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Service 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 in 2000- 2005. Less than 10% of firms trade in services but they can be found in all sectors of the UK economy. While the services sector accounts for 80% of total exports and imports, the frequency and trade intensity of services traders is often higher in sectors such as high- tech manufacturing. Services traders are bigger, more productive and are more likely to be foreign owned or part of a multinational enterprise. These 'trade premia' are smaller than for goods traders, however, with the exception of skill intensity which is higher among services traders. There are also significant differences between exporters and importers of services. Furthermore, we 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 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. The top export and import destination make up 70% of the average firm's total trade and the top services type around 90%. This strong concentration is still present among firms trading with many countries and/or in many products.

Keywords: International trade, services, firm-level evidence

JEL Classifications: F14, F19, F23

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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 1,400 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 services trade we know still very little about the firms engaging in such 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; Bernard et al., 2007a). These findings have in turn inspired a burgeoning theoretical literature trying to incorporate these stylized 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 and imports in the United Kingdom in 2000-2005. 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. Freund and Weinhold, 2002; Amiti and Wei, 2005; Kimura and Lee, 2006; Head et al., 2007). In our view, filling this gap in the literature is important for a number of reasons.

First, a better knowledge of the characteristics of services traders is crucial for our understanding of who the firms are that engage in international transactions. The exclusive focus on merchandise exporters and importers 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 increasing 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 shifts in market shares between 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 stylized facts on services exporters is in our view a first step towards 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 and imports 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 how common services trade is among UK firms. We find that only around 8% of firms engage in trade in services.¹ Exporting is more common than importing (6.2% vs. 3.9%) and only 2% of firms both export and import. Even those firms that do trade only export around 30% of their sales and the ratio of imports over turnover is on average not more than 10%. However, services traders are much more important in terms of economic activity, accounting for 22.5% of overall employment, 24% of turnover and 30% of value added. Firms trading in services can be found in all sectors of the UK economy. While the services sector accounts for 80% of total exports and imports, the frequency and trade intensity of services trade is often more important in sectors such as high-tech manufacturing or mining. Services trade is also heavily concentrated among the top traders. We show that the 1% biggest exporters and importers (representing around 0.05% of all UK firms each) carry out 74% of exports and 79% of imports.

Next, we compare the firm-level characteristics of services traders and non-traders. We find that services traders are bigger, more productive and are more likely to be foreign owned or part of a multinational enterprise (MNE). There are important differences between exporters and importers, however. Firms that only export tend to be significantly smaller, less capital intensive but more productive and skill-intensive than firms that only import. For a smaller subsample, we are able to directly compare services and goods exporters. While there are many similarities between the two groups, we also point out a number of interesting differences. The “trade premia” of goods exporters for employment, sales, value added, capital intensity and the likelihood of foreign ownership are bigger than those of services exporters. One important exception to this ranking is skill intensity - which is significantly higher among services exporters. Total factor productivity is also higher among services exporters although the difference to goods exporters is small.

We then proceed to an analysis of the export and import patterns of the firms in our sample. We show that most firms only export or import a single service type 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 service type and country), to a lesser extent with the number of trading partners and only weakly with the number of service types 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. We discuss a number of explanations for these findings.

¹A precise definition of what we understand by trade in services in this paper follows in section 2.

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 as many as 40 markets concentrate 25-35% of their trade in their top market. Likewise, the top service type accounts for 94% of exports and 86% of imports of the average firm. Again, these fractions remain high (over 50%) even for firms trading in many products.

The rest of this paper is structured as follows. Section 2 discusses some conceptual issues related to how trade in services is defined in this paper. Section 3 describes the data underlying our analysis in more detail. Section 4 looks at the frequency and sectoral distribution of services trade as well as at the characteristics of services traders. Section 5 proceeds to an analysis of export and import destinations, number of services traded, and the concentration of trade volumes across and within firms. Section 6 concludes. Throughout the paper we try to stay as close as possible to comparable research on trade in goods and to compare our findings to this earlier literature (in particular, Bernard et al., 2007a/b; Manova and Zhang, 2008, Eaton et al., 2004).

2 What is International Trade in Services?

Trade in services in this paper is defined in accordance with the residential definition of the IMF Balance of Payments Manual (5th edition) which also underlies the compilation of balance of payments statistics (see IMF, 1993). That is, international trade in services is defined as service transactions between residents and non-residents of an economy.² Our definition thus includes three of the four modes described in the General Agreement on Trade in Services (GATS) - cross-border supply (mode 1), consumption abroad (mode 2), and presence of natural persons (mode 4).

For example, the provision of call-centre services to the UK from India would be a mode 1 transaction since both provider and consumer stay in their respective countries of residence. The attendance of a software programmer based in France at a training course in London would be a mode 2 transaction while a UK-based engineer working in Saudi Arabia on an oil drilling project would classify as a mode 4 service export (in the former example, the consumer moves to the country of the supplier while in the latter example, the supplier temporarily moves abroad).

In these examples, the concept of residence is crucial. While the subsidiary of a U.S. multinational in the UK might be foreign-owned, it is ordinarily resident in the UK. As such, its transactions with other UK firms or local consumers do not count as services trade under our definition. This is different from the GATS where such transactions would be classified under

²There are different definitions of what is considered to be a "service transaction". In its most restrictive definition, the Manual on Statistics of International Trade in Services (ESA, 2002, p.7) defines the term "services" as follows. "Services are not separate entities over which ownership rights can be established. They cannot be traded separately from their production. Services are heterogeneous outputs produced to order and typically consist of changes in the condition of the consuming units realised by the activities of the producers at the demand of the customers. By the time their production is completed they must have been provided to the consumers." In this paper, we follow the definitions of the Office for National Statistics underlying our data which is somewhat less restrictive (ONS, 2007). For example, it also includes industries and activities whose output can be stored on physical objects such as disks, paper or DVDs (computer programs, consultancy reports etc.). See table 1 for a list of services types in our data.

mode 2 supply (“commercial presence”).

Our main data sources, described in detail below, do not cover the entirety of the UK’s international services transactions. They focus primarily on producer, or intermediate, services. This means that our data exclude consumer services such as travel, passenger transport and higher education. They also exclude services provided by the financial and banking industry, as well as film and television companies.³ Overall, in 2005 the sectors and services types covered in our data accounted for 46% of total UK services exports and 31% of imports as reported in the UK balance of payments (ONS, 2007). However, we have information on 67% of exports and 80% of imports of the balance-of-payment category “other commercial services”. This is by far the fastest growing category of international trade in services and the one that most of the public discussion about offshoring and related issues is concerned with (e.g. Head et al., 2008; Lipsey, 2006). See table 1 for the list of service types covered in our data.

