Igniting and Sustaining the 2005 Round of the International Comparison Program in the Asia Pacific

By Ifzal Ali, *Chief Economist, Asian Development Bank*

A new milestone in the world of statistics has been crossed with the July 31 release of the preliminary results of the International Comparison Program in the Asia Pacific region (ICP Asia Pacific). The simultaneous participation of the People's Republic of China (PRC) and India, which together account for 64 percent of the total real gross domestic product of the 23 participating economies, was a first for the ICP and significantly increased the coverage of the 2005 round. The great diversity in the economies in size, geography and statistical capacities was overcome as all 23 economies worked harmoniously to generate price and national accounts data that are broadly comparable. Further, the estimates of purchasing power parities (PPPs) in this round are far more robust than previous rounds because of improvements in methodology, data collection, data review, and data processing. Finally, the ICP Asia Pacific has established the technical know-how and institutional requirements that future ICP rounds can build on. **>>**

The Economics of Data Confidentiality

John M. Abowd, *Professor, Cornell University Distinguished Senior Fellow, US Census Bureau*

Julia I. Lane, *Senior Vice President NORC Director, Economics, Labor and Population, University of Chicago*

The mission of national statistical institutes is to collect and disseminate data. Decades ago, this meant producing reports that consisted of tabular data designed to answer pre-defined questions. The increasing complexity of 21st century society has put increasing pressure on such institutes to produce microdata that allows policy analysts and researchers to pose and answer questions of their own choosing. Such pressure creates both opportunities and challenges. The relevance and stature of statistical agencies is enhanced by dissemination of data that policy makers can use to answer complex questions quickly. But the development of new types of integrated microdata, substantial reductions in computing costs, and information technology advances like the Internet have exacerbated the well-known confidentiality challenges to the creation of public-use files and the expansion of other access modalities. A related challenge occurs when some custodians delegate data dissemination responsibilities to a secondary data producer, such as the International Comparisons Program (ICP). **>>**

The ICP BULLETIN

Dear Readers,

The Newsletter has been renamed The ICP Bulletin. The change in name reflects the culmination of a gradual shift in focus from a reportorial newsletter designed to inform readers about the status and progress of the ICP surveys to a publication with greater emphasis on methodological and analytical areas.

With this issue, we also introduce an Editorial Board composed of renowned international experts and scholars, with great diversity in their areas of specialization. Each article appearing in the Bulletin has been peer-reviewed by at least two Board members.

This inaugural issue carries a number of informative pieces. The first cover article by Ifzal Ali provides an account of the trials and tribulations of implementing the ICP in 23 Asia-Pacific economies. The article narrates how the challenges were overcome through collective commitment, harmonious collaboration and methodological innovations. It also presents the highlights of the preliminary Purchasing Power Parity (PPP) estimates.

In its January 17, 2007 issue, the *Economist* hailed the ICP as the largest statistical undertaking in the world. Indeed, the ICP produces a wealth of information providing a premier knowledge base for a wide array of research endeavors. When it comes to providing data access there are two challenges. The first is establishing an optimum equilibrium between confidentiality concerns and data accessibility. This is the theme of the second cover story by John Abowd and Julia Lane. Though their article was not prepared with the ICP in mind, it addresses both general and specific questions that would, to a varying degree, apply to the rich and detailed ICP data.

The second challenge is striking a delicate balance between supporting research efforts and ensuring that data that do not meet minimum quality standards are not widely disseminated. This is the underlying message in Paulus Konijn's feature article. I hope that the two articles will provide the impetus for addressing the tension between the intertwined issues of data quality, accessibility, and confidentiality in a judicious and balanced manner.

Also in this issue, Steve Burdette presents a new methodology designed to improve the comparison of machinery and equipment goods. Fred Vogel presents a short status and progress report of the global program. Angus Deaton and Olivier Dupriez contribute an article on the progress they have made in their research on Poverty PPP aggregation methodology and data compilation efforts. Chris O'Donnell and Prasada Rao present a short summary of their research targeted at estimating expenditure shares for countries that do not have recent or reliable household expenditure survey data required to calculate poverty PPPs. Sultan Ahmad, David Baran and Marjanca Gasic present a short report on their market reconnaissance mission in Hong Kong and Malaysia.

Michael Ward comments and builds on Paul Cheung's article that was published in the last issue: The System of National Accounts — Implementation Status and Implications for the ICP.

Finally, this issue bids farewell to Siew Hua Amy Lee, our Associate Editor. During the last couple of years, Amy wore different hats, advising on the direction and presentation of the newsletter, serving as production and circulation manager, and above all exercising her role as a very able Associate Editor. She is moving on to new responsibilities as a senior editor at *The Straits Times*, Singapore's leading national newspaper. Best wishes, Amy!

Yonas Biru

Feature

Uses of PPP Data for Research, Analysis and Policy
Paulus Konijn, *Eurostat*

The main users of purchasing power parities are widely perceived to be the international organisations - Eurostat, International Monetary Fund, Organization for Economic Cooperation and Development, United Nations and the World Bank. This has been the norm since the economic indicator first became available. But now, there is a growing demand for PPPs from a variety of national users. They include government agencies, universities, research institutes, public enterprises, private firms, banks, journalists, and individuals.

International organisations, government agencies, universities and research institutes use the indicators as inputs for research and policy analysis requiring comparisons between countries. In such studies, they are employed as currency converters to generate volume measures aimed at comparing levels of economic performance, economic welfare, consumption, investment, growth, overall productivity and government expenditure on defence, police, health, education, etc. Likewise, PPPs are also used as yardsticks to compare price levels, price structures, price convergence and competitiveness. Journalists use them in their commentaries on economic and social policy issues.

Public enterprises apply PPPs when comparing their prices and operating costs with their counterparts in other countries. Private firms use PPPs for comparative analysis involving prices, sales, market shares and production costs. Banks employ them in economic analysis and in the monitoring of exchange rates. Individuals often refer to PPPs in salary negotiations when moving from one country to another (as do the personnel managers with whom they are negotiating).

Except for the European Commission (EC), PPPs are currently not used by any international organisations to calculate member countries' contributions or to assess their eligibility for aid grants or access to loans on favorable terms. Some 30 percent of the EC total budget is spent on the Structural Funds aimed at gradually reducing economic disparities between and within EU members. The bulk of the fund is allocated on the basis of PPP-converted regional GDP per capita.

Some examples of recent research based on Eurostat/OECD PPP data

PPPs are statistical constructs rather than precise measures. They provide the best available estimate of the size of a country's economy, the well-being of its people and its general price level relative to other countries. However, like all statistics, they provide estimates lying within a range of estimates – the "error margin" – that includes the true value. The error margins surrounding PPPs depend on the reliability of the expenditure weights and the price data, as well as on the particular goods and services selected for pricing by participating countries. As with national accounts data generally, it is not possible to calculate precise error margins for PPPs or for the real final expenditure levels and comparative price levels derived from them.

While error margins are smallest at the GDP level, they are larger at the level of the main aggregates. Because the margins of error increase with the lowering of aggregation level, neither Eurostat nor the OECD publishes results of their comparisons below a certain level of detail. However, that does not preclude researchers from accessing the detailed data provided they submit a written request describing the aim of the research and the methods that will be used, as well as a statement of confidentiality certifying that the data will not be made public. Mostly, the requests concern PPPs, price level indices and expenditure weights at basic heading level, covering about 220 or so aggregates. In incidental cases, average prices at product level are also requested. If a request concerns data related to one or a few countries, those countries are asked to approve the data delivery. But when a request is made for all countries, Eurostat will decide whether the data will be provided. In practice, though, almost all the requests are accommodated under the confidentiality regime.

Some of the data get published in well-known journals. One recent example is the article, titled "One Market, One Money, One Price", by Allington, Kattuman and Waldmann, in the December 2006 issue of the *International Journal of Central Banking*. The article examines the impact of the introduction of the euro on the integration of markets in Europe, using price dispersion measures, concluding the euro had a significant integrating effect. The authors used PPPs and comparative price level indices at basic heading level for their analysis in 15 countries that were EU members in 1995-2002. Eurostat constructed this series of data in a revision of the PPP survey carried out in 2003.

Another example is an article by Crucini, Telmer and Zachariadis, titled "Understanding European Real Exchange Rates", published in the *American Economic Review*, in 2005 (volume 95:3). The article looks at the "Law of One Price" (that identical goods in different countries should have identical prices, once the prices are expressed in common currency units) at a very detailed level of products. In other words, it examines the very notion of purchasing power parity, concluding, *inter alia*, that there are roughly as many overpriced as there are underpriced goods between any two EU countries. The paper uses data on average prices, which were published by Eurostat for the benchmark years 1975, 1980, 1985 and 1990. The authors are currently extending the research by using data from 2003-2005 surveys, obtained under the confidentiality regime.

The detailed PPP data are also used to analyze the effect of competition on price levels. For example, the Danish authorities regularly use detailed (basic heading) PPPs to analyse if the rela-

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tively high price levels in Denmark are due to a lack of competition in their country. The Dutch Central Bureau of Economic Policy Analysis received detailed PPPs to be used as underlying materials in a model of the EU agricultural sector. Recently, Eurostat published comparative price level indices for pharmaceutical products in 31 European countries. As pricing of pharmaceuticals in Europe is a highly political matter, this publication spawned a host of requests for information including the underlying detailed data.

Limitations of purchasing power parities

Eurostat and OECD simultaneously try to raise awareness of the limitations of the PPP data among the users. The main purpose of the Eurostat/OECD program is to construct deflators for comparing national accounts main aggregates across countries, which implies that using the data for other purposes has to be done with care.

For example, GDP and GDP per head are often used to rank countries by economic size and economic welfare. But neither the indices of real final expenditure on GDP nor of real final expenditure per head on GDP should be used to establish a strict ranking of countries. Instead, they are best used to assign countries to groups with similar GDP per head. Likewise, comparative price level indices can be used to rank countries by their general level of prices, but in this case too, countries with similar price levels should be grouped together rather than ranked strictly.

Comparative price levels at GDP allow the general price levels of countries to be compared with that of a reference country. A value over 100 indicates a higher general price level; a value under 100 indicates a lower level. Comparative price levels also indicate the degree to which a country's exchange rate reflects its general price level in relation to that of the reference country. A value over 100 indicates that the exchange rate understates the general price level; a value under 100 indicates that it overstates the general price level. To be sure, this is not the same as saying a currency is undervalued or overvalued.

