FIRM HETEROGENEITY AND AGGREGATE BUSINESS SERVICES EXPORTS: MICRO EVIDENCE FROM BELGIUM, FRANCE, GERMANY AND SPAIN

2017

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Documentos de Trabajo
N.º 1735

BANCO DE ESPAÑA
Eurosistema

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Documentos de Trabajo. N.º 1735
2017

ISSN: 1579-8666 (on line)

Abstract

This paper uses detailed micro data on service exports at the firm-destination-service level to analyse the role of firm heterogeneity in shaping aggregate service exports in Belgium, France, Germany and Spain from 2003 to 2007. We decompose the level and the growth of aggregate service exports into different trade margins paying special attention to firm heterogeneity within countries. We find that the weak export growth of France is at least partly due to poor performance by small exporters. By contrast, small exporters are the most dynamic contributors to the aggregate exports of Belgium, Germany and Spain. Our results highlight the importance of firm heterogeneity in understanding aggregate export growth.

Keywords: service exports, firm heterogeneity, micro data panel.

JEL Classification: F14.

Resumen

En este trabajo se emplean microdatos de exportaciones de servicios desagregados por empresa-destino-tipo de servicio con la finalidad de analizar cómo afectan las características de las empresas a las exportaciones agregadas de servicios en Bélgica, Francia, Alemania y España para el período 2003-2007. El nivel y el crecimiento de las exportaciones agregadas se descomponen en diferentes márgenes, prestando una atención especial a la heterogeneidad empresarial dentro de cada país. Los resultados corroboran que el débil crecimiento de las exportaciones en Francia refleja, al menos parcialmente, el débil dinamismo de los pequeños exportadores. En contraste, este grupo de empresas es el más dinámico en el resto de los países de la muestra. Nuestros resultados subrayan la relevancia de la heterogeneidad empresarial para explicar la evolución de las exportaciones agregadas.

Palabras clave: exportaciones de servicios, heterogeneidad empresarial, microdatos de panel.

Códigos JEL: F14.

1 Introduction

Although still relatively small in comparison to trade in goods, EU countries' trade in business services has been extremely dynamic in recent years. The share of services exports in total production of business and other commercial services has been steadily increasing and cross-border services export values have more than doubled since the early 2000s, thanks to technological advances and market liberalisation. At the same time, aggregate data reveal significant differences in the export performance of services across major European countries. Figure 1 shows the aggregate evolution of exports of business services trade for Belgium, France, Germany and Spain. While exports of business and other commercial services grew very dynamically in Germany and, in particular, in Spain from 2003 to 2007 with growth rates of 50 and more than 70 percent, respectively, exports increased only modestly or stagnated in France and Belgium. However, the roots of these differences are largely unknown. In this paper, we study the role of firm heterogeneity within and across countries in shaping these diverging dynamics of service exports in Belgium, France, Germany and Spain. To the best of our knowledge, this is the first paper that addresses this issue using a relatively homogeneous firm level database of service exporting firms across four countries.

The starting point of our analysis is the harmonisation of the underlying micro data to ensure comparability of results both across countries and over time. We focus on other services exports during the years 2003 to 2007 given that all countries have information on these services and no breaks occur in the mode of data collection during that period.[1] Descriptive statistics across countries nevertheless reveal profound differences. For instance, Spain has by far the largest number of exporting firms which on average tend to export relatively small values. In contrast, in Germany significantly fewer firms are engaged in services exports, although they trade greater volumes on average. Moreover, we observe striking differences in the sector composition of service exporters where Germany stands out with over 40% of firms belonging to the manufacturing sector. In the descriptive analysis we document further differences in terms of firms' average export portfolio, entry, exit, and survival rates, as well as the degree of concentration of service exporting activities. For instance, we find the highest degree of concentration of service exports among firms in France and this concentration further increased during the sample period. Moreover, in contrast to the other countries, net entry in France is negative and new exporters display the lowest survival probability in the foreign market.

The empirical analysis then proceeds in two steps. First, we investigate determinants of the level of bilateral exports. Besides decomposing bilateral exports into different margins, we assess the sensitivity of these margins with respect to gravity-type proxies for transaction costs and market size and further analyse how responses vary across firms belonging to different size classes to account for the pronounced heterogeneity in firms' activities in Belgium, France, Germany, and Spain. Across all countries, we find that the number of firms exporting to a country explains most of the variation in exports across destination markets. Consistent with previous studies (see, for example, Bernard et al. (2011) for goods exports and Breinlich and Criscuolo (2011) for UK service exports) we find market size to have a positive impact and distance to have a negative impact on the variation of export sales. We find that this negative relationship is mainly driven by fewer firms being able to export to more distant markets; this effect is particularly strong for Belgium and Spain. In addition, we find that the sensitivity to foreign market GDP increases with firm size. This is consistent with the hypothesis

1 The only exception is Belgium, which switched from a requirement for firms to report service exports above a certain threshold value to a survey-based data collection approach in 2006; see Section 2.

that larger firms are better able to face higher demand and stronger competitiveness in large markets, which is especially pronounced for German service exports. Moreover, we find that the heterogeneity in responses to market size across small and large firms is highest in France, which may indicate that small firms in France have relatively more problems in serving larger markets. In contrast, export sales to more distant markets decrease with firm size for all countries since smaller firms mainly serve neighbouring countries and variable trade costs are relatively more important for firms trading larger volumes.

Second, we look at the evolution of service exports over time. To understand factors behind the divergent growth dynamics observed in the four countries, we decompose midpoint growth rates into the contribution of entering and exiting firms, country and service switching (the extensive margins) as well as increases or decreases of ongoing trade relationships (the intensive margin). The intensive margin and the firm entry margin significantly contributed to the growth performance in Germany and Spain during the sample period. In France, on the other hand, the net firm margin performed rather poorly indicating that the relatively weak growth in aggregate service exports may be explained, to some extent, by relatively few firms becoming active in cross-border service trade. Moreover, we regress midpoint growth rates on categorical variables for firm, service and destination country groups in order to assess the growth dynamics of firms, services and countries in each of the four countries. Interestingly, while the largest firms depict the highest relative growth dynamics in France, firms from smaller size classes generally underperform. In Germany, Belgium, and, albeit to a lesser extent, Spain, on the other hand, smaller exporting firms grew particularly dynamically in comparison to an average firm, while the largest firms underperformed in relative terms. These results may suggest that smaller firms in France face more obstacles to consolidate and expand their export activities compared to other countries. Furthermore, we find that services exports to emerging markets, such as China and Eastern Europe, grew more dynamically compared to more mature markets. While this pattern is relatively robust across Belgium, France, Germany and Spain, we find a large degree of heterogeneity in terms of the dynamics of service categories across the countries.

