Exporters and importers of services: firm-level evidence on Italy

Stefano Federico and Enrico Tosti*

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Abstract

This work contributes to the small but growing firm-level literature on international trade in services. Our dataset, based on a new Bank of Italy survey, provides information on exports and imports of services (excluding transportation and travel) in 2008-09 for almost 3,000 Italian industrial and services firms, divided by partner country and type of service. We report a set of stylized facts on services trade. We also analyze the choice between export and foreign direct investment in services at the firm level, thus innovating with respect to the previous literature using industry data. The main findings are as follows: trade is highly concentrated across 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: distance strongly reduces trade in services in spite of their intangibility; exports are preferred to foreign affiliates' sales by smaller and less productive firms and in smaller markets.

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*Bank of Italy. E-mail addresses: stefano.federico@bancaditalia.it; enrico.tosti@bancaditalia.it. The authors wish to thank Andrea Ariu, Andrea Carboni, Riccardo De Bonis, Marco Magnani, Roberto Tedeschi and participants to the LETC conference in Ljubljana for useful commments. The views expressed in this paper are those of the authors and do not necessarily reflect those of the Bank of Italy.

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1 Introduction

International trade in services is growing in importance anywhere in the world. Improvements in information and communication technologies have increased the tradability of many services (Baldwin 2006). At the same time there has also been some progress in the liberalization of trade in services. World exports of services currently represent about 20% of world exports of goods and services. Data referring to countries for which long-time statistical series on services trade are available suggest indeed an upward trend in the ratio of services trade on goods trade since the 1970s (Lipsey 2008).

Despite the increasing importance of trade in services, the empirical literature is relatively small and mainly relies on aggregate data. Firm-level evidence, in particular, is much scarcer than firm-level evidence on trade in goods (Francois and Hoekman 2010). Only very recently have the first studies using firm-level data on exporters and importers of services begun to appear, mostly as working papers (Breinlich and Criscuolo 2011 on UK, Walter and Dell'mour 2010 on Austria, Kelle and Kleinert 2010 on Germany, Ariu 2011 and Ariu and Mion 2010 on Belgium).

This paper contributes to this small but growing literature by providing firm-level evidence on exporters and importers of services in Italy. We use a new database, derived from a Bank of Italy survey, which includes detailed information on exports and imports of "other services" (i.e. services excluding transportation and travel, such as information and communication services, royalties and licences, legal, engineering, accounting and advertising services, etc.), by type of service and partner country, for 2,955 Italian manufacturing and service firms in 2008-09. Thanks to this rich set of information, we investigate the main types of services traded and the main sectors involved, the degree of concentration, the relation with firm heterogeneity and the role of standard gravity variables.

For a subsample of firms we also have detailed information on the activity of foreign affiliates. This allows us to study the relation between trade in services and ownership of foreign affiliates by firm, country and type of service and, in particular, the choice between export and foreign direct investment (FDI) in services. The provision of services through FDI is indeed often more important than the provision of services through cross-border trade (Francois and Hoekman 2010).

Our work is most closely related to Breinlich and Criscuolo (2011), who provide similar evidence on service traders in the United Kingdom. We extend their work in two ways. First, we focus on a different country, which is broadly similar in size but different under several respects (e.g., legal system, language, lower average firm size, share of manufacturing on GDP); this allows us to see whether their results are specific to the country under investigation or hold more generally. Despite Italy's lower specialization in services, trade in services is increasingly important: the sum of exports and imports in the "other services" item equals 4.8% of Italy's GDP in 2009 (5.3% in 2008, more than one tenth of the ratio of trade in goods to GDP) and has risen significantly over the last two decades (Figure 1). Second, while Breinlich and Criscuolo (2011) only include multinational activity as a binary variable, we exploit our rich firm-level information on foreign affiliates' sales by country of location and main sector of activity in order to investigate the relation between services exports, imports and FDI. There is usually no or little analysis of the relation between trade and ownership of foreign affiliates also among the other studies using detailed firm-level data on services trade (Ariu and Mion 2010, Ariu 2011, Kelle and Kleinert 2010, Walter and Dell'mour 2010).

Other studies focus instead on trade by firms in specific service sectors (Conti, Lo Turco and Maggioni 2010, Temouri, Vogel and Wagner 2010). However, trade in services is not necessarily restricted to firms whose main activity is encompassed by one of the service sectors: as we shall see, the contribution of manufacturing firms to both exports and imports of services is far from negligible (Kelle and Kleinert 2010).

There is also a wide literature using aggregate data (at the country-sector level) on trade in services (Freund and Weinhold 2002, Fillat Castejón, Francois and Woerz 2008, Head, Mayer and Ries 2009 and Christen and Francois 2010, Oldenski 2011). Christen and Francois (2010) and Oldenski (2011) are two recent studies focusing on the export versus FDI decision in services but both studies carry the analysis at the industry level.

Finally, our work also relates to the literature on goods trade. On the theoretical side, recent developments focus on heterogeneous firms (Melitz 2003, Melitz and Ottaviano 2008) and on multi-product firms (Bernard, Redding and Schott 2006, Eckel and Neary 2010, Mayer, Melitz and Ottaviano 2010). A large set of studies explores the various margins of trade (firms, products and countries) using very rich datasets on exporters and importers of goods (Eaton, Kortum and

Kramarz 2004, 2008, Bernard, Jensen, Redding and Schott 2007, Bernard, Jensen and Schott 2009, Bernard, Jensen, Redding and Schott 2009, Manova and Zhang 2009, Mayer and Ottaviano 2007 and, for Italy, Castellani, Serti and Tomasi 2010).

The data we use has several advantages. First, it includes detailed information by type of service (with almost 30 different categories) and by partner country. Second, it is based on a highly representative sample of firms, covering more than 50% of Italy's total exports and imports included in "other services". Third, it refers to very recent years (2008 and 2009), which is an important asset since trends in ICT and service tradability are changing at a very fast pace. Fourth, it can be linked to other firm-level datasets, from which information on balance-sheet variables and on foreign affiliates is derived.

On the downside, data before 2008 is not available and, as a consequence, our dataset only covers the two years in which the global financial crisis was at its peak, although trade in services proved more resilient than trade in goods. Furthermore, the sampling scheme includes medium and large firms which are likely to participate in international activities and does not cover small or very small firms. Finally, our data does not cover trade in goods.