Although PPPs appear in international trade theory in the context of equilibrium exchange rates –(that is, the underlying rates of exchange to which actual exchange rates are assumed to converge in the long term), our PPPs are not fully relevant for this purpose as they do not refer solely to domestically produced tradable goods and services valued at export prices. They have been calculated specifically to enable international price and volume comparisons to be made for GDP and its component expenditures. As such, they refer to the entire range of final goods and services, which make up GDP as a whole including many items, such as buildings and government services, that are not traded internationally. In addition, except for net foreign trade, they are valued at domestic market prices and are calculated using expenditure weights that reflect domestic demand.

Indices of real final expenditure on GDP provide a "snapshot" of the relative volume levels of GDP among participating countries for a given period or reference year. When placed side by side, the indices of consecutive reference years appear to provide a "moving picture" of relative GDP volume levels over the years. This apparent time series of volume measures is actually a current price time series showing the combined effect of changes in relative price levels and in relative volume levels. Within each reference year, the indices are at a uniform price level, but that changes from year to year. As a result, the rates of relative growth derived from the indices are not consistent with those obtained from the constant price estimates of GDP of those countries.

To trace the evolution of relative GDP volume levels between countries over time, it is necessary to select one of the reference years as a base year and then extrapolate that over the other years. Extrapolation is done by applying the relative rates of GDP volume growth observed in different countries. This provides a time series of volume indices at a constant uniform price level that replicates exactly the relative movements of GDP volume growth of each country. Underlying this method is the assumption that price structures do not change over time. But it is an economic fact of life that relative prices do change over time and, if such changes are ignored over long periods, a biased picture of the relative economic developments of countries can result. The choice of base year can also influence the picture that emerges.

The comparative price levels of household final consumption expenditure are sometimes used to measure the differences in the cost of living between countries. This is correct to the extent that they indicate whether the overall average price level for consumer goods and services in one country is higher or lower than those faced by the average household in another country. Households or individuals considering moving from one country to another for reasons of employment, retirement or even vacation should exercise caution when attempting to infer from these measures of overall price levels how the change of country will affect their cost of living. The comparative price levels of household final consumption expenditure reflect the expenditure pattern of the average household, which in all likelihood is very different from that of the household or individual contemplating the move. Also, the comparative price levels are national averages and they do not reflect differences in the cost of living between specific locations such as London and Paris or the Côte d'Azur and the Costa del Sol. ■

Methodology

Comparing the Prices of Machinery and Equipment Goods across the Globe

Steve Burdette, *International Consultant*
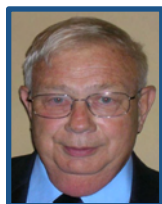
The International Comparison Program compares price levels across countries for a range of nationally representative and regionally or globally comparable goods and services. Gross fixed capital formation, consisting primarily of construction projects, machinery and equipment goods is one of the principal components of Gross Domestic Product, accounting on average for around 20 percent of the total GDP. This article focuses on the comparison of machinery and equipment goods and presents a new approach based on the Structured Product Descriptions (SPD) method. Introduced as part of the concerted remedial actions for the 2005 round of ICP surveys, this approach is aimed at improving the quality of purchasing power parity (PPP) estimates. In the March 2007 issue of the ICP Newsletter, Sultan Ahmad noted that comparison of price levels of products in the ICP rests on the so-called potato is a potato assumption. The essence of this assumption is that holding product quality, outlet type, quantity, packaging, and related delivery services, the relative costs, for example of a kilo of a potato or a piece of clothing can be compared reasonably across countries. In ICP, Product Specification (PS) for a typical consumption good such as a kilo of potato or a specific type of men's suit is quite detailed. It captures most of the relevant price determining parameters aimed at ensuring direct matching of products.

The challenges with machinery and equipment goods

When comparing machinery and equipment goods, the identity principle carries little sway. A farm tractor can provide a good example. A basic no-frills tractor, such as Massey Ferguson, is usually available throughout the world. But its prices can vary because of certain economic and regulatory factors. For example, adding basic operator protection, engine and noise emission compliance, lights and control interlocks will result in a significant difference in price for the same tractor functionality. For instance, a typical Western European medium-range tractor comes with a specific design dictated by legislation and climate, increasing its price by 50 percent or more. The same tractor can be sold in parts of Asia without rollover protection system, further increasing the price gap. This happens even when the product has the same make and model, and churned out from the same assembly line. Furthermore, local and regional manufacturers of equipments often create clones of current or obsolete products for lower-priced markets. There is also significant modification of equipment goods (e.g., trucks and buses) to accommodate specific local needs, which could include cultural preferences.

When factors related to differences in functionality, longevity, and engineering technology are built into the machines, and product modifications are considered, identifying products that meet the often-conflicting criteria of representativity and com-

parability takes a complex dimension. Preparing very detailed specifications to enhance comparability would result in a small and unrepresentative sample. Broadening the specifications to maximize the list of items (for example, relying on makes and models) would undermine comparability. The challenge facing ICP experts is to accommodate global diversity in products, while establishing maximum comparability.

A new approach - A hybrid of PS and SPDs

The approach adopted for the 2005 ICP round was to prepare a detailed specification including price determining technical characteristics, as well as make and model to facilitate exact matching of equipment goods where possible. If exact matching was not possible, the aim was to use SPD templates that would provide consistent sets of checklist for five specific price determining parameters: functionality, reliability/durability, productivity, performance and technology.

In developing the new approach, what has been created is a hybrid of a detailed PS and broad or generic SPD templates that can be used as a PS in some cases, but also serves as a SPD checklist in other cases. This allows countries to price a product with some characteristics that differ from or are absent in the baseline product specification. In other words, if exact matching is not possible, the approach permits price comparisons, holding constant the main technical characteristics of the product.

Concept to implementation - developing generic PSs and SPDs

The current ICP 2005 PS/SPD for machinery and equipment goods reflects an evolution of a core list prepared by the ICP Global Office augmented by the 2003 Eurostat Equipment Goods Survey, the corresponding 2004-2005 CIS list, and the 1993 Africa list. A consensus of the ICP experts who attended a Regional Coordinators meeting in Washington in September 2004 provided an impetus to consolidate the list into 185 PS/SPD generic templates covering seven basic headings: (1) fabricated metal products, (2) general purpose machinery, (3) special purpose machinery, (4) electrical and optical equipment, (5) motor vehicle, trailers and semi-trailers, (6) other manufactured goods, and (7) software.

The hybrid of PS and SPD methodology resulted in a template for each product that describes its use, provides an accurate picture, lists manufacturers/equivalent models and provides key identifying information on each of the five technical characteristic sections. The generic PS/SPDs were designed to be broad in their description aimed at accommodating diverse equipment/tool categories, yet remain consistent enough for regional coordinators to build on them and draw region specific PSs/SPDs.

Adapting the generic PSs and SPDs to reflect regional realities

Once the generic SPDs covering the seven machinery and basic headings were developed, the next step was adapting them to specific regional markets. The efforts within the Asian ICP are described below.

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The development of regional PS/SPD in Asia started with pre-surveys. Participating countries conducted pre-surveys and sent their report to the Asian Development Bank, indicating which of the products could be priced in their markets by simply looking at the name of the product, the related specification and the images provided in the generic PS/SPD template. This author, as a consultant to the Global Office, analyzed the country reports, and a list consisting of 108 region-specific SPD/PSs were prepared drawing on the common list that the countries identified as available and representative of their markets.

National equipment goods experts consisting of private consultants and government engineers discussed the reduced list at a regional equipment goods workshop in Manila (December 1-3, 2005. The workshop discussed each of the 108 SPDs, with an eye to: (a) identify products that are relevant for the Asia and Pacific region, and (b) enhance the proposed PSs by identifying specific product parameters, including makes and models and technical characteristics that are widely available in the region. In most cases, specific makes and models were identified and tight specifications drawn. The Asia and Pacific region benefited from a core team of regional experts selected from five of the twenty-three participating countries, namely India, Malaysia, Nepal, Singapore, and Taipei China.

The challenge of identifying products that are both comparable and representative of the markets in the countries under investigation is more pronounced for equipment goods than it is for consumption items. For this reason, the Asia meeting proposed pricing three types of products for most specifications on the list: (a) "Preferred" product, which shows a detailed description including technical characteristics, manufacturer, make and model; (b) a close substitute or "Alternate" product(s), again identifying manufacturer, make and model; and (c) a space for an "Unspecified" product. That meeting also resulted in the trimming down of the checklist to a few relevant ones. It was agreed that parameters that account for 80 percent of price variation should be maintained and the rest be removed from the data collection forms.

Building Ring PS/SPDs

In ICP, global comparison is carried out in two distinct phases. First, regional comparisons are conducted and PPPs for the participating countries are calculated based on price relative of regional baskets. Second, these PPPs are linked to generate global PPPs expressed in a common international currency unit. Linking of regional results is obtained following the so-called Ring approach--another innovation introduced in the current round. The approach represents a ring to link regions by establishing core global products to be priced by a selected number of Ring countries from each region.

The Global Office built on the Asian equipment list and identified a core-list of about 108 PSs/SPD for the Ring Compari-

son. The other regions had two options to build their respective equipment PS/SPD – 185 generic PS/SPD templates or the 108 ring SPD/PS that are more defined and developed, including three options for each product – preferred, alternate and unspecified. All regions adopted the Ring list with minor modifications. The total number of PSs generated from the list obviously varies by regions, depending on the level of development of countries, and the expenditure share of equipment goods as proportion of total GDP.

Comparing price data submitted by participating countries

Participating countries were encouraged to price as many of the products and product types as possible. It was agreed that the "Preferred" product specification would be used as illustrative samples and efforts would be made to price not only the "Preferred" make and model, but also one or two of the "Alternative" models, where available. This was essential to maximize the overlap of similar products across countries. In cases where neither the "Preferred" nor the "Alternate" makes and models were available, countries agreed to price an unspecified product that is the closest to the proposed specification and provide the technical characteristics for each submission following the SPD checklist provided in the data collection form.

Once data from countries are received with price and detailed information and related technical characteristics, experts determine which: (a) prices can be taken as submitted, disregarding minor variations in specifications; (b) prices can be used with some adjustment to reflect observed differences in functional characteristics (for example, the price for a tractor without roll-over protection) can be adjusted by including the cost of ROP); and (c) prices should be discarded or sent back to the countries for more information.