This paper contributes to the literature by analysing the features of the most dynamic component of trade growth in recent years, i.e. services exports. Despite the increasing importance of trade in services, knowledge about their dynamics is still limited. For trade in goods, several papers analyse the different firm level determinants of export growth. Bernard et al. (2009) analyse the evolution over time of trade by disentangling aggregate flows into their margins; Araujo et al (2012), Albornoz et al. (2012), Buono et al. (2008) and Lawless (2009) analyse the choice of increasing the number of markets served; Freund and Pierola (2010) study the dynamics of firms' product portfolio. Carballo et al. (2014) focus on the role of finding new customers. For services, Ariu (2016a) argues that the majority of export growth is due to an increase in the intensive margin of trade, while all extensive margins play only a marginal role. All these studies are limited to the analysis of one country only and do not highlight the importance of firm heterogeneity in shaping aggregate figures. On the one hand, this limits the capacity to make quantitative comparisons across countries. On the other hand, by ignoring the heterogeneity across firms, the capacity to identify the key players in shaping aggregate figures and the capacity to draft policy responses are rather limited. The contribution of our paper is to introduce heterogeneity into the understanding of business service exports and to compare the results across different countries using a micro-to-macro approach. Finally, our paper relates to the recent literature analysing firm-level patterns of trade in services: Breinlich and Criscuolo (2011), Ariu (2016b), Kelle and Kleinert (2010), Walter and Dell'mour (2010),

González and Rodríguez (2010), Gaulier et al. (2011), Ariu and Mion (2016) and Federico and Tosti (2016).

The structure of the paper is as follows. Section 2 describes the harmonisation of the data sets and presents key descriptive statistics. In Section 3 we disentangle the drivers of the cross-sectional variation. In Section 4 we analyse the growth rates and Section 5 concludes.

2 Data and descriptive statistics

To analyse the underlying micro-patterns that drive the differences in aggregate service export performance across Belgium, France, Germany and Spain, we resort to comprehensive firm-level datasets. These provide, for each of the four countries, information on firm-level service exports with details of the destinations served on a yearly basis.

Due to the confidential nature of these firm-level datasets, we cannot pool the data across countries. In order to obtain comparable results, we analyze the micro drivers underlying aggregate service trade by running standardized routines across countries. Still, there are certain caveats with respect to the comparability of the data sets within countries over time as well as across the four countries. Comparability of data within countries over time may be impeded by a change in reporting thresholds and the mode of data collection. A change in reporting thresholds occurred in France in 2009 (from 12,500 Euro to 50,000 Euro) and in Spain in 2008 (from 12,500 Euro to 50,000 Euro), implying that the respective years of threshold change cannot be used to investigate midpoint growth in the two countries.[2] Moreover, Belgium had a reporting threshold of 12,500 Euro until 2005 and switched to a survey-based data collection approach in 2006. Germany had a constant reporting threshold of 12,500 Euro throughout the sample period. Hence, we focus on the years 2003 to 2007, a period for which at least three out of the four countries have a homogenous reporting threshold over the entire sample period.

In addition, comparability of datasets across the four countries may be hampered by differences in terms of service definitions as well as country coverage.[3] We address such concerns by harmonising the data set along these dimensions. First, we focus on services that are available in all of our four countries. We therefore focus on the Balance of Payments category *"Other Services"* excluding financial and insurance services. Moreover, *"Merchanting"* services are not part of the analysis since this information is not available for all countries. Even after restricting the country samples to these service types, there are differences across countries in terms of individual service definitions; more specifically, some countries have more disaggregated services codes than others (see Table A1).[4] We therefore group individual services into six categories that are comparable across the four countries (see Table A2). Second, we restrict the set of destination countries to those countries that are present in all four countries in a given year. Appendix A contains further details on the harmonisation efforts as well as specificities regarding the data in each country.[5]

To check whether our micro data can be used to assess country-level service exports, we plot the evolution of service exports for the years 2003 to 2007 based on aggregated firm-level information. In general, micro data may diverge from official service trade statistics because of estimates or corrections that are applied by statisticians. However, Figure 2 shows

2 In the process of switching to a survey for measuring trade in services, the Banque de France reviewed its data collection system and found that the volume of transactions by firms not among the 500 largest had been underestimated (Ranvier, 2012). The under-reporting by commercial banks of cross-border service transactions of their clients may have worsened in the last few years of this system (until 2010), but by limiting our sample period to the years 2003 to 2007 we hope to limit the increase in the bias.

3 The type of services definitions in this paper are based on the fifth edition of the Balance of Payments Manual (BPM5).

4 For instance, It services in Germany just entail one single code whereas there is more granular information for other countries.

5 Detailed descriptions of the respective datasets can be found in Ariu (2016a) for Belgium, Gaulier et al (2011) for France, Biewen and Schultz (2014) for Germany, and González and Rodríguez (2010) and Banco de España (2014) for Spain.

that our aggregated firm-level information resembles the time-series properties of the official statistics from Eurostat in Figure 1 quite closely.

Table 1 presents the number of firms, services and trading partners for each country as well as the volume traded for the years 2003 to 2007.[6] It reveals large differences in terms of the number of firms active in service trade across countries. On average, figures range from 5,000 service traders in Germany to 24,000 in Spain and more than 9,000 and 10,000 firms in France and Belgium (for the years 2003 to 2005), respectively.[7] While there was an increase in the number of exporters by almost 50 percent in Germany and Spain from 2003 to 2007, the number of service exporters decreased by 17 percent in France.[8]

With regard to the average number of countries served and services sold per exporting firm, Germany stands out with roughly 5 trading partners on average and around 1.5 services sold. In comparison, Spain and France have figures of around 1.8 and 2.2 countries served on average, respectively. Spanish firms tend sell slightly more services by firm on average compared to France (1.4 services per firm vs. 1.2 services per firm).

Differences across countries with regard to average export sales per firm are also pronounced. Export sales of the average Spanish firm are roughly 0.8 million Euro, while they amount to 2.0 and 8.5 million Euro for France and Germany, respectively, on average over time. Table 1 further reveals that average firm sales increased from 2003 to 2007 by 35 and 19 percent in France and Spain, respectively, while they remained constant in Germany.

The last three columns of Table 1 present the share of total exports of the top one percent, five percent and ten percent of exporters, respectively. Consistent with findings in the goods trade literature, the distribution of export volumes is right-skewed in all countries, with the bulk of export sales concentrated on a few top trading firms, confirming a pronounced heterogeneity across service exporting firms. While the figures are similar for Belgium, Germany and Spain and are relatively stable over time, the concentration is higher in France and increases from 91 percent in 2003 to 95 percent in 2007 for the top ten percent of the distribution, which is consistent with the observed decrease in the number of firms and increase in traded volumes per firm.

In Appendix B we further report the decomposition of total trade into service categories and sectors (Tables B1 and B2). For all countries, the “Other Business Services” category represents the bulk of exports. Turning to the distribution across industries (Table B2), we find, in line with the previous literature (see Ariu, 2016a, Breinlich and Criuscuolo, 2011 and Kelle, 2012), that service trade is not limited to firms belonging to the service sector itself, but also that firms in the manufacturing sector are engaged in providing services abroad, pointing to a potential complementarity between goods and service trade. The presence of manufacturing firms in the trade of “Other Services” is strongest in Germany, with a share in total exports of no less than 40 percent, while in Belgium, France and Spain exports of manufacturing firms amount to roughly 15 percent of exports. In these countries, exports

6 Due to the switch to a survey-based statistical approach in 2006, the data for Belgium are shown until 2005 only. Please also note that the statistics presented in Table 1 are calculated before the datasets were harmonised in terms of definition of service codes and country coverage.

