	222	47	161
Transportation and Communication: of which	19	108	818	32	103	97	771	84	90
<i>Transportation</i>	19	107	980	41	86	128	704	99	97
Recreation and Culture	7	125	614	32	160	137	2,875	21	54
Restaurants and Hotels	24	26	346	57	125	69	1,809	28	176
Other Consumption Expenditure Items	34	37	210	32	99	156	1,366	92	75
Collective Consumption Expenditure by General Government	23	235	2,234	27	117	113	403	74	102
Gross Fixed Capital Formation: of which	27	144	329	11	170	63	458	47	107
Machinery and Equipment	16	157	405	14	165	101	865	49	50
Construction	36	156	290	10	167	36	271	48	149
Change in Inventories and Net Acquisitions of Valuables	6	-10	-190	5	107	99	138	134	100
Balance of Exports and Imports	-103	-1,160	32,590	-1	211	-336	2,074	-131	74
Household Final Consumption Expenditure ^b	57	93	362	57	97	137	893	79	122
Government Final Consumption Expenditure	17	189	1,346	36	146	102	319	54	91
Actual Final Consumption of Households ^a	52	98	384	56	106	132	801	74	118
All Goods	65	106	360	63	97	143	671	80	131
Nondurables	88	110	248	76	86	168	385	84	152
Semidurables	33	111	500	28	93	99	923	101	105
Durables	17	74	745	38	155	79	1,982	27	57
Services	42	73	360	46	97	128	1,184	78	108

0 = magnitude is less than half of unit employed.

Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

LAO	MAC	MAL	MLD	MON	MYA	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE	Asia and the Pacific
54	1,515	275	149	114	42	29	58	76	949	106	513	175	62	100
57	579	271	95	135	56	45	96	110	606	157	615	208	73	100
85	228	182	92	133	88	95	144	174	187	221	275	194	65	100
151	163	97	76	58	92	175	134	214	124	302	239	154	85	100
140	439	263	146	235	134	65	58	313	249	190	353	217	109	100
56	176	142	36	27	97	77	105	54	105	247	276	207	40	100
23	161	220	121	219	49	77	248	153	263	162	242	191	37	100
18	605	74	47	91	31	24	71	21	361	89	541	136	60	100
17	544	77	42	103	30	23	69	17	365	94	554	151	58	100
72	489	305	100	106	50	38	155	84	479	159	537	160	84	100
52	419	243	142	206	116	40	88	69	454	151	601	199	132	100
18	313	146	84	112	56	29	93	28	399	112	669	152	93	100
112	541	366	212	334	206	51	76	130	519	197	523	251	180	100
45	699	422	66	215	15	11	56	117	812	114	883	271	45	100
48	671	422	53	261	13	9	57	137	932	115	807	309	54	100
25	1,548	244	48	71	12	24	22	40	2,211	48	1,401	202	66	100
29	2,348	547	55	44	54	19	16	85	1,734	85	819	413	68	100
37	553	296	103	113	18	26	58	130	767	154	831	200	63	100
114	726	297	610	188	48	27	73	61	903	177	600	217	97	100
50	526	170	223	130	26	14	17	40	753	66	301	130	45	100
36	531	208	323	242	30	9	13	44	1,153	55	525	248	32	100
47	559	131	197	78	23	13	15	35	600	73	190	73	54	100
20	645	80	0	378	0	132	26	39	-358	83	-8	29	86	100
-69	58,140	2,463	-613	-1,499	-10	-263	-123	-130	21,640	-620	2,016	139	-96	100
59	590	270	87	129	51	48	104	119	636	154	658	208	73	100
78	626	289	386	190	70	22	53	50	635	181	454	211	89	100
57	579	271	95	135	56	45	96	110	606	157	615	208	73	100
69	388	221	96	123	58	57	116	113	386	172	569	198	71	100
83	226	191	113	134	78	81	150	135	206	223	340	181	75	100
31	594	233	55	99	25	16	62	62	515	104	897	228	54	100
52	902	343	71	93	9	17	33	66	1,175	27	1,346	236	72	100
39	887	350	74	140	40	33	84	132	983	125	784	227	75	100

Table 92. Price Level Indexes, 2011
(Asia and the Pacific = 100)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	67	78	123	72	117	126	152	70	89
Actual Final Consumption of Households ^a	70	77	148	76	124	143	164	69	97
Food and Nonalcoholic Beverages	84	83	135	91	127	133	152	71	111
<i>Bread and Cereals</i>	85	83	109	83	131	121	137	70	111
<i>Meat and Fish</i>	87	70	132	89	114	125	144	71	94
<i>Fruits and Vegetables</i>	63	86	193	98	131	139	185	70	118
<i>Other Food and Nonalcoholic Beverages</i>	91	91	129	97	135	141	150	76	120
Clothing and Footwear: of which	75	69	168	63	145	114	117	56	120
<i>Clothing</i>	77	69	165	64	149	108	116	55	122
Housing, Water, Electricity, Gas, and Other Fuels	65	85	153	104	123	233	231	65	104
Health and Education	51	68	169	41	132	121	243	48	80
<i>Health</i>	56	75	169	50	123	137	256	44	111
<i>Education</i>	49	64	163	35	147	110	253	59	64
Transportation and Communication: of which	80	74	126	92	105	143	139	86	99
<i>Transportation</i>	96	78	101	92	105	134	153	90	95
Recreation and Culture	87	83	157	82	99	148	114	83	91
Restaurants and Hotels	69	65	165	71	107	144	146	89	93
Other Consumption Expenditure Items	60	79	170	67	125	122	136	75	86
Collective Consumption Expenditure by General Government	61	56	102	53	125	101	200	74	79
Gross Fixed Capital Formation: of which	69	90	127	72	110	101	135	76	78
Machinery and Equipment	88	111	100	90	105	99	102	90	90
Construction	62	79	146	61	114	107	174	69	74
Change in Inventories and Net Acquisitions of Valuables	80	92	139	86	128	125	144	78	98
Balance of Exports and Imports	100	100	100	100	100	100	100	100	100
Household Final Consumption Expenditure ^b	73	79	147	82	124	147	160	70	101
Government Final Consumption Expenditure	58	58	115	45	118	106	205	70	75
Actual Final Consumption of Households ^a	70	77	148	76	124	143	164	69	97
All Goods	79	77	129	88	126	129	134	70	103
Nondurables	78	81	146	94	132	136	155	68	109
Semidurables	76	72	113	72	135	111	120	73	90
Durables	113	75	102	84	104	129	99	83	105
Services	61	82	177	71	121	178	190	68	98

Note: Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

LAO	MAC	MAL	MLD	MON	MYA	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE
66	124	103	126	92	62	72	61	89	153	76	111	88	71
72	149	110	148	93	64	73	62	93	203	78	117	90	75
104	152	118	125	113	89	82	77	101	172	98	130	104	92
109	150	119	143	123	95	80	81	104	174	88	138	111	88
93	141	100	81	82	77	83	73	84	176	88	123	85	92
97	180	150	213	212	84	75	60	137	200	111	138	117	91
112	146	115	120	115	103	87	82	100	152	108	124	109	92
63	151	127	105	119	62	62	67	113	155	70	97	80	65
64	154	127	112	118	63	64	68	116	150	69	100	81	66
50	184	99	376	117	65	77	51	99	320	71	152	73	102
28	161	109	102	49	24	45	41	83	260	47	119	84	36
50	193	118	95	52	38	47	39	113	254	55	101	91	42
19	141	105	106	46	18	45	46	68	268	42	147	80	32
98	127	122	112	98	104	122	76	105	195	92	102	99	118
106	131	110	120	89	105	134	79	91	194	97	109	99	118
97	128	108	128	112	74	79	69	100	135	79	110	96	74
86	140	91	92	99	60	72	78	86	147	110	95	71	71
73	131	114	92	94	76	72	65	80	189	74	106	96	64
37	164	95	83	60	34	79	52	104	157	54	114	96	40
68	117	98	113	100	71	81	74	84	121	88	104	83	76
90	87	94	97	104	96	90	94	95	96	103	90	95	89
57	135	102	126	100	57	77	63	77	145	80	121	75	70
86	138	114	126	110	83	83	71	100	159	91	114	98	85
100	100	100	100	100	100	100	100	100	100	100	100	100	100
79	148	113	159	101	73	76	64	95	202	83	118	91	81
33	160	96	87	54	28	71	52	99	179	49	117	90	39
72	149	110	148	93	64	73	62	93	203	78	117	90	75
90	138	113	116	101	83	81	67	102	180	86	107	99	84
95	151	117	119	106	86	79	67	109	206	88	121	105	85
79	138	103	101	109	71	70	70	98	145	76	95	88	68
89	109	114	133	75	96	126	79	81	160	106	86	92	107
55	157	111	241	101	55	67	58	83	223	78	131	80	76

Table 93. Shares of Real Gross Domestic Product within Each Economy, 2011

(%)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Actual Final Consumption of Households ^a	77.98	56.71	21.54	85.61	43.99	72.94	66.62	65.20	57.50
Food and Nonalcoholic Beverages	30.91	14.26	3.97	30.49	7.50	21.46	7.22	16.48	17.64
<i>Bread and Cereals</i>	12.26	3.41	0.90	9.28	1.39	2.83	0.64	3.19	3.97
<i>Meat and Fish</i>	5.41	1.81	1.24	8.72	2.55	6.14	3.89	1.50	3.42
<i>Fruits and Vegetables</i>	6.76	4.26	0.55	4.96	2.19	4.00	0.85	5.90	4.11
<i>Other Food and Nonalcoholic Beverages</i>	6.47	4.75	1.29	7.21	1.49	8.45	1.83	6.09	6.07
Clothing and Footwear: of which	3.11	3.30	0.59	1.42	1.85	1.58	2.91	4.01	1.24
<i>Clothing</i>	2.68	2.23	0.51	0.72	1.47	0.98	1.95	3.49	0.94
Housing, Water, Electricity, Gas, and Other Fuels	20.40	12.64	3.52	13.20	8.67	15.51	12.65	12.47	15.49
Health and Education	14.52	19.00	6.15	32.98	15.35	14.07	7.93	12.69	11.09
<i>Health</i>	5.59	10.19	1.62	14.55	10.42	6.08	5.59	7.45	2.65
<i>Education</i>	9.41	9.25	4.95	19.37	5.77	8.53	2.34	5.22	9.98
Transportation and Communication: of which	2.72	5.95	4.35	4.66	4.07	5.08	6.09	7.06	4.19
<i>Transportation</i>	2.22	4.95	4.37	4.97	2.83	5.62	4.66	6.96	3.76
Recreation and Culture	0.32	2.26	1.07	1.53	2.07	2.36	7.46	0.57	0.83
Restaurants and Hotels	1.60	0.68	0.86	3.92	2.30	1.70	6.70	1.11	3.83
Other Consumption Expenditure Items	6.97	2.98	1.62	6.78	5.64	11.87	15.66	11.17	5.07
Collective Consumption Expenditure by General Government	5.40	21.67	19.96	6.66	7.75	9.91	5.34	10.32	7.95
Gross Fixed Capital Formation: of which	24.52	51.52	11.37	10.32	43.34	21.39	23.50	25.29	32.33
Machinery and Equipment	3.48	13.06	3.27	3.05	9.88	8.01	10.36	6.21	3.50
Construction	26.33	44.14	7.96	7.80	33.92	9.81	11.05	20.77	35.76
Change in Inventories and Net Acquisitions of Valuables	0.44	-0.30	-0.56	0.42	2.34	2.87	0.61	6.23	2.59
Balance of Exports and Imports	-3.47	-15.28	41.55	-0.05	1.99	-4.22	3.92	-2.62	0.83
Household Final Consumption Expenditure ^b	72.35	45.75	17.26	73.92	34.33	64.27	63.26	59.44	50.70
Government Final Consumption Expenditure	8.21	35.86	24.75	18.15	19.85	18.44	8.70	15.50	14.53
Actual Final Consumption of Households ^a	77.98	56.71	21.54	85.61	43.99	72.94	66.62	65.20	57.50
All Goods	41.93	26.40	8.69	41.49	17.38	34.06	24.02	30.40	27.47
Nondurables	41.71	20.28	4.43	37.43	11.41	29.56	10.22	23.70	23.59
Semidurables	4.27	5.54	2.41	3.71	3.31	4.67	6.60	7.63	4.42
Durables	1.08	1.86	1.82	2.51	2.81	1.91	7.20	1.05	1.21
Services	25.04	16.86	8.04	28.22	16.08	28.04	39.24	27.53	21.04

Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

LAO	MAC	MAL	MLD	MON	MYA	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE
100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
58.23	20.93	54.11	34.83	64.46	73.01	84.95	90.12	79.49	34.94	80.55	65.73	65.15	64.77
19.17	1.82	8.00	7.44	14.11	25.44	39.44	29.89	27.83	2.39	25.10	6.49	13.45	12.70
6.98	0.27	0.88	1.26	1.27	5.48	14.95	5.72	7.05	0.32	7.07	1.16	2.19	3.42
7.10	0.79	2.61	2.66	5.60	8.73	6.08	2.70	11.26	0.71	4.88	1.88	3.39	4.80
3.52	0.39	1.75	0.81	0.80	7.88	8.91	6.13	2.43	0.37	7.89	1.83	4.04	2.19
1.51	0.38	2.89	2.93	6.89	4.23	9.51	15.33	7.29	1.00	5.48	1.70	3.95	2.15
0.74	0.91	0.61	0.71	1.80	1.66	1.86	2.77	0.63	0.86	1.91	2.40	1.77	2.20
0.58	0.67	0.53	0.53	1.69	1.34	1.50	2.21	0.42	0.72	1.65	2.03	1.62	1.77
15.16	3.66	12.58	7.54	10.45	13.45	14.83	30.08	12.52	5.71	16.95	11.86	10.37	15.28
14.47	4.14	13.28	14.22	27.04	41.47	20.53	22.50	13.64	7.17	21.19	17.57	17.06	32.06
2.97	1.81	4.67	4.92	8.55	11.83	8.74	13.94	3.25	3.68	9.20	11.42	7.62	13.21
14.49	2.48	9.26	9.87	20.26	34.28	12.27	9.00	11.94	3.80	12.84	7.08	10.00	20.14
4.30	2.40	7.99	2.29	9.75	1.84	1.97	5.03	8.02	4.45	5.58	8.95	8.09	3.75
3.91	1.93	6.68	1.54	9.95	1.36	1.37	4.24	7.85	4.28	4.69	6.86	7.72	3.82
0.80	1.74	1.52	0.55	1.07	0.50	1.38	0.63	0.90	3.98	0.77	4.66	1.98	1.81
1.29	3.77	4.85	0.89	0.93	3.13	1.61	0.65	2.72	4.45	1.95	3.89	5.76	2.67
5.11	2.75	8.12	5.20	7.46	3.28	6.71	7.50	12.97	6.09	10.92	12.22	8.64	7.69
18.44	4.18	9.45	35.61	14.34	10.08	8.02	10.94	7.06	8.30	14.50	10.21	10.86	13.61
31.00	11.71	20.92	50.30	38.42	20.72	16.36	9.55	17.79	26.77	20.84	19.79	25.04	24.72
5.31	2.76	5.96	17.04	16.68	5.69	2.43	1.81	4.55	9.58	4.10	8.07	11.21	4.13
23.18	9.89	12.84	35.40	18.35	14.55	12.33	6.85	12.27	16.96	18.41	9.96	11.25	23.49
1.10	1.23	0.84	0.00	9.55	0.01	13.11	1.31	1.47	-1.09	2.25	-0.05	0.47	4.01
-1.59	47.77	11.17	-5.11	-16.31	-0.29	-11.21	-2.63	-2.14	28.39	-7.25	4.89	0.99	-1.93
50.64	18.15	45.83	27.13	52.60	57.19	77.45	82.64	73.23	31.25	67.35	59.79	55.43	54.63
25.99	7.42	18.90	46.39	29.88	30.22	13.79	16.21	11.85	12.02	30.58	15.91	21.68	25.82
58.23	20.93	54.11	34.83	64.46	73.01	84.95	90.12	79.49	34.94	80.55	65.73	65.15	64.77
30.34	6.04	18.98	15.18	25.40	32.48	46.32	46.72	34.99	9.59	38.12	26.13	26.74	26.86
27.01	2.60	12.15	13.22	20.45	32.43	48.32	44.90	31.04	3.80	36.63	11.58	18.06	21.03
2.74	1.84	3.99	1.74	4.07	2.76	2.52	5.03	3.88	2.55	4.58	8.23	6.16	4.13
2.30	1.42	2.98	1.14	1.94	0.52	1.39	1.35	2.09	2.96	0.60	6.28	3.23	2.80
15.62	12.76	27.76	10.84	26.66	20.67	24.58	31.17	37.90	22.57	25.55	33.34	28.30	26.55

Table 94. Economy Shares of Real Expenditure to Asia and the Pacific by Category, 2011
(%)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	1.54	0.02	0.11	0.14	49.55	0.02	1.30	21.14	7.56
Actual Final Consumption of Households ^a	2.19	0.02	0.04	0.22	39.83	0.03	1.58	25.18	7.94
Food and Nonalcoholic Beverages	3.93	0.02	0.04	0.36	30.71	0.04	0.78	28.80	11.02
<i>Bread and Cereals</i>	7.58	0.03	0.04	0.53	27.56	0.03	0.34	27.09	12.04
<i>Meat and Fish</i>	3.05	0.01	0.05	0.45	46.36	0.05	1.86	11.64	9.47
<i>Fruits and Vegetables</i>	3.06	0.02	0.02	0.21	32.00	0.03	0.33	36.75	9.14
<i>Other Food and Nonalcoholic Beverages</i>	2.76	0.02	0.04	0.28	20.54	0.06	0.66	35.72	12.73
Clothing and Footwear: of which	2.11	0.03	0.03	0.09	40.41	0.02	1.67	37.33	4.13
<i>Clothing</i>	2.20	0.02	0.03	0.05	38.92	0.01	1.35	39.29	3.79
Housing, Water, Electricity, Gas, and Other Fuels	2.77	0.02	0.03	0.17	37.93	0.03	1.45	23.29	10.33
Health and Education	1.49	0.02	0.04	0.31	50.76	0.02	0.69	17.91	5.59
<i>Health</i>	0.98	0.02	0.02	0.24	58.99	0.02	0.83	17.99	2.29
<i>Education</i>	2.09	0.02	0.08	0.40	41.16	0.03	0.44	15.90	10.86
Transportation and Communication: of which	0.81	0.02	0.09	0.13	38.79	0.02	1.53	28.72	6.09
<i>Transportation</i>	0.79	0.02	0.11	0.16	32.22	0.03	1.39	33.78	6.53
Recreation and Culture	0.29	0.02	0.07	0.13	60.24	0.03	5.69	7.01	3.67
Restaurants and Hotels	1.01	0.01	0.04	0.23	46.80	0.02	3.58	9.66	11.89
Other Consumption Expenditure Items	1.42	0.01	0.02	0.13	37.06	0.04	2.70	31.33	5.08
Collective Consumption Expenditure by General Government	0.95	0.05	0.25	0.11	44.01	0.03	0.80	25.02	6.89
Gross Fixed Capital Formation: of which	1.12	0.03	0.04	0.04	63.68	0.02	0.91	15.85	7.24
Machinery and Equipment	0.68	0.03	0.04	0.05	62.10	0.02	1.71	16.66	3.36
Construction	1.51	0.03	0.03	0.04	62.69	0.01	0.54	16.37	10.08
Change in Inventories and Net Acquisitions of Valuables	0.23	-0.00	-0.02	0.02	40.19	0.02	0.27	45.56	6.78
Balance of Exports and Imports	-4.30	-0.23	3.59	-0.01	79.15	-0.08	4.10	-44.46	5.02
Household Final Consumption Expenditure ^b	2.39	0.02	0.04	0.23	36.52	0.03	1.77	26.98	8.23
Government Final Consumption Expenditure	0.70	0.04	0.15	0.14	54.80	0.02	0.63	18.25	6.11
Actual Final Consumption of Households ^a	2.19	0.02	0.04	0.22	39.83	0.03	1.58	25.18	7.94
All Goods	2.74	0.02	0.04	0.25	36.56	0.03	1.33	27.29	8.82
Nondurables	3.68	0.02	0.03	0.30	32.41	0.04	0.76	28.71	10.22
Semidurables	1.40	0.02	0.06	0.11	34.93	0.02	1.83	34.32	7.10
Durables	0.70	0.01	0.08	0.15	58.37	0.02	3.92	9.32	3.81
Services	1.77	0.01	0.04	0.18	36.56	0.03	2.34	26.70	7.29

0.00 = magnitude is less than half of unit employed.

Notes:

1. Real refers to purchasing power parity-adjusted values.
2. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

LAO	MAC	MAL	MLD	MON	MYA	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE	Asia and the Pacific
0.10	0.24	2.23	0.01	0.09	0.71	0.22	2.89	2.00	1.38	0.62	3.33	3.30	1.52	100.00
0.10	0.09	2.20	0.01	0.10	0.94	0.34	4.76	2.90	0.88	0.91	4.00	3.93	1.80	100.00
0.15	0.04	1.47	0.01	0.10	1.48	0.70	7.15	4.59	0.27	1.29	1.79	3.67	1.60	100.00
0.27	0.03	0.79	0.01	0.04	1.55	1.30	6.65	5.65	0.18	1.77	1.55	2.91	2.09	100.00
0.25	0.07	2.13	0.01	0.18	2.26	0.48	2.87	8.24	0.36	1.11	2.30	4.10	2.68	100.00
0.10	0.03	1.15	0.00	0.02	1.64	0.57	5.22	1.43	0.15	1.44	1.80	3.92	0.98	100.00
0.04	0.03	1.78	0.01	0.16	0.83	0.57	12.31	4.04	0.38	0.95	1.57	3.61	0.91	100.00
0.03	0.09	0.60	0.00	0.07	0.52	0.18	3.53	0.56	0.52	0.52	3.52	2.57	1.48	100.00
0.03	0.08	0.62	0.00	0.08	0.51	0.17	3.41	0.44	0.53	0.55	3.60	2.86	1.44	100.00
0.13	0.08	2.47	0.01	0.08	0.84	0.28	7.69	2.21	0.69	0.93	3.49	3.02	2.05	100.00
0.09	0.07	1.97	0.01	0.15	1.95	0.30	4.34	1.82	0.66	0.88	3.91	3.76	3.25	100.00
0.03	0.05	1.19	0.01	0.08	0.95	0.22	4.61	0.74	0.58	0.65	4.35	2.87	2.30	100.00
0.20	0.08	2.97	0.02	0.25	3.48	0.38	3.75	3.43	0.75	1.15	3.40	4.75	4.41	100.00
0.08	0.11	3.42	0.01	0.16	0.25	0.08	2.80	3.08	1.18	0.67	5.74	5.14	1.10	100.00
0.09	0.10	3.42	0.00	0.20	0.22	0.07	2.82	3.60	1.35	0.67	5.25	5.85	1.34	100.00
0.05	0.24	1.98	0.00	0.05	0.21	0.18	1.07	1.05	3.21	0.28	9.10	3.83	1.62	100.00
0.05	0.37	4.43	0.00	0.03	0.91	0.14	0.78	2.23	2.52	0.50	5.32	7.82	1.67	100.00
0.07	0.09	2.40	0.01	0.08	0.31	0.19	2.88	3.44	1.11	0.90	5.40	3.78	1.55	100.00
0.20	0.11	2.41	0.06	0.14	0.81	0.20	3.63	1.61	1.31	1.03	3.90	4.11	2.37	100.00
0.09	0.08	1.38	0.02	0.10	0.43	0.10	0.82	1.05	1.09	0.38	1.95	2.45	1.12	100.00
0.06	0.08	1.68	0.03	0.18	0.51	0.07	0.67	1.15	1.67	0.32	3.41	4.70	0.80	100.00
0.08	0.09	1.07	0.02	0.06	0.38	0.10	0.74	0.91	0.87	0.43	1.24	1.38	1.33	100.00
0.04	0.10	0.65	0.00	0.28	0.00	0.98	1.31	1.02	-0.52	0.48	-0.05	0.54	2.11	100.00
-0.12	9.06	19.97	-0.06	-1.12	-0.16	-1.95	-6.11	-3.44	31.39	-3.62	13.10	2.62	-2.36	100.00
0.10	0.09	2.19	0.01	0.10	0.87	0.36	5.13	3.14	0.92	0.90	4.28	3.93	1.78	100.00
0.14	0.10	2.34	0.04	0.14	1.19	0.17	2.61	1.32	0.92	1.06	2.95	3.99	2.19	100.00
0.10	0.09	2.20	0.01	0.10	0.94	0.34	4.76	2.90	0.88	0.91	4.00	3.93	1.80	100.00
0.12	0.06	1.79	0.01	0.09	0.97	0.42	5.74	2.97	0.56	1.01	3.69	3.75	1.73	100.00
0.15	0.04	1.55	0.01	0.10	1.31	0.60	7.45	3.55	0.30	1.30	2.21	3.42	1.83	100.00
0.06	0.09	1.89	0.01	0.07	0.41	0.12	3.09	1.65	0.75	0.61	5.83	4.32	1.34	100.00
0.09	0.14	2.78	0.01	0.07	0.15	0.13	1.64	1.75	1.70	0.16	8.75	4.47	1.78	100.00
0.07	0.14	2.83	0.01	0.10	0.67	0.24	4.14	3.47	1.43	0.73	5.10	4.29	1.85	100.00

