Services Traders in the UK[*]

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Abstract

We provide a novel set of stylized facts on firms engaging in international trade in services, using unique firm-level data on services exports and imports in the United Kingdom. We show that services trade is concentrated in a small number of sectors and that the bulk of trade is carried out by a relatively small fraction of firms within these sectors. Services traders are bigger, more productive and are more likely to be foreign owned or part of a multinational enterprise (MNE). These 'trade premia' are smaller then for goods traders, however, with the exception of skill intensity which is higher among services traders. We also show that most firms only export or import a single service type and trade with a small number of countries. Trade volume, employment, turnover and value added are again highly concentrated among a small group of firms trading with many countries and/or in many services types. These firms are characterised by bigger size and higher than average productivity, all of which seem to be principally correlated with more trade along the intensive margin (trade per services and country) - although there are a number of noteworthy exceptions. Interestingly, trade is also concentrated within firms, in the sense that the average services trader makes 68% of export sales in a single foreign market, and procures 75% of imports from a single source country.

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1   Introduction

Trade in commercial services has been the fastest growing component of international trade over the past 15 years, with average annual growth rates of over 10% and a total export volume of 1,500 billion USD in 2006 (WTO, 2008). Given the importance of services production for developed economies, liberalization of services trade has also played a key role in past and ongoing trade negotiations.

Despite this growing importance of trade in commercial services we know still very little about the firms engaging in services trade. This is in stark contrast to the research on merchandise trade which has produced a large set of stylized facts on exporting firms. These firms have been shown to be larger and more productive, to use more capital intensive production processes and to employ a more highly skilled workforce (Bernard and Jensen, 1995 and 1999; Wagner, 2007, and Greenaway and Kneller, 2007, provide surveys of the literature). Likewise, this literature has shown that the fraction of exporting firms tends to be low and that even among exporters, most firms only serve a few foreign markets and make the majority of their sales on the domestic market (Bernard and Jensen, 1999; Eaton et al., 2004). These findings have in turn inspired a burgeoning theoretical literature trying to incorporate these stylised facts into different theoretical frameworks (e.g. Melitz, 2003; Eaton et al., 2007).

In this paper, we provide for the first time a comparable set of stylized facts for firms engaging in services trade, using unique firm-level data on services exports in the United Kingdom. The previous literature on trade in services has had little to say about these firms. Lacking the detailed micro-level data available to the trade-in-goods literature, existing papers focus instead on analysing country- or aggregate industry-level data on services trade (e.g. Head et al., 2007; Freund and Weinhold, 2002). In our view, filling this gap in the literature is important for a number of reasons.

First, a better understanding of the characteristics of services exporters is crucial for our understanding of who the firms are that engage in international transactions. The exclusive focus on merchandise exporters may have been sufficient in the past when both economic activity and international trade were dominated by manufactured products. But given the vastly bigger share of the services sector in developed economies, and the increased tradeability of many types of services, this focus seems too narrow nowadays.

Secondly, liberalization of services trade has been very much on the policy agenda of developed economies like the U.S. and the EU who believe that they will gain from further liberalization. However, to understand the effects of services trade liberalization on economic activity, we need at least some basic knowledge about the firms that presently (or potentially) export services. Similar to trade in goods, liberalization is likely to lead to changes in market shares of purely domestic firms and those engaged in international trade. To gauge the impact of these shifts on aggregate productivity, demand for skills etc. we need to know more about the characteristics of exporting firms.

Finally, a collection of stylised facts on services exporters is in our view a first step to more theoretical work in this area. While there has been enormous progress over the past years in modelling various aspects of trade in goods, there is very little work on services exports to date.

We hope that the present paper provides some of the necessary basics for such research.

Our analysis proceeds in three parts. We start by documenting the characteristics of services traders in terms of sector of activity, foreign ownership, multinational status, employment, turnover, and productivity. We show that services exports and imports are concentrated in a small number of sectors and that the bulk of trade is carried out by a relatively small fraction of firms within these sectors. Using descriptive statistics as well as regression analysis, we demonstrate that services traders are bigger, more productive and are more likely to be foreign owned or part of a multinational entreprise (MNE). For a smaller subsample, we are able to directly compare services and manufacturing goods exporters. While there are many similarities between the two groups, we also point out a number of interesting differences. In general, the "trade premia" of goods exporters seems to be bigger than those of services exporters, althought the biggest and most productive firms tend to export both goods and services. One important exception to this ranking is skill intensity - which is significantly higher among services exporters.

We then proceed to an analysis of export and import patterns of the firms in our sample. We show most firms only export or import a single services types and trade with a small number of countries (mostly three or less). Trade volume, employment, turnover and value added are again highly concentrated among a small group of firms trading with many countries and/or in many services types. Not surprisingly, these firms are characterised by higher than average productivity and size. These variables in turn are mainly correlated with the intensive margin (i.e. trade per services and country), to a lesser extent with the number of trading partners and only weakly with the number of services traded. There are a number of noteworthy exceptions to this pattern, however. For example, foreign ownership is not or even negatively correlated with the number of destination and source countries and multinational status is associated with higher trade mainly through the two extensive margins. Skill intensity also shows a large positive correlation with trade volumes and operates through both the intensive margin and through the number of trading partners.

Interestingly, trade is also concentrated within firms, in the sense that the average services trader makes 68% of export sales in a single foreign market, and procures 75% of imports from a single source country. Even firms exporting to or importing from over 40 markets concentrate 25-35% of their trade in a single market.

The rest of this paper is structured as follows. Section 2 describes the data underlying our analysis in more detail. Section 3 looks at the characteristics of services traders while section 4 proceeds to an analysis of export and import destinations, number of services traded, and the concentration of trade volumes across and within firms. Section 5 concludes.

2   Data Description

In the analysis that follows we use information from several data sources. We describe the three main sources in turn.

2.1 The Annual Respondents Database

The main data source used is the Annual Respondents Database. The Annual Respondents Database (ARD) is the UK equivalent of the US Longitudinal Respondents Database and is made available by the Office for National Statistics (ONS) based on information from the Annual Business Inquiry (ABI), the mandatory annual survey of UK businesses.[1] The ARD is a stratified sample of UK businesses in both the production and the services sectors with smaller businesses sampled randomly and the full population of larger businesses (those over than 100 or 250 employees depending on the exact year). The ARD contains a wealth of information on employment, investment, intermediate inputs (both intermediates goods and services), value added, gross output industry affiliation, location and foreign ownership.

Since 2000, the Annual Business Inquiry (ABI) includes two questions on services trade related both to services export and services import. The survey therefore provides information on both the intensive and the extensive margin of trade. The question explicitly excludes the value of imported and exported goods. The values reported should include, according to the notes of the surveys, "all transactions with individuals, enterprises and other organizations domiciled in a country rather than the UK". This definition includes subsidiaries and parents that are operating abroad. This means that the value of imported/exported services reported includes both inter- and intra-firm trade.

These services include industrial and non-industrial services. Industrial services include repair of construction equipment and computers; non industrial services include among others: consultancy services (market research, advertising, accountancy and R&D); telecommunications services; computer services (excluding hardware).

To provide aggregate figures for the whole economy we also construct inverse probability weighting using employment information from the Interdepartmental Business Register (IDBR) that contains a list of all businesses in the UK

Finally we include information on multinationality from the Annual Foreign Direct Investment Register (see Criscuolo and Martin, 2007) which provides additional information on multinationality status of UK firms.

2.2 International Trade in Services Inquiry (ITIS)

The second main source of information is the international trade in services inquiry. The Annual and Quarterly Inquiry into International Trade in Services (ITIS) collect data on UK private sector resident companies' international transactions in services. The inquiries began in 1996 and have always been statutory. The results from the ITIS have been used as component of the Trade in Services account of the Balance of Payments and the expenditure measure of GDP, but also as input to industrial and non-industrial service product breakdowns of Input-Output data and used by the government's export promotion desks.

The aim of the survey sampling design is to capture most of the services trade in the UK. To ensure that the sample captures firms that trade in services various sampling methods are

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[1] More extensive description of the ARD can be found in Criscuolo, Haskel and Martin (2003), Griffith (1999) and Oulton (1997)

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used. First known traders, identified from the previous year are selected. In addition, firms are selected if they give positive answers to filter questions on the ABI, which identify the firms that are trading in services.[2] Finally there is stratified random sampling from the IDBR in "High Propensity Industries" - sectors with a higher likelihood of trading overseas, such as computer services and wholesaling. Additional industries - called "mop ups" - have been included after the expansion of the survey in 2001 to ensure full coverage of the economy. A large proportion of responses are "nils", that is, contributors who had no international transactions. For example, in 2001 this proportion was fifty-nine percent.

The survey asks details on each transaction over £10 000, the inquiries ask enterprises which service was traded; (until 2004 39 different types of service were provided as shown in Table 1 and since the latter quarter of 2004 51 different services were provided), the value of the transaction and the country of origin or destination (depending on whether the service was imported or exported). ITIS cover firms with 10 or more employees in most of the economy.[3] Like the ABI, enterprises are sampled from the IDBR. The quarterly survey is addressed to companies with the largest transactions in services, i.e. those who have total transactions of over 10 million pounds (identified from the previous year's results) and the annual survey to the remaining firms in the sample. Since 2001 the annual survey sampled 20,000 firms (previously 10,000) by sector and size-band, approximately split by 9,000 for production industries and 11,000 for non-production industries. The quarterly survey samples around 650 firms. Response rates since 1999 are above 80% for the annual inquiry and range between 60 and 85% for the quarterly inquiries.

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[2] The monetary values provided in the ABI are used as a benchmark for comparison with the grossed annual ITIS values.

[3] Notable exceptions being the Banking and Financial Services Industry, Transport, Higher Education and the majority of Legal Services. The Film and Television Industry, which is not analysed in this paper, receives a much less detailed survey form, specifically asking for information on royalties and licences traded.

Business Services	Telecoms Services	Miscellaneous Services	Trade Related
Legal	Telephone services	Operational leasing (not ships or aircraft)	Earnings related to trade in goods not entering UK
Accounting / Auditing	Postal		
Mgment Consult / PR	Courier		
Advertising	Computer services	**Cultural Services**	Commission from trade in goods
Market research / Polls	Information services	TV & radio related	
R&D		Music related	Earnings from trade in commodities
Insurance premiums	**Technical Services**	Other cultural / recreational	
Insurance claims	Architectural		Services between affiliated companies not elsewhere specified
Insurance broking	Engineering		
Financial services	Surveying	**Royalties / Licences**	
Property management	Construction services	Payments for use of intangible assets	Other trade in services
Procurement	Agricultural		
Publishing	Mining services	Payments for purchase or sale of intangible assets	
Recruitment	Other technical		
Other business			

Table 1: Types of services in ITIS

One concern regarding the ITIS could be measurement. How accurate are the answers to the survey? How exhaustive is the list of services provided in the questionnaire? How clear is the definition of services in the survey?

The ONS conducted a respondents' survey.[4] The survey covered time to complete the form, at what level in the company the form was completed, details on questions and notes in the survey. Answers to survey revealed that 76 per cent of respondents found the information required was readily available from their accounts. 91 per cent said that the products on the form covered their trade in services. 94 per cent of responders were happy that the definition on the form/notes of what is considered a "service" was clear and concise.[5]

2.3   The third Community Innovation Survey (CIS)

Finally, we use the third Community Innovation Survey which covers the period 1998-2000 to get information on firm level exports of goods and skills. This is the only dataset that contains direct information on exports of goods at the firm level and on skills, measured as the proportion of graduates. The survey is based on a stratified sample of UK businesses and a retrospective survey response to which is voluntary.

The U.K. Community Innovation Survey (CIS) is based on a common EU-wide survey of innovation outputs; innovation inputs and sources of knowledge for innovation. The CIS survey covers manufacturing and services but not retailing and government. CIS3 sampled 19,625 firms with an overall response rate of 42%.

