

April 2017

SERVICES EXPORTS AND EXPORTERS OF SERVICES

MARTINA LAWLESS AND ZUZANNA STUDNICKA



An Roinn Post, Fiontar agus Nuálaíochta
Department of Jobs, Enterprise and Innovation

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Martina Lawless
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Available to download from www.esri.ie

Jointly published by
ESRI
Department of Jobs, Enterprise and Innovation
Enterprise Ireland

© The Economic and Social Research Institute
Whitaker Square, Sir John Rogerson's Quay, Dublin 2

ISBN 978-0-7070-0430-3

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ACKNOWLEDGEMENTS

This report forms part of a research programme being undertaken by the ESRI on 'Enterprise Exporting, Innovation and Productivity' jointly funded by Enterprise Ireland and the Department of Jobs, Enterprise and Innovation. This research uses statistical data from the Central Statistics Office (CSO) of Ireland. The permission for controlled access to confidential micro datasets has been granted in line with the Statistics Act, 1993. The use of these statistical data does not imply the endorsement of the CSO in relation to the analysis or interpretation of the statistical data. We would like to thank Damian Malone, Cormac Halpin and Ben Berstock in the CSO for support with the data. We thank Derek Lambert for his helpful research assistance and Gavin Murphy for his generous provision of data code. We also thank Marie Bourke, Garrett Murray, Celine McHugh, Maria Ginnity, Niall O'Donnellan and Declan Hughes for many useful comments.

This report has been peer-reviewed prior to publication. The authors are solely responsible for the content and the views expressed.

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EXECUTIVE SUMMARY

- Participation of services firms in exporting is extremely rare. We find that just 2.3 per cent of firms in the services sector are engaged in exporting and that participation is even lower at 1.5 per cent when we look at Irish-owned firms.
- Export intensity among exporting firms in services is lower than would typically be found for manufacturing firms, particularly for Irish-owned firms. The share of exports in total turnover is 6 per cent for Irish-owned exporters and 50 per cent for foreign-owned firms.
- Despite their low share in terms of numbers of firms, exporters account for a significant share of employment with around 17 per cent of total services employment accounted for by exporting firms over the five years we examine in detail.
- Services sector firms are not necessarily exporting services. One of the interesting findings in this report is the extent to which exporting firms in the services sector are actually exporting goods rather than services or a combination of both. In 2012, for instance, 41 per cent of services firms exported exclusively services, 14 per cent exported both goods and services, and 45 per cent exported goods and no services.
- The classification of wholesale and retail trade as part of the services sector is one reason for the high share of goods exports amongst the services firms we examine. Excluding these sub-sectors from the analysis does not remove all goods exports however. The share of services exports in the total for exporting firms is closer to 70 per cent when the wholesale and retail trade firms are excluded but this still leaves 20 per cent of firms exporting only goods and another 10 per cent selling both.
- The share of goods being exported by services sector firms is much higher for Irish-owned than for foreign firms, with one-third of the Irish exporters exclusively exporting services and well over half exporting no services.
- From a policy perspective, this suggests that there is considerable overlap in the supports relevant to firms to encourage exporting, regardless of whether they are classified as being in manufacturing or services.
- The lower participation rate in exporting suggests higher obstacles to becoming an exporter exists in the services area. Some, but not all, of this can be explained by the non-tradable nature of some sub-sectors within services but the large differences in export activity and intensity between Irish and foreign firms suggests that greater international engagement by indigenous firms might be possible.

- Looking at the distribution of exports across firms, we find that export sales are concentrated in a relatively small number of firms. This pattern of ‘export superstars’ accounting for a large proportion of total exports has been identified in goods exporters in a wide range of countries, including related work for Irish firms (see Wagner, 2016 for a cross-country literature review and Lawless et al., 2017 for Ireland).
- This superstar pattern is reinforced by the finding that growth in total exports for services firms appears to be driven more by increases in average exports than by increases in the number of exporters.
- Irish firms are more dispersed across sectors than are foreign-owned firms, which are very concentrated in a small number of sectors. That said, exports for Irish firms are still relatively tightly clustered in terms of sector with the top three sectors combined accounting for 62 per cent of Irish-owned exports. This is consistent with the low tradability of several services sub-sectors.
- Regardless of ownership, the top export sectors are those predominately related to information technology and publishing.
- Irish-owned services exporters sold around one-quarter of their turnover online on average, a similar share to that of foreign-owned exporters. Non-exporting firms made around six per cent of their sales online. This suggests that technology plays an important role in the facilitation of export participation.
- Across a wide range of different indicators (employment, productivity, wages, sales, online sales and investment), we find significant evidence of better performance by exporters than non-exporters. Irish-owned exporters have on average 26.5 per cent higher employment compared to Irish non-exporters and are around 8 per cent more productive.

CHAPTER 1

Introduction

With average annual growth rates of around 10 per cent over recent years, international trade in services has been the fastest growing component of international trade. In 2014, trade in services totalled \$4,800 billion, representing 21 per cent of world trade in goods and services (World Trade Organization, 2015). Despite this steady expansion over recent decades, substantially less is known about services trade flows and the activities of firms exporting services relative to the wealth of information available on goods exports. Much of this disparity comes from the considerably greater degree of difficulty in measuring services trade flows due to their intangible nature. For Ireland, this knowledge gap is especially important as services form a large and growing share of trade; services formed approximately 40 per cent of total Irish exports in 2015 (CSO Statbank).

The aim of this report is to document, in as much detail as possible, the composition of Irish services exports and the characteristics of firms involved in this exporting activity. We use firm-level data collected through the Annual Services Inquiry to examine the participation of non-financial services firms in exporting. In common with findings on the patterns of overall Irish exports, we find that exports of services are dominated by foreign-owned firms. From a policy perspective, however, it is the performance of domestic firms and the facilitation of their export participation that is of most immediate concern. We therefore focus particularly on Irish-owned firms, examining the characteristics of exporters compared to non-exporters and also contrasting the extent of international engagement of Irish compared to foreign-owned firms across sectors.

The report is structured as follows: Chapter 2 begins by giving an overview of existing international evidence on services exporters. Chapter 3 then describes the Annual Services Inquiry (ASI) data used in this report. Chapter 4 examines the export participation rates of services firms and the extent to which they export services, goods or both. Chapter 5 presents summary statistics on export intensity and concentration patterns by different firm characteristics. Chapter 6 explores patterns across sectors. Chapter 7 investigates how online sales are related to export activity in the services sector. Chapter 8 looks at links between exporting and investment. Chapter 9 presents an econometric analysis of the differences between exporters and non-exporters across a range of dimensions and Chapter 10 brings together the policy implications of the analysis.

CHAPTER 2

Existing evidence on services exports

Firm-level research on international trade in goods has produced a number of stylized facts on exporting and importing firms.¹ First of all, this research finds that firms engaged in international trade are larger, more capital-intensive, more skills-intensive, more productive and pay higher wages than firms that do not either export or import. Secondly, there are considerable differences across exporting firms. In general, exporting activity is highly concentrated. That means that the largest proportion of firms export a small number of goods to a small number of destinations, whereas export values are dominated by a relatively small number of multi-product, multi-destination firms. Moreover, exporting relationships are very dynamic with frequent product and export destination switching by firms.

Despite this growing empirical evidence on the importance of firm heterogeneity in international trade, firm-level literature on trade in services is very scarce relative to the literature on trade in manufactured products. Most of the papers that do examine this topic are limited by data availability to estimation of the differences between traders and non-traders of services and hence focus on trade premia and self-selection into trade participation. Papers in this literature include: Damijan et al. (2015) for Finland, France, Ireland and Slovenia; Grublješič and Damijan (2011) for Slovenian firms; Kox and Rojas-Romagosa (2010) for Dutch firms, and Temouri et al. (2013) for France, Germany and the UK. In general, this literature points to significant trade premia for firms engaged in international trade compared to non-traders. Firms trading internationally are larger, more productive and pay higher wages than non-exporters.

In addition, the bulk of these papers further show the differences between services and manufacturing firms. Their main conclusions are:

Fewer firms in services sector engage in international trade than in manufacturing sector, and their trade intensities are generally lower.²

For Ireland, Damijan et al. (2015) found trade participation rates ranging between 3.5 per cent for exports only, to 16.5 per cent for imports only while two-way traders (exporters and importers) represent around 13.4 per cent of firms. Trade participation rates found in other papers range from 0.14 per cent for exports of

¹ See Lawless et al. (2017) for a detailed review of this literature.

² See e.g., Breinlich and Criscuolo (2011); Damijan et al. (2015); Grublješič and Damijan (2011); Haller et al. (2014); Kox and Rojas-Romagosa (2010) and Muûls and Pisu (2009).

services in Germany (Kelle and Kleinert, 2010), 8.1 per cent for the UK (Breinlich and Criscuolo, 2011), 16 per cent for German exports of business activities (Temouri et al., 2010), and up to 18 per cent for Slovenian services exporters (Grublješič and Damijan, 2011).

As far as trade intensity (defined as the share of exports in total sales) is concerned, Grublješič and Damijan (2011) found that average export intensity in Slovenia is between 26 per cent for new, and 36 per cent for established exporters. Kelle and Kleinert (2010) found that average export intensity in Germany is 4.9 per cent. Of most relevance to this study, Haller et al. (2014) found average export intensities of 3.6 per cent for France, 5.6 per cent for Slovenia, 7.3 per cent for Finland and 21.9 per cent for Ireland (using data from 2001 to 2007).

Most services firms are engaged in trade of goods while trade in services is extremely rare.

In particular, Damijan et al. (2015) found that among exporters of services, the share of pure services exporters ranges between 2 per cent for Finland and 14 per cent for Slovenia (9.6 per cent for Ireland). Haller et al. (2014) found that among exporters the shares of firms exporting purely services ranged from 7.6 per cent in Finland to 29.2 per cent in France (however the data from France exclude the wholesale and retail sectors). The shares of services exports in overall exports by services firms ranged from 18 per cent in Finland, 42 per cent in Ireland to more than 50 per cent in France.

Given limited data availability, most papers on trade in services do not provide a more detailed analysis. This is because most of the time product and destination dimensions are not available in services trade data. Notable exceptions are papers by Breinlich and Criscuolo (2011) for the UK, Haller et al. (2014) for Finland, France, Slovenia and Ireland, and Kelle and Kleinert (2010) for Germany. In general, all of these papers uncover similar trade patterns for trade in services as are generally found for trade in goods.

Service exports and imports are highly concentrated among the few firms that trade with many countries and in many service types.

For Ireland, Haller et al. (2014) found that in 2004, 30.6 per cent of services exporters exported one product to one market accounting for 4.5 per cent of the value of exports, while firms that exported two services to more than four countries contributed to 72.2 per cent of exports and accounted for 19.4 per cent of firms. More generally, Haller et al. (2014) found that, depending on the country, 23-38 per cent of firms exporting services to five or more countries

accounted for 67-90 per cent of the overall value of services exports. In terms of the number of services traded, 61-73 per cent of firms exported only one service, accounting for 17-56 per cent of the overall services exports.

Services trade is concentrated within firms.

In particular, Breinlich and Criscuolo (2011) found that the top destination or source country and the top service type account for at least 70 per cent of the average firm's overall trade in the UK. Similarly, Kelle and Kleinert (2010) found that three most important destinations account for 68 per cent of firms' exports.

Differences in exports across firms are explained mainly by variations in the intensive margin.

Breinlich and Criscuolo (2011) and Kelle and Kleinert (2010) find that the intensive margin (i.e. trade per country and services type) accounts for around 70 per cent of the differences in exports and imports across firms. This finding is different than what is generally found for exports of goods (see e.g., Bernard et al., 2011). However, this difference can be attributed to a higher level of disaggregation of product classification used for trade of goods.³

Despite the importance of the intensive margin at the level of individual firms, the variation in aggregate UK service exports and imports across countries is driven mainly by the extensive margins, i.e., number of traders and service types traded per country. More productive and larger firms trade with more countries and in more types of services, and export and import more per country and service type. The intensive margin (trade per country and service type) explains most of the correlation between firm productivity and size, on the one hand, and firm-level trade flows on the other hand (Breinlich and Criscuolo, 2011).

³ There are only 11 service products in Kelle and Kleinert (2010) and 38 in Breinlich and Criscuolo (2011).

CHAPTER 3

Services exports and the annual services inquiry

The General Agreement on Trade in Services (GATS) describes four modes through which services may be traded:

- Mode 1: Cross-border supply – the supplier in one country delivers a service to a customer in another country remotely (e.g. via e-mail, telephone) without either supplier or customer moving location.
- Mode 2: Consumption abroad – the customer travels to the country in which the supplier is located in order to avail of the service (e.g. tourism exports).
- Mode 3: Commercial presence – firms supply services in another country through the presence of an affiliate in that country.
- Mode 4: Presence of natural persons – the supplier travels to the country in which the customer is located in order to supply the service (e.g. business consultancy).

The definition we use is that of the International Monetary Fund's Balance of Payments Manual (6th ed.) as used by the Central Statistics Office.⁴ This is a somewhat narrower definition which considers trade in services to be service transactions between the residents and non-residents of an economy. This covers Modes 1, 2 and 4 of the GATS definition but does not consider commercial presence (Mode 3) as being an export, as in that case the supplier and consumer are in the same country.

In terms of data being collected via a survey of firms, we are confident that services exports supplied via Modes 1 and 4 are likely to be clearly recorded and therefore well reported by firms. We would however exercise considerable caution on how well firms could be expected to record Mode 2 exports given that these services would be provided by the firm in Ireland and are distinguished by the customer's residence which may only be known in limited circumstances. Instead the CSO uses separate surveys of consumers carried out at airports and ferry ports to collect tourism expenditure (export) amounts. This is not captured in the data used for this analysis, however.

It is also important to note that the Annual Services Inquiry (ASI) does not cover firms in the financial sector (NACE 64-66). For these reasons, the total services

⁴ www.cso.ie/en/media/csoie/surveysandmethodologies/surveyforms/documents/balancepayments/pdfdocs/intertradeinservicesbackgroundnotes.pdf.

export values we present are somewhat lower than those in the aggregate national statistics.

The ASI provides estimates of the principal trading aggregates for all enterprises in the services sector. The sample of companies is selected based on number of persons engaged in the enterprise (i.e. number of owners plus number of full time and part time staff). For companies with more than 20 employees ASI uses a census. In addition, a stratified random sample is selected each year for enterprises with less than 20 employees.

The data coverage is currently limited to 2008 to 2012. Our reason for starting the analysis in 2008 is that there was a substantial revision of sector codes in that year with a number of very large exporting sectors (in particular publishing and some information technology activities) being affected. As a result, comparing services exports before and after 2008 is difficult and potentially quite misleading as the structure of the overall sector has changed substantially. As such, this work updates much of the analysis of Haller et al. (2014) but the time period covered here does not overlap with that earlier work.

As part of a large data coherence project the CSO has recently made a number of changes to firm-level surveys. Resulting from this, aggregate results from a new version of the ASI were released in November 2016 containing broader coverage which has been revised due to a number of factors:⁵

- (i) There are now more active enterprises on the CSO Business Register;
- (ii) Updates in the National Accounts series;
- (iii) Non-response treatment and the greater use of administrative data;
- (iv) Other adjustments.

Table 1 presents the details on the new and the original release of the ASI dataset. As a result of incorporating the revisions, more enterprises are included in the ASI. The original series measured around 123,000 enterprises. The revised series measures approximately 183,000 enterprises (i.e. a 46 per cent increase in the number of enterprises on average per year). This increase is mainly due to the removal of the size class threshold (for example previous releases did not take into account enterprises with zero persons engaged). Including these new enterprises had, however, a more limited impact on estimated employment levels. The new estimates are only around 5 per cent higher than the original series, despite the very large increase in the number of enterprises. This increase in the number of small enterprises also slightly affected the split between

⁵ See www.cso.ie/en/releasesandpublications/er/asi/annualservicesinquiry2014/ for more details.

employment in Irish-owned and foreign-owned companies, which was 80/20 in favour of Irish-owned enterprises in the previous release but the revised series adjusted this breakdown to about 78/22.

TABLE 1 NEW AND ORIGINAL RELEASE OF THE ASI DATA

	2008	2009	2010	2011	2012	2013	2014
<i>New Release</i>							
No of firms	175,188	179,965	182,787	183,863	188,364	188,475	185,531
Employment	1,041,980	960,348	926,542	925,658	939,243	961,338	989,230
<i>Original Release</i>							
No of firms	122,043	124,637	124,758	123,017	122,126		
No of firms in survey sample	15,283	11,809	8,677	8,222	8,223		
Employment	1,006,710	923,655	854,108	862,102	903,657		

Source: CSO website.

It is important to note that this report is based on the original release as the microdata from the revised series was not yet available at the time of the research. The remaining firm-level analysis in this report is therefore based on the original data series.

Table 2 describes the employment levels in the services sector by year and the share of exporters in terms of employment. The employment by exporting firms decreased in 2009 and 2010. However, given that during these two years total employment in services decreased even more, the share of exporters in employment increased by one percentage point each year (from 15 per cent in 2008 to 20 per cent in 2012).

TABLE 2 TOTAL EMPLOYMENT

Year	Total Services Employment	Employment in Exporting Firms	Share of Exporters in Employment %
2008	1,006,710	155,660	15
2009	923,655	147,404	16
2010	854,108	147,025	17
2011	862,102	158,924	18
2012	903,657	180,731	20

Source: Authors' analysis of CSO ASI data (grossed).

