

State dependent pricing, invoicing currency, and exchange rate pass-through

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Abstract

We analyze exchange rate pass-through and volatility of import prices in a dynamic framework where firms are subject to menu costs and decide on price adjustments in response to exchange rate innovations. The exchange rate pass-through and import price volatility then depend on the invoicing currency in combination with functional forms of cost and demand functions. In particular, there is lower pass-through, less frequent price adjustments, and lower price volatility when prices are set in the importer's currency than when prices are set in the exporter's currency.

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1. Introduction

In a recent speech to the Congress the Federal Reserve chairman, Alan Greenspan, noted that the fall of the dollar during the latter part of 2003 has had little effect on prices of imported goods and services, as “foreign exporters have been willing to absorb some of the price decline measured in their own currencies and the consequent squeeze on profit margins it entails”. Abundant empirical research indeed demonstrates that exchange rate pass-through to import prices is less than unity.¹ In particular this seems to be the case for the U.S. where import prices

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¹ See for instance Goldberg and Knetter (1997) and Goldberg and Verboven (2001). Engel and Rogers (1996) and Parsley and Wei (2001) examine pass-through to consumer prices.

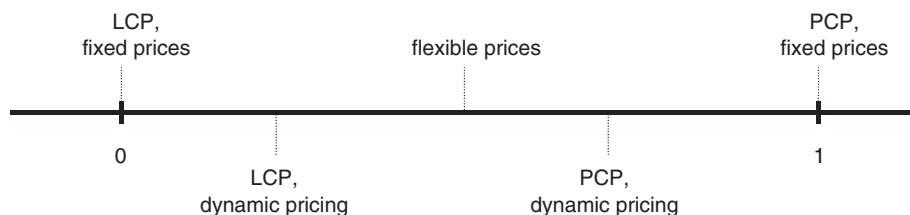


Fig. 1. Degree of pass-through implied by different pricing assumptions.

are to a large extent insulated from movements in the dollar versus the currencies of many of its major trading partners. In spite of extensive theoretical research, the determinants of exchange rate pass-through remain unclear.

Spurred by the dollar appreciation in the late 1970s and early 1980s, a large body of theoretical work analyzed exchange rate pass-through and pricing to market, i.e. failure of import prices to fully respond to changes in exchange rates.² These models are characterized by imperfect competition in a flexible price setting. The degree of pass-through is then determined by functional forms of cost and demand functions as well as the form of competition.

Another strand of the literature introduces nominal price stickiness and considers the short run response of import prices to exchange rate fluctuations. When firms do not instantaneously adjust prices in response to fluctuating exchange rates the choice of currency in which to price exports becomes important. The exporting firm can set prices either in its domestic currency (Producer Currency Pricing or PCP) or in the currency of the importer (Local Currency Pricing or LCP), and these models imply that there is either zero (LCP) or complete (PCP) pass-through.³

In the present paper, we provide a link between these short run and long run analyses by specifying a dynamic framework with endogenous pricing decisions. More specifically, we consider the pricing strategies of firms that produce in a home country, sell on a foreign market, and can change the price in response to exchange rate fluctuations, while being subject to menu costs. The degree of pass-through is then endogenous and depends on (i) the invoicing convention (LCP or PCP), (ii) the size of menu costs in relation to the costs of using suboptimal prices (since this determines how often firms update prices), and (iii) the frictionless degree of pass-through (since this determines how much prices are changed when firms choose to update prices). Typically, our dynamic setting generates a degree of pass-through between that implied by fixed-price and flexible-price models, as is illustrated in Fig. 1.⁴

Our main finding is that when LCP is favored to PCP, the exporter changes prices less frequently under LCP than under PCP. This results in limited pass-through and a low correlation between exchange rate movements and import prices. While eventually exchange rate pass-through may be determined by factors other than nominal rigidities, our model explains why extensive local currency pricing implies lower volatility of imported goods prices also in the medium run.

² Early contributions include Krugman (1987) and Dornbusch (1987).

³ The sticky-price literature either analyzes the optimal choice of export currency in a partial equilibrium framework such as Baron (1976), Donnefeldt and Zilcha (1991), Friberg (1998) and Bacchetta and van Wincoop (2002), or takes the choice of currency as exogenous and explores the consequences of this choice in general equilibrium macro models such as Obstfeld and Rogoff (2000) and Chari et al. (2002).

⁴ In the presence of inflation or other factors that imply asymmetric pricing rules, it is however possible that pass-through under LCP exceeds the flexible-price pass-through. We demonstrate this below.

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