The rest of this paper is organized as follows: section 2 describes our data; section 3 and 4 report the main findings drawn from the empirical analysis of trade in services. Section 5 analyzes the relation between trade and foreign affiliates in services. Section 6 concludes.

2 Data description

Data on international trade in services is collected by the Bank of Italy in order to compile the "services" item in the current account of Italy's balance of payments. Before 2008, data on services was derived from banks' aggregate reports on cross-border payment transactions, which did not include any firm-level information on exporters or importers. Since 2008, data on services is instead derived from a firm-level survey, which is conducted on a quarterly basis. We chose to report results for 2009 instead of 2008, since in 2008 the sample size was smaller and the reporting quality was slightly lower, as one would indeed expect in the first year of a survey. This said, the checks we performed showed that all the main results hold for 2008 as well.

The reference population of the sample corresponds approximately to about

1,5 million firms whose center of economic interest is in Italy. In terms of sector coverage, the survey does not include banks, other non-insurance financial intermediaries or public administration entities. The survey scheme defines a threshold corresponding to about 70 million euros of sales. There are approximately 3,800 firms above this threshold, accounting for 45 per cent of total sales in the reference population. In 2009, 2,616 firms provided data for at least one quarter. Restricting the sample those firms which provided data for all the four quarters of 2009, we are left with 2,141 firms. Data for banks is instead on a census basis and is collected by the Bank of Italy for supervision and statistical purposes. In 2009 814 banks were authorized to operate in Italy; more than half (433) were small banks (co-operative banks). The "full sample" is then composed of 2,955 firms.

We also use a smaller "CB sample" that includes the subset of firms for which complete balance sheet data is available for 2009. Balance sheet data is derived from Centrale dei bilanci (CB) and Cerved. CB is a commercial database maintained by a consortium of banks for credit risk evaluation purposes. For firms that are not included in CB, we use data from Cerved, which records the official financial statements filed at the Italian Chambers of Commerce. The sample size is now narrowed down from 2,955 to 1,489. This drop is mainly due to the the banking and insurance sector, which we do not include because the balance sheet structure for financial firms is very different compared to firms in manufacturing and other services.

Table 1 provides a comparison of the two samples. Both samples are mainly composed of large firms. The median number of employees is 191 in the full sample, and 281 in the CB sample. The mean number of employees is 635 in the former, 755 in the latter. On average, exports and imports of services account for less than 10 million euros in both samples.

Exports and imports of services are defined as transactions between resident units and non-resident units, in line with the 5th Balance of Payments Manual (IMF 1997). The concept of residence, which is also used in national accounts, is based on a unit having its "center of economic interest" within a country (see Lipsey 2008). For the purpose of this paper, we consider a subset of the services item which is defined as "other services" and includes the international service transactions which are not covered under transportation and travel. Breinlich and Criscuolo (2011) also exclude travel and passenger transportation, which are often derived from other surveys in which detailed firm-level information is usually not

available.[1] We also exclude the following items: merchanting, which is defined as the purchase and subsequent resale of a good (without the good entering or leaving the borders) and is currently recorded on a net basis in the "other business services" item[2]; construction services; government services, which cover all services associated with government sectors or with international and regional organizations and not classified under other items (i.e. such as expenditures of embassies and consulates).

Exports and imports of services are disaggregated by partner country and by type of service. Types of services are defined according to the Extended Balance of Payments Services (EBOPS) classification. There are 29 types of services in our data (Table 2)[3]. While being the most disaggregated level in the EBOPS classification, still it is much more aggregate than the usual product classifications available for trade in goods. Our analysis on the contribution of the "extensive margin" of service trade (i.e. variation in the number of service types traded) should take into account that available classifications for types of services are very coarse.

It is useful to compare our definition of international trade in services to the four modes through which services can be internationally traded according to the General Agreement on Trade in Services (GATS). Mode 1 (cross-border supply) takes place when the consumer receives a service from a foreign supplier without either the consumer or the supplier leaving their own countries. In mode 2 (consumption abroad), the consumer of a service moves to another country to obtain a service, while in mode 3 (commercial presence) services are supplied through a foreign affiliate in the country of the consumer. In mode 4 (presence of natural persons) an individual moves to the country of the consumer in order to provide a service. Our definition is in line with the recent literature using balance-of-payments data (Breinlich and Criscuolo 2011, Walter and Dell'mour 2010) and includes modes 1, 2 and 4, while it excludes mode 3.

For a subsample of firms we also have information on foreign affiliates. This allows us to get an estimate of the quantitative importance of the provision of

[1]Firm-level data on transportation and travel is not available for Italy as they are collected by means of different sample surveys. Travel and passenger transport data are collected directly from travellers and not from firms. The survey on merchandise transport collects data on tariffs but not on sales.

[2]According to the IMF's 6th Balance of Payments Manual, which will be implemented by 2014, merchanting is to be recorded under the "goods" item instead of the "services" item.

[3]Only in one case is our classification more detailed than the EBOPS classification (the distinction between "agricultural services" and "mining and on-site processing services").

services through the activities of foreign affiliates abroad (mode 3). Starting from year 2007 the Bank of Italy collected outward Foreign affiliates statistics (FATS).[4] The reference population of the sample is made up of about 280,000 firms whose ultimate controlling institution is based in Italy. In terms of sector coverage, the survey does not include banks, other non-insurance financial intermediaries and the public administration. The sampling scheme is based on strata determined by the following variables: total assets, geographical area and past ownership of foreign affiliates. The survey collects the following information on foreign affiliates: number of employees, sales, country of location and main sector of activity. As Alfaro and Chen (2011), we choose to drop foreign affiliates with zero employees or zero sales. This excludes companies that are likely to be registered exclusively for tax purposes or that are not active yet. Using the VAT number as a firm identifier, we are able to match 878 firms out of 2,955 firms.

One important issue is that foreign affiliates report only total sales, which might include also sales of manufacturing products. We therefore consider only foreign affiliates whose main sector of activity is in services. We also exclude foreign affiliates whose main sector of activity is in services but does not have any correspondence to our service types, either because it is typically not traded or because it is not included in our services trade data: holding companies, wholesale and retail trade, transportation and storage; accomodation and food service activities, public administration and defence. The type of service classification has been matched with the NACE rev. 2 classification of foreign affiliates' main sector of activity on the basis of the activity description, similarly to Christen and Francois (2010). The match results in a less detailed classification (12 types of services, Table 3); no match with NACE activity sectors was available for three types of service ("Franchises and similar rights", "Other royalties and license fees" and "Services between affiliated enterprises, not included elsewhere").