Using the aggregate statistics on services trade flows, Table 3 describes services exports (excluding financial services) and imports by year and partner country. It shows that Europe is the most important trading partner for Ireland (around 60

per cent of exports and 45 per cent of imports of services). The share of Europe is, however, decreasing. The share of Europe in Irish services trade fell from 64 per cent of exports and 52.5 per cent of imports in 2012 to 60 per cent of exports and 40 per cent of imports in 2015. At the same time, there was an increase in the importance of Central America especially for imports. The imports from this region went from 5.1 per cent in 2012 to 19.2 per cent in 2015.

TABLE 3 TRADE IN SERVICES BY REGION/COUNTRY

Region/Country	2012		2013		2014		2015	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
Total (M€)	85,788	92,538	92,452	93,089	105,327	111,453	121,605	150,963
Europe	64.1%	52.5%	62.5%	50.6%	61.7%	45.5%	59.6%	39.9%
Belgium	1.8%	1.8%	1.8%	1.6%	1.9%	1.4%	1.9%	1.2%
France	5.8%	3.2%	5.3%	2.3%	5.0%	2.2%	4.9%	1.8%
Germany	10.6%	3.7%	9.0%	2.4%	8.4%	2.5%	7.9%	2.0%
Italy	5.9%	2.7%	5.9%	2.4%	5.4%	2.3%	5.1%	2.1%
Luxembourg	0.2%	*	0.2%	8.2%	1.7%	5.7%	1.2%	4.2%
Netherlands	4.2%	15.7%	3.8%	15.8%	3.7%	14.1%	3.3%	12.8%
Spain	3.0%	1.8%	2.3%	1.8%	2.2%	1.4%	2.5%	1.2%
Sweden	2.0%	0.4%	2.1%	0.4%	2.0%	0.4%	1.9%	0.3%
Switzerland	2.8%	2.2%	2.9%	2.3%	2.7%	1.9%	2.6%	2.1%
UK	18.4%	11.5%	19.0%	10.4%	18.8%	10.7%	19.4%	8.0%
EMU 19	33.6%	36.8%	30.9%	35.9%	31.2%	30.8%	29.3%	26.4%
EU 28	57.4%	49.5%	55.4%	47.7%	55.2%	42.9%	54.0%	35.5%
North America	10.4%	27.7%	10.6%	24.9%	9.7%	23.9%	11.2%	21.1%
Canada	1.2%	0.4%	1.2%	0.3%	1.1%	0.2%	1.2%	0.2%
United States	9.2%	27.3%	9.4%	24.6%	8.6%	23.7%	10.0%	21.0%
Central America	*	5.1%	*	6.6%	1.5%	16.3%	*	19.2%
Bermuda	1.0%	3.9%	1.2%	4.6%	0.5%	4.4%	0.2%	3.6%
South America	*	0.2%	*	0.2%	1.5%	0.2%	*	0.2%
Brazil	0.4%	0.1%	0.4%	0.1%	0.6%	0.1%	0.8%	0.1%
Asia	12.5%	2.7%	11.7%	2.8%	11.8%	2.5%	13.9%	4.7%
China	2.7%	0.2%	1.5%	0.3%	1.3%	0.3%	2.8%	0.3%
Japan	2.9%	0.9%	2.7%	0.9%	2.5%	0.9%	2.6%	0.6%
South Korea	0.8%	0.0%	0.6%	0.1%	0.6%	0.1%	0.5%	0.0%
Taiwan	0.7%	0.1%	0.6%	0.1%	0.5%	0.1%	0.4%	0.1%
Africa	1.4%	0.3%	2.1%	0.3%	1.8%	0.4%	1.4%	0.3%
South Africa	0.8%	0.1%	0.8%	0.1%	0.7%	0.1%	0.8%	0.1%
Oceania and Polar regions	1.9%	*	2.1%	0.5%	2.2%	0.3%	2.4%	*
Australia	1.7%	0.5%	1.9%	0.4%	2.0%	0.2%	2.2%	0.1%
Not geographically allocated	*	11%	*	*	*	*	*	14%

Source: CSO website.

Note: *Suppressed for confidentiality reasons but included in the higher level aggregates.

CHAPTER 4

Export participation rates

As is also the case for manufactured exports, total exports from services sector firms are dominated by foreign-owned firms. Over time the share accounted for by Irish-owned firms has in fact declined, representing 13 per cent of total exports in 2012.

TABLE 4 TOTAL EXPORTS BY SERVICES FIRMS (GOODS AND SERVICES, €000S)

Year	Total	Foreign	Irish	Share foreign %	Share Irish %
2008	26,567,765	20,254,378	6,313,388	76	24
2009	39,481,083	33,532,987	5,948,096	85	15
2010	49,136,632	43,201,105	5,935,528	88	12
2011	56,367,804	49,422,108	6,940,204	88	12
2012	63,971,561	55,655,289	8,316,272	87	13

Source: Authors' analysis of CSO ASI data (grossed).

The remainder of this chapter looks at overall participation of services firms in exporting. Export activity is fairly stable at approximately 2 per cent of firms in each of the years. The export participation rate for services firms is noticeably lower than that for manufacturing firms, which is to be expected given the intangible and interpersonal nature of many services exchanges. Moreover, export status is quite persistent, as export activity is dominated by a very small fraction of firms.

Over 77 per cent of gross output from manufacturing firms was exported in 2012⁶ whereas, as we shall see in more detail below, the share of exports in total sales for services firms is below 30 per cent in all years.

One aspect of note in our examination of services sector firms is that their exports are not exclusively services. The ASI survey asks firms to differentiate between total exports and exports of services (hence we consider the remaining exports as exports of goods). As we see in Table 6, of the services firms active in exporting in 2012, just 41 per cent exported exclusively services, with a further 13.6 per cent exporting a combination of goods and services. This leaves a considerable proportion of services sector firms active in exporting that actually

⁶ www.cso.ie/en/releasesandpublications/er/ciprcd/censusofindustrialproduction-localunitsregionalandcountydata2012.

export goods rather than services. The shares we find are in line with shares reported by Haller et al. (2014) who found that during the period 2002-2007, 69.3 per cent of Irish traders in the services sector exported goods only, 28 per cent exported services only and 7.8 per cent exported both. Their data, however, contains only firms with ten or more employees.

TABLE 5 NUMBER OF SERVICES FIRMS BY YEAR

Year	No of firms	No of exporters	No of serv. exp.	No of goods exp.	No of both exp.
2008	122,043	2,058	685	1,251	122
2009	124,637	2,542	842	1,532	168
2010	124,758	2,745	1,084	1,370	291
2011	123,017	2,583	997	1,305	279
2012	122,126	2,809	1,151	1,275	381

Source: Authors' analysis of CSO ASI data (grossed).

TABLE 6 SHARES OF FIRMS BY YEAR

Year	Share of exporters %	Share of serv. exp. %	Share of goods exp. %	Share of both exp. %
2008	1.7	33.3	60.8	5.9
2009	2.0	33.1	60.3	6.6
2010	2.2	39.5	49.9	10.6
2011	2.1	38.6	50.5	10.8
2012	2.3	41.0	45.4	13.6

Source: Authors' analysis of CSO ASI data (grossed).

The high rate of goods exports is partially explained by the inclusion of wholesale and retail trade as part of the services sector, and these firms by definition are selling on goods manufactured elsewhere as their main business activity. To put the focus more directly on firms that are likely to be selling their own services, the next table excludes these three sectors (retail, motor sales and other wholesale – NACE sectors 45, 46 and 47). The export participation rate of the remaining services sectors is a little lower but has increased more over time, going from 1.2 per cent of firms in 2008 to 1.8 per cent in 2012.

A reasonably sizeable fraction of exporting firms which are classified as being predominantly service providers export goods rather than services. In this context, it is important to note that the sectoral classification of a firm is based on its main sector of activity – information on the range of sub-sectors the firm may be active in is not recorded. The high percentage of services firms exporting exclusively goods suggests that firms are operating in a number of sectors simultaneously. Table 6 shows that about one-third of firms on average export

services. However, when we exclude wholesale and retail trade the proportion of services in exports goes up to approximately 70 per cent (Tables 7 and 8).

TABLE 7 NUMBER OF SERVICES FIRMS BY YEAR (EXCLUDING SECTORS 45-47)

Year	No of firms	No of exporters	No of serv. exp.	No of goods exp.	No of both exp.
2008	83,469	978	650	253	75
2009	86,086	1,180	775	312	93
2010	86,170	1,551	1,089	290	172
2011	84,967	1,444	995	263	186
2012	81,293	1,541	1,045	265	231

Source: Authors' analysis of CSO ASI data (grossed).

TABLE 8 SHARES OF FIRMS BY YEAR (EXCLUDING SECTORS 45-47)

Year	Share of exporters %	Share of serv. exp. %	Share of goods exp. %	Share of firms both exp. %
2008	1.2	66.4	25.9	7.7
2009	1.4	65.7	26.4	7.9
2010	1.8	70.2	18.7	11.1
2011	1.7	68.9	18.2	12.9
2012	1.9	67.8	17.2	15.0

Source: Authors' analysis of CSO ASI data (grossed).

Taking into account that services sector firms can export more than services, we revise Table 4 to calculate the shares of Irish and foreign-owned firms for services exports only. This shows that Irish-owned firms export a smaller share of services than when we looked at the total exports of firms in the sector.

TABLE 9 TOTAL EXPORTS OF SERVICES (€000S)

Year	Total	Foreign	Irish	Share foreign %	Share Irish %
2008	16,794,603	13,132,846	3,661,757	78	22
2009	15,933,875	13,970,620	1,963,255	88	12
2010	34,753,887	31,528,385	3,225,501	91	9
2011	38,480,595	35,944,191	2,530,913	93	7
2012	47,106,117	43,545,699	3,560,418	92	8

Source: Authors' analysis of CSO ASI data (grossed).

TABLE 10 TOTAL EXPORTS OF GOODS (€000S)

Year	Total	Foreign	Irish	Share foreign %	Share Irish %
2008	9,773,162	7,121,532	2,651,630	73	27
2009	23,547,208	19,562,367	3,984,841	83	17
2010	14,382,745	11,672,720	2,710,026	81	19
2011	17,887,209	13,477,917	4,409,291	75	25
2012	16,887,209	12,109,590	4,755,853	72	28

Source: Authors' analysis of CSO ASI data (grossed).

As might be expected given the export-platform motivation for the decision of many multinationals to locate in Ireland, the export participation rate of foreign-owned firms is many times higher than that of Irish firms. As shown in Tables 12 and 14, approximately 1.5 per cent of Irish services firms export but the corresponding figure for foreign-owned firms is around 20 per cent (with some minor variation over the different years).

The share of goods being exported is much higher for Irish firms, with just one-third of the exporters exclusively exporting services and well over half exporting no services at all, despite the classification of their main activity as being services-related. For the foreign-owned firms, the share accounted for by services-only exporters is higher at an average of 45 per cent and more also export a combination of goods and services at approximately 12 per cent. This leaves a still substantial 40 per cent accounted for by goods-only exporters.

TABLE 11 NUMBER OF SERVICES FIRMS BY YEAR (IRISH)

Year	No of firms	No of exporters	No of serv. exp.	No of goods exp.	No of both exp.
2008	119,311	1,546	463	1,016	67
2009	121,736	2,028	596	1,325	107
2010	121,854	1,828	665	1,014	148
2011	120,154	1,802	643	980	178
2012	117,341	1,822	685	956	179

Source: Authors' analysis of CSO ASI data (grossed).

TABLE 12 SHARES OF FIRMS BY YEAR (IRISH)

Year	Share of exporters %	Share of serv. exp. %	Share of goods exp. %	Share of both exp. %
2008	1.3	30.0	65.7	4.3
2009	1.7	29.4	65.3	5.3
2010	1.5	36.4	55.5	8.1
2011	1.5	35.7	54.4	9.9
2012	1.6	37.6	52.5	9.8

Source: Authors' analysis of CSO ASI data (grossed).

TABLE 13 NUMBER OF SERVICES FIRMS BY YEAR (FOREIGN)

Year	No of firms	No of exporters	No of serv. exp.	No of goods exp.	No of both exp.
2008	2,732	512	222	235	55
2009	2,901	514	246	208	61
2010	2,904	595	270	233	92
2011	2,863	535	238	230	68
2012	4,785	967	454	309	203

Source: Authors' analysis of CSO ASI data (grossed).

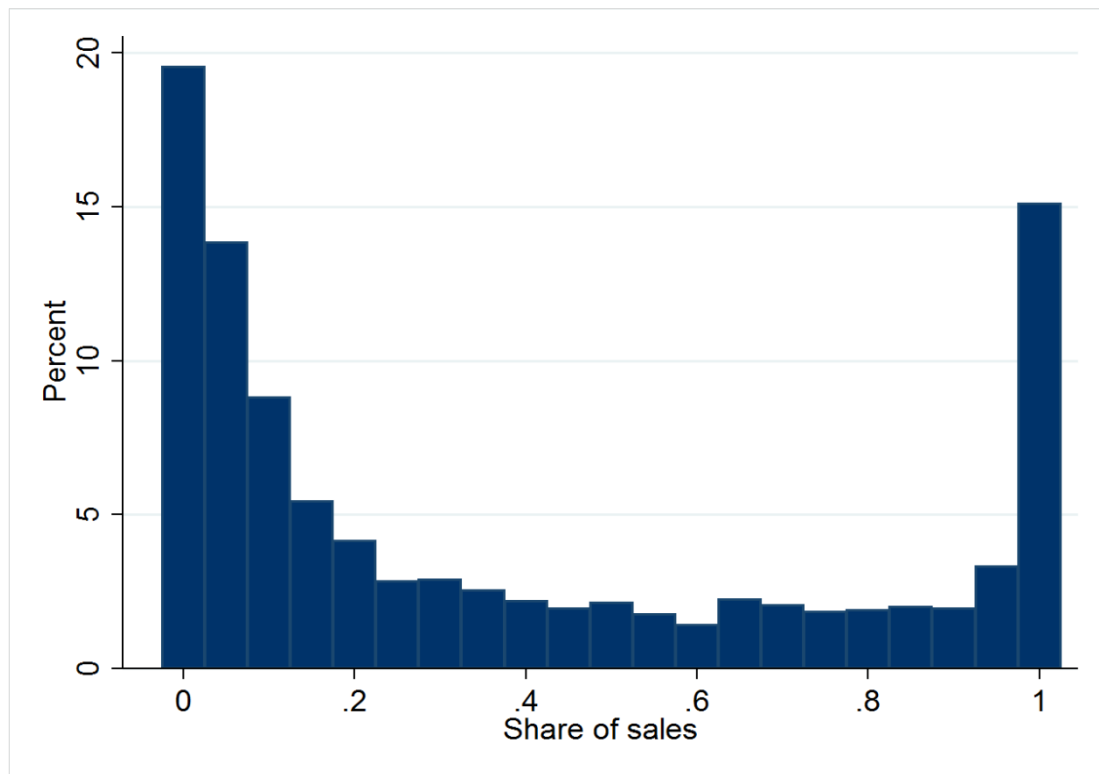
TABLE 14 SHARE OF FIRMS BY YEAR (FOREIGN)

Year	Share of exporters %	Share of serv. exp. %	Share of goods exp. %	Share of both exp. %
2008	18.7	43.4	45.9	10.7
2009	17.7	47.8	40.4	11.8
2010	20.5	45.4	39.1	15.5
2011	18.7	44.4	42.9	12.7
2012	20.2	47.0	32.2	20.8

Source: Authors' analysis of CSO ASI data (grossed).

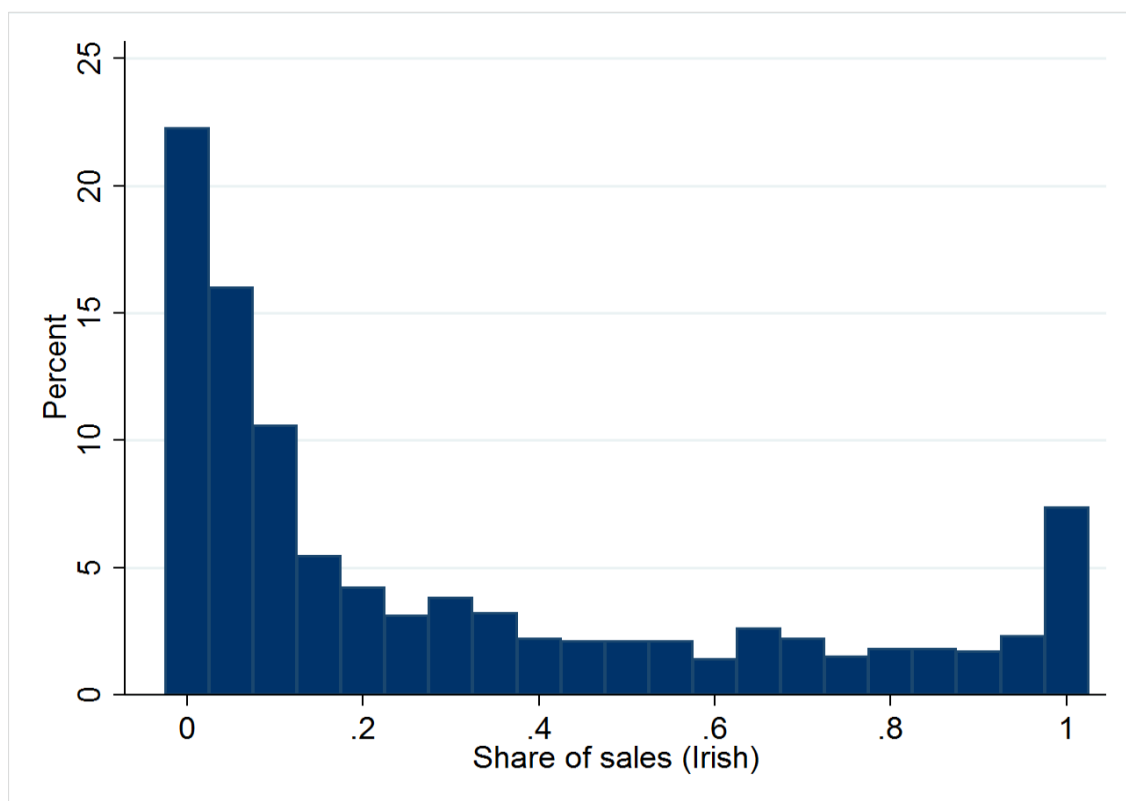
Figure 1 plots the distribution of services exports as share of sales for all firms. It shows that the distribution is skewed towards firms not selling any services (almost 20 per cent of firms) and firms selling services only (15 per cent of firms). In total, services constitute less than 20 per cent of sales for more than 50 per cent of firms. Figure 2 plots the same distribution for Irish firms. It is even more skewed towards firms not selling any services (25 per cent of firms). Less than 10 per cent of Irish firms sell services only.