Appendix 1

Coverage by Type of Outlet and Location for Household Price Surveys

Location	Total Number of Outlets	Outlet Type (%)									Location Type (%)	
		Large Shops	Medium and Small Shops	Markets	Street Outlets	Bulk and Discount Shops	Specialized Shops	Private Service Providers	Public or Semipublic Service Provider	Other Kinds of Trade	Rural	Urban
		1	2	3	4	5	6	7	8	9		
Bangladesh	570	...	...	...	...	...	...	...	...	...	32.9	67.1
Bhutan	752	1.5	55.1	5.2	0.3	0.1	3.9	27.8	1.7	4.5	19.7	80.3
Brunei Darussalam	298	4.0	2.7	2.0	-	-	48.7	38.9	3.0	0.7	-	100.0
Cambodia	3,236	2.9	23.4	48.6	1.4	-	3.6	16.9	2.9	0.2	32.7	67.3
People's Republic of China	39,834	8.2	19.1	4.3	2.3	0.4	21.6	30.9	11.1	2.1	24.0	76.0
Fiji	688	14.2	8.1	8.4	1.2	-	23.7	13.5	25.7	5.1	-	100.0
Hong Kong, China	2,777	5.8	8.6	15.5	0.3	-	36.2	29.2	4.5	0.1	-	100.0
India	778	...	...	...	...	...	...	...	...	...	25.8	74.2
Indonesia	2,644	3.2	12.1	54.2	1.6	0.1	13.0	10.6	4.8	0.6	38.7	61.3
Lao People's Democratic Republic	1,398	0.4	7.8	52.1	1.0	0.9	5.7	22.9	8.5	0.9	24.7	75.3
Macao, China	888	4.2	8.4	1.9	4.2	-	46.1	33.3	1.9	-	-	100.0
Malaysia	13,982	12.6	24.7	19.8	1.0	0.2	29.6	10.1	1.6	0.3	23.4	76.6
Maldives	475	0.8	57.7	5.5	-	-	9.1	19.6	1.5	5.9	20.8	79.2
Mongolia	1,664	5.4	33.1	4.1	1.1	0.1	5.5	25.5	14.8	10.3	...	...
Myanmar	4,328	1.4	10.5	51.7	0.7	0.1	16.1	14.1	4.9	0.4	15.9	84.1
Nepal	4,577	1.4	18.3	17.9	3.3	0.7	27.9	26.0	3.2	1.3	22.1	77.9
Pakistan	21,896	2.5	0.8	1.7	1.7	-	40.3	39.5	6.7	6.7	8.7	91.3
Philippines	6,351	5.9	9.0	19.2	12.1	-	30.1	18.1	2.5	3.0	11.4	88.6
Singapore	571	...	...	...	...	...	...	...	...	...	-	100.0
Sri Lanka	2,804	4.0	65.2	11.1	1.7	0.4	7.0	9.2	0.8	0.6	36.4	63.6
Taipei, China	585	2.4	2.2	13.3	-	-	46.5	25.8	8.5	1.2	-	100.0
Thailand	2,717	4.0	9.6	14.5	1.8	1.2	33.7	24.7	10.0	0.4	11.2	88.8
Viet Nam	306	12.4	8.2	35.9	0.7	0.3	16.0	15.0	11.4	-	31.0	69.0

... = data not available, - = magnitude equals zero.

Source: ADB. 2011. International Comparison Program Asia Pacific Software Suite; Economy sources for Bangladesh and Singapore.

Appendix 2

International Comparison Program Classification: Gross Domestic Product and Its Structure, 2011

Code	Description	Average Share in GDP (%)	Number of items Specified	Number of Items Priced/Collected		
				Average	Minimum	Maximum
100000	GROSS DOMESTIC PRODUCT	100.00	1,133			
	Actual Final Consumption Expenditure	50.63	920			
110000	Individual Consumption Expenditure By Households	44.00	886			
110100	Food and Nonalcoholic Beverages	12.04	258			
110110	Food	11.55	235			
110111	Bread and cereals	2.76	65			
1101111	Rice	1.50	20	8	1	20
1101112	Other cereals, flour, and other cereal products	0.63	21	10	5	20
1101113	Bread	0.12	6	5	2	6
1101114	Other bakery products	0.25	11	9	6	11
1101115	Pasta products	0.25	7	6	3	7
110112	Meat	1.66	39			
1101121	Beef and Veal	0.29	9	6	1	9
1101122	Pork	0.60	7	5	0	7
1101123	Lamb, mutton, and goat	0.14	5	2	0	5
1101124	Poultry	0.39	11	8	2	11
1101125	Other meats and meat preparations	0.24	7	4	1	7
110113	Fish	1.20	24			
1101131	Fresh, chilled or frozen fish and seafood	1.02	17	11	1	17
1101132	Preserved or processed fish and seafood	0.18	7	5	1	7
110114	Milk, cheese, and eggs	1.48	25			
1101141	Fresh milk	0.65	4	2	0	4
1101142	Preserved milk and other milk products	0.52	10	8	5	10
1101143	Cheese	0.06	7	3	1	5
1101144	Eggs and egg-based products	0.25	4	3	1	4
110115	Oils and fats	0.53	15			
1101151	Butter and Margarine	0.11	5	3	2	4
1101153	Other edible oils and fats	0.42	10	6	1	10
110116	Fruit	0.89	16			
1101161	Fresh or chilled fruit	0.75	12	10	7	12
1101162	Frozen, preserved or processed fruit and fruit-based products	0.14	4	3	1	4

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Appendix 2 *continued*

Code	Description	Average Share in GDP (%)	Number of items Specified	Number of Items Priced/Collected		
				Average	Minimum	Maximum
110117	Vegetables	1.90	26			
1101171	Fresh or chilled vegetables other than potatoes	1.45	15	14	10	15
1101172	Fresh or chilled potatoes	0.19	4	3	1	4
1101173	Frozen, preserved or processed vegetables and vegetable-based products	0.26	7	5	3	7
110118	Sugar, jam, honey, chocolate, and confectionery	0.45	12			
1101181	Sugar	0.26	3	2	1	3
1101182	Jams, marmalades, and honey	0.05	3	3	1	3
1101183	Confectionery, chocolate, and ice cream	0.15	6	4	1	6
110119	Food products, n.e.c.	0.68	13			
1101191	Food products, n.e.c.	0.68	13	10	7	13
110120	Nonalcoholic beverages	0.49	23			
110121	Coffee, tea, and cocoa	0.20	15			
1101211	Coffee, tea, and cocoa	0.20	15	9	4	14
110122	Mineral waters, soft drinks, fruit, and vegetable juices	0.29	8			
1101221	Mineral waters, soft drinks, fruit, and vegetable juices	0.29	8	7	5	8
110200	Alcoholic Beverages, Tobacco, and Narcotics	1.14	21			
110210	Alcoholic beverages	0.36	15			
110211	Spirits	0.20	4			
1102111	Spirits	0.20	4	2	0	3
110212	Wine	0.05	7			
1102121	Wine	0.05	7	4	0	7
110213	Beer	0.10	4			
1102131	Beer	0.10	4	3	0	4
110220	Tobacco	0.78	6			
110221	Tobacco	0.78	6			
1102211	Tobacco	0.78	6	3	0	6
110230	Narcotics		a			
110231	Narcotics		a			
1102311	Narcotics		a	a	a	a
110300	Clothing and Footwear	2.95	96			
110310	Clothing	2.46	82			
110311	Clothing materials, other articles of clothing, and clothing accessories	0.33	8			
1103111	Clothing materials, other articles of clothing, and clothing accessories	0.33	8	5	2	6
110312	Garments	2.07	72			
1103121	Garments	2.07	72	51	33	60
110314	Cleaning, repair, and hire of clothing	0.05	2			
1103141	Cleaning, repair, and hire of clothing	0.05	2	2	0	2

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Appendix 2 *continued*

Code	Description	Average Share in GDP (%)	Number of items Specified	Number of Items Priced/Collected		
				Average	Minimum	Maximum
110320	Footwear	0.49	14			
110321	Shoes and other footwear	0.48	12			
1103211	Shoes and other footwear	0.48	12	10	7	11
110322	Repair and hire of footwear	0.01	2			
1103221	Repair and hire of footwear	0.01	2	2	0	2
110400	Housing, Water, Electricity, Gas, and Other Fuels	7.38	13			
110410	Actual and imputed rentals for housing	4.60	a			
110411	Actual and imputed rentals for housing	4.60	a			
1104111	Actual and imputed rentals for housing	4.60	a	a	a	a
110430	Maintenance and repair of the dwelling	0.67	6			
110431	Maintenance and repair of the dwelling	0.67	6			
1104311	Maintenance and repair of the dwelling	0.67	6	5	3	6
110440	Water supply and miscellaneous services relating to the dwelling	0.30	1			
110441	Water supply	0.18	1			
1104411	Water supply	0.18	1	1	0	1
110442	Miscellaneous services relating to the dwelling	0.12	a			
1104421	Miscellaneous services relating to the dwelling	0.12	a	a	a	a
110450	Electricity, gas and other fuels	1.80	6			
110451	Electricity	0.81	1			
1104511	Electricity	0.81	1	1	1	1
110452	Gas	0.33	2			
1104521	Gas	0.33	2	1	1	2
110453	Other fuels	0.67	3			
1104531	Other fuels	0.67	3	2	0	3
110500	Furnishings, Household Equipment, and Routine Maintenance of the House	2.19	122			
110510	Furniture and furnishings, carpets, and other floor coverings	0.39	21			
110511	Furniture and furnishings	0.35	18			
1105111	Furniture and furnishings	0.35	18	14	6	18
110512	Carpets and other floor coverings	0.03	3			
1105121	Carpets and other floor coverings	0.03	3	2	0	3
110513	Repair of furniture, furnishings, and floor coverings	0.01	a			
1105131	Repair of furniture, furnishings, and floor coverings	0.01	a	a	a	a
110520	Household textiles	0.21	10			
110521	Household textiles	0.21	10			
1105211	Household textiles	0.21	10	8	5	10
110530	Household appliances	0.73	53			
110531	Major household appliances whether electric or not	0.51	22			

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Appendix 2 *continued*

Code	Description	Average Share in GDP (%)	Number of items Specified	Number of Items Priced/Collected		
				Average	Minimum	Maximum
1105311	Major household appliances whether electric or not	0.51	22	11	6	19
110532	Small electric household appliances	0.18	28			
1105321	Small electric household appliances	0.18	28	14	7	27
110533	Repair of household appliances	0.04	3			
1105331	Repair of household appliances	0.04	3	2	0	3
110540	Glassware, tableware, and household utensils	0.18	13			
110541	Glassware, tableware, and household utensils	0.18	13			
1105411	Glassware, tableware, and household utensils	0.18	13	12	8	13
110550	Tools and equipment for house and garden	0.09	10			
110551	Major tools and equipment	0.01	a			
1105511	Major tools and equipment	0.01	a	a	a	a
110552	Small tools and miscellaneous accessories	0.08	10			
1105521	Small tools and miscellaneous accessories	0.08	10	9	6	10
110560	Goods and services for routine household maintenance	0.58	15			
110561	Nondurable household goods	0.36	13			
1105611	Nondurable household goods	0.36	13	12	9	13
110562	Domestic services and household services	0.23	2			
1105621	Domestic services	0.19	2	2	0	2
1105622	Household services	0.03	a	a	a	a
110600	Health	2.38	155			
110610	Medical products, appliances, and equipment	1.57	138			
110611	Pharmaceutical products	1.29	112			
1106111	Pharmaceutical products	1.29	112	28	3	51
110612	Other medical products	0.16	14			
1106121	Other medical products	0.16	14	9	5	13
110613	Therapeutical appliances and equipment	0.13	12			
1106131	Therapeutical appliances and equipment	0.13	12	8	0	11
110620	Outpatient services	0.42	17			
110621	Medical Services	0.27	6			
1106211	Medical Services	0.27	6	5	0	6
110622	Dental services	0.06	4			
1106221	Services of dentists	0.06	4	4	0	4
110623	Paramedical services	0.09	7			
1106231	Paramedical services	0.09	7	6	0	7
110630	Hospital services	0.39	a			
110631	Hospital services	0.39	a			
1106311	Hospital services	0.39	a	a	a	a
110700	Transport	4.32	56			
110710	Purchase of vehicles	1.21	18			

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Appendix 2 *continued*

Code	Description	Average Share in GDP (%)	Number of items Specified	Number of Items Priced/Collected		
				Average	Minimum	Maximum
110711	Motor cars	0.93	5			
1107111	Motor cars	0.93	5	2	0	5
110712	Motorcycles	0.19	10			
1107121	Motorcycles	0.19	10	3	0	9
110713	Bicycles	0.08	3			
1107131	Bicycles	0.08	3	2	0	3
110714	Animal drawn vehicles		a			
1107141	Animal drawn vehicles		a	a	a	a
110720	Operation of personal transport equipment	1.57	20			
110722	Fuels and lubricants for personal transport equipment	1.03	8			
1107221	Fuels and lubricants for personal transport equipment	1.03	8	6	1	8
110723	Maintenance and repair of personal transport equipment	0.38	12			
1107231	Maintenance and repair of personal transport equipment	0.38	12	9	6	12
110724	Other services in respect of personal transport equipment	0.15	a			
1107241	Other services in respect of personal transport equipment	0.15	a	a	a	a
110730	Transport services	1.54	18			
110731	Passenger transport by railway	0.18	6			
1107311	Passenger transport by railway	0.18	6	2	0	6
110732	Passenger transport by road	1.09	6			
1107321	Passenger transport by road	1.09	6	4	0	6
110733	Passenger transport by air	0.22	6			
1107331	Passenger transport by air	0.22	6	4	1	6
110734	Passenger transport by sea and inland waterway	0.03	a			
1107341	Passenger transport by sea and inland waterway	0.03	a	a	a	a
110735	Combined passenger transport	0.01	a			
1107351	Combined passenger transport	0.01	a	a	a	a
110736	Other purchased transport services	0.02	a			
1107361	Other purchased transport services	0.02	a	a	a	a
110800	Communication	1.35	18			
110810	Postal services	0.04	2			
110811	Postal services	0.04	2			
1108111	Postal services	0.04	2	2	0	2
110820	Telephone and telefax equipment	0.32	9			
110821	Telephone and telefax equipment	0.32	9			
1108211	Telephone and telefax equipment	0.32	9	5	2	9
110830	Telephone and telefax services	1.00	7			

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Appendix 2 *continued*

Code	Description	Average Share in GDP (%)	Number of items Specified	Number of Items Priced/Collected		
				Average	Minimum	Maximum
110831	Telephone and telefax services	1.00	7			
1108311	Telephone and telefax services	1.00	7	4	1	6
110900	Recreation and Culture	1.96	81			
110910	Audiovisual, photographic, and information processing equipment	0.50	43			
110911	Audiovisual, photographic, and information processing equipment	0.45	30			
1109111	Audiovisual, photographic, and information processing equipment	0.45	30	11	6	20
110914	Recording media	0.03	11			
1109141	Recording media	0.03	11	7	4	11
110915	Repair of audiovisual, photographic, and information processing equipment	0.02	2			
1109151	Repair of audiovisual, photographic, and information processing equipment	0.02	2	1	0	2
110920	Other major durables for recreation and culture	0.15	a			
110921	Major durables for outdoor and indoor recreation	0.15	a			
1109211	Major durables for outdoor and indoor recreation	0.15	a	a	a	a
110923	Maintenance and repair of other major durables for recreation and culture		a			
1109231	Maintenance and repair of other major durables for recreation and culture		a	a	a	a
110930	Other recreational items and equipment, gardens and pets	0.20	12			
110931	Other recreational items and equipment	0.14	12			
1109311	Other recreational items and equipment	0.14	12	9	4	12
110933	Gardens and pets	0.06	a			
1109331	Gardens and pets	0.06	a	a	a	a
110935	Veterinary and other services for pets	0.01	a			
1109351	Veterinary and other services for pets	0.01	a	a	a	a
110940	Recreational and cultural services	0.47	10			
110941	Recreational and sporting services	0.20	4			
1109411	Recreational and sporting services	0.20	4	3	1	4
110942	Cultural services	0.19	6			
1109421	Cultural services	0.19	6	5	2	6
110943	Games of chance	0.08	a			
1109431	Games of chance	0.08	a	a	a	a
110950	Newspapers, books, and stationery	0.33	9			
110951	Newspapers, books, and stationery	0.33	9			
1109511	Newspapers, books, and stationery	0.33	9	8	6	9
110960	<i>Package holidays</i>	0.31	7			

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Appendix 2 *continued*

Code	Description	Average Share in GDP (%)	Number of items Specified	Number of Items Priced/Collected		
				Average	Minimum	Maximum
110961	Package holidays	0.31	7			
1109611	Package holidays	0.31	7	4	0	7
111000	Education	1.46	6			
111010	Education	1.46	6			
111011	Education	1.46	6			
1110111	Education	1.46	6	5	1	6
111100	Restaurants and Hotels	2.52	21			
111110	Catering services	2.22	17			
111111	Catering services	2.22	17			
1111111	Catering services	2.22	17	13	7	17
111120	Accommodation services	0.30	4			
111121	Accommodation services	0.30	4			
1111211	Accommodation services	0.30	4	4	2	4
111200	Miscellaneous Goods and Services	4.31	39			
111210	Personal care	0.88	24			
111211	Hairdressing salons and personal grooming establishments	0.19	6			
1112111	Hairdressing salons and personal grooming establishments	0.19	6	6	5	6
111212	Appliances, articles, and products for personal care	0.69	18			
1112121	Appliances, articles, and products for personal care	0.69	18	17	14	18
111220	Prostitution		a			
111221	Prostitution		a			
1112211	Prostitution		a	a	a	a
111230	Personal effects n.e.c.	0.69	15			
111231	Jewellery, clocks, and watches	0.33	10			
1112311	Jewellery, clocks, and watches	0.33	10	7	2	10
111232	Other personal effects	0.36	5			
1112321	Other personal effects	0.36	5	5	4	5
111240	Social protection	0.04	a			
111241	Social protection	0.04	a			
1112411	Social protection	0.04	a	a	a	a
111250	Insurance	0.71	a			
111251	Insurance	0.71	a			
1112511	Insurance	0.71	a	a	a	a
111260	Financial services n.e.c.	1.16	a			
111261	Financial intermediation services indirectly measured	0.71	a			
1112611	Financial intermediation services indirectly measured	0.71	a	a	a	a
111262	Other financial services n.e.c.	0.45	a			

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Appendix 2 *continued*

Code	Description	Average Share in GDP (%)	Number of items Specified	Number of Items Priced/Collected		
				Average	Minimum	Maximum
1112621	Other financial services n.e.c.	0.45	a	a	a	a
111270	Other services n.e.c.	0.83	a			
111271	Other services n.e.c.	0.83	a			
1112711	Other services n.e.c.	0.83	a	a	a	a
111300	Net Expenditures of Residents Abroad	0.00	a			
111310	Balance of Expenditures of Residents Abroad and Expenditures of Nonresidents on the Economic Territory	0.00	a			
111311	Balance of Expenditures of Residents Abroad and Expenditures of Nonresidents on the Economic Territory	0.00	a			
1113111	Final consumption expenditure of resident households in the rest of the world	0.00	a	a	a	a
1113112	Final consumption expenditure of non-resident households on the economic territory	0.00	a	a	a	a
120000	Individual Consumption Expenditure By Nonprofit Institutions Serving Households (NPISHs)		a			
120100	Individual Consumption Expenditure By NPISHs		a			
120110	Individual consumption expenditure by NPISHs		a			
120111	Individual consumption expenditure by NPISHs		a			
1201111	Individual consumption expenditure by NPISHs		a	a	a	a
130000	Individual Consumption Expenditure By Government	6.63	34			
130100	Housing	0.05	a			
130110	Housing	0.05	a			
130111	Housing	0.05	a			
1301111	Housing	0.05	a	a	a	a
130200	Health	2.80	18			
130210	Health benefits and reimbursements	0.95	a			
130211	Medical products, appliances and equipment	0.51	a			
1302111	Pharmaceutical products	0.49	a	a	a	a
1302112	Other medical products	0.01	a	a	a	a
1302113	Therapeutic appliances and equipment	0.02	a	a	a	a
130212	Health services	0.44	a			
1302121	Outpatient medical services	0.10	a	a	a	a
1302122	Outpatient dental services	0.02	a	a	a	a
1302123	Outpatient paramedical services	0.10	a	a	a	a
1302124	Hospital services	0.22	a	a	a	a
130220	Production of health services	1.85	18			
130221	Compensation of employees	0.68	18			
1302211	Compensation of employees	0.68	18			
130222	Intermediate consumption	1.16	a			

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Appendix 2 *continued*

Code	Description	Average Share in GDP (%)	Number of items Specified	Number of Items Priced/Collected		
				Average	Minimum	Maximum
1302221	Intermediate consumption	1.16	a	a	a	a
130223	Gross operating surplus	0.01	a			
1302231	Gross operating surplus	0.01	a	a	a	a
130224	Net taxes on production	0.00	a			
1302241	Net taxes on production	0.00	a	a	a	a
130225	Receipts from sales	0.00	a			
1302251	Receipts from sales	0.00	a	a	a	a
130300	Recreation and Culture	0.31	a			
130310	Recreation and culture	0.31	a			
130311	Recreation and culture	0.31	a			
1303111	Recreation and culture	0.31	a	a	a	a
130400	Education	2.69	16			
130410	Education benefits and reimbursements	0.08	a			
130411	Education benefits and reimbursements	0.08	a			
1304111	Education benefits and reimbursements	0.08	a	a	a	a
130420	Production of education services	2.61	16			
130421	Compensation of employees	1.85	16			
1304211	Compensation of employees	1.85	16			
130422	Intermediate consumption	0.72	a			
1304221	Intermediate consumption	0.72	a	a	a	a
130423	Gross operating surplus	0.04	a			
1304231	Gross operating surplus	0.04	a	a	a	a
130424	Net taxes on production	0.00	a			
1304241	Net taxes on production	0.00	a	a	a	a
130425	Receipts from sales	0.00	a			
1304251	Receipts from sales	0.00	a	a	a	a
130500	Social Protection	0.79	a			
130510	Social protection	0.79	a			
130511	Social protection	0.79	a			
1305111	Social protection	0.79	a	a	a	a
140000	Collective Consumption Expenditure By Government	6.62	24			
140100	Collective Services	6.62	24			
140110	Collective services	6.62	24			
140111	Compensation of employees	3.44	24			
1401111	Compensation of employees	3.44	24			
140112	Intermediate consumption	2.86	a			
1401121	Intermediate consumption	2.86	a	a	a	a
140113	Gross operating surplus	0.32	a			
1401131	Gross operating surplus	0.32	a	a	a	a

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Appendix 2 *continued*

Code	Description	Average Share in GDP (%)	Number of items Specified	Number of Items Priced/Collected		
				Average	Minimum	Maximum
140114	Net taxes on production	0.00	a			
1401141	Net taxes on production	0.00	a	a	a	a
140115	Receipts from sales	0.00	a			
1401151	Receipts from sales	0.00	a	a	a	a
150000	Expenditure on Gross Fixed Capital Formation	37.83	189			
150100	Machinery and Equipment	11.66	136			
150110	Metal products and equipment	8.06	118			
150111	Fabricated metal products, except machinery and equipment		a			
1501111	Fabricated metal products, except machinery and equipment		a	a	a	a
150112	General purpose machinery		24			
1501121	General purpose machinery		24	12	1	22
150113	Special purpose machinery		53			
1501131	Special purpose machinery		53	19	1	45
150114	Electrical and optical equipment		41			
1501141	Electrical and optical equipment		41	24	6	41
150115	Other manufactured goods n.e.c.		a			
1501151	Other manufactured goods n.e.c.		a	a	a	a
150120	Transport equipment	3.61	18			
150121	Road transport equipment		18			
1501211	Motor vehicles, trailers and semi-trailers		18	7	0	18
1501212	Other road transport		a	a	a	a
150122	Other transport equipment		a			
1501221	Other transport equipment		a	a	a	a
150200	Construction^b	23.41	53			
150210	Residential buildings	6.19	53			
150211	Residential buildings	6.19	53			
1502111	Residential buildings	6.19	53	44	30	52
150220	Nonresidential buildings	5.39	53			
150221	Nonresidential buildings	5.39	53			
1502211	Nonresidential buildings	5.39	53	44	30	52
150230	Civil engineering works	11.83	53			
150231	Civil engineering works	11.83	53			
1502311	Civil engineering works	11.83	53	44	30	52
150300	Other products	2.75	a			
150310	Other products	2.75	a			
150311	Other products	2.75	a			
1503111	Other products	2.75	a	a	a	a

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Appendix 2 *continued*

Code	Description	Average Share in GDP (%)	Number of items Specified	Number of Items Priced/Collected		
				Average	Minimum	Maximum
160000	Changes in Inventories and Net Acquisitions of Valuables	3.03	a			
160100	Changes in Inventories		a			
160110	Changes in inventories		a			
160111	Changes in inventories		a			
1601111	Opening value of inventories		a	a	a	a
1601112	Closing value of inventories		a	a	a	a
160200	Acquisitions Less Disposals of Valuables		a			
160210	Acquisitions less disposals of valuables		a			
160211	Acquisitions less disposals of valuables		a			
1602111	Acquisitions of valuables		a	a	a	a
1602112	Disposals of valuables		a	a	a	a
170000	Balance of Exports and Imports	1.89	a			
170100	Balance of Exports and Imports	1.89	a			
170110	Balance of Exports and Imports	1.89	a			
170111	Balance of Exports and Imports	1.89	a			
1701111	Exports of goods and services	1.89	a	a	a	a
1701112	Imports of goods and services	0.00	a	a	a	a

GDP = gross domestic product, n.e.c. = not elsewhere classified.