A second important issue is that in our data no information is available on the destination country of foreign affiliates' sales. If host-country sales are only a small fraction of total sales, as in export-platform FDI models, our data would measure the export versus FDI decision with error. Available evidence reported

[4]FATS statistics include only majority-owned foreign affiliates, i.e. when the investor owns more than 50% of equity shares or voting rights. The definition is more restrictive than the one for FDI statistics, which include all foreign affiliates in which an investor owns at least 10% of equity shares or voting rights. Another difference is that FDI statistics are based on the immediate counterparty country principle, while FATS statistics are based on the ultimate country principle. For simplicity, in the rest of the paper we will use the term FDI to refer to the ownership of foreign affiliates in the FATS statistics.

by the Bureau of Economic Analysis for U.S. multinationals' foreign affiliates shows that export-platform FDI models are more common for the provision of goods than for the provision of services. According to the same source, in 2009 host-country sales of services accounted for 73% of foreign affiliates' total sales (BEA 2011). This suggests that the measurement error derived from using total sales instead of local sales is likely to be small.

3 Main patterns

This section presents the main patterns of trade in services. Since our data comes from a sample survey, we chose to report weighted data (with the exception of data on the number of firms) in order to make them representative of the reference population. The weights are based on inverse sampling probabilities and are in a range between 1 and 6. However, using unweighted data instead of weighted data does not appear to have any significant impact on all our main results.

We begin by looking at the distribution of firms in our full sample (including banks) by industry and trade status: Tables 4, 5 and 6 report the number of firms, the row percentages and the column percentages, respectively. We find that firms which export and import services represent 31.6% of our sample; if we exclude banks, the percentage goes up to 40.5%, in consequence of the weak presence of cooperative (and minor) banks in international transactions in services. It is much more likely that one is an importer without exporting (24.5% or, excluding banks, 29.6%) rather than an exporter without importing (2.7% or 3.4%), in contrast to the findings on UK firms reported by Breinlich and Criscuolo (2011). This is in line with the differences in specialisation patterns between Italy and the United Kingdom: the former has a much larger share of activity in manufacturing and records a deficit in the other services balance, while the opposite is true for the latter.

Firms that do not export nor import represent 41.3% of our sample, which goes down to 26.5% if banks are excluded. This figure reflects the composition of our sample, which by construction only includes medium and large firms which are more likely to export or import services than small or very small firms.

Also there are some differences across industries. Firms in the "information and communication sector" and in the "professional, scientific and technical activities" sector are much more likely to be both exporters and importers. In contrast, firms in the "construction" and 'financial and insurance' sector are more

likely to be neither exporters nor importers. It should also be noted that almost half of the firms in the "manufacturing" sector are exporters of services.

This is confirmed by Table 7, which reports the value of trade in services by industry. Manufacturing firms represent 35.5% of exports of services and 33.0% of imports.This percentage is much higher than in Belgium (about 15% for both flows, according to Ariu and Mion 2010) but only slightly higher than in Germany (about 25% for exports, 30% for imports, according to Kelle and Kleinert 2010), a country which like Italy has a relatively high share of activity in the manufacturing sector. The two other large contributions come from firms in the "financial and insurance activities" sector (31.1% of exports and 27.2% of imports) and from firms in the "information and communication" sector (12.1% of exports and 23.1% of imports).[5]

Table 8 reports instead the value of trade by type of service. The largest types of services for both exports and imports are "reinsurance", "other miscellaneous business services" and "services between affiliated enterprises, n.i.e.". Other types of services with significant flows include "telecommunication services", "franchises and similar rights", "other royalties and license fees", "advertising and market research", "research and development services", "financial services" and "computer services".[6]

The distribution of the types of services traded is strongly related to the sector of activity, on both the export and the import side. Specifically, for manufacturing firms the most frequent types include services between affiliates, royalties and franchises and advertising; firms in the information and communication sector usually export and import computer services, telecommunication services and royalties and franchises; for insurance companies, more than 80% of exports and imports are concentrated in reinsurance; firms in the professional, scientific and technical activities sector tend to trade advertising, R&D, architectural and engineering and other technical services.

Trade in services is highly concentrated among firms, as already found for the UK and for Austria by Breinlich and Criscuolo (2011) and Walter and Dell'mour

[5]As expected, the ratio of services exports on turnover (total sales of goods and services) is relatively lower for manufacturing firms (about 3% on average) than for services firms (between 6 and 12% for information and communication, financial and insurance, transportation, professional, scientific and technical activities); for the latter, the ratio of services exports on turnover is slightly lower than the corresponding value for Austrian firms (Walter and Dell'mour 2010).

[6]The composition of trade by type of service is more precise under the new survey-based data collection compared to the previous settlement-based system, where a much larger share of flows was recorded under residual items such as "other miscellaneous business services".

(2010), respectively. Table 9 shows that the top 10 exporters account for 20.8% of the total export value in the reference population, and the top 100 exporters account for 45.5% of total export value. Imports are slightly less concentrated, with the top 100 importers accounting for 38.6% of total import value.[7]

Table 10 reports the distribution of exporters and export value by number of service types and countries. As it is also the case with trade in goods, there is a small number of exporters which export many products to many countries and account for a large share of total value. We find that a similar pattern holds for exports but not for imports of services. For exports, 5.1% of firms are large exporters (i.e. those exporting 5 or more service types to 10 or more countries) and account for 35.3% of total exports. For imports, instead, the share of large importers (i.e., those importing 5 or more types from 10 or more countries) is significantly higher (21.2%), and represents 50.8% of import value (Table 11).

Table 12 reports data on the distribution of the number of countries, the number of types of services, the total value of trade and the values per country, per number of types of services and per country-service combination. Looking at firms with positive exports, the median firm exports only one type of service to 4 different countries. There seems to be a larger variation in sources and types of imports: in the sample of firms with positive imports, the median firm imports 3 types of services from 5 different countries. In other terms, firms are more likely to export a single service type to many countries than to export several types of services, presumably reflecting firms' specialisation in producing a single type of service. In contrast, firms are more likely to import two or more types of services; this may be explained considering that services are often used as intermediate inputs.