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[4]A detailed analysis of characteristics of non-respondents in terms of employment and industry distribution can be found in Criscuolo et al. (2003).

[5]Output is asked for exporting as "value of exports of goods and services"

The key variables for our purposes will be exporting and skills. CIS contains information on exporting in the start and end years of the survey, respectively 1998 and 2000. Information on skills is asked for 2000 and refer to the proportion of the enterprise's employees were educated to degree level.

2.4 Comparison of Samples

In the remainder of this paper, we will use different combinations of the above samples. We initially work with the ARD only to look at the characteristics of services traders (sections 3.1 and 3.2). For the comparison of services and goods exporters (section 3.3) we use the match between ARD and CIS in 2000. The analysis of import and export patterns of UK services traders (section 4) mainly relies on the match between ARD-ITIS in 2000-2005.[6] The results in this section referring to the skill intensity of traders additionally use data on the fraction of university graduates from the CIS. Table 2 shows descriptive statistics on these four samples.

3 Characteristics of services traders in the UK

3.1 Basic facts on services traders

Tables 3a and 3b provides basic information on exporters and importers of services in the UK. Table 3a presents aggregate figures while table 3b looks at eight major sectors. We report unweighted figures from the ARD here. The weighted results using the ARD's sampling weights are qualitatively similar and are shown in the appendix (tables A3a and A3b).

Services traders only make up 13.5% of firms in our sample but account for 26% of employment, 29% of turnover and 35% of value added. We distinguish between three subgroups of traders - firms that export only, firms that import only and firms that do both. The latter group makes up a third of all trading firms but accounts for a substantially larger share of employment, turnover and value added, in particular. Firms in this group also account for 80% of total exports and imports of services (columns 6 and 7). That is, less than 5% of firms account for the vast majority of services trade. However, even for this type of firms the value of exports and imports is small compared to their average turnover. The "export intensity", i.e. the ratio of exports to turnover is around 16% and 18% for only exporters and two-way traders, respectively. On the import side, these figures are even lower at 4.4% for only-importers and 8.2% for two-way traders. This mirrors findings in the literature on goods trade (e.g. Bernard et al., 2003) that most goods exporters only export a small fraction of total output.[7]

Looking across sectors, the first result is that all groups of industries have exporters and importers of services. The share of traders in the total number of firms varies widely, however, ranging from 4.3% (construction and utilities) to 35.2% (Computer and R&D).[8] Likewise, there is a strong variation in the fraction of economic activity made up by services traders. For

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[6]We also have data for 1997-1999 but restrict our sample to the latter period for comparability with the analysis in section 3 (the ARD only has information on services trade from 2000 onwards).

[7]Bernard et al. (2003) report that 82% of exporting plants export less than 20% of their output.

[8]See the appendix for details on the components of these major industry groups. The last two groups of industries (computer and R&D and Business Services) have been singled out because of their importance in services trade.

example, services traders make up fully 55%-60% of employment, turnover and value added in Computer and R&D, while for construction and utilities and wholesale and retail these figures are of the order of only 20%. These figures do not necessarily reflect the importance of a sector in overall exports and imports since they vary substantially in size. For example, "Other Services" makes up the majority of imports and exports by total value even though only a small fraction of firms is engaged in trade.

The aggregate figures on the relative importance of the three groups of traders and their average trade intensity also hide substantial sectoral variation. In general, two-way traders do account for a far bigger share of total trade than either only-importer or only-exporters. For some sectors, however, total trade values are evenly split between the two respective groups (e.g. wholesail and retail for exports or construction and utilities for imports). Likewise, export intensity varies widely between 6.5% (construction and utilities) and 27% (Mining, Computer and R&D). Import intensity also shows some variation but is always below 10%.

Another important fact not visible from the aggregate figures in table 3a is the strong concentration of employment, turnover, value added and the value of trade, in particular, among the biggest importers and exporters. In table 4, we report the corresponding shares of the top 1%, top 5%, top 25% and top 50% of exporters and importers in terms of trade values.[9] For example, the 1% biggest exporters represent less than 0.1% of firms in our sample. However, they accounted for fully 51% of total exports, 3.4% of employment, 4.3% of turnover and 7.7% of gross value added in 2005. The 1% biggest importers similarly make up less than 0.1% of our sample but were responsible for 60% of total imports, 3.6% of employment, 5.4% of turnover and 8.8% of gross value added (table 5).

Interestingly, this extreme concentration of exports and imports among a few large traders is not too dissimilar from the concentration reported for manufacturing traders in the U.S. and China by Bernard et al. (2007, BJS henceforth) and Manova and Zhang (2008, MZ henceforth) The share of employment accounted for by the top 1% of exporters and importers is much lower than those reported by BJS, however (11% vs. 3-4% in our sample), even though their sample is much more comprehensive for smaller firms which are less likely to be engaged in trade (see below).

3.2 A comparison of traders and non-traders of services

The literature on goods traders has consistently found differences in firm size, productivity and other firm-level characteristics between non-traders and exporters and importers (e.g. Bernard and Jensen, 1999). We now take a first look at the firm-level characteristics of services traders and non-traders. In analogy to BJS, we distinguish four groups: firms that only export services, firms that only import, those that do both and those that do not trade at all.

As shown in table 6, exporters and importers of commercial services are bigger in terms of employment and turnover, and have higher gross value added and labour productivity. Services traders are also more likely to be foreign owned or be part of a UK multinational company.[10] These "trade premia" are particularly pronounced for firms that both export and

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[9]Again, these are unweighted figures. The weighted figures are contained in tables A2 and A3 in the appendix.
[10]UK MNE status is for 2004 since we do not have data for 2005.

import. Comparing only-importers and only-exporter, the former tend to be slightly larger in terms of turnover and value added, are more productive and are more likely to be foreign owned.

Table 7 quantifies these differences further through a number of descriptive regressions. We regress the log of each of the six firm-level variables (employment, turnover, GVA, labour productivity, foreign ownership and UK MNE status) on three dummy variables indicating whether a firm only exports, only imports or both imports and exports. We control for year and industry fixed effects to eliminate variation in our dependent variables across time and industries. We also report results of F-tests on the size differences between the three types of services traders (lines 4-5).

The results confirm the broad insights from table 6. All three categories of services traders are significantly bigger and more productive than non-traders (the excluded category). They are also more likely to be foreign owned or to be UK MNEs. As before, two-way traders are larger in terms of employment, turnover and GVA than only-importers, which in turn are larger than only-exporters. Two-way traders are also more productive than other traders and are more likely to be UK MNEs, although there are no major differences between only-exporters and only-importers with regards to these variables. Finally, only-exporters are less likely to be foreign owned than two-way traders and only-importers (which are similar in terms of foreign ownership).

For a smaller subsample for the year 2000, we also have information on the skill level of the workforce from the CIS as described in section 2 (skills are measured as the share of graduates in all employees). Column 7 shows that two-way-traders and services exporters employ more highly skilled workers – around 10 percentage points more that non-traders. Interestingly, there is no statistically discernible difference between services importers and non-traders in terms of skill levels.

3.3 Services vs. Goods Exporters

We also have information on manufacturing exports for a smaller subsample in the year 2000 (this is the ARD-CIS subsample described in section 2). This allows us to compare exporters of services and goods for the same set of firms. Again, we split up firms into three groups – firms that export of goods only, firms that export services only and firms that export both. Again, we present results with and without sectoral fixed effects. Table 8a present descriptive statistics while table 8b shows results for a regression analysis which controls for sectoral fixed effects.

Not unsurprisingly given our previous results and those in the existing literature on goods trade, we find that all three groups of exporters are larger than non-exporters in terms of employment, turnover and value added. They are also more productive, employ a more highly skilled workforce and are more likely to be a UK MNE or to be foreign owned. We also find that the size differences to non-exporters are particularly pronounced for firms exporting both goods and services as well as firms exporting only goods. Firms exporting only services are bigger than non-exporters but smaller than the other groups of exporters. They are also less likely to be foreign owned or to be a UK multinational. Interestingly, the productivity differences between the three groups are less pronounced and not statistically significant. For the skill composition of the workforce (column 7) the picture even inverses – it is the only-services exporters which are

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most skill intensive, followed by exporters of both goods and services and only-goods exporters.

4 Dissecting Services Trade

4.1 Export Values, Number of Destinations and Services Types

We now move on to a more detailed analysis of services exports and imports, using the match between the ARD and ITIS. For this sample we have information on destination specific exports and imports as well as the types of services a firm trades. Since we are interested in describing the trading patterns of firms, we focus on active traders only, i.e. those firms that either export or import (or both).

As shown in table 9a, the average firm exports to around 8 out of 218 markets (column 1) and sells around 1.4 types of services out of a total of 38 (column 2).[11] On the import side, the average number of source countries is 5.4 and the average number of services types imported is 2.3 (table 9b). As a direct consequence the value of exports and imports is higher per services type than per destination or source market (columns 3-6).

These averages hide a strong skewness of the underlying distributions however. In fact, the median number of markets served is just three (two on the import side) while the median number of services exported and imported is one. 28% of firms only export to a single market, 42% to at most two markets and only 39 out of around 15,000 firms (i.e. 0.26%) serve more than 100 markets. Likewise, 36% of importers only source from a single market, 52% from at most two markets and only 21 or 0.12% of firms record more than 100 source countries. A similar concentration is present for the number of services exported and imported. 78% of firms export and 53% import a single service type, 92% export and 72% import at most two types, and only 31 firms export and 204 firms import more than 10 different service types.

To visualize the above results, figures 1a and 1b display the relationship between number of firms and the number of markets they export to and import from, as well as the number of services sold and bought. For reasons of disclosure, we cannot report the number of firms exporting or importing to or from more than 50 countries, or more than 11 types of services.

For exporters, the decline in the number of firms serving an increasing number of markets is similar to the one reported by Eaton et al. (2004) for French manufacturing firms. In both cases, the relationship number of markets – number of firms shows a tight log-linear fit with a slope of, respectively, -2.5 (Eaton et al.) and -2.0 (our data). The R2 of the corresponding log-log regression is very high at 93%. We are not aware of comparable figures for manufacturing imports but the relationship number of source countries – number of firms is similar to exports in our data (a coefficient of -2.1 and an R2 of 93% in a simple log-log regression).

A similar picture holds for the number of services exported and imported. The relation number of services – number of firms is again log-linear, this time with an elasticity of -3.3 (exports) and -3.0 (imports) and an even tighter fit than before (a regression of log number of services on log number of firms has an R2 of 98% for exports and 92% for imports). Again, we

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[11] This table and the following tables and graphs are based on firm-year observations, i.e. a firm can appear several times. For simplicity, we refer to these firm-year observations as "firms".

are not aware of a similar analysis for goods trade although the decline in the number of firms seems to be sharper than those reported by BJS or MZ.[12]

4.2 Concentration of Trading Activity across Firms

We also report figures on the concentration of trading activities for this smaller sample, similar to those in tables 4 and 5. We start by grouping firms into percentiles according to their total export or import value. As shown in tables 10a and 10b, the underlying distribution is again highly skewed. For example, the top 1% of exporters represent around 41% of total services exports, 13% of employment, 20% of turnover and 32% of gross value added in our sample. The top 1% of importers make up 43% of imports, 13% of employment, 19% of turnover and 29% of GVA. Note that the concentration of exports and imports is slightly less pronounced than in the ARD. On the other hand, the share of employment, turnover and GVA made up by the 1% largest traders is substantially higher. These differences are likely to results from the different sampling procedures used (compare section 2). Since ITIS oversamples known services traders and undersamples other firms, the top traders represent a larger share of employment, turnover and GVA but a smaller share of total trade values.

Tables 11-12 again report the concentration of trade, employment, turnover and GVA, this time categorizing firms according to how many services types they trade and with how many countries. Again, activity is highly concentrated among a few top traders. Firms that export to more than 50 destinations make up less than 2% of all firms but account for 16% of overall exports, 12% of employment, 16% of turnover and 29% of value added. Firms importing from more than 50 countries account for 0.8% of firms, 18% of imports, 8% of employment, 12% of turnover and 23% of GVA.