FIGURE 1 SERVICES EXPORTS AS SHARE OF SALES, ALL FIRMS (2008-2012)



Source: Authors' analysis of CSO ASI data (grossed).

FIGURE 2 SERVICES EXPORTS AS SHARE OF SALES, IRISH (2008-2012)



Source: Authors' analysis of CSO ASI data (grossed).

CHAPTER 5

Export intensity and concentration

Table 15 compares total sales of exporting and non-exporting firms, showing that exporters sell several times as much as non-exporters, whether measured as average or median sales. The very considerable difference between the average and median amounts shows that sales are fairly highly concentrated in the largest firms.

TABLE 15 TOTAL SALES BY EXPORT STATUS (€000S)

Year		All firms	Non-exporters	Exporters
2008	Av. sales	9,031	5,714	58,267
	Median sales	757	641	7,845
2009	Av. sales	11,038	6,134	62,495
	Median sales	942	749	6,668
2010	Av. sales	15,530	7,756	84,575
	Median sales	1,255	1,005	9,556
2011	Av. sales	16,657	7,636	96,836
	Median sales	1,151	888	9,620
2012	Av. Sales	16,921	7,488	96,571
	Median sales	1,124	869	10,046

Source: Authors' analysis of CSO ASI data (ungrossed).

When we take the same sales summary statistics by ownership nationality in Table 16 and Table 17, we see that much of the skewed distribution of sales is accounted for by the presence of multinationals with average and median sales for foreign-owned firms being significantly larger than for Irish firms, regardless of export orientation. That said, for both Irish and foreign firms, being an exporter is associated with several times higher average and median sales than being a non-exporter. The scale of the difference is larger for Irish firms: Irish exporters have around ten times higher sales on average than Irish non-exporters, whereas foreign exporters have two to three times higher sales than foreign non-exporters.

TABLE 16 SALES BY EXPORT STATUS (€000S, IRISH)

Year		All firms	Non-exporters	Exporters
2008	Av. sales	5,278	3,658	37,282
	Median sales	658	583	6,761
2009	Av. sales	5,563	3,749	30,829
	Median sales	781	660	5,272
2010	Av. sales	7,497	5,064	38,588
	Median sales	1,030	886	7,525
2011	Av. sales	7,488	4,989	38,417
	Median sales	917	764	7,103
2012	Av. sales	7,437	4,966	37,206
	Median sales	900	745	6,707

Source: Authors' analysis of CSO ASI data (ungrossed).

TABLE 17 SALES BY EXPORT STATUS (€000S, FOREIGN)

Year		All firms	Non-exporters	Exporters
2008	Av. sales	69,048	50,551	111,777
	Median sales	8,589	6,915	12,189
2009	Av. sales	78,444	47,239	140,747
	Median sales	8,564	6,146	14,491
2010	Av. sales	86,329	41,786	167,825
	Median sales	9,828	7,052	14,574
2011	Av. sales	97,170	39,863	212,199
	Median sales	9,785	7,439	17,748
2012	Av. sales	96,177	37,438	205,181
	Median sales	9,526	6,122	15,900

Source: Authors' analysis of CSO ASI data (ungrossed).

Table 18 shows the strong growth in total exports for the services firms in the sample (recall this includes some goods being exported). This appears to be driven largely by increases in average exports (the intensive margin of exporting) and not by increases in the number of exporters (extensive margin). The share of exports in total sales for exporting firms more than doubled over the four years considered, increasing from exports accounting for 13 per cent of sales in 2008 to 32 per cent of sales in 2012. This number is in line with the findings by Breinlich and Criscuolo (2011) who find an average export intensity of around 30 per cent in the UK, and Grublješič and Damijan (2011) who report that average export intensity in Slovenia was between 26 per cent for new, and 36 per cent for established exporters.

Our findings are also similar to those by Haller et al. (2014) who found average export intensities of 3.6 per cent for France, 5.6 per cent for Slovenia, 7.3 per cent for Finland and 21.9 per cent for Ireland. This growth did not come evenly

from the two firm ownership categories. Table 4 shows that exports from foreign-owned firms not only represent the majority of service firm exports (87 per cent in 2012) but that this increased over time as exports grew sharply for foreign-owned exporters. The Irish-owned share of service firm exports declined from 24 per cent to 13 per cent, due more to a slower growth rate relative to the foreign firms than to an absolute decline in the amounts exported.

TABLE 18 SUMMARY STATISTICS FOR EXPORTERS (€000S, IF EXPORTS>0)

Year	No of firms	Av. exports	Median exports	Total exports	Share in sales %
2008	2,058	12,910	718	26,567,765	13
2009	2,542	15,532	746	39,481,083	21
2010	2,745	17,900	1,269	49,136,632	27
2011	2,583	21,823	1,406	56,367,804	29
2012	2,809	22,774	1,611	63,971,561	32

Source: Authors' analysis of CSO ASI data (grossed).

The average amounts exported by Irish firms grew steadily over the sample period, as shown in Table 19, and the export intensity of exporters increased from 5 per cent of sales to 8 per cent. The corresponding numbers for foreign-owned firms presented in Table 20, however, show considerably higher average exports and a more dramatic increase over time. The export intensity of foreign firms is much higher than for Irish firms, reaching over half of sales between 2010 and 2012. This high export intensity for foreign firms is to be expected, given the export-platform motivation for much of the foreign direct investment attracted to Ireland.

TABLE 19 SUMMARY STATISTICS FOR EXPORTERS, IRISH (€000S, IF EXPORTS>0)

Year	No of firms	Av. exports	Median exports	Total exports	Share in sales %
2008	1,546	4,084	401.2	6,313,388	5
2009	2,028	2,933	397.9	5,948,096	6
2010	1,828	3,247	670.0	5,935,528	6
2011	1,802	3,851	685.1	6,940,204	7
2012	1,822	4,564	805	8,316,272	8

Source: Authors' analysis of CSO ASI data (grossed).

TABLE 20 SUMMARY STATISTICS FOR EXPORTERS, FOREIGN (€000S, IF EXPORTS>0)

Year	No of firms	Av. exports	Median exports	Total exports	Share in sales %
2008	512	39,559	2,753	20,254,378	29
2009	514	65,239	3,357	33,532,987	43
2010	595	72,607	3,763	43,201,105	51
2011	535	92,388	5,171	49,427,600	53
2012	967	57,555	5,427	55,655,289	56

Source: Authors' analysis of CSO ASI data (grossed).

Table 21 shows summary statistics by year for exports of services. Table 22 and Table 23 present the breakdowns for Irish and foreign firms. In general over the studied period, exports of services were dominated by foreign-owned companies. The number of firms exporting services increased each year (except for foreign companies in 2011). The average exports and average share of services by Irish companies were quite volatile, whereas the average exports by foreign companies increased every year.

In the last year of our sample, exports of services by Irish firms were on average €4,121,000 and of foreign firms €66,280,000 per year. The median size of exports is consistently lower than the average, indicating the importance of larger firms in determining the overall patterns of exports. Finally, as in the case of total exports, export intensity of services by foreign firms is much higher than by Irish-owned firms, reaching over 75 per cent of total exports in 2012.

TABLE 21 SUMMARY STATISTICS FOR EXPORTS OF SERVICES (€000S, IF EXPORTS SERVICES>0)

Year	No of firms	Av. exports	Median exports	Total services	Share in total exports %
2008	807	20,811	1,460	16,794,603	63
2009	1,010	15,776	1,137	15,933,875	40
2010	1,375	25,276	1,545	34,753,887	71
2011	1,276	30,157	1,521	38,480,595	68
2012	1,532	30,748	2,108	47,106,117	74

Source: Authors' analysis of CSO ASI data (grossed).

TABLE 22 SUMMARY STATISTICS FOR EXPORTS OF SERVICES, IRISH (€000S, IF EXPORTS SERVICES>0)

Year	No of firms	Av. exports	Median exports	Total services	Share in total exports %
2008	530	6,909	711	3,661,757	58
2009	703	2,793	463	1,963,255	33
2010	813	3,967	615	3,225,501	54
2011	822	3,079	642	2,530,913	36
2012	864	4,121	889	3,560,418	43

Source: Authors' analysis of CSO ASI data (grossed).

TABLE 23 SUMMARY STATISTICS FOR EXPORTS OF SERVICES, FOREIGN (€000S, IF EXPORTS SERVICES>0)

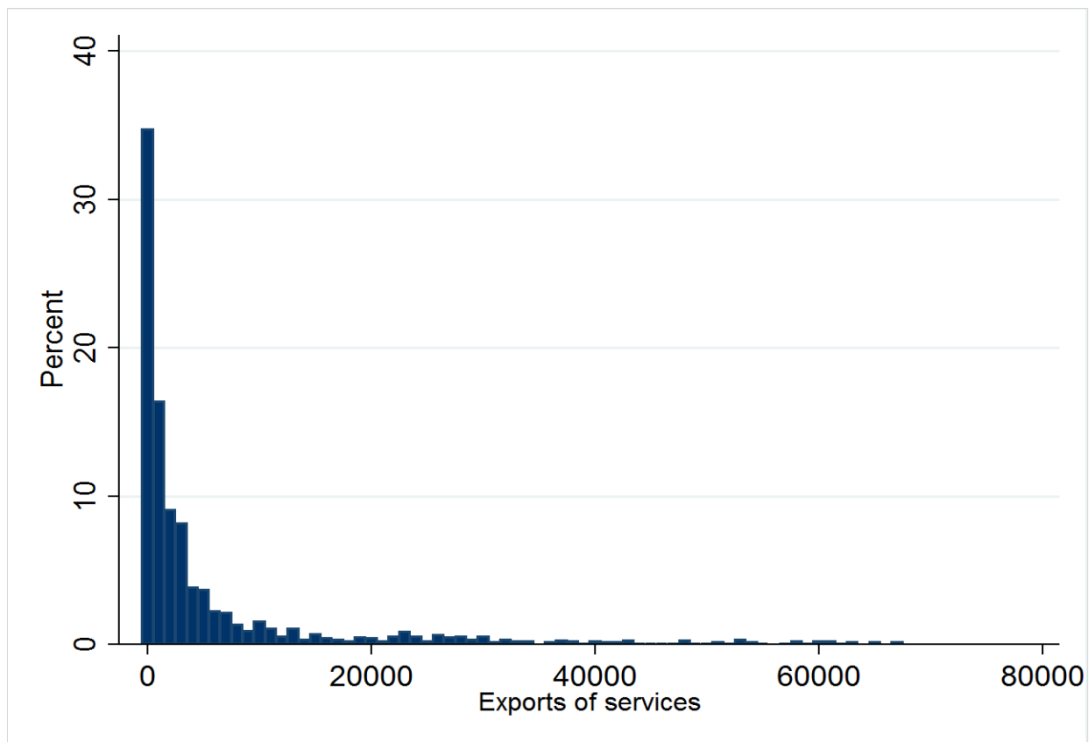
Year	No of firms	Av. exports	Median exports	Total services	Share in total exports %
2008	277	47,411	3,209	13,132,846	65
2009	307	45,507	4,116	13,970,620	42
2010	363	86,855	4,305	31,528,385	73
2011	306	117,465	5,189	35,944,191	73
2012	657	66,280	5,387	43,545,698	78

Source: Authors' analysis of CSO ASI data (grossed).

Exporting of services is strongly dominated by a small number of very large (generally foreign-owned) firms. Figures 3 and 4 show that the bulk of firms export relatively small quantities. Figure 3 graphs the distribution of services exports for all firms, showing that 35 per cent of firms are in the lowest quantity bin, representing exports of less than €1 million over the four years (less than €250,000 per year) and a further 17 per cent in the second bar (annual average exports less than €500,000).

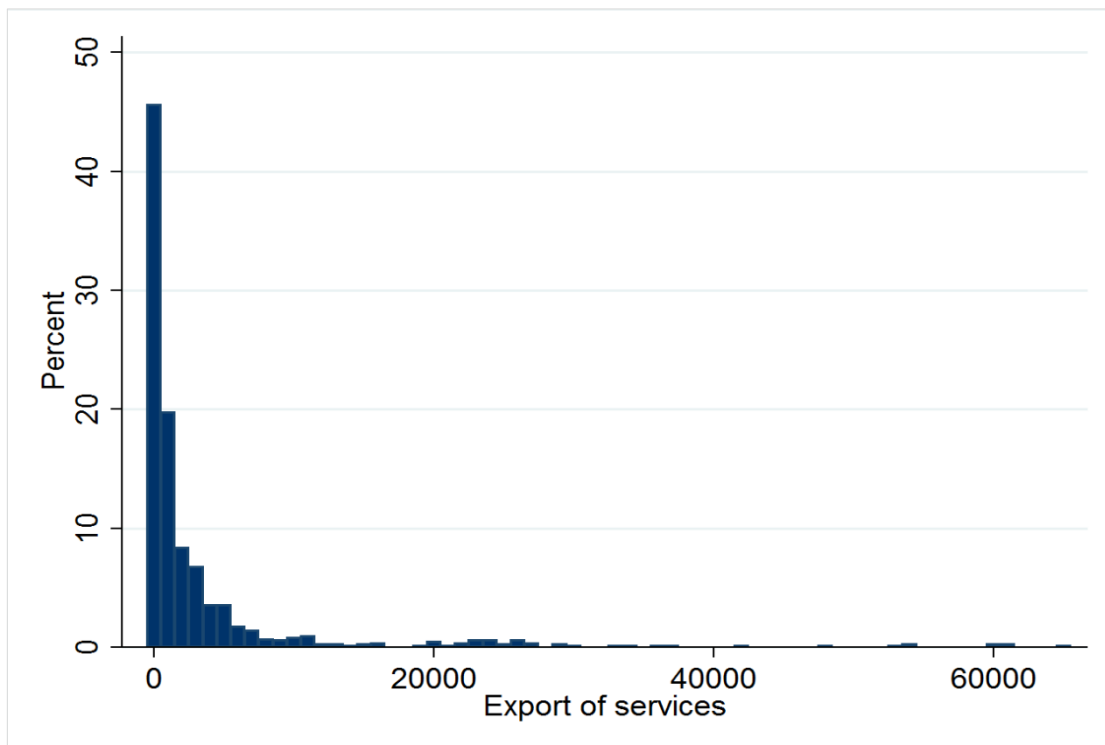
Figure 4 presents a similar calculation for Irish-owned firms, which shows an even greater degree of concentration amongst the smallest export amounts. In this case, over 45 per cent of firms exporting services are represented by the bar of the lowest volume of exports.

FIGURE 3 DISTRIBUTION OF EXPORTS OF SERVICES BY FIRM (€000S, 2008-2012)



Source: Authors' analysis of CSO ASI data (grossed).

FIGURE 4 DISTRIBUTION OF EXPORTS OF SERVICES BY FIRM, IRISH (€000S, 2008-2012)



Source: Authors' analysis of CSO ASI data (grossed).

Table 24 shows summary statistics by firm for exports of goods. Table 25 and Table 26 show the breakdowns for Irish and foreign firms. Consistent with our previous finding, we can see that over the time period, average and median exports by Irish-owned companies were smaller than foreign-owned companies. Their average exports of goods were, however, about three times larger than their average exports of services, while foreign-owned companies exported on average about 2.6 times less goods than services. These findings are reflected in the shares of goods in total exports. In 2012, the share of goods in total exports of Irish companies was 57 per cent, the share of goods in total exports of foreign-owned firms was 22 per cent. Hence, Irish firms in the services sector are predominantly goods exporters.

TABLE 24 SUMMARY STATISTICS FOR EXPORTS OF GOODS (€000S, IF EXPORTS GOODS>0)

Year	No of firms	Av. exports	Median exports	Total goods	Share in total exports %
2008	1,373	7,123	463	9,773,162	37
2009	1,700	13,851	450	23,547,208	60
2010	1,661	8,659	712	14,382,746	29
2011	1,584	11,292	854	17,887,209	32
2012	1,656	10,184	892	16,865,443	26

Source: Authors' analysis of CSO ASI data (grossed).

TABLE 25 SUMMARY STATISTICS FOR EXPORTS OF GOODS, IRISH (€000S, IF EXPORTS GOODS>0)

Year	No of firms	Av. exports	Median exports	Total goods	Share in total exports %
2008	1,083	2,448	302.8	2,651,630	42
2009	1,432	2,783	329.6	3,984,841	67
2010	1,162	2,332	499.5	2,710,026	46
2011	1,158	3,804	585.3	4,409,291	64
2012	1,135	4,190	544	4,755,853	57

Source: Authors' analysis of CSO ASI data (grossed).