3 Data Description

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

3.1 The Annual Respondents Database

The first main data source used is the Annual Respondents Database (ARD). The 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.⁴ 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 exports and imports of (producer) services. Specifically, firms are asked whether or not they exported or imported commercial services and, if they did, what the value of the corresponding transaction was. The values reported should include, according to the notes of the surveys, “all transactions with individuals, enterprises and other organizations domiciled in a country other 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.

To provide aggregate figures for the whole economy we construct inverse probability weights using employment information from the Interdepartmental Business Register (IDBR) that con-

³Financial services are covered in a separate survey by the Bank of England, travel and passenger transport by the International Passenger Inquiry and higher education by the Higher Education Statistics Agency. See ONS (2007) for a detailed description of these and other data sources used in the compilation of the UK’s balance of payments. Unfortunately, none of these data sources are accessible to researchers.

⁴A more extensive description of the ARD can be found in Criscuolo, Haskel and Martin (2003), Griffith (1999) and Oulton (1997)

tains a list of all businesses in the UK. We also include information on MNE status from the Annual Foreign Direct Investment Register (see Criscuolo and Martin, 2007).

3.2 International Trade in Services Inquiry (ITIS)

The second main source of information is the Inquiry into International Trade in Services (ITIS) which collects data on the international transactions in services of resident UK private sector companies. The key difference to the information provided in the ABI is that the ITIS also asks for the service type exported or imported and for the country of destination or origin of exports and imports. Table 1 and appendix A.1 provide lists of the services types and countries contained in the ITIS, respectively.

Again, the ITIS mainly collects information on producer services and excludes travel and transport, higher education, the financial sector and the public sector, information on which is collected from other sources (see footnote 2). Since its inception in 1996, the results from the ITIS have been used as components of the Trade in Services account of the Balance of Payments and the expenditure measure of GDP. They have also served as input into the industrial and non-industrial service product breakdowns of input-output data and have been used by the government's export promotion desks.

ITIS covers firms with ten or more employees. Like the ABI, enterprises are sampled from the IDBR. The inquiry has always been statutory and consists of an Annual and a Quarterly Inquiry. In this paper we use the annual inquiry which since 2001 has sampled 20,000 firms per year (previously 10,000). Sampling is by sector and size-band, approximately split by 9,000 for production industries and 11,000 for non-production industries. Response rates since 1999 are above 80% for the annual inquiry.⁵ The aim of the survey sampling design is to capture most of trade in other commercial services in the UK (with the exceptions discussed above). To ensure that the sample captures most firms that trade in services various sampling methods are used.

First known traders, identified from the previous year, are selected. In addition, firms are selected if they give positive answers to the filter questions on the ABI mentioned in section 3.1 which identify the firms that are trading in services. Finally there is stratified random sampling from the IDBR in "High Propensity Industries" - sectors with a higher likelihood of trading overseas. These include computer services, consultants industries, the music industry, the production sector 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. In section 5, we will use the ITIS to look at transactions of active services traders only and will thus exclude these non-traders.

⁵Since the ITIS' inception, the ONS has conducted several evaluations which concluded that the information provided by companies is of high quality. In particular, 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.

3.3 The third Community Innovation Survey (CIS3)

We also use the third Community Innovation Survey (CIS3) which covers the period 1998-2000 to get information on firms' exports of goods and skill intensity, measured as the proportion of graduates in the workforce. This is the only available dataset that contains direct information on these variables.⁶ Similar to the ABI, we observe the export status of a firm and the total value of exports, but not the specific product exported or the firm's export destinations.

The survey is based on a stratified sample of UK businesses and a retrospective survey, response to which is voluntary. It covers manufacturing and services but not retailing and government. CIS3 sampled 19,625 firms with an overall response rate of 42%. The survey contains information on exporting in 1998 and 2000, and on skills for the year 2000.

3.4 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, both on their own and compared to non-traders (sections 4.1 and 4.2). For the comparison of services and goods exporters (section 4.3) we use the match between ARD and CIS in 2000. The analysis of import and export patterns of UK services traders (section 5) relies on the ARD-ITIS match in 2000-2005.⁷ The results in that section referring to the skill intensity of traders additionally use data on the fraction of university graduates from the CIS3. Table 2 shows descriptive statistics on these four samples.

4 Characteristics of services traders in the UK

4.1 Basic facts on services traders

Tables 3a and 3b provide basic information from the ARD on exporters and importers of services in the UK. Table 3a presents aggregate figures while table 3b looks at eight major sectors (see appendix table A.6 for details on this classification). Note that these are weighted figures, i.e. we use the ARD's inverse sampling probabilities to give more weight to firms with a lower likelihood of inclusion in the ARD. The unweighted figures are qualitatively similar and are shown in the Appendix (tables A3a and A3b).

Services traders only make up 8.1% of firms in our sample but account for 22.6% of employment, 24.3% of turnover and 29.8% of value added. We distinguish between three subgroups of traders - firms that export only, firms that import only and firms that do both. Exporting of services is more common than importing - 6.2% of firms export but only 3.9% import. Only 2% of firms both export and import but this group accounts for a substantially larger share of employment, turnover and value added. Firms in this group also account for 80% of exports and 86% of imports of services (columns 6 and 7). That is, around 2% of UK firms account

⁶HM Revenue and Customs holds detailed data on export and import transactions of UK firms comparable to, for example, Bernard et al. (2007b) for the U.S. Unfortunately, these data are not accessible for researchers.

⁷The ITIS also contains data for 1997-1999 but we restrict our sample to the latter period for comparability with the analysis in section 4 (the ARD only has information on services trade from 2000 onwards).

for the vast majority of trade in services. However, even for this type of firms the value of exports and imports is relatively small compared to their average turnover. The “export intensity”, i.e. the ratio of exports to turnover is around 31% and 27% for only-exporters and exporters-importers, respectively. On the import side, these figures are even lower at 9.1% for only-importers and 12.4% for exporters-importers. 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.⁸

Looking across sectors, we see 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 around 2% (construction and utilities) to around 20% for Mining and High-Tech Manufacturing (column 1-4). Likewise, there is a strong variation in the fraction of economic activity made up by services traders (columns 5-16). For example, services traders make up over half of turnover and value added and 40% of employment in Mining and Computer and R&D, while for construction and utilities and wholesale and retail these figures are of the order of only 10-20%. These figures do not necessarily reflect the importance of a sector in overall exports and imports since sectors 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 (see columns 2-4 and 17 and 18).