For a large part of firms, the value of services exported or imported is quite small: the median value equals to 0.8 EUR millions for exports and 0.7 for imports, the 75th percentile equals to 5.7 EUR millions for exports and 4.2 for imports.

Trade in services is also concentrated within firms. Tables 13 and 14 report the share on firms' exports or imports of their most important partner countries or types of services, respectively. The upper panel of Table 13 shows that for a firm exporting to two countries, the top country accounts on average for 82.7% of the firm's exports; Breinlich and Criscuolo (2011) find a slightly lower incidence

[7]Trade in goods is also concentrated, with 700 large Italian exporters (0.4% of the universe of exporters) accounting for 43% of exports in 2009, according to Istat data.

of the top market for UK firms (76.0%). For a firm exporting to three countries, the top country still accounts for a 72.7% share of the firm's exports. Even for a firm exporting to a number of countries between 11 and 20, the top country receives more than half of the firm's exports. A similar pattern is also found for imports (lower panel of Table 13). The top type of service accounts for more than 80% of exports or imports for a firm with only two types of services exported or imported, and for more than 60% for a firm with 6 to 10 types of services traded (Table 14, upper and lower panels).

4 Analysis of firm and country-level variation

This section reports the results of regressions on firm and country-level variation, using either our full sample (including banks) or our CB sample. In detail, in Table 15 firm-level variation in the log of export value is decomposed in: the log of the number of countries a firm exports to; the log of the number of types of services exported; the log of the average export value per country-service type combination. The first two can be defined as the extensive margins of trade (by country and type of service), while the latter corresponds to the intensive margin of trade. The upper panel shows that almost 70% of firm-level variation is explained by the intensive margin, i.e. by the export value per country-service type combination. The contribution of the intensive margin is very similar to the one found by Breinlich and Criscuolo (2011) for UK firms.

The lower panel shows that, using data from the CB sample and controlling for two-digit industry fixed effects, export value is positively correlated with both the number of employees and value added per employee. Size is positively and significantly correlated with all the three margins, while productivity is positively and significantly correlated with the intensive margin only. A similar decomposition of import values shows that firm-level variation is again largely explained by the intensive margin (65%; Table 16). Controlling for two-digit industry fixed effects, size and productivity are positively correlated with all the three margins of firm-level variation in imports.

Tables 17 looks instead at the country-level variation of exports. The log of export is decomposed in: the log of the number of firms exporting to a given country; the log of the number of service types exported to a given country; the log of the average export value per firm-service type combination. While firm-level variation is driven by the intensive margin, country-level variation is

instead mainly driven by extensive margins: the number of firms exporting to a given country accounts for 41% of country-level variation in exports; the number of service types accounts for an additional 27%.

The lower panel of Table 17 regresses export value and each one of the three margins on the standard gravity variables: distance (taken from Cepii) and GDP (taken from the World Bank). As expected, distance is negatively correlated with export values, with a coefficient equal to -0.64. However, the negative effect of distance only works through the extensive margins, by reducing the number of firms exporting to a given market and the number of service types exported. Distance is instead not significantly correlated with the intensive margin, as also found by Breinlich and Criscuolo (2011) in contrast with previous findings on goods trade. The coefficient on GDP is positive (1.02) and significantly correlated with all thr three margins of exports. The results for imports are largely similar (Table 18).

Distance seems however to have a stronger impact on imports, with a coefficient equal to -0.85, again concentrated in the extensive margins. The impact of distance on service trade is broadly similar to that on goods trade. This finding is apparently surprising given the intangibility of services, but it can be explained by other features of services, such as the need for close interaction between producer and consumer. This is much harder to get when there are significant language or cultural differences, which generally increase with geographical distance.

5 Trade in services and foreign affiliates

In this section we use detailed data on foreign affiliates that are available for a subsample of firms. We first present evidence on firms' status (exporter, importer and FDI in services). We then look at the choice between export and FDI. As mentioned in Section 2, we are able to match 878 firms; 205 firms are purely "domestic" firms, with zero exports, imports and foreign affiliates' sales. The distribution of the remaining 673 firms with at least some international activity in services is reported in Table 19. The most recurrent status is to be an exporter and importer, without any FDI. The second most recurrent status is to be only an importer. Only a very small number of firms is instead engaged in just exporting or just FDI. Firms with FDI in services represent about 18% of this subsample. In particular, firms with all three forms of international activity represent 12% of

the subsample but account for an extremely large share of exports (66%), imports (53%) and especially foreign affiliates' sales (92%). Not only is trade in services highly concentrated, but foreign affiliates' activity is also extremely concentrated in a relatively small group of multinational firms that take part in all three forms of international activity.

We then focus on the export versus FDI decision. Using data on foreign affiliates' sales, we are able to compute a measure of the propensity to export relative to sell through foreign affiliates. Table 20 reports the share of exports on exports and foreign affiliates' sales by type of service. There is a huge variability across sectors: the share goes from a minimum of 0 (news agency services) to a maximum of 0.89 (research and development services). The ranking is very similar to the one reported by Oldenski (2011) on U.S. data. As in her work, research and development, architectural and engineering and other business services tend to have a high propensity to export relative to FDI, while financial and insurance services have an extremely low share of exports on exports and foreign affiliates' sales (0.01 and 0.04 respectively).

The distribution of the export share by firm-type-country and by firm is reported in Table 21. The distribution by firm-type-country appears to be bimodal, with a large majority of observations with only exports and no FDI, a smaller share of observations with FDI and no exports and very few observations in between. As expected, the distribution by firm shows a larger share of firms that simultaneously exports and sells through foreign affiliates, but still 70% of firms only export.[8]

Finally, we report the results of a simple OLS specification where the ratio of exports to the sum of exports and foreign affiliates' sales is regressed on GDP, distance and firm-level employment and productivity, proxied by either sales per employee or value added per employee (Table 22). The sample is made of all firm-country-type combinations for which we record positive exports or foreign affiliates' sales. We control for industry fixed effects and service type fixed effects in every specification. The export share is smaller in larger markets and in larger and more productive (when productivity is measured as sales per employee) firms. It is not significantly related to distance. Columns (3) and (4) show that the

[8]The number of firms with positive exports or foreign affiliates' sales is slightly smaller than in Table 19. This is explained by the exclusion of firms with exports in three services items for which no available match was available in the FATS database ("Franchises and similar rights", "Other royalties and license fees" and "Services between affiliated enterprises, not included elsewhere".)

results on firm-level variables do not change when we control for country fixed effects. Column (5) shows that, controlling for firm fixed effects, market size is still negatively related to the export share but distance now becomes significant with a positive sign. The finding that smaller and less productive firms are more likely to export than to sell through foreign affiliates is consistent with theoretical predictions in Helpman, Melitz and Yeaple (2004).

