



Research on E-commerce exports: Microdata Linking Analysis

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Executive Summary

- This study, funded by the Department for International Trade (DIT), uses microdata linking methods to analyse the characteristics and activities of firms engaging in e-commerce exports in the UK. It follows the recommendations of the previous report on digital trade¹ and the OECD recommendations² to apply innovative methods to improve the evidence on cross-border digital trade.
- The linked dataset is obtained by merging the firm-level data from the ONS E-commerce Survey with the firm-level data from the ONS International Trade in Services (ITIS) Survey. To the best of our knowledge, this is the first time that such data linking is attempted. The estimates utilising the linked data cover the period 2010 to 2018, though additional analysis of the 2019 E-commerce Survey is also presented in the study.
- The resulting linked dataset provides a unique combination of variables that can be used to obtain insights on e-commerce exports, which could not be obtained using each dataset individually. These variables can provide insights on the characteristics of firms engaging in cross-border e-commerce exports, such as their turnover, firm size, services exports size bracket and SIC code, as well as insights on their service export activities, such as the destination countries and types of services exported.
- Nevertheless, some limitations apply to what can be estimated using the linked dataset. The linked dataset cannot be used to obtain the monetary value of e-commerce exports. Also, it cannot provide specific details, such as the types of goods or services exported via e-commerce or the destination countries for e-commerce exports. In addition, the coverage is incomplete. The dataset does not cover all sectors of the UK economy and only concerns e-commerce exports by businesses; consumer to consumer or government to consumer e-commerce transactions are not included. Lastly, time trends may be confounded by the changing sample composition of the linked dataset.

Exporting via a website or an app

- Between 2010 and 2018, the share of firms receiving e-commerce orders from abroad via a website or an app increased slightly, from 14.5% to 16.4%. Orders may not necessarily translate into actual exports but serve as a good proxy for them³.
- The propensity to export using a website or an app varies significantly depending on firm size. Based on 2016 data, large firms (with employment of 250 or more) are 50% more likely to export using a website or an app, compared to small firms (with employment less than 50).
- Between 2010 and 2018, approximately half of firms which export using a website or an app generated less than 10% of their revenues from website or

¹ Available at: <https://www.gov.uk/government/publications/understanding-and-measuring-cross-border-digital-trade>

² Available at: <https://www.oecd.org/sdd/its/Handbook-on-Measuring-Digital-Trade.htm>

³ 'Exporting via web, app or EDI', 'cross-border e-commerce sales' or 'receiving orders from abroad' are used interchangeably throughout this report.

app sales (to customers located in the UK or abroad). This suggests that website or app sales still remain a relatively small source of revenue, although the trend is increasing.

- Firms exporting using a website or an app are only slightly more likely to increase the share of e-commerce sales in their turnover, compared to firms which do not. Similarly, there is no evidence that firms that export using a website or an app are more likely to increase their employment, compared to firms which do not export using a website or an app.
- Among individual sectors, and based on 2016 data, the highest propensity to export using a website or an app is found in sectors such as Accommodation and food service activities, Retail trade, and Information and communication. The lowest propensities are found in sectors such as Administrative and support services, Other service activities, Electricity and utilities, Real estate activities, Construction, as well as the Manufacturing sector.
- Among firms exporting using a website or an app, the largest services exports categories include Computer services and Other business services.
- The most important destinations for services exported by firms engaging in website or app exports are the US, Germany, Switzerland and Spain.
- No evidence has been found to suggest that firms engaging in exports using a website or an app were more likely to broaden the range of exported services, or to broaden the range of countries to which they export services, compared to firms which do not receive website or app orders from abroad between 2010 and 2018.
- In 2016, the most frequently cited difficulty in exporting to the EU using a website or an app was the high cost of delivering or returning the products.

Exporting using Electronic Data Interchange (EDI) methods⁴

- Between 2010 and 2018, the share of firms receiving e-commerce orders from abroad via EDI methods declined, from 14.7% in 2010 to 10.6% in 2018. Therefore, exporting using a website or an app became much more common than exporting using EDI in recent years.
- Using EDI to export is mostly dominated by medium-size and large firms. In 2016, only 2% of firms with employment lower than 250 relied on EDI to export.
- Firms which use EDI to export tend to rely on EDI. Approximately half of these firms generated more than 50% of their turnover from EDI sales (to customers located in the UK or abroad, 2016 data).
- In 2016, the highest propensity to export using EDI was found in the Manufacturing sector. The lowest propensities were found in services sectors, with the exception of the Information and communication industrial group.
- Among firms exporting using EDI, the largest services exports categories include Postal and courier services and Computer services.

⁴ Orders received using electronic transmission methods that allow the use of automated processing, such as non-internet EDI, XML or EDIFACT, but excludes manually typed e-mails, fax and phone orders, or orders received via a website or an app.

- Germany and Spain appear to be more important destinations for firms exporting using EDI compared to firms not exporting using EDI.

Insights from the 2019 E-commerce Survey microdata

- Additional analysis was performed using the 2019 E-commerce Survey data to obtain insights based on the latest version of the survey which included additional variables on the share of e-commerce exports in turnover.
- Among the surveyed firms, the estimated share of website or app exports in total turnover stands at 2.5%. The estimated share of EDI exports in total turnover of surveyed firms stands at 1.3%. This means that 3.8% of the total turnover is attributable to e-commerce exports.
- The total e-commerce sales (website, app and EDI) to customers located in the UK and abroad accounted for 23.3% of turnover in 2019. Cross-border e-commerce sales (exports) accounted for 16.3% of all e-commerce sales.
- However, the reliance on e-commerce exports as a source of revenue varies across firm sizes. The share of e-commerce exports in turnover of the largest firms (3.9%) is over twice as high as that of medium sized firms (1.6%), or three times as high as that of the smallest firms (1.3%).
- The sectors with the highest propensity to rely on a website or app to export includes Accommodation and food services, Wholesale and retail trade, and Transportation and storage. The sectors with the highest propensity to rely on EDI to export include Manufacturing, Transportation and storage, and Wholesale and retail trade.
- Exporting activity using a website or an app generated the highest share of turnover for firms in Information and communication, Transportation and storage, and Manufacturing. For exporting activity using EDI, EDI exports generated the highest share of turnover for firms in the same three sectors.

1 Introduction

This chapter begins with a brief discussion of the context of the study in Section 1.1, followed by the outline of the research objectives in Section 1.2. The structure of the report is presented in Section 1.3.

1.1 Background

This study was funded by the Department for International Trade (DIT). The study follows the recommendations of the previous report on ‘Understanding and measuring cross-border digital trade’ (DIT and DCMS, 2020), as well as OECD recommendations to explore innovative, non-conventional, methods to improve the evidence base on cross-border digital trade (OECD, 2020).

This study only looks at one aspect of digital trade: e-commerce. More specifically, it explores the use of microdata linking methods to create statistics on e-commerce exports of UK firms covering the period 2010 to 2018, and separately, the latest available microdata from the 2019 ONS E-commerce Survey.

E-commerce (or ‘digitally ordered’) exports are goods or services that are sold abroad via computer networks by methods specifically designed for the purpose of placing or receiving orders, excluding those made by phone, fax or manually typed email. The payment and ultimate delivery of the goods and services do not have to be conducted online.

The linked dataset is obtained by merging the firm-level data from the ONS E-commerce Survey (ONS, 2020) with the firm-level data from the ONS International Trade in Services (ITIS) Survey (ONS, 2019). The resulting linked dataset provides a unique combination of variables that can be used to obtain insights on digital trade, which could not be obtained using each dataset individually.

The estimates obtained from the linked dataset cover e-commerce exports of UK firms and characteristics of these firms. E-commerce exporting activity, however, is only one of many activities which could fall under the definition of digital trade (DIT and DCMS, 2020). Other forms of digital trade which are not covered by the definition of e-commerce exports include:

- Digitally delivered services that are not digitally-ordered (e.g. banking services ordered physically at a bank branch);
- Exports of goods and services ordered via e-mail, phone or fax;
- Exports of goods by individual consumers;
- Exports of goods and services by government authorities.

As mentioned above, the estimates in this report cover only e-commerce exports by firms in certain sectors and the characteristics of these exporting firms. Importing activity and the characteristics of importing firms could not be assessed as the ONS E-commerce Survey does not currently collect data on e-commerce imports. DIT is working closely with the ONS to improve the quality and granularity of ONS e-commerce statistics, including adding new questions to the ONS E-commerce survey that capture importing activity by businesses.

In the context of the work conducted in the previous 2020 DIT/DCMS study on digital trade, the estimates of e-commerce exporting activity based on microdata linking methods provide additional evidence on UK's digital trade and complement the statistics developed as part of the 2020 study.

1.2 Objectives of the study

The objectives of the study are:

- To establish the usefulness of the linked dataset in providing information on trade-commerce activities of UK firms;
- Using the linked dataset to produce statistics that describe the importance of e-commerce exports to UK firms, the characteristics of exporting firms using e-commerce (such as their size, employment, sectoral composition), and the performance of these firms;
- Using the ONS E-commerce Survey micro-level data, to produce additional statistics on e-commerce activity of UK firms which are not available in the publicly available statistical release (ONS, 2021).

These objectives expand on the objectives and the analysis conducted in the previous 2020 digital trade study by DIT/DCMS, which covered aspects such as the definition of digital trade, measurement challenges and a compilation of available data on digital trade, as well as recommendations on how to develop better and more granular statistics in this area.

1.3 Report structure

The remaining content of the report is divided into the following chapters:

- Chapter 2 presents an overview of the microdata linking approach and a description of the sources of data;
- Chapter 3 presents the statistics obtained from the linked dataset on characteristics and performance of firms engaging in e-commerce exports using a website or an app;
- Chapter 4 presents the statistics obtained from the linked dataset on characteristics and performance of firms engaging in e-commerce exports using electronic data interchange (EDI) methods;
- Chapter 5 presents the statistics obtained from the 2019 E-commerce survey microdata, summarising the e-commerce activity of firms engaging in e-commerce exports.

The Appendix to the report provides a detailed presentation of variable availability in secure access versions of the E-commerce Survey and the ITIS Survey (Appendix A).

2 E-commerce microdata sources and the linking methodology

This chapter discusses the logic of microdata linking (Section 2.1). This is followed by a detailed description of the sources of data: the E-commerce Survey (Section 2.2) and the ITIS Survey (Section 2.3) conducted by the ONS. The results of microdata linking are described in Section 2.4. This is followed by a discussion on the limitations of the linked dataset in Section 2.5.

2.1 Using microdata to develop statistics on digital trade

Microdata linking *‘provides an opportunity to develop new statistics and indicators and to discover new information’* (Eurostat, 2019). Development of microdata linked datasets relies on identifying reporting units (such as businesses or individuals) surveyed in two or more independently collected studies. Using unique, anonymised identifiers, the responses obtained from these reporting units can be matched across the surveys. When combined, these responses provide a richer set of variables covering various aspects of their activity. Micro-level data linking is useful in the research of specific topics where no dedicated official statistical releases are published, as in the case of digital trade.

The approach based on micro-level data linking has been specifically recommended to provide better and more detailed estimates of cross-border e-commerce activity (OECD, 2020) (DIT and DCMS, 2020). The 2020 DIT/DCMS report recommended linking the ONS E-commerce Survey data with the ONS International Trade in Services survey data⁵ in order to create a dataset on UK firms covering the information on:

- E-commerce activity and the use of ICT, collected as part of the E-commerce Survey;
- Services trade activity, collected as part of the ITIS Survey.

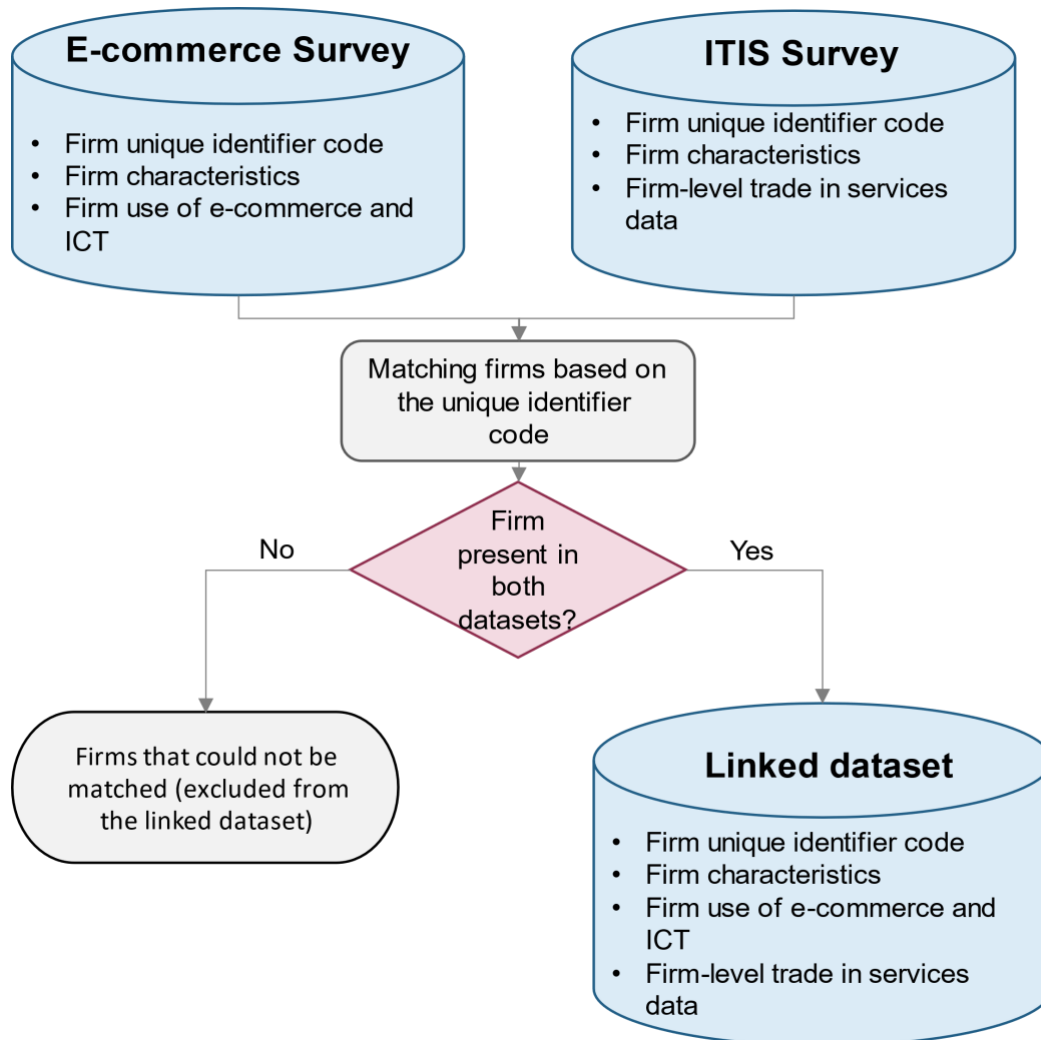
The process of linking the datasets is illustrated in the diagram in Figure 2-1. The matching process is based on a unique reporter (firm) identifier code present in both the E-commerce Survey and the ITIS Survey. Data on firms present in both datasets in a given year enter the linked dataset, where the variables are merged to create a set of indicators on both the firms’ e-commerce and trade in services activities, as well as a more comprehensive set of variables on their characteristics. Firms which could not be linked (because they appear in only one of the datasets) are excluded from the linked dataset.

Taken together as a linked dataset, the variables provide a more comprehensive view on the activities and characteristics of UK firms engaging in cross-border e-commerce exports compared to data available in each survey individually. The discussion in the

⁵ A similar approach can be followed by linking ONS E-commerce with HMRC trade in goods microdata. This would be an interesting avenue for future research to complement the insights generated by our study.

following sections describes in detail the information available in each dataset and the results of linking.

Figure 2-1 Data-linking process



Source: CE analysis.

2.2 The E-commerce Survey

The E-commerce Survey (ONS, 2020) collects data on the use of ICT and the value of electronic sales (e-commerce) made by UK businesses. The survey is conducted annually, with recent sample sizes reaching around 11,000 businesses (reporting unit level: enterprise), covering selected industrial sectors according to the SIC classification:

- Manufacturing (Divisions 10-33);
- Utilities (Divisions 35-39);
- Construction (Divisions 41-43);
- Wholesale (Divisions 45-46);

- Retail (Division 47);
- Transport and storage (Divisions 49-53);
- Accommodation and food services (Divisions 55-56);
- Information and communication (Divisions 58-63);
- Other services (Divisions 68-74, 77-82, 95.1).

The survey has incomplete industry coverage. It excludes industries such as Agriculture, Public administration, Education, Health and social work, and Arts, entertainment and recreation.

The micro-level data from the E-commerce Survey is available for each year over the period 2001-2019 (as of March 2021). The sampling method of the survey has evolved over that period, with the share of small businesses in the sample increasing over the period. It should be noted that the micro-level dataset sample is not representative of the entire UK business population.

Importantly, the survey questionnaire has been revised multiple times, with multiple questions being dropped or added to the survey. The full list of variables of potential interest for this study and their availability across the years is presented in Appendix A. Many of these variables are not available as a complete time series because they have either been discontinued, or the definition of the surveyed e-commerce activity has changed.

For example, one question of particular interest to this study, '*% of orders received from customers over ICT*' by region (UK, EU, non-EU), is available only for 2008 and for 2019. In the surveys that collected data for years 2010 to 2018, the questions have been replaced by '*% of orders received via website*' and '*% of orders received via EDI⁶*', however no breakdown by region is available (only a Yes/No answer on whether some of these orders were placed by customers in the UK, EU or non-EU).

The definition of e-commerce activity has also evolved over the years. For example, the survey asks for:

- '*% monetary value of orders received over the Internet*' and '*% made over ICTs, other than the Internet*' in years 2001-2007,
- '*% of orders received from customers over ICT*' in 2008,
- '*total % value orders received from customers, over website or an app*' and '*total % value orders received from customers, over EDI*' in years 2010, 2012, 2014 and 2016

These definitions differ slightly in what sales channels they cover. For example, in the 2008 question the response identifies '*% of orders received from customers over ICT*' which includes orders '*...over website, EDI and other computer networks*'. Therefore, the definition is broader compared to '*% monetary value of orders received over the Internet*' identified in years 2001-2007 and may include additional activity. These differences may limit the comparability of responses across the years and introduce additional uncertainty.

⁶ EDI refers to Electronic Data Interchange type of orders. This includes any orders received via electronic transmission methods which allowed their automatic processing.

Additional variables which can be useful in the analysis include:

- reporting unit's employment,
- reporting unit's SIC Code,
- reporting unit's reference number (for linking with other datasets),
- data on cross-border e-commerce import orders placed by the business (only available before 2011, questions varied from year to year)
- share of physical products, digitised products and services in e-commerce imports (2001-2004 only),
- difficulties experienced by firms in exporting to the EU using a website or an app (2016 only).

However, the dataset lacks other variables that could provide additional insights, such as the monetary value of e-commerce orders, firms' turnover, firms' location in the UK (such as NUTS1 or similar classification).

As discussed in detail in the previous study on the UK's digital trade (DIT and DCMS, 2020), the ONS E-commerce Survey covers digitally ordered exports only. However, the definition of digital trade is broader, as it also includes trade in digitally delivered services (services and data flows that are delivered digitally as downloadable products). As the E-commerce Survey does not collect data on the mode of supply, the identified e-commerce activity in this report is only a subset of the wider activity falling under the definition of digital trade.

In addition, the E-commerce Survey only collects information on activities of businesses, rather than individuals or public authorities. Therefore, it cannot be used to provide insights on consumer or government e-commerce activity.

In summary, the E-commerce Survey on its own can provide limited data on certain aspects of e-commerce activity undertaken by UK firms. The data could be used to obtain information on:

- The characteristics of firms engaged in e-commerce, such as their employment size and SIC codes,
- The share of e-commerce orders in firms' turnover, broken down by region (EU, non-EU and UK) and total e-commerce exports (2008 and 2019),
- The share of e-commerce orders in firms' turnover (2010-2016). This can be supplemented with information on whether some of these orders came from customers located in the UK, EU and non-EU,
- Statistics on the types of difficulties experienced by firms exporting to the EU using a website or an app.

2.3 The International Trade in Services Survey

The International Trade in Services Survey (ITIS) micro-level data are available for each year over the period 1996-2018. The ITIS survey collects data on exports and imports of services by UK firms.

Sampling of the ITIS survey tends to focus on firms that are more likely to trade in services. This is achieved by direct sampling in ‘High Propensity Industries’ (such as consultancy and computer services firms) and by re-selecting a group of ‘Known Traders’ based on their reported services trade activity in the previous reporting period. The survey, however, excludes certain sectors, such as travel and transport, banking and other financial institutions, higher education, film and television, charities, and most legal activities.

The dataset is organised at an individual transaction level – a single reporting unit reports multiple international transactions in services (imports or exports). Each transaction is described by:

- transacted product category (according to 51-product classification),
- destination/origin country,
- transaction value,
- reporting unit’s turnover (from 2015 onwards⁷),
- reporting unit’s SIC code,
- reporting unit’s location (UK region).

Other variables in the dataset include technical sample weights and other parameters used in building the dataset. A comprehensive presentation of variable availability year by year is available in Appendix A.

In addition, the ITIS survey collects data on the mode of delivery of exported services, or more specifically, on the share of services delivered remotely in each of 14 broader services type categories. These data are used by the ONS to compile the experimental Trade in services by modes of supply statistics (ONS, 2019). As discussed in detail in the previous DIT/DCMS study (DIT and DCMS, 2020), remote delivery of services using ICT is another form of digital trade different from e-commerce. However, as digitally ordered services can, but do not have to be delivered digitally (and vice-versa), there exists an overlap between the two types. Nevertheless, the microdata available to secure access users at the time of analysis did not include the responses on the mode of delivery of exported services. Therefore, it could not have been used in analysis.

In conclusion, the ITIS survey can provide useful information on trade in services, but it provides no detail on whether these services were digitally ordered/delivered. Therefore, for the purpose of measuring digital trade, it could be enhanced by linking the ITIS survey with the E-commerce Survey responses on firms’ e-commerce exporting activity.

2.4 The linked dataset

The linked dataset was created by matching the firm-level data from the E-commerce Survey with firms’ transactions reported in the ITIS survey. The matching was done

⁷ At the time of writing the turnover variable was not available for the year 2019.

using the reporting units reference number. As only some firms have been sampled in both surveys, the number of firms in the matched dataset decreases substantially.

The number of firms on which data could be linked between the E-commerce and the ITIS surveys is presented in Table 2-1. This number has been steadily increasing up to 2016, likely as a result of an increasing sample size of the E-commerce survey. The number, however, declined in 2018, as the ITIS secure access data for that year at the time of writing was available only for firms included in the quarterly sample, as well as firms included due to their status being recognised as ‘known services traders’ or having high propensity to trade. This resulted in a lower match rate in 2018 and a lower sample size.

Table 2-1 Number of firms and the match rate in the linked dataset

	2010	2012	2014	2016	2018
Number of firms in the linked dataset	660	718	1,913	2,382	1,054
Match rate	5.4%	5.7%	5.7%	5.7%	4.3%

Notes: Match rate is measured as the ratio of firms in the linked dataset to the total number of firms in both the E-commerce and the ITIS surveys.