A similar pattern emerges when turning to the number of service types exported and imported. Firms exporting ten or more service types represent 0.3% of firms in our sample, 5.5% of exports, 1.3% of employment, 3.9% of turnover and 2.4% of GVA. Firms importing ten or more different services types are slightly more numerous (1.8% of all firms) and correspondingly account for bigger shares of activity than on the export side – 12% of imports, 4% of employment, 9% of turnover and 8% of GVA.

While the exact numbers are hard to compare due to the very different settings and sampling techniques, the qualitative findings present here match those of BJS and MZ for goods trade. That is, exporting and importing is highly concentrated among relatively few firms, trading with a large number of countries and in a large number of services types.

4.3 Concentration of Trading Activities within Firms – Markets and Products

The previous section has shown that exporting and importing of services is highly concentrated across firms. However, trading activities are also concentrated within firms in the sense that most firms do a large fraction of total trade with their most important market and/or in their

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[12]Again, we stress that it is difficult to directly compare results since the product classifications used in BJS and MZ are consirably more detailed. However, the figures they report indicate a firms-product elasticity much smaller than -1 (see table 6 in MZ and table 4 in BJS).

most important product. Tables 13-16 provide the corresponding evidence. In the first column of table 13 and 14, we report the average share of exports (imports) across all firms which is derived from the most important export (import) market, the second most important export (import) market and so on. In the last row we also report a Herfindahl index as a standard measure of concentration. Column 1 of table 15 and 16 display the same statistics, this time using the number of services rather than countries as the categorical variable.

The average firm's exports and imports are clearly highly concentrated in its top market and product. The largest export market makes up on average 68%, the top source country 76%. Likewise, the top export and import service types make up fully 94% of overall exports and 86% of overall imports, respectively.

These results are of course skewed by the fact that most firms export to and import from one market only – and usually not more than a single service type. For these firms, the top market or service type makes up 100% of total trade by construction. The remaining columns of tables 13-16 thus shows the average export/import shares of the first to tenth most important market for firms exporting to or importing from exactly 1, 2, 5, 10, 25 and 40 markets (1, 2, 3, 5, 11 service types for tables 15-16). Naturally, the importance of the top market/service type declines as we move rightwards in the tables. However, the top export or import market is always at least twice as big as the second most important market and makes up at least 25% of total firm exports or imports. The second largest market in turn is again 50%-100% bigger than the third most import market. For services types this pattern is even more pronounced. The top services type makes up at least 50% of a firm's total trade value and is two to three times bigger than the second most important type (which in turn is roughly twice as important as the third most important service). Clearly, a firm's primary market and service product is of particular importance even for firms that are diversified both geographically and in product scope.

4.4   Firm Characteristics and Trade Patterns

Tables 17-19 look at the characteristics of services traders along the dimensions just explored. Table 17 categorizes firm-year observations into percentiles according to their total export or import volume and reports averages for the firm-level variables listed across the top of the table. Firms in higher percentiles sell and buy more products from more source and destination countries. They also have higher levels of employment, total sales and gross value added, are more productive and are more likely to be foreign owned or to be part of a UK MNE. The increase in all these variables across percentiles is surprisingly monotonic although the relationship between exports or imports and the other variables is not necessarily linear. This explains in part why the correlation coefficients reported at the bottom of each table are all positive but sometimes close to zero.

Table 18 and 19 perform a similar exercise by looking at different parts of the distribution of number of exported/imported services and the number of trading partner countries. Again, means of most variables increase as we move towards firms trading more products or with more countries. The only noteworthy exception is that foreign ownership tends to decline with the number of both export destinations and import source countries.

In tables 18 and 19 we also report information about the relationship between extensive and intensive margin. That is, we show how exports/imports per destination or product vary as the number of destinations or products increases. What we find is that this correlation is negative for the number of trading partners on both the import and export side. However, for the number of service types we find a negative correlation on the import side only, while the correlation on the export side is positive – firms exporting more services types also export more of each single type. The latter finding is somewhat surprising and different from the strong negative relationship which MS find for Chinese goods data.

Table 20 further investigates the correlation between export and import patterns and firm-level variables through a series of descriptive multivariate regressions. We again are interested in the association of firm size, productivity and ownership status with the three margins of trade - number of trading partners, number of services, and trade per service and trading partner. Thus, we report regressions of total firm trade as well as its three components on employment, labour productivity, foreign ownership and UK multinational status. Note that total exports and imports decompose multiplicatively into the three margins of trade. Since our dependent variables are all in logs, the reported coefficient estimates of the margins add up to the coefficient on total trade. Again, we focus on within sectoral variation by controlling for industry fixed effects.

The results by and large confirm the impressions from the earlier tables. Higher employment and labour productivity are associated with exporting to and importing from more countries (columns 2 and 6), exporting and importing more services types (columns 3 and 7), as well as with both higher export and import values per market and service (columns 4 and 8). The largest and most significant coefficient is the one on the intensive margin, followed by the number of trading partners while the coefficient on the number of services traded is considerably smaller.

Foreign ownership is not or even negatively correlated with the number of destination and source markets. The correlation is positive for the number of services types and especially trade per service/partner. A potential explanation for this slightly surprising pattern is that foreign owned firms may predominantly exchange producer services with their mother companies and thus export and import from fewer countries. UK multinational status enters positively for exports but not for imports - for the latter, positive extensive margins are cancelled out by a strongly negative intensive margin.

Finally, we use the match between ITIS, ARD and CIS to look at the correlation between skill levels and export and import patterns. Table 21 repeats the earlier regressions but now includes the fraction of graduates a firm employs. On the export side, a ten percentage-point increase in this variable is associated with an increase in the number of destinations of 16.3% and a 36% increase in total export sales. On the import side, the respective figures are 9.8% (number of source countries) and 14.1% (import value). Skill intensity is also associated with a higher intensive margin which is of the same order of magnitude as the trading partner effect on the export side but smaller on the import side. There is no significant correlation between number of services exported or imported and the fraction of graduates employed in the workforce, however (columns 3 and 7).

5   Conclusions

In this paper, we provided a novel set of stylized facts on firms engaging in international trade in services, using unique firm-level data on services exports and imports in the United Kingdom. We showed that services trade is concentrated in a small number of sectors and that the bulk of trade is carried out by a relatively small fraction of firms within these sectors. Services traders are bigger, more productive and are more likely to be foreign owned or part of a multinational enterprise (MNE). These 'trade premia' are smaller then for goods traders, however, with the exception of skill intensity which is higher among services traders. We also showed that most firms only export or import a single service type and trade with a small number of countries. Trade volume, employment, turnover and value added are again highly concentrated among a small group of firms trading with many countries and/or in many services types. These firms are characterised by bigger size and higher than average productivity, all of which seem to be principally correlated with more trade along the intensive margin (trade per services and country) - although there are a number of noteworthy exceptions. Interestingly, trade is also concentrated within firms, in the sense that the average services trader makes 68% of export sales in a single foreign market, and procures 75% of imports from a single source country.

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A Data description

A.1 List of Countries Codes used in the paper

ABW, AFG, AGO, AIA, ALB, AND, ANT, ARE, ARG, ARM, ATG, AUS, AUT, AZE, BDI, BEL, BEN, BFA, BGD, BGR, BHR, BHS, BIH, BLR, BLZ, BMU, BOL, BRA, BRB, BRN, BTN, BWA, CAF, CAN, CCK, CHE, CHL, CHN, CIV, CMR, COG, COK, COL, COM, CPV, CRI, CUB, CXR, CYM, CYP, CZE, DEU, DJI, DMA, DNK, DOM, DZA, ECU, EGY, ERI, ESH, ESP, EST, ETH, FIN, FJI, FLK, FRA, FRO, FSM, GAB, GBR, GEO, GHA, GIB, GIN, GLP, GMB, GNB, GNQ, GRC, GRD, GRL, GTM, GUF, GUY, HKG, HND, HRV, HTI, HUN, IDN, IND, IRL, IRN, IRQ, ISL, ISR, ITA, JAM, JOR, JPN, KAZ, KEN, KGZ, KHM, KIR, KNA, KOR, KWT, LAO, LBN, LBR, LBY, LCA, LKA, LSO, LTU, LUX, LVA, MAC, MAR, MDA, MDG, MDV, MEX, MHL, MKD, MLI, MLT, MMR, MNG, MNP, MOZ, MRT, MSR, MTQ, MUS, MWI, MYS, NAM, NCL, NER, NFK, NGA, NIC, NIU, NLD, NOR, NPL, NRU, NZL, OMN, PAK, PAL, PAN, PCN, PER, PHL, PLW, PNG, POL, PRI, PRK, PRT, PRY, PYF, QAT, REU, ROM, RUS, RWA, SAU, SDN, SEN, SGP, SHN, SLB, SLE, SLV, SMR, SOM, SPM, STP, SUR, SVK, SVN, SWE, SWZ, SYC, SYR, TCA, TCD, TGO, THA, TJK, TKL, TKM, TMP, TON, TTO, TUN, TUR, TUV, TWN, TZA, UGA, UKR, URY, USA, UZB, VCT, VEN, VGB, VNM, VUT, WLF, WSM, YEM, YUG, ZAF, COD, ZMB, ZWE

Tables and Figures

TABLE 2: Comparison of samples used

		(1) ARD	(2) ARD-CIS	(3) ARD-IT IS	(4) ARD-ITIS-CIS	(5) ITIS-IDBR
1	No. of firm-years	239,831	3,062	16,566	2,039	107,187
2	Years	2000-2005	2000	2000-2005	2000	2000-2005
3	Employment	222	297	834	576	389
4	Turnover	23,255	39,523	119,862	76,994	
5	Gross Value Added	7,105	13,715	39,206	28,948	
6	Labour productivity	29	35	56	56	
7	Foreign ownership	7.7%	11.3%	36.3%	41.2%	25.5%
8	UK MNE	4.1%	11.9%	13.3%	16.2%	
9	Services importers	9.7%	17.3%	77.1%	80.3%	
10	Services exporters	9.7%	18.6%	66.7%	63.4%	25.5%

Source: Authors' calculations on the Annual Respondents Database (ARD); the Community Innovation Survey (CIS); the International Trade in Services Inquiry (IT IS); the Interdepartmental Business Register (IDBR) and the Annual Foreign Direct Investment (IDBR) Register.
Notes: Rows 3 to 6 report sample averages. In row 6 labour productivity is defined as gross value added per employee. Row 7 to row 10 report shares. In row 8 information on UK MNEs come from the AFDI register.

Table 3a – Importers and Exporters of Services in the UK

	(1) Number of Firms in ARD	(2) Share of firms (%)	(3) Value added share (%)	(4) Turnover share (%)	(5) Employment share (%)	(6) Share of total exports (%)	(7) Share of total imports (%)	(8) Firm export intensity	(9) Firm import intensity
Non-traders	33201	86.5%	65.1%	70.7%	73.8%	0.0%	0.0%	0.0%	0.0%
Only exporters	1658	4.3%	6.8%	6.6%	7.8%	20.8%	0.0%	16.0%	0.0%
Only importers	1778	4.6%	9.2%	9.0%	8.0%	0.0%	21.3%	0.0%	4.4%
Two-way traders	1765	4.6%	18.9%	13.6%	10.3%	79.2%	78.7%	18.1%	8.2%

Source: Authors' calculations on the Annual Respondents Database (ARD); 2005.
Notes: Figures reported are unweighted and refer to 2005 only. In column 8 export intensity is defined as the average of the ratio of firms' services export over total turnover. In column 9 import intensity is defined as the average of the ratio of firms' services imports over total turnover. "Non-traders" are firms that do not export nor import services. "Only exporters" are firms that export but do not import services. "Only importers" are firms that import but do not export services. "Two-way traders" are firms that both import and export services.

