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KONSTANTĪNS BEŅKOVSKIS
OĻEGS TKAČEVS

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EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT LATVIA'S SERVICE EXPORTERS (BUT WERE AFRAID TO ASK)

CONTENTS

ABBREVIATIONS

b.o.p. – balance of payments
c.i.f. – cost, insurance and freight
CN8 – Combined Nomenclature, 8-digit level
CSB – Central Statistical Bureau of Latvia
diff – difference
EU – European Union
FDI – foreign direct investments
f.o.b. – free on board
GATS – General Agreement on Trade in Services
GDP – gross domestic product
IMF – International Monetary Fund
IT – information technologies
NACE – Statistical Classification of Economic Activities in the European Community
n.i.e. – not included elsewhere
UK – United Kingdom
vs – versus
WTO – World Trade Organisation

ABSTRACT

We provide a set of stylised facts about Latvia's firms engaging in service exports, using detailed firm-level datasets for 2006–2013. We show that the fraction of firms involved in service exports is small, but the numbers of service exporters are on average bigger than of non-exporters and goods exporters. Service exporters also appear more productive than non-exporters and goods exporters, although this finding may be attributed mainly to innovative, knowledge-based sectors of the economy. We have also shown tentative evidence in favour of self-selection of productive firms in service exporting which warrants further investigation. The study suggests that it might be more difficult to enter the pool of service exporters than goods exporters, since the service market has historically been highly regulated in Latvia's major trading partners, and efforts necessary to become a service exporter are larger than those needed to become a goods exporter.

In a nutshell, the study enhances understanding of the relationship between trade behaviour and performance of service providers; likewise, it presents insight into how service and goods exporters compare. It complements the existing sparse set of empirical firm-level studies on service trade with evidence of a small open euro area economy.

Keywords: service trade, productivity, firm performance, micro data

JEL codes: D22, F10, F14

1. INTRODUCTION

Service sales and international trade in services have been growing fast worldwide over the last three decades. Over the period of 1980–2014, world exports of services grew in excess of goods exports by 7.8% per annum on average. In Latvia (a country highly open outwards in general), exports and imports of services have been an important component of international trade since the mid-1990s. The share of exports of services in total exports and the service exports ratio to GDP in Latvia have persistently exceeded the world and EU average levels (see Figures A1 and A2). The importance of services for Latvia's economy appears even more pronounced when judged by its share in gross value added. The share of service sector has grown up from 61.1% in 1995 to around 75% in 2014.

There have also been changes in the composition of services traded by Latvian service providers. In 1995, exports of transport services constituted around 60% of total services exported. This share dropped to 41.5% in 2013 (see Table A1). The share of knowledge-intensive categories of service trade has, in turn, increased over the same period of time (e.g. other business services increased from 6.1% to 15.1%; computer and information services grew from 1.6% to 5.1%). A gradual shift towards more innovative types of services is taking place against the backdrop of their rising tradability, triggered by improvements in communication technologies. This together with growing shares of service exports motivates empirical investigation of international trade in services.

In this study, we provide a descriptive analysis of service exports and comparison of service exporters, non-exporters and goods exporters (split further into exporters of domestically produced goods and re-exporters). In particular, we examine export participation of service providers, intensity of service trade and differences among firms across different sectors of economy and service types. We compare firm performance indicators across different categories of exporters. Finally, we conduct dynamic analysis of firms leaving, entering or staying in foreign markets.

Analysis herein is based on firms engaged in almost all types of services, except travel, construction, insurance and government services, for which no firm-level information is available (they constituted around 1/4 of total service exports in Latvia in 2014)[1]. The sample covers the time period from 2006 to 2013, comprising 573 companies with total turnover of 2.0 billion euro in the final year of the period. Over the period covered in the paper, the number of companies exporting services has declined by 110 (or 20%), but their turnover and export value increased by 31.2% and 68.2% respectively. Even though we employ data on goods trade, the focus is largely on exporters of services to fill the gap and advance the existing empirical literature on service trade and to provide evidence on how these results compare with the ones obtained using data of other countries and goods trade data.

In this study, we show that the number of service exporters is small, yet they exhibit, on average, a larger exports value per firm than goods exporters do. Service exporting firms are also shown to be bigger, more resilient to the recent economic crisis and more productive than non-exporters and goods exporters; however, the latter finding mainly relates to innovative, knowledge-based sectors of the economy.

[1] Types of services included in the analysis are listed in Table A2 in Appendix.

The study suggests that it might be more difficult to enter the pool of service exporters than goods exporters, since the service market has historically been highly regulated in Latvia's major trading partners, and efforts necessary to become a service exporter are larger than those needed to become a goods exporter.

We are aware of some caveats in our study. Since the purpose of the study is to present a descriptive analysis of service exporters and compare them to non-exporters and goods exporters, we did not use any econometric methods. Therefore, comparison of firm performance indicators conducted using the two-sided t-test could be affected by other firm-specific characteristics. We plan estimating exporters' premiums using econometric models featuring various control factors in our future studies. Moreover, we plan addressing the issue of learning-by-exporting versus self-selection hypothesis for service exporters in the future. We also point to the lack of some data in the datasets we use. For example, data on destination country of service exports are not available. This hinders the analysis of internal and external margins of service trade.

The remainder of the paper is structured as follows. Section 2 presents an overview of recent service trade related literature with a focus on firm-level data based studies. Section 3 describes firm-level datasets available in Latvia in detail. Section 4 looks at trade participation and trade intensity and compares them across different sectors of the economy and different types of services. It also provides an analysis of firm performance across different types of engagement in international trade. Section 5 presents the results of dynamic analysis of service exporting firms. Finally, Section 6 concludes with a summary of our findings and possible avenues for future research.

2. OVERVIEW OF LITERATURE

Despite the growing significance of service trade, it has not attracted large attention in the empirical literature thus far (see Francois and Hoekman (2010) for a survey of macro-based service trade related literature[2]), whereas there has been a large body of goods trade literature in the last few decades. Availability of firm-level data on exports of goods inspired rich empirical literature on the relationship between international trade in goods and firm performance (see Wagner (2012) and Wagner (2007) for an extensive survey of this type of literature). These studies revealed a lower share of goods exporting firms vis-à-vis non-exporting ones, most of them serving only few markets and selling a small variety of goods. Merchandise exporting/importing firms were shown to be more productive, their employees to enjoy higher wages, and their owners to receive higher profit as compared to firms not engaged in international trade (with evidence on the latter two stylised facts being quite weak). These studies usually point at self-selection of productive firms in international trade while learning-by-exporting hypothesis (whereby firm's productivity increases after entering the foreign market) has mostly been rejected.

Micro data based studies of service exports have mainly focused so far on a set of developed countries: Germany (Kelle (2012), Eickelpasch and Vogel (2009), Kelle and Kleinert (2010), Kelle et al. (2013)), the UK (Breinlich and Criscuolo (2011)), Italy (Conti et al. (2010), Federico and Tosti (2012)), Japan (Morikawa (2015)), Belgium (Ariu (2012)), Austria (Walter and Dell'mour (2010)), the Netherlands (Kox and Rojas-Romagosa (2010)) and some other. Most of these studies find that service trade is highly concentrated in the hands of few traders; only some big traders usually export many types of services to many countries. As far as firm performance is concerned, larger and more productive firms are normally more likely to be engaged in exports of services than non-exporters. Concerning the latter stylised fact, however, Conti et al. (2010) and Eickelpasch and Vogel (2009) find that the role of labour productivity is vague for Italian and German service exporting companies respectively. It appears to matter when exporting to more distant countries from Italy and to be irrelevant in explaining export performance when controlling for unobserved firm heterogeneity in the case of Germany. Interestingly though, Temouri et al. (2013) find contradictory evidence on the comparison of profitability indicators between exporters and non-exporters. They report lower profitability of German service exporters, somewhat higher one in France, and an absence of such relationship between the exporting status and profitability in the UK, thus confirming some previous findings on the relationship between the two (see for instance Vogel and Wagner (2011)). Kelle (2012) has thus far presented the only study investigating the service exports pattern of manufacturers. Using firm-level service trade data for Germany, he examines different motives to export services for manufacturers and finds that manufacturers export services mainly due to three reasons: to support foreign affiliates with advertising and data processing services, to provide installation, maintenance and technical support of domestically produced goods abroad, and, finally, to support the international knowledge flow, inter alia between suppliers and buyers of intermediate products, with research and development services. Most of the studies also relate these findings to merchandise

[2] Most of this literature stresses growing importance of services in international trade, discusses determinants of trade in services and analyses the impact of trade liberalisation.

trade and provide the comparison of service exporters to goods exporters. There is evidence that export participation and intensity is considerably smaller for services than for goods (see for instance Ariu (2012), Haller et al. (2014), Morikawa (2015)), whereas service exporters are usually found to be only slightly (if at all) more productive than goods exporters (e.g. Breinlich and Criscuolo (2011) and Haller et al. (2014) present such evidence, while Morikawa (2015) demonstrates that in the case of Japan productivity of service traders in comparison to goods traders is significantly higher). Using the Danish firm-level data, Malchow-Møller et al. (2015) go beyond traditional decomposition of firms and distinguish between traders of goods and traders of services, between exporters and importers as well as between firms in the manufacturing sector and the service sector. Such comprehensive decomposition of companies and their trade activities allows studying the relationship between firm performance and trade in a more precise way, since service providing firms in manufacturing may be intrinsically different from those providing services exclusively in the service sector. Productivity is found to play a larger role in the service sector than in manufacturing, and this effect is larger for traders of goods than traders of services.

This similarity of service and merchandise exporters, when compared to non-exporters, confirms the relevance of existing theoretical models of goods trade for service trade (Melitz (2003)). However, evidence on the relationship between firms' performance and their involvement in exports of services is not abundant and needs to be tested using micro data of other countries.

3. DATA

3.1 Description of datasets used in the study

Availability of a broad range of firm-level data in Latvia (for the period between 2006 and 2013) is relatively recent phenomenon. We hope that it will enhance our understanding of the relationship between trade behaviour and performance of service providers and present an insight into the comparison of service and goods exporters. It should enable us to complement the existing sparse set of empirical firm-level studies on service trade with evidence on a small open euro area economy.

In this study, we benefit from four different individual anonymised firm-level datasets. The first one is a comprehensive database covering a variety of indicators for a representative sample of firms registered in Latvia. The data are organised on an annual basis and provided by the Central Statistical Bureau of Latvia. The second database records data on company foreign assets and liabilities. The third dataset records goods transactions between resident firms and non-residents collected from merchandise trading companies by the CSB. The fourth dataset includes data on exports and imports of services collected by Latvijas Banka. The latter two datasets are needed to compile the balance of payments. All four datasets cover the period between 2006 and 2013. More detailed information on each of the datasets is provided below.

Comprehensive database of firm indicators. This database contains information about a representative sample of Latvia's enterprises in 2006–2013[3], with data provided by the CSB. The dataset covers, inter alia, firm balance sheet data, data from profit and loss statements (including firm turnover), the number of persons employed, and compensation of employees. Information provided in the dataset allows calculating value added of each firm (as output minus intermediate consumption derived from profit and loss statements). In addition, information on the sector of activity according to the two-digit NACE classification is included. The number of firms in the dataset varies between 61 159 in 2006 and 93 895 in 2013. In 2013, they employed 580 050 employees and had a turnover of 54.7 billion euro[4].

Dataset of firm foreign assets and liabilities. Information on firm foreign assets and liabilities is provided by Latvijas Banka on the basis of information companies submit either quarterly or annually.

Database of trade in goods. This dataset comprises data on the merchandise flow (exports and imports) with merchandise classified according to the eight-digit Combined Nomenclature (CN8), partner country, statistical value of transaction (in f.o.b. prices for exports and c.i.f. prices for imports), net weight of traded product in kilograms, product volume in supplementary measures (if available), and time period of the trade flow (year and month)[5]. For 2013, the goods exports dataset includes 5 082 companies, 421 562 observations, with total turnover amounting to 9.3 billion euro.

[3] The dataset includes commercial enterprises in all areas of activities, excluding credit institutions and insurance companies. The dataset does not include the self-employed.
[4] For details on firms' database refer to Beņkovskis (2015).
[5] For details on goods trade database refer to Beņkovskis et al. (2015).

Database of service trade. These data are regularly collected by Latvijas Banka, using statistical report forms filled in by companies providing services to (or purchasing services from) non-residents. One of them is intended for transport service providers[6] and the other one for the rest of service providing companies[7]. As mentioned in Introduction, we have data for all types of services, except travel, construction, insurance and government services[8], for which detailed firm-level information is not collected and other sources are used for the balance of payments purpose[9]. Overall, the dataset distinguishes between 47 types of services grouped into 7 aggregated categories for the purpose of this study (see Table A2). This database includes anonymised firm-specific identification number[10] (which allows us linking firms in all three datasets used in the study), type of service exported or imported by a company, value of service provided/purchased. Unfortunately, information on destination country is not collected. It is a limitation of this study that does not allow decomposing firm export value into external/internal margins. The data provided by transport service companies are somewhat more detailed, with information concerning means of transport, services referring to passengers or freight, etc. Services are classified according to balance of payments classification in line with the IMF Balance of Payments Manual 5th edition (IMF (2005))[11]. For 2013, this dataset comprises 573 companies whose total turnover was 2.0 billion euro.

3.2 Different modes of service trade

There are four possible modes of trade in services defined by the General Agreement on Trade in Services (GATS)[12].

Mode 1. Cross-border supply of services. It covers service flows from the territory of one country into the territory of another country without an explicit physical presence of transaction participants at the same place (i.e. transmission of services occurs via post, e-mail or other modes of modern communication). Latvian web developers, IT specialists, online marketers or those employed by call centres are examples of cross-border supply of services.

[6] http://likumi.lv/doc.php?id=258774.
[7] http://likumi.lv/doc.php?id=258773.
[8] These types of services represented around ¼ of total service exports in Latvia in 2014.
[9] Data on travel services are collected by the CSB conducting the survey of non-resident travellers rather than firms; construction service data stem from non-bank external payments system; insurance data are mostly taken from the Financial and Capital Market Commission; the official source of government services is the Ministry of Foreign Affairs. Besides that, we do not obtain the following two small items of other business services: a) merchanting, which is defined as purchase of a good by a resident from a non-resident and the subsequent resale of the good to another non-resident, whereby the good does not enter or leave the compiling economy (IMF (2005)). From 2014 onwards, this item is also classified as trade in goods (IMF (2013)), b) services between related enterprises. In both cases, the data are collected from non-bank payments.
[10] Firms are completely anonymous, and the authors of the study cannot unveil the company name from its identification number.
[11] Firm-level data for the year 2014 and onwards will be provided according to the IMF Balance of Payments Manual 6th edition. The difference between the two is marginal though.
[12] The agreement that came into force in 1995 is part of the WTO initiatives aimed at liberalising trade in services https://www.wto.org/english/tratop_e/serv_e/gatsqa_e.htm#4.

Mode 2. Consumption abroad. It covers cases when a service consumer physically moves to another country's territory to obtain a service. This refers, for example, to health care services whenever, e.g. a Swiss patient comes to Latvia for dental treatment.

