Drivers and Consequences of Exporting: Policy Priorities[1]

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Drivers and Consequences of Exports: Policy Priorities

Abstract

This paper examines the drivers and consequences of firm-level exporting, with implications for trade policy. In particular, export promotion programs are commonly applied and we comment on their design and consequences, but also we identify policy initiatives that are more important for export performance. We based these conclusions on a review of the extensive literature on the relationships between firm productivity and export engagement. Evidence supports a self-selection effect where more productive firms are likelier to export, as well as a learning-by-exporting effect where export participation enhances firm productivity, creating a virtuous circle. Key factors influencing export decisions include firm size, institutional environment, human capital, and foreign ownership. Notably, firms with foreign affiliations and those using imported inputs are more likely to engage in exporting. The paper also explores export sustainability, finding that while many firms initiate exports, a significant proportion cease within a short period. We analyze the impact of trade participation on firm performance, focusing on productivity gains from both exporting and importing. Two-way traders (firms that both import and export) tend to be the most productive. Additionally, we discuss the effects of trade policy changes, particularly tariff reductions, on firm productivity and product quality. Lowering input tariffs is found to have a more substantial positive impact on productivity compared to reducing output tariffs. We consider effects at the sectoral level and the linkages with the process of servicification. The paper concludes by discussing policy implications, emphasizing trade facilitation, foreign direct investment liberalization, and services policy reform as priority areas for promoting export growth. The paper takes a critical view of export promotion policies.

Key Words

Exporting

Productivity

Trade Policy

Firm Performance

Innovation

Global Value Chains

Background

There is a long running debate about the benefits of globalization at the economy-level (for example the gains from specialization and trade and impacts on competition and innovation) but not so much about how these benefits operate at the level of the individual business, which sorts of businesses are involved in trade and what are its consequences for different types of firms. This part, though not all, of the story about trade and its consequences for 'inclusion'.[2] This aspect of the process of globalization, which is linked to firm performance, is our analytical interest in this paper.

We also consider the policy implications of the results of our review. For example, many governments apply export promotion programs. We are able, once we establish links to benefits from participation in exports, to comment further on these policies and their design. This is our main policy interest in the paper.

Our method is to draw on the literature on what drives participation in exports and the consequences of doing so. We stress the virtuous circle between productivity and exports: more productive firms are likely to export but doing so also adds to productivity. There are various other consequences of exporting which we also explore, such as the implications for innovation. [3]

Having established several consequences or benefits of exporting, what is the case for intervention to support that participation? Interventions by governments take a variety of forms, of there are many different categorisations. But what problem are they trying to solve and is there a case in terms of market failures for doing so? We discuss this topic and note the literature on the actual impact of the interventions. These impacts are generally significant, but we note that this result does not make the case for their application. Instead, we draw attention to other policy measures which we argue demand priority attention in the context of a goal of export promotion. These include trade facilitation, for which there is a well-defined global framework, liberalization of foreign direct investment and reform of services policy.

Our first step is to examine the drivers of participation in trade, and then consider its consequences. This is followed by discussion of actual policy and other policy options.

[2] A more complete discussion of trade and inclusion would also consider implications via labour markets, for example, and shifts in the demands for skills. On the topic of globalisation and technology and their impacts on the wages of skilled and unskilled workers, see Wang, Findlay and Thangavelu (2021).

[3] In this paper we concentrate on conditions, including policy, in the home economy of the exporter. This includes tariff rate changes for example. We pay less attention to changes in policy in export markets, such as trade liberalisation in those economies.

Who exports?

The literature on the question of who exports has focussed on the contribution of firm-level productivity and their variations between firms. This has led to the hypothesis of self-selection. In addition, other factors may also matter.

Self-selection

Generally, a large share of a country's exports is accounted for by a small number of firms. Freund and Pierola (2015) find that, after reviewing firm level data from 32 economies, the top one percent of firms generally account for half of a country's exports. Using data for 40 developing economies, Freund and Pierola (2020) find that 'the top five exporters account for on average one third of exports, over half of export growth, and almost all of export diversification over a five year period.' What determines who exports and who does not? The research literature has focussed on the costs of getting involved in exports.

The costs of exporting include those of market research, the redesign of goods and exports, and the establishment of distribution systems. Once firms enter the operational stage in the export market, there can be additional burdens associated with exportIng, such as local distribution, difficulties in collecting payments, problems in after-sales service, and managing the risk of exchange rate fluctuations (Julian and Ahmed, 2005). Most of the costs spent at the setup stage cannot be recovered on exit and are therefore sunk, which has important implications for the decision to export.

Some studies have examined the effects of changes in exchange rates to illustrate the significance of sunk costs. The proposition is that current exporters, who have incurred the sunk costs of set-up, are more likely to respond to changes in the exchange rate than non-exporters. That is, exchange rate fluctuations are more likely to affect volumes exported by existing exporters rather than leading to the entry of new firms. Bernard and Jensen (2004) find that the dollar depreciation in the 1980s caused an expansion of US exports, 87% of which was accounted for by increased export intensity and only 13% by the entry of new firms.

Given the sunk costs involved, what sorts of firms are more likely to be willing to incur those costs? Clerides, Lach and Tybout (1998) explain that a key determinant of firms' participation in international trade is productivity. To enter a foreign market, firms need to be operating at a level of productivity which is sufficient to cover the sunk costs incurred. Therefore, highly productive firms tend to export and others stay domestically operated. However, there is a two-way relationship. The authors also find that firms may increase their productivity after entering international trade. Conducting export activity may force firms to reduce inefficiency in order to compete in export markets, for example. The question then concerns the relative importance of these effects in each direction, that is, from productivity to trade and the reverse: in this part, we concentrate on the former effect and we examine the latter in a later section.

With respect to the effect from productivity to trade, Melitz (2003) explained that exporting firms have relatively high productivity and are able to profit from exporting even though they suffer the sunk costs of entering export markets (see also Bernard and Jensen (1999), Lopez (2005), Greenaway and Kneller (2007), and Wagner (2007)). Hayakawa, Machikita, and Kimura (2012) conclude from their survey that productivity is the most influential firm characteristic on the decision to export. Greenaway and Kneller (2007) argue that the direction of causality is from firms' performance, as indicated by productivity, to their global engagement, which is also referred to as a

situation of 'self selection'. Wagner (2007, 2012) provides substantial evidence in favour of the self-selection hypothesis.

