

Appendix A8

Angus Deaton's Alternative Procedure in the Case of India

Angus Deaton (2003), with additional explanations in Angus Deaton and Alessandro Tarozzi (2000), uses a different procedure to establish provincial-level (state-level) price levels for India.

(i) Angus Deaton's price data consist solely of unit values, i.e., expenditures divided by quantities. A potentially severe shortcoming of this procedure is that it cannot account for quality differences between different versions of one product. Angus Deaton and Alessandro Tarozzi describe a number of procedures they use to minimize the impact of this shortcoming. In contrast, we use actual prices whenever possible and unit values only when actual price data are not available.

(ii) Angus Deaton does not replicate total living expenditures. He covers only those products (some foods and energy) for which he has expenditure data. Depending on year, the products covered account for one-half to three-quarters of nationwide rural or urban per capita living expenditures. In contrast, our price level approximates total living expenditures.

(iii) Angus Deaton uses household data and aggregates them to the provincial (state) level; he derives provincial-level (unweighted) average budget shares and median unit values. In other words, he uses (1) "democratic" weights in deriving a provincial price level (unweighted average of household budget shares) combined with (2) median unit values. The expenditure weights (average budget shares) in deriving the price level are (3) province-specific, rural or urban.

In contrast, we (3) establish a nationwide uniformly defined basket in terms of quantities (and adjustment factors); we have a rural, urban, and joint basket. We create (1) a "plutocratic" price throughout (except that in the case of the joint basket a few products are priced at a democratic price because a plutocratic price is not possible, see the appendix on the joint basket). Our (2) expenditure shares are means rather than medians and the official quantity and price data we use are presumably also means; whenever we need to construct a quantity or price, these are means.

In other words, we want to know in how far the typical price of the typical product varies across provinces. To that purpose, we establish the nationwide typical (average) basket and price it across provinces; our plutocratic procedure matches the BLS's practice in deriving the U.S. CPI. Angus Deaton is concerned about poverty, which probably explains his focus on the *median* unit values, the use of *province-specific* weights (that allow local substitution effects), and the "*democratic*" derivation of provincial weights.

(iv) Angus Deaton provides provincial-level rural and urban price levels for three different years (1987-88, 1993-94, and 1999-200). With data on three years, he has a choice of indices to measure price changes over time, including the Törnqvist index. In contrast, we are only able to construct the provincial price level in one year, 1990, and rely on the official CPI to obtain price levels for other years. As outlined in the appendix on the derivation of price levels in years other than 1990, the Chinese official CPI either relies on the same weights for 6-8 years at a time, or changes weights more frequently; prior to 2002, the BLS used

approximately decennial weights for the U.S. CPI. The limited checks that we are able to make suggest that weights do not change drastically over time. Angus Deaton and Alessandro Tarozzi (2000) in their Table 2 report their expenditure weights for a few products in two Indian states in 1993-94 and 1987-88; the differences in weights over this 6-year period do not appear terribly large, and 6-8 years appears the maximum duration of a set of weights in the case of China's official CPI.

Angus Deaton's procedure could be implemented for China but would yield only very limited results. The, for example, 1988 urban household survey asked for the quantities and prices of three categories of staples and seven types of other foods; this compares to the approximately 200 different types of food products in the 50th round of household surveys in India in 1993-94 (Angus Deaton and Alessandro Tarozzi, 2000, Table A1). In China, the resulting individual ten unit values would likely cover a great variety of one product, rather than a narrowly defined product specification, and the few products covered would likely only account for a small share of total living expenditures. (The 1988 household survey also asked for expenditures on housing, energy, transportation, and health care, without quantities.) The 1995 urban household survey seems to have abandoned quantity data altogether and instead covers the expenditures on a larger number of products.