

# **The Global Operations of European Firms**

## **Efige Policy Brief**

Giorgio Barba Navaretti, Matteo Bugamelli, Gianmarco Ottaviano and Fabiano Schivardi<sup>1</sup>

### ***Summary***

Europe's position in the post-crisis world economy depends on the ability of its firms to carry through effective global export and production strategies. New data from 15,000 firms in Austria, France, Germany, Hungary, Italy, Spain and the United Kingdom show that firm size, productivity, skill intensity and the ability to innovate are associated with better export performance and internationalisation, either through foreign direct investment or outsourcing. Export and foreign production are complementary, particularly for entry into fast-growing emerging markets. But foreign production involves high entry costs and is extremely demanding in managerial, organisational and technological terms. Firms can improve their competitive skills in the European single market, but competing in the next few years will require more than just exporting to neighbouring EU countries.

### ***Policy challenge***

European countries differ in the trade performance and the patterns of global production, and these differences are mostly related to the industrial structures. For all countries, firm growth and consolidation would generate a considerable increase in exports. Small firms are frequently the backbone of European economies, but they are increasingly unable to overcome the fixed costs of global operations. Structural reforms that make it easier for firms to grow and to move towards more sophisticated forms of management, organisation and innovation, are key to Europe's strengthening competitiveness. The European single market is a quasi-domestic space in which firms initially grow and reinforce their competitiveness. The European dimension of policy action should therefore be strengthened, with the aim of easing even further the movement of goods and factors within the EU.

---

<sup>1</sup> Very helpful research assistance for this report has been provided by Daniela Maggioni and Daniel Horgos

**Table 0 [front page]**

**Percentage of European exporters that export to selected distant markets**

country	China India	Other Asia	USA CAN
AUT	16.42	17.65	22.45
FRA	22.04	27.01	31.55
GER	27.86	25.86	36.81
HUN	1.62	5.15	6.87
ITA	17.72	23.63	30.46
SPA	10.76	14.28	18.40
UK	25.91	31.64	44.49

-----

**Why** is there so much variation in trade performance across European Union countries? Some of the variation results from country-specific features such as macroeconomic policies, market size or infrastructure. However, it is firms that are at the heart of European competitiveness. Firms carry out global operations, exporting to, importing from and producing in foreign countries. A crucial issue for policymakers is thus to understand to what extent the global reach and the international performance of European economies are determined by the characteristics of their firms, independent of their location and of the features of national economies.

The study on ‘The Global Operations of European Firms’, on which this policy brief is based, finds that firm characteristics influence the patterns of internationalisation in a surprisingly consistent way across countries. The analysis is based on the newly collected EU-EFIGE/Bruegel-UniCredit survey of 15,000 manufacturing companies in seven EU countries (Austria, France, Germany, Hungary, Italy, Spain and the United Kingdom). Size, productivity, the skill intensity of the work force and the ability to innovate are related to firms' export performance in all countries of the study in terms of both exporter status and exports as a share of firm turnover. Firm characteristics also relate to the complexity of firms' internationalisation strategies in terms of both the number and the difficulty of export markets served. Finally, firm characteristics are also related to global production decisions, either through foreign direct investment (FDI) or international outsourcing (IO).

The EFIGE project, within which this brief and the broader study have been prepared, is about addressing policy questions on the causal link between firm characteristics and internationalisation. This report, as an initial step into this exercise, looks at broad correlations, which are per se extremely insightful and provide new perspectives on the interplay between firm and country features.

**BOX ON SURVEY**

<p>The EU-EFIGE/Bruegel-UniCredit survey has gathered both qualitative and quantitative information at the firm level by means of a detailed questionnaire containing more than 150 items related to the operations of international firms and collected via a CATI (Computer</p>
---

Assisted Telephone Interview) and CAWI (Computer Assisted Web Interview) approach. In order to ensure that the collected data is standardised and statistically representative, an initial target was set of around 3,000 firms for France, Germany, Italy and Spain, 2,100 firms for the UK, and 500 firms for smaller countries (Austria and Hungary), ie a total of 15,100 valid questionnaires. The exact numbers by country deviated slightly from the targets as the result of appropriate sampling procedures. Survey questions cover the following drivers the competitiveness of European manufacturing firms: size and productivity; organisation; geographical scope; skills and tasks; innovation; financial constraints; the euro.

