

International Comparison Program

Findings of the 2nd ICP Results Review Group Meeting



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2011 International Comparison Program

2nd Meeting of the Results Review Group

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1. Introduction

The purpose of the meeting was to review the results from the final computations of the global level PPPs and real expenditures. The data review included an assessment of the effect of changes in methodology between 2005 and 2011, a final review of the linking methods and the resulting tables of ICP 2011 results, and a discussion regarding the publication of China's results.

The Review Group also discussed issues regarding the use of PPPs for establishing international poverty lines as affected by the level differences between the 2005 and 2011 PPPs. There was also a discussion of how to reconcile benchmark PPPs with time series PPPs based on GDP growth rates.

2. Effect of Linking Methodological Changes between 2005 and 2011

A number of new techniques were introduced in the 2005 ICP, and the detailed data available from that round enabled an in-depth analysis to be undertaken of not only the results but also the impact of various methods that were employed, particularly those used to link the PPPs for the six "regions"¹ to provide consistent estimates for all 146 countries. The benefits of implementing new methods to overcome shortcomings in previously-used procedures are fairly clear, particularly as regards ensuring that the 2011 inter-country comparisons are as sound as possible. However, the downside of improving the methods is that it introduces inconsistencies between the successive sets of benchmark results for 2005 and 2011. A review of the impact of using new linking methods follows.

Instead of 18 countries pricing a separate list (called the ring list) of products to link household consumption PPPs across regions (approach used in the 2005 round), all countries priced in the 2011 round a set of global core prices that were also imbedded in the regional lists. The result was that basic heading linking factors were based on all countries in 2011 instead of 18 countries subjectively selected in 2005.

The Review Group was presented with three sets of analysis. One was to examine whether the prices from the ring list in 2005 overstated price levels in poorer countries,

¹ The six regions were Africa, Asia/Pacific, Commonwealth of Independent States, Eurostat/OECD, Latin America, Western Asia.

the second to examine results for 2011 using all countries or only 18 as done in 2005. The third set of computations was to compare the revised method to aggregate basic heading PPPs to the GDP (Country Aggregation with Redistribution-CAR).

The World Bank (2013)² noted that when validating the 2005 ring prices, there were some countries with relative price structures significantly different from other Ring countries and also from the within region results. The dilemma was that these countries likely provided prices for items only available in specialty shops in their country, but which were more widely available in richer countries. These countries were labeled as “outliers” and were subjected to additional data validation. In order to not add another layer of subjectivity to the process, the data from the outlier countries were included in the calculations of the ICP 2005 between region linking factors.

The Review Group was presented analysis to determine whether ring prices were overstated in some ring countries in 2005. The analysis was based on examining inflation rates for the 18 Ring countries between 2005 and 2011 from national CPI’s compared to the inflation shown by household consumption PPPs. The results point out that the prices were overstated in more poor countries than those labeled as outliers in 2005. Two methods to quantify the impact of the overstated prices were discussed. One was to adjust the prices from the poor ring countries to the levels of the richer countries and recompute the linking factors. The other was to remove the countries labeled as outliers and recompute linking factors. Both methods involve a degree of subjectivity, but should provide results helpful to explain differences between 2005 and 2011.

The second analysis presented to the review group was to determine the impact of having all countries pricing items for linking purposes instead of the 18 used in 2005. The linking factors for ICP 2011 using prices only from the 18 ring countries were computed. The impact on the final PPPs was minimal. The biggest impact is on Asia (1.3%) which means that in Asia the GDPs of the countries would be 1.3% higher in ICP 2011 if only 18 countries were used in the linking exercise instead of all countries.

A new method of aggregation coined the CAR method (Country Aggregation with Redistribution) was used to aggregate PPPs to the GDP. The impact of the CAR method can be simulated; the impact was to raise the real expenditures in Asia 9 percent for 2005 and 6 percent for 2011. It is not possible to assess the use of the core list by all countries vs. 18 countries pricing a separate list because the data required are not available for 2005.

