

02

Lessons Learned from ICP 2005

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Fred Vogel



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I. Introduction

The purpose of this paper is to provide an overview of the different components of the 2005 ICP where the experience gained and lessons learned will be used as building blocks to improve the quality of the 2011 comparison.

The International Comparison Program (ICP) is the largest and most complex statistical program in the world. Its success is dependent on several elements. A **governance** structure is required that establishes policies on the scope, coverage, work plan and time table in a way that ensures all participants take ownership in the ICP. Effective **coordination** is required to ensure all national and regional organizations are following the same time table, work plan and methodology. **Resources** are required to support effective governance, allow development and fine tuning of methodology, and ensure the necessary coordination activities are carried out. Good **communication** is essential so that there is full transparency about the establishment of priorities, statistical standards, and the sharing of resources. It is essential there be a set of **statistical standards and methodology** that can not only be consistently applied, but also accepted as good practice by all participants. The next section will review the governance from two points of view which includes between region coordination provided by the (ICP) Global Office and also its role with the Eurostat-OECD Comparison Program.

Section III will review technical issues faced by the ICP and where lessons learned will be used to guide development efforts for the ICP 2011. This section will conclude with issues coming from the Ring comparison used to link the regions with the Eurostat-OECD comparison.

Section IV will provide a summary of the lessons learned and steps to be taken for 2011 as a result.

The paper will conclude with a review of the assets being brought forward from ICP 2005 that will improve the comparability of the 2011 vs. the 2005 results.

II. Governance

No country can produce PPP comparisons with other countries by itself. The ICP is a joint effort where countries work together to determine what will be priced and when. The data analysis and estimation methods require that data be pooled across countries. The very essence of the ICP is the comparability of results between countries, strict adherence to time schedules, and a common understanding of data sharing and confidentiality requirements. There is no other statistical program requiring so much cooperation between national, regional, and international organizations.

The Consumer Price Index (CPI) provides a useful example because it shares a common technical language and conceptual framework with the ICP and the output of national accounts. Each country determines the scope and coverage of its CPI from the content of the product basket, to the coverage of the country and all other aspects leading to the publication of the results. Each country has full responsibility for its final CPI estimates for which it is accountable to its public and other governmental entities. They are also accountable for ensuring its country's data confidentiality rules are followed.

The ICP takes the process to another level where decisions are shared with other countries, a regional coordinator, and the ICP Global Office. Purchasing Power Parities are estimated by price comparisons between countries; therefore, inter-country coordination is required. Each country must abide by standards accepted by other countries and follow the same data collection and national accounting procedures. An essential feature is that they are required to send their data to a regional coordinator where they are subject to review by other countries. Regional coordinators then send data on to the Global Office where the data review ensures consistent procedures are being used across regions. A sense of partnership and overall trust had to be established between countries and regions for assurance that other countries and regions were applying the same guidelines and standards. Countries had to follow similar methods and procedures in spite of the fact they differ widely in size, culture, and diversity of goods and services available to their people. They also have different levels of statistical capacity. Furthermore, not every country speaks the same language adding another dimension to the requirement for comparable methodology and procedures.

Governance and coordination of the ICP An important part of the governance structure was that the world was divided into 5 regions with the Eurostat-OECD PPP program included as a 6th component. This regionalization had implications about methodology which meant that countries with more similar economies, cultures, and capabilities were grouped together. The regionalization of the program required that a national or regional organization assume the responsibility to coordinate the work programs for the countries within its region.

The overall coordination of the ICP regional programs was provided by the ICP Global Office. The Global Office received technical support from a Technical Advisory Group comprised of a group of internationally known experts in economic statistics. The Global Office managed and coordinated the program across the regions, provided the statistical methodology to be employed, and either provided direct financial support or assisted with regional fund raising activities. The Global Office's activities were supported by the ICP Trust Fund containing resources provided by several national and international organizations and the World Bank.

