Economic cost to UK exporters of cross-border tax complexity

A Cebr report for Avalara

March 2022

Authorship and acknowledgements

This report has been produced by Cebr, an independent economics and business research consultancy established in 1992. The views expressed herein are those of the authors only and are based upon independent research by them.

The report does not necessarily reflect the views of Avalara.

London, March 2022

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Executive Summary

Scope and methodological overview

- The Centre for Economics and Business Research has been commissioned by Avalara to assess the economic impact of EU cross-border tax complexity on UK exporters. Specifically, we are interested in the administrative burden associated with complex or confusing processes and schemes associated with cross-border trade, as opposed to the value of tax itself which has to be paid. Tax schemes which are hard to implement or are drastically different from previous ones result in businesses losing out on income, as well as reduced productivity through workers needing to spend time on understanding and applying inefficient processes.
- Besides the total UK-level impact, our analysis is focused on the economic impact of tax complexities in three industries: manufacturing; retail; and software/digital services.
- Conceptually, we have considered the impacts of tax complexities through two tranches:
    - **The firm-level impacts associated with tax complexities.**
    - **The resultant wider economic loss driven by these firm level impacts**.

Firm-level impacts

- We estimate an overall **loss in revenue for UK exporters to the EU of £47.6 billion due to cross-border tax complexities in 2021.** The biggest loss was recognized in the manufacturing sector, with £24.4 billion.
- The new EU VAT reforms took effect on 1 July 2021. Initially it was thought this would reduce complexity for exporters which would result in higher incomes. Indeed, it seems this is the case as companies reported a positive impact. **Firm revenue could have been £5.2 billion higher if EU VAT reforms had been implemented six months earlier, at the start of 2021.**
- The time spent on tax administrative tasks damages productivity. **Through consideration of the time spent on these tasks, we estimate that this caused a loss of £386 million in gross-value added (GVA) overall.** Out of this, £53 million is considered to be lost due to time spent on understanding and implementing the new EU VAT schemes.
- **£10.7 billion of additional non-people operational cost were recognised due to tax complexities.** Out of this value, £7.8 billion was absorbed by the manufacturing industry.
- A key component of the EU's VAT reforms was the introduction of the Import One Stop Shop (IOSS). IOSS allows the sellers of goods into the EU to collect, declare and pay the VAT owed, instead of making the buyer pay at the point goods are imported. In order to register for IOSS, firms need to appoint an intermediary. **The estimated cost of these intermediaries was £0.5 billion.**
- **62.3% of survey respondents (based on a sample of 250 firms who are UK-based and export to the EU) are registered to IOSS.** The main reason for not registering is because many firms still use older schemes such as DAP (Delivery At Place) and DDP (Delivered Duty Paid). As only 32.7% of all

consignments to the EU fall under the €150 threshold, many might not feel the necessity to register.

- Positive customer feedbacks increased significantly according to survey respondents; **94% of firms believe that there has been a rise since implementing EU VAT reforms**. Firms report that buyers recognise the lack of extra costs, and faster delivery of products.
- 72% of respondents have plans to expand to another EU market; significantly higher than the 32% who are planning to exit from current ones. **However, 62% stated that fear of being fined for tax compliance has recently caused them to reverse plans to sell goods in a European country.**
- 80% of respondents have a return policy, but they only recover 35% of the VAT paid on returned goods. **This means that for every £1 VAT paid, £0.05 could have been recovered but wasn't.**

Wider economic impact

- We estimate that firm-level damages from having cross-border taxation resulted in a **loss of £38.9 billion in GVA.**
- The GVA loss resulted in **£10.8 billion of unrecognized profits for firms**.
- This is estimated to have prevented **£8.7 billion worth of investment** which otherwise could have taken place.
- This investment would have supported an **additional £16.1 billion added to GDP** over the longer-term horizon.
- We forecast that **UK GDP in 2026 could be 0.632% higher without EU cross-border tax complexity.** The effect of this is heavily intensified in the manufacturing sector, where we estimate that 2.085% of the potential GVA generated by this industry will not be recognised.