It is difficult to directly quantify the impact of the different methodologies. However, three issues probably contributed the most to differences between 2005 and 2011 outcomes. The use of the core vs. the ring greatly improved the quality of the linking process. Analysis suggests that adopting the global core list approach and the use of the importance classification would raise real expenditures in 2011 in Asia and Africa against the other regions, compared with the outcomes if the ring approach continued to be used.

² World Bank (2013). “Measuring the Real Size of the World Economy, Chapter 8: The Ring Comparison—Linking the Regions” Washington, DC , World Bank

Analysis also points out that an adjustment for urban/rural prices in China would have raised its real expenditures in 2005 by as much as 10 percent.

3. Productivity Adjustments

While essentially the same set of salaries data by occupation were obtained for the 2005 and 2011 rounds for government compensation PPPs, there were differences in which regions adjusted their data for productivity. In 2005, Africa, Asia, and Western Asia adjusted the compensation rates for productivity, but inter-regional linking factors were not adjusted. In 2011, the linking factors applied to all regions were adjusted for productivity, thus improving the comparability of government compensation.

The Review Group was provided a comparison of volume per capita indices for the GDP, Actual Individual Consumption, Collective Consumption, and Health aggregates with and without the use of productivity adjustments. The analysis showed that the productivity adjustments have only a moderate impact at the GDP and Actual Individual Consumption levels, but can significantly impact the collective consumption and health aggregates, which is why they are being used.

4. Housing

The Review Group was provided analysis used to determine the choice of methods to link housing across regions. It was noted that the calculation of linking factors for housing services is complicated because the methods used within regions differ across regions, no comparable rental data are available to link Eurostat-OECD countries, and in general the quality of the rental and housing quantity data are weak. There are inconsistencies between expenditures from the national accounts and the rental and quantity data furnished.

Because of the limitations of the data within regions, each decided on the best method to suit their situation. Africa, Latin America, and Western Asia calculated PPPs using rents collected for the global list of dwelling types. Asia, after in-depth analysis resorted to the same method used for ICP 2005 which was a “reference volume” approach. Eurostat-OECD uses a combination of rental and dwelling stock data.

The Review Group was provided a description of input data used for linking and the resulting limitations. Because of the limitations of the data, the linking was done in stages. Africa, Latin America, and Western Asia were linked using the same data that went into the estimation of within region PPPs. For Asia and Eurostat-OECD, dwelling stock data were used to link them to each other and then to the rest of the world. Because of data gaps, only data from countries for which plausible estimates for both quantity and quality indicators were included in the linking process.

It was concluded that the use of a simple, though robust, linking method was appropriate given the data available.

5. Construction Methodology - Markups

Difficulties with implementing the method used for construction in ICP 2005 led the TAG to recommend a simplified input method for use in ICP 2011. The input method makes use of prices of basic materials, labor, and machinery. The initial proposal included making adjustments to the input prices for mark-ups (profits etc.) and professional fees. However, the data collected on these components were patchy and incomplete. Many countries did not provide these estimates and the data that were supplied proved to be so inconsistent that they could not be used. At its meeting in May 2013, the TAG recommended that the input prices should not be adjusted for mark-ups and professional fees, given the poor quality of the data collected.

However, China in its representations to the Executive Board stated that PPPs for construction are too low because the mark-ups for China would be higher than in other countries, given the high level of construction activity in China in 2011. China suggested that a mark-up of 30 percent be applied to their construction prices. Since the ICP is a global exercise, it is not possible to make such an adjustment to one country without considering adjustments for other countries within the region and again for the linking exercise. However, to understand the impact of such an adjustment, simulations were run to test the sensitivity of China's construction PPPs to different percentage mark-ups applied to all countries in the Asian region and then to China only, to estimate the effect of construction PPPs on the GDP PPPs.

In the simulations, the mark-ups were applied directly to PPPs of construction, to each of the construction basic headings. Different mark-ups applied to all Asian countries and again but only to China and are shown in the following table.

