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Small and Medium-Sized Enterprises in Global Markets: A Differential Approach for Services?

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Abstract

SMALL AND MEDIUM-SIZED ENTERPRISES IN GLOBAL MARKETS: A DIFFERENTIAL APPROACH FOR SERVICES?

This study empirically investigates key restrictions to the internationalisation of small and medium-sized enterprises (SMEs) in manufacturing and across different types of services. The study explores the extent to which binding constraints faced by SMEs producing goods may differ from small firms operating in services sectors and takes stock of how existing policy initiatives address some of these differences. Our results suggest that while firm size clearly influences the trade performance of SMEs in manufacturing, it is an ambiguous predictor of export performance in the case of small-sized services firms. The findings show that firm size influences the choice of export channel and that small firms rely more on indirect and agglomeration networks. Finally, the results point to a strong degree of firm-level heterogeneity across services activities and enterprise size. It would seem that incorporating sectoral and size heterogeneity into existing policies might be desirable to address key constraints for SMEs.

***Key words*:** Small and medium-sized enterprises, SMEs, trade, services, trade in services, internationalisation.

***JEL Classification*:** F14, L8, F68.

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Table of contents

Executive summary 5
I. Introduction: Motivation and background 7
II. Economic contribution of SMEs in manufacturing and services 9
III. What we know about SMEs in services trade: Literature review of firm-level evidence 14
IV. World Enterprise Survey: Cross-country evidence from developing countries 17
V. Internationalisation of SMEs in services: The case of France 26
VI. Emerging practices to address binding constraints for services SMEs 49
VII. Conclusions: Evidence from firm-level data and policy relevance 66
References 65
Annex A. Analysis from World Bank's Enterprise Surverys 75
Annex B. Analysis from AMADEUS survey 80
Annex C. Literature review: Empirical evidence on the export behaviour of services SMEs 88

Tables

Table 1. Contribution of SMEs to economy 9
Table 2. Overview of firm-level evidence on services exporter profile 15
Table 3. Export intensity by firm type 18
Table 4. Regression results for manufacturing and services firms 19
Table 5. Regression results for manufacturing and services firms 21
Table 6. Regression results for manufacturing with business obstacles 22
Table 7. Regression results for services with business obstacles 25
Table 8. Full sample two-part model estimates without dynamics 37
Table 9. Full sample two-part model estimates with dynamics and controlling for unobserved heterogeneity 38
Table 10. Two-part model estimates for selected services sectors 40
Table 11. Average export probability and share predictions by size classes 42
Table 12. Two-part model estimates with dynamics and controlling for unobserved heterogeneity for professional services and transport and logistics sub-sectors 43
Table 13. Two-part model estimates with dynamics and controlling for unobserved heterogeneity for ICT sub-sectors 44
Table 14. Probit model estimates for the probability to enter into export markets 47
Table 15. Probit model estimates for the probability to exit from export markets 48
Table 16. Selected provisions on services SMEs, EU RTAs 50
Table 17. Definition of SMEs for manufacturing and services, selected countries 54
Table 18. Use of non-financial instruments by subsector of services SMEs 59
Table 19. Use of financial instruments by services SMEs 58
Table 20. National firm-level surveys on international trade in services 65

Table A1. Country coverage in the 2006-2010 enterprise surveys sample 76
Table A2. Sector coverage 76
Table A3. Summary statistics of sample firms 77
Table A4. Most serious business obstacles by size in manufacturing 77
Table A5. Most serious business obstacles by size in services 78
Table B1. Share of exporting firms by industries 80
Table B2. Share of exporting firms by size-class and industries 82
Table B3. ANOVA for a firm's exporter status in construction and service industries 83
Table B4. Sample composition for the descriptive statistics 83
Table B5. Summary statistics for the full sample of services firms 83
Table B6. Estimation results: Cobb-Douglas production function in construction and service industries 85
Table C1. Empirical studies on the export behaviour of service firms 95

Figures

Figure 1. Share of employment by sector and firm size in Europe 10
Figure 2. Employment contribution of firms by size 11
Figure 3. Share of employment by firm size, services sub-sectors 12
Figure 4. Jobs created by SMEs in manufacturing and services sectors 13
Figure 5. Share of SMEs exporting by sector 28
Figure 6. Shares of SMEs exporting by size of firm 30
Figure 7. Born global services SMEs in Tunisia, 2012 52
Figure 8. Services SMEs are smaller than manufacturing SMEs 53
Figure 10. Use of E-commerce by services SMEs 59

Boxes

Box 1. Born global: Tunisia's promotion of services export start-ups 51
Box 2. Services-oriented approaches: Evidence from survey of French SMEs 61

Executive summary

This study empirically investigates key restrictions to the internationalisation of small and medium-sized enterprises (SMEs) in manufacturing and across different types of services. The analysis uses two sources of micro-level data: a large cross-section of manufacturing and services SMEs covering over one hundred countries, and data from France-based services firms over a ten-year period. The study explores the extent to which binding constraints faced by SMEs producing goods may differ from those of services-based firms, and takes stock of how existing policy initiatives address some of those differences. Although the generalisation of these results should be treated with caution, our findings offer some insights that may be useful for policy-makers wishing to enhance the participation of SMEs in international trade.

How important are economies of scale?

Our results suggest that while firm size clearly influences the trade performance of SMEs in manufacturing, it is an ambiguous predictor of trade performance in the case of small-sized services firms. Findings from French services firms show that while firm size exerts a positive influence on the extensive margin (i.e. the proportion of firms that internationalise), an inverse relationship exists with respect to the intensive margin (i.e. the extent to which they internationalise their activities). Also, we find that internationalised SMEs destine a higher share of total sales to foreign clients relative to the larger counterparts: i.e. the export propensity is lower, while the export intensity is higher.

Do SMEs trade differently than larger enterprises?

The findings reveal that smaller firms trade a higher share of their exports through indirect channels. Thus, size appears to influence the choice of export channel. Indirect modes of integration are much more prevalent in the trading behaviour of SMEs in services than in manufacturing. This may be explained by the greater number of modes through which services can be supplied to foreign consumers relative to the physical, cross-border channels in manufacturing. Moreover, global value chains (GVCs) allow SMEs to supply one concrete task through a complex network of inter-connected partners and intermediaries. Hence, policy-makers should be aware of non-traditional forms of integration into global specialisation and distribution patterns that appear to be particularly relevant for services SMEs.

Does geography matter for internationalisation?

The analysis suggests that agglomeration economies are crucial for services SMEs. While standard gravity variables exert some influence on services SMEs trade performance, a stronger locational competitive advantage is found if SMEs are based in large cities, rather than in a region close to the border or coast. In particular, being located in the capital (Paris) has positive internationalisation effects for SMEs in professional services, ICT, financial services and construction. For these services, being part of a network of other similar firms may be critical for overcoming isolation, and appears to be more important than physical or cultural distance to a foreign market. By contrast, being in Paris has locational disadvantages for transport SMEs. Barring this exception, promoting clusters of related businesses and linkages to large multi-nationals may be a suitable trade promotion approach.

Do binding constraints vary by firm and industry characteristics?

Binding constraints differ not only by sector, but by enterprise size within the same sector. Access to finance disproportionately affects smaller exporters in manufacturing, although it does

not explain SMEs export performance in services, where physical investments (e.g. machinery) are comparatively lower. Similarly, electricity does not affect large manufacturing firms, with capacity to have their own generators, but it is a binding constraint for SMEs. Interestingly, electricity does not appear to be a significant constraint for services firms, which may rely relatively more intensely on the quality rather than the quantity of infrastructural inputs (e.g. digital). Key factors that drive the internationalisation of larger services firms, such as foreign ownership or international certification, do not explain the export performance of services SMEs. To the extent practicable, policies may benefit from a more tailored approach to address the specific needs of firms by their profile of size and industry characteristics.

Are services SMEs a homogenous group?

The results provide evidence of heterogeneity across services activities. Hence, care should be taken to avoid generalisations about "*the* services sector." In particular, construction firms substantially differ in export behaviour from firms in professional services, ICT, financial services, and transport. Nonetheless, the four latter sectors are also characterised by some level of heterogeneity. Accordingly, the effects of explanatory variables vary by sub-sector: productivity differentials are only able to explain differences in export behaviour in some services (e.g. ICT), but not in others (e.g. travel). In the same vein, membership in a foreign group is a key export driver in some services sectors (e.g. professional), while in others firms display high trade propensity within domestic corporate group. Hence, aggregate internationalisation strategies for services SMEs can mask important differences on how each sub-sector operates.

Do SMEs survive in export markets?

Services SMEs that break into foreign markets are likely to continue exporting over time. The results show that exporting decisions of French services firms are persistent over a ten-year period. Moreover, despite the heterogeneity of services sectors noted above, our estimates indicate that this pattern is consistent across all services sub-sectors. Although lower shares of services SMEs internationalise, once they start engaging in foreign transactions, they continue exporting in subsequent periods. Remarkably, this effect is particularly strong for the smallest services firms, which display the lowest probability of discontinuing exports. This could be explained by the ownership-driven structure of SMEs, which may entail greater caution on their initial export decisions, but result in lower rates of export collapses later on. Moreover, SMEs' network-driven export channels may also contribute to greater persistence.

Should SMEs be supported to explore trade opportunities?

Pro-active policies to support internationalisation are costly, and countries instituting support measures should target them carefully. Resource constraints of small-sized firms may prevent them from exporting profitably. This, coupled with their low participation in foreign markets raises the question as to whether there may be potential unexploited opportunities for trade expansion. For services SMEs, where these two observations are more pronounced (i.e. smaller size profile and lower trade participation *vis-à-vis* manufacturing SMEs), that question is, if anything, more pertinent. According to our results, where these instruments are appropriate they should notably address constraints in establishing the first export relationship.

Some countries have adjusted the standard definition of SMEs to account for differences in the size profile and other characteristics of services firms. The smaller average age of services SMEs, and the prevalence of "born global" phenomena in some services, has also required agencies to relax requirements on maturity of experience in domestic and foreign markets. In terms of specific instruments, evidence from an EU survey suggests that the most useful forms of support for SMEs across all services sectors relate to business co-operation and networking programmes aimed at helping SMEs identify foreign customers and business partners. The low use of internet channels for e-commerce on the part of services SMEs, as well as the difficulty in obtaining certification credentials, may also point to potential areas of cooperation.

I. Introduction: Motivation and background

Over the past twenty years, the pace of globalisation has increased rapidly. This can be attributed to the multiple benefits that are associated with firms that participate in global markets. Indeed, a large body of literature has established that firms that export tend to be more productive and pay higher wages (e.g. Bernard et al., 2007). However, to date, international trade has been mainly regarded as the domain of large multi-nationals, which can reap economies of scale and meet the sunk costs of foreign market entry. Notwithstanding, technological and economic developments seem to be allowing small and medium-sized enterprises (SMEs) to break into world markets more easily and at lower costs. In particular, information and communication technologies (ICT) have significantly reduced the costs of operating on a global scale, notably through digital channels for cross-border supply (e.g. e-commerce). Moreover, the fragmentation of production is unfolding new possibilities for SMEs to participate in international trade, as smaller firms may be more readily able to export "tasks" along a global value chains than a final products.

International markets can help SMEs improve their business performance. Foreign markets offer the possibility to source cheaper and more varied inputs that can lower the operating costs of small firms. At the same time, access to new export markets can stimulate output expansion and diversification beyond the boundaries of domestic demand and preferences. Recent studies show that SMEs that engage in international trade – via imports, exports or FDI – display higher turn-over growth, employment generation and innovation rates (EC, 2010). This can also have indirect benefits for large multinationals. In effect, the success of larger companies is influenced by the performance of SMEs, which are increasingly integrated into their supply chains (MacMillian, 2008). Indeed, world-scale specialisation necessitates innovative and flexible SMEs to supply an array of goods and services that feed into global production chains: as such, many countries are seeking to expand their export base towards smaller enterprises (Persin, 2010).

As a critical source of employment, the competitiveness of SMEs is a major policy concern.[1] In an integrated world, there is growing recognition that the productivity of SMEs and their participation in trade are intricately linked.[2] Thus, policy-makers looking to expand the benefits of globalisation across economic actors are concerned with how SMEs can avail themselves of opportunities from open markets. The growing attention to SMEs in trade policy discussions has come to the fore in a number of recent regional trade agreements (RTAs), which have developed novel provisions aimed at facilitating SMEs participation in trade. Other integration efforts seem to be consolidating and deepening the attention to SMEs as an important element of the trade policy agenda. Indeed, the low rate of utilisation of trade agreements on the part of SMEs suggests that there may be unexploited gains from their capacity to seize market access opportunities.

With very few exceptions, the available literature on the trade behaviour of SMEs is firmly rooted in the evidence from manufacturing. Emerging evidence on services internationalisation is yet scarce – and focuses on larger enterprises. As a result, little information is available to policy-makers on the trade patterns and channels of services SMEs. Given the intrinsic characteristics of services, and how they are traded, it may be reasonable to

1. The growing priority of SME internationalisation in the national policies of many countries is evident in the recent production of major reports, such as OECD (2012), EC (2010), US ITC (2010), APEC (2005), all containing a review of the current state of participation of SMEs in international trade.

2. The causation between productivity and international trade can go both ways, as evidenced in self-selection and learning-by-exporting effects.

consider whether traditional (goods-oriented) policies for SMEs internationalisation might benefit from some adaptations tailored to services providers. Recent discussions under GATS and other fora have stimulated reflections on whether small services firms trade differently than large multinationals in the same services market, displaying different modes of supply and greater sensitivity to specific barriers (WTO, 2012; Parsin, 2010; Riddle, 2006; APEC, 2005).[3]

Against this backdrop, the objective of this study is to investigate the trade behaviour of SMEs, exploring any differences between manufacturing and services sectors: How important are economies of scale in today's increasingly fragmented trading environment? Do SMEs internationalise through the same channels as larger firms do? To what extent are services firms similar with respect to their trading behaviour? Is the impact of trade and regulatory policies on firms identical across enterprise-sizes? Understanding in which sectors smaller enterprises trade, through what channels they conduct trade, and what kind of constraints affect their trade performance most can be a useful input for trade negotiations and policy-making. Given that financial and other resources are scarce, any pro-active policies to promote the trade participation of SMEs should be directed to areas that are likely to yield the highest returns.

To address these questions empirically, this report generates early evidence on SMEs trade behaviour from two sets of firm-level data: the World Bank's Enterprise Survey and AMADEUS. The first analysis using the World Bank Enterprise Survey draws on a large cross-section of over one hundred countries to examine SMEs trade patterns, investigating differences and similarities between SMEs in manufacturing and services. This analysis has a strong representation of developing and emerging economies. The second analysis, based on data from AMADEUS, focuses on one industrialised country – France – for which data are available for services sectors in a more disaggregated manner, thereby allowing to explore heterogeneity across services sub-sectors. The data for French services firms are available over a ten-year period, permitting an examination of trends in the export behaviour of services SMEs. The analyses in this paper apply the European Union's definition of SMEs.[4]

The remainder of the report is organised as follows. The next section provides a brief overview of the economic contribution of SMEs in manufacturing and services. Section III takes stock of recent empirical literature that has explored differences in the trade behaviour at the firm level between manufacturing and services, and between larger and smaller firms. Section IV and V present the empirical results from the World Bank's Enterprise Survey and Amadeus (France) datasets, respectively. Finally, section V discusses potential practices that might be useful in better targeting pro-active policies to the needs of small services providers. The conclusions summarise the key insights that may be relevant for policy-makers wishing to enhance the participation of SMEs in international trade.

3. An initial proposal on services SMEs under GATS was submitted by Canada (see WTO report on S/CSS/W/49). For a recent communication on this issue, see WTO document tabled by Switzerland (S/C/W/340).

4. The European Union's definition of micro, small, medium and large firms is as follows: a firm is classified as micro-firm if it employs less than ten employees. Small (medium) firms employ ten or more (50 or more) workers but less than 50 (250). Finally, firms which employ at least 250 employees are classified as large firms. This definition is adopted in other work on SMEs at OECD.

II. Economic contribution of SMEs in manufacturing and services

In virtually all industrialised and developing countries alike, SMEs constitute the overwhelming majority of all companies, and represent the most critical source of employment. Table 1 provides an overview of the significance and extent to which SMEs contribute to the economy. While there are variations across countries, SMEs typically comprise at least 95% of private sector firms and employ over two-thirds of workers.[5] Moreover, SMEs play a critical role in the generation of jobs in many OECD countries. By one estimate, in the United States SMEs have accounted for 60 to 80% of new net jobs created annually over the last decade (Basefsmy and Sweeney, 2010). In the European Union, SMEs created 85% of all new jobs between 2002 and 2010 (EU, 2012).

However, SMEs contribution to overall GDP and international trade remain low. Small firms contribute to 50% of GDP in most countries, although there are considerable variations, ranging from 20% (in Chile) to over 60% (in the European Union, Brazil or China).[6] While information on SMEs international activities is hard to obtain, the small share of SMEs that appear to export points to low contributions to trade flows. Due to the paucity of data, most figures (particularly on trade) relate to SMEs in manufacturing. Yet, according to a study by the International Trade Centre in 50 developing countries, services SMEs constitute 40% of all active exporters (ITC, 2010).

Table 1. Contribution of SMEs to economy

Country	Share of Firms	Share of Employment	GDP, Value Added	Share of SMEs Exporting
Brazil	99.87%	77% (S)	60.8%	11.4% (S)
Canada	99.7%	60%	--	--
Chile	98.92%	80%	25%	15%
China	99%	73%	60% (M)	40-60% (M)
Colombia	96.4%	83.5%	--	20%
EU	99.8%	70%	61.3%	--
India	95%	80%	40%	31.5% (M)
Japan	99%	72% (M)	52% (M)	13.5% (M)
Mexico	99.8%	73.8%	52%	--
New Zealand	98.9%	75%	--	--
Sweden	96.3%	60%	57%	24.15% (M)
Chinese Taipei	96.3%	80%	--	56% (M)
US	99.9%	50.3%	50%	31% (M)

Source: Compiled from various sources. (M) and (S) denote that data is for manufacturing or services only.

Overall, there is a much higher concentration of small firms in the services sector relative to the share of SMEs in manufacturing. Indeed, most SMEs are small services providers. In Canada, over 95% of SMEs (1.3 million) are services providers, while less than 5% (64 000 SMEs) are in manufacturing (Orser et al., 2007). In Latin America (13 countries for which data are available), 87% of all SMEs are in services sectors (IADB, 2010). Moreover, case study evidence from six Latin American countries found that all high-growth SMEs identified

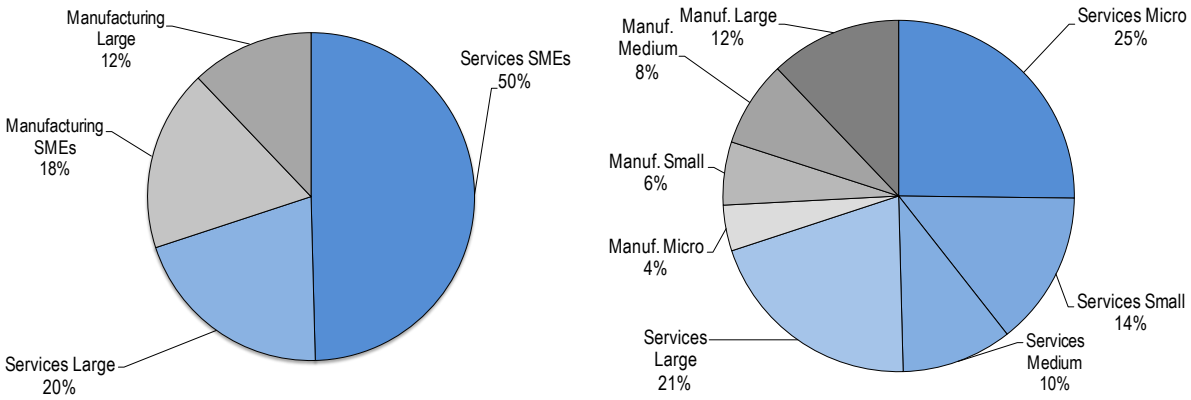
5. To cite and example, in Switzerland SMEs account for 99.7% of all firms and over two-thirds of employees. Services SMEs represent 2.3 million Full Time Equivalents (FTEs), compared to 448 000 FTE for large services firms. Five times more FTEs are employees in services SMEs than in large services enterprises (WTO, 2011, S/C/W/340).

6. Productivity levels of SMEs are believed to be low and display strong differentials across countries: in Latin America, large firms are six times more productive than SMEs, whereas in more advanced economies the productivity differences are narrower, of 2.4 (OECD, 2012).

in six Latin American countries are services firms (OECD and IADB, 2010). In this collection of case studies, none of the SMEs in manufacturing and agro-industry met the OECD high-growth SME (HGSM) criteria, based on output growth, innovation, and employment, among other variables. Hence, this suggests that there may be marked differences in the productivity levels of small firms across sectors of the economy.

A richer picture on the contribution of SMEs is depicted with a break-down by sectors and firm size. As an example, Figure 1 displays the employment shares that accrue to firms of different size in manufacturing and services among 18 European countries. Approximately 70% of total economy-wide jobs are attributable to firms in the services sector: of these, 20% accrue to large firms, while 50% accrue to SMEs. Services microenterprises create 25% of total jobs, which is slightly more than the contribution of large services enterprises (21% of jobs). The share of employment based on microenterprises in the services sector is noteworthy, considering that microenterprises in manufacturing only represent 4% of total jobs. These figures suggest that one of every two jobs in Europe is provided by SMEs in a services sector; one in every four jobs is based on a services microenterprise.

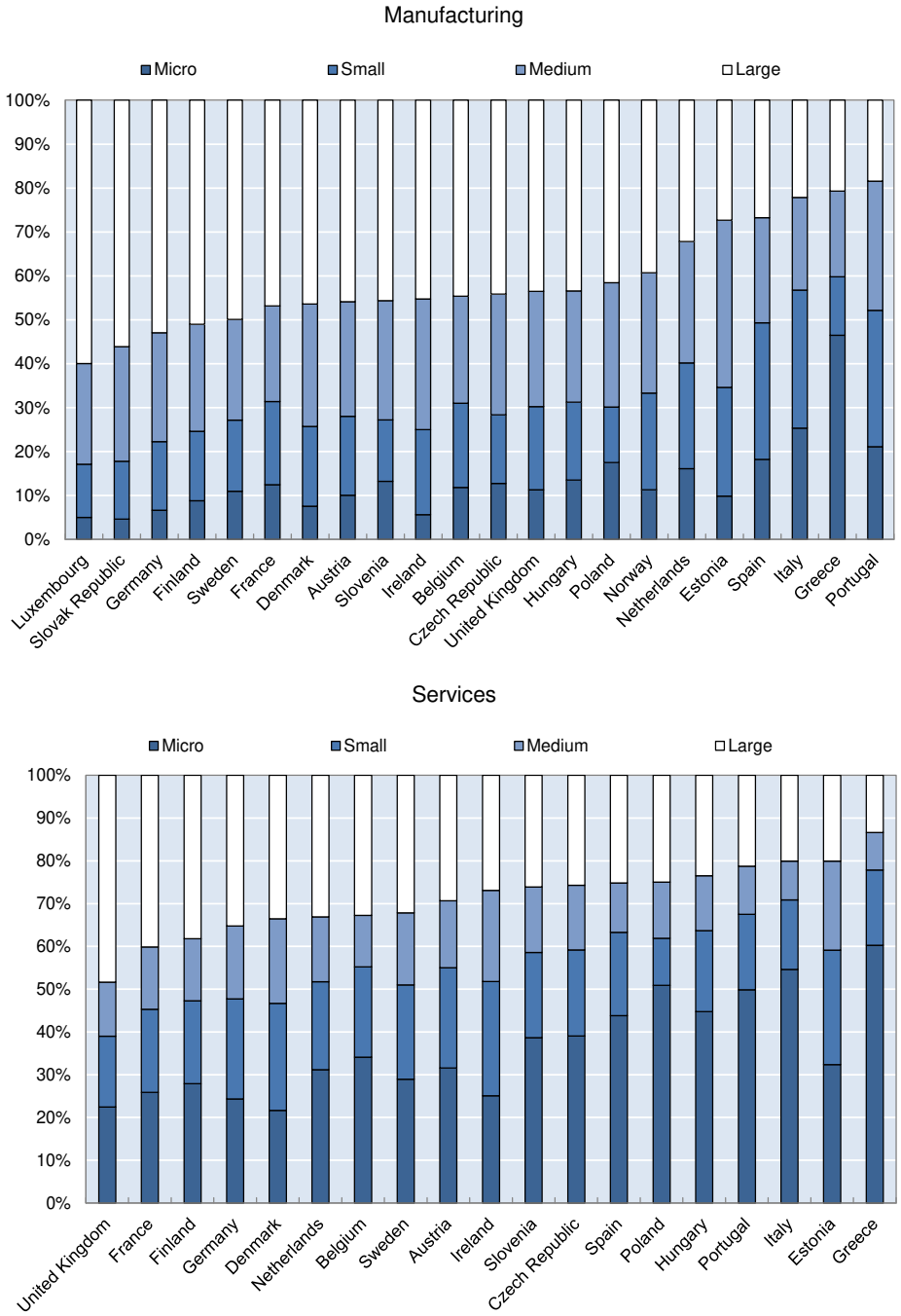
Figure 1. Share of employment by sector and firm size in Europe



Source: OECD STAN Database, latest data available 2007.

In Figure 2, the shares of sectoral employment based on SMEs in manufacturing and services are shown for selected OECD countries for which data are available. With some exceptions (Greece, Italy, Portugal and Spain), in many of the countries large enterprises account for the vast share of employment in manufacturing, from 60 to 80%. By contrast, in services SMEs account for the majority of total employment. The figures reveal not only marked contrasts between the shares of SMEs in services and manufacturing employment, but also between the different ratios across countries. In Luxembourg 60% of the manufacturing jobs are created by large firms, whereas in Portugal small manufacturers account for 80% of manufacturing employment. In services, the differences in shares of services-based employment are less pronounced. In countries like the United Kingdom that have large, global enterprises (i.e. financial sector), SMEs only contribute to just over 50% of services employment.

Figure 2. Employment contribution of firms by size

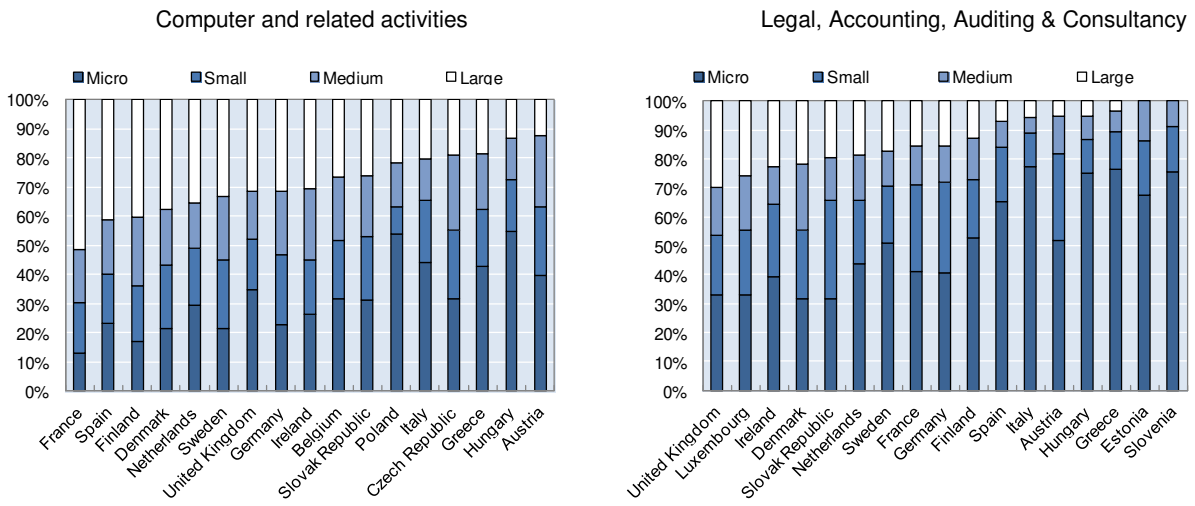


Source: OECD STAN Database, latest data available 2007.

Small firms appear to be inherent to the nature of the services industry. In construction, 95% of construction companies in EC-27 have less than 20 employees; these small enterprises account for 60% in terms of value added. Another sector where the prevalence of small firm is evident is in professional services. According to the Architect's Council of Europe (ACE), 99% of firms affiliated under the ACE employ less than 30 staff. In Australia, 96% of the 16 600 firms that compose the engineering industry employ less than 20 people. The WTO sectoral papers related to transport services report a lower participation of SMEs, which can be explained by higher capital investments, particularly in sectors such as maritime transport. However, there are segments of the transport chain where SMEs are active. In road transport, 80% of firms in the EU have less than 10 employees (i.e. micro-enterprises), and 99% have less than 50 (i.e. small firms). In China, 80% of firms in the sector are individual operators. Despite the clear dominance of the "big four" in trade of postal and courier services, over 50% of the European market is served by SMEs. Finally, distribution and logistics similarly report a high number of very small firms.[7]

Figure 3 displays the variation in the prominence of SMEs across two industries, namely computer services and professional services (concretely, legal, accounting, auditing). Microenterprises play a prominent role in professional services, whereas computer, being more capital-intensive, has a profile of firm size that ranges around small to medium-sized firms.

Figure 3. Share of employment by firm size, services sub-sectors



Source: OECD STAN Database, latest data available 2007.

The relative variation in shares of SMEs in the employment structure of computer and professional services points to some degree of heterogeneity across services sectors. In some services industries, economies of scale may be insignificant, and may give rise to the optimal size of firms in services being smaller. For some services activities, variable costs (notably, skilled labour, such as programmers for creating software) are more important than fixed costs that prevail in manufacturing activities (factories, machinery, warehouses). Large economies of scale are likely to be found in capital-intensive industries characterised by large fixed costs,

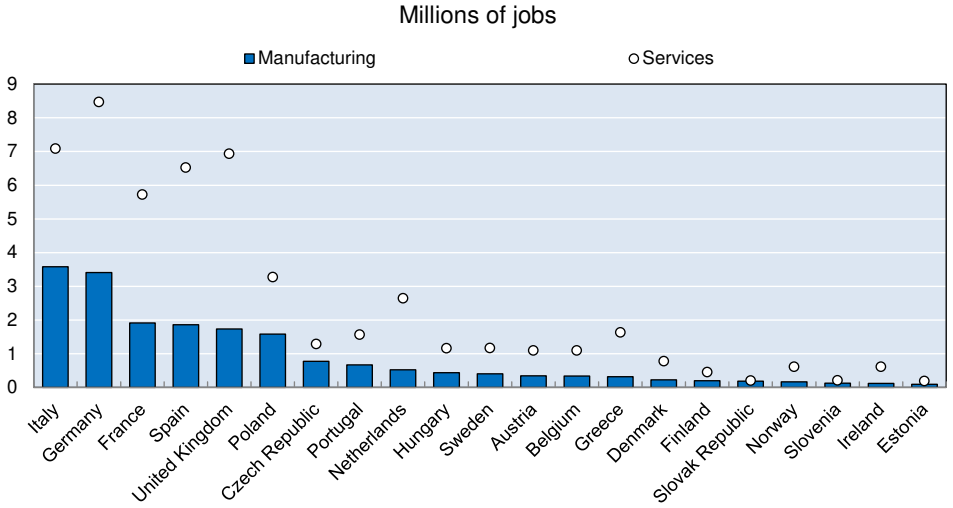
7. All the information above is extracted from the most recent available Services Background Sectoral Papers prepared by the Secretariat World Trade Organization (WTO). For more information, see WTO documents S/C/W/315 through S/C/W/334.

such as aircraft manufacturing, but not necessarily in the services operations associated with travel and air transport.

Another consideration is that the fixed cost of entry in a foreign market may vary depending on the channel of internationalisation. These modes of entry may favour of small services firms. In manufacturing, most cross-border trade involve shipping heavy cargo abroad, incurring high shares of transport costs that may not be profitable for a small scale of producers. In some services activities, such as many computer and business services, technological and regulatory developments have enabled cross-border trade to occur digitally, so that the time, costs and procedures to export are significantly reduced, and hence more readily affordable to SMEs. Similarly, consumer services are provided primarily via the movement of consumers, which hardly poses costs on the supplier. In instances where the services provider moves to the other country, the costs may still be lower than shipping cargo abroad. These types of services providers may present avenues for low cost internationalisation for SMEs.