The aggregate figures on the relative importance of the three groups of traders and their average trade intensity also hide substantial sectoral variation (columns 19-26). In general, exporters-importers 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 more evenly split between the two groups or even dominated by one-way traders (e.g. in construction and utilities). Likewise, export intensity varies widely between 7% (only-exporters in construction and utilities) and 63% (only-exporters in mining). Import intensity also shows some variation but is mostly below 10% and never reaches more than the 20% observed for wholesail and retail.

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 among the biggest importers and exporters. In tables 4-5, 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 only make up 0.06% of UK firms. However, in 2005 they accounted for 74% of total exports, 4.6% of employment, 6.9% of turnover and 9.2% of gross value added. The 1% biggest importers similarly make up 0.04% of firms but were responsible for 79% of total imports, 2.9% of employment, 5.9% of turnover and 8.0% 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. (2007b, BJS henceforth) and Manova and Zhang (2008, MZ henceforth). The share of employment accounted for by the top 1% of exporters and importers is lower than those reported by BJS, however (11% vs. 3-5% in our sample).

⁸Bernard et al. (2003) report for U.S. manufacturing that 82% of exporting plants export less than 20% of their output.

⁹Again, these are weighted figures. The unweighted figures are contained in tables A2 and A3 in the Appendix.

4.2 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; Bernard et al., 2007a/b). We now take a first look at the firm-level characteristics of services traders and non-traders through a number of descriptive regressions. 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. In table 6, we control for year fixed effects only. Table 7 adds four-digit industry fixed effects to investigate to what extent differences between the four groups are driven by cross-sectoral variation in the data. In both tables, we also report results of F-tests on the significance of the differences between the three types of services traders (lines 4-5)

As shown in table 6, exporters and importers of commercial services are bigger in terms of employment and turnover, have higher gross value added, are more capital intensive and are more productive, both in terms of simple labour productivity and TFP. Services traders are also more likely to be foreign owned or to be part of a UK multinational company.¹⁰ These “trade premia” are particularly pronounced for firms that both export and import. Comparing only-importers and only-exporter, the former tend to be larger in terms of turnover and value added, and are more capital intensive and more likely to be foreign owned. There are no statistically significant labour productivity differences between the two groups, however, and only-exporter are actually more productive in terms of TFP. Adding industry fixed effects (table 7) leaves this picture almost unchanged. The trade premia come down somewhat but stay highly significant, both statistically and economically. The qualitative differences between the three groups of traders remain as in table 6.

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 in tables 6 and 7 shows that exporters-importers and services exporters employ more highly skilled workers – around 10 percentage points more than non-traders. Interestingly, there is no statistically discernible difference between services importers and non-traders in terms of skill levels. Again, controlling for industry fixed effects does not change this picture. Thus, these findings do not seem to be driven by differences in sectors of activity between exporters and importers, or traders and non-traders.

To summarize, services traders show similar trade premia as those found in the goods trade literature - they are larger, more productive and more likely to be part of a UK or foreign MNE. There are some interesting differences between exporters and importers of services, however. While firms that only export tend to be smaller, less capital intensive and less likely to be foreign owned, they are more productive and skill intensive than only-importers. Interestingly, these qualitative differences are the exact opposite to what Bernard et al. (2007a) report for U.S. goods exporters and importers.

¹⁰UK MNE status, capital-labour ratios and TFP are for 2000-2004 only since we do not have sufficient data for 2005.

4.3 Services vs. Goods Exporters

We also have information on goods 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. Since we have no information on import activities, we again split up firms into three groups – firms that export goods only, firms that export services only, firms that export both and firms that do not export at all. We use descriptive regressions to compare these firms in terms of size, capital intensity, productivity, foreign ownership, UK MNE status and skill intensity. Table 8a presents our baseline results while table 8b adds 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 capital intensive, more productive and are more likely to be part of 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. Interestingly, differences in labour productivity between the three groups are less pronounced and not statistically significant. For the skill composition of the workforce (column 7) the picture even reverses – it is the only-services exporters which are most skill intensive, followed by exporters of both goods and services and only-goods exporters. Similarly, services exporters have higher TFP than the other two groups, although these differences are only marginally statistically significant.

Again, the picture that emerges is thus one of services exporters as relatively small (compared to other internationally engaged firms) but very productive and human capital intensive. And again, this fact only seems to be partially explained by different sectoral orientation of the different types of firms.

5 Dissecting Services Trade

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).

5.1 Aggregate figures - services types and trading partners

We start by giving some aggregate figures on the types of services being traded and the top export and import destinations. As shown in table 10, business services are the most exported aggregate service type in our sample, followed by telecommunication and technical services.¹¹

¹¹We present figures for ten aggregate service types for expositional clarity. Later results are based on the full range of around 40 services (see table 1 for a classification of our service types).

On the import side, royalties and licenses and telecommunication services come first, again followed by business services.

Turning to export and import destinations, the ranking of trading partners is not too dissimilar from what is observed for the UK's trade in goods. However, the dominance of the USA is much more pronounced, with U.S. exports and imports accounting for around 25% of total trade in our sample. For comparison, the USA's share in the UK's goods trade is around 16% (exports) and 12% (imports).¹² There are also some trading partners in the top 10 which would not make it onto a similar list for goods trade. For example, Switzerland is the fifth biggest export destination and the sixth biggest import destination. Likewise, Saudi Arabia ranks ninth among export destinations.

5.2 Export Values, Number of Destinations and Services Types

We now turn to the firm-level data underlying these aggregate observations. As shown in table 11a, the average firm exports to around 8 out of 218 markets (column 1) and sells 1.4 types of services out of a total of 38 (column 2).¹³ 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 11b). 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. 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 goods exports by 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 R^2 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 R^2 of 93% in a simple log-log

¹²Figures for 2002 from CEPII. Germany and France are the other two big partners for UK goods trade, accounting for 10% each of UK exports and 14% (Germany) and 8% (France) of imports.

¹³This 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".

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 R^2 of 98% for exports and 92% for imports). Again, we 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.¹⁴

5.3 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 13-14 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 presented 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.

¹⁴We stress that it is difficult to directly compare results since the product classifications used in BJS and MZ are considerably more detailed. However, the figures they report indicate a number of firms - number of products elasticity much smaller than -1 (see table 6 in MZ and table 4 in BJS).