7 In principle, differences in the methods of reporting service transactions may also lead to differences in terms of the number of services traders across countries. To the extent that this statistical bias is constant across countries, it should not affect the dynamics analysed in subsequent sections.

8 Note also that the number of goods exporting firms in France decreased during that period, consistent with the development of French service exporters.

of “Other Services” are mainly conducted by firms belonging to the business services sector, as in France and Belgium, or the IT and communication sector as in Spain.

We conclude the descriptive analysis by looking at the entry and exit dynamics of exporting firms as well as their survival in markets abroad; see Table 2 and Table 3, respectively.[9] Table 2 shows that the share of firms entering the market relative to all firms active in service trade is larger than firms’ exit rates in Germany and Spain, while it is smaller in France, implying a decreasing number of active service exporters over time. At the same time, while entry and exit rates are relatively high in France and Spain, Germany exhibits both a lower entry and exit rate, with the share of firms exiting foreign markets relative to all active firms being only half of those in the other countries. Table 3 furthermore shows that entry and exit patterns are also mirrored by the survival rates of firms. French export starters display the lowest survival rate with only about 31 percent of firms staying in the market after the first year. In Spain, the probability of survival is slightly higher (36 percent), while in Germany more than half of new exporters also remain in the market in the next year (57 percent). In addition, the share of exporting firms that stay active for more than one year is largest in Germany, followed by Spain, suggesting a relatively steep learning curve of firms in these countries. In contrast, the learning curve appears to be rather flat in France.

9 Due to the switch to a survey in 2006, we exclude Belgium form this analysis.

3 Trade margins: differences and similarities

In this section we analyse the cross-sectional variation of business services exports by country, proceeding in three steps. First, we analyse which margins drive bilateral services exports. Second, we investigate differences across the four countries in terms of the mean responses of their firms to foreign demand and trade transaction costs. Finally, we extend the analysis to account for potentially heterogeneous responses across firms of different size.

We begin by decomposing each country's total exports to destination $\boldsymbol{d}$ in year $\boldsymbol{t}$ ($\boldsymbol{X_{dt}}$) into two extensive margins, i.e. the number of firms ($\boldsymbol{F_{dt}}$) and the number of services ($\boldsymbol{S_{dt}}$), and one intensive margin, i.e., the average value of exports per firm and service category ($\boldsymbol{\bar{x}_{dt}} \equiv \boldsymbol{X_{dt}/(F_{dt}S_{dt})}$):

$$\boldsymbol{\log X_{dt} = \log F_{dt} + \log S_{dt} + \log \bar{x}_{dt}}. \quad (1)$$

As pointed out by Bernard et al. (2009) in their analysis of trade in goods, by regressing the log of each margin on $\boldsymbol{\log X_{dt}}$, we obtain a coefficient that represents the percentage contribution of that margin in explaining the variation of total trade across destination countries.[10]

Table 4 presents the results for the year 2005; for ease of reading, we only show the point estimates (which are statistically significant at the one percent level). For all four origin countries, the coefficient on the number of firms explains most of the variation across destination markets in terms of export values. This means that the biggest export markets differ from small ones mostly because of a difference in the number of firms that are able to export there. This is especially true for Spain, where the number of firms explains 70 percent of the variation in total exports across destination countries, while it is lower for France, Germany, and Belgium (55, 63, and 68 percent, respectively). By contrast, the opposite ranking is found in terms of the intensive margin: in France 35 percent of trade variation across destination countries is accounted for by the average exports per firm and service (intensive margin), 26 percent in Germany, 14 Belgium and 12 percent in Spain. The results may mirror the fact that firms in Germany have a broader export portfolio in general, whereas in France export sales are more concentrated among a few large firms that tend to serve several markets with high sales, while small firms focus on close-by markets only. This may reduce the role of the firm margin relative to that of the intensive margin. The descriptive statistics presented in the previous section indeed suggest that service exports are more concentrated in France relative to the other countries. We will further investigate this point below by explicitly accounting for the heterogeneity of service exporters. The service type margin explains 10 to 12 percent of the total variation in exports across countries in France and Germany, whereas it accounts for 18 to 19 percent in Spain and Belgium, respectively. The relatively high importance of the firm margin in combination with the relatively low importance of the intensive margin in Spain can be explained by the fact that Spanish exporting firms tend to be numerous but export only comparatively small values on average as outlined in Section 2.[11]

10 Given that the equation is an identity and our variables are in logs, the sum of these coefficients equals unity.

11 In Tables B3 and B4 we also present the impact of the cross-sectional intensive and extensive margin for the manufacturing and services sectors, respectively. While we find quantitatively similar results for the services sector, the cross-sectional variation due to the intensive margin is somewhat larger for the manufacturing sector.

Second, we follow Breinlich and Criscuolo (2011) and Bernard et al. (2011) by regressing country-level bilateral exports as well as the three margins on gravity-type variables such as distance and foreign market GDP.[12] This allows us to decompose the impact of gravity variables on services exports into its effects on the extensive and intensive margins. We again focus on the year 2005.

We first concentrate on the drivers of bilateral exports as a whole (first column, under each country considered in Table 5). Here, it appears that Belgian and Spanish exports of services are more sensitive to geographic distance (-1.07 and -0.94) compared to France (-0.66) and Germany (-0.76. To the extent that distance is a proxy for trade costs, this is consistent with the idea that French and German exports of business services are less sensitive to trade costs than those of the other countries. This might suggest that France and Germany are better able in diversifying their exports with respect to more distant markets.[13]. The estimated elasticity with respect to foreign demand, as proxied by the GDP of the trading partners, is highest for Germany and Spain (0.99).

By disentangling the effect across the different trade margins (Table 5), we observe that most of the negative effect of distance on aggregate trade is due to the variation in the number of firms in all four countries. More specifically, the decrease in exports due to distance is explained by fewer firms being able to sell to more distant destinations. As expected, this effect is particularly strong for Belgium and Spain although it is present in all countries. Moreover, we observe that the number of exported services per firm also tends to decrease with distance. By contrast, distance is found to have a statistically significant negative impact on the intensive margin in Germany only, while it is insignificant for the other countries. The ambiguous finding for the intensive margin may be due to two opposing effects. On the one hand, a reduction in variable trade costs allows incumbent firms to expand their sales. On the other hand, due to selection within firms, a reduction in variable trade costs may lead to ambiguous effects since firms may start exporting to new export markets and provide additional services which typically involve smaller export values (see Bernard et al., 2012, for a detailed discussion). GDP in destination countries is positively correlated with the firm and services margins, meaning that in larger export markets, countries tend to trade with more firms and services. The correlation of foreign GDP is particularly strong, with the firm margin across all countries implying that larger markets are generally served by more firms from the four countries.[14]

So far we have considered the average response with respect to distance and GDP. However, different types of firms might differ in their response to these forces. To investigate the role of firm heterogeneity, we differentiate firms by their size. Since we do not have access to the total sales by firm, we proxy the size of each firm by its total exports (i.e. its worldwide export sales). Specifically, we divide the population of firms in each country into the following six size classes: firms with total export values below the median (p50) belong to size class 1; size class 2 corresponds to firms between the 50th and 75th percentile; size class 3 to firms between the 75th and 90th percentile; size class 4 to firms between the 90th and 95th percentile; size class 5 to firms between the 95th and 99th percentile and the firms in the top 1 percent

12 Data for distance and GDP are taken from CEPII and World Development Indicators (WDI), respectively.

13 Apart from distance, cultural proximity and colonial ties are often used in gravity-type analyses to proxy for trade costs. These aspects may also play a relevant role for certain trade relationships of the four countries, for instance, Spanish services exports to Latin America.