In a similar vein, it may be easier and less costly for SMEs to participate in international trade by capturing one or more service "tasks" in the global value chain, rather than a final product where they may not have a cost advantage. In this regard, SMEs supplying services seem to be well placed for integrating themselves in global value chains. According to OECD work, SMEs in services have been more active in participating in global value chains than SMEs in manufacturing. In 2000, there were almost four times more services SMEs participating in global value chain than manufacturing SMEs. Enterprises of all sizes appear to be capable of participating in these chains, representing another form of integration from traditional cross-border exports. Given the high prevalence of small firms in services, and their important role in employment generation, the competitiveness of small firms is pivotal for overall economic prosperity. Indeed, in most OECD and many developing economies aggregate productivity growth relies on productivity gains from services, rather than manufacturing.

Figure 4. Jobs created by SMEs in manufacturing and services sectors



Source: OECD STAN Database, latest data available 2007.

III. What we know about SMEs in services trade: Literature review of firm-level evidence

As noted above, there is limited information about the export behaviour of SMEs in services trade. Firm-level evidence on services internationalisation is still sparse, and with very few exceptions, does not consider small-sized firms. Nevertheless, a good starting point for investigating the case of small services providers is to look at the existing portraits of successful manufacturing and services exporters. Without being exhaustive, the section below briefly takes stock of relevant studies that explore differences in firm behaviour between manufacturing and services, and between enterprise size. A more detailed review of the literature briefly discussed below is contained in Annex C.

Exporters in manufacturing and services: A differential portrait?

There is an extensive discussion in the empirical literature of the similarities and differences in the factors affecting firms' trade performance in goods and services, with conclusion emerging as mixed. Underlying this trend is the recognition that some of the distinctive features of the delivery of many services —such as joint production and consumption requirements—have been rarely included in empirical work, and can be shown to influence aspects of companies' export performance (La et al., 2009; Lennon et al. 2009). Deardorff (1985) and Melvin (1989) argue that intangibility and inseparability call for a re-thinking of the determinants of comparative advantage for trade in services. More recently, Markusen and Strand (2009) postulate that a theory of trade and foreign direct investment in services call for certain adaptations to the standard knowledge and capital-based models.

Broadly, the empirical findings from this stream of work suggest both similarities and differences with the stylised facts from manufacturing on the determinants of firms' trade performance. Some studies largely vindicate the validity of models applied to manufacturing firms to describe services exporters (see, e.g. Monodo, 2012), whereas other authors contradict this view (see, e.g. Breinlich and Criscuolo, 2010). Table 2 provides a brief overview of a selection of studies exploring differences in export determinants.

Among the authors pointing to differences in the determinants explaining trade behaviour, Vogel and Wagner (2011) document the self-selection of less profitable services firms into export markets, contrary to the results in the manufacturing literature. Other authors (e.g. Wobling, 2006) do not find evidence that human capital or knowledge capital drives export flows in services as they do in manufacturing frameworks based on dynamics of capital (physical and human) accumulation. Conti et al., (2010) document that productivity and higher skill intensity matter, but only when exporting to more distant industrial countries outside Europe.

Most strikingly, perhaps, a number of authors challenge the notion that there is a positive linear relationship between firm size and the likelihood of exporting in the case of services, contrary to what the manufacturing literature suggests. Instead, some authors have found that there is a U-shaped or hump-shaped curve, or no significant relationship at all (Ebling, 1999; Mansury, 2007; Gourlay, 2005).[8]

8. The relationship between firm size and export orientation is also ambiguous in national data. In the case of Germany, the share of large firms (250 or more employees) that export is 17.9%, lower than the exporting share for medium-sized firms (100 to 249 employees) which is 19%. The exporting share of some smaller services firms (20-49 employees) is 17.8%, almost the same as that of large firms (DIW Berlin, 2008).

Table 2. Overview of firm-level evidence on services exporter profile

Author(s) / Year	Country	Period	Sector(s)	Data Sample	SMEs	Important Findings
Bhattacharya et al. (2010)	India	2000-2008	Software services (compared to chemical manufacturing industry)	23 000 firms serving foreign costumers (by exports and/or FDI).	Not explored	Less productive software firms tend to trade via FDI instead of cross-border exports, while only productive firms in chemical manufacturing do OFDI. Results explained by greater quality uncertainty in services, particularly when production is located far away.
Breinlich and Criscuolo (2011)	United Kingdom	2000-2005	Wide range of services and goods (UK SIC)	23 247 (14 194) exporters (importers) services; goods. goods & services exporters/importers	Not explored	Strong degree of firm-level heterogeneity in services trade. Service exporters are more productive than services importers. The export premium for service traders is smaller than for goods Services traders expand exports and imports along the intensive margin.
Conti et al. (2010)	Italy	2003	Distribution, transport & communication, real estate & renting (NACE G, I, K)	1 008 services firms	Not explored	Belonging to national and international networks, relationship with large industrial firms, and experience in the national market enhance exporter status. Higher productivity and higher skills intensity matter when exporting to more distant markets outside Europe.
Chiru (2007)	Canada	2003	Knowledge-intensive business services (9 professional, scientific and technical services)	913 establishments	Yes	Innovation is not significant in explaining export tendency of small-sized firms, but is very significant for large firms. Having a high proportion of highly skilled staff is a positive influence on export for all firm size. Size has a U-shaped relationship with firm size.
Ebling and Janz (1999)	Germany	1997	Services	1 010 firms	Not explored	Innovation activities increase the chances to export. Ambiguous evidence of firm size in the propensity to export. Negative impact of labour unit cost on exports for the branches of transportation, technical consultancy and engineering and other services.
Gourlay et al. (2005)	United Kingdom	1988-2001	“Distribution”, “Telecoms”, “Transport”, “Financial” and “Insurance”.	1 468 services firms	No	Innovation is crucial for entering export markets and extending market penetration. Product diversification is important for entering export markets. Skilled directors are required to overcome the informational and knowledge barriers to exporting.
Lejpras (2009)	Eastern Germany	2003-2004	Manufacturing and Services	3 939 SMEs (3 063 manufacturing and 876 services firms).	Not explored	Introducing a novel product on the domestic/foreign market facilitates the exports for services SMEs. Having main competitors located abroad, as well as firm size, enhance the internationalisation of all SMEs.
Love and Mansury (2007)	United States	1994	Business services	206 firms	Not explored	Large, productive firms self-select into export markets. Self-selection effect and learning-by-exporting effects are evident for knowledge intensive services firms.
Love and Ganotakis (2012)	United Kingdom		High-tech industries	412 SMEs and five face-to-face interviews with entrepreneurs	Not explored	Evidence of learning-by-exporting is found for overall sectors. But, service firms benefits from learning-by-exporting faster than manufacturing ones. Broadly, SMEs benefits from knowledge (internal R&D and skills) to enter into exports markets.
Minondo (2011)	Spain	2001-2007	Services	14 040 firms	Smallest firms not included	The learning-by-exporting labour productivity is not significant. Firms self-select into export markets. Exporters are larger in terms of employees, turnover and have higher productivity compared to non-exporters.
Vogel (2011)	Eastern and Western Germany	2003-2005	Business services	20 000 business services firms.	Not included	Large enterprises self-select into export markets. Exporter enterprises are larger (turnover and persons employed) than non-exporting ones. Learning-by-exporting effects are ambiguous.
Kelle et al. (2012)	Germany	2005	Construction, transport, business services	9 647 services firms	Not explored	Larger and more productive firms choose exporting by foreign affiliate sales. There is little evidence of complementarities or substitution effects between mode 1 and 3. Distance raises reliance of mode 3.

Another strand of studies test the impact of standard gravity variables on trade performance. Some authors (e.g. Tosti, 2012) find evidence that physical distance plays a role in services trade, although the effects of linguistic and cultural distance are unexplored. Breinlich and Criscuolo (2011) show that the effects of distance work on services trade through the extensive margin, but do not exert influence on the intensive margin. This could imply differences in market entry or variable trade costs.

Small and large services enterprises: Do they trade through the same channels?

We have almost no systematic evidence regarding the patterns of trade of SMEs in services. Although firm-level literature on services trade is starting to emerge, the work thus far does not look at smaller firms. In some cases, this is due to lack of data: the available datasets on which studies are based often do not incorporate information on services firms below a certain number of employees or threshold of annual turn-over, effectively excluding the smaller firms from the analysis. Hence, the results from this research are biased towards large services enterprises. Furthermore, traditionally micro- and small services enterprises were believed to solely focus on the domestic market, justifying their exclusion, although recent research suggest that in some sectors their participation may not be as negligible as previously thought (Parsin, 2010; ITC, 2010; Riddle, 2006).

The question, then, arises as to whether there are any differences in the trading dynamics of smaller and larger enterprises in services trade. SMEs are often presumed to be small versions of large firms, except that they have tighter resource and administrative constraints in terms of finance and managerial capabilities. When it comes to the way they conduct trade, however, the differences appear to be more fundamental. In particular, the small size and inherent constraints may cause SMEs to adopt different channels and strategies of internationalisation. Hence, it is worth exploring what determines whether SMEs sell a given type of service to a given foreign market, and which modes of supply they use.

Conceptually, Persin (2010) argues that services SMEs lean towards 'soft' forms of internationalisation, exporting mainly via cross-border trade and movement of contractual services suppliers, whereas large services multinationals prefer "hard" forms of internationalisation linked to commercial presence. This is not written in stone, and there are likely to be deviations from this trend. Still, it seems to be consistent with recent surveys on SMEs that display low rates of FDI participation (OECD, 2012; EC, 2010). To cite an example, from all SMEs in the business services sector, only 3-4% of them report having any form of commercial presence, whereas 19% of SMEs in the sector trade via cross-border supply (EC, 2010).

Utilising firm-level data from Germany, Kelle et al. (2012) empirically explore modal choices, in particular between cross-border and foreign-affiliates sales. Interestingly, they find that firms appear to remain tied to one of the two channels when they export services. In particular, there is little evidence that firms switch from one mode to the other, or that they trade via multiple modes to a given country (i.e. complementarities). Moreover, they find that even when the modal choice appears possible (e.g. there are no barriers from switching from mode 1 to mode 3), such substitution only takes place among large or more productive firms. This appears to confirm that SMEs may more readily utilise mode 1 in lieu of mode 3, and that switching modes – even absent technological or government restrictions – may be costly for SMEs. Moreover, the finding that distance to a foreign market increases reliance of mode 3 suggests that SMEs may have difficulties serving more distant markets. However, the analysis does not explore mode 2 and 4. Also, within mode 1, ongoing digitalisation has created new channels to provide cross-border services that may not be fully captured (e.g. e-commerce).

Among the few empirical studies that undertake an exploration of SMEs in a specific services sub-group, Chiru (2009) looks at the export behaviour of Canadian knowledge intensive business services (professional, scientific and technical services). The results show that very small-sized establishments with 20 employees or less ate likely to be more export-oriented than those firms that employ 21 and 60 employees; the establishments that are more export-oriented have 60 to 70 employees (i.e. medium-sized). The successful export performance of small-sized establishments is attributed to the importance of very specific (niche) products in the industry and the adequate use of intellectual property protection. The author finds that for these kind of knowledge-intensive industries, the barriers of entry into export markets faced by micro and very small establishments are not as prohibitive as in manufacturing.

IV. World enterprise survey: Cross-country evidence from developing countries

This section examines the internationalisation of SMEs using firm-level data, comparing manufacturing with services. We take care to identify the types of policies found to be particularly constraining by SMEs in their efforts to do business abroad, again differentiating between goods and services sectors to the extent possible.

While individual countries often have detailed information on firm exporting behaviour, obtaining a broader cross-country picture of trade by SMEs is more difficult. The next section presents empirical results utilising the World Bank's Enterprise Surveys database. The dataset has the advantage of containing information on over 100 000 firms, the majority (80%) of which are SMEs. It provides detailed information on exports (in manufacturing and services) and imports (in manufacturing). It also includes variables related to firm-level characteristics and the overall business environment. The disadvantage is that the sample (of 108 countries) is concentrated in developing and emerging economies. Another drawback, from this study's perspective, is that the sample covers only selected services sectors.[9] We attempt to overcome these limitations by supplementing these findings with those based on more detailed empirical work based on a single country (France) with disaggregated services firms.

A. Setting the scene: Some descriptive statistics

Table 3 shows export intensity (exports as a percentage of total sales) by firm in manufacturing and services industries. Two stylised facts are notable. First, export participation is markedly increasing in firm size: larger firms tend to be much more reliant on international markets than smaller ones. This finding is in line with the literature on firms in international trade, which suggests that the bulk of international trade transactions is accounted for by a small number of large firms (Bernard et al., 2007). We also see that smaller firms are relatively more reliant on indirect exporting than larger firms. This reliance on indirect exports appears to diminish more quickly with respect to size in manufacturing firms than in services firms.

Second, there is a significant difference in export participation rates between manufacturing firms and services firms. For SMEs, export intensity is two to four times greater for manufacturing firms compared with services firms, and for large firms the difference is over five times. In addition, services firms are relatively more reliant on indirect as opposed to direct exports. They therefore tend to act more often through intermediaries when they break into foreign markets. In our econometric analysis below, we investigate these issues in greater detail using a fully-specified model.

9. Details on the dataset are included in the Annex A, Section A.

The World Bank's Enterprise Surveys also provide information on policies that are perceived to affect firm performance, including in the area of trade. This database indicates the extent to which, for example, firms perceive labour market regulation, entry barriers, or access to finance as obstacles to doing business. Annex A, Annex Tables A4 and A5 present the main business obstacles identified by different size categories of firms in manufacturing and services. In both cases, access to finance looms large as a business obstacle facing all firm size groups, but it is particularly prominent for smaller firms. Electricity is also widely identified as a business constraint, but in services it is primarily SMEs that are faced with this difficulty. Larger firms are presumably able to install and operate their own generators to make up for any deficiencies in the public supply of electricity. One noticeable difference between manufacturing and services is that the main business constraints identified by firms are relatively stable by size category in manufacturing, but they differ considerably in services. It is only larger firms, for example, that identify labour market constraints as a significant business constraint – perhaps a counter-intuitive result. The perceived bottlenecks for doing business do not necessarily mean that these are constraints to internationalisation. Hence we investigate the trade impacts of these perceived business constraints further in the next section, comparing how they affect SMEs in manufacturing and services.

Table 3. Export intensity by firm type

	Manufacturing		Services	
Firm type	Direct Exports/ Sales	Indirect Exports/Sales (Indirect/Direct)	Direct Exports/ Sales	Indirect Exports/ Sales (Indirect/Direct)
Micro	2.09%	1.55% (0.74)	1.20%	1.03% (0.86)
Small	5.56%	2.87% (0.52)	2.25%	1.43% (0.64)
Medium	16.41%	4.74% (0.29)	4.73%	1.93% (0.41)
Large	33.28%	6.16% (0.19)	6.37%	2.27% (0.36)

B. Econometric analysis

In this section, we use econometric methods to elaborate on the descriptive results presented in the previous section. First, we examine the links between firm size and trade participation. We are interested in examining whether or not SMEs tend to be less active in overseas markets, even after controlling for other factors. We also examine whether particular firm characteristics interact with size in determining trade outcomes. Second, we examine which firm characteristics make it more likely that they export directly rather than indirectly. Third, we investigate whether the business obstacles identified by firms have a link to trade performance, and whether that link differs depending on the size of the firm.

Trade participation and firm size

We first estimate an econometric model of trade participation in which variables capturing firm size make it possible to estimate the extent to which SMEs enter export markets differently from larger businesses. We expect that larger firms (those with more employees) tend to export a greater proportion of their total output, as do more productive firms (those with more sales per employee, a measure of labour productivity). To measure the importance of international linkages in enabling firms to export, we include a variable measuring the percentage of intermediate inputs that are imported, along with a dummy variable for those firms which are majority foreign owned. To see whether international linkages have a differential impact according to firm size – we expect that they might matter more for SMEs than for other firms – we interact both variables with measures of firm size. Finally, we also

include a dummy variable identifying those firms with ISO-9000 certification, and we interact it for the same reason with a measure of firm size.

Results are reported in Table 4. The first two columns use data on manufacturing firms only, while the second two use data on services firms only. Taking the manufacturing data first, we find that size significantly affects export performance: larger firms tend to export more than smaller ones. However, the effect is non-linear: even after controlling for size and other factors, micro-enterprises still export less than other firms. This finding suggests that they are subject to particular constraints that go beyond simple size. Interestingly, the special case of micro-enterprises disappears when we interact firm size with other characteristics (column 2). We find that foreign ownership and ISO-9000 certification have a positive impact on export performance, and that the impact is stronger for smaller firms than larger ones. The policy implication is that encouraging FDI in SMEs and promoting ISO certification can help micro-enterprises overcome the particular constraints they face in engaging in exporting. Although the percentage of intermediate inputs accounted for by imports is also positively associated with export performance – which indicates that liberalizing trade policy, particularly in intermediate goods sectors, can help boost export performance – there is no evidence of this effect being differentiated by firm size.

Table 4. Regression results for manufacturing and services firms

	(1)	(2)	(3)	(4)
	Manufacturing		Services	
	Exports % Sales	Exports % Sales	Exports % Sales	Exports % Sales
Log(Employees)	0.469***	0.631***	0.082	0.090
	(0.000)	(0.000)	(0.251)	(0.245)
Log(Labour Productivity)	0.081***	0.079***	0.043	0.043
	(0.004)	(0.004)	(0.122)	(0.130)
Imports % Inputs	0.473***	0.498**		
	(0.000)	(0.029)		
Imports * Log(Employees)		-0.011		
		(0.842)		
Foreign	0.802***	1.466***	0.845***	1.047***
	(0.000)	(0.000)	(0.000)	(0.000)
Foreign * Log(Employees)		-0.135***		-0.049
		(0.004)		(0.436)
ISO	0.374***	1.629***	0.543***	0.504*
	(0.000)	(0.000)	(0.000)	(0.075)
ISO * Log(Employees)		-0.269***		0.010
		(0.000)		(0.880)
Micro	-0.394**	-0.183	-0.676**	-0.673**
	(0.032)	(0.300)	(0.036)	(0.036)
Small	-0.148	-0.100	-0.477**	-0.481**
	(0.284)	(0.434)	(0.042)	(0.040)
Medium	0.084	0.015	-0.171	-0.177
	(0.330)	(0.853)	(0.283)	(0.269)
N	22 472	22 472	18 707	18 707
Fixed Effects	Country-Year-Sector	Country-Year-Sector	Country-Year-Sector	Country-Year-Sector

Notes: Estimation is by the fractional logit model in all cases. P-values based on robust standard errors clustered by country-year-sector are in parentheses below the parameter estimates. Statistical significance is indicated by: * (10%), ** (5%), and *** (1%). Control variables included but not reported include firm's legal status (e.g. sole proprietorship), firm age and managerial experience. These results are available from the authors upon request.

Results for services firms provide some points of contrast with the manufacturing experience (Table 4, columns 3-4). First, as noted above, services firms tend to export less than manufacturing firms as a percentage of sales, at all firm sizes. In terms of the regression results, however, firm size does not bear a direct relationship to export behaviour for services firms, but after controlling for other factors, micro- and small enterprises tend to export less than other firms. This is a point of difference with manufacturing, where the result was only significant for micro-enterprises. This outcome is consistent with some of the literature noted above which finds ambiguous results for the effects of firm size as defined by number of employees. Foreign investment and ISO certification are both positively associated with export performance in services, but there is no evidence of a significant interaction with firm size as in manufacturing. Note that the percentage of imports in intermediate goods use is excluded from these regressions as the data are generally not recorded for services firms.

Even after controlling for possible interactions between firm size and foreign investment or ISO certification, micro- and small enterprises still tend to be less active services exporters than other firms. This result suggests there are persistent barriers faced by smaller services firms in accessing international markets.

Indirect exporting and firm size

The recent literature on firms in international trade suggests that intermediaries such as wholesalers and distributors can play an important role in linking some firms with global markets (Bernard et al., 2010). Given that large fixed costs of market entry make it difficult for all but the largest and most productive firms to export, one possibility is that smaller and less productive firms more often tend to be indirect exporters, i.e. they export through an intermediary rather than dealing directly with foreign consumers. It is therefore possible that firm size is an important determinant of the decision *how* to export, in addition to the decision whether or not to export. The Enterprise Surveys data distinguish between direct and indirect modes of exporting, and so are well suited to examine this question.

To examine this hypothesis, we divide firms into three groups: those that serve the domestic market only, those that export primarily indirectly (the percentage of indirect exports in sales is greater than the percentage of direct exports), and those that export primarily directly (the percentage of direct exports in sales is greater than the percentage of indirect exports). We hypothesise that size and productivity sorting take place in that order, i.e. that direct exporters are larger and more productive than indirect exporters, which are larger and more productive than firms that serve the domestic market only. We then estimate an ordered logit model in which the choice of firm type is the dependent variable.

Table 5 presents results, again distinguishing between manufacturing and services firms (columns 1 and 2 respectively). Taking manufacturing first, we see that larger and more productive firms are indeed more likely to be exporters, and are more likely to export directly than indirectly. The two variables capturing international links – the percentage of intermediate inputs that are imported and a dummy for foreign ownership – also show a positive relation with export status, and the decision to export directly rather than indirectly. Interestingly, the interaction term on foreign ownership has a negative and statistically significant coefficient, which indicates that the effect of foreign investment is particularly strong for smaller firms. The same dynamic is apparent for ISO-9000 certification, which has a positive relationship with export status, and with the probability of being a direct rather than indirect exporter. The negatively signed coefficient on the ISO interaction term again indicates that the effect is particularly strong for smaller firms. After controlling for these various influences, we do not find any remaining significant impact of the firm size dummy variables,

which suggests that our model adequately captures the links between size and export mode through the levels and interaction terms.

Table 5. Regression results for manufacturing and services firms

	(1) Manufacturing	(2) Services
Log(Employees)	0.783***	0.195***
	(0.000)	(0.002)
Log(Labour Productivity)	0.221***	0.112***
	(0.000)	(0.000)
Imports % Inputs	0.637***	
	(0.005)	
Imports * Log(Employees)	-0.018	
	(0.769)	
Foreign	1.167***	1.031***
	(0.227)	(0.000)
Foreign * Log(Employees)	-0.099**	-0.125**
	(0.042)	(0.030)
ISO	1.222***	0.696***
	(0.000)	(0.003)
ISO * Log(Employees)	-0.154***	-0.017
	(0.000)	(0.763)
Micro	-0.009	-0.540*
	(0.958)	(0.051)
Small	0.030	-0.265
	(0.817)	(0.198)
Medium	0.071	0.068
	(0.427)	(0.642)
N	22476	18709
Fixed Effects	Country-Year-Sector	Country-Year-Sector

Notes: Estimation is by the ordered logit model in all cases. P-values based on robust standard errors clustered by country-year-sector are in parentheses below the parameter estimates. Statistical significance is indicated by: * (10%), ** (5%), and *** (1%). Control variables included but not reported include firm's legal status (e.g. sole proprietorship), firm age and managerial experience. These results are available from the authors upon request.

Column 2 presents results for services. Again, we find that larger and more productive firms are indeed more likely to export rather than serve the domestic market only, and they also more likely to export directly rather than indirectly. As with manufacturing, international links matter: foreign owned firms are more likely to export, and to do so directly. Moreover, the negative and statistically significant coefficient on the interaction term indicates that this effect is stronger for smaller firms. Firms that are ISO certified are also more likely to export and to do so directly, but contrary to the case of manufacturing, we do not find that the effect differs according to firm size. Finally, the results show that even after controlling for these various firm characteristics, and certain interactions with size, the fact of being a micro-enterprise still significantly reduces the likelihood that a firm will export, and makes it more likely to export indirectly than directly. This finding suggests that firm size is an important determinant export channel for services, whereby services SMEs deploy more indirect channels to conduct trade.

Business obstacles, firm size, and trade participation

This part extends the previous analysis by including in the model variables indicating whether or not firms identify particular factors as business obstacles. We know from previous studies that the business environment plays a crucial role in SME performance, especially with respect to international trade (Aterido et al., 2007).

Baseline results for the manufacturing sector are in Table 6. We do not include all business obstacles from the Enterprise Surveys data, but only a selection of those identified most commonly as major obstacles by firms (see above). We expect to see a negative sign on the business obstacle dummy variable, but a positive sign on the interaction term, which would indicate that the constraint is particularly severe for smaller firms.

Table 6. Regression results for manufacturing with business obstacles

	(1) Exports % Sales	(2) Exports % Sales	(3) Exports % Sales	(4) Exports % Sales	(5) Exports % Sales	(6) Exports % Sales	(7) Exports % Sales
Log(Employees)	0.452***	0.439***	0.463***	0.482***	0.467***	0.468***	0.473***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log(Labour Productivity)	0.081***	0.081***	0.080***	0.082***	0.082***	0.082***	0.081***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Imports % Inputs	0.469***	0.474***	0.477***	0.474***	0.472***	0.471***	0.473***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Foreign	0.809***	0.802***	0.785***	0.796***	0.806***	0.803***	0.801***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ISO	0.376***	0.378***	0.372***	0.377***	0.373***	0.374***	0.374***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Micro	-0.380**	-0.404**	-0.415**	-0.390**	-0.391**	-0.393**	-0.396**
	(0.038)	(0.027)	(0.022)	(0.033)	(0.033)	(0.032)	(0.031)
Small	-0.152	-0.155	-0.153	-0.142	-0.147	-0.149	-0.149
	(0.271)	(0.261)	(0.257)	(0.302)	(0.286)	(0.282)	(0.282)
Medium	0.077	0.079	0.082	0.088	0.084	0.083	0.083
	(0.364)	(0.353)	(0.331)	(0.305)	(0.329)	(0.336)	(0.333)
Obstacle(Finance)	-0.319*						
	(0.091)						
Obstacle(Finance) * Log(Employees)	0.084**						
	(0.046)						
Obstacle(Electricity)		-0.241					
		(0.145)					
Obstacle(Electricity) * Log(Employees)		0.070*					
		(0.056)					
Obstacle(Informal)			-0.375***				
			(0.008)				

Table 6. Regression results for manufacturing with business obstacles (*continued*)

	(1) Exports % Sales	(2) Exports % Sales	(3) Exports % Sales	(4) Exports % Sales	(5) Exports % Sales	(6) Exports % Sales	(7) Exports % Sales
Obstacle(Tax)				0.044			
				(0.755)			
Obstacle(Tax) * Log(Employees)				-0.037			
				(0.222)			
Publicly Listed (omitted)	.	.	.	.			
	.	.	.	.			
Private LLC	0.246**	0.239**	0.248**	0.246**			
	(0.014)	(0.014)	(0.012)	(0.013)			
Sole Proprietor	-0.053	-0.056	-0.054	-0.057			
	(0.668)	(0.652)	(0.659)	(0.644)			
Partnership	0.330**	0.324**	0.328**	0.328**			
	(0.013)	(0.014)	(0.012)	(0.013)			
	(1) Exports % Sales	**(2) Exports % Sales**	**(3) Exports % Sales**	**(4) Exports % Sales**	**(5) Exports % Sales**	**(6) Exports % Sales**	**(7) Exports % Sales**
Limited Partnership	0.105	0.095	0.094	0.099			
	(0.518)	(0.553)	(0.561)	(0.543)			
Other	0.281**	0.275**	0.274**	0.287**			
	(0.041)	(0.045)	(0.043)	(0.037)			
Obstacle(Instability)					0.063		
					(0.712)		
Obstacle(Instability) * Log(Employees)					0.011		
					(0.787)		
Obstacle(Workforce)						0.039	
						(0.787)	
Obstacle(Workforce) * Log(Employees)						0.003	
						(0.919)	
Obstacle(Crime)							0.061
							(0.718)
Obstacle(Crime) * Log(Employees)							-0.024
							(0.508)
N	21 525	22 472	22 470	22 471	22 472	22 472	22 472
Fixed Effects	Country-Year-Sector	Country-Year-Sector	Country-Year-Sector	Country-Year-Sector	Country-Year-Sector	Country-Year-Sector	Country-Year-Sector

Notes: Estimation is by the fractional logit model in all cases. P-values based on robust standard errors clustered by country-year-sector are in parentheses below the parameter estimates. Statistical significance is indicated by: * (10%), ** (5%), and *** (1%). Control variables included but not reported include firm's legal status (e.g. sole proprietorship), firm age and managerial experience. These results are available from the authors upon request.

In terms of the business constraints identified by manufacturing firms, we find three that potentially have an impact on export performance after controlling for other factors. Access to finance appears to be a key issue facing firms seeking to break into overseas markets: the negative sign on the dummy variable indicates that difficulties in accessing finance tend to constrain firms' ability to export. Moreover, the positive and statistically significant coefficient on the interaction term with firm size indicates that finance is more of a constraint for SMEs than it is for larger firms. We find a similar result for electricity, which can be taken as a proxy for infrastructure performance. However, the result is weaker because the dummy variable is only statistically significant at the 15% level. Nonetheless, the interaction term is positive and 10% statistically significant, which again indicates that this business constraint is a particular issue for SMEs. In addition, we find a negative and 1% statistically significant coefficient on the dummy variable for the practices of firms in the informal sector, which indicates that informal activity constitutes a major obstacle for firms seeking to export. However, the interaction term is not statistically significant, which indicates that this constraint applies in much the same way to SMEs as it does to larger firms. For the remaining business obstacles from the list of common ones identified by manufacturing firms – tax rates, political instability, workforce training, and crime – we do not find any statistically significant results.

Table 7 presents similar results for services firms. However, only in the case of the dummy variable for practices by firms in the informal sector is there a noticeable effect of business obstacles on export behaviour. Even in that case, the coefficient is only marginally significant at the 10% level. In no case is the size interaction term statistically significant. It is therefore difficult to draw any strong conclusions as to the role that size and business obstacles play in the export behaviour of services firms. This result is likely a function, as noted above, of the fact that export data for services firms are possibly less accurate than for manufacturing, which has given rise to a variety of other difficulties with the regression results. Further work using different samples and data would be necessary in order to establish firm links between the types of business obstacles considered here and export behaviour in services. This we undertake in the following section.

Table 7. Regression results for services with business obstacles

	(1) Exports % Sales	(2) Exports % Sales	(3) Exports % Sales	(4) Exports % Sales	(5) Exports % Sales	(6) Exports % Sales	(7) Exports % Sales
Log(Employees)	0.083	0.074	0.079	0.070	0.070	0.058	0.112
	(0.251)	(0.313)	(0.264)	(0.328)	(0.359)	(0.424)	(0.125)
Log(Labour Productivity)	0.043	0.044	0.043	0.043	0.043	0.043	0.045
	(0.128)	(0.121)	(0.129)	(0.121)	(0.126)	(0.120)	(0.109)
Foreign	0.857***	0.850***	0.830***	0.844***	0.847***	0.845***	0.847***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
ISO	0.540***	0.544***	0.531***	0.544***	0.545***	0.543***	0.541***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Micro	-0.670**	-0.674**	-0.673**	-0.679**	-0.679**	-0.681**	-0.648**
	(0.038)	(0.038)	(0.039)	(0.035)	(0.035)	(0.036)	(0.042)
Small	-0.470**	-0.477**	-0.472**	-0.478**	-0.479**	-0.469**	-0.456**
	(0.045)	(0.043)	(0.046)	(0.042)	(0.041)	(0.047)	(0.050)
Medium	-0.166	-0.170	-0.171	-0.172	-0.173	-0.161	-0.164
	(0.296)	(0.285)	(0.284)	(0.281)	(0.276)	(0.315)	(0.298)
Obstacle(Finance)	0.094						
	(0.652)						
Obstacle(Finance) * Log(Employees)	0.005						
	(0.928)						
Obstacle(Electricity)		0.047					
		(0.821)					
Obstacle(Electricity) * Log(Employees)		0.022					
		(0.665)					
Obstacle(Informal)			-0.359				
			(0.109)				
Obstacle(Informal) * Log(Employees)			0.013				
			(0.816)				
Obstacle(Tax)				-0.129			
				(0.500)			
Obstacle(Tax) * Log(Employees)				0.032			
				(0.511)			
Obstacle(Instability)					-0.054		
					(0.791)		
Obstacle(Instability) * Log(Employees)				.	0.030		
				.	(0.527)		
Obstacle(Workforce)						-0.201	
						(0.329)	
Obstacle(Workforce) * Log(Employees)						0.065	
						(0.179)	
Obstacle(Crime)							0.148
							(0.516)
Obstacle(Crime) * Log(Employees)							-0.086
							(0.110)
N	17 763	18 707	18 706	18 706	18 707	18 707	18 707
Fixed Effects	Country-Year-Sector	Country-Year-Sector	Country-Year-Sector	Country-Year-Sector	Country-Year-Sector	Country-Year-Sector	Country-Year-Sector

Notes: Estimation is by the fractional logit model in all cases. P-values based on robust standard errors clustered by country-year-sector are in parentheses below the parameter estimates. Statistical significance is indicated by: * (10%), ** (5%), and *** (1%). Control variables included but not reported include firm's legal status (e.g. sole proprietorship), firm age and managerial experience. These results are available from the authors upon request.