1. Introduction

1.1 Purpose of the report

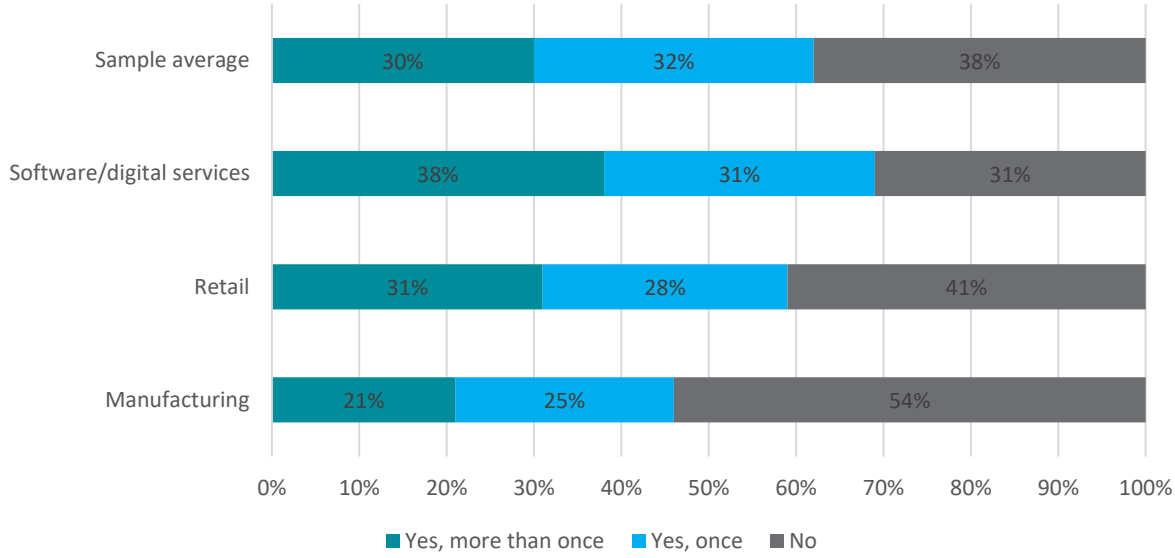
This is a report by the Centre of Economics and Business Research (Cebr) on behalf of Avalara. The research estimates both the firm-level and economy wide impacts of EU cross-border tax complexity. The analysis is predominantly focused on the costs to the UK (both firms and across the wider economy), although substantial 'mirrored' impacts are likely to be present for exporters from EU nations to the UK.

On 31 January 2020, the United Kingdom's membership of the European Union ended 47 years after it joined. Following that, the UK entered a Transition Period for the rest of 2020. Trade, travel, and freedom of movement remained largely unchanged during this period. On 1 January 2021, the transition period ended, which meant that new rules apply for travellers, citizens and also exporters, who had to adjust to the new rules. As will be shown in this report, this initial period from January to June 2021, was one of significant costs to UK exporters to the EU.

On 1 July 2021, the EU's reform to VAT came into place. This included the introduction of the Import One Stop Shop (IOSS) – an online portal for e-commerce firms from outside of the EU, selling goods and services online to consumers within the bloc, to report and pay VAT. Avalara estimated that this would require approximately 26,000 e-commerce sellers in the UK to register for VAT for the first time, under this new system. The purpose of the reform was to reduce confusion for customers, who can see a single cost (price + VAT) instead of two. The IOSS however is not mandatory: exporters can still use older methods, for example register and account for and pay VAT in each of the EU countries in which they sell, but this is considered very onerous.

Our research shows that cross-border tax complexity can put extra pressure on UK businesses, generating significant changes in revenues, and altering plans to expand to other EU markets as well.