6 Concluding remarks

This work contributes to the firm-level literature on international trade in services, using data derived from a new Bank of Italy survey on exports and imports of services covering almost 3,000 Italian industrial and services firms. The richness of our data, which includes information on the partner country and on the type of service traded, allows us to provide a first comparison to the stylized facts on service traders reported by previous literature, such as those reported by Breinlich and Criscuolo (2011) for their sample of UK firms. In addition, we are able to report detailed firm-level evidence on the relation between trade and FDI in services. This is important, given that the provision of services through foreign affiliates is often more significant than through cross-border trade.

Our main findings can be summarized as follows. Importing services is much more likely than exporting services. Only a small number of firms export services but do not import services, while the converse is much more frequent. Firms in the services sector are not the only ones that actually export services. About one third of the total value of exports of services comes from manufacturing firms. Trade in services is highly concentrated across firms: the top 10 firms represent about 20% of the total value of exports and imports in the reference population, the top 100 firms represent 46% of exports and 39% of imports.

Firm-level variation in the value of traded services is largely driven by the intensive margin (average export or import value per number of country-service type combinations) rather than the extensive margins (number of countries or number of service types traded). Size and productivity are correlated with total trade value as well as with both intensive and extensive margins. Country-level variation is instead mainly driven by the number of firms exporting to or importing from a given country. The standard gravity variables explain a large fraction of country-level variation. In particular, distance reduces services trade similarly to what results from estimates for goods trade, despite the intangibility

of services and the absence of physical transport costs. Moreover, the effect of distance is stronger for imports than for exports, and only works through the extensive margins (number of firms and number of service types traded), but not through the intensive margin. Further research should focus on language, cultural and legal determinants which may explain the negative effect of geographical distance.

Overall, our findings support most, but not all, the stylized facts on services trade reported by Breinlich and Criscuolo (2011) in their study of UK firms. In particular, in contrast to them we find that importing services is much more likely than exporting services; their finding presumably reflects UK's strong comparative advantage in services. Moreover, we find that FDI activity in services is even more concentrated than the already highly concentrated trade. The extremely high level of concentration is in line with the general pattern observed in services (Christen and Francois 2010) and casts some doubts on the conclusion that theoretical models of goods trade may be applied to trade in services without significant modifications.

The high level of firm heterogeneity suggests that liberalization in services trade could have significant effects on aggregate productivity, following a reallocation of market shares in favour of more productive exporters, as pointed out in recent models of trade with heterogeneous firms (Melitz 2003). Services trade could also have important effects on productivity through the import side, since most services purchased from abroad are intermediate inputs. Further research is required to study the relation between trade in services and productivity.

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Figure 1: **Italy: Exports and imports of other services (% of GDP)**

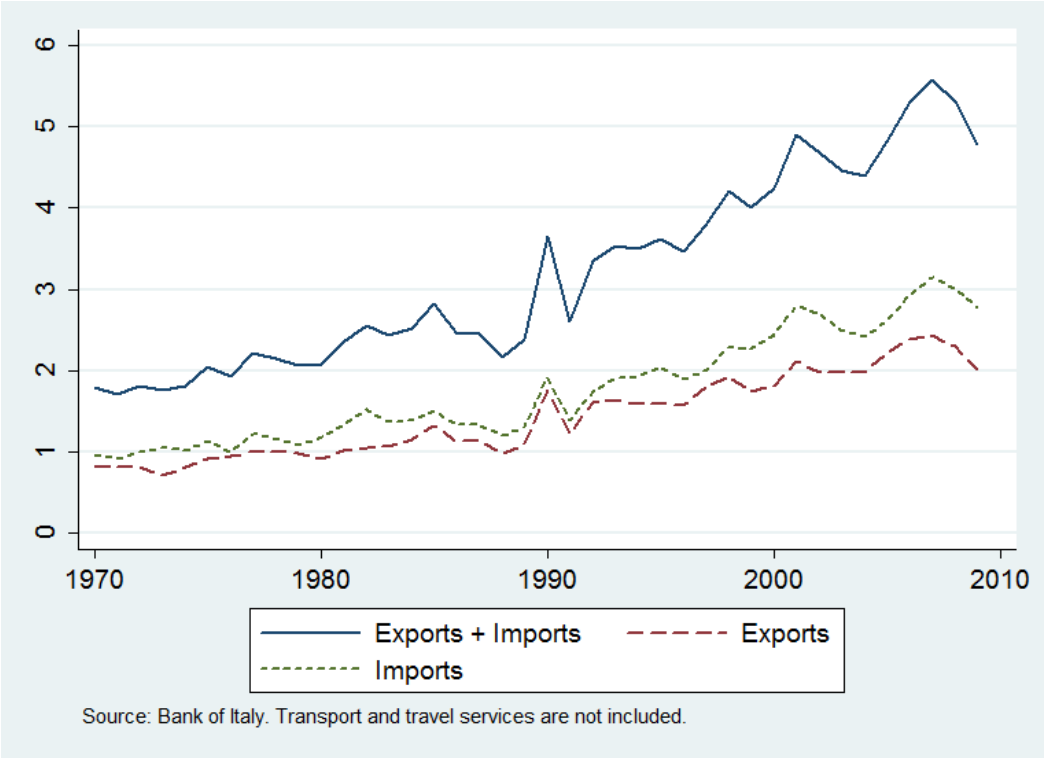

Table 1: **Samples**

	Full sample		**CB sample**	
Variable	Mean	Median	Mean	Median
Employees	635	191	755	281
Sales	339	115	437	147
Exports of services	5	0	5	0
Imports of services	6	0	7	0
Value added			68	21
Wages			38	13
Value added per employee			115	75
Wages per employee			58	49
No. firms	2955	2955	1489	1489

Unweighted data.