V. Internationalisation of SMEs in services: The case of France

The forgoing analysis has uncovered that some of the factors affecting the export behaviour of SMEs in manufacturing do not systematically carry over to services. Hence, this section undertakes a closer examination at the trade determinants of SMEs across a broader and more disaggregated range of services activities, using firm-level data for services industries in France over a ten-year period. The data at hand has a high representation of firms across the whole spectrum of services activities; moreover, data are highly disaggregated, allowing an estimation of patterns across different services activities. The analysis aims to establish the extent to which small services firms find it more difficult to compete in foreign markets as well as the kind of factors that affect their export performance. Considering the heterogeneity of services activities, the analysis investigates if there are differential effects across different types of service industries. Finally, heterogeneity across firm size among SMEs is also explored.

A. Data, descriptive statistics, and hypotheses

Data and limitations

In order to examine the behaviour of small firms across different services sub-sectors, the empirical analysis relies on the AMADEUS database provided by Bureau van Dijk. The Amadeus dataset offers a high disaggregation of services activities, as well as comprehensive information about the firm, including on export-turn-over, permitting a detailed analysis of firm-specific characteristics influencing the internationalisation behaviour of firms across different services sub-sectors.[10] Moreover, unlike many micro-level datasets that only capture firms above a certain threshold of employment, effectively excluding micro-enterprises and other small firms, Amadeus includes all firms regardless of size and has a high representation of SMEs. The data comprises balance sheet information, profit and loss accounts and ownership information for approximately 8 million firms located in 41 European countries. The data are available for a time span of a decade (1998 to 2007), allowing an examination of trends.

While the data are rich in many respects, a number of caveats are in order. In particular, it should be noted that not all channels of services internationalisation are captured in the data, or at least not all to the same degree. Most of the data reported is on cross-border sales of tradable services (mode 1), whereas other modes are likely to be largely under-reported. For some specific industries (e.g. construction and professional services), export turnover might also include the movement of people to foreign countries in order to carry out services locally (mode 4). Similarly, in other industries (e.g. travel), services trade may largely be occurring via the movement of the consumer abroad (mode 2), although in many cases firms will not conceive sales within their own market as an export transaction. With the data at hand, however, it is not possible to distinguish between these different modes of services exports or to verify if they are reported. Lastly, information on imports is not captured in the dataset.

10. The analyses examines firms operating in transport and storage industries (NACE Rev. 2 codes: 49-53), accommodation and food service industries (NACE Rev. 2 codes: 55-56), information and communication industries (NACE Rev. 2 code: 58-63), financial service activities (NACE Rev. 2 code: 64), legal and accounting activities (NACE Rev. 2 code: 69), activities of head offices and management consultancy activities (NACE Rev. 2 code: 70), architectural and engineering activities (NACE Rev. 2 code: 71), administrative and support service activities (NACE Rev. 2 codes: 77-82) and other service activities (NACE Rev. 2 codes: 94-96). We also include construction industries (NACE Rev. 2 codes: 41-43). Finally, the internationalisation intensity in service industries is compared with the exporting behaviour in manufacturing sectors (NACE Rev. 2 codes: 10-33).

Another limitation is that information on the destination of exports is not available. A corollary is that it is not possible to know what exports are going to other countries of the European Union (intra-EU), or to third markets outside the EU area. Hence, the analysis does not explore the effects of foreign trade barriers. On the other hand, firm-level information is very rich, including for the smallest firms in the sample, so that the influence of employment, productivity, legal form, ownership structure, geographical location and other variables that may influence the propensity to trade can be assessed.[11] Since SMEs have a particular firm profile that differentiates them from larger firms, from the number of employees to the legal form they deploy, it is worth exploring the extent to which these characteristics influence their ability to engage in trade across different services sectors.

Finally, it is worth cautioning against the external validity of the analysis, given the context-specificity of the data, which is confined to information on firms in France. Unfortunately, the quality of the data varies substantially across countries represented in the AMADEUS database, particularly concerning the information on firms' export activities. For this reason, the empirical analysis is restricted to firms located in France, where information on export activities by disaggregated services sub-sectors displays comprehensive coverage. In view of this, it is important to note that results may not be generalisable to other contexts, since the case of France may not be representative of other economies. Similarly, the specific case of the EU market may mean that internationalisation dynamics are not representative of other countries that are outside an integration scheme.

Descriptive statistics

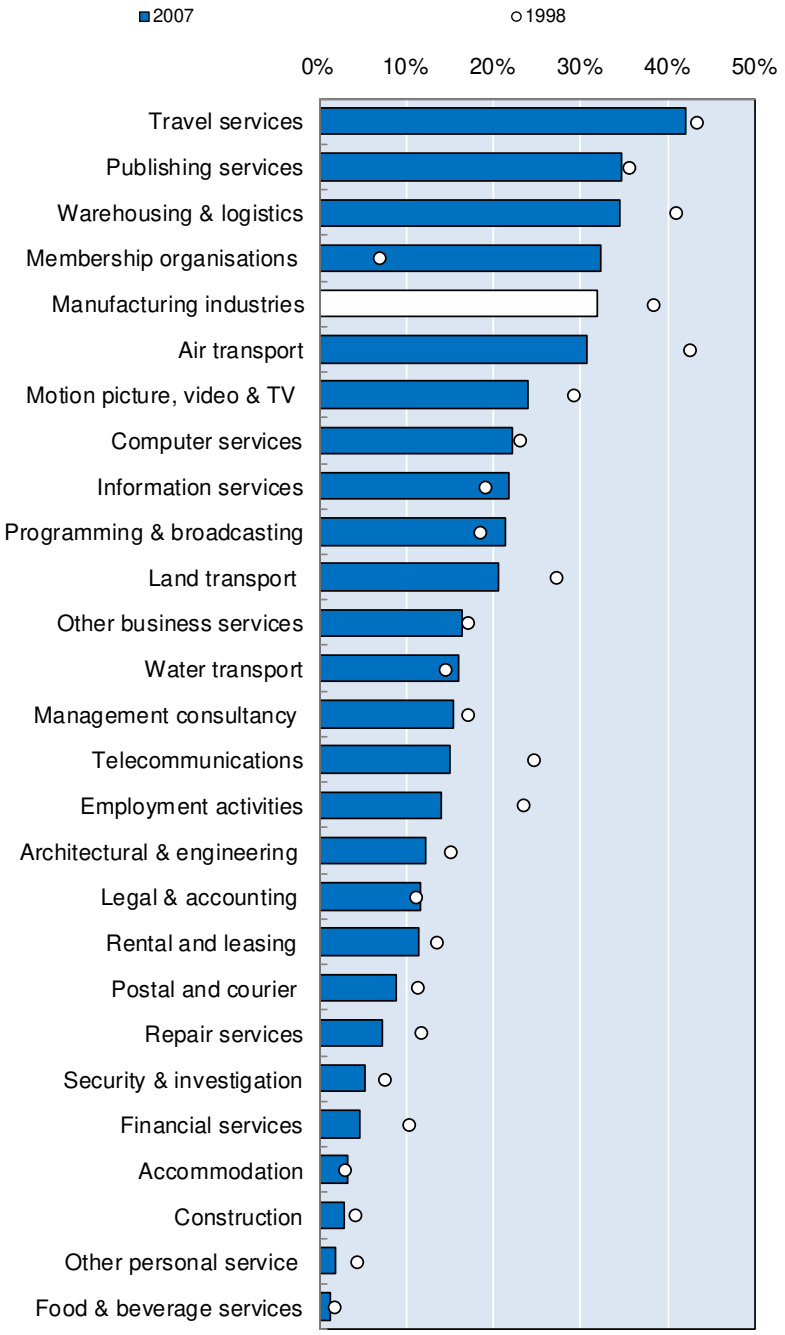
Figure 5 depicts the share of exporting firms in each sector at two points in time, in 1998 and 2007. We classify firms as exporters if they earn strictly positive revenues through exporting.[12] In comparison to manufacturing firms, most services firms are less likely to export to foreign countries. There are exceptions to this pattern: in some services industries, notably travel, publishing, and warehouse and logistics services, services SMEs are more export-oriented than SMEs in manufacturing. Overall, there is remarkable variation in the export shares of SMEs across different services sub-sectors, more so than across different manufacturing activities.

When focusing on the evolution of firms' export orientation over time, some surprising trends emerge. Over the time span from 1998 to 2007, the observed export shares have declined in all major industries. This reduction of export shares has been especially pronounced in areas such as air transport and telecommunications. The trend is not particular to services, since the share of manufacturing exporting firms has also dropped over the period (Annex B, Annex Table B1).

11. Since the ownership structure is reported in the AMADEUS database, we are able to construct information on whether firms in our data belong to a domestic and/or multinational corporate network. This enables an examination of export probabilities and (export magnitudes) across lone-standing firms and subsidiaries of larger corporate groups.

12. We also apply alternative definitions for exporting firms in order to check the robustness of our baseline results. Correspondingly, we classify firms as exporters if a non-negligible share of overall revenues (10% and 25%, respectively) is generated through exports. The regressions have been run with each alternate thresholds of exports.

Figure 5. Share of SMEs that export by sector, 1998 and 2007



With only a few exceptions, there is a monotonic decrease in export shares across all sectors. The relative decline in export shares in French services and manufacturing industries is not driven by a single (negative) shock, but rather seems to represent a steady downward process. This, in turn, suggests that firm- and industry-specific barriers to internationalisation in services are high. Only a very small number of sub-industries deviate from this general trend, most of which are services sectors: in water transport, programming and broadcasting activities, information services and the activities of membership organisations the share of exporting firms in 2007 exceeds the corresponding numbers reported for 1998.

In order to explore the export propensity of SMEs in different services sectors, Figure 6 displays the export shares of micro, small, medium, and large firms across sub-sectors. In line with expectations, micro firms, with less than ten employees, are least likely to export to foreign countries. Put differently, among the group of the smallest firms in our sample the fraction of exporting firms is lowest. Furthermore, micro-firms are mainly accountable for the general downward trend in internationalisation of French firms, both in service and in manufacturing.

However, when comparing export shares of micro firms across different industries we again observe substantial variation. About 40% of microenterprises that operate as travel agencies, tour operators and other travel services providers export to foreign markets, while over 30% of micro firms in warehouse and logistics industry as well as publishing services export. In audiovisuals services, air transport, computer services and information services over 20% of micro-enterprises export. In all these sectors, a greater share of micro-enterprises participates in international trade than corresponding micro-firms in manufacturing. On the other hand, in other sectors the participation of micro-firms is particularly low. For instance, less than 5% of micro firms in financial services, postal and courier services, construction, and the accommodation and food industry export. This may reflect that trade in such sectors – particularly financial services and postal and courier services – is dominated by large enterprises given the scale of operations. In the other cases, low levels of exporting may also reflect that such sectors are not traded by cross-border supply, which is the main channel captured in the data.

In Annex B, Annex Table B2 reveals that for many services industries the differences in export shares across size classes is relatively small. This is the case in information services, publishing services, travel services and warehouse and logistics. Some sectors display a linear relationship between firm size and export propensity, notably professional services, postal and courier computer services and maritime transport. The most pronounced differences in size of exporters are in legal, accounting and auditing activities, which may be related to the fact that they are among the most highly regulated services, whereby only large enterprises that may have the capacity to surmount the barriers (through establishment abroad or association with local providers in foreign markets) are able to export.

In most of the rest of the services sub-sectors, there is an inverted U-shaped relationship between size and export status, whereby medium-sized firms have the largest export-orientation. Medium-sized firms with more than 49 employees seem to be relatively competitive in services trade, notably in air and road transport, audiovisual services and telecommunications. As an example, from 1998 to 2007 the share of smallest and largest exporting firms in telecommunications declined, while small and medium-sized firms gained in export shares. This suggests that in these industries the respective firms need not be either too small or too large, respectively, in order to be internationally competitive.

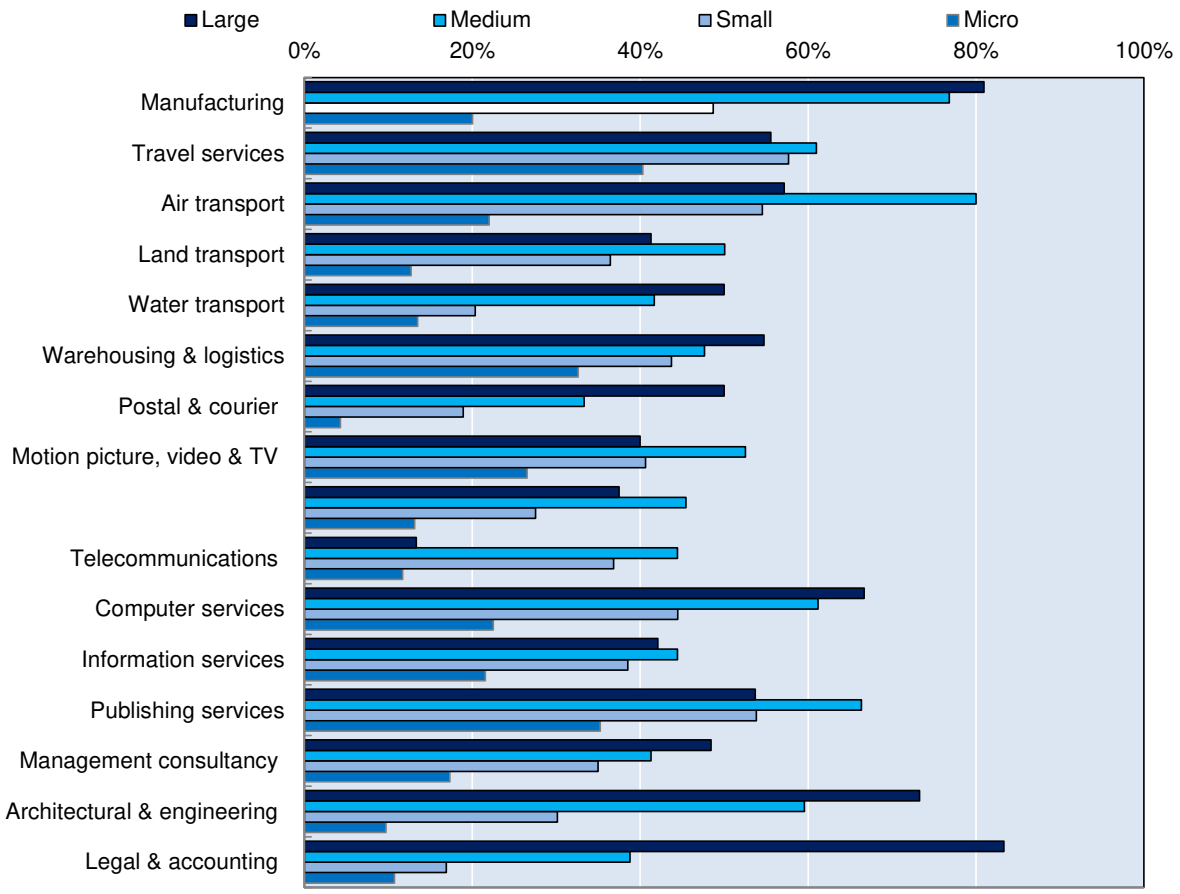
As a first exploration of what account for differences in export status, Annex B (Annex Table B3) reports the results of a simple analysis of variance (ANOVA) for all firms operating in service sectors. The dummy variable design contains industry and firm size dummy variables, interactions between these two and year dummies. Consequently, the interaction terms allows us to check whether the variation in the exporter status is affected by differences in firm size.[13] The results show that the chosen dummy variable design is able to explain approximately 18% of the observed variation in a firm's export status. All different dummy variables (statistically) significantly explain some parts of the variation in our dependent

13. In statistical terms, the interaction effects allow for deviations from the common mean.

variable, indicating that differences in firm size, industry and time are partly responsible for variation in the exporter status. The analysis also reveals that the impact of firm size differences seems to be heterogeneous across services subsectors, as demonstrated by the significant interaction effects.

Finally, it is also worth underscoring that firm size dummy variables only provide limited contributions to the overall fit of the model. This, in turn, suggests that there might be additional firm specific characteristics which are crucial for the understanding of differences in export decisions across firms. For this reason, a more structural econometric analysis at the firm level might be able to provide a more reasonable picture of potential export restrictions for small service firms in France.

Figure 6. Shares of SMEs exporting by size of firm



Main hypotheses

The following section establishes the main hypotheses that will be explored econometrically, deepening the findings developed with the World Enterprise Survey and complementing them with results from the literature on firm behaviour in services trade. Firstly, we explore the role of firm size and productivity: in the World Enterprise Survey analysis these variables emerged as clear determinants of export performance in manufacturing, but to a lesser extent in services. Since we have data over ten years, we also investigate the persistence of SMEs export decision: once a services SME internationalises, how long does it survive in the export market? In addition, we look at the forms of legal

incorporation of SMEs, and examine whether their ownership structure and legal form can influence export propensity. Finally, research on services has questioned the relevance of distance in services, and we therefore also explore whether the geographical location of SME influences its export performance. These questions are examined across different services sub-sectors as well as enterprise size.

To what extent does size influence services internationalisation?

In line with stylised facts from manufacturing literature, we expect that firm size systematically affects a firm's export behaviour. SMEs are likely to face a number of barriers that systematically reduce their likelihood of being exporters. Standard theoretical models in the new-new trade literature, for example, assume that exporting induces additional fixed-costs as well as variable trade costs which have to be borne by the firm (see, e.g. Melitz, 2003, Helpman, Melitz and Yeaple, 2004). Taking this together with the financial constraints argument put forward in the empirical firm growth literature, smaller firms are less able to finance these additional costs that are required to internationalise operations. Small and newly created firms typically have only limited access to (internal and external) financial resources (see, e.g. Fazzari, Hubbard and Petersen 1988, Cabral and Mata, 2003).

With regard to the latter, however, it is worth noting that, due to a relatively lower dependence on physical capital formation in many services sectors, SMEs in services might not be as severely affected by financial constraints. The results from the World Enterprise Survey found that, while access to finance was a clear determinant in the export performance of SMEs in manufacturing, it did not significantly constrain SMEs services exporters. As noted above, studies looking at services have at times confirmed the expected, positive linear relationship between size and trade performance; in other cases, authors have found that there is a U-shaped or hump-shaped curve, or no significant relationship at all (see, e.g. Ebling, 1999; Mansury, 2007; Gourlay, 2005). Riddle (2006) suggests that the first transaction of services SMEs is often an export transaction. In light of this ambiguity, we explore at a sub-sectoral level the extent to which firm size determines firms export propensity and intensity.

Do productivity differentials explain SMEs export performance?

We expect that more productive services SMEs in France are more likely to export to foreign markets while less productive firms will, ceteris paribus, serve the French market only. Since the establishment of the new-new trade theory and the increasing availability of firm level data sets, economic research on internationalisation strategies systematically deals with heterogeneity across firms. Most importantly, Melitz (2003) shows that firm-specific productivity is crucial for the decision whether to serve foreign markets via exports. In particular, more productive firms are able to generate larger profits when serving foreign markets and, thus, would be able to bear the additional fixed costs for establishing distributional networks in the foreign countries and to afford the variable trade costs.

Helpman et al. (2004) generalise this result for the decision of whether to serve foreign markets either through exports or foreign direct investment (FDI). Their findings imply that the most productive firms serve foreign markets via FDI, while for less productive firms it is beneficial to export to these markets; the least productive firms will serve the domestic market only. This 'pecking order' of productivity with regard to the choice of internationalisation strategies has been confirmed by a bulk of other empirical contributions (see, e.g. Head and Ries, 2004; Greenaway and Kneller, 2007; Aw and Lee, 2008; Oberhofer and Pfaffermayr, 2012a; Temouria, Vogel and Wagner, 2012). However, it is worth noting that the vast majority of these investigations rely on manufacturing firms only (Wagner, 2012).

Only recently, Bhattacharya, Patnaik and Shah (2012) explicitly analyse the relationship between exports and FDI in service industries (chemicals and computer services), drawing on the case of India. Surprisingly, the authors show that in such industries the most productive firms tend to export to foreign markets while less productive firms engage in FDI. The reason for this is that uncertainty about product quality in service sectors is large and transportation costs are negligible.[14] These results may not however be generalisable to SMEs in services, which have less capacity to establish abroad. We explore further the role of productivity in determining SMEs export performance across services activities.

Are small firms persistent in their export behaviour?

Another perspective is that even after an SME internationalises, its export survival rates are lower than for larger firms. Research in small business economics documents that the risk of failure tends to be substantially higher for smaller firms (see, e.g. Hart and Oulton, 1996; Caves, 1998). In order to ensure their survival, these firms tend to focus on the domestic markets only. Moreover, SMEs tend to be price takers rather than price makers, and this is typically accompanied by lower or more variable profits in international markets. Overall, small firms are more sensitive to changes in policies or business environment in foreign markets, which might make their survival rates lower.

A contending view to the self-selection hypothesis implicit in Melitz (2003), in which only the most productive firms select themselves into export markets, is the learning-by-exporting hypothesis. This latter theory argues that exporting firms learn how to most efficiently serve different markets, inducing an increase in productivity ex-post. Some recent papers provide strong evidence for the learning-by-exporting hypothesis (see, e.g. De Loecker, 2007; Schmeiser 2012). Also, since the decision to serve foreign markets induces fixed costs, it is likely that firms view their internationalisation strategies as long-term investments. Moreover, trading patterns of SMEs are often driven by networks in foreign markets, which might favour greater persistence. Within the ten-year time span, we use a dynamic framework to explore the extent to which SMEs export behaviour is persistent across services activities. Research suggests that previous internationalisation decisions influence subsequent export decisions in services industries (see, e.g. Eickelpasch and Vogel, 2011), although this has not been shown for smaller firms.

Does the legal form of SMEs influence their trade propensity?

The decision on whether to serve foreign markets via exports is also affected by uncertainty about potential future profits associated with the participation in these foreign markets. One possibility to reduce the individual risk involved in doing business is to incorporate the firm. Thus, the firm becomes a separate legal identity which is independent inducing limited liability for its owners. Consequently, personal assets of the firm owners cannot be required as payments for a firm's debt. Additionally, Sloan and Chittenden (2006) demonstrate that incorporation might also lead to financial advantages and, thus, allows it to more easily finance the additional costs involved when engaging in international markets. Other potential benefits accompanied with incorporation include the possibility to sell shares in order to increase a firm's equity capital and governments might also offer some tax advantages. Already established results for the positive impact of incorporation on firm growth tend to support the view that business owners are willing to accept higher risks if their firms are incorporated (see, e.g. Storey, 1994).

14. While Bhattacharya et al. (2012) test their theory for the software industry in India, Wagner (2011) provides the first empirical test of this theory for a developed country, namely Germany.

In this vein, a question worth examining is whether services SMEs tend to favour a particular legal from, and whether the choice of such legal form influences the propensity and intensity of internationalisation. In particular, incorporated firms may be more likely to export to foreign markets. The data at hand additionally distinguish between different legal forms of incorporated and non-incorporated firms and, thus, allows an even more precise treatment of the impact of incorporation on a firm's export behaviour. For those firms that are active in foreign markets differences in legal forms could again lead to deviating risk-taking behaviour. Consequently, we might expect that incorporation positively affects SME's decision concerning the magnitude of its export activities.

Does geographical location affect the export behaviour of SMEs?

In line with the traditional gravity models for trade, one might expect that services trade costs might also depend on the distance to foreign markets. Standard gravity variables have been relatively effective in explaining trade in goods, although due to data limitations their effects on services trade are less widely established. In a recent study based on firm-level data from Italy, Federico and Tosti (2012) find evidence that physical distance reduces trade in services, despite the intangible nature of many services and the absence of many transport costs. The authors, however, do not explore linguistic and cultural distance, which may assume a more important role in explaining services trade. Unlike the case of goods, where the producer and consumer are not required to interact to trade the product, trade in services often requires close interaction between the supplier and the client. Hence, a common language and shared cultural parameters may have trade-facilitating effects, particularly for SMEs.

An alternative view is that agglomeration economies, that is, proximity to other similar firms is a critical factor for competitiveness. This may be particularly true for SMEs, where studies have shown that clustering and integration into networks are important elements for internationalisation. Hence, proximity to other suppliers, particularly large global firms, may be a more critical determinant of internationalisation than distance to foreign markets. We explore these aspects by utilizing the information available in AMADEUS on the geographical location of firms in France. In particular, we explore whether SMEs located at a border regions (i.e. closer to a foreign market) trade more: if distance is a determinant, we would expect that firms located at border regions to be more likely to export a larger share of their products to foreign markets. We also look at whether SMEs bordering a French-speaking foreign market (Belgium, Switzerland), trade more than those bordering non-Francophone markets (Germany, Spain). In addition, we also explore if SMEs located in Paris export more: in case of agglomeration economies, these firms will be more internationally orientated.

B. Econometric model specification and estimation results

In order to test the foregoing hypotheses, we estimate a two-part model for French services firms. The structure of the AMADEUS data allows us to apply a relatively powerful economic framework. The advantage of the two-part model is that it allows us to compare extensive and intensive margin export decisions of firms. We refer to the discrete decision to serve any foreign market as the extensive margin, while the overall level of foreign engagement, measured as the share of export turnover to overall revenues, reflects the intensive margin. Put differently, the extensive margin assesses the propensity of firms to trade (i.e. the share of firms that export), while the intensive margin captures their export intensity (i.e. how much they export relative to overall sales). In the first part of each model, we estimate firms probability of exporting (extensive margin) while in the second parts we investigate the variation in the export shares across internationalised firms (intensive margin). A more detailed discussion on the alternative two-part models is provided in Annex B, Section B2.

The empirical specifications of our model contain number of employees (on the basis of which we assess size of the firm), total factor productivity (TFP), net investment per employee (measured as annual nominal change in fixed assets), a firm's number of subsidiaries, as well as two dummy variables capturing whether the firm is part of a domestic or foreign (multinational) corporate network. In line with the discussion above, we expect that larger services firms are more likely to export a larger share of their services abroad than SMEs. In a similar vein, the literature on heterogeneous firms and internationalisation suggests that more productive firms are more likely to serve foreign markets. With regard to a firm's export behaviour and its organisational network, previous results indicate that investment decisions only affect a firm's exports at the intensive margin (i.e. the export share for exporting firms) while firms with more subsidiaries are more likely to export abroad (Eickelpasch and Vogel, 2011).

We also include a set of dummy variables for different legal forms. In the data, we are able to distinguish between five different types of enterprises, namely the *Société à responsabilité limitée* (SARL), the *Entreprise unipersonnelle à responsabilité limitée* (EURL), the *Société anonyme simplifiée* (SAS), the *Société anonyme* (SA) and the *Société en nom collectif* (SNC). The SA is equivalent to a public limited company, the SARL is a private limited company (comparable to a Ltd. in the United Kingdom or a limited liability company in the United States), the SAS is unlisted public company, and the EURL is similar to a single-member company in the United Kingdom. By contrast, a SNC is a general partnership implying that such firms are unincorporated. Following the discussion from above, we expect that incorporation should exert a positive impact on a firm's export behaviour by minimizing risks.

Our last set of variables of interest relate to geographical location of the firm, whereby we incorporate a set of border and seaside dummies for firms located next to a neighbouring country, or to the coast. We further include a dummy for firms located in the region surrounding Paris. Finally, we control for industry- and year fixed effects in order to account for differences in export probabilities across industries and for the general downward trend observed in internationalisation over time, respectively.

Annex B, Section A reports summary statistics for our main variables. The average services firm in our sample employs approximately 28.5 workers, which is relatively small. Only 15% of the services firms in our sample export to foreign countries; among internationalised services firms, the share of exports represents on average 16% of total revenues. Only 1%t of French service firms in our sample belong to a multinational corporate network; by contrast, 50% of all firms are part of a French corporate group. Approximately 9% of all services firms in the sample are located in the Paris region, while, for example, only 4.5% are located in regions that border with Germany and slightly more (6.2%) in the border with Belgium.

C. Estimation results: Effects on extensive and intensive margins

The main findings are reported in Tables 8 and 9. The results in Table 8 correspond to our baseline models without dynamics in a firm's exporter activities. Table 9 is based on the generalised models with dynamics. Moreover, the three different blocks in both tables correspond to our alternative cut-off values for defining a firm's exporter status at the extensive margin (non-zero exports denoted by Ex-all, a minimum 10% export share denoted by Ex-10, or 25% export share denoted by Ex-25).

Export propensity: effects on extensive margin

The extensive margin results reported in Table 9 are in line with our theoretical discussion. Most importantly, larger firms are more likely to export to foreign markets. This result reinforces our descriptive evidence discussed above and suggests that export restrictions are most severe for the smallest services firms. Quantitatively, our most generous definition of exporting firms (i.e. ex-all) suggests that a 1% increase in the number of employees, on average, increases a firm's export probability by 2.5 percentage points. Moreover, in our baseline model we are also able to confirm the prediction put forward by the new-new trade theory. Accordingly, more productive firms are more likely to export to foreign markets. Qualitatively, these two findings are robust to changes in the definition of exporting firms.

Our extensive margin estimates indicate that firms that are either part of domestic or multinational corporate groups are more likely to export to foreign markets. With regard to legal form, some types of incorporated firms are more likely to export to foreign markets than others. More precisely, single person incorporations possess a lower likelihood to export to foreign markets, while publicly quoted firms more likely serve them. For this reason and also with regard to different legal forms our extensive margin estimates again indicate that firm size, which (at least) partially determines a firm's legal form is important in the probability to engage in any export activities.

Finally, geographic location also seems to matter for a firm's decision to engage in any export activity. Applying our baseline export definition Ex-all, only firms located at the Atlantic coast are less likely to export to foreign markets. In quantitative terms, the marginal effect is highest for firms located in regions which share a common border with Germany. Firms located in Paris export to foreign markets with a higher probability. This is in line with the SMEs literature that highlights the importance of clustering and networking with large firms as an export determinant of small firms. Being close to other firms helps overcome the isolation and lack of scale of SMEs. Moreover, being located in a capital city that has large global firms provides a channel for SMEs to internationalise.

With regard to the other variables included in our model, we obtain ambiguous results. Net investment per employee has virtually no impact on a firm's export probability. While this result is well in line with extensive margin results put forward by Eickelpasch and Vogel (2011) we obtain deviating results for the number of subsidiaries. More precisely, Eickelpasch and Vogel (2011) report positive effects while, for the full set of all exporting firms in our sample, an increase in a firm's number of subsidiaries decreases its respective export probability. This effect, however, disappears for the more restrictive export thresholds.

Export intensity: Effects on intensive margin

The second part estimation results reported in the second columns of each block reveal some interesting and new results. Most importantly, for the group of exporting firms an increase in firm size leads to a reduction in export shares. This implies that, in relative terms, larger exporting firms rely less on foreign markets while exports constitute a larger fraction of overall turnovers for smaller firms. Consequently, firm size exerts an opposing effect on a firm's export activities. The extensive margin results indicate that larger firms are more likely to serve foreign markets, but, conditional on serving markets, export a smaller share of their services abroad.

By contrast, the second part estimates indicate that more productive firms also export a larger fraction of their services. This result again supports the pecking-order productivity hypothesis formulated in the new-new trade theory. In a similar vein, the second part results with regard to the different legal forms suggests that, conditional on serving foreign markets, incorporated firms export larger shares of their services. Finally, the second part results regarding regional location are ambiguous. To give an example, the EX-all estimates for sharing a common border with Germany increases the (conditional) share of exports, while exporting firms located close to Belgium export smaller shares of their services.

