



Does importing foster export performance? An overview of existing literature

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Index

Management summary	4
Introduction	6
1. Operationalizing export success	8
2. Determinants of export success	10
2.1 The business literature	10
2.2 The trade literature	11
3. Importing and productivity	14
References	15

Management summary

Introduction

Imports are frequently perceived to be a cost, while exports are generally considered a revenue. This is reflected in the fact that most governments have put a range of policy instruments in place aiming to stimulate firms, particularly small and medium sized enterprises (SMEs), to develop exporting activities. Much less attention is directed towards importing. However, importing might offer firms the possibility to purchase inputs that e.g. suit the production process better, that are cheaper or of better quality, which could enable firms to increase productivity and thus boost export success and ultimately increase profitability.

Although there is considerable literature concerning the link between importing and productivity, the literature regarding the link between importing and export performance of firms is almost non-existent. However, this link is relevant since increased success on domestic markets induced by importing might come at the expense of other domestic firms (crowding out). From a policy perspective this might still be relevant since this process of creative destruction would increase total efficiency at the macro-level. However, boosting success at foreign markets would be even more desirable from a policy angle, because of the considerably larger growth potential provided by the sheer size of foreign markets to the individual firm.

In this research project we aim to investigate to what extent firms capitalize on the opportunities that foreign input markets offer in terms of increased export performance. The central research question of this project is rather straightforward: *Does importing foster export performance?* The first step in this research project is a review of the relevant empirical literature available on this topic. We discuss in turn the ways export success is operationalized, the determinants of export success and the link between importing and productivity (because it is a key mediating factor between importing and exporting). This brief policy note presents the results of this literature review. The results of the empirical analysis will be presented in a discussion paper that will become available late 2018.

How to define export success?

Four measures of export success stand out as the most prominent:

1. export propensity (the probability of being an exporter),
2. export intensity (the export share in total sales),
3. probability of exiting the export market (altogether or a specific destination and/or product market) and closely related to the latter,
4. probability of survival in the export market in the setting of survival analysis.

The use of export status as a measure of export success seems difficult to reconcile with the empirical notion that a considerable fraction of firms (repeatedly) enters and exits export markets. In that sense, staying in export markets seems to be a more relevant measure of export success than being an exporter at a given point in time, either per se or to a specific destination country.

Firm-level determinants of export success

A wide array of firm characteristics is included in empirical analyses of the determinants of export performance. Most prominent in this respect are firm size, age and productivity, whether the firm is part of a broader enterprise group, the number of affiliates, foreign ownership, capital intensity, investments, innovativeness, geographic location of the firm within the home country,

the composition of the labor force in terms of education level, type of skills or the wage level. Many of these firm characteristics yield mixed evidence with respect to their association with export performance. A few papers show that importing positively affects exports indirectly through increased productivity or increases the export propensity of the firm.

Specific dimensions of the export behavior of the firm are also widely considered as factors explaining the export performance. Firm experience with exporting (per se or with specific markets) is often included in the analysis in this respect and generally shows to have a positive impact on export performance. The initial value of the export relationship is generally controlled for in survival analysis as well. The underlying hypothesis being that the larger the initial value the larger the commitment of the exporter with the new export endeavor and thus the higher the probability of survival. Whether the exported product or destination constitutes a key or core element in the export portfolio of the firm also shows to positively affect the duration of the export relationship.

In addition, a relatively new strand of research has been emerging that links the degree to which firms are financially constrained to their export performance. The results generally indicate that limited access to finance does indeed hamper the export performance of firms.

Industry-level determinants of export success

A considerable number of papers investigates industry-level determinants of firm-level export performance. Some papers investigate spillover effects such as the impact of the R&D intensity of the industry in which the firm operates. Others look at network effects for example by analysing if the number of incumbent exporters to a certain destination fosters survival rates (it generally does).