Sources: CE analysis based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

Given that the matched dataset includes variables and data from both the E-commerce and the ITIS surveys, it can be used to provide additional insights which cannot be obtained from either of the surveys alone.

Depending on the availability of variables in a given year of analysis, these insights can include:

- Characteristics of firms engaging in cross-border e-commerce exports, such as their turnover, employment size bracket, services exports size bracket and SIC code;
- Services exports destination countries for firms engaging in e-commerce exports;
- Types of services exported by firms engaging in e-commerce exports;
- Difficulties in exporting to the EU experienced by firms engaged in e-commerce exports (2016 only).

These insights form the core of analysis presented in Chapter 3 (on firms engaging in e-commerce exports via a website or an app) and in Chapter 4 (on firms engaging in e-commerce exports using EDI).

Considering the availability of variables over time, the linked dataset is more suitable for analysis of exporting activity. This is because the questions on e-commerce importing activity have only been available in selected years before 2011, and therefore, are not suitable for more up-to-date analysis. Therefore, the analysis of the linked dataset is focused on e-commerce exporting activity only.

It should be noted that the dataset identifies firms’ e-commerce exporting activities, which may form only a subset of activities falling under a broad definition of digital trade, or may be generally dissimilar to activities identified in other trade datasets.

For example, the definition of e-commerce activity can be contrasted with the definitions used in the experimental estimates of UK Trade in services by mode of supply (ONS, 2019). These statistics identify four categories of modes of supply, of which Category 1 “Remote trade” could be of interest, as this category includes services being supplied by a UK business to overseas customers remotely by email or an online platform. However, this definition is dissimilar to the classification used in the E-commerce Survey, which specifically excludes manually typed emails from the estimate of internet and ICT trade. Therefore, firms engaging in these activities may not necessarily be engaging in e-commerce as defined for the purpose of the E-commerce Survey. Also, the modes of supply data concerns exports of services only, while the e-commerce activity surveyed by the E-commerce survey concerns both goods and services exports.

The definition of e-commerce trade is also different from the Digital Sector trade estimates published by DCMS (DCMS, 2021). As trade activity of the DCMS Digital Sector is not necessarily stemming from e-commerce (digital ordering) and can include any types of transactions (digital or non-digital) by the Digital Sector as defined using the SIC classification, it is dissimilar to e-commerce trade. Therefore, care should be taken when comparing insights obtained from these datasets.

2.5 Limitations of dataset linking

The process of linking the E-commerce and the ITIS surveys resulted in creation of a richer dataset. However, the process of linking introduces some limitations, which make the dataset unsuitable for making certain inferences or producing certain statistics.

The sample in the linked dataset is not representative of the whole business population. Both the E-commerce Survey and the ITIS Survey samples have been selected according to specific methodologies. Therefore, the firms in the linked dataset, which were sampled in both surveys in the same year, form a subset of each dataset’s sample. The resulting subset includes firms which may differ from the rest of the sample in terms of their characteristics. Therefore, many of the results cannot be extrapolated from the sample onto the entire business population, such as for example on the total value of e-commerce exports or the number of firms engaging in e-commerce.

At the same time, this impairs the comparability of statistics produced using the linked dataset with statistics based on the entire business population. For example, comparisons of the employment size bracket distribution of firms engaging in cross-border e-commerce (obtained from the linked dataset) with the distribution of all UK firms (obtained from the publicly available data) may not be informative. This is because the sampling method of both the E-commerce Survey and the ITIS Survey tends to focus on certain sectors (E-commerce and ITIS surveys), or firms with higher propensity to trade services (ITIS survey). Therefore, some sizes may be overrepresented or underrepresented in the sample of the linked dataset. For

example, as a result of matching, the linked dataset does not include any firms with fewer than 10 employees (since none were simultaneously sampled for the E-commerce and the ITIS surveys). Therefore, by construction, the linked dataset will not include any firms engaging in e-commerce exports with fewer than 10 employees, even though such businesses exist in the population.

In this instance, it may be more informative to compare the size bracket distribution of firms engaging in cross border e-commerce from the linked dataset with the distribution of firms not engaging in cross-border e-commerce also from the linked dataset.

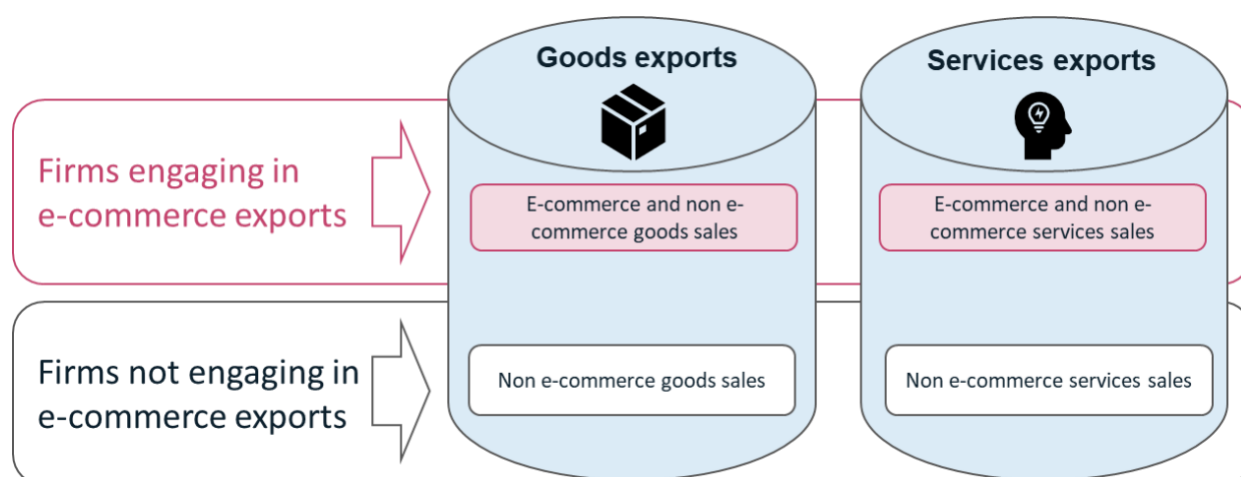
While the linked dataset benefits from additional variables, these are still insufficient to obtain an estimate of the monetary value of e-commerce cross-border trade. This is because data on the share of cross-border e-commerce exports in turnover has not been collected in the E-commerce Survey, with the exception of years 2008 and 2019⁸.

To showcase these limitations in detail, the linked dataset can be used to identify two types of firms: those engaging in e-commerce exports, and those not engaging in e-commerce exports (as shown in Figure 2-2). The supplementary variables merged from the ITIS survey provide data on these firms' services exports, but with no indication of whether these services were ordered via e-commerce or using other methods. Therefore, the linked dataset cannot provide insights specifically on e-commerce services sales, but only on all services exports of firms engaging in e-commerce exports, regardless of how these were ordered.

Consequently, obtaining an estimate of the monetary value from the linked dataset would require additional assumptions and imputations that are unlikely to hold. Also, as discussed above, certain additional issues may arise due to a lack of sample representativeness. Instead, an estimate of the total e-commerce trade value is obtained using the 2019 E-commerce Survey data only, as presented in Chapter 5.

⁸ At the time of writing, the ITIS micro-level data have not been made available for 2019 to allow linking with the 2019 e-commerce Survey.

Figure 2-2 Data-linking process



Source: CE analysis.

Focus: what level of detail does the linked dataset provide?

Using the linked dataset, it is possible to identify and compare firms engaging and not engaging in e-commerce exports. However, for firms engaging in e-commerce exports, it is not possible to analyse specifically their e-commerce exports, but rather, some aspects of their services exporting activity. This is presented in two examples below:

Example 1: Firm A engages in e-commerce exports, as declared in the E-commerce survey. It uses e-commerce to export goods only to multiple countries but does not export services at all. From the perspective of the linked dataset:

- As firm A does not declare exports of services at all, it can be inferred that it uses e-commerce to export goods only.
- There are no data to identify destination countries for exported goods. The linked dataset provides destination countries only for the exports of services, regardless of whether the orders were made using e-commerce or other method. As firm A does not export services, it will not be contributing additional data used in a group analysis of firms engaging in e-commerce exports.

Example 2: Firm B uses e-commerce to export, as declared in the E-commerce survey. It uses e-commerce to export services only to many countries, however, most of its export orders are received using non e-commerce channels. From the perspective of the linked dataset:

- Firm B is classed as engaging in e-commerce exports. The variables from the ITIS survey provide information on destination countries for its services exports, but not specifically for its e-commerce services exports.
- Therefore, the destination countries for exports of firm B will be analysed along with other firms engaging in e-commerce exports. However, it is possible that many of these destinations were serviced by firm B only relying on none-commerce orders.

These two examples illustrate the limitations of the dataset in identifying specifically the e-commerce activity. Given that the sampling of the ITIS survey (and by extension, the sampling of the linked dataset) is focused on sectors primarily trading in services, it is likely that cases similar to firm B are more frequent than cases similar to firm A.

Another limitation of the linked dataset stems from the relatively low sample size, especially in earlier years. The sample size in the linked dataset declines substantially compared to the sample sizes covered individually in the E-commerce Survey and the ITIS Survey. Smaller sample size of the linked dataset introduces a large variance to certain statistics, which increases as the number of firms gets smaller. This, for example, limits the analysis of certain subgroups of the business population where the statistics are not supported by a sufficient number of firms. Therefore, the statistics

presented in the report are restricted to these where a sufficiently large number of firms supports the estimate.

Lastly, it should be noted that other limitations in the scope of the activity that apply to the E-commerce survey or the ITIS survey also apply to the linked dataset. These include the lack of coverage for the consumer or government exporting and importing via e-commerce, and the lack of coverage of the smallest businesses with fewer than 10 employees. Similarly, the definition of e-commerce exports derived from the E-commerce survey specifically refers to digitally ordered exports, which are only a subset of the wider digital trade activity that also includes digitally delivered services. Therefore, many firms which were classed as not engaging in e-commerce exports in the analysis presented further could be engaging in digital trade, provided that they use digital delivery methods to service customers located abroad.

3 Characteristics and performance of firms engaging in e-commerce exports using a website or an app

Key findings:

- Between 2010 and 2018, the share of firms receiving e-commerce orders from abroad via a website or an app increased slightly. In 2018, this share stood at 16.4% (Table 3-1).
- Based on 2016 data, the propensity to export using a website or an app varies significantly depending on firm size. Large firms (≥ 250 employees) are 50% more likely to export using a website or an app, compared to smaller firms (< 50 employees) (Figure 3-3).
- In 2016, approximately half of firms which export to UK or foreign customers using a website or an app generated less than 10% of their revenues from website or app sales. This suggests that website or app sales still remain a relatively small source of revenue, although the trend is increasing (Table 3-2).
- Firms exporting using a website or an app are only slightly more likely to increase the share of e-commerce sales in their turnover, compared to firms which do not (based on 2010-2018 data, Table 3-3).
- Similarly, there is no evidence that firms engaging in exports using a website or an app are more likely to increase their employment, compared to firms which do not export using a website or an app (Figure 3-5).
- Among individual sectors, the highest propensity to export using a website or an app is found in sectors such as Accommodation and food service activities, Retail trade and Information and communication. The lowest propensities are found in groups such as Administrative and support services, Other services activities, Electricity and utilities, Real estate activities, Construction, as well as the Manufacturing sector (2016 data, Figure 3-6).
- Among firms exporting using a website or an app, the largest services exports categories include Computer services and Other business services (2016 data, Figure 3-8).
- The most important destinations for services exported by firms engaging in website or app exports are the US, Germany, Switzerland and Spain (2016 data, Figure 3-10).
- No evidence has been found to suggest that firms that export using a website or an app are more likely to broaden the range of exported services (2010-2018 data, Figure 3-9), or to broaden the range of countries to which they export services, compared to firms which do not rely on receiving website or app orders from abroad (2010-2018 data, Figure 3-11).
- The most frequently cited difficulty in exporting to the EU using a website or an app is the high cost of delivering or returning the products (2016 data, Figure 3-12).

3.1 Introduction

The estimates presented in this chapter have been obtained using the linked dataset for years 2010, 2012, 2014, 2016 and 2018. In some instances, the analysis is focused on year 2016. Even though the linked dataset could be obtained for a more recent year (2018), the sample size in year 2016 was by far the largest (as presented in Table 2-1). Therefore, a focus is given to 2016 as this year captures the largest number of responses.

3.2 Share of firms engaging in e-commerce exports using a website or an app

Table 3-1 presents the shares of firms engaging in e-commerce activity using a website or an app. This is based on responses to a set of questions that were included in the E-commerce survey, asking firms whether they have received orders via a website or an app from customers located in the UK, EU or non-EU. While the E-commerce survey covers firms engaging in e-commerce exports, it does not provide information on whether their sales are goods, services or both. The ITIS survey provides data on exports of services but no information on whether these export orders were received via a website or an app. Therefore, it is not possible to infer from the variables in the linked dataset whether the e-commerce orders (from anywhere) are for goods, services or both⁹.

Focusing the analysis on year 2016, 29.8% of firms received orders via a website or an app from the UK or abroad. Approximately half of these firms (13.4%) received orders from abroad (either from the EU, non-EU, or both). This represents a decline from previous years and is likely a result of a changing sample composition, which in more recent years (2014-onwards) included a larger share of smaller firms. Smaller firms are less likely to be involved in cross-border e-commerce.

In 2016, 13.1% of firms received orders from the EU, while 11.2% of firms received orders from non-EU countries. As exporting to the EU and non-EU is not mutually exclusive, this means that most firms that export using e-commerce to the EU also export to non-EU.

⁹ Some firms may, however, declare no exports of services, which would imply that their only e-commerce exports were goods. These firms are not very frequent in the linked dataset.

Table 3-1 Share of firms receiving e-commerce orders via a website or an app

Share of firms receiving orders via a website or an app (%)	2010	2012	2014	2016	2018
from anywhere	24.4	31.1	30.6	29.8	29.7
from the UK	24.4	30.4	30.2	29.6	29.2
from abroad	14.5	18.2	14.8	13.4	16.4
from the EU	14.5	17.5	14.0	13.1	16.1
from non-EU	11.7	13.8	11.7	11.2	12.6

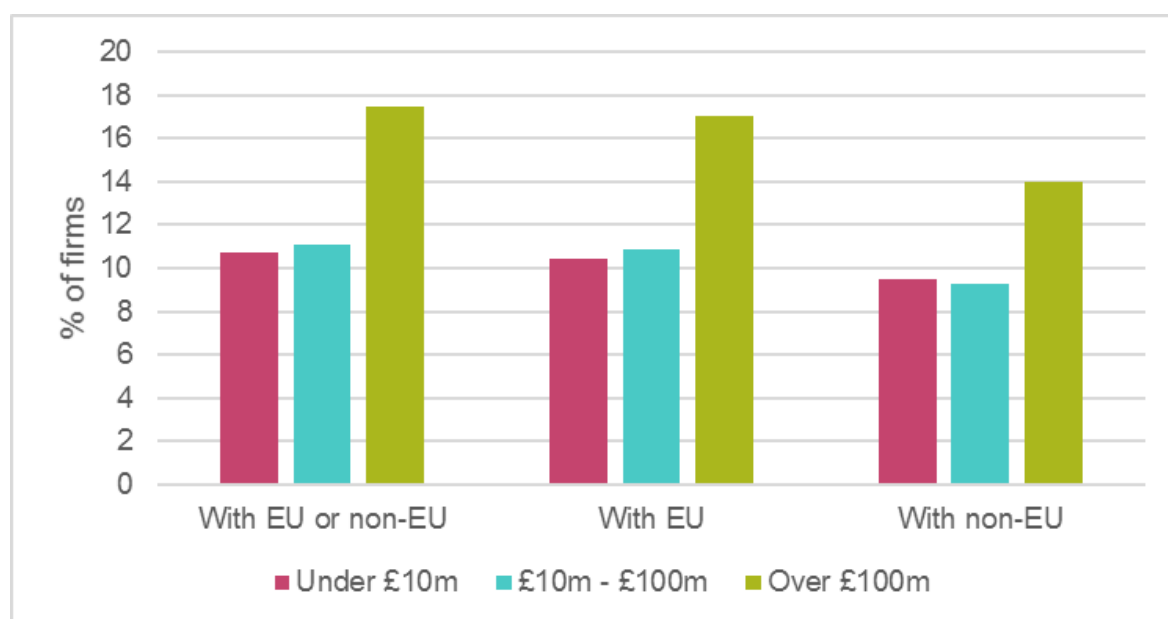
Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

3.3 Turnover and exports of firms engaging in e-commerce using a website or an app

Figure 3-1 presents the proportion of firms engaging in e-commerce exports by different turnover size brackets in 2016. In general, larger firms are more likely to engage in cross-border e-commerce. Of firms with annual turnover of less than £10m, only 10.8% engage in e-commerce exports. Among firms with turnover between £10m and £100m, the share is similar, at 11.1%. However, among the largest firms with annual turnover of over £100m, 17.5% of firms engage in e-commerce exports. This means that the largest firms have over 50% greater propensity to export than firms with turnover of less than £100m.

A further breakdown into firms exporting using a website or an app to the EU and non-EU is presented in Figure 3-1. As exporting to the EU and non-EU is not mutually exclusive, most firms that export using e-commerce tend to export to both EU and non-EU based customers. This is true of all size brackets.

The shares of firms engaging in exports to EU are similar to the overall shares of firms engaging in cross-border e-commerce (with the EU or non-EU). This means that regardless of the size bracket, nearly all firms which export via a website or an app use e-commerce to obtain orders from the EU. The shares of firms exporting-via e-commerce to non-EU are slightly lower. The largest difference is observed for firms with turnover over £100m: around 17.0% of these firms export to the EU using e-commerce, but only 14.0% export using e-commerce to non-EU.

Figure 3-1 Percentage of firms exporting using a website or an app, by turnover size bracket (2016)

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

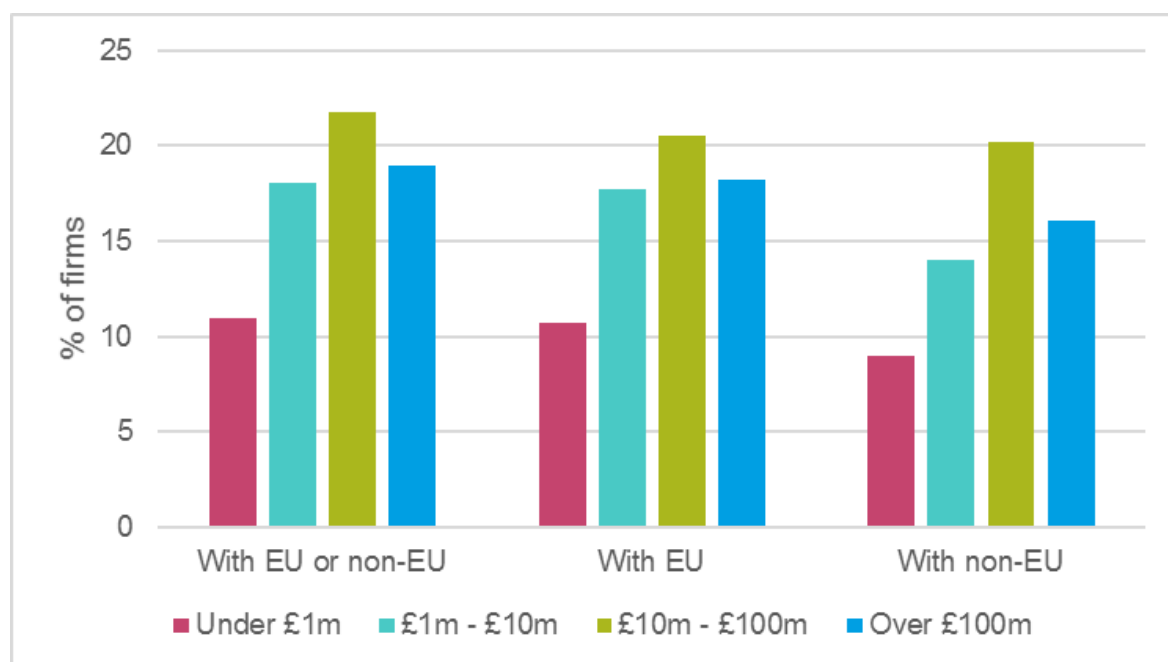
An alternative breakdown using size brackets based on the value of services exported is presented in Figure 3-2. This breakdown is based on the reported value of services exported in each year by the firms in the linked dataset. Given the limitations of the dataset, it is not possible to establish the value of goods exported by these firms. The combined exports of both services and goods for some firms may be much higher.

Among firms which exported less than £1m of services in 2016, only 11.0% engage in e-commerce exports. Using e-commerce as an exports channel is much more common among larger services exporters. Among firms which exported £1m to £10m of services in 2016, 18.1% engaged in e-commerce exports. This number increases for firms in the £10m – £100m bracket, where 21.8% of firms engaged in e-commerce exports. But the proportion of firms engaging in e-commerce exports falls back a little among the largest exporters of services (£100m+). This could potentially be a result of the largest services exporters establishing foreign subsidiaries to service local markets.

In all exports size brackets, firms which export using e-commerce tend to export to customers located both in the EU and in non-EU (see Figure 3-2). In each size bracket, the propensity to export to the EU or to non-EU was never lower than half of the total propensity to export (to EU and non-EU).

Nevertheless, firms were slightly more likely to use a website or an app to export to customers located in the EU rather than located in non-EU countries. The greatest difference is observed among firms with services exports of £1m to £10m, where 17.7% of firms used e-commerce to export to customers in the EU, but only 14.1% used e-commerce to export to customers in non-EU.

Figure 3-2 Percentage of firms exporting using e-commerce, by services exports size bracket (2016)



Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

Table 3-2 presents the breakdown of firms engaging in e-commerce exports by the share of turnover generated from total e-commerce sales (the value of e-commerce sales to UK and foreign customers).

In 2018, 47.1% of firms engaging in cross-border e-commerce attributed less than 10% of their turnover to e-commerce sales, 36.1% generated between 10% and 50% of their turnover from e-commerce, while for 16.9% of firms, e-commerce sales accounted for more than a half of the total turnover.

While for most firms engaging in cross-border e-commerce the share of e-commerce revenue remained relatively low in 2018, the general trend observed between 2010 and 2018 is that e-commerce sales became an increasingly important source of revenue. Given the limitations of the dataset, it is not possible to evaluate whether this has been driven by an increasing share of e-commerce sales to domestic customers, or sales to customers located abroad.

Table 3-2 Proportion of firms engaging in e-commerce exports, by turnover attributed to sales from e-commerce

	2010	2012	2014	2016	2018
Less than 10% turnover	64.6	50.4	49.3	46.6	47.1
10% to 50% turnover	25.0	32.8	36.6	36.6	36.1
More than 50% to 100% turnover	10.4	16.8	14.1	16.9	16.9

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

However, the dataset can be used to compare how firms engaging in cross-border e-commerce have been increasing the share of e-commerce turnover compared to firms not engaging in cross-border e-commerce. Table 3-3 presents the share of firms which increased or decreased the share of e-commerce in their sales for these two subgroups. These figures are based on observations of firms which have been sampled repeatedly in any of the two-year periods between 2010 and 2018.