Dynamic framework

Turning our attention to a more dynamic framework, Table 9 reveals some interesting results. Most remarkably, the results associated with the lagged exporter status indicate that export decisions are extremely persistent in French service firms. Quantitatively a firm which already exported in the previous year, ceteris paribus, exhibits a 43 percentage points higher export likelihood for this year. Comparing this effect with the impact of firm size in column 1 of Table 9, it turns out that a 23.75 percentage points increase in employment has an equivalent impact on a firm's export probability. From a policy point of view, this suggests that policies which support initial internationalisation efforts might be most successful in increasing the share of exporters in French service industries. The marginal effects corresponding to the second part of the model similarly indicate that export shares seem to be extremely persistent.

Moreover, Table 9 reveals that productivity only marginally affects a firm's export probability, if one controls for persistence in a firm's exporter behaviour. This is especially true for the alternative definitions of exporting firms. Moreover, this effect fully disappears in the second part of the model. In a similar vein, in our generalised export models, the choice between various legal forms has virtually no impact on the decision to serve foreign markets via exports and on differences in export shares. In contrast, applying the Ex-all definition, our estimates for regional variation in the extensive margin export decision are qualitatively in line with our baseline model without dynamics in the exporter status.

Table 8. Full sample two-part model estimates without dynamics

Variable	Ex-all		Ex-10		Ex-25	
	First part	Second part	First part	Second part	First part	Second part
Log (no. of employees)	0.025***	-0.021***	0.001***	-0.019***	0.000***	-0.018***
	(0.001)	(0.001)	(0.000)	(0.002)	(0.000)	(0.002)
Log(TFP)	0.029***	0.039***	0.003***	0.056***	0.001***	0.056***
	(0.001)	(0.002)	(0.000)	(0.004)	(0.000)	(0.004)
Net investment p.e. (in th.)	-0.000	0.000	0.000*	0.000*	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
No. of subsidiaries	-0.001*	0.002***	0.000*	0.000	0.000	0.001
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
Foreign corporate group	0.030***	0.026***	0.005***	0.045***	0.002***	0.045***
	(0.007)	(0.006)	(0.002)	(0.011)	(0.001)	(0.012)
Domestic corporate group	0.029***	-0.002	0.003***	-0.003	0.001***	0.003
	(0.001)	(0.002)	(0.000)	(0.004)	(0.000)	(0.004)
Legal forms						
SARL	-0.002	0.017**	-0.001	0.037***	0.000	0.025
	(0.006)	(0.008)	(0.001)	(0.014)	(0.001)	(0.017)
EURL	-0.018***	0.026***	-0.002***	0.060***	0.000	0.030
	(0.005)	(0.009)	(0.001)	(0.017)	(0.001)	(0.019)
SAS	0.023***	0.023***	0.002*	0.026*	0.001**	0.013
	(0.007)	(0.007)	(0.001)	(0.013)	(0.001)	(0.017)
SA	0.028***	0.030***	0.003**	0.035**	0.002***	0.014
	(0.007)	(0.008)	(0.001)	(0.014)	(0.001)	(0.017)
SNC	-0.007	0.002	-0.002	-0.012	0.000	-0.035
	(0.009)	(0.013)	(0.001)	(0.023)	(0.001)	(0.028)
Regional dummies						
Paris region	0.046***	0.028***	0.009***	0.015***	0.003***	0.018***
	(0.003)	(0.003)	(0.001)	(0.005)	(0.000)	(0.005)
Belgian border	0.058***	-0.015***	0.004***	-0.029***	0.001***	-0.012*
	(0.003)	(0.003)	(0.001)	(0.006)	(0.000)	(0.007)
German border	0.066***	0.016***	0.009***	-0.023***	0.003***	-0.044***
	(0.004)	(0.003)	(0.001)	(0.006)	(0.000)	(0.007)
Swiss border	0.044***	0.000	0.004***	-0.005	0.001***	0.008
	(0.004)	(0.004)	(0.001)	(0.007)	(0.000)	(0.008)
Italian border	0.012***	-0.008	0.001	-0.028***	0.003*	-0.051***
	(0.004)	(0.005)	(0.001)	(0.009)	(0.000)	(0.010)
Spanish border	0.011***	-0.012***	0.000	-0.026***	0.000	-0.025***
	(0.003)	(0.004)	(0.001)	(0.008)	(0.000)	(0.009)
Mediterranean Sea	0.019***	0.032***	0.004***	0.034***	0.001***	0.031***
	(0.002)	(0.003)	(0.001)	(0.006)	(0.000)	(0.006)
Atlantic Ocean	-0.010***	0.016***	0.000	0.007	0.000	-0.003
	(0.001)	(0.002)	(0.000)	(0.004)	(0.000)	(0.005)
Fixed effects						
2-digit industry [a]	14 157.30***	11 502.73***	6 594.92***	3 934.85***	5 995.86***	1 431.90***
Year [b]	98.27***	29.98***	50.04***	12.88	25.38***	10.04
Observations	498 298	75 167	498 298	27 097	498 298	16 063

Notes: Average marginal effects reported (see Bartus 2005).
*, ** and *** denote significance at 10%, 5% and 1% levels, respectively.

[a] Wald-test with 27 degrees of freedom. [b] Wald-test with 8 degrees of freedom.

Table 9. Full sample two-part model estimates with dynamics and controlling for unobserved heterogeneity

Variable	Ex-all		Ex-10		Ex-25	
	First part	Second part	First part	Second part	First part	Second part
Lagged exporter status/share	0.427***	0.391***	0.488***	0.566***	0.503***	0.463***
	(0.006)	(0.004)	(0.013)	(0.010)	(0.014)	(0.017)
Log (no. of employees)	0.018***	-0.005	0.003	-0.004	0.001	0.007
	(0.002)	(0.004)	(0.002)	(0.009)	(0.002)	(0.016)
Log(TFP)	0.014***	0.003	0.004^**	0.017*	0.001	0.015
	(0.002)	(0.004)	(0.002)	(0.009)	(0.002)	(0.015)
Net investment p.e. (in th.)	0.000	0.000*	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
No. of subsidiaries	-0.001***	0.001***	0.000	0.001	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.002)
Foreign corporate group	0.007	0.009*	-0.001	0.014	-0.001	0.020
	(0.004)	(0.005)	(0.003)	(0.014)	(0.003)	(0.022)
Domestic corporate group	0.012***	-0.002	0.003***	0.001	0.001	0.012*
	(0.001)	(0.002)	(0.001)	(0.004)	(0.001)	(0.007)
Legal forms						
SARL	0.005	0.002	0.007*	0.023	0.006	0.024
	(0.005)	(0.006)	(0.004)	(0.015)	(0.005)	(0.047)
EURL	-0.002	0.005	0.006	0.019	0.008	-0.011
	(0.005)	(0.008)	(0.006)	(0.020)	(0.007)	(0.051)
SAS	0.014***	0.003	0.010**	0.001	0.007	-0.013
	(0.005)	(0.005)	(0.005)	(0.015)	(0.005)	(0.047)
SA	0.014***	0.003	0.011**	0.014	0.008	0.003
	(0.005)	(0.006)	(0.005)	(0.015)	(0.005)	(0.047)
SNC	0.010	-0.003	0.015*	-0.008	0.010	0.007
	(0.007)	(0.010)	(0.008)	(0.028)	(0.009)	(0.070)
Regional dummies						
Paris region	0.010***	0.004	0.004**	-0.003	0.004**	0.006
	(0.002)	(0.002)	(0.002)	(0.006)	(0.002)	(0.011)
Belgian border	0.024***	-0.012***	0.004**	-0.024***	0.000	-0.013
	(0.002)	(0.002)	(0.002)	(0.006)	(0.002)	(0.011)
German border	0.019***	-0.002	0.004**	-0.037***	0.001	-0.065***
	(0.002)	(0.002)	(0.002)	(0.006)	(0.002)	(0.010)
Swiss border	0.016***	-0.003	0.004*	-0.003	0.005**	0.011
	(0.002)	(0.003)	(0.002)	(0.008)	(0.002)	(0.013)
Italian border	0.007**	-0.005	0.000	-0.034***	-0.002	-0.060***
	(0.003)	(0.004)	(0.002)	(0.012)	(0.002)	(0.020)
Spanish border	0.003	-0.002	-0.001	-0.005	0.001	0.002
	(0.002)	(0.003)	(0.002)	(0.010)	(0.002)	(0.016)
Mediterranean Sea	0.005***	0.000	0.000	-0.002	0.002	-0.001
	(0.002)	(0.003)	(0.002)	(0.007)	(0.002)	(0.012)
Atlantic Ocean	-0.002*	0.001	-0.001	-0.002	0.001	-0.017**
	(0.001)	(0.002)	(0.001)	(0.005)	(0.001)	(0.009)
Fixed effects						
2-digit industry [a]	3 302.69***	336.61***	751.33***	227.83***	390.20***	145.40***
Year [b]	19.92***	7.22	3.70	11.60**	8.61*	10.52**
Observations	276 039	31 551	118 268	7 331	76 202	2 723

Notes: Average marginal effects reported (see Bartus 2005).
*, ** and *** denote significance at 10%, 5% and 1% levels, respectively.
[a] Wald-test with 27 degrees of freedom. [b] Wald-test with 8 degrees of freedom.

D. Further evidence: Exploring heterogeneous effects across services

This section extends the foregoing findings by re-estimating the model on a sub-sectoral basis, in order to assess the level of heterogeneity regarding the impact of firm size for foreign market participation across services sectors. First, it re-estimates the above two-part model for six types of services, namely financial services, professional services, information and communications technology (ICT), travel services, transport, and construction. In a next step, the analysis presents even more disaggregated results for sub-sectors within each of these services. This approach allows us to explore the extent to which these services groups are also characterised by heterogeneous patterns across sub-sectors. Furthermore, the analysis examines the key firm- and industry-characteristics that explain entry into and exit from foreign market participation for each respective sub-sector. For this purpose, the analysis compares (i) never-exporting firms with export market entrants and (ii) all-time exporters with foreign markets exiting firms.

Tables 10 and 11 display the results for the six groups of services activities, detecting some heterogeneity in the internationalisation behaviour across services, while at the same time displaying some broad patterns that are consistent across all of these services activities. To start with the homogeneous effects, our estimates indicate that persistence matters across all different services sectors. That is to say, firms that break into international markets are far more likely to continue exporting in the subsequent periods. More precisely, services enterprises that start to engage in any export activities are about 50% more likely to export than those that have never exported. The effects for different sub-sectors are of 57.2% (for financial services), 54.6% (for transport), 53.9% (for professional services), 53.8% (for ICT firms) and 48.8% (for travel services). Hence, these types of services activities are characterised by persistence in the export decisions, with the quantitative magnitudes varying only slightly across services sectors. The only services sector for which this effect is still significant but with a considerably weaker magnitude is construction, where the effect is of 25.3%.

With regards to the impact of firm size and productivity, the results in Tables 10-11 suggest that firm size may be an important determinant of export performance in some services and not in others. In the ICT sector, for professional services firms and for financial services providers, firm size only positively affects the firm's export probability but it has no direct impact on its export shares. For construction firms, the positive extensive margin is less pronounced. Overall, our estimates suggest that firm size is only a restriction for the probability to penetrate foreign markets, and this restriction varies across services sectors. In a similar vein, the results indicate that productivity differentials are only able to explain differences in export behaviour in some services sectors. In particular, more productive firms are more likely to export to foreign markets when they operate in professional services or ICT industries but this is not true for financial services or travel services providers. Moreover, productivity is not able to explain differences in export shares for exporting firms across all six services sectors considered.

Other control variables also differ in their effects across services sectors. For instance, firms that are member of a foreign corporate group are more likely to export in professional services, but less likely to do so in transport industries. Members of domestic corporate groups, by contrast, are more likely to serve foreign markets in other sectors, but export smaller shares of their services in construction. As for legal form, the results suggest that these are mostly important for professional services. Given the problems of recognition in foreign markets, it is possible that only firms with a partnership with domestic providers can export abroad. Furthermore, the results point to some interesting patterns concerning the location of

firms. In particular, being located in a capital (Paris) seems to have positive internationalisation effects for financial services, professional services, ICT and construction firms, but has locational disadvantages for exporting transport firms. One simple reason for this could be that transport costs are zero in the financial services, ICT, and professional services whereas agglomeration economies are crucial for export start-ups. Hence, agglomeration is more important that physical distance to foreign markets.

Table 10. Two-part model estimates for selected services sectors

Variable	Financial services		ICT services		Professional services	
	First part	Second part	First part	Second part	First part	Second part
Lagged exporter status/share	0.572***	0.419***	0.538***	0.308***	0.539***	0.394***
	(0.025)	(0.037)	(0.016)	(0.011)	(0.012)	(0.008)
Log (no. of employees)	0.036***	0.010	0.033***	-0.009	0.025***	-0.006
	(0.007)	(0.019)	(0.010)	(0.006)	(0.006)	(0.007)
Log(TFP)	0.008	-0.023	0.033***	0.001	0.033***	0.003
	(0.009)	(0.025)	(0.011)	(0.007)	(0.007)	(0.009)
Net investment p.e. (in th.)	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
No. of subsidiaries	-0.002*	0.002	-0.005**	-0.002***	-0.004***	-0.001
	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Foreign corporate group	0.040	0.011	0.004	-0.006	0.060***	0.013
	(0.030)	(0.034)	(0.018)	(0.011)	(0.017)	(0.010)
Domestic corporate group	0.022***	0.005	0.012*	-0.002	0.029***	0.003
	(0.006)	(0.009)	(0.007)	(0.003)	(0.004)	(0.004)
Legal forms						
SARL	0.000	0.029	-0.003	-0.006	0.036***	0.007
	(0.024)	(0.025)	(0.022)	(0.010)	(0.006)	(0.015)
EURL	0.007	0.017	0.002	0.018	0.036*	0.019
	(0.030)	(0.029)	(0.030)	(0.016)	(0.019)	(0.021)
SAS	-0.002	0.030	0.021	0.003	0.014	0.002
	(0.023)	(0.024)	(0.024)	(0.010)	(0.022)	(0.015)
SA	-0.008	0.023	0.028	-0.001	0.053**	0.015
	(0.023)	(0.025)	(0.025)	(0.010)	(0.021)	(0.015)
SNC	-0.067**	-0.277***	0.022	-0.020	0.053**	0.003
	(0.029)	(0.055)	(0.045)	(0.021)	(0.022)	(0.020)
Regional dummies						
Paris region	0.017*	-0.015	0.008	0.010***	-0.015	0.006
	(0.010)	(0.016)	(0.007)	(0.003)	(0.025)	(0.005)
Belgian border	0.001	-0.003	0.062***	0.005	0.018**	-0.016**
	(0.011)	(0.015)	(0.017)	(0.006)	(0.008)	(0.007)
German border	0.010	-0.023*	0.030*	-0.001	0.032***	-0.000
	(0.013)	(0.013)	(0.019)	(0.007)	(0.010)	(0.007)
Swiss border	0.002	-0.029**	0.031	0.013	-0.001	-0.022***
	(0.012)	(0.012)	(0.021)	(0.010)	(0.009)	(0.007)
Italian border	0.018	-0.009	0.038*	-0.007	0.023**	0.000
	(0.018)	(0.039)	(0.024)	(0.007)	(0.011)	(0.010)
Spanish border	-0.017	-0.013	-0.010	-0.001	0.009	0.004
	(0.012)	(0.016)	(0.013)	(0.007)	(0.008)	(0.008)
Mediterranean Sea	0.014	-0.003	0.001	0.015**	-0.004	-0.008
	(0.011)	(0.015)	(0.011)	(0.006)	(0.006)	(0.007)
Atlantic Ocean	-0.003	0.004	-0.024***	-0.013**	-0.009*	0.003
	(0.007)	(0.013)	(0.008)	(0.006)	(0.005)	(0.005)
Fixed effects						
2-digit industry [a]	–	–	32.47***	75.53***	64.06***	123.46***
Year [b]	5.09	7.64	6.05	4.45	2.9	5.33
Observations	10 871	821	13 008	5 435	35 327	5 529

Table 10. Two-part model estimates for selected services sectors (*cont.*)

Variable	Travel Services		Transport Services		Construction Services	
	First part	First part	Second part	First part	Second part	Second part
Lagged exporter status/share	0.488***	0.253***	0.318***	0.546***	0.414***	0.458***
	(0.022)	(0.014)	(0.148)	(0.034)	(0.104)	(0.010)
Log (no. of employees)	0.010*	0.007*	-0.005	0.027***	0.001	0.044**
	(0.006)	(0.004)	(0.171)	(0.007)	(0.071)	(0.018)
Log(TFP)	0.004	0.008*	-0.006	0.015*	0.011	0.005
	(0.007)	(0.005)	(0.196)	(0.008)	(0.080)	(0.019)
Net investment p.e. (in th.)	0.000	-0.000**	0.001***	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.004)	(0.000)	(0.002)	(0.001)
No. of subsidiaries	0.001	0.000	0.001**	-0.002	0.001	0.004
	(0.001)	(0.001)	(0.010)	(0.001)	(0.008)	(0.003)
Foreign corporate group	-0.014	0.021	-0.003	-0.030^***	0.011	-0.022
	(0.038)	(0.016)	(0.189)	(0.010)	(0.081)	(0.036)
Domestic corporate group	-0.007	0.008***	-0.015***	0.011***	-0.004	0.005
	(0.003)	(0.002)	(0.075)	(0.004)	(0.029)	(0.009)
Legal forms						
SARL	0.024	-0.005	-0.024*	-0.002	0.004	-0.008
	(0.022)	(0.009)	(0.224)	(0.013)	(0.119)	(0.031)
EURL	0.031	-0.006	-0.063***	-0.024*	0.022	-0.007
	(0.026)	(0.009)	(0.277)	(0.013)	(0.159)	(0.036)
SAS	0.031	0.006	-0.024*	0.005	0.009	0.005
	(0.024)	(0.009)	(0.215)	(0.013)	(0.118)	(0.030)
SA	0.034	0.011	-0.042***	-0.004	0.008	0.001
	(0.025)	(0.010)	(0.219)	(0.013)	(0.120)	(0.030)
SNC	0.040	0.031**	-0.003	-0.017	-0.003	-0.008
	(0.029)	(0.015)	(0.329)	(0.021)	(0.174)	(0.032)
Regional dummies						
Paris region	0.001	0.013**	0.019	-0.032***	-0.003	0.018
	(0.004)	(0.006)	(0.203)	(0.009)	(0.091)	(0.011)
Belgian border	0.001	0.032***	-0.035***	0.032***	-0.005	-0.036
	(0.007)	(0.004)	(0.079)	(0.007)	(0.036)	(0.023)
German border	0.001	0.020***	-0.012**	0.035***	0.008**	0.006
	(0.007)	(0.004)	(0.091)	(0.010)	(0.039)	(0.017)
Swiss border	0.007	0.025***	-0.021***	0.023***	0.008*	-0.005
	(0.006)	(0.004)	(0.093)	(0.008)	(0.046)	(0.021)
Italian border	0.001	0.004	-0.026***	0.004	0.000	-0.011
	(0.006)	(0.005)	(0.137)	(0.008)	(0.096)	(0.017)
Spanish border	0.009	0.003	0.005	0.003	-0.003	0.010
	(0.006)	(0.004)	(0.195)	(0.007)	(0.050)	(0.014)
Mediterranean Sea	0.004	0.005	0.010	0.010^**	0.001	0.002
	(0.004)	(0.003)	(0.125)	(0.005)	(0.053)	(0.013)
Atlantic Ocean	-0.003	0.001	-0.003	0.001	0.003	0.007
	(0.004)	(0.002)	(0.076)	(0.003)	(0.029)	(0.012)
Fixed effects						
2-digit industry[a]	209.17***	29.99***	0.54	7.91	40.33***	2.10
Year[b]	14.37**	31.68***	12.23*	6.12	2.35	2.67
Observations	46 858	93 870	4 387	36 418	11 041	2 617

Notes: Average marginal effects reported (see Bartus 2005).
*, ** and *** denote significance at 10%. 5% and 1% levels, respectively.
[a] Wald-test with 2 degrees of freedom. [b] Wald-test with 8 degrees of freedom.

Furthermore, it is interesting to explore the heterogeneity in behaviour across firm size. To this effect, Table 11 reports the corresponding average export probabilities and export share by different size classes. The results show that overall micro firms are least likely to export and that export probabilities increase with firm size. To give one example, micro (large) financial services provides export to foreign markets with an average probability of 6.53% (50.40). With regards to the export shares of exporting firms, the results yield more heterogeneous patterns. Remarkably, for firms in ICT services the export shares are virtually identical across all different size classes. By contrast, micro firms that operate in financial industries export

approximately 17.3% of their services abroad while this number is only 13.9% and 12.6% for small and medium firms in the same industries. This latter finding again supports the view, that conditional on exporting, the share of exports is larger for very small firms.

Table 11. Average export probability and share predictions by size classes

	Financial		ICT		Professional		Travel	
	Ex. prob.	Ex. share	Ex. prob.	Ex. share	Ex. prob.	Ex. share	Ex. Prob.	Ex. share
Micro	6.53	17.32	38.48	8.94	14.73	14.95	4.56	24.72
Small	22.32	13.91	50.44	8.52	27.96	15.73	5.92	22.11
Medium	50.38	12.60	61.24	9.34	52.36	12.60	13.04	25.35
Large	54.50	19.96	62.87	8.74	63.86	12.13	20.80	20.45
Total	12.62	15.20	49.04	8.82	23.69	14.76	5.68	23.62

Notes: The export probability (Ex. Prob) and export share (Ex- share) predictions are reported in per cent.

Further disaggregation of services sectors

This section unbundles the analysis into further sub-sectoral estimates, in order to see if specific services activities within the broad services sectors display differential patterns. In effect, the F-tests for the joint significance of 2-digit industry and year effects reported in Tables 10 and 11 indicate that industry-specific effects still matter in industry-aggregated estimates. For this reason, Tables 12 and 13 report the results for the more disaggregated sub-sectors in professional services, transport and ICT. In order to base the two-part model on reasonable numbers of observations, the analyses focuses on seven different sub-sectors including lawyers and accountants, engineers and architects, land transport, warehousing, publishing, computer programming and information services.

Focusing on the persistence of export decisions, the results reported in both tables indicate that these sub-sectors are relatively homogeneous (but different to construction industries, as discussed above). The parameters for persistence range from 0.318 (legal and accounting) to 0.403 (warehousing) for the extensive margin export decisions and from 0.239 (legal and accounting) to 0.523 (warehousing) in the export share equations. Accordingly, the second part results tend to be more heterogeneous and firms in logistics seem to be most persistent in terms of overall export behaviour, whereas lawyers and accounting are the least. This may be symptomatic of the fact that there are relatively few restrictions in warehousing logistical services, whereas legal and accountancy services are often highly regulated. Moreover, the information services industry represents a notable exception because the lagged exporter status is estimated to have no significant impact on a firm's export probability. However, for this sub-sector the number of available observations is the smallest and, therefore, the results should be treated very cautiously.

The results for the role of firm size as restriction to the internationalisation of service activities obtained above are generally confirmed by our sub-sectoral analysis. More precisely, in six out of seven sub-sectors investigated, an increase in firm size significantly increase the probability to serve foreign markets while in none of the sectors the relative magnitude of exports for exporting firms is altered by firm size. However, the quantitative (and statistical) significance of this firm size effect varies across industry. To give some examples, a 1% increase in firm size increases the probability to export to foreign markets by 9.3 percentage points in the publishing industry while this effect only amounts to 1.8 percentage points for engineers and architects. For firms operating in the information services industry, this effect is again statistically insignificant. The sub-sample estimates also confirm that productivity is only crucial for the extensive margin export decision (with the exception of the land transport industry) but has no statistically significant effect on the relative amount of exports in the group of exporting firms.

Table 12. Two-part model estimates with dynamics and controlling for unobserved heterogeneity for professional services and transport and logistics sub-sectors

Variable	Legal and Accounting		Engineering and Architecture		Land transport		Warehouse and logistics	
	First part	Second part	First part	Second part	First part	Second part	First part	Second part
Lagged exporter	0.318***	0.239***	0.343***	0.448***	0.380***	0.407***	0.403***	0.523***
	(0.010)	(0.692)	(0.005)	(0.149)	(0.003)	(0.147)	(0.006)	(0.198)
Log (no. of employees)	0.035**	-0.008	0.01^**	-0.020	0.049***	0.005	0.054***	0.007
	(0.014)	(0.331)	(0.009)	(0.137)	(0.007)	(0.089)	(0.015)	(0.154)
Log(TFP)	0.035**	-0.021	0.036***	0.017	0.014	0.013	0.037**	-0.001
	(0.018)	(0.408)	(0.011)	(0.151)	(0.010)	(0.127)	(0.016)	(0.095)
Net investment p.e. (in thousands)	0.000	-0.000	-0.000	-0.000	0.001***	-0.000	-0.001*	-0.000
	(0.000)	(0.006)	(0.000)	(0.003)	(0.000)	(0.004)	(0.000)	(0.003)
No. of subsidiaries	-0.003	0.004***	-0.003**	-0.000	0.002	0.002	-0.000	0.002
	(0.003)	(0.025)	(0.001)	(0.010)	(0.002)	(0.017)	(0.001)	(0.012)
Foreign corporate group	0.096	0.015	0.089***	-0.006	0.000	-0.004	-0.044***	0.019
	(0.060)	(0.588)	(0.021)	(0.170)	(0.020)	(0.161)	(0.014)	(0.140)
Domestic corporate group	0.007	0.005	0.050***	-0.004	0.009***	-0.001	-0.005	-0.010
	(0.006)	(0.134)	(0.006)	(0.067)	(0.003)	(0.038)	(0.010)	(0.076)
Legal forms								
SARL	0.008	0.024**	-0.006	-0.011	0.007	0.010	0.008	0.018
	(0.036)	(0.334)	(0.018)	(0.240)	(0.015)	(0.126)	(0.025)	(0.288)
EURL	0.033	0.068***	-0.041**	-0.014	-0.022	0.022*	-0.078***	0.007
	(0.048)	(0.663)	(0.020)	(0.292)	(0.016)	(0.170)	(0.025)	(0.336)
SAS	0.010	0.029***	0.021	-0.013	0.015	0.014	-0.002	0.026
	(0.038)	(0.346)	(0.020)	(0.238)	(0.016)	(0.122)	(0.024)	(0.280)
SA	0.016	0.015	0.009	0.012	0.007	0.015	0.007	0.033
	(0.039)	(0.327)	(0.019)	(0.239)	(0.016)	(0.126)	(0.025)	(0.283)
SNC	-0.004	0.092***	-0.041	0.077	0.020	-0.008	-0.070***	0.053
	(0.095)	(0.533)	(0.034)	(0.618)	(0.033)	(0.365)	(0.025)	(0.331)
Regional dummies								
Paris region	0.030***	0.007*	0.016*	-0.010	-0.037***	0.013	-0.030**	-0.011
	(0.009)	(0.116)	(0.009)	(0.093)	(0.012)	(0.148)	(0.015)	(0.107)
Belgian border	-0.023**	-0.016	0.038***	-0.024**	0.034***	-0.001	0.027**	-0.012
	(0.010)	(0.512)	(0.010)	(0.105)	(0.006)	(0.045)	(0.014)	(0.096)
German border	0.051***	0.004	0.018	-0.012	0.032***	0.015***	0.064***	-0.004
	(0.014)	(0.386)	(0.011)	(0.111)	(0.009)	(0.052)	(0.024)	(0.087)
Swiss border	0.017	-0.008	-0.001	-0.019	0.018**	0.006	0.029	0.011
	(0.012)	(0.248)	(0.011)	(0.129)	(0.007)	(0.065)	(0.022)	(0.079)
Italian border	0.030**	-0.007	0.013	0.009	0.008	0.010	0.041	-0.041
	(0.014)	(0.590)	(0.014)	(0.154)	(0.008)	(0.150)	(0.033)	(0.233)
Spanish border	-0.003	0.010	0.021*	0.002	-0.000	0.003	0.031	-0.019
	(0.012)	(0.323)	(0.011)	(0.119)	(0.007)	(0.057)	(0.020)	(0.120)
Mediterranean	0.021**	-0.024***	-0.013*	-0.012	0.003	0.002	-0.004	0.017
	(0.010)	(0.299)	(0.008)	(0.108)	(0.006)	(0.079)	(0.012)	(0.102)
Atlantic Ocean	-0.009	0.007	-0.006	-0.002	0.009**	0.001	-0.027***	0.010
	(0.007)	(0.189)	(0.006)	(0.085)	(0.004)	(0.037)	(0.008)	(0.073)
Fixed effects								
Year	1.26	5.36	11.34**	4.11	2.66	1.80	11.32***	6.81
Observations	4 778	774	6 987	2 074	14 377	6 143	3 166	1 706

Notes: Average marginal effects reported (see Bartus 2005). *, ** and *** denote significance at 10%. 5% and 1% levels, respectively.

Table 13. Two-part model estimates with dynamics and controlling for unobserved heterogeneity for ICT sub-sectors

Variable	Publishing		Computer programming		Information services	
	First part	Second part	First part	Second part	First part	Second part
Lagged exporter status/share	0.379***	0.369***	0.339***	0.398***	0.351	0.497***
	(0.007)	(0.366)	(0.007)	(0.297)	(3.795)	(0.752)
Log (no. of employees)	0.093***	-0.001	0.028*	-0.015	0.018	-0.033
	(0.019)	(0.204)	(0.015)	(0.155)	(0.029)	(0.288)
Log(TFP)	0.037**	0.009	0.045**	0.025	0.079**	-0.028
	(0.017)	(0.125)	(0.020)	(0.214)	(0.034)	(0.317)
Net investment p.e. (in thousands)	-0.000	-0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.003)	(0.000)	(0.003)	(0.001)	(0.005)
No. of subsidiaries	-0.007***	-0.003**	0.002	-0.001	0.007	-0.012***
	(0.002)	(0.016)	(0.004)	(0.018)	(0.006)	(0.051)
Foreign corporate group	-0.008	0.011	0.078**	-0.010	-0.047	-0.080**
	(0.027)	(0.292)	(0.034)	(0.150)	(0.030)	(0.387)
Domestic corporate group	0.009	-0.003	0.011	-0.002	0.023	-0.022
	(0.012)	(0.074)	(0.010)	(0.101)	(0.020)	(0.216)
Legal forms						
SARL	-0.014	0.001	0.039	-0.054***	-0.010	-0.025
	(0.037)	(0.184)	(0.040)	(0.246)	(0.047)	(0.547)
EURL	-0.037	0.040*	0.028	-0.064	0.024	0.049
	(0.054)	(0.276)	(0.053)	(0.550)	(0.061)	(0.783)
SAS	-0.004	0.010	0.070	-0.052***	-0.003	0.011
	(0.036)	(0.177)	(0.045)	(0.207)	(0.047)	(0.531)
SA	-0.007	0.003	0.108**	-0.045***	-0.068*	-0.024
	(0.035)	(0.176)	(0.050)	(0.209)	(0.035)	(0.510)
SNC	-0.043	-0.005	0.762	-0.030	-0.092	-0.019
	(0.043)	(0.596)	(0.829)	(0.309)	(0.064)	(0.483)
Regional dummies						
Paris region	0.035***	0.001	0.006	-0.012	-0.011	0.017
	(0.013)	(0.067)	(0.011)	(0.143)	(0.021)	(0.203)
Belgian border	0.163***	-0.038*	0.052**	0.003	0.052	0.068***
	(0.049)	(0.270)	(0.021)	(0.140)	(0.037)	(0.217)
German border	0.035	0.014	0.048**	-0.022	0.050	-0.124***
	(0.040)	(0.120)	(0.023)	(0.222)	(0.079)	(0.550)
Swiss border	0.034	-0.029**	0.056*	0.040*	-0.229	-
	(0.040)	(0.155)	(0.029)	(0.300)	(0.972)	-
Italian border	0.040	0.008	0.077*	-0.005	-0.005	-0.016
	(0.044)	(0.260)	(0.043)	(0.179)	(0.063)	(0.336)
Spanish border	-0.012	-0.004	0.007	0.014	-0.064*	0.005
	(0.019)	(0.182)	(0.020)	(0.147)	(0.035)	(0.352)
Mediterranean	0.016	0.005	0.016	0.017	0.025	0.038
	(0.019)	(0.119)	(0.019)	(0.145)	(0.043)	(0.374)
Atlantic Ocean	-0.035***	0.014	-0.004	-0.010	0.064**	-0.040**
	(0.013)	(0.173)	(0.013)	(0.138)	(0.030)	(0.188)
Fixed effects						
Year	3.39	5.13	7.86	4.62	19.59***	3.29
Observations	2 224	1 297	2 455	1 132	603	205

Notes: Average marginal effects reported (see Bartus 2005). *, ** and *** denote significance at 10%. 5% and 1% levels, respectively.