14 We also checked the impact of distance of market size for the manufacturing and services sector separately, see Tables B5 and B6 respectively. The results are by and large similar for both sectors, with the only exception being France where distance does not seem to matter for services exports of manufacturers.

belong to size class 6.[15] Then, we run gravity-type regressions at the firm-country-service level separately for each of the six size categories on a yearly basis while controlling for sector and services dummies. Tables 6a, 6b, 6c, and 6d contain the estimation results, which are based on data from 2005.

The results show that in all countries, the impact of the destination's market size on exports increases with class size. More strikingly, the traditional negative impact of distance appears to increase (in absolute values) with class size. The increase in magnitude of the coefficient of distance is most likely related to the fact that small exporting firms mainly serve nearby markets. By contrast, larger firms export higher volumes and sell to more distant markets so that the sensitivity of their exports to variable trade costs is higher. Comparing the sensitivity of exports to distance across size classes within countries, we observe the largest differences in the country with the highest share of small firms, i.e. Spain.

Focusing on the elasticity with respect to foreign market size, we observe that export sales to larger markets increase with firm size, reflecting that larger firms are better able to accommodate higher demand in these markets. Moreover, larger markets may be characterised by more intense competition (Melitz and Ottaviano, 2008) which larger firms are better equipped to bear. German firms tend to be more sensitive to foreign GDP across all size classes. This is especially evident for the firms in smaller size classes which may partly reflect the fact that, in Germany, firms in smaller size classes tend to be larger and export to more markets than those in corresponding size classes in the other countries. Moreover, comparing differential responses across size classes within countries, France displays the largest heterogeneity in terms of sensitivity to foreign demand when comparing the smallest and the largest size class. This may suggest that smaller firms in France have relatively more problems in serving larger and possibly more competitive markets.

15 Note that this grouping implies that, for example, firms belonging to the smallest size class in Germany are on average larger in terms of export sales than small firms belonging to the corresponding size class in Spain.

4 Growth rates

The previous section highlighted the role of heterogeneity in shaping the cross-sectional variation between firms within and across Belgium, France, Germany and Spain. In this section we ask whether firm heterogeneity also matters for the divergent performance in service trade growth.

As a first step we compute midpoint growth rates of services exports. One advantage of using midpoint growth rates instead of common growth rates is that they allow a decomposition into the contribution of the intensive as well the extensive margin to aggregate service trade growth (see, for example, Bricogne et al, 2010). More specifically, annual growth rates can be decomposed into the contributions of entering and exiting firms, new and retired trading partners, and added and dropped services – the extensive margins – on the one hand, and changes in export flows of ongoing firm-service-country relationships – the intensive margin – on the other hand. Export midpoint growth rates of firm *i* of service *s* to destination *d* from year *t-1 to t* are computed as

$$\boldsymbol{g_{idst}} = \frac{\boldsymbol{X_{idst}} - \boldsymbol{X_{ids,t-1}}}{\frac{1}{2}(\boldsymbol{X_{idst}} + \boldsymbol{X_{ids,t-1}})}. \quad (2)$$

Aggregate services exports are given by the weighted sum of individual midpoint growth rates:

$$\boldsymbol{G_t} = \sum_i \sum_d \sum_s \boldsymbol{w_{idst}}\, \boldsymbol{g_{idst}}\ , \quad (3)$$

with weights given by

$$\boldsymbol{w_{idst}} = \frac{\boldsymbol{X_{idst}} + \boldsymbol{X_{ids,t-1}}}{\sum_i \sum_d \sum_s \boldsymbol{X_{idst}} + \sum_i \sum_d \sum_s \boldsymbol{X_{ids,t-1}}}. \quad (4)$$

Table 7 shows the results of this decomposition for the years 2003 to 2007. Consistent with Figure 2, exports of business services grew significantly in Belgium, Germany and Spain, whereas changes in France's exports were more erratic over time, growing faster from 2003 to 2005 but decreasing afterwards. The steady growth in Germany was driven by almost all trade margins. Apart from the intensive margin, the largest contributor to growth was net firm entry, despite relatively low entry rates of firms as shown in Section 2. These patterns are more or less the same for Spain and Belgium (even though the change in the data collection system complicates the interpretation for Belgium) while no clear picture emerges for France.

Having observed the average contribution to growth of the different trade margins, we now compare which types of firms, destinations and services performed better in terms of growth. To this end, we regress individual midpoint growth rates on size class dummies of firms ($\boldsymbol{\delta_{szt}}$), country group dummies ($\boldsymbol{\delta_{dgt}}$) and services dummies ($\boldsymbol{\delta_{st}}$) for each year $\boldsymbol{t}$ using weighted least squares:

$$\boldsymbol{g_{idst}} = \boldsymbol{\delta_{szt}} + \boldsymbol{\delta_{dgt}} + \boldsymbol{\delta_{st}} + \boldsymbol{\varepsilon_{idst}}\ . \quad (5)$$

In order to give the estimated effects a meaningful interpretation, we normalise the estimates by subtracting the weighted mean of all estimated effects belonging to one group of dummy variables from each individual coefficient. Hence, we can interpret the normalised effects as a performance measure relative to the average performance of firms, country groups

and services, respectively. Firms' size classes are constructed using six quantile groups based on the distribution of firm-specific weights for each year ($w_{it} = \sum_{dt}\sum_{st} w_{idst}$) which take into account the size of firm i both in period t and period $t-1$.[16] Moreover, we consider nine destination country groups and six service categories (see Table A 2).

Table 8 shows the average normalised effects of size, country groups and services for France, Germany and Spain from 2004 to 2007, respectively; for Belgium we calculate the average for the years 2004 and 2005 due to the change in the method of data collection in 2006. The top panel of Table 8 shows the relative performance of different size classes. We find a clear pecking order in terms of relative performance in France and Germany. Firms in the top percentile performed relatively better than firms trading smaller volumes in France. In contrast, the opposite is true for Germany, where firms trading smaller amounts grew more dynamically than firms in upper percentiles. The same pattern, though less pronounced, can be observed in Belgium. The diverging performance of small firms in France may indicate that, despite higher entry rates of firms compared to Germany and Belgium, in France firms that start exporting – and that typically trade small volumes – were relatively less able to expand their activity over time, which is also consistent with the lower survival rate identified in Section 2. This result is striking since one would expect smaller firms which start exporting to have more opportunities to expand and grow dynamically compared to large, matured firms.[17] In Spain we observe a mixed pattern, where both the largest size class and the smallest size class underperform. This latter finding may be related to the fact that Spanish firms in this size class are substantially smaller compared to firms belonging to this size class in other countries.