Table 3b: Importers and Exporters of Services in the UK

	Number and share of firms				Share of value added				Share of turnover				Share of employment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Number	EnoI	InoE	I&E	NoTrade	EnoI	InoE	I&E	NoTrade	EnoI	InoE	I&E	NoTrade	EnoI	InoE	I&E
Mining	186	8.6%	8.1%	12.9%	30.5%	3.8%	33.2%	32.5%	37.0%	3.3%	24.8%	34.9%	61.8%	6.0%	15.7%	16.5%
Low-medium tech manuf	5943	4.0%	7.5%	4.2%	73.8%	5.2%	12.6%	8.4%	75.4%	4.5%	12.9%	7.2%	75.3%	4.5%	12.9%	7.3%
High tech manuf	2984	6.8%	11.7%	10.6%	49.2%	9.3%	12.9%	28.6%	50.4%	8.3%	12.6%	28.7%	55.1%	8.5%	13.6%	22.9%
Construction & Utilities	3323	1.3%	2.0%	1.0%	72.1%	1.7%	6.3%	19.9%	81.8%	2.3%	6.9%	9.1%	85.1%	2.9%	6.0%	6.1%
Wholesale & Retail	10235	2.5%	4.2%	2.5%	75.5%	11.6%	7.7%	5.2%	79.6%	8.5%	7.0%	4.9%	77.8%	11.3%	8.7%	2.2%
Other Services	9875	3.1%	2.9%	3.2%	71.3%	3.2%	6.8%	18.7%	71.5%	4.5%	8.0%	15.9%	74.7%	6.2%	6.0%	13.1%
Computer & R&D	1142	13.6%	5.3%	16.3%	39.6%	5.4%	8.5%	46.5%	40.3%	6.9%	9.5%	43.3%	45.4%	8.3%	5.4%	40.9%
Business Services	4714	9.4%	2.7%	8.1%	55.5%	13.9%	7.0%	23.5%	55.5%	12.7%	6.6%	25.2%	73.6%	7.8%	6.0%	12.5%

Source: Authors' calculations on the Annual Respondents Database (ARD); 2005.
Notes: Figures reported are unweighted and refer to 2005 only. 2-digit industry sectors included in each of the major sectors are reported in Table A6 in the Appendix. "No Trade" are firms that do not export nor import services. "EnoI" are firms that export but do not import services. "InoE" are firms that import but do not export services. "I&E" are two-way traders, i.e. firms that both import and export services.

Table 3b, Unweighted cont.

	Share of sector in total			Share of total trade				Trade intensity		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	exports	imports	export (EnoI)	Import (InoE)	Export (I&E)	Import (I&E)	Export (EnoI)	Import (InoE)	Export (I&E)	Import (I&E)
Mining	1.0%	1.3%	15.6%	14.0%	84.4%	86.0%	27.2%	1.3%	15.8%	6.4%
Low-medium tech manuf	2.8%	4.9%	29.2%	45.7%	70.8%	54.3%	7.4%	2.2%	9.6%	5.8%
High tech manuf	22.8%	19.5%	26.0%	17.4%	74.0%	82.6%	9.0%	4.2%	11.8%	5.2%
Construction & Utilities	0.2%	0.5%	43.3%	65.1%	56.7%	34.9%	6.5%	2.0%	6.5%	3.9%
Wholesale & Retail	8.7%	7.9%	49.8%	27.9%	50.2%	72.1%	18.3%	6.2%	11.9%	10.8%
Other Services	29.1%	42.5%	7.7%	21.3%	92.3%	78.7%	16.9%	5.8%	23.0%	10.8%
Computer & R&D	16.2%	15.4%	13.3%	23.3%	86.7%	76.7%	23.3%	7.6%	27.4%	9.2%
Business Services	19.3%	7.9%	26.6%	4.0%	73.4%	96.0%	19.8%	3.3%	25.5%	8.1%

Source: Authors' calculations on the Annual Respondents Database (ARD); 2005.
Notes: Figures reported are unweighted and refer to 2005 only. 2-digit industry sectors included in each of the major sectors are reported in Table A6 in the Appendix. "No Trade" are firms that do not export nor import services. "EnoI" are firms that export but do not import services. "InoE" are firms that import but do not export services. "I&E" are two-way traders, i.e. firms that both import and export services.

Table 4: Exporters

Top exporters by export value	(1) Number of firms	(2) % of firms	(3) Share of Exports	(4) Share of Employment	(5) Share of Turnover	(6) Share of Value Added
Top 1%	34	0.09%	50.8	3.4	4.3	7.7
Top 5%	172	0.44%	78.3	8.1	9.7	13.3
Top 25%	855	2.22%	97.2	12.5	14.8	20.1
Top 50%	1711	4.46%	99.6	15.6	18.0	23.2
All Exporters	3393	8.84%	100.0	18.1	20.2	25.7

Source: Authors' calculations on the Annual Respondents Database (ARD); 2005.
Notes: The table shows what fraction of firms, exports, employment, turnover and value added is accounted for by the 1%, 5%, 25%, 50% biggest exporters. Figures reported are unweighted, refer to 2005 only and are based on sample of firms that have positive export values.
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Table 5: Importers

Top importers by import value	(1) Number of firms	(2) % of firms	(3) Share of Imports	(4) Share of Employment	(5) Share of Turnover	(6) Share of Value Added
Top 1%	35	0.09%	60.1	3.6	5.4	8.8
Top 5%	178	0.46%	83.7	5.4	8.5	12.4
Top 25%	886	2.31%	97.5	11.2	162	21.3
Top 50%	1772	4.61%	99.6	14.7	19.6	24.7
All Importers	3543	9.23%	100.0	18.3	22.6	28.1

Source: Authors' calculations on the Annual Respondents Database (ARD); 2005.
Notes: The table shows what fraction of firms, imports, employment , employment, turnover and value added is accounted for by the 1%, 5%, 25%, 50% biggest importers. Figures reported are unweighted, refer to 2005 only and are based on sample of firms that have positive import values.

Table 6: Characteristics of Services Traders

	(1) Number of firms	(2) Employment	(3) Turnover	(4) Value Added	(5) Labour productivity	(6) Foreign Ownership	(7) UK MNEs
Exporter only	1658	431.6	39251.1	12785.5	43.6	13.5	9.6
		6612.0	*581503.4*	*126039.2*	*51.8*	*34.2*	*29.4*
Exporter-Importer	1765	532.6	75520.3	33556.5	60.8	32.5	14.0
		5008.0	*380001.7*	*246611.5*	*95.4*	*46.8*	*34.7*
Importer only	1778	413.6	49619.4	16188.6	49.1	28.0	11.0
		2147.3	*182437.6*	*71960.6*	*86.9*	*44.9*	*31.2*
Non-Trader	33201	203.2	20874.3	6141.5	28.8	5.8	4.6
		1934.2	*228118.8*	*92670.9*	*47.6*	*23.4*	*21.0*
Total	38402	237.9	25510.2	8153.5	31.9	8.4	5.9
		2548.4	*260620.8*	*105738.6*	*53.9*	*27.7*	*23.5*

Source: Authors' calculations on the Annual Respondents Database (ARD); 2005.
Notes: Figures reported are means. Standard deviations in italics. "Non-trader" are firms that do not export nor import services. "Exporter Only" are firms that export but do not import services. "Importer Only" are firms that import but do not export services. "Exporter-Importer" are firms that both import and export services.

Table 7: Regressions of firm-level variables on trading status (2000-2005)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Employment	Turnover	Value Added	Labour productivity	Foreign ownership	UK MNE (2000-2004)	Fraction of highly skilled employees
Importer only	0.887	1.235	1.107	0.220	0.145	0.036	0.013
	(40.60)**	(48.75)**	(44.99)**	(23.72)**	(26.30)**	(8.55)***	(0.97)
Exporter only	0.458	0.675	0.683	0.225	0.041	0.034	0.073
	(20.15)**	(26.04)**	(26.92)**	(24.24)**	(10.31)**	(8.88)***	(4.22)**
Exporter-Importer	1.147	1.646	1.491	0.344	0.158	0.061	0.081
	(48.30)**	(60.25)**	(54.98)**	(34.46)**	(27.70)**	(13.37)***	(5.78)**
Imp only – Exp only	0.429	0.560	0.425	-0.005	0.104	0.002	-0.060
(F-Stat)	(201.35)**	(258.86)**	(156.86)**	(0.15)	(240.66)**	(0.16)	(7.95)**
Imp only - ImpExp	0.260	0.411	0.383	0.124	0.013	0.025	0.067
(F-Stat)	(76.18)**	(142.82)**	(128.46)**	(91.87)**	(2.98)*	(17.41)**	(14.15)**
Observations	239831	239831	239831	239831	239831	201429	2530
Fixed effects	Year, 4-digit industry	Year, 4-digit industry	Year, 4-digit industry	Year, 4-digit industry	Year, 4-digit industry	Year, 4-digit industry	Year, 4-digit industry

Source: Authors' calculations on the Annual Respondents Database (ARD) 2000-2005 and Third Community Innovation Survey (CIS3).

Notes: "Exporter Only" are firms that export but do not import services. "Importer Only" are firms that import but do not export services. "Exporter-Importer" are firms that both import and export services. The reference group is "Non-trader"; i.e. are firms that do not export nor import services. In brackets robust t-statistics clustered at the firm-level are reported. Dependent variables in logs with the exception of Foreign Ownership, UK MNE status (binary variables) and Skills (fraction of workforce with diplomas, between 0 and 1). * significant at the 10% level. ** significant at the 5% level. *** significant at the 1% level.

Table 8a: Descriptive Statistics on Services and Manufacturing Exporters

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Number of firms	Employ-ment	Turnover	Value Added	Labour produc-tivity	Foreign ownership	UK MNEs	Skill level
Export both	226	419.59	64195.4	24280.4	40.9	26.5%	19.9%	22.0%
		723.79	*172611.2*	*94790.4*	*36.7*	*44.3%*	*40.0%*	*25.3%*
Manuf. exports only	694	364.3	49803.9	16100.7	37.6	21.8%	18.9%	11.1%
		687.0	*131468.2*	*55895.7*	*33.9*	*41.3%*	*39.2%*	*17.2%*
Services exp. only	285	392.2	75786.7	26049.0	40.8	12.6%	14.7%	24.4%
		1018.5	*342509.8*	*110193.1*	*52.6*	*33.3%*	*35.5%*	*30.3%*
Non-trader	1378	228.1	27129.0	9547.0	32.4	4.7%	6.3%	10.4%
		833.1	*162247.6*	*45849.4*	*68.1*	*21.2%*	*24.3%*	*20.4%*
Total	2583	299.6	41833.2	14418.1	35.5	12.1%	11.8%	13.2%
		814.0	*185691.2*	*64149.1*	*56.7*	*32.6%*	*32.3%*	*22.0%*

Source: Authors' calculations on the Annual Respondents Database (ARD) and Third Community Innovation Survey (CIS3).
Notes Figures reported are means. Standard deviations in italics. "Export both" are firms that export both manufacturing and services. "Manufacturing exports Only" are firms that only export goods but not services. "Services exports Only" are firms that export services but do not export goods. "Non-traders" are firms that do not export services nor goods.