The Global Office reported to the ICP Executive Board. The ICP Board was comprised of chief statisticians of international organizations including the IMF, UN, OECD, Eurostat, and the World Bank. Each regional coordinating organization also held a seat on the ICP Board. Several national statistical organizations were also represented on the ICP Board. The Board determined

the scope of the ICP, strategic priorities, annual work programs and budgets, and acted to resolve conflicts both within the program and between its external environments. The Board, through the Global office, also provided annual status reports for discussion with the United Nations Statistical Commission

The ICP Board met at least twice annually. A status report was prepared for each meeting along with discussion papers. These were posted to the ICP website along with the meeting agenda and minutes summarizing the actions taken by the Board. The regional coordinating organizations also met at least twice annually with the Global Office to agree about methodology to be used, take stock of each region's efforts to keep with the time schedule, and at the later stages jointly review data from each region to evaluate comparability of results. The actions from these meetings were also documented and posted to the ICP website. The Global Office also prepared a methodological handbook; it was also posted to the ICP website.

There was almost continuous email traffic between the participants at all levels dealing with various issues between the major meetings. This resulted in very effective communications provided in a transparent way. However, this came at a cost in terms of resources required to bring the ICP Board and regional coordinators together on a frequent basis. This was in addition to the numerous and missions by global office staff and consultants to the respective regions.

Although it was not part of the original governance strategy, several partnering arrangements between some national statistical organizations and the regional and global coordinators were established and were very effective. The Federal-State Statistical Service of Russia (Rosstat) and the Canadian statistical office (Statistics Canada) were the respective coordinators of the CIS and South American regions. With funding made available by the Australian Aid agency, the Australian Bureau of Statistics led the development of the product specifications for consumption in Asia and also provided technical support for the overall program. The UK National Statistical Office provided technical support to the African region and also to the Global Office to coordinate the Ring program. The National Statistical Office of France also provided technical support to the African region.

The ICP Executive Board became an effective policy making body ensuring support from all stakeholders. The Technical Advisory Group also provided valuable methodological support for several complex problems. The regional and national coordinators effectively organized and executed their respective programs. However, there were some problem areas that need to be considered:

- The ICP is a cooperative venture of a wide range of stakeholders. Questions were raised about the legal status of the Executive Board, its authority, and whether members served in their own right or as representatives of their organization. Questions were also raised about the authority of the Global Office regarding the implementation of methodology in regions.

- The requirement for data access and sharing was not clearly defined with some countries reluctant to furnish data in the desired level of detail, and for their data to be reviewed by the Global Office and other regions.
- Decisions were made about the work plan that were not supported by the available resources. An example was the decision to do the full ring comparison even though resources were not sufficient to effectively coordinate the effort. More will be said in the section about methodology.
- Data for difficult areas such as construction and equipment were collected in some regions by consultants engaged by the regional coordinator. This left some countries feeling they were bypassed with insufficient input into the results.

Coordination of the ICP with the Eurostat-OECD Comparison Program. The ICP was conducted in parallel with the PPP programs conducted by the Statistical Office of the European Communities, (Eurostat) and the Organization for Economic Cooperation and Development (OECD). While the Eurostat and OECD conducted their programs independently of the ICP, they participated fully in the Ring program which linked them to the rest of the world. The Eurostat-OECD also participated in many of the workshops and meetings organized by the Global Office that brought the ICP regional coordinators together as described above. The respective roles of the Eurostat-OECD and the Global Office were not well defined at the beginning. For example, the Global Office participated fully in the ICP regional meetings; one reason was to provide technical support, the other to ensure methodology was being consistently applied across the regions. However, the Global Office did not participate in similar meetings held by the Eurostat-OECD. The coordination with the CIS region became an issue at the end of the 2005 round when it was decided that Russia's results would be based on its OECD comparison, and it would be used instead of the Ring to link the CIS region to the OECD.

