# The Exchange-Rate Regime and Trade: A New Open-Economy Macroeconomics Perspective with Pass-Through Empirics

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July 2004

#### Abstract

This is a summary of my PhD dissertation. The three chapters briefly described further down are in the versions presented at my PhD defence on 23 July 2004. Any remaining errors as well as the interpretations proposed are, certainly, my own responsibility.

JEL Classification: F10, F33, F41.

### 1 Effects of the Exchange-Rate Regime on Trade: The Role of Price Setting

In a baseline stochastic new open-economy macroeconomics (NOEM) model, the first chapter of the dissertation revisits the question whether the exchangerate regime matters for trade. Our main import is to focus the analysis along an explicit microfounded parallel of two alternative invoicing conventions, consumer's currency pricing (CCP) versus producer's currency pricing (PCP), and to uncover the mechanism generating their polar implications for equilibrium consumption allocations across national outputs. Nevertheless, we find that under frictionless trade with symmetry, only money shocks and separable utility, the exchange-rate regime is irrelevant in affecting expected trade-to-output, no matter the price setting assumed. A peg-float comparison remains, however, meaningful under (some degree of) PCP, although not (full) CCP, in terms of the volatility of national trade shares. By shutting down the expenditure-switching channel, a peg then stabilizes equilibrium trade-to-GDP across countries in any state of nature at its expected level. We identify the difference in the impact of exchange-rate regimes on trade share variability as originating in the particular currency denomination of transactions relevant to CCP and PCP and, hence, the exchange-rate pass-through implied by our alternative price-setting assumptions.

## 2 When and How Much Does a Peg Increase Trade? The Role of Trade Costs and Import Demand Elasticity

To study the effects of the exchange-rate regime on international trade in a more realistic, yet rigorous, analytical set-up, the second chapter extends the NOEM baseline of chapter 1 in two insightful and interrelated ways. We essentially (i) embed trade in similar and different output mixes within a common framework and (ii) focus on the implications of impediments to cross-border transactions, again under alternative CCP vs. PCP invoicing. With costly trade now, as well as given separable utility and symmetry in structure and in the distributions of national money shocks, our principal contribution is to show that with (some degree of) PCP – although not (full) CCP – a peg reduces expected trade, measured in terms of GDP, relative to a float under elastic import demand. Inelastic import demand, possible under the same taste for diversity but dissimilar outputs arising from differences in endowments, reverses this conclusion. In both cases of elastic and inelastic demand for cross-country output, with (some) PCP a peg also stabilizes national trade-to-GDP shares. A simulation based on our extended model of chapter 2 has indicated that how much trade stabilization would be achieved by a shift from a flexible to a fixed exchange-rate regime ultimately depends on both monetary and real trade determinants. Within the perspective of actual-world economies and as a lesson for policy, the degree of trade share variability thus eliminated would be greater for (symmetric) nations, or currency unions, which (i) have a larger proportion of PCP in their (bilateral) trade, (ii) are exposed to higher monetary uncertainty and – for moderate to high costs of the international exchange of goods – (iii) produce less substitutable outputs and (iv) are located closer to one another or apply weaker (reciprocal) tariff and non-tariff restrictions.

#### 3 The Empirical Range of Pass-Through in US, German and Japanese Macrodata

The objective of the last, empirical chapter of the dissertation is to pursue certain implications of the analytical framework developed in the two preceding, theoretical chapters. Chapters 1 and 2 have shown why from an economy-wide viewpoint the assumption of CCP vs. PCP is of an essential nature. The reason is that full CCP completely reverses a central result in the Keynesian international macroeconomics tradition, namely the expenditure-switching effect. A monetary expansion that depreciates the national currency leads under full CCP to an improvement (not deterioration, as under full PCP) in the inflating country's terms of trade and ultimately depresses (and does not stimulate) real economic activity. It is clear, however, that in reality CCP and PCP will coexist in the prices of exported as well as imported products, and the extent of CCP (or, inversely, PCP) would thus largely determine the empirical range of pass-through from nominal exchange rate (NER) changes to import, producer, consumer and export prices of a given country. In the third chapter of the dissertation, building on recent empirical studies, our interest is therefore to measure econometrically and to compare the range of aggregate pass-through during the last two decades of the 20th century in the three largest national economies in the world, i.e. the United States (US), Germany and Japan. A key contribution is that, unlike earlier research, we focus on monthly data to comply with the relevant span of real-world price level stickiness and NER fluctuations but at the same time discuss how our quantification differs from analogous quarterly estimates. Another import is that we take robustness seriously and obtain our results employing a battery of alternative specifications of preliminary tests and of OLS, orthogonalized and – notably – generalized VARs based on various combinations of proxies. An overall conclusion is that the empirical range of exchange rate pass-through varies across (i) economies, (ii) data frequencies, (iii) periods of time, (iv) methods of estimation, (v) aggregate price measures, (vi) stages along the pricing chain and (vii) horizons of analysis. Any generalization thus needs to be careful, yet abstracting from specificity, we would stress at least three rather robust findings from our empirical analysis. First, in the three countries we examined pass-through on import prices has considerably declined in the 1990s relative to the 1980s; but pass-through on export prices has, in essence, remained the same; as far as consumer prices are concerned, pass-through seems to be nowadays practically negligible over all horizons of up to one year. Second, the econometric method and the measurement proxy used matter for the precise magnitudes and time patterns, yet they often – but not always – accord on the general trends. Third, the US is quite a particular economy, with import and, hence, consumer price levels that are amazingly insensitive to US dollar depreciations. Our results have also confirmed that the use of monthly data is quite central when it comes to measuring pass-through more precisely. This is not surprising, since pass-through has to do with reactions of monopolistically competitive price-setters to (i) exchange rate movements (ii) under sticky prices. On both counts, quarterly observations would miss much of the "action". Accordingly, from performing the same calculations with monthly as well as with (corresponding) quarterly data, we establish that when passing from the higher to the lower frequency a lot of interesting dynamics is lost, due to certain averaging out of shorter-run price adjustments to changes in exchange rates.