Mode 3. Commercial presence. This refers to cases when a company establishes a commercial presence (via FDI) in another country to provide a service. The Latvian catering company *Lido* established a presence in Tallinn to serve local clients.

Mode 4. Presence of natural persons. In this case, services are provided by a person of one country on the territory of another country. As an example, this would refer to the Latvian company *Latvijas Tilti* that reconstructed two piers in the port of Klaipeda.

The service trade data dealt with in this paper refer to Modes 1, 2 and 4 but do not include information on Mode 3. Although we cannot separate the three modes we have information on, the Latvian exporters mostly provide those types of services that fall under Mode 1.

4. MAIN PATTERNS OF TRADE: STATIC ANALYSIS

In this section we present a set of stylised facts about exporters of services. We describe trade patterns of service exporters and provide the comparison of basic characteristics of exports of service exporters, non-exporters and goods exporters. Then we examine the difference in various firm characteristics of these three different groups of exporters. In the case of goods exporters, we further distinguish between domestically produced goods exporters and re-exporters. The globalisation process leads to a deeper integration of individual countries (including Latvia) into the global value chains, which makes the analysis of external trade increasingly complicated. Exports can no longer be viewed as something mostly produced domestically, and the share of foreign value added in gross exports gradually increases (see Los et al. (2015)). The most extreme case of decoupling between exports and domestic production is re-exports, which can be treated rather as implicit exports of specific logistic and information services. To account for this widespread phenomenon (re-export flows are roughly 30% of Latvia's total exports; see Beņkovskis et al. (2015)), we study domestically produced goods exporters separately by excluding firms whose only activity in foreign markets is goods re-exporting; we likewise present our calculations for those companies that are engaged in re-exporting either as their only or extra activity. Although the trade in goods database does not contain explicit information on re-exporting activities, firm-level data on exports and imports of goods allow for implicit evaluation of re-export flows.[13]

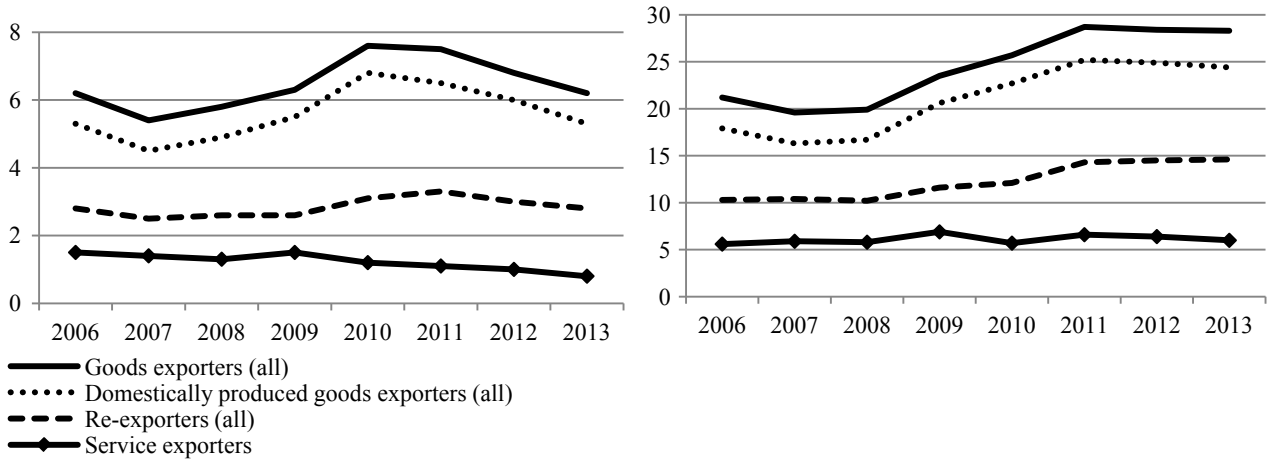
4.1 General analysis of service exporters

We start by looking at participation of firms in export activities. Figure 1 and Table A3 show that the number of Latvian firms exporting services is fairly small, amounting merely to around 1% of the total number of registered firms (6% when considering companies with at least 10 employees). Here one should take into account that we include in the analysis only those companies that have reported their asset value, turnover, equity capital, number of employees and compensation of employees as well as data necessary to calculate value added.[14]

[13] The calculation of Latvia's re-export flows was implemented by solving a linear maximisation problem for each firm-product pair and is described in Beņkovskis et al. (2015).

[14] This notably reduces the number of observations available for the analysis. For example, only 59 497 firms out of 93 895 satisfied the abovementioned data availability criteria in 2013. This loss of information is mostly related to the non-reporting problem of small and micro-enterprises and is much less relevant for medium and large firms. The non-reporting problem is rather homogenous over different industries (see Beņkovskis (2015) for similar data analysis). Needless to say that non-reporting problem is rarely characteristic for goods and service exporters. Thus, the share of exporters is even lower comparing with figures we report here.

Figure 1
Fraction (%) of different types of firms in total number of firms (left panel – all firms in the database; right panel – companies employing at least 10 employees)



Sources: CSB, Latvijas Banka and authors' calculations.
Notes: "Goods exporters" are firms that export goods, among them "domestically produced goods exporters" exclude firms whose only activity in foreign markets is goods re-exporting. Respectively, "re-exporters" are either firms, whose only activity in foreign markets has been goods re-exporting or firms that are involved in re-exporting either as their only activity or in parallel with goods exporting. "Service exporters" are firms that are exporting services. We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for calculation of value added. We filter out those companies, whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

This stylised fact is in line with findings when other countries' data are used: 1% of firms appear to be service exporters in Belgium (see Ariu (2013)), around 6% in Japan (Morikawa (2015)) and the UK (Breinlich and Criscuolo (2011))[15]. The number of service exporters in Latvia is outweighed by the number of goods exporting firms, but altogether only less than 10% of registered firms engage in exports. This figure is higher if only companies with at least 10 employees are considered (around 1/3 of such firms sell their output internationally)[16]. It is also evident from Table A3 that the number of service exporting firms in Latvia has been declining after the crisis hit the Latvian economy in 2009 (falling from 696 in 2009 to 464 in 2013[17]). The number of goods exporting companies had been rising steadily before they stabilised at around 3.7 thousand in 2011–2013[18].

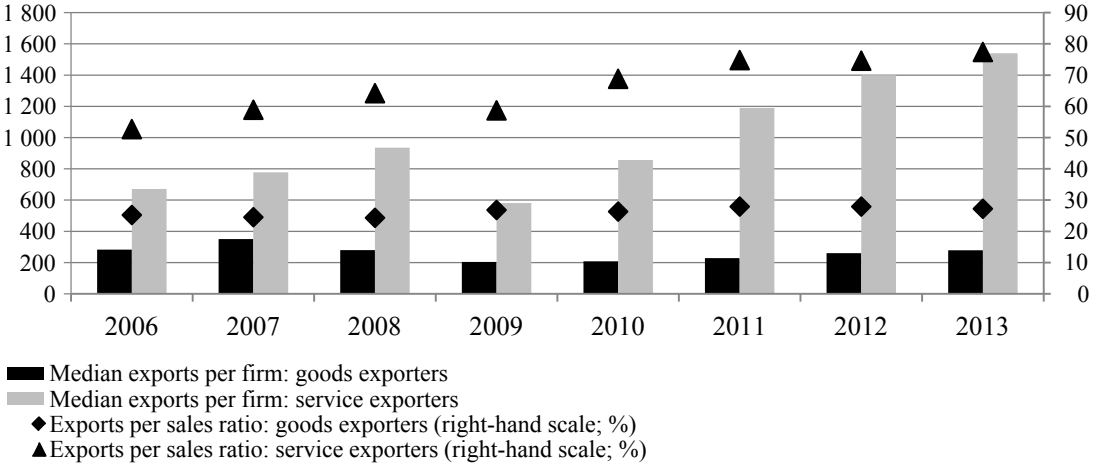
At the same time, both the average and the median export values per service exporting firm have doubled (see Figure 2 and Table A4), which is in contrast to

[15] Characteristics of firms surveyed might differ across studies mentioned. For example, Morikawa (2015) deals with data covering firms with more than 50 employees. Ariu (2012) employs data on companies that export services of at least 12.5 thousand euro per year to non-EU countries. Breinlich and Criscuolo (2011) cover service exporters with 10 or more employees. Despite the fact that these studies are not directly comparable, we believe such a comparison is still valid as a rough approximation of relative importance of service exporters.
[16] Companies with less than 9 employees are mostly micro-enterprises, whose number of employees at any time does not exceed five and which normally are not involved in exporting activities.
[17] In our analysis, we include companies whose exports to turnover ratio is at least 0.5%, therefore the latter figure (464) differs from the one mentioned on pages 4 and 9.
[18] This number is by around 13% smaller if we exclude firms whose only activity is goods re-exporting.

goods exporters, whose average and median export values have increased by 1/3 only. These developments may point at service exporting firms' consolidation efforts in the wake of economic crisis, driven by their willingness to contain and cut costs in order to be able to stay in the foreign market.

Figure 2

Median exports and exports per sales ratio of goods exporters and service exporters
(thousands of euro)



Sources: CSB, Latvijas Banka, authors' calculations.
Notes: In this figure, we consider both exports of goods (exports of domestically produced goods and re-exports) and exports of services of these two categories of exporters, e.g. median exports of service exporters show median exports of both goods and services per one service exporting firm. Similarly, exports per sales ratio of goods exporters is the ratio of total exports (goods and services) of firms, which are classified as goods exporters, to the total turnover of these firms. We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for the calculation of value added. We filter out those companies, whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

Figure 2 and Table A4 also show the median ratios of export values to firms' turnover, i.e. firms' median trade intensity. It appears that around 3/4 of service exporting firms' total sales are generated by exports, while this figure is considerably smaller for goods exporters both including and excluding re-exporters (25%–33%). It shows that service exporting firms are largely export-oriented (i.e. if they enter foreign market, they are focused on serving non-residents) and these are companies that work primarily with non-residents, especially in the transport sector. Export intensity of service exporters in Latvia appears higher in comparison with other countries explored in empirical literature. For example, the ratio of service exports to turnover in the UK is around 30% (Breinlich and Criscuolo (2011)), is found to be much smaller in Finland, France, Ireland and Slovenia (Haller et al. (2014)), and appears negligible in Japan (Morikawa (2015))[19].

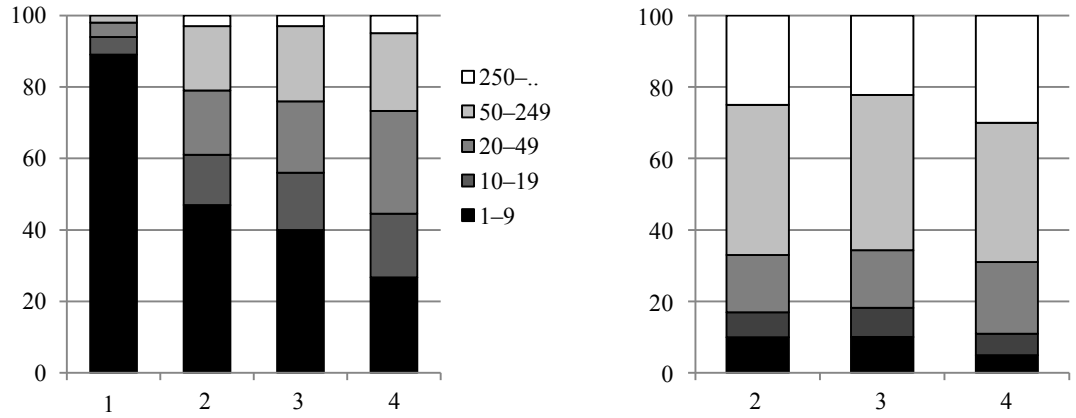
Another important observation as reflected in Figure 3 and Table A5 is that a vast majority of non-exporters (around 90%) are small companies employing no more than 9 persons[20] while only 3% of non-exporters employ more than 50 people. Of

[19] Caution explained in footnote 12 is applicable here as well.
[20] These companies largely represent micro enterprises whose number of employees at any time does not exceed five. The large number of such companies is partly related to the micro enterprise tax. See the State Revenue Service for more details: https://www.vid.gov.lv/default.aspx?tabid=8&id=5831&hl=2.

service exporters, more than a half of all firms employ at least 20 persons, whereas 61% of firms exporting goods and 56% of re-exporters employ less than 20 employees. Hence, service exporters are as a rule bigger by size than goods exporters. This pattern may be related to types of services and sectors of the economy that service exporters represent.

Interestingly, when firms' export value is decomposed by firms' size, we do not observe large differences among different categories of exporters. Two thirds of export value are attributable to companies with at least 50 employees, and this figure applies to goods exporters and service exporters as well as re-exporters. This implies that small and micro firms' average goods exports per firm are tiny as compared with those of large goods exporting companies, whereas differences in the value of average exports across different service exporting firms are more balanced. This also helps explaining the difference in the value of exports per firm of goods and service exporters as displayed in Figure 2.

Figure 3
Average number of firms (left panel) and export value (right panel) per size class and by exporter category (2006–2013; % of total)



1 – non-exporters; 2 – domestically produced goods exporters; 3 – re-exporters; 4 – service exporters.

Sources: CSB, Latvijas Banka and authors' calculations.
Notes: Average over 2006–2013. We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for the calculation of value added. We filter out those companies, whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

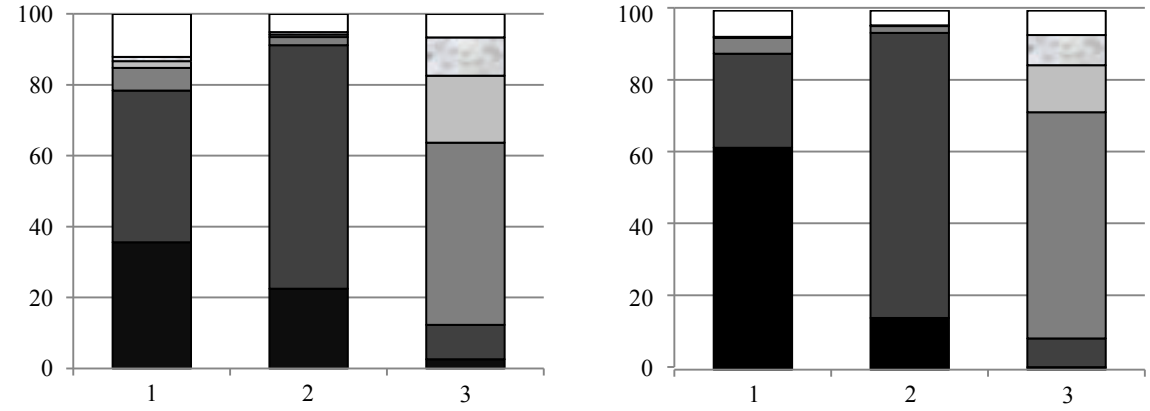
4.2 Service exporters by sector and type of services

Figure 4 and Table A6 reveal that more than half of service exporters (52%) are engaged in transport sector activities (mainly land transport, warehousing and support activities for transportation). Service exporters in the transport sector account for 63% of value added in this sector and employ 49% of the total number of sector's employees (Table A7). The second largest group of service exporters (19%) consists of firms engaged in professional, scientific and technical activities

(half of which are advertising and market research companies), followed by firms operating in the information and communication sector (11%, with half of that figure representing computer programming companies), and wholesale and retail trade (10%, with 85% of them operating in the wholesale industry). The rest of the sectors, taken together, account for less than 10%.