The fact that firm characteristics are central, raises new challenges for policy making in terms of fostering the 'right sort' of characteristics. For example, we find that, if the industrial structure (in terms of firm size and sectors) of countries like Italy and Spain were to converge with the structure of Germany, the value of the total exports of Italian and Spanish firms would rise considerably – by 37 percent and 24 percent respectively. Fostering growth in firm size does not mean that companies should all necessarily become very large. Medium-sized firms contribute considerably to export performance in most European countries.

This highlights the centrality of structural reforms to facilitate the growth and development of companies throughout Europe. As policies affecting firm growth are multi-faceted, parallel reforms may be required in several areas, such as labour regulation, taxation and bureaucracy.

Particularly in a phase of sluggish demand and reduced fiscal resources, we should not forget the enormous potential of the European single market as the quintessential quasi-domestic space where firms initially grow and reinforce their global competitiveness. Policy action should then aim at easing even further the movement of goods and factors within the EU, resisting calls for local measures that support firms within national boundaries.

Our study is of course not the first to stress the importance of firm characteristics. Recent contributions have emphasised both theoretically and empirically the importance of the heterogeneity of firms for explaining internationalisation patterns<sup>2</sup>. However, this is the first time that country, industry and firm characteristics have been jointly analysed using fully comparable cross-country data. In addition, for the first time, it has been possible to study within a unique framework the comprehensive span of global operations available to firms: export, imports, FDI and international outsourcing.

### ***1. Exports: firm characteristics matter, not what firms produce or where they are based***

A basic ingredient of a country's export performance is how many firms are exporters (the so-called *extensive margin*). The percentage of exporters in the seven countries under consideration varies. Although in each country most firms with more than 10 employees are exporters, there are major differences, with a roughly 15 percentage points gap between countries with the highest share of exporters (Austria, Hungary and Italy) and those with the lowest share (Germany and France). There are of course country-specific factors explaining these differences – above all, market size – but there are also other less-obvious factors. When, for example, we compare the large continental economies, it is interesting to notice

---

<sup>2</sup> Melitz (2003), Helpman et al (2004), Eaton et al (2004), Melitz and Ottaviano (2008) provided the theoretical framework for analysing patterns of international trade through analysis of heterogeneous firms. Mayer and Ottaviano (2007) was the first report comparing firm-level export performance across European countries, but did so on the basis of non-homogeneous data sets. See also Fontagné and Gaulier (2010) for a comparison of the export performance of French and German firms.

that Italy has an especially high export propensity compared to both France and Germany. This is also confirmed by the report's regression analysis.

When we take into account country characteristics and firm characteristics simultaneously in the regression analysis, we find that firm characteristics are more important than country characteristics. In line with previous empirical literature on firms and trade, we show that firms that are larger in size, have a more-skilled workforce, and are more productive and more innovative are more likely to export than others, whatever the industrial sector. Unlike previous studies, we show that these patterns are consistent across countries and in fact shape internationalisation trends to a greater extent than country characteristics. Importantly, we also find that the impact of firms' characteristics on the extensive margin of trade is very similar across countries.

Table 1 provides some evidence for these assertions. Focusing on size and computing the percentage of exporting firms by firm size and country, it is clear that the differences across size classes within countries are more relevant than those across countries. For all countries, the share of exporters increases with size, with a difference of at least 20 percentage points between small and very large firms. Among firms with more than 249 employees, the propensity to export is very high for all countries.