III. Methodology

The foundation of the ICP is the comparison of national prices of a well defined set of goods and services that are comparable across countries, but also representative of each country's purchasing patterns and are consistent with the underlying prices in the national accounts.

A key decision was made at the beginning of the round that set the tone for how methodology was employed at the regional level. The decision was that the global office would provide the framework to establish how the products to be priced for the consumption components of the GDP would be selected and defined; but then it turned the selection of the products and their specifications over to each region and its participating countries. Each region developed its own product specifications; resources were made available to ensure that representatives of the National Statistical Offices (NSOs) could be brought together to jointly agree upon the list of products to be priced and their specifications. The NSOs in each region were also brought

together to jointly review the prices after each data collection. These workshops allowed each country to question or challenge each other's prices to ensure the appropriate products were being priced using similar survey frameworks.

Three positive outcomes were the result; one was improved data quality; the second was the partnership and trust about the overall process, and the third was statistical capacity building resulting from the discussions of methodology and data review

The decision to allow the regions autonomy carried through with the implementation of methodology to estimate PPPs. Table A provides an overview of the methodology used in each region for all components including consumption and for the difficult areas such as housing and government. The underlying principle was to use what was best for each region. Table A also shows the methodology to link the regions. A summary of the methodological differences follows.

Aggregation to basic headings. The countries in the ICP regions were unable to provide consistent indicators showing whether each product's prices were representative of the overall price structure in their country for that basic heading. This is a form of stratification based on the assumption that prices for products that are not representative are higher than for representative products. This has an unknown affect on the within region as well as between region comparisons because while the Eurostat-OECD and CIS regions applied the concept, it was not used for linking. The use of the CPD in all regions except the CIS and Eurostat-OECD instead of the EKS for aggregation to the basic heading level also had unknown affects. This is a case where the CPD was endorsed by the TAG, but for various administrative reasons was not used in the Eurostat-OECD and CIS regions even though it was also used to compute the basic heading linking factors using the Ring data.

Housing and government compensation are two of the most difficult components to measure for the estimation of PPPs. Three different methods were used across the 6 regions to estimate regional PPPs for housing. PPPs were based on either the Quantity method or rental prices in all regions except Africa and Asia where they were imputed. A CPD model using quantity and quality indicators for 106 countries was used to estimate the housing linking factors. PPPs for government compensation were based upon salary data with the assumption that worker productivity is equal across countries. This resulted in implausible estimates of per capita expenditures for government in three regions; therefore, productivity adjustments were applied in Africa, Asia, and Western Asia, but not in Eurostat-OECD, CIS, or South America. A contributing factor was that the housing quantity and government compensation data were not subjected to the detailed validation efforts put forth for consumption and without multiple price collections that would have identified aberrations in the data.

Equipment. The equipment basket for the ICP regions reflected input from the Eurostat-OECD set of specifications, therefore, was similar. The main point is that the ICP regions used a global

list which meant there was no need to have a separate ring list. The Eurostat-OECD ring countries priced the ICP global list.

Construction. Again, three different methods were used with the ICP regions using a new methodology—Basket of Construction Components (BOCC). The basic concept of the BOCC is that costs of building components are obtained by experts; these components are then combined into construction systems such as site work, super structure, etc. The process called for countries to price both the building components and also individual inputs such as cement, sand, etc. The problem was that the individual inputs were also part of the construction components, but captured in a way that the prices of the individual inputs such as cement were not comparable to the input prices collected as part of the component cost. The BOCC also required a set of weights to combine the construction systems, few of the countries were able to provide plausible weights.

Data to compare construction between countries is difficult to collect. Some regions sent construction experts into countries to collect cost data for components of construction. These data, in some cases, were collected outside of the national statistical system leaving the national statistician in the difficult position of defending results without having input into the collection.