Table 8b: Services and Manufacturing exporters (regressions)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Employment	Turnover	Value Added	Labour Productivity	Foreign Ownership	UK MNE	Skills
Export both	1.261	1.811	1.542	0.281	0.160	0.110	0.096
	(10.88)**	(13.81)**	(11.95)**	(5.76)**	(5.48)**	(3.79)**	(5.47)**
Export Manuf. Only	1.190	1.656	1.459	0.270	0.116	0.095	0.033
	(14.29)**	(17.22)**	(15.72)**	(7.67)**	(5.99)**	(4.89)**	(3.07)**
Export Services only	0.732	1.074	0.938	0.206	0.055	0.075	0.101
	(6.50)**	(8.36)**	(7.41)**	(4.13)**	(2.56)*	(3.40)**	(5.91)**
Manuf only – Serv. Only	0.458	0.582	0.521	0.063	0.061	0.020	-0.068
(F-Stat)	(15.22)**	(18.69)**	(15.63)**	(1.58)	(5.77)*	(0.57)	(15.63)**
Both – Manuf only	0.072	0.155	0.083	0.011	0.044	0.015	0.063
(F-Stat)	(0.41)	(1.47)	(0.43)	(0.05)	(1.92)	(0.24)	(13.02)**
Observations	2583	2583	2583	2583	2583	2583	2249
Fixed effects	3-digit Industry	3-digit Industry	3-digit Industry	3-digit Industry	3-digit Industry	3-digit Industry	3-digit Industry

Source: Authors' calculations on the Annual Respondents Database (ARD) and Third Community Innovation Survey (CIS3).
Notes "Export both" are firms that export both manufacturing and services. "Manufacturing exports Only" are firms that only export goods but not services. "Services exports Only" are firms that export services but do not export goods. "Non-traders" are firms that do not export services nor goods. The reference group is "Non-trader"; i.e. are firms that do not export nor import services. In brackets robust t-statistics clustered at the firm-level are reported. Dependent variables in logs with the exception of Foreign Ownership, UK MNE status (binary variables) and Skills (fraction of workforce with diplomas, between 0 and 1). * significant at the 10% level. ** significant at the 5% level. *** significant at the 1% level.

Table 9a: Export Patterns of Firms in ARD-ITIS (Firms with positive Exports only, 2000-2005)

	(1)	(2)	(3)	(4)	(5)	(6)
	Destinations	Services	Total Exports	Mean Exports per Service	Mean Exports per Destination	Mean Exports per Service-Destination
Mean	8.3	1.4	8139.8	5482.3	1642.4	1290.8
Std	13.5	1.0	45081.9	28520.1	10078.8	7620.6
Percentiles						
1st	1	1	1.7	1.7	1.4	1.4
5th	1	1	8.0	7.7	5.2	5.1
25th	1	1	94.8	81.9	34.5	32.9
50th	3	1	552.4	453.0	124.7	113.3
75th	9	1	3067.4	2383.4	493.7	439.9
95th	32	3	30013.2	20905.7	4892.8	4218.2
99th	65	6	145221.4	88869.8	30515.7	22217.5
Firm-years	14701	14701	14701	14701	14701	14701

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS), 2000-2005.

Table 9b: Import Patterns of Firms in ARD-ITIS (firms with positive imports only, 2000-2005)

	(1)	(2)	(3)	(4)	(5)	(6)
	Destinations	Services	Total Imports	Mean Imports per Service	Mean Imports per Source country	Mean Imports per Service-Source country
Mean	5.4	2.3	3867.2	2205.5	971.0	726.0
Std	10.0	2.1	23660.1	17265.7	5719.0	4109.5
Percentiles						
1st	1	1	1.0	1.0	1.0	1.0
5th	1	1	5.1	4.2	3.8	3.5
25th	1	1	60.6	37.4	24.1	20.6
50th	2	1	291.5	163.1	90.0	72.0
75th	6	3	1428.6	725.3	415.3	300.1
95th	19	7	12798.5	7107.5	3201.4	2305.4
99th	45	11	65828.8	33550.1	17512.0	13573.3
Firm-years	16916	16916	16916	16916	16916	16916

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS), 2000-2005.

Figure 1a – Number of firms exporting to and importing from a given number of markets

Figure 1b - Number of firms exporting and importing a given number service types

Table 10a (figures for 2000-2005) – Exporters (firms with positive exports only)
- concentration of activity among top 1%, 5% etc. exporters

Top exporters by export value	(1) Number of firms	(2) % of firms	(3) Share of Exports	(4) Share of Employment	(5) Share of Turnover	(6) Share of Value Added
Top 1%	107	1%	41.4	13.1	19.5	31.5
Top 5%	548	5%	71.0	28.1	35.1	48.1
Top 25%	2759	25%	94.7	56.9	63.7	70.9
Top 50%	5521	50%	99.1	73.8	79.5	83.3
All	11047	100%	100%	100%	100%	100

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS), 2000-2005.

Table 10b (figures for 2000-2005) – Importers (firms with positive imports only)
- concentration of activity among top 1%, 5% etc. importers

Top exporters by export value	(1) Number of firms	(2) % of firms	(3) Share of Exports	(4) Share of Employment	(5) Share of Turnover	(6) Share of Value Added
Top 1%	125	1	42.5	12.7	19.2	29.3
Top 5%	636	5	71.6	24.9	35.7	44.6
Top 25%	3192	25	94.2	51.4	65.5	69.5
Top 50%	6387	50	98.9	73.7	82.1	84.1
All	12778	100	100	100.0	100.0	100.0

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS), 2000-2005.

Table 11a (figures for 2000-2005) – Exporters (firms with positive exports only)
- concentration of activity among firms exporting to at least 1, 2, 3-4 etc. destinations

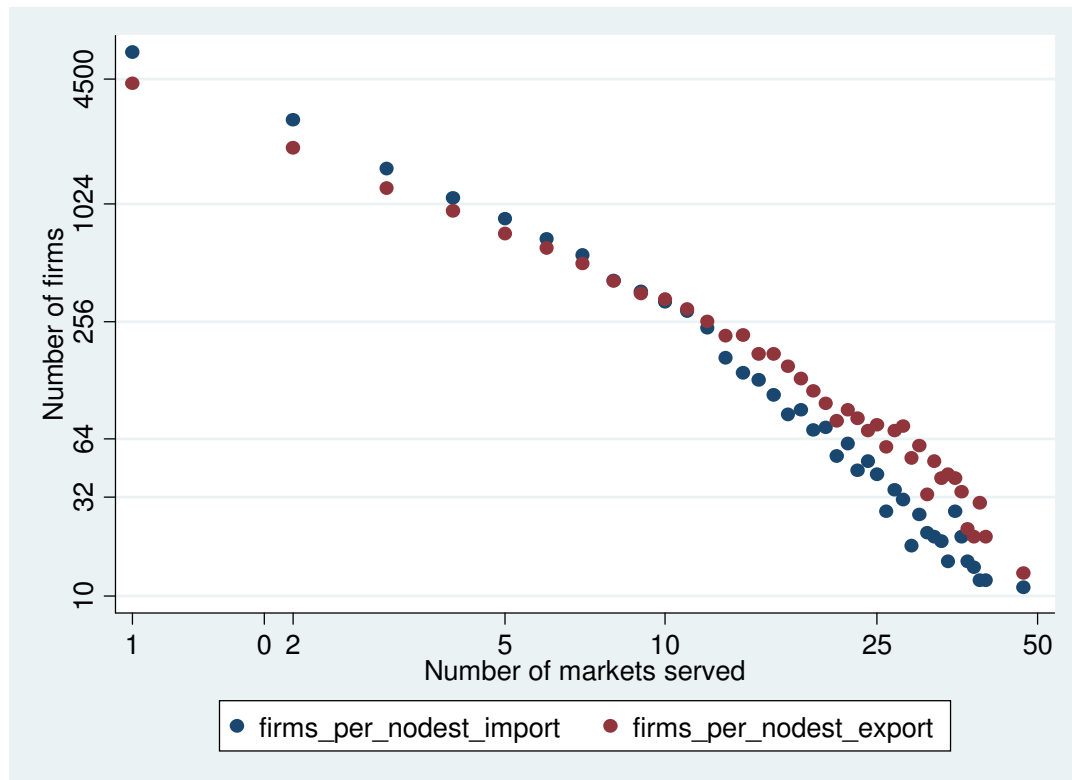| Number of destinations	(1) Number of firms	(2) % of firms	(3) Share of Exports (%)	(4) Share of Employment (%)	(5) Share of Turnover (%)	(6) Share of Value Added (%)
At least 1	11047	100.0	100.0	100.0	100.0	100.0
At least 2	7854	71.1	90.26	76.68	79.59	86.05
At least 3	6395	57.9	84.72	69.8	71.82	80.83
At least 5	4752	43.0	71.9	59.82	60.64	71.16
At least 10	2810	25.4	58.44	47.3	46.56	60.03
At least 31	654	5.9	25.93	15.3	19.68	33.98
>50	236	2.1	15.77	11.6	16.20	28.97

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS), 2000-2005.

Table 11b (figures for 2000-2005) – Importers (firms with positive exports only)
- concentration of activity among firms importing from at least 1, 2, 3-4 etc. destinations

Number of source countries	(1) Number of firms	(2) % of firms	(3) Share of Exports	(4) Share of Employment	(5) Share of Turnover	(6) Share of Value Added
1	12778	100.0	100.0	100.0	100.0	100.0
2	8108	63.5	86.40	65.05	75.82	80.41
3-4	6029	47.2	75.38	50.13	62.36	69.05
5-9	4002	31.3	66.67	40.19	51.15	59.38
10-30	1874	14.7	52.75	22.27	33.54	45.45
31-50	307	2.4	25.66	10.87	16.32	27.30
>50	116	0.9	17.61	8.27	12.41	23.04

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS), 2000-2005.

Table 12a (figures for 2000-2005) – Exporters (firms with positive exports only)
- concentration of activity among firms exporting at least 1, 2, 3 etc. services

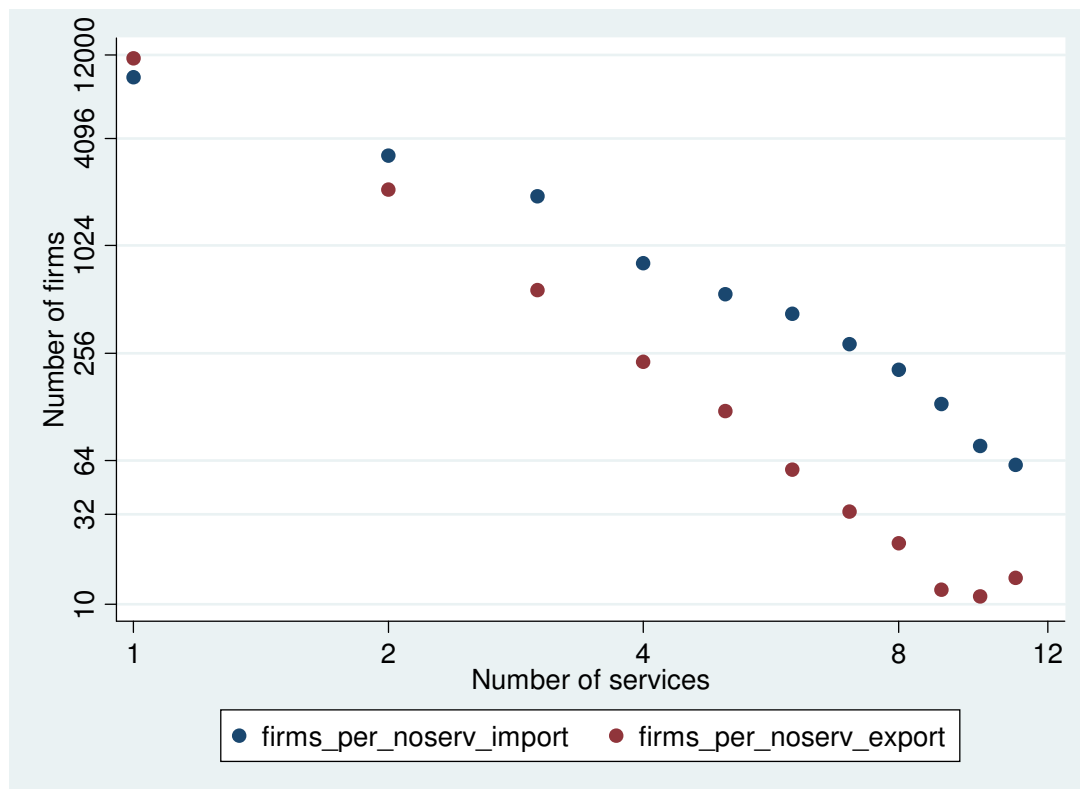| Number of exporter services	(1) Number of firms	(2) % of firms	(3) Share of Exports	(4) Share of Employment	(5) Share of Turnover	(6) Share of Value Added
1+	11047	100.0	100.0	100.0	100.0	100.0
At least 2	2493	22.6	52.6	38.0	41.7	35.7
At least 3	866	7.8	31.5	27.1	28.4	23.9
At least 4	410	3.7	20.8	19.7	20.9	16.5
At least 7	86	0.8	9.2	10.8	9.4	6.4
10+	33	0.3	5.5	1.3	3.9	2.4

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS), 2000-2005.