**Table 1**  
**Firm size and the probability of exporting**

<i>Size Class</i>	AUT	FRA	GER	HUN	ITA	SPA	UK
10-19	69.82	44.65	45.74	58.00	65.36	51.15	54.85
20-49	63.81	59.12	65.41	64.74	73.25	63.54	62.75
50-249	88.64	75.38	78.19	79.33	86.59	76.15	76.83
More than 249	90.76	87.55	83.98	97.42	92.62	87.96	80.72
Total Sample	72.59	57.93	63.36	67.33	72.15	61.06	63.97

Similar results are generated when we focus on the intensive margin of exports, that is on exports as a proportion of total turnover, conditional on being an exporter. Again, firm characteristics matter more than country characteristics; among the former, size, productivity, innovation and human capital are the dominant factors. Table 2 reports the share of exports in total turnover by firm size and country. The share of exports increases from less than 30 percent for firms with 10-19 employees up to 40-65 percent for the largest firms.

**Table 2**  
**The export share varies significantly depending on firm size**

<i>Size Class</i>	AUT	FRA	GER	HUN	ITA	SPA	UK
10-19	26.17	22.98	25.88	30.22	30.41	21.44	26.15
20-49	33.27	26.98	28.10	43.58	34.24	24.53	27.83
50-249	55.91	33.00	33.94	53.23	42.16	33.30	33.18
more than 249	64.66	41.18	37.84	66.61	52.63	40.61	34.24
Total Sample	40.44	28.54	30.00	44.79	34.55	25.93	29.14

To summarise, firm characteristics – size, productivity, innovative activity, workforce skills – are the primary determinants of export performance, more so than country characteristics.

Firm characteristics are indicators of the probability of a firm being an exporter, and of the share of turnover attributable to exports. This analysis broadly holds true, whatever the country under consideration.

## ***2. Exporting is not enough: European firms pursue comprehensive strategies for global markets and global production***

The propensity to export and the share of exports in a firm's total activity provide just part of the overall picture of the internationalisation of firms. The global operations of European firms are very heterogeneous and entail very complex and dissimilar internationalisation patterns. We begin by looking at other aspects of exporting activity. In Table 3, we show the distribution of exporting firms by destination markets.

**Table 3**  
**The geographical distribution of exporters**

country	EU15	Other EU	Other Europe	China India	Other Asia	USA CAN	Cent-South America	Others
AUT	94.20	49.91	46.83	16.42	17.65	22.45	7.08	12.39
FRA	92.45	36.75	41.82	22.04	27.01	31.55	14.74	30.58
GER	93.12	47.87	52.65	27.86	25.86	36.81	16.36	16.63
HUN	81.97	50.13	24.06	1.62	5.15	6.87	0.71	4.28
ITA	89.63	40.97	49.72	17.72	23.63	30.46	19.27	24.19
SPA	92.63	27.62	26.57	10.76	14.28	18.40	29.59	24.03
UK	92.27	33.72	33.70	25.91	31.64	44.49	15.03	35.07

Almost all exporting firms sell the greatest part of their production in the EU15 market, which is the closest proxy to a domestic market. But far fewer go to farther destinations such as the US or the difficult and fast-growing markets of China, India or Latin America. This pattern is seen for all sample countries. Distant destinations are more costly to reach and, compared to closer-at-hand EU markets, often involve higher risks and other barriers. Moreover, when we track the activity of firms in distant destinations, more marked differences relating to country of origin seem to emerge. For example, in China and India, two markets that most exporters probably still have to enter, German firms have gained a competitive advantage (10 percent more German than Italian firms export to China and India). Again, we must ask if this is due to firm characteristics or to a country of origin characteristic that benefits all German exporters. The regression analysis reported in our study confirms that firm characteristics (as previously: size, productivity, innovation, human capital) are relatively more important than differences between countries of origin. This is even more the case for distant destinations. This suggests that the prominence of Germany comes, at least in part, from having firms with the 'right' characteristics to export to China and India.