A closer look at other possible restrictions to exporting on a more sub-sectoral level also delivers some interesting findings. First, foreign and domestic corporate networks seem to be especially relevant for engineers and architects. Taking part in one of such networks increases the export probability by 8.9 and 5.0 percentage points, respectively. Foreign networks also positively contribute to the export probability of computer programming services providers. By contrast, warehousing subsidiaries of foreign networks are less likely to export to foreign markets and information services providers with foreign ownership export smaller shares of their services abroad. Furthermore, the positive agglomeration economies for professional services providers and ICT firms are mainly observable for lawyers and accountants and publishing firms, respectively. By contrast, the negative overall estimates for transport services providers are confirmed for both, land transport and warehousing logistics. Finally, the legal form of firms seems to be especially relevant for lawyers and accountants and computer programming firms. For the former firms, all but public limited companies are more likely to serve foreign markets while incorporated computer programming firms tend to export smaller shares of their services.

E. What explains services SMEs entry into and exit from foreign markets

What factors drive the export start-ups and export collapses of small services firms? This section augments the results from above by solely investigating the firm- and industry-specific factors that are able to explain which firms start to export to foreign markets or discontinue doing so. The existing literature of export discovery and export collapses (Rodrik et al., 2007; Klinger et al, 2007; Brenton et al, 2009) has been generally based on large manufacturing firms, and it is reasonable to question if the same stylised facts apply to services.

For the purpose of this analysis, an "export starter" is a services SME that that has initiated exporting activities during the observational period from 1998 to 2007. Firms that already exported to foreign markets in the first observed year as well as all-time exporters (i.e. firms that export in every observed year) are excluded from this sample. Consequently, the 'control group' of non-export-starting firms solely consists of firms that never exported during the whole time period under consideration. Similarly, it is also of interest to investigate the factors explaining why small services firms tend to discontinue exporting services at any given point. In this regard, we define an 'export stopper' as a firm that already exported to foreign markets and (at least) once stopped doing this during the observed period. Consequently, we eliminate all never exporting firms from this sub-sample and the 'control group' of 'non-stopper' only contains firms that export in every observed year.

Table 14 reports average marginal effects for the probability to enter into export markets. The first column reports the results for the full sample of all firms that operate in professional services, ICT, transport and construction while in the other four columns we separately report the results for the different service industries. The estimates reported in Table 14 clearly indicate that firm size matters for the question at hand. More precisely, micro-firms with less than 10 employees are least likely to export to foreign markets. This is indicated by the largest negative average marginal effects. The remarkable exception from this is the ICT industry where firm size has no impact on the probability to start to export. For the other three industries, the negative firm size effect tends to monotonically decrease with firm size. Thus, in comparison to the largest firms, firms of medium size from 50 to 249 employees are not less likely to start to export. Here the only exception is the construction industry, where all firms of medium size find it more difficult to start operating in international markets.

With regard to all other covariates we obtain expected and more homogeneous results. To only mention a view of them, more productive firms and members of either domestic or multinational corporate groups are more likely to be export starters. This holds also true for firms that are located in Paris. The exception here is the transport services industry, where firms that are located close to the Belgian, German and Swiss borders are more likely to be export starters while for firms located in Paris this probability is reduced. In a similar vein, the sectoral analysis reveals that productivity differentials are only able to explain differences in export behaviour in some service industries. More precisely, more productive firms are more likely to export to foreign markets when they operate in professional services or ICT industries but this is not true for financial services or travel services providers. Moreover, productivity is not able to explain differences in export shares for exporting firms across all four different sectors considered.

Table 15 reports the results for the probability to stop serving foreign markets. Here, it is again worth noting that this sub-sample only includes firms that actually stop exporting in at least one year and firms that export in all observed years. Consequently, the estimates are always relative to this latter group of always-exporting firms. The most remarkable result in Table 15 is that firm size does not play a very crucial role for stopping to export to foreign markets. On the contrary, the firm size estimates for micro-firms tend to support the view that the smallest exporting firms are least likely to stop serving foreign markets via exports. This is indicated by the negative and significant average marginal effects for the full sample as well as professional services and construction industries. For the remaining two industries, ICT and transport, firm size does not matter at all for the decision to stop exporting. This finding clearly indicates that firm size asymmetrically affects firms' decisions to start or to stop to export to foreign markets.[15] For the other covariates included in our specification we are not able to provide as strong results as for export starters. The only exception is productivity where our results clearly indicate that less productive firms are more likely to stop to export to foreign markets.

The disaggregated results lead to several broad conclusions: Construction firms substantially differ in the export behaviour from firms operating in either professional services, ICT and transport industries. Nevertheless, all of these four different industries are also characterised by considerably within-industry heterogeneity. From an export promotion policies point of view, the results indicate that small firms should be actively supported to explore foreign market opportunities. Moreover, the results indicate that successful export promotion policies have to be tailored for each type of service to account for structural differences across all service industries.

15. This result is somehow in contrast to Esteve-Pérez, Requena-Silvente and Pallardó-Lopez (2013) who find that firm size increases the duration of export-destination relationships with low-risk countries. In their analysis firm size is only irrelevant for the duration of export-destination relationships with high-risk countries.

Table 14. Probit model estimates for the probability to enter into export markets

Variable	Full sample	Professional	ICT	Transport	Construction
Micro firms	-0.128***	-0.228***	-0.056	-0.082***	-0.173***
	(0.009)	(0.029)	(0.048)	(0.024)	(0.008)
Small firms	-0.061***	-0.126***	0.006	-0.009	-0.093***
	(0.009)	(0.026)	(0.049)	(0.023)	(0.008)
Medium firms	-0.011	-0.028	0.052	0.039	-0.043***
	(0.011)	(0.035)	(0.055)	(0.029)	(0.007)
Log(TFP)	0.022***	0.027***	0.042***	0.018**	0.017***
	(0.003)	(0.006)	(0.013)	(0.009)	(0.003)
Net investment p.e. (in thousands)	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
No. of subsidiaries	-0.000	-0.009***	0.002	0.007**	0.001
	(0.001)	(0.002)	(0.005)	(0.003)	(0.001)
Foreign corporate group	0.079***	0.178***	0.135**	0.015	0.12^**
	(0.018)	(0.044)	(0.056)	(0.032)	(0.049)
Domestic corporate group	0.046***	0.087***	0.068***	0.060***	0.021***
	(0.003)	(0.008)	(0.013)	(0.011)	(0.003)
Legal forms					
SARL	-0.025**	-0.020	-0.033	-0.045	-0.019*
	(0.011)	(0.029)	(0.050)	(0.028)	(0.011)
EURL	-0.046***	-0.054**	-0.003	-0.077***	-0.030***
	(0.009)	(0.026)	(0.059)	(0.023)	(0.008)
SAS	0.037***	0.051	0.046	0.036	0.026*
	(0.014)	(0.034)	(0.055)	(0.033)	(0.016)
SA	0.054***	0.094**	0.101*	0.014	0.044**
	(0.015)	(0.038)	(0.060)	(0.032)	(0.019)
SNC	0.025	-0.012	0.007	-0.062	0.049*
	(0.022)	(0.050)	(0.108)	(0.039)	(0.028)
Regional dummies					
Paris region	0.039***	0.084***	0.027*	-0.093***	0.022***
	(0.005)	(0.010)	(0.015)	(0.017)	(0.008)
Belgian border	0.065***	0.039***	0.047	0.084***	0.057***
	(0.006)	(0.014)	(0.031)	(0.018)	(0.006)
German border	0.072***	0.064***	0.066*	0.074***	0.060***
	(0.007)	(0.018)	(0.040)	(0.023)	(0.007)
Swiss border	0.033***	-0.010	0.047	0.053***	0.032***
	(0.006)	(0.015)	(0.041)	(0.019)	(0.006)
Italian border	0.009	0.046**	-0.030	-0.003	0.004
	(0.006)	(0.019)	(0.035)	(0.016)	(0.006)
Spanish border	0.021***	0.035**	0.026	0.016	0.014**
	(0.006)	(0.015)	(0.028)	(0.015)	(0.006)
Mediterranean	0.014***	-0.016	0.039*	0.029**	0.017***
	(0.004)	(0.010)	(0.024)	(0.012)	(0.005)
Atlantic Ocean	-0.016***	-0.036***	-0.036**	-0.003	-0.009***
	(0.003)	(0.007)	(0.016)	(0.007)	(0.002)
Fixed effects					
Industry	2 364.03***	17.06***	10.30***	20.91***	36.55***
Pseudo- R^2	0.141	0.084	0.055	0.082	0.091
Observations	84 561	18 590	5 428	11 023	49 520

Notes: Average marginal effects reported (see Bartus 2005). *, ** and *** denote significance at 10%. 5% and 1% levels, respectively.

Table 15. Probit model estimates for the probability to exit from export markets

Variable	Full sample	Professional	ICT	Transport	Construction
Micro firms	-0.089***	-0.096*	0.021	-0.058	-0.188***
	(0.027)	(0.053)	(0.054)	(0.043)	(0.069)
Small firms	-0.041	-0.078	0.063	-0.070*	-0.086
	(0.026)	(0.052)	(0.054)	(0.041)	(0.065)
Medium firms	0.001	-0.039	0.101*	-0.013	-0.052
	(0.027)	(0.055)	(0.058)	(0.043)	(0.068)
Log(TFP)	-0.106***	-0.102***	-0.074***	-0.158***	-0.070***
	(0.009)	(0.014)	(0.018)	(0.021)	(0.019)
Net investment p.e. (in thousands)	0.000	0.000	-0.000	0.000	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
No. of subsidiaries	-0.002	-0.004	0.009	0.008	-0.009*
	(0.002)	(0.004)	(0.006)	(0.005)	(0.005)
Foreign corporate group	0.012	0.035	0.036	0.116**	-0.048
	(0.029)	(0.053)	(0.051)	(0.056)	(0.090)
Domestic corporate group	0.013*	0.020	0.048***	0.005	0.038***
	(0.007)	(0.014)	(0.018)	(0.013)	(0.014)
Legal forms					
SARL	-0.045	-0.020	-0.042	-0.066	-0.089
	(0.032)	(0.066)	(0.064)	(0.050)	(0.079)
EURL	-0.072**	0.015	-0.062	-0.097*	-0.141*
	(0.035)	(0.074)	(0.075)	(0.052)	(0.081)
SAS	0.018	0.026	0.019	-0.023	0.027
	(0.033)	(0.067)	(0.066)	(0.050)	(0.077)
SA	0.029	0.049	0.015	-0.030	0.048
	(0.033)	(0.068)	(0.066)	(0.051)	(0.078)
SNC	0.037	0.186*	-0.150	0.061	-0.012
	(0.055)	(0.109)	(0.095)	(0.114)	(0.107)
Regional dummies					
Paris region	-0.039***	-0.019	-0.021	-0.039	-0.029
	(0.011)	(0.016)	(0.018)	(0.044)	(0.039)
Belgian border	-0.029**	-0.027	-0.085**	-0.054***	0.010
	(0.013)	(0.029)	(0.035)	(0.020)	(0.021)
German border	-0.027*	-0.013	-0.014	-0.083***	-0.002
	(0.014)	(0.034)	(0.044)	(0.025)	(0.022)
Swiss border	-0.043***	-0.071**	-0.001	-0.088***	-0.010
	(0.014)	(0.031)	(0.048)	(0.024)	(0.023)
Italian border	-0.019	0.017	-0.156***	-0.057*	0.045
	(0.020)	(0.039)	(0.041)	(0.032)	(0.037)
Spanish border	0.027	0.065*	-0.013	0.005	0.040
	(0.017)	(0.035)	(0.040)	(0.029)	(0.032)
Mediterranean	0.015	0.003	0.043	0.008	0.028
	(0.013)	(0.025)	(0.034)	(0.021)	(0.024)
Atlantic Ocean	-0.015	0.034*	0.062**	-0.023	-0.066***
	(0.009)	(0.020)	(0.027)	(0.014)	(0.017)
Fixed effects					
Industry	427.51***	41.32***	22.55***	26.62***	0.11
Pseudo- R^2	0.024	0.019	0.022	0.020	0.029
Observations	22 279	6 220	3 675	6 426	5 958

Notes: Average marginal effects reported (see Bartus 2005). *, ** and *** denote significance at 10%. 5% and 1% levels, respectively.

VI. Emerging practices to address binding constraints for services SMEs

The foregoing analyses of the export behaviour of SMEs point to the resource constraints of small-sized firms. In particular, and consistent with other studies (see, for example, World Bank, 2011a; World Bank, 2011b; IADB, 2010), the empirical analyses suggest that the informational costs of reaching new export markets appears to be higher for services SMEs than for manufacturing SMEs. Given the particularly small size profile of services SMEs, it may well be harder for these enterprises to liberate human resources in order to amass information about foreign markets. Yet, as the empirical results have shown, once these 'market discovery' constraints are overcome, services SMEs are persistent in their export behaviour over time and have a high rate of export survival in international markets. Taken together – a relatively low rate of export start-ups, but a high rate of subsequent export survival – these findings do raise the question of whether helping services SMEs overcome these constraints could represent a significant opportunity to boost export performance and productivity levels.

A number of recent firm-level studies suggest that pro-active policies to support the internationalisation of firms can have a positive impact on trade performance (World Bank 2011; IADB, 2010, Gourdon et al., 2011; Lederman et al., 2010; Volpe, 2010). Although the effects of government-sponsored export programmes vary by country, this body of work provides evidence of economically and statistically important effects from these programmes. Moreover, some studies report that the positive effects do not only accrue to the direct recipients of these support measures, but often also benefit other firms through informational spillovers (Aaditya, 2004): such positive externalities, where they exist, would provide further justification for these efforts. However, much remains to be learned about the effectiveness of specific instruments used in existing trade programmes (Lederman et al., 2010).

In particular, little information is available to policy-makers on the design and effectiveness of existing instruments for services SMEs. In light of the behavioural parameters of services SMEs distilled from the empirical analysis, it may be worth reflecting on the extent to which key restrictions and patterns of exporting displayed by services SMEs are addressed in existing programmes. This section provides a preliminary stock-taking of programmes that are targeted to services SMEs who are motivated to expand to foreign markets, but face constraints that prevent them from doing so effectively. Furthermore, a number of important issues — notably the modal and market choice for exports and the barriers faced in export markets — could not be assessed with the micro-level data at hand. Hence, business survey information is used to assess the key barriers faced in foreign markets and the trade support measures that are perceived to be the most effective in helping services SMEs overcome these constraints.

A. Increasing awareness of services-oriented approaches

Traditionally, export-oriented programmes for SMEs have been designed and primarily targeted for small firms in the manufacturing and agro-industry sectors. Our empirical analyses suggests that, to the extent that services SMEs have different binding constraints, some elements of the instruments and eligibility criteria used might benefit from a more tailored approach. Revealingly, many agencies charged with the execution of export stimulation programmes report a relatively poor participation and usage of such programmes by SMEs in services sectors, despite the fact that services SMEs represent the vast majority of small firms, and have the lowest rates of internationalisation. This may be in part due to the low awareness of these programmes on the part of services SMEs. In addition, it may raise questions as to the relevance and accessibility of the instruments used in these programmes for small services suppliers.

Pro-active policies to support internationalisation are costly, and countries instituting such measures should target them selectively. Hence, policy-makers have an interest in ensuring that trade support measures for SMEs, where appropriate, can yield the highest returns in terms of trade performance, both in the intensive and in the extensive margins. Given the importance of the services sector in most economies, and the relatively low participation of services SMEs in these programmes, some agencies have taken steps to design programmes that are more directly targeted and tailored towards services-based enterprises. A survey conducted among trade promotion agencies in 11 APEC economies revealed that 65% of policy-makers affirmed the importance of institutionalising SME trade initiatives that are specific for small services providers (APEC 2004). In the same vein, the Association of Latin American Services Exporters (ALES) is promoting the development of export programmes for services (IADB 2011) across Latin America, in order to better tap into services SMEs with high export potential.

Recent research conducted by Industry Canada also recognises that small services enterprises represent unexploited and under-estimated economic opportunities. For instance, it highlights the high export potential of the professional services sector. One of the findings from recent research on Canadian SMEs is that, unlike in manufacturing, where exporting propensity increases at around the 25 employee mark, there is no size threshold found in the likelihood of exporting of services firms. The research findings also suggest that there are significant differences in the production function (inputs to export performance) between goods and services firms. For instance, management capacity in services SMEs seems to substitute for labour and capital, calling for the need to recognise and calibrate the "soft assets of small services firms". Based on these observations, the study raises the question as to whether support needs for SMEs in services and manufacturing differ, and how well current policies and programmes are addressing these differences (see www.ic.gc.ca).

Finally, it is worth noting that WTO discussions under the auspices of the Trade in Services Council have recently raised awareness of the need for trade negotiations to consider the specific sub-sectors, modes of supply, and trade barriers of particular interest to small services providers (WTO, 2012). In a similar vein, an increasing number of RTAs, notably those signed by the European Union, have incorporated provisions for co-operation on SMEs, including in services sectors (Table 16).

Table 16. Selected provisions on services SMEs, EU RTAs

Agreement	Co-operation Measures for SMEs in Services Sectors
EU-CARIFORUM	...the Parties agree to cooperate, including by providing support for technical assistance, training and capacity building in, inter alia, the following areas: Improving the export capacity of service suppliers of the Signatory CARIFORUM States, with particular attention to the marketing of tourism and cultural services, the needs of small and medium-sized enterprises, franchising and the negotiation of mutual recognition agreements; *Chapter 7, Cooperation*
	The EC Party and the Signatory CARIFORUM States shall endeavour to facilitate the participation of small- and medium-sized enterprises in the tourism services sector. The Parties agree that deliveries by electronic means shall be considered as the provision of services, within the meaning of (c) The development of Internet marketing strategies for small and medium-sized tourism enterprises in the tourism services sector; *Art 113, Small and Medium-sized Enterprises, Section 7, Tourism Services*
EU-Colombia-Peru	To the extent necessary and justified, the Trade Committee may establish a working group with the aim of performing, among others, the following tasks: (d) recommending mechanisms to assist Micro and SMEs in overcoming obstacles faced by them in the use of electronic commerce; *Art. 109. Working Groups, Title IV about Trade in Services, Establishment and Electronic Commerce*

Box 1. Born Global: Tunisia's promotion of services export start-ups

An example of a programme that has been considered to be fairly successful in helping small services enterprises export, and diversify their exports, has been the FAMEX (Market Access Fund) managed under the Tunisian Center for Export Promotion (CEPEX). A first version of the programme was launched in the year 2000, and subsequently renewed (FAMEX II) in 2005. The latter had a budget of USD 37 million for a four-year period, jointly financed by World Bank credit, state budget and benefitting enterprises. Through a matching grant, the objective of the programme was to help 350 businesses export, targeting an export turnover ratio of USD 10 dollars for every USD 1 of subsidy. The impact of the programme on SMEs services exports has been rigorously evaluated (World Bank 2011) with a favourable assessment on its impact on services exports.

What were the goals of the FAMEX programme?

The design of FAMEX was shaped by two broad goals. First, many of Tunisian SMEs with high-qualified human capital had the potential to export services (notably, business, engineering and medical services), but did not consider exporting beyond mode 2, often due to lack of counselling and psychological barriers that kept them from internationalising their activities. When they did export, operations were overly concentrated in traditional markets (over 70% services exports to France). Hence, the FAMEX programme aimed to project the image of Tunisia as a country with services enterprises of international competitiveness. It also actively tried to assist small services providers in forging business opportunities in new markets, notably in Francophone West Africa, thereby diversifying an export portfolio that was almost exclusively concentrated in France, and to a less extent, in three other European countries (Belgium, Italy and Germany).

Second, an important vision of the FAMEX programme was to develop the domestic capacity—technical expertise and know-how—on export development, particularly in services trade. First, it provided technical assistance to build the capacity of export associations and chambers of commerce, so that they could provide better guidance and assistance to its members, particularly to SMEs. Another tool of the programme was to develop a stock of export consultants domestically. Indeed, a new law regulating this activity exonerated “Export Consultants” from income taxes in exchange for dedicating their time full-time to developing expertise and working on the promotion of exports. These consultants acquired specialised knowledge in services sectors that were of increasing interest in the national domestic market and in the export landscape.

What did the programme offer?

Counselled by international and national experts specialised in the sector, interested firms developed export development plans, and CEPEX met 50% of the costs of implementing approved plans, in addition to offering technical assistance during the phases of its implementation. The cost-sharing mechanism was designed to obtain a stronger pool of applicants, leading to a better selection of prospective exporters than with a pure grant. Moreover, FAMEX tried to remain more flexible than programmes directly providing support services (training, etc.), so that the support would be customised to the specific services product, targeted market, and business strategy that was most appropriate for each firm. Essentially, FAMEX co-financed any need or action identified in the plan that would allow the enterprise to enter international markets with the best chances of success. The actions finances typically included assistance with web-based technologies and e-commerce, customisation of products to foreign clients, and the invitation of buyers to meet services providers.

Another initiative that the programme first launched in 2004 was the organisation of an International Exhibition of Exporting Services (SISE). The SISE convened over four hundred visitors from over 30 countries, of which 21 were African countries. Certain projects were made concrete, such as the signing of a cooperation agreement between schools of medicine and hospitals of Tunis and several African countries; the creation of the Maghreb Consortiums of Computer Enterprises; and the signing of a number of infrastructural contracts, including realisation of roads, hydro-agricultural fitting, and energy projects in West Africa. This has been the start of a drive to continue exporting business and professional services in a south-South context.

What were the eligibility criteria?

In order to benefit from FAMEX, a firm had to be in operation for two years, have an exportable product, and have a turnover of over of USD 140 000. For services, where firms tended to be younger and smaller, this criteria was adapted to be one year of operation and a turnover of USD 70 000. There was a Piloting Committee that assessed whether firms that did not meet the general rules for eligibility rules still presented the strong potential for international development. These cases were mostly in services sectors, that where many enterprises did not meet the standard criteria and yet were considered to have strong export potential. For manufacturing, the general rules were generally adhered to.

The success of the programme in attracting services SMEs was also fruit of a strong campaign on the part of FAMEX team, as well as of a marketing and communication firm that was hired to provide direct mailings to services enterprises. There were regular workshops and meetings with enterprises in business and professional services sectors to raise awareness about the opportunities for expanding their activities to new foreign markets. Complementing these, one-to-one meetings were organised at the headquarters of the enterprise to discuss possibilities and potential benefits. The objective of this sensitisation campaigns was not just to raise awareness of the public support measures available within FAMEX, but also to instil a culture of exporting services, particularly to non-traditional markets in Africa.

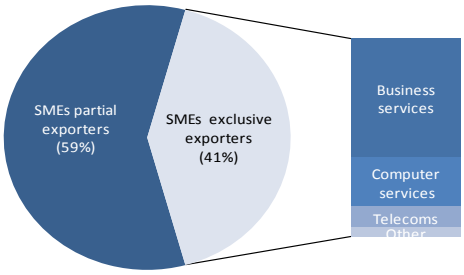
Working with very small services firms entailed considerable counselling. Since the number of employees was so low, there were not staff devoted to developing export strategies and the owners were reticent to engage. Hence, the average timeframe to develop the plans with small services firms was relatively long, ranging from 18 to 24 months. These firms required substantial technical assistance to define their objectives, formulate their needs, prepare their specifications and follow through the execution of programmes. Most programmes required modifications in mid-course to the plans and rarely used more than 70% of the funding that was allotted to them.

What were the outcomes?

Despite the difficulties in engaging services SMEs, participating services suppliers demonstrated tangible results, obtaining export contracts that far surpassed their subsidy—for many enterprises, by ten-fold. A rigorous empirical evaluation of FAMEX II conducted by the World Bank shows that it has been effective in promoting the exports of services SMEs. Concretely, the evaluation finds that the export growth rate is approximately 38.9% higher for SMEs treated under FAMEX II than for the control group not receiving any support. The programme not only led to more exports, but also had an impact on the extensive margin of trade, leading to growth in the number of new export products as well as in the number of new export markets. In the long run, the effects on the extensive margin appear to be more important than those in the intensive margin.

Interestingly, the programme had disproportionately higher effects on services firms and on first-time exporters. One of the successes of FAMEX was to be able to support SMEs that had no previous experience in international or even domestic markets prior to enrolling in the programme. In effects, subsidies were provided to business start-ups in services oriented towards the export market. Hence, many services SMEs were "born global" and remained exclusively oriented towards international markets. As Figure 7 shows, currently 41% of SMEs exporting business services in Tunisia are classified as "total exporters" ("*totalement exportatrices*"), that is to say, they destine a 100% of their sales to businesses established in overseas markets.

Figure 7. Born global services SMEs in Tunisia, 2012



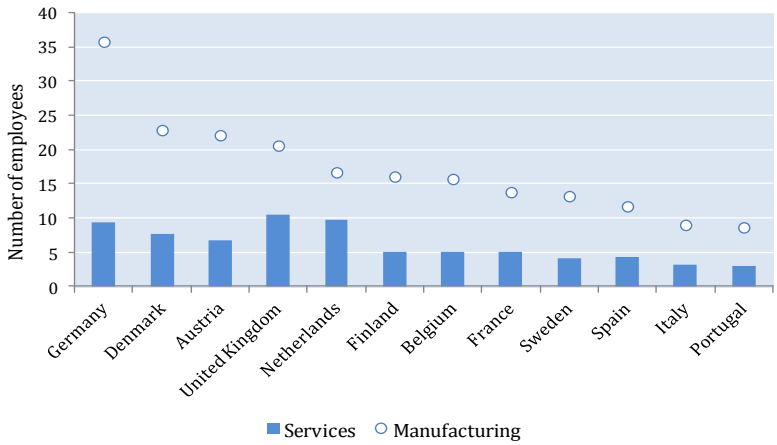
Source: Based on data from Tunisia's Agence de Promotion de l'Industrie et de l'Innovation (*www.ins.nat.tn*). Consultations and interviews were conducted with managers of FAMEX and staff at the World Bank involved in this programme.

B. Eligibility criteria: Definition and internationalisation strategy of services SME

A point of departure for a differentiated approach in the design of pro-active policies for SMEs has started with adjusting the definition of SMEs used for manufacturing to the firm profile of the services sector. As it is widely acknowledged, there is no universal definition for SMEs, and countries vary considerably in the national criteria and thresholds used to determine the size-breakdown of enterprises, depending on the size of the market, the average enterprise size, and the level do development. The main criterion used to measure firm size is often number of employees, although other metrics are also used, such as values of sales/turnover, value added, value of assets, and even value of exports. Regardless of the definition used, however, the breakdown used in each country has generally been applied uniformly to all sectors of the economy, without considering differences in the size profile of firms across sectors.

In some countries, national statistical offices and other government agencies have recognised that the size profile of firms in the services sector differs markedly from that of manufacturing. As a result, the definition for SMEs based on the population of enterprises in manufacturing does not fit well with the distribution of firm size in the services sector. In effect, services SMEs tend to be much smaller than manufacturing SMEs. As Figure 8 shows, the average SME in the manufacturing sector is invariably larger than the average SME in services. The headcount of a "medium-sized" firm in most definitions generally corresponds to a relatively large firm in services, if total turnover level is considered.

Figure 8. Services SMEs are smaller than manufacturing SMEs



Source: STAN Database, OECD.stat.

The definition used to categorise SMEs has repercussions in the design and application of policies for internationalisation. A common problem in some export promotion programmes is that eligibility hinges on a minimum firm size—on the premise that scale is required to profitably export--which are difficult to achieve for a services provider. Hence, very small services providers are often cut off from export promotion programmes that set a lower limit for eligibility. On the other hand, the upper limit for being categorised as SMEs is too high for services firms, so that in practice over 99% of the population of firms in services sectors are SMEs. The outcome is that some programmes for SMEs may be directed to relatively larger services firms that are already exporting or would have already exported without the need of public programmes. In contrast, SMEs that might require these programmes due to the human, financial and resource constraints associated with small size are not receiving the support because they are dismissed as micro- or very small enterprises. Yet, the structure of many services sectors is characterised by very small firms competing with each other.

Several countries have tried to address this by making a differentiation between size definitions for goods and services SMEs. Table 17 surveys the headcount definition of SMEs in a selection of countries, and points to those cases in which the definition by number of employees has been adapted for services Although some countries use other defining factors alongside the headcount, the number of employees is the most widespread and generic criterion –and one that does not vary by economy. For instance, Industry Canada has a different definition for "small firm" depending on whether it is a goods-producing firm or a services producing firm, although micro and medium-sized firms have the same thresholds. Brazil has a differential threshold for each of the firm size categories: in effect, only firms up to 80 employees are considered SMEs in commerce and services, whereas firms of up to 200 employees qualify as SMEs in the manufacturing sector. Japan considers SMEs all firms up to 300 employees in the cases of manufacturing construction, transportation; in contrast, for services industries (including wholesale trade) the corresponding thresholds are up to 100 persons (50 for retail trade).

Table 17. Definition of SMEs for manufacturing and services, selected countries

Country or organisation	SMEs Manufacturing			SMEs Services		
	Micro	Small	Medium	Micro	Small	Medium
Australia	--	1-19	20-199	--	--	--
Brazil	1-10	11-40	41-200	1-5	6-30	31-80
Canada	1-4	5-100	101-499	1-4	5-49	50-499
Chile	1-9	10-49	50-199	--	--	--
Costa -Rica	1-16	17-58	59-166	1-5	6-17	18-50
EU	1-9	10-49	50-249	--	--	--
Hong-Kong	1-9	10-100	10-100	1-9	10-50	10-50
Korea	1-9	10-49	50-299	1-4	5-9	10-50/100/200
Malaysia	1-4	5-50	51-150	1-4	5-19	20-50
Mexico	1-10	11-50	51-250	1-10	11-30/50	51-100
OECD	1-9	10-49	50-249	--	--	--

Source: Collected from national sources of information.

In the case of the United States, the definition varies across sector of the economy, in order to reflect industrial differences. In effect, the Small Business Administration (SBA) has a different "size standard", for all for-profit industries. Size standards represent the largest size that a business (including its subsidiaries and affiliates) may be to remain classified as a small business concern. Size standards usually are a measure of a business's number of employees or its average annual receipts. Based on those criteria, the SBA has established the following common standards for a small business, depending on its North American Industry Classification System (NAICS) code: 500 employees for most manufacturing and mining industries, and USD 7 million in average annual receipts for most non-manufacturing industries. There are many exceptions, but these are the primary size standards for most industries.

Another aspect of the eligibility criteria that some countries have adapted to services SMEs regards the experience and maturity of the enterprise. In manufacturing, there has traditionally been a notion that internationalisation takes place in incremental stages, whereby a firm starts producing for the local market and gradually becomes involved in exports and other international operations (see, for example, Leonidou and Katsikeas, 1996). Underlying such 'staged' internationalisation models is the assumption that firms need to be well established in the local market before they can they are ready to internationalise their activities. As a result, many public programmes are modelled after these strategies, which examine the sales record of the firm in the domestic market as a basis for assessing their

preparedness for exporting. Such programmes typically require a minimum level of domestic sales, or even prior exporting experience, as part of the eligibility criteria to participate in trade-related programmes.

One of the challenges of pro-active policies is to consider supporting the needs of firms that are younger and less experienced, including those that have not yet secured a foothold in the domestic market. Services firms tend to be far younger than manufacturing firms, am also embark on internationalisation at a relatively early stage of their operations. In fact, services SMEs that successfully internationalise often do so without experiencing a long probation period in the domestic market. The applicability of "staged internationalisation" in services has been widely called into question (see, for example, Bell et al., 2004; Knight 1999; Chaee and Mattsson, 1998). In knowledge-intensive services, many SMEs are "born global" - that is, their first operation is a cross-border transaction. This trend can be ascribed to the advances in ICT, the increasing role of niche markets, and the growth of global networks, which allows a services provider to sell its product to a foreign client without transportation costs (Bell et al., 2004). These global start-ups in services generally involve substantial value-added, and it would be useful for programmes to consider eligibility criteria that are adapted to these non-traditional internationalisation patterns.