Table 2: **Classification of service types**

Type of service	**EBOPS code**
Communications services	*245*
Telecommunication services	247
Postal services	958
Courier services	959
Insurance services	*253*
Life insurance and pension funding (premiums and claims)	254
Freight insurance (premiums and claims)	255
Other direct insurance (premiums and claims)	256
Reinsurance (premiums and claims)	257
Auxiliary services	258
Financial services	*260*
Financial services	260
Computer and information services	*262*
Computer services	263
News agency services	889
Other information provision services	890
Royalties and license fees	*266*
Franchises and similar rights	891
Other royalties and license fees	892
Other business services	*268*
Legal services	275
Accounting, auditing, book-keeping and tax consulting services	276
Business and management consultancy, public relations services	277
Advertising, market research and public opinion polling	278
Research and development services	279
Architectural, engineering and other technical consultancy	280
Waste treatment and depollution	282
Agricultural services	283
Mining and on-site processing services	283
Other miscellaneous business, professional and technical services	284
Services between affiliated enterprises, n.i.e.	285
Personal, cultural and recreational services	*287*
Audio-visual and related services	288
Education services	895
Health services	896
Other	897

Table 3: **Match between EBOPS service types and NACE activities**

Type of service	**EBOPS code**	**Nace rev. 2 code**
Communication services	245	53, 61
Insurance services	253	65
Financial services (except holding)	260	64 (ex.642), 66
Computer services	263	62
News agency services	889-890	63
Business and management consultancy	277	70
Advertising and market research	278	73
Research and development services	279	72
Architectural and engineering services	280	71
Other business, professional and technical services	275-276, 282-284	37-39, 68-69, 74, 77-82
Audio-visual and related services	288	59-60
Other personal, cultural and recreational services	895-897	75, 85-88, 90-96
Types of services without match in NACE		
Franchises and similar rights	891	
Other royalties and license fees	892	
Services between affiliated enterprises, n.i.e.	285	

Table 4: **Number of firms by industry**

Industry	**No X-M**	**Only X**	**Only M**	**X&M**	**Total**
Manufacturing	203	36	300	426	965
Electricity, gas, water	33	4	47	17	101
Construction	34	6	15	13	68
Wholesale and retail trade	183	16	152	119	470
Transportation and storage	18	2	20	40	80
Accommodation and food service activ.	3	0	6	8	17
Information and communication	7	0	21	58	86
Financial and insurance activities	698	12	119	170	999
Real estate activities	13	0	4	1	18
Professional, scientific and technical activit	6	1	4	34	45
Administrative and support service activities	9	2	20	24	55
Other	12	1	15	23	51
Total	1219	80	723	933	2955

Full sample. Unweighted data. X: exporter. M: importer.

Table 5: **Share of firms by industry (row percentages)**

Industry	**No X-M**	**Only X**	**Only M**	**X&M**	**Total**
Manufacturing	21.0	3.7	31.1	44.1	100.0
Electricity, gas, water	32.7	4.0	46.5	16.8	100.0
Construction	50.0	8.8	22.1	19.1	100.0
Wholesale and retail trade	38.9	3.4	32.3	25.3	100.0
Transportation and storage	22.5	2.5	25.0	50.0	100.0
Accommodation and food service activ.	17.6	0.0	35.3	47.1	100.0
Information and communication	8.1	0.0	24.4	67.4	100.0
Financial and insurance activ.	69.9	1.2	11.9	17.0	100.0
Real estate activities	72.2	0.0	22.2	5.6	100.0
Professional, scientific and technical activ.	13.3	2.2	8.9	75.6	100.0
Administrative and support service activ.	16.4	3.6	36.4	43.6	100.0
Other	23.5	2.0	29.4	45.1	100.0
Total	41.3	2.7	24.5	31.6	100.0

Full sample. Unweighted data. X: exporter. M: importer.

Table 6: **Share of firms by industry (column percentages)**

Industry	**No X-M**	**Only X**	**Only M**	**X&M**	**Total**
Manufacturing	16.7	45.0	41.5	45.7	32.7
Electricity, gas, water	2.7	5.0	6.5	1.8	3.4
Construction	2.8	7.5	2.1	1.4	2.3
Wholesale and retail trade	15.0	20.0	21.0	12.8	15.9
Transportation and storage	1.5	2.5	2.8	4.3	2.7
Accommodation and food service activ.	0.2	0.0	0.8	0.9	0.6
Information and communication	0.6	0.0	2.9	6.2	2.9
Financial and insurance activities	57.3	15.0	16.5	18.2	33.8
Real estate activities	1.1	0.0	0.6	0.1	0.6
Professional, scientific and technical activ.	0.5	1.3	0.6	3.6	1.5
Administrative and support service activ.	0.7	2.5	2.8	2.6	1.9
Other	1.0	1.3	2.1	2.5	1.7
Total	100.0	100.0	100.0	100.0	100.0

Full sample. Unweighted data. X: exporter. M: importer.

Table 7: **Value of trade in services by industry**

Industry	**Exports**	**%**	**Imports**	**%**
Manufacturing	9816	35.5	10719	33.0
Electricity, gas, water	55	0.2	393	1.2
Construction	130	0.5	127	0.4
Wholesale and retail trade	1238	4.5	1757	5.4
Transportation and storage	1853	6.7	1228	3.8
Accommodation and food service activ.	153	0.6	54	0.2
Information and communication	3343	12.1	7507	23.1
Financial and insurance (incl. banks)	8607	31.1	8844	27.2
Real estate activities	17	0.1	76	0.2
Professional, scientific and technical activ.	1180	4.3	831	2.6
Administrative and support service activ.	224	0.8	514	1.6
Other	1040	3.8	439	1.4
Total	27657	100.0	32490	100.0

Full sample. Weighted data.