A different indicator of the complexity of exporting activity is the number of destination markets at the firm level<sup>3</sup>. Table 4 shows the average number of destination markets of exporters for the seven countries, broken down by firm size. We have already argued that a

<sup>3</sup> Eaton et al (2004) show that most French firms export only to a small number of destinations.

greater share of German firms export to fast-growing emerging countries. On average, German firms perform better than those in other countries: they export to three countries more than Italian and French firms. Yet, when we take into account firm size categories, it is striking how the number of markets invariably rises, for each country of origin. This pattern persists in the econometric analysis reported in the full study, where we control for other firm characteristics, such as productivity, skill intensity and the sectoral composition of the samples.

**Table 4**  
**Average number of export destinations of exporting firms by country and size class**

<i>Size Class</i>	AUT	FRA	GER	HUN	ITA	SPA	UK
10-19	4.77	6.58	6.98	2.55	7.69	4.96	8.59
20-49	7.87	8.99	12.15	3.79	9.97	7.75	11.62
50-249	18.30	14.40	17.78	6.07	17.27	12.37	17.75
more than 249	31.88	24.34	28.36	13.68	29.22	22.78	26.75
Total Sample	11.84	10.93	13.88	4.95	10.71	8.39	13.20

**Table 5**  
**Percentage share of firms doing FDI by country and size class**

<i>Size Class</i>	AUT	FRA	GER	HUN	ITA	SPA	UK
10-19	2.19	0.86	1.46	2.50	0.57	0.75	2.00
20-49	3.31	2.02	4.17	1.10	2.24	1.76	3.88
50-249	15.76	8.15	9.18	1.68	6.24	7.91	10.49
more than 249	36.09	23.37	32.76	6.97	25.91	25.15	20.63
Total Sample	7.29	3.70	5.96	1.98	2.46	2.74	5.46

German leadership becomes even clearer when we focus on the proportion of firms with FDI commitments (Table 5). But again, firm characteristics play a key role: in Germany the percentage of firms involved in FDI increases from 1.5 percent of the smallest firms to 32.8 percent of the largest. Similar patterns are found in the other countries<sup>4</sup>.

To close the circle, it is interesting to note that firms that are involved in foreign production are also the main exporters, particularly to emerging economies. Focusing on China and India, we find that more than a quarter of the exports of France, Germany and Italy to those economies originates from French, German and Italian companies that also have invested in manufacturing in those two emerging countries. (Table 6). International production therefore complements exporting because it makes expansion into new markets easier, particularly those that are difficult and distant.

**Table 6**  
**Exports of firms with FDI to China and India over total country exports to China and India**

---

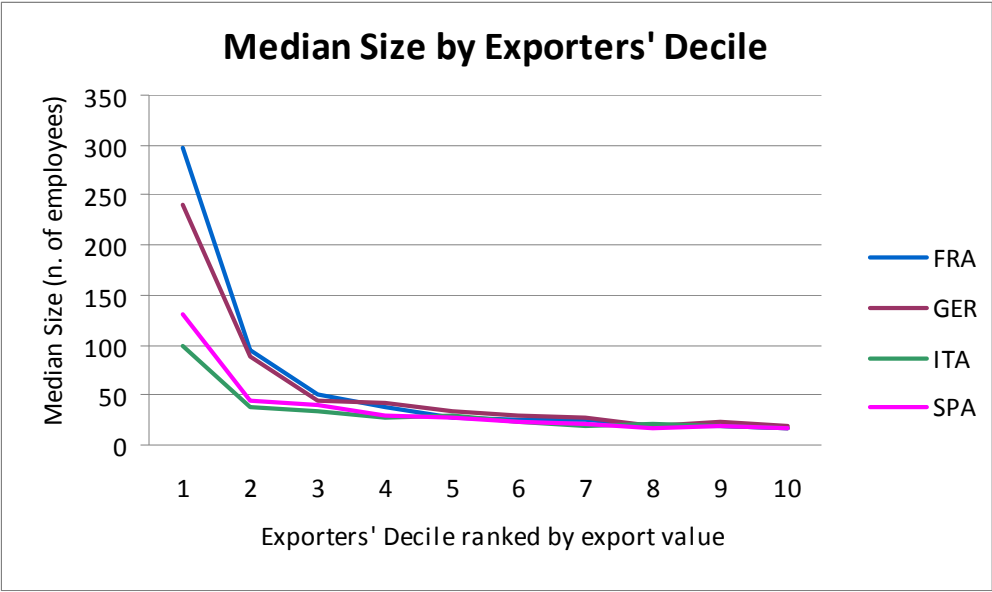
<sup>4</sup> Antras (2003) and Antras and Helpman (2004) theoretically, and Nunn and Trefler (2008) empirically, show there is a relationship between firm productivity and the complexity of operations carried out abroad, with only the most productive firms having FDI commitments. For additional interesting evidence for several economies see Defever and Toubal (2007), Fryges and Wagner (2008), Andersson et al (2008), Serti and Tomasi (2008), Kohler and Smolka (2009) and Federico (2009).