Table 12b (figures for 2000-2005) – Importers (firms with positive exports only)
- concentration of activity among firms importing at least 1, 2, 3 etc. services

Number of exporter services	(1) Number of firms	(2) % of firms	(3) Share of Exports	(4) Share of Employment	(5) Share of Turnover	(6) Share of Value Added
1+	12778	100.0	100.0	100.0	100.0	100.0
At least 2	6093	47.7	63.5	44.2	57.0	51.4
At least 3	3627	28.4	44.9	28.1	37.3	35.0
At least 4	2119	16.6	34.5	17.6	27.2	26.5
At least 7	742	5.8	19.3	7.9	14.1	14.0
10+	236	1.8	11.6	3.5	8.6	7.7

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS), 2000-2005.

Table 13 – Concentration of Firm Exports in Principal Markets (2000-2005)

Export Market Ranking	(1) Share of Market (all firms)	(2) Share of Market (Dest=1)	(3) Share of Market (Dest=2)	(4) Share of Market (Dest=5)	(5) Share of Market (Dest=10)	(6) Share of Market (Dest=25)	(7) Share of Market (Dest=40)
1	68.0%	100.0%	77.8%	57.6%	46.1%	36.7%	25.9%
2	14.2%		22.2%	21.6%	20.2%	14.0%	13.9%
3	6.1%			11.1%	11.4%	9.6%	10.2%
4	3.4%			6.4%	7.3%	7.0%	7.2%
5	2.1%			3.3%	5.1%	5.6%	5.9%
6	1.4%				3.6%	4.6%	4.7%
7	1.0%				2.6%	3.8%	3.7%
8	0.7%				1.8%	3.1%	3.0%
9	0.6%				1.1%	2.6%	2.8%
10	0.4%				0.7%	2.1%	2.5%
Herfindahl	0.60	1.00	0.70	0.45	0.32	0.21	0.13
Observations	11047	3193	1459	541	239	62	17

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS), 2000-2005.

Table 14 – Concentration of Firm Imports in Principal Source Countries (2000-2005)

Source Market Ranking	(1) Share of Market (all firms)	(2) Share of Market (Dest=1)	(3) Share of Market (Dest=2)	(4) Share of Market (Dest=5)	(5) Share of Market (Dest=10)	(6) Share of Market (Dest=25)	(7) Share of Market (Dest=40)
1	75.8%	100.0%	79.9%	60.3%	48.8%	40.4%	33.2%
2	12.6%		20.1%	21.3%	19.7%	15.9%	14.7%
3	4.6%			10.3%	10.6%	9.1%	10.1%
4	2.3%			5.4%	6.9%	6.9%	5.9%
5	1.3%			2.7%	4.7%	5.4%	4.4%
6	0.9%				3.3%	4.2%	3.9%
7	0.6%				2.4%	3.4%	3.3%
8	0.4%				1.7%	2.7%	2.7%
9	0.3%				1.2%	2.1%	2.2%
10	0.2%				0.6%	1.7%	2.1%
Herfindahl	0.69	1.00	0.73	0.48	0.35	0.25	0.19
Observations	12778	4670	2079	641	236	28	10

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS), 2000-2005.

Table 15– Concentration of Firm Exports in Principal Service Type (2000-2005)

Service Ranking	(1) Share of Service (all firms)	(2) Share of Service (Serv=1)	(3) Share of Service (Serv=2)	(4) Share of Service (Dest=3)	(5) Share of Service (Dest=5)	(6) Share of Service (Dest=11)
1	94.13%	100.0%	79.0%	69.3%	61.9%	54.0%
2	4.88%		21.0%	23.1%	21.8%	14.6%
3	0.69%			7.7%	9.5%	7.4%
4	0.18%				4.9%	4.6%
5	0.06%				2.0%	4.1%
6	0.02%					3.6%
7	0.01%					3.0%
8	0.01%					2.6%
9	0.00%					2.1%
10	0.00%					2.0%
Herfindahl	0.92	1.00	0.71	0.60	0.49	0.36
Observations	11047	8554	1627	456	97	10

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS), 2000-2005.

Table 16– Concentration of Firm Imports in Principal Service Type (2000-2005)

Service Ranking	(1) Share of Service (all firms)	(2) Share of Service (Serv=1)	(3) Share of Service (Serv=2)	(4) Share of Service (Dest=3)	(5) Share of Service (Dest=5)	(6) Share of Service (Dest=11)
1	85.69%	100.0%	78.3%	69.5%	62.0%	50.1%
2	10.33%		21.7%	22.6%	22.1%	23.0%
3	2.52%			7.9%	9.5%	9.8%
4	0.81%				4.5%	5.7%
5	0.33%				1.9%	3.8%
6	0.16%					2.6%
7	0.08%					1.9%
8	0.04%					1.3%
9	0.02%					1.0%
10	0.01%					0.5%
Herfindahl	0.81	1.00	0.71	0.59	0.50	0.37
Observations	12778	6685	2466	1508	429	50

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS), 2000-2005.

Table 17a – Firm characteristics along percentiles of exports value (means, sd, observations)

Export value (pcentile)	No. of exports dest.	No of services exported	Export value	Employment	Turnover	Labour prod.	Foreign ownership	UK MNE status
1	1.0	1.0	1.0	200.7	17282.9	40.4	0.12	0.09
	0.1	-	0.3	312.7	36044.2	51.0	0.32	0.29
	111	111	111	111	111	111	111	111
2-5	1.3	1.0	4.6	222.9	24876.4	38.0	0.21	0.09
	0.7	0.1	1.8	452.0	84948.1	39.8	0.41	0.28
	442	442	442	442	442	442	442	442
6-25	2.2	1.1	42.6	354.0	37877.8	41.2	0.24	0.13
	2.1	0.5	25.2	1482.7	162265.1	73.4	0.43	0.33
	2209	2209	2209	2209	2209	2209	2209	2209
26-50	4.6	1.3	277.9	534.6	69110.6	46.3	0.30	0.12
	4.7	0.7	133.0	1821.7	367120.0	66.9	0.46	0.33
	2762	2762	2762	2762	2762	2762	2762	2762
51-75	8.9	1.4	1454.5	552.5	78145.3	53.7	0.34	0.15
	9.7	1.0	711.2	3107.4	373881.9	85.2	0.47	0.35
	2762	2762	2762	2762	2762	2762	2762	2762
76-95	16.1	1.6	9875.9	1112.4	174587.0	82.0	0.44	0.15
	17.2	1.4	6826.1	7722.4	774963.3	138.0	0.50	0.36
	2209	2209	2209	2209	2209	2209	2209	2209
96-99	28.2	2.2	61785.7	3505.1	521501.2	118.5	0.60	0.15
	29.8	2.0	29773.6	21732.3	1922293.0	180.3	0.49	0.36
	442	442	442	442	442	442	442	442
100	32.8	2.7	356837.7	10951.5	2446371.0	142.8	0.57	0.15
	46.4	2.4	273589.6	21550.1	4840159.0	147.5	0.50	0.35
	110	110	110	110	110	110	110	110
Total	8.6	1.4	8442.0	825.2	125696.9	57.7	0.33	0.14
	13.9	1.1	46400.6	6362.3	797969.0	99.3	0.47	0.34
	11047	11047	11047	11047	11047	11047	11047	11047
Correlation coefficient Export Value – Variable at Top	0.24	0.20	1.00	0.18	0.32	0.13	0.07	0.03

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS).

Table 17b – Firm characteristics along percentiles of import value (means, sd, observations)

Import value (pcentile)	No. of exports dest.	No of services exported	Import value	Employm ent	Turnover	Labour prod.	Foreign ownership	UK MNE status
1	1.0	1.0	0.9	337.5	33201.0	36.3	0.14	0.13
	0.0	0.1	0.1	956.2	112124.0	27.8	0.35	0.34
	128	128	128	128	128	128	128	128
2-5	1.1	1.1	3.3	350.3	26436.3	37.5	0.14	0.12
	0.5	0.3	1.2	775.2	77430.2	34.4	0.35	0.32
	512	512	512	512	512	512	512	512
6-25	2.0	1.5	28.0	453.2	47398.9	39.7	0.22	0.14
	1.7	0.9	16.4	1788.2	267188.8	57.3	0.41	0.35
	2555	2555	2555	2555	2555	2555	2555	2555
26-50	3.3	2.0	153.7	503.3	54564.7	47.3	0.36	0.15
	3.1	1.5	66.4	1988.9	331343.8	64.9	0.48	0.36
	3194	3194	3194	3194	3194	3194	3194	3194
51-75	5.6	2.6	725.5	813.7	90346.5	57.2	0.50	0.12
	6.6	2.2	328.7	7145.5	611309.4	88.9	0.50	0.33
	3195	3195	3195	3195	3195	3195	3195	3195
76-95	9.5	3.2	4368.5	1202.3	207636.7	85.2	0.56	0.13
	12.6	2.9	2865.0	4535.1	643130.1	157.8	0.50	0.34
	2556	2556	2556	2556	2556	2556	2556	2556
96-99	14.1	3.6	28247.4	2608.5	557219.6	138.5	0.67	0.13
	16.7	3.8	14664.0	5572.7	912312.6	262.1	0.47	0.33
	511	511	511	511	511	511	511	511
100	39.3	4.4	171432.0	11845.1	2663370.0	143.0	0.59	0.16
	53.7	4.9	132175.9	26642.8	4677736.0	119.9	0.49	0.37
	127	127	127	127	127	127	127	127
Total	5.5	2.3	3932.9	899.8	137387.1	59.9	0.41	0.13
	10.4	2.2	22249.8	5310.3	736986.8	110.4	0.49	0.34
	12778	12778	12778	12778	12778	12778	12778	12778
Correlation coefficient Import Value – Variable at Top	0.28	0.11	0.68	0.21	0.33	0.09	0.03	0.03

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS).

Table 18a – Firm characteristics along number of export destinations

No of export destintions	No. of services exported	Export Value	Mean exports per destination	Employment	Turnover	Labour prod.	Foreign ownership	UK MNE status
1	1.1	2828.9	2828.9	666.9	89275.3	52.3	0.35	0.11
	0.5	14094.8	14094.8	4158.4	459384.5	95.8	0.48	0.32
	3193	3193	3193	3193	3193	3193	3193	3193
2	1.4	3526.7	1763.4	427.5	72021.1	47.7	0.33	0.12
	0.8	19102.2	9551.1	979.4	316905.3	55.9	0.47	0.33
	1459	1459	1459	1459	1459	1459	1459	1459
3-4	1.4	7100.0	2133.3	557.1	94979.7	51.5	0.36	0.15
	1.0	51083.0	15623.6	1729.3	437517.1	67.8	0.48	0.35
	1643	1643	1643	1643	1643	1643	1643	1643
5-9	1.5	6620.3	1036.8	589.8	101227.9	57.1	0.31	0.15
	1.2	44635.9	7833.9	4126.5	511645.8	102.6	0.46	0.35
	1942	1942	1942	1942	1942	1942	1942	1942
10-30	1.6	14117.0	894.9	1347.5	172514.5	72.3	0.35	0.14
	1.4	65858.8	4819.2	11647.2	1038985.0	141.9	0.48	0.35
	2156	2156	2156	2156	2156	2156	2156	2156
31-50	1.5	23442.2	611.1	795.0	112419.7	72.3	0.25	0.17
	1.5	76657.5	2374.1	1311.8	241967.3	67.2	0.43	0.37
	418	418	418	418	418	418	418	418
51-250	1.7	60692.9	768.0	4513.0	961313.9	83.1	0.17	0.22
	1.6	85392.8	992.5	15322.5	3488376.0	63.6	0.38	0.42
	236	236	236	236	236	236	236	236
Total	1.4	8442.0	1764.3	825.2	125696.9	57.7	0.33	0.14
	1.1	46400.6	11042.8	6362.3	797969.0	99.3	0.47	0.34
	11047	11047	11047	11047	11047	11047	11047	11047
Correlation coefficient No. dest. – Variable at Top	0.10	0.24	-0.04	0.16	0.27	0.09	-0.06	0.07

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS).

