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Competitive devaluations and the trade balance in less developed countries: An empirical study of Latin American countries



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ABSTRACT

Policymakers in less developed countries (LDCs) usually support competitive devaluations to improve the trade balance (TB). In this paper, we estimate the effects of appreciated and depreciated real exchange rates (RER) in the TB of Argentina and Brazil during the period, 1990–2010 using co-integration tests for non-stationary data and vector error correction models (VECM). The estimations confirmed the existence of a long-term relationship among the TB and the RER and foreign and domestic incomes for the countries during opposite RER policies. Based on our estimations, the Marshall–Lerner condition held during periods of more flexible and depreciated RER, and the estimation of the general impulse response functions demonstrated that devaluations in both countries did not follow a J-curve pattern in the short-term.

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1. Introduction

In this paper, we attempt to provide a new empirical contribution to understanding the relationship between exchange rate depreciation (appreciation) and the trade balance (TB) in a sample of Latin American countries, namely, Argentina and Brazil. Since the beginning of the *floating era*, conventional wisdom supports devaluations (competitive devaluations) to improve the TB of countries. On the one hand, competitive devaluations are expected to make a country's exports cheaper in terms of foreign currency, and thus lead to increasing exports. On the other hand, a decline in a country's imports is expected due to increasing prices in the domestic currency. Based on this simplistic equation, policymakers in less developed countries (LDCs) often support competitive devaluations to increase exports and to plan import substitution programs. However, despite the vast empirical evidence that devaluations can cause significant and sustained improvement in the TB, this causality remains mixed. Hence, the elasticity-price approach seems to contribute partially to a nation's competitiveness policy.

It is not uncommon that countries facing a macroeconomics crisis resort to currency devaluation as a key factor in stabilization programs when they face external imbalances. The expected impact of devaluation (appreciation) is to decrease (increase) the relative cost of domestic labor (priced in domestic currency) and materials, and hence, to increase exports and decrease imports. In other words, if a country's currency is devalued, a resulting decrease in prices should increase the quantity of exports and decrease the quantity of imports, but the trade balance can only improve if the export or import quantities respond sufficiently to offset the deterioration in price.

However, let us consider the following example. Britain's trade deficit has been growing over the last 20 years, but has worsened since 2008. Between 2008 and 2009, the sterling depreciated by 25% against trading partners' currencies to

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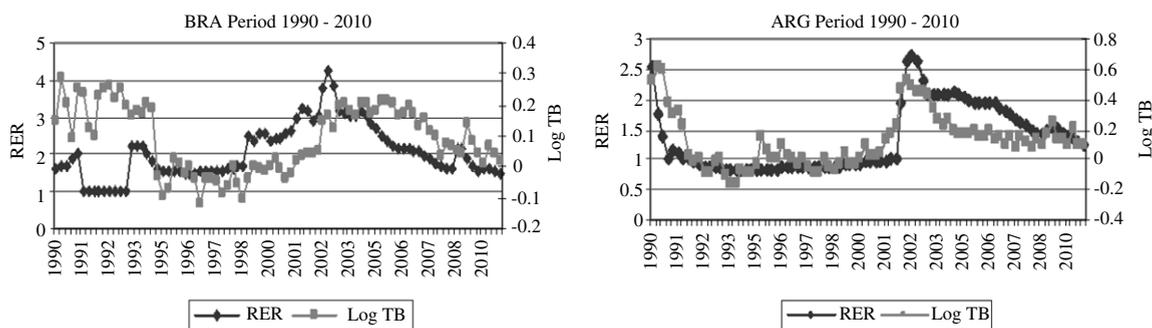


Fig. 1. Correlation between RER and TB of goods during the period 1990–2010.
Source: International financial statistics.

mitigate the country's macroeconomic imbalances. A competitive devaluation was expected to support domestic producers, more precisely, to produce a direct impact on labor costs (wages) to lower export prices. However, exports deteriorated and, consequently, the current account continued to fall by more than £100 billion per year since 2011. Britain's external performance after the sterling depreciation policy suggests that the price-elasticity analysis reflects a partial view of the factors influencing the TB behavior. Certainly, several factors are associated with the improvement of the TB, such as high levels of productivity, high technological content exports, and rising commodity prices.

The contribution of this paper is based on the specific historical context of the country samples under analysis: Argentina and Brazil. Both countries have commodity-based economies; however, they are highly committed to the industrialization of their economies. During the period under analysis (1990–2010), the countries' exchange rate policies have changed in response to economic crisis, mainly with the expectation of improving external indicators. However, during periods of high depreciation of the domestic currency, the external performance showed unexpected results. Fig. 1 shows that the TB does not follow the expected theoretical behavior through time. For instance, the TB in Brazil showed the highest performance during the period of domestic currency appreciation (2000s) rather than the period of strong depreciation (1990s).

The main theoretical framework used to explain the effects of currency depreciation in a country's TB is formally studied through the use of the 'J-curve' effect for the short-term, and the Marshall–Lerner (ML) condition for the long-term. The J-curve effect indicates that currency depreciation improves the TB in the long term but worsens it in the short-term. The initial deterioration in the TB occurs because an initial depreciation increases spending on imports over any initial increase in export revenue. In other words, the TB is likely to decline subsequent to a depreciation episode because it is expected that the export and import volumes (quantities) adjust slowly to movements in relative prices, but import prices respond quickly to exchange rate changes. Implicit in this discussion is the assumption that in the short-term elasticities are sufficiently low and in the long-term elasticities are sufficiently high, or in the long-term the ML condition holds. According to the ML condition, currency devaluation improves the trade balance in the long-term only if the sum of the absolute values of import and export demand elasticities exceeds unit prices.

To verify the ML condition and the J-curve effect in this paper, we conducted a non-structural technique that models the TB as a function of the real exchange rates (RER), and domestic and foreign expenditures. The econometric techniques are based on the estimation of the 'partial reduced form' equation for the TB of goods. We first tested for unit-roots to examine whether the stationary properties of the data are non-stationary in the series. Next, we applied the procedure developed by Johansen and Juselius (1990) to search for co-integrating relationships from a stable vector autoregressive (VAR) modeling specification. Based on the vector error-correction model (VECM) formulation and generalized impulse response function (GIR), we analyzed the long and short-term trade balance dynamic for a sample of Latin American countries.

Finally, results in the estimations predicted an improvement of the TB in the long term under depreciated RER policy for both countries. In addition, the GIR function revealed that the TB did not follow a J-curve pattern for both countries during the periods. The controversial results shown in the estimates suggest strong policy implications for policymakers regarding economic growth and development strategies for LDCs based on competitive devaluations.

In Section 2, the literature review is developed. Section 3 contains the theoretical framework and suggested econometric methodology. In Section 4, the dataset is described and the empirical test is applied. Finally, in Section 5, conclusions and policy implications are discussed.

2. Literature review

In the theoretical field, analysis of the effects of devaluations in the TB is mainly based on the *elasticity approach* (e.g., see Robinson, 1947; Metzler, 1948), which describes the sufficient conditions for improvement in the TB in terms of elasticities of demand and supply: if the demand's elasticity is sufficiently large and the supply sufficient small, devaluations should improve the TB. Khan (1974) and Rittenberg (1986), among others, have argued that relative prices play an important role in the determination of trade flows in LDCs, thus, improvements in the TB after devaluations are naturally expected. In this regard, early studies have provided mixed empirical evidence from developing and developed countries. For instance,

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