A consistent set of multilateral productivity approach-based indicators of price competitiveness — Results for Pacific Rim economies[☆]

Christoph Fischer [a, *], Oliver Hossfeld [a, b]

[a] Deutsche Bundesbank, Wilhelm-Epstein-Str. 14, 60431 Frankfurt, Germany
[b] Leipzig Graduate School of Management, Jahnallee 59, 04109 Leipzig, Germany

ARTICLE INFO

ABSTRACT

We propose a novel, multilaterally consistent productivity approach-based indicator to assess the international price competitiveness of 57 industrialized and emerging economies. It is designed to be a useful assessment tool for monetary policy authorities and, thereby, differs from previously proposed indicators, which are hardly applicable on a day-to-day basis. Special attention has been paid to an appropriate selection of price and productivity data in levels as opposed to indices, and to the treatment of country fixed effects when interpreting currency misalignments. The discussion of the results focuses on Pacific Rim economies. At the current juncture, and in contrast to the prevailing view, we find US price competitiveness to be above and China's price competitiveness to be below its derived benchmark.

© 2014 Elsevier Ltd. All rights reserved.

1. Introduction

Indicators of international price competitiveness for entire economies are widely used in economic policy circles. They are usually computed as the deviation of a current real exchange rate from a benchmark level. The challenge for the economist consists in designing a sensible and widely accepted benchmark level or equilibrium rate of the real exchange rate. Ideally, such a benchmark level needs to have a set of desirable properties: (i) It should be based on a theoretically convincing approach, so that it is widely acceptable as a norm and can be easily interpreted. (ii) The benchmark level should be general in the sense that it is computable for a large group of countries. (iii) The set of benchmark levels should be plausible, robust, and above all consistent across countries. (iv) To allow their use by policymakers, the benchmark levels should be computable at short notice, while at the same time reflecting the most recent state of economic affairs.

The present study proposes a methodology for computing equilibrium exchange rates which are supposed to fulfill all these requirements. Conceptually, the methodology is based on the productivity approach, which is mostly associated with Balassa (1964) and Samuelson (1964). To be sure, a simple empirical application of the productivity approach would not be novel. Commensurate with the objective of making the derived indicators of competitiveness a useful policy tool, however, the methodological approach of the present study includes a combination of several characteristics which, in our view, renders it a valuable contribution to the literature.

First, price and productivity data in *levels* are employed as opposed to using *indices*, as is frequently done in the respective literature. Level data are especially important in the present context. (i) Index levels are not comparable across countries. Since an equilibrium real exchange rate is basically a cross-country concept, a pure time series-based assessment foregoes potentially essential information. (ii) As is shown below, the theory suggests a relationship between relative productivity and relative prices in levels.

Second, the analysis rests on a large panel of data spanning 57 developed and emerging economies and up to 32 years. A large data set is likely to contribute to finding meaningful and robust results as indicated by Bahmani-Oskooee and Nasir (2005) in their summary of estimation results obtained in previous studies on the productivity approach.[1] In conducting a panel analysis of price and productivity data in levels, the empirical approach of the present paper is closely related to Cheung et al. (2007, 2009) and Maeso-Fernandez et al. (2006).[2]

In contrast to these studies, however, it is a third distinctive characteristic of the present analysis that it uses the bilateral estimates to calculate multilateral equilibrium rates, which are multilaterally consistent for all countries. Cheung et al. (2007) have already noted that "… trade weighted rates are to be preferred to bilateral rates since the reliance on the latter can lead to misleading inferences about overall competitiveness" although they restricted their econometric analysis to the bilateral case.

Fourth, the analysis contains a discussion of the treatment of country-specific fixed effects obtained in the panel real exchange rate regression. This issue emerges as an inevitable consequence of the methodological approach chosen (cf also Phillips et al., 2013; Maeso-Fernandez et al., 2006). Against this background, it is also examined how robust the assessment of currencies' misalignments is with respect to this choice.

Fifth, a simple projection method is proposed in order to enable an up-to-date daily assessment of price competitiveness, which is of particular importance for policymakers.

To sum up, the study proposes a set of competitiveness indicators which have a solid foundation in economic theory, are multilaterally consistent, reasonably robust, up-to-date, straightforward to compute and, therefore, useful for policy analyses on a day-to-day basis. This distinguishes our derived policy tool from several popular indicators, which typically lack at least one of these "ingredients".

---

[1] According to Bahmani-Oskooee and Nasir (2005), other contributing factors include the omission of developing countries as well as a consistent data set in the sense that the variables are constructed in the same way for all the countries and are, ideally, obtained from a common source. Since our sample excludes developing countries and all data used have been compiled by international sources using the same methodology for all countries, these two requirements are also fulfilled in our study.

[2] The benefits of using price level data are also emphasized by Thomas et al. (2008, 2009), who introduce the weighted average relative price (WARP), which is a multilateral relative price level similar to the one defined in equation (3) of the present analysis.