Country-level determinants of export success

Numerous papers also consider the impact of the characteristics of the destination country of the exports on export performance. Gravity factors frequently staging in this strand of research include distance, size, growth and level of development of the destination economy, trade policy measures (import tariffs, trade agreements, etc.) and cultural or linguistic similarity. The results are generally intuitively straightforward. For example, exit rates show to be higher on more distant markets and lower on larger, richer or faster growing markets.

Importing and productivity

The broad picture emerging with regard to the link between importing and productivity is that importing firms are more productive than non-importers with importers self-selecting into international sourcing markets rather than becoming more productive by being active as an importer. Nonetheless, some studies also find evidence in favor of the learning by importing hypothesis. In addition, this relationship between importing and productivity is also moderated by the factor intensity (the type) of the good that the firm imports and its origin country.

Introduction

Imports are frequently perceived to be a cost, while exports are generally considered a revenue. This is reflected in the fact that most governments have put a range of policy instruments in place aiming to stimulate firms, particularly small and medium sized enterprises (SMEs), to develop exporting activities. The rationale behind stimulating firms to develop exporting activities is, amongst others, that this enables them to benefit from more sizeable foreign markets or from economic growth in high-performing economies. However, much less attention is directed towards importing (Wymenga, 2013, p. 41). Even though importing indeed constitutes a cost, it might offer firms the possibility to purchase inputs that for example suit the production process better, that are cheaper or of better quality.¹ This would imply that importing could enable firms to reduce costs and thus increase productivity, boost export success and ultimately increase profitability.

Although there is a considerable literature concerning the link between importing and productivity, the literature regarding the link between importing and export performance of firms is almost non-existent. However, this link is relevant since increased success on domestic markets induced by importing might come at the expense of other domestic firms (crowding out). From a policy perspective this might still be relevant since this process of creative destruction would increase total efficiency at the macro-level. However, boosting success at foreign markets would be even more desirable from a policy angle, because of the considerably larger growth potential provided by the sheer size of foreign markets to the individual firm..

In this research project² we aim to investigate to what extent firms capitalize on the opportunities that foreign input markets offer in terms of increased export performance. The central research question of this project is rather straightforward: *Does importing foster export performance?* Several extensions of this basic question will also be addressed. For example, does the origin of imports play a role in this relationship? Or the type of goods or services being imported? Through which channels does importing affect export performance? Is productivity the mediating factor in this respect? Or does importing directly add to the firm's experience with trading particular products or with particular foreign markets enabling it to be a competitive exporter? This analysis provides valuable input for policy makers concerning ways that foster export success among Dutch firms.

The first step in this research project is a review of the relevant empirical literature available on this topic. This brief policy note presents the results of this literature review. The results also serve as input for the empirical analysis. The empirical analysis constitutes the second step in the process, the results of which will be presented in a discussion paper that will become available late 2018.

Research on the relationship between import behavior and export success is scant. In contrast, empirical research that relates importing to other dimensions of firm performance, particularly productivity, is widely available. This is a relevant strand of literature since importing and exporting seem to be connected mainly indirectly through productivity as a mediating dimension.

¹ See e.g. Van den Berg & van Marrewijk (2017) for a discussion.

² This research project is part of the broader *Research Agenda Globalisation 2018* of Statistics Netherlands that is commissioned by the Dutch Ministry of Foreign Affairs.

The determinants of export success have also been abundantly researched thus far, both in the business literature and in the trade literature. We will discuss both fields. But importing as a determinant of export success, both directly and indirectly through e.g. productivity, has only sparsely been the focus of attention.

With this notion in mind we separate the review of the relevant literature in three parts. First we provide an overview of the ways export success is operationalized in the literature. Then we present a review of the literature concerning the determinants of export success. Finally, we review the empirical literature concerning the relationship between import behavior and productivity.

Please note that our aim is not to be exhaustive in our discussion of the relevant literature, which would be virtually impossible considering the amount of research available, but to provide a comprehensive picture of the empirical evidence concerning the interconnectedness of import behavior, productivity and export success. This also implies that we do not exhaustively cite the literature that has been studied for this review.