Table 8: **Value of trade in services by service type traded**

Type of service	**Export**	**%**	**Import**	**%**
Telecommunication services	2155	7.8	2567	7.9
Postal services	0	0.0	16	0.0
Courier services	79	0.3	70	0.2
Life insurance and pension funding	93	0.3	47	0.1
Freight insurance	14	0.1	55	0.2
Other direct insurance	389	1.4	847	2.6
Reinsurance	5833	21.1	6260	19.3
Auxiliary services	851	3.1	515	1.6
Financial services	1626	5.9	1688	5.2
Computer services	995	3.6	2399	7.4
News agency services	10	0.0	23	0.1
Other information provision services	11	0.0	87	0.3
Franchises and similar rights	1126	4.1	2639	8.1
Other royalties and license fees	1412	5.1	2208	6.8
Legal services	8	0.0	219	0.7
Accounting, auditing, book-keeping	246	0.9	524	1.6
Business and management consultancy	466	1.7	704	2.2
Advertising, market research	1331	4.8	1567	4.8
Research and development services	1605	5.8	1082	3.3
Architectural, engineering	859	3.1	1379	4.2
Waste treatment and depollution	781	2.8	189	0.6
Agricultural services	0	0.0	0	0.0
Mining and on-site processing services	3	0.0	99	0.3
Other miscellaneous business services	3717	13.4	3880	11.9
Services between affiliated enterprises, n.i.e.	3880	14.0	2993	9.2
Audio-visual and related services	136	0.5	149	0.5
Education services	4	0.0	17	0.1
Health services	3	0.0	9	0.0
Other personal services	18	0.1	187	0.6
Total	27651	100.0	32417	100.0

Table 9: **Top exporters and importers of services: share on total trade value**

	Top 5	**Top 10**	**Top 20**	**Top 50**	**Top 100**
Export	14.7	20.8	27.9	38.2	45.5
Import	14.2	18.7	23.3	31.8	38.6

Full sample. Share of top exporters or importers' trade values (unweighted) on total trade values in the reference population (weighted).

Table 10: **Distribution of exporters and export value by number of service types and countries**

	No. countries						
No. types	1	2	3	4	5-9	10+	All
	Number of exporters						
1	22.7	6.5	5.3	1.8	6.1	9.4	51.8
2	3.8	4.2	2.3	0.9	4.2	3.9	19.4
3	0.5	1.1	1.5	1.1	4.4	4.4	12.9
4	0.0	0.5	0.4	0.4	2.2	3.9	7.4
5+	0.0	0.1	0.4	0.6	2.3	5.1	8.4
All	27.0	12.3	9.9	4.7	19.2	26.8	100.0
	Export value						
1	6.0	1.7	0.9	1.2	2.0	14.9	26.8
2	4.4	0.6	0.6	0.2	2.4	8.3	16.5
3	0.0	1.6	1.0	0.3	3.7	4.3	11.1
4	0.0	0.1	0.1	0.0	1.5	5.6	7.3
5+	0.0	0.0	0.5	0.2	2.2	35.3	38.3
All	10.4	4.1	3.1	2.1	11.8	68.5	100.0

Full sample. Weighted data for export value.

Table 11: **Distribution of importers and import value by number of service types and countries**

	No. countries						
No. types	1	2	3	4	5-9	10+	All
	Number of importers						
1	11.9	2.9	1.8	0.8	2.0	2.5	21.8
2	3.3	5.2	1.5	1.7	2.4	2.0	16.1
3	1.3	1.6	2.1	2.0	3.7	2.5	13.2
4	0.8	0.4	1.6	0.8	4.1	3.2	11.0
5+	0.6	1.2	1.1	2.1	11.7	21.2	37.9
All	17.8	11.3	8.1	7.4	23.9	31.4	100.0
	Import value						
1	1.8	0.6	0.6	1.4	1.0	4.3	9.8
2	1.7	0.3	0.2	0.3	1.1	3.8	7.4
3	0.5	0.6	0.2	1.0	0.7	1.9	4.9
4	6.3	0.2	0.5	0.4	1.0	5.4	13.9
5+	0.3	4.7	0.2	0.3	7.6	50.8	64.0
All	10.7	6.4	1.8	3.4	11.4	66.2	100.0

Full sample. Weighted data for import value.

Table 12: **Number of service types and countries per firm**

	No. of countries	**No. of types**	**Value (total)**	**Value per country**	**Value per type**	**Value per country*type**
			Export			
1 pct.	1	1	0.0	0.0	0.0	0.0
25 pct.	1	1	0.1	0.0	0.1	0.0
50 pct.	4	1	0.8	0.2	0.5	0.1
75 pct.	10	3	5.7	0.8	2.7	0.4
99 pct.	63	8	239.0	43.1	105.7	37.9
Mean	8.9	2.1	14.0	2.5	6.5	1.7
			Import			
1 pct.	1	1	0.0	0.0	0.0	0.0
25 pct.	2	2	0.1	0.0	0.0	0.0
50 pct.	5	3	0.7	0.1	0.2	0.0
75 pct.	13	6	4.2	0.5	0.9	0.1
99 pct.	59	14	141.1	26.0	47.5	11.2
Mean	9.9	4.2	10.2	2.0	2.6	0.7

Full sample. Weighted data. Only firms with positive exports (1013) or imports (1656).

Table 13: **Concentration of firm exports and imports by country**

	No. of partner countries							
Country ranking	1	2	3	4	5	6-10	11-20	21+
				Export				
1	100.0	82.7	72.7	73.3	66.0	59.5	54.9	38.7
2	.	17.3	21.5	17.2	19.2	19.6	17.1	16.2
3	.	.	5.8	6.9	9.7	9.4	9.5	10.4
4	.	.	.	2.6	3.7	5.4	5.8	7.5
5	.	.	.	.	1.3	3.2	3.8	5.3
No. firms	272	116	101	56	54	163	129	122
				Import				
1	100.0	83.1	73.8	70.8	70.5	60.8	49.7	43.2
2	.	16.9	20.5	20.0	18.0	19.4	19.4	16.5
3	.	.	5.7	7.0	7.4	9.5	10.9	9.9
4	.	.	.	2.1	2.9	5.1	6.6	6.7
5	.	.	.	.	1.2	2.7	4.2	4.8
No. firms	303	184	141	119	100	337	264	208

Full sample. Unweighted data.

Table 14: **Concentration of firm exports and imports by service type**

Service type ranking	**No. of service types** 1	2	3	4	5	6-10	11+
				Export			
1	100.0	83.5	77.3	72.7	67.3	65.6	52.6
2	.	16.5	18.5	18.0	20.5	20.4	28.3
3	.	.	4.2	7.3	8.0	8.3	8.9
4	.	.	.	2.0	3.1	3.6	6.5
5	.	.	.	.	1.1	1.3	2.3
No. firms	533	191	133	73	37	44	2
				Import			
1	100.0	80.5	74.9	71.9	66.6	60.9	54.8
2	.	19.5	20.2	19.2	21.0	21.3	21.3
3	.	.	4.9	6.9	8.3	9.5	10.0
4	.	.	.	2.0	3.1	4.4	5.7
5	.	.	.	.	1.0	2.3	3.3
No. firms	382	249	214	186	152	396	77

Full sample. Unweighted data.