Figure 4

Average (2006–2013) number of firms (left panel) and export value (right panel) by sector and exporter category (% of total)



1 – domestically produced goods exporters; 2 – re-exporters; 3 – service exporters.

Manufacturing
Wholesale and retail trade
Transportation and storage
Professional, scientific and technical sector
Information and communication sector
Other sectors

Sources: CSB, Latvijas Banka and authors' calculations.
Notes: Average over 2006–2013. We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees, and information necessary for the calculation of value added. We filter out those companies, whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

Companies exporting domestically produced goods are also quite concentrated around few sectors, with 80% of firms representing just two sectors – manufacturing (manufacture of food products and wood being the largest sub-sectors) and wholesale and retail trade (largely wholesale trade). As expected, firms from the trade sector dominate in re-exporting activities. A large concentration of export activities in few sectors is not a new finding and has also been documented in other studies. For example, 2/3 of the service export value in Italy are attributable to two sectors – manufacturing and the financial sector (Federico and Tosti (2012)). Similarly in France, more than half of service firms are engaged in manufacturing and financial services (Haller et al. (2014)). In Belgium, the wholesale and retail trade sector dominates, with 53% in total export value, although there is no such concentration of exports when measured by the number of firms (Ariu and Mion (2010)). In Germany, three sectors account for 75% of total service exports (Kelle and Kleinert (2010)).

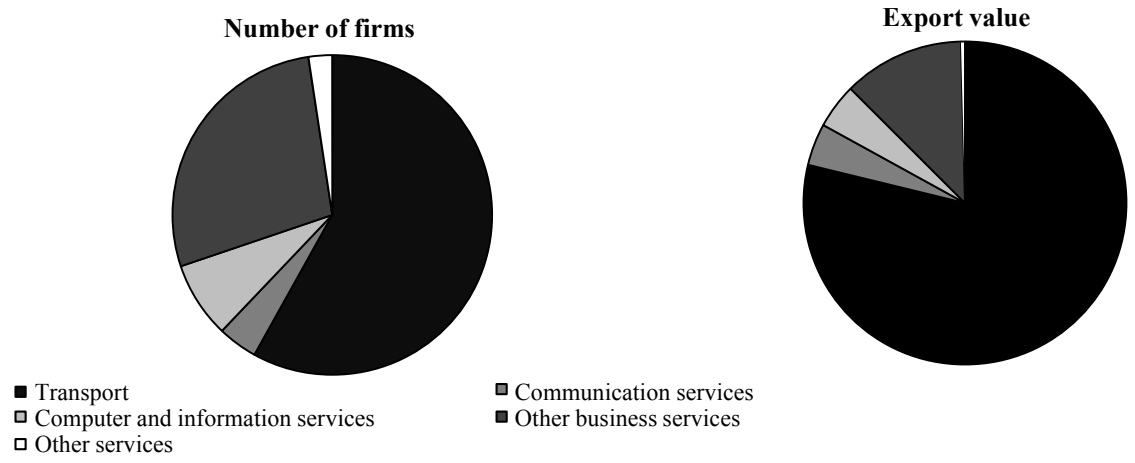
Table A6 shows that export intensity of service exporters is fairly high in all main sectors, except for the wholesale trade, where exports constitute merely 8% of total turnover, implying that these firms are largely domestic market oriented and export activities are by far less important. For goods exporters as well as re-exporters the wholesale and retail sector (the one with the largest share of exporting firms) is less

export-intensive than the second most represented sector, i.e. the manufacturing sector. Exporters of manufactured goods sell around half of their output abroad.

Finally, as regards the size of service exporters across different sectors, Table A8 displays that more than half of them are firms employing at least 20 employees. The only exception to this stylised fact is represented by the professional, scientific and technical activities sector, where 60% of firms are smaller and employing less than 20 people. It indicates that services in a knowledge-based sector are normally provided by smaller firms whose main asset is their professional staff.

Concerning types of services exported[21], it is evident from Table A9 that around 40% of services exporting firms provide auto transport services, accounting though for a smaller fraction of the total service export value (21%). Overall, however, 55%–60% of service exporters provide transport services, while their share in the total value of service exports is higher, at 70%–80% (Figure 5). Similarly, Comunale (2015) shows that transport services dominate in the structure of neighbouring Lithuania's service exports. This at a first glance surprising difference may be attributable to a relatively large role of rail service providers whose median exports per firm far outweigh those of auto and sea transport service providers. Firms exporting other business services constitute a quarter of all exporting firms, but they are small and account for only a tiny portion (12%–14%) of the total export value.

Figure 5
Average number of service exporting firms and their export value (% of total) by service type (2006–2013)



Sources: CSB, Latvijas Banka and authors' calculations.
Notes: Average over 2006–2013. We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for the calculation of value added. We filter out those companies, whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

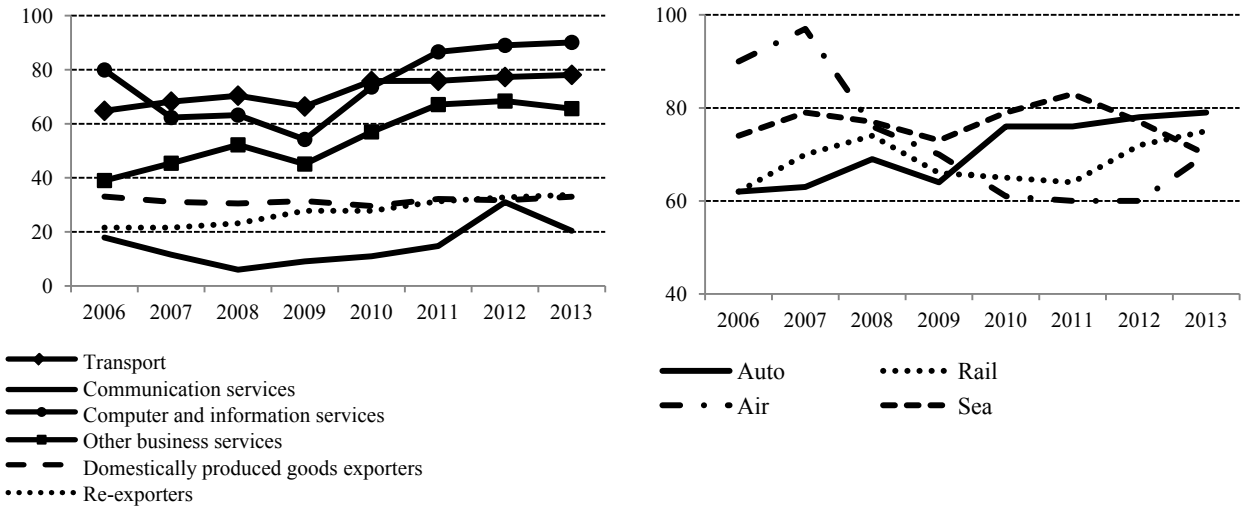
Another important observation concerns the difference in trade intensity across service exporting firms (see Figure 6 and Table A9). Companies exporting transport services and computer and information services trade with non-residents to a larger extent than other service providers. For example, auto transport service exports amounted to 79% of total turnover in 2013, while computer programming company exports amounted to 90% of their turnover in the same year. By contrast, trade

[21] See Table A2 for classification of service types used in the study.

intensity of other business service providers ranges on average from 40% to 80%, depending on the type of services. Finally, communication companies are the least export-oriented, with only 15% of their turnover on average being associated with non-residents. The latter finding does not come as a big surprise, since some of the largest communication companies (among them *Lattelecom* and Latvian mobile operators) have a larger number of clients in the domestic market, whereas transport service providers (e.g. *LDz Cargo*, *Strek*, *Kreiss*) play a significant role in transit of goods through Latvia. It should also be noted that there are not large differences between trade intensity of different transport types. Trade intensity of computer programming companies and other business service providers is not only high but has also been growing steadily after the crisis. As mentioned above, computer and information services as well as other business services are those types of services that become increasingly more tradable over time; hence the share of exports in the activity of these firms is growing. It has also been emphasised in the literature (see, for example, Walter and Dell'mour (2010), Conti et al. (2010), Lööf (2010)) that these types of services are highly innovative and/or knowledge-intensive and the increasing importance of their exports indicates growing innovativeness and knowledge-intensity strengthening growth potential of the economy. In Lithuania, these types of services were the only ones that exhibited robust growth even during the crisis period[22].

Figure 6

Median exports to sales ratio (%) of service exporters by service type (left panel – most important types; right panel – transport services)



Sources: CSB, Latvijas Banka and authors' calculations.

Notes: We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for the calculation of value added. We filter out those companies, whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

Table A10 shows that other business services are not heavily concentrated in one or two sectors of the economy, as, for example, transport related services are. Thus legal, accounting, management, advertising and consulting companies are

[22] See Comunale (2015) for a macro-based study of traditional and knowledge-based services in Lithuania.

represented in such sectors as professional, scientific and technical activities, wholesale and retail trade, and information and communication, amounting to 54%, 22% and 21% of total exports of this type of services respectively.

Another feature of Latvia's service exporters, as reflected in Table A11, is their reliance on just one type of services (which is also a case in many other countries): 89% of firms are engaged in one activity (amounting to 92% of total export value and 83% of employees employed by service exporting firms). This arguably stems from the fact that service exports are heavily dominated by transport service companies, which are mainly focused on just one means of transport and provide no other type of services[23]. Interestingly, firms that export several types of services tend also to be bigger (i.e. they employ a larger number of personnel and generate higher export value). By contrast, in other countries, the share of companies that export at least two types of services is larger. In the UK, 20% of firms export at least two service types, accounting for up to 65% of total service exports (Breinlich and Criscuolo (2011)). These numbers appear similar (or even higher) in the study by Haller et al. (2014) about Finland, France and Ireland.

4.3 Comparison of service exporters with other firms

Figure 7 and Table A12 shed some light on the difference in firm-level characteristics between service exporters, non-exporters, domestically produced goods exporters and re-exporters. These firm characteristics are: labour productivity (which is proxied by value added per employee), firm size (measured by the number of employees*),* age of firm (in years), the share of foreign capital and profitability (profit-to-turnover ratio). The difference in mean values of these characteristics is considered to be statistically significant on the basis of the two-sided t-test[24].

The results show[25] that service exporting companies are on average larger and tend to have a higher share of foreign capital as compared to non-exporters, goods exporters and re-exporters. They also tend to pay higher salaries, which may arguably imply that they employ higher-skilled workforce than the rest of the companies. At the same time, the evidence concerning labour productivity is not conclusive. In comparison with non-exporters and goods exporters, service exporting companies are shown to be more productive, but this conclusion does not hold when making comparison with re-exporters. Service exporting firms are found to be more experienced (i.e. to be longer in the market) than other companies. The ultimate goal of each firm is to earn profit, thus we also compare firms' profit-to-turnover ratios. In most years of the sample period, service exporters' profit ratio appears larger than that of other firms. However, this finding should be treated with

[23] We have not decomposed exports of transport services into transportation of freight and passenger in our study.

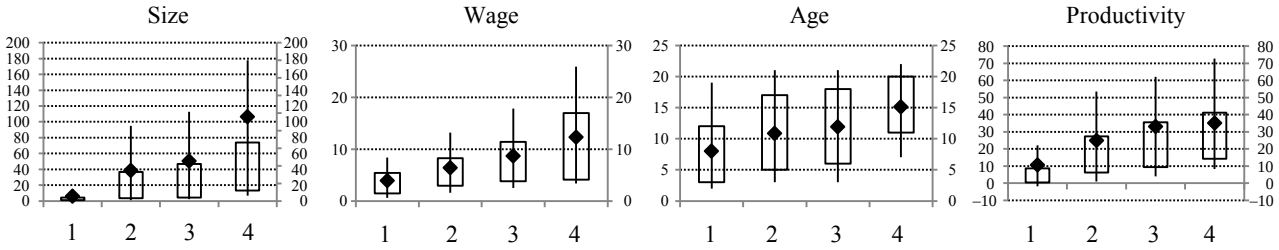
[24] In Appendix, the t-test results are shown for the last three years, while box-plots in the main text refer to the last available year, i.e. 2013. We have not constructed box-plots for foreign capital and profitability. The former is extremely skewed, as in most cases more than 90% of companies are entirely domestically owned and a graphical representation of firm distribution according to the share of foreign capital would be meaningless. The latter indicator should be treated with caution, since there are large negative profit-to-turnover ratios in many cases.

[25] Differences in mean values showed in Figure 7 may not always be statistically significant, thus we recommend readers to refer to both Figure 7 and Table A12 for the results of the t-test.

caution, as persistently large negative values of this indicator for some groups of firms may imply that many of them underreport earnings[26].

Figure 7

Comparison of size, average wage, labour productivity and age of firm across different exporter categories in 2013



1 – non-exporters; 2 – domestically produced goods exporters; 3 – re-exporters; 4 – service exporters.

Source: CSB.

Notes: Figure refers to 2013. "Domestically produced goods exporters" are goods exporting firms, excluding those whose only activity in foreign markets is goods re-exporting. "Re-exporters" are either firms whose only activity in foreign markets is goods re-exporting or firms that are involved in re-exporting either as their only activity or in parallel with goods exporting. "Service exporters" are service exporting firms. We consider only those exporters whose exports-to-turnover ratio in 2013 was at least 0.5%. The box plot is drawn so that it starts at the 10th percentile and stops at the 90th percentile, the box encompasses the values between the 25th and 75th percentiles, and a dot represents a mean value. We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for the calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

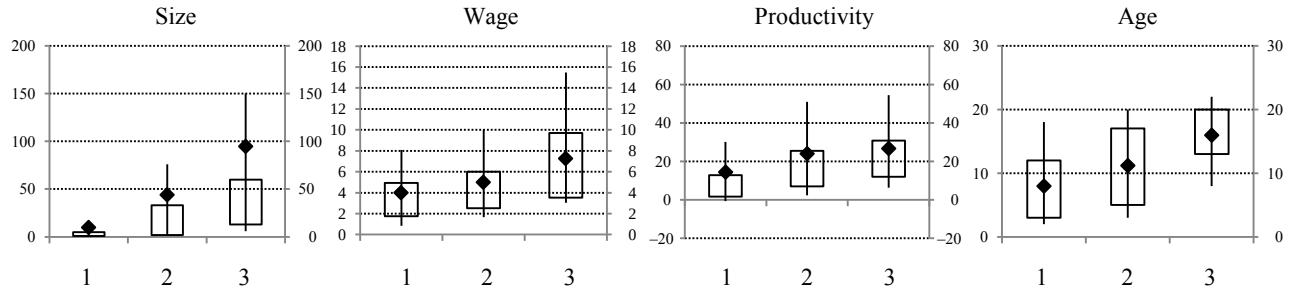
We admit that such a comparison of mean values should be treated with much caution, since there are a variety of other factors that might influence labour productivity or other firm performance characteristics, and we plan turning to a more thorough investigation of service exporters' performance in our future studies. However, in this paper, we also attempted to control for sectors of the economy and provide a comparison of firm characteristics within some selected sectors. Three major sectors where service exporters are largely concentrated are transportation and storage, information and communication, and professional, scientific and technical activities. In what follows, we do not report firm-level characteristics of re-exporters, since their number in the mentioned sectors is very small.