^a Reference purchasing power parities were used.

^b Only one set of basic inputs and components was used for total construction.

Source: ADB estimates.

Appendix 3

2011 Exchange Rate-Based Comparison

This appendix presents the results of exchange rate-based (or nominal) gross domestic product (GDP) expressed in Hong Kong dollar. The estimates were obtained by dividing GDP in local currency unit by the corresponding exchange rate in each particular economy. Per capita GDP was derived by dividing nominal GDP by the population estimate.

While using GDP data adjusted by purchasing power parity (PPP) is the preferred means of making international comparisons, the tables showing nominal GDPs are also presented to enable a comparison between the outcomes of using exchange rate-based figures and PPP-based estimates. It is important to note that nominal GDPs reflect differences in both the volume and price levels. The PPP-adjusted (i.e., real) values reflect differences only in the volumes between economies because PPPs remove the effects of differences in the purchasing power of currencies.

The following tables are presented in this appendix:

Appendix Table 3.1	Exchange Rate and Population, 2011
Appendix Table 3.2	Nominal Expenditures, 2011
Appendix Table 3.3	Per Capita Nominal Expenditures, 2011
Appendix Table 3.4	Shares of Nominal Gross Domestic Product within Each Economy, 2011
Appendix Table 3.5	Economy Shares of Nominal Expenditures to Asia and the Pacific by Category, 2011
Appendix Table 3.6	Per Capita Nominal Expenditure Indexes, 2011

Appendix Table 3.1. Exchange Rate and Population, 2011

Economy	Exchange Rate (LCU per Hong Kong dollar)	Population (thousand)
Bangladesh	9.53	149,700
Bhutan	6.00	708
Brunei Darussalam	0.16	393
Cambodia	521.39	14,226
China, People's Republic of	0.83	1,341,981
Fiji	0.23	854
Hong Kong, China	1.00	7,072
India	6.00	1,215,957
Indonesia	1,126.73	241,038
Lao People's Democratic Republic	1,031.61	6,385
Macao, China	1.03	557
Malaysia	0.39	28,964
Maldives	1.88	325
Mongolia	162.58	2,679
Myanmar	105.08	60,380
Nepal	9.51	26,494
Pakistan	11.09	177,110
Philippines	5.56	94,185
Singapore	0.16	5,184
Sri Lanka	14.20	20,869
Taipei, China	3.79	23,225
Thailand	3.92	67,597
Viet Nam	2,634.86	87,840

LCU = local currency unit.

Sources: ADB. 2013. *Key Indicators for Asia and the Pacific 2013*. Manila; economy sources; International Monetary Fund. 2013. International Financial Statistics (accessed 25 June 2013).

Appendix Table 3.2. Nominal Expenditures, 2011
(billion Hong Kong dollars)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	1,018.54	14.33	129.93	99.87	56,993.94	29.21	1,936.08	14,509.26	6,587.92
Actual Final Consumption of Households ^a	766.22	7.40	31.00	84.16	24,456.61	22.40	1,289.85	8,586.01	3,835.46
Food and Nonalcoholic Beverages	390.01	2.17	5.63	38.54	4,595.74	6.62	139.84	2,415.94	1,451.25
<i>Bread and Cereals</i>	173.63	0.57	1.14	11.82	972.89	0.88	12.49	514.26	362.02
<i>Meat and Fish</i>	74.37	0.25	1.81	11.40	1,486.45	1.88	75.41	230.77	250.88
<i>Fruits and Vegetables</i>	52.75	0.55	0.91	5.54	1,147.67	1.06	16.48	706.87	295.01
<i>Other Food and Nonalcoholic Beverages</i>	89.27	0.80	1.77	9.77	988.73	2.80	35.47	964.03	543.33
Clothing and Footwear: of which	45.89	0.54	1.35	1.61	1,690.46	0.54	56.35	604.00	143.31
<i>Clothing</i>	40.96	0.37	1.17	0.83	1,399.60	0.32	37.73	518.63	111.76
Housing, Water, Electricity, Gas, and Other Fuels	131.79	1.30	3.73	12.49	3,389.80	5.51	244.86	1,104.08	780.82
Health and Education	69.42	1.48	6.82	11.63	6,129.24	2.46	153.63	784.20	411.77
<i>Health</i>	27.99	0.83	1.71	5.94	3,668.82	1.15	108.27	399.56	128.51
<i>Education</i>	41.43	0.65	5.11	5.69	2,460.41	1.31	45.35	384.64	283.26
Transportation and Communication: of which	35.75	0.88	6.31	6.50	2,259.41	1.83	117.96	1,379.55	336.28
<i>Transportation</i>	32.08	0.70	4.63	6.29	1,429.22	1.74	90.19	1,290.50	262.46
Recreation and Culture	5.55	0.46	2.36	2.34	1,328.99	1.08	144.44	129.04	74.48
Restaurants and Hotels	17.40	0.08	1.56	4.03	1,245.11	0.59	129.62	214.08	275.03
Other Consumption Expenditure Items	70.40	0.48	3.25	7.03	3,817.86	3.77	303.15	1,955.12	362.53
Collective Consumption Expenditure by General Government	37.77	1.71	16.37	3.70	3,563.84	1.77	103.46	1,200.23	355.40
Gross Fixed Capital Formation: of which	288.53	9.54	17.02	11.58	25,982.80	5.65	455.05	4,487.92	2,105.89
Machinery and Equipment	68.53	3.94	5.10	5.69	7,451.37	2.73	200.59	1,713.63	347.08
Construction	216.23	5.59	10.72	5.76	16,395.45	2.12	213.98	2,604.93	1,707.36
Change in Inventories and Net Acquisitions of Valuables	5.57	-0.05	-0.87	0.53	1,525.40	0.88	11.74	1,058.11	198.20
Balance of Exports and Imports	-79.55	-4.26	66.41	-0.11	1,465.29	-1.49	75.98	-823.00	92.97
Household Final Consumption Expenditure ^b	751.01	6.27	25.30	79.46	19,581.68	20.80	1,224.82	8,113.86	3,597.47
Government Final Consumption Expenditure	52.98	2.84	22.07	8.40	8,438.76	3.37	168.49	1,672.38	593.39
Actual Final Consumption of Households ^a	766.22	7.40	31.00	84.16	24,456.61	22.40	1,289.85	8,586.01	3,835.46
All Goods	568.24	4.25	13.32	57.20	12,044.12	11.53	465.03	5,015.93	2,375.06
Nondurables	477.78	2.93	6.67	47.95	7,123.20	9.13	197.96	3,279.82	1,858.46
Semidurables	62.34	0.92	3.64	4.74	2,747.84	1.53	127.74	1,458.72	373.02
Durables	28.12	0.40	3.00	4.52	2,173.08	0.88	139.33	277.39	143.58
Services	182.77	2.02	11.98	22.26	7,537.56	9.27	759.80	3,097.93	1,222.41

0.00 = magnitude is less than half of unit employed.

Note: Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

LAO	MAC	MAL	MLD	MON	MYA	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE	Asia and the Pacific
62.74	286.43	2,249.88	16.84	77.17	429.48	152.43	1,729.82	1,744.36	2,067.60	460.62	3,621.15	2,838.87	1,055.04	98,111.53
36.80	66.96	1,207.09	6.38	46.83	299.64	122.41	1,469.18	1,342.11	886.08	353.78	2,333.89	1,758.91	669.04	49,678.22
18.78	6.40	205.35	1.23	13.39	156.58	68.62	649.11	548.73	55.26	149.72	274.87	450.70	172.99	11,817.45
7.95	1.03	25.30	0.27	1.46	39.91	28.05	145.72	158.30	8.42	42.06	58.11	87.23	49.91	2,703.42
6.56	2.72	59.86	0.30	4.05	48.76	11.20	58.62	193.74	17.86	27.42	79.45	97.98	69.11	2,810.86
2.66	1.35	47.12	0.19	1.17	37.57	11.64	85.02	53.35	8.30	43.95	68.07	125.65	24.32	2,737.21
1.62	1.31	73.07	0.47	6.70	30.33	17.73	359.74	143.34	20.67	36.29	69.24	139.85	29.64	3,565.96
0.57	4.12	22.06	0.13	2.35	9.25	3.20	68.28	18.13	23.49	10.53	99.16	59.20	27.59	2,892.12
0.46	3.15	19.09	0.10	2.19	7.72	2.65	56.18	12.37	19.12	9.11	86.42	55.91	22.80	2,408.65
4.71	10.22	178.22	2.48	6.72	39.68	15.85	284.84	159.05	161.68	48.06	385.96	159.78	152.86	7,284.49
2.36	9.63	197.58	1.21	6.92	43.47	12.08	161.33	138.09	156.99	37.78	425.64	287.78	106.23	9,157.73
0.83	4.77	70.97	0.37	2.20	18.55	5.14	91.44	42.45	74.72	18.29	222.54	133.44	48.71	5,077.19
1.53	4.85	126.60	0.84	4.72	24.93	6.94	69.89	95.64	82.28	19.48	203.10	154.34	57.52	4,080.54
4.34	7.68	231.45	0.37	8.73	14.42	5.58	118.62	178.96	127.47	34.16	325.57	282.67	71.87	5,556.36
3.89	5.80	158.86	0.24	7.36	9.83	3.86	94.19	138.46	110.86	27.45	242.59	246.17	66.92	4,234.31
0.97	6.89	47.55	0.13	1.34	3.43	3.08	16.33	23.29	95.89	4.92	222.44	81.85	26.51	2,223.36
1.10	12.67	99.54	0.11	0.81	13.49	2.54	14.99	47.39	91.67	13.50	125.04	137.51	29.21	2,477.09
3.96	9.34	225.35	0.72	6.59	19.32	11.46	155.69	228.46	173.63	55.11	475.20	299.42	81.80	8,269.62
4.90	12.05	149.59	3.01	5.51	18.04	10.20	122.28	108.99	133.57	35.97	289.57	256.47	62.36	6,496.74
22.40	35.54	501.59	8.48	36.35	114.78	31.50	223.74	326.57	491.40	124.79	757.02	759.08	313.88	37,111.10
6.69	8.24	181.30	3.27	21.65	55.88	6.86	71.81	125.57	182.99	38.17	352.41	508.73	81.49	11,443.72
10.95	26.98	250.17	5.21	13.42	49.78	17.52	106.96	162.55	289.18	78.75	342.68	238.71	214.25	22,969.25
0.93	4.13	22.02	0.00	9.29	0.05	24.35	27.68	30.32	-24.52	13.12	-1.82	15.86	53.35	2,974.27
-2.27	167.75	369.59	-1.03	-20.81	-3.04	-36.03	-113.06	-63.63	581.07	-67.04	242.50	48.56	-43.60	1,851.20
35.62	58.74	1,063.97	5.43	42.35	273.71	117.21	1,416.48	1,281.83	805.56	321.62	2,175.32	1,551.12	621.80	43,171.45
6.07	20.27	292.71	3.96	9.99	43.98	15.40	174.98	169.26	214.09	68.13	448.13	464.25	109.61	13,003.51
36.80	66.96	1,207.09	6.38	46.83	299.64	122.41	1,469.18	1,342.11	886.08	353.78	2,333.89	1,758.91	669.04	49,678.22
29.11	21.79	528.26	2.65	24.32	211.01	89.51	1,005.37	788.81	263.65	225.10	1,036.06	968.46	381.23	26,130.04
23.55	8.86	301.59	2.05	17.74	188.67	79.13	832.95	644.37	102.87	192.31	445.32	599.44	260.36	16,703.11
2.58	7.44	112.96	0.30	4.71	17.09	4.71	126.04	93.77	63.07	26.82	321.84	221.09	52.69	5,835.60
2.98	5.49	113.71	0.31	1.87	5.26	5.67	46.37	50.67	97.71	5.97	268.91	147.93	68.18	3,591.32
6.51	36.94	535.71	2.77	18.03	62.69	27.70	411.11	493.02	541.91	96.53	1,139.26	582.66	240.57	17,041.41

Appendix Table 3.3. Per Capita Nominal Expenditures, 2011
(Hong Kong dollars)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FJI	HKG	IND	INO
GROSS DOMESTIC PRODUCT	6,804	20,240	330,290	7,020	42,470	34,197	273,783	11,932	27,331
Actual Final Consumption of Households ^a	5,118	10,452	78,809	5,916	18,224	26,225	182,399	7,061	15,912
Food and Nonalcoholic Beverages	2,605	3,060	14,307	2,709	3,425	7,745	19,775	1,987	6,021
<i>Bread and Cereals</i>	1,160	811	2,889	831	725	1,033	1,766	423	1,502
<i>Meat and Fish</i>	497	347	4,607	802	1,108	2,196	10,663	190	1,041
<i>Fruits and Vegetables</i>	352	776	2,315	390	855	1,242	2,330	581	1,224
<i>Other Food and Nonalcoholic Beverages</i>	596	1,126	4,497	687	737	3,274	5,016	793	2,254
Clothing and Footwear: of which	307	767	3,438	113	1,260	634	7,968	497	595
<i>Clothing</i>	274	520	2,971	59	1,043	377	5,336	427	464
Housing, Water, Electricity, Gas, and Other Fuels	880	1,838	9,485	878	2,526	6,449	34,626	908	3,239
Health and Education	464	2,092	17,331	818	4,567	2,882	21,725	645	1,708
<i>Health</i>	187	1,170	4,349	418	2,734	1,345	15,311	329	533
<i>Education</i>	277	922	12,982	400	1,833	1,536	6,414	316	1,175
Transportation and Communication: of which	239	1,246	16,034	457	1,684	2,147	16,681	1,135	1,395
<i>Transportation</i>	214	993	11,766	442	1,065	2,034	12,754	1,061	1,089
Recreation and Culture	37	646	6,001	164	990	1,264	20,426	106	309
Restaurants and Hotels	116	119	3,956	283	928	692	18,330	176	1,141
Other Consumption Expenditure Items	470	684	8,257	494	2,845	4,412	42,868	1,608	1,504
Collective Consumption Expenditure by General Government	252	2,409	41,618	260	2,656	2,068	14,630	987	1,474
Gross Fixed Capital Formation: of which	1,927	13,463	43,255	814	19,362	6,619	64,349	3,691	8,737
Machinery and Equipment	458	5,562	12,977	400	5,553	3,191	28,366	1,409	1,440
Construction	1,444	7,893	27,250	405	12,217	2,483	30,260	2,142	7,083
Change in Inventories and Net Acquisitions of Valuables	37	-74	-2,209	37	1,137	1,026	1,660	870	822
Balance of Exports and Imports	-531	-6,010	168,817	-8	1,092	-1,741	10,745	-677	386
Household Final Consumption Expenditure ^b	5,017	8,846	64,321	5,586	14,592	24,349	173,203	6,673	14,925
Government Final Consumption Expenditure	354	4,015	56,105	591	6,288	3,945	23,826	1,375	2,462
Actual Final Consumption of Households ^a	5,118	10,452	78,809	5,916	18,224	26,225	182,399	7,061	15,912
All Goods	3,796	5,999	33,857	4,021	8,975	13,501	65,760	4,125	9,853
Nondurables	3,192	4,141	16,962	3,371	5,308	10,686	27,994	2,697	7,710
Semidurables	416	1,301	9,264	333	2,048	1,786	18,064	1,200	1,548
Durables	188	558	7,630	317	1,619	1,030	19,702	228	596
Services	1,221	2,847	30,464	1,565	5,617	10,847	107,443	2,548	5,071

0 = magnitude is less than half of unit employed.

Note: Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

LAO	MAC	MAL	MLD	MON	MYA	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE	Average
9,827	514,234	77,679	51,783	28,805	7,113	5,754	9,767	18,521	398,866	22,072	155,917	41,997	12,011	27,454
5,763	120,213	41,676	19,621	17,480	4,963	4,620	8,295	14,250	170,936	16,952	100,491	26,020	7,617	13,901
2,942	11,492	7,090	3,787	4,997	2,593	2,590	3,665	5,826	10,659	7,174	11,835	6,667	1,969	3,307
1,246	1,847	873	820	546	661	1,059	823	1,681	1,625	2,015	2,502	1,290	568	756
1,027	4,876	2,067	931	1,513	808	423	331	2,057	3,446	1,314	3,421	1,449	787	787
416	2,421	1,627	583	438	622	439	480	566	1,602	2,106	2,931	1,859	277	766
253	2,348	2,523	1,453	2,500	502	669	2,031	1,522	3,987	1,739	2,981	2,069	337	998
90	7,403	762	398	876	153	121	386	193	4,532	505	4,270	876	314	809
71	5,655	659	316	819	128	100	317	131	3,688	437	3,721	827	260	674
737	18,343	6,153	7,637	2,508	657	598	1,608	1,689	31,190	2,303	16,618	2,364	1,740	2,038
370	17,283	6,821	3,716	2,583	720	456	911	1,466	30,286	1,810	18,327	4,257	1,209	2,563
130	8,567	2,450	1,137	820	307	194	516	451	14,414	877	9,582	1,974	555	1,421
240	8,716	4,371	2,579	1,763	413	262	395	1,015	15,872	934	8,745	2,283	655	1,142
680	13,788	7,991	1,142	3,258	239	211	670	1,900	24,590	1,637	14,018	4,182	818	1,555
609	10,419	5,485	753	2,746	163	146	532	1,470	21,387	1,316	10,445	3,642	762	1,185
152	12,378	1,642	386	499	57	116	92	247	18,499	236	9,578	1,211	302	622
172	22,751	3,437	351	302	223	96	85	503	17,684	647	5,384	2,034	333	693
619	16,774	7,780	2,204	2,458	320	432	879	2,426	33,496	2,641	20,461	4,429	931	2,314
767	21,633	5,165	9,261	2,055	299	385	690	1,157	25,767	1,724	12,468	3,794	710	1,818
3,508	63,815	17,318	26,079	13,569	1,901	1,189	1,263	3,467	94,796	5,980	32,595	11,230	3,573	10,384
1,048	14,792	6,260	10,064	8,079	926	259	405	1,333	35,300	1,829	15,174	7,526	928	3,202
1,716	48,435	8,637	16,015	5,009	824	661	604	1,726	55,787	3,774	14,755	3,531	2,439	6,427
146	7,406	760	0	3,468	1	919	156	322	-4,731	629	-78	235	607	832
-356	301,166	12,760	-3,177	-7,767	-50	-1,360	-638	-676	112,096	-3,212	10,441	718	-496	518
5,579	105,450	36,734	16,698	15,808	4,533	4,424	7,998	13,610	155,403	15,412	93,663	22,947	7,079	12,080
950	36,397	10,106	12,184	3,727	728	581	988	1,797	41,300	3,265	19,295	6,868	1,248	3,639
5,763	120,213	41,676	19,621	17,480	4,963	4,620	8,295	14,250	170,936	16,952	100,491	26,020	7,617	13,901
4,560	39,125	18,239	8,164	9,078	3,495	3,379	5,677	8,375	50,862	10,786	44,610	14,327	4,340	7,312
3,688	15,905	10,413	6,306	6,620	3,125	2,987	4,703	6,842	19,845	9,215	19,174	8,868	2,964	4,674
405	13,361	3,900	908	1,759	283	178	712	996	12,167	1,285	13,858	3,271	600	1,633
467	9,859	3,926	950	699	87	214	262	538	18,850	286	11,578	2,188	776	1,005
1,020	66,325	18,496	8,534	6,730	1,038	1,046	2,321	5,235	104,541	4,625	49,053	8,620	2,739	4,769

Appendix Table 3.4. Shares of Nominal Gross Domestic Product within Each Economy, 2011
(%)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Actual Final Consumption of Households ^a	75.23	51.64	23.86	84.27	42.91	76.69	66.62	59.18	58.22
Food and Nonalcoholic Beverages	38.29	15.12	4.33	38.59	8.06	22.65	7.22	16.65	22.03
<i>Bread and Cereals</i>	17.05	4.01	0.87	11.84	1.71	3.02	0.64	3.54	5.50
<i>Meat and Fish</i>	7.30	1.72	1.39	11.42	2.61	6.42	3.89	1.59	3.81
<i>Fruits and Vegetables</i>	5.18	3.84	0.70	5.55	2.01	3.63	0.85	4.87	4.48
<i>Other Food and Nonalcoholic Beverages</i>	8.76	5.56	1.36	9.78	1.73	9.57	1.83	6.64	8.25
Clothing and Footwear: of which	4.51	3.79	1.04	1.61	2.97	1.86	2.91	4.16	2.18
<i>Clothing</i>	4.02	2.57	0.90	0.83	2.46	1.10	1.95	3.57	1.70
Housing, Water, Electricity, Gas, and Other Fuels	12.94	9.08	2.87	12.51	5.95	18.86	12.65	7.61	11.85
Health and Education	6.82	10.34	5.25	11.65	10.75	8.43	7.93	5.40	6.25
<i>Health</i>	2.75	5.78	1.32	5.95	6.44	3.93	5.59	2.75	1.95
<i>Education</i>	4.07	4.55	3.93	5.70	4.32	4.49	2.34	2.65	4.30
Transportation and Communication: of which	3.51	6.16	4.85	6.51	3.96	6.28	6.09	9.51	5.10
<i>Transportation</i>	3.15	4.91	3.56	6.30	2.51	5.95	4.66	8.89	3.98
Recreation and Culture	0.54	3.19	1.82	2.34	2.33	3.70	7.46	0.89	1.13
Restaurants and Hotels	1.71	0.59	1.20	4.04	2.18	2.02	6.70	1.48	4.17
Other Consumption Expenditure Items	6.91	3.38	2.50	7.04	6.70	12.90	15.66	13.47	5.50
Collective Consumption Expenditure by General Government	3.71	11.90	12.60	3.71	6.25	6.05	5.34	8.27	5.39
Gross Fixed Capital Formation: of which	28.33	66.52	13.10	11.59	45.59	19.35	23.50	30.93	31.97
Machinery and Equipment	6.73	27.48	3.93	5.70	13.07	9.33	10.36	11.81	5.27
Construction	21.23	39.00	8.25	5.77	28.77	7.26	11.05	17.95	25.92
Change in Inventories and Net Acquisitions of Valuables	0.55	-0.37	-0.67	0.53	2.68	3.00	0.61	7.29	3.01
Balance of Exports and Imports	-7.81	-29.69	51.11	-0.11	2.57	-5.09	3.92	-5.67	1.41
Household Final Consumption Expenditure ^b	73.73	43.71	19.47	79.57	34.36	71.20	63.26	55.92	54.61
Government Final Consumption Expenditure	5.20	19.84	16.99	8.41	14.81	11.53	8.70	11.53	9.01
Actual Final Consumption of Households ^a	75.23	51.64	23.86	84.27	42.91	76.69	66.62	59.18	58.22
All Goods	55.79	29.64	10.25	57.28	21.13	39.48	24.02	34.57	36.05
Nondurables	46.91	20.46	5.14	48.02	12.50	31.25	10.22	22.61	28.21
Semidurables	6.12	6.43	2.80	4.74	4.82	5.22	6.60	10.05	5.66
Durables	2.76	2.76	2.31	4.52	3.81	3.01	7.20	1.91	2.18
Services	17.94	14.07	9.22	22.29	13.23	31.72	39.24	21.35	18.56

0.00 = magnitude is less than half of unit employed.

