

INTRODUCTION: ROLE AND HISTORY OF THE INTERNATIONAL COMPARISON PROGRAM

The International Comparison Program in Asia and the Pacific

The International Comparison Program (ICP) is a global statistical project set up on the recommendation of the United Nations Statistical Commission (UNSC) to enable international comparisons of economic aggregates such as gross domestic product (GDP), price levels, and purchasing power of currencies. In the current round for the benchmark year 2005, the scale of the project—with 146 participating economies from all geographic regions of the world—is far greater than all the previous phases of the ICP (see the section “History of the International Comparison Program”). The ICP Global Office, located in the Development Data Group of the World Bank (henceforth referred to as the Global Office), has been coordinating the overall program, with various international agencies managing the regional programs. The Asian Development Bank (ADB) was entrusted with the role of coordinating agency for the ICP in Asia and the Pacific (ICP Asia Pacific). ADB established the ICP Regional Office in its Economics and Research Department to manage ICP Asia Pacific.

The Asia and Pacific region is one of the largest and most diverse in the world. The economies in ICP Asia Pacific—including People’s Republic of China (PRC), India, Indonesia, Pakistan, and Bangladesh,

five of the eight most populous economies in the world—make up more than 50% of the world’s population. In 2005, the ICP Asia Pacific economies contributed over 25% of world production, as measured by GDP converted to a common reference currency, (the United States [US] dollar), using purchasing power parities (PPPs).

The already complex task of conducting a large-scale project like ICP Asia Pacific, covering 23 economies, was complicated further by their geographic dispersion, and by the large variations in size, structure, and standard of living. The huge variety in the types of goods and services produced and consumed in different parts of the region presented ADB with some difficulties during the process of developing a common list of products to be priced across the region. (These difficulties, as well as the strategies and solutions adopted, are discussed in detail in Part 3.)

Rising to the challenge, ADB undertook the project and released new data that will be available for the analysis of economic and social structures of economies in the region, and for the comparison of significant characteristics such as GDP consumption expenditure.

The final stage of the 2005 ICP is completed when the Global Office releases its report on global comparisons covering 146 economies, on 17 December 2007. The ICP global results will provide comparisons between economies belonging to different regions of the world without affecting the relativities of the economies belonging to the same region. For example, it will be possible to make comparisons between Hong Kong, China in ICP Asia Pacific, with Japan from the Organisation for Economic Co-operation and Development (OECD), or with Brazil from Latin America. However, comparisons between economies within the Asia and Pacific region will remain unchanged when they are reported in the ICP global results.

International Comparisons in a Globalized World

Globalization and closer integration of countries of the world have resulted in a significant increase in demand for economic statistics that are internationally comparable for purposes of economic and statistical analysis. Understanding the relative size and structures of the countries and their growth performance is a crucial element in evidence-based decision making by researchers, economists in charge of public and private organizations, national governments, and international organizations.

Studies that focus on income catchup and convergence of countries are commonplace, as are studies that examine levels and trends in productivity, both in countries and in different sectors of the economy. Assessments of growth performance and potential require statistics on GDP, labor, and capital in different countries, which are compiled using standard international practice in their measurement to ensure that they are comparable across countries. In addition, analyses focusing on efficiency in health systems and on government expenditure on education require carefully compiled statistics on relevant aspects of such operations in different economies.

The recent debates on the effect of globalization on inequality of income distribution within countries, between countries, and in the world as a whole rely on data on GDPs in different countries expressed in a common currency converted using PPPs. It is well documented that the use of exchange rates tends to overstate inequality. For this reason, use of PPPs is now common.

The regular updates on global and regional poverty, based on \$1- and \$2-a-day international poverty lines provided by the World Bank and other international organizations, rely on timely and meaningful measures of PPPs between the US dollar and the currencies of developing countries where poverty incidence is high. Thus, there is increasing demand for PPPs based on international comparisons of prices paid for goods and services that are consumed by the poor.

Human development has many dimensions—per capita real GDP, economic growth, health, education, social progress, globalization, and poverty reduction. In each case, it is vital to have internationally comparable, high-quality statistical measures to make reliable intercountry comparisons, monitor progress, and assist in identifying suitable policies for fostering development and reducing poverty. For example, the Human Development Index makes use of per capita real GDP using PPPs as one of its components.

Comparing economic and social data (such as poverty statistics) is complex because economic aggregates are typically expressed in local currencies. The use of exchange rates is a common method to convert economic data from a local currency to a numeraire currency such as the US dollar. However, this simplistic approach is not appropriate for comparisons of per capita real GDP or output and for comparisons of productivity and standard of living.