1. Operationalizing export success

We start this overview of the relevant literature with a discussion of the range of definitions of export success employed in the literature.

Four measures of export success stand out as the most prominent, both in the business literature and in the trade literature:

1. export propensity (the probability of being an exporter),
2. export intensity (the export share in total sales),
3. probability of exiting the export market and closely related to this,
4. probability of survival in the export market in the setting of survival analysis.

In the large majority of the papers investigated for this study at least one of these four measures of export performance is operationalized in the analysis as the dependent variable of interest.

The use of export status (propensity) as a measure of export success seems difficult to reconcile with the empirical notion that a considerable fraction of firms (repeatedly) enters and exits export markets (see for example Bekes and Muraközy, 2012; Bernini et al., 2016). In that sense, staying in export markets (the fourth measure) seems to be a more relevant measure of export success than being an exporter at a given point in time, either per se or to a specific destination country.

In addition to the four measures mentioned above several alternatives emerge. A few papers consider export growth, either growth of the export value (Bricongne et al., 2012) or growth of the export share in sales (Wagner, 1993). Araujo et al. (2016) explain the initial export value of export starters and the subsequent growth of exports in a regression analysis. Smeets et al. (2010) and Minetti and Zhu (2011) separate between the extensive margin³ and the intensive margin of trade by distinguishing between the propensity to export and the subsequent level (value) of exports. Some papers focus on the number of destinations served or the number of products exported, in terms of market entries or exits (Muuls, 2008; Askenazy et al., 2015). Bekes and Muraközy (2012) separate permanent exports from temporary export flows in an attempt to identify the determinants of permanent exports.

Finally, in the business literature several measures of export performance emerge which are either difficult to quantify, such as export profitability or export market share, or qualitative and oftentimes subjective, such as product acceptance, client loyalty or management satisfaction with the export performance or achievement of the export objectives (e.g. Katsikeas et al., 2000; Carneiro et al., 2016). However, such measures hold no practical relevance to our quantitative analysis and will not be further explored.

The unit of measurement differs throughout the literature, usually being either the total exports of the firm, or exports at the firm-country or firm-product-country level.⁴ For example, when the probability of survival is the dependent variable of interest this either concerns the probability of

³ The extensive margin of trade is for example the number of countries or buyers a firm trades with or the number of products it trades, the intensive margin is the average trade value along the extensive margin. The multiplication between the two margins yield the total trade value.

⁴ We focus our literature review on firm-level research. Nonetheless, there is also a considerable and growing literature on the duration of trade relationships at the macro-level. See for example the seminal papers of Besedes and Prusa (2006a and 2006b). This strand of research is oftentimes framed in the setting of the gravity model of trade (e.g. Carrere and Strauss-Kahn, 2017).

survival as an exporter per se (e.g. Ilmakunnas and Nurmi, 2010; Jaarsma, 2012; Fu and Wu, 2014; Inui et al., 2017; Görg and Spaliara, 2018) or the probability of survival as an exporter (of a specific product) to a specific destination country (e.g. Stirbat et al., 2013; Gullstrand and Persson, 2015; Albornoz et al., 2016).

2. Determinants of export success

This chapter concerns a discussion of the empirical literature of the determinants of export success. We separate the discussion between two fields of research. The business literature is discussed in section 2.1, this literature concerns the fields of management and marketing. The trade literature, which is the most relevant to our analysis, is tackled in section 2.2.

2.1 The business literature

In the business literature, particularly in the fields of marketing and management, the determinants of export performance are widely debated. Luckily, the vast body of empirical work available is synthesized in elaborate review papers on a frequent basis (see e.g. Zou and Stan, 1998; Leonidou et al., 2002; Sousa et al., 2008; Chen et al., 2016). Most of the empirical research is based on the same general conceptual framework in which export performance results from two elements: (1) the firm's export targeting strategy (the decision which markets to target and the segmentation of markets) and (2) the firm's export marketing strategy (pricing strategy, promotional efforts). These two elements are in turn affected by managerial characteristics (export commitment, experience with exporting, perceived gains from exporting), firm characteristics (size, age, technology, competitiveness) and environmental forces (intensity of competition, barriers to exporting), which thus indirectly impact on the firm's export performance (see e.g. Leonidou et al., 2002).

