

## Reassessing China's Growth by Tight Bounds of "True" Index Number

Carlo Milana  
University of London, U.K.

Harry Wu  
Hitotsubashi University, Japan

This paper is aimed at reassessing China's economic performance over both the planning and the reform periods by using a methodology that is free from a number of strong or unrealistic assumptions of traditional methods and models. A centrally planned economy or an economy that is heavily intervened by government like that of China featuring limited free-market characteristics can be more appropriately analyzed with a method that does not rely on the strong hypothesis that factors of production are always rewarded in relation to their marginal products.

The analytical approach used here is developed starting from Afriat's original methodology. With no a priori assumption on economic behaviour and efficiency in factor allocation, it allows us to reconstruct tight upper and lower bounds of numerical values taken by the "true" index number. The constructed bounds of all possible admissible values of the "true" unknown index satisfy all Irving Fisher's requirements including transitivity (as theoretically predicted by Samuelson and Swamy, 1974).

The proposed methodology will be applied to the available data on the Chinese economy including, in particular, the sectoral data from Wu Chinese Economy Database covering the period 1949-2009. It will be possible to assess how the official estimation of the real GDP and its components fits with the computed "tight" bounds or exhibits a rather different dynamics.

The results obtained will allow us to revisit some important questions concerning the Chinese economic growth during the early centrally planned period and the more recent market-oriented regime. The research questions include the following:

1. Was the seemingly glorious high growth figures during the central planning period just statistical artefact? - A question that economists in the West asked for the growth of the Soviet Union and the Eastern Block.
2. Did the industrial sector really grew faster in the reform period than in the planning period rather than the other way around after shifting from state-investment driven heavy industries to more market-oriented labour intensive industries?
3. If China's post-reform development is basically following the East Asian model of development like the Japanese in 50s-70s and Koreans and Taiwanese in 60s-80s, why China grew much faster?
4. Did the economy really achieve nearly 8% growth over the Asian financial crisis in 1997-98?
5. How did the Chinese economy respond to the 2008-09 global economic crisis? Is it true that it remained intact and maintained high growth 9-10% as before?
6. Why (weighted) regional GDP estimates give much faster growth than national estimates?