Of the firms engaging in cross-border e-commerce, in 64.1% observations these firms increased the share of e-commerce in turnover. This compares to 63.2% for firms not engaging in cross-border e-commerce. The difference is therefore relatively small, although it could indicate that firms engaging in cross-border e-commerce benefit from additional opportunities and are slightly more likely to increase the share of e-commerce sales in their turnover.

Table 3-3 Share of firms increasing or decreasing the share of e-commerce in turnover

	Increasing	Decreasing	The same
Not engaging in cross-border e-commerce	63.2	21.1	15.8
Engaging in cross-border e-commerce	64.1	20.1	15.8

Notes: Based on firms repeatedly sampled in any of the two-year intervals between 2010 and 2018.

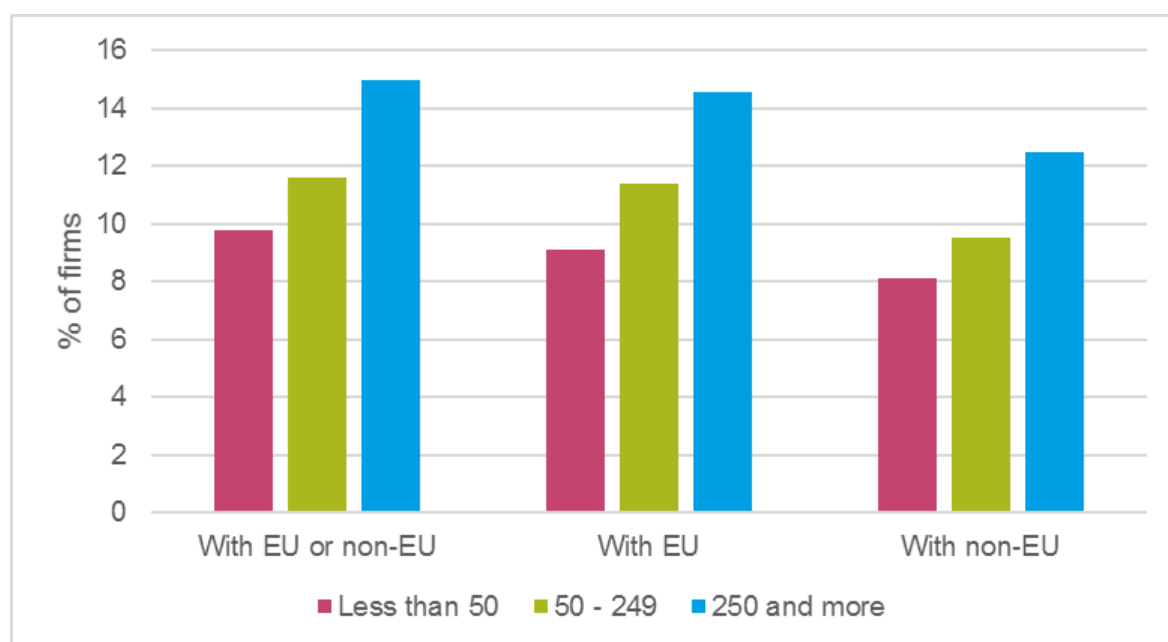
Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

3.4 Employment in firms engaging in e-commerce exports using a website or an app

This section discusses trends in firms exporting using e-commerce by employment size of firm. It also compares employment patterns between firms engaging in e-commerce exports and firms not engaging in e-commerce exports.

Figure 3-3 presents the percentage share of firms exporting via e-commerce to EU and non-EU by employment size. The estimates show that large firms (with more than 250 employment) are around 50% more likely to export using a website or an app, compared to small firms (with less than 50 employment).

More specifically, among firms with fewer than 50 employees, only 9.8% of firms engage in e-commerce exports to customers located in the EU or non-EU. Of firms employing between 50 and 249 employees, 11.6% engage in e-commerce exports. This share increases further to 15.0% for firms with 250 or more employees. A higher share of firms in all employment size brackets is exporting to the EU, with fewer firms exporting to non-EU. In other words, nearly all firms which are exporting to non-EU also export to the EU, regardless of their employment size. This finding is similar to the findings on other breakdowns involving turnover and services exports brackets discussed in Section 3.3.

Figure 3-3 Percentage of firms exporting using e-commerce, by employment size bracket (2016)

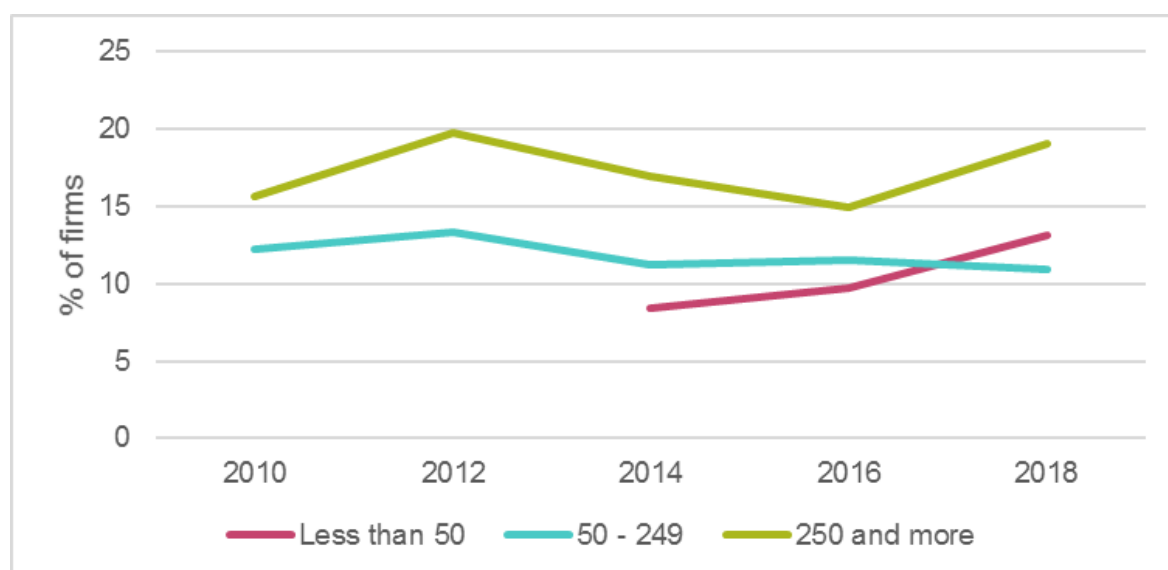
Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

As shown in Figure 3-4, between 2010 and 2018 the share of firms engaging in e-commerce exports remained relatively unchanged across firms in all size brackets. The largest change is observed for firms with 250 or more employees, where, despite a fluctuating trend, the share increased from 15.7% in 2010 to 19.1% in 2018. An increasing trend is observed for firms with fewer than 50 employees, where the share has increased from 8.5% in 2014 to 13.2% in 2018¹⁰. Across medium-sized firms (between 50 and 249 employees), the share has been more stable but, nonetheless, has declined from 12.2% in 2010 to 10.9% in 2018.

It should, however, be noted that some of the changes and trends are likely driven by changes in the composition of the sample across the years. As smaller firms tend to be less likely to engage in e-commerce exports, changes in the size composition within the bracket can have an effect on the estimated share. For example, the average employment of firms engaging in cross-border e-commerce in the matched dataset stood at close to 5,000 in 2012, and declined to 3,700 in 2014. This means that firms at the lower ends of each size bracket might have risen, which could explain a decline in the observed share of firms engaging in e-commerce exports between 2012 and 2014.

¹⁰ The analysis is not presented for this size bracket for earlier years due to a low sample size

Figure 3-4 Share of firms engaging in e-commerce exports, by employment size bracket (%)



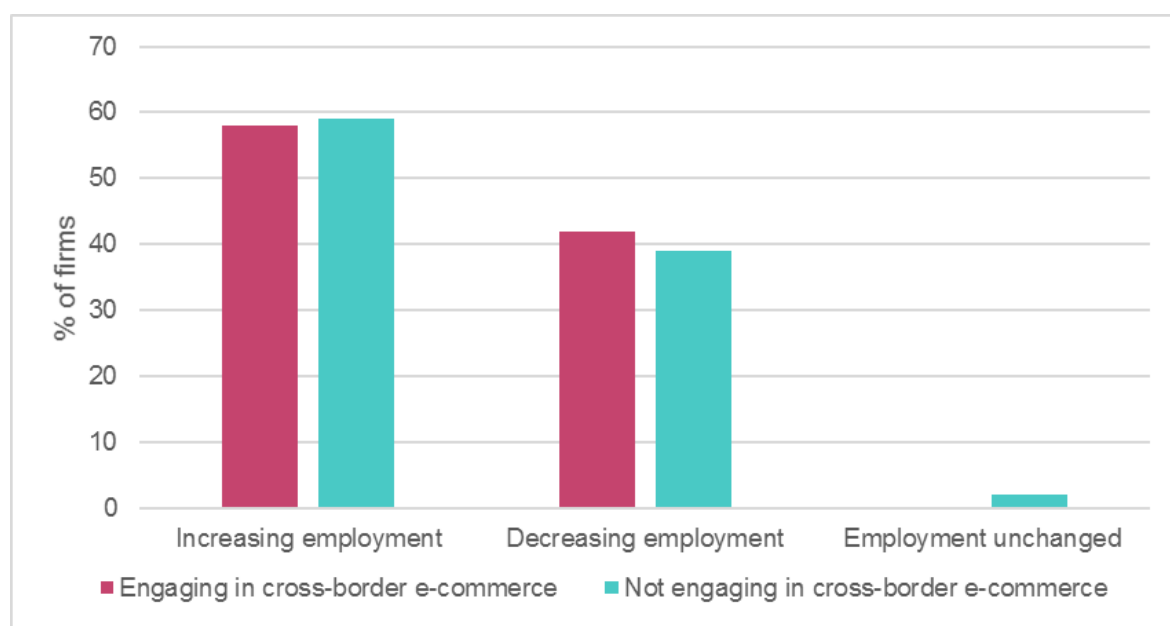
Notes: Figures for firms employing fewer than 50 employees in years 2010-2012 are suppressed due to low sample sizes.

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

Figure 3-5 presents a comparison of changes in employment between firms engaging in e-commerce exports and firms not engaging in e-commerce exports. Between 2010 and 2018, 56% of firms engaging in e-commerce exports increased their employment. This share was slightly higher for firms not engaging in e-commerce exports, where 59% of firms increased their employment. A reverse is true for firms decreasing their employment. 41% of firms engaging in e-commerce exports decreased their employment, compared to 39% of firms not engaging in e-commerce exports.

While the difference is not marked, it indicates that firms using e-commerce to export are less likely to grow their employment than other firms (or that employment grows more slowly). This was particularly evident between 2012 and 2014, and 2016 and 2018. However, firms engaging in e-commerce exports were more likely to increase their employment between 2014 and 2016.

Therefore, the relationship varied depending on the period, and could potentially be driven by a multitude of factors, such as exchange rates or the performance and structure of the domestic market. As firms engaging in e-commerce exports tend to be more concentrated in certain sectors (Section 3.5), the performance of the sector domestically may be the main driver of the difference, considering that for most firms e-commerce exports form a minor part of their revenue (as presented in Section 3.3).

Figure 3-5 Percentage share of firms increasing or decreasing employment (%)

Notes: Based on firms repeatedly sampled between 2010 and 2018. Figures are rounded to the nearest percent. Figure for firms engaging in cross-border e-commerce which did not change employment is suppressed due to a low sample size.

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

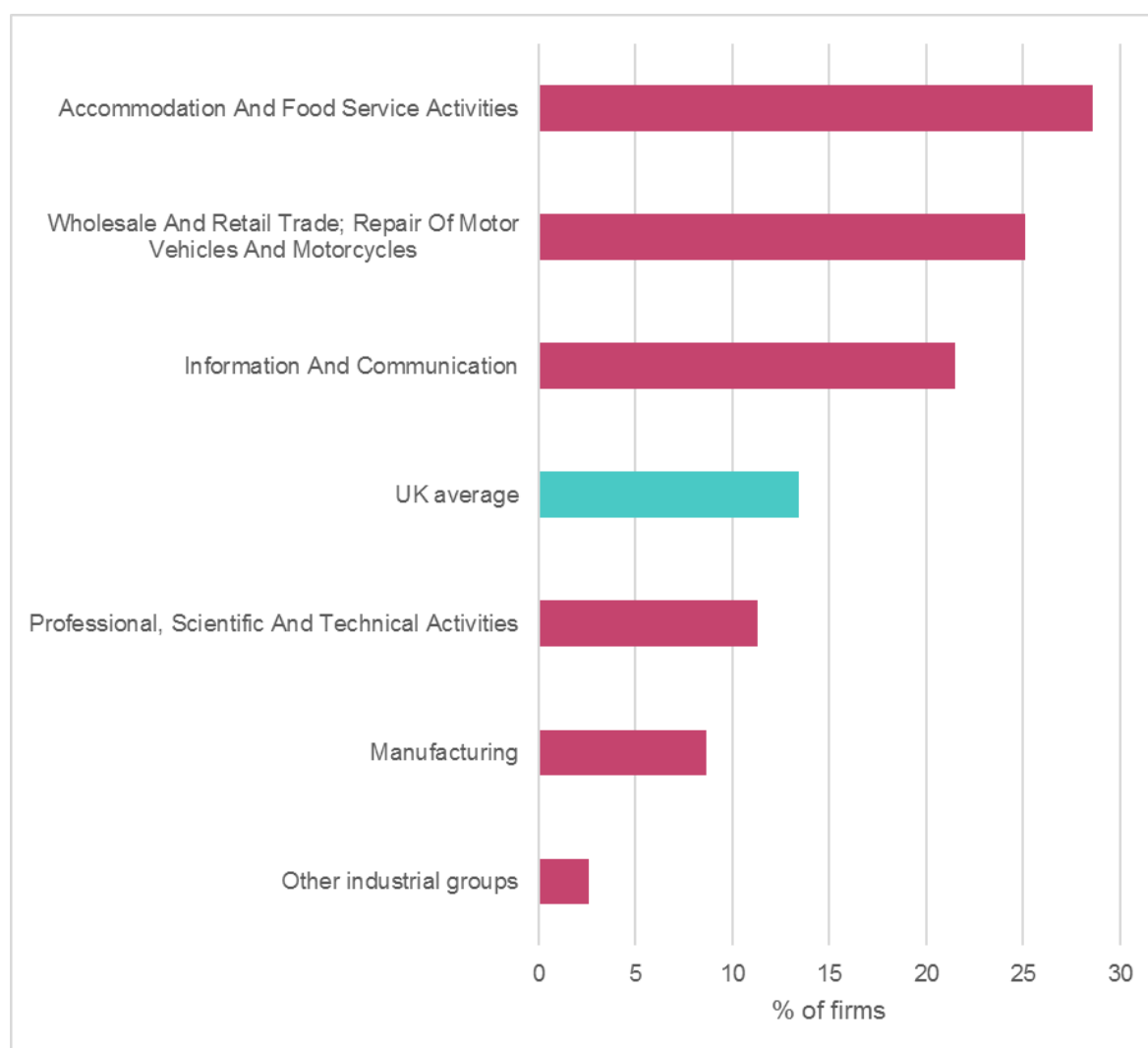
3.5 Sectoral distribution of firms engaging in e-commerce exports using a website or an app

Figure 3-6 presents a comparison of the shares of firms engaging in e-commerce exports across 2-digit SIC sectors in 2016. The statistics are provided for selected SIC sectors where the sample size was greater than 30 firms.

The variation in propensity to export using e-commerce is large. The sectors with the highest propensity to export using e-commerce include Accommodation and food service activities (28.6% of firms exporting using e-commerce) and Wholesale, retail trade, repair of motor vehicles and motorcycles (25.1%). Another sector where a relatively high share of firms engage in e-commerce exports is the Information and communication sector, with 21.5% of firms exporting using a website or an app.

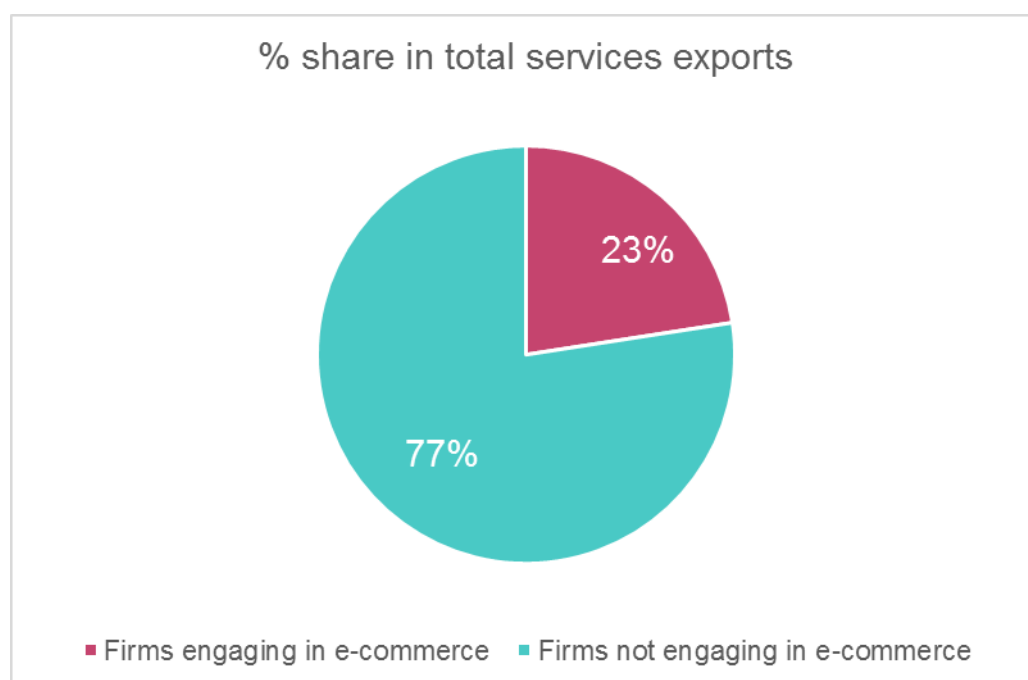
Industrial groups with lower propensity to engage in e-commerce exports include Manufacturing (8.6% of firms export via e-commerce) and Professional, scientific and technical activities (11.3%).

However, it should be noted that the remaining industrial groups not presented individually in the chart due to a low sample size have an overall lower propensity to engage in e-commerce exports, with only 2.6% of these firms exporting using a website or an app. These groups include Administrative and support services, Other service activities, Electricity and utilities, Real estate activities, and Construction.

Figure 3-6 Share of firms engaging in e-commerce exports, by SIC group (2016)

Notes: Figures presented for selected SIC groups. Some SIC sector names have been abbreviated.
Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

Figures presented earlier highlighted that the share of firms that export using a website or an app is relatively low and stands at 13.4% in the total population of businesses in the linked dataset. However, as shown in Figure 3-7, these firms accounted for a larger share of exported services in 2016, (23.0% of the total value of exported services). Firms not engaging in e-commerce exports accounted for the remaining 77.0% of the value of exported services. This shows that firms that export using a website or an app tend to export more services than other firms. While, in part, this may be attributable to the size effect, whereby the largest firms are simultaneously more likely to engage in e-commerce exports and to export more services, this suggests that firms engaging in e-commerce exports are relatively important exporters of services. However, as discussed in detail in Chapter 2, these data cannot tell us anything about what share of services orders were received using e-commerce channels.

Figure 3-7 Exports of services: firms engaging and not engaging in e-commerce exports

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

3.6 Types of services exported by firms engaging in e-commerce exports using a website or an app

Figure 3-8 presents the breakdown of services exports by type for firms engaging in e-commerce exports and firms not engaging in e-commerce exports. The breakdown is presented for selected services¹¹ which are most intensively traded by firms engaging in e-commerce exports. However, it should be noted that from the information available in the dataset it cannot be ascertained what fraction of these exports have been ordered using a website or an app, or other methods. Therefore, care should be taken when interpreting these figures.

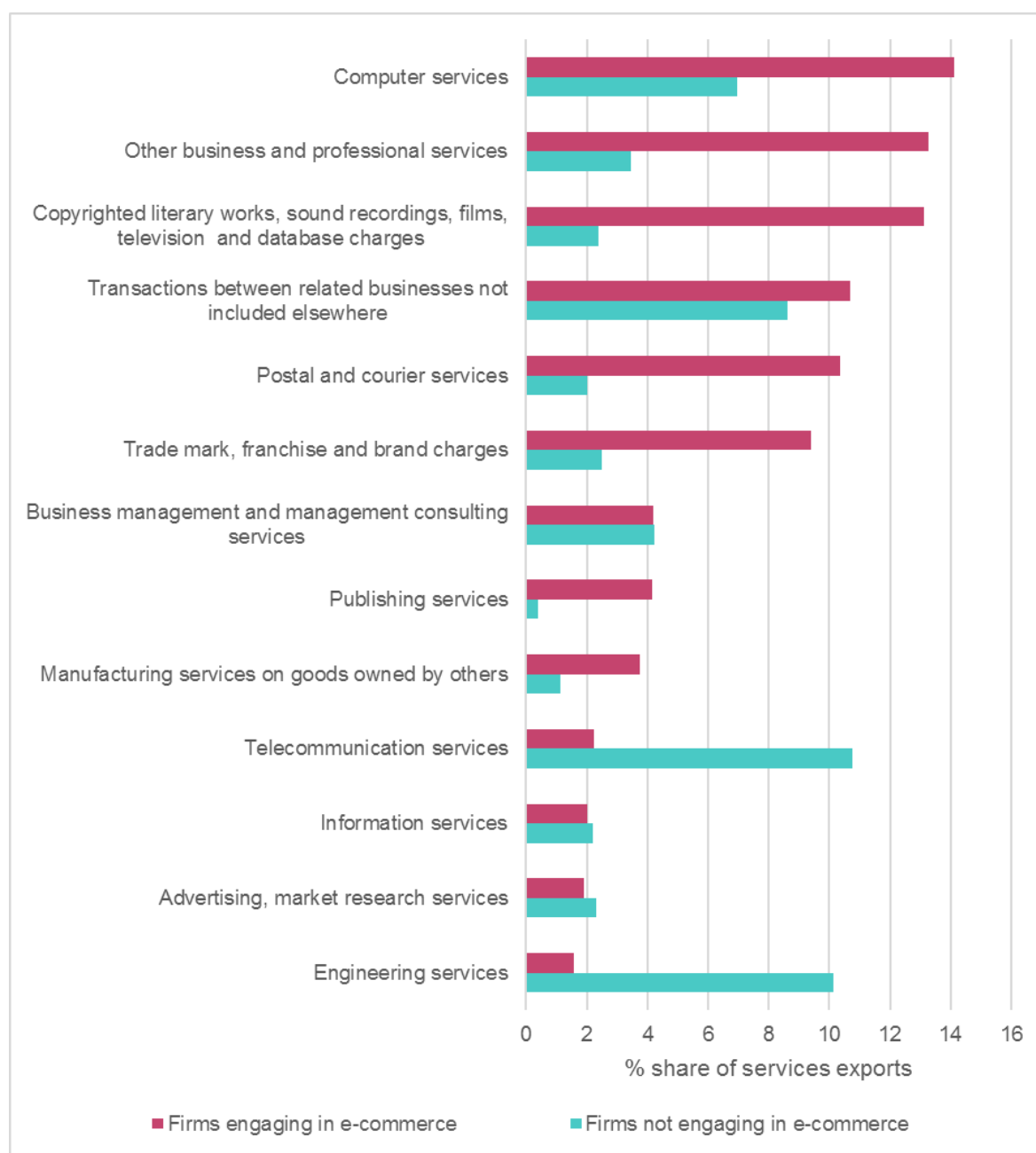
Computer services accounted for 14.1% of all services exported by firms engaging in e-commerce exports. Other business and professional services was the second largest category, accounting for 13.3% of the value of services exported by firms engaging in e-commerce exports. The third largest category was Charges or payments for the use of copyrighted works, accounting for 13.1% of the value of services exported by firms engaging in e-commerce exports in 2016. Postal and courier services (10.3%) and Charges or payments for the use of trademarks, franchises and

¹¹ Some types of services were exported by few firms only, and therefore, due to the low sample size these could not be reported. In addition, the ITIS does not cover all services categories.

brands (9.4%) also accounted for notable shares of services exports by firms engaging in e-commerce exports in 2016.