The focus of most papers in this literature is on the more qualitative, less-tangible factors that affect firm export performance, particularly the marketing strategy in terms of e.g. product, pricing and distribution. With the quantitative nature of the firm-level data available at Statistics Netherlands in mind, the empirical evidence concerning these qualitative factors is difficult to transfer to our endeavor.⁵ Furthermore, studies in this field almost exclusively concern survey-based research derived from small samples, which, combined with a wide variety of methodologies and measures of export performance, renders generalization of the findings a fickle process.

We focus the discussion on the results regarding firm, industry and destination market characteristics emerging in this strand of literature and provide a brief synthesis of the empirical evidence concerning their impact on export performance.

Firm size, age, international experience, export market orientation and degree of internationalization are among the most well-researched firm characteristics in this respect. Sousa et al. (2008) show that all but firm age generally correlate positively with export performance. Sector of activity is oftentimes controlled for as well. These findings are largely corroborated by Chen et al. (2016) in the most recent survey of the literature. In an earlier review, Zou and Stan (1998) also show that firm size, age, technology and international competence (which may be interpreted in terms of experience on foreign markets) are among the most researched firm characteristics. However, their review largely shows inconclusive results with respect to the impact of these characteristics on export performance.

⁵ Note that in an econometric panel analysis, an important part of this firm-specific non-observed heterogeneity can be controlled for by means of the econometric specification employed.

Regarding foreign market characteristics, Sousa et al. (2008) show that the legal and political environment, cultural similarity and degree of competitiveness are occasionally investigated as well, with mixed results. These findings are corroborated by Chen et al. (2016). The review of Zou and Stan (1998) also shows that the characteristics of the destination market are more sparsely researched with largely insignificant results.

2.2 The trade literature

The determinants of export performance are investigated at three levels in the trade literature: (1) at the level of the firm, (2) at industry level and (3) at country level. We structure the discussion of the empirical evidence on the determinants of export success accordingly.

Firm-level determinants

A wide array of firm characteristics is included in empirical analyses of the determinants of export performance. These variables are either the focus of the analysis or included as a control variable. Most prominent in this respect are firm size, age and productivity, whether the firm is part of a broader enterprise group, the number of affiliates, foreign ownership, capital intensity (e.g. assets per worker), investments (e.g. in tangible assets), innovativeness (e.g. investments in R&D), geographic location of the firm within the home country (e.g. closeness to the border), the composition of the labor force in terms of education level or type of skills or the wage level.

Many of these firm characteristics yield mixed evidence with respect to their association with export performance. No clear picture emerges as to which factors significantly correlate with export performance and which factors do not. For example, the more productive firms generally have a higher export propensity or longer duration of exports (e.g. Görg et al., 2012; Gullstrand and Persson, 2015; Inui et al., 2017; Brakman et al., 2018), but the evidence regarding the export intensity is much more mixed (e.g. Barrios et al., 2003; Conti et al., 2010; Smeets et al., 2010; Eikerpasch and Vogel, 2011; Lejarraga and Oberhofer, 2015; Masso et al., 2015). In addition, Bekes and Muraközy (2012) show that productivity positively correlates with the probability of being a permanent exporter. Overall, analyses with export intensity as the dependent variable tend to return considerably less significant results than comparable econometric models with e.g. the export propensity or the duration of exports as the dependent variable of interest.