Country	Export of firms with FDI to over total exports
FRA	28.3
GER	25.1
ITA	28.2

**3. Reconciling aggregate and firm-level evidence: internationalisation patterns differ mainly because countries differ in their industrial structures**

How can we reconcile the finding that internationalisation patterns are predominantly driven by firm characteristics, with the evidence that, overall, countries perform very differently in terms of their exports and global production strategies? The main reason is that the industrial structure and the characteristics of firms are different in each country of origin. This is immediately apparent if we compare the size of exporters in the largest continental EU economies. Figure 1 shows the median size (number of employees) of exporting firms in these countries, according to the value of firms' exports (with 1 being the decile of the largest exporters and 10 the decile of the smallest exporters). Size distributions are different across countries. *First* the median size of the top 10 percent of exporters is larger in France and Germany (298 and 240 employees respectively) than in Italy (100) and Spain (130). Given the that exports are very highly concentrated among the top exporters, this is a relevant concern<sup>5</sup>. *Second*, French and German firms also tend to be larger when we move down the ladder of exporters, almost to the sixth decile. In other words, second tier exporters are on average larger in France and Germany than in Italy and Spain and, especially in Germany, contribute more to total exports.

**Figure 1**



<sup>5</sup> Mayer and Ottaviano 2007 show that exports are very concentrated in the first decile of exporters in most European countries. These findings are consistent with those reported in our main study.

Given that size is a key factor affecting all aspects of global operations, the distribution in the number of employees reported in Figure 1 is therefore in line with the fact that German firms pursue (as do French firms, though to a lesser extent) more comprehensive internationalisation strategies, and with the overall evidence that Germany is the European leader in exports of manufactured goods.

To further corroborate this evidence, we ask what the export performance of France, Italy and Spain would be if they had the same industrial structure as Germany. We carry out this exercise in a very simple way. We look at the size and sectoral composition of total employment for our samples in each country. We keep the size of the manufacturing sector fixed in terms of total employment, but reshuffle workers so as to replicate the German distribution in terms of firm size and sector. In doing so, we combine the German industrial structure with the individual export propensity of firms in each country<sup>6</sup>.

We then look at the resulting change in the total value of exports in the three countries (Figure 2, the height of the bars). Total export value increases substantially in Spain (+24 percent) and Italy (+37 percent). For France, the increase is smaller, but still sizeable (+ 9 percent), in line with the fact that its industrial structure is more similar than Italy's or Spain's to Germany's.