Other factors

Various other factors influence export decisions, including firm size, the characteristics of local institutions, access to human capital and extent of foreign ownership. Larger firms can exploit the advantage gained by economies of scale and scope in production and management, as well as in financing and marketing resources. Wagner (1995), based on a longitudinal data set covering some 7000 manufacturing German firms, shows that the probability that a firm is an exporter increases with firm size, although the effect decreases as firms become larger. The author also notes that there are many successful exporters among small firms, and that there are non-exporters among larger firms, too, but that most of the exports are from groups of larger firms. Wagner (2001) also shows that size matters but that this result varies by industry. Bernard, Jensen and Lawrence (1995) and Bernard and Jensen (1999) reported that exporters in US manufacturing are larger firms. Bernard, Jensen, Redding and Schott (2018), also using US data, show that large firms participate more intensively in international trade and that a few large firms dominate international trade. Tuhin and Swanepoel (2017) utilise firm-level data from the Australian Business Longitudinal Analysis Data Environment (BLADE), find that generally exporters are larger than non-exporters. Using another indicator of size, Roberts and Tybout (1997) find that in Colombia plant size, as well as plant age and the structure of ownership, adds to the propensity to export. Aitken, Hanson and Harrison (1997) also found evidence that plant size is positively related to the decision to export in Mexico. A similar finding was observed for other developing economies (e.g. Aw and Hwang 1995; Berry 1992).

Krammer, Strange and Lashitew (2018) examine the determinants of trade performance in emerging economies to understand the impact of the institutional environment. Using data on more than 16,000 firms in Brazil, Russia, India and China, they find that firms are more likely to be exporters if they perceive more political instability and more intense informal competition in their home economies. Better institutional capabilities, which are reflected in workforce skill levels and access to external technologies, increase their export intensity.

According to various studies, the presence of skilled labour is significantly related to the proportion of sales that is exported. For example, Wagner (2010) using German enterprise data argues that productivity is strongly and positively related to the intensity with which the firms employ human capital (eg skilled workers, which is reflected in the average wages paid). Krammer, Strange and Lashitew (2018) find that, while managerial capabilities are not significant for export performance, access to a pool of skilled labour is important.

Ownership structure has a role. Kuncoro (2017) tested for the determinants of a decision to export among Indonesian firms, using manufacturing survey data from the 1990s and 2000s. He found that foreign equity alongside the use of imported inputs, access to external finance and larger and medium but not small firm size were positive contributors, as well as lagged exports. In this case, the firm's own productivity growth was not a significant explanator.

A degree of foreign ownership increases the likelihood that firms will export, compared to domestically owned firms. One explanation is that foreign-owned companies have resources and expertise to facilitate export success because of their existing global networks. Sjoholm (2003), using Indonesian manufacturing data for the 1990s, found that establishments with foreign networks (using indicators based on imports as well as the presence of FDI) were more likely to export. Other positive

contributors were firm size and location in a district which was a larger exporter. Examining data by industry, Rahmaddi and Ichihasi (2013) find positive effects from the presence of FDI on exports for all sectors, but especially for sectors intensive in human capital and technology. They say FDI crowded-in exports from those sectors, but without crowding out exports from other sectors such as those which are labour intensive.[4] Sjoholm (2017) also finds that FDI has contributed to Indonesian value add directly and via spillovers to domestic firms.

Other evidence from Indonesia (Amiti and Konings, 2007, Narjoko et al 2018) suggests that foreign-owned plants have become increasingly important in exports. They are more productive and more export-intensive than domestic plants and spend more on research and development and training. Local suppliers to foreign-owned plants improve the quality of their own products to meet demands from their international clients. Vilavong (2018) analyses the export behaviour of manufacturing firms using an enterprise survey conducted in Laos in 2009, 2012, and 2016. He finds that economies of scale are important for firms to overcome the initial costs of export entry. At the same time, foreign affiliation and imported inputs give firms access to accumulated learning experience and allow them to tap into the technologies of foreign companies.

In Vietnam, Anwar and Nguyen (2011) found positive horizontal effects (effects of foreign firms on domestic firms at the same stage of the production process) and positive linkages forwards to domestic firms supplied by foreign firms. Chen, Sheng and Findlay (2013) for Chinese firms found positive horizontal effects and positive upstream effects but negative downstream effects, due to a competition effect. Van Ha, Holmes and Hassan (2020) for the case of Vietnam also found positive horizontal effects and positive upstream effects but negative effects downstream. They question whether firms in the downstream sectors can take advantage of the technology available from foreign suppliers.

How long?

Many empirical studies, reviewed by Greenaway and Kneller (2007), examine not only the effect of sunk costs on firms' decision to enter exports but also whether participation in the export market is sustained. A common finding is that exporting behaviour is strongly correlated with recent history and that the presence of sunk costs is the explanation of the observed link from history to current practice. Roberts and Tybout (1997), reporting on the experience of Colombian manufacturing firms, show that sunk costs are significant and that firms who have already incurred start-up export costs tend to continue to export. Specifically, they showed that prior export experience increases the probability of further exporting by as much as 60 percentage points. Past participation increases the probability of export continuation by 36% in the US (Bernard and Jensen, 2004) and by 90% in Italy (Bugamelli and Infante, 2002).

Several studies have observed that while some exporters sustain their effort many do not. Inui, Ito and Miyakawa (2017) for example report that for Japanese firms the median export duration is 7 years and that very few export more than 5 years. Spanish data shows that 25% of exporters stop after the first year (Esteve-Pérez, Requena-Silvente, and Pallardo-Lopez, 2013). Eaton, Eslava, Kugler and Tybout (2008) find in Colombia that while many firms start exporting each year, with small volumes, almost half cease within a year. Kuncoro (2017) finds very low of negative net exit rates in

[4] There is a larger literature at sectoral or higher levels on the relationship between trade and FDI from the home country perspective. See Thorbecke and Salike (2016) for a review.

exporting over the period 2000 to 2008. He then examines why some Indonesian exporters quit, using data from a series of Indonesian manufacturing surveys in the 1990s and the 2000s. Those less likely to quit are firms with FDI, larger firms, those with better access to finance, and those with new machinery investment (which may be imported). Firms in sectors with higher effective rates of protection are less likely to continue exporting.

