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Output stabilization in fixed and floating regimes: Does trade of new products matter?☆

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ABSTRACT

This paper studies the dynamics of output and export margins in the aftermath of global shocks in fixed and floating exchange rate regimes. Using a panel vector autoregressive model with exogenous factors, it traces the mean responses of output, terms of trade, extensive and intensive margins to real and nominal shocks in 22 developed economies over the period 1988–2011. We find remarkable differences in the transmission of shocks across exchange rate regimes. Adjustment takes place mainly at the extensive margin in fixed regimes, and implies a crowding out of intensive margins that is not present among floaters. Large movements at the extensive margin are associated with a weaker performance in terms of output stabilization. Our findings are robust to alternative sample selections and identification of the shocks. The evidence in the paper stresses a novel advantage of flexible exchange rates based on their ability to smooth the fluctuations in trade of new products.

1. Introduction

Two facts motivate the analysis in this paper. First, a large share of the growth in trade volumes occurs at the extensive margin, with exports of new products and previously non-traded goods (see Kehoe and Ruhl, 2013), while sectors with a higher share of new products experience more growth (Kehoe et al., 2015). Second, the creation (and destruction) of new products - including newly traded products - plays an important role for the fluctuations of output over the cycle.[1] Only few studies consider these facts together and mainly from a theoretical vantage point. Recent dynamic stochastic general equilibrium (DSGE) models with firm entry have stressed the implications of the extensive margin of exports for the propagation of shocks worldwide.[2] In these models, product creation (destruction) - proxied by firm entry (exit) - acts as a business cycle amplifier and helps replicate the main facts of the international business cycle (see in particular Ghironi and Mélitz, 2005 and Cavallari, 2013).

Yet evidence on the role of export margins for the transmission of shocks among interdependent economies is scant. This paper aims to shed some light on this issue. In particular, we are interested in the following questions: how do trade of new and mature products respond to shocks that originate abroad? Do they affect the extent to which output fluctuates over the cycle? Does the pattern of trade vary under fixed and flexible regimes? We will soon document remarkable differences in the transmission of shocks across exchange rate regimes. Specifically, adjustment at the extensive margin is stronger in fixed than in flexible regimes. In addition, extensive and intensive margins move in opposite directions in fixed regimes, suggesting the possibility of relocations between sectors that produce new products and newly traded goods and sectors that produce previously traded goods.[3]

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[1] Bernard et al. (2010) show that the value of new products represents 34 percent of US output over a 5-year horizon and the lost value from product destruction over the same period is 30 percent. Bilbiie et al. (2012) are among the first to show the role of firm entry and product creation for the propagation of shocks. See Cavallari (2013) for a quantitative evaluation and Pavlov (2016) for the extension to news-driven cycles.

[2] Since the seminal study of Mélitz (2003), a number of papers have investigated the implications of entry for the international business cycle. Open economy models with firm entry include, among others, Bergin and Glick (2007); Ghironi and Mélitz (2005); Cavallari (2007, 2010, 2013); Cavallari and D'Addona (2016), and Corsetti et al. (2007, 2013).

[3] The extent to which exchange rate flexibility affects the incentive of firms to relocate production across sectors is at the center of recent work by Bergin and Corsetti (2015) and by Cavallari and D'Addona (2016). It is argued that exchange rate flexibility can affect the comparative advantage of a country, by affecting the profits of firms in the traded good sectors.

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Table 1
Im-Pesaran-Shin unit-root test for panel data.

Variable	W_{tbar}	P-value
Δ ToT	−62.0489	0.000
Δ GDP	−38.5504	0.000
Intensive Margins	−18.0927	0.000
Extensive Margins	−11.7086	0.000

This table reports the unit-root test statistic for unbalanced panel introduced by Im et al. (2003). We test the null that all panels contain unit roots versus the alternative that some panels are stationary. The number of panels is 484 with an average number of periods of 18 years. Means are included while time trends are not included.

The paper explores empirically the dynamics of output and export flows in the aftermath of global shocks in fixed and floating regimes. In departing from previous studies, which have mainly focused on overall export flows, we distinguish exports of new products and previously non-traded goods (the extensive margin) and exports of previously traded goods (the intensive margin). The analysis complements earlier work along these lines focused on the transmission of country-specific shocks (Cavallari and D'Addona, 2015).

The econometric methodology consists of a panel vector autoregression with exogenous factors (panel VARX for short). Data are measured on a country pair basis and consider 22 developed economies over the period 1988–2011. The approach is based on pooling the information of different countries over time to derive the mean responses of the variables of interest to real and nominal shocks originating abroad. Specifically, the vector of endogenous variables includes output, the terms of trade and bilateral export margins. The exogenous variables vector, common to all units in the panel, comprises US output, US consumer prices, energy prices and the Federal funds rate. External shocks are identified by means of a recursive ordering of the exogenous variables, in which monetary policy has no contemporaneous effect on the other variables in the system. We show that the results are robust to an alternative identification strategy based on long-run restrictions. For the sake of imposing minimum restrictions and in accord with the scope of the analysis, which is focused on common shocks, country-specific shocks are left unidentified.