Table 18b – Firm characteristics along number of source countries

No of import destintions	No. of services imported	Import Value	Mean imports per destination	Employment	Turnover	Labour prod.	Foreign ownership	UK MNE status
1	1.5	1416.8	1416.8	856.1	89499.4	46.2	0.41	0.10
	1.0	7105.9	7105.9	3770.6	324870.4	66.1	0.49	0.31
	4670	4670	4670	4670	4670	4670	4670	4670
2	2.0	2716.8	1358.4	819.8	111304.7	57.5	0.45	0.12
	1.4	20449.6	10224.8	4870.2	486432.0	99.1	0.50	0.32
	2079	2079	2079	2079	2079	2079	2079	2079
3-4	2.6	2124.6	644.2	569.8	98085.9	59.2	0.41	0.14
	1.9	8685.6	2734.3	1641.9	368558.2	106.5	0.49	0.35
	2027	2027	2027	2027	2027	2027	2027	2027
5-9	3.1	3309.8	502.6	987.4	148587.2	65.9	0.39	0.17
	2.4	16685.4	2214.9	9070.9	882705.5	131.8	0.49	0.37
	2128	2128	2128	2128	2128	2128	2128	2128
10-30	3.7	8769.6	560.3	829.0	195516.2	90.9	0.40	0.17
	3.7	31529.7	2098.3	1699.3	635850.9	178.4	0.49	0.38
	1567	1567	1567	1567	1567	1567	1567	1567
31-50	3.5	20929.1	550.6	1511.7	354463.8	77.7	0.28	0.19
	4.6	52842.8	1397.6	2357.7	1346781.0	65.4	0.45	0.39
	191	191	191	191	191	191	191	191
51-250	2.8	76728.3	767.3	8201.2	1871360.0	108.3	0.13	0.32
	3.1	119476.2	1202.1	21275.2	4815293.0	117.0	0.34	0.47
	116	116	116	116	116	116	116	116
Total	2.3	3932.9	1008.6	899.8	137387.1	59.9	0.41	0.13
	2.2	22249.8	6181.5	5310.3	736986.8	110.4	0.49	0.34
	12778	12778	12778	12778	12778	12778	12778	12778
Correlation coefficient No. dest. – Variable at Top	0.17	0.44	-0.03	0.25	0.40	0.10	-0.06	0.10

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS).

Table 19a – Firm characteristics along number of services exported

No of services exported	No. of export destinations	Export Value	Mean exports per service	Employment	Turnover	Labour prod.	Foreign ownership	UK MNE status
1	7.9	5189.5	5189.5	662.5	94631.3	53.5	0.29	0.13
	13.2	29251.2	29251.2	3861.9	681801.7	90.8	0.45	0.33
	8554	8554	8554	8554	8554	8554	8554	8554
2	9.6	12060.3	6030.2	610.5	116553.8	67.7	0.45	0.16
	13.8	37921.0	18960.5	1412.3	386433.0	108.6	0.50	0.36
	1627	1627	1627	1627	1627	1627	1627	1627
3	10.8	22893.2	7631.1	1756.7	267457.1	69.4	0.50	0.15
	15.4	86787.1	28929.0	12327.0	1137788.0	118.2	0.50	0.36
	456	456	456	456	456	456	456	456
4-6	15.6	34231.5	7208.1	2674.2	477590.1	86.4	0.59	0.17
	23.3	117052.1	23687.0	17851.4	1697042.0	150.6	0.49	0.38
	324	324	324	324	324	324	324	324
7-9	14.3	57256.6	7976.2	12993.8	1256137.0	133.1	0.36	0.26
	11.3	213840.7	30557.0	50729.3	4275693.0	250.1	0.48	0.45
	53	53	53	53	53	53	53	53
10-20	18.2	141832.5	13115.6	3013.5	1399670.0	116.8	0.82	0.06
	18.0	293653.2	27746.2	4398.3	2277835.0	207.4	0.39	0.24
	33	33	33	33	33	33	33	33
Total	8.6	8442.0	5510.4	825.2	125696.9	57.7	0.33	0.14
	13.9	46400.6	27812.6	6362.3	797969.0	99.3	0.47	0.34
	11047	11047	11047	11047	11047	11047	11047	11047
Correlation coefficient No. serv. – Variable at Top	0.10	0.20	0.02	0.10	0.14	0.09	0.15	0.05

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS).

Table 19b – Firm characteristics along number of services imported

No of services imported	No. of import destinations	Import Value	Mean imports per service	Employment	Turnover	Labour prod.	Foreign ownership	UK MNE status
1	4.9	2694.3	2694.3	964.1	112553.0	50.6	0.32	0.14
	11.0	16571.5	16571.5	6762.5	860754.4	77.7	0.47	0.34
	6685	6685	6685	6685	6685	6685	6685	6685
2	4.7	3863.0	1931.5	744.3	140681.7	63.0	0.48	0.13
	8.6	20716.3	10358.2	3360.0	546915.5	119.1	0.50	0.34
	2466	2466	2466	2466	2466	2466	2466	2466
3	4.8	3553.1	1184.4	805.6	122358.0	58.0	0.50	0.13
	7.9	20212.1	6737.4	2717.4	390501.8	95.1	0.50	0.33
	1508	1508	1508	1508	1508	1508	1508	1508
4-6	7.2	5637.2	1181.2	805.6	168053.0	78.9	0.55	0.13
	10.4	29377.3	6262.4	2012.8	560729.7	152.2	0.50	0.34
	1377	1377	1377	1377	1377	1377	1377	1377
7-9	9.5	8337.8	1051.9	1044.0	208920.9	90.3	0.56	0.14
	10.3	40014.2	4912.1	3944.4	566485.7	198.6	0.50	0.35
	506	506	506	506	506	506	506	506
10-20	17.2	22006.8	1768.0	1502.3	549338.0	126.6	0.53	0.20
	12.9	55147.5	4358.3	2852.2	1233114.0	232.3	0.50	0.40
	230	230	230	230	230	230	230	230
Total	5.5	3910.0	2123.8	898.7	136809.0	59.9	0.41	0.13
	10.4	22212.3	13256.6	5310.3	735553.0	110.4	0.49	0.34
	12772	12772	12772	12772	12772	12772	12772	12772
Correlation coefficient No. serv. – Variable at Top	0.17	0.12	-0.03	0.01	0.08	0.12	0.14	0.04

Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS).

Table 20 – Regressions corresponding to tables 17-19 (ARD-ITIS sample)

	(1) Log(value of exports)	(2) Log(No. of export destinations)	(3) Log(No. of services exported)	(4) Log(exports per dest/serv)	(5) Log(value of imports)	(6) No. of import destinations	(7) No. of services imported	(8) Log(imports per dest/serv)
Log(employment)	0.629	0.181	0.036	0.412	0.688	0.173	0.061	0.454
	(27.84)**	(13.60)**	(7.13)**	(21.08)**	(32.00)**	(14.18)**	(7.92)**	(22.65)**
Log(labour prod.)	0.945	0.327	0.054	0.564	0.829	0.249	0.092	0.488
	(23.16)**	(16.32)**	(6.78)**	(16.74)**	(23.66)**	(14.46)**	(7.79)**	(15.72)**
Foreign ownership	0.761	0.000	0.090	0.671	0.993	-0.049	0.165	0.876
	(12.09)**	(0.00)	(6.55)**	(12.02)**	(18.41)**	(1.75)	(8.40)**	(17.04)**
UK MNE	0.351	0.168	0.061	0.121	-0.001	0.202	0.059	-0.262
	(4.32)**	(3.73)**	(3.46)**	(1.84)	(0.01)	(5.21)**	(2.24)*	(3.92)**
Observations	11047	11047	11047	11047	12778	12778	12778	12778
R-squared	0.37	0.26	0.14	0.28	0.37	0.23	0.15	0.27
Fixed effects	Year, 3-digit industry	Year, 3-digit industry	Year, 3-digit industry	Year, 3-digit industry	Year, 3-digit industry	Year, 3-digit industry	Year, 3-digit industry	Year, 3-digit industry

Source: Authors' calculations on the matched Annual Respondents Database (ARD); International Trade in Services Survey (ITIS) and Third Community Innovation Survey (CIS3).

Table 21 – Regressions corresponding to tables 17-19 (ARD-ITIS-CIS sample)

	(1) Log(value of exports)	(2) Log(No. of export destinations)	(3) Log(No. of services exported)	(4) Log(exports per dest/serv)	(5) Log(value of imports)	(6) No. of import destinations	(7) No. of services imported	(8) Log(imports per dest/serv)
Log(employment)	0.618	0.191	0.028	0.399	0.579	0.170	0.042	0.367
	(8.26)**	(4.39)**	(1.81)	(6.61)**	(9.05)**	(4.69)**	(1.93)	(6.72)**
Log(labour prod.)	0.613	0.128	0.084	0.401	0.696	0.065	0.081	0.550
	(4.98)**	(2.01)*	(2.43)*	(3.91)**	(6.66)**	(1.33)	(2.02)*	(5.20)**
Foreign ownership	0.808	-0.329	0.158	0.978	1.316	-0.015	0.308	1.024
	(4.13)**	(2.78)**	(3.34)**	(5.61)**	(8.29)**	(0.18)	(5.35)**	(6.63)**
UK MNE	0.671	0.137	0.211	0.323	0.472	0.430	0.212	-0.171
	(2.86)**	(1.00)	(3.92)**	(1.76)	(2.30)*	(3.61)**	(2.64)**	(0.90)
Skill level	3.600	1.634	0.070	1.896	1.408	0.980	-0.057	0.485
	(11.46)**	(7.51)**	(0.89)	(5.42)**	(4.39)**	(5.93)**	(0.51)	(1.45)
Observations	1293	1293	1293	1293	1638	1638	1638	1638
R-square	0.38	0.22	0.09	0.25	0.28	0.13	0.07	0.19
Fixed effects	Year	Year	Year	Year	Year	Year	Year	Year

Source: Authors' calculations on the matched Annual Respondents Database (ARD); International Trade in Services Survey (ITIS) and Third Community Innovation Survey (CIS3).

Appendix Tables

Table A.3a – Importers and Exporters of Services in the UK (2005, aggregate, weighted)

	(1) Number of Firms in ARD	(2) Share of firms, weighted (%)	(3) Value added share, weighted (%)	(4) Turnover share, weighted (%)	(5) Employment share, weighted (%)	(6) Share of total exports, weighted (%)	(7) Share of total imports, weighted (%)	(8) Firm export intensity, weighted	(9) Firm import intensity, weighted
Non-traders	33201	91.9%	70.2%	75.6%	77.5%	0.0%	0.0%	0.0%	0.0%
Only exporters	1658	4.2%	6.3%	4.7%	5.6%	20.1%	0.0%	30.9%	0.0%
Only importers	1778	1.9%	9.9%	7.8%	10.2%	0.0%	13.7%	0.0%	9.1%
Two-way traders	1765	2.0%	13.6%	11.8%	6.8%	79.9%	86.3%	27.1%	12.4%

Source: Authors' calculations on the Annual Respondents Database (ARD); 2005.
Notes: Figures reported are weighted and refer to 2005 only. In column 8 export intensity is defined as the average of the ratio of firms' services export over total turnover. In column 9 import intensity is defined as the average of the ratio of firms' services imports over total turnover. "Non-traders" are firms that do not export nor import services. "Only exporters" are firms that export but do not import services. "Only importers" are firms that import but do not export services. "Two-way traders" are firms that both import and export services.