Specific dimensions of the export behavior of the firm are also widely considered as factors explaining the export performance. Firm experience with exporting is oftentimes included in the analysis in this respect and generally shows to have a positive impact on export performance (see amongst many others Freund and Pierola, 2010; Bekes and Muraközy, 2012; Görg et al., 2012; Stirbat et al., 2013; Gullstrand and Persson, 2015; Araujo et al., 2016; Bernini et al., 2016). The experience dimension is operationalized in multiple ways, such as the export intensity (export share in sales, probably starting from the premise that the export share in sales rises over time), the duration of the export relationship (firm-product-country), experience with exporting to similar markets, experience with selling the same product to another country and vice versa or the number of previous attempts selling a particular product to a particular country. Regarding the latter, some papers also accommodate market re-entry in the empirical analysis in this respect (e.g. Sabuhoro et al., 2006; Tovar and Martinez, 2011). The number of destinations that is being exported to and the number of products exported are also considered as determinants of export performance in some cases (Sabuhoro et al., 2006; Tovar and Martinez, 2011; Askenazy et al., 2015). The results show that the more diversified exporters (more products and/or destinations) are generally the more stable exporters (e.g. lower exit propensity).

The initial value of the export relationship is generally controlled for in survival analysis as well (e.g. Freund and Pierola, 2010, Görg et al., 2012). The underlying hypothesis being that the larger the initial value the larger the commitment of the exporter with the new export endeavor and thus the higher the probability of survival. In addition, whether the exported product constitutes a key or core product in the export portfolio of the firm also shows to positively affect the duration of the export relationship (Bekes and Muraközy, 2012; Gullstrand and Persson, 2015). The geographic equivalent of this determinant, to which extent the destination is key or core to the exporter, is also positively tied to the probability of survival on a particular export market.

A relatively new strand of research has been emerging that links the degree to which firms are financially constrained to their export performance. This literature focuses on the question to which extent a lack of access to finance hampers the export performance of individual firms. A host of indicators for financial constraint are employed in this strand of research, either individually or combined into a dedicated index, such as leverage, liquidity ratio, debt ratio or solvency ratio. The results generally indicate that limited access to finance does indeed hamper the export performance of firms, see amongst others Greenaway et al. (2007), Muuls (2008), Bellone et al. (2010), Minetti and Zhu (2011), Askenazy et al. (2015) and Görg and Spaliara (2018).

A few papers consider dimensions of the import behavior of the firm as determinants of export performance. Aristei et al. (2013) show that importing positively affects exports (foreign sales) indirectly through increased productivity and product innovation. These findings are corroborated by Feng et al. (2016) and Edwards et al. (2018) who additionally also acknowledge the transmission mechanism of the lower cost of imports. Bas and Strauss-Kahn (2014) show that the number of imported varieties (the number of different products) and their origin (developing or advanced country) affect the number of exported varieties by the firm both directly and indirectly (by boosting productivity). Brakman et al. (2018) show that being an importer is associated with a higher export propensity. Inui et al. (2017) on the other hand show that being an importer does not lower the probability of exiting exporting. Finally, Stirbat et al. (2013) show that having experience with particular countries as an importer increases the probability of survival as an exporter on that market.

Industry-level determinants

A considerable number of papers investigates industry-level determinants of firm-level export performance, ranging from a simple dummy variable controlling for the firm's sector of activity (jointly with firm size this is probably the most common control variable) to analyses of network advantages or spillover effects. Barrios et al. (2003) and Greenaway et al. (2004) show that the firm's export intensity is positively associated with the R&D intensity of the industry in which the firm operates, both with the R&D activity of multinational enterprises and that of domestic firms. Creusen and Lejour (2012) investigate to what extent exporters benefit from the number of exporters to the same destination. Their results indicate that the growth of firm-level exports to a particular country is higher if the number of incumbent exporters to the same destination is higher. In addition, Creusen and Lejour (2012) consider network advantages at various levels; the number of exporters from the same domestic municipality, region or industry, but without a significant impact on export growth. Ilmakunnas and Nurmi (2010) show that the share of exporters in the domestic industry positively correlates with firm-level survival as an exporter. Comparable sets of explanatory variables capturing network-type advantages at the sector level are considered by Tovar and Martinez (2011), Stirbat et al. (2013) and Inui et al. (2017). Görg et al. (2012) show that industry-level experience with a particular product market adds to firm-level survival rates in those markets.