The model is estimated separately for countries that adopt a fixed exchange rate regime (110 country pairs for a total of 1597 yearly entries) and for countries with flexible exchange rates (374 country pairs for a total amount of 7076 yearly entries), using alternate criteria for the selection of these samples. To control for unobserved fixed effects in a dynamic panel data model, we use the bootstrap-bias corrected estimator, originally proposed by Pesaran and Zhao (1999) and Everaert and Pozzi (2007) and modified for use in our unbalanced panel as in Fomby et al. (2013). We then provide a formal test of the difference between the mean responses of peggers and floaters based on a bootstrap sampling as in Born et al. (2013).

The paper makes two main contributions. First, it provides new evidence in support of the stabilization properties of flexible exchange rates. Since Friedman (1953), an advantage typically attributed to flexible exchange rates is their ability to insulate the economy against real shocks. In a world with sticky prices, changes in the nominal exchange rate allow a quicker adjustment of relative prices and help smooth output. An empirical implication of this theory is that the responses to real shocks should differ across exchange rate regimes: flexible regimes should have smoother output responses and quicker adjustments in relative prices compared to fixed regimes. Advocates of

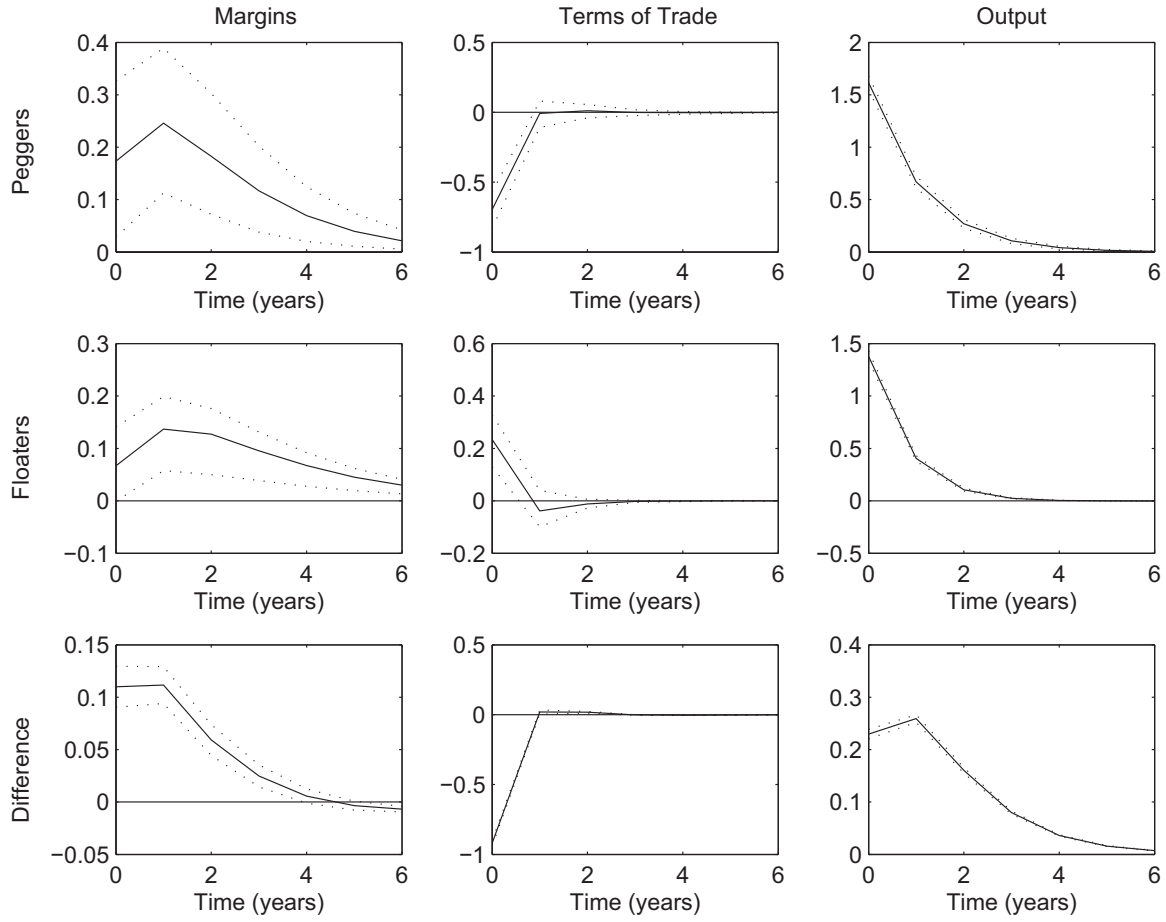

Fig. 1. Mean responses to a one-standard deviation US output shock in the model with extensive margins, for the sample of peggers (first row), the sample of floaters (second row), and the difference between the two samples (third row).