The increasing importance of economic globalization has drawn greater attention to the shortcomings of the commonly used practice of adjusting economic data into a common currency using market exchange rates. It is a simple task to show that this process often leads to flawed results. Exchange rates' major shortcoming is that they do not take account of differences in the domestic purchasing power of each local currency. In addition, they are influenced by a range of factors unrelated to the actual purchasing power of a currency (e.g., interest rates and international trade). In practice, exchange rates can change very rapidly, thereby leading to illogical comparisons between countries, particularly when the underlying economic conditions have changed only marginally in the countries compared. Events such as the Asian economic crisis in 1997–98 exposed the seriousness of the statistical shortcomings of using exchange rates for international comparisons and have led analysts to better appreciate the usefulness of PPPs. As a result, more explicit use of PPP data is being made for global development goal setting, and

for monitoring progress toward achieving the United Nations' (UN) Millennium Development Goals.

Empirical studies have shown that using exchange rates for international comparisons systematically widens the gap for outcomes between high- and low-income countries. Exchange rates are driven by a number of factors, including the prices of traded goods, which are determined largely in world markets. Exchange rates generally overstate the relative price levels of low-income countries and so understate measures such as per capita real GDP. The reason is that price levels are also low in low-income countries, particularly for services, prices for which are largely dependent on labor costs.

Comparing the Japanese and US economies on both an exchange rate and PPP basis provides an excellent illustration of the problem. On an exchange rate basis, Japan's economy was 60% the size of that of the US in 1996 but only 38% in 2002, which is an economically implausible outcome given their relative rates of average annual economic growth over those 6 years (0.5% in Japan and 3.2% in the US). The comparable PPP estimates were 39% in 1996 and 34% in 2002, which align fairly well with the changes in the relative shares calculated using these economic growth rates.

History of the International Comparison Program

To put the 2005 ICP into perspective, it is necessary to look at the history of PPP development. Economic statisticians have understood for many years the benefits of using PPPs for international comparisons. As far back as the 1950s, projects were set up to examine the implications of bypassing exchange rates to compare activity levels between countries. In the early 1950s, OECD, then known as the Organisation for European Economic Cooperation, produced PPPs for France, Federal Republic of Germany, Italy, United Kingdom, and US. Several other experimental projects were undertaken during the 1960s in various regions—in Eastern Europe (under the auspices of the Council for Mutual Economic Assistance), in Latin America, and in Western Europe. The success of these projects led to the 1965 meeting of UNSC discussing in some detail the problems inherent in exchange rate comparisons. UNSC, which is responsible for setting global statistical standards and priorities, resolved

that the United Nations Statistics Division (UNSD), then known as the UN Statistics Office, should investigate the issues associated with using PPPs as an alternative to exchange rates for making international comparisons. At its 1968 meeting, UNSC accepted the recommendations in the resultant report, outlining a project to be run from 1968 to 1971 to develop PPP-based comparisons for a small group of countries. This project became known as Phase I of the ICP.

UNSD did not have sufficient resources to run the ICP alone and so it set up a joint project with the University of Pennsylvania, which established a special unit headed by Professor Irving Kravis. Funding was obtained from sources within the US and elsewhere. The first step was to set up an advisory board to consider detailed proposals for the project and to provide technical advice as the project progressed. Phase I included two Asian countries—India and Japan. It was run in two stages with results for six countries published for 1967 and for 10 countries for 1970. The results of Phase I were released in 1975 (Kravis et al. 1975). Details included the overall results of the multilateral comparison for 1970; a variety of bilateral comparisons for both 1967 and 1970; and outcomes from various experiments on important issues such as rents, motor vehicle prices, and the consistency of some direct quantity comparisons.

The number of countries involved in the next three phases increased markedly with 16 countries in Phase II (for 1973), 34 countries in Phase III (for 1975), and 60 in Phase IV (for 1980). The representation from Asia also increased from two countries in Phase I, to six in Phase II, and to nine in Phase III, but dropped to seven in Phase IV. As the number of economies increased, so did the diversity of those compared, which added to the complexity of the project. The range of products to be priced had to be expanded to enable all participating countries to price a sufficient number of products that were representative of their expenditures. India was one of a small group of countries heavily involved in redefining the product specifications and expanding the product lists in the lead-up to Phase III.

Detailed results for Phase II were published in 1978 (Kravis et al. 1978). Those for Phase III were released in 1982 (Kravis et al. 1982).

Apart from the large increase in the number of participating economies in Phase IV, some major changes also occurred in this round. The most significant was the regionalization of the ICP for the

first time, partly to handle increased participation and partly because OECD decided to set up a PPP program for its member countries in conjunction with the PPP program run by Eurostat for countries in what is now called the European Union. Apart from the OECD/Eurostat “region,” the other regions involved in Phase IV were Africa, Asia, and Latin America. The main advantages of regionalization are that the product lists can be more closely directed to the types of products representative of each region and the logistics of organizing the project can be split rather than be centralized, as had been the case previously. The main disadvantage is that the results for each region have to be linked to enable comparisons to be made between countries in different regions. The process used in Phase IV was to link regions using a “core country” approach (sometimes called a “bridge country” approach) in which selected countries priced some product specifications from another region to provide a relationship, or link, between their region and the other region. The results for Phase IV were published in 1986 (UN/Eurostat 1986).