The mid-panel of Table 8 shows the relative performance of different destinations. We find that more mature markets such as the euro area or the USA underperform. By contrast, exports to emerging economies like China and India, Asia Pacific or Africa and the Middle East grew more dynamically given that these markets are less saturated.

The relative performance of service categories is depicted in the bottom panel of Table 8. We do not find a consistent pattern across countries. The service categories with the most dynamic growth were construction and computer services, for Spain and Belgium, respectively. For France and Germany, royalties and R&D grew most dynamically, pointing to a more pronounced complementarity to FDI as these services are more likely to be traded between affiliated firms abroad.

16 To avoid a potential bias towards a specific industry in which firms systematically trade higher volumes than in other sectors, we also form size classes by industry and year. Results are quantitatively very similar. The quantile definitions correspond to those described in the previous section.

17 Small new exporters may also test the market, in order to learn about demand for their product and potential profitability; see e.g. Berman, Rebeyrol and Vicard (2015).

5 Conclusion

This paper uses detailed micro data on service exports at the firm-destination-service level to analyse the role of firm heterogeneity in shaping aggregate service exports in Belgium, France, Germany and Spain during the period from 2003-2007. We find pronounced differences between firms exporting services across the four countries in terms of the number of service exporters, average exports by firm and sector affiliations.

We decompose services exports into different trade margins and find that the number of firms exporting to one market is decisive for aggregate exports to a particular country. While the latter effect holds for all countries, it is most pronounced in Spain and least pronounced in France. We further show that across all countries, the negative impact of distance on service exports is mainly due to fewer firms being able to sell to more distant markets. Using gravity-type regressions and accounting for the heterogeneity in service exporting firms, we find that export sales to larger markets increase with firm size, while export sales to more distant markets decrease with firm size. The latter effect is related to the fact that export sales to more distant markets decrease with firm size since smaller firms mainly serve neighbouring countries and variable trade costs are, relatively speaking, more important for firms trading larger volumes. This observation is particularly true for Spain. The former effect can be explained by larger firms being better able to accommodate higher demand in larger markets and to survive in a possibly more competitive environment; an effect that is especially pronounced for Germany. We further find that the heterogeneity in responses to market size across the smallest and largest size class within countries is highest in France, which may indicate that small firms in France have relatively more problems in serving larger and possibly more competitive markets.

Finally, we focus on service export growth. Specifically, we decompose the mid-point growth rate of service exports into extensive and intensive margins and find that the net contribution of entering and exiting firms to export growth was negative in France during the sample period, while its contribution was positive in Spain and Germany. Using a simple regression framework which accounts for the heterogeneity in service exporters within countries, we further show that small exporters performed relatively poorly in France during the sample period, while larger firms outperformed other exporting firms. In most other countries we find a very different pattern, whereby smaller firms usually display more dynamic developments relative to larger firms. These contrasting findings are noteworthy since one would expect smaller firms, conditional upon survival, to expand more rapidly than larger firms in all countries. Hence, part of the diverging aggregate developments between France, on the one hand and, in particular, Germany and Spain, on the other hand, may be related to a lack of dynamic development of small service exporters in France. This conclusion is also in line with the higher concentration of service exports in France relative to other countries and the relatively low survival rate of new exporters.

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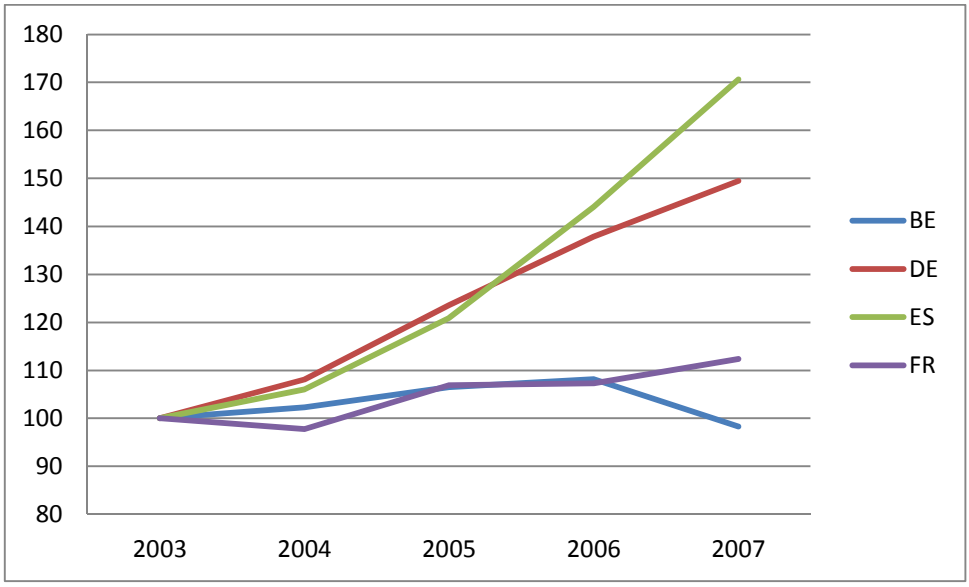
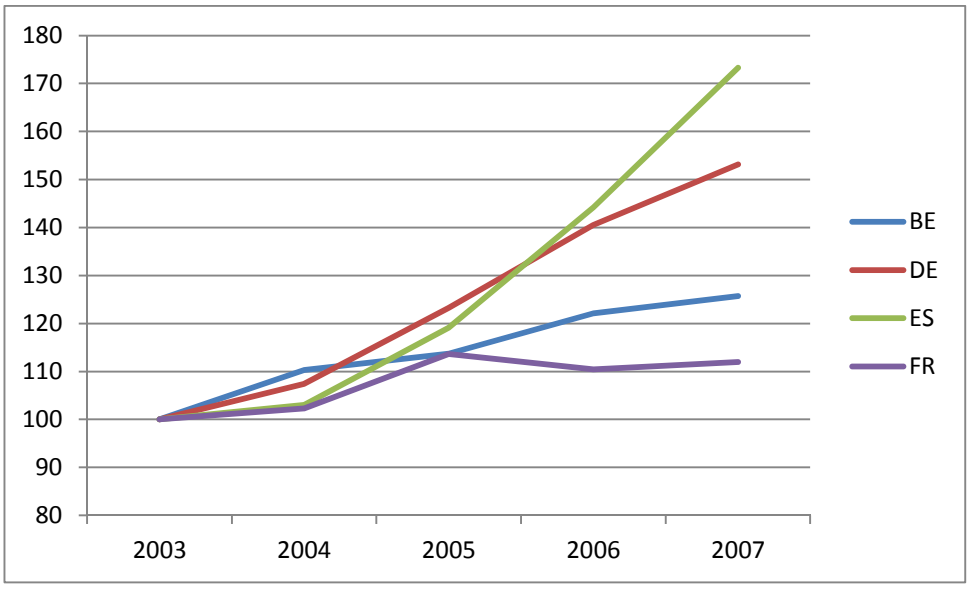
Figures

Figure 1: Total exports of business services – macro data (2003 = 100)



SOURCE: Eurostat balance of payment data (in the case of Spain, data points in 2004 and 2005 linearly interpolated due to missing observations)

Figure 2: Total exports of business services – micro data (2003 = 100)



SOURCE: Aggregated micro data used in the analysis.