TABLE 26 SUMMARY STATISTICS FOR EXPORTS OF GOODS, FOREIGN (€000S, IF EXPORTS GOODS>0)

Year	No of firms	Av. exports	Median exports	Total goods	Share in total exports %
2008	290	24,642	1,626	7,121,532	35
2009	269	72,723	2,131	19,562,367	58
2010	325	35,916	2,061	11,672,719	27
2011	298	45,228	2,970	13,477,917	27
2012	512	23,651	2,619	12,109,590	22

Source: Authors' analysis of CSO ASI data (grossed).

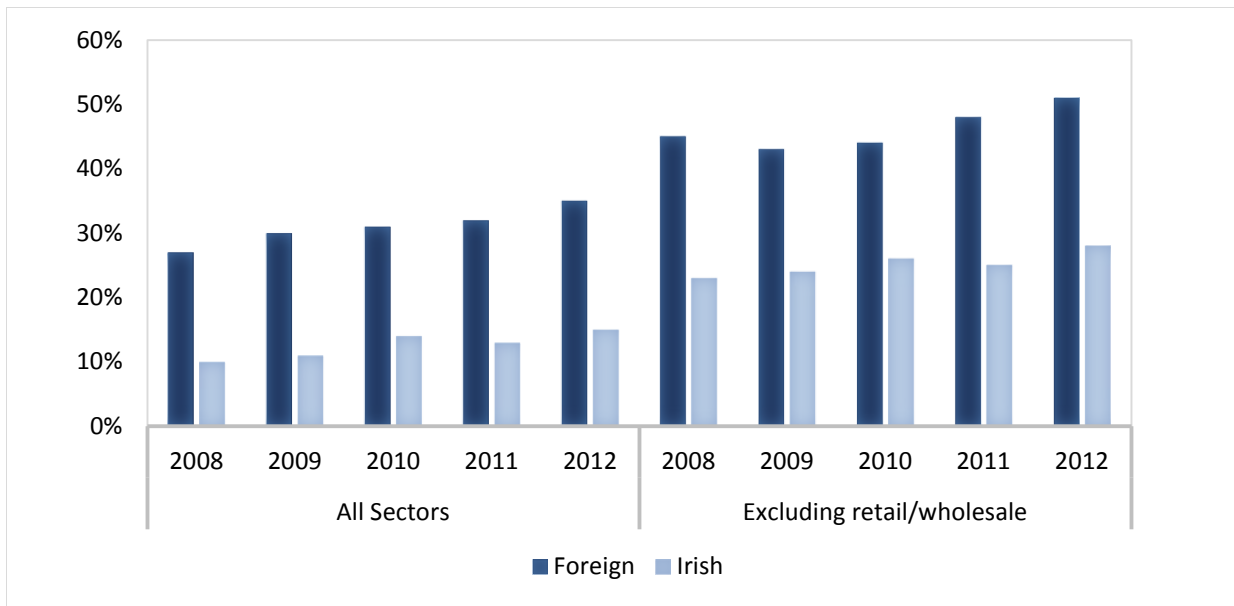
Figures 5 and 6 describes average shares of goods and services in exports and sales respectively by firm and a breakdown between Irish and foreign firms. It shows that for both foreign-owned firms and Irish-owned firms, the share of services in total exports continued to grow, from 46 per cent in 2008 to 57 per cent in 2012 for foreign firms, and from 29 per cent in 2008 to 39 per cent in 2012 for Irish firms. The split between goods and services is even more pronounced when we exclude sectors 45-47 (wholesale and retail trade) from the analysis. In this case the average share of services in total exports by firm grew from 74 per cent in 2008 to 82 per cent for foreign firms, and from 68 per cent in 2008 to 72 per cent in 2012 for Irish firms.

FIGURE 5 AVERAGE SHARE OF SERVICES IN FIRM EXPORTS (2008-2012)



Source: Authors' analysis of CSO ASI data (grossed).

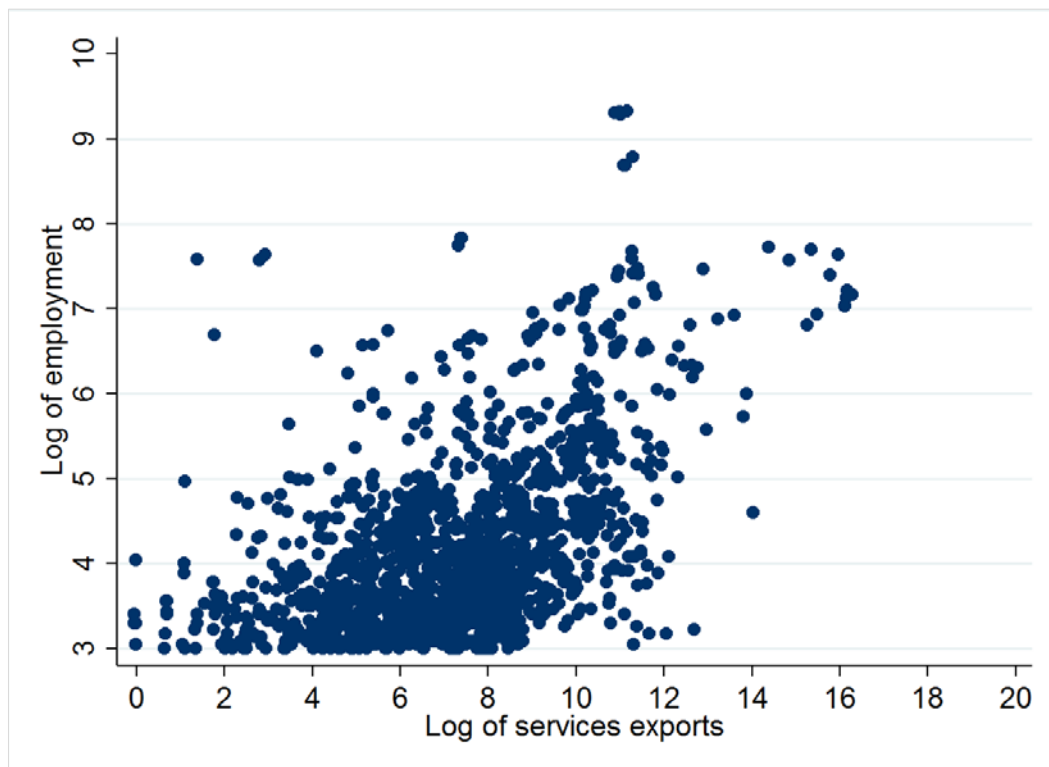
FIGURE 6 AVERAGE SHARE OF SERVICES IN FIRM SALES (2008-2012)



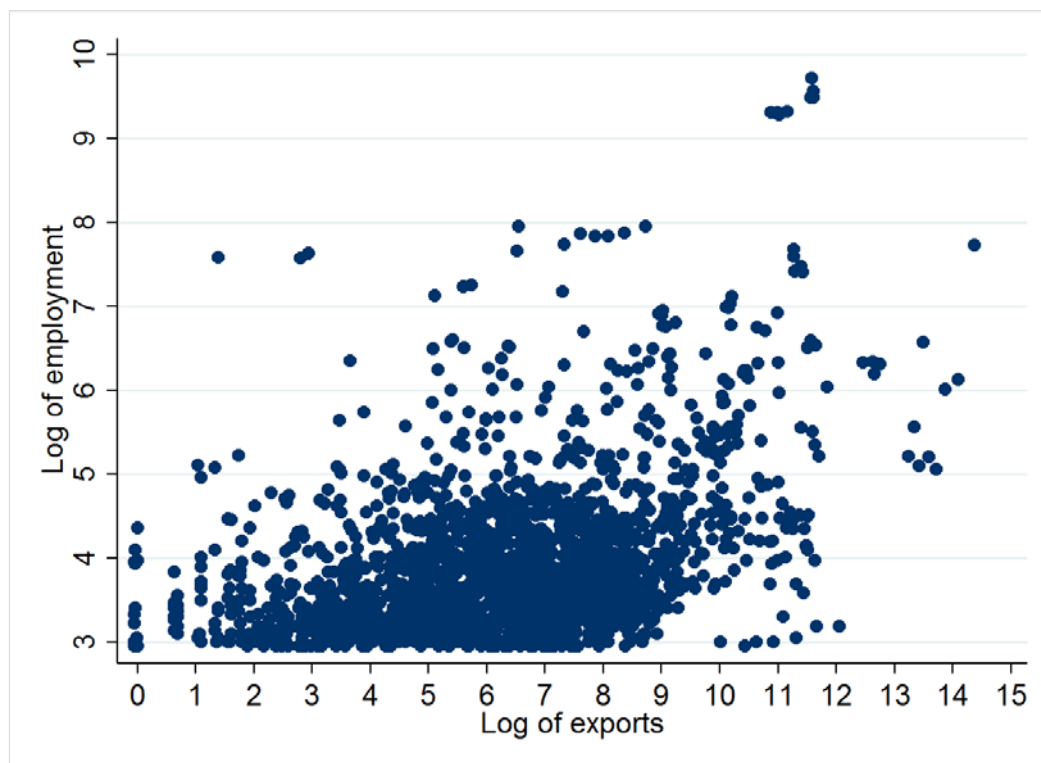
Source: Authors' analysis of CSO ASI data (grossed).

Services represent also the majority of the share of exports in sales by foreign and Irish firms – up to 51 per cent for foreign-owned and 28 per cent for Irish-owned companies in 2012 when we exclude sectors 45-47.

FIGURE 7 EXPORTS OF SERVICES BY FIRM SIZE FOR EXPORTERS (2008-2012)



Source: Authors' analysis of CSO ASI data (grossed).

FIGURE 8 EXPORTS BY FIRM SIZE FOR EXPORTERS, IRISH (2008-2012)

Source: Authors' analysis of CSO ASI data (grossed).

The strong correlation between firm size as expressed by employment levels and export levels can be seen from Figure 7 (for all firms) and Figure 8 (for Irish-owned firms). We will investigate the relationships between firm exporting and various measures of performance in more detail in Chapter 9.

CHAPTER 6

Exports by sector

This chapter examines the sectoral patterns of exports for firms within the broad services classification, looking first at the distribution of exports across all firms and the relative contributions of goods and services exports in each sub-sector. We then look at these patterns separately by nationality of ownership.

Table 27 presents information on the sectoral distribution of exports within services. The table is ordered by the value of total exports in each sub-sector, and also shows the share of services firms in that sector, the export intensity (i.e. the share of exports in total sales) and the average exports per firm. The level of concentration of services exports is extremely striking. The largest exporting sector, publishing and computer programming, contains 4.5 per cent of exporting firms in the total services sector but accounts for 47 per cent of the export sales.⁷ These firms exported €20 billion on average in each year and are highly export orientated, selling over 70 per cent of output overseas.

The next most important exporting sector is about half the size: wholesale trade (except motor vehicles) makes up 27 per cent of service sector exports. As there are considerably more firms in this sector (8.1 per cent of the total exporters), the average export volumes per firm are commensurately lower. In contrast, 'information service activities' is more similar to the top sector in terms of export intensity and has the highest average exports per firm of all sectors but comes third in total contribution of its export share as there are a very small number of firms active in this sub-sector (just 0.1 per cent of the total or 119 firms). The contrast between the average exports and the average number of exporting firms in each sector is shown by comparing Figure 9 and Figure 10.

The top three sectors listed in the table therefore combine to make up 89 per cent of exports. The remaining 11 per cent is widely dispersed across the other sub-sectors with none of the remainder making up more than 1.4 per cent of exports. The export intensity of the other sectors does vary considerably however with some, such as scientific research and development, exporting a majority of its output while others export less than 1 per cent. Most of those exporting very low volumes are personal services such as home repairs, security and accommodation, which would not be expected to be part of the internationally traded sector.

⁷ Publishing activities and computer programming are actually two separate NACE sectors (58 and 62 respectively) but are combined for reasons of data confidentiality.

Table 28 looks at how the exports of each of these sectors are split between goods and services, given the earlier finding that a substantial proportion of exporting firms in the services sector are exporting either only goods or a combination of goods and services. This time ordering the table by the total value of services exports (rather than total exports of the sub-sector), we see that wholesale trade moves down in terms of its share as a considerable proportion (89 per cent) of its exports are in goods rather than services. Publishing activities, computer programming and information services continue to dominate as the exports of these sectors are largely dominated by services. With the exception of wholesale and retail trade, the sectors with the largest shares of their exports accounted for by goods tend to be amongst the smaller overall exporters. The division of exports into goods and services is further represented in Figure 11.

TABLE 27 TOTAL EXPORTS BY SECTOR (2008-2012)

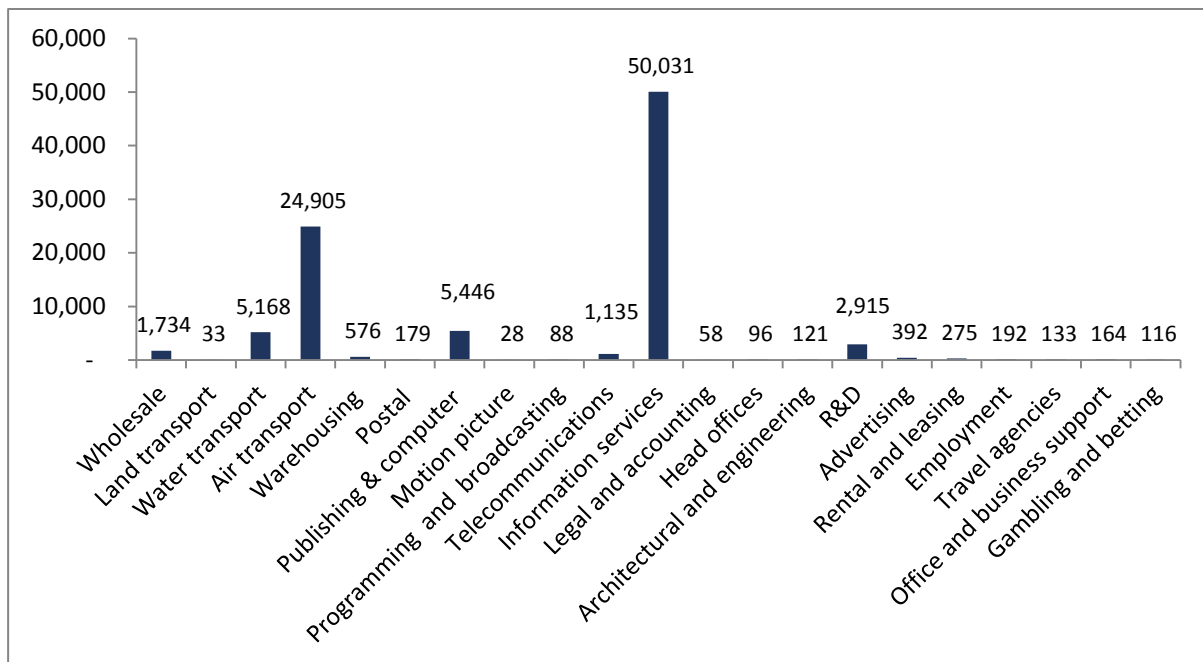
NACE 2	Description	Share of firms %	Total exports (€000s)	Share in total exports %	Share of exp. in sales %	Av. Exports by firm (€000s)
58 & 62	Publishing activities and computer programming	4.5	20,342,938	47.43	71.26	5,446
46	Wholesale trade, except of motor vehicles	8.1	11,762,272	27.43	19.98	1,734
63	Information service activities	0.1	5,928,689	13.82	76.94	50,031
51	Air transport	0.0	579,049	1.35	11.43	24,905
72	Scientific research and development	0.2	534,113	1.25	69.70	2,915
71	Architectural and engineering activities	4.9	492,039	1.15	17.47	121
77	Rental and leasing activities	2.0	447,228	1.04	14.24	275
52	Warehousing and support activities for transportation	0.8	390,600	0.91	12.48	576
69	Legal and accounting activities	6.9	334,145	0.78	8.56	58
70	Activities of head offices	3.6	291,199	0.68	15.29	96
61	Telecommunications	0.3	269,221	0.63	4.89	1,135
53	Postal and courier activities	1.5	230,309	0.54	14.66	179
47	Retail trade, except of motor vehicles	17.6	224,255	0.52	0.67	15
50	Water transport	0.0	206,707	0.48	39.68	5,168
73	Advertising and market research	0.6	194,953	0.45	16.38	392
82	Office and business support activities	1.2	161,441	0.38	12.76	164
49	Land transport and transport via pipelines	5.6	156,297	0.36	4.58	33
78	Employment activities	0.6	98,252	0.23	6.92	192
45	Wholesale and retail trade and repair of motor vehicles	5.0	80,375	0.19	0.85	19
79	Travel agency and related activities	0.4	42,784	0.10	2.88	133
92	Gambling and betting activities	0.3	31,119	0.07	2.84	116
93	Sports activities and amusement and recreation activities	1.7	24,624	0.06	2.34	18
59	Motion picture, video and television	0.8	17,573	0.04	3.55	28
74	Other professional, scientific and technical activities	3.0	16,633	0.04	2.64	7
81	Services to buildings and landscape activities	2.6	6,073	0.01	0.71	3
60	Programming and broadcasting	0.1	5,845	0.01	1.44	88
95	Repair of computers and personal and household goods	0.7	5,287	0.01	3.26	10
68	Real estate activities	6.7	4,852	0.01	0.33	1
80	Security and investigation activities	0.6	4,164	0.01	0.61	9
96	Other personal service activities	5.6	2,211	0.01	0.21	0
75	Veterinary activities	0.8	784	0.00	0.30	1
56	Food and beverage service activities	11.6	767	0.00	0.01	0
55	Accommodation	1.6	154	0.00	0.01	0

Source: Authors' analysis of CSO ASI data (grossed).

