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Comment on "Liquidity Constrained Exporters" by Thomas Chaney

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1. Introduction

Why do trade volumes react so little to exchange rate fluctuations, while strongly responding to trade liberalization? This paper proposes a novel explanation for this stylized fact, often referred to as the International Elasticity Puzzle (IEP), based on firms' decision to enter into and exit from foreign markets. In particular, Chaney (2016) argues that, when exporters are potentially credit constrained and face fixed costs denominated in foreign currency, a depreciation may affect the extensive margin of export in two ways: first, by raising sales it induces more entry, as the conventional wisdom suggests; second, by reducing the relative value of self-finance, it may refrain from entry or even induce exit. The latter channel, which is the novelty of the paper, generates a lack of reaction of the extensive margin, which helps explain the puzzle.

I find this idea interesting, and the model neat. The following comments are aimed mainly at addressing the empirical relevance of the proposed mechanism, and partly at reconsidering the way financial constraints have been introduced in models of trade with heterogeneous firms. In Section 2, I address the existing empirical support for the present explanation of the IEP against an alternative model by Ruhl (2008), and provide insights for further tests. Section 3 discusses some of the main assumptions of the model and suggests additional ways to assess the empirical relevance of the model. Section 4 relates the paper to other recent theoretical and empirical contributions on financial constraints and trade, and puts forward an alternative modelling approach. Section 5 concludes.

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2. Competing explanation and empirical tests

The paper proposes an extension of the Melitz (2003) and Chaney (2008) model of trade with heterogeneous firms, which builds on a number of key assumptions. First, financial frictions, binding only on potential exporters, impose firms to cover the fixed cost of export with internal funds, which may derive either from domestic profits or other sources of liquidity. This assumption, common to the recent literature on financial development and trade, delivers the result that credit constraints hinder trade by affecting both entry in the export market and the sales of exporters (see, for instance, Manova, 2013). The second key assumption is that there is a currency mismatch between the fixed cost of export (not the variable one) and the internal funds of firms, expressed in terms of foreign and domestic wage, respectively. This implies that an exchange rate depreciation does not only generate a gain in competitiveness of domestic firms in the foreign market, which raises revenues (intensive margin) and induces the entry of new exporters (extensive margin). It also entails a depreciation of internal funds vis-à-vis the fixed cost they have to cover, which makes the liquidity constraint binding for a larger number of incumbent and potential exporters, thereby possibly reducing the mass of exporting firms. Hence, the model predicts a positive reaction of foreign revenues for exporting firms, and an ambiguous (potentially negative) response of the extensive margin, to fluctuations in the exchange rate. In case of trade liberalization, represented by a fall in the variable cost of trade, both the intensive and extensive margins of trade increase, since the only active channel is through improved competitiveness of domestic producers.

An alternative explanation for the International Elasticity Puzzle was proposed by Ruhl (2008), based again on the reaction of the extensive margin of export, but in a dynamic model of trade with heterogeneous firms. In this framework, firms decide to enter in (or exit from) the foreign market if the present discounted value of future profits is (or is not) high enough to cover the fixed cost. Since exchange rate fluctuations usually exhibit low persistence, they do not significantly change expected future profit flows, and hence induce a weak response of the extensive margin of export. On the contrary, tariff reductions are typically permanent (as required by the WTO), and hence can generate changes in expected future profits which are large enough to induce firms to enter the export market.

Both models predict trade to react less to depreciations than to falls in tariffs due to the different response of the extensive margin, which is less sensitive to the exchange rate than to tariffs. Recent empirical evidence by Fitzgerald and Haller (2015) from Irish panel data at firm, product and destination market level, seems to lend support to both theories, since it shows export participation to react less to exchange fluctuations than to changes in tariffs. There is no direct evidence, however, supporting only one of the competing mechanisms. This gap could be filled by performing an empirical test tailored to the specific predictions of this paper.

A key feature of the theory proposed by Chaney (2016) is that the strength of the reaction of the extensive export margin to the exchange rate depends on the degree of financial frictions and other variables. In particular, the model predicts the response of participation in the export market to be weaker, the more severe the credit constraints on firms (deriving from low financial development at the country level and/or external financial dependence at the sector or firm level), the higher the (destination-specific) fixed cost of export, and the lower the degree of competition (captured by the elasticity of substitution). In the absence of credit constraints, instead, the extensive margin is expected to be equally elastic both to depreciation and to trade liberalization. Hence the mechanism could be empirically tested by means of interaction analysis.

A possible way to implement the suggested approach is using bilateral trade panel data at the sector level to estimate specifications for trade flows and the probability of exporting, as in Manova (2013), with additional interactions. In particular, denoting by ΔER changes in the exchange rate, the following terms may be added to the baseline specifications: (i) ΔER times the level of financial development in the country of origin; (ii) ΔER times an indicator of destination-specific fixed costs of export; and (iii) ΔER times a proxy for market competition, or Rauch's index of good differentiation, at the sector level. Moreover, interactions (i) and (ii) may be further multiplied by the degree of external financial dependence à la (Rajan and ZIngales, 1998) at the sector level.

As an alternative, the exercise in Fitzgerald and Haller (2015) could be replicated, explicitly accounting for external financial dependence and market competition at the sector level and for indicators of fixed export costs at destination.

An additional and complementary explanation for the International Elasticity Puzzle may be based on the effect of exchange rate fluctuations on the price of imported inputs. In particular, a depreciation, by making imported inputs more expensive may affect negatively both the extensive and the intensive margin of export. An increase in the price of imported inputs may affects firms' choices in two ways. First, by directly raising marginal costs for importers, it tends to reduce revenues on both the domestic and the foreign market, thereby refraining entry and/or inducing exit of exporters. Second, higher input prices cause a fall in import, which may reduce productivity (see evidence, among others, in Amiti and Konings, 2007), thereby further increasing marginal costs and reinforcing the previous mechanism. Embedding these elements in Chaney (2016) model would deliver further insights and empirically testable predictions.

3. Financial constraints, exporter status and trade volumes: empirical relevance

In the model, firms have to cover the fixed export cost with internal funds accruing from domestic profit and pledgeable assets (or liquidity shock), A . The distribution and correlation of these assets with productivity are left unspecified in most of the Section 1. To obtain neat comparative statics for the effects of financial development and exchange rate fluctuations

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