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# Real equilibrium exchange rate in China is the renminbi undervalued?

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**Abstract**

We give some insights about the possible undervaluation of the Chinese currency. On the one hand, we address the issue of the "Balassa effect", by comparing China with other emerging countries. We try to measure the gap between the evolution of the real exchange rate in China and what would have resulted from a "normal" Balassa effect. For doing this, we use two methods regression on real exchange rate (RER) in level and panel cointegration on RER evolutions. We evidence a lack of Balassa effect in China, consistent with the fact that the real exchange rate did not appreciate despite the rapid catching-up. On the other hand, we use a FEER (*Fundamental Equilibrium Exchange Rate*) method to calculate the real effective exchange rate consistent with sustainable current accounts. Our results show that China's RER was undervalued between 2002 and 2005 in effective terms and even more against the USD. However, we also show that a revaluation of the renminbi would only have a small effect on the US external deficit.


*JEL classification :* F31; F33

*Keywords:* Renminbi; Balassa effect; BEER; FEER

## 1. Introduction

China's exchange rate regime was a de facto peg to the dollar, from 1995 to July 2005, as the exchange rate of the renminbi (RMB) against the US dollar (USD) did not changed over this period. The shift to a managed float and the 2% revaluation of the RMB, announced on the 21 July 2005, has not resulted in a significant flexibility, as the RMB remains closely managed in

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narrow margins of fluctuations. As in every pegged or de facto pegged regime, the suitability of the parity could be questioned, on the grounds that it is decided by the country's monetary authorities instead of resulting of the supply and demand expressed by a large of market operators. Generally speaking, pegged currencies could be thought as more prone to misalignment, even if floating currencies also suffer from this snag (Coudert & Couharde, 2007). In the case of China, the issue has become especially important in recent years as China's role in international trade is soaring and industrial countries strive to remain competitive. The issue is also tricky, for interests at stake are clearly conflicting in the different regions of the world, which may incite some protagonists to prejudice and distorted arguments.

First, from a China's point of view, the quasi-pegged current exchange rate is justified by financial stability concerns. There are also macroeconomic reasons to a low exchange rate, such as the very weak productivity of millions of workers in China, who need to join the "modern" sector in the coming years. In this framework, the so-called undervaluation of the currency may simply be a recipe for absorbing disguised unemployment (Dooley, Folkerts-Landau & Garber, 2004). Second, from a US point of view, China's huge current account surplus with them raises the question of a possible undervaluation of the renminbi (Goldstein, 2003). China's de facto peg to the dollar also explains the reluctance of Asian countries to let their currencies rise against the dollar (Bergsten, 2004). As a result, this has impeded the necessary adjustment of the US current account deficit. Third, from a European standpoint, the fixity of the Chinese currency makes the USD adjustment burden fall on other few countries, such as the euro area, where exchange rates are flexible. This situation dampens the already sluggish growth in the area.

In this paper, we try to adopt a neutral point of view and activate the main tools available to assess the possible undervaluation of the RMB. Several papers already studied the issue, using different methods (Bénassy-Quéré, Duran-Vigneron, Lahrèche-Révil, & Mignon, 2004; Goldstein, 2003; IMF, 2004a,b; Jeong & Mazier, 2003). Here, we try to cross-check the results by using successively the two main equilibrium exchange rate approaches: BEER (Behavioural Equilibrium Exchange Rate) and FEER (Fundamental Equilibrium Exchange Rate). We start from a BEER model, as introduced by Clark and MacDonald (1998) that we estimate successively in level and in evolution. Taking stock of the results for Asia-Pacific real exchange rates obtained by Chinn (2000), we restrict the set of fundamental variables to a "Balassa effect". Comparing China with other emerging countries, we evidence the lack of real exchange rate (RER) appreciation in recent years that would correspond to a "normal" Balassa effect. We then adopt a FEER approach in order to get another idea of the existence and the size of the renminbi's misalignment. We use the NIGEM model for representing the foreign trade of China, the United States, Euro area, South Korea and Japan. We calculate the real effective exchange rates (REER) that are consistent with sustainable current accounts.

The rest of the paper is organised as follows. Section 2 gives some insights about the possible undervaluation of the Chinese currency, by using different economic indicators. Section 3 presents the Balassa effect, gives the results of estimations in level and panel data cointegration in evolution. Section 4 goes deeper into the question of undervaluation, by following a FEER approach. Section 5 discusses the results and compares them with those obtained in other studies. Section 6 concludes.

## 2. Is the renminbi undervalued? The "usual suspects"

A first bird-eye view of the situation shows that there might be some signs of undervaluation. Indeed, the "usual suspects" that characterise an undervaluation can be observed in the Chinese