

Abstract for Parallel Session 8A: Price Comparisons

An Economic Approach to Measuring Real Income Levels of Regions of the United States

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Cross-sectional techniques for estimating relative real income levels of countries or areas have traditionally been based on the axiomatic approach to index numbers (the Geary method, for example), the stochastic approach (the weighted CPD method, for example) or a combination of axiomatic and stochastic approaches (the GEKS method, for example). Recently, however, Neary (2004) has developed an extension of the traditional Geary technique—which he terms the “Geary Allen International Accounts” (GAIA)—that applies the economic approach to the problem of inter-area comparisons. The GAIA method preserves key analytical advantages of the Geary method while avoiding the biases from Gerschenkron effects that tend to arise with the Geary method. Furthermore, the use of the economic approach gives the estimates a clearer interpretation. The economic approach can also shed light on the problem of inconsistency between the changes over time in the cross-sectional measures of the relative real incomes and the changes in real income measured directly using each area’s own prices (Feenstra, Ma and Rao, 2009).

We first use detailed data on quality-adjusted prices from the US CPI program to estimate real income for 38 regions of the US in 2005 and in 2006 based on traditional axiomatic and stochastic approaches. Next we estimate GAIA measures of real income for the 38 regions in each year based on fitted parameters from an AIDS model of economic behavior. We plan to use the regional estimates from this project as a building block for developing measures of real personal income for states.

Discrepancies between growth rates implied by areas’ own CPIs and those implied by estimates for different years from cross-sectional techniques are a frequent problem in the application of these techniques, and this problem also occurs with our cross-sectional estimates. To explain one source of these discrepancies, we compare Allen indexes of real income that use each region’s own prices and with ones that use GAIA (or Geary) prices. (Because the AIDS model is non-homothetic, the Allen index of the real income growth of a region evaluated at the prices of that region will differ from the Allen index evaluated at the GAIA or Geary prices.) In addition, the GAIA approach allows us to combine information from cross-sectional and time series indexes in a way that yields economically meaningful sets of estimates of real income of regions in years that are transitive over space and time.