However, for firms not engaging in e-commerce exports, these three categories accounted for a much smaller share of services exports. Computer services accounted for 6.9% of exports of services by these firms, while Other business and professional services and Charges or payments for the use of copyrighted works accounted for 3.4% and 2.4%, respectively. Among firms not engaging in e-commerce exports, high proportions of their services exports were in Telecommunication services and Engineering services.

In other words, the composition of exports for firms that engage in exports using a website or an app is very different to that from firms that do not export using a website or an app. This, in a more general sense, means that firms exporting via a website or an app tend to export different services compared to firms that do not engage in e-commerce exports.

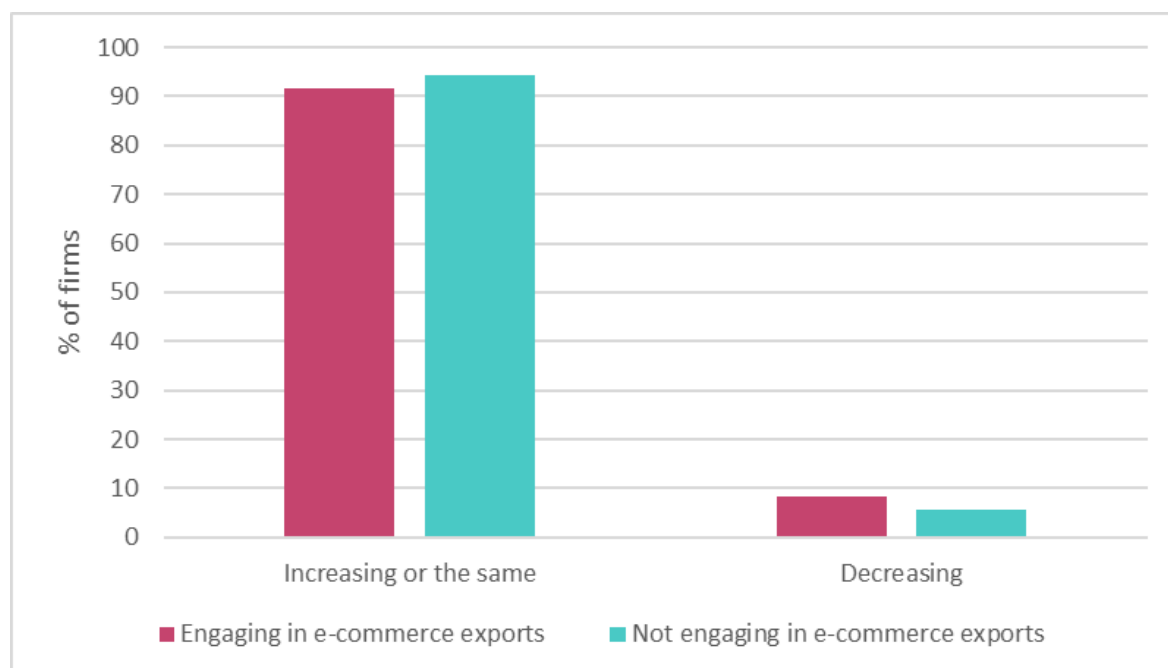
Figure 3-8 Services exported by firms engaging in e-commerce and not engaging in e-commerce (2016)

Notes: Figures presented for selected categories of services. Some names have been abbreviated.
Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

Additional insights can be obtained by exploring whether firms engaging in e-commerce exports were more likely to increase the range of exported services. Among firms which have been repeatedly surveyed between 2010 and 2018, firms engaging in e-commerce exports were slightly more likely to decrease the range of exported services – among these firms, 8% decreased the range of exported services, compared to 6% of firms not engaging in e-commerce exports. It should, however, be noted that this difference is relatively small and subject to a relatively high variance. Such difference may be driven by sectoral performance and its specificities, as firms engaging in e-commerce exports tend to be concentrated in certain sectors.

Due to the low sample size of firms increasing the range of exported services, they are presented as a combined group with firms that maintained the same range. Among firms engaging in e-commerce exports, 92% of firms maintained or increased the range of services exported, while this percentage stands at 94% for firms not engaging in e-commerce exports. For both groups the overwhelming share of firms maintained the same range of exported services.

Figure 3-9 Firms increasing and maintaining or decreasing the range of exported services (2010-2018)



Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

3.7 Export destinations for firms engaging in e-commerce exports using a website or an app

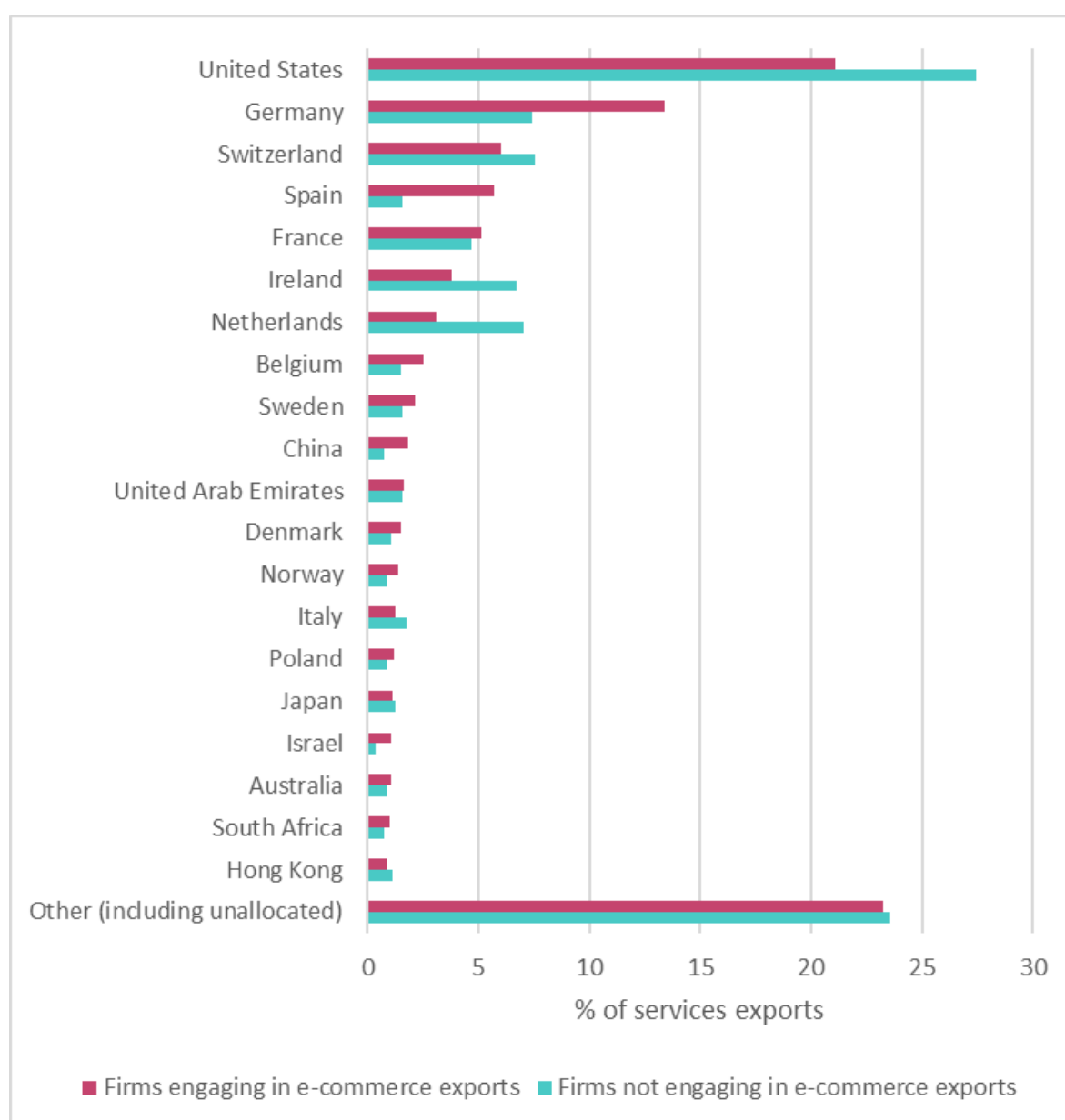
Figure 3-10 presents the share of destination countries in services exports for firms engaging in e-commerce exports and firms not engaging in e-commerce exports. The US is by far the largest destination market for exports of services, accounting for 21.1% of the value of services exported by firms engaging in e-commerce exports. For firms not engaging in e-commerce exports, the US accounted for an even greater share (27.4%).

The second largest destination for firms engaging in e-commerce exports is Germany, which accounted for 13.4% of the total value of services exports. However, Germany is much less important as a destination country for exports of firms not engaging in e-commerce exports, accounting for 7.4% of their exports. Analysing other major destinations there is a notably higher importance of Spain (5.7% share for exports of firms engaging in e-commerce), Belgium (2.5%) and China (1.8%) as destinations for exports of services by firms engaging in e-commerce exports, and the relatively lower importance of Ireland (3.8%) and the Netherlands (3.1%) compared to their higher

importance to firms not exporting using a website or an app. For other major destinations, their importance is relatively similar for firms engaging and not engaging in e-commerce exports.

Aggregate analysis shows that exports to the EU accounted for 52.8% of services exports exported by firms engaging in e-commerce exports, with the remaining 47.2% being exported to non-EU. Among firms not engaging in e-commerce exports, EU was less important and accounted for 41.8% of the total value of services exported, with non-EU accounting for the remaining 58.2% of the exported services value.

Figure 3-10 Destination countries for services exports by firms engaging and not engaging in e-commerce exports (2016)



Notes: Figures presented for the largest destinations for firms engaging in e-commerce exports.

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

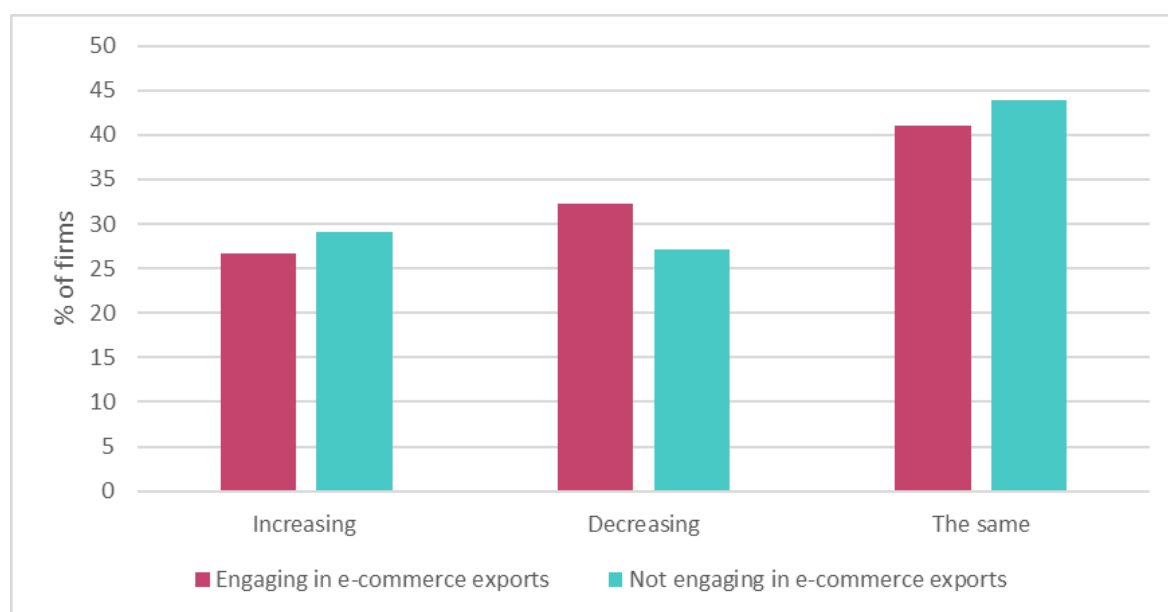
Figure 3-11 presents a comparison of the share of firms which increased or decreased the range of markets for their services exports. Based on observations of firms repeatedly sampled in any of the two-year intervals between 2010 and 2018, 27% of firms engaging in e-commerce exports increased the number of destinations for their services exports. This share is slightly higher for firms not engaging in e-commerce exports, at 29%.

The difference is slightly higher when comparing the share of firms which decreased the number of destinations. 32% of firms engaging in e-commerce exports reduced the number of destinations for their services exports, compared to 27% of firms not engaging in e-commerce exports.

Nevertheless, for many firms the number of destinations remained unchanged. This was observed for 41% of firms engaging in e-commerce exports, and for 44% of firms not engaging in e-commerce exports.

Therefore, this result may be interpreted as not providing support for a hypothesis that engaging in e-commerce exports makes firms more likely to expand the range of markets they export to. However, it should be noted that due to the limitations of the dataset, the statistic does not specifically identify the number of markets for e-commerce exports, but rather, the destinations for exports of services regardless of the way in which these have been ordered.

Figure 3-11 Firms increasing or decreasing the range of destination markets for services exports (2010-2018)



Notes: Based on firms repeatedly sampled in any of the two-year intervals between 2010 and 2018.
Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

3.8 Difficulties in exporting to the EU using a website or an app

The breakdown of firms experiencing difficulties in exporting to the EU using a website or an app is presented by firm size in Figure 3-12. The reported difficulties are based

on five questions asked in the E-commerce survey. Due to low sample sizes of firms reporting difficulties, the employment size brackets for firms with fewer than 50 employees and with 50 to 249 employees have been merged into a single category. In general, smaller firms tend to experience difficulties in exporting to the EU using e-commerce more often than the largest firms.

Regardless of the firm size, the difficulty most commonly affecting firms engaging in e-commerce exports is the high cost of delivering or returning the products. This difficulty has been reported by 22% of the largest firms, and by 31% of firms in the small and medium size category (with fewer than 250 employees).

The second most frequently reported difficulty is the lack of knowledge of foreign languages for communication with customers. This difficulty was frequently reported by firms employing fewer than 250 employees, with 21% of firms experiencing difficulties. However, this share is lower for the largest firms, at 12%.

Difficulties relating to resolving complaints and disputes were reported by 16% of firms in the small and medium size bracket. This share is lower for the largest firms (11%).

Adapting product labelling for sales was much more frequently reported as a difficulty for the smallest and medium sized firms, with 11% of these firms' experiencing difficulties. This could be caused by a low volume of trading, as only 6% of the largest firms reported similar difficulties.

Restrictions from business partners on selling to EU countries affected 9% of the largest firms. The figure for small and medium-sized firms is suppressed due to a low number of reporting firms.

Figure 3-12 Percentage share of firms experiencing difficulties in exporting to the EU via website or an app (2016)



Notes: *Some figures for firms with less than 250 employees have been suppressed due to low sample sizes.

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

4 Characteristics and performance of firms engaging in e-commerce exports using EDI

Key findings:

- Between 2010 and 2018, the share of firms receiving e-commerce orders from abroad via EDI methods declined, from 14.7% in 2010 to 10.6% in 2018 (Figure 4-1). Compared with the estimates presented in the previous chapter, this suggests that exporting using a website or an app became much more common than exporting using EDI in recent years.
- Using EDI to export is nearly entirely the domain of medium-size and large firms. Only 2% of firms with employment lower than 250 relied on EDI to export (2016 data, Figure 4-3).
- Firms which use EDI to export tend to rely on EDI. Approximately half of these firms generated more than 50% of their turnover from EDI sales (to customers located in the UK or abroad) (2016 data, Table 4-3).
- Comparisons suggest that firms which engage in EDI exports are not more likely to increase the share of EDI in their turnover than firms which do not export using EDI (Table 4-4).
- Similarly, there is no evidence to suggest that firms engaging in exports using EDI are more likely to increase their employment, compared to firms which do not export using a website or an app (2010-2018 data, Figure 4-5).
- The highest propensity to export using EDI is found in the Manufacturing sector. The lowest propensities are found in services sectors, with the exception of the Information and communication sector (2016 data, Figure 4-6).
- Among firms exporting using EDI, the largest services exports categories include Postal and courier services and Computer services (2016 data, Figure 4-7).
- The most important destinations for services exported by firms engaging in website or app exports are the US, Germany, Switzerland and Spain. Germany and Spain appear to be more important destinations for firms exporting using EDI compared to firms not exporting using EDI (2016 data, Figure 4-9). EU countries accounted for 46.8% of the total value of services exported by firms engaging in EDI exports, but this share was lower for firms not engaging in EDI exports (43.6%).
- Compared to firms which do not rely on EDI orders from abroad, firms engaging in exports using EDI are no more likely to broaden the range of exported services, or to broaden the range of countries to which they export services (2010-2018 data, Figure 4-10).

4.1 Introduction

The estimates presented in this chapter were obtained using the linked dataset and are based on e-commerce exporting activities of firms using Electronic Data Interchange (EDI) methods. This definition includes orders received using electronic

transmission methods that allow the use of automated processing, such as non-internet EDI, XML or EDIFACT, but excludes manually typed e-mails, fax and phone orders, or orders received via a website or an app. Therefore, EDI sales activity tends to be primarily used for Business-to-Business sales (B2B).

However, it should be noted that a firm can simultaneously engage in e-commerce using EDI, website or app channels. Such firms were included in both the analysis of firms engaging in e-commerce exports via a website or an app presented in Chapter 3, as well as the analysis of firms engaging in e-commerce trade using EDI presented in this chapter.

The overlap between firms using EDI to export and firms using a website or an app is presented in Table 4-1. As shown, the share of firms receiving orders from abroad via EDI, website or an app is lower than the share of firms receiving orders from abroad using either of these methods, as presented in Table 3-1 and Table 4-2. A significant overlap exists with some firms using both EDI and a website or an app to export. For example, in 2018, 5.0% of firms in the linked dataset exported using both methods. This share was the highest in 2012 (7.1%) and the lowest in 2016 (3.2%), likely a result of changing size composition of the surveyed firms.

Table 4-1 Share of firms engaging in e-commerce exports using different channels

Shares of firms (%)	2010	2012	2014	2016	2018
Receiving orders from abroad using either EDI or a website or an app	22.9	26.0	21.7	19.8	22.0
Firms engaging in e-commerce using both EDI and a website or an app	6.4	7.1	4.3	3.2	5.0

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

4.2 Share of firms engaging in e-commerce exports via EDI

Table 4-2 presents the share of firms engaging in e-commerce exports using EDI. A firm is defined as engaging in EDI exports if it received some orders using EDI, regardless of whether these orders were for goods or services.

The share of firms receiving EDI orders (from the UK or abroad) decreased between 2010 and 2018, from 27.1% to 22.7%. Similarly, the share of firms receiving EDI orders from abroad decreased from 14.7% in 2010 to 10.6% in 2018. This decline in the use of EDI contrasts with the increasing share of firms receiving orders via a website or an app, as discussed in Chapter 3. However, these trends could, to some extent, be driven by the changing composition of the sample, which in later years tended to include smaller firms, which are less likely to rely on EDI sales, as explained in further sections.

A more detailed analysis of the shares of firms receiving EDI orders from the EU and non-EU reveals that they followed a similar downward trend between 2010 and 2018. In 2018, 10.4% of firms received EDI orders from the EU, compared to 13.8% in 2010. The share of firms receiving EDI orders from non-EU in 2018 stood at 6.6%, down from 9.8% in 2010.

Focusing the analysis on year 2016, for which the sample size was the largest and the results are the most reliable, nearly all firms selling abroad using EDI received orders from the EU. However, only about 60% of firms receiving EDI orders from abroad received orders from non-EU. This could partially be a result of the sectoral composition of firms engaging in e-commerce using EDI, as certain UK sectors are more likely to engage in trade with the EU. Participation in EDI exporting activity by different sectors is discussed in further sections.

Table 4-2 Share of firms engaging in EDI sales in the linked dataset

Share of firms receiving orders via EDI (%)	2010	2012	2014	2016	2018
from anywhere	27.1	26.6	26.2	25.6	22.7
from the UK	25.6	24.8	25.6	24.9	21.8
from abroad	14.7	14.9	11.1	9.5	10.6
from the EU	13.8	13.6	10.5	9.2	10.4
from non-EU	9.8	10.2	6.6	5.7	6.6

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

4.3 Turnover and exports of firms engaging in e-commerce using EDI

Figure 4-1 presents the percentage share of firms engaging in cross-border e-commerce sales using EDI in different turnover size brackets in 2016. Larger firms with annual turnover of more than £100m are much more likely to engage in cross-border EDI sales. 15.5% of these firms relied on EDI sales to customers located abroad. Of smaller firms with annual turnover of less than £100m, only 5.9% engage in e-commerce exports.

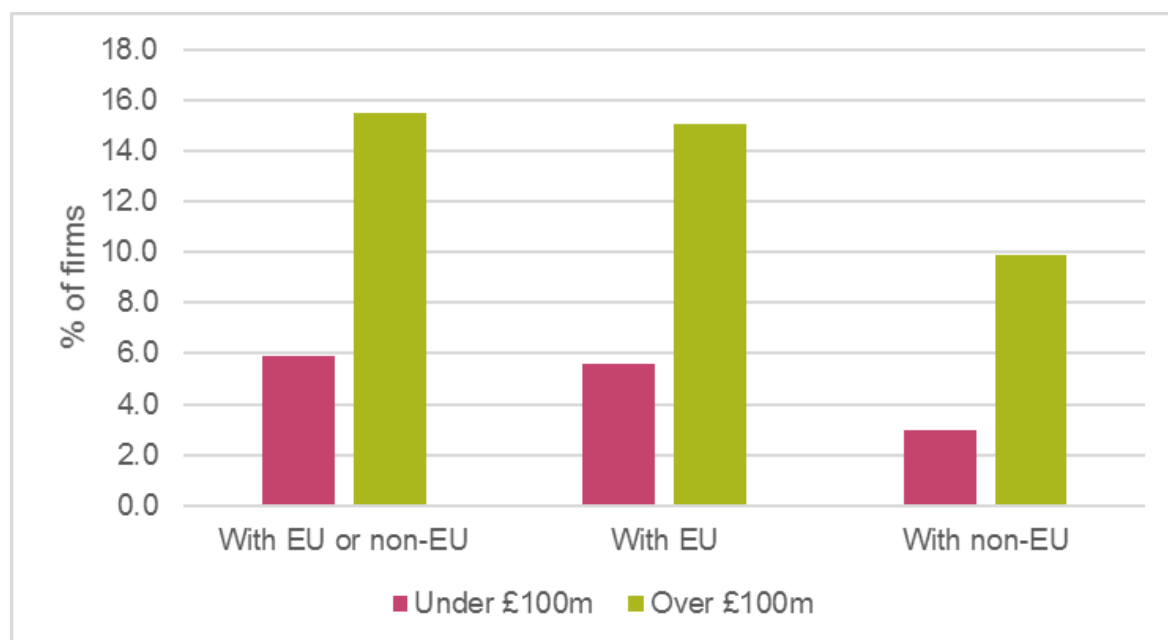
Such high differences in the propensity to export using EDI are due to the nature of EDI sales. EDI systems are used in supply chain management to send and receive orders. These systems are often tailored to the specific customer relationship and need to be set-up in advance on the side of the customer and the seller. Therefore, EDI may be more suitable for supply chain management in certain industries or among firms of certain size, where multiple orders are received from a single customer. Also, it may be more economical for large firms to set up bespoke EDI ordering systems for its customers due to improved efficiency. However, smaller firms may find it more economical to rely on manual alternatives, such as telephone or manually-typed e-mails.