The Ring. The process to do what was best for each region improved the quality of the regional data. However, it caused difficulties for the next step which was to calibrate the regional PPPs to a common global currency. In order to link the regional PPPs to a common currency, new methodology called the Ring comparison was developed (chapters 13-15 ICP Handbook).

The ring methodology required that a list of products representing the world be developed and priced by a subset of countries (ring countries) from each region. In principle, the ring comparison was to be treated as an additional region coordinated by the Global Office similar to how each region coordinated its activities. However, there were not sufficient resources to enable the Global Office to bring the ring countries together to jointly determine the ring list, nor later to review the resulting prices. Instead, the regional coordinators had to provide the necessary input. Many of the data problems encountered with the ring results can be attributed to the failure to include the ring countries in the data validation and analysis.

Although considerable effort went into the choice of ring countries, the subsequent analysis of the ring data showed that some country's prices did not reflect the level and structure observed in the regional comparison raising questions about their inclusion when the regions were linked. There were also questions whether the ring list represented items comparable but not representative for the poorer countries causing them to submit ring prices at a higher level which in turn provided linking factors decreasing the size of the regional economy compared to others.

National Accounts. Nearly all of the steps to improve governance and methodology were to improve the quality of the price data and resulting PPPs. However, a primary outcome of the ICP is the national GDPs converted to a common currency using PPPs. Although early attention was given to reviewing national accounts, it was not until the first preliminary volume and per capita

estimates were computed was it realized national accounts needed more attention. More seriously, it was noted that international organizations such as the World Bank and IMF maintain their own data bases for national accounts with the each containing different data, but also data differing from what the countries furnished for the ICP.

National prices—Urban vs. Rural. Countries were to furnish national annual average prices consistent with those underlying their national accounts. If they were not able to conduct national surveys, they were to use auxiliary data to adjust them to a national level as documented in the Global Report. A review of the surveys countries conducted for consumption showed the following:

- Africa—38 countries submitted national prices and 10 submitted urban only results.
- Asia—19 submitted national prices and 4 submitted urban results. There was considerable debate whether China’s prices were urban only or represented both urban and rural areas. China submitted prices for 11 administrative areas that included a central city and surrounding rural areas—the global office adjusted these to the national level.
- Eurostat-OECD and CIS—National prices for all. In reality, prices were mainly collected in the capital city and extrapolated to the national level.
- South American countries furnished prices collected in the major urban areas that were also included in their respective CPI surveys. Those economies are similar in structure with the urban areas accounting for a large part of the economic activities.

Researchers doing poverty analysis made a plea for prices to be provided separately for the urban and rural areas because over 70 percent of those living in poverty live in rural areas.

The workload. Table B provides an overview of the scope and coverage of the data collection effort for the ICP. Note that countries were pricing up to a thousand consumption items via multiple surveys during the year. As a result, they were unable to collect prices or data for government, equipment and construction until 2006. In addition, ring prices were not collected until 2006 as well.

IV. Lessons learned and actions for the ICP 2011

Governance. The lesson learned is that the responsibilities and authorities of the different stakeholders need to be more carefully defined in a framework of letters of agreement that also provide an institutional and legal framework for the ICP. For example, there should be a letter of agreement or statement that spells out the role of the World Bank as the host organization of the ICP, its reporting requirements to the United Nations Statistical Commission, and the respective roles and responsibilities of the ICP Executive Board, the Technical Advisory Group, and the regional coordinators. This statement applies to the ICP regions. This overall letter of agreement or statement should form the foundation for the letters of agreement between the global office

and the ICP regional coordinators to be followed by letters of agreement between the national and regional coordinators. Additional actions stemming from lessons learned include the following.

