

NEW PERSPECTIVES ON THE BENEFITS OF EXPORTING

David Greenaway & Richard Anthony Kneller¹

ABSTRACT. Intervention to support export initiatives is commonplace in both industrialised and developing countries. Historically this has been underpinned by a belief that exporting is good for growth. But the evidence base underpinning this belief has been macroeconomic, yet intervention has generally been firm or industry specific. Recently a new literature has developed, exploring the determinants of entry to and survival in export markets, with firm level productivity as a key driver. This paper reviews and evaluates both the theoretical and empirical contributions to this literature. In addition to assessing the importance of new insights being generated, the paper speculates on new directions in which the research agenda will evolve.

JEL Classification: F14; F12.

Keywords: Exports; Productivity.

RÉSUMÉ. Dans les pays tant industrialisés qu'en voie de développement, il est tout à fait banal d'encourager les initiatives prises en faveur de l'exportation. Historiquement, ceci a été justifié par la croyance que l'exportation serait bénéfique pour la croissance. Mais le constat qui sous-tend ce principe relève de la macroéconomie, alors que l'intervention est orientée vers une entreprise ou un secteur particulier. La littérature sur cette question s'est récemment renouvelée. Elle consiste à analyser les facteurs clés de l'entrée et du maintien sur des marchés à l'exportation, à l'aune du niveau de la productivité dans l'entreprise. Cet article passe en revue et évalue les contributions théoriques et empiriques proposées par cette littérature. Après avoir estimé l'importance de ces nouvelles approches, il s'interroge sur les orientations futures que la recherche pourrait prendre.

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■ INTRODUCTION

Exporting has always been seen as a beneficial outcome of the specialisation process. As such, it has always been a target for intervention. This is even true of the mercantilist world, which saw multilateral trade as a zero sum game and therefore bilateral trade as a positive sum game only in the event that a country exported more than it imported to realise a trade surplus. Not surprisingly in such a world "intervention" was not only of the economic form, as the Anglo-Dutch and Franco-Dutch wars of the seventeenth and eighteenth centuries demonstrated. Economic policy and foreign policy were explicitly linked.

Mercantilist ideas were undermined by Adam Smith and David Ricardo who demonstrated that in an open economy, specialisation and exchange deliver net benefits in just the same way as they do in a closed economy. There is, of course, one key difference between the two. In an open economy context some proportion of net benefits will typically be absorbed by what Smith referred to as "...the risk, trouble and expense of exporting...", or what we refer to these days as "trade costs".

The logic of specialising in accordance with comparative advantage is compelling and the specialisation and exchange gains from so doing can be readily identified. But these are static gains and in the absence of distortions the only intervention necessary is intervention to reduce trade barriers. Empirical evidence suggests that the static gains from trade are small relative to dynamic gains associated with growth promoting processes such as technology diffusion, learning economies and competition effects. It is these that underpin the notion of export led growth. This in turn has been an extremely powerful driver of intervention to promote export oriented activity: and such intervention is pervasive. Although explicit export subsidies are WTO illegal under Article VI of the GATT, infrastructure support is not, and most OECD countries provide this in one form or another. This is modest, however, relative to the more explicit intervention in many developing countries through instruments such as export processing zones.

But what is the evidence for export-led growth? This takes two forms. First, an evidence base that suggests countries pursuing (broadly speaking) outward oriented trade policies have outperformed countries pursuing inward oriented trade policies.² Second, evidence from cross-country and time series work which points to a robust, positive correlation between growth in aggregate exports and real output growth.³ This is a substantive evidence base and one that has been very influential in shaping the policies of the multilateral lending agencies (see for example Krueger, 1997). It can however be challenged on two fronts. First, causality: does the growth in exports unambiguously cause the growth in real output, or might it be the other way around? The answer to this question is clearly important to

2. See Greenaway and Nam (1988) and Edwards (1998) for supportive evidence and Rodriguez and Rodrik (2000) for a more sceptical interpretation of evidence.

3. See Greenaway and Sapsford (1994) for a review.

policy formulation. On balance the answer is probably in most cases “yes”. Second, even if we are comfortable with a yes answer, the evidence is macroeconometric, yet most intervention is microeconomic, with support targeted at the industry or even firm level. Can we therefore be confident that evidence based on movements in broad macroeconomic aggregates provides a robust foundation for microeconomic intervention?