One explanation of these patterns of entry and exit is based on the observation that exporters face uncertainty about their 'general ability' to earn profits from selling goods or services offshore (Albornoz, Pardo, Corcos and Ornelas 2012). This uncertainty can only be resolved by accumulating experience which, even at a small volume, is an efficient method to resolve uncertainty. Albornoz, Pardo, Corcos and Ornelas (2012) propose that the intelligence gained is not specific to a point in time but remains relevant in the future, because there are costs of doing international business which are uncovered by the initial experience and which continue to be incurred over time. These might be related to the systems and processes which must be put in place for export markets, which are not required for and were not originally present when selling in just the home market. The initial experience in one market also apply in others where consumers have similar preferences once the product or service is refined during the initial experience. In these circumstances, the investment in the initial experience offers a significant pay-off. This framework has several implications (Albornoz, Pardo, Corcos and Ornelas 2012). For example, if the result of the initial experience might be that exporting does not pay, the exporter withdraws immediately. But if the new exporter survives, then export sales grow rapidly in the first market and if the new exporter survives, then sales also grow rapidly as other markets are opened, based on the experience of the first.

These patterns are less likely for producers of homogeneous goods and more likely for producers of differentiated products, where the lessons from the initial experience are likely to be more valuable. Albornoz, Pardo, Corcos and Ornelas (2012) call this 'sequential exporting' (starting small in one market and then growing fast and expanding across destinations) and they confirm these expectations with data from Argentina.

Another explanation of the patterns over time focusses on the difficulty of establishing relationships to support exporting. Aeberhardt, Buono and Fadinger (2014) shows very few firms can export without a partnership, given the likely specific nature of their good or service, and the importance of understanding its features and translating those to the target market. Finding the right partner is an element of the set up (and sunk costs) of exporting. However, initially the exporter is always uncertain about the capability of any partner to manage the importing process and about their reliability. In fact, the importer may attempt to hold the exporter 'to ransom', despite having a formal agreement or contract about a long-term relationship, to capture some short-term gains. When that happens, the export experience is short-lived (Aeberhardt, Buono and Fadinger 2014). This is less likely when a) the institutions (or 'the rule of law') in the importing country are strong and support the enforcement of contracts, b) exporters are highly productive (or high performing), and thereby offer a more valuable long term relationship, c) the import market is larger (the destination economy is bigger) and so offers greater long term benefits, d) importers are more 'patient' with respect to reaping benefits from the arrangements, e) the relationship is older, since over time the instances of unreliability would otherwise have been identified and resolved, or f) the nature of the business involves less specific investments by the exporters, which would otherwise expose them to being 'held up' by the importer.

Aeberhardt, Buono and Fadinger (2014) report that data for French firms is consistent with these expectations. They also find some important interactions. For example, when exporters are highly productive, institutional quality matters less (equivalently, institutions matter more for the survival of low productivity firms). In addition, they find differences between large and small exporters, for example, the rule of law contribution to the likelihood of sustaining exports is much greater for small exporters. This may also be because larger firms have their own distribution networks and they may deal with a larger number of importers, so that if one proves to be not reliable others can take their place.

A third approach to explaining the patterns of sustainability identifies different strategies for firms entering export markets. Bekes and Murakozy (2012) compare two approaches. One involves a significant up-front investment, which is also sunk, involving for example the creation of a distribution network from point of entry to retail sales. Once this investment is made, the unit cost of distribution is likely to be relatively low. The other approach avoids the larger up-front investment but then incurs higher costs per unit of the product or service to reach the final consumer. The former might involve an investment in local facilities by the exporter and the latter might involving contracting local distributors, for example. Bekes and Murakozy (2012) then consider which types of firms choose which strategy. They find that high productivity firms are more likely to choose to the strategy of the larger up-front investment. They then observe that since the unit costs of exporting are subsequently relatively low, these firms are likely to continue exporting, even if there is a shock of some sort that affects their competitiveness. Firms that are less productive choose the other path, but these firms are then more exposed to shocks since their margin over the cost of delivery is smaller. They are less likely to sustain their exports.

An analysis of Hungarian firms' data by Bekes and Murakozy (2012) supports these propositions. Inui, Ito and Miyakawa (2017), developing this framework, argue that firms selling products which can be differentiated from those of closer competitors are more likely to have the incentive to invest up-front to secure a higher stream of profits, and therefore are more likely to sustain their exports. These firms are also more intensive participants in research and development. They find support for these propositions in data on Japanese firms.

Impact of trade and the virtuous circle

The possibility of an association between the participation in exports and productivity at the firm level has already been noted. A broader view is taken in some parts of literature, which considers participation in both exports and imports. This leads to attention to a virtuous circle from trade to productivity and (on the effects side) back again. On the effects-side of the circle, there are also implications to consider for quality and innovation, both key elements in competitiveness. We begin with a focus on productivity.

Productivity

The channels of effect of participating in trade include those via exporting and via access to imported intermediates.[5] The former export effect includes that associated with selling into a larger market, which increases the returns and therefore the incentives to undertake investments to increase

[5] There could also be an impact via import competition in the output market and in the input market. Here we concentrate on the two mentioned channels.

productivity and to innovate (the innovation effect is discussed further below). Shu and Steinwender (2018) provide a framework for considering these effects.

Many studies find a positive market size effect, according to studies reviewed by Shu and Steinwender (2018). This effect is even more likely for firms which are already more productive. They also find a positive learning effect, which is more likely when firms are exporting to developed economies. Tuhin and Swanepoel (2017) for example, by using Australian data find that, after beginning to export, the labour productivity of (and the average wage paid by) exporters increased significantly compared to non-exporters. Interestingly, being involved in exporting was also related to a higher chance of business survival. Blalock and Gertler (2004) also find strong evidence that exporting firms experience a two to five percent increase in productivity after initiating exports.