5.4 Concentration of Trading Activities within Firms – Markets and Products

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 most important product. Tables 15-18 provide the corresponding evidence. In the first column of table 15 and 16, 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 17 and 18 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 15-18 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 17-18). 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.

5.5 Firm Characteristics and Trade Patterns

Table 19 looks at the characteristics of services traders along the dimensions just explored. We 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. We thus 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 OLS coefficient estimates of the margins add up to the coefficient on total trade. We focus on within sectoral variation by controlling

for industry fixed effects.¹⁵

As shown, 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 CIS3 to look at the correlation between skill levels and export and import patterns. Table 20 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).

6 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 for the United Kingdom in 2000-2005. We set ourselves the task to provide for the first time a detailed description of firms that trade in services, and to compare the evidence we provide with existing evidence on merchandise traders. The stylized facts described in this paper provide new evidence on services traders and raise interesting questions, some of which we hope to answer in future research.

Some of the stylized facts on services traders are strikingly similar to goods traders. Only few firms trade in services; but they represent a much larger share of economic activity in terms of employment, turnover and value added. In addition, a very small number of highly productive services traders import and export many services to many countries and account for the largest proportion of services trade and for a much larger than proportional share of employment, turnover and value added. These larger traders are also more likely to both import

¹⁵Results without fixed effects are very similar and omitted here to save space. Likewise, replacing labour productivity with TFP does not change our qualitative findings. We use labour productivity to maximise the size of our sample. Both sets of omitted results are available from the authors upon request.

and export services.

We also found that trade intensities of services traders is low, especially for importers. Most services traders export/import a small number of services with few foreign countries and even those who trade with several partner countries and/or in more than one service type export mostly to a single main destination and mostly only one service type.

Trade premia are also qualitatively similar to those reported for goods traders. Services traders are larger, more capital and skill intensive; they have higher labour and total factor productivity and are more likely to be part of a domestic or a foreign multinational.

However, when we distinguished among firms that only import, firms that only export and firms that both import and export services, we found some interesting features that are in contrast with the evidence from goods trade. Firms that only export services are smaller in terms of employment, turnover and value added, less capital intensive and less likely to be foreign owned than only-importers but are also more skill intensive and productive. This is in contrast with evidence on goods trade from the US where only-exporters have lower TFP, are larger, more capital intensive but less skill intensive than only-importers (Bernard et al., 2007a).

The high skill premium for services traders is confirmed in additional analysis that we carried out on a subset of firms for which we have information on export activity in both services and merchandise trade. The evidence confirms that the skill premia for services exporters are higher than for goods exporters while size, ownership and capital intensity premia are all higher for goods traders. The smaller relevance of size for services exporters seems suggestive of lower setup costs for producing and exporting services. The higher skill intensity and lower capital intensity for services export could reflect that firms who export services in fact export knowledge embodied in their workforce customised to each of their customers and the capital needed for these type of transaction is much less than the capital needed for producing export goods.

We then correlate these firms' characteristics with the intensive and extensive margins of firm-level trade. Unsurprisingly, bigger, and more productive firms trade with more countries, in a larger number of services (larger extensive margins) and more per country/service (larger intensive margins). More skill intensive firms also have higher intensive margins and trade with more countries but do not trade in many services types. Perhaps more surprising, however, is that foreign MNEs have higher trade values and number of services but not a higher number of trading partners and that domestic MNEs trade a higher number of services and with more partner countries but do not have higher intensive margins. This could reflect a headquarter hub-effect, with UK MNE headquarters trading many services with their affiliates but not very much with any particular one of them; and UK based affiliates of foreign MNEs trading intensively with their headquarters.

One distinctive feature of the intensive and extensive margins analysis is that intensive margin seems much more important for services imports and exports than for goods. Although providing an answer of why this might be the case goes beyond the scope of this paper, it is possible that this partly reflect greater barriers to cross-country services trade.

Most of the ongoing theoretical and empirical research that looks at firm-level trade concentrates on trade in goods. Our evidence shows that although services traders present some features that are similar to goods traders, there are some noteworthy differences. These find-

ings provide interesting insights for both future theoretical research and policy making and raise interesting questions. For example, do the predictions from existing theoretical models fit the evidence on services trade as well as that on goods trade? Why are intensive margins of trade more important for services traders? Are there significant differences amongst different types of firms and services? The richness of our data will allow to answer these questions in future work. We are confident that such work will also provide further insights for ongoing policy debates, such as the ones on offshoring and services trade liberalization.

References

- [1] Arkolakis, C. and M. Muendler (2007), “The Extensive Margin of Exporting Goods: A Firm-level Analysis.” Yale University mimeo.
- [2] Amiti, M. and S. Wei (2005) “Service Offshoring, Productivity, and Employment: Evidence from the United States,” IMF Working Papers 05/238.
- [3] Bernard, A.B. and J.B. Jensen (1995), “Exporters, Jobs, and Wages in U.S. Manufacturing: 1976–1987”, *Brookings Papers on Economic Activity: Microeconomics*, 67–119.
- [4] Bernard, A.B. and J.B. Jensen (1999), “Exceptional Exporter Performance: Cause, Effect, or Both?”, *Journal of International Economics*, 47, 1, 1–25.
- [5] Bernard, A., J. Eaton, J.B. Jensen, and S. Kortum (2003), “Plants and Productivity in International Trade“, *American Economic Review*, 93(4), 1268-1290.
- [6] Benrard, A., J.B. Jensen, S. Redding and P. Schott (2007a), “Firms in International Trade”, *Journal of Economic Perspectives*, 21(3), 105-130.
- [7] Bernard, A., J.B. Jensen and P. Schott (2007b), “Importers, Exporters and Multinationals: A Portrait of Firms in the U.S. that Trade Goods“, mimeo.
- [8] Criscuolo, C. and M. Leaver (2005), “Offshore Outsourcing and Productivity”, mimeo.
- [9] Criscuolo C. and J. E. Haskel and R. Martin (2003) “Building the evidence base for productivity policy using business data linking”, *Economic Trends* 600 November 2003, 39-51.
- [10] Criscuolo, C. and R.Martin, (2005). “Multinationals and US Productivity Leadership: Evidence from Great Britain,” CEP Discussion Papers dp0672, Centre for Economic Performance, LSE, *Review of Economics and Statistics*, forthcoming.
- [11] Disdier A.C. and K. Head, (2007) “The Puzzling Persistence of the Distance Effect on Bilateral Trade“, *Review of Economics and Statistics*.
- [12] Eaton, J., S. Kortum, and F. Kramarz (2004), “Dissecting Trade: Firms, Industries, and Export Destinations”, *American Economic Review*, 94(2), 150-154.
- [13] Eaton, J., S. Kortum, and F. Kramarz (2007), “An Anatomy of International Trade: Evidence from French Firms“, mimeo.