Service exporters in the transport and storage sector are indeed more productive than firms that serve only the domestic market, and their productivity is on par with goods exporters. Transport service companies appear bigger, pay higher wages, and are more profitable than both non-exporters and goods exporters belonging to the same sector.

[26] According to recent estimates by Putniņš and Sauka (2014), the share of shadow economy in Latvia reached 23.5% of GDP in 2014, mainly driven by companies underreporting their business income.

Figure 8

Comparison of size, average wage, labour productivity and age of firms across different exporter categories in transport and storage sector in 2013



1 – non-exporters; 2 – domestically produced goods exporters; 3 – service exporters.

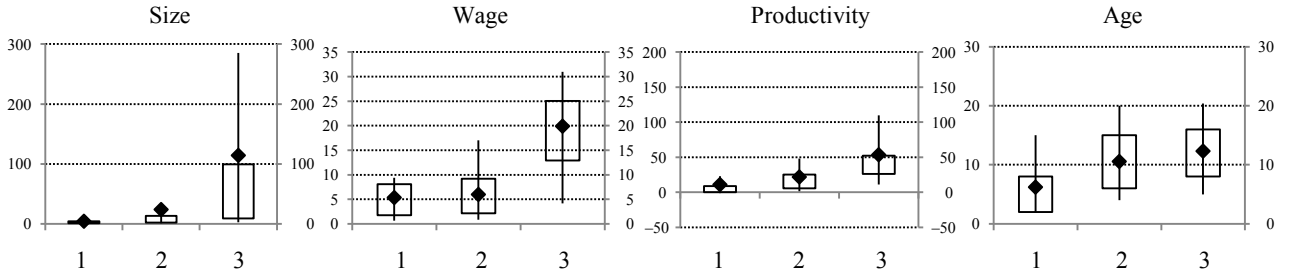
Source: CSB.

Notes: Figure refers to 2013. "Domestically produced goods exporters" are goods exporting firms, excluding those whose only activity in foreign markets is goods re-exporting. "Service exporters" are service exporting firms. We consider only those exporters whose exports-to-turnover ratio in 2013 was at least 0.5%. The box plot is drawn so that it starts at the 10th percentile and stops at the 90th percentile, the box encompasses the values between the 25th and 75th percentiles, and a dot represents a mean value. We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for the calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

Service exporters in two highly innovative sectors of information and communication and professional, scientific and technical activities are found to be bigger, to have a higher share of foreign capital, to exhibit higher productivity and to pay higher salaries than both non-exporters and goods exporters. Service exporters seem also to be more profitable than non-exporters, whereas they are as profitable as goods exporters.

Figure 9

Comparison of size, average wage, labour productivity and age of firms across different exporter categories in information and communication sector in 2013



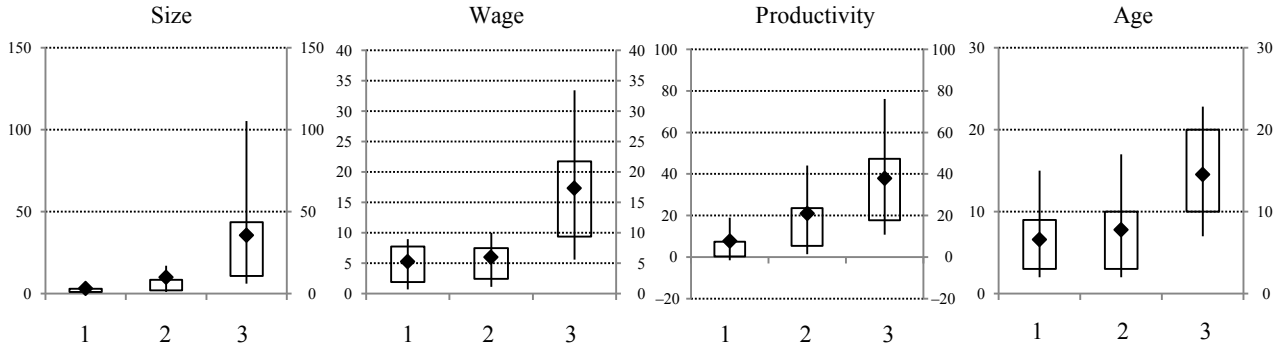
1 – non-exporters; 2 – domestically produced goods exporters; 3 – service exporters.

Sources: CSB and Latvijas Banka.

Notes: Figure refers to 2013. "Domestically produced goods exporters" are goods exporting firms, excluding those whose only activity in foreign markets is goods re-exporting. "Service exporters" are service exporting firms. We consider only those exporters, whose exports-to-turnover ratio in 2013 was at least 0.5%. The box plot is drawn so that it starts at the 10th percentile and stops at the 90th percentile, the box encompasses the values between the 25th and 75th percentiles, and a dot represents a mean value. We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for the calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

Figure 10

Comparison of size, average wage, labour productivity and age of firms across different exporter categories in professional, scientific and technical activities sector in 2013



1 – non-exporters; 2 – domestically produced goods exporters; 3 – service exporters.

Sources: CSB and Latvijas Banka.

Notes: Figure refers to 2013. "Domestically produced goods exporters" are goods exporting firms, excluding those whose only activity in foreign markets is goods re-exporting. "Service exporters" are service exporting firms. We consider only those exporters, whose exports-to-turnover ratio in 2013 was at least 0.5%. The box plot is drawn so that it starts at the 10th percentile and stops at the 90th percentile, the box encompasses the values between the 25th and 75th percentiles, and a dot represents a mean value. We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for the calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

To sum up, when comparing service exporters to goods exporters within innovative sectors we confirm higher level of productivity of service exporters but we are not able to verify higher profitability of service exporters. Thus, these are knowledge-intensive, innovative sectors where service exporters are found to be more productive than goods exporters.

The comparison of firm-level characteristics within three different firm size classes (see the last three panels of Table A12) broadly supports the above findings. Specifically, service exporters are confirmed to pay higher salaries than all the other categories of firms within all three size classes. They appear more productive than non-exporters and goods exporters and as productive as re-exporters. However, in contrast to the findings above, we cannot confirm service exporters' profit ratio to be higher than that of other companies within the same size classes, as the t-test results are inconclusive.

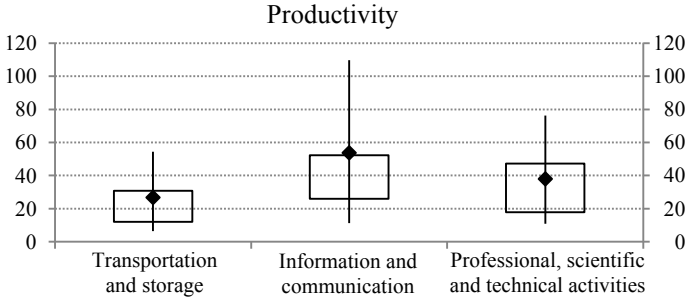
Overall, the findings herein are in line with the empirical literature on service exporters, which normally show that service exporters exhibit a significant productivity premium as compared to non-exporters (e.g. Breinlich and Criscuolo (2011), Kox and Rojas-Romagosa (2010)). Conti et al. (2010) and Eickelpasch and Vogel (2009)), however, find that labour productivity appears to matter when exporting to more distant countries for Italy and to be irrelevant in explaining export performance when controlling for unobserved firm heterogeneity in the case of Germany.

When compared to goods exporters service exporters are usually found to be only slightly (if at all) more productive (e.g. Breinlich and Criscuolo (2011) and Haller et al. (2014)). Merely as an exception, Morikawa (2015) demonstrates that in the case of Japan labour productivity of service traders is significantly higher as

compared to goods traders[27]. A comparison of profitability indicators between exporters and non-exporters does not usually provide conclusive results either. Temouri et al. (2013) document lower profitability of German service exporters, a higher one in France and an absence of such a relationship between the exporting status and profitability in the UK.

Having confirmed higher productivity of Latvian service exporters vis-à-vis non-exporting companies as well as goods exporting companies within different size classes and sectors of the economy (apart from transport and storage), we provide a comparison of labour productivity of service exporters in different sectors. It turns out that service exporters operating in knowledge-intensive sectors are indeed more productive than those that provide transport services (see Figure 11 and Table A13).

Figure 11
Comparison of labour productivity across service exporters in different sectors in 2013



Sources: CSB and Latvijas Banka.
Notes: Figure refers to 2013. The box plot is drawn so that it starts at the 10th percentile and stops at the 90th percentile, the box encompasses the values between the 25th and 75th percentiles, and a dot represents a mean value. We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for the calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

5. DYNAMIC ANALYSIS OF SERVICE EXPORTERS

Having taken a look at characteristics of service and goods exporters, we now illustrate the dynamic dimension of firm exporting behaviour. For this purpose, we decomposed the given sample into three sub-periods[28]. The first sub-period (2006–2008) covers the years of rapid economic expansion with double digit rates of economic growth in 2006 and 2007. The second one (2009–2010) is the crisis period, characterised by a dramatic drop in economic activity and exports. Finally, the third sub-period (2011–2013) is a period of economic recovery and slow growth[29]. In this section, we conduct the analysis of firms that leave the foreign

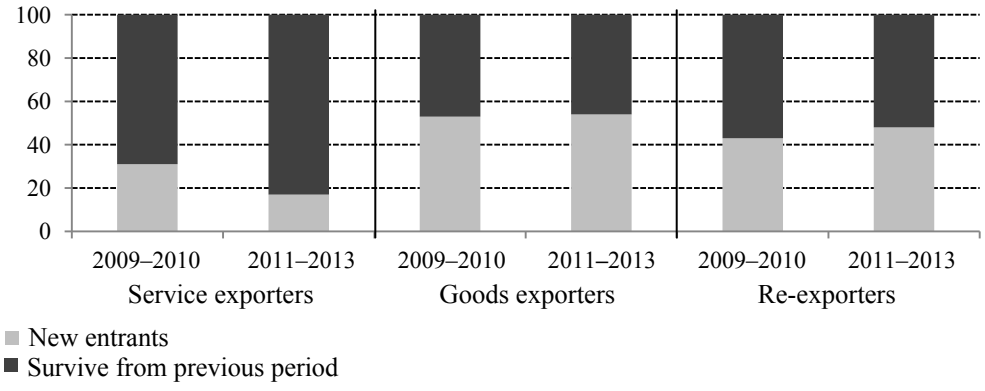
[27] However, the case of Japan may appear unique. Cultural and institutional differences vis-à-vis the rest of the world may imply that Japanese service providers should be far above other companies in Japan in terms of knowledge and experience (including knowledge of foreign languages) to be able to compete in foreign markets of services since service trade implies a lot of interaction with customers.
[28] We have chosen to present the estimates for sub-periods rather than for every single year of the sample in order to mitigate to some extent the effect of firms stopping exporting and restarting exporting in the following year.
[29] Annual average growth rates of GDP for these three sub-periods are 6.1% (actually exceeding 10% in 2006–2007), –9.1% and 4.4% respectively.

market (exiters), stay in the foreign market (survivors) or enter it (entrants) in each of these sub-periods. Table A13 compares the number and the share of goods exporters, service exporters and re-exporters of the first and the second sub-periods as well as of the second and the third sub-periods.

When analysing the share of new vs old firms (see Figure 12 and Table A14), it is notable that the proportion of new entrants in the total number of exporters is lower for service exporters as compared to goods exporters and re-exporters during and after the crisis, suggesting that it might be more difficult to enter the pool of service exporters. This observation might be related to the fact that access to service market in individual EU countries (Latvia's major trading partners) is more restricted than to product markets, as service sectors are often highly regulated by complex national rules. It is also likely that productivity/size threshold for Latvian service providers to start exporting is high, as tentatively confirmed by the results of t-test in the previous section. A particularly low proportion of new entrants of service exporters was reported in the wake of the crisis. Thus only 17% of firms engaged in exports of services in 2011–2013 are companies that did not provide services to non-residents during the crisis (or did not exist at all). Among goods exporters, this share amounted to more than a half (in both sub-periods), and among re-exporters it was slightly more than a half. Remarkably, of the companies with no exports of services during the period before the crisis only a tiny share (0.3%) started exporting during the crisis. It is even more striking that this proportion declined if we compare the crisis period and the aftermath. These numbers are somewhat higher for goods exporters (3.0% and 3.3% respectively).

These stylised facts contrast the findings by Ariu (2012) who found that over the period of 1995–2005 on average 43% of Belgian service exporters were firms that did not export a year before. He also shows this figure to be higher in the case of service exports than goods exports (43% vs 31%). In Eickelpasch and Vogel's (2009) study of German exporters of business services, 52% of the companies that exported in 2005 were also exporters in both 2003 and 2004.

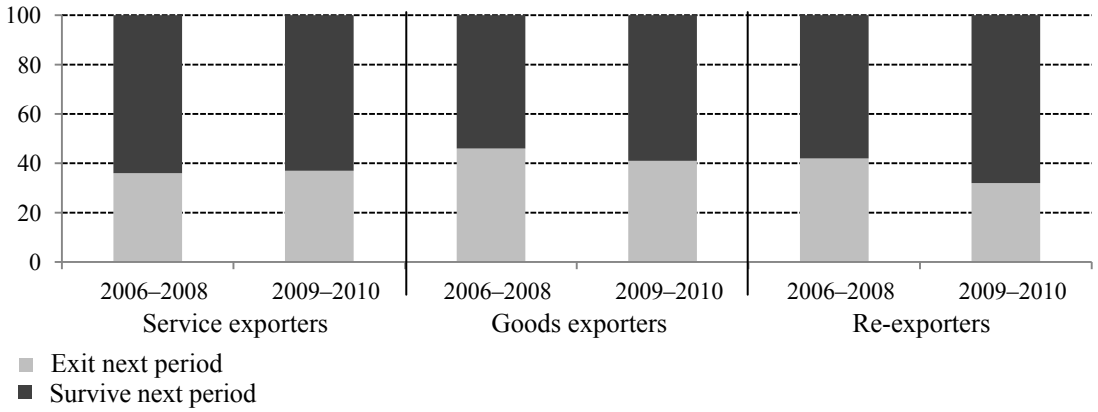
Figure 12
Share of new entrants and survivors across different exporter categories (%)



Sources: CSB and Latvijas Banka.
Notes: Figure displays the share of firms that were exporting in the previous period (survivors from the previous period) and new exporters (new entrants).We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for the calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

When analysing companies that stopped or kept on exporting (Figure 13 and Table A14), 64% of firms that exported services before the crisis also did it during the crisis. This proportion of survivors is somewhat lower in the case of goods exporters (54%) and re-exporters (58%). This difference in the number of firms that endured the crisis might come as evidence in favour of service exporters to be more resilient to the crisis than goods exporters. This in turn concurs with the evidence presented recently by few authors that service exports have been more resilient to crisis (see Borchert and Aaditya (2009), Ariu (2014)). Calculations do not change much between the third and the second sub-periods for service and goods exporters. The share of survivors among re-exporters has increased by 10 percentage points and exceeded the one for service exporters. Ariu (2012) reports exit rates to be lower for goods exporters, although the exit rates for service exporters appear similar to the ones reported herein (36% on average).

