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Terms of trade and exchange rate regimes in developing countries

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Abstract

Since Friedman [Essays in Positive Economics, University of Chicago Press, Chicago (1953) 157–203] an advantage often attributed to flexible exchange rate regimes over fixed regimes is their ability to insulate more effectively the economy against real shocks. I use a post-Bretton Woods sample (1973–96) of 75 developing countries to assess whether the responses of real GDP, real exchange rates, and prices to terms-of-trade shocks differ systematically across exchange rate regimes. I find that responses are significantly different across regimes in a way that supports Friedman's hypothesis. The paper also examines the importance of terms-of-trade shocks in explaining the overall variance of output and prices in developing countries.

Keywords: Exchange rate regimes, Exchange rate flexibility, Terms-of-trade shocks

JEL classification: E30; F31; F33; F41

1. Introduction

In the early 1950s, Milton Friedman made his case in favor of flexible exchange rate regimes, based on the fact that, in a world with sticky prices, the nominal exchange rate could be used to insulate the economy against real shocks. Since then, a number of theories have confirmed his original intuition and it has become one of the least disputed arguments in favor of flexible exchange rate regimes.[1] An empirical implication of this set

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[1] Subsequent to Friedman (1953), a large number of authors examined the choice of regime under the assumption of price or wage stickiness (see Turnovsky (1983), and Flood and Marion (1982); see Dornbusch (1980) for direct descendants of the open economy Mundell–Fleming models with sticky prices; see Obstfeld and Rogoff (1996) and Corsetti and Pesenti (2001) for dynamic general equilibrium models with nominal stickiness).

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of theories is that the short run response to real shocks should differ across exchange rate regimes. In particular, regimes that allow for a larger movement in relative prices should have smoother adjustment of output to real shocks. The aim of this paper is to test and quantify Friedman's hypothesis.

The reason why the exchange rate regime may matter is the presence of some kind of price stickiness. Friedman argued that when economies are hit by real shocks the countries that can change relative prices more quickly have smoother adjustment in terms of quantities. In particular, he noticed that in a world with sticky prices the speed at which relative prices adjust depends crucially on the exchange rate regime. Under a flexible regime, relative prices can adjust immediately through changes in the nominal exchange rate, while under fixed regimes the changes happen at the rate permitted by the nominal stickiness, which is usually much slower. Therefore, flexible regimes should have smoother quantity responses and quicker relative price adjustments to real shocks than do fixed regimes.[2] Once the nominal price stickiness is relaxed, differences across regimes should vanish.

Given the prominent role played by exchange rate regimes in developing countries, it is perhaps surprising that there is scant empirical work addressing the validity of Friedman's hypothesis. Most of the empirical literature on exchange rate regimes presents no direct test of the hypothesis addressed in this paper because it makes no distinction between nominal and real shocks. For instance, Baxter and Stockman (1989), Flood and Rose (1995), and Ghosh et al. (1997) examine output and real exchange rate volatility across exchange rate regimes but do not distinguish between the contribution of real and nominal shocks in the volatility of those variables.[3] Aside from the greater variability of real exchange rates in countries with flexible regimes, they find little evidence of systematic differences in the behavior of other macroeconomic variables across regimes. By contrast, Bayoumi and Eichengreen (1994) find that output and inflation in G-7 countries have responded differently to aggregate demand shocks under the Bretton Woods system and the regime of flexible rates that has prevailed subsequently. The focus of their paper, however, is different from the mechanism underlying Friedman's theory.

In this paper, in order to focus on Friedman's hypothesis, the analysis is restricted to a single real shock given by the terms of trade of a country (the ratio between export prices and import prices in the same currency). Evidence is presented suggesting that the terms-of-trade series can be treated as exogenous for the sample of developing countries examined. The exogeneity of the terms of trade helps to identify the response of real GDP, real exchange rate, and consumer prices to terms-of-trade changes across different regimes, eliminating the need for complex identification strategies and interpretations of estimated residuals. The sample used includes data for seventy-five developing countries from 1973 to 1996.

The findings of this paper provide ample empirical support for Friedman's hypothesis. The following results are obtained: (a) the short-run real GDP response to terms-of-trade

[2] For instance, after a negative real shock, a currency depreciation reduces real wages precisely when labor demand is weak, and thus partially offsets the negative effect of the shock on output.

[3] As is well-known from the seminal work of Poole (1970), the predictions about the variances of output across exchange rate regimes depend on the source of the shocks. When real (nominal) shocks predominate the variance of output in pegs (floats) should be relatively larger.