Abstract for "Econometric Estimation and Aggregation of PPP Panels for Components of GDP"

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Since the ICP produces PPP estimates for the components of GDP (consumption (C), investment (I) and government (G)) for only benchmark countries in benchmark years, extrapolation of the PPPs for components of GDP to non-benchmark countries and years are needed. This paper deals with a number of issues associated with this extrapolation, as well as a method to aggregate the estimates to measure PPP for GDP. The approach is an extension of the method proposed by Rao et al. [2010]-RRD for aggregate GDP.

The contributions of the paper are in three areas. The first is on the specification of structural models to explain the price level of the components of GDP. There are no ready-made results on the structural determinants of the price level for C, G and I. Therefore, we bring in elements of the macroeconomic literature to define the economic models for C, I and G. Through these economic models, groups of variables are identified and included in the econometric estimation of the price level for each component. The second contribution is on econometric methodology. Here we propose to use a bootstrap estimation approach to incorporate the statistical uncertainty associated with the estimation of a subset of the parameters of the model that was ignored by the RRD method. The approach is an adaptation of a recently proposed bootstrap method [Rodriguez and Ruiz, 2012] to the estimation of the price level models. The paper makes use of the GEKS as well as the GK methods to obtain PPPs for GDP for each country and time period by aggregating the estimated PPPs of each component.

Preliminary results on the estimation of the PPPs for the three components show some common features: the use of a spatial error structure does not signicantly change the point estimates; however, standard errors are reduced; the spatial effect is smallest in the estimation of PPPs for Private Consumption and largest in those of Government Expenditure. Empirical results are presented in the form of panels of PPPs for C, G and I for 181 countries covering the period 1970 to 2010.

References

- D. S. P Rao, A.N. Rambaldi, and H.E. Doran. Extrapolation of purchasing power parities using multiple benchmarks and auxiliary information: A new approach. The Review of Income and Wealth, 56(S1):59–98, 2010.
- Rodriguez and E. Ruiz. Bootstrap prediction mean squared errors of unobserved states based on the Kalman filter with estimated parameters. Computational Statistics & Data Analysis, 56:62–74, 2012.