Available online at www.sciencedirect.com
SCIENCE DIRECT®
ELSEVIER
Journal of Monetary Economics 50 (2003) 1189–1214
Journal of MONETARY ECONOMICS
www.elsevier.com/locate/econbase

Distribution costs and real exchange rate dynamics during exchange-rate-based stabilizations ☆

Ariel T. Burstein[a], João C. Neves[b], Sergio Rebelo[c,*]

[a] *Department of Economics, University of California, Los Angeles, CA 90095-1477, USA*
[b] *Portuguese Catholic University, Palma de Cima, P-1600 Lisboa, Portugal*
[c] *Kellogg Graduate School of Management, Northwestern University, Evanston, IL 60208-2001, USA*

Received 25 May 2000; received in revised form 24 August 2001; accepted 24 September 2002

Abstract

This paper studies the role played by distribution costs in shaping the behavior of the real exchange rate during exchange-rate-based stabilizations. We document that distribution costs are very large for the average consumer good: they represent more than 40% of the retail price in the US and roughly 60% of the retail price in Argentina. Distribution services require local labor and land so they drive a natural wedge between retail prices in different countries. We show that introducing a distribution sector in an otherwise standard model of exchange-rate-based stabilizations dramatically improves its ability to rationalize observed real exchange rate dynamics.

JEL classification: F41

Keywords: Real exchange rate; Distribution; Inflation; Stabilization; Fixed exchange rates

☆We are thankful to Vanessa Broda for providing us with price data for Argentina, to Federico Dorin for information on the construction of Argentine data, and to Martin Eichenbaum, Charles Engel, Henry Siu, Carlos Végh, Eric Van Wincoop, Ivan Werning, to the editor and to an anonymous referee for their comments.

*Corresponding author. Tel.: 001-847-467-2329; fax: 001-847-467-3500.
E-mail address: s-rebelo@kellogg.nwu.edu (S. Rebelo).

0304-3932/$ - see front matter © 2003 Elsevier B.V. All rights reserved.
doi:10.1016/S0304-3932(03)00075-8

1. Introduction

There is a large literature that studies the macroeconomic impact of exchange-rate-based stabilizations. This literature has made substantial progress in explaining the behavior of consumption, investment, and the current account during stabilizations (see Calvo and Végh (1999) for a recent survey). In contrast, the behavior of the real exchange rate (RER) in these episodes remains difficult to understand.

In this paper we discuss whether the costs of distributing tradable goods (transportation, wholesaling, and retailing) are important to understand movements in the RER during exchange-rate-based stabilizations. To be concrete, we focus our analysis on a widely studied stabilization episode: Argentina's 1991 Convertibility Plan.

The standard model used to study exchange-rate-based stabilization features two types of goods: tradables and non-tradables. Purchasing power parity (PPP) is assumed to hold only for the tradable good. As a result all RER movements are associated with changes in the relative price of non-tradable goods.[1] This standard model has serious problems along three dimensions. First, there is evidence that relative PPP does not hold for tradable goods (see, for example, Isard, 1977; Giovannini, 1988). Second, and more surprisingly, Engel (1999) shows that movements in the US RER are driven almost exclusively by changes in the prices of *tradable* goods. Finally, calibrated versions of the standard model produce RER movements that are much smaller than those observed in the data.

Our analysis of the Argentina Convertibility Plan confirms the deficiencies of the standard model along these three dimensions. We find that relative PPP does not hold for the retail price of tradable goods in Argentina. We also find that most of the variation in Argentina's RER is due to changes in the retail prices of *tradable* goods. Finally, the RER appreciation in Argentina was much larger than what the standard model would predict. Argentina's RER appreciated by 24.1% between April 1991, when the Convertibility plan was enacted, and April 1993.[2] In contrast, in a quantitative study of the effects of exchange-rate-based stabilizations in Argentina, Rebelo and Végh (1995) find an upper bound of 4% for the RER appreciation.[3]

We document that distribution costs are very large for the average consumer good: they represent more than 40% of the retail price of these goods in the US and

[1] For examples of analyses of exchange-rate-based stabilizations that rely on variants of the standard model see Calvo and Végh (1993), Roldos (1995), Uribe (1997), and Mendoza and Uribe (1999). For an analysis of this class of models in a business cycle context see Stockman and Tesar (1995). Betts and Kehoe (1999) explore a more elaborate version of the tradables/non-tradables setup in which different goods vary in their degree of tradability.

[2] This RER appreciation is similar to that of other exchange-rate-based-stabilizations. Calvo and Végh (1999) estimate that the RER appreciates on average 20% between the year prior to the stabilization and the second year of the stabilization period in the seven stabilization episodes in their sample.

[3] Rebelo and Végh (1995) report their results in terms of the relative price of non-tradable goods. Their upper bound of 8% for the increase in the relative price of non-tradables translates into a 4% RER appreciation.