

## Incorporating New Partial ICP Benchmarks into the World Development Indicators

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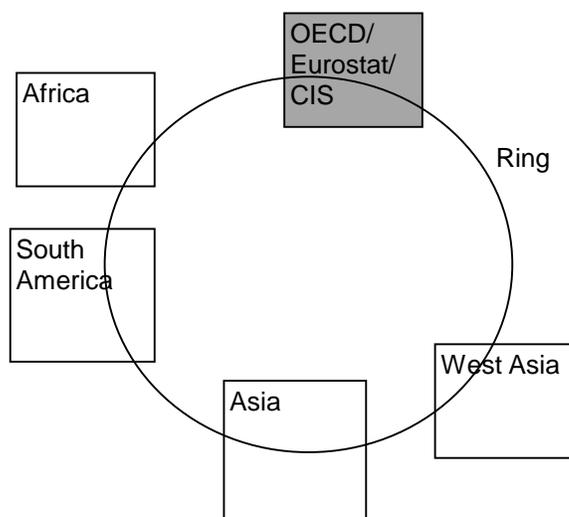
## *Introduction*

Updating existing databases with new ICP benchmarks represents a major problem, whether update is global or partial. Technically, each partial update would be incompatible with the remaining [not updated] PPP estimates. In this note only partial updates are discussed, such as the 2008 Update for the OECD, Eurostat and CIS ICP regions which replaced 2005-based data for those countries in the database.

According to an agreement with the regional organizations, the new data supersede the previously existing ones. So far each time new data come in, they mechanically replace the old ones. The rationale for this is that both comparisons, old and new, have the same base country – the US. However, even though the US is nominally the base country for both comparisons, it is important to keep in mind that the actual inter-regional linking procedure in 2005 linked regions, and not the countries.

Briefly, the inter-regional linking procedure in 2005 established inter-regional linking factors based on the price data for 18 Ring countries from all regions adjusted for intra-regional PPPs, basic heading by basic heading. Based on the linking factors, the regional “super-countries” were assembled from the respective regional countries, and then linked as individual entities in a global EKS [Elteto-Koves-Szulc] procedure<sup>1</sup>, where each region participated as one block.

**Figure 1. Ring countries connecting ICP regions in 2005**



<sup>1</sup> See Chapter 14, *ICP Handbook* for a detailed description of the linking method.

Thus, in fact the base for the 2005 ICP comparison was the OECD/Eurostat region, and not the US, which was only a reference country for presentation of the results. Strictly speaking, incorporating new benchmark amounts to adding new information to a previous multilateral comparison, and should lead to recalculation of the whole dataset. However, it would be an extremely difficult to implement this approach as one would need detailed information on GDP component deflators and structures in order to bridge the two comparisons. Thus, in this note we utilize a simpler procedure of temporal interpolation where countries' PPPs are extrapolated on the basis of their relative GDP deflators [the method used in the WDI database].

***Principles of incorporating updates:***

It is obvious, once we introduce new data into a two-stage ICP comparison, two things happen: (1) position of the reference country (US) within the base region (OECD/Eurostat) changes, and (2) position of the base region vis-à-vis other regions changes as well. Each of the two changes would influence PPPs of countries in other regions.

Let's start with the second part. This part in turn can be broken down into two effects: (a) *structural* effect, due to changes in price and expenditure structures of the base region that occur due to changes in its member countries, and, more importantly, (b) *scale effect*, due to changes in levels of real expenditures of OECD region vis-à-vis other regions.

Unfortunately, we do not have detailed information to re-estimate the second part, as no other regions provided new data, and the only thing we can assume that the OECD/Eurostat region's position vis-à-vis other regions as a whole [effect (b)] does not change with a new update. Effect (a) of the second part changes will, probably, be of the second order, as its effect on the OECD/Eurostat relative position would be only due to changes in regional price and expenditure mixes that would occur due to changes in member countries of the base region, which should be relatively minor. Effects (a) and (b) obviously cannot be estimated without new data from other regions.

Thus we can only estimate the first part of the PPP effects. In practical terms, this amounts to the following:

- (1) Compute the sum of GDPs of the OECD/Eurostat countries as reported in 2008 regional comparison –  $GDP(OECD)_{2008}$ .
- (2) Compute the sum of GDPs of the OECD/Eurostat countries as reported in 2005 regional comparison, extended to 2008 with relative GDP deflators [as per the WDI extrapolation methodology] -  $GDP(OECD)_{2005 \text{ extrapolated}}$ .
- (3) Equate the two sums:  $GDP(OECD)_{2008} = GDP(OECD)_{2005 \text{ extrapolated}}$ .
- (4) Estimate the adjustment for the reference country [US] position within the OECD/Eurostat region as the difference in US relative position in  $GDP(OECD)_{2008}$  and

GDP (OECD)<sub>2005</sub> extrapolated . This comes to the ratio of 37.21% [2008] to 38.80% [2005 extrapolated to 2008], which is 95.9%.

- (5) Apply the adjustment factor from item (4) to the countries outside the OECD/Eurostat region.

Keeping the regional GDP totals and redistributing them across countries according to regional fixity corresponds to the idea of regional fixity that is at the foundation of the ICP linking methodology. The resulting adjustment factor for PPPs comes to minus 4.1% which would translate to corresponding changes in GDPs for non-OECD/Eurostat countries [an increase of 4.3%]. The adjustments are non-trivial but once implemented they would make the WDI database more consistent.

It is clear that in order to make incorporating of new partial benchmarks even more robust, additional information needs to be brought in and incorporated into calculations. This would include detailed information on GDP structure and deflators that would allow re-running the ICP benchmark with thus enriched data. Until then becomes possible, at least the first part of adjustments needs to be implemented.