Phase V of the ICP was run in respect of 1985 and there was only a small increase in the number of countries participating (from 60 to 64), with some new countries replacing those dropping out of Phase IV. Once again, a regional approach was adopted, which included Africa, Asia, Caribbean, and OECD/Eurostat. The core country approach was used once more to link regions. However, some of the links were problematic due to difficulties encountered by some core countries in collecting a sufficiently broad range of prices for products from the “other” region. Results were published in 1994 (UN/Eurostat 1994).

Phase VI was conducted in respect of 1993, and included the largest number of countries (117) to that time. The 1993 ICP round produced results for Asia, Africa, and Latin America, but the linking process was again problematic. The regions were not linked with each other or with the countries in the OECD/Eurostat PPP program (which was also conducted in respect of 1993). The outcome was the review commissioned by the 1997 meeting of UNSC.

At its meeting in February 1997, UNSC decided to review the ICP. The report of the review (Ryten 1999) was considered by UNSC during its meeting in March 1999. Broadly speaking, the conclusion of the Ryten report was that the ICP was an important project that should be continued, but that it required better funding and governance arrangements. The

ICP was again discussed at the March 2000 UNSC meeting, particularly in the context of making comparisons between countries and regions in the *Human Development Report*. UNSC appointed a group of “Friends of the Chair”, comprising experienced statisticians from several countries, to report on a range of issues, particularly the choice of PPPs or market exchange rates to adjust economic data to a common currency. The Friends of the Chair report (UNSC 2001) was considered at UNSC’s March 2001 meeting. It strongly reiterated that PPPs provide a more appropriate and robust method of making international comparisons than market exchange rates because, unlike exchange rates, PPPs directly reflect differences in the price levels of the goods and services in the countries being compared.

The coverage of economies from Asia and the Pacific region in the 2005 ICP is impressive, particularly with the simultaneous participation of the PRC and India. The PRC participated for the first time in an ICP global comparison. From the outset it was agreed that the National Bureau of Statistics of China would provide price data for 11 cities and surrounding rural areas and that it would be the responsibility of the Regional Office and the Global Office to extrapolate the 11 city prices to the national average (see Appendix 1 for details). Accordingly, the results for the PRC were based on national annual average prices constructed by the Regional Office and the Global Office from the 11 cities’ price data using the extrapolation methodology endorsed by an ADB-constituted Expert Group in June 2006. Given that the 11 cities were not fully representative of the PRC and that the weights used in the extrapolation methodology were also not fully reflective of the PRC as a whole, considerable caution needs to be exercised in the use of PPP estimates for the PRC. India took part in earlier rounds, but has not done so since Phase V in 1985. Therefore, the 2005 ICP brought the two most populous and two of the fastest-growing economies of the region into the ICP fold. In addition, participating economies come from all subregions, including Maldives and Fiji Islands, island economies on the western and eastern frontiers of the region. Table 1 shows economies from Asia and the Pacific taking part in ICP rounds.

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

ICP Phase	Benchmark Year	Number of Participating Economies	Participation of the Asia and Pacific Region
I	1970	10	India and Japan ^a
II	1973	16	India, Islamic Republic of Iran, Japan, ^a Republic of Korea, ^a Malaysia, and Philippines
III	1975	34	Islamic Republic of Iran, India, Japan, ^a Republic of Korea, ^a Malaysia, Pakistan, Philippines, Sri Lanka, and Thailand
IV	1980	60	Hong Kong, China; India; Indonesia; Japan; ^a Republic of Korea; ^a Pakistan; Sri Lanka
V	1985	64	Bangladesh; Hong Kong, China; India; Islamic Republic of Iran; Japan; ^a Republic of Korea; ^a Nepal; Pakistan; Philippines; Sri Lanka; and Thailand
VI	1993	117	Bangladesh; Hong Kong, China; Indonesia; Japan; ^a Republic of Korea; ^a Lao PDR; Malaysia; Nepal; Pakistan; Philippines; Sri Lanka; Thailand; and Viet Nam
VII	2005	146	Bangladesh; Bhutan; Brunei Darussalam; Cambodia; People's Republic of China; Fiji Islands; Hong Kong, China; India; Indonesia; Islamic Republic of Iran; Lao PDR; Macao, China; Malaysia; Maldives; Mongolia; Nepal; Pakistan; Philippines; Singapore; Sri Lanka; Taipei, China; Thailand; and Viet Nam

^a Although the Republic of Korea and Japan are part of Asia, in more recent years they have been included in the OECD comparison.