- [14] European Statistical Agency (2002). Manual on Statistics of International Trade in Services. Department of Economic and Social Affairs, Statistics Division, European Commission.
- [15] Freund, C. and D. Weinhold (2002), “The Internet and International Trade in Services”, *American Economic Review*, 92(2), 236-240.
- [16] Greenaway, D. and R. Kneller (2007), “Firm Heterogeneity, Exporting and Foreign Direct Investment”, *The Economic Journal*, 117 (February), F134-F161.
- [17] Griffith, R. (1999). Using the ARD establishment level data to look at foreign ownership and productivity in the UK. *Economic Journal*, 109, F416-F442.
- [18] Head, K., T. Mayer, and J. Ries (2007), “How Remote is the Offshoring Threat?“, CEPR Discussion Paper.
- [19] Hijzen A., M. Pisu and R. Upward (2006), “A Portrait of Trade in Services”. Report for the DTI, London.
- [20] Hijzen, A.; M. Pisu; R. Upward and P. Wright, (2007) “Employment, Job Turnover and the Trade in Producer Services: Firm-level Evidence,“ Discussion Papers 07/37, University of Nottingham, GEP.
- [21] Hummels, D. and A. Skiba (2004), “Shipping the Good Apples Out? An Empirical Confirmation of the Alchian-Allen Conjecture”, *Journal of Political Economy*, 112, 1384-1402.
- [22] International Monetary Fund. Balance of Payments Manual. Fifth edition. Washington, D.C., 1993.
- [23] Kimura, F. and H.-H. Lee, 2006, “The Gravity Equation in International Trade in Services,” *Weltwirtschaftliches Archiv*, 142(1), 92–121.
- [24] Lipsey, R. (2006), “Measuring International Trade in Services“, NBER Working Paper 12271.
- [25] Manova, K. and Z. Zhang (2008), “China’s Exporters and Importers: Firms, Products and Trade Partners”, mimeo.
- [26] Melitz, M.J. (2003), ”The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity”, *Econometrica*, 71, 1695-1725.
- [27] Muûls, M. and M., Pisu, “Imports and Exports at the Level of the Firm: Evidence from Belgium.“ The University of Nottingham Research Paper No. 2007/28.
- [28] Office for National Statistics (2007). United Kingdom Balance of Payments - The Pink Book 2007.
- [29] Oulton, N. (1997), “The ABI Respondents Database: A new resource for industrial economics research.” *Economic Trends*, 528, 46-57.
- [30] Wagner, J. (2007), “Exports and Productivity: A Survey of the Evidence from Firm-level Data”, *The World Economy*, 30(1), 60-82.

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

Table 1: Summary of services types used in the survey

Business Services	Telecoms Services	Trade Related Services	Personal, Cultural and Recreational Services	Royalties/Licences	Technical Services	Miscellaneous Services
Legal Services	Telephone Services	Earnings related to trade in goods not entering the UK	TV &radio related Services Music Related Services Other cultural/recreational Health services	Payment for use of intangible assets Payments for purchase of intangible assets	Architectural Engineering Surveying Construction Services Agricultural Mining Services Other technical Waste treatment and depollution ²	Operational leasing (not ship or aircraft)
Accounting/Auditing	Postal	Commission from trade in goods				
Mgmt Consult/PR Advertising	Courier Computer Services	Commission from trade in commodities				
Market Research/Polls R&D	Information Services	Services between affiliated companies not elsewhere specified				
Insurance Premiums ¹ Insurance Claims ¹		Other trade in services				
Insurance Broking					Other on-site maintenance ²	
Financial Services Property Mgmt Procurement Publishing Recruitment Other business Services						

Notes: ¹ in 2005 Insurance is classified separately as freight; reinsurance; life insurance and pension funding and other direct insurance

² these services types were first introduced in 2005

Table 2: Comparison of samples used

		(1)	(2)	(3)	(4)
		ARD	ARD-CIS	ARD-ITIS	ARD-ITIS-CIS
1	No. of firm-years	239,831	3,062	16,566	2,039
2	Years	2000-2005	2000	2000-2005	2000
3	Employment	222	297	834	576
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%
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%

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 (2005, aggregate, weighted)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Number of Firms in ARD	Share of firms, weighted (%)	Value added share, weighted (%)	Turnover share, weighted (%)	Employment share, weighted (%)	Share of total exports, weighted (%)	Share of total imports, weighted (%)	Firm export intensity, weighted	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%
Exporters-Importers	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. "Exporters-Importers" are firms that both import and export services.

Table 3b: Importers and Exporters of Services in the UK (2005, by major sector, weighted) – continued on next page

	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 in ARD	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 3b, cont.

	Share of sector in total		Share of total trade				Trade intensity			
	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
	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 4 (figures for 2005, weighted) – firms with positive exports only

	(1)	(2)	(3)	(4)	(5)	(6)
Top exporters by export value	Number of firms in ARD	% of firms	Share of Exports	Share of Employment	Share of Turnover	Share of Value Added
Top 1%	34	0.06%	73.90%	4.59%	6.93%	9.22%
Top 5%	172	0.29%	87.03%	7.17%	11.78%	13.57%
Top 25%	855	1.53%	96.66%	9.45%	14.10%	16.54%
Top 50%	1711	3.07%	99.37%	10.72%	15.45%	18.22%
All Exporters	3393	6.15%	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 except for column 1, refer to 2005 only and are based on sample of firms that have positive export values.

Table 5 (figures for 2005, weighted) – firms with positive imports only

	(1)	(2)	(3)	(4)	(5)	(6)
Top importers by import value	Number of firms in ARD	% of firms	Share of Imports	Share of Employment	Share of Turnover	Share of Value Added
Top 1%	35	0.04%	79.33%	2.91%	5.85%	7.99%
Top 5%	178	0.19%	90.58%	5.29%	10.08%	12.46%
Top 25%	886	0.97%	98.99%	13.91%	17.03%	20.28%
Top 50%	1772	1.91%	99.80%	15.80%	18.99%	22.42%
All Importers	3543	3.87%	100.00%	16.91%	19.65%	23.50%

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 except for column 1, refer to 2005 only and are based on sample of firms that have positive import values.