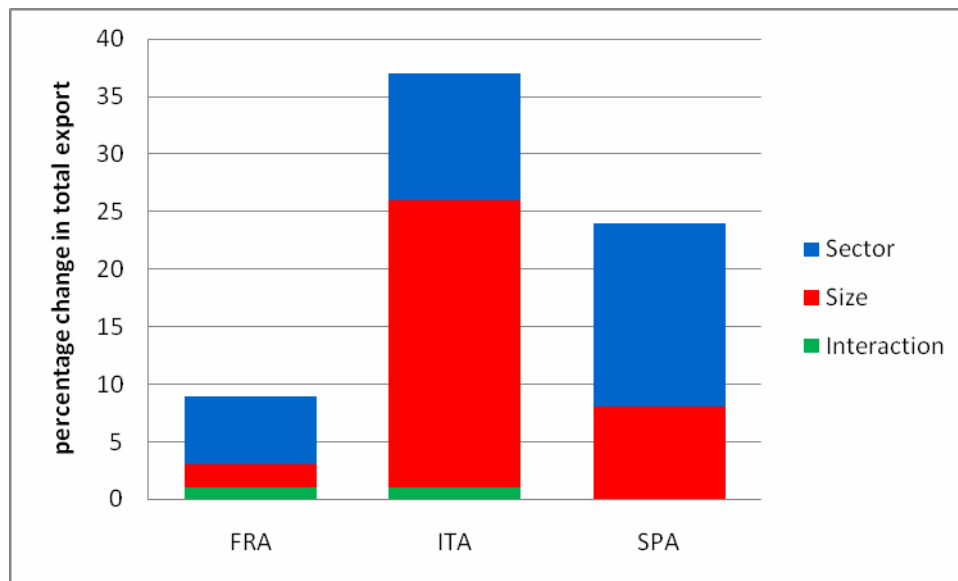
We then decompose this variation, to see how much of it can be attributable to the change in the size distribution, and how much to the reweighting of the sectoral composition (Figure 2, the composition of the bars). Results are different for each country. In Italy most of the change is attributable to the modification of the firm size structure, consistently with the strong prevalence of small firms in this country. Although Italian SMEs display a relatively high export propensity, on average their contribution to internationalization remains substantially lower than that of larger firms. The sectoral effect is less notable, given that Italian firms are leading exporters in traditional industries. In France the sectoral composition plays a more important role, given that France's firm size structure is similar to that of the benchmark country. Finally in Spain, two thirds of the growth in exports would be attributable to the sectoral reallocation of employment and one third to size consolidation. The major impact of the sectoral reallocation for France and Spain implies that a relatively large share of their employment is today in industries with relatively low export propensity.

**Figure 2**  
**Change in the value of exports using the German size-sector employment distribution**

---

<sup>6</sup> Export propensity depends on firm-specific characteristics other than size and sector, which are kept unchanged in this exercise.





All in all, the evidence indicates that the main differences between countries are dictated by their industrial structures. Similar firms behave similarly across countries, but Germany has a structure that favours the internationalisation of its economy to a much greater extent than Spain or Italy. In particular, the greater presence of medium and large firms in Germany means that the German economy has a greater international dimension.

Increasing the size of firms does not mean that firms should become especially large. Figure 1 shows that firms with around 50 to 100 employees contribute greatly to global exports. It is medium-sized firms that make up the backbone of export performance for most European countries. Although our data provides a snapshot in time, we know from other country-specific studies that increasing numbers of small firms have stopped exporting in recent years<sup>7</sup>.

Naturally there are other persisting differences between countries that are not related to their industrial structures. For example, as discussed previously in section 2, Italian firms have a higher export propensity than firms in other countries, whatever their size and sector. Also the large size of the German domestic market has an impact on the strategies of German firms. Still, these effects are dominated by those deriving from differences in the industrial structure.

#### **4. Policy challenges**

The findings of the study, ‘The Global Operations of European Firms’, raise potentially significant policy challenges. It is difficult to disentangle the causal link between firm characteristics and performance and international activities and we do not aim to do so at this stage. The exploitation of this new data is only beginning. Nonetheless, our results so far, which are mostly based on broad correlations, already suggest several areas worth deeper investigation.

1. Firm growth and consolidation, particularly of small-medium enterprises, could generate a considerable increase in the value of European exports. Firms in industrialised economies are less and less able to compete by cutting costs and prices. They increasingly rely on other competitive factors: quality, technology, branding and so on, which are costly to acquire. Moreover, the broadening of the global span of

<sup>7</sup> See Fontagné and Gaulier (2010) for an analysis of French firms.

markets forces firms to operate in several regions, often also to produce abroad. These patterns raise the cost of global competition, often beyond the means of small firms. Consequently, structural reforms that foster firms growth and favour their move towards sophisticated forms of management, organisation and innovation, favour export growth.