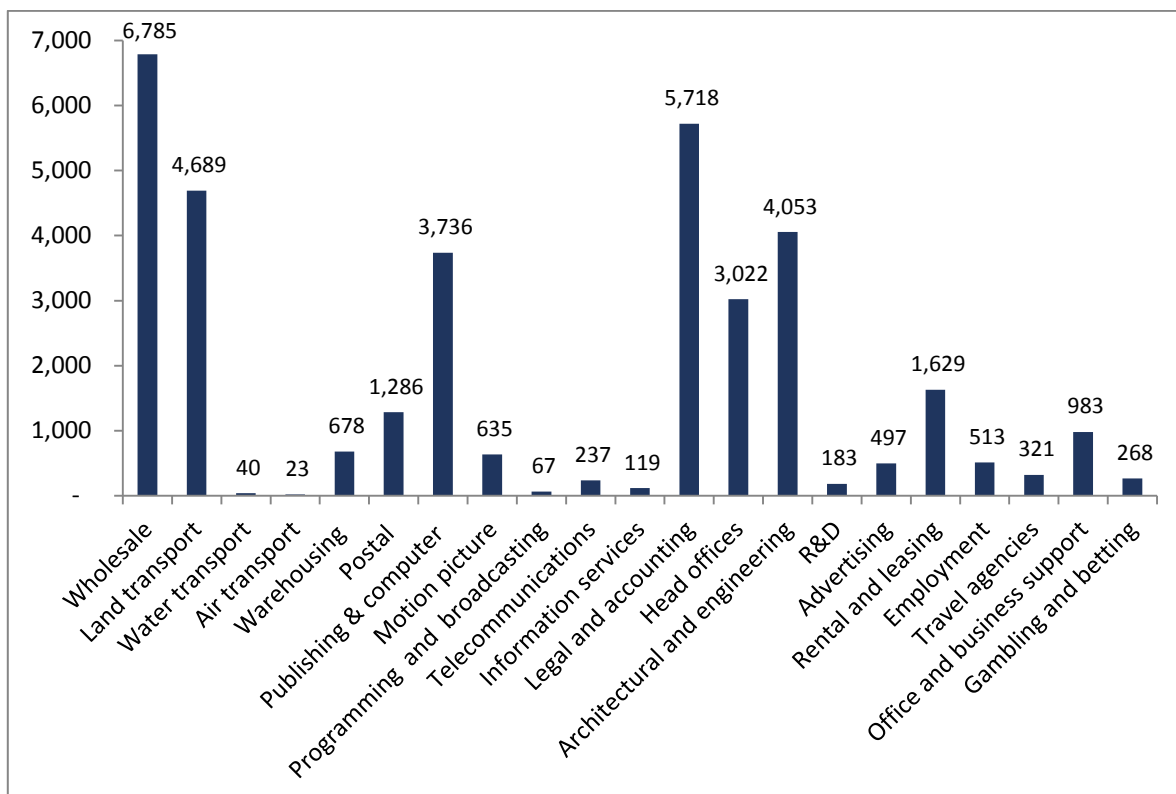
TABLE 28 SERVICES EXPORTS BY SECTOR (2008-2012)

NACE 2	Description	Share of firms %	Total services exports ('€000)	Share of services in exp. %	Share of goods in exp. %
58 & 62	Publishing activities and computer programming	4.5	17,081,965	83.97	16.03
63	Information service activities	0.1	4,017,279	67.76	32.24
46	Wholesale trade, except of motor vehicles	8.1	1,537,329	13.07	86.93
51	Air transport	0.0	579,049	100.00	0.00
72	Scientific research and development	0.2	486,257	91.04	8.96
69	Legal and accounting activities	6.9	306,979	91.87	8.13
52	Warehousing and support activities for transportation	0.8	297,403	76.14	23.86
77	Rental and leasing activities	2.0	272,272	60.88	39.12
61	Telecommunications	0.3	250,456	93.03	6.97
53	Postal and courier activities	1.5	222,548	96.63	3.37
70	Activities of head offices	3.6	218,224	74.94	25.06
50	Water transport	0.0	204,888	99.12	0.88
71	Architectural and engineering activities; technical testing and analysis	4.9	148,596	30.20	69.80
49	Land transport and transport via pipelines	5.6	118,395	75.75	24.25
73	Advertising and market research	0.6	91,940	47.16	52.84
78	Employment activities	0.6	90,726	92.34	7.66
82	Office and business support activities	1.2	79,768	49.41	50.59
79	Travel agency and related activities	0.4	38,253	89.41	10.59
92	Gambling and betting activities	0.3	30,546	98.16	1.84
93	Sports activities and amusement and recreation activities	1.7	24,331	98.81	1.19
47	Retail trade, except of motor vehicles	17.6	14,599	6.51	93.49
74	Other professional, scientific and technical activities	3.0	13,524	81.31	18.69
95	Repair of computers and personal and household goods	0.7	4,535	85.78	14.22
68	Real estate activities	6.7	4,530	93.37	6.63
60	Programming and broadcasting activities	0.1	4,166	71.27	28.73
80	Security and investigation activities	0.6	4,124	99.04	0.96
59	Motion picture, video and television	0.8	3,864	21.99	78.01
45	Wholesale and retail trade and repair of motor vehicles	5.0	2,025	2.52	97.48
81	Services to buildings and landscape activities	2.6	349	5.75	94.25
96	Other personal service activities	5.6	222	10.04	89.96
55	Accommodation	1.6	30	19.63	80.37
56	Food and beverage service activities	11.6	28	3.61	96.39
75	Veterinary activities	0.8	-	0.00	100.00

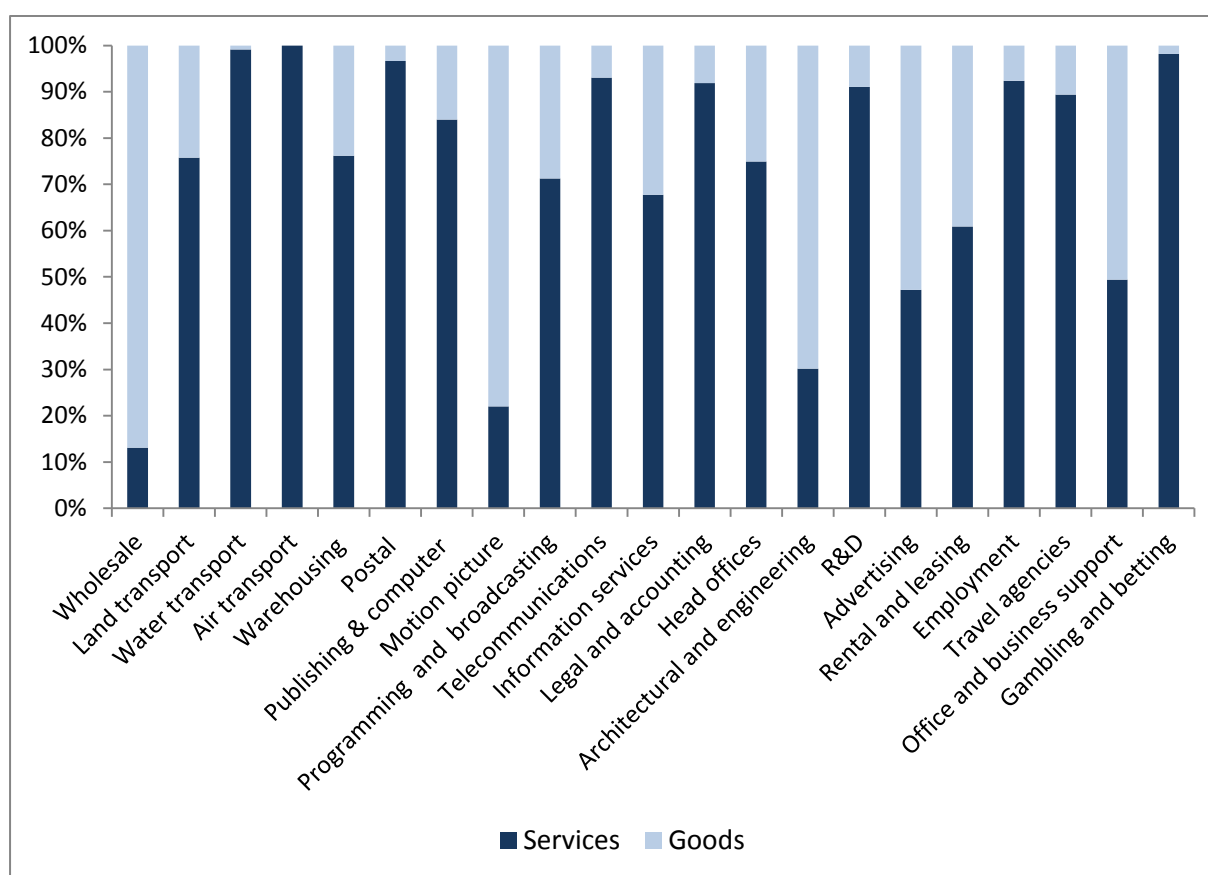
Source: Authors' analysis of CSO ASI data (grossed).

FIGURE 9 AVERAGE EXPORTS BY SECTOR, BY FIRM (€000S, 2008-2012)

Source: Authors' analysis of CSO ASI data (grossed).

FIGURE 10 NUMBER OF FIRMS BY SECTOR (2008-2012)

Source: Authors' analysis of CSO ASI data (grossed).

FIGURE 11 EXPORT SHARES (AVERAGES 2008-2012)

Source: Authors' analysis of CSO ASI data (grossed).

The next set of tables and figures split the firms by ownership. As already noted, total exports are dominated by foreign-owned firms. The values reported in Table 29 and Table 30 for total exports and services exports of Irish-owned firms are considerably smaller than the comparable figures for all firms presented in Table 27 and Table 28. In addition, there are notable changes in the ranking of the sectors. Around one-third of exports in the services sector are accounted for by wholesale trade (not including motor sales) when looking at Irish-owned firm, despite the overall low export intensity of this sector at just 6.4 per cent of its total sales. This is to a large degree accounted for by the large number of firms active in wholesale trade, as shown in Figure 13.

Publishing activities and computer programming, which dominate services exports when calculated for all firms, come second for Irish-owned firms. Here they account for 21 per cent of exports, less than half of their share in total exports. It is also striking that Irish-owned firms in this sector are much less export orientated than the overall sector with 37 per cent of sales being exported compared to over 70 per cent in the sector as a whole. In general, we can say that exports appear less concentrated in the top few sectors amongst Irish firms – the top three sectors combined make up 62 per cent of exports rather than the 89 per cent accounted for by the top three sectors for all firms.

One other significant difference in the ranking of export shares between all firms and Irish-owned firms is the contribution made by the information service activities sector. This sector represents 13.8 per cent of total exports by services firms in Table 27 but Irish firms in this sector are mainly domestically orientated, exporting less than 2 per cent of their sales and accounting for just 0.5 per cent of total exports. Even when we focus exclusively on exports of services in Table 30, the information service activities sector is only the twelfth largest exporter although all of what it does export is reported as services. Ordering by services exports rather than total exports reduces the share accounted for by wholesale trade in particular but otherwise the ordering of the largest sectors is similar to when ranked by total exports. Comparing Figure 11 and Figure 12, which graph the relative shares of services and goods exports within each sector, we can see that the services contribution in sectors such as advertising and office support activities is much smaller for Irish-owned firms than in the totals.

TABLE 29 TOTAL EXPORTS BY SECTOR, IRISH (2008-2012)

NACE 2	Description	Share of firms %	Total exports (€'000)	Share in total exports %	Share of exp. in sales %	Av. Exp. by firm (€000s)
46	Wholesale trade, except of motor vehicles and motorcycles	7.7	2,106,230	33.52	6.42	336.4
58 & 62	Publishing activities and computer programming	4.3	1,331,600	21.19	37.28	378.0
51	Air transport	0.0	472,454	7.52	10.25	26,247.4
72	Scientific research and development	0.2	364,604	5.80	77.22	2,356.1
52	Warehousing and support activities for transportation	0.7	304,962	4.85	13.82	506.4
69	Legal and accounting activities	7.0	289,053	4.60	7.58	51.0
77	Rental and leasing activities	1.9	212,806	3.39	12.63	136.9
50	Water transport	0.0	187,564	2.98	46.39	5,210.1
47	Retail trade, except of motor vehicles	17.7	175,989	2.80	0.71	12.2
70	Activities of head offices; management consultancy activities	3.6	146,801	2.34	11.77	50.4
49	Land transport and transport via pipelines	5.7	115,743	1.84	3.84	24.8
82	Office and business support activities	1.1	95,473	1.52	14.18	103.2
73	Advertising and market research	0.6	93,499	1.49	14.23	204.8
71	Architectural and engineering activities	4.9	89,830	1.43	5.04	22.5
53	Postal and courier activities	1.6	65,946	1.05	6.12	51.8
45	Wholesale and retail trade and repair of motor vehicles	5.1	53,422	0.85	0.67	12.8
78	Employment activities	0.6	35,086	0.56	3.57	75.5
63	Information service activities	0.1	31,185	0.50	1.84	282.9
92	Gambling and betting activities	0.3	25,237	0.40	2.55	96.2
93	Sports activities and amusement and recreation activities	1.7	24,609	0.39	2.44	17.7
59	Motion picture, video and television	0.8	17,573	0.28	4.31	28.0
79	Travel agency and related activities	0.4	16,529	0.26	1.61	55.4
61	Telecommunications	0.3	9,820	0.16	1.93	44.2
74	Other professional, scientific and technical activities	3.1	7,169	0.11	1.33	2.9
80	Security and investigation activities	0.6	3,949	0.06	0.97	8.3
68	Real estate activities	6.8	2,800	0.04	0.20	0.5
60	Programming and broadcasting activities	0.1	1,657	0.03	0.50	26.0
96	Other personal service activities	5.7	1,128	0.02	0.12	0.2
56	Food and beverage service activities	11.8	767	0.01	0.01	0.1
81	Services to buildings and landscape activities	2.7	506	0.01	0.09	0.2
55	Accommodation	1.6	154	0.00	0.01	0.1
95	Repair of computers and personal and household goods	0.7	121	0.00	0.11	0.2
75	Veterinary activities	0.8	42	0.00	0.02	0.1

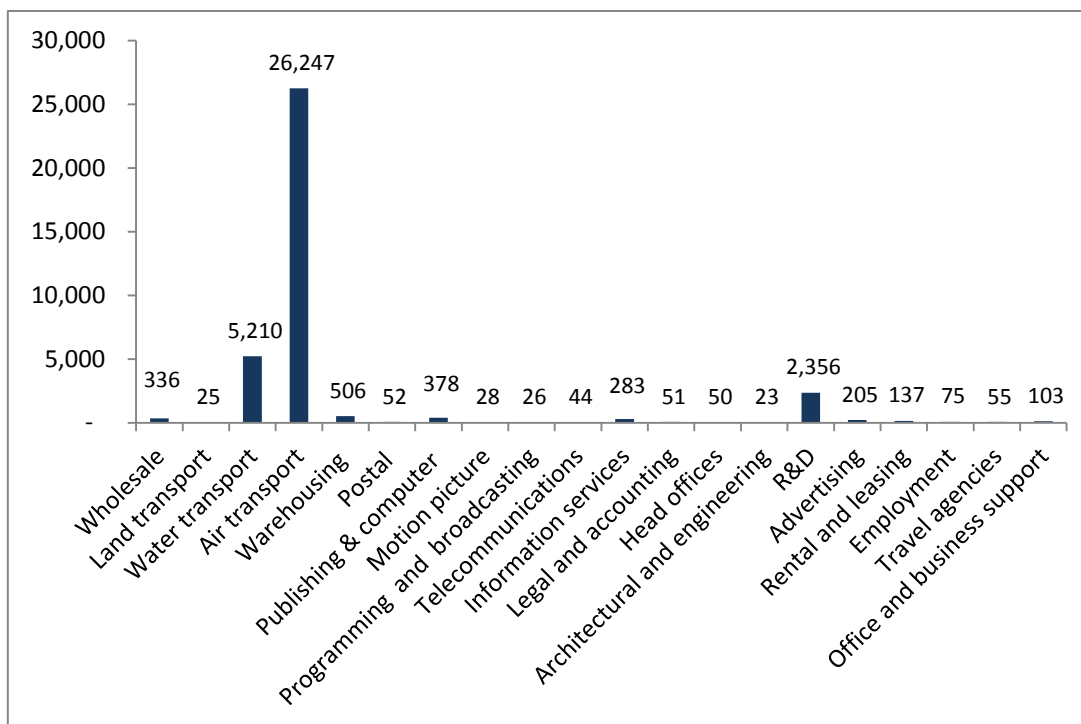
Source: Authors' analysis of CSO ASI data (grossed).