Table 6: Regressions of firm-level variables on trading status (2000-2005)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Employment	Turnover	Value Added	Capital- Labour Ratio (2000-2004)	Labour productivity	TFP (2000- 2004)	Foreign ownership	UK MNE (2000-2004)	Fraction of highly skilled employees
Importer only	1.219 (52.30)**	1.895 (68.45)**	1.725 (63.93)**	0.943 (46.74)**	0.506 (44.35)**	0.037 (7.08)**	0.204 (34.16)**	0.067 (15.32)**	0.015 (0.98)
Exporter only	0.479 (19.28)**	0.779 (28.34)**	0.962 (35.86)**	0.569 (32.23)**	0.483 (43.10)**	0.093 (13.52)**	0.066 (15.93)**	0.047 (12.24)**	0.123 (5.91)**
Exporter-Importer	1.301 (53.90)**	2.047 (75.62)**	2.008 (73.67)**	1.018 (56.31)**	0.707 (61.98)**	0.116 (17.37)**	0.212 (35.74)**	0.089 (19.34)**	0.115 (6.99)**
Imp only – Exp only (F-Stat)	0.740 (497.08)**	1.116 (864.13)**	0.763 (424.70)**	0.374 (206.50)**	0.022 (2.08)	-0.056 (44.29)**	0.137 (361.03)**	0.020 (12.08)**	-0.108 (18.46)**
ImpExp – Imp only (F-Stat)	0.082 (6.74)**	0.152 (17.36)**	0.283 (61.10)**	0.076 (8.72)**	0.201 (169.54)**	0.080 (94.79)**	0.007 (0.99)	0.022 (12.28)**	0.100 (21.34)**
Observations	239831	239831	239831	201027	239831	163032	239831	201429	2530
Fixed effects	Year	Year	Year	Year	Year	Year	Year	Year	Year

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

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Employment	Turnover	Value Added	Capital- Labour Ratio (2000-2004)	Labour productivity	TFP (2000- 2004)	Foreign ownership	UK MNE (2000-2004)	Fraction of highly skilled employees
Importer only	0.887 (40.60)**	1.235 (48.75)**	1.107 (44.99)**	0.475 (30.71)**	0.220 (23.72)**	0.053 (10.25)**	0.145 (26.30)**	0.036 (8.55)***	0.013 (0.97)
Exporter only	0.458 (20.15)**	0.675 (26.04)**	0.683 (26.92)**	0.275 (17.19)**	0.225 (24.24)**	0.090 (13.66)**	0.041 (10.31)**	0.034 (8.88)***	0.073 (4.22)**
Exporter-Importer	1.147 (48.30)**	1.646 (60.25)**	1.491 (54.98)**	0.579 (36.24)**	0.344 (34.46)**	0.132 (20.63)**	0.158 (27.70)**	0.061 (13.37)***	0.081 (5.78)**
Imp only – Exp only (F-Stat)	0.429 (201.35)**	0.560 (258.86)**	0.425 (156.86)**	0.199 (86.49)**	-0.005 (0.15)	-0.038 (21.74)**	0.104 (240.66)**	0.002 (0.16)	-0.060 (7.95)**
ImpExp – Imp only (F-Stat)	0.260 (76.18)**	0.411 (142.82)**	0.383 (128.46)**	0.105 (25.68)**	0.124 (91.87)**	0.079 (104.76)**	0.013 (2.98)*	0.025 (17.41)**	0.067 (14.15)**
Observations	239831	239831	239831	201027	239831	163032	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	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: Services and Manufacturing exporters (2000)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Employment	Turnover	Value Added	Capital-Labour Ratio	Labour Productivity	TFP	Foreign Ownership	UK MNE	Skills
Export both	1.339 (12.03)**	1.883 (13.89)**	1.680 (12.86)**	0.596 (7.48)**	0.341 (6.91)**	0.080 (2.40)*	0.218 (7.29)**	0.136 (4.97)**	0.115 (6.21)**
Goods Export Only	1.257 (17.82)**	1.804 (21.36)**	1.528 (18.79)**	0.623 (11.15)**	0.271 (8.56)**	0.084 (4.46)**	0.170 (10.21)**	0.126 (7.73)**	0.008 (0.82)
Services Export only	0.728 (6.69)**	1.004 (7.66)**	0.954 (7.54)**	0.231 (2.71)**	0.226 (4.41)**	0.128 (3.53)**	0.079 (3.86)**	0.084 (3.83)**	0.140 (6.97)**
Goods only – Serv. Only (F-Stat)	0.528 (21.75)**	0.800 (34.63)**	0.574 (18.80)**	0.392 (19.51)**	0.046 (0.72)	-0.044 (1.44)	0.091 (13.15)**	0.041 (2.59)	-0.133 (42.02)**
Both – Goods only (F-Stat)	0.083 (0.51)	0.079 (0.32)	0.152 (1.25)	-0.027 (0.11)	0.070 (1.80)	-0.004 (0.02)	0.048 (2.07)	0.010 (0.12)	0.108 (32.33)**
Observations	2583	2583	2583	2561	2583	2099	2583	2583	2249
Fixed effects	none	none	none	none	none	none	none	none	None

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 8b: Services and Manufacturing exporters (2000, industry fixed effects)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Employment	Turnover	Value Added	Capital-Labour Ratio	Labour Productivity	TFP	Foreign Ownership	UK MNE	Skills
Export both	1.261 (10.88)**	1.811 (13.81)**	1.542 (11.95)**	0.568 (6.92)**	0.281 (5.76)**	0.084 (3.08)**	0.160 (5.48)**	0.110 (3.79)**	0.096 (5.47)**
Goods Export Only	1.190 (14.29)**	1.656 (17.22)**	1.459 (15.72)**	0.606 (10.09)**	0.270 (7.67)**	0.052 (2.66)**	0.116 (5.99)**	0.095 (4.89)**	0.033 (3.07)**
Services Export only	0.732 (6.50)**	1.074 (8.36)**	0.938 (7.41)**	0.324 (4.08)**	0.206 (4.13)**	0.115 (3.42)**	0.055 (2.56)*	0.075 (3.40)**	0.101 (5.91)**
Goods only – Serv. Only (F-Stat)	0.458 (15.22)**	0.582 (18.69)**	0.521 (15.63)**	0.283 (11.71)**	0.063 (1.58)	-0.063 (3.65)+	0.061 (5.77)*	0.020 (0.57)	-0.068 (15.63)**
Both – Goods only (F-Stat)	0.072 (0.41)	0.155 (1.47)	0.083 (0.43)	-0.038 (0.25)	0.011 (0.05)	0.032 (1.64)	0.044 (1.92)	0.015 (0.24)	0.063 (13.02)**
Observations	2583	2583	2583	2561	2583	2099	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	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 9: Export and import shares of aggregate services types (yearly averages 2000-2005)