Additional columns in Figure 4-1 show percentages of firms engaging in EDI exports to the EU and to non-EU in different size brackets. These show that most firms which engage in EDI exports tend to export to both the EU and non-EU.

However, firms in both turnover size brackets are more likely to engage in e-commerce exports to customers located in the EU, rather than customers located in non-EU. Firms with turnover of less than £100m are nearly twice as likely to receive EDI orders from customers located in the EU (5.6% of firms), compared to EDI orders from non-

EU (3.0% of firms). Among the largest firms, 15.0% received EDI orders from the EU, while 9.9% received orders from non-EU.

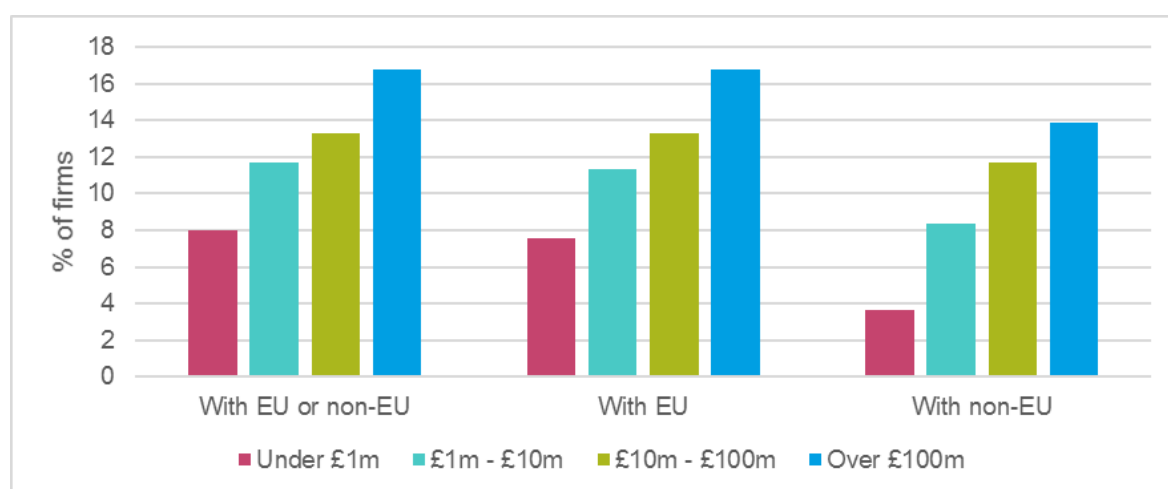
Figure 4-1 Percentage share of firms exporting using EDI, by turnover size bracket (2016)



Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

An alternative breakdown using services exports size brackets is presented in Figure 4-2. The breakdown shows that reliance on EDI sales to customers located abroad is much more common for the largest services-exporting firms. Similar differences in propensities are found through the analysis of firms exporting to the EU and non-EU (as most firms tend to export using EDI to both regions).

Figure 4-2 Percentage share of firms exporting using EDI, by services exports size bracket (2016)



Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

Table 4-3 presents the breakdown of firms engaging in EDI exports by the share of turnover generated from EDI sales to UK or foreign customers.

Between 2010 and 2018, the shares of EDI in total turnover remained relatively unchanged, although major changes were observed between 2010 and 2014. Some of these changes can be due to a high variance of the figures, as the sample size was relatively low in these years.

Relying on figures for 2016 for which the sample size was the largest, 17.7% of firms exporting using EDI generated less than 10% of revenues through EDI sales, while 29.0% generated between 10% and 50% of sales from EDI sales. Just over a half (53.4%) of firms engaging in EDI sales abroad generated more than 50% of turnover from EDI sales.

It is not possible to evaluate what fraction of these EDI sales were to customers located abroad. Nevertheless, comparing these figures to the share of turnover generated from sales over a website or an app presented in Chapter 3, it is clear that firms engaging in EDI sales rely on EDI to a much greater degree. This likely reflects a different nature of EDI sales and systems compared to website or app sales. While EDI channels form the main source of orders for a lot of firms engaging in EDI, web or app sales form only an auxiliary source of revenue for most firms which engage in this type of sales.

Table 4-3 Proportion of firms exporting using EDI, by turnover generated from EDI sales

	2010	2012	2014	2016	2018
Less than 10% turnover	22.7	16.8	24.9	17.7	23.2
10% to 50% turnover	34.0	41.1	28.6	29.0	31.3
50% to 100% turnover	43.3	42.1	46.5	53.4	45.5

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

Table 4-4 presents the breakdown of firms into those which increased or decreased the share of e-commerce in their sales for two subgroups: firms engaging and not engaging in cross-border EDI sales. These figures are based on observations of firms which have been repeatedly sampled in any of the two-year intervals between 2010 and 2018.

Of firms engaging in cross-border EDI sales, 46.1% increased the share of e-commerce in turnover. This compares to 50.0% of firms not engaging in cross-border e-commerce increasing the share of e-commerce in their turnover. Therefore, firms not engaging in cross-border EDI sales were slightly more likely to increase the share of EDI sales in their turnover.

These differences are relatively small and give no clear indication on whether being able to accept EDI orders from abroad could result in an increasing share of sales of this type. It is likely that a vast share of EDI sales of firms engaging in cross-border EDI sales is to domestic customers. Therefore, increases or decreases of the share

of EDI orders in turnover of these firms may be primarily driven by domestic sales, limiting the possibility of making stronger inferences.

Table 4-4 Share of firms increasing or decreasing the share of EDI orders in turnover (2010-2018)

	Increasing	Decreasing	The same
Not engaging in cross-border EDI sales	50.0	29.9	20.1
Engaging in cross-border EDI sales	46.1	25.1	28.8

Notes: Based on firms repeatedly sampled in two-year intervals between 2010 and 2018.

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

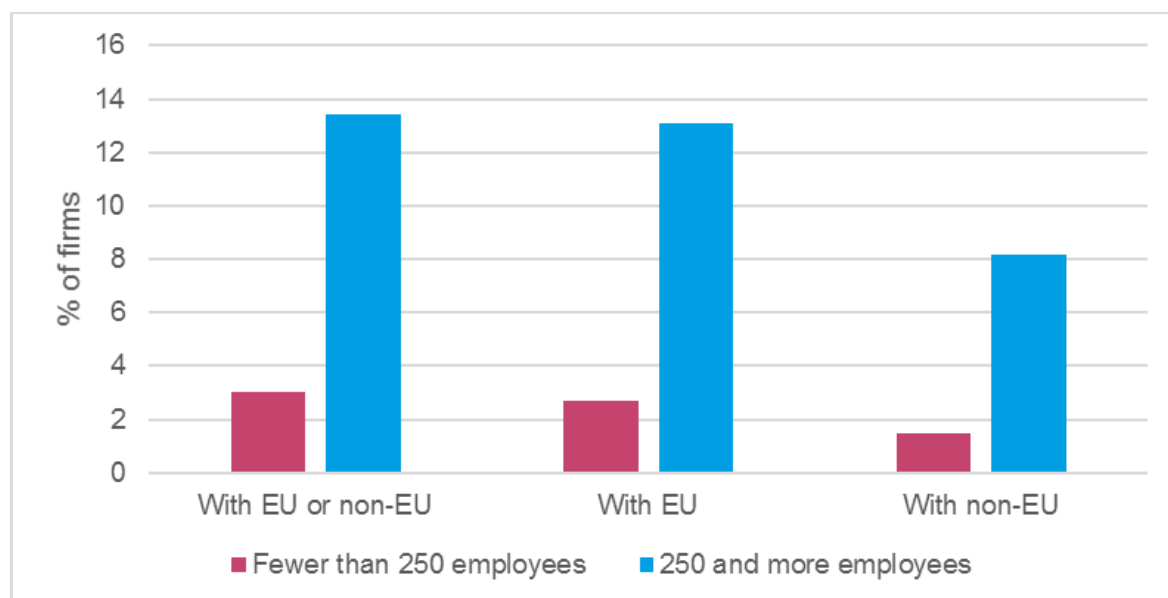
4.4 Employment in firms engaging in e-commerce trade using EDI

This section discusses the incidence of exporting via EDI by firms' employment size, and differences in employment patterns between firms that engage in EDI exports and those that do not.

Figure 4-3 presents a percentage share of firms exporting using EDI by employment size bracket. This breakdown provides similar findings to the breakdowns by turnover and services export size brackets presented in Section 4.3. In general, the smallest firms have a much lower propensity to export than the largest firms.

Among firms with fewer than 250 employees, only 3.0% of firms engage in exports using EDI. Among firms with 250 and more employees, 13.4% engage in exports using EDI.

Figure 4-3 Percentage share of firms exporting using EDI, by employment size bracket (2016)



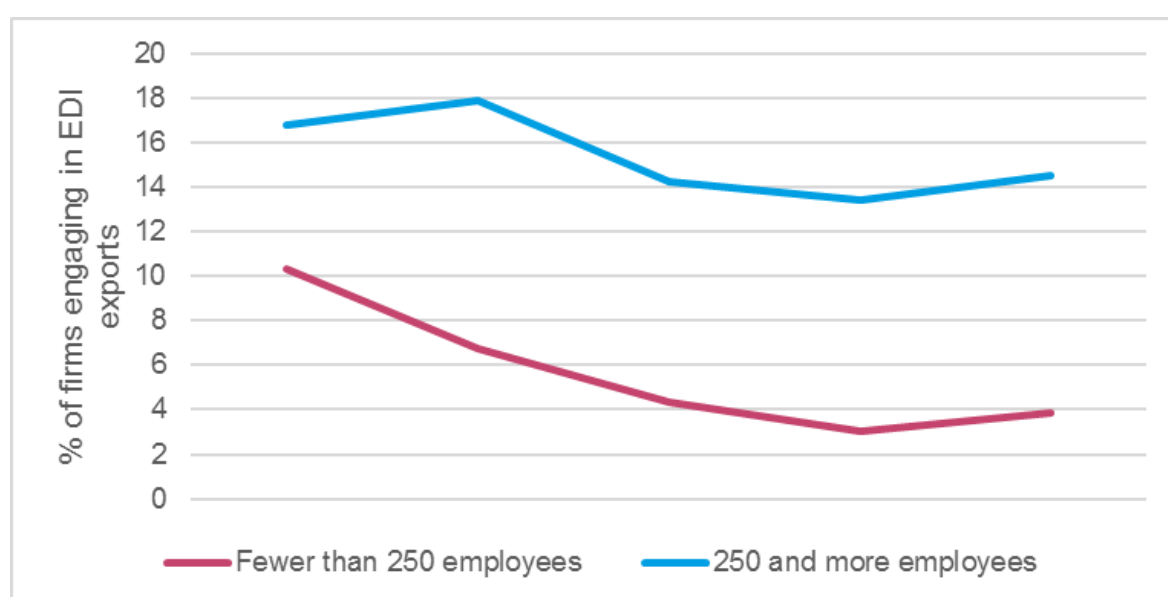
Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

As shown in Figure 4-4, between 2010 and 2018 the share of firms exporting using EDI has declined in both employment size brackets. A particularly large decline is observed for firms employing fewer than 250 employees. In 2010, 10.3% of these firms received EDI orders from abroad, while in 2018, this share declined to 3.8%.

The decline among the largest firms in the same period was smaller. While in 2010 16.7% of these firms received EDI orders from abroad, this share declined to 14.6%.

Also, it should be noted that some of the changes and trends are likely driven by changes in the composition of the sample across the years. Given that the propensity to export using EDI is steeply increasing with firm size, even small changes in the average firm size within the employment bracket can influence the calculated shares.

Figure 4-4 Share of firms engaging in EDI exports, by employment size bracket (%)



Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

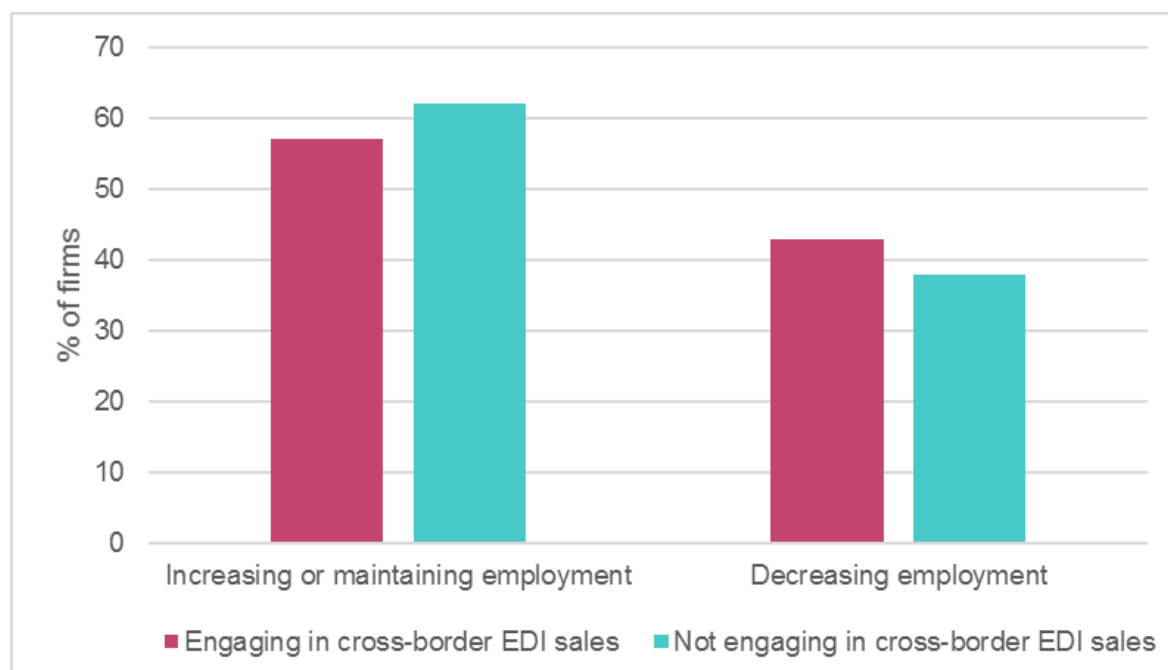
Figure 4-5 presents a comparison of changes in employment between firms engaging in EDI exports and firms not engaging in EDI exports. Due to a low sample size of firms maintaining the same employment, these firms are presented jointly with firms which increased employment in a single category.

Between 2010 and 2018, in 56% of repeated observations of firms engaging in e-commerce exports these firms increased or maintained their employment. This fraction is lower than the corresponding fraction of repeated observations of firms which are not engaging in e-commerce exports but increased or maintained their employment, at 61%.

This relationship is similar but somewhat stronger than that found for firms engaging in e-commerce exports using a website or an app. Firms receiving orders via a website or an app from abroad were only slightly less likely to increase their employment and more likely to decrease their employment, compared to firms not receiving website or

app orders from abroad. One potential explanation for such differences is that firms engaging in cross-border e-commerce could be operating in a more competitive international market, which requires a productivity-driven growth rather than employment-driven growth. However, it is not possible to analyse productivity in these firms, as the variables in the linked dataset do not provide information on value added, while the turnover variable was available only in 2016 and 2018.

Figure 4-5 Percentage share of firms increasing or decreasing employment (2010-2018)



Notes: Based on firms repeatedly sampled in two-year intervals between 2010 and 2018.

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

4.5 Sectoral distribution of firms engaging in e-commerce trade using EDI

Figure 4-6 presents a comparison of shares of firms engaging in EDI exports of goods or services or both across SIC industrial groups based on 2016 data. Figures are presented for selected industrial groups with the largest number of firms supporting the calculated share. As discussed in the context of other results, engaging in EDI exports could mean exports of goods, services or both, as long as some of these orders were received using EDI methods.

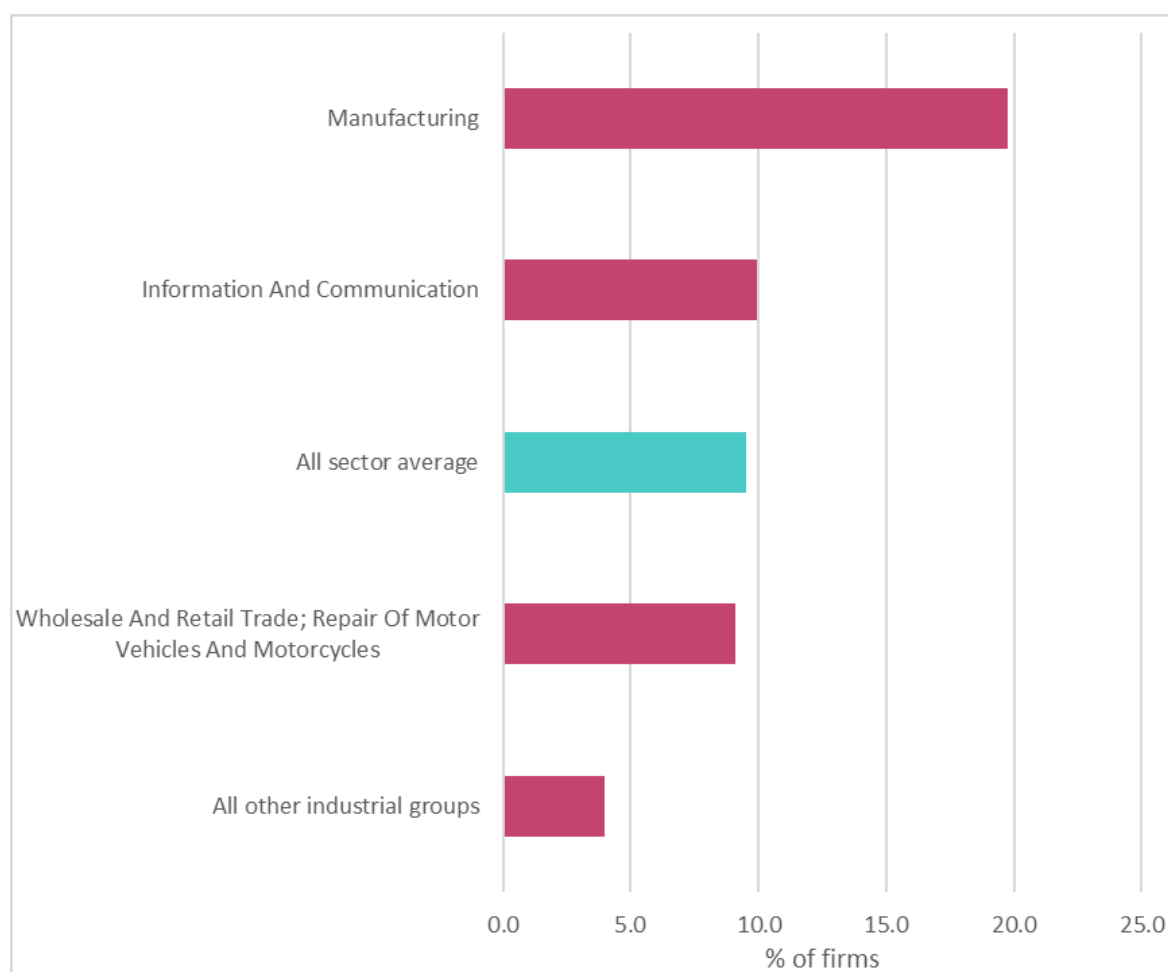
Similar to findings on firms receiving international orders using a website or an app, the variation in propensity to export using EDI is large. The group with the highest propensity to export using EDI is Manufacturing, where 19.7% of firms engage in exports using EDI. Other groups with a relatively high share of firms using EDI for exports are Information and communication, where 9.9% of firms engage in EDI

exports and Wholesale and retail trade (including repair of motor vehicles and motorcycles).

Sectors with the lowest share of firms exporting using EDI include certain services industrial groups, such as Professional, scientific and technical activities, Administrative and support service activities, Real estate, and Accommodation and food service activities, and Electricity and utilities. These groups are not presented individually in the figure due to low sample sizes. Nevertheless, when combined as 'Other industrial groups', the average share of firms engaging in EDI exports in these groups is estimated at 4.0%.

The sectoral propensities to export using EDI are very different to the sectoral propensities to export using a website or an app. While the industrial groups with the highest propensities to export using a website or an app included services sectors, the highest propensities to export using EDI are found among the manufacturing sectors. This likely reflects the nature of EDI sales, which tend to be oriented towards Business to Business sales (B2B) of large volumes and for long-standing customer relationships, while sales over a website or an app tend to be used for Business to Consumer sales (B2C), or ad hoc B2B sales.

Figure 4-6 Share of firms engaging in EDI exports, by SIC industrial groups (2016)



Notes: Figures presented for selected SIC industrial groups. Some SIC sector names have been abbreviated.

