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Firm heterogeneity and the market scope of European multinational activity

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ABSTRACT

This paper examines the relationship between the characteristics of European firms and the market scope of their international activity. We show, theoretically, that when markets can be served by exports or through foreign affiliates, a strict hierarchy of firm characteristics and the number of markets they invest in or exports can only be established for firms engaged in foreign direct investment (FDI), but not for exporters. Empirically, our findings confirm the significant role of firm heterogeneity in the structure of European international activity, as well as the increasing relationship between firm characteristics and the number of markets in which they operate. Additionally, in line with our predictions, the estimates reveal the existence of heterogeneous effects and non-linearities in this relationship, with important differences between exporters and firms engaging in FDI.

1. Introduction

It is widely accepted that the internationalization performance of firms is related not only to the host country features, but also to the firms' own characteristics. Several works have emphasized the role of firm heterogeneity in their internationalization structure. According to this literature, increasing the complexity of the internationalization strategies, such as moving from domestic sales to foreign selling or from exports to FDI, will entail higher costs, and so only those firms that can afford them will be able to engage in more complex internationalization strategies (Bernard & Jensen, 1999; Helpman, Melitz, & Yeaple, 2004; Melitz, 2003).[1] Exporting firms incur in additional fixed costs of exporting and variable costs of transportation and distribution that are not assumed by firms that sell only in the domestic market. Yet, if a firm decides to avoid these variables costs of exporting, by opening a foreign affiliate, it should assume the higher fixed costs associated with opening and managing a foreign affiliate.[2] These facts explain why firms that invest abroad are more productive than firms that just export and why firms that only sell their products domestically are less efficient than exporters.

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[1] Here, "complexity" refers to the process of switching from domestic to exporter and from exporter to FDI, as in Chen and Moore (2010). In this sense, "complexity" should be distinguished from "complex FDI" (Yeaple, 2003). We thank an anonymous referee for bringing this difference to our attention.

[2] Standard models of horizontal FDI do not discriminate production and distribution activities. However, recent works consider alternative ways of internationalization, such as export-platform FDI (Yeaple, 2003) or export-supporting FDI (Krautheim, 2013).

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Numerous empirical studies indeed provide evidence relating the internationalization status of firms with their own characteristics (Bernard & Jensen, 1999; Head & Ries, 2003; Girma, Kneller, & Pisu, 2005; Tomiura, 2007; Martí el al. 2015).

But the complexity of the internalization strategies also extends to the number of foreign markets where firms are active (Barba-Navaretti et al., 2011). Indeed, as mentioned by Eaton, Kortum, and Kramarz (2004), this higher complexity might explain why only a small share of European firms export to a larger number of markets. In this sense, Helpman (2006) emphasizes the importance of finding a systematic relationship between the firms' characteristics and their participation in foreign trade and investment (p. 590). This fact is especially relevant for policymakers. As the firms' characteristics play a key role in their international activity both in terms of their volume of operations and concerning the number of markets they operate in, domestic economic policies aimed at stimulating the internationalization strategies of firms should be focused on improving the general business environment in order to foster innovation, productivity, and growth of firms.

In this paper, we examine empirically how important the characteristics of European firms are in determining their cross-country structure of international activity. Specifically, we focus on the link between the differences in productivity and size (among other attributes) of firms and the number of foreign markets they serve either through exports or by a foreign affiliate.

The evidence in this respect, which focuses on a few case studies of different countries, confirms the predictions that only the more productive firms are able to operate in more than a few foreign markets. For instance, Eaton et al. (2004) for French firms, Bernard, Jensen, and Schott (2005) for US firms or Lawless (2009) for Irish firms show empirically that most firms export to only a single market, and that the number of exporters dramatically decreases with the increase in the number of export destination markets. Similarly, according to Yeaple (2009) and Tanaka (2012), who analyze US and Japanese multinationals firms, respectively, only a few firms, the more productive ones, own affiliates in more than a handful of foreign markets.

Most of these empirical findings have been supported by theoretical developments, which in turn have mainly centered on a particular internationalization strategy: exports or FDI. Following Helpman et al.'s (2004) model, Yeaple (2009) and Chen and Moore (2010) examined how firm characteristics explain the cross-country structure of multinational enterprises (MNEs). They concluded that firms that are more productive invest in a larger number of markets. Likewise, using a static version of the Melitz (2003) model, Lawless (2009) suggested a similar hierarchy considering only exporting and non-exporting firms.

Based on this range of trade models, we present here a simple model where both internationalization strategies—exports and FDI— are explicitly feasible. Under this framework, outcomes in productivity thresholds show that a strict hierarchy of entry into foreign markets (as shown in previous models for exports or FDI) can only be established for firms carrying out FDI, but not for exporters. This result might indeed explain why Lawless (2009) was only able to find weak support of her prediction using the data.[3]

Empirically, we contribute to the literature in several ways. First, we make use of a unique survey data of firms from seven European countries (in short, the EFIGE dataset).[4] This survey contains homogeneous and consistent information on all the international activities for manufacturing firms, combined with detailed data on their characteristics, thus allowing us to fill a gap in the literature. Probably limited by the lack of homogenous datasets, the few cases that empirically analyze the influence of firms' characteristics on the number of markets they serve are country-specific and focus on a specific internationalization strategy (exports or FDI). The wide span of information that EFIGE provides allows us to test the previous theoretical conclusions for both exporters and investors from a set of European economies.

Second, in order to test the predictions of the model, we rely on two different econometric methodologies. Initially, we estimate a multinomial logit model (MNL) to evaluate to what extent firm heterogeneity influences the decision to extend exports or foreign production beyond a single foreign market. On the one hand, the results obtained using this methodology confirm the implications of the previous theoretical and empirical studies for the European case. In line with preceding works, our estimates show that European firms whose activity is restricted to the domestic market are less productive, smaller, younger, and less intensive in physical and human capital and in R&D activities than firms that participate in international activities. Similarly, firms engaging in FDI show higher values of these characteristics than exporters. However, in this paper, we go a step further by demonstrating, on the other hand, that these firm characteristics exert a higher impact on the internationalization strategy decision for exporters and investors that operate in more than a single market. As an additional contribution, we confirm not only the higher fixed costs that operating abroad implies (relative to firms that are non-active abroad), but also the greater costs involved in serving more than one foreign market through exports or FDI. This indeed might explain why only a small share of European firms are active in a foreign country in a larger number of markets.

Next, we perform a quantile regression (QR) for a count data model to analyze how changes in firms' characteristics affect their particular foreign market scope. Specifically, this estimation method, used to our knowledge for the first time in the context of modeling firm heterogeneity, allows us to weight the effect that covariates exert on the exact number of foreign markets served at different degrees of internationalization. The results of this analysis suggest, firstly, the existence of heterogeneous effects and non-linearities in the relationship between firms' characteristics and the number of markets in which they operate. Secondly, consistent with the conclusions of the model, they show some important differences between exporters and firms engaging in FDI. We find that while for exporters

[3] The productivity cut-offs generated in her model predict a hierarchy of markets that firms would be expected to enter in an established order according to their productivity.

[4] The EU-EFIGE/Bruegel-UniCredit dataset is a database recently collected within the EFIGE project (European Firms in a Global Economy: internal policies for external competitiveness), supported by the Directorate General Research of the European Commission through its 7th Framework Programme and coordinated by Bruegel. See Altomonte and Aquilante (2012), for more information.

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