Aggregate Service Type	Export Share	Import Share
Business Services	22.0%	18.6%
Telecommunication Services	17.5%	21.8%
Technical Services	16.2%	8.4%
Trade Related Services	12.3%	10.3%
R&D	11.7%	6.3%
Royalties and Licences	11.3%	21.8%
Affiliated	6.3%	9.3%
Financial Services	1.1%	2.1%
Cultural Services	1.0%	0.8%
Construction	0.5%	0.7%

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

Table 10: Top export and import destinations (yearly averages for 2000-2005)

Exports		Imports	
Country	Export Share	Country	Import Share
USA	23.9%	USA	25.2%
Germany	7.2%	Germany	9.9%
Netherlands	6.8%	France	8.8%
Ireland	6.5%	Netherlands	6.1%
Switzerland	5.6%	Japan	4.2%
France	4.1%	Switzerland	3.7%
Japan	4.1%	Ireland	3.4%
Europe n.e.c.	3.0%	Belgium	3.3%
Saudi Arabia	2.9%	Sweden	3.3%
Belgium	2.9%	Italy	2.6%

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

Table 11a: 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
Percentiles						
1st	1	1	1.7	1.7	1.4	1.4
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
99th	65	6	145221.4	88869.8	30515.7	22217.5
Firm-years	14701	14701	14701	14701	14701	14701

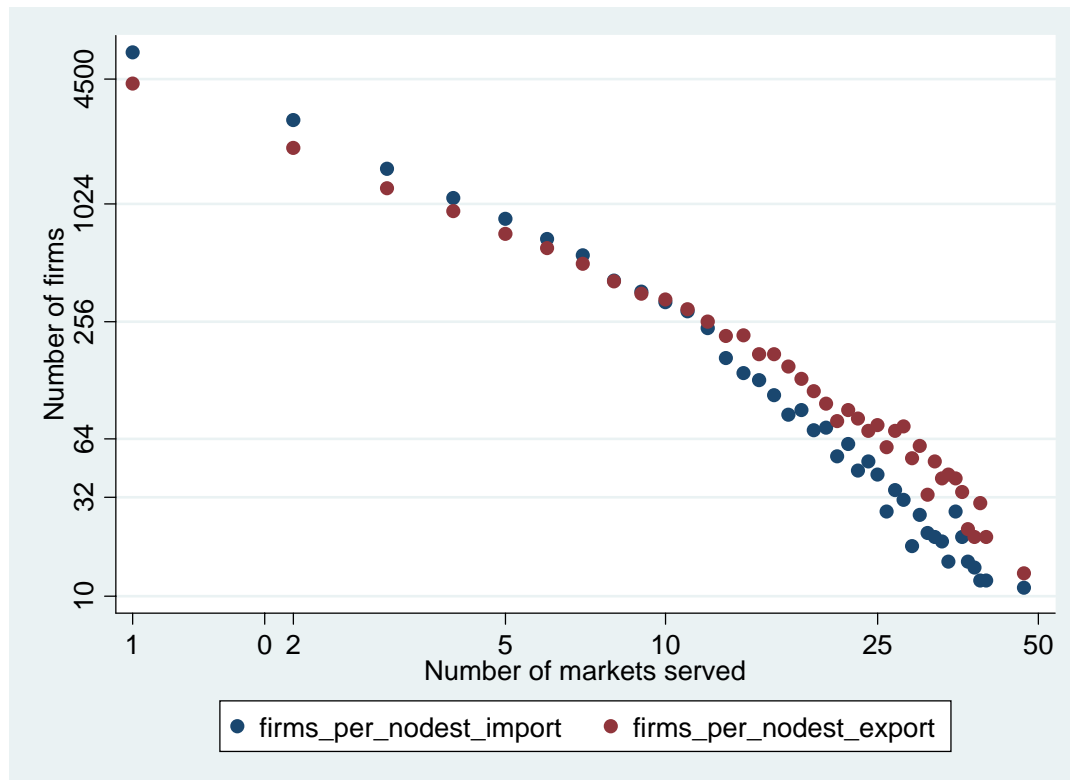
Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS), 2000-2005.

Table 11b: 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
Percentiles						
1st	1	1	1.0	1.0	1.0	1.0
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
99th	45	11	65828.8	33550.1	17512.0	13573.3
Firm-years	16916	16916	16916	16916	16916	16916

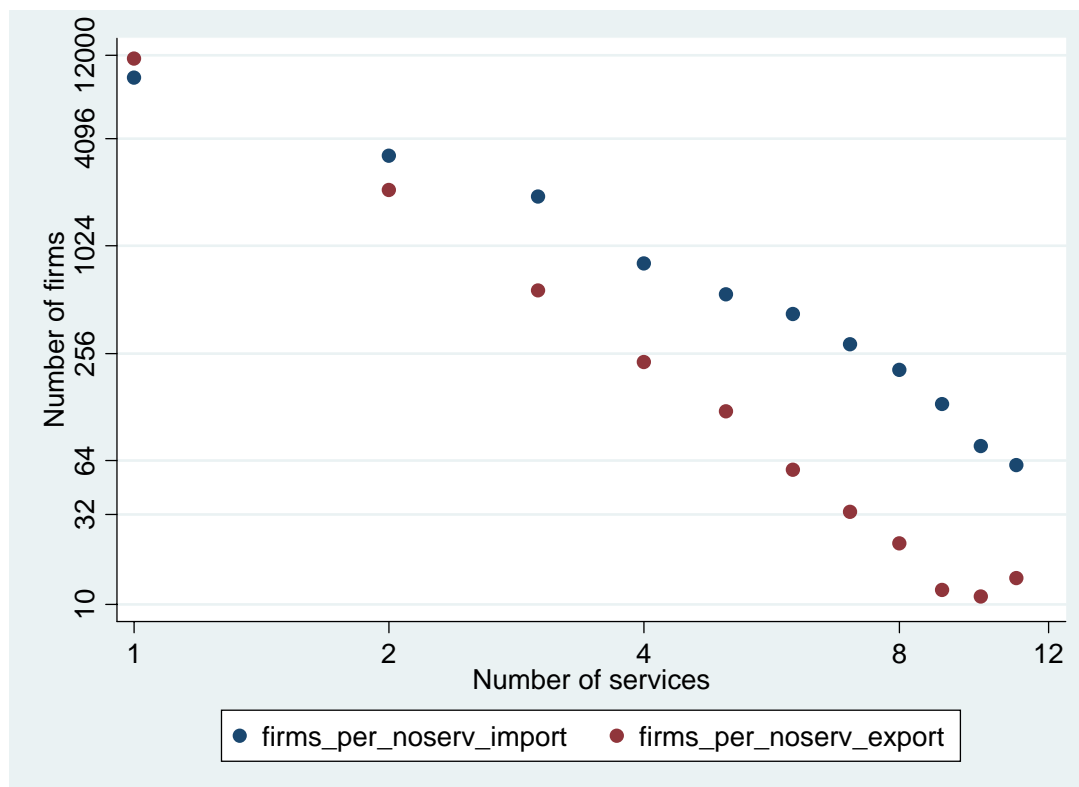
Source: Authors' calculations on the matched Annual Respondents Database (ARD) and International Trade in Services Survey (ITIS), 2000-2005.