Note: Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

LAO	MAC	MAL	MLD	MON	MYA	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE
100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
58.64	23.38	53.65	37.89	60.68	69.77	80.31	84.93	76.94	42.86	76.81	64.45	61.96	63.41
29.94	2.23	9.13	7.31	17.35	36.46	45.02	37.52	31.46	2.67	32.50	7.59	15.88	16.40
12.68	0.36	1.12	1.58	1.89	9.29	18.40	8.42	9.07	0.41	9.13	1.60	3.07	4.73
10.45	0.95	2.66	1.80	5.25	11.35	7.35	3.39	11.11	0.86	5.95	2.19	3.45	6.55
4.24	0.47	2.09	1.13	1.52	8.75	7.64	4.92	3.06	0.40	9.54	1.88	4.43	2.31
2.58	0.46	3.25	2.81	8.68	7.06	11.63	20.80	8.22	1.00	7.88	1.91	4.93	2.81
0.92	1.44	0.98	0.77	3.04	2.15	2.10	3.95	1.04	1.14	2.29	2.74	2.09	2.61
0.73	1.10	0.85	0.61	2.84	1.80	1.74	3.25	0.71	0.92	1.98	2.39	1.97	2.16
7.50	3.57	7.92	14.75	8.71	9.24	10.40	16.47	9.12	7.82	10.43	10.66	5.63	14.49
3.77	3.36	8.78	7.18	8.97	10.12	7.93	9.33	7.92	7.59	8.20	11.75	10.14	10.07
1.32	1.67	3.15	2.20	2.85	4.32	3.37	5.29	2.43	3.61	3.97	6.15	4.70	4.62
2.44	1.70	5.63	4.98	6.12	5.80	4.56	4.04	5.48	3.98	4.23	5.61	5.44	5.45
6.92	2.68	10.29	2.21	11.31	3.36	3.66	6.86	10.26	6.16	7.42	8.99	9.96	6.81
6.20	2.03	7.06	1.45	9.53	2.29	2.53	5.44	7.94	5.36	5.96	6.70	8.67	6.34
1.55	2.41	2.11	0.75	1.73	0.80	2.02	0.94	1.34	4.64	1.07	6.14	2.88	2.51
1.75	4.42	4.42	0.68	1.05	3.14	1.66	0.87	2.72	4.43	2.93	3.45	4.84	2.77
6.30	3.26	10.02	4.26	8.53	4.50	7.52	9.00	13.10	8.40	11.96	13.12	10.55	7.75
7.80	4.21	6.65	17.88	7.14	4.20	6.69	7.07	6.25	6.46	7.81	8.00	9.03	5.91
35.69	12.41	22.29	50.36	47.11	26.73	20.66	12.93	18.72	23.77	27.09	20.91	26.74	29.75
10.66	2.88	8.06	19.44	28.05	13.01	4.50	4.15	7.20	8.85	8.29	9.73	17.92	7.72
17.46	9.42	11.12	30.93	17.39	11.59	11.49	6.18	9.32	13.99	17.10	9.46	8.41	20.31
1.48	1.44	0.98	0.00	12.04	0.01	15.98	1.60	1.74	-1.19	2.85	-0.05	0.56	5.06
-3.62	58.57	16.43	-6.14	-26.96	-0.71	-23.63	-6.54	-3.65	28.10	-14.55	6.70	1.71	-4.13
56.78	20.51	47.29	32.25	54.88	63.73	76.89	81.89	73.48	38.96	69.82	60.07	54.64	58.94
9.67	7.08	13.01	23.53	12.94	10.24	10.10	10.12	9.70	10.35	14.79	12.38	16.35	10.39
58.64	23.38	53.65	37.89	60.68	69.77	80.31	84.93	76.94	42.86	76.81	64.45	61.96	63.41
46.40	7.61	23.48	15.77	31.51	49.13	58.72	58.12	45.22	12.75	48.87	28.61	34.11	36.13
37.53	3.09	13.40	12.18	22.98	43.93	51.91	48.15	36.94	4.98	41.75	12.30	21.12	24.68
4.12	2.60	5.02	1.75	6.11	3.98	3.09	7.29	5.38	3.05	5.82	8.89	7.79	4.99
4.75	1.92	5.05	1.83	2.43	1.22	3.72	2.68	2.90	4.73	1.30	7.43	5.21	6.46
10.38	12.90	23.81	16.48	23.36	14.60	18.17	23.77	28.26	26.21	20.96	31.46	20.52	22.80

Appendix Table 3.5. Economy Shares of Nominal Expenditures to Asia and the Pacific by Category, 2011
(%)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	1.04	0.01	0.13	0.10	58.09	0.03	1.97	14.79	6.71
Actual Final Consumption of Households ^a	1.54	0.01	0.06	0.17	49.23	0.05	2.60	17.28	7.72
Food and Nonalcoholic Beverages	3.30	0.02	0.05	0.33	38.89	0.06	1.18	20.44	12.28
<i>Bread and Cereals</i>	6.42	0.02	0.04	0.44	35.99	0.03	0.46	19.02	13.39
<i>Meat and Fish</i>	2.65	0.01	0.06	0.41	52.88	0.07	2.68	8.21	8.93
<i>Fruits and Vegetables</i>	1.93	0.02	0.03	0.20	41.93	0.04	0.60	25.82	10.78
<i>Other Food and Nonalcoholic Beverages</i>	2.50	0.02	0.05	0.27	27.73	0.08	0.99	27.03	15.24
Clothing and Footwear: of which	1.59	0.02	0.05	0.06	58.45	0.02	1.95	20.88	4.96
<i>Clothing</i>	1.70	0.02	0.05	0.03	58.11	0.01	1.57	21.53	4.64
Housing, Water, Electricity, Gas, and Other Fuels	1.81	0.02	0.05	0.17	46.53	0.08	3.36	15.16	10.72
Health and Education	0.76	0.02	0.07	0.13	66.93	0.03	1.68	8.56	4.50
<i>Health</i>	0.55	0.02	0.03	0.12	72.26	0.02	2.13	7.87	2.53
<i>Education</i>	1.02	0.02	0.13	0.14	60.30	0.03	1.11	9.43	6.94
Transportation and Communication: of which	0.64	0.02	0.11	0.12	40.66	0.03	2.12	24.83	6.05
<i>Transportation</i>	0.76	0.02	0.11	0.15	33.75	0.04	2.13	30.48	6.20
Recreation and Culture	0.25	0.02	0.11	0.11	59.77	0.05	6.50	5.80	3.35
Restaurants and Hotels	0.70	0.00	0.06	0.16	50.27	0.02	5.23	8.64	11.10
Other Consumption Expenditure Items	0.85	0.01	0.04	0.08	46.17	0.05	3.67	23.64	4.38
Collective Consumption Expenditure by General Government	0.58	0.03	0.25	0.06	54.86	0.03	1.59	18.47	5.47
Gross Fixed Capital Formation: of which	0.78	0.03	0.05	0.03	70.01	0.02	1.23	12.09	5.67
Machinery and Equipment	0.60	0.03	0.04	0.05	65.11	0.02	1.75	14.97	3.03
Construction	0.94	0.02	0.05	0.03	71.38	0.01	0.93	11.34	7.43
Change in Inventories and Net Acquisitions of Valuables	0.19	-0.00	-0.03	0.02	51.29	0.03	0.39	35.58	6.66
Balance of Exports and Imports	-4.30	-0.23	3.59	-0.01	79.15	-0.08	4.10	-44.46	5.02
Household Final Consumption Expenditure ^b	1.74	0.01	0.06	0.18	45.36	0.05	2.84	18.79	8.33
Government Final Consumption Expenditure	0.41	0.02	0.17	0.06	64.90	0.03	1.30	12.86	4.56
Actual Final Consumption of Households ^a	1.54	0.01	0.06	0.17	49.23	0.05	2.60	17.28	7.72
All Goods	2.17	0.02	0.05	0.22	46.09	0.04	1.78	19.20	9.09
Nondurables	2.86	0.02	0.04	0.29	42.65	0.05	1.19	19.64	11.13
Semidurables	1.07	0.02	0.06	0.08	47.09	0.03	2.19	25.00	6.39
Durables	0.78	0.01	0.08	0.13	60.51	0.02	3.88	7.72	4.00
Services	1.07	0.01	0.07	0.13	44.23	0.05	4.46	18.18	7.17

0.00 = magnitude is less than half of unit employed.

Note: Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

LAO	MAC	MAL	MLD	MON	MYA	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE	Asia and the Pacific
0.06	0.29	2.29	0.02	0.08	0.44	0.16	1.76	1.78	2.11	0.47	3.69	2.89	1.08	100.00
0.07	0.13	2.43	0.01	0.09	0.60	0.25	2.96	2.70	1.78	0.71	4.70	3.54	1.35	100.00
0.16	0.05	1.74	0.01	0.11	1.32	0.58	5.49	4.64	0.47	1.27	2.33	3.81	1.46	100.00
0.29	0.04	0.94	0.01	0.05	1.48	1.04	5.39	5.86	0.31	1.56	2.15	3.23	1.85	100.00
0.23	0.10	2.13	0.01	0.14	1.73	0.40	2.09	6.89	0.64	0.98	2.83	3.49	2.46	100.00
0.10	0.05	1.72	0.01	0.04	1.37	0.43	3.11	1.95	0.30	1.61	2.49	4.59	0.89	100.00
0.05	0.04	2.05	0.01	0.19	0.85	0.50	10.09	4.02	0.58	1.02	1.94	3.92	0.83	100.00
0.02	0.14	0.76	0.00	0.08	0.32	0.11	2.36	0.63	0.81	0.36	3.43	2.05	0.95	100.00
0.02	0.13	0.79	0.00	0.09	0.32	0.11	2.33	0.51	0.79	0.38	3.59	2.32	0.95	100.00
0.06	0.14	2.45	0.03	0.09	0.54	0.22	3.91	2.18	2.22	0.66	5.30	2.19	2.10	100.00
0.03	0.11	2.16	0.01	0.08	0.47	0.13	1.76	1.51	1.71	0.41	4.65	3.14	1.16	100.00
0.02	0.09	1.40	0.01	0.04	0.37	0.10	1.80	0.84	1.47	0.36	4.38	2.63	0.96	100.00
0.04	0.12	3.10	0.02	0.12	0.61	0.17	1.71	2.34	2.02	0.48	4.98	3.78	1.41	100.00
0.08	0.14	4.17	0.01	0.16	0.26	0.10	2.13	3.22	2.29	0.61	5.86	5.09	1.29	100.00
0.09	0.14	3.75	0.01	0.17	0.23	0.09	2.22	3.27	2.62	0.65	5.73	5.81	1.58	100.00
0.04	0.31	2.14	0.01	0.06	0.15	0.14	0.73	1.05	4.31	0.22	10.00	3.68	1.19	100.00
0.04	0.51	4.02	0.00	0.03	0.54	0.10	0.61	1.91	3.70	0.55	5.05	5.55	1.18	100.00
0.05	0.11	2.72	0.01	0.08	0.23	0.14	1.88	2.76	2.10	0.67	5.75	3.62	0.99	100.00
0.08	0.19	2.30	0.05	0.08	0.28	0.16	1.88	1.68	2.06	0.55	4.46	3.95	0.96	100.00
0.06	0.10	1.35	0.02	0.10	0.31	0.08	0.60	0.88	1.32	0.34	2.04	2.05	0.85	100.00
0.06	0.07	1.58	0.03	0.19	0.49	0.06	0.63	1.10	1.60	0.33	3.08	4.45	0.71	100.00
0.05	0.12	1.09	0.02	0.06	0.22	0.08	0.47	0.71	1.26	0.34	1.49	1.04	0.93	100.00
0.03	0.14	0.74	0.00	0.31	0.00	0.82	0.93	1.02	-0.82	0.44	-0.06	0.53	1.79	100.00
-0.12	9.06	19.97	-0.06	-1.12	-0.16	-1.95	-6.11	-3.44	31.39	-3.62	13.10	2.62	-2.36	100.00
0.08	0.14	2.46	0.01	0.10	0.63	0.27	3.28	2.97	1.87	0.74	5.04	3.59	1.44	100.00
0.05	0.16	2.25	0.03	0.08	0.34	0.12	1.35	1.30	1.65	0.52	3.45	3.57	0.84	100.00
0.07	0.13	2.43	0.01	0.09	0.60	0.25	2.96	2.70	1.78	0.71	4.70	3.54	1.35	100.00
0.11	0.08	2.02	0.01	0.09	0.81	0.34	3.85	3.02	1.01	0.86	3.97	3.71	1.46	100.00
0.14	0.05	1.81	0.01	0.11	1.13	0.47	4.99	3.86	0.62	1.15	2.67	3.59	1.56	100.00
0.04	0.13	1.94	0.01	0.08	0.29	0.08	2.16	1.61	1.08	0.46	5.52	3.79	0.90	100.00
0.08	0.15	3.17	0.01	0.05	0.15	0.16	1.29	1.41	2.72	0.17	7.49	4.12	1.90	100.00
0.04	0.22	3.14	0.02	0.11	0.37	0.16	2.41	2.89	3.18	0.57	6.69	3.42	1.41	100.00

Appendix Table 3.6. Per Capita Nominal Expenditure Indexes, 2011
(Asia and the Pacific = 100)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	25	74	1,203	26	155	125	997	43	100
Actual Final Consumption of Households ^a	37	75	567	43	131	189	1,312	51	114
Food and Nonalcoholic Beverages	79	93	433	82	104	234	598	60	182
<i>Bread and Cereals</i>	153	107	382	110	96	137	233	56	199
<i>Meat and Fish</i>	63	44	586	102	141	279	1,356	24	132
<i>Fruits and Vegetables</i>	46	101	302	51	112	162	304	76	160
<i>Other Food and Nonalcoholic Beverages</i>	60	113	451	69	74	328	503	79	226
Clothing and Footwear: of which	38	95	425	14	156	78	985	61	73
<i>Clothing</i>	41	77	441	9	155	56	792	63	69
Housing, Water, Electricity, Gas, and Other Fuels	43	90	465	43	124	316	1,699	45	159
Health and Education	18	82	676	32	178	112	848	25	67
<i>Health</i>	13	82	306	29	192	95	1,078	23	38
<i>Education</i>	24	81	1,137	35	161	135	562	28	103
Transportation and Communication: of which	15	80	1,031	29	108	138	1,073	73	90
<i>Transportation</i>	18	84	993	37	90	172	1,076	90	92
Recreation and Culture	6	104	965	26	159	203	3,283	17	50
Restaurants and Hotels	17	17	571	41	134	100	2,645	25	165
Other Consumption Expenditure Items	20	30	357	21	123	191	1,853	69	65
Collective Consumption Expenditure by General Government	14	132	2,289	14	146	114	805	54	81
Gross Fixed Capital Formation: of which	19	130	417	8	186	64	620	36	84
Machinery and Equipment	14	174	405	12	173	100	886	44	45
Construction	22	123	424	6	190	39	471	33	110
Change in Inventories and Net Acquisitions of Valuables	4	-9	-265	5	137	123	200	105	99
Balance of Exports and Imports	-103	-1,160	32,590	-1	211	-336	2,074	-131	74
Household Final Consumption Expenditure ^b	42	73	532	46	121	202	1,434	55	124
Government Final Consumption Expenditure	10	110	1,542	16	173	108	655	38	68
Actual Final Consumption of Households ^a	37	75	567	43	131	189	1,312	51	114
All Goods	52	82	463	55	123	185	899	56	135
Nondurables	68	89	363	72	114	229	599	58	165
Semidurables	26	80	567	20	125	109	1,106	73	95
Durables	19	56	759	32	161	102	1,961	23	59
Services	26	60	639	33	118	227	2,253	53	106

0 = magnitude is less than half of unit employed.

Note: Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

LAO	MAC	MAL	MLD	MON	MYA	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE	Asia and the Pacific
36	1,873	283	189	105	26	21	36	67	1,453	80	568	153	44	100
41	865	300	141	126	36	33	60	103	1,230	122	723	187	55	100
89	348	214	115	151	78	78	111	176	322	217	358	202	60	100
165	244	115	108	72	87	140	109	222	215	266	331	171	75	100
131	620	263	118	192	103	54	42	262	438	167	435	184	100	100
54	316	212	76	57	81	57	63	74	209	275	383	243	36	100
25	235	253	146	251	50	67	204	153	400	174	299	207	34	100
11	915	94	49	108	19	15	48	24	560	62	528	108	39	100
11	839	98	47	121	19	15	47	19	547	65	552	123	39	100
36	900	302	375	123	32	29	79	83	1,530	113	815	116	85	100
14	674	266	145	101	28	18	36	57	1,182	71	715	166	47	100
9	603	172	80	58	22	14	36	32	1,015	62	674	139	39	100
21	763	383	226	154	36	23	35	89	1,390	82	766	200	57	100
44	887	514	73	210	15	14	43	122	1,582	105	902	269	53	100
51	879	463	64	232	14	12	45	124	1,805	111	882	307	64	100
24	1,990	264	62	80	9	19	15	40	2,973	38	1,539	195	49	100
25	3,282	496	51	44	32	14	12	73	2,551	93	777	293	48	100
27	725	336	95	106	14	19	38	105	1,448	114	884	191	40	100
42	1,190	284	509	113	16	21	38	64	1,417	95	686	209	39	100
34	615	167	251	131	18	11	12	33	913	58	314	108	34	100
33	462	195	314	252	29	8	13	42	1,102	57	474	235	29	100
27	754	134	249	78	13	10	9	27	868	59	230	55	38	100
18	890	91	0	417	0	110	19	39	-568	76	-9	28	73	100
-69	58,140	2,463	-613	-1,499	-10	-263	-123	-130	21,640	-620	2,016	139	-96	100
46	873	304	138	131	38	37	66	113	1,286	128	775	190	59	100
26	1,000	278	335	102	20	16	27	49	1,135	90	530	189	34	100
41	865	300	141	126	36	33	60	103	1,230	122	723	187	55	100
62	535	249	112	124	48	46	78	115	696	148	610	196	59	100
79	340	223	135	142	67	64	101	146	425	197	410	190	63	100
25	818	239	56	108	17	11	44	61	745	79	849	200	37	100
46	981	391	94	70	9	21	26	54	1,876	28	1,152	218	77	100
21	1,391	388	179	141	22	22	49	110	2,192	97	1,029	181	57	100

Appendix 4

Revised 2005 International Comparison Program Tables Based on Gross Domestic Product Revisions

Appendix Table 4.1	2005 Gross Domestic Product Revision
Appendix Table 4.2	Gross Domestic Products, 2005
Appendix Table 4.3	Purchasing Power Parities, 2005
Appendix Table 4.4	Real Expenditures, 2005
Appendix Table 4.5	Per Capita Real Expenditures, 2005
Appendix Table 4.6	Price Level Indexes, 2005 (Hong Kong, China = 100)
Appendix Table 4.7	Per Capita Real Expenditure Indexes, 2005 (Asia and the Pacific = 100)
Appendix Table 4.8	Price Level Indexes, 2005 (Asia and the Pacific = 100)
Appendix Table 4.9	Shares of Real Gross Domestic Product within Each Economy, 2005
Appendix Table 4.10	Economy Shares of Real Expenditure to Asia and the Pacific by Category, 2005

Appendix Table 4.1. Gross Domestic Products, 2005 Revision
(billion local currency units)

Economy	2005 Gross Domestic Product		Difference (%)
	2005 ICP Round	2011 ICP Round	
Bangladesh	3,934	4,332	10.12
Bhutan	37	36	(1.49)
Brunei Darussalam	16	16	(0.00)
Cambodia	25,693	25,754	0.24
China, People's Republic of	18,387	18,494	0.58
Fiji	5	5	0.30
Hong Kong, China	1,383	1,412	2.13
India	34,339	35,579	3.61
Indonesia	2,784,960	2,774,281	(0.38)
Iran, Islamic Republic of	1,964,745	1,941,188	(1.20)
Lao People's Democratic Republic	30,594	28,948	(5.38)
Macao, China	93	94	1.64
Malaysia	519	544	4.64
Maldives	10	14	45.49
Mongolia	2,810	3,041	8.24
Nepal	620	619	(0.15)
Pakistan	7,047	7,611	8.00
Philippines	5,438	5,678	4.41
Singapore	194	209	7.48
Sri Lanka	2,408	2,453	1.87
Taipei, China	11,421	11,740	2.79
Thailand	7,088	7,586	7.04
Viet Nam	839,211	914,001	8.91

0.00 = magnitude is less than half of unit employed.

Source: Economy sources.

Appendix Table 4.2. Gross Domestic Products, 2005
(billion local currency units)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FJI	HKG	IND	INO
GROSS DOMESTIC PRODUCT	4,332.31	36.36	15.86	25,754.29	18,493.74	5.08	1,412.13	35,579.06	2,774,281.10
Actual Final Consumption of Households ^a	3,293.37	17.86	4.32	21,732.82	8,243.54	4.06	862.05	22,502.88	1,869,964.79
Food and Nonalcoholic Beverages	1,644.03	5.63	0.79	9,938.14	1,991.56	1.06	77.48	7,595.97	777,685.51
<i>Bread and Cereals</i>	728.35	1.49	0.16	3,047.97	307.75	0.14	7.65	1,462.95	187,649.18
<i>Meat and Fish</i>	315.32	0.64	0.26	2,940.97	710.66	0.30	37.06	733.26	138,798.70
<i>Fruits and Vegetables</i>	222.14	1.43	0.13	1,429.71	464.68	0.17	8.87	2,203.33	171,270.68
<i>Other Food and Nonalcoholic Beverages</i>	378.23	2.07	0.25	2,519.48	508.47	0.45	23.90	3,196.43	279,966.95
Clothing and Footwear: of which	190.43	1.41	0.19	414.22	520.08	0.09	44.66	1,174.53	66,501.15
<i>Clothing</i>	168.66	0.96	0.16	214.93	398.46	0.05	34.97	1,060.69	51,963.10
Housing, Water, Electricity, Gas, and Other Fuels	569.43	3.35	0.52	3,224.46	1,210.13	1.07	182.95	2,731.49	390,030.61
Health and Education	306.47	2.45	0.92	3,019.30	1,460.20	0.54	112.38	2,904.27	165,637.29
<i>Health</i>	120.48	1.69	0.23	1,547.49	656.15	0.24	74.57	1,640.51	58,731.62
<i>Education</i>	185.99	0.76	0.69	1,471.81	804.05	0.30	37.81	1,263.76	106,905.68
Transportation and Communication: of which	149.34	2.29	0.89	1,677.13	677.03	0.32	82.83	3,797.07	156,341.93
<i>Transportation</i>	134.18	1.83	0.65	1,623.28	332.62	0.31	63.66	3,455.42	122,061.00
Recreation and Culture	25.41	1.20	0.33	616.17	383.44	0.20	92.96	429.21	31,556.43
Restaurants and Hotels	73.20	0.22	0.22	1,039.64	432.08	0.11	80.83	419.82	115,484.67
Other Consumption Expenditure Items	335.08	1.30	0.45	1,803.77	1,569.02	0.66	187.96	3,450.52	166,727.20
Collective Consumption Expenditure by General Government	165.64	6.47	2.17	955.29	1,692.21	0.43	80.17	2,400.14	137,711.07
Gross Fixed Capital Formation: of which	1,122.61	19.31	1.80	2,985.18	7,174.68	1.12	302.15	10,649.26	649,145.28
Machinery and Equipment	275.99	5.80	0.54	1,467.46	1,987.98	0.54	149.64	4,876.24	111,838.15
Construction	832.08	13.50	1.13	1,485.14	4,769.59	0.42	124.92	5,518.93	518,657.74
Change in Inventories and Net Acquisitions of Valuables	10.74	0.10	0.78	137.47	362.40	0.10	-4.76	967.00	7,585.41
Balance of Exports and Imports	-260.05	-7.38	6.80	-56.47	1,020.91	-0.63	172.51	-940.22	109,874.55
Household Final Consumption Expenditure ^b	3,216.70	16.29	3.56	20,507.52	7,295.87	3.67	811.65	20,924.66	1,785,596.40
Government Final Consumption Expenditure	242.31	8.04	2.92	2,180.59	2,639.88	0.82	130.57	3,978.36	222,079.46
Actual Final Consumption of Households ^a	3,293.37	17.86	4.32	21,732.82	8,243.54	4.06	862.05	22,502.88	1,869,964.79
All Goods	2,431.28	11.05	1.88	14,756.64	4,289.80	1.97	269.00	13,811.74	1,219,841.74
Nondurables	2,038.94	7.63	0.94	12,371.78	2,927.29	1.52	110.28	10,065.09	983,854.92
Semidurables	265.11	2.40	0.51	1,205.34	763.42	0.29	84.43	2,992.36	169,199.84
Durables	127.23	1.03	0.42	1,179.52	599.09	0.17	74.28	754.29	66,786.98
Services	849.06	6.25	2.26	6,660.82	3,397.80	2.04	583.80	8,173.13	632,267.09
Exchange Rate (LCU per Hong Kong dollar)	8.27	5.67	0.21	526.21	1.05	0.22	1.00	5.67	1,247.82
Population (million)	138.60	0.63	0.36	12.93	1,301.16	0.83	6.81	1,101.32	220.93

- = magnitude equals zero, LCU = local currency unit.