Figure 1: Has tax uncertainty or the fear of being fined for tax compliance recently caused you to reverse plans to sell goods in a European country?[1]

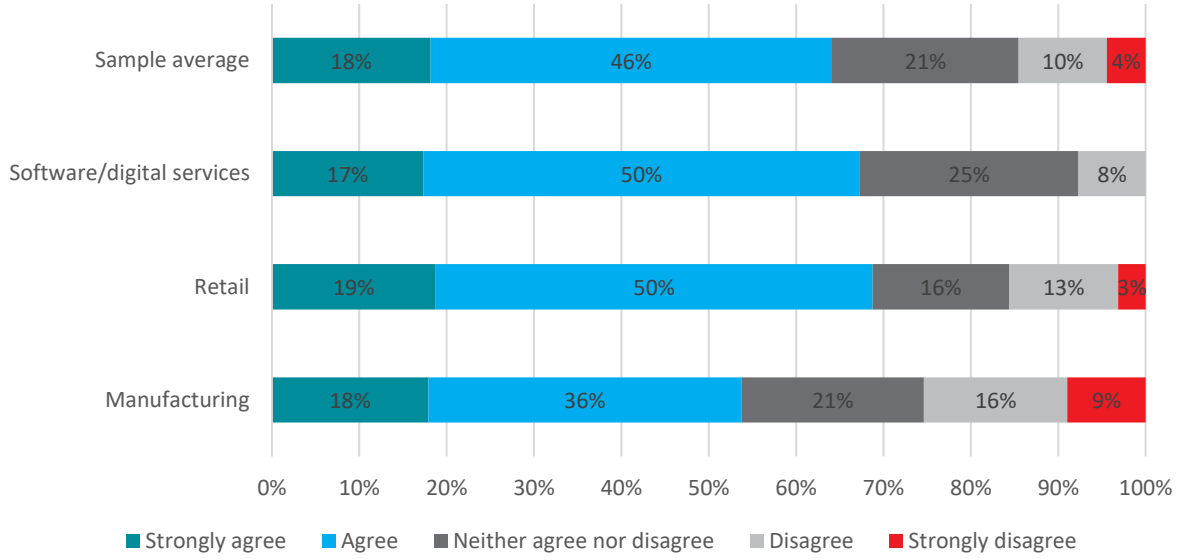


Source: Sapio Research, Cebr analysis

Understandably, exporters find dealing with taxes stressful. Whenever a new tax policy is being introduced, exporters need to spend time on understanding and implementing new schemes. Businesses fear from legal consequences and fines if they make a mistake, have a hard time understanding complex terms, and lose a significant amount of time which could have been invested elsewhere. In this research we plan to provide numerical values on how cross-border complexity can alter benefits and costs, as well as presenting descriptive statistics regarding some key themes for exporters.