With respect to the effect of access to imported inputs, there are studies of the effects of importing and the effects of exporting and importing simultaneously. These linkages are analysed by Muuls and Pisu (2009), Castellani, Serti, and Tomasi (2010), and Vogel and Wagner (2010). Muuls and Pisu (2009) and Castellani Serti, and Tomasi (2010) discover that importing firms perform better than exporting firms. Zakaria (2014) also finds the same results. Vogel and Wagner (2010), on the other hand, find that exporting firms perform better. Wagner (2012) reviewed 20 studies on the links of imports and productivity, based on firm level data from 12 economies. The studies showed a positive link between importing and productivity at the firm level and also a significant productivity differential between firms that import and firms that do not trade internationally. Two-way traders are more productive than firms that either only import, or only export, or do not trade at all. The studies confirmed that the two-way traders are the most productive group of firms, followed by importers and then exporters, while firms selling or buying on the national market only are the least productive. These results suggest that firms involved in global value chains, thereby both importing and exporting, will benefit in terms of productivity from doing so.

Verhoogen (2024) stresses the challenges in measuring productivity effects (using revenue data) because participation in exports could change mark-ups (due to differences in elasticities of demand) or change quality. He reviews papers which seek to correct for these effects and concludes that there is evidence of improvements in productivity in developing-economy firms when they export to richer economies.

Changes in domestic protection

Some studies examine the changes in the trading environment in which firms operate, especially the consequences of changes in tariff rates in industries in which they are located. The question here is the consequence of those changes for the firms affected, including their decisions with respect to exporting and importing. These links can also work via the productivity and innovation effects induced by the changes in tariffs.

Shu and Steinwender (2018) refer to the effects of changes in final product tariffs as the import competition effect, which could affect productivity (and innovation) in various ways: there could be a negative impact on incentives to invest because the greater competition reduces the potential to capture rents from these investments. On the other hand, there could be an incentive to escape competition by making such investments. Shu and Steinwender (2018) suggest the motive to 'escape competition' will be more powerful when the competing firms how similar performance in terms of the application of technology. Laggards if they are present are more likely to show a negative response.

Shu and Steinwender (2018) refer to a survival incentive, which is a positive force for investment in productivity and innovation. This channel focusses on the incentives of managers to invest in their business for the sake of its survival in the face of import competition. This is more likely to be observed when the firm is seriously threatened, that is, when it has a low level of productivity initially. They also find that there is evidence consistent with the interest of escaping from import competition in firms in developing economies but mixed results from developed economies, which may be explained in terms of the dispersion of the productivity levels of firms included in the studies.

Some studies have compared the productivity effects of changes in tariffs on imported intermediates and on final products. Reduced tariffs on inputs may lower input costs, increase their quality and improve the efficiency of production. Higher profit margins may induce innovation. Inputs embody new technology that is transferred to the purchasing firm. Generally, Shu and Steinwender (2018) find support for these effects in the studies they review.

Using Indonesian manufacturing census data from 1991 to 2001, Amiti and Konings (2007) examine the effects of policy changes on productivity at the plant level. They find that a 10-percentage point decrease in output tariffs increases productivity by 6% and that a 10-percentage point decrease in input tariffs lead to a 12% productivity increase for importing firms, which is twice as high as any of the gains from the reduction of output tariffs. The effect is smaller than that for non-importing firms, for whom a decrease of 10 percentage points in input tariffs lead to only 3% increase in productivity. The lower output tariffs deliver productivity gains by promoting tougher import competition, whereas lower input tariffs boost productivity by the learning, variety, and quality effects.

Narjoko et al (2018) using the firm level Indonesia's industrial survey from 1990 to 2013 evaluates the impact of an import substitution strategy in Indonesia on the development of the intermediate inputs industry and shows that trade protection impedes firms' performance, including productivity, value added and export performance. The authors argue for an open trade regime and to intensify foreign presence in the industry for higher growth manufacturing sector.

Cali and Mountfaucon (2021) investigate the impact of non-tariff measures (NTMs) on the export performance of Indonesian firms. The study focuses on four specific NTMs that appear protectionist: pre-shipment inspections, restrictions on port of entry, mandatory certification with Indonesian standards, and import approval requirements. The findings suggest that increased exposure to these NTMs reduces firms' survival in export markets, as well as their extensive and intensive margins of exports. The negative effects of NTMs are generally larger than those of import tariffs. The study also provides suggestive evidence that markups are an important channel through which these effects are mediated.

Quality

Hayakawa, Matsuura, and Takii (2017) analyse the impacts of tariff reductions on quality upgrading by firms, using Indonesian data for the apparel industry. They find that an output tariff reduction yields no effect on quality upgrading but that a reduction of input tariffs generally does have that effect and that this effect is considerable among importing firms. The mechanism is that a reduction of input tariffs stimulates firms to import more foreign materials, which leads to an upgrade in the quality of their outputs. Moreover, there also seems to be a spillover effect to non-importers to also enhance the quality of their products. For example, the mechanism may be that local suppliers discover that there is an upsurge of foreign inputs; therefore, they also upgrade the quality of their

inputs in order to compete. Hence, the reduction of input tariffs enhances the quality upgrading of both importing and non-importing firms.

Edwards, Sanfilippo and Sundaram (2018) use firm-level data from South Africa and find support for the hypothesis that firms that import and export have higher average export values, export more products per destination, and export to more destinations per product compared to the firms that only export. They also find that a 10% increase in the number of varieties imported from developed economies can be associated with 6.7% increase in export value and 4.9% increase in the variety of export products. This finding confirms that imported technology is a determining factor for export performance.

Verhoogen (2024) reviews several papers that seek to identify the effects of exporting on product quality. He concludes that the positive connection is strong – exporting to richer economies induces firms to upgrade quality. The driver is the 'willingness to pay' of consumers in richer economies. He also observes that producing higher quality outputs requires higher quality inputs. More 'capable' firms export, because of the selection effect, and so exporting leads to higher average input quality in more capable firms. More capable firms (which also tended to be larger) also paid higher wages, and within those firms the effect on wages was stronger for white collar compared to blue collar workers.

Putra and Narjoko (2021) examine whether Indonesian manufacturing firms deliberately improve product quality before entering export markets, using firm-level and product-level data from 2000-2013. The study finds that, on average, firms prepare product quality 3 years before exporting, with this lag being the only statistically significant one. Foreign-owned firms show some evidence of greater quality preparation, though this is not robust across all specifications. There is substantial heterogeneity across industries, with sectors producing goods subject to rapidly changing consumer preferences (e.g. garments, footwear) having shorter quality preparation periods compared to more technologically complex products.