Tables

Table 1: Firms, services and countries; total exports and concentration

Year	Number of firms	Number of services	Number of countries	Avg. number of countries per firm	Avg. number of services per firm	Exports per firm in EUR million	Total exports in EUR million	Concentration p1	Concentration p5	Concentration p10
FRANCE:										
2003	9259	13	187	2.11	1.20	1.79	16541.92	59.1	83.7	90.8
2004	9238	13	189	2.22	1.20	1.83	16923.14	59.3	84.3	91.2
2005	9441	13	188	2.17	1.19	1.99	18797.92	63.3	86.1	92.3
2006	8478	13	190	2.17	1.18	2.16	18271.24	64.4	87.1	92.7
2007	7661	13	197	2.27	1.17	2.42	18528.16	67.2	90.1	95.0
GERMANY:										
2003	4651	20	202	4.63	1.49	8.18	38062.56	50.8	77.5	86.9
2004	4928	20	202	4.89	1.52	8.30	40905.22	50.5	77.8	87.1
2005	5231	20	204	5.11	1.54	8.97	46900.47	51.5	77.9	87.3
2006	6178	20	207	4.91	1.50	8.66	53497.75	51.0	78.5	87.6
2007	6950	20	208	4.89	1.48	8.39	58291.29	51.8	78.9	87.7
SPAIN:										
2003	20183	21	177	1.71	1.35	0.76	15394.29	56.3	78.4	86.4
2004	21121	21	182	1.71	1.34	0.75	15857.61	53.2	77.1	85.6
2005	23409	21	185	1.70	1.34	0.78	18342.17	55.1	78.4	86.6
2006	26191	21	192	1.73	1.35	0.85	22204.02	57.8	79.4	87.3
2007	29386	21	194	1.75	1.36	0.91	26681.73	58.8	80.5	87.9
BELGIUM:										
2003	9101	30	149	1.96	1.06	1.28	11663.72	59.2	80.7	88.8
2004	9751	30	142	1.95	1.05	1.28	12524.15	60.3	80.9	88.4
2005	11696	30	164	1.99	1.05	1.10	12896.37	58.5	79.4	87.3
2006	1733	30	219	6.30	1.42	8.17	14166.36	48.4	74.6	85.8
2007	2029	30	223	7.04	1.41	8.74	17728.01	52.1	75.9	85.9

Notes: This table shows the heterogeneity of firms within and between countries. Concentration gives the percentage share of the top one, five and ten percent of exporters in overall service exports, respectively.

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Table 2: Entry and exit rates

year	Entry rate FRANCE	Entry rate GERMANY	Entry rate SPAIN	Entry rate BELGIUM	Exit rate FRANCE	Exit rate GERMANY	Exit rate SPAIN	Exit rate BELGIUM
2003	-	-	-	-	0.55	0.28	0.48	0.42
2004	0.54	0.32	0.53	0.46	0.54	0.26	0.47	0.40
2005	0.55	0.30	0.58	0.50	0.60	0.22	0.47	-
2006	0.55	0.34	0.59	-	0.59	0.23	0.46	-
2007	0.55	0.31	0.58	-	-	-	-	-

Notes: This table shows the share of firms that started or quit exporting relative to all firms active in exporting services. Results for Belgium from 2005 onwards have been omitted due to a switch to a survey-based data collection approach.

Table 3: Survival rates

	Cohorts		
Year	2004	2005	2006
FRANCE			
2005	0.31		
2006	0.42	0.26	
2007	0.54	0.47	0.28
GERMANY			
2005	0.57		
2006	0.77	0.64	
2007	0.83	0.76	0.61
SPAIN			
2005	0.36		
2006	0.57	0.37	
2007	0.70	0.57	0.38
BELGIUM			
2005	0.44		

Notes: This table shows survival rates in subsequent years of firms that started exporting in 2004, 2005 and 2006, respectively. Results for Belgium from 2005 onwards have been omitted due to a switch to a survey-based data collection approach.

Table 4: Country-level margins

	FRANCE	GERMANY	SPAIN	BELGIUM
Firms	0.55	0.63	0.70	0.68
Services	0.10	0.12	0.18	0.19
Intensive	0.35	0.26	0.12	0.14

Notes: This table shows the relative contribution (in percent) of variations in the number of firms, services and the intensive margin for the cross-sectional variation of country-level exports for 2005, see equation (2).

Table 5: Regression of country-level margins on gravity variables

	FRANCE				GERMANY			
	Exports	Firms	Services	Intensive	Exports	Firms	Services	Intensive
Distance	-0.658***	-0.644***	-0.063***	0.048	-0.763***	-0.567***	-0.053**	-0.143**
	(0.114)	(0.070)	(0.018)	(0.074)	(0.079)	(0.046)	(0.021)	(0.064)
GDP	0.831***	0.528***	0.078***	0.225***	0.985***	0.669***	0.137***	0.180***
	(0.061)	(0.033)	(0.014)	(0.044)	(0.034)	(0.019)	(0.013)	(0.032)
Obs	143	143	143	143	143	143	143	143
R^2	0.580	0.722	0.270	0.144	0.860	0.898	0.520	0.192

	SPAIN				BELGIUM			
	Exports	Firms	Services	Intensive	Exports	Firms	Services	Intensive
Distance	-0.944***	-0.809***	-0.139***	0.004	-1.072***	-0.976***	-0.168***	0.072
	(0.178)	(0.131)	(0.047)	(0.090)	(0.120)	(0.083)	(0.039)	(0.074)
GDP	0.992***	0.764***	0.193***	0.035	0.845***	0.617***	0.173***	0.055
	(0.062)	(0.039)	(0.017)	(0.032)	(0.061)	(0.035)	(0.017)	(0.039)
Obs	141	141	141	141	135	135	135	135
R^2	0.625	0.708	0.442	0.006	0.683	0.789	0.475	0.014

Notes: This table shows the results of regressing country-level export volumes and trade margins on gravity variables (in logs, constant included) for 2005. "***", "**", and "*", denote significance at the one, five and ten percent level, respectively. Standard errors are in parentheses.