- The working relationship between the ICP and Eurostat-OECD comparisons needs to be strengthened with a separate letter of understanding and mutual representation in regional meetings and workshops.
- It should be made clear that the membership of the Executive Board is by organization, each to be represented by a senior member.
- The authority of the global manager should be increased regarding decisions about methodology if there is not agreement.
- The letters of agreement should outline the process to determine and agree upon the methodology to be implemented. This should include the minimum standards that must be met for inclusion in the program.
- The letters of agreement should define the data access and data sharing procedures and requirements of the countries, regional coordinators and global office.
- The participation of the CIS region needs to be determined at the outset; that is, whether it will be part of the OECD or ICP comparisons.
- Partnering arrangements with some national statistical offices providing support to regional and national coordinators should be established at the outset of ICP 2011.

Another lesson learned is that work should not be undertaken without resources available to follow the agreed upon set of best practices and that there is a limit to how much countries can do at one time. Early decisions are needed about the scope of the coverage of the GDP and the time periods for data collection.

Statistical standards and methodology.

The main lesson learned is that the effort to produce what was best for each region led to problems with the linking and affected the inter regional comparisons which was the overall purpose of the ICP. The methodologies used for housing and construction especially need to be thoroughly evaluated so that more comparable data are available across all regions and the Eurostat comparisons. For example, it is recommended that data on quantities and qualities of housing be provided by all countries including those in the Eurostat-OECD in addition to rental prices where they can be provided. In addition, each region needs to examine the availability of rental prices.

Only the Eurostat-OECD and CIS comparisons were able to rely upon representativity indicators for consumption products. There should be a review of how “representativity” is defined with a goal to make it more meaningful for developing countries. If necessary, some basic definitions should be added to the price collection specifications.

The construction components in the BOCC need to be compared with similar breakdowns in the Bill Of Quantity (BOQ) and Modified BOQ used in the CIS to determine where the specifications overlap or can be made more similar.

Similarities in the equipment lists between ICP regions, and the CIS and Eurostat-Comparisons should be evaluated to seek a common core set of items. This same logic carries forward to the use of a modified exchange rate approach for equipment, again something all countries could submit in addition to prices. National Statistical Offices need to be engaged in the data collection efforts for equipment and construction, including when consultants engaged by the regional coordinator do the data collection.

The government compensation specifications and the data collection methodology need to be thoroughly reviewed to determine whether improvements in those areas plus a more rigorous data validation and multiple data collections would reduce the need for productivity adjustments. The methodology followed for the productivity adjustments needs to be reviewed as well. Another lesson learned is that while a country can produce a national price, it is difficult to define rural prices. First, there is no international definition of rural; each country has its own. This is further complicated by the fact many products are only available in urban areas, or if available in rural areas, are of a different quality. The rural definition has not been defined nor have the boundaries. The question about what data are needed to reflect the expenditures of the poor needs to be considered along with the use of data from household expenditure and consumption surveys to evaluate the consumption patterns by level of household income and geographic location. It is recommended that the household expenditure surveys be used to determine the consumption patterns of the population (using national urban/rural definitions) to guide the required pricing to estimate national prices.

The health and education PPPs are dependent on measuring the total cost of each item including the household and government contributions. The items priced and the data collection methods used need to be evaluated to determine where improvements can be made.

The pricing of the Ring list by a subset of countries added to the overall variability which had to be offset by large numbers of items being priced. This suggests a core set of items be priced for the ring by all countries instead of only a few.

A data quality framework should be established that provides the standards to be met for each of the stages required to produce global PPPs.

The meta-data and steps to compute global PPPs need to be clearly defined so that any data user could reproduce the global results.

V. The ICP assets

The 2011 begins with a solid foundation built on the successes of the previous round and the archived basic heading PPPs and expenditures for 146 countries. These will provide a benchmark to effectively review and validate the 2011 results.

The time gap between the 1993 and 2005 comparisons was so large that there was little institutional experience in the ICP regions and little updating of methodology to not only deal with problems faced in the past nor to deal with changing economic situations. As a result, a significant investment went into reviewing and developing methodology at the same time the national and regional coordinators as well as the global office were undergoing a knowledge building exercise. An overview of the assets from the 2005 round that will contribute to strengthening the 2011 round follow.