Figure 13
Share of exiters and survivors across different exporter categories (%)



Sources: CSB and Latvijas Banka.
Notes: Figure displays the share of firms that will stop exporting in the following period (exit in the next period) and firms that were exporting in the previous period (survive from the previous period) to new exporters (new entrants) that will be exporting in the next period (survive in the next period). We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for the calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

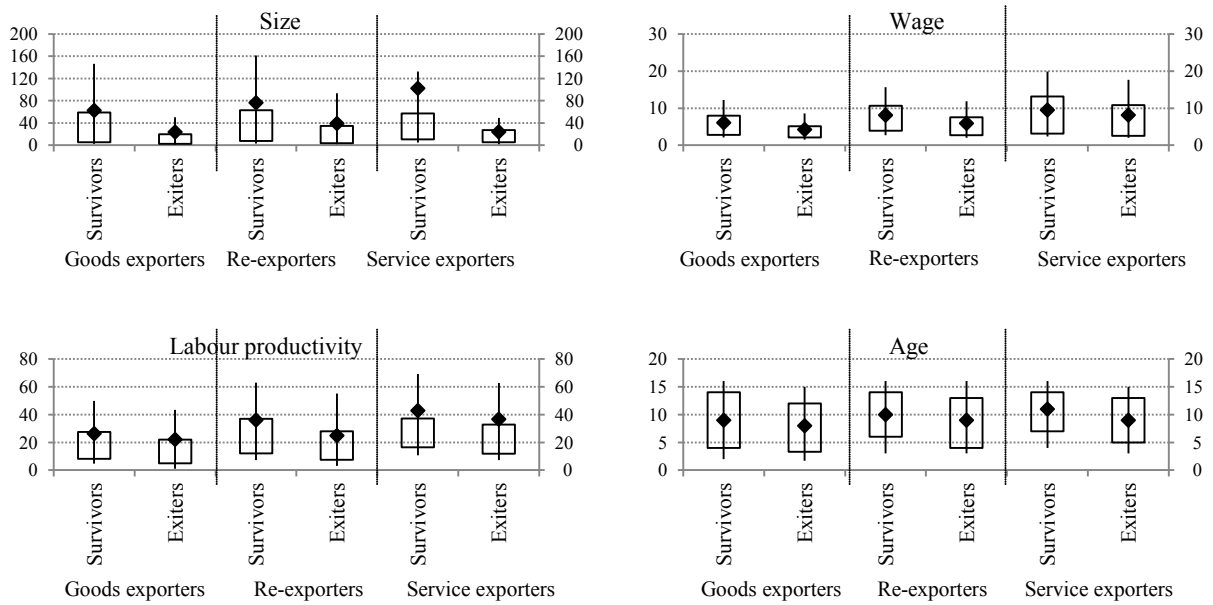
Finally, Figures 14 and 15 and Table A15 compare firm performance of survivors, exiters and new entrants in the case of service exporters, goods exporters and re-exports. Those service exporting companies that survived the crisis appeared to be on average the ones that were bigger and paid higher wages to their employees before the crisis. They were also more likely to have a larger share of foreign capital. In the meantime, we have not found any evidence of survivors to be more productive than exiters[30]. The findings in this paper remain similar when the crisis and post-crisis periods are compared, apart from the fact that service exporting companies that went through the crisis and kept on exporting in the wake of it had on average a

[30] The latter finding does not hold, if we only compare labour productivity of knowledge-intensive companies that survived and those that left the market during the crisis. Surviving exporters of information and communication services as well as professional and scientific services appear to have been more productive.

higher profit-to-turnover ratio than exiters. These findings are in line with those for goods exporters and re-exporters, apart from the fact that labour productivity of those firms that survived the crisis was higher.

Figure 14

Comparison of size, average wage, labour productivity and age of survivor and exiter firms across different exporter categories in pre-crisis period (2006–2008)



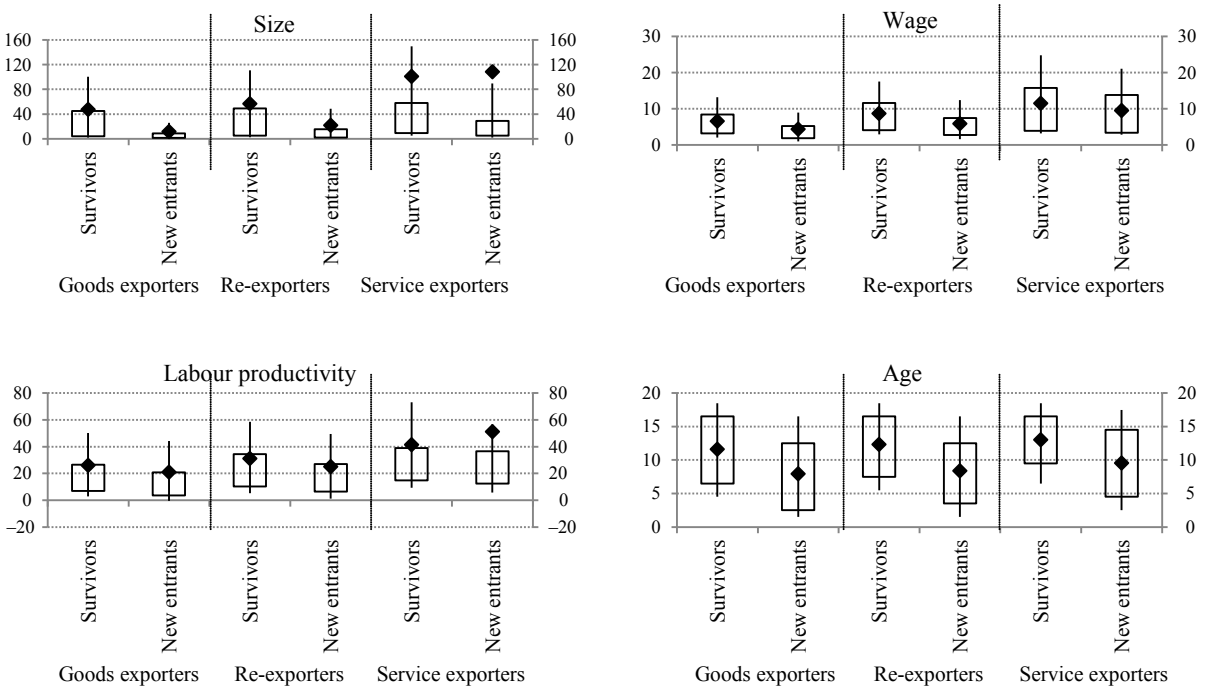
Source: CSB.

Notes: Figure refers to 2013. "Goods exporters" are goods exporting firms. "Re-exporters" are either firms, whose only activity in foreign markets is goods re-exporting or firms that are involved in re-exporting either as their only activity or in parallel with goods exporting. "Service exporters" are service exporting firms. We consider only those exporters whose exports-to-turnover ratio in 2013 was at least 0.5%. The box plot is drawn so that it starts at the 10th percentile and stops at the 90th percentile, the box encompasses the values between the 25th and 75th percentiles, and a dot represents a mean value. We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for the calculation of value added. We filter out those companies, whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

When we compare survivors and entrants rather than exiters (see Figure 15), we do not observe a statistically significant difference in labour productivity of these service exporting firms, meaning that service exporting companies that enter foreign markets are already as productive as firms that have been exporting for a while. This may point at self-selection of productive firms to become exporters. However, we need to conduct more thorough investigation in order to be able either to confirm or to reject a self-selection hypothesis. We will refer to this issue in our future research.

Figure 15

Comparison of size, average wage, labour productivity and age of survivor and new entrant firms across different exporter categories during crisis (2011–2013)



Source: CSB.

Notes: Figure refers to 2013. "Goods exporters" are goods exporting firms. "Re-exporters" are either firms whose only activity in foreign markets is goods re-exporting or firms that are involved in re-exporting either as their only activity or in parallel with goods exporting. "Service exporters" are service exporting firms. We consider only those exporters, whose exports-to-turnover ratio in 2013 was at least 0.5%. The box plot is drawn so that it starts at the 10th percentile and stops at the 90th percentile, the box encompasses the values between the 25th and 75th percentiles, and a dot represents a mean value. We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for the calculation of value added. We filter out those companies, whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

All in all, findings of this research point out a few stylised facts. First, service exporters appear to be more stable. When compared to goods producers, it appears to be more difficult for service companies to enter foreign markets and since they are there they tend to stay for longer. Second, those of service exporters that survived the crisis were on average larger and, arguably, employed more skilled workforce (if judged by wage they paid before the crisis). The same applies to goods exporters and re-exporters, with an additional observation of survivors to have been more productive before the crisis. Third, there is tentative evidence in favour of self-selection hypothesis for service exporters.

6. CONCLUSIONS

The importance of services for the global economic activity and exports has been growing fast in the recent decades, and the service sector is now recognised as being important for economy's potential growth. To facilitate understanding of service exports in Latvia, we provided a set of stylised facts on service exporting firms, using four individual and anonymised firm-level datasets for 2006–2013.

Some of conclusions in this paper mimic findings in relatively scarce empirical literature. In particular, we have shown that the share of service exporters in Latvia is relatively low, with service exporters concentrated around few sectors of the economy and around a relatively small number of service types. Latvian service exporters exhibit on average larger export value per firm than goods exporters, which also concurs with the finding that they tend to be bigger in size than goods exporters. We have confirmed similar findings, showing that more productive firms are more likely to be engaged in exports of services than in working for the domestic market only. It was also shown that service exporters normally exhibit higher labour productivity than goods exporters, while evidence in past studies on other countries is somewhat vague. Higher productivity of Latvian service exporters vis-à-vis goods exporters can be mainly attributed to innovative knowledge-based sectors of the economy. We have also shown tentative evidence in favour of service exporters to be somewhat more resilient to the recent crisis than goods exporters.

There are also few peculiar stylised facts that contrast findings in other studies. Export intensity of service exporters in Latvia exceeds that found in other countries; hence service exporting firms in Latvia are largely export-oriented. Namely, service providers concentrate mainly on working with non-residents after some threshold of labour productivity is achieved. Given the small size of the Latvian economy, local firms tend to focus on just one type of services, while in other economies the share of companies that export at least two types of services is found to be higher.

This study also suggests that it might be more difficult to enter the pool of service exporters than goods exporters, and this may have two possible explanations. First, the service market has historically been highly regulated in Latvia's major trading partners, creating barriers for service providers of other countries. Second, an effort to become a service exporter may be quite substantial, as service companies should reach high-level productivity to be able to trade internationally. Indeed, we have shown tentative evidence in favour of self-selection of productive firms in service exporting, i.e. service providers should exhibit higher productivity to be able to compete in international markets.

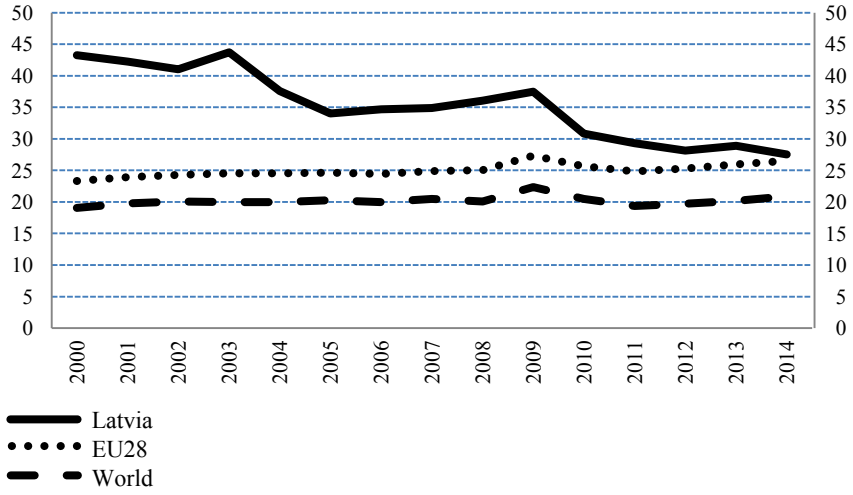
Against the backdrop of the results provided in the present study, an increase in the number and export intensity of service exporters is seen beneficial for Latvia's economy, as this process is concomitant with productivity growth in the economy. This particularly refers to innovative computer and business services whose tradability has recently been on the rise due to technological innovations in communication means. Higher penetration of Latvian service providers into external markets would benefit from structural reforms currently under discussion, aimed at reducing barriers to cross-border trade in services across the EU. For example, the Transatlantic Trade and Investment Partnership Agreement is an important step to dismantle cross-border barriers between the EU and the US as well as within the EU.

Furthermore, if self-selection hypothesis is to be confirmed and productivity/size threshold to export services internationally is relatively high, any domestic structural reforms should, inter alia, be aimed at raising productivity potential of service sectors. High labour intensity of service sectors calls for improvements in the education sector.

Since the purpose of this study was to present merely a descriptive analysis of service exporters and contrast them with non-exporters and goods exporters, we did not employ any advanced econometric technique. However, we plan to investigate productivity of service exporters in one of our future studies. Similar to the famous book that we implicitly quote in the title of the paper, we were not able to tell everything you really wanted to know about Latvia's service exporters. However, this study can be viewed as a good starting point preceding further empirical analyses.

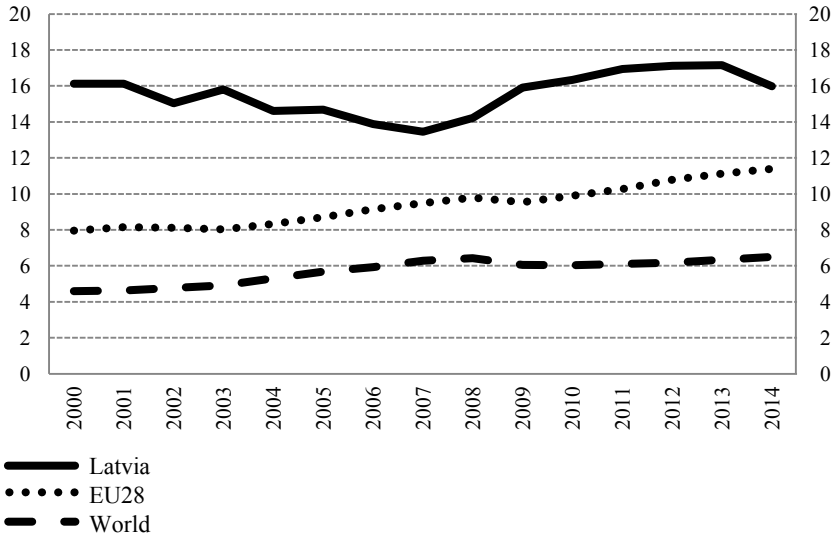
APPENDIX

Figure A1
Exports of services
(% of total exports)



Sources: Eurostat and WTO database.