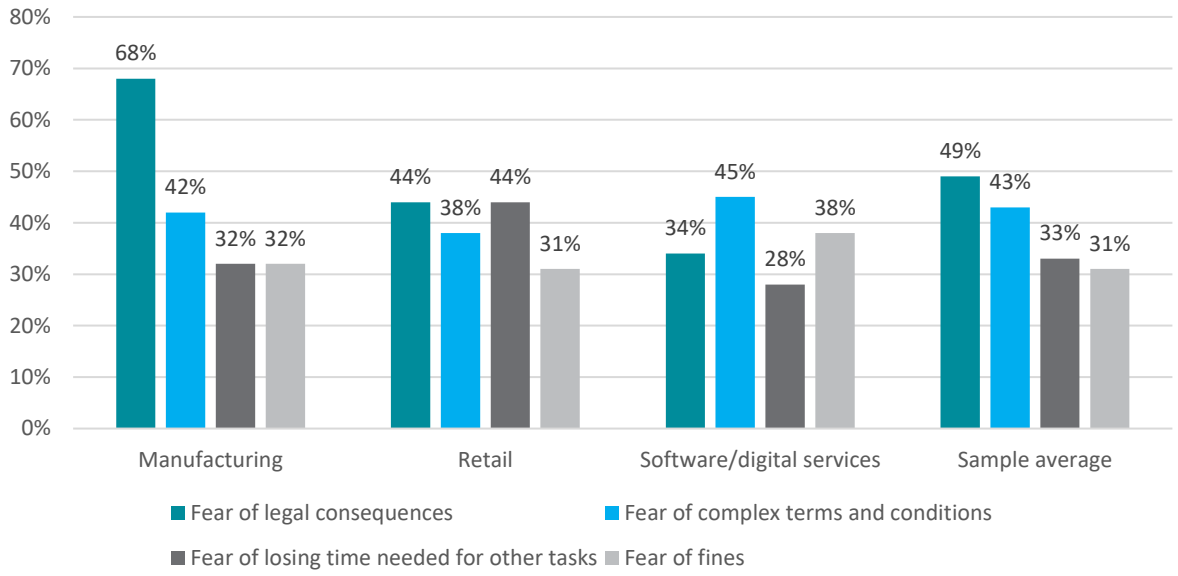
1 Sample average means the average stated in the survey among all respondents. It does not mean this is the UK-level average for exporters. This approach is further explained in the methodology section.

Figure 2: “Ensuring we stay compliant with tax obligations and regulations is the most stressful thing about running my business”



Source: Sapio Research, Cebr analysis

Figure 3: Percentage of EU exporters’ type of fear regarding cross-border tax complexity



Source: Sapio Research, Cebr analysis

Our analysis is focused on comparing the current landscape to a hypothetical world where no costs induced by taxation apply. We aren't comparing to a particular point in time such as pre-Brexit to pre-reforms, but rather holistically looking at the costs as set out today, relative to a world with no costs. While some comparisons are being made throughout the report, our approach shows the full impact of cross-border tax complexity, rather than just a portion of it.

1.2 Scope of the report

Our research considers the impact of EU cross-border tax complexities for UK exporters, and the wider economy. The industries examined in this report are the following:

- Manufacturing (SIC codes 10-33)
- Retail (SIC code 47)
- Software/digital services (exporters of services but not goods, within SIC codes 58-63)

These are three of the largest industries in the economy – per the Office for National Statistics they contributed a combined £425 billion to the UK economy in 2019, which represented 21% of total UK GDP. Besides that, we also estimated the overall impact on the UK as well.

1.3 Report overview

For the purposes of this study, the first stage of the analysis was to build up baseline estimates the value of EU exports for the three sectors of interest and the wider market, alongside the estimated profile of these exporting firms. This market sizing exercise served as the basis from which we then modelled the potential changes stemming from cross-border taxations**.** We estimated this by drawing upon various datasets, including UK trade data, and supply-use tables from the Office for National Statistics (ONS). These are tables which detail the relationship between components of value added, industry inputs and outputs, and product supply and demand.[2] After this we undertook different analytical stages to answer the three fundamental questions within our project:

i. What are the main channels through which tax complexities may harm firms' productivity and performance?

ii. How can the impact of these at the firm level be quantified?

iii. How do these micro firm-level impacts translate into a broader economic fall in the wider economy?

The key, underlying assumption of this research is that cross-border tax complexity leads to operational downfalls for businesses. This manifests in higher costs, lower turnover (through preventing exports that may otherwise have occurred), and smaller profits (among other disadvantages).

The remainder of the report is structured as follows:

- **Section 2: Methodology**

  Explains the approach of the project, the gathering of the dataset, the modelling and the research conducted, broken down by our approach to the overall and sector impacts.

- **Section 3: Firm-level impacts**

  Presents how revenue, GVA, and non-people costs of EU exporters change due to tax complications, with a specific focus on shifts caused by the EU VAT reform.