Table A.3b: Importers and Exporters of Services in the UK (2005, by major sector)

	Number and share of firms				Share of value added				Share of turnover				Share of employment			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Number	EnoI	InoE	I&E	NoTrade	EnoI	InoE	I&E	NoTrade	EnoI	InoE	I&E	NoTrade	EnoI	InoE	I&E
Mining	186	10.74%	3.75%	8.58%	34.00%	3.58%	31.06%	31.36%	40.72%	3.42%	23.19%	32.68%	62.06%	9.49%	13.26%	15.19%
Low-medium tech manuf	5943	3.40%	2.13%	3.73%	78.05%	4.99%	9.49%	7.47%	78.26%	4.33%	10.48%	6.93%	81.23%	4.19%	8.86%	5.72%
High tech manuf	2984	9.75%	4.04%	5.86%	51.47%	9.22%	12.65%	26.66%	52.08%	8.17%	12.17%	27.59%	58.08%	8.56%	12.42%	20.94%
Construction & Utilities	3323	0.51%	1.14%	0.32%	83.70%	1.28%	5.57%	9.45%	87.54%	1.50%	6.19%	4.76%	93.26%	1.54%	3.00%	2.20%
Wholesale & Retail	10235	2.33%	2.24%	1.36%	81.42%	7.56%	6.81%	4.21%	85.93%	4.43%	6.09%	3.55%	83.28%	7.44%	7.09%	2.19%
Other Services	9875	2.80%	1.23%	1.17%	79.99%	2.95%	4.96%	12.10%	79.31%	3.03%	5.07%	12.59%	84.96%	4.01%	4.75%	6.28%
Computer & R&D	1142	7.46%	4.49%	3.36%	46.67%	9.99%	8.84%	34.51%	47.52%	10.75%	8.72%	33.02%	58.23%	10.66%	6.00%	25.10%
Business Services	4714	8.81%	2.07%	3.55%	51.96%	11.68%	20.33%	16.03%	50.38%	8.04%	14.29%	27.29%	60.45%	6.38%	24.63%	8.54%

Source: Authors' calculations on the Annual Respondents Database (ARD); 2005.
Notes: Figures reported are weighted and refer to 2005 only. 2-digit industry sectors included in each of the major sectors are reported in Table A6 in the Appendix. "No Trade" are firms that do not export nor import services. "EnoI" are firms that export but do not import services. "InoE" are firms that import but do not export services. "I&E" are two-way traders, i.e. firms that both import and export services.

Table A.3b, cont.

	Share of sector in total			Share of total trade				Trade intensity		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Exports	Imports	Export (EnoI)	Import (InoE)	Export (I&E)	Import (I&E)	export (EnoI)	Import (InoE)	Export (I&E)	Import (I&E)
Mining	0.53%	0.46%	36.48%	15.01%	63.52%	84.99%	63.20%	1.37%	23.43%	5.48%
Low-medium tech manuf	2.56%	3.46%	26.98%	25.50%	73.02%	74.50%	14.21%	7.80%	16.61%	17.30%
High tech manuf	9.49%	8.22%	26.40%	21.02%	73.60%	78.98%	24.80%	6.45%	20.79%	9.29%
Construction & Utilities	0.13%	0.51%	46.63%	78.43%	53.37%	21.57%	12.50%	5.48%	7.11%	4.69%
Wholesale & Retail	7.66%	10.78%	37.04%	27.05%	62.96%	72.95%	28.23%	13.98%	19.31%	20.99%
Other Services	31.64%	37.31%	7.83%	11.63%	92.17%	88.37%	24.99%	10.48%	29.00%	10.79%
Computer & R&D	10.46%	9.92%	21.12%	15.97%	78.88%	84.03%	31.49%	8.80%	47.71%	12.10%
Business Services	37.54%	29.35%	24.38%	6.22%	75.62%	93.78%	36.31%	4.78%	27.84%	9.77%

Source: Authors' calculations on the Annual Respondents Database (ARD); 2005.
Notes: Figures reported are weighted and refer to 2005 only. 2-digit industry sectors included in each of the major sectors are reported in Table A6 in the Appendix. "No Trade" are firms that do not export nor import services. "EnoI" are firms that export but do not import services. "InoE" are firms that import but do not export services. "I&E" are two-way traders, i.e. firms that both import and export services.

Table A4 (figures for 2005) – Weighted Exporters (firms with positive exports only)

	(1)	(2)	(3)	(4)	(5)	(6)
Top exporters by export value	Number of firms	% of firms	Share of Exports	Share of Employment	Share of Turnover	Share of Value Added
Top 1%	34	0.04%	55.42%	1.15%	4.94%	4.17%
Top 5%	172	0.17%	75.82%	4.14%	7.95%	8.31%
Top 25%	855	0.86%	95.77%	6.68%	11.12%	12.62%
Top 50%	1711	1.85%	99.36%	9.19%	13.86%	16.47%
All Exporters	3393	4.04%	100.00%	12.33%	16.55%	19.95%

Source: Authors' calculations on the Annual Respondents Database (ARD); 2005.
Notes: The table shows what fraction of firms, exports, employment, turnover and value added is accounted for by the 1%, 5%, 25%, 50% biggest exporters. Figures reported are weighted, refer to 2005 only and are based on sample of firms that have positive export values.
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Table A5 (figures for 2005) – Weighted Importers (firms with positive imports only)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Top importers by import value	Number of firms	% of firms	Share of Imports	Share of Employment	Share of Turnover	Share of Value Added	Import intensity
Top 1%	35	0.04%	70.12%	6.21%	5.11%	7.56%	44.78%
Top 5%	178	0.18%	87.28%	7.76%	8.87%	10.65%	27.16%
Top 25%	886	1.09%	97.80%	10.83%	13.78%	16.46%	15.06%
Top 50%	1772	2.25%	99.61%	13.11%	16.39%	19.66%	10.27%
All Exporters	3543	4.90%	100.00%	16.91%	19.65%	23.50%	6.26%

Notes: The table shows what fraction of firms, imports, employment , employment, turnover and value added is accounted for by the 1%, 5%, 25%, 50% biggest importers. Figures reported are weighted, refer to 2005 only and are based on sample of firms that have positive import values.

Table A6 Description of industry aggregation used

2-digit	sic 2-digit description	Industry Group
10	MINING OF COAL AND LIGNITE; EXTRACTION OF PEAT	Mining
11	EXTRACTION OF CRUDE PETROLEUM AND NATURAL GAS; SERVICE ACTIVITIES INCIDENTAL TO OIL AND GAS EXTRACTION EXCLUDING SURVEYING	Mining
14	OTHER MINING AND QUARRYING	Mining
15	MANUFACTURE OF FOOD PRODUCTS AND BEVERAGES	Low-medium tech manuf
16	MANUFACTURE OF TOBACCO PRODUCTS	Low-medium tech manuf
17	MANUFACTURE OF TEXTILES	Low-medium tech manuf
18	MANUFACTURE OF WEARING APPAREL; DRESSING AND DYING OF FUR	Low-medium tech manuf
19	TANNING AND DRESSING OF LEATHER; MANUFACTURE OF LUGGAGE, HANDBAGS, SADDLERY, HARNESS AND FOOTWEAR	Low-medium tech manuf
20	MANUFACTURE OF WOOD AND OF PRODUCTS OF WOOD AND CORK, EXCEPT FURNITURE; MANUFACTURE OF ARTICLES OF STRAW AND PLAITING MATERIALS	Low-medium tech manuf
21	MANUFACTURE OF PULP, PAPER AND PAPER PRODUCTS	Low-medium tech manuf
22	PUBLISHING, PRINTING AND REPRODUCTION OF RECORDED MEDIA	Low-medium tech manuf
23	MANUFACTURE OF COKE, REFINED PETROLEUM PRODUCTS AND NUCLEAR FUEL	Low-medium tech manuf
24	MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS	High tech manuf
25	MANUFACTURE OF RUBBER AND PLASTIC PRODUCTS	Low-medium tech manuf
26	MANUFACTURE OF OTHER NON-METALLIC MINERAL PRODUCTS	Low-medium tech manuf
27	MANUFACTURE OF BASIC METALS	Low-medium tech manuf
28	MANUFACTURE OF FABRICATED METAL PRODUCTS, EXCEPT MACHINERY AND EQUIPMENT	Low-medium tech manuf
29	MANUFACTURE OF MACHINERY AND EQUIPMENT NOT ELSEWHERE CLASSIFIED	High tech manuf
30	MANUFACTURE OF OFFICE MACHINERY AND COMPUTERS	High tech manuf
31	MANUFACTURE OF ELECTRICAL MACHINERY AND APPARATUS NOT ELSEWHERE CLASSIFIED	High tech manuf
32	MANUFACTURE OF RADIO, TELEVISION AND COMMUNICATION EQUIPMENT AND APPARATUS	High tech manuf
33	MANUFACTURE OF MEDICAL, PRECISION AND OPTICAL INSTRUMENTS, WATCHES AND CLOCKS	High tech manuf
34	MANUFACTURE OF MOTOR VEHICLES, TRAILERS AND SEMI-TRAILERS	High tech manuf
35	MANUFACTURE OF OTHER TRANSPORT EQUIPMENT	High tech manuf
36	MANUFACTURE OF FURNITURE; MANUFACTURING NOT ELSEWHERE CLASSIFIED	Low-medium tech manuf
37	RECYCLING	Low-medium tech manuf
40	ELECTRICITY, GAS, STEAM AND HOT WATER SUPPLY	Construction & Utilities
41	COLLECTION, PURIFICATION AND DISTRIBUTION OF WATER	Construction & Utilities
45	CONSTRUCTION	Construction & Utilities
50	SALE, MAINTENANCE AND REPAIR OF MOTOR VEHICLES AND MOTORCYCLES; RETAIL SALE OF AUTOMOTIVE FUEL	Wholesale & Retail
51	WHOLESALE TRADE AND COMMISSION TRADE, EXCEPT OF MOTOR VEHICLES AND MOTORCYCLES	Wholesale & Retail
52	RETAIL TRADE, EXCEPT OF MOTOR VEHICLES AND MOTORCYCLES; REPAIR OF PERSONAL AND HOUSEHOLD GOODS	Wholesale & Retail
55	HOTELS AND RESTAURANTS	Other Services
60	LAND TRANSPORT; TRANSPORT VIA PIPELINES	Other Services
61	WATER TRANSPORT	Other Services
62	AIR TRANSPORT	Other Services
63	SUPPORTING AND AUXILIARY TRANSPORT ACTIVITIES; ACTIVITIES OF TRAVEL AGENCIES	Other Services
64	POST AND TELECOMMUNICATIONS	Other Services
70	REAL ESTATE ACTIVITIES	Other Services
71	RENTING OF MACHINERY AND EQUIPMENT WITHOUT OPERATOR AND OF PERSONAL AND HOUSEHOLD GOODS	Other Services
72	COMPUTER AND RELATED ACTIVITIES	Computer
73	RESEARCH AND DEVELOPMENT	R&D
74	OTHER BUSINESS ACTIVITIES	Business Services
80	EDUCATION	Other Services
85	HEALTH AND SOCIAL WORK	Other Services
90	SEWAGE AND REFUSE DISPOSAL, SANITATION AND SIMILAR ACTIVITIES	Other Services
91	ACTIVITIES OF MEMBERSHIP ORGANISATIONS NOT ELSEWHERE CLASSIFIED	Other Services
92	RECREATIONAL, CULTURAL AND SPORTING ACTIVITIES	Other Services
93	OTHER SERVICE ACTIVITIES	Other Services