Figure A2
Exports of services
(% of GDP)



Sources: Eurostat and WTO database.

Table A1

Exports of services in Latvia by type of service (% of total; b.o.p. 6; 2000–2014)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Manufacturing services	7.9	10.3	11.6	15.1	10.3	4.7	3.6	4.3	3.2	3.0	1.9	2.1	2.3	2.5	0.8
Repair services	2.7	2.6	3.0	2.6	3.0	3.8	2.3	1.8	2.0	1.2	1.6	1.3	1.2	1.2	0.8
Transport	60.2	57.1	54.1	48.6	47.1	49.5	47.0	43.2	43.2	44.6	45.3	46.6	47.5	43.1	41.5
Sea transport	36.1	32.5	28.7	22.9	21.2	21.9	18.5	15.5	13.9	15.6	13.2	11.9	12.5	11.0	10.4
Air transport	4.8	3.9	3.9	3.6	4.8	5.5	6.2	6.3	6.7	7.2	8.5	7.3	7.2	6.8	6.3
Rail transport	8.4	9.4	10.0	10.3	9.2	9.6	8.6	9.0	9.7	11.0	10.6	12.4	12.4	10.7	10.9
Auto transport	4.8	6.6	7.9	9.4	9.8	10.5	12.1	11.4	11.7	9.7	11.5	13.7	14.0	13.5	12.5
Travel	10.2	8.9	11.2	12.0	12.6	13.9	15.8	15.3	14.9	16.4	15.9	15.9	15.4	16.7	18.7
Business	6.2	4.5	4.7	5.0	4.9	4.4	4.7	4.6	4.4	4.6	4.9	4.8	4.1	4.0	3.9
Personal	4.0	4.4	6.5	7.0	7.8	9.4	11.1	10.8	10.6	11.8	10.9	11.1	11.3	12.7	14.8
Construction services	1.1	1.0	0.5	1.7	2.2	0.6	0.8	1.2	1.6	0.8	1.9	1.8	2.6	3.1	3.3
Insurance and pension services	0.6	0.9	0.7	0.5	0.5	0.4	0.3	0.4	0.3	0.6	0.7	0.5	0.4	0.6	0.1
Financial services	6.6	6.9	7.2	7.3	8.7	10.2	13.0	16.5	16.7	14.3	10.9	10.9	9.5	9.3	10.8
Charges for the use of intellectual property, n.i.e.	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.1
Telecommunications services	1.3	1.4	1.4	1.6	2.2	2.2	2.4	1.6	1.5	1.9	2.0	1.7	2.3	2.5	2.4
Computer and information services	1.6	1.6	1.7	1.8	2.1	2.2	2.4	2.3	2.6	2.9	3.3	3.6	4.0	4.7	5.1
Other bussiness services	6.1	7.7	7.2	7.4	9.5	10.7	10.8	12.1	12.8	13.1	15.0	14.0	13.4	14.8	15.1
Personal, cultural and recreational services	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.5	0.3
Government goods and services, n.i.e.	1.5	1.3	1.2	1.0	1.3	1.2	1.0	0.9	0.8	0.7	0.9	0.8	0.8	0.7	0.9

Source: Latvijas Banka.

Table A2
Classification of types of services available in the study

Service type	b.o.p. 5 code
1. Transport	205
Sea transport	206
Air transport	210
Rail transport	219
Auto transport	223
3. Communication services	245
Postal and courier services	246
Telecommunications services	247
6. Financial services	260
7. Computer and information services	262
Computer services	263
Information services	264
News agency services	889
Other information provision services	890
8. Royalties and license fees	266
Franchises and similar rights	891
Other royalties and license fees	892
9. Other business services	268
Merchanting and other trade-related services	269
Merchanting	270
Other trade-related services	271
Operational leasing services	272
Miscellaneous business, professional, and technical services	273
Legal, accounting, management consulting, and public relations	274
Legal services	275
Accounting, auditing, bookkeeping, and tax consulting services	276
Business and management consulting and public relations services	277
Advertising, market research, and public opinion polling	278
Research and development	279
Architectural, engineering, and other technical services	280
Agricultural, mining, and on-site processing services	281
Waste treatment and depollution	282
Agricultural, mining, and other on-site processing services	283
Other business services	284
Services between related enterprises, n.i.e.	285
10. Personal, cultural, and recreational services	287
Audiovisual and related services	288
Other personal, cultural, and recreational services	289
Education services	895
Health services	896
Other	897

Notes: As mentioned in the text we exclude data on the following service types: 2. Travel, 4. Construction services, 5. Insurance services, 11. Government services. Also data on Merchanting (b.o.p. code 270) and Services between related enterprises, n.i.e. (285) are unavailable.

Table A3
Number and ratio of different types of firms

	2006	2007	2008	2009	2010	2011	2012	2013
Total	**39 413**	**46 690**	**44 286**	**47 981**	**47 972**	**50 004**	**53 368**	**59 497**
Non-exporters	**36 474**	**43 651**	**41 230**	**44 400**	**43 831**	**45 837**	**49 321**	**55 469**
% of total	92.5	93.5	93.1	92.5	91.4	91.7	92.4	93.2
Goods exporters	**2 461**	**2 518**	**2 589**	**3 015**	**3 662**	**3 735**	**3 637**	**3 665**
% of total	6.2	5.4	5.8	6.3	7.6	7.5	6.8	6.2
Domestically produced goods exporters	2 070	2 105	2 183	2 636	3 256	3 274	3 200	3 182
% of total	5.3	4.5	4.9	5.5	6.8	6.5	6.0	5.3
Pure number	1 260	1 237	1 301	1 617	2 041	1 956	1 888	1 891
% of total	3.2	2.6	2.9	3.4	4.3	3.9	3.5	3.2
Re-exporters	1 089	1 173	1 161	1 263	1 511	1 627	1 605	1 639
% of total	2.8	2.5	2.6	2.6	3.1	3.3	3.0	2.8
Pure number	372	393	389	354	388	441	420	465
% of total	0.9	0.8	0.9	0.7	0.8	0.9	0.8	0.8
Service exporters	**574**	**631**	**588**	**696**	**578**	**543**	**513**	**464**
% of total	1.5	1.4	1.3	1.5	1.2	1.1	1.0	0.8
Pure number	478	521	467	566	479	432	410	363
% of total	1.2	1.1	1.1	1.2	1.0	0.9	0.8	0.6

Notes: "Total" denotes all firms in the database. "Non-exporters" are firms that were not engaged in exporting in a particular year. "Goods exporters" are firms that exported goods, among them "domestically produced goods exporters" exclude firms whose only activity in foreign markets was goods re-exporting (all) or exclude firms that were involved in re-exporting either as their only activity or in parallel with goods exporting (pure). Respectively, "re-exporters" are either firms whose only activity in foreign markets was goods re-exporting (pure) or firms that were involved in re-exporting either as their only activity or in parallel with goods exporting (all). "Service exporters" are either service exporting firms that may have also exported goods (all) or firms that exported services only (pure). Here we consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

Table A4
Export intensity of different exporter categories

	2006	2007	2008	2009	2010	2011	2012	2013
Exports (per firm)								
Average								
Goods exporters	1 804.0	2 120.3	2 146.8	1 578.6	1 712.4	2 114.6	2 489.0	2 423.6
Domestically produced goods exporters	1 947.4	2 308.1	2 348.2	1 633.8	1 748.9	2 205.3	2 637.7	2 584.8
Re-exporters	2 539.6	3 008.0	2 992.4	2 251.7	2 414.7	3 001.4	3 624.8	3 497.9
Service exporters	2 551.1	2 939.0	3 451.0	2 818.1	3 627.5	4 812.8	5 735.7	5 307.6
Median								
Goods exporters	283.2	350.8	280.0	203.9	207.6	228.3	259.8	278.6
Domestically produced goods exporters	327.4	394.4	334.2	229.7	221.1	246.9	271.9	300.2
Re-exporters	495.6	549.9	591.5	424.4	434.2	420.8	564.1	571.2
Service exporters	671.0	777.3	935.2	581.3	856.3	1 189.5	1 399.6	1 540.2
Exports per sales ratio (%)								
Average								
Goods exporters	48.2	46.1	43.8	124.2	45.5	49.4	54.4	61.2
Domestically produced goods exporters	54.8	51.4	49.3	139.6	49	53.6	59.2	67.6
Re-exporters	50.2	43.1	42.9	42.4	40	44.2	42.9	64.3
Service exporters	92.3	75.2	78.3	71.1	89.5	89.8	90.5	91.2
Median								
Goods exporters	25.2	24.5	24.3	26.8	26.3	27.9	27.9	27.2
Domestically produced goods exporters	33.1	31.1	30.5	31.4	29.6	32.2	31.7	33.0
Re-exporters	21.6	21.6	23.2	27.8	27.8	31.3	32.8	33.7
Service exporters	52.7	58.9	64.2	58.7	68.8	74.8	74.6	77.4

Notes: "Goods exporters" are firms that exported goods, among them "domestically produced goods exporters" exclude firms whose only activity in foreign markets was goods re-exporting. "Re-exporters" are firms that were involved in re-exporting either as their only activity or in parallel with goods exporting. "Service exporters" are firms that exported services. Here we consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for the calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%. We consider both exports of goods and exports of services of these categories of exporters, e.g. median exports of service exporters shows median exports of both goods and services per one service exporting firm. Similarly exports per sales ratio of domestically produced goods exporters is the ratio of total exports (goods + services) of firms which are classified as domestically produced goods exporters to the total turnover of these firms.

Table A5
Average number of firms per size class (2006–2013)

	Number of firms						% of all firms within a size class					
	All	1–9	10–19	20–49	50–249	250–..	All	1–9	10–19	20–49	50–249	250–..
Total	48 651	41 721	2 657	2 361	1 667	245						
Non-exporters	45 027	40 090	2 137	1 648	1 014	138	93	96	80	70	61	56
Goods exporters	3 160	1 492	433	585	565	86	6	4	16	25	34	35
Domestically produced goods exporters	2 738	1301	360	498	504	76	6	3	14	21	30	31
Re-exporters	1 384	548	223	276	291	46	3	1	8	12	17	19
Service exporters	573	152	101	164	127	30	1	0	4	7	8	12

	% of all firms within exporting group					
	All	1–9	10–19	20–49	50–249	250–..
Total	100	86	5	5	3	1
Non-exporters	100	89	5	4	2	0
Goods exporters	100	47	14	18	18	3
Domestically produced goods exporters	100	47	13	18	18	3
Re-exporters	100	40	16	20	21	3
Service exporters	100	27	18	29	22	5

Notes: "Total" denotes all firms in the database. "Non-exporters" are firms that were not engaged in exporting in a particular year. "Goods exporters" are firms that exported goods, among them "domestically produced goods exporters" exclude firms whose only activity in foreign markets was goods re-exporting. "Re-exporters" are firms that were involved in re-exporting either as their only activity or in parallel with goods exporting. "Service exporters" are firms that exported services. Here we consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for the calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%. In the first panel, the average number of these firms over the period of 2006–2013 is provided. In the second panel, the share of these firms in the total number of all firms is displayed. Non-exporters, goods exporters and service exporters do not sum up to 100% within each size class, because some service exporters are also goods exporters. In the third panel, the share of the firms belonging to a certain size class in the total number of firms within each category is shown.

Table A6

Average number of firms and trade intensity by sector and firm category (2006–2013)

NACE		Number of firms (% of total)					Median exports to sales ratio				
		1	2	3	4	5	2	3	4	5	6
		100	100	100	100	100					
Agriculture, forestry and fishing	A	3.1	2.5	2.9	0.6	0.5	22	22	37	64	68
Mining and quarrying	B	0.2	0.9	1.0	0.3	0.0	65	65	71		
Manufacturing	C	8.1	31.4	35.6	22.5	2.6	46	48	63	20	79
Electricity, gas, steam and air conditioning supply	D	0.5	0.1	0.1	0.1	0.5	7	21	6	3	4
Water supply; sewerage, waste management and remediation activities	E	0.5	0.5	0.6	0.4	0.0	39	41	60		
Construction	F	9.0	3.1	3.3	1.3	0.4	10	10	12	54	46
Wholesale and retail trade; repair of motor vehicles and motorcycles	G	29.9	48.7	42.8	68.7	9.7	20	27	20	8	12
Transportation and storage	H	6.6	5.8	6.4	2.3	51.4	8	8	22	70	72
Accommodation and food service activities	I	4.0	0.3	0.3	0.1	0.3	13	14	40	10	22
Information and communication	J	4.3	1.2	1.2	0.7	10.8	8	9	14	58	59
Financial and insurance activities	K	1.3	0.5	0.5	0.3	0.6	15	17	18	48	54
Real estate activities	L	7.3	1.0	1.1	0.4	0.7	23	23	44	20	19
Professional, scientific and technical activities	M	13.0	1.8	1.9	0.7	18.9	14	15	22	68	68
Administrative and support service activities	N	4.3	1.5	1.6	1.0	2.5	14	17	24	84	89
Public administration and defence; compulsory social security	O	0.0	0.0	0.0	0.0	0.2				41	41
Education	P	1.2	0.1	0.1	0.1	0.2	11	13	27	7	7
Human health and social work activities	Q	1.9	0.1	0.1	0.1	0.3	16	16	27	54	58
Arts, entertainment and recreation	R	1.3	0.3	0.3	0.2	0.2	14	19	18	42	61
Other service activities	S	3.4	0.3	0.3	0.1	0.4	16	15	22	50	48

1 – non-exporters; 2 – goods exporters; 3 – domestically produced goods exporters; 4 – re-exporters; 5 – service exporters; 6 – pure service exporters.

Notes: "Non-exporters" are firms that were not engaged in exporting. "Goods exporters" are firms that exported goods, among them "domestically produced goods exporters" exclude firms whose only activity in foreign markets was goods re-exporting. "Re-exporters" are firms that were involved in re-exporting either as their only activity or in parallel with goods exporting. "Service exporters" are firms that exported services. Here we consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%. In the first panel, the share of the number of firms within exporter category is shown; in the second panel average trade intensity estimated as firm's median exports to sales ratio is displayed.