Notes:

1. Data are as of May 2014 and estimates were revised based on updated national accounts values for 2005.
2. Results for the People's Republic of China were based on national annual average prices extrapolated by the International Comparison Program (ICP) Asia Pacific Regional Office and the ICP Global Office using prices for 11 cities submitted by the National Bureau of Statistics of China.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

IRN	LAO	MAC	MAL	MLD	MON	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE
1,941,187.58	28,947.78	94.47	543.58	13.96	3,041.41	619.36	7,610.76	5,677.75	208.76	2,452.78	11,740.28	7,586.33	914,000.84
1,024,689.55	18,217.62	33.63	269.02	7.51	1,905.98	519.80	6,110.01	4,442.18	90.67	1,855.45	7,650.06	4,748.03	575,865.58
232,280.18	8,625.23	3.36	49.42	1.72	741.76	270.50	2,976.77	1,712.66	6.27	580.65	869.99	1,022.01	167,084.76
47,077.32	3,527.88	0.53	6.78	0.31	134.34	142.43	623.75	527.89	0.81	107.65	179.61	187.50	55,795.10
57,656.88	3,120.58	1.40	14.14	0.29	333.83	25.66	496.17	572.09	2.12	148.86	245.43	215.48	63,760.13
56,288.30	1,264.18	0.73	11.04	0.48	56.90	31.78	606.48	157.89	0.98	155.77	220.28	262.69	21,141.98
71,257.67	712.59	0.70	17.46	0.64	216.69	70.63	1,250.38	454.79	2.37	168.38	224.67	356.34	26,387.55
61,930.25	318.16	1.53	5.51	0.27	192.04	29.54	457.50	74.44	2.81	55.23	328.47	233.14	18,896.01
48,615.00	256.69	1.01	4.93	0.22	122.79	23.98	345.09	51.08	2.33	46.30	286.76	218.58	15,794.43
246,794.19	2,253.63	5.95	45.40	2.23	293.06	66.32	847.33	526.08	12.84	335.23	1,267.11	476.44	121,083.52
187,490.79	1,808.86	4.83	39.56	1.76	246.73	65.49	702.93	428.16	14.50	194.10	1,348.38	734.78	90,487.05
90,651.34	563.34	2.14	13.59	0.71	94.78	42.93	368.78	134.59	7.64	91.00	669.73	359.13	42,566.99
96,839.45	1,245.52	2.68	25.97	1.05	151.95	22.56	334.15	293.57	6.86	103.10	678.65	375.65	47,920.06
116,147.45	2,000.11	3.98	51.15	0.49	147.81	20.16	434.38	640.14	16.51	252.22	1,117.41	780.04	55,678.68
91,816.02	1,919.36	2.89	34.19	0.26	114.36	18.76	315.94	472.75	14.70	185.22	819.92	661.17	51,079.79
35,756.75	542.07	4.43	10.08	0.26	42.27	4.91	165.34	82.12	10.77	37.65	697.06	268.02	25,404.05
15,384.01	540.88	5.30	16.90	0.08	10.57	11.44	41.95	152.50	8.73	85.77	400.78	404.22	35,944.03
128,905.94	2,128.68	4.24	51.01	0.69	231.73	51.44	483.82	826.10	18.23	314.59	1,620.86	829.39	61,287.47
159,275.24	3,367.20	5.36	33.53	1.85	141.32	35.77	478.48	330.21	15.01	158.35	903.92	580.57	49,952.15
423,716.68	9,629.87	24.35	121.24	7.47	849.71	125.87	1,340.06	1,129.94	44.12	573.26	2,635.45	2,130.15	308,543.00
257,607.74	3,151.58	5.59	53.48	2.88	414.55	16.63	573.32	492.10	22.84	229.61	1,358.64	1,427.87	89,695.75
153,264.01	4,519.01	18.34	52.25	4.59	254.59	81.59	664.66	475.61	19.72	329.61	1,081.66	666.52	195,719.41
220,131.04	537.23	0.65	0.50	-	291.69	39.17	122.47	93.64	-2.42	84.76	32.40	208.16	9,947.11
113,375.07	-2,804.14	30.49	119.28	-2.87	-147.29	-101.26	-440.27	-318.21	61.38	-219.04	518.45	-80.59	-30,307.00
933,394.18	17,214.67	29.40	240.19	6.26	1,702.81	501.11	5,885.01	4,259.13	83.78	1,692.76	7,090.74	4,282.95	537,069.58
250,570.61	4,370.15	9.58	62.37	3.10	344.49	54.46	703.49	513.25	21.90	321.04	1,463.23	1,045.66	88,748.15
1,024,689.55	18,217.62	33.63	269.02	7.51	1,905.98	519.80	6,110.01	4,442.18	90.67	1,855.45	7,650.06	4,748.03	575,865.58
506,686.83	14,179.99	11.43	116.49	3.48	1,300.58	394.15	4,601.63	2,561.87	32.48	1,073.02	3,350.93	2,529.88	323,684.38
301,121.29	11,273.39	5.45	68.85	2.46	940.47	334.96	3,732.30	2,026.43	11.60	876.50	1,410.17	1,480.88	231,219.06
105,314.64	1,311.86	3.60	21.15	0.59	276.49	39.63	671.21	382.83	7.77	158.76	1,010.37	650.67	38,477.55
100,250.90	1,594.74	2.38	26.48	0.43	83.63	19.57	198.12	152.60	13.11	37.77	930.39	398.33	53,987.77
518,002.72	3,913.69	20.14	144.85	3.87	556.91	122.25	1,365.64	1,866.61	55.20	706.78	4,056.65	2,119.44	238,526.10
1,152.58	1,370.03	1.03	0.49	1.65	154.97	9.18	7.65	7.08	0.21	12.92	4.14	5.17	2,039.12
68.70	5.62	0.48	26.05	0.34	2.56	24.44	153.96	85.26	4.27	19.67	22.77	65.10	81.91

Appendix Table 4.3. Purchasing Power Parities, 2005
(Hong Kong, China as base)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	3.86	2.75	0.16	223.10	0.59	0.24	1.00	2.52	679.80
Actual Final Consumption of Households ^a	3.30	2.47	0.14	203.83	0.51	0.21	1.00	2.04	555.13
Food and Nonalcoholic Beverages	3.90	2.85	0.17	263.56	0.63	0.20	1.00	2.40	661.54
<i>Bread and Cereals</i>	3.84	2.71	0.14	200.19	0.60	0.17	1.00	2.36	652.07
<i>Meat and Fish</i>	4.14	2.90	0.19	330.78	0.64	0.22	1.00	2.55	697.97
<i>Fruits and Vegetables</i>	2.60	2.51	0.20	244.82	0.56	0.19	1.00	1.86	490.03
<i>Other Food and Nonalcoholic Beverages</i>	4.24	2.83	0.15	274.03	0.67	0.20	1.00	2.54	709.46
Clothing and Footwear: of which	4.95	3.58	0.22	300.40	1.11	0.19	1.00	2.71	623.73
<i>Clothing</i>	5.17	3.53	0.23	320.94	1.15	0.18	1.00	2.80	668.26
Housing, Water, Electricity, Gas, and Other Fuels	2.07	1.58	0.11	177.00	0.30	0.23	1.00	1.09	390.65
Health and Education	1.79	1.38	0.12	70.34	0.28	0.13	1.00	0.94	362.63
<i>Health</i>	2.14	1.39	0.13	94.53	0.22	0.14	1.00	0.98	620.36
<i>Education</i>	1.51	1.36	0.10	51.13	0.32	0.12	1.00	0.93	231.56
Transportation and Communication: of which	5.23	3.44	0.13	277.67	0.57	0.21	1.00	3.28	700.73
<i>Transportation</i>	5.58	3.49	0.12	274.11	0.65	0.23	1.00	3.56	660.69
Recreation and Culture	6.03	4.47	0.23	299.78	0.68	0.30	1.00	3.62	811.43
Restaurants and Hotels	4.84	2.89	0.17	276.38	0.75	0.28	1.00	2.98	561.70
Other Consumption Expenditure Items	3.52	3.04	0.16	216.88	0.66	0.20	1.00	2.81	596.90
Collective Consumption Expenditure by General Government	4.19	2.05	0.13	104.02	0.46	0.20	1.00	2.82	769.36
Gross Fixed Capital Formation: of which	4.92	3.54	0.21	287.28	0.72	0.27	1.00	3.46	933.13
Machinery and Equipment	8.85	7.42	0.25	519.66	1.16	0.30	1.00	4.85	1,453.10
Construction	3.03	1.96	0.16	164.26	0.47	0.24	1.00	2.46	616.13
Change in Inventories and Net Acquisitions of Valuables	4.60	3.28	0.18	296.39	0.69	0.24	1.00	3.01	790.18
Balance of Exports and Imports	8.27	5.67	0.21	526.21	1.05	0.22	1.00	5.67	1,247.82
Household Final Consumption Expenditure ^b	3.36	2.54	0.14	219.54	0.54	0.21	1.00	2.07	561.58
Government Final Consumption Expenditure	3.57	1.94	0.13	95.68	0.40	0.19	1.00	2.32	643.02
Actual Final Consumption of Households ^a	3.30	2.47	0.14	203.83	0.51	0.21	1.00	2.04	555.13
All Goods	4.38	3.05	0.17	297.04	0.66	0.22	1.00	2.72	715.88
Nondurables	3.64	2.44	0.17	260.20	0.55	0.19	1.00	2.19	636.11
Semidurables	4.99	4.04	0.16	344.72	0.94	0.20	1.00	3.41	622.72
Durables	7.90	4.70	0.19	383.20	0.87	0.33	1.00	4.84	1,151.64
Services	2.56	2.22	0.13	136.74	0.42	0.21	1.00	1.61	454.89

Notes:

1. Data are as of May 2014 and estimates were revised based on updated national accounts values for 2005.
2. Results for the People's Republic of China were based on national annual average prices extrapolated by the International Comparison Program (ICP) Asia Pacific Regional Office and the ICP Global Office using prices for 11 cities submitted by the National Bureau of Statistics of China.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

IRN	LAO	MAC	MAL	MLD	MON	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE
464.07	510.28	0.93	0.30	1.40	70.47	3.86	3.26	3.72	0.19	6.26	3.29	2.79	839.45
361.48	456.74	0.89	0.27	1.20	62.63	3.40	2.67	3.19	0.19	5.43	2.92	2.39	780.56
639.87	682.74	0.94	0.31	1.28	78.35	3.88	3.81	3.76	0.20	6.82	3.93	2.86	949.26
757.36	554.21	0.95	0.29	1.11	81.47	3.48	3.20	3.20	0.20	5.40	3.96	2.61	828.60
791.75	805.69	0.97	0.31	1.05	68.77	4.11	4.34	3.84	0.25	7.84	4.06	2.89	1,207.89
478.74	578.92	0.91	0.33	1.85	109.26	3.20	3.12	4.52	0.19	6.24	4.15	2.79	700.80
489.12	758.54	0.84	0.29	1.11	82.55	4.04	3.97	3.69	0.17	6.96	3.30	2.87	933.66
530.92	743.15	0.99	0.36	1.50	101.24	4.55	3.76	4.52	0.26	5.81	3.51	3.42	1,112.18
589.13	787.09	1.05	0.37	1.58	97.25	4.78	4.01	4.84	0.27	5.86	3.67	3.65	1,116.45
220.22	169.31	0.78	0.19	1.81	46.13	2.16	1.10	2.17	0.15	3.16	2.36	1.35	717.55
268.95	155.65	0.77	0.21	0.47	23.82	1.71	1.35	2.27	0.19	2.60	2.17	1.63	260.32
212.07	175.52	0.74	0.22	0.59	27.41	1.85	1.68	3.05	0.20	2.85	1.85	1.83	355.08
315.51	130.49	0.76	0.18	0.37	19.38	1.55	1.07	1.69	0.16	2.25	2.41	1.39	183.23
208.54	895.07	0.88	0.28	1.23	81.61	6.52	3.45	3.86	0.20	7.91	2.81	2.79	1,419.52
345.66	909.17	0.86	0.28	1.45	83.47	7.02	3.80	3.67	0.22	8.03	3.06	2.77	1,565.45
705.77	798.89	1.13	0.38	1.62	114.10	5.30	4.47	5.26	0.22	8.74	3.50	3.97	1,168.55
632.21	657.49	0.99	0.32	1.44	116.75	4.98	4.37	3.42	0.18	7.43	2.84	2.59	910.73
409.50	604.72	0.90	0.32	1.10	81.21	4.35	3.35	3.20	0.24	7.18	3.11	2.91	943.94
374.48	287.02	1.16	0.23	0.87	40.98	4.07	3.02	3.87	0.17	4.53	3.04	3.08	499.40
724.69	735.60	1.20	0.33	1.74	89.96	4.91	5.07	4.73	0.19	8.62	3.92	3.30	998.68
1,104.46	1,338.25	1.12	0.49	1.67	174.73	8.20	8.29	7.56	0.23	13.39	4.40	5.12	2,065.51
475.19	427.90	1.04	0.22	1.60	45.17	3.11	3.17	3.00	0.15	5.65	3.49	2.10	549.21
541.48	700.17	1.10	0.33	1.56	89.17	4.65	4.25	4.46	0.21	7.76	3.61	3.24	1,050.53
1,152.58	1,370.03	1.03	0.49	1.65	154.97	9.18	7.65	7.08	0.21	12.92	4.14	5.17	2,039.12
360.28	489.53	0.88	0.28	1.29	67.86	3.48	2.74	3.23	0.19	5.61	2.95	2.40	841.02
379.45	251.58	1.04	0.22	0.79	35.05	3.49	2.56	3.48	0.18	4.16	2.83	2.69	421.67
361.48	456.74	0.89	0.27	1.20	62.63	3.40	2.67	3.19	0.19	5.43	2.92	2.39	780.56
439.61	683.57	0.99	0.33	1.45	88.07	4.56	3.92	4.29	0.23	7.28	3.35	3.19	1,137.12
350.68	552.45	0.95	0.30	1.27	73.84	3.69	3.38	3.79	0.22	6.24	3.26	2.73	892.86
455.81	855.89	1.02	0.29	1.32	102.97	5.22	4.06	4.41	0.23	6.87	3.26	3.42	1,211.89
863.31	1,336.85	1.04	0.50	2.19	136.37	9.88	5.74	5.57	0.29	13.75	3.69	4.62	2,517.25
315.55	272.64	0.83	0.23	1.13	44.32	2.65	1.67	2.46	0.17	4.18	2.70	1.87	564.81

Appendix Table 4.4. Real Expenditures, 2005
(billion Hong Kong dollars)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	1,120.96	13.24	101.65	115.44	31,445.51	21.07	1,412.13	14,138.16	4,081.00
Actual Final Consumption of Households ^a	997.77	7.22	29.83	106.62	16,014.79	19.78	862.05	11,025.61	3,368.54
Food and Nonalcoholic Beverages	421.67	1.98	4.66	37.71	3,166.35	5.22	77.48	3,162.92	1,175.57
<i>Bread and Cereals</i>	189.84	0.55	1.10	15.23	510.82	0.82	7.65	619.55	287.77
<i>Meat and Fish</i>	76.09	0.22	1.35	8.89	1,114.98	1.38	37.06	287.34	198.86
<i>Fruits and Vegetables</i>	85.32	0.57	0.63	5.84	823.99	0.87	8.87	1,182.29	349.51
<i>Other Food and Nonalcoholic Beverages</i>	89.15	0.73	1.69	9.19	754.73	2.23	23.90	1,257.40	394.62
Clothing and Footwear: of which	38.51	0.39	0.87	1.38	467.69	0.48	44.66	433.62	106.62
<i>Clothing</i>	32.65	0.27	0.73	0.67	346.67	0.29	34.97	379.42	77.76
Housing, Water, Electricity, Gas, and Other Fuels	275.24	2.12	4.97	18.22	3,978.65	4.65	182.95	2,497.23	998.42
Health and Education	171.03	1.77	7.53	42.92	5,177.26	4.16	112.38	3,079.76	456.77
<i>Health</i>	56.35	1.22	1.73	16.37	2,918.78	1.77	74.57	1,666.66	94.67
<i>Education</i>	123.54	0.56	6.68	28.79	2,505.69	2.51	37.81	1,364.26	461.67
Transportation and Communication: of which	28.53	0.67	6.88	6.04	1,194.27	1.56	82.83	1,156.02	223.11
<i>Transportation</i>	24.06	0.52	5.45	5.92	508.40	1.35	63.66	971.95	184.75
Recreation and Culture	4.22	0.27	1.46	2.06	564.97	0.68	92.96	118.62	38.89
Restaurants and Hotels	15.12	0.08	1.32	3.76	573.91	0.40	80.83	140.95	205.60
Other Consumption Expenditure Items	95.20	0.43	2.90	8.32	2,366.75	3.38	187.96	1,228.73	279.32
Collective Consumption Expenditure by General Government	39.56	3.15	17.06	9.18	3,647.45	2.13	80.17	852.05	178.99
Gross Fixed Capital Formation: of which	228.13	5.46	8.78	10.39	9,949.32	4.09	302.15	3,074.54	695.66
Machinery and Equipment	31.20	0.78	2.20	2.82	1,717.59	1.78	149.64	1,005.50	76.97
Construction	274.33	6.88	7.17	9.04	10,228.63	1.73	124.92	2,238.99	841.80
Change in Inventories and Net Acquisitions of Valuables	2.34	0.03	4.20	0.46	524.15	0.42	-4.76	321.35	9.60
Balance of Exports and Imports	-31.44	-1.30	31.79	-0.11	968.96	-2.88	172.51	-165.81	88.05
Household Final Consumption Expenditure ^b	956.91	6.42	24.84	93.41	13,521.03	17.70	811.65	10,129.61	3,179.61
Government Final Consumption Expenditure	67.94	4.14	22.88	22.79	6,681.44	4.26	130.57	1,713.20	345.37
Actual Final Consumption of Households ^a	997.77	7.22	29.83	106.62	16,014.79	19.78	862.05	11,025.61	3,368.54
All Goods	554.64	3.63	11.04	49.68	6,472.79	9.00	269.00	5,075.40	1,703.99
Nondurables	560.44	3.13	5.58	47.55	5,353.02	7.80	110.28	4,601.39	1,546.67
Semidurables	53.12	0.59	3.17	3.50	810.34	1.44	84.43	877.27	271.71
Durables	16.10	0.22	2.23	3.08	685.35	0.52	74.28	155.92	57.99
Services	331.94	2.81	17.58	48.71	8,037.24	9.71	583.80	5,081.42	1,389.92

- = magnitude equals zero.

Notes:

1. Data are as of May 2014 and estimates were revised based on updated national accounts values for 2005.
2. Real refers to purchasing power parity-adjusted values.
3. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

IRN	LAO	MAC	MAL	MLD	MON	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE	Asia and the Pacific
4,183.01	56.73	101.22	1,841.99	9.99	43.16	160.51	2,335.12	1,527.60	1,127.95	391.79	3,572.46	2,721.24	1,088.80	71,611
2,834.71	39.89	37.58	985.19	6.24	30.43	152.74	2,288.98	1,391.46	468.88	341.88	2,618.07	1,986.00	737.76	46,352
363.01	12.63	3.59	158.47	1.35	9.47	69.66	781.75	455.36	31.03	85.12	221.36	357.34	176.02	10,780
62.16	6.37	0.56	23.49	0.28	1.65	40.94	194.99	164.77	4.13	19.95	45.31	71.96	67.34	2,337
72.82	3.87	1.44	45.32	0.28	4.85	6.24	114.29	148.88	8.55	18.99	60.40	74.51	52.79	2,339
117.58	2.18	0.80	33.05	0.26	0.52	9.92	194.69	34.92	5.13	24.97	53.09	94.14	30.17	3,059
145.69	0.94	0.83	59.88	0.57	2.63	17.46	314.89	123.14	13.96	24.18	68.17	124.29	28.26	3,459
116.65	0.43	1.54	15.19	0.18	1.90	6.49	121.57	16.46	10.83	9.51	93.70	68.17	16.99	1,574
82.52	0.33	0.96	13.19	0.14	1.26	5.02	85.97	10.56	8.68	7.90	78.16	59.94	14.15	1,242
1,120.67	13.31	7.66	237.35	1.23	6.35	30.73	769.22	242.68	87.97	106.13	536.79	353.78	168.75	11,645
697.13	11.62	6.27	192.21	3.72	10.36	38.37	520.91	188.29	77.14	74.63	622.40	450.02	347.61	12,294
427.47	3.21	2.90	61.61	1.19	3.46	23.21	219.86	44.10	37.70	31.92	361.42	196.33	119.88	6,366
306.93	9.54	3.55	143.98	2.85	7.84	14.56	312.97	173.38	41.95	45.84	281.70	269.58	261.54	6,408
556.95	2.23	4.54	180.27	0.40	1.81	3.09	125.95	166.05	84.29	31.89	397.96	279.23	39.22	4,574
265.63	2.11	3.37	122.75	0.18	1.37	2.67	83.20	128.75	67.33	23.07	267.59	239.11	32.63	3,006
50.66	0.68	3.94	26.88	0.16	0.37	0.93	36.98	15.60	48.28	4.31	199.06	67.48	21.74	1,301
24.33	0.82	5.37	52.64	0.06	0.09	2.30	9.59	44.60	47.95	11.55	141.15	155.97	39.47	1,558
314.79	3.52	4.73	158.66	0.63	2.85	11.83	144.42	257.88	77.23	43.83	521.81	285.39	64.93	6,065
425.32	11.73	4.64	148.94	2.14	3.45	8.79	158.32	85.32	86.82	34.94	297.74	188.63	100.02	6,387
584.68	13.09	20.21	369.94	4.30	9.45	25.66	264.52	238.85	236.08	66.53	671.83	646.21	308.95	17,739
233.24	2.35	5.00	108.78	1.73	2.37	2.03	69.17	65.11	97.93	17.15	308.77	279.09	43.43	4,225
322.53	10.56	17.71	238.16	2.86	5.64	26.22	209.36	158.65	130.98	58.33	309.70	317.11	356.37	15,898
406.54	0.77	0.59	1.52	-	3.27	8.42	28.81	21.02	-11.61	10.92	8.97	64.29	9.47	1,411
98.37	-2.05	29.60	244.96	-1.74	-0.95	-11.03	-57.53	-44.93	286.82	-16.95	125.35	-15.58	-14.86	1,679
2,590.76	35.17	33.31	865.58	4.85	25.09	144.14	2,150.73	1,319.73	433.38	301.51	2,404.29	1,785.18	638.59	41,473
660.36	17.37	9.19	278.98	3.91	9.83	15.60	274.31	147.59	123.66	77.24	516.37	388.29	210.47	11,726
2,834.71	39.89	37.58	985.19	6.24	30.43	152.74	2,288.98	1,391.46	468.88	341.88	2,618.07	1,986.00	737.76	46,352
1,152.59	20.74	11.56	349.48	2.40	14.77	86.42	1,175.30	597.60	140.49	147.33	999.39	793.65	284.65	19,926
858.69	20.41	5.76	228.12	1.93	12.74	90.79	1,104.86	534.73	53.04	140.56	433.15	542.85	258.96	16,522
231.05	1.53	3.53	74.06	0.45	2.69	7.59	165.17	86.76	34.22	23.12	310.31	190.19	31.75	3,268
116.12	1.19	2.28	52.71	0.20	0.61	1.98	34.51	27.42	45.57	2.75	252.08	86.27	21.45	1,641
1,641.61	14.35	24.19	618.89	3.42	12.56	46.06	818.24	758.45	328.44	169.25	1,504.00	1,135.25	422.31	23,000

Appendix Table 4.5. Per Capita Real Expenditures, 2005
(Hong Kong dollars)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	8,088	20,851	283,556	8,929	24,167	25,477	207,263	12,837	18,472
Actual Final Consumption of Households ^a	7,199	11,372	83,200	8,247	12,308	23,918	126,527	10,011	15,247
Food and Nonalcoholic Beverages	3,042	3,117	13,011	2,917	2,433	6,318	11,372	2,872	5,321
<i>Bread and Cereals</i>	1,370	867	3,082	1,178	393	994	1,123	563	1,303
<i>Meat and Fish</i>	549	347	3,758	688	857	1,666	5,439	261	900
<i>Fruits and Vegetables</i>	616	897	1,771	452	633	1,057	1,302	1,074	1,582
<i>Other Food and Nonalcoholic Beverages</i>	643	1,152	4,704	711	580	2,701	3,508	1,142	1,786
Clothing and Footwear: of which	278	622	2,430	107	359	586	6,555	394	483
<i>Clothing</i>	236	428	2,038	52	266	346	5,132	345	352
Housing, Water, Electricity, Gas, and Other Fuels	1,986	3,345	13,869	1,409	3,058	5,619	26,853	2,267	4,519
Health and Education	1,234	2,790	21,008	3,320	3,979	5,028	16,495	2,796	2,068
<i>Health</i>	407	1,914	4,827	1,266	2,243	2,135	10,945	1,513	429
<i>Education</i>	891	877	18,634	2,227	1,926	3,040	5,550	1,239	2,090
Transportation and Communication: of which	206	1,050	19,192	467	918	1,890	12,157	1,050	1,010
<i>Transportation</i>	174	826	15,191	458	391	1,636	9,343	883	836
Recreation and Culture	30	423	4,073	159	434	818	13,644	108	176
Restaurants and Hotels	109	120	3,678	291	441	485	11,864	128	931
Other Consumption Expenditure Items	687	672	8,093	643	1,819	4,084	27,588	1,116	1,264
Collective Consumption Expenditure by General Government	285	4,960	47,589	710	2,803	2,577	11,766	774	810
Gross Fixed Capital Formation: of which	1,646	8,598	24,492	804	7,647	4,946	44,348	2,792	3,149
Machinery and Equipment	225	1,231	6,125	218	1,320	2,149	21,963	913	348
Construction	1,979	10,829	20,001	699	7,861	2,090	18,335	2,033	3,810
Change in Inventories and Net Acquisitions of Valuables	17	49	11,718	36	403	509	-699	292	43
Balance of Exports and Imports	-227	-2,049	88,664	-8	745	-3,480	25,321	-151	399
Household Final Consumption Expenditure ^b	6,904	10,111	69,294	7,225	10,392	21,399	119,130	9,198	14,392
Government Final Consumption Expenditure	490	6,517	63,815	1,763	5,135	5,151	19,164	1,556	1,563
Actual Final Consumption of Households ^a	7,199	11,372	83,200	8,247	12,308	23,918	126,527	10,011	15,247
All Goods	4,002	5,713	30,796	3,843	4,975	10,877	39,482	4,608	7,713
Nondurables	4,044	4,930	15,552	3,678	4,114	9,432	16,187	4,178	7,001
Semidurables	383	934	8,853	270	623	1,735	12,392	797	1,230
Durables	116	344	6,216	238	527	626	10,903	142	263
Services	2,395	4,431	49,029	3,768	6,177	11,736	85,686	4,614	6,291

– = magnitude equals zero.