Table 15: **Firm-level margins: exports**

Variables	(1) Ln(Value)	(2) Ln(No. of countries)	(3) Ln(No. of types)	(4) Ln(Value per country*type)
	Full sample (including banks)			
Ln(Value)	1.000***	0.216***	0.088***	0.697***
	(0.000)	(0.012)	(0.007)	(0.015)
Observations	1013	1013	1013	1013
R^2	1.000	0.416	0.254	0.739
	CB sample			
Ln(Employees)	0.725***	0.318***	0.159***	0.249***
	(0.087)	(0.035)	(0.025)	(0.074)
Ln(Value added per employee)	0.408**	0.064	0.035	0.309***
	(0.162)	(0.061)	(0.045)	(0.111)
Industry FE	Yes	Yes	Yes	Yes
Observations	614	614	614	614
R^2	0.303	0.349	0.200	0.203

Robust standard errors in parentheses. Weighted regressions.
*** p<0.01, ** p<0.05, * p<0.1

Table 16: **Firm-level margins: imports**

Variables	(1) Ln(Value)	(2) Ln(No. of countries)	(3) Ln(No. of types)	(4) Ln(Value per country*type)
	Full sample (including banks)			
Ln(Value)	1.000***	0.203***	0.144***	0.653***
	(0.000)	(0.009)	(0.007)	(0.014)
Observations	1656	1656	1656	1656
R^2	1.000	0.405	0.340	0.671
	CB sample			
Ln(Employees)	0.945***	0.330***	0.190***	0.424***
	(0.081)	(0.029)	(0.023)	(0.069)
Ln(Value added per employee)	0.664***	0.182***	0.130***	0.352***
	(0.139)	(0.050)	(0.037)	(0.110)
Industry FE	Yes	Yes	Yes	Yes
Observations	987	987	987	987
R^2	0.350	0.314	0.221	0.189

Robust standard errors in parentheses. Weighted regressions.
*** p<0.01, ** p<0.05, * p<0.1

Table 17: **Country-level margins: exports**

Variables	(1) Ln(Value)	(2) Ln(No. of firms	(3) Ln(No. of types)	(4) Ln(Value per firm*type)
Ln(Value)	1.000***	0.411***	0.268***	0.321***
	(0.000)	(0.016)	(0.010)	(0.024)
Observations	230	230	230	230
R^2	1.000	0.791	0.772	0.478
Ln(Distance)	-0.644***	-0.467***	-0.267***	0.089
	(0.182)	(0.103)	(0.063)	(0.086)
Ln(GDP)	1.018***	0.494***	0.301***	0.223***
	(0.060)	(0.025)	(0.018)	(0.037)
Observations	191	191	191	191
R^2	0.697	0.766	0.675	0.139

Robust standard errors in parentheses. Unweighted regressions.
*** p<0.01, ** p<0.05, * p<0.1

Table 18: **Country-level margins: imports**

Variables	(1) Ln(Value)	(2) Ln(No. of firms	(3) Ln(No. of types)	(4) Ln(Value per firm*type)
Ln(Value)	1.000***	0.431***	0.255***	0.315***
	(0.000)	(0.021)	(0.011)	(0.031)
Observations	223	223	223	223
R^2	1.000	0.779	0.760	0.441
Ln(Distance)	-0.847***	-0.559***	-0.279***	-0.009
	(0.191)	(0.115)	(0.056)	(0.090)
Ln(GDP)	1.043***	0.567***	0.313***	0.163***
	(0.073)	(0.029)	(0.019)	(0.045)
Observations	188	188	188	188
R^2	0.612	0.765	0.661	0.068

Robust standard errors in parentheses. Unweighted regressions.
*** p<0.01, ** p<0.05, * p<0.1

Table 19: **Trade and FDI status in services**

Status	**Obs**	**% Obs**	**% Exp**	**% Imp**	**% FDI**
Only export	37	5.5	1.6	0.0	0.0
Only import	227	33.7	0.0	5.5	0.0
Only FDI	10	1.5	0.0	0.0	3.9
Export and import	289	42.9	32.7	40.1	0.0
Export and FDI	5	0.7	0.1	0.0	1.2
Import and FDI	24	3.6	0.0	1.0	2.6
Export, import and FDI	81	12.0	65.6	53.3	92.3
Total	673	100.0	100.0	100.0	100.0

Only firms with positive exports, imports or FDI.

Table 20: **Share of exports on exports and foreign affiliates' sales by service type**

Type of service	**Share**
Research and development services	0.89
Architectural and engineering services	0.61
Advertising and market research	0.42
Computer services	0.41
Other business, professional and technical services	0.21
Communication services	0.12
Business and management consultancy	0.10
Insurance services	0.04
Audio-visual and related services	0.01
Other personal, cultural and recreational services	0.01
Financial services (except holding)	0.01
News agency services	0.00

Table 21: **Distribution of the share of exports on exports and foreign affiliates' sales**

Statistics	**Firm-Type-Country**	**Firm**
Mean	0.90	0.76
Min	0.00	0.00
p25	1.00	0.58
p50	1.00	1.00
p75	1.00	1.00
Max	1.00	1.00
% obs=0	8.17	10.97
% obs=1	89.25	70.07
No. obs	5703	401

Table 22: **Share of exports on exports and foreign affiliates' sales**

	(1)	(2)	(3)	(4)	(5)
Ln(Distance)	0.000	-0.001			0.007*
	(0.005)	(0.005)			(0.004)
Ln(GDP)	-0.008***	-0.011***			-0.011***
	(0.002)	(0.002)			(0.002)
Ln(Employees)	-0.023***	-0.014***	-0.025***	-0.015***	
	(0.003)	(0.003)	(0.003)	(0.003)	
Ln(Sales per employee)	-0.019***		-0.019***		
	(0.004)		(0.004)		
Ln(Value added per employee)		0.004		0.003	
		(0.003)		(0.003)	
Observations	5574	3924	5666	3978	5611
Countries	135	135	145	145	135
Country FE			X	X	
Firm FE					X
Industry FE	X	X	X	X	X
Service type FE	X	X	X	X	X
R^2	0.221	0.104	0.250	0.138	0.606

OLS estimates. The dependent variable is the share of exports on the sum of exports and foreign affiliates' sales. Standard errors (clustered at country level) in parentheses.
*** p<0.01, ** p<0.05, * p<0.1