Innovation

Trade has productivity improving effects through its effects on innovation (Bustos, 2011; Lileeva and Trefler, 2010). Shu and Steinweder (2018) present channels by which these effects might operate. There are various types of innovation which are relevant, for example, product or service or both, process, marketing, and organisational design, which in various ways add value in an enterprise.[6]

Trade liberalisation can induce innovation through knowledge spillovers. For example, by having access to larger markets by participating in trade, domestic firms are more able to catch up to product or process developments in those markets, without any of their own research and development cost with respect to the various forms of innovation. The research and development of other firms in those export markets 'spills-over' to their competitors. For this reason, Coe and Helpman (1995) describe international trade as a 'spillover mechanism'.

Haneda and Ito (2014) rank firms by their degrees of innovativeness. They find that firms with investments in research and development facilities offshore (these firms are also likely to export and

[6] Other studies find that exporting precedes innovation. Once they begin exporting, participating firms are also more likely to use advanced management techniques and processes, such as business plans or budget forecasting (Harcourt, 2000).

to have production facilities offshore) show the best performance, followed by firms with both exports and offshore production, firms with exports only and firms with production offshore only. International engagement does not explain in their data on Japanese firms which are innovative but it is associated positively with the extent of innovative activity. The paper reports associations rather than the direction of the effects between innovation and exports.

Aghion, Bergeaud, Lequien and Melitz (2018) consider a situation in which exports are linked to innovation through the channels of a market size effect and a competition effect. They examine data on more than 105,000 firms across sectors in France, using the number of patent applications as an indicator of innovation. They begin with a descriptive analysis of two groups of firms – innovator firms (with at least one filed patent application) and non-innovator firms: they find that 94% of firms that export are also innovators.[7] To explain the direction of causality relationship between innovation and exports, Aghion, Bergeaud, Lequien and Melitz (2018) conducted an analysis of the least productive and most productive firms and found that a positive export shock leads to higher levels of innovation for more productive firms. The results for less productive firms show the opposite direction of causality, with increased competition associated with trade lowering the incentive to innovate.

Agarwal, Bajada, Green, Rammal and Scerri (2017) report, for Australia, a relationship running from innovation to exports. Their survey shows that innovation in products or services is most likely to increase exports, with lesser impact from innovation in other areas, such as marketing, processes, and organizational design.

Schulze and Schulze (2017) use World Bank Enterprise Survey data for Indonesia in 2015 to examine the determinants of innovation in a wide range of product and process forms. Only 20 percent of the sample of 1299 undertook at least one of these forms and only 6 percent were classed as substantial innovators. Firms that engage in export are 16-23 percent more likely to be innovators. Innovators are also more likely to be larger firms and more likely to be in oligopolistic markets. Age and foreign ownership were not important. There were also important industry and location effects.

Nguyen, Nguyen, Nguyen and Nguyen (2011) analyse the effects of trade liberalisation on innovation activities in small and medium-sized enterprises (SMEs), the most active and extensive sector in Vietnam. They measure innovation by the presence of new products, new production processes and improvements in existing products. Using the Vietnam SME Survey, they find that the impacts depend on the channel that is used for entry by international competitors, that is, via FDI or trade. The competition created by foreign firms improves SME innovation activities in terms of production process and product modification, while the presence of competitor products via imports pressures SMEs to conduct product innovation and product modification.[8]

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[7] Aghion, Bergeaud, Lequien and Melitz (2018) also find that innovators who export employ 4.6 times more workers and produce 7–8 times more output and value-added than non-innovating exporters.

[8] Some studies of these effects have been undertaken at an aggregate level, rather than using firm-level data. Coelli, Moxnes, and Ultveit-Moe (2016) show that declining tariffs during the 1990s had a large positive net impact on global innovation. According to their estimates, around 7% of the increase in global knowledge over this period can be attributed to freer trade. Bøler, Moxnes, and Ultveit-Moe (2015) show that input trade liberalisation stimulates both imports and innovation, bringing about cost reductions at both the firm and aggregate levels. Pavcnik (2002) finds productivity effects from import competition. See also Amiti and Konings (2007) results on the greater productivity effects of liberalisation of input rather than output tariffs.

Verhoogen (2024) concludes that the relationship between exporting and innovation is more clear for papers using exporter data from richer economies. The relationship is less well studied for firms based in developing economies.

Effects at the Sectoral Level

Previous sections have examined the consequences of participation in trade at the firm level. With a large number of firms affected, it is to be expected that these effects will feed through markets into wider consequences. Indeed, the literature has identified some of these at the sectoral level. For example, in the framework of Melitz (2003), the availability of new international markets (eg through liberalisation of barriers to trade in trading partner markets) attracts relatively more productive firms to exporting. It also drives more productive firms to expand and less productive firms to contract. The reallocation of activity, or the composition of firms, will improve the measured productivity at the sectoral level.

Various empirical studies have sought to identify the reallocation of resources towards more productive firms within a sector (for example, Lileeva,2008; Fernandes, 2007; Bernard, Jensen, and Schott, 2006; Trefler, 2004 and Pavcnik, 2002; Fernandes, Freund and Pierola, 2016).[9] According to Haltiwanger (2011), open economies are shown to have better allocative efficiency (measured by the relationship between productivity and size) and also higher productivity. Haltiwanger (2011) also points to evidence that these changes are substantial contributors to a country's overall economic performance.

Another consequence is that trade liberalization is expected to be associated with a reduction of productivity dispersion within an industry (Melitz (2003) and Bernard, Jensen, Redding and Schott (2012)). Del Gatto, Ottaviano and Pagnini (2008) using Italian manufacture data find a reduction of productivity dispersion caused by trade openness. Maggioni (2013) found effects in both directions, using Italian manufacturing data: increased availability of intermediates originating from developed economies widened the productivity dispersion but competitive pressure from low income economies reduced it. Other evidence from Indonesia also suggests a positive effect from import competition in improving allocative efficiency across manufacturing plants, which is also key element driving productivity overall in the manufacturing sector (Javorcik, Iacovone and Fitriani, 2015).