- The regional specifications for consumption products which were developed via extensive input from the countries.
- The Ring methodology that was the basis for linking the regions.
- The Ring list for consumption which represents a composite of the regional specifications and which forms the starting point for the core list for 2011.
- Global specifications for health, education, government compensation, equipment.
- The methodology developed for construction—Basket of Construction Components.
- Global specifications for housing quantities.
- The ICP Handbook—15 chapters that provide the theoretical and methodological framework for the ICP.
- The ICP Operational Manual which supplements the Handbook.
- Background research papers leading to the choices of methodology developed.
- The suite of software tools used for developing product specifications, data validation, analysis, and estimation and the knowledge base to update them.
- The establishment of agreed upon procedures to maintain data confidentiality, yet also provide researchers access to unpublished data for more in-depth analysis.

A most significant asset is the spirit of cooperation that was developed between countries and the regional and international organizations involved.

Annexes

Table A. Overview of methodology by aggregate, region, Eurostat-OECD and the Ring

Aggregate	Africa	Asia	W. Asia	S. America	Eurostat OECD (incl. Russia)	Combining regions (excl. the CIS)	CIS (linked via Russia)
Household Consumption	CPD No representative indications	CPD No representative indications	CPD No representative indications	CPD No representative indications	EKS* With representative indications	CPD 18 ring countries No representative indications	EKS* With representative indications
Housing	Imputed to per capita volume of Consumption excluding rents	Imputed to per capita volume of Consumption excluding rents	Quantity indicators plus rental prices	Quantity indicators	Quantity indicators plus rental prices	CPD using quantity and quality indicators for 106 countries	Quantity indicators
Compensation	Global list CPD Productivity adjustment	Global list CPD Productivity adjustment	Global list CPD Productivity adjustment	Global list CPD	Regional list EKS Ring countries priced global list	CPD using wages for 75 ICP countries plus 5 for Eurostat No productivity adjustment	Regional list EKS
Equipment	Global List CPD Imputed for xx countries	Global List CPD	Global List CPD	Global List CPD	Regional list EKS Ring countries priced global list	Global List CPD For ring countries	Regional list EKS
Construction	Basket of Construction Components CPD with regional W2 weights Imputed for some countries	Basket of Construction Components CPD with regional W2 weights	Basket of Construction Components CPD with regional W2 weights	Basket of Construction Components CPD with regional W2 weights	Bill of Quantity Ring countries priced Basket of Construction components	Basket of Construction components CPD Ring Countries no W2 weights	CIS basket of components
NPISH	Expenditures allocated to other BHs	Expenditures allocated to other BHs	Expenditures allocated to other BHs	Expenditures allocated to other BHs	Reference PPPs for NPISH		Reference PPPs for NPISH
Aggregation to GDP	Ikke	EKS	EKS	EKS	EKS	EKS	EKS

Table B. Scope and Coverage of Data Collection

Category	Africa	Asia	CIS	OECD - Eurostat	Latin America	W. Asia	Ring
Food and non - alcoholic beverages	356	223	198	422	147	353	281
Alcoholic beverages and tobacco	41	19	20	72	8	21	30
Clothing and footwear	128	78	104	319	136	162	132
Housing and utilities	21	17	22	64	18	12	35
Furnishing and household equipment	95	85	91	460	77	83	124
Health	144	112	75	244	51	69	162
Transportation	55	65	47	365	33	29	96
Communication	19	19	16	81	8	12	28
Recreation and Culture	49	70	79	336	54	59	96
Education	7	7	7	5	10	11	7
Restaurants*	51	25	45	117	14	20	60
Misc. goods and services	34	56	36	136	22	31	44
Total consumption	1000	776	740	2621	578	862	1095
General Government	50	50			50	50	50
Construction	34	34			34	34	34
Equipment	108	108			108	108	108