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

4.6 Types of services exported by firms engaging in e-commerce using EDI

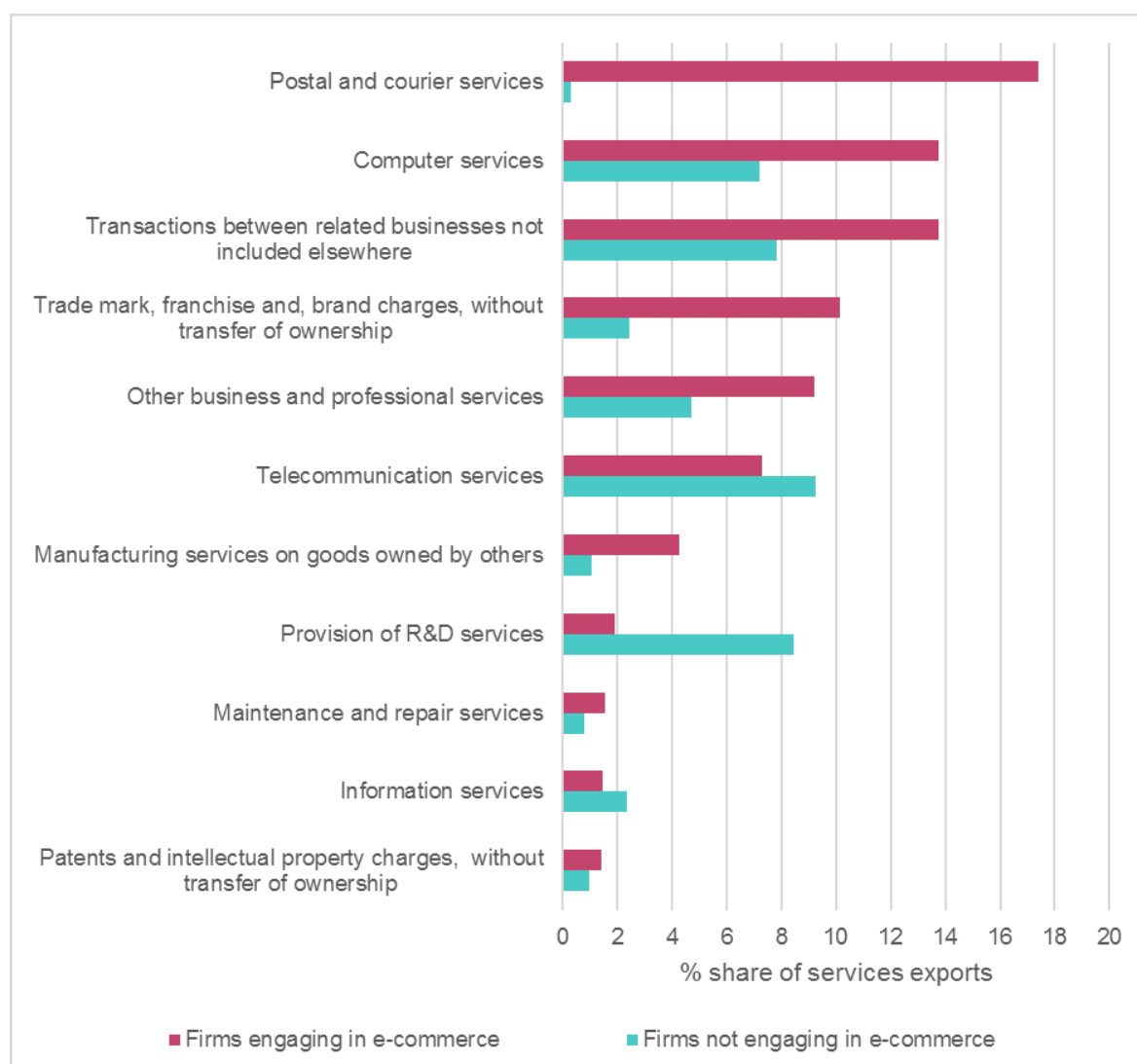
Figure 4-7 presents types of services exported by firms engaging in EDI exports and firms not engaging in EDI exports in 2016. The types of services exported and the value of these exports is provided by variables collected as part of the ITIS survey which entered the linked dataset. The breakdown is presented for the types of services most intensively traded by firms engaging in EDI exports. However, it should be noted that from the information available in the dataset it cannot be ascertained what fraction of these exports have been ordered using EDI. Therefore, care should be taken when interpreting these figures.

The most important types of services for firms exporting using EDI are somewhat similar to types of services exported by firms engaging in e-commerce exports via a website or an app. For both groups of exporters (those who use EDI and those who use a website or an app), Postal and courier services, Computer services and Trademark, franchise and brand charges account for a large share of exports. These services are much less frequently traded by firms not engaging in e-commerce exports, whether using EDI or using a website or an app.

Such similarities could be driven by the fact that many firms engaging in EDI exports also export using a website or an app. This in particular applies to the very largest companies, which could be driving the statistics on the most important types of services exported.

At the same time, however, some types of services appear to be more important in exports of firms which export using EDI compared to firms exporting using a website or an app. These include Postal and courier and Telecommunication services.

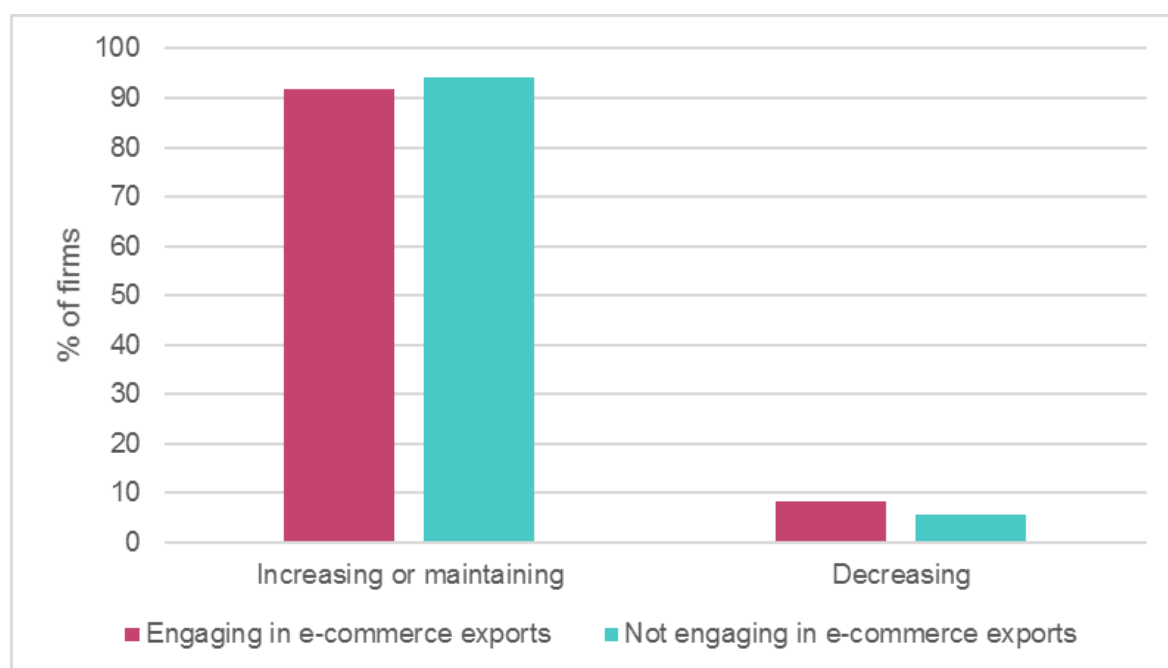
As noted earlier, the exports analysed in this section are not EDI exports only, as the orders for these exports may have been placed using various electronic and non-electronic methods. However, the breakdown of types of services shows that firms engaging in EDI export different types of services, compared to firms not engaging in EDI exports. This is likely driven by a different sectoral composition of firms across the two groups. Due to the limited sample size, it was not possible to analyse types of services exported by firms in specific sectors.

Figure 4-7 Services exported by firms engaging in EDI exports and not engaging in EDI exports (2016)

Notes: Figures presented for selected categories of services. Some names have been abbreviated.
Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

Additional insights can be obtained by comparing whether firms engaging in EDI exports were more likely to increase the range of exported services than firms not exporting using EDI. Due to a low number of firms in the sample, the firms increasing or maintaining the range of countries are presented as a single category.

Among firms which have been repeatedly surveyed in two-year intervals between 2010 and 2018, 92% of firms engaging in EDI exports did not increase or maintain the range of exported services, while this figure stood at 94% for firms not engaging in EDI exports. This difference is relatively small and subject to a relatively high variance; therefore, the difference does not provide conclusive evidence on whether firms engaging in EDI exports could benefit from additional international opportunities which could lead to expanded range of services exported.

Figure 4-8 Firms increasing or decreasing the range of exported services (2010-2018)

Notes: Based on firms repeatedly sampled in any of the two-year intervals between 2010 and 2018.

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

4.7 Exports destinations for firms engaging in e-commerce trade using EDI

Figure 4-9 presents the share of destination countries in services exports for firms engaging in EDI exports and firms not engaging in EDI exports. 22.6% of the total value of services exported by firms using EDI was exported to the US. The second biggest destination for firms using EDI for exports was Germany (13.7%), followed by Switzerland (7.4%) and Spain (5.8%).

Other major destinations for firms exporting using EDI include European countries, such as France, the Netherlands and Ireland, which accounted for 5.3%, 3.4% and 3.1% of exports, respectively.

Comparing the relative importance of countries between firms exporting using EDI, and firms not exporting using EDI, the key differences include the relatively greater importance of Germany and Spain for firms exporting using EDI. Germany accounted for nearly twice the share of the value exported by firms using EDI (13.7% compared to 7.4% of value exported by firms not engaging in EDI exports). Also, only 1.6% of the value exported by firms not using EDI for exports was exported to Spain, a share that is over three times lower than the share for firms engaging in EDI exports.

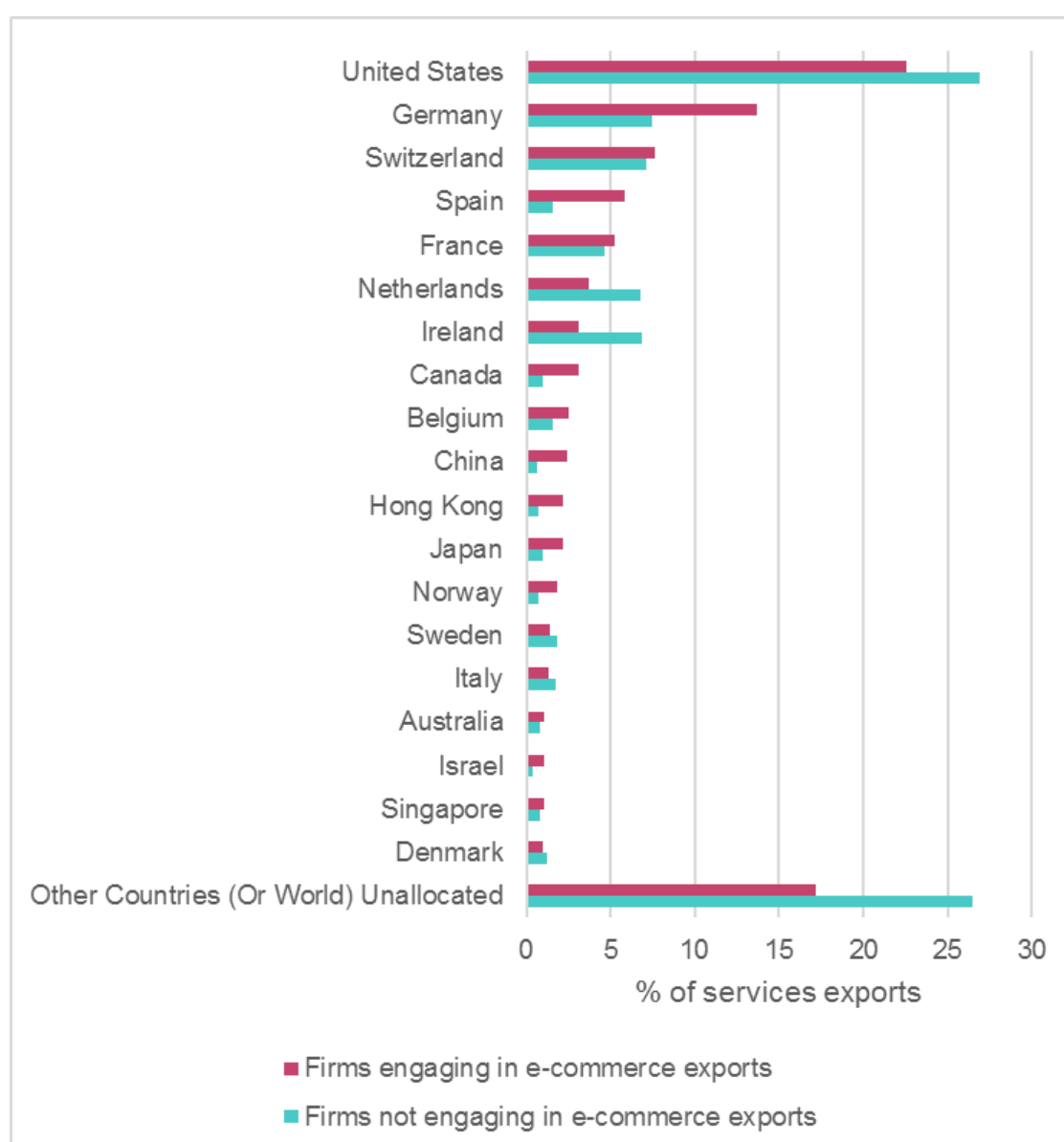
Other key differences between firms engaging and not engaging in EDI exports include the relatively greater importance of the Netherlands and Ireland as destinations for firms not engaging in EDI exports. At the same time the key Asian partners, such as

China, Hong Kong and Japan appear to be more important as destinations for services exported by firms engaging in EDI sales.

Aggregate analysis (not presented in the chart) shows that the EU countries accounted for 46.8% of the total value of services exported by firms engaging in EDI exports, while non-EU accounted for the remaining 53.2%. This contrasts the findings for firms exporting using a website or an app, for which the EU was a slightly more important services exports destination.

For firms not engaging in EDI sales, the relative importance of the EU is even lower: exports to the EU accounted for 43.6% of the total value of services exported, while exports to non-EU accounted for the remaining 56.4%.

Figure 4-9 Destination countries for services exports by firms engaging and not engaging in EDI exports (2016)



Notes: Figures presented for the largest destinations for firms engaging in e-commerce exports.
Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

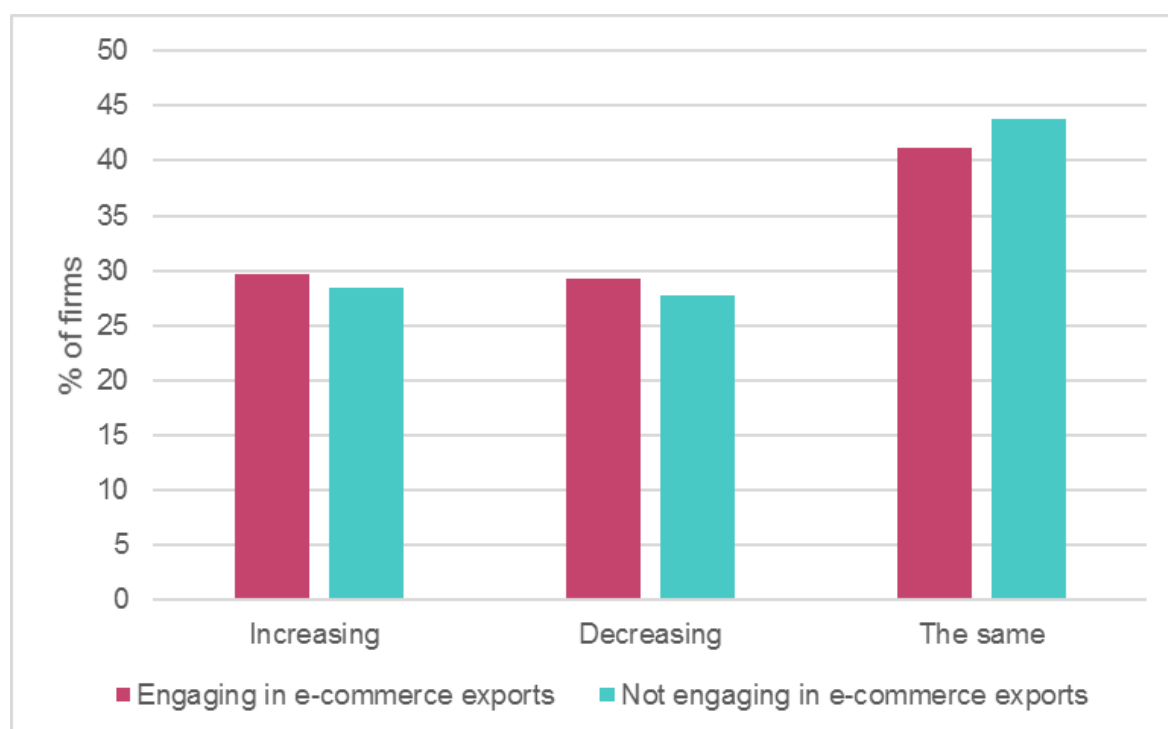
Figure 4-10 presents a comparison of the share of firms which increased or decreased the range of destinations for their services exports. These shares are calculated using data on firms which have been repeatedly sampled in two-year intervals between 2010 and 2018.

The analysis shows no major difference between the firms engaging and not engaging in EDI exports. In 30% of observations of firms exporting using EDI the firm has increased the number of countries it exports to. This share is only slightly higher than that calculated for firms not relying on EDI exports, at 28%. At the same time, firms engaging in EDI exports were also slightly more likely to decrease the range of export destinations. This was observed across 29% of repeated observations of these firms, compared to 28% of observations of firms not engaging in EDI.

Nevertheless, most frequently the number of destinations remained unchanged. This was observed for 41% of firms engaging in EDI exports, and for 44% of firms not engaging in e-commerce exports.

This result is similar to that observed for firms engaging in e-commerce exports using a website or an app. It should be noted that due to the limitations of the dataset, the statistic does not specifically identify the number of destination markets for e-commerce exports, but rather, the destinations for exports of services regardless of the way in which these have been ordered.

Figure 4-10 Firms increasing or decreasing the range of destination markets for services exports (2010-2018)



Notes: Based on firms repeatedly sampled in any of the two-year intervals between 2010 and 2018.
Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access and ONS International Trade in Services Survey Secure Access.

5 Analysis of the 2019 E-commerce Survey microdata

Key findings:

- The estimates based on 2019 E-commerce Survey data show that the propensity to export using a website or an app is much higher for larger firms (Figure 5-4). Similarly, the propensity to export using EDI is also much higher among the largest firms (Figure 5-7).
- Among the surveyed firms, the estimated share of website or app exports in total turnover stands at 2.5%. The estimated share of EDI exports in total turnover of surveyed firms stands at 1.3%. This means that 3.8% of the total turnover is attributable to e-commerce exports (Figure 5-3).
- Total (web, app, EDI) e-commerce sales to customers located in the UK and abroad) accounted for 23.3% of total turnover in 2019. Approximately 16.3% of all e-commerce sales were to customers located abroad (i.e. exports).
- However, the reliance on e-commerce exports as a source of revenues varies across firm sizes. The largest firms generate a much larger share of their turnover from e-commerce exports, compared to small and medium firms (Figure 5-5 and Figure 5-8).
- The sectors with the highest propensity to rely on a website or app to export include Accommodation and food services, Wholesale and retail trade, and Transportation and storage (Figure 5-6). The sectors with the highest propensity to rely on EDI to export include Manufacturing, Transportation and storage, and Wholesale and retail trade (Figure 5-9).
- Exporting activity using a website or an app generated the highest share of turnover for firms in Information and communication, Transportation and storage, and Manufacturing (Figure 5-6). For exporting activity using EDI, exports generated the highest share of turnover for firms in the same three sectors (Figure 5-9).

5.1 Introduction

The estimates presented in this chapter were obtained using the 2019 ONS E-commerce Survey microdata¹². Linking the 2019 E-commerce Survey data to the ITIS data was not possible, as the 2019 ITIS micro-level data were not available at the time of writing. However, compared to previous years, the 2019 E-commerce Survey on its own can provide additional insights due to the introduction of additional variables which have not been available in previous years.

¹² The estimates were obtained using a provisional version of the restricted access dataset (March 2021).

These variables are based on new survey questions which collected information such as:

- The value of orders received via website or an app expressed as a share of turnover, by region (UK, EU, Non-EU)
- The value of orders received via EDI expressed as a share of turnover, by region (UK, EU, Non-EU)

Therefore, this information can be used to estimate the share of cross-border e-commerce sales in turnover based on different firm characteristics. Section 5.2 presents the estimates of the share of e-commerce in turnover of UK firms. Section 5.3 presents the results of analysis of firms engaging in e-commerce exports using a website or an app. Corresponding result for firms relying on EDI for e-commerce exports are presented in Section 5.4.

In some instances, the figures presented in this chapter may differ slightly from these in the ONS statistical release based on the 2019 E-commerce Survey data (ONS, 2021). The likely reasons that explain the discrepancy include:

- Use of statistical weights in creation of the ONS statistical release to account for under or over representation of certain types of businesses in the E-commerce Survey sample. These statistical weights were not available in the 2019 E-commerce Survey secure access data at the time of analysis, and therefore, the figures presented here are based on an unweighted sample.
- Use of turnover data to weigh the reported shares of E-commerce exports in turnover by the company size. As the turnover variable was not available in the 2019 E-commerce Survey secure access data at the time of analysis, the weighting was conducted using the employment data, and assuming that employment is proportional to turnover.

5.2 Share of e-commerce exports in turnover of UK firms

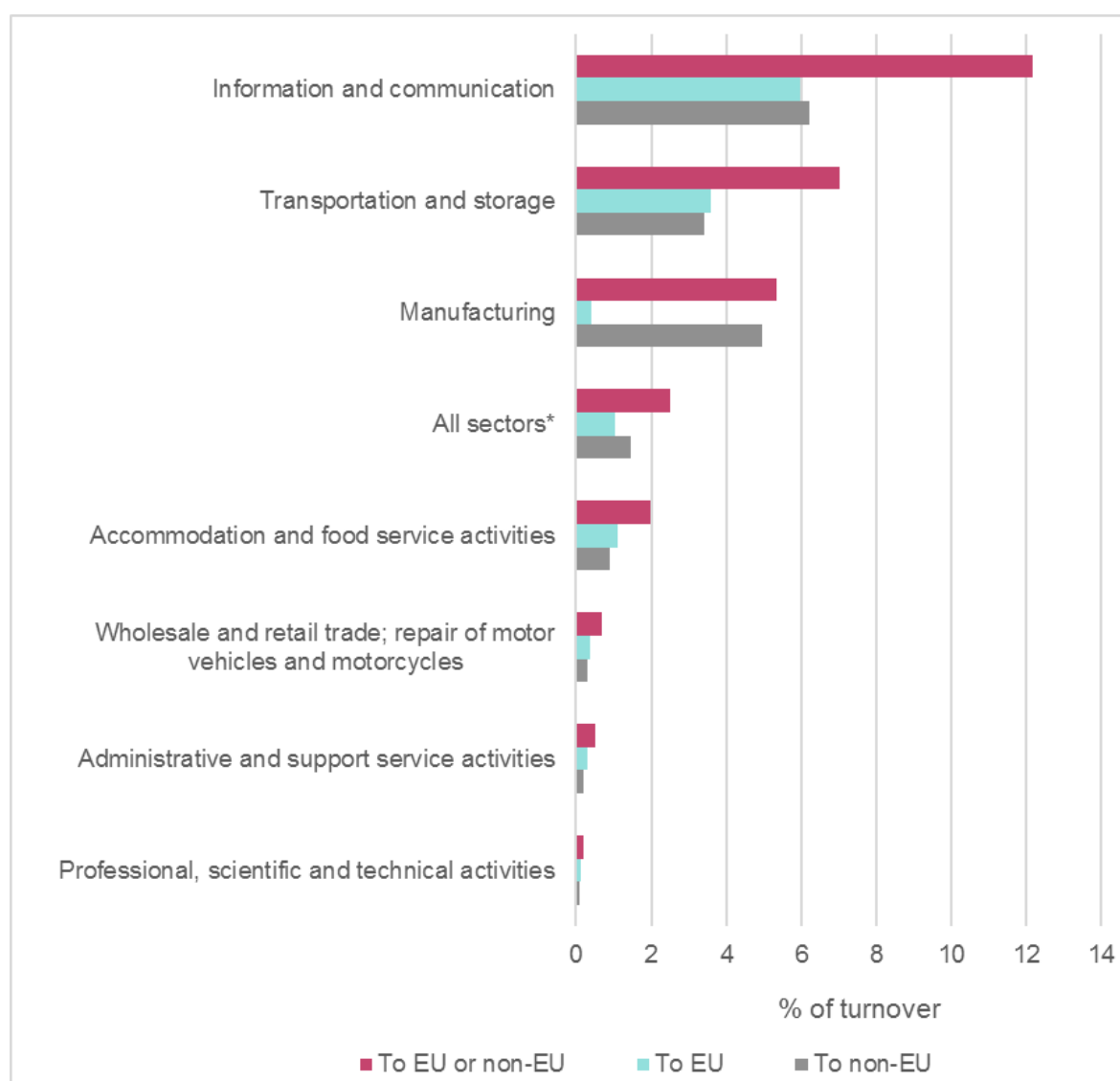
Figure 5-1 presents the estimated share of e-commerce exports in turnover by broad sector in 2019. According to the estimates, the Information and communication sector was most reliant on e-commerce exports via a website or an app. E-commerce export accounted for 12.2% of the sector's turnover and were nearly evenly made up of e-commerce exports to the EU (6.0%) and non-EU (6.2%). The Transportation and storage sector generated 7.0% of its turnover from e-commerce exports, which was split roughly evenly between exports to the EU (3.6%) and non-EU (3.4%).