TABLE 30 TOTAL SERVICES EXPORTS BY SECTOR, IRISH (2008-2012)

NACE 2	Description	Share of firms %	Total services exports ('€000)	Share of services in exp. %	Share of goods in exp. %
58 & 62	Publishing activities and computer programming	4.3	792,036	59.48	40.52
51	Air transport	0.0	472,454	100.00	0.00
72	Scientific research and development	0.2	322,894	88.56	11.44
69	Legal and accounting activities	7.0	268,963	93.05	6.95
52	Warehousing and support activities for transportation	0.7	222,835	73.07	26.93
50	Water transport	0.0	186,683	99.53	0.47
77	Rental and leasing activities	1.9	158,114	74.30	25.70
70	Activities of head offices; management consultancy activities	3.6	101,748	69.31	30.69
49	Land transport and transport via pipelines	5.7	101,240	87.47	12.53
71	Architectural and engineering activities	4.9	77,640	86.43	13.57
53	Postal and courier activities	1.6	65,946	100.00	0.00
63	Information service activities	0.1	31,185	100.00	0.00
78	Employment activities	0.6	28,598	81.51	18.49
46	Wholesale trade, except of motor vehicles and motorcycles	7.7	26,749	1.27	98.73
92	Gambling and betting activities	0.3	24,664	97.73	2.27
93	Sports activities and amusement and recreation activities	1.7	24,331	98.87	1.13
82	Office and business support activities	1.1	22,322	23.38	76.62
79	Travel agency and related activities	0.4	13,460	81.43	18.57
73	Advertising and market research	0.6	11,846	12.67	87.33
61	Telecommunications	0.3	4,827	49.15	50.85
74	Other professional, scientific and technical activities	3.1	4,172	58.20	41.80
80	Security and investigation activities	0.6	3,949	100.00	0.00
59	Motion picture, video and television	0.8	3,864	21.99	78.01
68	Real estate activities	6.8	2,527	90.28	9.72
45	Wholesale and retail trade and repair of motor vehicles	5.1	1,993	3.73	96.27
60	Programming and broadcasting activities	0.1	1,067	64.43	35.57
47	Retail trade, except of motor vehicles	17.7	475	0.27	99.73
81	Services to buildings and landscape activities	2.7	349	68.93	31.07
96	Other personal service activities	5.7	115	10.16	89.84
95	Repair of computers and personal and household goods	0.7	31	25.48	74.52
55	Accommodation	1.6	30	19.63	80.37
56	Food and beverage service activities	11.8	28	3.61	96.39
75	Veterinary activities	0.8	-	0.00	100.00

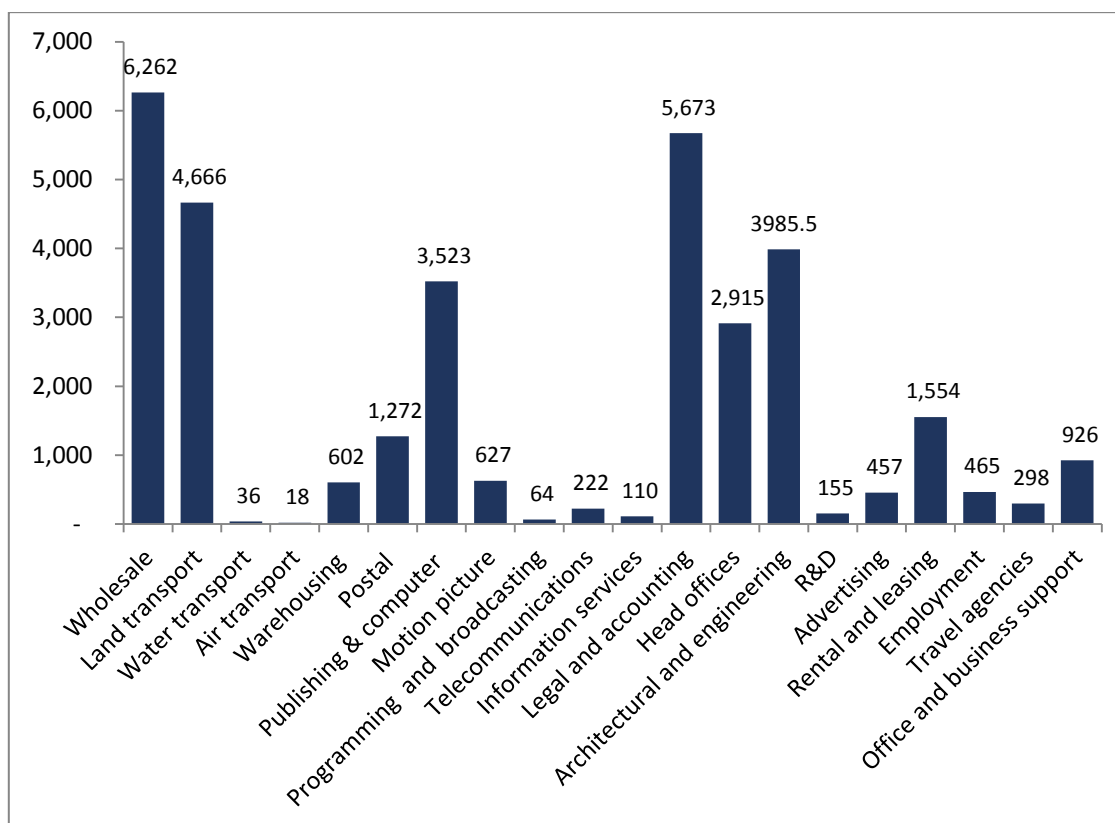
Source: Authors' analysis of CSO ASI data (grossed).

FIGURE 12 AVERAGE EXPORTS BY SECTOR, BY FIRM, IRISH (€000S, 2008-2012)

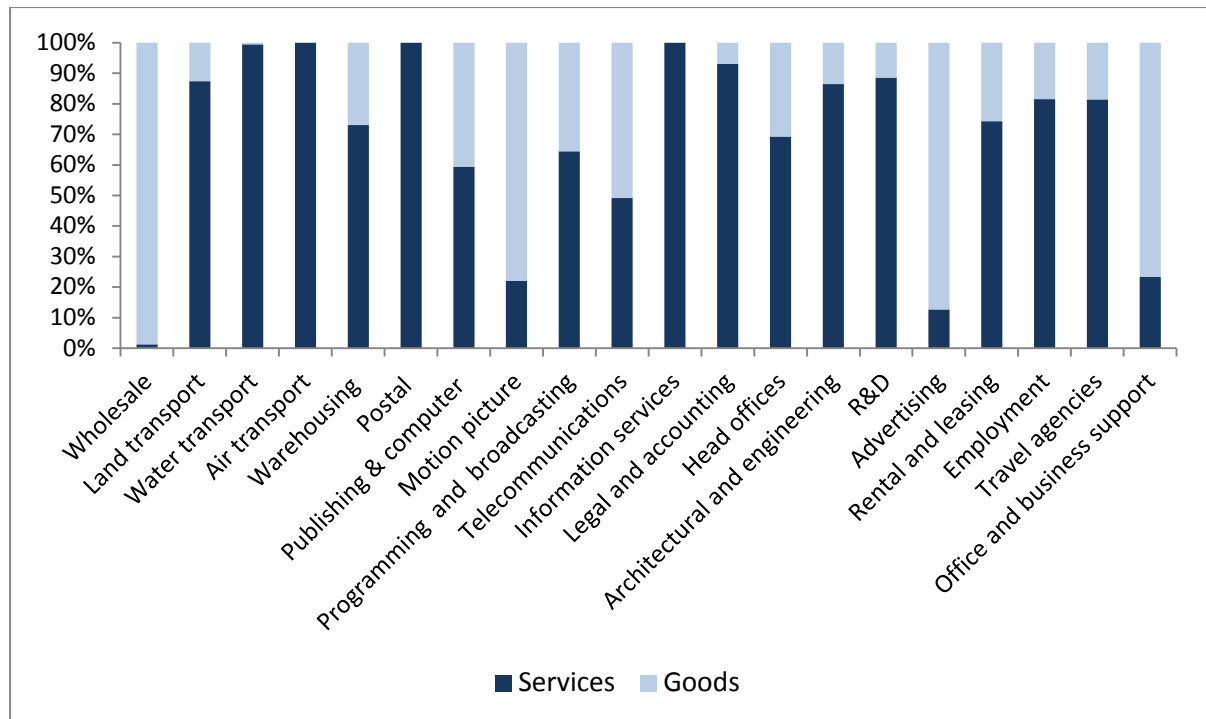


Source: Authors' analysis of CSO ASI data (grossed).

FIGURE 13 NUMBER OF FIRMS BY SECTOR, IRISH (2008-2012)



Source: Authors' analysis of CSO ASI data (grossed).

FIGURE 14 EXPORT SHARES, IRISH (AVERAGES, 2008-2012)

Source: Authors' analysis of CSO ASI data (grossed).

Figures 15, 16 and 17 present the same calculations as above for foreign-owned firms. Given that total services exports are generated largely by foreign-owned firms, the patterns here are almost identical to those describing the distributions across sectors of total exports. The one difference is that the shares of firms are distributed somewhat differently, with publishing and computer programming having almost 12 per cent of firms and wholesale trade having almost 30 per cent. Retail trade and food and beverage services make up a much smaller percentage of the firm composition for foreign-owned firms but these are not highly export-orientated sectors.

TABLE 31 TOTAL EXPORTS BY SECTOR, FOREIGN (2008-2012)

NACE 2	Description	Share of firms %	Total exports (€000s)	Share in total exports %	Share of exp. in sales %	Av. Exports by firm (€000s)
58 & 62	Publishing activities and computer programming	11.81	19,011,338	51.94	76.12	89046.08
46	Wholesale trade, except of motor vehicles and motorcycles	28.94	9,656,042	26.38	37.03	18453.97
63	Information service activities	0.46	5,897,504	16.11	98.09	714848.97
71	Architectural and engineering activities	3.73	402,209	1.10	38.87	5958.66
61	Telecommunications	0.84	259,401	0.71	5.20	17009.87
77	Rental and leasing activities	4.13	234,422	0.64	16.11	3136.08
72	Scientific research and development	1.58	169,509	0.46	57.63	5947.68
53	Postal and courier activities	0.73	164,363	0.45	33.36	12404.75
70	Activities of head offices; management consultancy activities	5.96	144,398	0.39	21.97	1340.12
51	Air transport	0.30	106,595	0.29	23.34	19380.86
73	Advertising and market research	2.21	101,454	0.28	19.01	2536.34
52	Warehousing and support activities for transportation	4.19	85,638	0.23	9.26	1130.54
82	Office and business support activities	3.15	65,968	0.18	11.14	1157.33
78	Employment activities	2.63	63,166	0.17	14.45	1329.82
47	Retail trade, except of motor vehicles	10.91	48,266	0.13	0.56	244.70
69	Legal and accounting activities	2.47	45,092	0.12	50.43	1007.65
49	Land transport and transport via pipelines	1.29	40,555	0.11	10.14	1744.30
45	Wholesale and retail trade and repair of motor vehicles	1.89	26,953	0.07	1.82	786.93
79	Travel agency and related activities	1.27	26,254	0.07	5.68	1141.49
50	Water transport	0.22	19,143	0.05	16.41	4785.63
74	Other professional, scientific and technical activities	1.96	9,465	0.03	10.19	266.61
92	Gambling and betting activities	0.32	5,882	0.02	5.66	1023.00
81	Services to buildings and landscape activities	1.12	5,567	0.02	2.05	274.93
95	Repair of computers and personal and household goods	0.68	5,166	0.01	10.82	421.71
60	Programming and broadcasting activities	0.15	4,189	0.01	5.46	1523.18
68	Real estate activities	2.34	2,053	0.01	1.97	48.58
96	Other personal service activities	0.40	1,083	0.00	1.02	149.41
75	Veterinary activities	0.26	742	0.00	84.85	156.21
80	Security and investigation activities	0.35	215	0.00	0.08	34.36
93	Sports activities and amusement and recreation activities	0.54	14	0.00	0.03	1.46
55	Accommodation	1.06	-	0.00	0.00	0.00
56	Food and beverage service activities	1.67	-	0.00	0.00	0.00
59	Motion picture, video and television	0.43	-	0.00	0.00	0.00

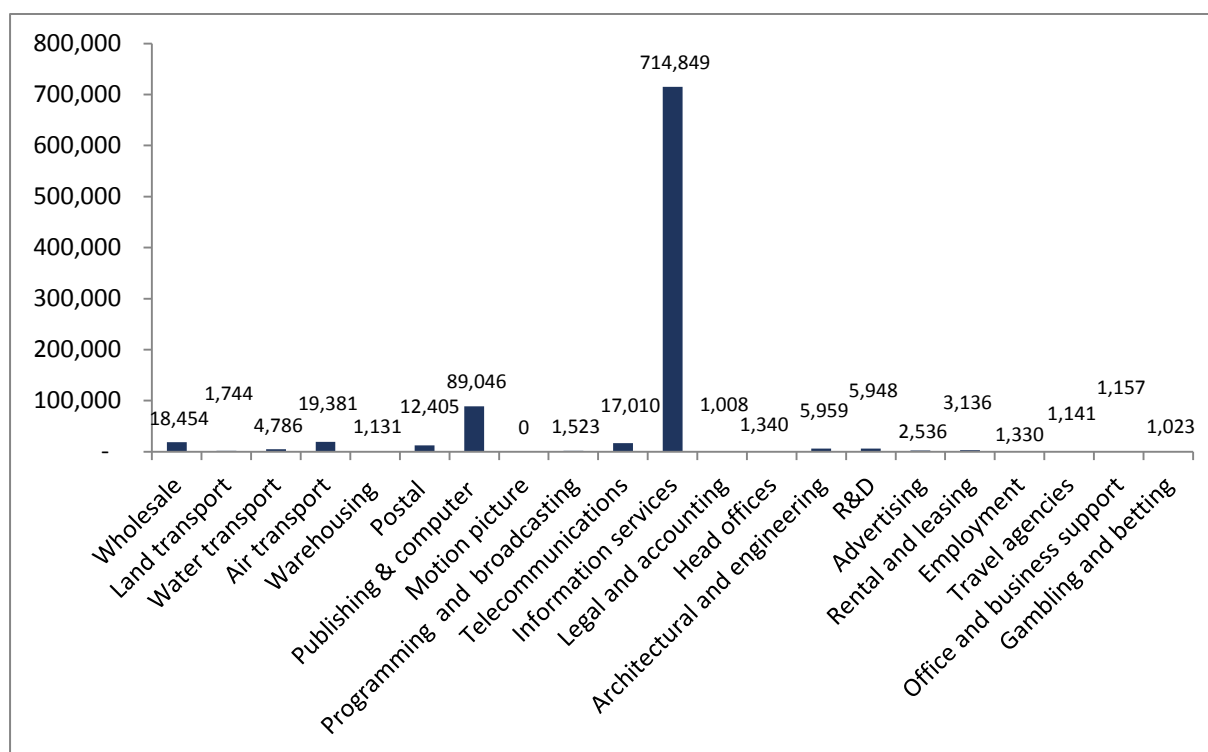
Source: Authors' analysis of CSO ASI data (grossed).

TABLE 32 TOTAL SERVICES EXPORTS BY SECTOR, FOREIGN (2008-2012)

NACE 2	Description	Share of firms %	Total services exports ('€000)	Share of services in exp. %	Share of goods in exp. %
58 & 62	Publishing activities and computer programming	11.8	16,429,598	86.42	13.58
63	Information service activities	0.5	3,986,123	67.59	32.41
46	Wholesale trade, except of motor vehicles and motorcycles	28.9	1,511,171	15.65	84.35
61	Telecommunications	0.8	245,626	94.69	5.31
72	Scientific research and development	1.6	163,356	96.37	3.63
53	Postal and courier activities	0.7	156,589	95.27	4.73
70	Activities of head offices; management consultancy activities	6.0	116,457	80.65	19.35
77	Rental and leasing activities	4.1	114,140	48.69	51.31
51	Air transport	0.3	106,595	100.00	0.00
73	Advertising and market research	2.2	80,098	78.95	21.05
52	Warehousing and support activities for transportation	4.2	74,574	87.08	12.92
71	Architectural and engineering activities	3.7	70,990	17.65	82.35
78	Employment activities	2.6	62,124	98.35	1.65
82	Office and business support activities	3.2	57,438	87.07	12.93
69	Legal and accounting activities	2.5	38,022	84.32	15.68
79	Travel agency and related activities	1.3	24,792	94.43	5.57
50	Water transport	0.2	18,214	95.15	4.85
49	Land transport and transport via pipelines	1.3	17,159	42.31	57.69
47	Retail trade, except of motor vehicles	10.9	14,118	29.25	70.75
74	Other professional, scientific and technical activities	2.0	9,351	98.80	1.20
92	Gambling and betting activities	0.3	5,882	100.00	0.00
95	Repair of computers and personal and household goods	0.7	4,505	87.20	12.80
60	Programming and broadcasting activities	0.2	3,099	73.98	26.02
68	Real estate activities	2.3	2,003	97.59	2.41
80	Security and investigation activities	0.3	175	81.35	18.65
96	Other personal service activities	0.4	107	9.90	90.10
45	Wholesale and retail trade and repair of motor vehicles	1.9	32	0.12	99.88
75	Veterinary activities	0.3	-	0.00	100.00
81	Services to buildings and landscape activities	1.1	-	0.00	100.00
93	Sports activities and amusement and recreation activities	0.5	-	0.00	100.00
55	Accommodation	1.1	-	0.00	0.00
56	Food and beverage service activities	1.7	-	0.00	0.00
59	Motion picture, video and television	0.4	-	0.00	0.00

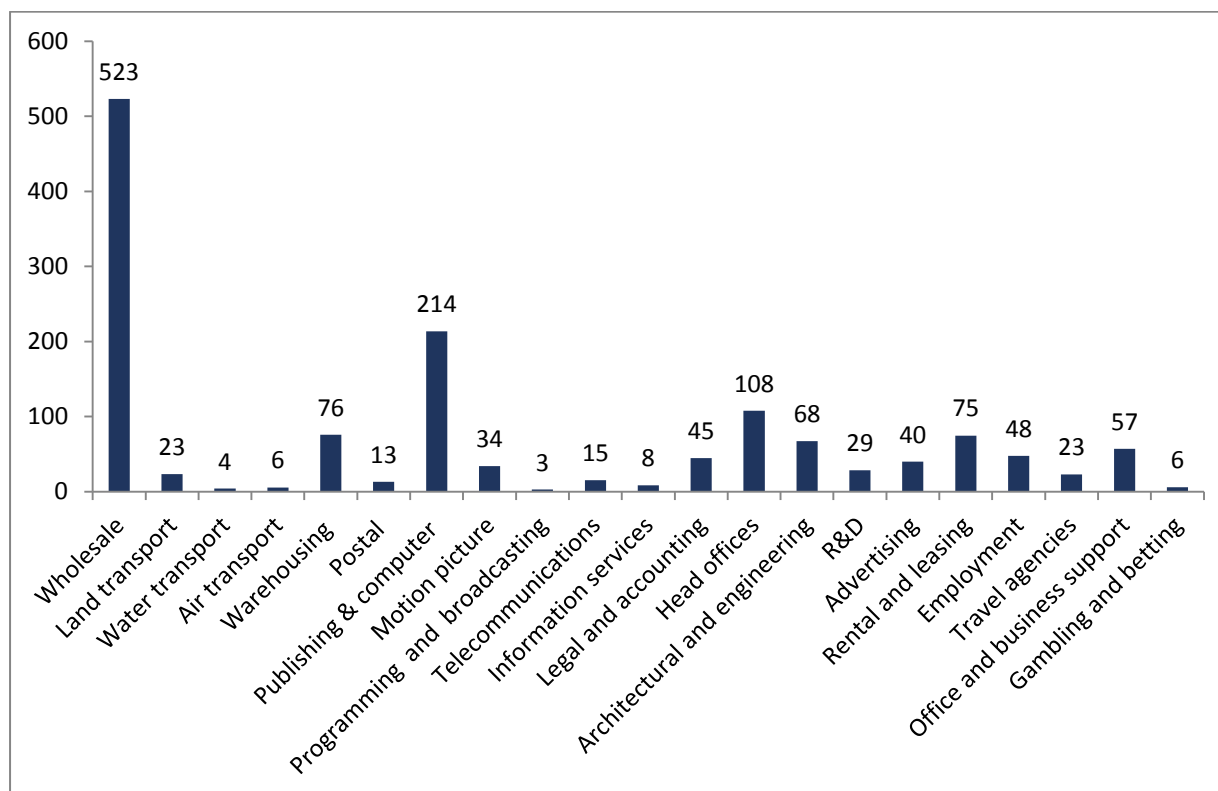
Source: Authors' analysis of CSO ASI data (grossed).