This has left something of a policy gap, though it is a gap that is rapidly being filled by a new literature on exporting which in contrast to the established literature is microeconomic and microeconometric. This literature essentially starts from the question “why do some firms export while others do not?”. The theoretical and empirical analysis which addressed this question so far is yielding new insights into the process by which firms find their way into export markets and the benefits of them so doing.

In the remainder of this paper we will review that literature and evaluate its contribution to our understanding of factors driving export decisions and the consequences of export market entry. In Section 2 we begin with some important recent contributions to theory. Section 3 reviews the empirical evidence we have thus far. Section 4 speculates on future developments and Section 5 concludes.

■ EXPORTING AND PRODUCTIVITY GROWTH: THEORY

Core trade theory, in the form of the standard workhorse Heckscher–Ohlin model does not have firms. Economic activity takes place in sectors and the international competitiveness of sectors is fashioned by relative factor endowments. New trade theory, building on the Dixit–Stiglitz monopolistic competition framework does explicitly have firms. In that framework, however, all firms export. This happens because each firm produces a unique variety that consumers want because they have a “love of variety”. In this setting trade costs just absorb a proportion of a firm’s foreign revenue but do not stop it from exporting. Although new trade theory gave us new insights into the determinants of trade, a world where all firms export is manifestly at odds with what we observe in the real world, where some firms export and others (in the same industry) do not. The key reason why this happens in the models of Krugman (1979) and others is that Smith’s “..... risk, trouble and expense of exporting...” are treated as variable costs. In reality, some are fixed costs and this takes us into a different world.

The business community would take it as axiomatic that there are fixed costs of entering export markets: market research has to be done; option appraisals completed; products may have to be modified; new distribution networks set up and so on. Clerides, Lach and Tybout (1998) were one of the first to model this explicitly in a discrete choice framework. In their model, more productive firms with lower marginal costs earn higher gross profits from producing but not all firms export. Only those with sufficiently high profits to cover the fixed (sunk) costs of entering export markets will do so. This intuitively appealing result leads to the conclusion that self-selection is fundamental to exporting. The best (i.e. most produc-

tive) firms self-select into export markets.⁴ The corollary of this is that firms have to raise their productivity before they enter. So the implication is that there is a direct connection between productivity and exporting but, if policymakers want to exploit that, they should target support at potential rather than actual exporters and of course “picking winners” is fraught with its own difficulties.

But this may not be the end of the story. Clerides, Lach and Tybout (1998) also raise the possibility of learning by exporting. In other words, once a firm has entered export markets, productivity growth may receive a further boost. They model this as an upward shift in the (stochastic) process that determines firms’ productivity and this can be rationalised in various ways. For example, actual involvement in export markets could enhance the incentives a firm faces to innovate by raising the return to innovation, a possibility modelled by Holmes and Schmitz (2001). A second possibility is that export markets are much more competitive than domestic markets and presence in these markets forces firms to reduce their X-inefficiency. Here, learning results in business process re-engineering for example. The point is that if learning by exporting does occur, firm level productivity may grow after entry as well as before. If in reality this were the case, it provides a plausible mechanism underpinning export-led growth, though it also complicates the calculation that faces policymakers. Ultimately it is an empirical issue and we will return to the evidence in Section 3.

Everything we have said so far refers to intra-firm productivity. At the macro-level we often associate productivity growth with inter-sectoral reallocation processes, classically the shift of resources from agriculture to manufacturing. Can we say anything in the current context about inter-firm reallocation and industry productivity growth? The pioneering paper here is Melitz (2003). He builds a dynamic industry model with heterogeneous firms operating in (Dixit-Stiglitz) monopolistically competitive industries. In his model, firms incur a fixed cost in order to export. However, each firm has to make a productivity draw from an exogenous distribution and this will determine whether they do actually produce and export and an endogenously determined productivity threshold determines who does and does not export.⁵ The interaction of two effects raises industry productivity. First, there is a rationalisation effect. Exporting increases expected profit, which induces entry, pushes up the productivity threshold for survival and drives out the least efficient firms in a Schumpeterian wave of “creative destruction”. Clearly this raises average industry productivity. Second, exporting allows the most productive firms to expand and causes less productive firms to contract. This reallocation effect again acts to raise average industry productivity. This model, despite its microeconomic structure, allows us to understand the correlation between exports and growth observed at the macro level.