Notes:

1. Data are as of May 2014 and estimates were revised based on updated national accounts values for 2005.
2. Real refers to purchasing power parity-adjusted values.
3. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

IRN	LAO	MAC	MAL	MLD	MON	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE	Asia and the Pacific
60,888	10,091	209,123	70,720	29,493	16,844	6,569	15,167	17,917	264,417	19,920	156,891	41,802	13,292	21,410
41,262	7,095	77,640	37,825	18,418	11,877	6,251	14,867	16,320	109,916	17,382	114,977	30,507	9,006	13,858
5,284	2,247	7,410	6,084	3,988	3,695	2,851	5,078	5,341	7,274	4,328	9,721	5,489	2,149	3,223
905	1,132	1,156	902	819	644	1,675	1,266	1,933	968	1,014	1,990	1,105	822	699
1,060	689	2,984	1,740	825	1,894	256	742	1,746	2,003	966	2,652	1,145	644	699
1,711	388	1,663	1,269	773	203	406	1,265	410	1,202	1,270	2,332	1,446	368	915
2,121	167	1,717	2,299	1,698	1,024	715	2,045	1,444	3,272	1,229	2,994	1,909	345	1,034
1,698	76	3,187	583	525	740	265	790	193	2,538	484	4,115	1,047	207	471
1,201	58	1,979	506	417	493	205	558	124	2,036	402	3,432	921	173	371
16,313	2,368	15,822	9,113	3,631	2,479	1,258	4,996	2,846	20,622	5,396	23,574	5,434	2,060	3,482
10,147	2,067	12,947	7,379	10,973	4,042	1,570	3,383	2,208	18,083	3,795	27,334	6,913	4,244	3,676
6,222	571	5,996	2,365	3,522	1,349	950	1,428	517	8,838	1,623	15,872	3,016	1,463	1,903
4,468	1,698	7,327	5,528	8,417	3,060	596	2,033	2,034	9,834	2,330	12,371	4,141	3,193	1,916
8,107	397	9,384	6,921	1,172	707	127	818	1,948	19,760	1,621	17,477	4,289	479	1,367
3,866	376	6,964	4,713	522	535	109	540	1,510	15,784	1,173	11,752	3,673	398	899
737	121	8,137	1,032	482	145	38	240	183	11,319	219	8,742	1,037	265	389
354	146	11,089	2,021	169	35	94	62	523	11,240	587	6,199	2,396	482	466
4,582	626	9,774	6,091	1,854	1,114	484	938	3,025	18,105	2,228	22,916	4,384	793	1,813
6,191	2,087	9,580	5,718	6,307	1,346	360	1,028	1,001	20,351	1,777	13,076	2,898	1,221	1,909
8,511	2,329	41,747	14,204	12,685	3,686	1,050	1,718	2,801	55,343	3,383	29,505	9,927	3,772	5,304
3,395	419	10,339	4,177	5,095	926	83	449	764	22,958	872	13,560	4,287	530	1,263
4,695	1,879	36,601	9,144	8,441	2,200	1,073	1,360	1,861	30,705	2,966	13,601	4,871	4,350	4,753
5,918	136	1,213	59	-	1,277	345	187	247	-2,723	555	394	988	116	422
1,432	-364	61,166	9,405	-5,152	-371	-452	-374	-527	67,236	-862	5,505	-239	-181	502
37,711	6,255	68,829	33,233	14,317	9,793	5,899	13,969	15,479	101,594	15,330	105,589	27,423	7,796	12,400
9,612	3,090	18,985	10,711	11,536	3,836	638	1,782	1,731	28,989	3,927	22,677	5,965	2,569	3,506
41,262	7,095	77,640	37,825	18,418	11,877	6,251	14,867	16,320	109,916	17,382	114,977	30,507	9,006	13,858
16,777	3,690	23,889	13,418	7,100	5,763	3,537	7,634	7,009	32,934	7,491	43,890	12,191	3,475	5,957
12,499	3,630	11,892	8,758	5,690	4,970	3,716	7,176	6,272	12,434	7,147	19,023	8,339	3,161	4,940
3,363	273	7,303	2,843	1,317	1,048	311	1,073	1,018	8,022	1,176	13,628	2,922	388	977
1,690	212	4,709	2,024	584	239	81	224	322	10,683	140	11,070	1,325	262	491
23,895	2,553	49,978	23,761	10,104	4,903	1,885	5,315	8,896	76,993	8,605	66,051	17,439	5,156	6,877

Appendix Table 4.6. Price Level Indexes, 2005
(Hong Kong, China = 100)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	47	48	73	42	56	111	100	44	54
Actual Final Consumption of Households ^a	40	44	68	39	49	94	100	36	44
Food and Nonalcoholic Beverages	47	50	79	50	60	93	100	42	53
<i>Bread and Cereals</i>	46	48	68	38	57	79	100	42	52
<i>Meat and Fish</i>	50	51	89	63	60	100	100	45	56
<i>Fruits and Vegetables</i>	31	44	94	47	54	89	100	33	39
<i>Other Food and Nonalcoholic Beverages</i>	51	50	69	52	64	92	100	45	57
Clothing and Footwear: of which	60	63	102	57	106	90	100	48	50
<i>Clothing</i>	62	62	105	61	109	83	100	49	54
Housing, Water, Electricity, Gas, and Other Fuels	25	28	49	34	29	106	100	19	31
Health and Education	22	24	57	13	27	60	100	17	29
<i>Health</i>	26	25	62	18	21	63	100	17	50
<i>Education</i>	18	24	48	10	30	55	100	16	19
Transportation and Communication: of which	63	61	60	53	54	95	100	58	56
<i>Transportation</i>	67	61	56	52	62	104	100	63	53
Recreation and Culture	73	79	106	57	64	139	100	64	65
Restaurants and Hotels	59	51	78	53	71	131	100	53	45
Other Consumption Expenditure Items	43	54	73	41	63	90	100	50	48
Collective Consumption Expenditure by General Government	51	36	59	20	44	92	100	50	62
Gross Fixed Capital Formation: of which	59	62	96	55	68	126	100	61	75
Machinery and Equipment	107	131	115	99	110	140	100	86	116
Construction	37	35	74	31	44	112	100	43	49
Change in Inventories and Net Acquisitions of Valuables	56	58	86	56	66	111	100	53	63
Balance of Exports and Imports	100	100	100	100	100	100	100	100	100
Household Final Consumption Expenditure ^b	41	45	67	42	51	95	100	36	45
Government Final Consumption Expenditure	43	34	60	18	38	88	100	41	52
Actual Final Consumption of Households ^a	40	44	68	39	49	94	100	36	44
All Goods	53	54	79	56	63	101	100	48	57
Nondurables	44	43	79	49	52	90	100	39	51
Semidurables	60	71	76	66	89	92	100	60	50
Durables	96	83	89	73	83	151	100	85	92
Services	31	39	60	26	40	97	100	28	36

Notes:

1. Data are as of May 2014 and estimates were revised based on updated national accounts values for 2005.
2. Results for the People's Republic of China were based on national annual average prices extrapolated by the International Comparison Program (ICP) Asia Pacific Regional Office and the ICP Global Office using prices for 11 cities submitted by the National Bureau of Statistics of China.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

IRN	LAO	MAC	MAL	MLD	MON	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE
40	37	91	61	85	45	42	43	52	86	48	79	54	41
31	33	87	56	73	40	37	35	45	90	42	71	46	38
56	50	91	64	78	51	42	50	53	94	53	95	55	47
66	40	93	59	68	53	38	42	45	91	42	96	50	41
69	59	94	64	64	44	45	57	54	116	61	98	56	59
42	42	89	69	112	71	35	41	64	89	48	100	54	34
42	55	82	60	68	53	44	52	52	79	54	80	55	46
46	54	97	74	91	65	50	49	64	121	45	85	66	55
51	57	102	77	96	63	52	52	68	126	45	89	71	55
19	12	75	39	110	30	24	14	31	68	24	57	26	35
23	11	75	42	29	15	19	18	32	88	20	52	32	13
18	13	72	45	36	18	20	22	43	95	22	45	35	17
27	10	73	37	22	13	17	14	24	76	17	58	27	9
18	65	85	58	75	53	71	45	54	92	61	68	54	70
30	66	83	57	88	54	76	50	52	102	62	74	53	77
61	58	109	77	98	74	58	58	74	104	68	85	77	57
55	48	96	66	87	75	54	57	48	85	57	69	50	45
36	44	87	66	67	52	47	44	45	110	56	75	56	46
32	21	112	46	53	26	44	39	55	81	35	73	60	24
63	54	117	67	106	58	53	66	67	87	67	95	64	49
96	98	109	101	102	113	89	108	107	109	104	106	99	101
41	31	100	45	98	29	34	41	42	70	44	84	41	27
47	51	107	68	95	58	51	56	63	97	60	87	63	52
100	100	100	100	100	100	100	100	100	100	100	100	100	100
31	36	86	57	78	44	38	36	46	90	43	71	46	41
33	18	101	46	48	23	38	34	49	83	32	69	52	21
31	33	87	56	73	40	37	35	45	90	42	71	46	38
38	50	96	68	88	57	50	51	61	108	56	81	62	56
30	40	92	62	77	48	40	44	54	102	48	79	53	44
40	62	99	59	80	66	57	53	62	106	53	79	66	59
75	98	101	103	133	88	108	75	79	134	106	89	89	123
27	20	81	48	69	29	29	22	35	79	32	65	36	28

Appendix Table 4.7. Per Capita Real Expenditure Indexes, 2005
(Asia and the Pacific = 100)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	38	97	1,324	42	113	119	968	60	86
Actual Final Consumption of Households ^a	52	82	600	60	89	173	913	72	110
Food and Nonalcoholic Beverages	94	97	404	90	76	196	353	89	165
<i>Bread and Cereals</i>	196	124	441	169	56	142	161	81	186
<i>Meat and Fish</i>	78	50	537	98	123	238	778	37	129
<i>Fruits and Vegetables</i>	67	98	194	49	69	116	142	117	173
<i>Other Food and Nonalcoholic Beverages</i>	62	111	455	69	56	261	339	110	173
Clothing and Footwear: of which	59	132	516	23	76	125	1,393	84	103
<i>Clothing</i>	63	115	549	14	72	93	1,382	93	95
Housing, Water, Electricity, Gas, and Other Fuels	57	96	398	40	88	161	771	65	130
Health and Education	34	76	572	90	108	137	449	76	56
<i>Health</i>	21	101	254	67	118	112	575	80	23
<i>Education</i>	47	46	973	116	101	159	290	65	109
Transportation and Communication: of which	15	77	1,403	34	67	138	889	77	74
<i>Transportation</i>	19	92	1,690	51	43	182	1,040	98	93
Recreation and Culture	8	109	1,047	41	112	210	3,507	28	45
Restaurants and Hotels	23	26	790	62	95	104	2,547	27	200
Other Consumption Expenditure Items	38	37	446	35	100	225	1,521	62	70
Collective Consumption Expenditure by General Government	15	260	2,492	37	147	135	616	41	42
Gross Fixed Capital Formation: of which	31	162	462	15	144	93	836	53	59
Machinery and Equipment	18	97	485	17	105	170	1,739	72	28
Construction	42	228	421	15	165	44	386	43	80
Change in Inventories and Net Acquisitions of Valuables	4	12	2,778	9	96	121	-166	69	10
Balance of Exports and Imports	-45	-408	17,660	-2	148	-693	5,043	-30	79
Household Final Consumption Expenditure ^b	56	82	559	58	84	173	961	74	116
Government Final Consumption Expenditure	14	186	1,820	50	146	147	547	44	45
Actual Final Consumption of Households ^a	52	82	600	60	89	173	913	72	110
All Goods	67	96	517	65	84	183	663	77	129
Nondurables	82	100	315	74	83	191	328	85	142
Semidurables	39	96	906	28	64	178	1,268	82	126
Durables	24	70	1,267	49	107	128	2,222	29	54
Services	35	64	713	55	90	171	1,246	67	91

– = magnitude equals zero.

Notes:

1. Data are as of May 2014 and estimates were revised based on updated national accounts values for 2005.
2. Real refers to purchasing power parity-adjusted values.
3. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

IRN	LAO	MAC	MAL	MLD	MON	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE	Asia and the Pacific
284	47	977	330	138	79	31	71	84	1,235	93	733	195	62	100
298	51	560	273	133	86	45	107	118	793	125	830	220	65	100
164	70	230	189	124	115	88	158	166	226	134	302	170	67	100
129	162	165	129	117	92	240	181	277	138	145	285	158	118	100
152	98	427	249	118	271	37	106	250	286	138	379	164	92	100
187	42	182	139	84	22	44	138	45	131	139	255	158	40	100
205	16	166	222	164	99	69	198	140	316	119	290	185	33	100
361	16	677	124	112	157	56	168	41	539	103	874	223	44	100
323	16	533	136	112	133	55	150	33	548	108	924	248	47	100
469	68	454	262	104	71	36	144	82	592	155	677	156	59	100
276	56	352	201	299	110	43	92	60	492	103	744	188	115	100
327	30	315	124	185	71	50	75	27	464	85	834	158	77	100
233	89	382	289	439	160	31	106	106	513	122	646	216	167	100
593	29	686	506	86	52	9	60	142	1,445	119	1,278	314	35	100
430	42	775	524	58	59	12	60	168	1,756	131	1,308	409	44	100
190	31	2,092	265	124	37	10	62	47	2,909	56	2,247	266	68	100
76	31	2,381	434	36	8	20	13	112	2,413	126	1,331	514	103	100
253	35	539	336	102	61	27	52	167	998	123	1,264	242	44	100
324	109	502	299	330	70	19	54	52	1,066	93	685	152	64	100
160	44	787	268	239	70	20	32	53	1,044	64	556	187	71	100
269	33	819	331	403	73	7	36	60	1,818	69	1,074	339	42	100
99	40	770	192	178	46	23	29	39	646	62	286	102	92	100
1,403	32	288	14	-	303	82	44	58	-645	132	93	234	27	100
285	-73	12,183	1,873	-1,026	-74	-90	-74	-105	13,392	-172	1,096	-48	-36	100
304	50	555	268	115	79	48	113	125	819	124	852	221	63	100
274	88	542	306	329	109	18	51	49	827	112	647	170	73	100
298	51	560	273	133	86	45	107	118	793	125	830	220	65	100
282	62	401	225	119	97	59	128	118	553	126	737	205	58	100
253	73	241	177	115	101	75	145	127	252	145	385	169	64	100
344	28	747	291	135	107	32	110	104	821	120	1,395	299	40	100
345	43	960	413	119	49	17	46	66	2,178	28	2,257	270	53	100
347	37	727	346	147	71	27	77	129	1,120	125	961	254	75	100

Appendix Table 4.8. Price Level Indexes, 2005
(Asia and the Pacific = 100)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	86	89	134	78	103	205	184	82	100
Actual Final Consumption of Households ^a	87	95	148	85	107	206	218	79	97
Food and Nonalcoholic Beverages	89	95	150	95	113	176	189	80	100
<i>Bread and Cereals</i>	94	97	137	77	116	160	203	84	106
<i>Meat and Fish</i>	85	86	149	106	102	169	169	76	94
<i>Fruits and Vegetables</i>	73	103	219	108	124	207	232	76	91
<i>Other Food and Nonalcoholic Beverages</i>	96	94	129	98	120	172	187	84	107
Clothing and Footwear: of which	84	89	144	80	149	126	141	67	70
<i>Clothing</i>	86	85	144	84	149	113	137	68	73
Housing, Water, Electricity, Gas, and Other Fuels	89	99	176	120	103	378	357	69	112
Health and Education	83	94	219	51	103	229	384	64	112
<i>Health</i>	108	102	257	75	89	260	416	72	207
<i>Education</i>	70	92	185	37	117	210	384	63	71
Transportation and Communication: of which	118	113	112	98	100	176	186	108	105
<i>Transportation</i>	112	102	93	87	103	173	166	104	88
Recreation and Culture	101	109	147	79	89	192	138	88	90
Restaurants and Hotels	92	80	122	82	112	205	157	82	71
Other Consumption Expenditure Items	72	91	124	70	107	153	170	84	81
Collective Consumption Expenditure by General Government	107	77	125	42	93	195	211	105	130
Gross Fixed Capital Formation: of which	87	91	140	80	100	184	146	89	109
Machinery and Equipment	105	129	113	97	108	137	98	84	115
Construction	81	77	164	69	98	247	221	96	109
Change in Inventories and Net Acquisitions of Valuables	98	102	153	100	116	196	177	94	112
Balance of Exports and Imports	100	100	100	100	100	100	100	100	100
Household Final Consumption Expenditure ^b	87	95	143	89	109	204	213	78	96
Government Final Consumption Expenditure	105	83	145	44	91	214	243	99	125
Actual Final Consumption of Households ^a	87	95	148	85	107	206	218	79	97
All Goods	92	93	137	98	109	175	173	83	99
Nondurables	93	91	166	104	109	189	211	81	108
Semidurables	88	104	110	96	131	134	146	88	73
Durables	109	95	101	83	95	173	114	97	105
Services	80	101	155	67	103	249	257	73	94

Notes:

1. Data are as of May 2014 and estimates were revised based on updated national accounts values for 2005.
2. Results for the People's Republic of China were based on national annual average prices extrapolated by the International Comparison Program (ICP) Asia Pacific Regional Office and the ICP Global Office using prices for 11 cities submitted by the National Bureau of Statistics of China.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

IRN	LAO	MAC	MAL	MLD	MON	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE
74	69	167	112	157	84	77	78	97	159	89	146	99	76
68	73	190	122	160	88	81	76	98	197	92	154	101	84
105	94	172	121	147	96	80	94	100	179	100	180	105	88
133	82	188	120	137	107	77	85	92	185	85	194	102	82
116	99	159	108	108	75	76	96	92	196	102	166	94	100
97	98	206	159	261	164	81	95	148	207	112	233	125	80
80	104	153	112	127	100	83	97	98	149	101	149	104	86
65	76	136	105	128	92	70	69	90	171	63	119	93	77
70	79	140	105	132	86	71	72	94	172	62	121	97	75
68	44	269	140	393	106	84	51	109	243	87	204	93	126
90	44	287	162	111	59	71	68	123	337	77	201	121	49
77	53	298	188	150	74	84	91	179	394	92	186	147	72
105	37	282	142	86	48	65	54	92	293	67	224	103	34
34	122	159	109	140	98	132	84	101	171	114	127	101	130
50	110	138	95	146	89	127	82	86	169	103	123	89	128
85	81	151	106	136	102	80	81	103	144	93	117	106	79
86	75	150	104	137	118	85	90	76	134	90	108	79	70
60	75	148	112	114	89	80	74	77	187	94	128	95	79
69	44	237	98	111	56	94	83	115	171	74	155	126	52
92	79	171	98	155	85	78	97	98	128	98	139	93	72
94	96	107	99	100	111	88	107	105	107	102	105	97	100
91	69	222	100	216	64	75	92	94	156	97	187	90	60
83	90	189	120	168	102	90	98	111	172	106	154	111	91
100	100	100	100	100	100	100	100	100	100	100	100	100	100
67	76	183	122	167	93	81	76	97	193	93	152	99	88
80	45	246	112	117	55	92	81	119	201	78	166	126	50
68	73	190	122	160	88	81	76	98	197	92	154	101	84
66	86	166	119	152	98	86	89	105	187	98	140	107	97
64	85	194	131	163	101	85	93	113	216	102	166	111	92
58	91	145	86	117	97	83	78	91	155	78	115	97	87
85	111	115	118	152	100	123	86	90	153	121	102	102	141
70	51	208	124	177	74	74	56	89	202	83	168	93	71

Appendix Table 4.9. Shares of Real Gross Domestic Product within Each Economy, 2005
(%)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Actual Final Consumption of Households ^a	54.54	29.34	92.36	50.93	93.88	61.05	77.98	82.54	57.50
Food and Nonalcoholic Beverages	14.95	4.59	32.67	10.07	24.80	5.49	22.37	28.81	17.64
<i>Bread and Cereals</i>	4.16	1.09	13.19	1.62	3.90	0.54	4.38	7.05	3.97
<i>Meat and Fish</i>	1.66	1.33	7.70	3.55	6.54	2.62	2.03	4.87	3.42
<i>Fruits and Vegetables</i>	4.30	0.62	5.06	2.62	4.15	0.63	8.36	8.56	4.11
<i>Other Food and Nonalcoholic Beverages</i>	5.52	1.66	7.96	2.40	10.60	1.69	8.89	9.67	6.07
Clothing and Footwear: of which	2.98	0.86	1.19	1.49	2.30	3.16	3.07	2.61	1.24
<i>Clothing</i>	2.05	0.72	0.58	1.10	1.36	2.48	2.68	1.91	0.94
Housing, Water, Electricity, Gas, and Other Fuels	16.04	4.89	15.78	12.65	22.06	12.96	17.66	24.47	15.49
Health and Education	13.38	7.41	37.18	16.46	19.73	7.96	21.78	11.19	11.09
<i>Health</i>	9.18	1.70	14.18	9.28	8.38	5.28	11.79	2.32	2.65
<i>Education</i>	4.21	6.57	24.94	7.97	11.93	2.68	9.65	11.31	9.98
Transportation and Communication: of which	5.04	6.77	5.23	3.80	7.42	5.87	8.18	5.47	4.19
<i>Transportation</i>	3.96	5.36	5.13	1.62	6.42	4.51	6.87	4.53	3.76
Recreation and Culture	2.03	1.44	1.78	1.80	3.21	6.58	0.84	0.95	0.83
Restaurants and Hotels	0.58	1.30	3.26	1.83	1.91	5.72	1.00	5.04	3.83
Other Consumption Expenditure Items	3.22	2.85	7.20	7.53	16.03	13.31	8.69	6.84	5.07
Collective Consumption Expenditure by General Government	23.79	16.78	7.96	11.60	10.12	5.68	6.03	4.39	7.95
Gross Fixed Capital Formation: of which	41.24	8.64	9.00	31.64	19.42	21.40	21.75	17.05	32.33
Machinery and Equipment	5.91	2.16	2.45	5.46	8.43	10.60	7.11	1.89	3.50
Construction	51.94	7.05	7.83	32.53	8.21	8.85	15.84	20.63	35.76
Change in Inventories and Net Acquisitions of Valuables	0.24	4.13	0.40	1.67	2.00	-0.34	2.27	0.24	2.59
Balance of Exports and Imports	-9.83	31.27	-0.09	3.08	-13.66	12.22	-1.17	2.16	0.83
Household Final Consumption Expenditure ^b	48.49	24.44	80.92	43.00	84.00	57.48	71.65	77.91	50.70
Government Final Consumption Expenditure	31.25	22.51	19.74	21.25	20.22	9.25	12.12	8.46	14.53
Actual Final Consumption of Households ^a	54.54	29.34	92.36	50.93	93.88	61.05	77.98	82.54	57.50
All Goods	27.40	10.86	43.04	20.58	42.69	19.05	35.90	41.75	27.47
Nondurables	23.65	5.48	41.19	17.02	37.02	7.81	32.55	37.90	23.59
Semidurables	4.48	3.12	3.03	2.58	6.81	5.98	6.20	6.66	4.42
Durables	1.65	2.19	2.67	2.18	2.46	5.26	1.10	1.42	1.21
Services	21.25	17.29	42.20	25.56	46.07	41.34	35.94	34.06	21.04