2 These tables are a source for the data underlying the calculation of GDP.

- **Section 4: Wider economic impact**

  Showcases the additional impacts of firm-level changes on the wider economy through decreased profits, productive investment, and the ensuing medium-term harm to GDP.

2. Methodology

2.1 Firm-level impacts

Cebr partnered with Sapio Research in order to conduct a survey to understand how businesses are affected by cross-border tax complexities, with a focus on five areas through which taxes may affect firms' productivity and performance. These areas, are as follows:

- The effects on firm revenues
- The cost of time spent on tax administration
- The effects on other non-people costs
- The value realised from marketplace sales and the impacts of cross-border tax complexities on it
- The opinions of exporters on IOSS and other EU VAT reforms

The survey was conducted among 250 business decision-makers in organisations based in the UK which export to the EU. We also asked about the sector they worked in, as we were interested in three specifically: manufacturing, retail and software/digital services.

Using the UK Standard Industrial Classification (SIC) codes, the industries we looked at were 10-33 for Manufacturing and 47 for retail.[3] As the software/digital services sector cannot be clearly distinguished by specific SIC codes, we asked survey respondents from SIC codes 45-47 (Wholesale and retail trade; repair of motor vehicles and motorcycles), 58-63 (Information and communication) and 69-75 (Professional, scientific and technical activities) to define themselves whether their company is considered to be a software/digital services provider. Ultimately, due to data availability and survey responses (all survey respondents from the information and communication SIC section responded that they offer software/digital services,), we focused the analysis on this segment. Therefore, we included the entirety of service export values which come from the information and communication sector, and for illustrative purposes within this report, we consider that the software/digital services industry. Note however that we didn't add in the exports of goods from this sector, as by definition, only services are considered to be in the software/digital services industry.

An important task has been to develop an in-depth understanding of how cross-border tax complexities make an impact on these industries. Following the collation of the necessary data capturing these activities, the values of key economic indicators were established to demonstrate the impact of each industry. The key macroeconomic indicators include:

- GVA[4] contributions generated by EU exports from the three industries and the UK overall

3 Please note that SIC 47 is defined as 'Retail trade, except of motor vehicles and motorcycles.' Trade for motor vehicles can be found in SIC 45, but as that summarises both wholesale and retail trade, we only focused on SIC 47.

4 GVA, or gross value added, is a measure of the value of production in the national accounts. Conceptually it can be considered the value of what is produced, less the value of intermediate goods and services used to produce it. GVA is distributed in three directions – to employees, to shareholders and to government. It is often used as the proxy for the contribution of a sector or industry to GDP: strictly this relationship is GVA + Taxes on products - Subsidies on products = GDP.

- Full-time equivalent (FTE) jobs supported by the EU exports[5]
- The value of the turnover of EU exports
- The value of non-people operational costs[6] generated by EU exports

As the transition period of Brexit officially ended on 1 January 2021, and the EU VAT reforms took effect on 1 July 2021, we used 2021 UK trade data where they were available. Since data on exports are updated on a quarterly basis, and usually data on a quarter are published months later, 2021 Q4 data are still not out.[7] Therefore, we estimated this by taking the 2019 Q4 data on each specific industry as a base value and scaled it to the ratio of 2021 Q3 – 2019 Q3 data. The reason we used 2019 quarterly data instead of 2020 data is because of the effects of the coronavirus on exports; we have assumed therefore that the relationship between Q4 2021 exports and Q1-Q3 2021 exports, is better predicted by 2019 data than equivalent 2020 figures. Where we didn't have data for 2021, we used 2019 for scale. For example, data on GVA produced by exports to the EU don't exist, therefore we assumed the 2019 turnover-GVA ratio from the supply-use tables still holds and estimated accordingly.

