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Exporting and firm performance: Market entry, investment and expansion ☆

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ABSTRACT

This paper examines input and productivity dynamics of manufacturing firms in the period leading to and following export market entry. We examine 3 possible explanations for the observed productivity gap between exporting and non-exporting firms: self-selection of high-performing firms into exporting; post-entry learning effects; and joint export-investment decisions. We consider both initial entry into exporting and subsequent expansion into new destination markets, showing that capital deepening and employment growth are associated with both types of entry. However, the timing of investment differs between the 2 entry events. The observed dynamics are consistent with a model of investment under uncertainty, in which first-time exporters delay investment to gain more information about the success of their export ventures, while experienced exporters pre-commit to capital deepening in advance of additional market expansion.

1. Introduction

This paper examines the input and productivity dynamics which accompany export market entry by New Zealand manufacturing firms. We describe the evolution of 4 firm characteristics – labour productivity, multi-factor productivity, the capital–labour ratio, and employment – focusing on how performance dynamics differ between firms entering exporting for the first time and incumbent exporters entering new destination markets.

Using a combined propensity score matching and difference-in-difference model, we investigate 3 potential explanations for the observed productivity gap between exporting and non-exporting firms: self-selection of high performance firms into exporting; post-entry "learning" effects; and joint export-investment decisions. Empirical tests of this latter hypothesis are relatively rare, though investment dynamics have previously been identified as a potential source of performance improvement associated with exporting (e.g., Costantini and Melitz, 2007; Atkeson and Burstein, 2010). These models focus on the role of increased market size in determining firms' willingness to bear fixed costs of investment, showing that mutually dependent decisions to export and invest can lead to a positive association between exporting and productivity growth.

Consistent with other studies, we find that much of the productivity gap between exporters and non-exporters is due to self-selection. Firms which enter exporting tend to be larger, more productive and more capital intensive than those which remain domestically focused. We show that this performance gap widens after entry, with investment decisions playing an essential role in increasing the exporter labour productivity premium. Firms raise both employment and capital intensity as they enter exporting and continue to do so when they expand into additional markets. However, the timing of investment differs: while new exporters gear up for exporting through increasing their labour inputs with capital deepening occurring after entry, experienced exporters make capital investments prior to market expansion.

These investment patterns are consistent with a form of learning-by-exporting, in which firms gain knowledge about their own likely success in offshore markets. In a small domestic economy where capital investment is at least partially irreversible and labour legislation is relatively flexible, firms entering exporting may find it optimal to increase production through raising labour inputs until they have some evidence of success offshore. In contrast, when incumbent exporters expand into

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new markets, the perceived risks associated with early investment may be lower, as past export experience raises firms confidence of future success.

The next section reviews key areas of the literature relevant to this study. Section 3 introduces the data and empirical approach, while Section 4 reports the results of the main analysis and a number of robustness checks. Section 5 concludes.

2. Literature review

Since the publication of seminal works by Bernard and Jensen (1995) and Roberts and Tybout (1997), research on the determinants and consequences of firm-level export performance has flourished. Studies of the exporting–productivity relationship in particular have been completed for over 30 countries. This review focuses on 3 areas of the literature particularly relevant to this paper: joint export-investment decisions; incorporation of destination country characteristics; and methods for controlling for non-random selection into exporting.

2.1. Joint decision-making and pre-entry performance improvements

Several recent papers show that access to a larger market (through a reduction in marginal trade costs) may encourage firms to invest in activities which lower their marginal production costs (Costantini and Melitz, 2007; Atkeson and Burstein, 2010). These activities (R&D, innovation and technology adoption) have an independent effect on firm productivity but are only made profitable by the decision to target the international market, spreading the fixed costs of investment over a larger output. Investments may also be targeted at improving product quality in order to appeal to a wider or more sophisticated market (e.g., Verhoogen, 2008; Iacovone and Javorcik, 2010).[1]

Lileeva and Trefler (2010) and Bustos (2011) link tariff reductions under the NAFTA and MERCOSUR trade agreements, respectively, to increases in technology adoption, product and process innovation, and labour productivity at the firm level. Iacovone and Javorcik (2010) focus explicitly on the question of quality upgrading, showing that Mexican firms tend to obtain a price premium in the domestic market for product varieties which they also sell on the international market, and that this price premium emerges in the year prior to entering the foreign market. They attribute this to quality upgrading in anticipation of exporting and in turn relate this to reductions in export costs due to NAFTA.[2]

