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European monetary integration and persistance of real exchange rates

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ABSTRACT

The aim of this paper is to analyze whether the persistence properties of the European real exchange rates changed when their currencies joined the euro or during the monetary integration process. More specifically, we investigate whether, as a result of the single currency or the previous macroeconomic stability, nominal price rigidities have decreased and the persistence of real exchange has fallen. We test for stationarity against a change in the integration order on different competitiveness measures during the period that runs from the middle of the seventies to nowadays. The results show that the real exchange rates of the European periphery (Spain, Italy, Portugal, Greece and Finland) underwent a change in their order of integration from $I(1)$ to $I(0)$ at some time around the middle of the 1990s. On the other hand, the real exchange rates of the Central European countries, with a greater stability in the 1980s and 1990s, changed their integration order earlier, if at all, mostly during the 1980s. So, the euro seems to have had, on the whole, little influence on the persistence of real exchange rates. Only for a few countries do our findings detect a significant decrease in persistence related with the nominal convergence process.

1. Introduction

There is an abundance of empirical evidence that the volatility of real exchange rates varies across nominal regimes, being higher in floating than in fixed regimes.[1] Nevertheless, and despite great

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[1] See, for example, Frankel and Rose (1995).

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academic efforts, there is no similar consensus about the persistence properties of real exchange rates, an issue with important consequences.[2] If the persistence of real exchange rates remains during fixed regimes, it means that the arrangement is unable to discipline price behavior and, consequently, inflation rates do not tend to converge.[3] In other words, nominal rigidities thwart the adjustment which, finally, will take place in the real sector. On the contrary, if relative prices quickly adjust their differential deviations after some type of monetary agreement, real exchange rate persistence decreases, PPP holds and the real exchange rate, as a measure of price–cost competitiveness, could lose its significance for explaining trade flows. In short, the influence of monetary integration on competitiveness and, as a result, on trade functions is a key issue in international economics.[4] European monetary integration from the launch of the Exchange Rate Mechanism (ERM) to the single currency is a suitable framework in which to analyze these questions.

So, the aim of this paper is to analyze the persistence of the real exchange rate for all the countries which formed the European Union (EU-15). By using different competitiveness measures during the period that runs from the middle of the seventies, the beginning of the post Bretton Woods era, to nowadays, we apply unit root tests and tests of stationarity against a change in persistence using the novel proposal of Busetti and Taylor (2004).[5] The results show that the real exchange rates of the European periphery (especially Italy, Portugal, Spain, Greece and Finland) underwent a change in their order of integration from $I(1)$ to $I(0)$ at some time around the middle of the 1990s, when the fulfilment of the convergence criteria required more stable behavior from the more inflationary countries. The rest of the European Union countries, most of them members of the ERM from its creation in 1979, except United Kingdom (1990), Austria (1995) and Sweden (which never joined), already presented series of real exchange rates with greater stability in the 1980s and 1990s.[6] In fact, if their order of integration changed from $I(1)$ to $I(0)$, it happened during the 1980s after the creation of the ERM in 1979 or in its first stages.

The rest of the paper is organized as follows. Section 2 presents the data and methodology. The main results are summarized in Section 3. And finally, some brief conclusions are provided.

2. Data and method

We start with the well-known expression in logarithms of real exchange rate as a measure of competitiveness:

$$q_i = e + p_i^* - p_i$$

where e is the nominal exchange rate, p and p^* are the domestic and foreign prices, respectively, and the sub-index i can be xp (export price), cp (consumer price) or lc (unit labor cost). Consequently, q_i represents different ways to measure the price variables in the trade functions.

[2] Taylor (2002) analyzes a large historical panel and concludes that the persistence of deviations of real exchange rates from their purchasing power parity (PPP) equilibrium level has been fairly uniform across institutional regimes. Furthermore, the volatility due to nominal shocks is transferred to real exchange rates both in floating and fixed regimes. However, Kanas and Genius (2005) find an association between stationarity and low volatility regimes of real exchange rate as well as between nonstationarity and high volatility periods.

[3] Rogoff (1996) called the observed short-run volatility of real exchange rates together with the usually slow estimated speeds of adjustment towards their mean values a puzzle.

[4] Fountas and Aristotelous (1999) affirm that the launch of the Exchange Rate Mechanism did not coincide with an increase in intra-EU exports. Nevertheless, they forecast that the single currency will boost intra-European Union trade. Recently, Gracia et al. (2006) have illustrated this point for the Spanish case. Their findings show that the real exchange rate changed its integration order, becoming a stationary process when the peseta joined the euro as a result of Spain's previous macroeconomic stability. At that point, the significance of the real exchange rate in trade functions fell dramatically.

[5] Recent contributions of Yoon (2008, 2009) analyze changes in persistence with long-run real exchange rate series.

[6] The European Monetary System (EMS) and its associated ERM were created in 1979 by France, Germany, Italy, Netherlands, Belgium, Luxembourg, Denmark and Ireland. The Greek currency entered in 1984, the Spanish in 1989, the British in 1990, the Portuguese in 1992, the Austrian in 1995 and the Finnish in 1996. Nevertheless, the Austrian schilling was anchored to the German mark from the 1980s, to whose area of influence the Luxembourg franc, the Dutch guilder, the Belgian franc and the Danish krone also belonged.