C. Effective instruments for services SMEs: Evidence from EU survey

A recent survey conducted by the European Union to SMEs in 2009-2010 allows us to explore the relative effectiveness of different instruments of public support. As a first observation, the survey reveals that even among international active SMEs there is a low awareness of export promotion programmes, particularly among those SMEs in services sectors. Respondents were asked whether they were aware of any public support programmes for internationalisation that could be used by the enterprise. About 75% of SMEs surveyed in manufacturing were not aware of any such programmes, while for services-based SMEs the extent of unawareness was even more pronounced, ranging from 83% (for business services) to 90% (for personal services) of SMEs. Hence, the vast majority of exporting services SMEs are not aware of public programmes to facilitate or help expand their international operations.

Among those exporting SMEs that had utilised support programmes, a separate survey was undertaken to assess the perceived efficacy of these instruments in helping SMEs internationalise their operations.[16] A total of 512 SMEs interviews from 19 EU Member states were conducted in 2010 to evaluate the effectiveness of 13 support measures utilised by SMEs in their internationalisation strategies.[17] From the pool of respondents, 225 SMEs (44% of the

16. For further information on the full survey, see the Enterprise and Industry website of the European Commission"http://ec.europa.eu/enterprise/policies/sme/market-access/internationalisation/index_en.htm. The large scale random survey covered SMEs in EU Member States that had international operations, and comprised over six thousand observations (N=6649). The results reported in this section have been generated from a sub-set of the broader survey, which consisted of more in-depth interviews to exporting SMEs that had benefitted from internationalisation support measures, in order to assess the perceived impact of such instruments on SMEs international business performance. SMEs were identified by support organisations in Europe and then contacted, resulting in 512 completed interviews among SME users of various support measures. The survey consisted of in-depth telephonic interviews carried out by the EC jointly with EIM Business & Policy Research. For more information, see EIM Business & Policy Research, 2011a.

18. The 13 non-financial support instruments surveyed in the questionnaire (Q19) are: staff training; trade missions; adequate information on rules and regulations; adequate information on market opportunities; assistance with identifying potential foreign business partners; arranging series of one-to-one meetings with potential foreign business partners; assistance for exhibiting in international trade fairs; assistance

total) operate in manufacturing industries, while 287 SMEs supply services as the main activity of the enterprise.[18] In terms of size profile, 33% of SMEs were micro-enterprises, 40% were small enterprises, and 26% were medium-sized enterprises. Although the support instruments surveyed were generic –that is, offered to all SMEs—an analysis of the specific responses from the services SMEs yields some insights on the types of measures that appear to be more relevant to their needs.

Use of non-financial instruments

Table 18 displays the top five measures that services SMEs reportedly use most frequently used (i.e. "very much" used), as well as the five measures that SMEs appear to use the least (i.e. "not at all" used). Across all the services sectors surveyed, two inter-related support measures reportedly emerge as the most used by services providers seeking to internationalise their activities: business cooperation and networking, on the one hand, and assistance with identifying potential foreign business partners, on the other. This highlights the importance of networks for gaining access into new markets, in part because consumers often select services providers on the basis of referrals. Indeed, referrals tend to be much more important for services than for goods. Small services suppliers have limited networks abroad that do not facilitate referrals to foreign customers.

Furthermore, market development constraints make it difficult for them to directly identify potential customers abroad. Accordingly, among the other top five measures rated as "very much" used by small services suppliers there are trade missions, adequate information on market opportunities, and arranging one-to-one meetings with foreign business partners. Finally, SMEs operating in distribution services—wholesale and retail activities-—highlighted the importance of having adequate information on foreign rules and regulations.

At the other end of the spectrum, SMEs surveyed were also asked to indicate which kinds of measures were "not at all" used. Across all types of services, the support measures that SMEs seemed to use the least related to support with temporary office facilities in foreign markets. This appears to be consistent with findings that services SMEs do not utilise market presence (via FDI or other establishment) as a key channel for internationalisation (Persin, 2010). Moreover, it is pertinent to note that assistance on technical standards is rarely used by services SMEs, which may reflect that these kinds of programmes—generally addressing TBT and SPS issues—are not as relevant for services. Similarly, intellectual property assistance is not widely used among a large sample of small services providers, which may reflect that

in dealing with national technical standards; assistance in dealing with Intellectual Property Rights (IPR); business cooperation and networking; business or professional advice (e.g. from lawyers, accountants, fiscal experts); temporary office facilities in foreign country and auxiliary services in foreign country (e.g. secretarial support, interpretation, guides, etc.). The five financial support measures surveyed in the questionnaire (Q20) are: credit guarantee schemes (insurance) for international activity; tax incentives for international activity; subsidies and grants for international activity; loans for international activity; and equity for international activity. It should be noted that not all of the identified organisations providing support programmes to SMEs in EU Member States offer all of these instruments, so that these measures are not uniformly represented across the existing programmes identified. Moreover, some organisations combine more than one instrument into a support measure, so that it is difficult to draw conclusions on the effectiveness of individual instruments. For more details on the organisations identified and the support instruments offered by them, see EIM Business & Policy Research, 2011a.

18. The services sectors considered cover business services, construction, transport, repair motor vehicles, wholesale and retail trade, and other services.

certain IPR instruments used for goods are not easily applicable in the case of some services products (Riddle, 2006).

Table 18. Use of non-financial instruments by subsector of services SMEs

	Business Services	Distribution	Transport	Construction
Top five measures most frequently used by services SMEs	Assistance with identifying potential foreign business partners (32%)	Assistance with identifying potential foreign business partners (29%)	Adequate information on market opportunities (36%)	Arranging series of one-to-one meetings with potential foreign business partners (38%)
	Assistance for exhibiting in international trade fairs (31%)	Assistance for exhibiting in international trade fairs (27%)	Business cooperation and networking (36%)	Business cooperation and networking (38%)
	Business cooperation and networking (29%)	Trade missions (27%)	Trade missions (36%)	Trade missions (35%)
	Trade missions (29%)	Adequate information on market opportunities (25%)	Arranging series of one-to-one meetings with potential foreign business partners (32%)	Assistance with identifying potential foreign business partners (31%)
	Arranging series of one-to-one meetings with potential foreign business partners (28%)	Business cooperation and networking (19%)	Assistance with identifying potential foreign business partners (28%)	Assistance for exhibiting in international trade fairs (31%)
Top five measures least frequently used by services SMEs	Temporary office facilities (79%)	Temporary office facilities (69%)	Assistance in dealing with Intellectual Property Rights (IPR) (72%)	Temporary office facilities (69%)
	Assistance in dealing with Intellectual Property Rights (IPR) (68%)	Auxiliary services in foreign countries (e.g. secretarial support, interpretation, guides, etc.) (60%)	Temporary office facilities (68%)	Assistance in dealing with national technical standards (65%)
	Assistance in dealing with national technical standards (65%)	Staff training (58%)	Staff training (64%)	Assistance in dealing with Intellectual Property Rights (IPR) (62%)
	Auxiliary services in foreign countries (e.g. secretarial support, interpretation, guides, etc.) (64%)	Assistance in dealing with Intellectual Property Rights (IPR) (57%)	Assistance in dealing with national technical standards (64%)	Staff training (62%)
	Staff training (63%)	Assistance in dealing with national technical standards (56%)	Business or professional advice (e.g. from lawyers, accountants, fiscal experts) (64%)	Auxiliary services in foreign countries (e.g. secretarial support, interpretation, guides, etc.) (58%)

Source: Q19, Survey among SMEs using national support instruments for internationalisation in various EU Member States (August-December 2010), EIM & EU (EU=27, N=512).

Finally, and most remarkably, many services SMEs did not appear to make use of available staff training opportunities. Although this result may be surprising at first, given that human capital is important for services, it may reflect that the generic training programmes that are typically offered may not be sufficiently tailored to the needs of SMEs exporting services, and that more specialized training may be required in order to respond to the internationalisation strategies of services providers and the challenges they confront in foreign markets.

Other measures that internationalised services SMEs have made use of emerge from the open-ended questions allowing respondents to enter specific support measures that have supported their international operations. For SMEs exporting business services, the types of programmes cited are aimed at helping firms gain exposure and establish the first contact with a client abroad: "making contact with the [foreign] client community," "handshakes with potential customers and with the government," "customer acquisition," "connecting with potential clients," "networking in general," "start cooperation bonds with other countries, "marketing," "brand awareness abroad," "visibility," "international fairs," "exploring markets." In construction services, surveyed SMEs point to support measures that have facilitated the acquisition of engineering services, certification procedures, durability studies, as well as assistance with environmental issues. For distribution, SMEs have benefitted from support with logistical services, information on foreign distribution systems, and assistance with foreign legislation.

Use of financial instruments

One of the striking elements is the relatively infrequent use of financial support measures on the part of services SMEs. Table 19 displays the percentage of services SMEs reporting that specific financial instruments were "not at all" used or "very much" used. To take the example of business services, over 80% of SMEs in the sector indicated that credit guarantee schemes (insurance), equity, loans, and tax incentives are "not at all" used for ongoing international business abroad or for preparing to start businesses abroad. This may in part reflect shortages in the supply side, since not all of the agencies provided such support. It may also be explained by the relatively lower capital accumulation required for some services operations, including business services, which do not entail huge amounts of financial resources to start or maintain export operations. Finally, a lower use of financial instruments may be due to the fact that small services suppliers find it harder to demonstrate their credit worthiness due to lack of hard assets for collaterals.

By contrast, the single financial support measure that is more widely used pertains to subsidies and grants for international activity, which half of the SMEs exporting business services used , and one in every five internationalised SMEs used "very much." This is consistent with some of the qualitative answers, which highlight the use of support programmes contributing to travel and hotel costs to visit potential clients. Since many business services are delivered on-site via the temporary movement of the supplier to the foreign market, having the cash flow to meet these travel expenses is critical to the internationalisation of their services. This tends to be consistent with the needs identified in interviews to French services SMEs (Box 2), where SMEs highlighted the importance of grants and consumer loans that can cover travel to visit foreign clients.

Table 19. Use of financial instruments by services SMEs

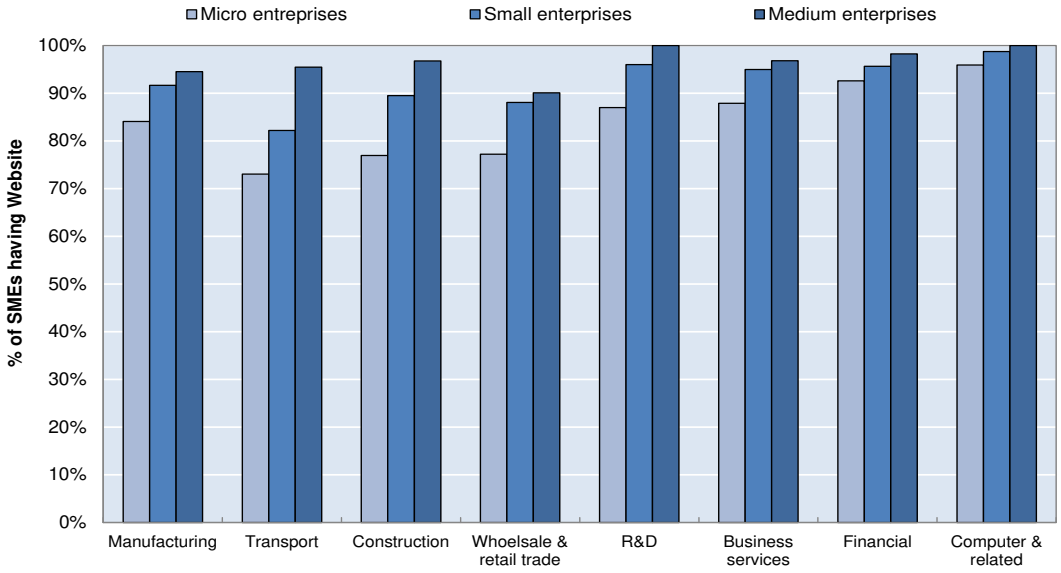
Financial instrument	Response	Business	Distribution	Transport	Construction
Credit guarantee (insurance) schemes for international activity	Not at all	84%	61%	68%	65%
	Very much	0%	16%	4%	4%
Tax incentives for international activity	Not at all	80%	73%	64%	65%
	Very much	1%	0%	0%	0%
Subsidies and grants for international activity	Not at all	51%	47%	40%	23%
	Very much	21%	10%	8%	4%
Loans for international activity	Not at all	83%	71%	60%	69%
	Very much	1%	0%	0%	4%
Equity for international activity, e.g. venture capital	Not at all	85%	71%	60%	73%
	Very much	2%	3%	0%	4%

Source: Q20, Survey among SMEs using national support instruments for internationalisation in various EU Member States (August-December, 2010), EIM & EU (EU=27, N=512).

Use of e-trade instruments by services SMEs

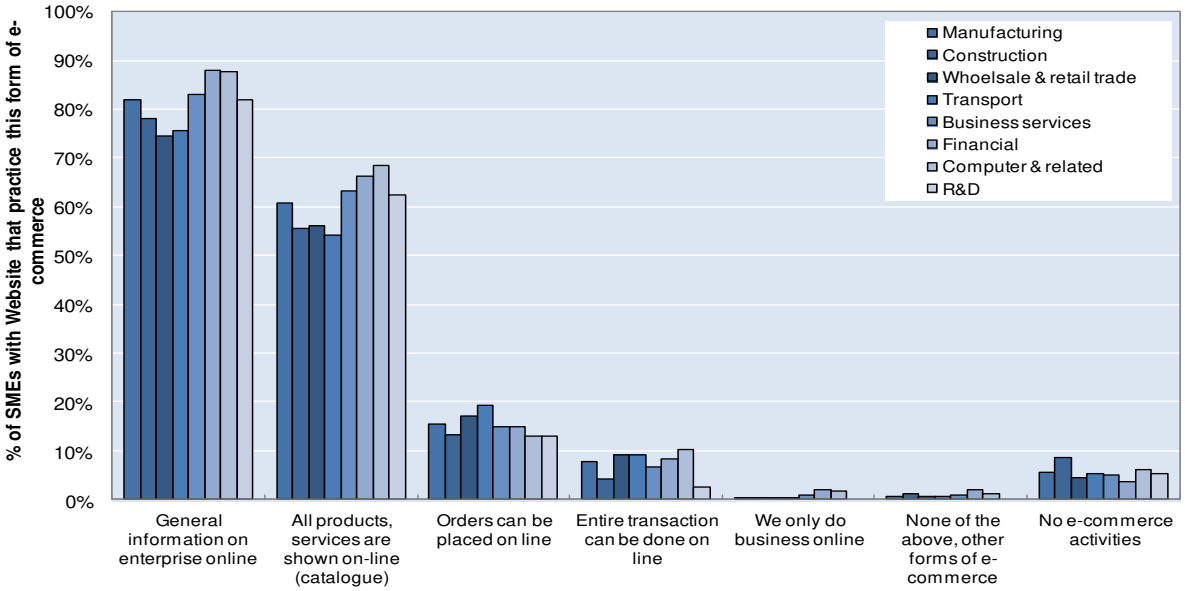
Another instrument that can greatly facilitate the internationalisation of services SMEs is the use of internet and web-based technologies. Hence, it is useful to consider the role that e-trade can play as a key mode of cross-border delivery. Services delivery over the internet eliminates many barriers related to distance, and allows face-to-face contact with foreign clients in those services where close interaction with the customer is required.

Figure 9. Percentage of SMEs having a website



Source: Q15, Survey 2009-2010, Opportunities for the Internationalisation of SMEs, EIM & EU (EU27, N=6649).

Figure 10. Use of e-commerce by services SMEs



Source: Q16, Survey 2009-2010, Opportunities for the Internationalisation of SMEs, EIM & EU (EU27, N=6649).

The results of the EU large scale random survey among internationalised SMEs reveal that most services SMEs have a website for their economic operations: over 70% of micro-enterprises, 80% of small-size, and 90% of medium-sized enterprises report having developed a website for their business. The adoption of websites is higher among SMEs in computer, research and development, financial services, and business services. Among these knowledge-intensive services, the adoption of websites is more widespread than among SMEs in manufacturing. On the other hand, SMEs in construction, transport and distribution services have a relatively lower use of business websites. In any case, the high rates overall suggest that website development is not a binding constraint.

Notwithstanding the fact that most services SMEs have developed business websites, when asked about the specific use they make of such website, it appears that the adoption of e-commerce practices has is relatively limited among surveyed SMEs. As Figure 9 shows, the vast majority of services SMEs use their website solely for marketing purposes: that is, to provide information about their enterprise (over 70%), or at most, about the services offered by the enterprise (over 50%). Less than 20% of services SMEs indicate that orders can be made on-line though the website, and less than 10% that the whole transaction can be done on-line. Hence, the results suggest that the adoption of e-business practices is still a relatively unexploited territory among small services suppliers.

Policy discussions regarding e-trade and e-commerce are of critical relevance to small services exporters. The survey results highlight that e-commerce could be more fully exploited by services providers, and government programmes for SMEs could usefully stimulate the adoption of web-based technologies and digital transactions to help small services providers conduct their businesses.

D. Capturing modal and market choices of services SMEs

Data on services SMEs is notoriously scarce. One of the most valuable initiatives that countries can undertake to nurture the design of policies for small services providers is to generate information on services trade by company size. While there have been many new sources of micro-level data on services trade generated over the last years, many have excluded very small firms from their surveys or not registered information on firm size. As a result, the international activities of very small services providers have gone unrecorded in available statistics. Although there has traditionally been a presumption that small-sized services firms did not participate in trade, recent studies are showing that their foreign-based turn-over is higher than previously thought. In some sectors, even one and two-person firms seem to be able to generate substantial foreign exchange earnings. Hence, it is useful to bring the international operations of services SMEs under the radar of national statistics and policy discussions on trade.

Table 20 compiles information on some of the most progressive efforts that countries have undertaken to generate services trade data at the levels of the firm. Several good practices are worth noting:

- *Sub-sectoral differentiation:* Some countries (Australia, Holland, United Kingdom and Costa Rica) have applied differentiated questionnaires for different services activities, making the information collected more relevant to that sub-sector. Many other countries (e.g. New Zealand) include sector-specific questions for each type of service. This will provide a deeper understanding of how trade takes place in each sub-sector

Box 2. Services-oriented approaches: Evidence from survey of French SMEs

A deeper understanding of internationalisation strategies of SMEs can be gleaned from more detailed interviews to small services providers that represent successful export cases. The section below draws on semi-structured, detailed qualitative interviews conducted by *ESCP-Université Paris* 1 to French SMEs in 2011-2012. A total of 87 exporting SMEs were interviewed, 44 in services and 43 in manufacturing. All SMEs had considerable experience exporting to various foreign markets, and expressed interest in expanding operations to Latin American markets, such as Brazil and Mexico. All SMEs exported via cross-border channels, while about half of the firms had also established offices in foreign markets. Drawing on this survey data, the section below reports on the exporting trends and experiences of interviewed SMEs in knowledge-intensive sectors, namely business services, ICT, consulting and professional services. It should be noted that, given the specificities of this sample – that is, SMEs that are already successfully exporting to several markets, are concentrated in knowledge-intensive sectors, and are interested in expanding to Latin America markets—the results may not be representative of all internationalised French SMEs.

What were the motivations for internationalisation?

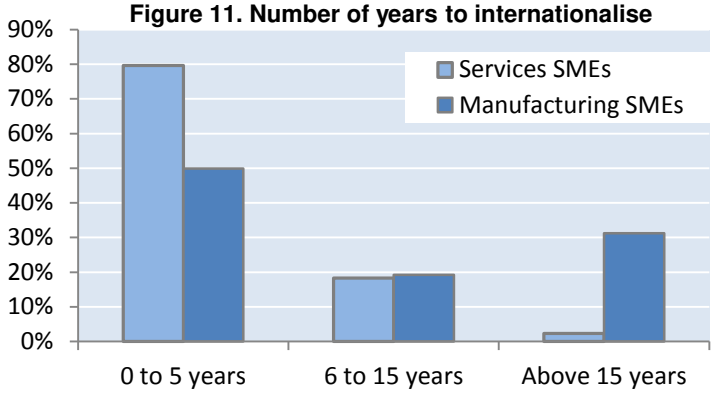
The main motivation for small services providers to explore new opportunities in foreign markets was reportedly that the French market was perceived to be saturated as there was too much competition from domestic providers. Hence, SMEs were looking to increase their sales through new niche markets and demand from overseas, particularly in booming emerging markets. Moreover, SMEs providing services to large enterprises internationalised their activities when large French corporations relocated their operations abroad: this prompted SMEs to follow them in order to continue supplying business services to large French multi-nationals established in the foreign market. In addition, some SMEs reported that establishing a subsidiary in an emerging market would significantly reduce operation costs.

In other cases, the decisions to export were less strategic, and were driven largely by personal contacts and circumstances. In the case of SMEs with CEOs that had a more international background, it was generally a personal contact or affiliation with a country or culture that prompted them to explore business opportunities abroad. Other SMEs reported that the internationalisation decision was a "stroke of good fortune," generally beginning through a foreign customer that referred other businesses in his home market to the services of the French SME and created new contracts with other clients in that market. Many SMEs acknowledged a large "word of mouth" factor, whereby one foreign client subsequently facilitated new business opportunities in that foreign market.

How long did it take to break into foreign markets?

One of the characteristics displayed by most of the services SMEs interviewed is that they embarked on international activities at a relatively earlier age. In particular, services-based SMEs interviewed on average started exporting on their third year, while manufacturing SMEs one average had their first export experience after 16 years. Overall, 80% of internationalised SMEs in the services sector started exporting within 5 years in operation, whereas only 50% of manufacturing SMEs established an export transaction within this period of time. In contrast, over 30% of SMEs in the manufacturing sector internationalised their activities after 15 years of experience in the domestic market, whereas only 2% of services SMEs had their "export take-off" after 15 years.

Figure 11. Number of years to internationalise

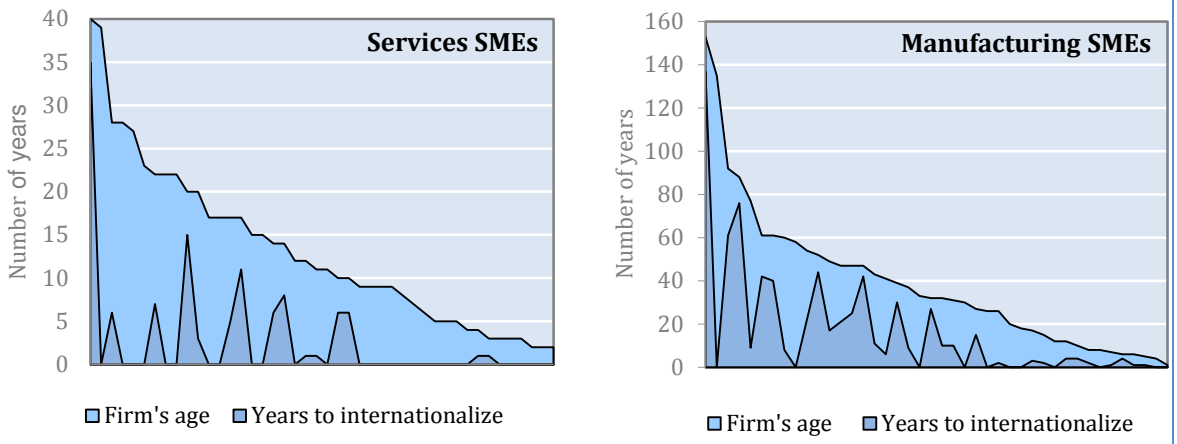


Hence, internationalisation of interviewed services SMEs occurred at a relatively early stage. In fact, more than two thirds of services SMEs (66%) interviewed were "born global," that is, they provided services to customers overseas since the inception of their operations. By contrast, only one in four SMEs in manufacturing (25%) were born as internationalised companies. The pattern suggests that services do not go through the incremental, "staged internationalisation" that manufacturing models posit. Whereas the SMEs interviewed generally produced for the domestic market for a period of time before they gradually internationalised, services SMEs often internationalised while they were relatively young and inexperienced in the domestic market.

continued

Box. 2 Services-oriented approaches: Evidence from survey of French SMEs (*cont.*)

Figure 12. Firm's age and year of Internationalisation, services and manufacturing SMEs



What are the key barriers faced by exporting SMEs?

Interviewed SMEs were asked to rate and comment on a set of barriers to internationalisation. The results for SMEs in services and manufacturing are displayed below, where a score of 1.0 denotes a "very low impact," on international operations, while 5.0 reflects a barrier that had an "extremely high impact" impact in increasing the costs or otherwise hindering their operations abroad.

For small services providers, the main hurdles that affect their international activities are the administrative barriers that they confront abroad, such as difficult paper-work and bureaucratic procedures. Again, since SMEs have a very low number of employees, they considered these procedures to be overly time-consuming and to generate a high opportunity cost on the tome of highly qualified staff. This emerges as being a more significant hurdle for SMEs in services than in manufacturing, arguably since the former need to deal with more behind-the-border administrative matters. Apart from inefficient administrative procedures, SMEs also complained about corruption, which taxes their activities in foreign markets.

The second set of impediments that emerged from the interviews related to the resources constraints of services SMEs due to the small number of employees. Hence, CEOs highlighted that they do not engage in export operations because of "lack of time," and "lack of qualified personnel" that they are able to identify abroad. Moreover, interviewed SMEs noted the lack of public support programmes available to them to support the development of their export strategies. Only one services SME reported having benefitted from international missions organised by a French public organisation (UBIFRANCE), which led to new market opportunities overseas. Other SMEs indicated that more programmes would be helpful to help them establish new contacts in foreign markets.

Lack of capital was also perceived as an important constraint, although this was more so for those SMEs that were pursuing a strategy of opening subsidiaries abroad. In effect, one of the revelations from the survey is that very small firms in services were pursuing market presence abroad (mode 3). For those SMEs trading primarily via mode 1 and 4, the financial constraints were different, as their needs related more to obtaining fast, short-term credits to meet operating costs (e.g. travel costs to visit a foreign customer), rather than long-term credits to finance physical capital assets.

Furthermore, cultural distance was considered to be a key factor in the export market choices. Many of the French SMEs interviewed reported that one of the reasons for internationalising in Latin America rather than in other emerging, fast-growth economies is that there is greater cultural affinity than with Asian countries. Interestingly, language barriers were not rated as key constraints: one of the reasons for this could be that most of the CEOs were highly qualified staff and spoke several languages fluently.

Finally, most SMEs did not consider geographical distance an impactful obstacle. Interviewed SMEs indicated that distance to overseas markets was largely palliated by the internet and new technologies, through which they maintained regular face-to-face contact with their foreign clients. The most important impediment in this regard related to the differences in time zone which made it more difficult to do business. As one CEO said, "the only issue with geographical distance is the time differences."

Continued

Box. 2 Services-oriented approaches: Evidence from survey of French SMEs (*cont.*)

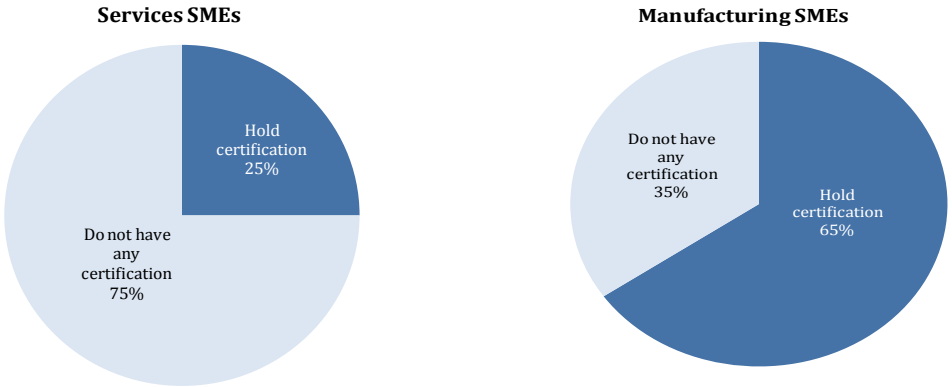
Figure 13. Barriers affecting SMEs international operations

How do services SMEs establish credibility abroad?

One of the problems that emerges from the survey is the difficulties of services SMEs to establish credentials. Most SMEs expressed the difficulties in developing reputation in a new market. While 65% of surveyed SMEs in manufacturing hold a certification (ISO-9000 or other international stands), only 1 in 4 services SMEs holds an ISO or other international standard. Most interviewed SMEs considered that ISO are not adapted to small services suppliers.

In the absence of certification, SMEs report that hiring highly qualified staff (i.e. CEOs from top business schools) has been the best means to provide a signalling device and establish credibility abroad. Another way in which small services suppliers circumvented this problem is working with local partners who have an established reputation or subcontracting a company that already enjoys credibility in the foreign market.

Figure 14. Percentage of SMEs holding certification



Source: All figures are compiled from the survey data of ESCP- Université Paris 1. Qualitative information was extracted from the recording of the interviews undertaken by ESCP- CERALE and the Chaire des Amériques in Université Paris 1.

- *Modes of supply:* A few recent surveys (New Zealand, Colombia) have started to collect information on the modes of international delivery. Within each modes of supply, they also survey different modalities to get a better picture of how trade takes place (i.e. mode 1 via mail, e-mail, internet, phone, TV, etc.). This generates valuable information on trade via mode 2 and 4, which are not reflected in services and investment data. It also captures "invisible trade' that takes place via e-commerce (EU SMEs survey).
- *Firm size without cut-off:* A few surveys were found that collected information by firm size, and did not exclude firms below a minimum size threshold in terms of number of employees. This is notably the case of Brazil, which applies a full survey to micro and small services firms. In the case of Holland, exhaustive information is collected on large firms, and a less comprehensive questionnaire is applied to SMEs. As noted above, this is an important development for SMEs policy, given that other available surveys on international services trade only collect information from the largest firms.
- *Internationalisation channel:* The most comprehensive surveys do not only collect information on export, but also imports and foreign direct investment. Moreover, some surveys collect information on other forms of internationalisation, including whether the firm is involved in technological cooperation with a foreign enterprise, whether it is a sub-contractor to a foreign partner, and whether it has foreign sub-contractors. As noted earlier, small services firms deploy many indirect channels for internationalisation, so gathering information on "non-traditional" forms of integration is relevant for SMEs.
- *Market destination*: Some surveys provide the level of exports to each foreign market destination, as well as the country source of the imports. Furthermore, some surveys provide regional disaggregation of the location of the firm, so that it is possible to see the effects of geographical proximity and conglomeration (France).

A number of other efforts are making important strides in compiling information by sector and mode of supply. For instance, Australia (Australian International Legal Services Advisory Council) has developed a survey on the international supply of legal services, by the four modes of supply. In a similar vein, India (Reserve Bank of India) conducts a survey on trade in computer and information services, with questions covering mode 1, 2 and 4, as well as services delivered by affiliates. Another valuable effort is being undertaken by Hong-Kong, China which is developing an annual survey that contains questions on the share of mode 4 for a broad range of services, inter alia capturing the value of receipts that are charged for sending national services providers to foreign markets. Finally, Malaysia (Department of Statistics of Malaysia) has incorporated detailed questions on mode 4 in its trade in services survey.