In short, a complete checklist translates into better-informed expert decisions. The approach also opens up possibilities for hedonics type regression. *(See sample SPD, page 7)*

Similarities and differences with the Eurostat/OECD Approach

The approach introduced by the Global Office both benefits from and builds on the current practice in the Eurostat/OECD approach. The first two options, Preferred and Alternate product types are similar to those used in the Eurostat/OECD equipment product specifications list under different names: Exact and Comparable matches. The innovation in the approach advanced by the Global Office is the introduction of Unspecified SPDs. Under this option, countries are given empty space and asked to pick a comparable product to the Preferred or Alternate specifications and fill the make, model, manufacturer and all the relevant technical characteristics. About 40 percent of the total observations in Asia were unspecified, many of them with substantial overlaps. For example, the General Purpose Heading data for a window air conditioner was sparse when looking at the Preferred and Alternate product types. When unspecified >>

International Comparison Program: Equipment Survey

Basic Heading: General Purpose Machinery   **Basic Heading Code: 15.01.12.1**
Product Name: ROUGH TERRAIN FORKLIFT (Extendable Boom)   **Product Code: 15**

DESCRIPTION: A Rough Terrain Forklift is a construction site tool for moving materials to workers on the site. Telescopic boom forklifts are purpose-built machines that usually have a straight frame and rear-wheel Ackerman steering. Some manufacturers offer all-wheel steering. A telescopic boom is adapted to the frame, making it possible to move material vertically and horizontally.

SPECIFICATIONS: These machines have a 2,500 kg load capacity and a maximum lift height of approximately 7.2 meters with 75 kW power.

SELECTION	MANUFACTURER	MODEL
☐ Preferred	Caterpillar	TH220B
☐ Alternate 1	JCB	530-70
☐ Alternate 2	Manitou	MVT628T
☐ Unspecified Alternate		

CHARACTERISTICS for Alternate(s)
Engine Power (kW): _____   Lift Height (metres): _____
Lift Capacity (kg): _____

CHARACTERISTICS for Unspecified Alternate(s)

Engine Emission Compliance (Tier)		Rated Engine Speed (rpm)	
Net Engine Power			

Configuration	Weight
☐ Fixed Mast	Shipping Weight (kg): _____
☐ Telescopic Boom	Operating Weight (kg): _____

Maximum Lift Capacity (kg): _____   Wheel Base (mm): _____
Tread Width (mm): _____   ☐ Integrated Tool Carrier
Speed Range (kph): _____   ☐ Work Lights
Fuel Capacity (liters): _____   ☐ Road Lights
Maximum Vertical Lift (m): _____
Maximum Horizontal Reach from Front Axel (m): _____

**Rough Terrain Forklift
(Extendable Boom)**
(Indicative Picture)

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Methodology	Research and Program Highlights

product types were considered over 40 price data were observed for similar product specifications from 21 countries instead of 2 preferred observations from 2 countries.

Lessons learned

The initial reaction of regional and national equipment experts in Asia to the introduction of PS/SPD list was to reduce the five technical characteristic sections and restrict the template to the description, illustration and the preferred and alternate manufacturer with respective models. Initial observation of the data failed to capture a narrow SPD/PS and the observed price observations ranges were excessive. At a follow up meeting in Manila with the Core Group of equipment experts, price data from the countries were reviewed. Comments and additional guidelines for pricing were sent to the countries. In some cases, the technical characteristics were restored in the templates. As a result, subsequent submissions revealed a much-improved set of price data.

The second refinement step with the Asia core experts provided strict adherence to Preferred SPDs and close compliance to Alternative choices. More important to the value of the survey was a comprehensive identification of the unspecified observations. That permitted evaluation and grouping of the unspecified observations as equivalent to the preferred and alternate options. The detailed description of the unspecified observation also permitted capturing a range of observations that were equivalent to each other, but not identical to either the preferred or alternate PSs. Those products were added to the list as new specifications.

A large proportion of the 1500 observations for the unspecified specifications were used in the PPP calculation. In real terms, about 40 percent of the total observations in Asia were unspecified, many of them with substantial overlaps. An important lesson to be learned is that the SPD approach provides more dividends than previously thought possible. As stressed by the Asian core country experts, the next generation of SPDs should include more technical characteristics to support hedonics type analysis.

Two basic headings, Fabricated Metal Products and Other Manufactured Goods were excluded from the comparison. Local regulations and standards combined with local practice made it impossible to obtain consistent equivalent pricing for Fabricated Metals heading. Closer examination of the data revealed that availability, material cost and construction methods were too diverse to provide equivalent pricing. The same problems appear in the Office Furniture heading and the data was excluded from most regional comparisons. ■

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[1] *ICP Handbook*

Program Highlights and Status
Fred Vogel, *World Bank*

The ICP has made significant progress during the past several months. The Latin American and Asian regions have published purchasing power parities (PPPs) and related volume indices at the GDP level, and the Africa region has done so for consumption. Western Asia and Africa will publish their respective GDP results in October. The CIS region has completed its work and provided basic heading PPPs and expenditure weights for all its members. The Eurostat/OECD program results on GDP will become available in September and will include the CIS region. The next step is to complete the Ring program so that the regional results can be linked in order to publish the global results in December.

The ring countries have completed data validation for over 850 consumption items, which will be used to link the regional results. Using the ring and preliminary regional results, the Global Office has computed PPPs and related volume indices for 147 countries for consumption and will be reviewing these with the regional coordinators and the Technical Advisory Group during September 10-14, 2007. These preliminary results are being subjected to a thorough review by a subset of the group. At the same time, market evaluations, aimed at determining whether pricing of the ring list was comparable across regions, are underway. A global list of specifications was used for the housing, government, equipment and construction components of the GDP in the ICP regions. Therefore, once the regions have finished their efforts, the same data will be used to produce the global results.

Most regions experienced problems with the housing and government compensation components that are having an effect on the ring program and the computation of the global results. Housing is difficult to compare because in order to compute PPPs, an equivalent rental value has to be applied to owner-occupied housing. To address the issue, a method has been used that relies on the measurement of quantity such as number of dwellings and square footage, as well as quality indicators such as percent of dwellings with electricity.

Comparisons of the government component of the GDP are based primarily on compensation of employees and the assumption productivity is equal across countries. This ignores the fact that resources available to government employees vary significantly across countries.

The United Nations Statistical Commission has formed a 'Friends of Chair' working group to provide an assessment of this round of the ICP. They have been asked to provide recommendations for some essential questions: a) is there sufficient demand for PPPs to warrant another round of the ICP, and if so, what should be the scope in terms of coverage of the GDP, the inclusion of countries, and the time table? b) Were there shortcomings in the governance structure and/or methodology? If so, can they be fixed before the next round begins? ■

Research and Program Highlights

Notes on recent progress on construction of Poverty PPPs

Angus Deaton, *Princeton University*
Olivier Dupriez, *World Bank*

A great deal of progress has been made on the construction of poverty-weighted purchasing power parity (PPPP) exchange rates over the last six months. These are price index numbers that use the international prices collected for the current round of the ICP, and reweight them using, not the expenditure patterns from the national accounts, as is the case for the conventional PPPs, but the expenditure patterns for people near the international poverty line. The aim is not only to find out whether there is any truth to the often-heard claim that PPP index numbers are not appropriate for the poor, but more constructively, to calculate PPPPs for a large number of countries. The exercise involves two main areas of work; a) calculation of appropriate weights, and b) combination of the weights and the ICP prices.

In order to calculate the expenditure patterns for poor people, we need household survey data. The Development Data Group of the World Bank (DECDG) has been conducting a large project to assemble household expenditure surveys for 70 or so countries. These surveys need to be processed into a common form, and should contain expenditure data on a sufficiently detailed list of items so that it is possible to match the more than 90 basic headings in the ICP that comprise household consumption. It is also necessary to have "metadata" on the survey design, including the sampling weights, as well as the identification of primary sampling units and strata, without which it is not possible to calculate standard errors. This has been an enormous undertaking, and one that has occasionally required some compromise. Some commodities are well defined and are readily comparable across countries. Others are not; for example, different surveys treat rentals in different ways, particularly when it comes to the implicit rentals of owner-occupied dwellings. Different surveys use different levels of details in their consumption questionnaires. Therefore, it was necessary to devise protocols for combining categories and for splitting categories; the latter is done proportionately to the detailed breakdown in the national accounts. Totals are compared against national accounts estimates; while these should not always be the same because of differences in definition, the comparison is useful for tracking down possible errors, or for deciding whether or not a survey is useable at all.

With household surveys in hand, the ICP prices can be used to calculate PPPP index numbers. The first step is to aggregate up the expenditure data to obtain expenditure patterns that, in principle, are comparable to the national accounts and can be used to calculate the usual PPPs. This should be done using aggregate weights from the household surveys rather than from the national income accounts.

The next challenge is to make sure that the poverty lines in each country is derived simultaneously with the PPPP indexes. We need to know the PPPP exchange rates to determine the international poverty line, which is needed to identify the "internationally poor," and at the same time we need to know who "the internationally poor" are in order to calculate the relevant weights for the PPPP indexes. This simultaneity problem is resolved through an iterative procedure that shuttles back and forth between weights and PPPPs.

This is done by starting with guesses for the PPPPs for each country, which are used to identify households near the poverty line in each. The expenditure patterns for those households are then used to recalculate the PPPPs. The exercise continues until convergence is established, and in the process three sets of PPPs are produced: (i) the standard ones from the national accounts, (ii) the standard ones but calculated from the household survey aggregates, and (iii) the poverty-weighted ones using detailed household survey information. The second and third come with standard errors that reflect the fact that the household surveys are only samples from the countries, and that expenditure patterns calculated from them have associated sampling uncertainty. So far, preliminary calculations have been done for a group of four countries in Asia, and (separately) for six countries in Latin America.

There are three main lessons from these preliminary results. First, it turns out that sampling errors are very small, to the extent that they can be ignored altogether relative to other non-sampling errors and uncertainties. Even though there may not be very many households near the poverty line, the construction of PPPs on many goods is a form of averaging that helps keep sampling error down. Second, the two sets of survey-based PPPs, those using aggregate versus those using poverty weights, are not very different from one another. The poverty weighting does not seem to make a great deal of difference in the two groups of countries examined so far. There is, however, no reason to assume that this result will generalize to other groups of countries, nor to the whole world when groups of countries are looked at together. Third, the major source of difference is between the survey-based aggregate indexes and the national-accounts based aggregate indexes. This is because the surveys and the national accounts use different definitions, and because survey and national accounts data do not always match up. It is not often clear which estimate is the better one; surveys sometimes have more errors, and miss some items, but it is also true that the national accounts are weak in some countries and include many items - for example, financial intermediation services indirectly measured (FISIM) - that are not important for the poor.