Table A7

Average export value by sector and firm categories (2006–2013)

NACE		Export value (% of total across NACE sectors)					Export value (% of total across export categories)				
		Total	**2**	**3**	**4**	**5**	**Total**	**2**	**3**	**4**	**5**
		100	100	100	100	100					
Agriculture, forestry and fishing	A	1.7	2.0	2.8	0.1	0.2	100	97.1	95.9	1.2	2.9
Mining and quarrying	B	0.9	1.1	1.5	0.1	0.0	100	100.0	97.9	2.1	0.0
Manufacturing	C	38.4	48.3	61.8	14.4	0.7	100	99.6	91.1	8.5	0.4
Electricity, gas, steam and air conditioning supply	D	1.0	0.7	0.0	2.5	2.0	100	58.8	2.2	56.6	41.2
Water supply; sewerage, waste management and remediation activities	E	0.6	0.8	1.0	0.1	0.0	100	100.0	95.7	4.3	0.0
Construction	F	0.6	0.7	0.8	0.3	0.1	100	96.4	82.8	13.7	3.6
Wholesale and retail trade; repair of motor vehicles and motorcycles	G	34.4	41.4	26.2	79.4	8.0	100	95.2	43.0	52.2	4.8
Transportation and storage	H	16.0	3.7	4.4	1.9	63.0	100	18.2	15.6	2.7	81.8
Accommodation and food service activities	I	0.1	0.1	0.1	0.1	0.1	100	86.2	48.3	37.9	13.8
Information and communication	J	1.8	0.1	0.1	0.1	8.4	100	5.6	4.2	1.5	94.4
Financial and insurance activities	K	0.8	0.3	0.4	0.1	2.8	100	28.4	25.1	3.3	71.6
Real estate activities	L	0.1	0.1	0.1	0.1	0.1	100	81.6	60.5	21.1	18.4
Professional, scientific and technical activities	M	2.9	0.2	0.2	0.1	13.1	100	5.3	4.3	1.0	94.7
Administrative and support service activities	N	0.5	0.4	0.3	0.4	1.0	100	58.7	38.5	20.2	41.3
Public administration and defence; compulsory social security	O	0.0	0.0	0.0	0.0	0.0	100	0.0	0.0	0.0	100.0
Education	P	0.0	0.0	0.0	0.0	0.0	100	96.2	92.8	3.4	3.8
Human health and social work activities	Q	0.0	0.0	0.0	0.0	0.1	100	4.7	1.2	3.5	95.3
Arts, entertainment and recreation	R	0.1	0.1	0.1	0.1	0.3	100	50.6	38.4	12.2	49.4
Other service activities	S	0.0	0.0	0.0	0.0	0.1	100	42.1	21.3	20.8	57.9

2 – goods exports; 3 – domestic goods exports; 4 – re-exports; 5 – service exports.

Notes: "Total" denotes exports of both goods and services. All other categories of exports shown here are pure exports provided by different categories of exporters. For instance, goods exports in total exports of goods only but provided by both goods exporters (including re-exporters) and service exporters. We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

Table A8

Average number of service exporters by sector of economy and size class (2006–2013; % of total)

NACE		All	1–9	10–19	20–49	50–249	250–..
Manufacturing	C	100	16	11	17	52	4
Wholesale and retail trade; repair of motor vehicles and motorcycles	G	100	21	14	27	34	4
Transportation and storage	H	100	25	18	33	20	5
Information and communication	J	100	30	13	20	25	12
Professional, scientific and technical activities	M	100	34	26	25	14	0
Administrative and support service activities	N	100	37	7	26	25	5

Notes**.** We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

Table A9

Number of service exporters, exports of services and trade intensity of service exporters by service type traded (2006–2013)

	2006	2007	2008	2009	2010	2011	2012	2013	Average
Number of firms (% of total)									
Transport	56.3	56.4	58.9	57.4	57.5	60.5	58.5	59.2	**58.1**
Auto	34.1	37.3	40.2	40.5	38.1	42.5	39.8	40.6	**39.1**
Pipe	0.6	0.3	0.4	0.3	0.4	0.2	0.2	0.5	**0.3**
Rail	3.5	2.3	2.4	2.1	1.1	1.6	1.7	1.6	**2.0**
Air	2.2	2.3	1.5	1.5	2.0	1.6	1.5	1.2	**1.7**
Sea	16.0	14.1	14.5	12.9	15.8	14.6	15.4	15.4	**14.8**
Communication services	3.7	3.2	3.7	2.9	4.2	4.6	4.8	4.8	**4.0**
Financial services	1.1	0.3	0.4	0.3	0.2	0.0	0.6	0.2	**0.4**
Computer and information services	5.3	5.6	6.1	8.0	7.4	9.4	9.8	9.9	**7.7**
Royalties and license fees	1.1	1.7	1.7	1.1	1.1	1	1.2	0.2	**1.1**
Other business services	31.2	31.8	28.4	29.3	28.7	24	24.3	24.9	**27.8**
Merchanting and other trade-related services	1.3	1.8	1.3	0.8	1.1	0.6	0.6	0.5	**1.0**
Operational leasing services	1.1	1.3	1.5	1.2	1.1	0.6	0.8	0.9	**1.1**
Legal, accounting, management consulting, and public relations; advertising, market research, and public opinion polling	20.7	19.2	19.4	18.7	18.4	16.4	16.6	16.4	**18.2**
Research and development; architectural, engineering, and other technical services	2.8	3.2	2.4	2.7	2.0	2.0	2.1	2.1	**2.4**
Agricultural, mining, and on-site processing services; waste treatment and depollution	5.3	6.3	3.9	5.9	6.1	4.4	4.1	5.1	**5.1**
Personal, cultural, and recreational services	1.3	1.0	0.9	0.9	0.9	0.6	0.8	0.7	**0.9**
Total exports of services (% total)									
Transport	82.2	80.9	82.4	80.0	77.1	77.3	77.0	73.2	**78.8**
Auto	19.3	20.3	20.7	16.6	18.9	23.7	24.2	24.5	**21.0**
Pipe	3.1	1.6	1.6	1.6	2.2	1.3	1.3	1.9	**1.8**
Rail	16.6	16.8	19.6	21.3	18.1	22.5	23.0	20.4	**19.8**
Air	6.5	9.9	9.8	6.7	9.0	7.4	3.7	4.6	**7.2**
Sea	36.8	32.4	30.7	33.9	29	22.4	24.8	21.9	**29.0**
Communication services	5.1	3.8	3.4	4.2	4.4	3.6	4.1	4.8	**4.2**
Financial services	0.4	0.1	0.1	0.0	0.0	0.0	0.1	0.0	**0.1**
Computer and information services	3.2	3.3	3.3	3.9	3.5	5.9	5.9	7.2	**4.5**
Royalties and license fees	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.0	**0.1**
Other business services	8.6	11.2	10.5	11.6	14.6	12.8	12.7	14.6	**12.1**
Merchanting and other trade-related services	0.2	0.6	0.5	0.1	0.5	0.1	0.1	0.1	**0.3**

Table A9 (cont.)

	2006	2007	2008	2009	2010	2011	2012	2013	Average
Operational leasing services	0.3	0.4	0.7	0.8	0.8	0.5	0.4	0.3	**0.5**
Legal, accounting, management consulting, and public relations; advertising, market research, and public opinion polling	6.7	7.8	7.4	7.3	9.4	7.5	7.9	7.6	**7.7**
Research and development; architectural, engineering, and other technical services	0.6	1.2	0.9	1.2	1.7	2.7	1.5	1.5	**1.4**
Agricultural, mining, and on-site processing services; waste treatment and depollution	0.9	1.2	1.0	2.2	2.3	2.0	2.7	5.0	**2.2**
Personal, cultural, and recreational services	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.1	**0.2**
Median exports to sales ratio (%)									
Transport	64.8	68.2	70.4	66.4	75.8	75.9	77.3	78.1	**72.1**
Auto	62.2	62.9	68.8	63.7	75.8	75.9	78.2	78.8	**70.8**
Pipe	57.4	51.0	50.8	50.1	49.8	4.3	3.8	50	**39.6**
Rail	61.7	69.8	74.1	66.1	64.6	64.1	71.8	75.2	**68.4**
Air	89.9	97.4	76.1	70.2	61.3	60.1	60.2	70.3	**73.2**
Sea	73.9	79.1	77.2	73.4	79.2	82.6	76.6	70.1	**76.5**
Communication services	17.9	11.6	6.0	9.1	11.0	14.8	31.0	20.4	**15.2**
Financial services	21.0	19.6	9.6	13.5	15.4		15.2	86.8	**25.9**
Computer and information services	79.9	62.3	63.2	54.2	73.6	86.6	89.0	90.1	**74.9**
Royalties and license fees	46.4	50.0	49.7	47.3	30.4	84.7	42.5	22.6	**46.7**
Other business services	39.0	45.4	52.2	45.1	57.0	67.1	68.4	65.6	**55.0**
Merchanting and other trade-related services	19.6	25.1	10.8	22.9	53.6	99.3	97.0	98.9	**53.4**
Operational leasing services	94.8	38.1	75.0	72.5	90.0	95.3	66.6	58.3	**73.8**
Legal, accounting, management consulting, and public relations; advertising, market research, and public opinion polling	38.6	40.3	41.1	34.2	46.4	56.8	62.6	49.8	**46.2**
Research and development; architectural, engineering, and other technical services	44.5	73.4	57.8	52.9	54.0	47.8	50.8	68.6	**56.2**
Agricultural, mining, and on-site processing services; waste treatment and depollution	27.3	54.7	73.5	60.7	68	98.5	136.5	132.0	**81.4**
Personal, cultural, and recreational services	42.6	34.7	36.4	22.7	22.3	72.5	65.5	53.0	**43.7**

Notes: Aggregated service types (see Table 2) are shown in italics. Other (more disaggregated) types of services are part of the closest aggregate to the left. For instance, transport services include auto, pipe, rail, air and sea transport services. In the first panel, the share of the number of firms by service type is shown, the second panel displays the share of total exports of services by service type, and the third panel presents export intensity calculated as median exports-to-turnover ratio across service types. We consider only those exporters who reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

Table A10

Average number of service exporting firms by sector and service type traded (2006–2013)

Type/NACE	Manu-facturing	Wholesale, retail trade	Transpor-tation, storage	Information, communi-cation	Professional, scientific, technical	Adminis-trative
	C	G	H	J	M	N
Auto	2	7	215			1
Rail	1	1	18		1	1
Air		2	11			1
Sea	2	9	73		7	2
Communication services	1		4	15	2	3
Computer and information services	1	3	1	35	6	1
Legal, accounting, management consulting, and public relations; advertising, market research, and public opinion polling	2	20	1	10	76	2
Research and development; architectural, engineering, and other technical services	2	4		1	9	
Agricultural, mining, and on-site processing services; waste treatment and depollution	7	10	2	4	16	3

Notes: In this table, only the most represented types and sectors are shown. We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

Table A11

Concentration of activity among firms exporting at least one, two, three, etc. types of services

Number of services traded	Number of firms	Total exports value	Employment	Median exports per firm	Median employment per firm
	% of total			Euro	Persons
Total	100.0	100.0	100.0		
1	89.0	91.5	83.1	884.8	23.4
2	7.5	5.0	14.1	755.0	27.8
3	2.3	1.9	1.7	1 251.0	33.0
4	0.9	1.4	1.0	2 157.6	31.3
5 and over	0.4	0.2	0.1	2 337.7	42.0

Notes: Table reports the share of firms, total export value and employment as well as median exports per firm and median employment per firm exporting at least one, two, etc. types of services. We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%.

Table A12

Comparison of firm characteristics of service exporters, domestically produced goods exporters and re-exporters

		Service exporters vs non-exporters			Service exporters vs domestic goods exporters			Service exporters vs re-exporters		
		diff	***t*-value**	***p*-value**	**diff**	***t*-value**	***p*-value**	**diff**	***t*-value**	***p*-value**
All firms (panel 1)										
Number of employees	2011	101.0	4.7	0.00	72.0	3.3	0.00	60.8	2.7	0.01
	2012	106.6	4.5	0.00	74.9	3.2	0.00	62.2	2.6	0.01
	2013	100.4	4.7	0.00	67.9	3.2	0.00	56.0	2.5	0.01
Average wage	2011	7.6	18.1	0.00	5.2	12.2	0.00	3.4	7.5	0.00
	2012	8.2	17.3	0.00	5.9	12.1	0.00	3.9	7.7	0.00
	2013	8.4	17.4	0.00	5.9	12.0	0.00	3.6	7.0	0.00
Labour productivity	2011	37.3	3.0	0.00	19.4	1.5	0.13	17.0	1.3	0.18
	2012	30.9	5.5	0.00	16.3	2.9	0.00	7.7	1.3	0.20
	2013	24.5	11.9	0.00	10.2	4.4	0.00	2.0	0.7	0.46
Age of firm	2011	5.1	22.3	0.00	2.9	11.4	0.00	2.2	8.1	0.00
	2012	5.9	24.3	0.00	3.4	12.8	0.00	2.4	8.2	0.00
	2013	7.1	28.3	0.00	4.3	15.4	0.00	3.2	10.7	0.00
Foreign capital	2011	16.1	10.4	0.00	9.3	5.7	0.00	4.0	2.2	0.03
	2012	19.3	11.3	0.00	11.3	6.4	0.00	5.7	3.0	0.00
	2013	13.7	2.5	0.01	12.1	5.6	0.00	5.4	2.3	0.02
Profit-to-turnover	2011	76.7	3.4	0.00	24.2	1.9	0.06	2.9	1.5	0.13
	2012	637.3	2.9	0.00	5.0	2.4	0.01	1.3	1.4	0.16
	2013	99.8	0.2	0.82	10.7	2.7	0.01	3.5	1.8	0.07
Sector H: Transportation and storage (panel 2)										
Number of employees	2011	93.0	3.1	0.00	60.1	1.9	0.05	30.2	0.8	0.44
	2012	106.0	3.2	0.00	71.0	2.1	0.04	22.9	0.5	0.63
	2013	84.8	3.8	0.00	50.7	2.1	0.04	6.9	0.2	0.86
Average wage	2011	3.0	9.0	0.00	1.0	1.8	0.08	–0.7	–0.5	0.59
	2012	3.2	8.1	0.00	2.4	4.6	0.00	1.0	1.1	0.29
	2013	3.3	8.5	0.00	2.1	4.0	0.00	0.5	0.5	0.63
Labour productivity	2011	16.3	6.2	0.00	6.8	1.4	0.15	1.4	0.2	0.87
	2012	17.5	6.0	0.00	10.8	2.9	0.00	8.7	1.9	0.05
	2013	12.3	4.3	0.00	2.7	0.6	0.57	–17.8	–1.0	0.33
Age of firm	2011	5.9	18.0	0.00	3.5	6.4	0.00	3.9	3.9	0.00
	2012	6.9	20.2	0.00	3.8	6.8	0.00	2.9	2.6	0.01
	2013	8.0	23.3	0.00	4.8	8.6	0.00	4.2	3.8	0.00
Foreign capital	2011	9.1	5.5	0.00	7.1	3.5	0.00	2.1	0.5	0.61
	2012	9.2	5.2	0.00	8.4	4.1	0.00	8.4	2.8	0.01
	2013	7.1	4.0	0.00	4.4	1.8	0.07	–0.9	–0.1	0.89
Profit-to-turnover	2011	44.8	5.9	0.00	10.2	2.5	0.01	4.0	2.3	0.02
	2012	102.7	2.4	0.02	8.9	2.8	0.01	0.7	0.5	0.64
	2013	112.0	1.4	0.17	7.4	1.9	0.06	–0.4	–0.2	0.86

Table A12 (cont.)