Table 20. National firm-level surveys on international trade in services

Survey name and characteristics				Type of Information collected			
Country/ Region (year)	**Name of survey (Institution)**	**Collection frequency (first year)**	**Coverage**	**By type of trade flow**	**By mode of supply**	**By destination markets**	**By Size of firm**
Australia	Survey of International Trade in Services (Australian Bureau of Statistics)	Quarterly (1998)	All services under EBOPs	Exports imports	No distinction by mode	By foreign country	Not available by firm size
Brazil	Central Bank and National Statistics Office	(2001)	All services	Exports	No distinction by mode	By foreign country	Yes, including SMEs
Canada	Survey of International Trade in Commercial Services (StatCan)	Trimestral (1990)	32 categories of services		No distinction by mode	By foreign country	Yes, including SMEs
Colombia	Trimestral Survey of International Trade in Services (National Statistics Office –DANE)	Trimestral (expected 2013)	6 categories of services	Exports Imports	Mode 1 Mode 2 Mode 3 Mode 4	By foreign country	Not available by firm size
EU	Internationalisation of European SMEs	9480 firms (One-time)	Goods & services	Export Import FDI Other	Mode 1 Mode 3	Intra EU27 Extra-EU27 Selected countries	Yes, including SMEs
France	Complementary Survey on International Trade in Services (Central Bank)	Monthly Annual (2009)	44 categories of services	Export Imports Intra-industry	No distinction by mode	By foreign country	Not available by firm size
Holland	Survey of International Trade in Services (CBS)	Trimestral (2003)	All services except tourism, finance, insurance, govtm. and merchanting	Exports Imports	No distinction by mode	By foreign country	Yes, including SMEs
New Zealand	Census of international Trade in Services and Royalties (Statistics New Zealand)	Annual (2011)	All services (BoP); excludes tourism	Exports Imports	Mode 1 Mode 2 Mode 4	By foreign countries	Not available by firm size
Spain	Survey on International Trade in Services (National Statistics Institute)	Trimestral (2005)	All services under the rubric other services in BOP; excludes tourism	Exports Imports	No distinction by mode	By foreign country	Not available by firm size
United Kingdom	International Trade in Services Survey (Office for National Statistics)	Trimestral Annual (1996)	All services except financial, transport, tourism, legal, education (tertiary), and governmental.	Exports Imports	No distinction by mode	By foreign country	Not available by firm size

VII. Conclusions: Evidence from firm-level data and policy relevance

The last decades are dominated by two economic developments, namely the growing economic importance of services and the ongoing fragmentation of production processes. The growing structural shift towards services-based economies suggests that countries' entrepreneurial and export base has moved towards an even smaller profile of firm size. Indeed, SMEs in services tend to be smaller than in manufacturing. The second phenomenon of world-wide specialisation has changed how economic activities are organised and integrated on a world scale. Arguably, the rise of global value chains heralds fresh opportunities for SMEs to participate in international trade, as smaller and more flexible firms may be more readily able to supply one or more "tasks" of global value chains, rather than the final product of a good or service. In this context, understanding how SMEs can integrate into this new global market place is of concern to policy-makers seeking to promote the competitiveness of small firms.

This analysis has examined the behaviour of SMEs in trade, focusing on the underexplored case of services. It has drawn on two micro-level data sources, the World Bank's Enterprise Surveys and Amadeus, to provide some early evidence of the determinants of SMEs trade performance. The first analysis compared SMEs trade behaviour in manufacturing and services through a large cross-section of (mainly) developing countries. The latter attempted a closer inspection at SMEs in services at a more disaggregated level, namely by looking at one OECD country for which there is good data availability – France – over a period of ten years. Both data sources are complementary, allowing a broad coverage of countries and sectors, as well as firm-, industry- and business environment barriers that can influence SMEs trade performance. Given the differences in the coverage of sectors, countries, and variables in each dataset, the comparability of results is limited. Nevertheless, the available results from each analysis provide a number of considerations for policy-making.

Evidence from developing countries: profile of SMEs in manufacturing and services

Cross-country evidence from over one hundred developing economies reveals that SMEs are less active in overseas markets. The share of micro and small firms that export in manufacturing is twice as high as that of services, while for medium-sized firms exports of manufacturing are four times higher than for services. In addition, SMEs in services appear to be relatively more reliant on indirect channels for exporting. This may partly reflect that SMEs in services have different forms of integration than through traditional export channels.

The results from firm- and industry-level determinants provide some points of contrast between SMEs in manufacturing and services. Firm size is clearly associated with higher shares of exports in manufacturing, whereas the effects of firm size remain ambiguous for services. Foreign ownership is particularly influential on the propensity to export for small firms in manufacturing, whereas this effect is uniform across firm size in services. Similarly, the effects of having ISO-9000 certification are larger and more significant in manufacturing SMEs than for services, suggesting possible differences in the manner in which buyers judge quality in services.

Do SMEs in manufacturing and services have different binding constraints? Access to finance looms as the largest and most significant constraint for firms' capacity to export in manufacturing, and its effects are particularly prominent for the operations of small firms. By contrast, access to finance does not appears to explain SMEs export performance in services, where they do not need to finance physical investments (e.g. machinery) may be comparatively lower than in manufacturing. Similarly, electricity is a key constraint for manufacturing SMEs, but not for services. This suggests that services SMEs may rely more intensely on other types of infrastructural inputs (e.g. electronic and digital). In light of these differences, further work may the types of constraints that are more specific to SMEs in services.

Evidence from France: profile of SMEs exporters of services

Results from France also confirm the view that small services firms are less likely to engage in export activities. Conditional on exporting, however, smaller services firms tend to export larger shares of the overall services. Consequently, size exerts a positive influence in determining the extensive margin of trade (how many firms trade), but display the inverse relationship with respect to the intensive margin (how much they trade). Put differently, among the firms that trade services, SMEs rely more on foreign markets than larger firms. This implies that trade restrictions affects more disproportionately services SMEs than large MNEs, who have a higher share of their total sales destined to domestic markets.

The results suggest that SMEs in services have exporting survival rates. Indeed, export decisions in services are estimated to be extremely persistent over ten years. That is to say, once a services firm enters an export market, it continues to export to that market across time. From a policy point of view, this suggests that export promotion policies, where appropriate, should be directed towards small firms which face difficulties in establishing the first export operation. This stands in contrast to some programmes which focus on SMEs that require a previous exporting experience as an eligibility criteria.

Does the geographical location of the SME influence its likelihood to trade? We find that geographical proximity to a foreign market positively affects the SMEs export rates, although there are differences in intensive and extensive margin effects. The results show that firms located in Paris have a higher probability of exporting to foreign markets. This suggests that agglomeration economies may play a more important role than physical distance. For SMEs in particular, the importance of clustering and networking with large firms may be an important determinant in helping them become isolation. Moreover, integration large global services enterprises may facilitate avenues for internationalisation.

Finally, the results point to a strong degree of firm-level heterogeneity across services activities. Overall, there is remarkable variation in the export shares of SMEs across different sub-sectors. Similarly, the impact of firm size varies across sectors, being very important for financial services, but not significant for the share of SMEs in travel. Finally, productivity is important for some industries – namely for ICT and professional services – but does not explain differences in export performance across other services activities. It would seem that incorporating sectoral heterogeneity into existing policies might be desirable to address key constraints for services SMEs

What kind of policies can address constraints for export-oriented services SMEs?

Pro-active policies to support internationalisation are costly, and countries instituting support measures should target them carefully. The resource constraints of small-sized firms may prevent them from exporting profitably. This, coupled with their low participation in foreign markets, does raise the question of whether there are potential unexploited opportunities for trade expansion. For services SMEs, where these two observations are more pronounced (i.e. smaller size profile and lower trade participation *vis-à-vis* manufacturing SMEs), but where there appears to be persistence with exports occurring, that question has, if anything, more pertinence. According to our results, where these instruments are appropriate they should notably address constraints in establishing the first export relationship.

Some countries have adjusted the standard definition of SMEs to account for differences in the size profile and other characteristics of services firms. The smaller average age of services SMEs, and the prevalence of 'born global' phenomena in some services, has also required agencies to relax requirements on maturity of experience in domestic and foreign markets. In terms of specific instruments, evidence from an EU survey suggests that the most useful forms of support for SMEs across all services sectors relate to business co-operation and networking

programmes aimed at helping SMEs identify foreign customers and business partners. The low use of internet channels for e-commerce on the part of services SMEs, as well as the difficulty in obtaining certification credentials, may also point to potential areas of cooperation.

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ANNEX A.

ANALYSIS FROM WORLD BANK'S ENTERPRISE SURVEYS

A. Data and descriptive statistics

The World Bank's *Enterprise Surveys* dataset includes survey information as recent as 2010. This dataset currently has information on over 100 000 firms from 115 mostly developing and transition economies, including all five Key Partner countries. The Enterprise Surveys sample firms from official government statistics offices, tax authorities or licensing authorities in each country. In some cases, lists are obtained from Chamber of Commerce and business associations or other non-governmental sources.

The sample is obtained using stratified random sampling with replacement to generate a sample representative of the whole non-agriculture, non-governmental, economy. The surveys are stratified according to three criteria.

1. *Sector of activity* from a population of industries including manufacturing sector, construction, services, transport storage, communications and computer and related activities.

2. *Firm size* from a population including small firms (5-19 employees), medium firms (20-99 employees) and large firms (over 100 employees).[1]

3. *Geographic location* selected based on centres of economic activity within each country.

The surveys cover both manufacturing and service sectors (Annex Table A2). However, the majority of firms covered, over 57%, are in manufacturing. The largest single sector is wholesale and retail trade, which accounts for over 23% of the firms in the sample

Annex Table A3 provides summary statistics for our sample of firms. More than 90% of the sample is made up of firms with fewer than 250 employees, and almost 70% of the sample have 50 or less employees. The average age is 40 years with over 75% being in businesses are over 10 years old. The majority (more than 70%) of senior managers have more than ten years experience in their current sector. Fewer than 10% report some level of foreign ownership and only 20% are ISO 9000 certified.

1. The choice of a minimum of 5 employees was to limit the survey to the formal sector. However, often firms shrink over the survey period and thus 1.8% of our sample report less than 5 employees.

Table A1. Country coverage in the 2006-2010 Enterprise Surveys sample (bold = OECD member or key partner country).

Afghanistan 2008	Chile 2006	Guinea 2006	Micronesia 2009	Slovak Republic 2009
Albania 2007	Chile 2010	Guinea Bissau 2006	Moldova 2009	Slovenia 2009
Angola 2006	Colombia 2006	Guyana 2010	Mongolia 2009	South Africa 2007
Angola 2010	Colombia 2010	Honduras 2006	Montenegro 2009	St Kitts and Nevis 2010
Argentina 2006	Congo 2009	Honduras 2010	Mozambique 2007	St Vincent and Grenadines 2010
Argentina 2010	Costa Rica 2010	Hungary 2009	Namibia 2006	Swaziland 2006
Armenia 2009	Croatia 2007	Indonesia 2009	Nepal 2009	Tajikistan 2008
Azerbaijan 2009	Czech Republic 2009	Ivory Coast 2009	Nicaragua 2006	Tanzania 2006
Bahamas 2010	DRC 2006	Jamaica 2010	Nicaragua 2010	Timor Leste 2009
Bangladesh 2007	DRC 2010	Kazakhstan 2009	Niger 2009	Togo 2009
Belarus 2008	Dominican Republic 2010	Kenya 2007	Nigeria 2007	Tonga 2009
Benin 2009	Ecuador 2006	Kosovo 2009	Panama 2006	Trinidad and Tobago 2010
Bhutan 2009	Ecuador 2010	Kyrgyz Republic 2009	Panama 2010	Turkey 2008
Bolivia 2006	El Salvador 2006	Lao PDR 2009	Paraguay 2006	Uganda 2006
Bolivia 2010	El Salvador 2010	Latvia 2009	Paraguay 2010	Ukraine 2008
Bosnia and Herzegovina 2009	Eritrea 2009	Lesotho 2009	Peru 2006	Uruguay 2006
Botswana 2006	Estonia 2009	Liberia 2009	Peru 2010	Uruguay 2010
Botswana 2010	Fiji 2009	Lithuania 2009	Philippines 2009	Uzbekistan 2008
Brazil 2009	FYR Macedonia 2009	Madagascar 2009	Poland 2009	Vanuatu 2009
Bulgaria 2007	Gabon 2009	Malawi 2009	Romania 2009	Venezuela 2006
Bulgaria 2009	Gambia 2006	Mali 2007	Russia 2009	Venezuela 2010
Burkina Faso 2009	Georgia 2008	Mali 2010	Rwanda 2006	Vietnam 2009
Burundi 2006	Ghana 2007	Mauritania 2006	Samoa 2009	Yemen 2010
Cameroon 2009	Grenada 2010	Mauritius 2009	Senegal 2007	Zambia 2007
Cape Verde 2009	Guatemala 2006	Mexico 2006	Serbia 2009	
Chad 2009	Guatemala 2010	Mexico 2010	Sierra Leone 2009	

Table A2. Sector Coverage

	Number of Firms	Percent of Total
Textiles	2 852	4.65
Leather	266	0.43
Garments	4 979	8.12
Food	7 498	12.23
Metals and machinery	4 246	6.93
Electronics	674	1.10
Chemicals and pharmaceuticals	3 202	5.22
Wood and furniture	799	1.30
on-metallic and plastic materials	2 920	4.76
Auto and auto components	175	0.29
Other manufacturing	7 512	12.25
Retail and wholesale trade	14 428	23.53
Hotels and restaurants	2 223	3.63
Other services	6 051	9.87
Construction, transportation, etc.	3 480	5.68

Table A3. Summary statistics of sample firms

	Observations	Mean	Std. Dev
Employees	56 433	119.92	722.18
Labour Productivity	55 039	1.33E+08	1.01E+10
Imports Parts and Components	29 986	33.25	36.70
Micro firms (% total)	56 530	25.95	43.84
Small firms (% total)	56 530	42.22	49.39
Medium (% total)	56 530	22.89	42.01
Firm age	56 513	39.90	198.20
Years of Experience (Senior Manager)	56 054	17.30	11.80
Share of Firms with Foreign Ownership	56 046	9.35	29.12
Share of Firms Iso 9000 Certification	56 512	20.10	40.00

We are able to directly assess the share of a firm's direct and indirect exports. The Enterprise surveys include a question asking the percentage of sales that are (1) domestic, (2) export or (3) indirect exports (selling domestically to a third party that exports the product). Those firms indicating that the majority of sales are for 'exports' are characterised as exporters in our sample while those indicating the majority of sales going to third party exporters are classified as 'indirect exporters'. Just over 18% of firms identified themselves as direct exporters.

Table A4. Most serious business obstacles by size in manufacturing

Firm Type	Obstacle by Rank	Percentage of Firms
Micro	1. Electricity	20.37%
	2. Access to finance	19.59%
	3. Practices of competitors in the informal sector	14.08%
	4. Tax rates	8.89%
	5. Inadequately educated workforce	5.75%
Small	1. Access to finance	16.96%
	2. Electricity	16.49%
	3. Practices of competitors in the informal sector	15.34%
	4. Tax rates	10.13%
	5. Inadequately educated workforce	7.11%
Medium	1. Access to finance	14.05%
	2. Practices of competitors in the informal sector	13.40%
	3. Electricity	12.35%
	4. Tax rates	11.50%
	5. Inadequately educated workforce	9.97%
Large	1. Electricity	15.03%
	2. Access to finance	12.34%
	3. Practices of competitors in the informal sector	11.34%
	4. Tax rates	10.34%
	5. Inadequately educated workforce	9.58%

Table A5. Most serious business obstacles by size in services

Firm Type	Obstacle by Rank	Percentage of Firms
Micro	1. Access to finance	17.37%
	2. Electricity	16.30%
	3. Practices of competitors in the informal sector	11.93%
	4. Tax rates	11.26%
	5. Political instability	8.42%
Small	1. Access to finance	13.44%
	2. Practices of competitors in the informal sector	12.60%
	3. Electricity	11.74%
	4. Tax rates	11.17%
	5. Political instability	9.15%
Medium	1. Practices of competitors in the informal sector	13.34%
	2. Tax rates	11.22%
	3. Access to finance	11.06%
	4. Political instability	10.99%
	5. Inadequately educated workforce	10.31%
Large	1. Political instability	12.87%
	2. Practices of competitors in the informal sector	12.09%
	3. Access to finance	11.03%
	4. Inadequately educated workforce	10.82%
	5. Crime, theft, and disorder	8.98%

B. Econometric methodology

Our model takes the following general form, where *f* indexes firms, *c* indexes countries, *s* indexes sectors, and *t* indexes time:

$$\frac{Exports_{fsct}}{Sales_{fsct}} = b_0 + b_1 \log Employees_{fsct} + b_2 \log \frac{Sales_{fsct}}{Employees_{fsct}} + b_3 \frac{Imports_{fcst}}{Intermediates_{fcst}} + b_4 \frac{Imports_{fcst}}{Intermediates_{fcst}} * Employees_{fsct} + b_5 Foreign_{fcst} + b_6 Foreign_{fcst} * Employees_{fsct} + b_7 ISO_{fcst} + b_8 ISO_{fcst} * Employees_{fsct} + b_9 Micro_{fcst} + b_{10} Small_{fcst} + b_{11} Medium_{fcst} + b_{12} Public_{fcst} + b_{13} LLC_{fcst} + b_{14} Sole_{fcst} + b_{15} Partnership_{fcst} + b_{16} LLP_{fcst} + b_{17} Other_{fcst} + \sum_c \sum_s \sum_t d_{cst} + e_{fcst}$$

As explained in the text, in line with the literature, we expect that larger, more productive firms would have more exports. We proxy size of the firm using number of employees and measure productivity using labour productivity (sales per worker). To capture the degree of international linkages, we include a variable measuring the percentage of intermediate inputs that are imported, along with a dummy variable for those firms which are majority foreign owned. To see whether international linkages have a differential impact according to firm size—we expect that they might matter more for SMEs than for other firms—we interact both variables with measures of firm size. Finally, we also include a dummy variable identifying those firms with ISO-9000 certification, and we interact it for the same reason with a measure

of firm size. This equation is estimated with a fractional logit model (Papke and Wooldridge, 1997).

In addition to the above variables, we include a number of dummy variables to capture other factors, including unobservable ones, that might impact firm export participation. First, we include size dummies for micro, small, and medium enterprises (large enterprises being the excluded category). Second, we include dummy variables for the legal structure of the firm. We also know from the literature that the age and managerial experience can have significance impact on firms performance (Hatliwanger et al., 2010; Bloodgood, Sapienza and Almeida, 1996; and Ruigrok and Wagner, 2010) and test the robustness. In addition, we include a full set of country-sector-year fixed effects to account for other factors that are not unique to individual firms but which are common to firms within a country-sector-year, such as macroeconomic shocks or regulatory measures.

The set of independent variables is the same as in the previous equation, so the model takes the following form:

$$
\begin{aligned}
Pr(Firm\,Type = 1,2,3) \\
&= b_0 + b_1 \log Employees_{fsct} + b_2 \log \frac{Sales_{fsct}}{Employees_{fsct}} \\
&+ b_3 \frac{Imports_{fcst}}{Intermediates_{fcst}} + b_4 \frac{Imports_{fcst}}{Intermediates_{fcst}} * Employees_{fsct} \\
&+ b_5 Foreign_{fcst} + b_6 Foreign_{fcst} * Employees_{fsct} + b_7 ISO_{fcst} \\
&+ b_8 ISO_{fcst} * Employees_{fsct} + b_9 Micro_{fcst} + b_{10} Small_{fcst} \\
&+ b_{11} Medium_{fcst} + b_{12} Public_{fcst} + b_{13} LLC_{fcst} + b_{14} Sole_{fcst} \\
&+ b_{15} Partnership_{fcst} + b_{16} LLP_{fcst} + b_{17} Other_{fcst} + \sum_c \sum_s \sum_t d_{cst} \\
&+ e_{fcst}
\end{aligned}
$$

Again, we exclude the imported intermediates variable for services firms, as those data generally are not recorded. An additional caveat is necessary in the case of services firms, namely that the concept of indirect exporting is less well-defined than it is for manufacturers. Results for services should therefore be interpreted with caution.

Finally, we investigate if our results are affected by business constraints. We interact those obstacles noted in the survey as being a major constraint for doing business (noted in Annex Tables A4 and A5) with firm size in an effort to gauge whether business constraints affect SMEs' trade performance differently from larger firms. Our model takes the following general form, where *f* indexes firms, *c* indexes countries, *s* indexes sectors, and *t* indexes time:

$$
\begin{aligned}
\frac{Exports_{fsct}}{Sales_{fsct}} \\
&= b_0 + b_1 \log Employees_{fsct} + b_2 \log \frac{Sales_{fsct}}{Employees_{fsct}} \\
&+ b_3 \frac{Imports_{fcst}}{Intermediates_{fcst}} + b_4 Foreign_{fcst} + b_5 ISO_{fcst} + b_6 Micro_{fcst} \\
&+ b_7 Small_{fcst} + b_8 Medium_{fcst} + b_9 Obstacle_{fcst} + b_{10} Obstacle_{fcst} \\
&* \log Employees_{fcst} + b_{11} Public_{fcst} + b_{12} LLC_{fcst} + b_{13} Sole_{fcst} \\
&+ b_{14} Paternship_{fcst} + b_{15} LLP_{fcst} + b_{16} Other_{fcst} + \sum_c \sum_s \sum_t d_{cst} \\
&+ e_{fcst}
\end{aligned}
$$

ANNEX B.
ANALYSIS FROM AMADEUS SURVEY

A. Data and descriptive statistics

Table B1. Share of exporting firms by industries

	Year									
Industry	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Manufacturing										
Manufacture of food products	18.24	15.59	15.14	14.82	14.07	14.11	13.40	12.81	12.38	11.92
Manufacture of beverages	56.23	46.39	45.34	44.92	39.92	38.66	38.46	36.27	37.15	37.91
Manufacture of tobacco products	100.00	75.00	66.67	40.00	40.00	40.00	40.00	20.00	16.67	20.00
Manufacture of textiles	58.04	57.01	57.77	56.40	55.67	54.82	54.40	53.33	52.49	51.42
Manufacture of wearing apparel	60.68	57.58	57.67	57.01	56.67	55.04	53.75	51.87	51.72	51.75
Manufacture of leather and related products	51.87	52.78	52.43	52.76	53.56	51.57	49.50	50.33	50.40	51.19
Manufacture of wood	41.01	38.88	38.04	36.23	34.83	34.03	33.78	32.56	31.94	32.35
Manufacture of paper and paper products	54.55	58.57	57.41	56.89	56.32	56.74	59.59	58.65	56.62	59.45
Printing and reproduction of recorded media	26.35	25.15	24.78	24.98	24.65	24.72	24.37	23.83	23.25	23.97
Manufacture of coke and refined petroleum products	33.33	35.59	32.81	30.16	35.94	32.81	35.82	37.88	36.76	32.26
Manufacture of chemicals and chemical products	64.36	63.24	61.85	60.66	60.99	61.47	61.93	60.72	59.74	60.56
Manufacture of basic pharmaceutical products and pharmaceutical preparations	67.77	70.85	70.44	71.09	69.84	72.17	69.71	67.66	67.21	69.04
Manufacture of rubber and plastic products	56.81	55.36	55.86	55.11	55.85	55.43	56.06	56.65	55.51	56.07
Manufacture of other non-metallic mineral products	28.18	27.71	26.19	26.38	26.35	25.56	24.78	24.00	23.62	22.26
Manufacture of basic metals	61.84	62.36	63.30	61.76	59.90	58.15	61.88	60.52	60.51	60.25
Manufacture of fabricated metal products, except machinery and equipment	40.56	39.27	39.19	39.42	38.69	39.16	39.14	38.42	38.09	37.96
Manufacture of computer, electronic and optical products	50.08	49.03	49.63	49.27	48.69	48.67	48.40	48.93	49.38	51.29
Manufacture of electrical equipment	52.39	50.96	50.28	49.58	48.21	47.73	47.67	47.23	48.18	49.56
Manufacture of machinery and equipment n.e.c.	52.41	50.66	50.23	49.49	48.46	47.83	47.23	46.98	46.90	47.31
Manufacture of motor vehicles, trailers and semi-trailers	42.34	42.08	42.57	43.26	42.86	43.15	43.72	43.67	43.44	42.99
Manufacture of other transport equipment	65.44	66.88	61.99	58.84	52.29	53.52	53.46	53.52	54.87	52.66
Manufacture of furniture	27.40	25.83	25.87	24.59	22.98	22.77	22.14	21.97	21.58	21.61
Other manufacturing	33.93	31.05	30.26	29.28	29.19	27.94	26.67	26.18	25.33	24.78
Repair and installation of machinery and equipment	27.26	26.02	25.45	25.18	24.51	24.58	24.76	24.52	24.31	24.71
Manufacturing industries: Weighted average	**38.39**	**35.84**	**35.31**	**34.79**	**33.96**	**33.59**	**33.12**	**32.38**	**31.85**	**31.83**
Construction										
Construction of buildings	3.36	3.31	3.57	2.96	3.23	2.84	2.58	2.35	2.42	2.32
Specialised construction activities	4.42	4.45	4.64	4.25	3.87	3.52	3.32	3.16	3.06	2.98
Construction: Weighted average	**4.28**	**4.32**	**4.52**	**4.10**	**3.79**	**3.44**	**3.23**	**3.07**	**2.98**	**2.91**
Transportation and storage										
Land transport and transport via pipelines	27.39	26.97	25.79	24.94	23.80	23.27	22.45	21.61	20.99	20.55
Water transport	14.53	16.14	15.70	14.84	16.19	16.16	17.66	18.32	18.07	16.03

	Year									
Industry	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Air transport	42.65	40.70	37.50	29.41	32.17	30.53	29.79	28.95	30.00	30.77
Warehousing and support activities for transportation	41.06	40.42	37.46	37.91	37.27	37.07	36.67	36.08	34.96	34.42
Postal and courier activities	11.40	9.09	11.60	10.36	11.16	9.17	8.82	8.38	9.94	8.92
Transportation and storage: Weighted average	**29.68**	**28.86**	**27.46**	**26.78**	**25.84**	**25.36**	**24.58**	**23.75**	**23.06**	**22.65**
Accommodation and food service activities										
Accommodation	3.03	3.35	3.66	3.49	3.34	3.22	2.89	3.01	3.01	3.25
Food and beverage service activities	1.89	2.09	2.26	1.96	1.65	1.60	1.38	1.28	1.32	1.29
Accommodation and food service activities: Weighted average	**2.34**	**2.55**	**2.76**	**2.48**	**2.21**	**2.12**	**1.84**	**1.78**	**1.79**	**1.84**
Information and communication										
Publishing activities	35.60	37.52	35.82	34.61	34.80	34.55	34.83	34.08	33.70	34.62
Motion picture, video and television programme production	29.42	28.22	27.07	25.15	24.57	24.42	24.14	23.60	23.86	23.94
Programming and broadcasting activities	18.62	14.10	15.79	12.86	12.05	14.77	13.24	13.11	17.57	21.43
Telecommunications	24.79	25.40	25.11	20.75	22.34	19.72	15.59	14.35	14.35	15.07
Computer programming, consultancy and related activities	23.16	24.01	22.47	21.87	21.48	22.06	21.10	21.01	20.89	22.09
Information service activities	19.23	19.26	18.28	18.53	19.36	19.88	20.94	20.87	21.49	21.84
Information and communication: Weighted average	**28.06**	**28.29**	**26.83**	**25.55**	**25.35**	**25.43**	**24.87**	**24.31**	**24.11**	**24.88**
Financial and insurance activities										
Financial service activities, except insurance and pension funding	10.49	9.50	8.23	7.50	6.56	6.21	5.36	4.92	4.73	4.62
Financial and insurance activities: Weighted average	**10.49**	**9.50**	**8.23**	**7.50**	**6.56**	**6.21**	**5.36**	**4.92**	**4.73**	**4.62**
Professional, scientific and technical Activities										
Legal and accounting activities	11.15	10.62	10.76	10.79	10.82	10.90	11.60	11.13	11.30	11.54
Activities of head offices; management consultancy activities	17.20	17.44	16.53	16.37	15.96	16.02	15.43	15.19	14.80	15.43
Architectural and engineering activities; technical testing and analysis	15.15	14.56	14.32	13.79	13.42	13.20	12.90	12.50	12.44	12.22
Professional, scientific and technical Activities: Weighted average	**15.33**	**14.74**	**14.40**	**14.18**	**13.92**	**13.91**	**13.72**	**13.44**	**13.32**	**13.54**
Administrative and Support Service Activities										
Rental and leasing activities	13.67	13.59	13.36	12.21	12.24	11.54	11.36	10.37	10.79	11.51
Employment activities	23.58	22.78	22.81	21.19	18.48	18.44	17.00	16.27	15.58	14.02
Travel agency, tour operator and other reservation service and related activities	43.54	42.69	42.62	41.90	41.23	41.53	42.11	41.28	39.36	41.98
Security and investigation activities	7.72	9.08	7.45	7.48	6.31	5.78	6.01	5.58	5.54	5.28
Services to buildings and landscape activities	4.13	3.78	4.13	3.80	3.54	3.45	3.42	3.09	3.31	3.05
Office administrative, office support and other business support activities	17.17	17.14	17.50	17.46	17.43	17.50	17.58	16.96	16.80	16.41
Administrative and Support Service Activities: Weighted average	**15.73**	**15.11**	**15.08**	**14.46**	**13.96**	**13.66**	**13.42**	**12.57**	**12.33**	**12.24**
Other service activities										
Activities of membership organisations	7.14	13.33	9.52	15.00	18.52	17.24	17.65	21.95	27.27	32.35
Repair of computers and personal and household goods	11.76	9.53	9.03	8.98	8.82	8.35	8.12	7.80	7.41	7.30
Other personal service activities	4.55	4.38	4.64	4.15	2.49	2.07	2.00	1.89	2.00	1.88
Other service activities: Weighted average	**5.71**	**5.19**	**5.32**	**4.90**	**3.45**	**3.02**	**2.93**	**2.80**	**2.85**	**2.70**

Table B2. Share of exporting firms by size-class and industries

	Year									
Industry/Firm Size	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Manufacturing										
Micro	29.98	27.84	27.39	26.26	25.53	24.62	21.14	20.36	20.00	20.02
Small	57.20	54.93	54.34	53.76	52.76	52.88	52.23	51.84	52.25	48.70
Medium	78.64	79.36	78.73	78.63	78.20	78.90	80.68	78.88	77.61	76.81
Large	81.19	81.57	81.92	82.59	81.71	81.73	83.84	85.16	83.97	80.95
Construction										
Micro	4.01	3.82	3.95	3.46	3.32	2.94	2.40	2.30	2.23	2.20
Small	8.62	8.46	8.10	7.74	7.11	6.53	6.56	5.95	6.39	5.64
Medium	17.75	17.50	18.49	18.39	17.84	15.67	16.38	15.54	15.42	15.91
Large	30.00	38.89	33.66	36.89	36.75	36.51	36.77	32.69	40.96	30.12
Transportation and storage										
Micro	26.46	26.22	23.96	23.07	21.79	20.92	16.70	16.20	15.34	15.45
Small	48.67	47.93	44.84	44.10	42.23	42.71	41.62	40.71	40.03	37.32
Medium	56.07	54.44	56.82	56.16	55.87	54.20	55.87	54.58	53.80	49.37
Large	42.34	46.75	51.14	55.29	52.17	52.19	50.00	50.78	50.20	47.20
Accommodation and food service activities										
Micro	2.46	2.39	2.63	2.41	2.00	1.86	1.50	1.48	1.55	1.63
Small	3.88	4.41	5.08	4.46	3.80	3.88	3.48	2.77	3.04	2.92
Medium	7.22	8.02	9.28	8.90	8.75	10.37	10.93	6.51	9.21	5.90
Large	6.06	14.29	15.09	12.50	16.67	16.42	14.49	16.67	10.84	12.00
Information and communication										
Micro	30.95	30.44	29.30	27.71	27.16	28.10	26.66	26.02	24.79	25.63
Small	42.48	46.68	45.03	45.55	44.77	45.80	46.14	45.26	45.36	45.37
Medium	47.39	53.15	53.88	54.24	55.34	55.29	56.95	55.97	58.17	59.16
Large	61.97	64.00	63.16	58.52	57.04	56.55	53.38	54.82	54.76	53.85
Financial and insurance activities										
Micro	9.03	8.38	7.91	7.31	6.56	6.37	5.53	5.34	5.26	4.54
Small	30.57	29.55	27.50	23.34	24.08	23.53	20.26	19.04	19.93	17.78
Medium	55.91	52.90	58.41	61.21	49.07	41.67	45.95	30.86	30.99	24.66
Large	47.37	54.55	50.00	41.18	52.00	54.17	31.25	50.00	60.00	38.89
Professional, scientific and technical Activities										
Micro	16.07	15.17	15.13	15.02	13.98	13.78	12.58	12.46	12.94	12.68
Small	33.28	30.80	29.44	30.17	29.40	29.91	29.50	29.21	29.24	27.01
Medium	47.23	46.77	46.58	44.09	45.69	53.55	53.89	49.74	52.24	49.85
Large	57.14	65.88	54.37	60.17	59.57	53.33	58.67	58.00	64.62	64.97
Administrative and Support Service Activities										
Micro	20.32	17.85	18.15	17.21	17.47	16.11	13.80	13.07	12.32	12.53
Small	22.30	21.61	21.40	20.08	19.38	19.48	18.64	18.42	18.24	17.67
Medium	21.41	23.99	20.42	21.52	18.53	19.44	17.42	16.20	16.74	14.45
Large	25.90	31.35	23.74	22.73	25.65	24.04	23.37	21.33	22.55	21.90
Other service activities										
Micro	6.24	5.32	5.65	5.08	2.90	2.63	2.29	2.16	2.38	2.17
Small	16.57	12.85	12.42	13.01	11.77	9.79	10.10	9.24	9.92	7.91
Medium	28.89	34.04	28.00	24.59	27.42	26.47	26.92	20.59	23.17	26.03
Large	42.86	36.36	46.15	38.46	35.71	41.18	25.00	36.36	42.86	27.78

Table B3. ANOVA for a firm's exporter status in construction and service industries

Source	Exporter status		
	Abs.	%	P-val.
Industry effects	409.46	0.33	0.000
Firm size effects	16.97	0.01	0.000
Industry * firm size effects	2 089.23	1.67	0.000
Year effects	127.50	0.10	0.000
Constant (overall mean)	19 550.72	15.61	-
Model	22 193.89	17.72	0.000
Residual	103 065.74	82.28	-
Total	125 259.62	100.00	-

Notes: Based on 1 276 326 firm-year observations. P-values are based on F-tests according to 27 d.f. (degrees of freedom) for industry effects, 3 d.f. for firm size effects, 80 d.f. for Industry * firm size effects and 80 d.f. for year effects.