These differences between national accounts and surveys also highlight another important issue, which is that the usual PPPs and the underlying prices are "total prices" of consumption items, which are not necessarily the prices that consumers actu-

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ally pay. For example, when the government of a country buys drugs from a pharmaceutical company and then sells them to consumers at a discount through its health service, the ICP uses the price paid by the government, computed as the sum of the price paid by the patient and the part paid by the government. Ideally, poverty-weighted PPPs would use the price paid by the patient, not the "total price". This is because the subsidized prices are essentially a system of income transfers that should be taken into account in calculating prices paid by poor people. However, it should be noted that these subsidies, particularly to pharmaceuticals, are much more common in Western Europe than they are in poor countries, and it is only the latter that are of interest for the poverty-weighted PPPs.

In the months to come, these preliminary results will be extended to the full range of countries for which we have surveys. In some cases, however, there are no reliable household surveys, and in some countries where we have prices, there are no expenditure weights, even for national aggregates of consumption. For these latter groups, a study is underway to use standard demand theory to predict aggregate expenditures on the basis of prices and other factors that help shape country tastes. For countries without surveys, we will experiment with two approaches. The first will use flexible Engel curves estimated from other countries in the region to adjust the aggregate expenditure shares to be more like those that we would expect from households near the poverty line. The second approach will examine the relationship between the regular consumption PPPs and the poverty-weighted PPPs for the benchmark countries, and use adjustment factors from this relationship to calculate PPPPs for those countries that have PPPs, but not expenditure weights. These estimates follow principles similar to those for countries where we have no direct estimates for PPPs, such as in Central America, where regression methods are used to estimate PPPs from exchange rates and other variables, primarily the per capita GDP of the country.

The final topic that remains to be tackled is the linking of the regional PPPP estimates to a system of world rates, at least for the recipient, or Part 2 countries, since the lending, or Part 1 countries, are assumed to have no one near the international poverty line, and so are excluded from the comparisons. Regions will be linked through a set of 18 "ring" countries, for each of which there exists a household expenditure survey. These are distributed across the regions, with each region having between two ring countries (in Latin America, the Caribbean and Western Asia) to six countries (in Africa). These ring countries have collected prices for a set of "core" (ring) products; the list of core products is not the same as the product list from any one region, but is rather a global product list that is chosen to give a high probability that each item can be found in each ring country. The procedure that we intend to follow is the one that maintains the regional PPPs and PPPPs that have already been calculated for the countries within each region. At the first stage, we use the regional PPPPs to convert the quotes for the core products in each

ring country in the region into a common regional currency. For each region, we then have between two and six quotes for each of the core ring products, each in a common regional currency, and each with an associated set of weights, whether for households in aggregate or for households at the international poverty line. One approach is simply to average the prices and expenditure weights within each region, and then calculate interregional PPPs and PPPPs using standard procedures. Another possibility, which should produce very similar results, is to enter the multiple quotes and weights into a weighted CPD regression. ∎

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Predicting Expenditure Shares for PPP Calculation
C.J O'Donnell and D.S.P. Rao, *University of Queensland*

Purchasing power parity (PPP) exchange rates measure the relative purchasing power of currencies. They are widely used by the World Bank and others to make intercountry comparisons of incomes, expenditures and other economic aggregates. The Bank computes PPPs by substituting data on prices and expenditure shares into well-established index number formulas. Unfortunately, lack of expenditure share data can be problematic. The aim of this project is to develop and evaluate methodology for predicting expenditure shares for countries without data on expenditure shares. The study is also concerned with computing measures of reliability for these predictions.

Our approach to predicting expenditure shares is rooted in the mainstream economic theory of consumer demand. According to this theory, consumers maximize utility subject to a budget constraint. By specifying a utility function with sensible properties (e.g., increases in quantities consumed cannot decrease utility) and solving the consumer optimization problem algebraically, it is possible to show that demands, expenditures and expenditure shares are all functions of prices and income. Thus, in practice, the problem of predicting household expenditure shares boils down to the problem of estimating systems of equations that relate observed expenditures (or demands, or expenditure shares) to observed prices and incomes. Several systems of equations (or econometric models) are commonly used in empirical work, including the Linear Expenditure System (LES) and the Almost Ideal Demand System (AIDS). This project uses data from International Comparisons Program (ICP) benchmark countries to: i) estimate these various demand systems, and ii) evaluate the quality of the predictions obtained from different models. Given that this approach makes use of consumer demand theory, extrapolation of expenditure shares is restricted to consumption.

The methodology developed in this project so far has been implemented on ICP data for the 1985 and 1996 benchmark years. The data comprised 178 observations (63 countries in 1985; 115 countries in 1996) on nominal annual expenditures and PPPs for eight broadly defined categories of private consumption goods. For each year, the PPPs were interpreted as nominal prices under the unobjectionable assumption that all nominal prices in the reference country, the USA, were equal to one. This simply means that quantities were deemed to be measured in units so that the price of each commodity in the USA was $1 per unit. The 1996 data set was chained to the 1985 data set using US CPI index numbers. (We wish to note here that the results reported in this article are based on the use of USA to link the 1985 and 1996 data sets, and are not invariant to our choice of USA. The results are likely to vary if a country other than USA is used for linking the two data sets). Expenditures were converted to a per capita basis to control for differences in population size.

Although there were 178 observations in the data set, only 172 were used for estimation purposes – data from three representative countries (the U.K., Pakistan and Nigeria) were kept back for model validation purposes. Three demand systems were estimated, including a linearized version of the AIDS model (the model expresses expenditure shares as nonlinear functions of prices and, for computational convenience, it is a common practice to estimate it in a linearized form). The results obtained have been very encouraging in terms of the quality of the predicted shares. As an example, Table 1 presents (out-of-sample) predictions from the linearized AIDS model for our three representative countries for 1985.

Table 1. Observed and Predicted Expenditure Shares for 1985						
	Nigeria		Pakistan		U.K.	
	Observed	Predicted	Observed	Predicted	Observed	Predicted
Food, Beverages and Tobacco	0.664	0.567	0.426	0.436	0.164	0.199
Clothing and Footwear	0.061	0.079	0.063	0.07	0.061	0.057
Gross Rents, Fuel and Power	0.053	0.089	0.163	0.113	0.173	0.172
Household Equip. and Operation	0.037	0.046	0.043	0.066	0.057	0.072
Medical Care	0.037	0.036	0.01	0.051	0.078	0.094
Transport and Communication	0.037	0.074	0.131	0.091	0.14	0.124
Recreation and Education	0.077	0.077	0.101	0.118	0.141	0.163
Misc. Goods and Services	0.034	0.032	0.064	0.055	0.185	0.119

In the next stage of the project we extend the model to allow the parameters of the various demand systems to vary across countries in line with variations in demographic and environmental characteristics. Variations in these characteristics are often found to be associated with variations in preference structures (utility functions) and, therefore, expenditure, expenditure share and demand functions. For example, consumers living in different climates are known to have different preferences for different types of clothing, and consumers with different religious and cultural backgrounds are often found to prefer different types of foods. In the next stage, we will also attempt to improve the quality of the predictions by incorporating non-sample information (i.e., information from economic theory) into the estimation process. At the same time, standard econometric methods will be used to estimate the parameters of, and generate predictions using, these more realistic models. ■

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Market reconnaissance in Hong Kong and Malaysia
Sultan Ahmad, David Baran, and Marjanca Gasic*

The most widely used indicator of the International Comparison Program is per capita GDP converted into a common currency by using purchasing power parities (PPPs), which take into account price differences across countries and allow comparisons of real outputs or volumes. PPPs thus serve the same function for interspatial comparison as constant prices do in intertemporal comparison. Obviously, the quality of PPP-adjusted per capita GDP comparisons depends on the reliability of the underlying price information that goes into the PPP calculation.

Globally consistent PPPs in all the participating regions are generated in two stages. First, regional PPPs are calculated for each of the six participating regions of the world. They reflect regional price relatives and are expressed in their respective base currencies. For example, Asian and Latin American PPPs use Hong Kong dollars and Argentinean Pesos respectively. Because regional PPPs are not directly comparable across regions, the second stage involves linking them through the ring approach aimed at generating global sets of PPPs that are expressed in a common international currency, often the US dollar[1].

One of the early findings of the current ICP round is that average price levels in Asia appear to be notably lower than those reported by the other regions, particularly the OECD/Eurostat. Taking four Asian and four OECD/Eurostat Ring countries, for example, Asia's ring price level indexes (PLIs) in general were lower than many experts expected. Relatively lower Price levels result in relatively lower PPPs, which, in turn, yield relatively higher per capita GDP estimates.

Even after careful editing of the prices, eliminating outliers, and dropping some problematic products, the central tendency of the relatively low price levels in Asia remained unaffected. That left the Global Office managers pondering: are general price levels in Asia really as low as they are reported, or are they reflections of relatively low quality products? After careful review, it was acknowledged that the reported prices may be a true reflection of market realities, but prudence obliged the managers to validate the data through market reconnaissance missions. The aim was to develop quality adjustment factors where necessary in order to correct the results.

The UK, Slovenia, Hong Kong, and Malaysia were selected for market reconnaissance. Two hundred twenty-eight products were identified for validation out of the 864 ring products. Of the 228 products, 143 were tagged as "priority." The remaining 85 items were marked as "optional." They were to be validated if time permitted. The selected products were color- coded to help the participating countries prepare for the market visits. Products selected randomly were colored green. Products selected on the basis of their coefficients of variation were marked in red; and the blue represented products that have relatively low prices in Hong Kong and Malaysia compared with UK and Slovenia.

The authors of this article, representing the Global Office, the UK Office of National Statistics, and the Slovenian Statistical Office visited Hong Kong and Malaysia for a week each. Armed with the product lists and accompanied by local price experts, we first visited Hong Kong shopping centers, neighborhood stores, mega malls, supermarkets and wet markets in high, medium and low-income neighborhoods of both Kowloon New Territory and Hong Kong Island, as well as specialty stores. After Hong Kong, we proceeded to Malaysia for a similar market evaluation, visiting all types of outlets in a variety of neighborhoods of Kuala Lumpur, Putra Jaya and Selangor.

Local and visiting price experts surveying markets in Hong Kong

Highlights of Our Finding
Hong Kong markets are well developed and highly competitive, with a full range of products and outlets noticeable in every neighborhood. Price dispersion seemed to be quite low, especially for branded or packaged goods. Malaysian markets are less compact and have higher price dispersion reflecting a wider range of quality than Hong Kong.