Country-level determinants

Numerous papers also consider the impact of the characteristics of the destination country of the exports on export performance in a gravity-like framework. The type of questions that these studies aim to tackle is to what extent, for example, the distance to the destination country affects the probability of survival of the trade relationship with that country. Gravity factors frequently staging in this strand of research include distance, size, growth and level of development of the destination economy, trade policy measures (import tariffs, trade agreements, etc.) cultural or linguistic similarity (see amongst others Smeets et al., 2010; Bekes and Muraközy, 2012; Creusen and Lejour, 2012; Stirbat et al., 2013; Gullstrand and Persson, 2015; Albornoz et al., 2016). The results are generally intuitively straightforward. For example, exit rates show to be higher on more distant markets and lower on larger, richer or faster growing markets (Stirbat et al., 2013). In addition, Araujo et al. (2016) show that the institutional quality of the destination country positively affects the probability of survival, but has a negative impact on the growth of exports. The reason the authors provide for this is that the reputation of local distributors builds only slowly in a high-quality institutional environment, thus slowing down the process of getting to know the local market and its distributors by exporters. Finally, a few studies investigate the impact of exchange rate movements on export performance, without a clear picture emerging (see e.g. Basile, 2001; Gourlay et al., 2005; Muuls, 2008; Alvarez and Lopez, 2008).

3. Importing and productivity

In this chapter we provide a brief synthesis of the empirical literature concerning the relationship between importing and firm productivity. The relationship between the firm's import behavior and its export performance is sparsely researched as we have seen in the previous chapter. However, the relationship between importing and productivity has frequently been subjected to empirical investigation. This is a relevant link to consider in view of our research question, since productivity is shown to be a mediating factor in the relationship between importing and exporting (see Chapter 2).⁶

Importing and productivity

The broad picture emerging from the empirical literature and synthesized in Wagner (2012a) is that importing firms are more productive than non-importers with importers self-selecting into international sourcing markets rather than becoming more productive by being active as an importer (see e.g. Smeets and Warzynski, 2010; Vogel and Wagner, 2010; Van den Berg, 2014). Nonetheless, some studies also find evidence in favor of the learning by importing hypothesis (e.g. Kasahara and Rodrigue, 2008; Lööf and Andersson, 2010; Augier et al., 2013; Halpern et al., 2015)

The rationale for the link between importing and productivity is manifold (see Van den Berg and van Marrewijk (2017) for a more elaborate discussion). Importing could enable firms to purchase intermediate inputs at lower cost or of higher quality because of the wider variety of inputs available to the firm on international sourcing markets. In addition, firms could benefit from importing innovative intermediate inputs from the technological frontier or learn from their foreign suppliers (spillover effects). In addition, Van den Berg and van Marrewijk (2017) amongst others show that this relationship between importing and productivity is also affected by the factor intensity (the type) of the good that the firm imports and its origin country.

Import tariffs, productivity and exporting

A number of papers have investigated the impact of trade liberalization through the lowering of import tariffs on productivity and exporting. Bas (2012) shows that import tariff cuts in Argentina fostered imports and in turn lead to additional exports through productivity gains. The existence of this complementarity between importing and exporting is corroborated by Kasahara and Lapham (2013). Schor (2004) and Goldberg et al. (2010) show that the lowering of import tariffs fosters firm productivity and Amiti and Konings (2007) additionally shows that tariff cuts ultimately also foster the productivity of the importers' buyers.

⁶ To the best of our knowledge, alternative measures of firm performance have only been sparsely considered with respect to the firm's importing behavior. Some work on importing and e.g. profit margins (Wagner 2012b; Van den Berg et al, 2018) and firm survival (Lopez, 2006; Wagner, 2013) has been done. However, these dimensions of firm performance do not evidently translate to the research question at hand and will thus not be elaborated on here.

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