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Survival is for the fittest: Export survival patterns in Georgia

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ABSTRACT

This paper analyzes the determinants of export flow survival in Georgia. The paper uses a unique Georgian firm-level dataset, in which firm characteristics and output dynamics are matched with their customs export transactions, for the period 2006–2012. We adopt a discrete survival model to explore the role of firm-level characteristics, diversification strategies and network effects on the survival rates of export flows. Low survival rates at the product level limit the ability of Georgian firms to consolidate new products in international markets. The analysis finds that it is production efficiency, rather than size, that boosts export survival chances, that firms' diversification strategies matter for the prospects of survival, and that there is strong evidence of network effects in export survival. We also find that ratified foreign trade agreements contribute to increase the survival of export flows by reducing policy-induced trading costs and increasing information about destination markets.

1. Introduction

Understanding the main challenges to export diversification and survival is crucial for many developing countries from a policy perspective, as an important part of their growth prospects is inevitably linked to their ability to competitively produce and commercialize goods in the global marketplace.

Export growth results from different factors such as expansion into new products and new markets (extensive margin), extension of existing export relationships (intensive margin) and the survival of these relationships across time (sustainability margin). A closer look at the sources of export growth reveals that exporting is a risky activity characterized by a high degree of uncertainty. Firms struggle to diversify their export portfolios both in terms of products and destinations, but once they have reached new markets, they also struggle to keep their export flows active for long periods (Besedes and Prusa, 2006; Brenton et al., 2010; Cadot et al., 2013). Low survival rates entail welfare losses for the economy as a whole when sunk costs of entry and exit are high.

Besedes and Prusa (2007) have shown that the main difference between successful and less successful developing countries in terms of export performance lies in the ability to maintain export relationships for longer. Brenton et al. (2010) have also shown that the poor export performance of some developing countries is attributable to low survival rates, with no substantial differences in the introduction of new trade flows. Thus, improving the survival rate of new export flows is important not only because the high mortality rate implies high inefficiencies, but mostly because low survival limits the deepening of trade relationships and henceforth diversification, overall export growth and the resulting job creation.

We use a unique dataset of Georgian firms matched with customs export transactions for the period 2006–2012 to analyze the determinants of Georgian firms' export survival at the product-destination level. The main question we address is *what are the factors influencing firm export flows' survival?*

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The database allows us to explore the role of firm-level characteristics among the factors affecting export survival. We also explore the role of both diversification strategies and network effects on the success of export flows.

The data clearly shows that while Georgia experienced sustained export growth between 2006 and 2012, firms encountered difficulties regarding the introduction of new export products and, in particular, failed to keep these flows alive. This unsatisfactory record is mainly the result of low survival rates at the product level.

The econometric analysis shows that survival is higher among the fittest, more productive firms. Indeed, it is production efficiency, rather than size, that boosts export survival chances. After taking into account efficiency differences, larger firms are no different than smaller firms in their survival patterns. Moreover, firms' diversification strategies matter for the prospects of survival. Flows from multi-product firms show better chances of survival relative to those originating from firms that have a concentrated export bundle. However, export flows from multi-destination firms (those more diversified along the destination dimension) show lower survival rates than those from firms with export bundles concentrated in fewer destinations. We also find strong evidence of network effects in export survival. The chances of a flow surviving in export markets increase with the number of firms exporting the same product to the same destination. Finally, free trade agreements (FTAs) contribute to increasing export survival by reducing policy-related trading costs and adding information about destination markets. These results have important implications for designing export promotion policies.

The remainder of this paper is structured as follows. Section 2 presents a literature review. Section 3 describes the dataset and the descriptive statistics, while Section 4 presents the empirical strategy and discusses the main results. Finally, Section 5 concludes and discusses policy implications.

2. Literature review

Several studies have looked into the duration of export flows either at the country, firm, or, more recently, product level. [Besedes and Prusa \(2006\)](#), in their pioneering study on the survival of export flows to the US, showed that the duration of exports tends to be very short, between two to four years, and exhibits negative duration dependence, meaning that the probability of failure decreases if flows survive the first few years. While Besedes and Prusa focused on country-product combinations, the literature that followed tried to explain the low export survival at the firm level. [Bernard et al. \(2010\)](#) contributed to the understanding of drivers of export survival at the firm-product level. These efforts generated some empirical and theoretical knowledge of the main determinants of export survival.

[Bernard et al. \(2010\)](#) have extended the firm heterogeneity literature to the product level, showing that firms will modify their production and export mix according to the evolving characteristics of their own products and those of the market in which they operate. The key parameters in their model are the firm's productivity level and the product-specific consumer taste, which the firm can observe only after incurring a sunk cost. Optimization implies that firms will produce or export a product only if the consumer taste parameter given the firm's productivity is greater than a zero-profit consumer taste cut-off. This zero profit cut-off varies across firms and is negatively related to the firms' productivity. Both parameters are subject to random shocks, which prompt firms to drop and add products from their product mix. The main implication of this model is that lower productivity firms are more vulnerable to shocks that make a product unprofitable and thus more likely to drop products from their production/export mix. Thus, firm-level productivity is one of the main factors that can also affect survival at the firm-product level.

A further prediction from the [Bernard et al. \(2010\)](#) model is that the probability of dropping a product is negatively related to its duration in the export mix (the model exhibits "negative duration dependence"). In fact, given that both productivity and consumer tastes are serially correlated, the longer the period a product is exported, the lower the probability of it being dropped.

[Rauch and Watson \(2003\)](#) also developed a model that implies negative duration dependence. In their model there is a search-and-match game between importers and exporters in the presence of information asymmetries and moral hazard. Importers look for a reliable supplier while exporters need to be sure of the duration of the relationship before making the relative investments to expand their production capacity. In such conditions export transactions are characterized by trial and error, or small experiments to "test" the partner. Once they survive these tests, the mortality decreases. Negative duration dependence is also consistent with learning by exporting: if a firm's performance improves after entering export markets, through the interaction with sophisticated foreign consumers and rivals, then the likelihood of the firm dropping an export product will fall as with the number of years of export activity.¹

According to both [Bernard et al. \(2010\)](#) and [Rauch and Watson \(2003\)](#), product survival is positively related to the value of the export flow. In [Rauch and Watson \(2003\)](#) this derives from the fact that when importers are uncertain about the capacity of the exporter to comply with the order requirements, or the exporter faces uncertainty with regards to its production capacity or the importer's reliability, they may start with small orders to update their information about each other through trial and error. In [Bernard et al. \(2010\)](#) a higher value of the export flow implies a high value of the consumer taste and thus a lower probability of

¹ The evidence on learning by exporting has been mixed. In a seminar contribution, [Clerides et al. \(1998\)](#) looked at plant-level data for Colombia, Mexico and Morocco and concluded that while there was a link between exporting status and productivity, the direction of causality went from productivity to exporting. That is, the most productive self-selected into exporting. In a survey article, [Keller \(2004\)](#) concluded that while several case studies suggested learning by exporting, supporting econometric evidence has been limited. More recently, two studies pointed in a different direction. [De Loecker \(2013\)](#) argued that previous results relied on econometric methods that assumed productivity evolving exogenously. Once endogenous productivity processes were accommodated to allow for learning by exporting, substantial productivity gains from entering export markets were unveiled using micro data from Slovenia. More recently, [Atkin et al. \(2017\)](#) conducted a randomized experiment generating exogenous variation in the access to foreign markets for rug producers in Egypt and identified substantial increases in firm performance following entry into export markets.

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