Hong Kong does not have any sales or value added tax, compared with 15 to 20 percent in Europe. Except for hotels and restaurants, Malaysia also does not have any sales tax or VAT. This, we believe, is a major source of relatively low prices in Hong Kong and Malaysia.

In Hong Kong, internationally famous brands, with prices that are comparable to European markets, are widely available and are representative. Non-brand items of mainland origin, which are of comparable quality but much lower in price, are also abundant and representative. For instance, we spotted four acoustic guitars in a store. They all met specifications but prices differed based on country of origin. When we took the average of these items, it matched the price submitted by Hong Kong. In Malaysia, internationally famous brands, especially for clothing are less noticeable and non-brand items of domestic origin and inexpensive imports from China dominate the market. Abundance of cheap sources of products is thus another reason why prices in both Hong Kong and Malaysia are relatively low.

Of the 143 items in the priority list, prices of some 88 items (62 percent) in Hong Kong and 73 items (51 percent) in **>>**

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Malaysia were confirmed. For these items, we did not notice any quality difference either in the product itself or in the type of outlet. Most of the food items fell in this category. Prices of 20 items (14 percent) in Hong Kong and 41 items (29 percent) in Malaysia were revised, mostly upward. About half-a-dozen items were deleted in each country and the remaining two to two-and-a-half dozen items will be checked later.   Because of time constraints we were able to check only a handful of items in the optional list, and the prices were generally confirmed.

For some items of clothing and footwear, prices are likely to be revised upward as the outlets from which the prices were collected appeared in our judgment to be low-end by European standards. We visited many outlets to show the local experts what we considered to be comparable to European markets. They will scan their database to obtain price quotations from these outlets or make new collection, if the number of observations is not sufficient. They will do these revisions for all clothing items, whether or not they appear in the priority list. Malaysia will do the same for furniture also.

For food eaten outside home, the most representative restaurants seemed to be for mass consumption and lacked the ambience and décor of a medium level restaurant in Europe. We visited many restaurants and identified the ones that we considered appropriate. They will collect prices from these restaurants.

For service items, some prices were not readily observable during the market visit. The price teams will consult administrative records and catalogs or make phone calls to check these prices.

Several electronic goods (digital camera, auto radio/CD player, for instance) on our list were not available in the market. Replacement items had different features and different prices. We had no basis to revise the existing prices. In Malaysia, imported automobiles are heavily taxed. Prices of Peugeot and Audi are respectively 73 percent and 100 percent more expensive than in UK. They will check to ensure that road tax, registration fee, tag and title or insurance are not included in the price. If any new prices are collected, they will be adjusted by consumer price indices to bring them in line with the rest of the prices.

Checking product quality and packaging in Malaysia.

Local and visiting price experts surveying markets in Malaysia

Thus in our judgment, both Hong Kong and Malaysia did an excellent job of matching quality. Malaysia seemed to include more lower quality items in the average prices resulting from the difficulty of identifying quality based on the specifications. Prices of items so identified will be revised, mostly upward. Except for a small proportion of the items, we believe quality differences are not a major source of price differences between these two countries and Europe. When the data set is revised based on the recommendations of the market visit, some prices will be significantly higher but considering the expenditure weights associated with these items, the impact on the overall price level index (ratio of PPP to exchange rate) or PLI is likely to be modest.

Other Pertinent Points

It is apparent from our mission that most of the items in the ring product list were widely available, although specifications of some of them could have been more explicit in determining quality. We concluded that a sufficient proportion of the ring products were representatives of the consumption patterns of both the countries, and as such the results of the ring comparison between the two regions should be robust to the extent the regional results are equally robust.

Although it is difficult to generalize the findings in two cities to all Asian countries, the observed consistency between the ring and Regional results for the four Asian countries (including the Philippines and Sri Lanka) helps in building reasonable level of confidence that the ring methodology provides a fairly robust linking procedure, at least between Asia and OECD. A similar mission is planned for Africa. ∎

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[1]The "Ring" approach involves picking a sample of countries from each region, collecting prices for a list of items specially prepared for these 'Ring' countries and computing inter-regional PPPs to link the regional results. For a summary of the Ring linking approach see Erwin Diewert, "A Note on Linking Regional PPPs to Estimate Global PPPs," ICP Newsletter, Volume 3, No.2, June 2006.

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Diversity in Asia Pacific

While India had participated in many rounds of the ICP except in 1993, for the PRC its presence in the 2005 ICP round was a first. The PRC results are based on national average prices extrapolated by using price data for 11 cities provided by China's National Bureau of Statistics. Given the size and growing economic importance of these two countries, the ICP Asia Pacific would not have been complete but for the enthusiastic and constructive participation of both the PRC and India in this round.

The 23 economies that participated in the ICP Asia Pacific comparison account for over half the world's population and about a quarter of the global gross domestic product. The diversity in the region is evident when the range of economic sizes is considered, with the PRC and India, two of the world's largest economies, participating alongside Hong Kong, China and Singapore, two of the smallest economies in population size but the richest in income. The participating economies are also at different stages of development. Some of the richest and poorest are located in the region. With two-thirds of the world's poor residing in the region, PPP as related to poverty was a top-priority issue at the very inception of ICP Asia Pacific in 2003.

The complex task of conducting a large-scale project like ICP Asia Pacific was further complicated by the geographical dispersion of the economies along with the large variations in their size, structure, and standards of living. The huge variety in the types of goods and services produced and consumed in different parts of the region presented difficult challenges during the process of developing a common list of products to be priced across the region.

Imperative for Strong Partnerships

A project of this magnitude and complexity requires partnerships at the national, regional and global levels. The active engagement of national statistical offices (NSOs) in the collection of price data and the provision of detailed national accounts data was critical. Transparency, democratic decision-making and credibility were key to ensuring that the NSOs stayed the course with ICP Asia Pacific from 2003 to 2007.

These principles were upheld by the Regional Advisory Board (RAB) which was the highest policy-making body responsible for setting regional goals, priorities and objectives, taking into consideration the statistical needs and capabilities of regional offices and economies. The Board made a vital early decision that had a profound impact on the ICP Asia Pacific process when it asked participating NSOs to agree to a framework of partnership rather than sign a memorandum of understanding to join the 2005 round. The Asian Development Bank (ADB), as the ICP Asia Pacific Regional Coordinator, acted as member-secretary to the Board and worked diligently towards implementation of all RAB decisions while being conscious of the sensitivities of the NSOs.

One notable feature of this current ICP round was its new governance structure where global and regional agencies and the NSOs were deemed partners in the management and implementation of the program. While the Global Office developed the general methodology for purchasing power parity (PPP) computations to address technical issues, some of these could not be directly applied to the Asia and the Pacific region, due to the prevailing situation in the economies in the region and some data issues. As partners, the region addressed issues on data quality and data availability, particularly with dwellings, government compensation, construction and equipment sectors. The Global Office was an active partner in addressing issues related to the entire ICP process but specialist advice was most critical for the more difficult areas of government compensation, construction and equipment. ICP Asia Pacific contributed substantially not only in refining ICP ToolPack features and functionalities but also in the use of the ToolPack for the collection, validation and transfer of data between the NSOs and ADB, and for PPP aggregation as well.

Coordination with the other ICP regions was vital in the implementation of the respective regional programs. The Regional Coordinators' meetings convened by the Global Office provided an international venue for the Asia Pacific region to share and learn from the expertise and good practices of other regions, and to discuss technical issues affecting the program. As an ex-officio member of the Regional Advisory Board of ICP Asia Pacific, the Global Office provided the link between the Asia Pacific program and the other ICP regions.

ICP Program Implementation

At the formal launch of ICP Asia Pacific in July 2003, a meeting of NSO heads was convened. This was very crucial in eliciting the cooperation and commitment of the participating economies and the meeting also forged a better understanding and appreciation of the program and propelled it to a good start. The release of the PPP preliminary results on 31 July 2007 will attest to the unwavering support and cooperation of the NSOs, in spite of the unforeseen substantial increase in their workload. As partners in the ICP, the heads of the NSOs have also been invited to another meeting prior to the release of preliminary PPP results to the public. ADB shares the honor with them as the stakeholders of the program when the results are formally released to the public.

In the past, the ICP was organized and managed from the top down, with important decisions made by the global coordinators. In contrast, the new framework is a partnership-based program, with no single agency playing a dominant role. In line with this, ICP Asia Pacific, though composed of highly diverse economies and cultures, was run successfully amid a spirit of teamwork and camaraderie fostered by frequent interactions during several workshops convened at various stages of the program — from the product list development stage, ToolPack training, data collection, data review until the preliminary results review. The workshops provided the forum for face-to-face interaction whereby concerns and issues were thoroughly discussed, **>>**

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since consultations with the NSOs on suggested solutions could not be achieved through electronic discussions alone. These regional meetings were also the venues for the liberal exchange of ideas and experiences among the economies.

As stakeholders of the program, the ICP Asia Pacific regional office maintained transparency at all stages of the program as it kept the NSOs well-informed of all ICP processes. This approach has helped to create a sense of ownership of the program among the participants — national coordinators, price statisticians, national accounts experts, domestic construction experts and domestic equipment experts. The national coordinators were the focal persons for the implementation of agreements reached during the regional workshops.

ICP as a Capacity-building Platform

At its seventh meeting held in June 2007, the ICP Asia Pacific Regional Advisory Board highlighted capacity-building as the most defining aspect of this ICP round for the region. Many NSOs, in their ICP country profiles submitted to the ADB, acknowledged that their ICP experiences were instrumental in improving their capability in conducting price surveys; and upgrading data quality of their price statistics not only for the ICP, but also for their consumer price indices (CPI). This was made possible through more accurate product specifications and better spatial coverage of price surveys, and through developing their national accounts statistics. The use of the Structured Product Description (SPD) approach brought to their attention the need to make tight specifications to accurately identify products, thus assuring comparability for the ICP. They have realized that this same principle must be applied to the CPI.

The NSOs discovered the value of estimating GDP weights required for the ICP's 155 basic headings when the countries tried to harmonize their 2005 GDP estimates with the requirements of the 1993 System of National Accounts, thus resulting in better comparability of GDP coverage among the economies. The ICP experience has raised awareness of the importance of addressing data gaps, and improving surveys and other administrative sources of data used in national accounts compilation.

Some NSOs have acknowledged the utility of the ToolPack for their consumer price index (CPI) compilation. Bhutan has already started using the software for its CPI, while a couple of economies are also planning to do so.

Other NSOs have mentioned that their ICP experience has given them confidence that the statistics they generated, through the ICP, now meets international standards. They have also grown more appreciative of the significance of PPPs, and indeed one NSO has expressed its plan to launch an internal PPP exercise.