2. Advocating the growth in size of small-medium enterprises is not a quest for giants, it does not imply that companies should all necessarily become very large. Size must be sufficient to undertake complex global operations, including global production. A large share of firms in the 50-250 employees category are exporters, serve a large number of markets and have foreign production. Medium-sized firms contribute considerably to export performance in most European countries.
3. Structural reforms may be required in several areas, such as labour regulation, taxation and bureaucracy. Also targeted sector specific training and research programs can be useful in fostering export oriented activities. Several of these measures may have a European dimension and partly be coordinated. Particularly in a phase of sluggish demand and reduced fiscal resources, we should not forget the enormous potential of the European single market as the quintessential quasi-domestic space where firms initially grow and reinforce their global competitiveness. Policy action should then aim at easing even further the movement of goods and factors within the EU, resisting calls for local measures that support firms within national boundaries.
4. Global production strengthens global sales, particularly to emerging markets. Through foreign production firms can often reduce production costs and enter more easily into far away difficult markets. China and India are the countries where European firms more frequently have production facilities outside the EU.. Policymakers may want to keep this in mind. Attempts to prevent the transfer of production abroad could severely hinder export growth. At the same time such measures would weaken the global competitiveness of national firms, with long-term negative effects on domestic employment.

### ***References***

Andersson, M., H. Lööf and S. Johansson (2008). Productivity and International Trade: Firm Level Evidence from a Small Open Economy, *Review of World Economics* 144 (4), 774-801.

Antràs, P. (2003), Firms, contracts, and trade structure, *Quarterly Journal of Economics* 118 (4), 1375-1418.

Antràs, P. and E. Helpman (2004), Global Sourcing, *Journal of Political Economy* 112 (4), 552-80.

Defever, F. and F. Toubal (2007), Productivity and the sourcing modes of multinational firms: Evidence from French firm level data, CEP discussion paper No 842.

Eaton, J., S. Kortum, and F. Kramarz (2004). Dissecting trade: Firms, industries, and export destinations. *American Economic Review (Papers and Proceedings)* 94, 150–54.

Federico, S. (2009), Outsourcing versus integration at home or abroad and firm heterogeneity, *Empirica*, Online Publication Data: 2009/12/10.

Fontagné, L. and G. Gaulier, 2010, “Performance à l’Exportation de la France et de l’Allemagne”, *Conseil d’Analyse Economique*, Paris

Fryges, H. and J. Wagner (2008). Exports and Productivity Growth: First Evidence from a Continuous Treatment Approach, *Review of World Economics* 144 (4), 695-722.

Helpman, E.; M. J. Melitz and S. R. Yeaple (2004), Exports vs. FDI with heterogeneous firms, *American Economic Review*, 94 (1), 300-316.

International Study Group on Exports and Productivity (2008), Understanding Cross-Country Differences in Exporter Premia: Comparable Evidence for 14 Countries, *Review of World Economics* 144 (4), 596-635

Kohler, W. and M. Smolka (2009), Global Sourcing Decisions and Firm Productivity: Evidence from Spain, CESifo Working Paper No. 2903.

Mayer, T. and G. Ottaviano (2007), The Happy Few: The Internationalization of European Firms, Bruegel Blueprint Series, Volume III.

Melitz, M. J. (2003), The impact of trade on intra-industry reallocations and aggregate industry productivity, *Econometrica* 71 (6), 1695-1725.

Melitz, M. and G. Ottaviano, 'Market size, trade and productivity', *Review of Economic Studies*, 2008, Vol. 75, pp. 295 - 316.

Nunn, N. and D. Trefler (2007), The boundaries of the multinational firm: An empirical analysis, University of Toronto, mimeo.

Serti, F. and C. Tomasi (2008). Self-Selection and Post-Entry Effects of Exports: Evidence from Italian Manufacturing Firms, *Review of World Economics* 144 (4), 660-694.