Table B4. Sample composition for the descriptive statistics

Sector	# of Firm-year Obs.	Per cent of Total
Manufacturing	687 466	21.11
Construction	762 497	23.41
Transportation and storage	185 569	5.70
Accommodation and food service activities	461 294	14.17
Information and communication	202 620	6.22
Financial and insurance activities	146 178	4.49
Professional, scientific and technical Activities	414 480	12.73
Administrative and Support Service Activities	224 454	6.89
Other service activities	171 953	5.28

Table B5. Summary statistics for the full sample of services firms

Variable	Firms [a]	Mean	Std.Dev.	Min.	Max.
Exporter status	159 776	0.151	0.358	0	1
Export shares	159 776	0.025	0.112	0	1
No. of employees	159 776	28.556	152.175	1	9,603
Log(TFP)	159 776	3.880	0.515	2.385	5.584
Net investment p.e. (in thousands)	159 776	1.512	13.815	-61	169
No. of subsidiaries	159 776	0.292	1.389	0	50
Foreign corporate group	159 776	0.009	0.093	0	1
Domestic corporate group	159 776	0.501	0.500	0	1
Legal forms					
Société à responsabilité limitée (SARL)	159 776	0.615	0.487	0	1
Entre. unip. à responsabilité limitée (EURL)	159 776	0.059	0.235	0	1
Société anonyme simplifiée (SAS)	159 776	0.195	0.396	0	1
Société anonyme (SA)	159 776	0.116	0.320	0	1
Société en nom collectif (SNC)	159 776	0.007	0.081	0	1
Regional dummies					
Paris region	159 776	0.091	0.288	0	1
Belgian border	159 776	0.062	0.242	0	1
German border	159 776	0.045	0.208	0	1
Swiss border	159 776	0.049	0.216	0	1
Italian border	159 776	0.040	0.196	0	1
Spanish border	159 776	0.044	0.205	0	1
Mediterranean Sea	159 776	0.099	0.299	0	1
Atlantic Ocean	159 776	0.215	0.411	0	1

Notes: [a] The 160 955 *firms* in the sample are typically observed repeatedly, leaving us with 503 359 observations for the empirical exercise below.

B. Econometric methodology

B.1 Estimating total factor productivity at the firm level

As already discussed above, the new-new trade theory argues that productivity differentials across firms are crucial for our understanding on whether firms decide to serve foreign markets or solely serve their domestic customers. In order to obtain this measure for productivity at the firm level, we follow the extensive literature on the estimation of total factor productivity (TFP).[1] Accordingly, we assume that production in service industries can be modelled with a Cobb-Douglas production function, which is given by

$$Y_{it} = A_{it} L_{it}^{\alpha} K_{it}^{\beta}, \tag{1}$$

where Y_{it} is a measure of output (e.g. value added) of firm i at time t and L_{it} and K_{it} denote labour and capital inputs, respectively. Finally, A_{it} captures firm-specific TFP. Taking logarithms of the Cobb-Douglas production function yields

$$\log Y_{it} = \log A_{it} + \alpha \log L_{it} + \beta \log K_{it} \tag{2}$$

From equation (2) it becomes evident, that the residuals obtained from a simple ordinary least squares (OLS) regression of Y_{it} on L_{it} and K_{it} provide a measure of (log) TFP. Unfortunately, it is very likely that firms (at least partly) know their level of productivity and use this information for the choice of labour and capital inputs, respectively. This information, however, is not available to the econometrician resulting in a so called simultaneity bias. Put differently, with information on their productivity at hand, firms simultaneously determine their level of output and inputs which induces endogeneity of the right-side (RHS) variables. Formally, this implies that $\log A_{it}$ comprises a systematic component and a true (random) error term, which modifies the (log) production function to

$$\log Y_{it} = \log A_{it} + \alpha \log L_{it} + \beta \log K_{it} + \omega_{it} + \varepsilon_{it} \tag{3}$$

where ω_{it} represents a firm's TFP known only to itself and ε_{it} is an iid error (see, e.g. Arnold 2005, Crespo Cuaresma, Oberhofer and Vincelette 2012).

By definition, ω_{it} is correlated with K_{it} and L_{it} in equation (3) leading to biased point estimates for α and β when applying simple OLS regression. Unfortunately, this bias carries over to the residuals implying that the resulting measure of TFP would also be biased. In order to accurately deal with this problem, we apply two different estimators which have been put forward in the literature dealing with the estimation of TFP at the firm level.

First, if one assumes that the systematic component of equation (3) is firm-specific but does not vary over time (i.e. $\omega_{it} = \omega_i$) one can simply apply fixed effects estimation and obtain consistent TFP estimates. Here it's worth noting that, in case of low within-firm variation the parameters of the production function would be only weakly identified and in case of ω_i varying over t the fixed-effects estimates would also be inconsistent. Alternatively, Olley and Pakes (1996) proposed a semi-parametric estimation procedure which allows ω_i to vary over t (i.e. $\omega_{it} \neq \omega_i$). This approach also allows to incorporate

1. Del Gatto, Di Liberto and Petraglia (2011) and Van Beveren (2012) provide comprehensive overviews on how to estimate productivity both on the macroeconomic and microeconomic levels, respectively.

exiting firms which are likely to possess of lower productivity levels and, thus, controls for sample selection issues. In order to overcome the simultaneity bias and by relying on a monotonicity assumption, Olley and Pakes (1996) suggest to use a firm's investment decision as a proxy variable for its systematic productivity component ω_{it}. A crucial drawback of this approach is that, due to the need of the monotonicity assumption, only firms with non-zero investment can be utilised for the estimation of TFP.

The AMADEUS database, unfortunately, only poorly informs about market exit and, thus, our sample contains surviving firms only. For this reason and in order to avoid the exclusion of a large number of zero-investment firms in the TFP estimation procedure, we do not rely on the Olley and Pakes (1996) approach but alternatively apply an estimation strategy put forward by Levinsohn and Petrin (2003). Levinsohn and Petrin (2003) further develop the (semi-parametric) estimation procedure proposed by Olley and Pakes (1996), but utilise firm-specific demand for intermediate inputs as an instrument for the unobserved systematic error term component ω_{it}. When applying this estimator, one implicitly assumes that more productive firms, ceteris paribus, produce larger quantities of their output and thus demand larger quantities of intermediate inputs. When inverting this relationship one states that firms with larger observed expenditures for these intermediates are more productive (Del Gatto *et al.*, 2011). The advantage of this approach is that virtually all firms exhibit a non-zero demand for intermediate inputs which allows to include all of them in the TFP estimation procedure.

Annex Table B6 reports the Cobb-Douglas production function estimates for our sample of construction and service firms applying the fixed effects and the Levinsohn and Petrin (2003) estimators, respectively. In order to demonstrate the problems involved when estimating TFP at the firm level we also report estimates obtained from simple OLS in the first column of this table. All three different estimators pool together all firms from different industries but control for year effects. This approach provides comparable TFP measures for all firms and controls for inflation both in input and output prices, respectively.

Table B6. Estimation results: Cobb-Douglas production function in construction and service industries

	Model		
	OLS	FE	LP [a]
Capital	0.207***	0.107***	0.099***
	(0.001)	(0.001)	(0.004)
Labour	0.754***	0.471***	0.714***
	(0.001)	(0.001)	(0.002)
Returns to scale	0.961	0.578	0.813
Wald test [b]	3 274.79***	69 656.25***	1 082.63***
Year effects [c]	1 360.42***	5 708.957***	7 278.700***
Observations	602 454	602 454	463 670

Notes: Standard errors in parenthesis. *** stands for significance at the 1% level. All regressions include year fixed effects.

[a] LP indicates the Levinsohn and Petrin (2003) approach, where material costs proxy for unobserved productivity shocks. [b] The Wald test assumes constant returns to scale (i.e. $\alpha+\beta=1$) as the null hypothesis. [c] Test statistic is based on a F-test for the joint significance of all year dummy variables with 9 degrees of freedom.

All different estimation procedures commonly suggest that production in service and construction industries is rather labour intense. This can be inferred from the respective marginal products of labour which exceed the marginal products of capital throughout. Moreover, Annex Table B6 also indicates that both industries are characterised by decreasing returns to scale as indicated by significant Wald tests for the assumption of constant returns to scale (i.e. $\alpha+\beta=1$).

Focusing on the three different estimation procedures, it turns out that the parameter estimates associated with the fixed effects approach substantially differ from the ones obtained when applying the alternative estimators. As already discussed above, this result might be driven by low-within variation in firm-specific value added leading to only weakly identified parameters. For this reason and in order to account for the simultaneity problem involved, we prefer the Levinsohn and Petrin (2003) approach and, later on, use the TFP estimates obtained from this procedure.[2]

B.2 A two-part model for exporting in service industries

In order to empirically test the above established hypotheses we estimate a two-part model for French service firms.3 The structure of the AMADEUS data at hand allows to apply a relatively powerful econometric framework. The main advantage of this two-part model is that it allows to compare extensive and intensive margin effects of our covariates of interest. Thereby, we refer to the discrete decision to serve any foreign markets as extensive margin while the overall level of foreign engagement, measured as the share of export turnover to overall revenues, reflects the intensive margin decision. As stated above, in our most general specification, we want to explicitly account for persistence in each firms' export behaviour. For this reason the first part of the model consists of a dynamic probability model given by Wooldridge (2005).4 The second part, which only incorporates firms with non-zero export shares follows the spirit of Papke and Wooldridge (1996) and Papke and Wooldridge (2008). Formally, the first part of the models reads as

$$[illegible] \tag{4}$$

where $\mathrm{ex}_{it}=1$ if a firm i exports to foreign countries at time t and zero, otherwise. $\mathbf{x}_{it}$ represents a vector of (strictly) exogenous covariates with γ as the corresponding vector of parameters to be estimated, α_i captures unobserved heterogeneity across individual firms and the estimated ρ indicates whether any dynamics in the exporter status at the extensive margin are observable. Finally, Φ denotes the cdf of a normal distribution implying that we can estimate the first part dynamic probit model with (standard) maximum likelihood methods.

Before turning to this generalised export equation we estimate a model that assumes that $\rho=0$ (below we refer to this model as our baseline). This permits a comparison of our empirical results with previous contributions (see, e.g. Eickelpasch and Vogel 2011). Additionally, the estimation of these two alternative models allows to examine the robustness of the results obtained from the more restrictive model with $\rho=0$. The two alternative

2. In qualitative terms the TFP measures obtained from all different approaches are very similar. This is indicated by the correlation coefficients which exceed 0.9 throughout.

3. A general discussion on one-part versus two-part fractional response variable (e.g. export shares) models is offered by Ramalho, Ramalho and Murteira (2011) and Oberhofer and Pfaffermayr (2012b).

4. A very similar model for the exporter status and export shares of French manufacturing firms is presented in Stiebale (2011).

estimators also differ with regard to the assumptions regarding the distribution of α_i. The more restrictive specification without dynamics in the exporter status assumes that α_i is normally distributed and independent of $\mathbf{x}_i$ (i.e. $\alpha_i | \mathbf{x}_{it} : N(0, \sigma_{\alpha_i}^2)$). This results in a simple random effects probit model. Obviously, this assumption is very restrictive and might not hold for our sample of French construction and service firms.

For this reason, in our dynamic framework we follow Wooldridge (2005) and apply simple econometric approaches which allow to simultaneously deal with the initial conditions problem and more structurally account for unobserved heterogeneity captured by α_i. Drawing from Mundlak (1978) and Chamberlain (1980) this approach models the distribution of the unobserved individual effect α_i conditional on the initial value $\mathrm{ex}_{i,0}$ and all exogenous variables. For our empirical exercise this implies that we can apply standard random effects probit estimation routines to $P(\mathrm{ex}_{it} = 1)$ with ($\mathrm{ex}_{it-1}; \mathbf{x}_{it}; \mathrm{ex}_{i,0}; \bar{\mathbf{x}}_i$) as generalised vector of covariates. $\bar{\mathbf{x}}_i$ denotes the firm-specific (time) averages of all covariates collected in $\mathbf{x}$. More formally, this approach assumes that $\alpha_i | \mathbf{x}_{it} : N(\gamma + \bar{\mathbf{x}}_i, \sigma_{\alpha_i}^2)$ implying that firm-specific averages of the strictly exogenous variables control for unobserved heterogeneity (see, e.g. Wooldridge).

The second part of the model is given by:

$$P(\mathrm{ex}_{it} = 1 | \mathrm{ex}_{it-1}; \mathbf{x}_{it}; \mathrm{ex}_{i,0}; \eta_i) = \mathrm{ex}_{it-1} \cdot G(\mathrm{ex}_{it-1}; \mathbf{x}_{it}; \mathrm{ex}_{i,0}; \eta_i) \tag{5}$$

where, $\mathrm{ex}\text{–share}_{it}$ denotes a firm i's export share at time t, $\mathbf{x}_{it}$ is the same vector of exogenous variables, and η_i captures unobserved heterogeneity. $G(\cdot)$ represents a cdf satisfying $0 < G(z) < 1$ for $z \in \Re$ which, in this case, is chosen to be the logistic function so that $G(z) = \Lambda(z) = \frac{\exp(z)}{\exp(z)+1}$. Based on the Bernoulli log-likelihood equation, the second part of the model is estimated using quasi maximum likelihood methods. Here we again, estimate two alternative models where the first one assumes that $\lambda = 0$. By contrast, the alternative model additionally estimates λ and accounts for unobserved heterogeneity by applying the Mundlak (1978) and Chamberlain (1980) approach.

Finally, equations (4) and (5) represent a non-linear econometric model implying that the marginal effects of the covariates are not constant. For these types of models two alternative measures for average marginal effects have been proposed, the marginal effect at the mean (MEM) and the average marginal effect (AME) (see, e.g. Bartus, 2005). In our empirical application we again follow Wooldridge (2005) and calculate AMEs. There, the basic idea is to calculate marginal effects for each covariate and all individual observations and average over all firms in order to obtain one single measure for the impact of any covariate on a firm's export probability.

ANNEX C.

LITERATURE REVIEW: EMPIRICAL EVIDENCE ON THE EXPORT BEHAVIOUR OF SERVICES SMES[1]

As noted above, there is limited information about the export behaviour of SMEs in services trade. Firm-level evidence on services internationalisation is still sparse, and with very few exceptions, does not consider small-sized firms. Nevertheless, a good starting point for investigating the case of small services providers is to look at the existing portraits of successful services exporters. For this purpose we heavily borrow from Wagner (2012) who provides an excellent survey on the most recent empirical literature on international trade and individual firm performance. Annex Table C1 summarises the main characteristics of 22 studies that are discussed in this section.

First of all, Annex Table C1 indicates that, only recently, the question on the internationalisation of services firms attracted increased academic interest. Not more than 7 out of the 22 studies have been published earlier than in 2010. This finding might correspond to the fact that, nowadays, micro-level data on (the internationalisation of) services firms become more easily available. Unfortunately, however, this seems to be the case for only some specific industrialised countries. The 22 different studies apply data from only 11 different countries including Canada, France, Germany, India, Italy, Netherlands, Spain, Sweden, Switzerland, United Kingdom and United States. For this reason, the available evidence is still based on some of the most developed countries in the world. One notable exception is the study by Bhattacharya et al., (2012) that uses data for Indian firms operating either in the chemicals industries or are software providers. In any case, a better understanding of the overall patterns of internationalisation of services firms across the world would require to augment the already available evidence with studies for other less developed economies.

With regard to the raised research questions, the vast majority of studies (presented here) are interested in examining the crucial determinants of the export behaviour in service industries. Thereby, the various authors typically approach this question from two different theoretical standpoints. Some of the papers that are also surveyed by Wagner (2012) are rooted in the new-new trade theory and, therefore, test whether more productive firms self-select them into foreign market engagement. Among this group of papers are the contributions by Love and Mansury (2009), Conti et al. (2010), Kox and Rojas-Romagosa (2010), Lööf (2010), Breinlich and Criscuolo (2011), Eickelpasch and Vogel (2011), Federico and Tosti (2012), Minondo (2011), Vogel (2011), Bhattacharya et al . (2012), Kelle et al. (2012), Vogel and Wagner (2012), Love and Ganatokis (2013), Wagner, Engel et al. (2013) and Temouri et al (2013). A related but earlier contribution in this literature by Hollenstein (2005) applies Dunning's OLI framework in order to address the question on which service firms are involved in any international activities.

A second alternative strand of the economic literature is interested in analyzing the economic behaviour of small and medium sized enterprises (SMEs). Given, the increasing relevance of the world markets for all sorts of firms and the shift of production to service industries, this literature, consequently, focuses on the role of firm size for the export behaviour of services firms. Examples of this literature are e.g. Ebling and Janz (1999),

1. The authors wish to express their thanks to the European Commission, DG Enterprise and Industry for providing data used in this Annex.

Masurel (2005), Gourlay et al. (2005), Chiru (2007), Jolanda and Hessels (2007) and Lejpras (2009).

In empirical terms, all of the studies mentioned in Annex Table C1 rely on either firm- and/or establishment level data and, thus, apply different types of micro-econometric estimators. One exception is Masurel (2005), who simply reports some descriptive statistics for survey data which reveal that exporting service SMEs perceive their international engagement as more profitable and less risky than their non-exporting counterparts. The majority of the 22 mentioned studies, apply simple (pooled or weighted) OLS or fixed and random effects estimators for variables that measure some dimensions of the export behaviour of service SMEs.

In addition, some studies such as e.g., Ebling and Janz (1999), Gourlay et al. (2005), Conti et al. (2010) and Kelle et al. (2012) focus on the probability to engage in any foreign market activities and, therefore, apply simple probit models. Moreover, some papers additionally investigate a service firm's export intensity (e.g., its share) of exports and apply estimators that are based on the truncated distribution for exporting firms only (see, e.g., Gourlay et al. 2005, Love and Mansury 2009, Conti et al. 2010, Minondo (2011) and Love and Ganatokis 2013). In this regard, these contributions are most similar to the two-part model suggested in this paper.

In a similar vein, Hollenstein (2005), Chiru (2007), Lejpras (2009), Kelle et al. (2012) and Engel et al. (2013) are interested in estimating the impact of different firm characteristics on different channels of international engagement (such as e.g., FDI and exports) and estimate multinomial logit and probit models, respectively. By contrast, Bhattacharya et al. (2012) apply simple stochastic frontier analysis in order to compare productivity levels of exporting firms with firms that engage in FDI. Vogel and Wagner (2012) are interested in the impact of outlying observations for the estimates of the exporter productivity premium and, consequently, apply outlier robust estimators such as e.g., quantile- or trimmed regressions. Lööf (2010) applies system-GMM estimators as well as matching estimators in order to examine the exporter productivity premium while Temouri et al. (2013) provide evidence for the self-selection hypothesis by applying propensity score matching.

Here, it is worth noting that (with the exception of Minondo (2011) formulates the first part of his model in a dynamic fashion) none of the surveyed papers accounts for potential persistence in the exporter status and, therefore, this paper is, to our knowledge, the first one that explicitly shows that exporter persistence is prevailing. In a similar vein, only the papers by Eickelpasch and Vogel (2011) and Minondo (2011) also account for the fact that export intensity as a share the share of export turnover over total sales is bounded by the (0,1) interval and apply the fractional response estimator proposed by Papke and Wooldridge (2008). In this regard, we generalise their approach by formulating a two-part model that additionally accounts for persistence in the export behaviour.

With regards to the empirical findings, some robust results can be identified. First, the predictions from the new-new trade theory are confirmed by virtually all studies mentioned in Annex Table C1. Accordingly, more productive service firms (conditional on firm size etc.) are more likely to serve foreign markets via exports. Moreover, these firms are indicated to be more productive already before the start to serve foreign markets (see, e.g., Temouri et al. 2013 and Vogel 2011). This finding confirms the view, that productivity differentials are crucial determinants for the self-selection into export activities. Moreover, the papers that explicitly focus on the exporter productivity premium tend to reject the learning-by-doing hypothesise which states that firms use their foreign market experiences in order to increase their productivity. Lööf (2010), for example, is not able to find a significant impact of the exporter status for productivity growth. Moreover, Vogel and Wagner (2012) highlight that

the productivity premium might only be observable for a few outlying observations somehow weakening the so-far discussed findings on productivity-export relationship. By contrast, the contributions by Love and Mansury (2009) and Love and Ganatokis (2013), however, provide some evidence for the learning-by-doing hypothesis for knowledge intensive service firms located in the United States and United Kingdom. Taking all these different findings together, the recent literature on the export behaviour of service firms documents the crucial role of productivity.

Another important and very robust finding is that firm size also matters for the decision to engage in any export activities. Typically, larger service firms are more likely to export to foreign markets and are also more export intense. Annex Table C1 reveals that this finding holds across countries and service industries. Moreover, this finding is not altered by the econometric method applied. From a policy point of view, this result indicates that smaller firms might not be able to bear the additional costs involved when engaging in foreign market activities. This finding also highlights the fact that internationalisation of service activities follows similar patterns as in the more exhaustively analyzed manufacturing industries. A number of authors, however, challenge the notion that there is a positive linear relationship between firm size and the likelihood of exporting in the case of services, contrary to what the manufacturing literature suggests. Instead, they have found that there is a U-shaped or hump-shaped curve, or in very few cases no significant relationship at all (Ebling and Janz 1999, Mansury 2007 and Gourlay 2005).

A couple of other papers, such as e.g., Ebling and Janz (1999) and Jolanda and Hessels (2007) explicitly analyze the role of innovation for the decision to take part in international competition. Both of these papers convincingly show that more (product and/or process) innovative firms are more likely to participate in any foreign market activities. Interestingly, by applying a system-of-equations approach, Ebling and Janz (1999) are able to demonstrate that firm size crucially affects a firm's export probability only via its impact on innovation.

Another strand of studies test the impact of standard gravity variables on trade performance. Federico and Tosti (2012), for example, find evidence that physical distance plays a role in services trade, although the effects of linguistic and cultural distance are unexplored. Breinlich and Criscuolo (2011) show that the effects of distance work on services trade through the extensive margin, but do not exert any influence on the intensive margin. This could imply differences in market entry or variable trade costs.

With regard to alternative channels of service trade, Kelle et al. (2012), for example, empirically explore modal choices, in particular between cross-border and foreign-affiliates sales. Interestingly, they find that firms appear to remain tied to one of the two channels when they export services. In particular, there is little evidence that firms switch from one mode to the other, or that they trade via multiple modes to a given country (i.e. complementarities). Moreover, they find that even when the modal choice appears possible (e.g. there are no barriers from switching from mode 1 to mode 3), such substitution only takes place among large or more productive firms. This appears to confirm that SMEs may more readily utilise mode 1 in lieu of mode 3, and that switching modes – even absent technological or government restrictions – may be costly for SMEs. Moreover, the finding that distance to a foreign market increases reliance of mode 3 suggests that SMEs may have difficulties serving more distant markets. However, the analysis does not explore mode 2 and 4. Also, within mode 1, ongoing digitalisation has created new channels to provide cross-border services that may not be fully captured (e.g. e-commerce).

Among the few empirical studies that undertake an exploration of SMEs in a specific services sub-group, Chiru (2007) looks at the export behaviour of Canadian knowledge intensive business services (professional, scientific and technical services). The results show

that very small-sized establishments with 20 employees or less ate likely to be more export-oriented than those firms that employ 21 and 60 employees; the establishments that are more export-oriented have 60 to 70 employees (i.e. medium-sized). The successful export performance of small-sized establishments is attributed to the importance of very specific (niche) products in the industry and the adequate use of intellectual property protection. The author finds that for these kinds of knowledge-intensive industries, the barriers of entry into export markets faced by micro and very small establishments are not as prohibitive as in manufacturing.

Finally, the available literature also identifies some other important determinants for the export behaviour of service firms. To mention the most robust findings, firms that pay higher wages, employ more skilled labour, are more capital intense and possess stronger links to multinational corporate groups are more likely to serve foreign markets.

Table C1. Empirical studies on the export behaviour of service firms

Authors/Year	Country	Time Period	Research Question(s)	Methods	Main Findings
Bhattacharya et al. (2012)	India	2000-2008	Productivity pecking order for services firms	Descriptive statistics, Stochastic frontier analysis, Kolmogorov-Smirnov tests	Uncertainty in product quality leads to a reversal in the productivity pecking order. Less productive firms engage in FDI.
Breinlich and Criscuolo (2011)	United Kingdom	2000-2005	Provision of `stylised' facts on international trade in services at the firm level	Descriptive statistics, Weighted least-squares regressions (WLS)	Firm level heterogeneity is a key feature of service trade, Exporters and importers are larger and more productive, At the firm level services and goods trade are similar
Chiru (2007)	Canada	2003	Relation between innovation and the international orientation in the KIBS industries	Descriptive statistics, Logit models, Multinomial logit models	Innovation is not significant in explaining export tendency of small firms, but is very significant for large firms. Having a high proportion of highly skilled staff has a positive influence on the export probability.
Conti et al. (2010)	Italy	2003	Export performance of service firms in Retail and Wholesale Trade, Transport and Communication and Renting, IT, R&D and Other Business Activities.	Descriptive statistics, Probit models and truncated regressions	More experienced firms and firms that are part of domestic/ international networks are more successful exporters. Productivity matters only for distant destination markets. Firm size is only significant for wholesale and retail trade. Larger firms are less export intensive
Ebling and Janz (1999)	Germany	1997	Relationship between export and innovation activities	Descriptive statistics, probit models, Simultaneous equations model,	Large firms are more likely to innovate and innovative firms are more likely to export. Consequently, firm size only indirectly affects a firm's export probability
Eickelpasch and Vogel (2011)	Germany	2003-2005	Determinants of export behaviour of business services firms	Descriptive statistics, Quasi-maximum likelihood fractional response models with and without controlling for unobserved heterogeneity	More productive and human capital intense firms are more successful exporters only when unobserved heterogeneity is not controlled for. Firm size always examines a positive impact on the export performance of business services firms

Table C1. Empirical studies on the export behaviour of service firms (*continued*)

Engel et al. (2013)	France	2000-2007	Impact of firm characteristics for the decision to enter into and exit from foreign markets	Descriptive statistics, Multinomial probit models	More productive firms are more likely to engage in foreign market activities. In the aftermath, productivity is not able to explain which firms cease their international engagement. Firm size has no impact on the export decision but larger firms are more likely to set up foreign affiliates. Firm size also has no impact in the decision to exit from foreign markets
Federico and Tosti (2012)	Italy	2008-2009	Determinates of imports and exports in service firms	Descriptive statistics, OLS regressions,	Export and import of services is highly concentrated among few firms, firm-level variation in trade is positively correlated with firm size and productivity; country-level variation is to a large extent explained by the standard gravity variables, Smaller and less productive firms choose to export rather than sell through foreign affiliates.
Gourlay et al. (2005)	United Kingdom	1988-2001	Determinants of export behaviour of service industry firms	Descriptive statistics, Probit models, Tobit and truncated regressions	Firm size, research intensity, managerial remuneration and the exchange rate positively affect a firm's export performance. Export probability and export intensity should be modelled separately
Hollenstein (2005)	Switzerland	1998	Determinants of the choice of specific internationalisation Strategies	Descriptive statistics, Multinomial logit models	Dunning's OLI framework is able to accurately explain differences in internationalisation strategies. Small firms are less likely to directly engage in foreign market activities
Jolanda and Hessels (2007)	Netherlands	2004	Relation between innovation and the international engagement of SMEs	Descriptive statistics, OLS regressions	Several innovative realisations or practices positively affect a firm's export probability, export intensity and its import behaviour. Firm size also crucially affects a firm's international engagement
Kelle et al. (2012)	Germany	2005	Determinants of export market participation and for the choice of export mode	Descriptive statistics, Probit models, Generalised ordered logit models, multinomial probit models	Larger and more productive firms choose exporting by foreign affiliate sales. There is little evidence of complementarities or substitution effects between mode 1 and 3. Distance raises reliance of mode 3

Table C1. Empirical studies on the export behaviour of service firms (*continued*)

Kox and Rojas-Romagosa (2010)	Netherlands	1997-2005	Test of heterogeneous firms theories for international trade of Dutch firms and plants	Descriptive statistics, probit models, OLS regressions and Fixed effects estimators	Firms self-select into export participation. The most productive firms engage in exports and/or FDI Establishment size positively affects the export probability
Lejpras (2009)	East Germany	2003-2004	Determinants of the decision to export and/or relocate production or other operations abroad	Descriptive statistics, Bivariate probit models	Larger firms, with their main competitors being located abroad that introduce new products are most likely to engage in any foreign market serving activity. Manufacturing firms are more likely to serve foreign markets than service firms
Love and Ganatokis (2013)	United Kingdom	2005	Test of the l learning-by-doing hypotheses for high-tech SMEs	Descriptive statistics, probit models, truncated regressions	Exporters become more innovative. Service firms benefit from learning-by-exporting faster than manufacturing firms. SMEs benefits from knowledge (internal R&D and skills) when they have entered into exports markets
Love and Mansury (2009)	United States	2004	Examination of the self-selection versus learning-by-doing hypotheses for internationalisation of service firms	Descriptive statistics, probit models, truncated regressions	Larger and more productive firms self-select into export markets. Self-selection and learning-by-exporting effects are both observable t for knowledge intensive services firms.
Lööf (2010)	Sweden	1997-2006	Goods trade of service firms	Descriptive statistics, Pooled OLS estimation, Random effects and fixed effects OLS, system GMM estimation, matching estimators	Larger, more productive and high-equity firms, with more skilled labour, higher capital intensity and stronger links to multinational groups are more likely to export. Exporter productivity premium is larger for service firms
Minondo (2011)	Spain	2001-2007	Characteristics of service exporter	Descriptive statistics, (dynamic) random effects probit models, Quasi-maximum likelihood fractional response models	The self-selection hypothesis can be confirmed. No statistical evidence for the learning-by-doing hypothesis. Exporters are larger in terms of employees, turnover and are more productive compared to non-exporters.

Table C1. Empirical studies on the export behaviour of service firms (continued)

Masurel (2005)	Netherlands	1996	Examination of risks and profits associated with international engagement in service industries	Descriptive statistics	Exporting service SMEs perceive international engagement as more profitable than their non-exporting counterparts. The perceived risks associated with exporting are also lower for exporting firms
Temouri, et al. (2013)	France, Germany and United Kingdom	2003-2007	Determinants of export behaviour of business services firms	Descriptive statistics, Pooled OLS estimation, Fixed effects OLS, Propensity score matching,	Exporters are more productive and pay higher wages (evidence for self-selection), German (French) exporters are less (more) profitable than domestic firms
Vogel (2011)	Germany	2003-2005	Examination of whether export premia and self-selection into export markets exist in business services enterprises	Descriptive statistics, Pooled OLS estimation, Fixed effects OLS,	Exporting business services enterprises are larger, more productive and pay higher average wages. Large business services firms also self-select into export markets while more productive and high-wage firms only tend to self-select them when they are located in Western Germany
Vogel and Wagner (2012)	Germany	2003-2007	Outlier-robust estimation of exporter productivity premia in business services enterprises	Descriptive statistics, Pooled OLS estimation, Fixed effects OLS, Quantile regressions, Trimmed data regressions, Outlier robust pooled and fixed effects estimation	The estimates of exporter productivity premia for German business service firms are very sensitive to outlying observations. The estimated exporter productivity premium is significant when a standard fixed effects estimator is used, but it drops to zero when a robust estimators are applied. Larger firms tend to have lower exporter productivity premia.