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Liquidity constrained exporters[☆]

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ABSTRACT

I propose a model of international trade with liquidity constraints. If firms must pay a fixed entry cost in order to access foreign markets, and if they face liquidity constraints to finance these costs, only those firms that have sufficient liquidity are able to export. A set of firms could profitably export, but are prevented from doing so because they lack sufficient liquidity. More productive firms that generate large liquidity from their domestic sales, and wealthier firms that inherit a large amount of liquidity, are more likely to export. This model offers a potential explanation for the apparent lack of sensitivity of exports to exchange rate fluctuations. When the exchange rate appreciates, existing exporters lose competitiveness abroad, and are forced to reduce their exports. At the same time, the value of domestic assets owned by potential exporters increases. Some liquidity constrained exporters start exporting. This dampens the anti-competitiveness impact of a currency appreciation. Under some conditions, it may reverse it altogether and increase aggregate exports. In this sense, the model is able to rationalize the co-existence of competitive devaluations and competitive revaluations.

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1. Introduction

Traditional trade models view the patterns of imports and exports mainly as the outcome of a competition game between producers in different countries. If goods from a given country become cheaper, provided that demand is not too inelastic, producers export larger quantities. Eventually, general equilibrium adjustments will have to take place to restore trade balance, but in the short and medium run, we should observe export expansion arising from a devaluation. The only departure from this competition mechanism may happen in the very short run, and has been described as the J-curve: if demand is inelastic in the very short run, a devaluation may have a negative impact on the current account in the short run, before the competitiveness effect comes into play and exports catch up. However, we observe relatively little response of trade flows to exchange rate fluctuations. The euro-dollar exchange rate has experienced wide fluctuations since the inception of the euro, without any significant and systematic effect on the patterns of trade between Europe and the US. In the early 2000s, the US dollar steadily depreciated vis á vis most foreign currencies, without any evidence of a reduction in the US trade deficit. In a different context, many middle income countries underwent massive devaluations of their currency without much gain in terms of current account imbalances. One way to reconcile the observed impact of exchange rate fluctuations with the existing theory of competitive trade is to assume extremely inelastic demands for foreign goods. Such elasticities are at odds with other evidence of the impact of trade barriers on trade flows.

[☆] This paper was initially written as a chapter of my Ph.D. dissertation. First draft: March 2005.

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I propose a theory of international trade with liquidity constraints that can account for these facts, along with micro-evidence on the characteristics of exporters. The main predictions of the model are, first, that liquidity constraints are a key determinant of the export behavior of firms, and second, that exchange rate fluctuations (or more generally fluctuations of relative prices) may have the opposite effect as predicted by traditional theories. If there are fixed costs associated with exporting, then liquidity constraints at the firm level will come into play. In such a context, fewer firms will be able to export. Furthermore, an appreciation of the domestic currency, despite the negative effect on the competitiveness of exporters, will have a mild impact on aggregate exports, even if demand is elastic. It may actually have a positive impact on exports in the medium run if goods are not too substitutable.

The reason is the following. In the presence of fixed costs associated with exporting and liquidity constraints, some firms could profitably export, but they are prevented from doing because they cannot gather sufficient liquidity. Only those firms that are productive enough and generate sufficient internal liquidity from their domestic sales are able to export. If the exchange rate appreciates, potential exporters lose competitiveness abroad and therefore lose some market shares abroad. Existing exporters reduce their exports. This is the traditional competitiveness effect. But an appreciation of the exchange rate also means that the value of domestic assets abroad increases. Some firms that could not enter foreign markets because of liquidity constraints enter now that the value of their assets has appreciated. Total trade does not change much: existing exporters export less, but new firms start exporting. Under some conditions, aggregate exports may increase following an appreciation of the exchange rate.

In other words, it is the extensive margin of trade that responds differently to exchange rate fluctuations in the presence of firm heterogeneity and liquidity constraints. Following an exchange rate appreciation, some firms, due to the increased value of their domestic assets, enter the export market. This entry of exporters, the extensive margin of trade, may offset the reduction of the volumes exported by existing exporters, the intensive margin of trade. The strength of this effect depends on how competitive markets are, what fraction of fixed export costs are denominated in foreign currency, and whether firms own liquid assets and have access to developed financial markets.

This theory also accounts for the fact that few firms export, and that exporters will typically be firms that are not liquidity constrained. There is a large body of empirical evidence from micro-data that only a small fraction of firms export and exporters are more productive than non-exporters, they are larger and more capital intensive. I develop a model where the selection into the export market is similar. Only those firms that are not liquidity constrained are able to export. The capacity to overcome liquidity constraints is endogenously determined in this model. Firms may have sufficient assets, inherited from their past activities, but they can also generate sufficient cash flow from their domestic activities in order to gain access to foreign markets. In equilibrium, only a subset of firms are able to gather enough liquidity and export. The export status is the outcome of the characteristics of the firm, even though the partition between exporters and non-exporters is endogenously determined as the outcome of a competitive game.

Finally, this model has important implications for the link between financial development, macroeconomic stability and openness to trade. The model predicts that a deepening or a widening of the financial markets will increase total exports. When firms get easier access to external finance (a deepening of financial markets), or when more firms get access to cheap external finance (a widening of the financial markets), they become able to overcome barriers associated with international trade. More firms export, and total exports increase. However, the model does not predict that better financial markets will either stabilize or destabilize the current account. The predictions of the model about the volatility of exports and the degree of financial development are ambiguous. Only in the extreme case of perfect financial markets are exports more volatile than if financial markets were not perfectly developed. Exchange rate fluctuations, for instance, will cause larger movements of the volume of exports if financial markets are perfectly developed than if they are not. The reason is the following. If financial markets are not perfectly developed, there exists a fringe of liquidity constrained exporters. When the exchange rate appreciates, some of those liquidity constrained firms start exporting. This entry of new exporters dampens the negative impact of the exchange rate appreciation on existing exporters. If financial markets are perfectly developed, meaning that no firm is liquidity constrained, this dampening channel does not exist anymore. Exports will be more responsive to exchange rate fluctuations. This is the only case where the model makes a clear prediction about the link between financial development and current account volatility. For intermediate levels of development on the other hand, an improvement of financial markets will always increase total exports, but it may or may not increase export volatility. The primary purpose of this model is not to describe the link between financial development and macroeconomic instability. However it offers an interesting angle on a potential link between the volatility of some aggregates (fluctuations in the volume of exports here), and the degree of financial development. It also gives specific predictions for the impact of financial development on the volume of exports.

In the remaining part of this Introduction, I review the literature related to this model. First, recent research has documented the importance of firm heterogeneity and the role of fixed costs in international trade, both empirically and theoretically. Second, there is a large body of literature on the importance of liquidity constraints for firms. Finally, there is a growing literature on the interaction between firm level liquidity constraints and international trade.

Firm heterogeneity is a major feature of the export behavior of firms. Exporters are different from non-exporters in many respects. They tend to be more productive, larger, more capital intensive. The link between productivity and trade has been analyzed in many countries: Bernard and Jensen (1999, 2001a,b, 2002) for the US, Aw and Huang (1995) for Taiwanese and Korean firms, Clerides et al. (1998) for Colombian, Mexican and Moroccan firms, and Delgado et al. (2002) for Spanish firms, to name a few early contributions. This paper extends the study of the heterogeneity between exporters and non-exporters

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