Servicification

An important change in the organisation of production has been that in the relationship of services and manufacturing. This change has been referred to as servicification. Miroudot (2019) has reviewed its elements.

One element is that services can be used as inputs to the operation of global value chains in manufacturing. These services include transport, finance, logistics, as well as others. The price and

[9] A reallocation effect can also be observed at the sectoral level in the form of a shift of resources among sectors, as described in Greenaway and Kneller (2007). McMillan and Rodrik (2011) show that globalisation does increase productivity, competition and access to global markets, particularly in the manufacturing industries, and it has also resulted in reallocation of resources across sectors.

quality of these services has an important impact on the performance of a value chain, and the global competitiveness of its members.

A second element is that services are used as inputs by manufacturing firms. These are sometimes referred to as embodied services. They are procured from suppliers external to the firm. Again, their quality and price affect the competitiveness of the user-firm. Kuncoro (2017) found that the use of services from other firms (especially from those in the same district) adds to the propensity to export.

In the context of international trade, this is another form in which services can move across borders, that is, embodied in the exports of goods (Cernat and Kutlina-Dimitrova, 2014). Recent research has permitted the estimation of this form of service transaction. The impact is significant, according to OECD data[10], since then services account for about 50 percent of all exports, compared to less than 25 percent when measured in terms of services moving directly across borders on their own account (Rickards, 2019; see also Mercer-Blackman and Ablaza (2018) for other estimates for Asian economies). The embodiment of services as inputs from other sectors appears less significant for services exports, with some sectoral variation (WTO, 2019). Generally, this share of services value added in exports is in the range of 30 to 40 percent but Indonesia is an outlier, with a share of only about 25 percent. Findlay and Pangestu (2016) argue that this outcome is in part explained by the relatively high barriers to trade in services in Indonesia, according to the indicators of the OECD's services trade restrictiveness index.

A third element of this association is that some services are sold alongside goods. An example is a package of repairs and maintenance sold alongside machinery. Services are then bundled with goods.

These elements apply not only to goods producers but also to services exporters. Services firms also use other services in their production process, and in fact tend to be relatively intensive users. They also operate within global value chains and the services which support those chains are important for their international competitiveness. An example is services of air transport and banking with is embedded with tourism, where those services may be procured internationally, forming a global value chain, and where the tourism operators are purchasers of other services in their businesses.

Access to services is therefore also likely to be an important determinant of export performance. Zhang, Roelfsema, Findlay and Liu (2022) find that access to services (measured by employment in producer services at the city level) by exporters in China improves the volume of exports (of goods in terms of volume and at the firm level), that this effect is greater for small firms, that access for services matters more for entry into exporting, and that access to services matters more for the intensive margin of trade and also for the number of products exported to a limited number of markets. Berlingieri and Pisch (2024) focus on the extensive margin where it refers to the number of markets supplied. The identify a category of costs referred to as 'outsourced market access services',[11] and they find that the share of this item in total costs rises with the number of destination markets. The sorts of services involved are advertising, translation, insurance, and legal services. They

[10] https://www.oecd.org/industry/ind/tiva-2018-flyer.pdf

[11] Services by definition are outsourced and the addition of that word is redundant. See Findlay and Roelfsema (2021).

use the example of a motorcycle producer adapting its user manuals to different destinations. They explain this outcome in terms of the rising costs of management effort as the number of destinations increases and the steadier cost of outsourcing. They also find that managerial capability reduces the use of outsourcing (level of the relationship), but that higher managerial capability accelerates the rate at which outsourcing occurs (slope of the relationship) as destinations increase.[12] Also the reorganisation of the firm via outsourcing allows it to reach more export destinations. The gains are largest for small and medium sized firms.

Overall, these processes have important implications for the range of policies which affects the performance of exporters, which we discuss in the next section.

Review and Policy Portfolio

With respect to export promotion, governments may consider options to resolve market failures, but also to relax impediments associated with their own actions. Before discussing the former, we briefly refer to the latter and to the value of considering impediments to exports, or to export facilitation, that is, the treatment of processes around exporting.

Munemo (2022) finds that time delays in the export process reduce the entry rate to exporting, that these time delays can be reduced by regulatory reform and that the effects of regulatory reform are larger the presence of higher quality institutions (measured by the strength of protection of property rights and an indicator of the quality of regulation). The latter effect applies to both the entry rate and the survival rate in exports. Also, for Indonesia, Luthfianto, Priyarsono and Barreto (2016) find that the application of principles of facilitation to customs procedures promotes exports while features of local regulation inhibits them.[13] These results indicate the value of a regulatory audit with respect to export processes, before investing heavily in export promotion processes.[14] Indeed, depending on the analysis below of the arguments for intervention to support exports, facilitation may be the most important response.[15]

Many economies promote exports for the sake of the social benefits that they perceive, which it is assessed individual firms will not consider in their own decision making. Broocke and van Biesebroeck (2017) explain that the sunk costs incurred in entry to exporting are mainly related to information which is of value to and can be shared with others at little cost, but the benefit to others is not considered by potential exporters. Too little information is collected by too few firms, in that

[12] Results of Zhang, Roelfsema, Findlay and Liu (2022) suggest it is also worth examining the number of products exported to each market, which is not done by Berlingieri and Pisch (2024).

[13] There are other results. Rahmaddi and Ichibasi (2013) found that changes in export procedures had no significant effect on export performance. A form of regulatory reform is the development of bonded zones but clearly care must be taken in their design: one study found no consistent impact of the zones in Indonesia on exports either intensively or extensively (Wicaksono, Mangunsong and Anas, 2018).

[14] Also important, potentially, are restrictions on imports in export markets, but generally their impacts are less important than domestic policy. What does matter is domestic liberalisation since an import tax is also a tax on exports. The consequences of tariff rate changes were noted earlier.

