

## **China's growth miracle — still awaiting the great leap forward?**

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The economic development of China has been tremendous since reforms were initiated in 1978. The World Bank reports an average growth rate of 9.9 percent as well as a significant poverty reduction in this period. The poverty measures and growth rates are, however, subject to debate and uncertainty (Chen and Ravallion, 2008; IMF The World Bank, 2009). A lot of attention has been given to how to compare Chinese incomes to other countries, and the welfare distribution within the country has not received less attention. Whereas international comparisons as a standard practice incorporate measures for dealing with between-country price differences, the issue of within-country price differences is often ignored (Deaton and Heston 2010; Deaton 2010; Hill 2010). But the cost of living matters a great deal when measuring poverty, and intra-country price levels should be a part of the poverty discussion.

When considering the geography and large population of China, it seems like a rather strong assumption to assume that price levels are equal across regions. First, prices are likely to differ across provinces due to differences in resources and history; Alwyn Young (2000) documents that provincial protectionism evolved throughout the reform process, which contributed to increasing price level differences. Second, price variation should also be expected to vary within provinces; Brandt and Holz (2006) suggest that urban prices are systematically higher than those in rural areas. Hence, failing to adjust for regional price levels may have a significant impact on poverty estimates. More specifically, as we expect prices to be relatively lower in rural areas, this might lead to an overestimation of rural poverty relative to urban poverty.

Measuring the cost of living usually requires compromising between data availability and the consistency with consumer preferences. The construction of the CPI involves well-known problems such as the quality, substitution, outlet and weighting bias (Hamilton 2001; Brandt and Holz 2006; Almås 2011). Hamilton (2001) proposes a method to deal with this; to make use of Engel's law to estimate bias in the consumer price index. Engel's law states that a household's budget share for food is inversely related to household real income. This regularity implies that there is a unique relationship between the budget share for food and total expenditures. Hamilton's main idea is to see the potential in applying Engel's law to measure the cost of living. If two households with identical characteristics, observed in different periods, have the same budget share for food, they should also have the same real income. As real incomes are produced by deflating nominal income by the CPI, a difference in their measured real incomes reveals a CPI bias.

By acknowledging the analogy between the SPI and the CPI we are able to deal with the problems related to the construction of the SPI and CPI directly - by applying the method proposed by Hamilton to estimate spatial price levels for Chinese provinces. This allows us to

investigate whether provinces have different price levels, and furthermore whether the price levels differ according to whether a household is located in the urban or rural part of the provinces. Engel's law provides the theoretical background, and the method is based on the same principles as Hamilton's method. Consequently, the idea is that if two identical households located in different provinces have the same budget share for food but different nominal income; this reveals a price level difference.

In this paper we identify Chinese spatial price indices (SPIs) by applying a simple, but empirically robust economic regularity, namely Engel's law, on household data. Incomes are adjusted using our spatial price measures providing new estimates of real income. Subsequently, new inequality and poverty estimates are calculated and compared to those not adjusted for SPIs, i.e., those based on nominal incomes. The chosen approach in this paper has two clear advantages. For one, even in cases where regional price data actually exists, the construction of a SPI is a time-consuming and a complex procedure. The Engel curve approach however, is much more straightforward and less tedious approach. Second, and perhaps more importantly, the Engel curve approach infers cost of living directly from consumer behaviour. The strength of this analysis is the inclusion of a large number of rural as well as urban households covering several provinces in all of China's regions. This allows for an investigation of the relative price levels of the less advanced economic regions compared to urban areas.

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