4. In a multi-country setting between firm productivity differences can generate predictions of intra-industry trade in these models that do not rely on the assumptions of new trade theory.

5. Ederington and McCalman (2004) develop a model of firm heterogeneity with the opposite outcome. Heterogeneity is a consequence of the decision of some firms to start to export.

Melitz (2003) is a very important model linking heterogeneous firms and industry productivity, with exporting being a key factor in the process. It is not the only model to point to the potential for exporting to raise industry productivity. This is also a key output of Bernard, Jensen, Eaton and Kortum (2003). Their industrial organisational structure is different but they still derive a rationalisation and reallocation effect. In their model, however, the former is driven by import competition and the latter results from exporters penetrating more markets. Jean (2002) also identifies import driven and export driven contributors to industry productivity growth, in a two country model with differences in relative efficiencies across countries.

As we can see from this brief review, modelling exporting activity at the firm level throws up a range of possible channels through which exporting might be causally linked to firm and industry productivity. As we shall see in Section 4, these models are now beginning to be embedded in comparative advantage settings. For now, we turn to what the empirical evidence tells us about exporting and productivity.

■ EXPORTING AND PRODUCTIVITY GROWTH: EMPIRICAL EVIDENCE

Earlier we mentioned the literature on new trade theory. This ushered in a whole series of new insights into the determinants of trade flows, the commodity composition of trade and its welfare effects. A striking feature of this literature was that developments in theory initially followed rather than led empirical observation. It was the apparent inconsistency of pervasive intra-industry trade being evident in the data and what Heckscher-Ohlin theory led us to expect that stimulated new thinking.⁶ Interestingly, much the same thing has happened with this exporting literature. The regularity with which empirical researchers pointed to distinctive differences in the characteristics of exporters and non-exporters stimulated theorists to develop models of the world where these outcomes would be expected to be observed, albeit in a world where these underlying productivity differences are not actually explained.

There is now a large and rich empirical literature relating to aspects of links between exporting and productivity. TABLE 1 summarises key contributions to that literature. Since the publication of Bernard and Jensen (1995) it has grown very rapidly. Moreover, as this work has benefited from new insights from theory in recent years, its pace of growth has accelerated. As a result, we already have quite a rich evidence base covering large and small OECD countries, large and small developing countries and one or two economies in transition.

Very crudely, what this work does is to compare the performance characteristics of exporting and non-exporting firms from a range of industries and over a number of years. The increasing availability of micro firm or plant level databases means that almost all of these studies

6. Leamer (1994) in a review of empirical analysis of trade flows makes a telling point when he identifies intra-industry trade, together with the Leontief paradox as being the only two empirical findings up to that point to have changed the way analysts think about trade.

Table 1 - Econometric analyses of exporting and productivity

Authors	Country	Self-Selection	Learning by Exporting	Industry Effects
Bernard and Jensen (1995)	US	Yes	No	Yes
Aw and Hwang (1995)	Taiwan	Yes	No	
Bernard and Wagner (1997)	Germany	Yes		
	Colombia	Yes	No	
Clerides, Lach and Tybout (1998)	Mexico	Yes	No	
	Morocco	Yes	Yes	
Kraay (1999)	China	Yes	Yes	
Bernard and Jensen (1999)	US	Yes	No	
Delgado, Fariñas and Ruano (2002)	Spain	Yes	No	
Castellani (2002)	Italy	Yes	No	
Wagner (2002)	Germany	Yes	No	
Van Biesebroek (2003)	Colombia	Yes		
Greenaway, Gullstrand and Kneller (2003)	Sweden	No	No	
Greenaway and Kneller (2004)	UK	Yes	Yes	
Alvarez and Lopez (2004)	Chile	Yes	No	
Baldwin and Gu (2004)	Canada	Yes	Yes	
Hansson and Lundin (2004)	Sweden	Yes	Yes	Yes
Bernard and Jensen (2004)	US	Yes	No	Yes
Blalock and Gertler (2004)	Indonesia	Yes	Yes	
Damijan Polanec and Prašnikar (2004)	Slovenia	Yes	No	