		Service exporters vs non-exporters			Service exporters vs domestic goods exporters			Service exporters vs re-exporters		
		diff	***t*-value**	***p*-value**	**diff**	***t*-value**	***p*-value**	**diff**	***t*-value**	***p*-value**
Sector J: Information and communication (panel 3)										
Number of employees	2011	94.4	3.4	0.00	84.7	3.0	0.00	84.3	3.0	0.00
	2012	93.8	3.5	0.00	73.2	2.5	0.01	82.4	3.0	0.00
	2013	110.0	3.5	0.00	90.3	2.6	0.01	84.5	2.6	0.01
Average wage	2011	12.3	9.1	0.00	10.2	6.2	0.00	5.5	1.9	0.07
	2012	12.7	10.6	0.00	11.9	8.0	0.00	5.3	1.6	0.11
	2013	14.6	10.1	0.00	13.4	7.9	0.00	4.8	1.0	0.34
Labour productivity	2011	32.7	6.1	0.00	18.0	1.7	0.10	1.4	0.1	0.93
	2012	34.6	5.4	0.00	26.9	3.7	0.00	6.4	0.5	0.65
	2013	42.5	5.1	0.00	32.2	3.3	0.00	4.3	0.2	0.87
Age of firm	2011	4.8	7.1	0.00	1.2	1.2	0.25	1.7	1.2	0.24
	2012	4.8	6.9	0.00	1.8	1.7	0.09	0.4	0.2	0.81
	2013	6.1	8.5	0.00	1.8	1.6	0.12	–2.4	–1.8	0.08
Foreign capital	2011	27.6	5.0	0.00	16.6	2.2	0.03	0.2	0.0	0.99
	2012	25.0	5.1	0.00	15.9	2.5	0.02	7.2	0.6	0.56
	2013	36.3	4.8	0.00	33.1	4.1	0.00	23.2	1.4	0.15
Profit-to-turnover	2011	51.4	4.2	0.00	24.6	1.5	0.13	–0.1	0.0	0.99
	2012	95.5	3.0	0.00	19.1	1.3	0.21	–3.5	–0.5	0.59
	2013	348.6	2.1	0.03	1.0	0.1	0.90	–10.6	–1.5	0.13
Sector M: Professional, scientific and technical activities (panel 4)										
Number of employees	2011	26.3	7.4	0.00	18.4	3.8	0.00	20.2	4.2	0.00
	2012	28.0	7.0	0.00	22.6	4.6	0.00	20.1	3.6	0.00
	2013	32.4	6.8	0.00	26.1	4.7	0.00	26.3	4.5	0.00
Average wage	2011	11.9	11.0	0.00	10.9	8.8	0.00	8.8	3.2	0.00
	2012	11.9	10.8	0.00	11.7	9.2	0.00	7.9	2.6	0.01
	2013	12.1	9.6	0.00	11.7	8.5	0.00	10.5	6.2	0.00
Labour productivity	2011	27.3	7.3	0.00	16.0	2.9	0.00	–10.4	–0.6	0.57
	2012	23.3	7.9	0.00	8.6	1.6	0.12	11.9	1.9	0.05
	2013	30.2	7.6	0.00	17.2	3.1	0.00	7.9	0.6	0.57
Age of firm	2011	6.1	11.3	0.00	2.5	2.8	0.01	3.4	1.8	0.08
	2012	7.2	12.5	0.00	4.9	5.3	0.00	4.4	1.7	0.10
	2013	7.9	12.2	0.00	6.7	7.2	0.00	7.1	4.8	0.00
Foreign capital	2011	12.7	3.7	0.00	11.7	3.2	0.00	4.8	0.5	0.60
	2012	21.0	4.9	0.00	18.3	3.9	0.00	10.3	0.9	0.39
	2013	25.5	4.3	0.00	23.8	3.8	0.00	19.7	2.4	0.02
Profit-to-turnover	2011	167.2	1.7	0.10	159.1	1.0	0.30	–3.0	–1.1	0.27
	2012	93.8	3.5	0.00	4.3	0.8	0.43	3.2	0.9	0.36
	2013	35.9	2.8	0.01	3.3	1.3	0.18	12.6	1.5	0.15

Table A12 (cont.)

		Service exporters vs non-exporters			Service exporters vs domestic goods exporters			Service exporters vs re-exporters		
		diff	***t*-value**	***p*-value**	**diff**	***t*-value**	***p*-value**	**diff**	***t*-value**	***p*-value**
Size: 1–19 (panel 5)										
Average wage	2011	6.89	10.71	0.00	5.28	8.120	0.00	3.46	5.15	0.00
	2012	8.30	10.61	0.00	6.79	8.585	0.00	4.93	6.05	0.00
	2013	9.07	10.30	0.00	7.37	8.288	0.00	5.09	5.57	0.00
Labour productivity	2011	57.47	1.94	0.05	36.92	1.233	0.22	34.56	1.16	0.25
	2012	41.0	3.0	0.00	25.4	1.8	0.07	13.9	1.0	0.33
	2013	30.2	6.9	0.00	14.6	3.1	0.00	3.9	0.7	0.46
Age of firm	2011	3.8	10.9	0.00	3.2	8.7	0.00	2.7	6.9	0.00
	2012	4.6	11.8	0.00	3.7	9.2	0.00	2.9	6.7	0.00
	2013	6.2	15.5	0.00	5.2	12.4	0.00	4.4	9.9	0.00
Foreign capital	2011	6.8	4.1	0.00	4.0	2.3	0.02	1.3	0.7	0.48
	2012	9.6	4.6	0.00	6.4	3.0	0.00	3.2	1.4	0.15
	2013	3.4	0.6	0.57	6.9	2.5	0.01	2.2	0.7	0.46
Profit to turnover	2011	78.1	3.2	0.00	32.4	1.7	0.09	2.5	0.6	0.54
	2012	665.0	2.9	0.00	4.4	1.3	0.20	0.1	0.0	0.97
	2013	103.9	0.2	0.82	15.8	2.5	0.01	6.2	1.8	0.07
Size: 20–249 (panel 6)										
Average wage	2011	5.06	8.27	0.00	3.67	5.852	0.00	2.18	3.28	0.00
	2012	5.20	7.69	0.00	3.82	5.523	0.00	2.04	2.80	0.01
	2013	4.64	7.62	0.00	3.18	5.101	0.00	1.51	2.29	0.02
Labour productivity	2011	17.00	9.66	0.00	8.39	4.396	0.00	4.24	1.88	0.06
	2012	17.5	7.0	0.00	10.9	4.4	0.00	6.2	2.3	0.02
	2013	13.5	7.2	0.00	6.8	3.6	0.00	2.3	1.1	0.28
Age of firm	2011	0.9	2.8	0.01	0.4	1.3	0.20	0.1	0.3	0.77
	2012	1.1	3.2	0.00	0.6	1.7	0.09	0.1	0.2	0.83
	2013	1.7	4.8	0.00	0.8	2.0	0.05	0.3	0.7	0.47
Foreign capital	2011	17.6	7.1	0.00	7.8	2.9	0.00	0.1	0.0	0.96
	2012	19.0	7.4	0.00	8.0	2.9	0.00	0.6	0.2	0.86
	2013	19.6	6.4	0.00	7.3	2.2	0.03	0.8	0.2	0.83
Profit to turnover	2011	18.4	1.6	0.10	4.7	4.3	0.00	2.2	3.0	0.00
	2012	12.2	1.6	0.12	3.3	4.0	0.00	1.5	2.0	0.04
	2013	6.5	2.1	0.04	1.9	0.8	0.41	–0.7	–0.4	0.71
Size: 250–.. (panel 7)										
Average wage	2011	6.20	5.67	0.00	5.11	4.457	0.00	4.51	3.72	0.00
	2012	7.41	6.13	0.00	5.71	4.453	0.00	5.81	4.31	0.00
	2013	7.03	5.25	0.00	6.42	4.742	0.00	6.26	4.49	0.00
Labour productivity	2011	29.10	2.85	0.01	22.11	2.079	0.04	23.16	2.06	0.04
	2012	29.0	4.0	0.00	20.6	2.7	0.01	23.8	3.1	0.00
	2013	26.8	3.5	0.00	21.9	2.8	0.01	24.2	3.1	0.00
Age of firm	2011	1.2	1.1	0.28	–1.2	–1.1	0.28	–0.9	–0.7	0.46
	2012	2.5	2.4	0.02	–0.5	–0.5	0.65	–0.5	–0.5	0.62
	2013	1.6	1.4	0.18	–0.6	–0.6	0.58	–1.1	–0.9	0.38

Table A12 (cont.)

		Service exporters vs non-exporters			Service exporters vs domestic goods exporters			Service exporters vs re-exporters		
		diff	***t*-value**	***p*-value**	**diff**	***t*-value**	***p*-value**	**diff**	***t*-value**	***p*-value**
Foreign capital	2011	28.9	3.3	0.00	1.5	0.2	0.88	–11.3	–1.0	0.32
	2012	35.6	4.2	0.00	5.9	0.6	0.54	–6.7	–0.6	0.54
	2013	42.0	4.0	0.00	14.7	1.3	0.20	1.8	0.1	0.88
Profit to turnover	2011	9.0	2.1	0.04	4.5	1.2	0.24	2.6	0.6	0.56
	2012	3.1	1.2	0.21	1.3	0.5	0.62	2.1	0.8	0.43
	2013	–0.3	–0.1	0.92	1.6	0.6	0.58	0.9	0.4	0.72

Notes: Table reports results of two-sided t-test on mean difference. The differences between mean values of different firm characteristics are displayed alongside *t*-value and *p*-value. Panel 1 reports results across exporters in all sectors of economy and all types of service exports. Panels 2, 3 and 4 compare service exporters to non-exporters, domestically produced goods exporters and re-exporters within three different sectors of economy: sector H "Transportation and storage", sector J "Information and communication" and sector M "Professional, scientific and technical activities". All panels report results for the last three years only to reflect the latest developments in firm characteristics. Panels 5, 6 and 7 compare service exporters to non-exporters, domestically produced goods exporters and re-exporters within three different size categories: a category of firms employing less than 20 employees, between 20 and 249 employees and at least 250 employees.

Table A13

Comparison of firm characteristics of service exporters in three different sectors of the economy

		Professional activities vs transport			Professional activities vs information and communication			Information and communication vs transport		
		diff	***t*-value**	***p*-value**	**diff**	***t*-value**	***p*-value**	**diff**	***t*-value**	***p*-value**
Labour productivity	2011	7.74	1.74	0.08	–7.53	–1.16	0.25	15.27	2.62	0.01
	2012	3.38	0.87	0.39	–13.04	–1.89	0.06	16.42	2.43	0.02
	2013	11.23	2.44	0.02	–15.76	–1.73	0.09	27.00	3.17	0.00

Notes: Table reports results of two-sided t-test on mean difference. The differences between mean values of different firm characteristics are displayed alongside *t*-value and *p*-value.

Table A14

Fraction of exiters and survivors and new entrants in three different sub-periods

	2006–2008	2009–2010	2011–2013
Service exporters (number)	867	806	611
Survive next period (%)	64	63	
Exit in next period (%)	36	37	
Survive from previous period (%)		69	83
New entrants (%)		31	17
Goods exporters (number)	3 580	4 096	5 310
Survive next period (%)	54	59	
Exit in next period (%)	46	41	
Survive from previous period (%)		47	46
New entrants (%)		53	54
Re-exporters (number)	1 921	1 958	2 581
Survive next period (%)	58	68	
Exit in next period (%)	42	32	
Survive from previous period (%)		57	52
New entrants (%)		43	48

Notes: For every sub-period, this table reports the total number of exporters, the share of firms that were exporting in the previous period (survived from the previous period) or will be exporting in the next period (survive in next period), the share of firms that cease exporting in the following period (exit in the next period) and the share of new exporters (new entrants). There are three panels for service exporting firms, goods exporters and re-exporters respectively.

Table A15

Comparison of size, average wage, labour productivity and age of firm of survivors and exiters (new entrants in the second panel) across different exporter categories

		Service exporters (survivors vs exiters)			Goods exporters (survivors vs exiters)			Re-exporters (survivors vs exiters)		
		diff	*t*-value	*p*-value	diff	*t*-value	*p*-value	diff	*t*-value	*p*-value
Number of employees	2006–2008	78	3.3	0.00	39	6.5	0.00	37	4.0	0.00
	2009–2010	79	3.8	0.00	29	9.9	0.00	29	4.2	0.00
Average wage	2006–2008	1	1.8	0.07	2	12.8	0.00	2	9.0	0.00
	2009–2010	3	3.5	0.00	2	10.0	0.00	1	5.0	0.00
Labour productivity	2006–2008	6	1.1	0.29	4	2.0	0.05	11	4.0	0.00
	2009–2010	13	1.6	0.11	11	4.9	0.00	10	4.4	0.00
Age of firm	2006–2008	2	5.4	0.00	2	8.9	0.00	1	4.8	0.00
	2009–2010	1	3.1	0.00	1	7.4	0.00	1	3.6	0.00
Foreign capital	2006–2008	9	4.5	0.00	4	1.3	0.21	–12	–0.8	0.44
	2009–2010	9	4.1	0.00	10	2.2	0.03	15	1.9	0.06
Profit to turnover	2006–2008	2	0.7	0.47	13	2.9	0.00	9	2.7	0.01
	2009–2010	18	2.7	0.01	132	1.6	0.11	14	5.2	0.00
		Service exporters (survivors vs entrants)			**Goods exporters (survivors vs entrants)**			**Re-exporters (survivors vs entrants)**		
Number of employees	2009–2010	57	2.6	0.01	32	8.9	0.00	39	5.0	0.00
	2011–2013	–7	–0.1	0.92	36	11.9	0.00	35	4.7	0.00
Average wage	2009–2010	2	2.5	0.01	2	12.9	0.00	2	9.1	0.00
	2011–2013	2	2.2	0.03	2	16.1	0.00	3	11.7	0.00
Labour productivity	2009–2010	9	1.1	0.27	1	0.3	0.80	–1	–0.3	0.78
	2011–2013	–10	–0.4	0.71	5	1.8	0.08	6	2.7	0.01
Age of firm	2009–2010	3	8.7	0.00	4	21.4	0.00	4	16.0	0.00
	2011–2013	5	8.2	0.00	5	31.1	0.00	5	22.2	0.00
Foreign capital	2009–2010	5	2.3	0.02	12	2.1	0.04	22	2.2	0.02
	2011–2013	4	1.2	0.25	7	11.5	0.00	11	9.7	0.00
Profit to turnover	2009–2010	12	1.9	0.06	–30	–0.4	0.67	0	0.1	0.96
	2011–2013	3	1.1	0.27	–1	–0.1	0.93	2	1.0	0.33

Notes: "Goods exporters" are goods exporting firms. "Re-exporters" are either firms whose only activity in foreign markets is goods re-exporting or firms that are involved in re-exporting either as their only activity or in parallel with goods exporting. "Service exporters" are service exporting firms. We consider only those exporters that reported their asset value, turnover, equity, number of employees, compensation of employees and information necessary for calculation of value added. We filter out those companies whose exports-to-turnover ratio in a particular year was smaller than 0.5%. Table reports results of two-sided t-test on mean difference. The differences between mean values of different firm characteristics are displayed alongside the *t*-values and *p*-values. Panel 1 compares firms that will be exporting in the next period (survive next period) versus firms that will stop exporting in the following period (exit in the next period). Panel 2 compares firms that were exporting in the previous period (survived from the previous period) to new exporters (new entrants).

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