Notes:

1. Data are as of May 2014 and estimates were revised based on updated national accounts values for 2005.
2. Real refers to purchasing power parity-adjusted values.
3. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

IRN	LAO	MAC	MAL	MLD	MON	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE
100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
67.77	70.31	37.13	53.49	62.45	70.51	95.16	98.02	91.09	41.57	87.26	73.28	72.98	67.76
8.68	22.27	3.54	8.60	13.52	21.94	43.40	33.48	29.81	2.75	21.72	6.20	13.13	16.17
1.49	11.22	0.55	1.28	2.78	3.82	25.50	8.35	10.79	0.37	5.09	1.27	2.64	6.18
1.74	6.83	1.43	2.46	2.80	11.25	3.89	4.89	9.75	0.76	4.85	1.69	2.74	4.85
2.81	3.85	0.80	1.79	2.62	1.21	6.18	8.34	2.29	0.45	6.37	1.49	3.46	2.77
3.48	1.66	0.82	3.25	5.76	6.08	10.88	13.49	8.06	1.24	6.17	1.91	4.57	2.60
2.79	0.75	1.52	0.82	1.78	4.40	4.04	5.21	1.08	0.96	2.43	2.62	2.51	1.56
1.97	0.57	0.95	0.72	1.41	2.93	3.13	3.68	0.69	0.77	2.02	2.19	2.20	1.30
26.79	23.46	7.57	12.89	12.31	14.72	19.14	32.94	15.89	7.80	27.09	15.03	13.00	15.50
16.67	20.49	6.19	10.43	37.20	24.00	23.91	22.31	12.33	6.84	19.05	17.42	16.54	31.93
10.22	5.66	2.87	3.34	11.94	8.01	14.46	9.42	2.89	3.34	8.15	10.12	7.21	11.01
7.34	16.83	3.50	7.82	28.54	18.17	9.07	13.40	11.35	3.72	11.70	7.89	9.91	24.02
13.31	3.94	4.49	9.79	3.97	4.20	1.93	5.39	10.87	7.47	8.14	11.14	10.26	3.60
6.35	3.72	3.33	6.66	1.77	3.17	1.67	3.56	8.43	5.97	5.89	7.49	8.79	3.00
1.21	1.20	3.89	1.46	1.64	0.86	0.58	1.58	1.02	4.28	1.10	5.57	2.48	2.00
0.58	1.45	5.30	2.86	0.57	0.21	1.43	0.41	2.92	4.25	2.95	3.95	5.73	3.62
7.53	6.21	4.67	8.61	6.29	6.61	7.37	6.18	16.88	6.85	11.19	14.61	10.49	5.96
10.17	20.68	4.58	8.09	21.39	7.99	5.48	6.78	5.59	7.70	8.92	8.33	6.93	9.19
13.98	23.08	19.96	20.08	43.01	21.88	15.99	11.33	15.64	20.93	16.98	18.81	23.75	28.38
5.58	4.15	4.94	5.91	17.28	5.50	1.26	2.96	4.26	8.68	4.38	8.64	10.26	3.99
7.71	18.62	17.50	12.93	28.62	13.06	16.33	8.97	10.39	11.61	14.89	8.67	11.65	32.73
9.72	1.35	0.58	0.08	0.00	7.58	5.25	1.23	1.38	-1.03	2.79	0.25	2.36	0.87
2.35	-3.61	29.25	13.30	-17.47	-2.20	-6.87	-2.46	-2.94	25.43	-4.33	3.51	-0.57	-1.37
61.94	61.99	32.91	46.99	48.54	58.14	89.80	92.10	86.39	38.42	76.96	67.30	65.60	58.65
15.79	30.62	9.08	15.15	39.12	22.77	9.72	11.75	9.66	10.96	19.72	14.45	14.27	19.33
67.77	70.31	37.13	53.49	62.45	70.51	95.16	98.02	91.09	41.57	87.26	73.28	72.98	67.76
27.55	36.57	11.42	18.97	24.07	34.22	53.84	50.33	39.12	12.46	37.60	27.97	29.17	26.14
20.53	35.97	5.69	12.38	19.29	29.51	56.56	47.31	35.00	4.70	35.88	12.12	19.95	23.78
5.52	2.70	3.49	4.02	4.47	6.22	4.73	7.07	5.68	3.03	5.90	8.69	6.99	2.92
2.78	2.10	2.25	2.86	1.98	1.42	1.23	1.48	1.80	4.04	0.70	7.06	3.17	1.97
39.24	25.30	23.90	33.60	34.26	29.11	28.70	35.04	49.65	29.12	43.20	42.10	41.72	38.79

Appendix Table 4.10. Economy Shares of Real Expenditure to Asia and the Pacific by Category, 2005
(%)

Expenditure Category/Economy	BAN	BHU	BRU	CAM	PRC	FIJ	HKG	IND	INO
GROSS DOMESTIC PRODUCT	1.57	0.02	0.14	0.16	43.91	0.03	1.97	19.74	5.70
Actual Final Consumption of Households ^a	2.15	0.02	0.06	0.23	34.55	0.04	1.86	23.79	7.27
Food and Nonalcoholic Beverages	3.91	0.02	0.04	0.35	29.37	0.05	0.72	29.34	10.91
<i>Bread and Cereals</i>	8.12	0.02	0.05	0.65	21.86	0.04	0.33	26.51	12.31
<i>Meat and Fish</i>	3.25	0.01	0.06	0.38	47.66	0.06	1.58	12.28	8.50
<i>Fruits and Vegetables</i>	2.79	0.02	0.02	0.19	26.93	0.03	0.29	38.65	11.42
<i>Other Food and Nonalcoholic Beverages</i>	2.58	0.02	0.05	0.27	21.82	0.06	0.69	36.36	11.41
Clothing and Footwear: of which	2.45	0.03	0.06	0.09	29.72	0.03	2.84	27.55	6.77
<i>Clothing</i>	2.63	0.02	0.06	0.05	27.91	0.02	2.81	30.54	6.26
Housing, Water, Electricity, Gas, and Other Fuels	2.36	0.02	0.04	0.16	34.17	0.04	1.57	21.44	8.57
Health and Education	1.39	0.01	0.06	0.35	42.11	0.03	0.91	25.05	3.72
<i>Health</i>	0.89	0.02	0.03	0.26	45.85	0.03	1.17	26.18	1.49
<i>Education</i>	1.93	0.01	0.10	0.45	39.10	0.04	0.59	21.29	7.20
Transportation and Communication: of which	0.62	0.01	0.15	0.13	26.11	0.03	1.81	25.27	4.88
<i>Transportation</i>	0.80	0.02	0.18	0.20	16.91	0.05	2.12	32.34	6.15
Recreation and Culture	0.32	0.02	0.11	0.16	43.42	0.05	7.14	9.12	2.99
Restaurants and Hotels	0.97	0.00	0.08	0.24	36.84	0.03	5.19	9.05	13.20
Other Consumption Expenditure Items	1.57	0.01	0.05	0.14	39.02	0.06	3.10	20.26	4.61
Collective Consumption Expenditure by General Government	0.62	0.05	0.27	0.14	57.11	0.03	1.26	13.34	2.80
Gross Fixed Capital Formation: of which	1.29	0.03	0.05	0.06	56.09	0.02	1.70	17.33	3.92
Machinery and Equipment	0.74	0.02	0.05	0.07	40.66	0.04	3.54	23.80	1.82
Construction	1.73	0.04	0.05	0.06	64.34	0.01	0.79	14.08	5.30
Change in Inventories and Net Acquisitions of Valuables	0.17	0.00	0.30	0.03	37.15	0.03	-0.34	22.78	0.68
Balance of Exports and Imports	-1.87	-0.08	1.89	-0.01	57.70	-0.17	10.27	-9.87	5.24
Household Final Consumption Expenditure ^b	2.31	0.02	0.06	0.23	32.60	0.04	1.96	24.42	7.67
Government Final Consumption Expenditure	0.58	0.04	0.20	0.19	56.98	0.04	1.11	14.61	2.95
Actual Final Consumption of Households ^a	2.15	0.02	0.06	0.23	34.55	0.04	1.86	23.79	7.27
All Goods	2.78	0.02	0.06	0.25	32.48	0.05	1.35	25.47	8.55
Nondurables	3.39	0.02	0.03	0.29	32.40	0.05	0.67	27.85	9.36
Semidurables	1.63	0.02	0.10	0.11	24.80	0.04	2.58	26.84	8.31
Durables	0.98	0.01	0.14	0.19	41.77	0.03	4.53	9.50	3.53
Services	1.44	0.01	0.08	0.21	34.94	0.04	2.54	22.09	6.04

– = magnitude equals zero.

Notes:

1. Data are as of May 2014 and estimates were revised based on updated national accounts values for 2005.
2. Real refers to purchasing power parity-adjusted values.
3. Results presented in these tables are based on data supplied by all participating economies and compiled in accordance with the principles and procedures recommended by the 2011 International Comparison Program (ICP) Technical Advisory Group. The results for the People's Republic of China were estimated by the 2011 ICP Asia Pacific Regional Office. The National Bureau of Statistics of China does not recognize these results as official statistics.

^a Includes individual consumption expenditure by households, nonprofit institutions serving households, and government.

^b Includes individual consumption expenditure by households and nonprofit institutions serving households only.

Source: ADB estimates.

IRN	LAO	MAC	MAL	MLD	MON	NEP	PAK	PHI	SIN	SRI	TAP	THA	VIE	Asia and the Pacific
5.84	0.08	0.14	2.57	0.01	0.06	0.22	3.26	2.13	1.58	0.55	4.99	3.80	1.52	100.00
6.12	0.09	0.08	2.13	0.01	0.07	0.33	4.94	3.00	1.01	0.74	5.65	4.28	1.59	100.00
3.37	0.12	0.03	1.47	0.01	0.09	0.65	7.25	4.22	0.29	0.79	2.05	3.31	1.63	100.00
2.66	0.27	0.02	1.00	0.01	0.07	1.75	8.34	7.05	0.18	0.85	1.94	3.08	2.88	100.00
3.11	0.17	0.06	1.94	0.01	0.21	0.27	4.89	6.36	0.37	0.81	2.58	3.18	2.26	100.00
3.84	0.07	0.03	1.08	0.01	0.02	0.32	6.36	1.14	0.17	0.82	1.74	3.08	0.99	100.00
4.21	0.03	0.02	1.73	0.02	0.08	0.50	9.10	3.56	0.40	0.70	1.97	3.59	0.82	100.00
7.41	0.03	0.10	0.97	0.01	0.12	0.41	7.72	1.05	0.69	0.60	5.95	4.33	1.08	100.00
6.64	0.03	0.08	1.06	0.01	0.10	0.40	6.92	0.85	0.70	0.64	6.29	4.83	1.14	100.00
9.62	0.11	0.07	2.04	0.01	0.05	0.26	6.61	2.08	0.76	0.91	4.61	3.04	1.45	100.00
5.67	0.09	0.05	1.56	0.03	0.08	0.31	4.24	1.53	0.63	0.61	5.06	3.66	2.83	100.00
6.71	0.05	0.05	0.97	0.02	0.05	0.36	3.45	0.69	0.59	0.50	5.68	3.08	1.88	100.00
4.79	0.15	0.06	2.25	0.04	0.12	0.23	4.88	2.71	0.65	0.72	4.40	4.21	4.08	100.00
12.18	0.05	0.10	3.94	0.01	0.04	0.07	2.75	3.63	1.84	0.70	8.70	6.10	0.86	100.00
8.84	0.07	0.11	4.08	0.01	0.05	0.09	2.77	4.28	2.24	0.77	8.90	7.95	1.09	100.00
3.89	0.05	0.30	2.07	0.01	0.03	0.07	2.84	1.20	3.71	0.33	15.30	5.19	1.67	100.00
1.56	0.05	0.34	3.38	0.00	0.01	0.15	0.62	2.86	3.08	0.74	9.06	10.01	2.53	100.00
5.19	0.06	0.08	2.62	0.01	0.05	0.20	2.38	4.25	1.27	0.72	8.60	4.71	1.07	100.00
6.66	0.18	0.07	2.33	0.03	0.05	0.14	2.48	1.34	1.36	0.55	4.66	2.95	1.57	100.00
3.30	0.07	0.11	2.09	0.02	0.05	0.14	1.49	1.35	1.33	0.38	3.79	3.64	1.74	100.00
5.52	0.06	0.12	2.57	0.04	0.06	0.05	1.64	1.54	2.32	0.41	7.31	6.61	1.03	100.00
2.03	0.07	0.11	1.50	0.02	0.04	0.16	1.32	1.00	0.82	0.37	1.95	1.99	2.24	100.00
28.82	0.05	0.04	0.11	-	0.23	0.60	2.04	1.49	-0.82	0.77	0.64	4.56	0.67	100.00
5.86	-0.12	1.76	14.59	-0.10	-0.06	-0.66	-3.43	-2.68	17.08	-1.01	7.46	-0.93	-0.89	100.00
6.25	0.08	0.08	2.09	0.01	0.06	0.35	5.19	3.18	1.04	0.73	5.80	4.30	1.54	100.00
5.63	0.15	0.08	2.38	0.03	0.08	0.13	2.34	1.26	1.05	0.66	4.40	3.31	1.79	100.00
6.12	0.09	0.08	2.13	0.01	0.07	0.33	4.94	3.00	1.01	0.74	5.65	4.28	1.59	100.00
5.78	0.10	0.06	1.75	0.01	0.07	0.43	5.90	3.00	0.71	0.74	5.02	3.98	1.43	100.00
5.20	0.12	0.03	1.38	0.01	0.08	0.55	6.69	3.24	0.32	0.85	2.62	3.29	1.57	100.00
7.07	0.05	0.11	2.27	0.01	0.08	0.23	5.05	2.65	1.05	0.71	9.50	5.82	0.97	100.00
7.08	0.07	0.14	3.21	0.01	0.04	0.12	2.10	1.67	2.78	0.17	15.36	5.26	1.31	100.00
7.14	0.06	0.11	2.69	0.01	0.05	0.20	3.56	3.30	1.43	0.74	6.54	4.94	1.84	100.00

Appendix 5

List of Reference Purchasing Power Parities

Code	Description	Reference
1102311	Narcotics	Purchasing power parity (PPP) for tobacco
1104111	Actual and Imputed Rentals for Housing	Volume relatives of household final consumption expenditures (HFCE) including nonprofit institutions serving households
1104421	Miscellaneous Services Relating to the Dwelling	Weighted average of PPPs for maintenance of dwellings and water supply
1105511	Major Tools and Equipment	Weighted average of PPPs for glassware, tablewares, and utensils; Small tools and miscellaneous; Accessories; and Nondurable household goods
1105622	Household Services	PPPs for maintenance of the dwelling
1106311	Hospital Services	Weighted average of PPPs from household medical services, Dental services, and Paramedical services
1107141	Animal Drawn Vehicles	PPPs for purchase of vehicles (excluding reference PPPs basic headings)
1107341	Passenger Transport by Sea and Inland Waterway	Weighted average of PPPs for operation of personal transport equipment and transport service (excluding reference PPPs basic headings)
1107351	Combined Passenger Transport	Weighted average of PPPs for operation of personal transport equipment and transport service (excluding reference PPPs basic headings)
1107361	Other Purchased Transport Services	Weighted average of PPPs for operation of personal transport equipment and transport service (excluding reference PPPs basic headings)
1109211	Major Durables for Outdoor and Indoor Recreation	Weighted average of PPPs for bicycles; and audiovisual, photographic, and information processing equipment
1109231	Maintenance and Repair of Other Major Durables for Recreation and Culture	PPPs for maintenance and repair of the dwelling
1109331	Gardens and Pets	PPPs for HFCE on the domestic market (excluding reference PPPs basic headings)
1109351	Veterinary and Other Services for Pets	Weighted PPPs for HFCE on the domestic market (excluding reference PPPs basic headings)
1109431	Games of Chance	PPPs for HFCE on the domestic market (excluding reference PPPs basic headings)

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Appendix 5 *continued*

Code	Description	Reference
1112411	Social Protection	PPPs for HFCE on the domestic market (excluding health and education basic headings and reference PPPs basic headings)
1112511	Insurance	PPPs for HFCE on the domestic market (excluding health and education basic headings and reference PPPs basic headings)
1112611	Financial intermediation services indirectly measured	PPPs for HFCE on the domestic market (excluding health and education basic headings and reference PPPs basic headings)
1112621	Other Financial Services n.e.c.	PPPs for HFCE on the domestic market (excluding health and education basic headings and reference PPPs basic headings)
1112711	Other Services n.e.c.	PPPs for HFCE on the domestic market (excluding health and education basic headings and reference PPPs basic headings)
1301111	Housing	PPP for actual and imputed rentals for housing from household
1302111	Pharmaceutical Products	PPP for pharmaceutical products from household
1302112	Other Medical Products	PPP for other medical products from household
1302113	Therapeutic Appliances and Equipment	PPP for therapeutic appliances and equipment from household
1302121	Outpatient Medical Services	PPP for outpatient medical services from household
1302122	Outpatient Dental Services	PPP for outpatient dental services from household
1302123	Outpatient Paramedical Services	PPP for outpatient paramedical services from household
1302124	Hospital Services	PPP for hospital services from household
1302221	Intermediate Consumption	Weighted PPPs for HFCE on the domestic market (excluding reference PPPs basic headings)
1302231	Gross Operating Surplus	Weighted PPPs for gross fixed capital formation (GFCF)
1302241	Net Taxes on Production	Weighted PPPs for HFCE on the domestic market (excluding reference PPPs basic headings) and PPP for compensation of employees for the production of health services by government
1302251	Receipts from Sales: Health Services	Weighted PPPs for HFCE on the domestic market (excluding reference PPPs basic headings) and PPP for compensation of employees for the production of health services by government
1303111	Recreation and Culture	PPPs for recreation and culture from household
1304111	Education Benefits and Reimbursements	PPP for education from household
1304221	Intermediate Consumption	Weighted PPPs for HFCE on the domestic market (excluding reference PPPs basic headings)

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Appendix 5 *continued*

Code	Description	Reference
1304231	Gross Operating Surplus	Weighted PPPs for GFCF
1304241	Net Taxes on Production	Weighted PPPs for HFCE on the domestic market (excluding reference PPPs basic headings) and PPP for compensation of employees for the production of education services by government
1304251	Receipt from Sales: Education	Weighted PPPs for HFCE on the domestic market (excluding reference PPPs basic headings) and PPP for compensation of employees for the production of education services by government
1305111	Social Protection	PPPs for HFCE on the domestic market (excluding health and education basic headings and reference PPPs basic headings)
1401121	Intermediate Consumption	Weighted PPPs for HFCE on the domestic market (excluding reference PPPs basic headings)
1401131	Gross Operating Surplus	Weighted PPPs for GFCF
1401141	Net Taxes on Production	Weighted PPPs for HFCE on the domestic market (excluding reference PPPs basic headings) and PPP for compensation of employees for the collective services by the government
1401151	Receipts from Sales: Collective Services	Weighted PPPs for HFCE on the domestic market (excluding reference PPPs basic headings) and PPP for compensation of employees for the collective services by the government
1501100	Metal Products and Equipment	Geometric mean of the PPPs of general purpose machinery, Special purpose machinery, and Electrical and optical equipment
1501111	Fabricated Metal Products, except Machinery and Equipment	PPPs for metal products
1501151	Other Manufactured Goods n.e.c.	PPPs for metal products and equipment (excluding reference PPPs basic headings)
1501200	Transport Equipment	PPP for motor vehicles, trailers, and semitrailers
1501212	Other Road Transport	PPPs for transport equipment (excluding reference PPPs basic headings)
1501221	Other Transport Equipment	PPPs for transport equipment (excluding reference PPPs basic headings)
1503111	Other Products	PPPs for metal products and equipment (excluding reference PPPs basic headings)
1600000	Changes in Inventories and Net Acquisitions of Valuables	PPPs for durable and nondurable goods, and GFCF (excluding reference PPPs basic headings)
1701111	Exports of Goods and Services	Exchange rates
1701112	Imports of Goods and Services	Exchange rates

n.e.c. = not elsewhere classified

Source: ADB, 2014.

Appendix 6

National Implementing Agencies

Economy	National Implementing Agency
Bangladesh	Bangladesh Bureau of Statistics
Bhutan	National Statistics Bureau
Brunei Darussalam	Department of Economic Planning and Development
Cambodia	National Institute of Statistics
China, People's Republic of	National Bureau of Statistics
Fiji	Bureau of Statistics
Hong Kong, China	Census and Statistics Department
India	Ministry of Statistics and Programme Implementation
Indonesia	Badan Pusat Statistik - Statistics Indonesia
Lao People's Democratic Republic	Lao Statistics Bureau
Macao, China	Statistics and Census Service
Malaysia	Department of Statistics
Maldives	Statistics Division, Department of National Planning
Mongolia	National Statistical Office
Myanmar	Ministry of National Planning and Economic Development
Nepal	Central Bureau of Statistics
Pakistan	Pakistan Bureau of Statistics
Philippines	Philippine Statistics Authority
Singapore	Department of Statistics
Sri Lanka	Department of Census and Statistics
Taipei, China	Directorate-General of Budget, Accounting and Statistics
Thailand	Bureau of Trade and Economic Indices
Viet Nam	General Statistics Office

Appendix 7 Timeline

The 39th Session of the United Nations Statistical Commission

26–29 February 2008, UN headquarters, New York

The United Nations Statistical Commission endorsed the continuation of the International Comparison Program (ICP) with reference year 2011 (2011 ICP), and requested the World Bank to be the global coordinator. At the invitation of the World Bank, the Asian Development Bank (ADB), through the Economics and Research Department, agreed to be the regional coordinator for Asia and the Pacific. It was responsible for overall management of the 2011 ICP for Asia and the Pacific, including the coordination of regional data collection, analysis, and calculation of the regional PPPs.

Approval of the ADB Research and Development Technical Assistance

15 March 2010, ADB headquarters, Manila, Philippines

The ADB research and development technical assistance (RDTA) was approved by the President on 15 March 2010 with the aim of computing the 2011 purchasing power parity (PPP)-based gross domestic product measures for Asia and the Pacific that will allow cross-economy comparisons of economic outputs, free of price and exchange rate distortions.

Organizational Meeting of the ICP Asia Pacific Regional Advisory Board

20 May 2010, ADB headquarters, Manila, Philippines, attended by 11 members

The meeting was convened to set the overall direction of the 2011 ICP Asia and the Pacific program,

governance framework, and research agenda. The meeting was also vital in obtaining the support and commitment from stakeholders including the ICP Global Office, international organizations, and national implementing agencies (NIA).

Organizational Meeting of the Heads of National Implementing Agencies

20 May 2010, ADB headquarters, Manila, Philippines, attended by 22 participants

The meeting provided a venue to introduce to the heads of the NIA the objectives, work program, and data and related statistical requirements of the 2011 ICP for Asia and the Pacific; and provide background on the methods and research agenda for the 2011 ICP. The meeting also provided the opportunity for all parties to discuss the Framework of Partnership which defines the roles and responsibilities of ADB and the NIAs.

Inception Workshop

14–15 June 2010, ADB headquarters, Manila, Philippines, attended by 44 participants

The workshop provided an overview, and technical background on the RDTA, as well as discussed the institutional arrangements for the 2011 ICP Asia and the Pacific.

Training and Review Workshop—Product Lists Development and Preliminary Sampling Design

16–22 June 2010, ADB headquarters, Manila, Philippines, attended by 30 participants

The workshop was conducted to present the ICP survey framework and price collection scheme,

collectively review the Global Core List, and discuss the 2011 ICP Asia and the Pacific Product Catalog.

Workshop on the 2011 ICP Survey Framework and Methodology

27 September–1 October 2010, Kuala Lumpur, Malaysia, attended by 46 participants

The objectives of the workshop include the presentation and discussion of (i) the 2011 ICP survey framework and methodology of the economies participating in the 2011 ICP Asia and the Pacific; (ii) the purchasing power parity methods, and the 2011 ICP Asia and the Pacific Software Suite (ICP APSS). The workshop participants comprised national coordinators (NC) and price statisticians from 22 participating economies.