are panel based rather than relying only on a cross-section of firms. This, of course, creates an obvious methodological problem: if we are comparing firms that export with those that do not, how exactly do we frame a sample of non-exporters? Many researchers have followed Bernard and Jensen (1995) in assuming that the population of non-exporters provides a valid counterfactual for observed exporters. In other words, the performance characteristics of those firms in a given sample, before and after entry, are referenced with those firms in the sample that do not export at all. A problem with pooling in this way is that theory tells us that new export entrants will come from the upper end of the distribution of non-export firms. That being so, the performance characteristics of export firms are likely to be biased upwards. Some studies, like Wagner (2002) and Girma, Greenaway and Kneller (2004) deal with this by using matching methods. Here the control group of non-export firms is constructed by identifying firms with similar characteristics to those of actual exporters before they entered export markets. Applying this methodology inevitably means working with a smaller data sample but it also means that one can have greater confidence in the validity of the control group.⁷

7. A more detailed discussion of the merits of matching can be found in Greenaway and Kneller (2004).

The key outputs from this body of work are summarised in TABLE 1. Given our earlier discussion of insights from theory, we concentrate on self-selection, learning by exporting and industry effects. As is immediately obvious, the self-selection hypothesis gains resounding support. Despite applying to a wide range of countries and timeframes, all of the studies bar one which have reported thus far find evidence to support the proposition that it is better, i.e. more productive firms, which enter export markets. Faced with sunk costs of exporting, firms have to increase their productivity prior to globalising and this shows through very clearly. It should be noted that this evidence base applies to fourteen (very) different countries and a range of time periods. Moreover, although all, apart from Aw and Hwang (1995) (which is a cross-section study) rely on panel data, there is some diversity in the methods used to investigate this data. The only study which fails to provide support is Greenaway, Gullstrand and Kneller (2003). This could be due to the fact that the proportion of Swedish firms that export is remarkably high (over 90 %), meaning that exporters and non-exporters are very similar firms. That said, Hansson and Lundin (2004) do report a self-selection effect for Sweden.

Notwithstanding sample diversity, this is a remarkably consistent set of findings. It gives very clear support to the notion that there are sunk costs to exporting and only the most productive firms can incur these costs and enter export markets.

Not all studies go on to investigate post-entry effects. But as can be seen from TABLE 1, a large proportion do. The evidence on learning by exporting is more mixed but also more nuanced than that on self-selection. Some studies, like Bernard and Jensen (1995), Aw and Hwang (1995) and Castellani (2002) report no evidence of firm productivity increasing after entry. Others, like Greenaway and Kneller (2004) and Baldwin and Gu (2004) do find supportive evidence. But it is more subtle than this in that some of those which fail to find direct post-entry productivity effects do report some evidence of further productivity improvement among the most export oriented firms.

We do not yet know enough to be confident of why we observe these differences. Greenaway and Kneller (2004) and Baldwin and Gu (2004) speculate that it may have something to do with country size and/or distance from the technology frontier. In the case of the former, large domestic markets may mean that little changes by way of competitive pressures once a firm enters export markets. In the case of the latter, if a given firm is in an industry or country that is a technological leader, there is just less scope for learning when entry takes place. At this stage this is conjecture rather than substantive evidence and this is clearly an area for future research.

At first glance the micro and macro evidence on exporting and growth would appear to be inconsistent: there is weak evidence of a causal relationship between exports and productivity growth at the firm level but a strong correlation at the aggregate level. Yet they might be made consistent if exporting leads to the reallocation of resources (both within and between industries) towards more productive firms i.e. exporters take on a greater weight in the

macro index. The importance of the reallocation effect is exactly the question considered by Bernard and Jensen (2004) and Hanson and Lundin (2004).

Using a growth accounting methodology for US firms Bernard and Jensen (2004) calculate that just over 40 per cent of manufacturing growth in the US over the period 1983 to 1992 was due to the reallocation of resources (and therefore the remainder from productivity growth within the firm), with 86 per cent from the expansion of established exporters. This contrasts strongly with Hansson and Lundin (2004) for Swedish manufacturing firms who find that the effect of reallocation on overall productivity growth is negative, although the effect is positive for export firms.