Another innovative feature of this round was the use of the Basket of Construction Components for construction PPP estimation. As it simplifies price collection procedures for the construction sector, it also provides an alternative methodology for NSOs in developing their respective construction price indices.

The formation of separate Core Groups of Experts for the Construction and Equipment sectors is a pioneering step introduced by ICP Asia Pacific for data validation in these comparison-resistant sectors. The data validation meetings of the core groups substantially contributed to ensuring product parity for robust PPP computation.

PPP-based Poverty Measures

Poverty reduction in Asia and the Pacific is an overarching goal in the region. In this light, it is very important to monitor poverty incidence and severity in the region, and to assess the region's performance against the Millennium Development Goal of halving absolute poverty by the year 2015. The incidence of absolute poverty is measured using the $1- and $2-a-day international poverty lines. An important step in the use of these international poverty lines is their conversion into national currency units. It has been common practice to convert international poverty lines using the ICP's PPPs for individual consumption expenditures by households. Acknowledging the limitations of these consumption PPPs and the need for more accurate, focused and meaningful currency converters, compilation of poverty-specific PPPs was recognized as an important goal for the current round of ICP Asia Pacific. Together with 16 ADB developing member economies — namely Bangladesh, Bhutan, Cambodia, Fiji Islands, India, Indonesia, Lao People's Democratic Republic, Malaysia, Maldives, Mongolia, Nepal, Pakistan, Philippines, Sri Lanka, Thailand and Vietnam — the ADB is computing PPP-based poverty measures using two approaches.

First, PPP-based poverty measures will be computed by applying the methodology recommended by the Poverty Advisory Group (PAG) of the ICP Global Office. Basic heading PPPs from the main ICP price data will be combined with the consumption patterns of the poor as weights. The latter are derived from the household expenditures surveys of the participating economies which agreed to share data on a confidential basis. The ADB acknowledges the assistance of the World Bank in mapping household expenditure survey product lists with the basic headings used in the ICP.

Second, mindful of the need to further improve PPP-based poverty compilation, more resources were allocated to support research in areas where refinements will be possible in future ICP rounds. As the PAG method for the current ICP round uses PPPs at the basic heading level from the main ICP price surveys, the ADB prepared a poverty product list relevant to the consumption of the poor. All 16 participating economies conducted special price surveys for the poverty basket in outlets commonly patronized by the poor. In these surveys, efforts have also been made to collect data on subsidized prices. Price data from these surveys are important in the in-depth analysis of the sensitivity of PPP-based poverty measures to different sets of price data and use of different aggregation methodologies in compiling such PPPs. Consumption patterns of the poor will also be utilized as weights. A special report will be prepared on PPP-based poverty estimation showing results from various sensitivity analyses conducted as part of this research endeavor.

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The Preliminary Results[1]

The preliminary report on PPP for the 2005 ICP Asia Pacific presents estimates of PPPs of the currencies of participating economies, including comparable gross domestic product and its major components of household final consumption expenditure, actual final consumption of households, government collective final consumption expenditure, gross capital formation, and net external trade. The numeraire currency is the Hong Kong dollar.

The PRC and India which are participating together for the first time in an ICP round dominate economic activity within the region. On a PPP basis, the real GDP of the PRC is HK$30,711 billion while India's is HK$13,293 billion, out of a total of HK$68,773 billion. They dwarf the rest of the participating economies.

A very different picture emerges when the size of the economies is adjusted by population. Rather than dominating the top rankings, the PRC and India drop to tenth and eighteenth positions respectively. The per capita real GDP was HK$23,556 for the PRC while it was HK$12,070 for India, compared with the regional average of HK$20,545. Figure 1 provides the per capita real GDP for 2005 for the participating economies.

While per capita real GDP is the standard statistic used to distinguish between rich and poor economies, a better measure of the economic well being of the population is obtained by comparing per capita household consumption expenditure (actual final consumption of households). Figure 2 provides per capita real household consumption expenditure.

The same group of five economies that were at the top of the list based on per capita real GDP — significantly above the others in the Asia Pacific region — remains at the top. However, their order changes when the comparison is based on real household expenditure rather than real GDP. Three economies each moved by three positions when real household expenditure is used as the basis rather than GDP: Hong Kong, China moved up from fourth to first. Taipei, China also moved up from fifth to second. And Brunei Darussalam dropped from first to fourth.

The largest changes in ranking, however, were by the PRC which dropped from tenth to fifteenth, and Bhutan which dropped from eleventh to fourteenth. The main reason was that both these economies had exceptionally high levels of gross fixed capital formation (i.e. investment) during 2005. As a result, the share of household consumption expenditure within their GDP was significantly lower than that for other economies in the region. The range of differences in per capita real household expenditure between economies is much lower than is the case for per capita real GDP. Per capita real household expenditure in the top economy, Hong Kong, China is 20 times greater than that in the lowest economy, Nepal. This contrasts with a factor of 30 times, when per capita real GDP is used as the basis for the comparison.
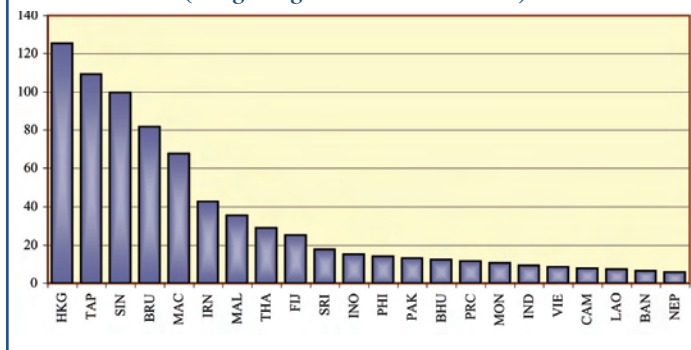
The price level index (PLI), which is the ratio of a PPP to the corresponding exchange rate, shows how the price levels of economies compare with each other. Figure 3 describes the PLI for the Asia Pacific. **>>**

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**Figure 1: Per Capita Real GDP, 2005 (Hong Kong Dollars in Thousands)**
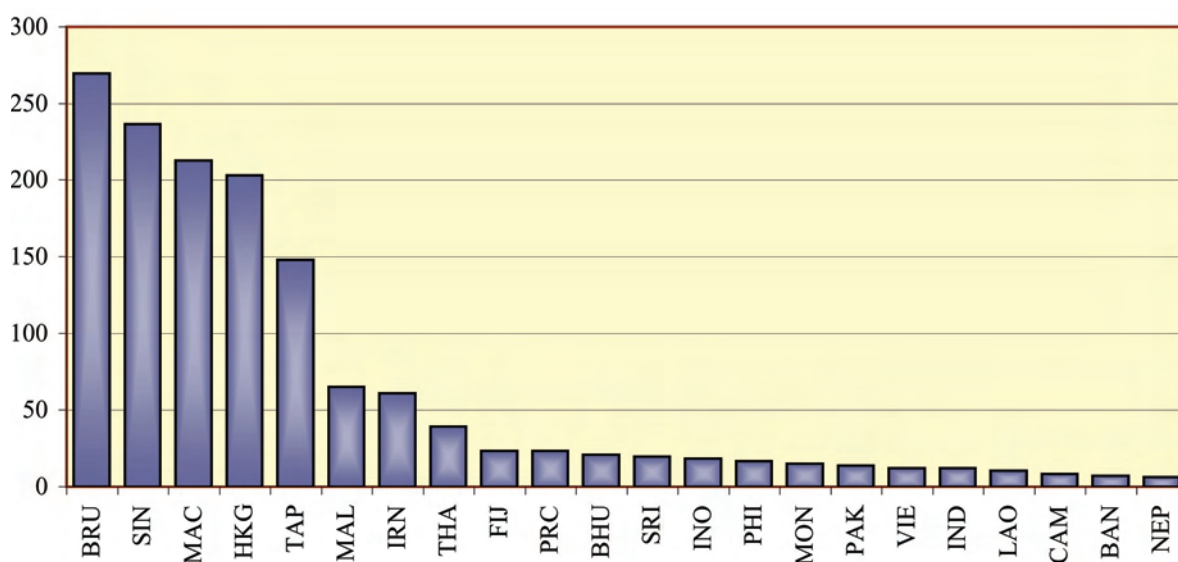
BRU-Brunei Darussalam; SIN-Singapore; MAC-Macao,China; HKG-Hong Kong, China; TAP-Taipei,China; MAL-Malaysia; IRN-Islamic Republic of Iran; THA-Thailand; PRC-People's Republic of China; BHU-Bhutan; FIJ-Fiji Islands; SRI-Sri Lanka; INO-Indonesia; PHI-Philippines; MON-Mongolia; PAK-Pakistan; VIE-Viet Nam; IND-India; LAO-Lao People's Democratic Republic; CAM-Cambodia; BAN-Bangladesh; and NEP-Nepal

Figure 2: Per Capita Real Household Expenditures, 2005 (Hong Kong Dollars in Thousands)

Conclusion

The ICP Asia-Pacific has made notable contributions. In a region as diverse as Asia, cross-country comparisons on key development indicators will become much more meaningful with the availability of more robust PPPs at various levels of disaggregation. Most importantly, the poverty PPPs, a central contribution of ICP Asia Pacific, will be pivotal in estimating and monitoring poverty in the region. The statistical capacity building that has been an integral component of the round will strengthen both the national accounts and price areas. The dialogue ignited among NSOs by this round will be pivotal as economies catch up with their peers through a process of interaction and collaboration. Together these new achievements will position the economies in the Asia Pacific to be active and successful participants in the next round of the ICP. ■

With the exception of Fiji Islands, which has by far the highest PLI of 117, all countries registered price levels that are lower when compared to that of Hong Kong, China. For Fiji, the main reason is that a large share of the products consumed there are imported and so their prices are relatively high. Meanwhile, the four countries with the lowest PLIs are three adjoining countries in South-East Asia — Lao, PDR (38), Viet Nam (40) and Cambodia (43), along with the Islamic Republic of Iran (41).