These models add a new dimension to our understanding of export and performance dynamics but do not explicitly consider a key factor associated with investment decisions — the role of uncertainty. If investments are (partially) irreversible and there is some uncertainty about future demand conditions, firms gain an "option value" from delaying their investment decision until they receive more information (Dixit and Pindyck, 1994). If firms are uncertain about their success on export markets – as implied by the prevalence of low-value, short-lived investment relationships documented by Eaton et al. (2008), Lawless (2009) and Fabling and Sanderson (2010a) – they may choose to delay any irreversible investments until they are more certain that their export ventures will succeed.

By examining multiple performance dimensions before and after export market entry, we shed light on the complex interactions between expansion, investment and export performance. Our results support a model in which firms make joint decisions about exporting and investment, but where the timing of investment decisions is affected by uncertainties about export market success.

2.2. Heterogeneous destination markets

In addition to co-determined investment decisions, exporting may have other direct effects on firms' productivity through "learning". Theoretical models suggest 3 broad channels through which exposure to offshore markets in general, and exporting in particular, may lead firms to improve their productivity: forced efficiency gains due to increased competition; improved access to new knowledge and technologies through greater contact with offshore suppliers, customers and competitors; and economies of scale and greater incentives to develop specialised products for larger markets. Despite the variety of possible channels through which it may occur, the notion of firms improving their productivity performance through exporting is generally referred to as learning-by-exporting (LBE) — a convention we follow.

If exporting has direct effects on productivity, it seems plausible that these benefits will be stronger for exports to large, highly developed destinations. First, the competitive disciplines imposed upon exporting firms are likely to be more severe in markets with a significant number of local suppliers already and which may also attract a broader range of suppliers from abroad. At the same time, more sophisticated consumers are likely to place greater demands on exporters in terms of product quality and timeliness. Second, opportunities to learn from offshore contacts will be more beneficial the greater the degree of sophistication of those contacts. Finally, in imperfectly competitive markets, firms may be able to charge higher prices to consumers in wealthy countries, leading to higher observed value-added with no change in the underlying efficiency of the firm. These learning channels may also affect observed investment decisions if quality improvements require further investment or if firms learn about new productivity-enhancing technologies through international contacts.

If learning relies on the destination country having superior economic performance to the exporting country, we would expect to find that post-entry productivity improvements are more commonly observed in less developed countries (LDCs). Martins and Yang (2009) perform a meta-analysis of 218 estimates drawn from 32 studies on the productivity impacts of exporting. In the 8 specifications they consider, only 1 result comes through consistently: firms in LDCs are more likely to experience a stronger productivity gain than those in developed countries. While this is not conclusive evidence that destination country characteristics matter, it is consistent with a model in which firms are more likely to learn from exporting if their activities put them in contact with firms or consumers in countries more developed than their own.

Several recent papers directly address the importance of destination market characteristics using firm-level micro data (Damijan et al., 2004; De Loecker, 2007; Trofimenko, 2008; Park et al., 2010). Using data for Colombia and China respectively, Trofimenko (2008) and Park et al. (2010) find that the export–productivity relationship is stronger when firms export to advanced countries, while Damijan et al. (2004) and De Loecker (2007) both find that only developed country destinations are associated with post-entry productivity improvements among Slovenian firms.

2.3. Methodology

The existence of large ex-ante performance differentials between exporters and non-exporters raises questions about the appropriate control group against which to compare new entrants into export markets. Figs. 1 and 2 illustrate this point using New Zealand manufacturing data for the 4 performance metrics we consider in this paper – multifactor and labour productivity, the capital–labour

[1] Complementarity between exporting and investment suggests that productivity growth may precede export market entry, as firms actively gear up to enter export markets (e.g., Alvarez and López, 2005). However, it is possible that a strategy of actively moving towards export markets may lead instead to a fall in productivity in the years prior to entry if firms are investing in capital equipment or R&D which will not be fully utilised until they expand into offshore markets (e.g., Bellone et al., 2008).

[2] Investment in productivity and quality improvement in response to trade agreements may also be driven by anticipation of greater import competition, rather than an explicit exporting strategy.