FIGURE 15 AVERAGE EXPORTS BY SECTOR, BY FIRM, FOREIGN (€000S, 2008-2012)

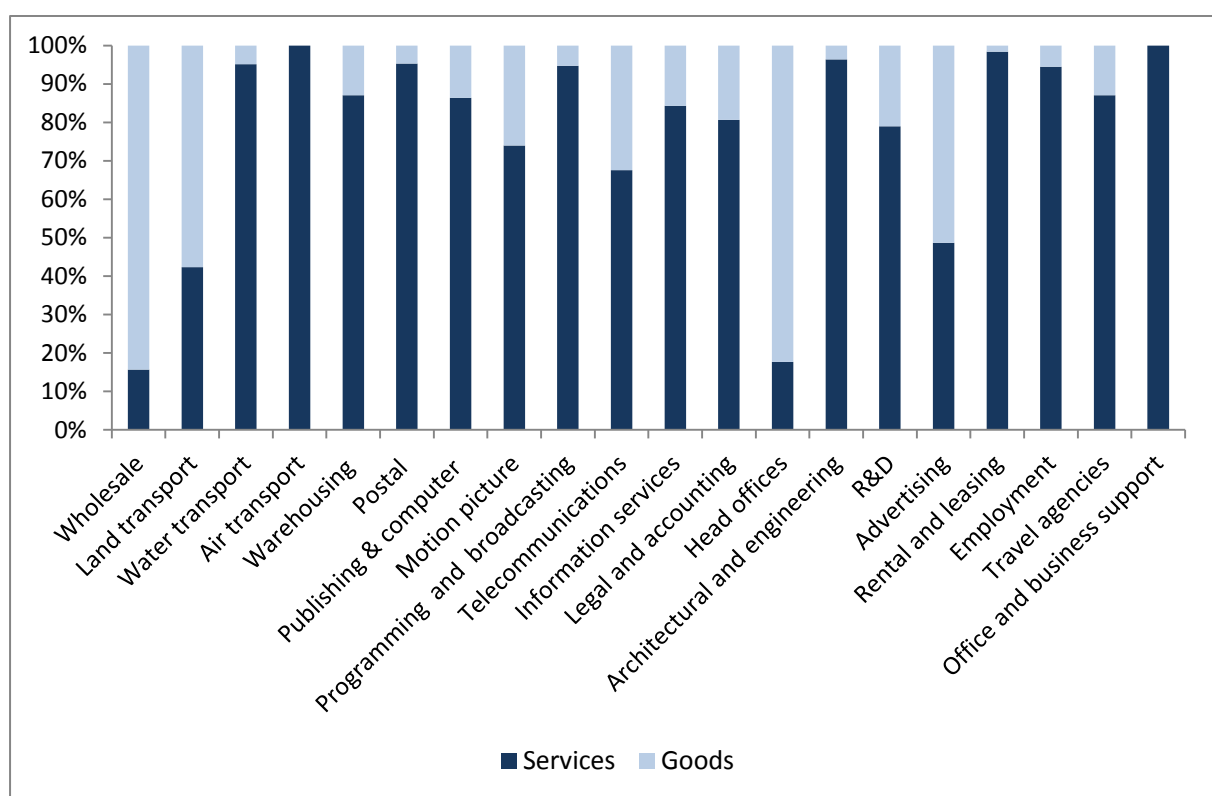


Source: Authors' analysis of CSO ASI data (grossed).

FIGURE 16 NUMBER OF FIRMS BY SECTOR, FOREIGN (2008-2012)



Source: Authors' analysis of CSO ASI data (grossed).

FIGURE 17 EXPORT SHARES, FOREIGN (2008-2012)

Source: Authors' analysis of CSO ASI data (grossed).

CHAPTER 7

Online sales

Table 33 presents summary statistics for online sales by ownership and export status. Foreign firms have higher shares of turnover from online sales (between 13 per cent and 17 per cent). The share is higher for services exporters than non-exporters and grew from 18 per cent in 2008 to 27 per cent in 2012. For non-exporters the share stayed relatively stable (around 4 per cent). These numbers are lower than in manufacturing (Table 34) where the average share of online sales in turnover in 2011 was 11.6 per cent for Irish firms (13.5 per cent for Irish-owned exporters) and 35.6 per cent for foreign-owned firms (41 per cent for foreign-owned exporters).

Table 35 shows the online sales and the breakdown of our sample according to the export status and ownership. Among exporters, Irish-owned firms were close to foreign-owned firms and increased their share of online sales in turnover from 16 per cent in 2008 to 27 per cent in 2012. However, their average value of online sales was much lower than the average value of online sales of foreign-owned firms.

It is worth noting, that according to a recent study by Eurostat,⁸ in 2014 Irish-based companies recorded the highest share of turnover from online sales in the European Union. The Irish share stood at 37 per cent whereas the EU average was 17 per cent versus 12 per cent in 2008.⁹ This suggests scope remains for firms in the services sector to enhance their use of online sales as a channel into exporting.

⁸ <http://ec.europa.eu/eurostat/documents/2995521/7103896/4-09122015-AP-EN.pdf/d9bbdff9-fd31-4449-b5be-bb0ec974522e>.

⁹ Note that these results are based on a survey of companies with at least ten persons employed.

TABLE 33 SUMMARY STATISTICS FOR ONLINE SALES (€000S)

Year		Ownership		Exporter of services	
		Foreign	Irish	Non-Exporter	Exporter
2008	Av. share online sales	17%	6%	6%	18%
	Av. online sales	10,717	1,298	1,456	18,002
2009	Av. share online sales	14%	4%	4%	19%
	Av. online sales	27,992	1,024	2,097	27,164
	Number of firms	2,901	121,736	123,627	1,010
2010	Av. share online sales	14%	4%	4%	22%
	Av. online sales	31,181	1,520	1,977	52,429
2011	Av. share online sales	13%	4%	4%	24%
	Av. online sales	24,108	1,182	1,721	37,485
2012	Av. share online sales	14%	4%	4%	27%
	Av. online sales	14,069	2,004	2,373	19,019

Source: Authors' analysis of CSO ASI data (ungrossed).

TABLE 34 SHARES OF ONLINE SALES IN TURNOVER, MANUFACTURING (2012)

Category	%Share
All firms	13.9
Exporters	16.9
Non-exporters	8.4
Foreign	35.6
Irish	11.6
Foreign exporters	41
Irish exporters	13.5

Source: Authors' analysis of CSO CIP data.

TABLE 35 SUMMARY STATISTICS FOR ONLINE SALES BY EXPORT STATUS (€000S)

Year		Services exporters		Services non-exporters	
		Foreign	Irish	Foreign	Irish
2008	Av. share online sales	20%	16%	16%	6%
	Av. online sales	23,525	14,353	8,230	1,092
2009	Av. share online sales	21%	18%	12%	3%
	Av. online sales	65,708	1,891	18,496	1,001
2010	Av. share online sales	24%	21%	11%	3%
	Av. online sales	112,143	6,933	8,879	1,339
2011	Av. share online sales	24%	24%	10%	3%
	Av. online sales	84,185	3,609	8,308	1,099
2012	Av. share online sales	27%	27%	11%	4%
	Av. online sales	29,140	10,698	9,453	1,694

Source: Authors' analysis of CSO ASI data (ungrossed).

CHAPTER 8

Investment

Table 36 presents summary statistics for investment by ownership and export status. On average foreign firms invested (defined as capital acquisitions) around €4,000,000 each year while Irish-owned firms invested around €330,000. This number was mostly driven by exporters. Table 37 presents the investment and the breakdown of our sample according to the export status and ownership. Over the analysed period, foreign-owned services exporters had a negative average change in assets in 2009, followed by large increases in 2010, 2011 and 2012.

TABLE 36 SUMMARY STATISTICS FOR INVESTMENT (€000S)

Year		Ownership		Exporter of services	
		Foreign	Irish	Non-Exporter	Exporter
2008	Av. assets change	1,063	207	219	1,828
	Av. capital acq.	3,237	290	387	3,611
2009	Av. assets change	1,186	210	362	1,162
	Av. capital acq.	2,194	304	0	2,569
2010	Av. assets change	2,712	406	586	3,259
	Av. capital acq.	3,696	476	0	4,880
2011	Av. assets change	2,964	184	341	2,883
	Av. capital acq.	3,965	286	453	4,615
2012	Av. assets change	5,083	226	306	8,224
	Av. capital acq.	6,820	297	480	9,759

Source: Authors' analysis of CSO ASI data (ungrossed).

TABLE 37 SUMMARY STATISTICS FOR INVESTMENTS BY EXPORT STATUS (€000S)

Year		Services exporters		Services non-exporters	
		Foreign	Irish	Foreign	Irish
2008	Av. assets change	2,587	1,325	767	189
	Av. capital acq.	3,122	3,934	3,259	233
2009	Av. assets change	-12	1,932	1,487	166
	Av. capital acq.	2,501	2,613	2,116	245
2010	Av. assets change	6,963	437	1,541	405
	Av. capital acq.	10,183	839	1,909	464
2011	Av. assets change	6,668	137	1,990	185
	Av. capital acq.	9,625	981	2,476	262
2012	Av. assets change	16,243	1,632	1,664	176
	Av. capital acq.	18,683	2,423	3,186	221

Source: Authors' analysis of CSO ASI data (ungrossed).

CHAPTER 9

Comparing characteristics of exporters and non-exporters

In this chapter we study the differences in performance between exporters and non-exporters as well as exporters of services and non-exporters. We use six different performance indicators: employment, productivity (defined as sales per worker), wages, sales, online sales and investment. We follow the methodology proposed by Damijan et al. (2015), namely we regress the log of each of the performance indicators on the contemporaneous trading status dummy (export, export of services) and a set of control variables. Hence we estimate the following model:

$$\ln Y_{it} = \alpha + \beta \text{Status}_{it} + \gamma \text{Control}_{it} + \mu_i + \mu_t + \varepsilon_{it}$$

where Y is one of the performance indicators, $Status$ is a dummy variable taking value 1 when firm is an exporter or services exporter. $Control$ is a set of control variables including firm size (employment), size squared and wages (to control for human capital). We distinguish between Irish and foreign-owned companies by including a dummy variable among our controls, as well as by estimating our model for both categories separately. Finally we include NACE 3-digit and year dummies. The coefficients from our regressions can be interpreted as conditional differences in each of the performance indicators between exporters and non-exporters. In particular, the trade premia computed as exponentiated coefficients show the average percentage difference in performance. We present a summary of the results in Table 38 and the detailed specifications for each performance measure in Tables 39 to 44.

TABLE 38 SUMMARY OF EXPORT PREMIA RESULTS

	Employment %	Productivity %	Wages %	Sales %	Online sales %	Investment %
Exporters						
All	21***	8.6***	14.1***	8.6***	37.1***	6
Irish	26.5***	9.4***	17.4***	9.4***	48.7***	9.8
Foreign	6.9	7.9	2.4	15.1**	9.2	44.9***
Exporters of services						
All	17.5***	13.1***	15.7***	13.1***	40***	6.9
Irish	24.3***	8.5***	16.6***	8.5***	29***	0.8
Foreign	12.5***	18.2***	9.9***	18.2***	55.4***	13.6

Source: Authors' analysis of CSO ASI data.

In general, we find positive exporter premia for all performance indicators confirming the findings by Damijan et al. (2015) who study trade premia for firms in services in Finland, France, Ireland and Slovenia. We first look at our results for

exporter premium in employment. Table 39 shows that on average exporters are 21 per cent larger than non-exporters while exporters of services are 17.5 per cent larger than non-exporters. The difference is more pronounced for Irish exporters – they are on average 26.5 per cent larger than Irish non-exporters and Irish services exporters are 24.3 per cent larger than Irish non-exporters.

The difference between exporters and non-exporters is smaller when we look at the second performance indicator i.e. labour productivity (Table 40). Among all firms, exporters are on average 8.6 per cent more productive than non-exporters, and exporters of services are on average 13.1 per cent more productive than non-exporters. The exporter premium is this time the largest for foreign services exporters. They are on average 18.2 per cent more productive than foreign non-exporters.

Table 41 shows that exporting firms pay higher wages. The difference ranges from 9.9 per cent on average for foreign services exporters to 17.4 per cent for Irish exporters. Continuous variables are in logs.

Table 42 and Table 43 show exporter premia for sales and online sales respectively. Exporter premia for sales range from 9.4 per cent for Irish exporters to 18.2 per cent for foreign services exporters. Exporter premia for online sales are much higher. They range from 29 per cent for Irish services exporters to 55.4 per cent for foreign services exporters. This finding points to the importance of online sales for service activities.

Finally, Table 44 presents the exporter premia for investment. Most of the time the coefficients are not significant, except for foreign firms; on average a foreign-owned exporter invests 44.9 per cent more than a foreign-owned non-exporter.

TABLE 39 EXPORTER PREMIA: EMPLOYMENT

	(1)	(2)	(3)	(4)	(5)	(6)
	All	Irish	Foreign	All	Irish	Foreign
Exporter	1.209***	1.265***	1.069			
	(0.0268)	(0.0315)	(0.0484)			
Exporter of services				1.175***	1.243***	1.125**
				(0.0362)	(0.0443)	(0.0603)
Wage per employee	1.063***	1.131***	0.847***	1.072***	1.147***	0.840***
	(0.0191)	(0.0209)	(0.0469)	(0.0194)	(0.0214)	(0.0467)
Irish	0.572***			0.573***		
	(0.0153)			(0.0154)		
Constant	45.01***	21.02***	75.31***	45.21***	20.88***	79.64***
	(3.380)	(1.421)	(19.59)	(3.400)	(1.421)	(20.91)
NACE 3-digit and year fe	yes	yes	yes	yes	yes	yes
Observations	14,863	12,455	2,408	14,863	12,455	2,408
R-squared	0.189	0.163	0.273	0.186	0.158	0.273

Source: Authors' analysis of CSO ASI data.

Note: Robust standard errors, exponentiated coefficients, all continuous variables are in logs.

TABLE 40 EXPORTER PREMIA: PRODUCTIVITY

	(1)	(2)	(3)	(4)	(5)	(6)
	All	Irish	Foreign	All	Irish	Foreign
Exporter	1.086***	1.094***	1.079			
	(0.0203)	(0.0211)	(0.0516)			
Exporter of services				1.131***	1.085***	1.182***
				(0.0309)	(0.0297)	(0.0698)
Wage per employee	2.622***	2.550***	2.732***	2.624***	2.563***	2.676***
	(0.0407)	(0.0415)	(0.144)	(0.0404)	(0.0415)	(0.139)
Employment	1.059	1.097**		1.058	1.097**	0.797**
	(0.0402)	(0.0484)		(0.0402)	(0.0488)	(0.0855)
Employment sq.	0.994	0.991*		0.994	0.991*	1.023**
	(0.00409)	(0.00498)		(0.00409)	(0.00502)	(0.0106)
Irish	0.770***			0.774***		
	(0.0173)			(0.0174)		
Constant	17.22***	13.09***	35.02***	17.37***	13.00***	65.47***
	(1.835)	(1.483)	(11.35)	(1.853)	(1.482)	(26.70)
NACE 3-digit and year fe	yes	yes	yes	yes	yes	yes
Observations	14,809	12,415	2,394	14,809	12,415	2,394
R-squared	0.679	0.715	0.540	0.679	0.715	0.542

Source: Authors' analysis of CSO ASI data.

