



## **Fine-tuning global linking procedures in 2020**

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## Background

The ICP estimates the output of the world aggregating over basic heading PPPs or price levels and expenditures for its principal countries and regions. This step is only to obtain regional GDP totals in a common reference currency, customarily the US dollar. These regional totals are then reallocated (the *R* in *CAR*) in each region according to the share of each country in their regional comparison. There are two possible sets of country BH PPPs that could be used in carrying out the initial aggregation, a) a set using only the core prices from the GCL or b) those using the core prices to modify the regional basic heading PPPs.<sup>1</sup> This note sets out why I prefer a) to b), the current practice.

### A. Approach b) in 2011 and 2017

In the past two rounds the GCL prices were used to compute linking factors for the basic headings as described (<http://pubdocs.worldbank.org/en/182441487094194756/OG-ch26.pdf>, pp.455-6) in the *Operational Guidelines and Procedures for Measuring the Real Size of the World Economy*. From the manual the four steps slightly abbreviated are:

Step A1. Calculate the regional BH PPPs based on both the regional and GCL items, using either the EKS\* method or the CPD-W method.

Step A2. Convert all GCL item prices in national currency for the economies in a region into a common regional numéraire using the economy's regional BH PPPs from step A1.

Step A3. Using the CPD-W method, process the converted GCL item prices for all regions resulting from step A2 to generate the interregional linking factors for the basic headings. These interregional linking factors are interregional BH PPPs, expressed in the regional numéraires to the world numéraire.

Step A4. To calculate the global economy's PPPs to the world numéraire and ensure fixity of an economy's regional BH PPPs in the global comparison, multiply each economy's regional BH PPP from step A1 by the interregional linking factor resulting from step A3. The PPPs derived from this step are the global BH PPPs

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<sup>1</sup> This note only concerns the basic headings of the GCL.

with regional fixity. the country aggregation with volume redistribution procedure, CAR-volume), was used to obtain real expenditures (hereafter referred to as volumes) and indirect aggregated PPPs with regional fixity.<sup>2</sup>

My simplified description of the process is given in a footnote.<sup>3</sup> The next section sets out why I do not think introducing regional PPPs adds anything to the main goal of obtaining world GDP and the regional shares to be distributed according to the regional comparisons.

## **B. What are the differences between Regional Prices and the GCL?**

The Global Office does not normally deal with non-core prices. In carrying out their regional comparisons, global and regional prices are employed because use of more characteristic prices will improve the comparisons between countries within a region. What are the differences between regional price lists and the GCL? 1) addition of items not in the GCL but common across the region or a sub-region; 2) modification or elimination of some specifications from the GCL; or 3) introduction of modifications of a basic heading such as creating a sub-heading and/or weights at the item level. Such differences between the prices a region uses in its regional comparison and the core prices submitted to the GO would be expected to produce small differences between country coefficients at the regional level and the country coefficients using only the GCL.

In my view a CPD using regional prices is likely to move the regional linking in the wrong direction. That is any additional regional prices are items that are less likely to help us link regions because they are items that did not make it to the GCL. Similarly, if regions, or some countries, drop core prices or modify their specification it is likely to reduce the quality of linking between regions. This is why I think that introduction of regional PPPs in current practice adds unnecessary steps that if anything, detract from the purpose of linking through core prices.

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<sup>2</sup> The use of "fixity" in A4 is not really correct. The transformation described only provides a set of country PPPs that are in turn used in an aggregation that after reallocation preserves regional fixity.

<sup>3</sup> The procedure begins with the regional PPPs for a basic heading like flour in Africa where the PPP would be denominated in national currencies per rand, the currency of the reference country South Africa. All GCL item prices for flour in Kenya from would be divided by the BH regional PPP for flour of Kenya. This step would move the core price of a kilo of maize flour in Kenyan shillings to a price in terms of Rand. Step 3 is to run a RPD (where region replaces country) on the rebased core prices with the estimated basic heading and regional coefficients as output. These regional coefficients are termed linking factors for the basic heading. Step 4 in current practice multiplies these linking factors times country's regional PPP for each basic heading. The now modified country PPPs and the PPPs for the other BHs are combined with the expenditures and are aggregated by EKS to the GDP for each country. This provides world and regional GDPs that can then be distributed by each region based on their final regional comparison.

### C. The case for using only prices from the Global Core List (GCL)

A principal role of the ICP is to estimate world GDP and the regional shares in a reference currency. This requires PPPs (or price levels, PLs) for all basic headings in combination with the BH expenditures. The GCL provides sufficient information to estimate PPPs for all the GCL basic headings. First a CPD is run for each BH over all countries in the main ICP regions. This provides country PPPs or price levels, which along with expenditures, is all the input required to aggregate to the GDP level in a reference currency. Essentially what I propose would drop steps A2, A3 and A4 in current practice. The computation of basic heading PPPs using core prices would take the place of the current step A1, computation of regional PPPs.

In the following section of the **Operational Guidelines** on "Linking at the Aggregate Level" the following is the description of what is done in current practice.

The Gini-Éltető-Köves-Szulc (GEKS) aggregation method, with further redistribution of regional volumes in accordance with an economy's regional volume shares (known as the country aggregation with volume redistribution procedure, CAR-volume), was used to obtain real expenditures (hereafter referred to as volumes) and indirect aggregated PPPs with regional fixity.

This step would be the same in either approach.

### Conclusion

Clearly countries should use their preferred regional price list for linking the countries in their region to obtain their best estimate of the share of each country in the total output of their region. But this is not a justification for adding regional prices to the linking process across regions when a perfectly satisfactory set of core prices are available to do the job. Perhaps we are where we are now because the **ring** country approach was a necessity in 2005 because regional comparisons had been completed before the GO could coordinate linking. But that is not where GO started in 2011 and 2017, or will start in 2020, so my question is why do we need any additional information from the regions when we have core prices from all countries. After all, the core prices serve only one purpose in my mind, namely to provide inputs into a CAR aggregation that allows us to estimate the GDP shares of the world regions that each region can in turn allocate to their countries according to their regional results.