Table 6a: Performance of France's exports across class sizes

	ALL FIRMS	Size 1 Firms	Size 2 Firms	Size 3 Firms	Size 4 Firms	Size 5 Firms	Size 6 Firms
ln(partner GDP)	0.248***	0.009	0.064**	0.131***	0.138***	0.305***	0.409***
	(0.015)	(0.052)	(0.027)	(0.025)	(0.026)	(0.024)	(0.028)
ln(GDP pc partner)	-0.008	-0.006	0.004	-0.025	-0.014	-0.043**	0.007
	(0.014)	(0.079)	(0.035)	(0.028)	(0.023)	(0.020)	(0.023)
ln(distance)	-0.176***	-0.002	-0.060*	-0.152***	-0.160***	-0.202***	-0.267***
	(0.021)	(0.072)	(0.033)	(0.033)	(0.038)	(0.034)	(0.045)
Contiguity	0.041	0.112	-0.140*	-0.076	0.363***	0.058	0.152
	(0.054)	(0.163)	(0.076)	(0.075)	(0.092)	(0.102)	(0.175)
Common language	0.199***	-0.094	0.100	0.106	-0.004	0.135	0.061
	(0.069)	(0.228)	(0.102)	(0.103)	(0.120)	(0.123)	(0.178)
Colony	0.152**	-0.004	-0.062	0.138	0.490***	0.167	0.446**
	(0.075)	(0.279)	(0.124)	(0.120)	(0.136)	(0.125)	(0.180)
Obs	21 677	5 155	3 916	3 781	2 612	3 431	2 782
R^2	0.528	0.931	0.674	0.498	0.472	0.348	0.347

Notes: This table shows results of regressions conducted at the firm-country-service level for data from the year 2005; specifically, the log of service export sales is regressed on gravity-type variables while controlling for sector and service dummies. Regressions are performed by size class. Size classes are defined based on total services exports by firm where larger firms are grouped into higher size classes. Please refer to the main text for the exact size class definition. "***", "**", and "*", denote significance at the one, five and ten percent level respectively. Standard errors are in parentheses.

Table 6b: Performance of Germany's exports across class sizes

Bilateral export of services in logs (linear model)

Dependent variable	ALL FIRMS	Size 1 Firms	Size 2 Firms	Size 3 Firms	Size 4 Firms	Size 5 Firms	Size 6 Firms
ln(partner GDP)	0.319***	0.070***	0.181***	0.258***	0.305***	0.466***	0.641***
	(0.008)	(0.020)	(0.014)	(0.014)	(0.022)	(0.021)	(0.031)
ln(GDP pc partner)	0.020***	0.034	0.011	-0.007	0.004	0.029	0.015
	(0.008)	(0.021)	(0.014)	(0.013)	(0.016)	(0.018)	(0.024)
ln(distance)	-0.154***	0.020	-0.022	-0.133***	-0.215***	-0.240***	-0.366***
	(0.013)	(0.034)	(0.021)	(0.022)	(0.036)	(0.034)	(0.049)
Contiguity	0.095**	0.023	0.129**	0.098	0.068	0.196*	0.126
	(0.040)	(0.090)	(0.065)	(0.067)	(0.116)	(0.114)	(0.188)
Common language	0.425***	0.100	0.444***	0.245***	0.437***	0.527***	0.814***
	(0.041)	(0.087)	(0.066)	(0.072)	(0.128)	(0.126)	(0.219)
Colony	-0.144*	-0.100	-0.081	-0.276**	-0.005	-0.377*	-0.304
	(0.076)	(0.204)	(0.125)	(0.127)	(0.194)	(0.203)	(0.308)
Obs	28 816	4 916	6 562	7 261	3 415	4 546	2 116
R^2	0.455	0.657	0.449	0.357	0.319	0.329	0.415

Notes: See Table 6a.

Table 6c: Performance of Spain's exports across class sizes

	ALL FIRMS	Size 1 Firms	Size 2 Firms	Size 3 Firms	Size 4 Firms	Size 5 Firms	Size 6 Firms
ln(partner GDP)	0.123***	0.017	0.009	0.078***	0.113***	0.172***	0.343***
	(0.011)	(0.027)	(0.014)	(0.015)	(0.021)	(0.021)	(0.035)
ln(GDP pc partner)	0.049***	-0.014	0.005	0.031	0.077**	0.067**	0.062
	(0.017)	(0.050)	(0.019)	(0.023)	(0.033)	(0.031)	(0.041)
ln(distance)	-0.271***	0.003	-0.032	-0.120***	-0.266***	-0.399***	-0.629***
	(0.028)	(0.067)	(0.036)	(0.036)	(0.052)	(0.048)	(0.072)
Contiguity	-0.102**	-0.007	-0.055	-0.023	-0.183**	-0.070	-0.286*
	(0.042)	(0.093)	(0.050)	(0.055)	(0.080)	(0.085)	(0.158)
Common language	0.330***	-0.026	0.035	0.325***	0.474***	0.237	0.755***
	(0.083)	(0.205)	(0.109)	(0.113)	(0.152)	(0.150)	(0.243)
Colony	0.088	0.014	-0.015	-0.100	0.159	0.234**	0.185
	(0.063)	(0.156)	(0.084)	(0.082)	(0.117)	(0.116)	(0.208)
Obs	40 818	12 397	9 164	8 202	4 032	4 787	2 236
R^2	0.642	0.942	0.639	0.475	0.413	0.355	0.261

Notes: See Table 6a.

Table 6d: Performance of Belgium's exports across class sizes

	ALL FIRMS	Size 1 Firms	Size 2 Firms	Size 3 Firms	Size 4 Firms	Size 5 Firms	Size 6 Firms
ln(partner GDP)	0.146***	0.020	0.017	0.074***	0.110***	0.204***	0.383***
	(0.011)	(0.028)	(0.017)	(0.014)	(0.020)	(0.019)	(0.032)
ln(GDP pc partner)	0.048**	0.021	0.002	0.026	0.031	0.006	0.074*
	(0.019)	(0.045)	(0.025)	(0.027)	(0.031)	(0.035)	(0.041)
ln(distance)	-0.166***	0.020	-0.027	-0.075***	-0.135***	-0.222***	-0.342***
	(0.020)	(0.058)	(0.031)	(0.027)	(0.035)	(0.036)	(0.055)
Contiguity	0.186***	-0.026	0.117	0.220**	0.390***	0.400***	0.394*
	(0.067)	(0.205)	(0.103)	(0.089)	(0.122)	(0.131)	(0.214)
Common language	0.018	0.037	-0.018	-0.056	-0.016	0.012	0.029
	(0.060)	(0.195)	(0.095)	(0.079)	(0.102)	(0.113)	(0.162)
Colony	0.511		1.396***	-0.580*	-0.954		2.403***
	(0.648)		(0.376)	(0.326)	(0.821)		(0.694)
Obs	23 704	6 452	4 886	5 023	2 647	3 050	1 646
R^2	0.601	0.931	0.622	0.436	0.363	0.319	0.356

Notes: See Table 6a.