Note: Robust standard errors, exponentiated coefficients, all continuous variables are in logs.

TABLE 41 EXPORTER PREMIA: WAGES

	(1)	(2)	(3)	(4)	(5)	(6)
	All	Irish	Foreign	All	Irish	Foreign
Exporter	1.141***	1.174***	1.024			
	(0.0122)	(0.0145)	(0.0188)			
Exporter of services				1.157***	1.165***	1.099***
				(0.0173)	(0.0230)	(0.0224)
Irish	0.825***			0.828***		
	(0.0099)			(0.0100)		
Employment	0.974	0.971	0.793***	0.975	0.972	0.791***
	(0.0225)	(0.0269)	(0.0375)	(0.0228)	(0.0269)	(0.0374)
Employment sq.	1.004*	1.007**	1.021***	1.005*	1.008***	1.021***
	(0.0023)	(0.00297)	(0.00457)	(0.00239)	(0.00296)	(0.00459)
Constant	40.19***	31.65***	104.3***	40.84***	32.35***	106.1***
	(2.262)	(1.990)	(14.55)	(2.324)	(2.034)	(14.94)
NACE 3-digit and year fe	yes	yes	yes	yes	yes	yes
Observations	14,863	12,455	2,408	14,863	12,455	2,408
R-squared	0.516	0.482	0.583	0.515	0.477	0.586

Source: Authors' analysis of CSO ASI data.

Note: Robust standard errors, exponentiated coefficients, all continuous variables are in logs.

TABLE 42 EXPORTER PREMIA: SALES

	(1)	(2)	(3)	(4)	(5)	(6)
	All	Irish	Foreign	All	Irish	Foreign
Exporter	1.086***	1.094***	1.151**			
	(0.0203)	(0.0211)	(0.0772)			
Exporter of services				1.131***	1.085***	1.182***
				(0.0309)	(0.0297)	(0.0698)
Wage per employee	2.622***	2.550***	2.294***	2.624***	2.563***	2.676***
	(0.0407)	(0.0415)	(0.174)	(0.0404)	(0.0415)	(0.139)
Employment	2.879***	2.981***		2.876***	2.983***	2.167***
	(0.109)	(0.132)		(0.109)	(0.133)	(0.232)
Employment sq.	0.994	0.991*		0.994	0.991*	1.023**
	(0.00409)	(0.00498)		(0.00409)	(0.00502)	(0.0106)
Irish	0.770***			0.774***		
	(0.0173)			(0.0174)		
Constant	17.22***	13.09***	2,732***	17.37***	13.00***	65.47***
	(1.835)	(1.483)	(1,063)	(1.853)	(1.482)	(26.70)
NACE 3-digit and year fe	yes	yes	yes	yes	yes	yes
Observations	14,809	12,415	2,394	14,809	12,415	2,394
R-squared	0.805	0.816	0.324	0.805	0.816	0.693

Source: Authors' analysis of CSO ASI data.

Note: Robust standard errors, exponentiated coefficients, all continuous variables are in logs.

TABLE 43 EXPORTER PREMIA: ONLINE SALES

	(1)	(2)	(3)	(4)	(5)	(6)
	All	Irish	Foreign	All	Irish	Foreign
Exporter	1.371***	1.487***	0.916			
	(0.0823)	(0.100)	(0.143)			
Exporter of services				1.400***	1.290***	1.554***
				(0.114)	(0.126)	(0.249)
Wage per employee	4.054***	3.934***	2.206***	4.121***	4.096***	2.836***
	(0.257)	(0.271)	(0.546)	(0.261)	(0.284)	(0.597)
Employment	2.978***	2.196***		2.979***	2.250***	2.632**
	(0.538)	(0.497)		(0.542)	(0.511)	(1.245)
Employment sq.	0.986	1.024		0.986	1.023	0.991
	(0.0193)	(0.0260)		(0.0195)	(0.0261)	(0.0486)
Irish	0.438***			0.445***		
	(0.0315)			(0.0320)		
Constant	0.368**	0.309**	239.7***	0.359**	0.270**	3.595
	(0.182)	(0.173)	(319.6)	(0.178)	(0.151)	(6.093)
NACE 3-digit and year fe	yes	yes	yes	yes	yes	yes
Observations	5,140	4,309	831	5,140	4,309	831
R-squared	0.544	0.488	0.367	0.542	0.484	0.483

Source: Authors' analysis of CSO ASI data.

Note: Robust standard errors, exponentiated coefficients, all continuous variables are in logs.

TABLE 44 EXPORTER PREMIUM: INVESTMENT

	(1)	(2)	(3)	(4)	(5)	(6)
	All	Irish	Foreign	All	Irish	Foreign
Exporter	1.060	0.979	1.449***			
	(0.0513)	(0.0542)	(0.176)			
Exporter of services				1.069	1.008	1.136
				(0.0718)	(0.0827)	(0.134)
Wage per employee	2.338***	2.297***	1.680***	2.343***	2.291***	2.138***
	(0.110)	(0.117)	(0.250)	(0.110)	(0.116)	(0.290)
Employment	2.249***	2.995***		2.252***	2.989***	1.920***
	(0.257)	(0.447)		(0.257)	(0.446)	(0.460)
Employment sq.	1.035***	1.001		1.035***	1.001	1.051**
	(0.0122)	(0.0161)		(0.0122)	(0.0161)	(0.0234)
Irish	1.218***			1.222***		
	(0.0667)			(0.0673)		
Constant	0.0852***	0.0615***	19.43***	0.0849***	0.0621***	0.324
	(0.0276)	(0.0233)	(15.90)	(0.0274)	(0.0235)	(0.317)
NACE 3-digit and year fe	yes	yes	yes	yes	yes	yes
Observations	9,546	7,984	1,562	9,546	7,984	1,562
R-squared	0.400	0.368	0.242	0.400	0.368	0.491

Source: Authors' analysis of CSO ASI data.

Note: Robust standard errors, exponentiated coefficients, all continuous variables are in logs.

CHAPTER 10

Summary and policy implications

In recent years, there has been an enormous expansion in the availability of extremely detailed information on the activities of exporting firms, with a multitude of papers using transaction-level data i.e., narrowly defined products by destination market by firm (see Wagner, 2016 for an extensive review and Lawless et al., 2017, describing data of this type for Ireland). These granular descriptions of products and destinations of exporters, however, almost exclusively relate to the activities of manufacturing firms, given that the ultimate source for this type of data in any country draws on Customs records. There is no equivalent source for services firms, with service exports at a national level generally collected through Balance of Payments financial flows with limited information on the characteristics of the firms involved in the exporting process. Furthermore, the type of fine product definition possible for manufactured goods (the CN-8 classification for example has nine different categories of milk) is not available for services from even the most in-depth sources (for example, Breinlich and Criscuolo, 2011, have 38 services sub-sectors in their analysis and this is one of the most detailed breakdowns used in the literature).

As a result, research on services firms is more narrowly focused on patterns of trade participation and the differences between exporters and non-exporters. This is unfortunate given the growing importance of services in overall trade. The collection of more detailed information on the activities of exporting firms in services and specific obstacles that they face would be of enormous benefit in expanding the understanding of their operations and informing the design of efficient and effective policy supports.

This report aims to provide as detailed a picture as possible of Irish exporting firms in the services sector given these data limitations and provides some insights on the distribution of exporters, the frequency with which service sector firms export goods and the role played by technology in facilitating exporting amongst services firms. We also quantify the exporter premia for Irish services firms across a range of performance indicators, such as employment, wages and productivity.

Our first main finding is that international trade in services is relatively rare, even in an economy as open as Ireland. Around 2.2 per cent of firms in the services sector are engaged in exporting and this is largely dominated by foreign multinationals with the share of Irish exporters being 1.5 per cent of firms in

services. As is consistently found in research on exporters, these firms are larger than non-exporters, as is evident in the result that, on average over the five years of data examined, approximately 17 per cent of total services employment is in exporting firms, even though they account for slightly over two per cent of firms. Export intensity among exporting firms in services is not particularly high at 6 per cent of sales for Irish-owned exporters, and 50 per cent in foreign-owned firms.

Our second key finding is one that firms exporting in the services sector are not necessarily exporting services. Unlike many sources, the Annual Services Inquiry asks firms to report the share of their exports that are goods, rather than making an assumption that, by being classified as a service sector firm, that this is their exclusive source of turnover. It turns out that services firms export both goods and services in almost equal proportion. In 2012, for instance, 41 per cent of services firms exported exclusively services, 14 per cent exported both goods and services, with 45 per cent exporting goods and no services. Excluding firms in the wholesale and retail trade sectors reduces the percentage of goods-only exporters considerably but does not entirely change the overall pattern. The share of services exports in the total for exporting firms is closer to 70 per cent when the wholesale and retail trade firms are excluded but this still leaves 17 per cent of firms exporting only goods and another 15 per cent selling both goods and services. The share of goods being exported is much higher for Irish than for foreign firms, with one-third of exporters exclusively exporting services and well over half exporting no services.

Our finding in regard to the much more limited participation in exporting for services firms than for goods is consistent with the results of studies from other countries (see e.g., Ariu, 2012 for Belgium). Combined with the finding that when services sector firms do export, a large proportion of them export only goods suggests that there are greater costs or barriers to exporting services compared to goods exporting. For some sectors, the requirement for the service to be delivered face-to-face effectively rules out exporting entirely. However, this does not provide a full explanation for low export participation rates in services sectors where exporting does occur and where the service does not rely on in-person interaction.

This suggests that probably the bulk of policy supports in place for goods exporters are relevant to firms in the services sector as well, not least because many of these firms are exporting goods in tandem with their services exports or even exporting solely goods. In the companion piece to this report, which focuses on manufacturing exports, Lawless et al. (2017) showed that the manufacturing sector had a large number of relatively small firms but a high concentration of total export values attributed to just a few extremely large firms. Although the data are somewhat more limited, our analysis of services exports, whether for all

firms or strictly firms exporting services, has a similar pattern of concentration with exports concentrated in a small fraction of firms. This pattern applies both for all firms and when we look specifically at Irish-owned firms.

We cannot say as much about the patterns of product and market coverage for services as we can about goods due to data availability. However the policy challenge of balancing the benefits of specialising in high-demand sectoral or market areas with the risks that concentration brings if there is any adverse shift, applies as much to services as it does to goods. Ongoing monitoring of market trends and early identification and adaption to shifts in technology are therefore central elements of continued export success. As highlighted in the manufacturing exports report, facilitation and support for new market entry by existing exporters has an important role to play in the policy landscape to reduce as much as possible fixed costs that are encountered even by established exporters if they wish to expand. In the specific context of services exporters, Ariu (2012) finds that expansion of the client base plays a much larger role in firm export growth for services firms than it does for goods exporters. This could therefore be incorporated into metrics for policy delivery.

More specific to services than to goods, language is a potentially major impediment to international delivery. Using the information on export destination markets of Irish firms from the Forfás Annual Business Survey of Economic Impact (ABSEI) from 2000 to 2004, Lawless (2010) found that firms in the internationally traded services sector had a higher sensitivity to the presence of a common language than firms in the food and drink sector or in high-technology sectors. Traditional manufacturing, largely exporting to the UK, was the only sector with a greater effect for common language. This suggests a role for educational policy in encouraging the take-up of foreign languages amongst school students and in adult education as a component of the over-arching objective of a highly-educated workforce. The most recently available data from across Europe in 2011 show that Ireland has the highest percentage of the population without any foreign language (72.7 per cent compared to an EU28 average of 34.3 per cent) and the lowest percentage of those with two foreign languages (5.2 per cent relative to the EU28 average of 21.1 per cent).¹⁰ It seems clear that the dominance of English as an international language is a major factor in this pattern and, importantly, that this alleviates much of the potential negative effect of the low foreign language rate on the ability of Irish firms to do business abroad. Even acknowledging this mitigating factor, however, it is a rare instance of Ireland underperforming on an indicator of relevance to international business and therefore an issue of policy significance.

¹⁰ Statistics on foreign language skills (accessed 30/11/2016) available at: http://ec.europa.eu/eurostat/statistics-explained/index.php/Foreign_language_skills_statistics.

While we find that exporters sell several times as much as non-exporters, we also show that export sales are fairly highly concentrated in a relatively small number of firms. This is very much in keeping with the patterns frequently observed for goods exporters (see Wagner, 2016 for a cross-country literature review and Lawless et al., 2017 for Ireland).

Growth in total exports for the firms we examine appears to be driven largely by increases in average exports (the intensive margin of exporting) and not by increases in the number of exporters (extensive margin). This resulted in increased export intensity over the years for which data are available with exports initially accounting for 13 per cent of sales (in 2008) and expanding to 32 per cent of sales in 2012. However, much of this growth was generated by foreign-owned firms and the Irish-owned share of service firm exports declined from 24 per cent to 13 per cent over the sample period. This was however due to a slower growth rate relative to the foreign firms and, in absolute terms, exports by Irish firms grew steadily and the export intensity of exporters increased from 5 per cent of sales to 8 per cent.

Looking across sectors, we find that Irish firms are more dispersed across sectors than are foreign-owned firms, which are very concentrated in a small number of sectors. For example, the top three sectors combined make up 62 per cent of exports for Irish firms whereas the corresponding number for foreign-owned firms is 94 per cent (combining ownership categories gives contribution of 89 per cent of the top three sectors to total exports for all firms). Looking specifically at publishing activities and computer programming, which dominates total services exports, we find that Irish-owned firms in this sector are much less export orientated than the overall sector with 37 per cent of sales being exported compared to over 70 per cent in the sector as a whole. This suggests that potential for export expansion exists for the Irish-owned firms in these specific sub-sectors.

One way in which services exports may be facilitated is through the use of online sales. We find that foreign-owned services exporters sold around one-quarter of their turnover online by 2012, a share that had grown consistently in the previous years. Irish services exporters sold a similar percentage of their turnover online, but the average value of their online sales was much lower than that of the foreign-owned firms. Non-exporting firms made around six per cent of their sales online. In terms of policy supports, information technology infrastructure and the skills to utilise it to its fullest extent at the firm level are central to accessing the international market for services firms.

In the final chapter of this report, we presented quantification of the differences in performance between exporters and non-exporters. Using six different performance indicators (employment, productivity, wages, sales, online sales and investment), we find positive and mainly statistically significant evidence of better performance by exporters than non-exporters in all domains. Irish-owned exporters have on average 26.5 per cent higher employment compared to Irish non-exporters. Irish-owned exporters are around 8 per cent more productive than non-exporters.

REFERENCES

- Ariu, A. (2012). 'Services versus goods trade: Are they the same?' *National Bank of Belgium Working Paper* (237).
- Bernard, A.B., S.J. Redding and P.K. Schott (2011). 'Multiproduct Firms and Trade Liberalization', *The Quarterly Journal of Economics*, 126(3), pp. 1271-1318.
- Breinlich, H. and C. Criscuolo (2011). 'International trade in services: A portrait of importers and exporters'. *Journal of International Economics*, 84(2), pp. 188-206.
- Damijan, J., S.A. Haller, V. Kaitila, Č. Kostevc, M. Maliranta, E. Milet, D. Mirza and M. Rojec (2015). 'The performance of trading firms in the services sectors – Comparable evidence from four EU countries'. *The World Economy*, 38(12), pp. 1809-1849.
- Eurostat (2015). E-commerce in EU enterprises. Eurostat news release 215/2015.
- Grublješić, T. and J.P. Damijan (2011). 'Differences in export behavior of services and manufacturing firms in Slovenia'. *Economic and Business Review*, 13(1-2), pp. 77-105.
- Haller, S.A., J. Damijan, V. Kaitila, Č. Kostevc, M. Maliranta, E. Milet, D. Mirza and M. Rojec (2014). 'Trading firms in the services sectors: comparable evidence from four EU countries'. *Review of World Economics*, 150(3), pp. 471-505.
- International Monetary Fund (2009). Balance of Payments Manual, 6th edition. Washington, D.C.
- Kelle, M. and J. Kleinert (2010). 'German firms in service trade'. *Applied Economics Quarterly*, 56(1), pp. 51-71.
- Kox, H.L. and H. Rojas-Romagosa (2010). 'Exports and productivity selection effects for Dutch firms'. *De Economist*, 158(3), pp. 295-322.
- Lawless, M. (2010). 'Destinations of Irish Exports: A Gravity Model Approach', *Journal of the Statistical and Social Inquiry Society of Ireland*, 39, pp. 1-22.
- Lawless, M., I. Siedschlag, and Z. Studnicka (2017). *Expanding and Diversifying the Manufactured Exports of Irish-Owned Enterprises*, ESRI, forthcoming.
- Muûls, M. and M. Pisu (2009). 'Imports and Exports at the Level of the Firm: Evidence from Belgium'. *The World Economy*, 32(5), pp. 692-734.
- Temouri, Y., A. Vogel and J. Wagner (2013). 'Self-selection into export markets by business services firms – Evidence from France, Germany and the United Kingdom'. *Structural Change and Economic Dynamics*, 25, pp. 146-158.
- Wagner, J. (2016). 'A survey of empirical studies using transaction level data on exports and imports', *Review of World Economics* 152, pp.215-225.
- World Trade Organization (2015). 'Trade in Services: The most dynamic segment of international trade'.

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ISBN **978-0-7070-0430-3**



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