[15] There is an international agreement on this topic, the WTO's Trade Facilitation Agreement, which is designed to 'designed to enhance the processes and procedures for cross-border trade through expediting the movement, release and clearance of goods, including goods in transit'. Implement of the TFA is undertaken by the WTO and the World Bank. See Trade Facilitation Agreement Tracking Tool (tfacountrytrackingtool.org) Work on trade facilitation includes cooperation with other economies on various non-tariff barriers which apply to their imports, such as standards.

case. From this perspective, support for information collection is justified. There are additional benefits from exporting, as noted above, which add to the case for intervention. These include contributions to productivity and innovation. Furthermore, exporters are risk averse particularly smaller firms and will 'underinvest' from a social point of view when foreign demand is uncertain. Finally, there might be positive spillovers from exporters to others in the same sector. These include access to information, as well as opportunities to share costs as well as provide mutually supporting activities (such as the benefits of there being a pool of exporters that adds to the importer's confidence in their ability to fill large or growing sizes of orders).[16] However, these arguments for intervention, in some form as discussed below, can be challenged: see Box 1.

Putting to one side the argument in conceptual terms about the case for export promotion, what activities are usually undertaken by agencies responsible for its implementation and what is their impact?

Box 1: Contrary views on the case for export promotion

Another view is that the information used to make decisions on whether to export does not have significant public good characteristics. Relevant information is highly specific to the firm, and success in exporting depends on the management of relationships in the offshore distribution system, where trust has been built. This information is not valuable to others, and the relationships are not readily transferred. Furthermore, the benefits of exporting (productivity and innovation for example) are captured by the firms themselves. There are other channels for managing risks in exporting, and the case for a public subsidy is not clear on those grounds either. Finally, the spillover effects to others are not significant, according to this view.

Furthermore, the target of 'exporting' is not sufficient clear. There are different dimensions of exporting, such as entry, volume, and survival: in that case, with what aspect are the market failures most closely associated and therefore what are the targets of intervention?

In addition, the relevant services that support participation in exports can also be provided by private sector firms. The impact of government intervention may be to 'crowd out' that option. If those services are 'missing', then a more valuable response is to understand why that form of market failure occurs and to resolve that problem. It may for example reflect a problem of enforcing contracts in the provision of the relevant services.

From this perspective, the priority is to remove impediments to exports, rather than seeking to compensate for those impediments by providing offsetting supports. The latter is the 'second-best' solution.

There are various categorisation of the activities in export promotion. One is the combination of 'question' (responding to specific requests for information), 'action' (participation in events, like trade fairs), 'subsidies' (payments, often focussed on small and medium sized firms) and 'communication' (a bundle of other activities) (Broocks and van Biesebrook, 2017). Another is country

[16] Koenig, Mayneris and Poncet (2010) only find an impact of spillovers on the export decision, not on the volume of exports, that the effect is specific to products and destinations and that it declines with distance.

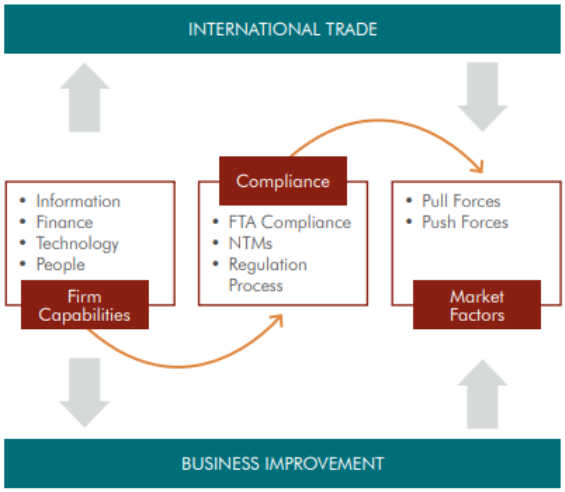
image building,[17] capacity building for exporters, marketing including trade fairs, and market research (Lederman, Olarrega and Payton, 2010). Haddoud, Jones and Newbery (2017) refer to informational activities (training, etc) and experiential activities (trade missions and support by offices abroad). Yet another system refers to 'counselling' (information and training, 'trade agendas' (meetings and negotiations), 'trade fairs', and combinations of these items (Volpe Martincus and Carballo 2010). Munch and Schaur (2018) refer to 'partner searching' and 'intelligence and analysis'. Heriqbaldi, Esquivias, Samudro and Widodo (2023) use categories of information support, education and training, trade mobility and financial assistance.

These interventions are designed to help build firm capabilities in various ways, including relationships in offshore markets (stressed by Haddoud, Jones and Newbery, 2017), and shift decision making towards participation in trade. Figure 1 summarises a model of the drivers of the decision to export, based on case study and focus group work, in which the impact of the promotion packages is in the first box on capabilities. Market forces interact with these decisions - they push and pull the firm towards trade and this decision is also associated with various forms of business improvement, creating a virtuous circle with participation in trade, as already discussed. However, Figure 1 also highlights the role of compliance (the middle box) in driving trade decision making, an example of which is the trade facilitation agenda noted above, reiterating the value of the right balance of efforts by governments getting 'in the way' (promotion) and 'out of the way' (facilitation) of exporting.

The literature reviewed above on firms' participation in export also offers some guidance for priorities in this sort of portfolio of activities, for effectiveness. For example, the provision of support would better target firms who produce differentiated rather than homogenous products (Inui, Ito and Miyakawa, 2017). It could also consider how firms might differentiate their output across different types of clients, including research and development, since it also has benefits for survivability in export markets (Inui, Ito and Miyakawa, 2015), aiming at more rather than fewer firms being involved in testing foreign markets (not just those which are regarded as 'best'). It would focus on helping firms forecast foreign demand, designed with the understanding that the provision of information about exports tends to be more useful for larger firms especially those with sufficient capacity to absorb the information (Kim, Todo, Shimamoto and Matous, 2018) and would focus on larger firms when promoting exports to markets where there is a lower level of institutional quality.

[17] Critics of export promotion in this form argue that creating a country image provides the scope for some firms to free ride on and thereby undermine that effort, eg when an exporter fails to meet a 'green' country image.

Figure 1: Drivers of the decision to participate in trade.



Source: Conduit, Gray and Findlay (2019)

The discussion of policy so far has sought to provide a conceptual framework for its design, noting the contrary views on the case for intervention. The next question is the impact of the forms of intervention chosen, on which topic there is a substantial research literature.[18] Generally the result is that participation in export promotion is associated with a significant effect on various aspects of export performance. However, the question remains about the value of this effect from a social perspective (see Box 1).