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



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

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



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 top 1%, 5% etc. exporters

	(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%	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 12b (figures for 2000-2005) – Importers (firms with positive imports only)
- concentration of activity among top 1%, 5% etc. importers

	(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%	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 13a (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

	(1)	(2)	(3)	(4)	(5)	(6)
Number of destinations	Number of firms	% of firms	Share of Exports (%)	Share of Employment (%)	Share of Turnover (%)	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 13b (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

	(1)	(2)	(3)	(4)	(5)	(6)
Number of source countries	Number of firms	% of firms	Share of Exports	Share of Employment	Share of Turnover	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 14a (figures for 2000-2005) – Exporters (firms with positive exports only)
- concentration of activity among firms exporting at least 1, 2, 3 etc. services

	(1)	(2)	(3)	(4)	(5)	(6)
Number of exporter services	Number of firms	% of firms	Share of Exports	Share of Employment	Share of Turnover	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 14b (figures for 2000-2005) – Importers (firms with positive exports only)
- concentration of activity among firms importing at least 1, 2, 3 etc. services

	(1)	(2)	(3)	(4)	(5)	(6)
Number of importer services	Number of firms	% of firms	Share of Imports	Share of Employment	Share of Turnover	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 15 – Concentration of Firm Exports in Principal Markets (2000-2005)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Export Market Ranking	Share of Market (all firms)	Share of Market (Dest=1)	Share of Market (Dest=2)	Share of Market (Dest=5)	Share of Market (Dest=10)	Share of Market (Dest=25)	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 16 – Concentration of Firm Imports in Principal Source Countries (2000-2005)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Source Market Ranking	Share of Market (all firms)	Share of Market (Dest=1)	Share of Market (Dest=2)	Share of Market (Dest=5)	Share of Market (Dest=10)	Share of Market (Dest=25)	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 17– Concentration of Firm Exports in Principal Service Type (2000-2005)

	(1)	(2)	(3)	(4)	(5)	(6)
Service Ranking	Share of Service (all firms)	Share of Service (Serv=1)	Share of Service (Serv=2)	Share of Service (Dest=3)	Share of Service (Dest=5)	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 18– Concentration of Firm Imports in Principal Service Type (2000-2005)

	(1)	(2)	(3)	(4)	(5)	(6)
Service Ranking	Share of Service (all firms)	Share of Service (Serv=1)	Share of Service (Serv=2)	Share of Service (Dest=3)	Share of Service (Dest=5)	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 19 – Firm characteristics and extensive and intensive margins (ARD-ITIS sample)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Log(value of exports)	Log(No. of export destinations)	Log(No. of services exported)	Log(exports per dest/serv)	Log(value of imports)	No. of import destinations	No. of services imported	Log(imports per dest/serv)
Log(employment)	0.629 (27.84)**	0.181 (13.60)**	0.036 (7.13)**	0.412 (21.08)**	0.688 (32.00)**	0.173 (14.18)**	0.061 (7.92)**	0.454 (22.65)**
Log(labour prod.)	0.945 (23.16)**	0.327 (16.32)**	0.054 (6.78)**	0.564 (16.74)**	0.829 (23.66)**	0.249 (14.46)**	0.092 (7.79)**	0.488 (15.72)**
Foreign ownership	0.761 (12.09)**	0.000 (0.00)	0.090 (6.55)**	0.671 (12.02)**	0.993 (18.41)**	-0.049 (1.75)	0.165 (8.40)**	0.876 (17.04)**
UK MNE	0.351 (4.32)**	0.168 (3.73)**	0.061 (3.46)**	0.121 (1.84)	-0.001 (0.01)	0.202 (5.21)**	0.059 (2.24)*	-0.262 (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 20 – Firm characteristics and extensive and intensive margins (ARD-ITIS sample)

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

Table 21 – Decomposition of Aggregate Exports, 2003 (ARD-ITIS sample)

	(1)	(2)	(3)	(4)
	Log(value of exports)	Log(No. of exporters)	Log(No. of services per exporter)	Log(exports per exporter/serv)
Log(distance)	-0.447 (0.144)**	-0.305 (0.086)**	-0.060 (0.054)	-0.083 (0.094)
Log(GDP)	0.897 (0.051)**	0.591 (0.030)**	0.217 (0.019)**	0.088 (0.033)**
Observations (countries)	189	189	189	189
R-squared	0.68	0.72	0.45	0.04

Table 22 – Decomposition of Aggregate Imports, 2003 (ARD-ITIS sample)

	(1)	(2)	(3)	(4)
	Log(value of imports)	Log(No. of importers)	Log(No. of services per importer)	Log(imports per importer/serv)
Log(distance)	-0.676 (0.140)**	-0.417 (0.074)**	-0.114 (0.052)*	-0.146 (0.113)
Log(GDP)	0.819 (0.046)**	0.586 (0.024)**	0.252 (0.017)**	-0.019 (0.037)
Observations (countries)	193	193	193	193
R-squared	0.71	0.81	0.60	0.00

Appendix Tables

Table A3a – Importers and Exporters of Services in the UK (unweighted)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Number of Firms in ARD	Share of firms (%)	Value added share (%)	Turnover share (%)	Employment share (%)	Share of total exports (%)	Share of total imports (%)	Firm export intensity	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 A3b: Importers and Exporters of Services in the UK (unweighted)

	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 A3b, 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 (unweighted)

	(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	0.09%	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.

Table 5: Importers (unweighted)

	(1)	(2)	(3)	(4)	(5)	(6)
Top importers by import value	Number of firms	% of firms	Share of Imports	Share of Employment	Share of Turnover	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	16.2	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, 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 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

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