E-commerce exports accounted for 5.3% of the Manufacturing sector's turnover. However, nearly all of this was exported to the non-EU (5.0%), with the remaining 0.3% being exported to the EU. These figures were driven by outliers responsible for a large share of the sector's exports.

Other sectors rely on e-commerce exports to a much lower extent. The Accommodation and food service activities sector generated 2.0% of its revenues from e-commerce exports via a website or an app. E-commerce sale to the EU accounted for 1.1% of the sector's turnover, while sales to non-EU countries accounted for the remaining 0.9%.

In other sectors, e-commerce exports via a website or an app accounted for less than 1% of turnover. These sectors include: Wholesale and retail trade; repair of motor vehicles and motorcycles (0.7% share of e-commerce exports), Administrative and support service activities (0.5%), and Professional, scientific and technical activities (0.2%).

Figure 5-1 E-commerce exports via a website or an app as a share of turnover, by sector (2019)



Notes: Figures for Real estate, Electricity, gas, steam and air conditioning supply; Water supply, and Other service activities are not presented due to low sample sizes. *All sectors denotes shares estimated based on all firms available in the dataset.

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access.

Figure 5-2 presents the shares of EDI exports in turnover for different sectors. The Manufacturing sector relies on EDI exports to the greatest degree, with EDI exports accounting for 5.1% of the sector's turnover. Breaking this down further by destination

Figure 5-2 shows that EDI exports to the EU accounted for 4.3% of the sector's turnover, while EDI exports to the non-EU accounted for 0.9% of the sector's turnover.

The Information and communication sector generated 4.0% of its turnover from EDI-ordered exports. Further breakdowns by EU and non-EU only are not presented due to limited sample sizes.

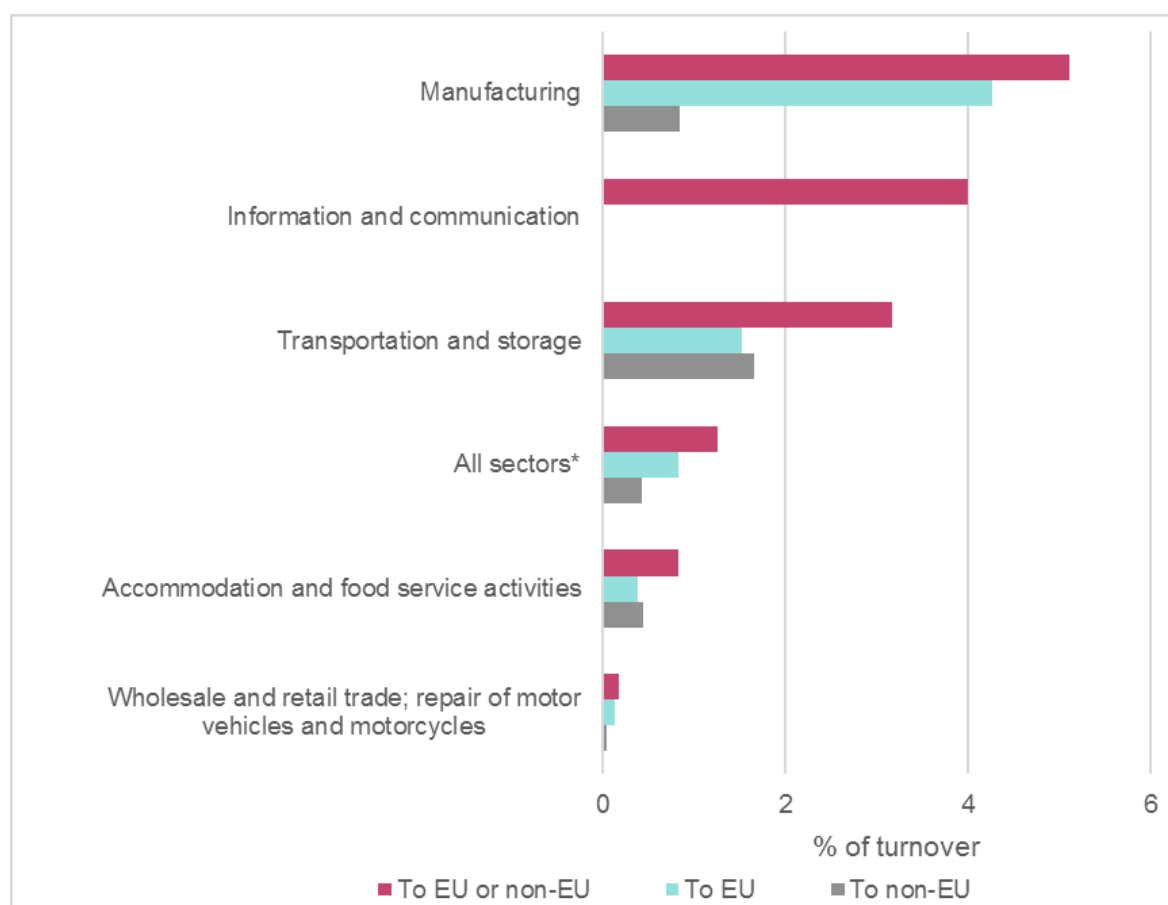
The Transportation and storage sector generated 3.2% of its revenues from EDI sales, almost nearly equally composed of EDI sales to non-EU (1.7% of turnover) EU (1.5%) countries. The Accommodation and food services activities sector generated 0.8% of its turnover via EDI exports, with EDI exports to the EU accounting for a slightly lower share of the turnover than EDI exports to the non-EU.

The reliance on EDI exports as a source of turnover in the remaining sectors is negligible. The Wholesale and retail trade; repair of motor vehicles and motorcycles sector generated only 0.2% of its turnover from EDI exports, while this share was even lower in the Professional, scientific and technical activities (0.1%), and Administrative and support service activities (0.1%).

Overall, the share of EDI exports in total revenues appears to be lower when compared to the share of exports via a website or an app in total turnover. Such a comparison can be made based on the shares computed for all sectors¹³. According to these estimates, EDI exports accounted for 1.3% of total turnover in all surveyed firms. However, exports using a website or an app accounted for nearly twice as much of turnover, with a 2.5% share.

¹³ All sectors denote all firms present in the E-commerce 2019 dataset. As discussed in Section **Error! Reference source not found.**, the E-commerce Survey covers only selected sectors.

Figure 5-2 E-commerce exports via EDI as a share of turnover, by sector (2019)



Notes: All figures for Professional, scientific and technical activities, Administrative and support service activities, Electricity, gas, steam and air conditioning supply; Water supply, Real estate activities, and Other service activities are not presented due to low sample sizes. Some figures for Information and communication are not presented due to low sample sizes. *All sectors denotes shares estimated based on all firms available in the dataset.

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access.

Figure 5-3 presents the combined share of exports via a website, an app and EDI in total turnover, by sector. This share is effectively the sum of shares presented in Figure 5-1 (website and app exports) and Figure 5-2 (EDI sales).

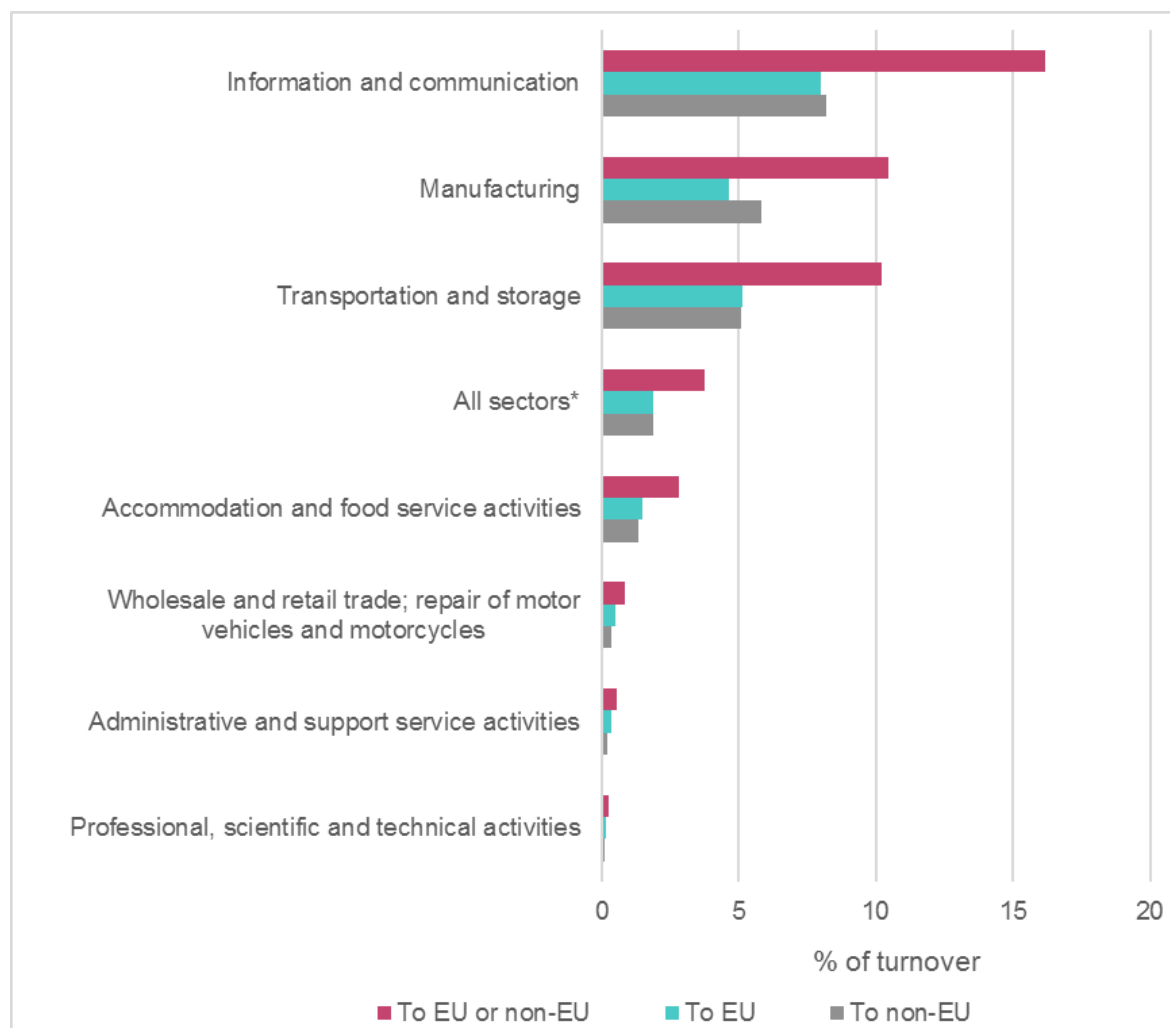
According to the estimates, the overall share¹⁴ (All sectors) of e-commerce exports in turnover stood at 3.8%. Broken down further, e-commerce exports to the EU and non-EU each accounted for 1.9% of turnover in all surveyed firms. The Information and communication sector has the highest share of e-commerce exports in turnover, at 16.2% of the sector's total turnover. The Manufacturing sector generated 10.5% of its turnover from e-commerce exports. This share was similar to that observed for the Transportation and storage sector, at 10.2%.

In the remaining sectors, the share of e-commerce exports in turnover was much lower and below the all-sector average. The Accommodation and food service activities

¹⁴ Based on all firms present in the E-commerce 2019 dataset. As discussed in Section **Error! Reference source not found.**, the E-commerce Survey covers only selected industrial sectors.

sector generated 2.8% of its turnover from e-commerce exports. This share was even lower in Wholesale and retail trade; repair of motor vehicles and motorcycles, at 0.8%. The lowest shares were observed in the Administrative and support service activities sector (0.6%), and Professional, scientific and technical activities (0.3%).

Figure 5-3 E-commerce exports as a share of turnover – combined website, app and EDI exports by sector (2019)



Notes: Figures for Real estate, Electricity, gas, steam and air conditioning supply; Water supply, Real estate activities, and Other service activities are not presented due to low sample sizes. *All sectors denotes shares estimated based on all firms available in the dataset.

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access.

Table 5-1 provides a final summary on the share of e-commerce sales in UK firms' turnover. The total e-commerce sales (website, app and EDI) to customers located in the UK and abroad accounted for 23.3% of turnover in 2019. 19.6% of the total turnover was generated via sales to customers located in the UK, while e-commerce exports accounted for 3.8% of the total turnover. This means that export sales accounted for 16.3% of all e-commerce sales.

A further breakdown presented in the table shows that sales using a website or an app account for a larger share of the total revenue for both domestic and exports markets, compared to EDI sales.

Table 5-1 Website, app and EDI sales, as a share of turnover (2019)

	% share in turnover
E-commerce total sales	23.3
Of which: domestic sales	19.6
- domestic sales using a website or an app	11.0
- domestic sales using EDI	8.6
Of which: exports	3.8
- exports using a website or an app	2.5
- exports using EDI	1.3

Notes: Figures are approximate and based on an unweighted sample. Due to the lack of data on the monetary value of turnover, the shares have been weighted using firm employment.

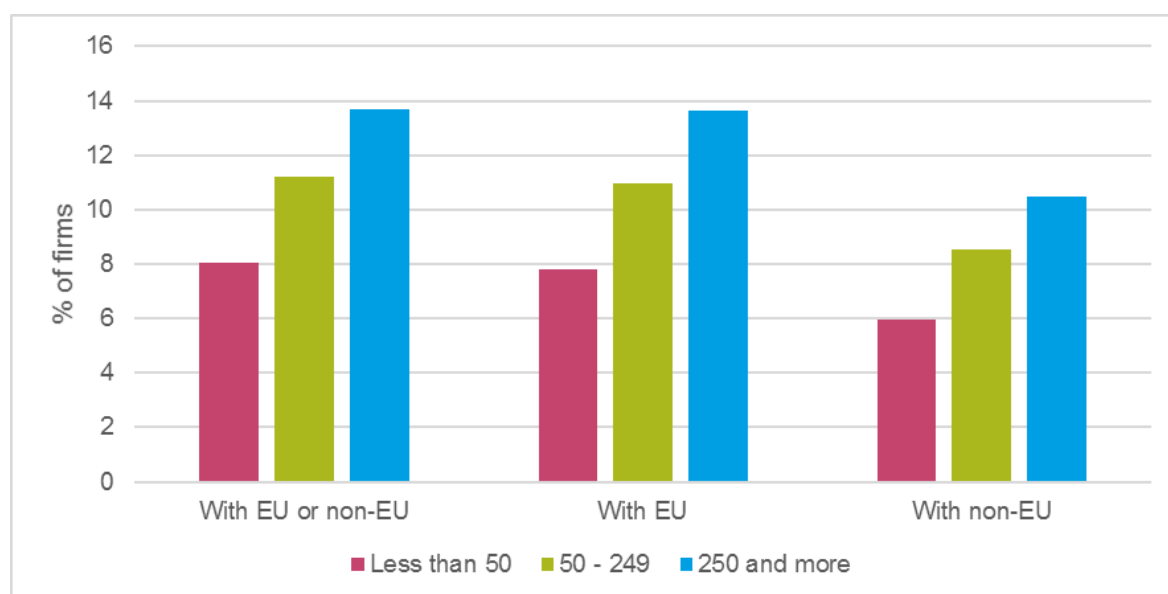
Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access.

5.3 Characteristics of firms engaging in e-commerce exports using a website or an app

Figure 5-4 presents the share of firms engaging in e-commerce exports using a website or an app by employment size bracket. The analysis shows an increasing propensity to engage in e-commerce exports for larger firms. Among firms employing fewer than 50 employees, only 8.0% engaged in e-commerce exports (whether to the EU or non-EU). This share increases to 11.2% for firms employing between 50 and 249 employees. Among the largest firms with employment of over 250, 13.7% engaged in e-commerce exports.

Nearly all firms which engage in e-commerce exports service customers located in the EU, regardless of their employment size bracket. However, not all firms engaging in e-commerce exports service customers are located outside the EU (non-EU). The share of firms exporting to non-EU countries using a website or an app stood at 6.0% for firms with fewer than 50 employees, 8.5% for firms employing between 50 and 249 employees, and 10.5% for firms with 250 or more employees.

Figure 5-4 Share of firms engaging in e-commerce exports using a website or an app, by employment size bracket (2019)



Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access.

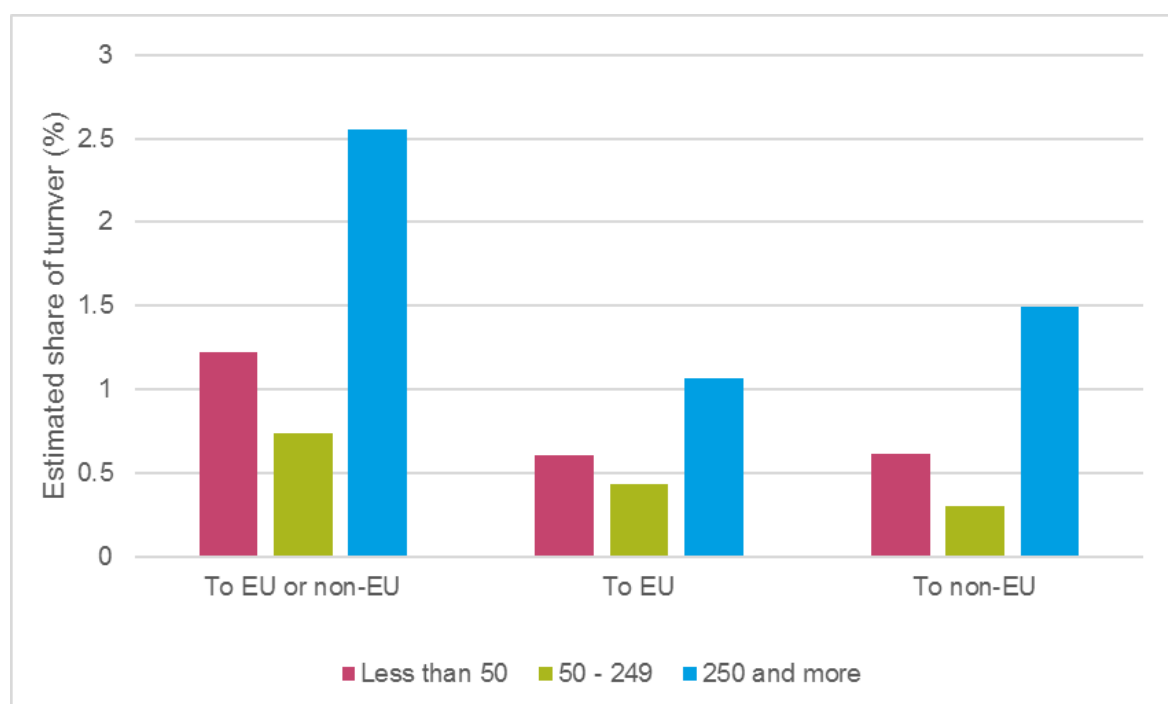
Figure 5-5 presents the average share of e-commerce exports via a website or an app in turnover in 2019. The figures are presented for different employment size brackets, and broken down into share of e-commerce exports to the EU and non-EU.

The share of e-commerce exports in turnover has been estimated at 2.6% of the turnover for the largest firms (those employing more than 250 persons). This share stood at 1.2% for firms who employed fewer than 50 and was even lower for firms who employed between 50 and 250, at 0.7%. This shows relatively large differences in the share of e-commerce exports in turnover across different firm sizes. However, such differences could also be driven by the firm size composition in certain sectors with a high share of e-commerce exports in their revenues (as discussed below).

The share of revenue from e-commerce exports to the EU and non-EU is relatively similar for small and medium-sized firms, at close to 0.6% for each destination for small firms and 0.4% for each destination for medium-sized firms. However, the share of turnover coming from e-commerce exports to non-EU countries is relatively higher for the largest firms, at 1.5% of the total value of turnover compared to around 1% for e-commerce exports to the EU.

This shows that the largest firms are receiving a larger share of e-commerce revenues from countries outside the EU, rather than from the EU, despite an overall lower propensity to export to non-EU countries (presented in Figure 5-4). In other words, even though the largest firms are more likely to engage in e-commerce exports to the EU, e-commerce exports to the non-EU accounts for a larger share of their turnover. This is particularly driven by the Manufacturing sector and could be driven by outlier firms, as discussed below.

Figure 5-5 E-commerce exports via a website or an app as a share of turnover, by employment size bracket (2019)



Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access.

Sectoral distribution of firms engaging in e-commerce exports

Shares of firms engaging in e-commerce exports via a website or an app in different sectors are presented in Figure 5-6. According to the estimates, 23.5% of firms in the Accommodation and food service activities sector engage in e-commerce exports (to EU or non-EU). This is the highest share across all sectors. The second largest share of firms engaging in e-commerce exports via a website or an app belongs to Wholesale and retail trade; repair of motor vehicles and motorcycles, with 16.8% of firms. Participation in e-commerce exports is also high among firms in Transportation and storage and Information and communication sectors, where the share of firms exporting using a website or an app stood at 12.7% and 12.6%, respectively.