Makioka (2019) provides a useful summary of the empirical literature, and some examples of its results are the following:

- Export support services (in a Danish case) raise the probability of becoming exporters in the first year of receiving support by about 4 percentage points in the first year of support and about 6 percentage points two years after receiving that support (Munch and Schauer, 2018): the effect is greater for small firms in this study (others find positive effects for medium sized firms).
- Another study using Belgian data finds an effect of 8.5 percentage points (Broocks and van Biesebrook, 2017)
- Effects are greater for exports of complex and differentiated products (consistent with our suggestion above) and greater for first time rather than established exporters (Munch and Schaur 2018).
- Bundled packages of export support appear to be more effective, especially for the number of export markets and for total export value (Volpe Martincus and Carballo, 2010). The authors argue that this result demonstrates the complementarity of the elements of the bundle.
- In the categorisation according to 'question', 'action', 'subsidies' and 'communication', subsidy support is relatively more effective (Broocks and van Biesebrook, 2017). Munch and Schaur (2018) find that 'partner searching' increases the probability of exporting by over 9

[18] Here we concentrate on the firm level studies, rather than others using economy level data eg Lederman, Olarreaga and Payton (2010) or Ajija, Zakia and Purwono (2021).

percentages points two year after receiving the services and 'intelligence and analysis' has an effect of nearly 7 percentage points.

- In a later paper, Makioka (2019) finds that participating in a trade fair increases the probability of exporting by over 9 percentage points in the same year as attending the fair, and that the value of exports increase by over 25 percentage in the year after participating.

In other work

- Heriqbaldi, Esquivias, Samudro and Widodo (2023) find for Indonesia significant effects of information programs, and less so for trade mobility and financial support, the resources and capabilities available in a firm to manage exports. The effects of education programs are negative.
- Van Berg (2022) finds for The Netherlands that participants in export promotion does not accelerate export growth, but it does increase the probability of survival in exporting, and raise the share of exports in total sales.

One of the issues in all these studies (to which a number respond) is that it is difficult to identify the additivity of the export promotion activity. Export promotion programs may simply attract the firms who would already be exporting, in other words, the self-selection process also applies to these programs. Makioka (2019) notes the various methods applied to deal with this issue.

Conclusion

With respect to the drivers of participation in exports, some key results are the following. These provide some additional udnerstanding of how the direct impacts and benefits of participating in trade are likely to be distributed.

- First, the presence of sunk costs in setting up for export has a key influence on which firms become involved, with a bias towards those which are already more productive. Other contributors are size (larger is better), ownership (foreign is better), local institutions (less uncertainty is better) and human capital (greater intensity in the firm is better).
- Second, with respect to sustainability, new exporters are more likely to exit quickly. Sustainability is likely to be longer in larger markets, in markets with better institutions and among firms with more differentiated products. When exporters are highly productive, institutional quality matters less, but for small exporters contribution of the rule of law to the likelihood of sustaining exports is much greater.
- Third, participation in trade can feed back to higher productivity through market size and learning effects. Access to imported inputs is also important for productivity. Two-way traders are the most productive group of firms, followed by importers and then exporters, while firms selling or buying on the national market only are the least productive. Competition effects also matter, especially for already productive firms.
- Fourth, there are positive associations evident between trade and product quality (especially via access to imported inputs) and trade and innovation (through knowledge spillovers, competition and market size effects).
- Fifth, the links between trade and productivity lead to changes in the mix of firms at the sectoral level when an economy opens up to trade, and these are also important contributors to the longer run performance of the economy.

- Sixth, the association of goods and services is changing. Services support the operation of global value chains in goods, they are incorporated in goods as purchased inputs and they can be sold alongside goods. Similar linkages occur within the services sector itself.

Most economies engage in some sort of export promotion in pursuit of the sorts of impacts identified. The empirical literature generally finds these forms of intervention (for which there are various categorisations) do have significant impacts. However, there is debate on the argument for intervention (effective or not), and whether it crowds out the private provision of relevant services. Also more important may be for governments to 'get out of the way of exports' (that is, to be more involved in facilitation) rather than promote them, and rather than compensating for barriers to exporting. There is a global framework for the design of facilitation programs, to which further commitments would be valuable.

In addition, export promotion is not the only relevant policy area. Another area of interest, according to the discussion of the drivers of export participation, is policy on foreign investment. As explained above, the presence of foreign investment has a positive effect on export performance. Direct effects include contributions to exports through the creation of production capacity, for example, by processing local raw materials, or by the export of manufacturing goods in which the host has a comparative advantage and via the connection to global value chains. Foreign firms contribute specific skills or technologies that support export performance. As also noted earlier, these effects are also available via a degree of foreign ownership. The value chain effects are also facilitated by the reform of trade policy to remove impediments to imports. Indirect effects include the effects on local firms from learning from foreign invested firms and from technology transfer which either spill-overs from foreign to local firms (through observation or movement of labour or through contracting out). The significance of these spillover effects was also noted above. Attention to restrictions on FDI inflows is therefore worthwhile.

Our third area of focus is services sector policy. The linkages to exports, and the support that services provide to exports in various ways, have been noted. A high performing services sectors supports the exports of goods and of services themselves. Performance is affected by policy on establishment and operations by domestic and international firms. Some contributors are horizontal measures such as investment screening, the reservation of positions for nationals and requirements on a commercial presence. State-owned enterprises are present in many sectors. There are restrictions on movement of people. In addition, specific regulations apply by sector. The degree of restrictiveness in some sector is relatively low (though still above average across economies), for example, customs brokerage and rail freight. In other sector, the restrictions are relatively high such as telecommunications and legal services.

Reductions in these degrees of restrictiveness are important for export performance, in goods and in services themselves. There is, however, resistance to services reform for a variety of reasons, as noted by Findlay and Pangestu (2016), who also discuss some actions which will complement and facilitate a reform strategy. Also, reform may involve many policies, whose effects are complex to identify. One suggestion is to take a value chain perspective to services based on the proposition that like goods services are produced in that manner. This provides more options for local providers to find a niche and then upgrade as services sectors are opened. Findlay, Kimura and Thangavelu (2019) also argue for 'a policy review process, which adopts a value chain way of thinking and which engages

the business community, (as) a useful device to help set and drive the implementation of reform priorities.'

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