Table 7: Mid-point growth rates

	2003-2004	2004-2005	2005-2006	2006-2007
FRANCE:				
Total growth rate	**2.4**	**10.5**	**-2.9**	**-0.2**
Firm entry	9.8	11.0	6.3	7.8
Firm exit	-8.1	-7.0	-8.3	-10.4
Net firm	**1.7**	**4.0**	**-2.1**	**-2.6**
Country entry	12.1	9.5	7.2	9.5
Country exit	-11.3	-8.4	-12.4	-6.7
Net country	**0.8**	**1.2**	**-5.2**	**2.8**
Service entry	3.3	2.2	2.4	3.4
Service exit	-3.0	-2.1	-2.1	-1.9
Net service	**0.3**	**0.1**	**0.3**	**1.5**
Intensive increases	24.6	26.7	24.9	23.0
Intensive decreases	-25.0	-21.5	-20.8	-24.9
Net intensive margin	**-0.4**	**5.2**	**4.0**	**-1.9**
GERMANY:				
Total growth rate	**7.0**	**13.8**	**13.4**	**8.5**
Firm entry	6.6	8.4	7.1	5.9
Firm exit	-3.7	-3.1	-2.1	-2.4
Net firm	**2.9**	**5.3**	**5.0**	**3.6**
Country entry	5.2	4.2	4.8	3.5
Country exit	-3.5	-2.6	-2.8	-3.0
Net country	**1.7**	**1.6**	**1.9**	**0.5**
Service entry	0.8	1.4	1.7	1.2
Service exit	-1.1	-0.6	-1.1	-0.8
Net service	**-0.2**	**0.8**	**0.6**	**0.5**
Intensive increases	25.5	29.4	25.8	25.0
Intensive decreases	-22.9	-23.2	-19.9	-21.0
Net intensive margin	**2.6**	**6.2**	**5.9**	**4.0**
SPAIN:				
Total growth rate	**3.0**	**14.4**	**19.2**	**18.3**
Firm entry	11.4	13.1	15.9	13.1
Firm exit	-9.0	-8.3	-7.7	-14.6
Net firm	**2.4**	**4.8**	**8.3**	**-1.6**
Country entry	10.0	11.2	12.8	10.8
Country exit	-9.0	-8.7	-8.8	-10.0
Net country	**1.0**	**2.5**	**4.0**	**0.9**
Service entry	2.1	2.5	2.8	4.8
Service exit	-1.7	-1.8	-2.2	-2.1
Net service	**0.4**	**0.7**	**0.6**	**2.7**
Intensive increases	25.3	29.5	29.9	35.4
Intensive decreases	-26.1	-23.1	-23.6	-19.1
Net intensive margin	**-0.8**	**6.4**	**6.3**	**16.3**

Table 7 (continued): Mid-point growth rates

	2003-2004	2004-2005	2005-2006	2006-2007
BELGIUM:				
Total growth rate	**9.2**	**2.9**		
Firm entry	5.8	10.2		
Firm exit	-5.9	-4.5		
Net firm	-0.1	5.7		
Country entry	6.9	7.9		
Country exit	-6.6	-6.4		
Net country	0.3	1.5		
Service entry	3.3	1		
Service exit	-0.8	-1.4		
Net service	2.5	-0.4		
Intensive increases	29.1	24.6		
Intensive decreases	-22.7	-28.5		
Net intensive margin	6.4	-3.9		

Notes: This table shows contributions to export growth in percent. Results for Belgium for 2005 onwards have been omitted due to a switch to a survey-based data collection approach.

Appendix

Appendix A: Data

Table A1 below presents information relevant for comparability of the four data sets within country over time and across countries.

Table A1: Data Comparability

	Belgium	*France*	*Germany*	*Spain*
Period	2003-2007	2003-2007	2003-2007	2001-2007
Reporting threshold	until 2005 12,500 Euro survey afterwards	12,500 Euro after 2008 50,000 Euro	12,500 Euro	12,500 Euro
Number of				
Service codes	30	13	20	21
Countries	112-209	186-202	202-213	171-197
Firms	number of exporting firms increases by 50 percent until 2005	number of exporting firms decreases over time	relatively few firms, number of exporting increases by 50 percent until 2007	relatively many firms, number of exporting firms increases by 50 percent until 2007
Sector definition	NACE Rev. 1.1	NACE Rev. 1.1	NACE Rev. 1.1	NACE Rev. 2

Data details by country:

Belgian data

The National Bank of Belgium collects data on international trade in services in order to compile statistics for the balance of payments. From 1995 to 2005 every firm exporting or importing services was obliged to declare all transactions above 12,500 Euro to the National Bank of Belgium. For more details about the collection system, see Ariu (2016a). From 2006 onwards the system switched to a survey-based collection system structured to be representative of all firms, sectors, services and destinations. For more information on the collection system, please refer to Ariu (2016b).

French data

French trade in services statistics are collected by the Banque de France. There are two main sources in the balance of payments for non-travel related data: the largest companies declarations and the General Direct Reporting System (DDG). Roughly 500 companies are identified as having a threshold higher than 30 million Euro for annual international sales or purchases of any type of services. These statistics are reported monthly and are mandatory by law. For other companies, the international transaction reporting system (CRP) applies, in which banks complete statements concerning the transactions made by their clients. Again, this is reported on a monthly basis. From 2001 to 2008, every service transaction exceeding 12,500 Euro had to be reported.

German data

Germany's Statistics on International Trade in Services gives detailed information on international service transactions carried out by German residents. It is mandatory for German firms (including banks), individuals and public authorities to report their service transactions vis-à-vis non-residents that exceed 12,500 Euro or an equivalent amount in another currency. Since the focus of this study is on firms' engagement in service trade, however, we drop information on households and public institutions. The data include mode one, two and four of the GATS modes and thus exclude services sales from commercial presence abroad (mode three).

Spanish data

Until 2012, the data on International Trade in Services (excluding the Travel item) in the Spanish BOP was obtained from the International Transaction reporting System (ITRS), complemented with other data sources. The ITRS was operated by the Bank of Spain, and recorded all transactions between residents and non-residents, including firms, individuals and public authorities, whether they were settled through an account held in a resident financial institution or in a non-resident financial institution. The ITRS also recorded transactions settled through intercompany accounts. From 2001 to 2007, every service transaction exceeding 12,500 Euro had to be reported. This threshold was raised to 50,000 Euro from 2008 onwards. In 2013, the ITRS was replaced by the International Trade in Services Survey (ITSS), which is collected by the National Statistics Office and used as the basic statistical source for the compilation of the Other services item of the balance of payments. The ITSS provides information on exports and imports of non-tourist services according to the Extended Balance of Payments Services Classification (EBOPS), as well as geographical areas and countries involved.

Appendix B: Additional Results

Table B1: Share of service categories in total exports

Year	Communication	Construction	IT services	Patents	Other business services	Other services
FRANCE:						
2003	0.06	0.11	0.06	0.15	0.57	0.05
2004	0.06	0.10	0.06	0.17	0.57	0.04
2005	0.07	0.10	0.05	0.18	0.56	0.04
2006	0.08	0.11	0.06	0.19	0.53	0.03
2007	0.08	0.14	0.05	0.24	0.48	0.03
GERMANY:						
2003	0.06	0.16	0.15	0.02	0.57	0.03
2004	0.06	0.14	0.16	0.02	0.59	0.03
2005	0.06	0.18	0.14	0.02	0.57	0.03
2006	0.07	0.18	0.15	0.03	0.56	0.02
2007	0.06	0.17	0.16	0.03	0.57	0.02
SPAIN:						
2003	0.06	0.05	0.16	0.03	0.66	0.04
2004	0.06	0.05	0.15	0.02	0.67	0.04
2005	0.06	0.06	0.16	0.02	0.65	0.04
2006	0.05	0.06	0.14	0.03	0.68	0.04
2007	0.05	0.10	0.14	0.01	0.66	0.04
BELGIUM:						
2003	0.14	0.09	0.18	0.07	0.50	0.02
2004	0.15	0.11	0.15	0.05	0.52	0.02
2005	0.13	0.14	0.15	0.06	0.50	0.02
2006	0.17	0.12	0.15	0.06	0.49	0.03
2007	0.13	0.11	0.16	0.06	0.52	0.03

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