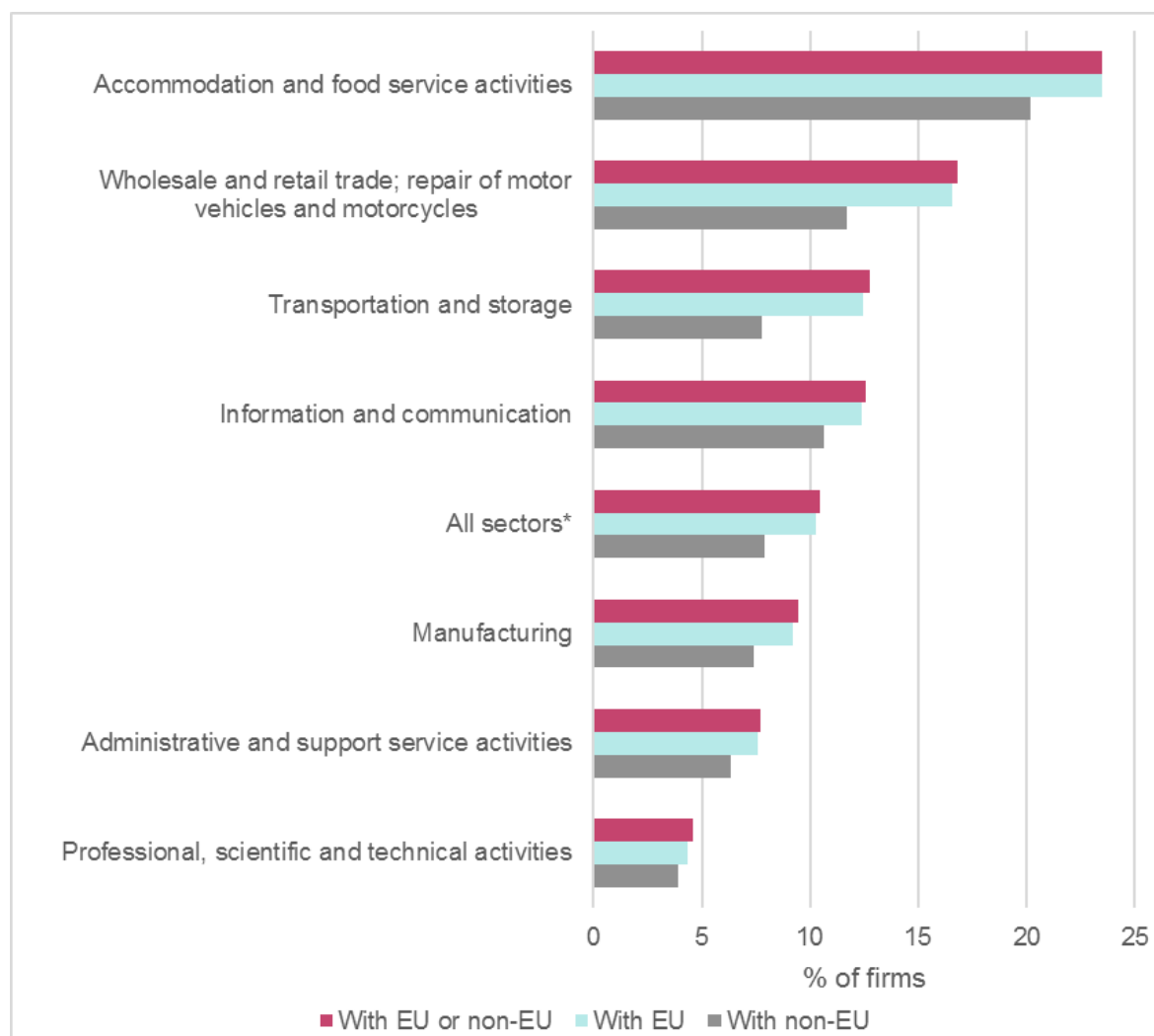
The lowest shares of participation in e-commerce exports via a website or an app are found in sectors such as: Professional, scientific and technical activities (4.6%) and Administrative and support service activities (7.7%).

It should be noted that in comparison to the results based on the linked dataset presented in Section 3.5, the shares presented in Figure 5-6 differ because the linked dataset results in a matched sample which tends to over represent larger firms, as these firms were more likely to be surveyed in both the E-commerce and the ITIS surveys. As larger firms are more likely to engage in e-commerce exports, this results in higher shares presented in Section 3.5.

Four sectors have been excluded from the figure due to small sample sizes. These are: Real estate, Electricity, gas, steam and air conditioning supply; Water supply, and Other service activities.

The variability of the shares of firms engaging in e-commerce exports in different sectors is lower than the sectoral variability of the shares of e-commerce website or app exports in turnover (Figure 5-1). This is because firms in sectors with greater propensities to export using a website or an app also tend to generate a greater share of turnover from these sales, therefore amplifying the sectoral differences in the share of e-commerce exports in turnover.

Figure 5-6 Share of firms engaging in e-commerce exports using a website or an app, by sector (2019)



Notes: Figures for Real estate, Electricity, gas, steam and air conditioning supply; Water supply, and Other service activities are not presented due to low sample sizes.

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access.

5.4 Characteristics of firms engaging in e-commerce exports using EDI

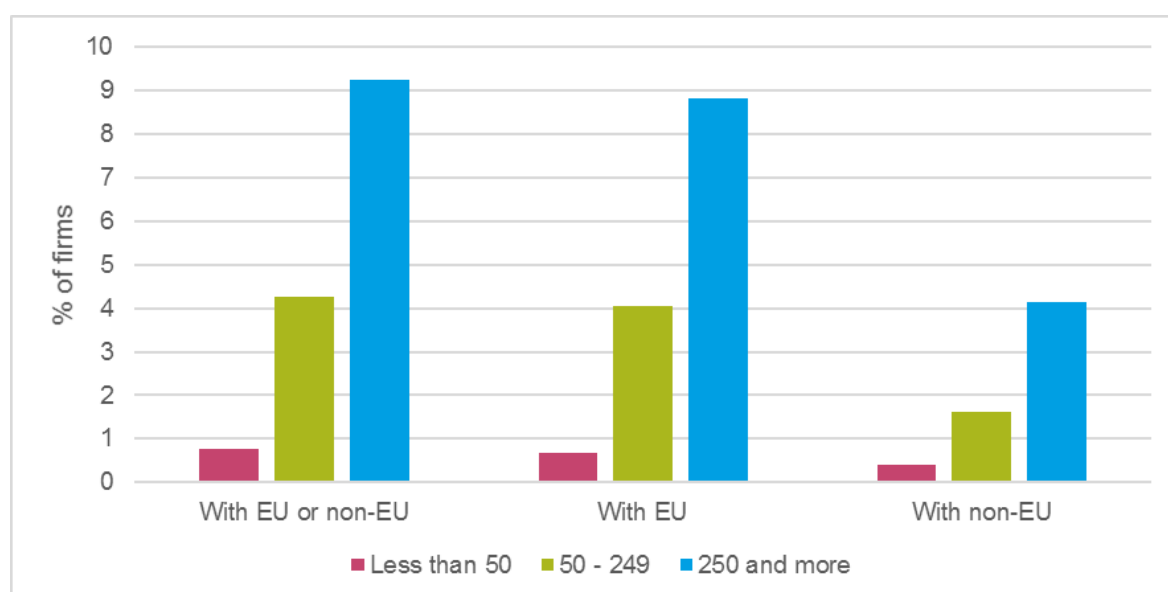
As shown in Figure 5-7, the share of firms engaging in e-commerce exports using EDI is very low among the smallest firms. According to the estimates based on the 2019 E-commerce survey, only 0.8% of firms that employ fewer than 50 used EDI methods to receive orders from customers located in the EU or non-EU. Among medium-sized

firms, this share increases to 4.3% of firms. Among the largest firms (those employing 250 or more), the share of firms engaging in exports using EDI is estimated at 9.2%.

Across all firm sizes, the propensity to export to the EU using EDI is approximately twice as high as the propensity to export to the non-EU. Among firms employing fewer than 50, 0.7% of firms exported using EDI to the EU, but only 0.4% exported to non-EU countries using EDI. Among medium-sized firms, 4.1% of firms used EDI to export to the EU, but only 1.6% exported to the non-EU using EDI. Lastly, among the largest firms, 8.8% used EDI to export to the EU, but only 4.1% exported to non-EU countries used EDI.

These differences in the propensity to export to the EU and non-EU are more pronounced than the differences in propensity to service different markets using a website or an app (Figure 5-4). This is likely driven by differences in sectoral propensities to export using a website, an app or EDI methods. Firms engaging in EDI activity tend to be concentrated in sectors which likely trade more with the EU than non-EU, as discussed below.

Figure 5-7 Share of firms engaging in exports using EDI, by employment size bracket (2019)



Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access.

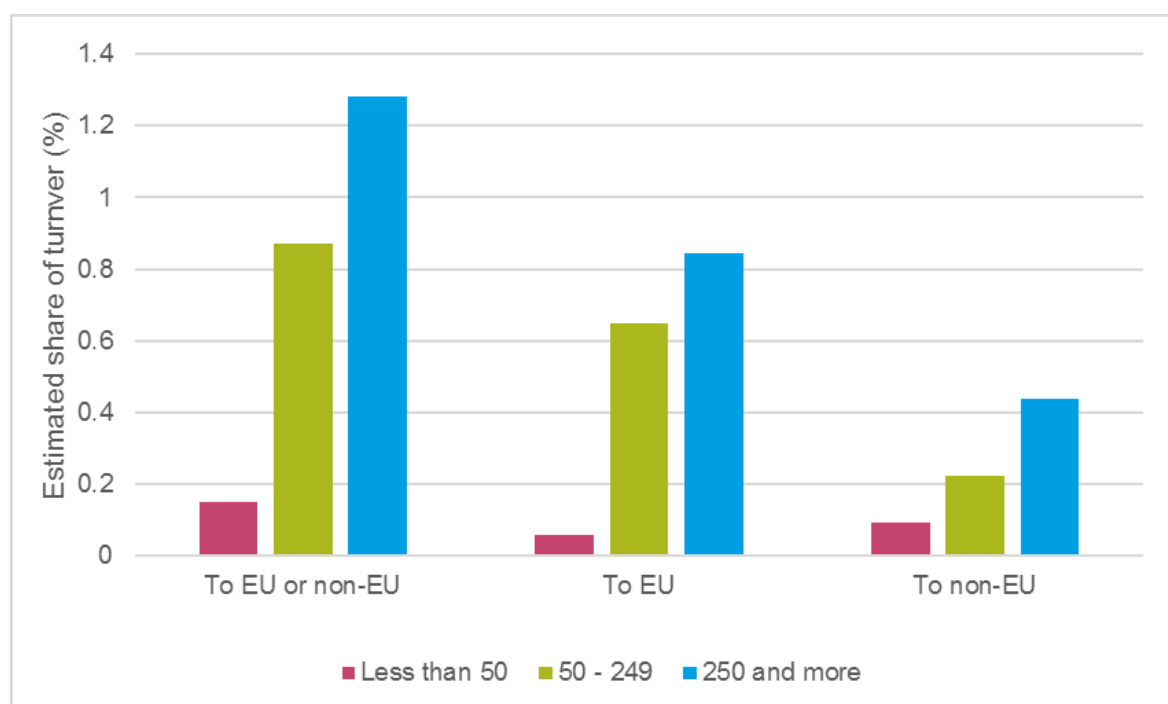
Figure 5-8 presents the average share of EDI exports in turnover by different employment size brackets.

This share tends to be lower than the share of exports using a website or an app. Among small firms (those employing fewer than 50), EDI sales to customers located in the EU or non-EU accounted for only 0.1% of the total turnover. For medium-sized firms, EDI sales to customers located abroad accounted for 0.9% of the total turnover. Among the largest firms, this share was the highest, with EDI exports accounting for 1.3% of total turnover.

In terms of the relative share of the value of EDI exports between exports to the EU and to non-EU, it is observed that among small firms the value of exports to the non-EU was larger than the value of exports to the EU. Due to the relatively low sample size underpinning the estimate for the smallest firms, this result is highly uncertain.

Among medium-sized firms, EDI exports to the EU accounted for just over 0.6% of total turnover, while EDI exports to the non-EU accounted for around 0.2% of total turnover. For large firms, EDI exports to the EU accounted for 0.8% of the total turnover, while exports to non-EU accounted for 0.4% of the turnover.

Figure 5-8 E-commerce exports via EDI as a share of turnover, by employment size bracket (2019)



Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access.

Sectoral distribution of firms engaging in e-commerce exports

Figure 5-9 presents the shares of firms engaging in EDI exports in different sectors. Manufacturing firms have the highest participation rate, with 8.9% of firms engaging in EDI exports (to either EU or non-EU). Nearly all of these firms export using EDI to customers located in the EU (8.4% of all firms in the sector), while the propensity to export using EDI to non-EU countries is much lower (3.5%).

The sector with the second highest propensity to export using EDI is Transportation and storage. According to the estimates, 6.4% of firms in the sector exported using EDI. A more detailed breakdown shows that 6.1% of firms in Transportation and storage used EDI to export to the EU, while 4.2% used EDI to export to the non-EU. The propensity to export using EDI is similar in the Wholesale and retail trade; repair of motor vehicles and motorcycles sector. 4.8% of firms in the sector engaged in EDI exports (to the EU or non-EU). Nearly all of these firms exported to the EU (4.7% of

all firms in the sector). However, only 1.7% of firms in the sector used EDI to export to non-EU countries.

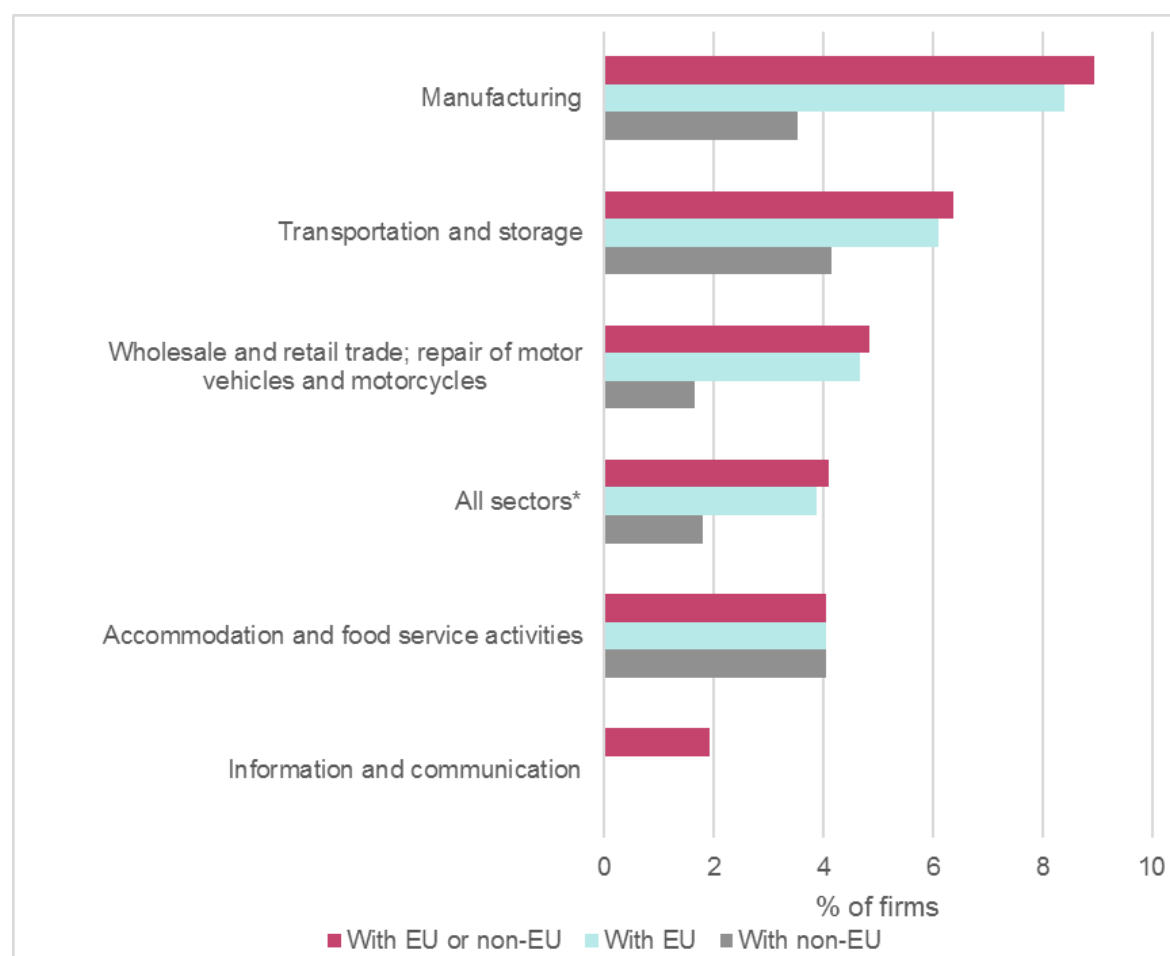
Participation in e-commerce exports via EDI in the Accommodation and food service activities sector stood at 4.0%. In this sector, the participation in exports to the EU and non-EU was similar, at 4.0%.

The level of participation in EDI exports in the remaining sectors is much lower. In the Information and communication sector, only 1.9% of firms exported using EDI to customers located in either the EU or non-EU. This contrasts with the findings for export activity using a website or an app, according to which this sector had a high propensity to export (with 12.6% of firms engaging in e-commerce exports via a website or an app).

In sectors such as Administrative and support service activities and Professional, scientific and technical activities, the propensity to export using EDI is even lower, with fewer than 1% of firms in each of the sectors relying on exports using EDI.

Other sectors not presented in the chart include activities such as: Administrative and support service activities, Professional, scientific and technical activities, Construction, Electricity and gas, Water supply and Real estate activities. Estimates show a low degree of participation in EDI exports in these sectors. However, due to low sample sizes, these results are not presented.

Figure 5-9 Share of firms engaging in e-commerce exports using EDI, by sector (2019)



Notes: Figures for Administrative and support service activities, Professional, scientific and technical activities, Electricity, gas, steam and air conditioning supply; Water supply, Real estate activities, and Other service activities are not presented due to low sample sizes. Breakdown for Information and communication services by EU and non-EU are not presented due to low sample sizes.

Sources: Cambridge Econometrics calculations based on ONS E-commerce Survey Secure Access.

6 Appendices

Appendix A Variable availability in the E-commerce and the ITIS surveys

Table A-1 E-commerce Survey - Variables of interest

Variable Code	Var_Name	Import/ Export	2 0 0 1	2 0 0 2	2 0 0 3	2 0 0 4	2 0 0 5	2 0 0 6	2 0 0 7	2 0 0 8	2 0 0 9	2 0 1 0	2 0 1 1	2 0 1 2	2 0 1 3	2 0 1 4	2 0 1 5	2 0 1 6	2 0 1 7	2 0 1 8
Number of employees	employment	Export/I mport	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y		
of the total value of your orders, what % were placed over the Internet?	q101	Import	Y	Y	Y	Y	Y	Y	Y											
breakdown: Internet orders for physical products	q104	Import	Y	Y	Y	Y														
breakdown: Internet orders for services	q105	Import	Y	Y	Y	Y														
breakdown: Internet orders for digitised products	q106	Import	Y	Y	Y	Y														
cost of the purchases made (over internet/ICT) for goods,materials&services?	q107	Import		Y																
were any of your business orders received over the Internet? yes/no	q110	Export	Y	Y	Y	Y	Y	Y	Y											
of total monetary value of orders received by business over Internet, what % fro	q115	Export					Y													
of total monetary value of orders received by business over Internet, what % fro	q116	Export					Y													
of total monetary value of orders received by business over Internet, what % fro	q117	Export					Y													
what was the total turnover of your business? (please refer to guidance note 4)	q120	Export		Y																
of total orders received, what % money were received over the Internet?	q121	Export	Y	Y	Y	Y	Y	Y	Y											
breakdown(of q_121): % Internet orders for physical products	q125	Export	Y	Y	Y	Y														
breakdown(of q_121): % Internet orders for digitised products	q126	Export	Y	Y	Y	Y														
breakdown(of q_121): % Internet orders for services	q127	Export	Y	Y	Y	Y														
breakdown(of q_121): % Internet orders from households	q128	Export	Y	Y	Y	Y	Y													
breakdown(of q_121): % Internet orders from businesses	q129	Export	Y	Y	Y	Y	Y													
did your business place any orders over ICTs other than the Internet? y/n	q150	Import	Y	Y	Y	Y	Y	Y	Y											
breakdown(of q_121): UK?	q151	Import					Y													
breakdown(of q_121): other EU countries?	q152	Import					Y													

Variable Code	Var_Name	Import/ Export	2 0 0 1	2 0 0 2	2 0 0 3	2 0 0 4	2 0 0 5	2 0 0 6	2 0 0 7	2 0 0 8	2 0 0 9	2 0 0 0	2 0 0 1	2 0 0 2	2 0 0 3	2 0 0 4	2 0 0 5	2 0 0 6	2 0 0 7	2 0 0 8	2 0 0 9
breakdown(of q_121): rest of the world?	q153	Import					Y														
total % value of orders with suppliers, placed over ICT	q230	Import								Y	Y										
total % value of orders with suppliers, placed over ICT: Uk?	q231	Import								Y		Y									
total % value of orders with suppliers, placed over ICT: Eu Countries	q232	Import								Y		Y									
total % value of orders with suppliers, placed over ICT: rest of world	q233	Import								Y		Y									
total % value orders received from customers, over website	q235	Export								Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
total value orders received, % received from customers over ICT: Uk#K	q241	Export								Y											
total value orders received, % received from customers over ICT: EU countries	q242	Export								Y											
total value orders received, % received from customers over ICT: rest of world	q243	Export								Y											
Receive orders from customers, via electronic transmission	q257	Export									Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
total % value orders received from customers, via electronic transmission	q258	Export									Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
of % (235), which geo area were customers located: UK	q310	Export									Y		Y		Y		Y		Y		Y
of % (235), which geo area were customers located: EU	q311	Export									Y		Y		Y		Y		Y		Y
of % (235), which geo area were customers located: rest of world	q312	Export									Y		Y		Y		Y		Y		Y
of % (258), which geo area were customers located: UK	q313	Export									Y		Y		Y		Y		Y		Y
of % (258), which geo area were customers located: EU	q314	Export									Y		Y		Y		Y		Y		Y
of % (258), which geo area were customers located: rest of world	q315	Export									Y		Y		Y		Y		Y		Y
During 2016, what was the percentage breakdown of the turnover of orders received via a website or 'app' for the following:	q460	Export																Y	Y	Y	
Via this business's own website or 'app'?																					
During 2016, what was the percentage breakdown of the turnover of orders received via a website or 'app' for the following:	q461	Export																Y	Y	Y	
Via an e-commerce market place website or 'app' used by several businesses for trading products, for example Booking, eBay, Amazon, Amazon Business, Alibaba, Rakuten, Etsy etc?																					
Reporting Unit reference	ruref	Import/ Export	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
IDBR SIC code	sic	Import/ Export	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y			

Source: UKDS

Table B-2 ITIS Survey - Variables of interest

Var_Label	Var_Name	1 9 6	1 9 7	1 9 8	1 9 9	2 0 0	2 0 1	2 0 2	2 0 3	2 0 4	2 0 5	2 0 6	2 0 7	2 0 8	2 0 9	2 1 0	2 1 1	2 1 2	2 1 3	2 1 4	2 1 5	2 1 6	2 1 7
Returned value adjusted for various weights	Grossed	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Country of origin/destination	Country	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Number of employees	Emp			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Service code and payment/receipt marker	Product	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Company Reporting Unit reference number	Ref	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Turnover from IDBR	turnover																				Y	Y	Y

Source: UKDS

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The UK's Department for International Trade (DIT) has overall responsibility for promoting UK trade across the world and attracting foreign investment to our economy. We are a specialised government body with responsibility for negotiating international trade policy, supporting business, as well as developing an outward looking trade diplomacy strategy.

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