Second Meeting of the ICP Asia and the Pacific Regional Advisory Board

18 November 2010, Intercontinental Beijing Financial Street, Beijing, People's Republic of China, attended by 13 members

The meeting was held to update the regional advisory board (RAB) members on the progress to date in implementing the 2011 ICP in Asia and the Pacific region, address any shortcomings, and resolve outstanding issues. It was co-hosted by the National Bureau of Statistics of China (NBS).

Conference on Developments in the ICP in Asia and the Pacific

9–10 March 2011, ADB headquarters, Manila, attended by 75 participants

The conference was a venue for the heads of the NIAs, national coordinators, statisticians, and economists from national and international organizations to come together to present and discuss the methodology and results of the research initiatives on the 2009 Purchasing Power Parity update and developments in the ICP.

Technical Evaluation of the 2011 ICP Household Product List

11–12 March 2011, ADB headquarters, Manila, Philippines, attended by 24 participants

The 2-day technical evaluation was the final leg of the series of ICP events held in Manila after the dissemination meeting for heads of the NIAs held on 8 March 2011 and the conference on developments in the ICP in Asia and the Pacific held on 9–10 March 2011. It was conducted to assess the implementation of the 2011 ICP price surveys, assess the availability and appropriateness of the structured product descriptions (SPDs) in the 2011 ICP product list, and provide updates on the ICP APSS. It was attended by the national coordinators from 18 NIAs, with resource persons coming from the University of Queensland and the World Bank.

Second Technical Evaluation of Household Price Survey Results and Related Sectors

13–18 June 2011, Kathmandu, Nepal, attended by 45 participants

Economies and the ADB ICP Team collectively reviewed the first quarter household price data; resolved household data issues after intra- and intra-economy validation; and introduced the product lists and survey instruments for the nonhousehold sectors including construction, machinery and equipment, compensation of government employees, and dwelling rental.

Third Technical Evaluation of Household Price Survey Results

19–21 September 2011, Bangkok, Thailand, attended by 27 participants

Price Statisticians from the 23 participating developing member economies (DMEs) gathered to discuss the results of the intra- and inter-economy validation and analysis of the first half 2011 household price survey data, in addition to updating and finalizing outstanding issues on the regional and global household product list. A Global Office representative from the World Bank also attended the workshop.

Discussion of Nonhousehold Sectors

22–24 September 2011, Bangkok, Thailand, attended by 47 participants

National experts on machinery and equipment (M&E) joined the price statisticians to discuss price surveys on dwelling rental, construction, and M&E. The M&E experts were engaged by the national statistics offices to assist them in pricing the nonhousehold sector items. The Global Office manager from the World Bank, as well as international experts were invited to facilitate discussions on these sectors.

Fourth Technical Evaluation of Household Price Survey Results

16–19 January 2012, Ha Noi, Viet Nam, attended by 39 participants

This discussion is very critical in ensuring the quality of price data for the computation of robust PPP data. The technical evaluation aimed to review, discuss, and identify sources of variations, and assess the revised first semester 2011 and preliminary third quarter household price data. Senior price statisticians attended the discussion.

Fifth Technical Evaluation of Household Price Survey

22–27 March 2012, Siem Reap, Cambodia, attended by 25 participants

The technical evaluation was organized to validate and analyze the household price data for January to December 2011, and resolve intra- and inter-economy issues in the price data. This was attended by senior price statisticians from 21 DMEs with the ICP Global Office manager and international ICP expert as resource persons.

First Technical Evaluation of Nonhousehold Price Surveys

28–30 March 2012, Siem Reap, Cambodia, attended by 46 participants

Price statisticians and resource persons from national statistics offices and ministries of 22 DMEs, ADB

and the World Bank discussed and resolved issues concerning preliminary data for M&E, construction, and rental for the 2011 ICP.

Technical Evaluation of ICP Price Survey

3–10 July 2012, Manila, Philippines, attended by 26 participants

The technical discussions were convened to review annual average prices of household and nonhousehold sectors used to compute the 2011 PPPs for the Asia and the Pacific, and subsequently for the global results. The technical evaluation, held on 3–5 July, focused on the review of data for the household sectors, and the nonhousehold sectors on 6–10 July.

Core Group Meeting on Non-Household Sectors

11–12 July 2012, Manila, Philippines, attended by 9 experts

A 2-day meeting was convened to review the nonhousehold sectors of M&E, dwellings, and government compensation. Discussions on the M&E items on the first day included an in-depth technical review of the items priced by the economies to determine the items that satisfy the required SPDs, identify equivalent items, determine the need to split items if necessary, and make recommendations on further action to be undertaken by ADB and the participating economies.

Technical Evaluation of the 2011 International Comparison Program Data

14–22 March 2013, Kuala Lumpur, Malaysia, attended by 54 participants

The technical discussion was arranged to finalize all price data for the 2011 ICP, review weighted and unweighted PPPs, discuss productivity adjustments for compensation, and finalize methods for PPP aggregations. It was attended by price statisticians and national accountants from the 23 participating economies. Several international experts on national accounts, price statistics and ICP also joined the discussion.

2011 ICP Asia and the Pacific Expert Group Meeting
25–26 March 2013, Kuala Lumpur, Malaysia, attended by 6 participants

The 2-day experts' group discussion was held back-to-back with the technical evaluation of the 2011 ICP data from 14–22 March 2013. The meeting focused on inter-economy regional validation for gross domestic products, construction, dwellings and rentals, compensation, and M&E, of which extreme outliers for each economy for each sector were identified prior to conducting inter-economy validation.

Third Regional Advisory Board Meeting
13–14 May 2013, Bangkok, Thailand, attended by 22 participants

The members of the RAB of the 2011 ICP for Asia and the Pacific were convened to discuss the status of the implementation of the 2011 ICP, particularly in relation to the outcomes of the validation workshops and ICP experts' group meetings. The objectives of the meeting included the discussion and endorsement of the following ICP areas:

- (i) approaches to PPP calculations for actual and imputed rents for housing,
- (ii) productivity adjustments for government compensation,
- (iii) analysis of the 2011 ICP price and national accounts data, and
- (iv) methods for estimating the 2011 PPP and per capita relatives of GDP and its major aggregates.

Fourth Meeting of the 2011 ICP for Asia and the Pacific Regional Advisory Board

12 August 2013, ADB headquarters, Manila, Philippines, attended by 19 members and observers

The meeting sought the approval and endorsement of the RAB of the preliminary 2011 PPP results incorporating the recommendations of the ICP Experts Group convened in May and August 2013.

Dissemination Meeting for Heads of the National Implementing Agencies

13 August 2013, ADB headquarters, Manila, Philippines, attended by 45 participants

The high-level meeting presented the RAB-endorsed preliminary 2011 PPP results to the heads and directors of the NIAs.

Third Meeting of Heads of the National Implementing Agencies

8–10 April 2014, Kuala Lumpur, Malaysia, attended by 51 participants

The heads of the NIAs and the national coordinators were briefed on the final results of the 2011 ICP for Asia and the Pacific. They also discussed the remaining activities on subnational and poverty-specific PPPs.

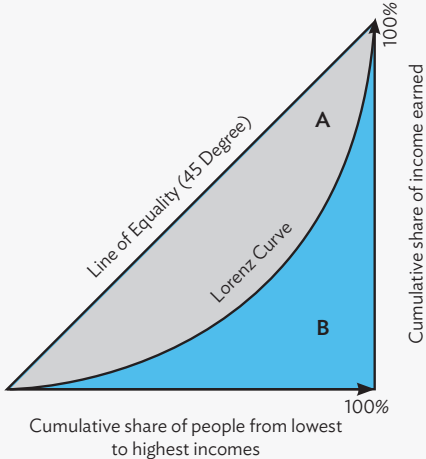
Glossary of Terms

Term	Definition
Acquisitions	Goods (including assets) and services acquired by institutional units when they become the new owners of the goods or when the delivery of services to them is completed.
Actual final consumption by households (AFCH)	Total value of household final consumption expenditure including nonprofit institutions serving households (NPISHs), and of expenditures by government on services provided to household.
Additivity	A concept that the real expenditures for higher-level aggregates can be obtained simply by adding the real expenditures of the subaggregates of which they are composed. <i>Real expenditures obtained using Éltető-Köves-Szulc (EKS)-based purchasing power parities (PPPs) are not additive, so the sum of the real expenditures for the components of gross domestic product (GDP) does not equal the real expenditure on GDP.</i>
Annual national average	A price that has been averaged over all localities of an economy to account for regional variations in prices and over the days, weeks, months, or quarters of the reference year to allow for seasonal variations in prices, as well as general inflation and changes in price structures.
Base economy invariance	The property whereby the relativities between the PPPs, price level indexes, and volume indexes of economies are not affected by either the choice of currency as numeraire or the choice of reference economy.
Basic heading	In principle, a group of similar well-defined goods or services for which a sample of products can be selected that are both representative of their type and of the purchases made in economies. In practice, a basic heading is defined as the smallest aggregate for which expenditure data are available.
Benchmark	A standard, or point of reference, against which an estimate can be compared, assessed, measured, or judged. PPPs are computed using price data from a full list of household and nonhousehold products and weights derived from the expenditures on GDP for a specified reference year. In the International Comparison Program (ICP), this reference year is often referred to as the “benchmark year” or simply as the “benchmark.”
Big Mac index	An index developed and used by the Economist to illustrate the use of PPPs. It is based on the price of a McDonald’s Big Mac hamburger compared across economies.

Term	Definition
Binary comparison	A price or volume comparison between two economies that draws on data only for those two economies. Also referred to as a “bilateral comparison.”
Bridge economy	An economy that provides a “bridge” between two regions by pricing two lists—one relating to its own region and the other, containing products from the second region. The relationships between the PPPs derived from the two sets of prices are used to link the two regions so that any economy in one region can be compared with any economy in the other region.
Changes in inventories	Consist of changes in (i) stocks of outputs that are still held by the units that produced them prior to their being further processed, sold, delivered to other units, or used in other ways; and (ii) stocks of products acquired from other units that are intended to be used for intermediate consumption or for resale without further processing. They are measured by the value of the entries into inventories less the value of withdrawals and the value of any recurrent losses of goods held in inventories.
Characteristicity	The property that requires transitive multilateral comparisons between members of a group of economies to retain the essential features of the intransitive binary comparisons that existed between them before transitivity. A transitive multilateral comparison between a pair of economies is influenced by the price and quantity data of all other economies. Characteristicity requires that the impact of these influences be kept to a minimum when they are introduced into the intransitive binary comparison. In other words, the multilateral PPP between two economies should deviate as little as possible from their binary PPP.
Classification of Individual Consumption According to Purpose (COICOP)	A classification used to identify the objectives of both individual consumption expenditure and actual individual consumption.
Classification of the Functions of Government (COFOG)	A classification used to identify the socioeconomic objectives of current transactions, capital outlays, and acquisition of financial assets by general government and its subsectors.
Collective consumption expenditure by government	Expenditures on the service provided by general government simultaneously to all members of the community or to all members of a particular section of the community, such as all households living in a particular region. It is the same as collective consumption expenditure by general government.
Comparability	A requirement for economies to price products that are identical or, if not identical, equivalent. Pricing comparable products ensures that differences in prices between economies for a product reflect actual price differences and are not influenced by differences in quality. Two, or more, products are said to be comparable either if their physical and economic characteristics are identical, or if they are sufficiently similar that consumers are indifferent between them.

Term	Definition
Comparative price levels (CPLs)	See “Price level index”.
Comparison-resistant	A term first used to describe nonmarket services that are difficult to compare across economies because (i) they have no economically significant prices with which to value outputs; (ii) their units of output cannot be otherwise defined and measured, or the institutional arrangements for their provision and the conditions of payment differ from economy to economy; and (iii) their quality varies between economies but the differences cannot be identified and quantified. Increasingly, the term is being used to describe capital goods and many market services whose complexity, variation, and economy specificity make it difficult for them to be priced comparably across economies.
Compensation of employees	The total remuneration, in cash or in kind, payable by enterprises to employees in return for work done by the latter during the accounting period.
Consistency	The requirement that the prices collected by economies are consistent with the prices underlying their estimates of final expenditure on GDP. In most cases, this means that they should be national annual purchasers’ prices. As the basis of comparison is the identity: expenditure = price x volume. Volumes are obtained by dividing expenditures by prices. Using prices that do not correspond to those used to derive the expenditures will result in the volumes being either underestimated or overestimated.
Constant prices	Prices obtained by directly factoring changes over time in the values of flows of goods and services into two components reflecting changes in the prices of the goods and services concerned and changes in their volumes (i.e., changes in “constant price terms”).
Consumer price index	An index of price changes within an economy across time.
Country-product-dummy (CPD) method	The CPD method is a generalized multilateral method that uses regression techniques to obtain transitive PPPs for each basic heading. It assumes that the patterns of relative prices of the different products within a basic heading are all constant between any given pair of countries; and that each country has its own overall price level for the basic heading and that it fixes the level of absolute prices in the basic heading for that country. The data for a given category consist of all the prices available for the various specifications for the entire collection of countries in the region.
Current prices	A fundamental principle underlying the measurement of gross value added; and hence GDP; is that output and intermediate consumption must be valued at the prices current at the time the production takes place.
Durable good	A good that may be used repeatedly or continuously over a period of more than a year, assuming a normal or average rate of physical usage. A consumer durable is a good that may be used for purposes of consumption repeatedly or continuously over a period of a year or more.

Term	Definition
Dwellings	Buildings that are used entirely or primarily as residences, including any associated structures, such as garages, and all permanent fixtures customarily installed in residences. Movable structures, such as caravans, used as principal residences of households are included.
Eltető-Köves-Szulc (EKS) method	A procedure that enables binary PPPs, which are nontransitive when more than two economies are involved in the comparison, to be transformed into transitive PPPs, so that comparisons made between any pair of economies are mutually consistent. The EKS method produces transitive PPPs that are as close as possible to the nontransitive PPPs originally calculated in the binary comparisons. In practice, the EKS method is relevant only to the second part of this process (i.e., making the PPPs transitive). Real expenditures obtained using EKS-based PPPs are not additive, so the sum of the real expenditures for the components of GDP does not equal the real expenditure on GDP.
Employee	A person who enters an agreement, which may be formal or informal, with an enterprise to work for the enterprise in return for remuneration in cash or in kind.
Expenditures	The values of the amounts that buyers pay, or agree to pay, to sellers in exchange for goods or services that sellers provide to them or to other institutional units designated by the buyers.
Expenditure relatives	Real measures expressed in index form with the level of an individual economy or an average for a group (such as Asia and the Pacific region) set to a value of 100.
Final consumption	Goods and services used up by individual households or the community to satisfy their individual or collective needs or wants.
Final expenditure	The sum of final consumption expenditures of households, NPISHs, and general government, and of expenditures on gross fixed capital formation.
Financial intermediation services indirectly measured (FISIM)	An indirect measure of the value of financial intermediation services provided but for which financial institutions do not charge explicitly.
Fisher-type PPP	The geometric mean of the Laspeyres-type PPP and the corresponding Paasche-type PPP.
Fixity	The principle that the PPPs between economies in a region (and therefore the volume relatives based on the PPPs) do not change when the results from that region are combined with those from another region (or regions).
Geary-Khamis (GK) method	A method of computing PPPs that are transitive and real expenditures that are additive (e.g., the sum of the major components of GDP equals the real expenditure on GDP). It involves valuing a matrix of quantities by applying a vector of international prices. The vector is obtained by averaging national prices across participating economies after they have been converted to a common currency with PPPs and weighted by quantities.

Term	Definition
General government	The sector consisting of the totality of institutional units which, in addition to fulfilling their political responsibilities and their role of economic regulation, produce principally nonmarket services (possibly goods) for individual or collective consumption and redistribute income and wealth.
Gini coefficient (of inequality)	<p>The Gini coefficient is the most commonly used measure of inequality. The coefficient varies between 0, which reflects complete equality, and 1, which indicates complete inequality (i.e., one person has all the income or consumption, all others have none). Graphically, the Gini coefficient can be represented by the area between the Lorenz curve and the line of equality, as follows:</p>  <p>In the figure above, the Lorenz curve maps the cumulative income share on the vertical axis against the distribution of the population on the horizontal axis. In this example, 40% of the population obtains around 20% of total income. If each individual had the same income, or total equality, the income distribution curve would be the straight line in the graph—the line of total equality. The Gini coefficient is calculated as the area A divided by the sum of areas A and B. If income is distributed completely equally, then the Lorenz curve and the line of total equality are merged and the Gini coefficient is zero. If one individual receives all the income, the Lorenz curve would pass through the points (0,0), (100,0) and (100,100), and the surfaces A and B would be similar, leading to a value of one for the Gini coefficient.</p>
Government final consumption expenditure (GFCE)	Or final consumption expenditure by government consisting of expenditure, including imputed expenditure, incurred by general government on both individual consumption goods and services and on collective consumption services.
Gross domestic product—expenditure based	Total final expenditures at purchasers’ prices (including the free-on-board value of exports of goods and services), less the free-on-board value of imports of goods and services.

Term	Definition
Gross fixed capital formation (GFCF)	Measures the total value of a producer's acquisitions, less disposals, of fixed assets during the accounting period. It includes certain additions to the value of nonproduced assets (such as subsoil assets or major improvements in the quantity, quality, or productivity of land) realized by the productive activity of institutional units.
Household durables	Durable goods acquired by households for final consumption (i.e., those that are not used by households as stores of value or by unincorporated enterprises owned by households for purposes of production); they may be used for purposes of consumption repeatedly or continuously over a period of 1 year or more.
Household final consumption expenditure (HFCE)	Or final consumption expenditure by households consisting of the expenditure, including imputed expenditure, incurred by resident households on individual consumption goods and services, including those sold at prices that are not economically significant; and also includes the individual consumption expenditure by NPISHs, in the context of the 2011 ICP in Asia and the Pacific.
Household products	Refer to the consumption of households for the following components: 110100 Food and nonalcoholic beverages 110200 Alcoholic beverages, tobacco and narcotics 110300 Clothing and footwear 110400 Housing, water, electricity, gas, and other fuels 110500 Furnishings, household equipment, and routine maintenance of the house 110600 Health 110700 Transport 110800 Communication 110900 Recreation and culture 111000 Education 111100 Restaurant and hotels 111200 Miscellaneous goods and services (personal grooming, personal care, personal effects, financial services, and other services).
Inter-economy data validation	Process in which the average prices for the same products in different economies are checked against each other.
Intra-economy data validation	Process in which the individual price observations are edited and checked for within economy variations. It is also the level at which first checks are carried out on the average prices of an economy.
Laspeyres-type PPP	In a binary comparison between two economies, A and B, economy A's Laspeyres-type PPP measures economy B's price level relative to that of economy A (the reference economy), using economy A's expenditures as the weights.
Local currency unit (LCU)	Or national currency unit is the monetary unit in which economic values are expressed in an economy.

Term	Definition
Multilateral comparison	A simultaneous price or volume comparison of more than two economies that produces consistent relations among all pairs of economies—that is, one that satisfies the transitivity requirement.
Net expenditures of residents' abroad (NEX)	The final consumption expenditure of resident households in the rest of the world less final consumption expenditure of nonresident households in the economic territory.
Nondurable good	A good that may be used only once because the initial use results in it being completely used up or consumed. Food products are examples of consumer nondurables.
Nonhousehold products	These refer to the following product groups: Compensation of employees by government (health, education, and collective services); Construction; and Machinery and equipment.
Nonprofit institutions serving households (NPISH)	Consist of nonprofit institutions that are not predominantly financed and controlled by government and that provide goods or services to households free or at prices that are not economically significant.
Nonresident	A unit is nonresident if its center of economic interest is not in the economic territory of the economy concerned.
Numeraire currency	A currency unit selected to be the common currency in which PPPs and final expenditures on GDP (nominal and volumes) are expressed. The numeraire is usually an actual currency (such as the Hong Kong dollar) but it can be an artificial currency unit developed for PPP comparisons.
Owner-occupied dwellings	Dwellings owned by the households that live in them. Owner-occupiers use the dwellings to produce housing services for themselves. The imputed rents of these housing services should be valued at the estimated rent that a tenant pays for a dwelling of the same size and quality in a comparable location with similar neighborhood amenities.
Paasche-type PPP	In a binary comparison between two economies, A and B, economy A's Paasche-type PPP measures economy B's price level relative to that of economy A (the reference economy), using economy B's expenditures as the weights.
Per capita volumes	Standardized measures of real expenditure (or volume). They indicate the relative levels of the product groups or aggregates being compared after adjusting for differences in the size of populations between economies. At the level of GDP, they are often used to compare the economic well-being of populations. They may be presented either in terms of a particular currency or as an index number.
Price	The value of one unit of a particular good or service.

Term	Definition
Price level index (PLI)	The ratio of a PPP to the corresponding exchange rate. It shows how the price levels of an economy compare with each other. It is expressed as an index on a base of 100. A PLI greater than 100 means that, when the national average prices are converted at exchange rates, the resulting prices tend to be higher on average than prices in the base economy. At the level of GDP, PLIs provide a measure of the differences in the general price levels of economies. PLIs are also referred to as “comparative price levels.”
Price relative	The ratio of the price of an individual product in one period to the price of that same product in some other period. In the ICP context, a price relative refers to the price of a product in one economy to that of the same product in another economy in the same period.
Product specifications	Precise characteristics that are specified for the individual products for which prices are to be collected.
Purchaser’s price	The amount paid by the purchaser, excluding any deductible value added tax or similar deductible tax, to take delivery of a unit of a good or service at the time and place required by the purchaser; the purchaser’s price of a good includes any transport charges paid separately by the purchaser to take delivery at the required time and place.
Purchasing power parity (PPP)	It is a price relative that measures the number of units of economy B’s currency that are needed in economy B to purchase the same quantity and quality of an individual good or service, which one unit of economy A’s currency can purchase in economy A.
Real expenditure	Measures obtained by using PPPs to convert final expenditures on product groups, major aggregates, and GDP of different economies into a common currency, by valuing them at a uniform price level. Expenditures so converted reflect only volume differences between economies. They are the spatial equivalent of a time series of GDP for a single economy expressed at constant prices. They provide a measure of the relative magnitudes of the product groups or aggregates being compared. At the level of GDP, they are used to compare the sizes of economies. They may be presented either in terms of a particular currency or as an index number.
Reference PPPs	Used for basic headings for which are based on prices collected for other basic headings.
Relative price levels	The ratios of PPPs for components of GDP to the overall PPP for GDP for an economy. They indicate whether the price level for a given basic heading or aggregate is higher or lower relative to the general price level in the economy.
Representative product	An item that accounts for a significant share of the expenditures within a basic heading in an economy.

Term	Definition
Representativity	A concept that relates to individual products within the same basic heading and to the product list for a basic heading. Representativity of a product within a basic heading is defined in terms of a specific economy. A product is either representative or unrepresentative of the price level in economy A for a given basic heading, irrespective of the relative importance of the basic heading with respect to other basic headings. It is representative if, in economy A, the price level of the product is close to the average for all products within the basic heading. Usually, though not necessarily, the purchases of the product will account for a significant proportion of the total purchases of all products covered by the basic heading. If not, the product will be sold in at least sufficient quantities for its price level to be typical for the basic heading.
Resident	An institutional unit is resident in an economy when it has a center of economic interest in the economic territory.
Rest of the world	The rest of the world consists of all nonresident institutional units that enter into transactions with resident units, or that have other economic links with resident units.
Semidurable good	A good that can be used multiple times over a period of more than a year. But it has an expected lifetime of use significantly shorter than that of a durable good and its purchaser's price is substantially less than that for a durable good.
Services	Outputs produced to order, which cannot be traded separately from their production; ownership rights cannot be established over services, and by the time their production is completed, must have been provided to the consumers.
Structured product descriptions	Generic descriptions that list the characteristics relevant to a particular narrow cluster of products.
Supply and use tables	A form of matrices that record how supplies of different kinds of goods and services originate from domestic industries and imports, and how those supplies are allocated between various intermediate or final uses, including exports.
System of National Accounts (SNA)	Consists of a coherent, consistent, and integrated set of macroeconomic accounts, balance sheets, and tables based on a set of internationally agreed concepts, definitions, classifications, and accounting rules.
Transitivity	The property whereby the direct PPP between any two economies (or regions) yields the same result as an indirect comparison via a third economy (or region). It is sometimes referred to as "circularity."
Volume	See "Real expenditure."

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Purchasing Power Parities and Real Expenditures

This report presents the results of purchasing power parities (PPPs) in the 2011 International Comparison Program in Asia and the Pacific and background information on the concepts that underpin the results. The PPPs are disaggregated by major economic aggregates that enable robust cross-country comparisons. It includes variables such as per capita real gross domestic product, real per capita actual final consumption expenditure for measures of economic well-being, gross fixed capital formation reflecting investment, and price level indexes showing relative cost of living by economy.

About the Asian Development Bank

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to approximately two-thirds of the world's poor: 1.6 billion people who live on less than \$2 a day, with 733 million struggling on less than \$1.25 a day. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

