International Comparison Program

[07.03]

Within Region Basic Heading PPPs

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5th Technical Advisory Group Meeting
April 18-19, 2011
Washington DC
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Overview

The purpose of this paper is to provide background regarding the choice of methodology used to estimate basic heading PPPs for the ICP regions for ICP 2011. The TAG at the October 2010 meeting recommended that the CPD method be used to estimate within region basic heading PPPs. This recommendation needs to be revised to reflect that the countries in the ICP regions will be classifying each product as “important” or “less important.” This provides a form of weighting in the CPD similar to that used by the Eurostat-OECD classification used for representativity, but simpler in application.

There are also some choices about how the importance classification enters into the estimation of the BH PPPs. There are two choices—one using representativity/importance as a dummy variable—the other using weights. Both are extensions of the CPD method. A brief review follows and concludes with a recommendation for the TAG to consider. Background material will include Chapter 4 of the ICP Book “Computation of Basic Heading Purchasing Power Parities within regions and between regions.

Country Product Representativity Dummy (CPRD) Model

The ICP regions for the 2005 ICP initially followed the Eurostat-OECD practice of classifying each product’s price as representative or non-representative. In order to ensure that countries price enough products to provide sufficient overlap, they are asked to price products that may be comparable, but not representative of its consumers’ purchasing patterns. This can be a potential source of bias because the non-representative products may not be widely purchased and have higher prices than the representative products. For those reasons, this classification is used in the basic heading estimation process in a way to remove this bias. This was the method recommended for the 2005 ICP for aggregation of product PPPs to the BH level within regions.

In order to use the representativity classification, an additional dummy variable (R) is used indicating whether the price is representative or non representative. The estimated PPPs are adjusted for the upward bias caused by non representative products. While the basic CPD model assumes that the price ratios are the same for all products, the CPRD model allows the ratios of prices to vary between countries depending on whether the products are representative (or non representative) in all countries or representative in some countries and not in others.

The addition of the representativity indicator adds another dimension to the analysis with three explanatory variables in the regression—country—product—and representativity.
This highlights the fact that the representativity classification should be done correctly as it carries the same weight in the regression as do the country and product parameters. As learned in 2005, this is not easy for countries with no previous experience with the distinction between representative and non representative. As a result, this classification could not be used in several of the ICP regions because countries were not able to consistently apply the definition resulting in a lack of correlation between price levels and the representativity indicator.

For that reason, the simpler definition of importance will be used in 2011.

**Country Product Dummy model with weights for representativity or importance**

The weighted CPD model recognizes that representative or important products usually have a larger expenditure share than do non representative or less important products. Approximate weights can be applied; for example, a representative product could receive twice the weight of a non representative product. A weighted least squares method is used to estimate the PPPs.

**Conclusion**

A subjective process is used to classify products as either representative or important for either the CPRD or the weighted CPD methods. The weighted CPD takes this one step further by adding an arbitrary weight of 1.0 for non representative or less important products and a weight of something greater than 1.0 for representative and important products.

A paper by Yuri Dikhanov on “Assessing the Efficiency of Elementary Indices with Monte Carlo Simulations” showed that the CPRD was found to be superior to other CPD and GEKS style indices, especially with sparse price matrices.

It is also important that the method to estimate within region PPPs be consistent with that used to estimate the between region PPPs needed to link the regional results using the prices from the core list of products. In both cases, it is critical that careful attention be given to the classification of importance and to include it as an element of the data validation.

The recommendation is that the CPRD which will treat representative/important as a dummy variable in the CPD to estimate within region BH PPPs.