■ ENRICHING THE EVIDENCE BASE: AREAS FOR FUTURE RESEARCH

The exporting and firm performance literature has grown rapidly. New theories have given us reasons for believing exporting and (firm and industry) productivity should be causally related and a growing evidence base offers robust support for productivity improvements preceding export market entry. Although the evidence on post-entry productivity effects is less conclusive, we have still learned quite a lot rather quickly. So what else do we want to know and where is the literature heading?

Several extensions to the work of Melitz (2003) are already underway. Helpman, Melitz and Yeaple (2004) extended the analysis by effectively widening the globalisation options faced by firms to exporting or affiliate production. This model gives a clear and unambiguous result. It still remains the case that exporters are more productive than non-exporters but since the fixed costs of setting up an affiliate are higher than the fixed costs of exporting, the most productive firms set up affiliates. This is an intuitively appealing result and one that Girma, Kneller and Pisu (2003) have now taken to the data. Using UK data they report that the productivity distribution for multinationals dominates that for exporters, which in turn dominates that of purely domestic firms. Head and Ries (2003) and Girma *et al.* (2004) find similar results for Canadian and Irish data respectively. This will prove to be a fertile area for future research.

Melitz (2003) assumes a world of identical countries. A second area of development of this literature has therefore been to explore the benefits of exporting in a world not only of heterogeneous firms but also asymmetric countries. Falvey, Greenaway and Yu (2004) for example extend Melitz (2003) to a two sector, two country setting, with different efficiency levels across countries. Falling trade costs induce entry and raises the domestic productivity threshold, as in Melitz. But there will be more entrants (and more exits) in the more efficient country that therefore reaps more by way of productivity gains. Likewise, Bernard, Redding and Schott (2004) extend Melitz to a world where countries have different relative factor endowments. They find that industry reallocation effects are stronger and productivity gains are therefore greater in the comparative advantage industry. Integrating heterogeneous

firms with comparative advantage is a useful development. These models have not yet been subject to careful empirical scrutiny and this is a further area for research.

A third line of enquiry is to probe further exactly what factors fashion firm choices. If out of a group of firms that have ostensibly similar characteristics, some choose to become more productive and others do not, what exactly drives this? Is it just chance; is it related to innate managerial ability; is it related to the industry or region in which they are located? This leads us to a further item for the agenda, namely the role of geography. The new economic geography literature, building on Krugman (1991) is grounded in a representative firm setting. Greenaway and Kneller (2004) report some suggestive evidence which points to industrial and regional clustering as being important in stimulating export activity. Incorporating a spatial dimension into heterogeneous firm models will be helpful not only to yielding new theoretical insights but also in providing guidance for empirical analysis.

An under-researched but crucially important issue is the interaction between globalisation and technological development. There is a macro-based literature here, focusing on openness to trade and technological spillovers. But we know very little about the ways in which exporting impacts upon firms' choices about new technology and innovation. A recent paper by Baldwin and Gu (2004) reports a clear link in the case of Canadian firms. Specifically, participation in export markets raises the likelihood they will innovate and adopt new technologies, which in turn stimulates further productivity improvement. This will be an important and potentially very fruitful line of research.

Finally, as we noted earlier, new theories are identifying ways in which exporting leads to industry productivity growth as a result of rationalisation and reallocation. However, as can be seen from TABLE 1, few studies have investigated this relationship. It is clearly an important one since it provides a direct link between exports and growth. This too then is an obvious area for future work.

■ CONCLUSIONS

We started out by commenting on the longstanding interest that policymakers have taken in exporting and the widespread desire to intervene in ways that would stimulate export led growth. How do these new perspectives on the benefits of exporting inform the policy debate?

This literature does offer new grounds for believing that exporting activity and productivity growth are positively correlated. New theories are guiding us on where to look for these connections and new firm and industry level evidence offers concrete support that they are related. At the firm level, firms appear to become more productive before they start exporting and in some countries that may be boosted further by ongoing participation in export markets. At the industry level, the few studies we have available do suggest that exporting is important to rationalisation and reallocation.

On the one hand this should be comforting to a policymaker inclined to intervene to stimulate export activity. On the other hand, however, one has to ask the question: Can policymakers realistically expect to have enough information to pick out those firms that will succeed? The answer to this is most certainly not. This does not mean there is no role for policy, but rather that intervention should be targeted at creating an environment within which the likelihood of new exporters is increased rather than trying to pick out which firms that will be.

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