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Pricing-to-market, currency invoicing and exchange rate pass-through to producer prices ☆

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A B S T R A C T

In this paper, we examine producer prices to shed light on a number of outstanding issues in the understanding of price adjustment in the face of fluctuating exchange rates. First, we provide results that link two closely related literatures on firm characteristics and exchange rate pass-through, and currency of invoicing and pass-through. We show that there is significant within- and across-industry heterogeneity in the currency of invoice of exports of Canadian goods to the U.S. and, further, in the degree of pass-through to producer prices. Next, we exploit the fact that we observe firms that sell the same good to both the domestic and export markets, often in different currencies, to difference out the common marginal cost component of the prices. This allows us to relate markups to exchange rate movements and we find evidence that pricing-to-market is most prominent when firms are setting export prices in U.S. dollars.

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1. Introduction

The transmission of movements in a currency's foreign exchange value into domestic prices has long been a focal point of study in international economics. Exchange rate pass-through – the degree to which exchange rate movements are transmitted into imported prices and then on to consumer prices – is also of clear importance to monetary policy as it measures how much of exchange rate movements are reflected in domestic prices, and hence, short-run inflation. Macro evidence suggests that pass-through to import prices is incomplete, and there is only a small degree of consumer-price responsiveness to exchange rate fluctuations (some notable studies using aggregate pricing data are: Campa and Goldberg, 2005; Frankel et al., 2005; Marazzi and Sheets, 2007; Bouakez and Rebei, 2008). Recent theoretical work has suggested a number of potentially important factors that can be associated with incomplete pass-through to import prices, including markup adjustment (pricing to market), currency of pricing, barriers to price adjustment (sticky prices), and local costs. On the empirical side, progress has been made in understanding these factors due to the increasing availability of more detailed micro data on goods prices – see, for example, Nakamura and Zerom (2010), Gopinath et al. (2010), Auer and Schoenle (2012), and Goldberg and Hellerstein (2013).

This paper makes two contributions to the literature. First, we provide empirical results that link two closely related literatures on firm characteristics and pass-through, and currency of invoicing and pass-through. Second, we identify differential markup behavior associated with the currency of invoice for exports. We do this by examining the pricing behavior of Canadian manufacturers who sell their goods to both the export and domestic markets. The unique features of our data are that we not only observe the currency in which the good is priced, the industry in which the firm producing the good operates, and the destination of the good (that is, whether it is exported or sold to the domestic market), we also observe firms that sell the same good to different markets (export and domestic) in different currencies. This allows us to investigate, in some detail, how industry characteristics are related to the currency of invoicing and pass-through to producer prices, and whether firms that do adjust their prices to exchange rate movements are doing so because of changes in marginal cost or markup adjustment.

Engel (2006) and Gopinath et al. (2010) develop models that suggest firms with lower desired pass-through in a flexible price environment will invoice exports in the currency of the export market in the presence of sticky prices, whereas those with higher desired pass-through opt to price in the producer's currency. Amiti et al. (2014) show that firms with high imported input and export market shares have lower pass-through, and in a similar vein, Berman et al. (2012) find that bigger firms are more likely to price to market.[1] We examine pass-through to producer prices and currency choice in the three major sub-industries of the Canadian manufacturing sector and find several pieces of evidence that link the findings and models in these papers, and provide further insight into currency choice and pass-through.[2]

We first document that there is significant heterogeneity across industries in terms of the currency of invoice for exports, but much less heterogeneity within some industries. For example, about half of the exports to the U.S. by firms producing wood, paper, chemical, plastic and non-metallic mineral products are invoiced in U.S. dollars and the other half in Canadian dollars. For firms producing food, textiles and leather products, 76 percent of the goods exported to the U.S. are priced in Canadian dollars (the rest in U.S. dollars), and for those producing metal, machinery, electronics and transportation products, 77 percent of exports are priced in U.S. dollars (the rest in Canadian dollars).

Next, we find that exchange rate pass-through is highly related to the currency of invoicing. Pass-through to Canadian producer export prices for goods priced in Canadian dollars is essentially zero,

[1] Garetto (2012), Auer and Schoenle (2012) and Devereux, Dong and Tomlin (2015) present models where the relationship between firm size, or market share, and pass-through is U-shaped. That is, up to a certain size, the bigger the firm, the lower the pass-through. At a certain point, a firm is big enough that it has market power and does less pricing to market (higher pass-through).

[2] Allayannis and Ofek (2001) provide evidence that some firms use foreign currency derivatives to hedge against exchange rate fluctuations, which can offset some of the negative (and positive) effects of price and quantity adjustments in the face of exchange rate movements. We do not address this link between exchange rate movements and firm behavior in this paper.

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