Changes to China's PPP (relative to base)	Mark-up applied to all Asian countries				
	10%	20%	30%	40%	50%
Construction	10.0%	20.0%	30.0%	40.0%	50.0%
GDP	1.5%	2.9%	4.2%	5.3%	6.4%
Changes to China's PPP (relative to base)	Mark-up applied only to China				
	10%	20%	30%	40%	50%
Construction	10.0%	20.0%	30.0%	40.0%	50.0%
GDP	1.9%	3.7%	5.3%	6.8%	8.2%

In the extreme case where a markup of 50% is applied only to China, the GDP PPP increases by 8.2 %. In the more realistic case where a markup of 20% is applied to all Asia countries, the effect at the GDP level for China is an increase of 2.9%.

The reason is because of the multi-lateral nature of the index number used in the ICP process (EKS) in which the overall index is computed on the basis of multiple binary comparisons. Thus, even though the share of construction is rather high in China, it is not

so in almost all other countries involved, and so the effect of China's share of construction to GDP is diluted when the GDP PPP is estimated.

The conclusion is that the impact of including construction mark-ups in the construction PPPs on China's GDP PPP would be relatively small (around 1.5 percent) once the relevant mark-ups are included for other countries.

6. Publication of China results

The Review Group discussed the dilemma resulting from China's reluctance to accept the final PPPs. The Review Group expressed its disappointment that the UN Principles of Official Statistics are being ignored as is the fact that a PPP is not a country number but the outcome of a multilateral process involving all other countries in the world. However, in the spirit of international harmony, the Review Group provided the Global Office two options for the Executive Board's consideration regarding the inclusion of China when ICP 2011 results are released. The Review Group also concluded that the current results are stable and that the effect of the various simulations would change the results only marginally and within the margins of error associated with ICP estimates.

7. Poverty and PPPs

The Review Group was provided a review of how ICP results affect global poverty estimates. One issue is how the international poverty line is computed as an unweighted average of the national poverty lines of 15 of the poorest countries which exclude India and China. These national poverty lines are converted to the dollar using PPPs resulting in the dollar a day line. The other issue is that the 2005 ICP made the poor world poorer relative to the US than previously thought, and the 2011 PPPs will do the opposite resulting in decreases in poverty if the dollar value of the global line is held constant. Alternatively, if the poor country lines are held constant, world poverty will likely not change by much, but the global line expressed in international dollars will rise. Either way, the results will be hard to explain. Some suggestions were offered to the WB regarding the calculation of the global poverty line. One was to continue to use the average of poor country lines, but compute a weighted average using the number of poor people in each country as weights. This would prevent the exclusion of countries such as India. A second was not to change the construction of the poverty line at the same time as using a new ICP, because the interpretation of the outcome becomes very difficult. The Global Office was encouraged to be more proactive in explaining the use of PPPs for poverty analysis.

8. Results review

The Review Group was provided a detailed review of the linking methods for housing, construction, and productivity adjustments. The dual participation of Egypt and Sudan in the Africa and Western Asia comparisons and the steps to link the Pacific and Caribbean islands and Iran were also reviewed. The Eurostat-OECD comparison used methods for education, construction, and housing specific to their region; so the Review Group examined the linking methods to link them to the rest of the world.

The Review Group noted that the process has become increasingly complicated with near heroic steps taken to include as many countries as possible while allowing each region flexibility for their own comparison. Given the complexity, the Global Office was commended for forming the Computational Task Force to ensure the computational steps were correct and transparent.

Some final comments regarding the results review are:

- The final results for 2011 are of significantly better quality than the 2005 results because of the use of improved methodology. Not to be overlooked is the fact that the global office, regional coordinators, and country representatives had the benefit of experience gained from the previous round which was reflected in more thorough data validation and implementation of the more complicated estimation methods.
- It was noted that Russia, Egypt, and Sudan each appear in two regions. The summations to aggregate totals across regions need to exclude the duplicative numbers with appropriate footnotes for the data users.
- The term “international dollar” can be confusing and needs to be more carefully explained.

9. Conclusions

The Results Review Group has evaluated the technical decisions that underlie the results of the 2011 International Comparison Program (ICP), the simulations and analysis of changes in methodology, and the final results. The conclusion is that there are no further steps or computations that would have any substantive impact on the final results.