Figure 3: Price Level Indices (Hong Kong, China = 100)
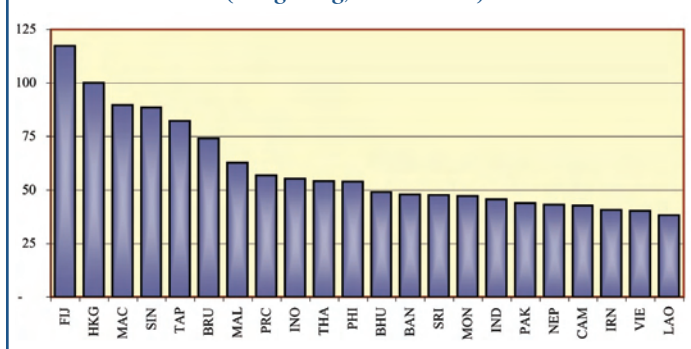
From Regional to Global Results

The Global Office is responsible for the publication of the Global Results. All six regions in the current round are estimating PPPs for their respective countries. Regional PPPs are based on goods and services reflecting the expenditure patterns of countries in the region. Regional PPPs are expressed in the currency of a base country in the region — for example, the Hong Kong dollar for Asia, and the Argentinean Peso for Latin America. The next step is to link regional PPPs and present the results in a common international currency, often the US dollar.

The ICP methodology that will be used to link the PPPs across regions is based on the principle that 18 countries in the six regions are representing all regional programs. These countries are called Ring Countries. The Ring Countries are compared using prices collected for core products that are available across the globe. The resulting Ring PPPs will be used to link regions worldwide.

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1. The benefits of microdata use are increasing

The most obvious benefit is that microdata permit policy makers to address more complex questions. At the same time, access to microdata allows analysts to calculate marginal, rather than average, effects. Access acts as an important scientific safeguard because it permits others to replicate findings. Discovery and replication create a virtuous cycle of knowledge for the statistical institute because data use inevitably reveals their quality and processing anomalies, as well as new needs. Finally, re-use of microdata augments the core constituency for the statistical agency itself.

a) Microdata permit analysis of complex questions

Over the past decade, an important finding in economics is that the analysis of aggregate statistics does not give an accurate view of the functioning of the economy. This is because the creative turbulence that is the hallmark of the modern economy is not apparent from macro indicators. For example, even when net employment changes are small, research (using microdata) has shown that there are large amounts of reallocation of jobs from one firm to another and of workers from one job to another[1]. Such information is critical for policy-makers who are developing, among other things, workforce planning and training programs, as well as transportation strategies.

The new challenge facing statistical agencies is that the large, complex, integrated microdata that permit such in-depth understanding of the economy involves longitudinal linkage of employer and worker data over time. They may also involve the integration of administrative and survey records. External researcher access may be necessary to create such data because many of the design decisions require subject matter knowledge as well as statistical expertise.

b) Calculating marginal rather than average effects

Microdata enable researchers to do multivariate analyses whereby the marginal effect of key variables, controlling for other factors, can be isolated. This is particularly important in an increasingly complex world where integrated economic activity requires the production of data that can be used to isolate complex demographic, economic and spatial interactions. For example, the expansion of research on the human dimensions of environmental change has meant that researchers want to include the contextual variables surrounding an individual—the schools they attend the neighborhoods they inhabit, the firms that employ them, and the people with whom they interact. The imperative to identify marginal effects in this environment puts tremendous pressure on statistical agencies.

c) Scientific safeguard

Access to microdata is critical to ensure that other scientists can replicate important research. Replication is a significant discipline device for government statisticians and academic researchers. That there is temptation for scientists to misrepresent results is, sadly, evident from the all-too-frequent news stories of data fabrication. That there is similar pressure on statistical institutes should be taken as self-evident. Constant vigilance is important. When the gains to monopoly power over information are great, in terms of either political power or professional prestige, it would be naïve to think that there were no malfeasances in even the most pristine of agencies. The consequences of such unchecked malfeasance can be devastating to the statistical system.

d) Data quality

Although statistical institutes expend enormous resources to ensure production of the highest quality feasible product, there is no substitute for subsequent research use of microdata to identify anomalies. Statistical institutes trying to describe a fast-changing world do not have the resources to modify definitions and data collection approaches fast enough. They must turn to external researchers for additional guidance.

The direct correlation between the quality of a national statistical institute and that institute's openness to external research is recognized by international agencies such as the World Bank. At the national level, the U.S. Internal Revenue Service (IRS) and Census Bureau have actually formalized the role of researcher use of selected tax microdata to improve national statistics. Because the statutory authorization permitting the release of selected IRS microdata[2] to the Census Bureau specifies that it must be used to improve the statutorily-authorized economic and demographic censuses, surveys and intercensal population estimates, researchers who use Census Bureau's tax-derived microdata must document these benefits.

e) Development of core constituency

Funding a statistical agency requires nurturing various constituencies. Greater use of agency data—including the creation of new products from existing data—increases these constituencies beyond those who rely on the original publications. More analysis, more publicity and more insights lead to greater understanding of the value of funding the products produced by the statistical agency.

The value of a core constituency goes beyond funding. The quality of staff that can be hired is directly related to the prestige and visibility of the institute, and the perceived quality of work that can be produced in-house. External researchers, who are often academics, also counsel students about career opportunities. Cultivating this network is an important step to developing a high-quality staff. Maintaining the dynamic interaction between staff and their mentors can create an ongoing virtuous cycle of information exchange and education.

2. The costs of microdata access are also changing

The most obvious costs are the direct cost of providing access, the potential reputation costs, and the costs associated with identification of the sampled entities and the concomitant potential disclosure of confidential attributes. These are the costs that must be weighed against the benefits of providing access. **>>**

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a) The cost of providing access

It depends on the modalities - public-use microdata, licensing, remote access sites, and research data centers. The agency's explicit costs for each of these methods are substantial in terms of staffing, support and documentation. The costs to users vary dramatically: public-use data are the lowest cost option, while the explicit and opportunity costs of accessing research data centers are the most substantial. For this reason, the intermediary approach of remote access sites has become more popular[3].

Public-use microdata is the most important modality. Statistical institutes have worked hard to make these available, with dramatic success. It is not an overstatement to say that since such data were first created over 40 years ago, they have had a major impact on decision-making. Indeed, in developing countries, decisions are often made on the basis of results from European and North American public-use data sets. Funding decisions for some entire data collection activities are predicated on the existence of public-use microdata. However, the real cost of producing such high-quality data is increasing. Technological advances in computing capacity, record-linking software, and online access to administrative data threaten their very existence[4].

Containing threats to public-use microdata is an under-researched area. Statistical agencies can join forces to advance this effort. One under-investigated subject is the effect of the choice of different disclosure protection techniques on data quality. Agencies that pour resources into producing top quality data—for example, survey design to improve response quality, and response follow-up to reduce attrition bias—spend much less on the decision to top-code, data-swap or suppress information. While this lack of focus was rational in a less technologically savvy era, it is unlikely that statistical institutes can continue this disparity of emphasis[5].

An attractive recent technical development is the creation of inference-valid synthetic data[6]. They often use multiple imputation and other Bayesian techniques to create public-use data with the same analytical structure as the underlying protected data. The released data can be used by researchers anywhere to develop an understanding of the structure of the confidential data, develop analysis code, and even estimate basic relationships before sending the code to the secure site to estimate the underlying relationships on the original confidential data.

b) The costs of developing an access strategy

Considerable agency time is required to develop an access strategy. Different staff within the agency—IT staff, legal counsel, high-level administrators, program staff, and the policy office—are likely to have different views about what constitutes a reasonable approach. Achieving a consensus takes many meetings and much discussion. This cost is exacerbated when one agency acts as a trusted custodian for data prepared by a group of statistical agencies. Such an arrangement, which the World Bank uses in its International Comparisons Program (ICP), is a variation of the licensing model we discuss below in which the agents of the World Bank are licensed by some national statistical agen-

cies to use confidential microdata as an input to the creation of detailed purchasing power parity (PPP) estimates. Even when a consensus is established, agreements about access strategies need to be regularly revisited as the legal, political and technical environment changes.

One good approach to minimizing these costs, recommended by the Conference of European Statisticians[7], is to establish an arms-length process by charging an independent internal group with the authority to develop a set of written recommendations, which are then provided to the decision-making body. This process provides a degree of transparency to the stakeholders that are critical for their engagement and buy-in.

c) Reputation costs

Another very real cost associated with outside researcher access to national statistical institutes is that of reputation. The production of official statistics is the mandated reason for the institutes' existence. Enormous effort is expended to ensure that published statistics with the agency's imprimatur are the national gold standard. As a result, each agency is understandably concerned that research results using their official data, but conducted without their expertise, could be misconstrued or misused.

It is possible to manage this risk. The World Bank's Living Standards Measurement Survey (http://www.worldbank.org/lsms/) has extensive tutorials, software and "how-to" manuals to ensure that researchers working with these data are well-informed. In the U.S., an alternative approach is the recent "Information Quality Act," which requires the U.S. Office of Management and Budget to develop government-wide standards for data quality. Interestingly, that act distinguishes between "ordinary" and "influential" information—the latter including scientific, financial or statistical information-- that will "have a clear and substantial impact on crucial public policies or important private sector decisions" (67 FR 8452). Even more tellingly, influential information should be reproducible by qualified third parties.

Agencies such as the World Bank's ICP face the reputational challenge that occurs when the restriction of access to some of the detailed microdata is justified by legitimate concerns regarding the quality of underlying data. Since this approach limits the subject-matter expertise that the Bank and the participating agencies can draw upon to improve data quality, it is important to promote an open discussion about alternative ways to get input. The United States Census Bureau has addressed this by formally developing a "transparency" policy, which states that all users have equal access to any published tabulations (including all special tabulations from any product) and that the Bureau will not attempt to limit the uses of these products. Formulation of a "transparency" policy for the ICP and distinguishing between research and official tabulations would permit the program to expand its research user base while preserving the integrity of the official releases.

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d) Disclosure of respondent identities

The ultimate cost to an agency occurs when an external researcher discloses the identity or attributes of a respondent. While the statutory penalties are typically substantial—ranging up to 10 years in prison and $250,000 in fines for the U.S.—the consequences of such a breach could be devastating to respondent trust and response rates. Statistical agencies might also be concerned that respondent trust in their ability to protect confidentiality is declining as part of a general increase in suspicion of governmental misuse of information. And permitting additional researcher access to confidential microdata might only exacerbate this.

3. Putting the benefits and costs together

While our cataloguing of the costs and benefits of data confidentiality is not encyclopedic, we believe that we captured the main economic factors. Statisticians have formalized the interplay of these costs and benefits as a tradeoff between disclosure risk and data utility[9]. This is an important advance because it provides a framework for quantifying the tradeoff. This allows data providers to be efficient in the economic sense—for instance, getting the most data utility for a given amount of confidentiality protection.