In questions where respondents were asked to provide numeric values, the survey also provided averages for the sample. For the three specific industries of interest, where we had a strong sample of respondents, we specifically used figures for this cross-section of the data. However, for the impacts for the wider economy, we needed to weight the averages of the total sample by industry shares, as our sample was predominantly focused on the three industries of interest and as such was not necessarily representative of the broader profile of exporters by industry. The proportion of all UK exports to the EU which is from the UK's manufacturing sector is much higher than the proportion of respondents who are based in that industry; therefore, the effect of the manufacturing sector is underestimated in the survey. On the other hand, the retail industry is overestimated, thus we needed to weight these values accordingly.

Revenue

As discussed above, the revenue coming from EU exports was already published for the first three quarters in 2021, and we estimated Q4 figures. After adding these up, we received the total revenue produced from last year. Then, we made the following calculation:

5 The calculation of full-time equivalent (FTE) is an employee's scheduled hours divided by the employer's hours for a full-time workweek. When an employer has a 40-hour workweek, employees who are scheduled to work 40 hours per week are 1.0 FTEs. Employees scheduled to work 20 hours per week are 0.5 FTEs. We considered all parti-time workers to work 20 hours per week. Lastly, we subtracted the number of employees from the number of employment in order to get the number of self-employed individuals.

6 Operating costs are associated with the maintenance and administration of a business on a day-to-day basis. Operating costs include direct costs of goods sold (COGS) and other operating expenses—often called selling, general, and administrative (SG&A)—which include rent, payroll, and other overhead costs, as well as raw materials and maintenance expenses. Operating costs exclude non-operating expenses related to financing, such as interest, investments, or foreign currency translation. As we only used non-people operating costs, we excluded every cost which is people related, such as salaries. As the UK supply-use tables calculate this as turnover minus GVA, we also followed this method.

7 This data will be published on 28 April 2022 as per https://www.ons.gov.uk/releases/uktradeinservicesbypartnercountryoctobertodecember2021.

$$Revenue\ loss\ due\ to\ tax\ complexity_i = (2021\ Revenue_i \div (1 - Relative\ loss\ of\ revenue\ due\ to\ tax\ complexity_i)) - 2021\ Revenue_i$$

Where $2021\ Revenue_i$ is the revenue recognized in industry *i*. We asked respondents from the survey to provide a percentage value on how much revenue they believe they lost due to tax complexities. The equation above first calculates how much revenue could have been without these taxes, then takes the difference compared to the recognised estimate, thus getting an absolute measure of revenue lost. We also estimated by how much this amount could have changed if the EU VAT reforms had taken into effect immediately after the transition period. As respondents claimed revenues slightly increased due to the reforms, the recognised revenue could have been higher.

Time spent on tax administration

As new tax policies are being introduced, employees need to spend further time on understanding and implementing these schemes. This has an effect on their productivity: they put in effort into getting familiar with a new concept instead of producing value to the business. In order to get an estimate on the lost GVA due to time spent on EU tax administration, we made the following calculation:

$$GVA\ loss\ due\ to\ time\ spent\ on\ tax\ administration_i = (2021\ GVA\ attributed\ to\ people\ who\ work\ on\ administration_i \div (1 - Relative\ time\ spent\ on\ EU\ tax\ admin_i)) - 2021\ GVA\ attributed\ to\ people\ who\ work\ on\ administration_i$$

We estimated the GVA produced by EU exports first by applying the 2019 turnover – GVA ratio to the 2021 export revenue data. After that, assuming that employees responsible for tax administration tasks have average productivity for their industry rate, we derived the percentage of GVA which comes from tax administration workers, whose time spent on EU administration increased.

Finally, we calculated the absolute value of GVA produced by these employees, and we could estimate the total loss of GVA due to time spent on EU tax administration. Furthermore, survey respondents also provided the relative increase of administration time due to the EU VAT reforms, therefore we were able to calculate how much of the GVA lost can be attributed to the new policies.