University of Pennsylvania— Penn World Tables

The University of Pennsylvania has had a lengthy involvement with the ICP, beginning in 1968 when the International Comparison Unit was established to assist UNSD in running Phase I of the ICP. More recently, the University established the Center for International Comparisons in its School of Arts and Sciences in 1990. The Center has had an important role in conducting studies aimed at improving the theoretical backing of PPPs. A major

output of the Center has been to extend the ICP results into a comprehensive set of comparisons, to cover countries not participating in the benchmark studies and to include data for non-benchmark years. This dataset is known as the Penn World Tables. It provides an invaluable data source for analysts interested in comparing the economic performance of any country in the world that has a set of national accounts.¹

¹ More details on the Penn World Tables, including the data in a readily downloadable format, can be found at http://pwt.econ.upenn.edu/php_site/pwt_index.php.

Cost of the International Comparison Program

The ICP is a very expensive project and so it is run infrequently (the last ICP prior to 2005 was in respect of 1993). Work on the 2005 ICP started in late 2002 when the Global Office was set up in the World Bank to coordinate the work. The nature of the ICP is very different from virtually all other statistical activities. As its name suggests, it is an international project, but it is heavily dependent on the cooperation of national statistical offices (NSOs), other government agencies, and the international organizations that coordinate ICP work in different regions.

Not only is the ICP costly for all the NSOs and related government agencies involved in each of the participating countries, but it is also a time-consuming and resource-intensive project to coordinate. As a result, the Global Office decided to run the 2005 ICP on a regional basis, partly to spread the workload and partly to involve organizations that had close relationships with economies in each of the regions. The Global Office decided to group the world into six regions, five of which were geography-based and the sixth “region” consisted of the countries involved in the 2005 round of the OECD/Eurostat PPP program. The five geographic regions were Africa, Asia and the Pacific, Commonwealth of Independent States, Latin America, and Western Asia. At its 12th Session, in November 2001, the UN Economic and Social Commission for Asia and the Pacific (ESCAP) Working Group of Statistical Experts discussed a paper on the ICP (UN ESCAP 2001). One of the outcomes was that ADB was invited to coordinate the ICP work in the Asia and Pacific region.

Structure of the Publication

The task of reporting the activities and the results of a complex project such as the 2005 ICP Asia Pacific is both enormous and challenging. It is essential that the resultant documentation provides the reader with an appreciation of the procedures used in data collection and the methods used in aggregating price data in the process of computing PPPs—and, ultimately, give the reader a summary of the results useful for quick reference and easy interpretation. In addition, the documentation must be useful for a diverse group of general readers as well as specialist economists and researchers who are interested in using the 2005 ICP results. This publication is designed to meet all these requirements.

It is divided into five major parts accompanied by several appendixes. This part—Part 1—has provided useful background material on the ICP with a short description of the 2005 ICP.

Part 2 offers an overview of the whole publication and provides a summary of the main results of the 2005 ICP Asia Pacific in the section “Analysis and Major Findings.” For a general reader, Part 2 is useful in understanding PPP concepts and their applications in international comparisons. A brief description of the basic methodology for PPP compilation is provided, and the main results for the region are summarized in a series of tables, where various aspects of the results are discussed.

Readers interested in details of the methods used will find useful material in Parts 3 and 4. Part 3 is devoted to a detailed discussion of the governance and organizational structure as well as the operational arrangements of the 2005 ICP. In particular, readers will find a detailed description of the steps involved in the collection of price data from the participating economies and the methodology used for the aggregation of price data for PPP computation. Procedures used in data collection, data editing, and the use of Tool Pack—the software package developed specially for the 2005 ICP—are also discussed in detail.

Part 4 focuses on program implementation in Asia and the Pacific. As mentioned above in the section “The International Comparison Program in Asia and the Pacific”, the region is diverse with geographic and economic dispersion making international comparisons particularly difficult. Therefore, the implementation of the standard procedures described in Part 3 had to be modified and adapted to suit the specific circumstances relevant to this region. Details of lessons learned, which will prove very useful in planning future statistical activities in the region, are also presented.

Part 5 contains the tables presenting the detailed results for ICP Asia Pacific, which complement the summary results presented in Part 2. These tables will be useful for researchers and others who are interested in conducting further analysis of the results.

The publication is completed with a series of appendixes. Of particular interest are the results, including PPPs, derived using an additively consistent aggregation procedure, which is commonly referred to as the Geary-Khamis method. Results derived using this method are particularly useful in analyzing the structure of an economy in real terms. New methodologies adopted for PPP computation used in the ICP Asia Pacific comparison are discussed. ICP experiences in the participating economies, which provide insight into the efforts exerted at making this ICP round a success, are also given in the appendixes.

A glossary of important terms used in the publication is also included.