The statistical framework provides a method for assessing whether or not a proposed protection technique allows the most disclosure limitation for a given level of data utility. Application of these methods promotes greater efficiency because, in economist's language, it allows the data provider to get closer to the production possibility frontier. Some methods dominate in current use- one of them is a method with the same disclosure limitation that permits more data utility[10].

Eliminating dominated disclosure limitation methods is important but it is not a complete analysis of the problem. Data providers must also apply economic decision-making to the mix of dissemination methods for a given data product. Assuming that the risk-utility assessment has been properly applied to each of several dissemination methods, how does an agency decide whether to devote more resources to one method versus another? This decision is an example of optimal portfolio theory[11]. Any two data protection methods are correlated in their risk of disclosure of confidential information, but not perfectly. Combining the two methods can, then, produce greater data utility for any given level of disclosure risk in exactly the same way that an investor can achieve greater expected return for any given level of investment risk by combining the risky assets into a portfolio.

The application of optimal portfolio balance to the choice of data protection and dissemination methods provides the potential to answer two very important questions that arise directly from our cost and benefit analysis above. First, what is the overall disclosure risk of the mix of dissemination technologies? Second, what is the correct decision rule for moving information between a public-use file and a restricted-access file? We consider these questions in turn.

The disclosure risk for a combination of dissemination methods is the expected cost from the proposed combination, not the sum of the disclosure risks from each method considered individually. To see this point, compare a public-use microdata file with a supervised-access protocol like a research data center. If there is only one variable in the public-use file and there are 10 variables on the confidential file, then for any given level of data utility there will be much more use of the research data center than of the public-use file. The expected costs associated with the disclosure limitation will be dominated by the costs of running the research data center and the risks associated with the accidental or malfeasant release of some confidential information from this modality. Adding a variable to the public-use file and tightening the access to the research data center shifts the expected cost of disclosure limitation from the supervised facility to the properties of the public-use file. This must be controlled through investments in statistical methods to limit the disclosure risk in the two variables as compared to the single variable. The overall disclosure risk can actually decrease because the lower expected costs in the supervision of the research data center more than offset the increased costs of the public-use file[12].

Consider the decision rule for moving information between the public-use file and the research data center. The addition of information to public-use files has a measurable impact on the disclosure risk. Sometimes this risk is low: for example, retirement benefits in a national program. Such measures don't depend on geography and have statutory minima and maxima. Adding such measures to a public-use file and simultaneously eliminating the use of the research data center for creating such variables results in an increase in data utility from the public-use file and a decrease from the research data center. That's the benefit tradeoff. At the same time, it provides a change in the overall disclosure risk that depends upon how much extra information is contained in the benefit variable above what was contained in the original public-use file and upon how much access to the research data center is reduced. That's the cost tradeoff. The new statistical methods for assessing disclosure risk and data utility can be used to quantify both the benefit and the cost of this tradeoff. We suspect that these methods will reveal improvements from adjusting the dissemination mix in this case.

Sometimes there is considerable disclosure risk associated with a variable in a public-use file: for example, exact birth dates combined with detailed geography for household data and exact industry combined with detailed geography for business data. Improvements in information technology have increased the disclosure risk associated with the public-use versions of these variables. The result has been increased use of restricted-access protocols. As in the retirement benefits example above, disclosure risk assessments can be used to quantify the reduction in risk in the public-use file from restricting the geography and the increase in disclosure risk from making the geography available in a research data center, holding constant the data utility. These same methods can be used to measure the change in data utility from this restriction in the public-use file and associated **>>**

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increase in the research data center use. We suspect that there are potential portfolio gains to this rebalancing also.

4. Conclusion

It is clear that statistical agencies will increasingly be challenged to provide more access to microdata. This pressure provides a chance to fulfill a critical societal mission. However, since increased access does not come without increased costs, it would seem reasonable to try to control these costs by combining research efforts. Some areas in which joint research and development might provide substantial dividends, for example, would be the:

1. creation of inference-valid synthetic data;
2. protection of microdata that are integrated across several dimensions (such as workers/firms/geography);
3. quantification of the risk/quality tradeoff in confidentiality protection approaches
4. effect on response rates of increased microdata access; and
5. development of technical approaches to permit secure remote access to confidential microdata. ■

[1] *For the United States, see: C. Brown, J. Haltiwanger and J Lane Economic Turbulence: Is Volatility Good for America? (Chicago: University of Chicago Press, 2006). For France, see: J. Abowd, P. Corbel and F. Kramarz (1999) "The Entry and Exit of Workers and the Growth of Employment: An Analysis of French Establishments," Review of Economics and Statistics, Vol. 81, No. 2, (May, 1999): 170-187.*

[2] *As in many countries, selected tax data form the heart of the Census Business Register – the business sample frame – and play a critical role in developing intercensal population estimates.*

[3] *See J. Lane "Optimizing Access to Microdata" Journal of Official Statistics, September 2007, 23(3) 1-21.*

[4] *See, for example, Chapter 1 in Confidentiality, Disclosure and Data Access: Theory and Practical Applications for Statistical Agencies, P. Doyle, J. Lane, J. Theeuwes, and L. Zayatz, eds. (Amsterdam: North Holland, 2001).*

[5] *For a rigorous formal treatment of this problem see A. Dobra, S. Fienberg and M. Trottini "Assessing the Risk of Disclosure of Confidential Categorical Data," in Bayesian Statistics 7, J. M. Bernardo, et al., eds., Oxford University Press, pp. 125-144.*

[6] *See "Disclosure limitation in longitudinal linked data" Abowd and Woodcock (2001) in Doyle et al., op. cit. and T. Ragunathan, J. Reiter, and D. Rubin "Multiple Imputation for Statistical Disclosure Limitation," Journal of Official Statistics (January 2003).*

[7] *Managing Statistical Confidentiality & Microdata Access: Principles And Guidelines Of Good Practice, United Nations Conference of European*

[7 cont.] *Statisticians http://www.unece.org/stats/documents/tfcm/1.e.pdf, Geneva, 2007.*

[8] *See http://www.census.gov/quality/quality_guidelines.htm (cited on June 7, 2007).*

[9] *See Duncan et al. "Disclosure limitation methods and information loss for tabular data," in Doyle et al. (2001), op. cit., pp. 135-166.*

[10] *See Dobra et al,. op. cit.*

[11] *See H. Markowitz Portfolio Selection: Efficient Diversification (New Haven: Yale University Press 1959; Second edition 1970).*

[12] *Michael Hurd originally suggested this argument to us. We have attempted to formalize it.*

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Comments on the System of National Accounts - Implementation Status and Implications for the ICP

Michael Ward, *International Consultant*

Paul Cheung's contribution to the last newsletter (published in February) raises both methodological and systemic issues for data development. It underlines the need to enhance national statistical capacity. Those who have worked closely with the International Comparison Program (ICP) are left in little doubt as to the benefits of this rigorous program, especially in two key areas of economic statistics; price measurement and national accounts. Often pursued at the official level in quite separate divisions, these two topics, rightly, are becoming – and still need to become - even more closely integrated.

At the core of any set of PPP estimates lies the nature of the basic sources and quality of the raw data. Paul Cheung draws attention to the varying nature of the national accounts data globally, and the need for observing universally acknowledged standards, norms and proper protocols for basic data compilation. Detailed national expenditure data have always been the weakest element of the ICP. Improving the consumption data implies accepting not only certain formal aggregation rules but also agreement on procedures to value components (some of which do not enter any formal market) in a consistent way. Concepts of consumption are confused in some countries with those of acquisition, expenditure and use. This is because sometimes it is the nature of the data source – household surveys, administrative files, retail sales turnover, etc. – that respectively determines what is identified or reported and how a variable is measured. The crucial task of data conciliation lies with the United Nations. The existence of these problems constitutes yet another persuasive reason for strengthening the independent, non-partisan role of the UN Statistics Division. There are strong arguments for giving it greater support to reinforce its authority, extend its outreach and help it balance, in consultation with UN member countries, the perceived competing demands of national and international policy.

Forging a systematic and closer inter-connectivity between the UN System of National Accounts (SNA) and ICP, particularly with respect to the design of national price reporting systems (basic processes that are so often compartmentalized in national statistical offices) is more than just desirable; it is essential if analysts are to grasp a proper understanding of the underlying real economic mechanisms at work. The estimation of PPPs, as derived within the ICP statistical framework, does far more than piece together a picture of global living standards and poverty. PPPs provide domestic policymakers with invaluable guidance and insights into the impact of national resource allocations and costs of socioeconomic and environmental sustainability.

Because of the longstanding weaknesses in the expenditure estimates of GDP, Paul Cheung's contribution underlines why the PPP estimates have always been subject to significant margins of error. This is especially true at the basic expenditure heading level where, in many countries, there is a scarcity of survey information and administrative reports. Across both the private and public sectors, unsatisfactory estimates at this level of expenditure are common. In addition, any statistical gaps at those levels as well as in particular countries invariably feed into the derived global figures, thereby undermining their overall quality. It is distressing to note from Table 1 presented in Paul Cheung's article that the national accounts data in most of Africa and Oceania- two areas where development needs remain acute and where the initial PPP regional estimates for Phase VII seem most open to question - are still inadequate and inconsistent.

Table 1 summarizes the conceptual implementation of the 1993 SNA by countries. It highlights that developed and transition countries showed the highest rate of compliance at 93 and 100 per cent respectively in 2006. The Latin American and Caribbean countries registered 58 percent compliance rate during the same period. Asia followed with 43 percent compliance rate. In contrast, Africa and Oceania lagged far behind, with a compliance rate of only 17 percent in the 2006. More importantly, both regions showed very little progress since 2004.

Only by tracking exactly what is happening to technical assistance and how it has been implemented institutionally, and by following up on the impact of individual training, will it be possible to improve the broad effectiveness of support in these regions. The ICP has shown it can play an important "hands-on" part in capacity building, developing human capital and establishing a competent local statistical knowledge base.

PPPs allow policymakers to engage more relevantly in real resource analysis and associated allocation decisions. They can do so following declared and reasonably transparent criteria of economic equality, even if these are not always totally "fair". The ICP recognizes structural differences and gives substance to the many price level differentials that exist between countries, as well as between regions and sectors within countries. This has special resonance to international development and financial institutions that follow clear operational guidelines for directing limited resource transfers to member countries determined to pursue plans of national progress. For the most part, donors and institutions try to ensure there is an equality of treatment in respect of supporting members' plans and meeting their more pressing observed needs. The adoption of PPP-based criteria of selection strengthens this desire to provide equality of treatment. It is especially significant where the bulk of international development transfers, de facto, are spent in the countries themselves. ∎

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