Non-people costs

As GVA has already been calculated before, we consequently also estimated non-people costs, as approximately turnover minus GVA for exporting firms. All we needed then are the data on the percentage of these costs which are related to the EU. As the survey provided these estimates, we simply estimated the proportion of non-people cost which is attributable to cross-border tax complexities.

In order to provide further granularity, the survey also asked the proportion of administration costs which are related to intermediaries.[8] Since not everyone registered to IOSS, and not everyone who registered appointed an intermediary, we first estimated the percentage of

8 Non-EU based businesses who are hoping to take advantage of IOSS are required to appoint an EU-resident intermediary, a type of VAT agent, to represent them.

exporters who appointed one, then we were able to calculate the amount spent on intermediaries.

2.2 Wider economic impact

In this section, we aim to model the additional potential impacts of the firm-level effects on the wider economy. This entails both a consideration and aggregation of the appropriate short-term impacts computed as part of the firm-level analysis, and additional modelling of longer-term impacts.

This additional impact layer is the impact of decreased profits associated with cross-border tax complexities, leading to decreased productive investment, and a resultant medium-term harm to GDP. We draw on firm-level GVA losses from the loss of revenue (both direct and through intermediate consumption), and the loss of time spent on tax administration.

We omit estimating the impact on GVA due to increased non-people costs. As non-people costs increase, this reflects additional revenue for the firms providing goods and services to UK exporters. Since these costs are specifically related to export tax administration, the intermediate consumption would likely be partially recognised in other countries, not in the UK. As a simple example, we can consider the costs of intermediaries which are paid to a foreign company, therefore the GVA realised from that benefits a non-UK firm. Given the ambiguity here and the challenge in quantifying this share robustly, we do not include this channel within the wider economic impacts.

We can calculate the lost investment and long-term GDP fall due to tax administration through the following steps:

- Sum the industry GVA changes through the effect on revenue and the lost values due to time spent on tax administration.
- With profits being a key component of GVA, we scale the GVA changes by calculated profit/GVA ratios for each industry, derived from official national accounts data for the UK, to estimate the change in total industry profits.
- Scale by industry investment/profit ratios. Due to data limitations, we use median Dividend Payout ratios in the USA to estimate the percentage of profits that is reinvested across the different sectors. We have assumed that all additional profits not paid out as dividends are reinvested within this business; therefore, this approach gives the total investment foregone.
- Finally, we apply long-run growth coefficients found in background research to estimate the long-run fall in GDP that results from decreased investment as a result of tax complexities. We assume a 5-year period to reach the long-run growth in GDP from this additional investment based on impulse response functions found in literature review. Hence these are modelled as percentage changes relative to 2026 GDP forecasts. However, in reality, these may not be fully realised, depending on how fast individual firms fully adjust to the new EU VAT reforms.

As a part of this analysis, we have assumed that the additional firm profits do not stimulate any other dynamic market behaviour, such as lower consumer prices or impacts on domestic markets also serviced by UK exporters.

3. Firm-level impacts

3.1 Loss of revenue

This section focuses on the impact of cross-border tax complexity on the revenue of UK exporters to the EU. Table 1 shows the loss of revenue in 2021 which can be attributed to EU tax complexities.

Table 1: Overall decrease of export revenue due to tax complexities in the EU, 2021, £ million

	Total current revenue from EU exports	Revenue loss due to tax complexity	Potential revenue loss due to tax complexity pre-reform[9]
Manufacturing	£140,771	£24,414	£1,641
Retail	£2,051	£414	£50
Software/digital services	£17,092	£3,531	£505
UK total	£252,479	£47,648	£5,169

Source: Sapio Research, ONS, Cebr analysis

Overall, the UK economy lost £47.6 billion worth of revenue from EU exports due to tax complexities. This means that if the EU was part of the domestic market, exporters would have made slightly more than £300 billion instead of £252 billion. Overall, survey respondents indicated that revenue from EU sales could have been approximately 15.9% higher, in the absence of any tax complexity-driven costs.

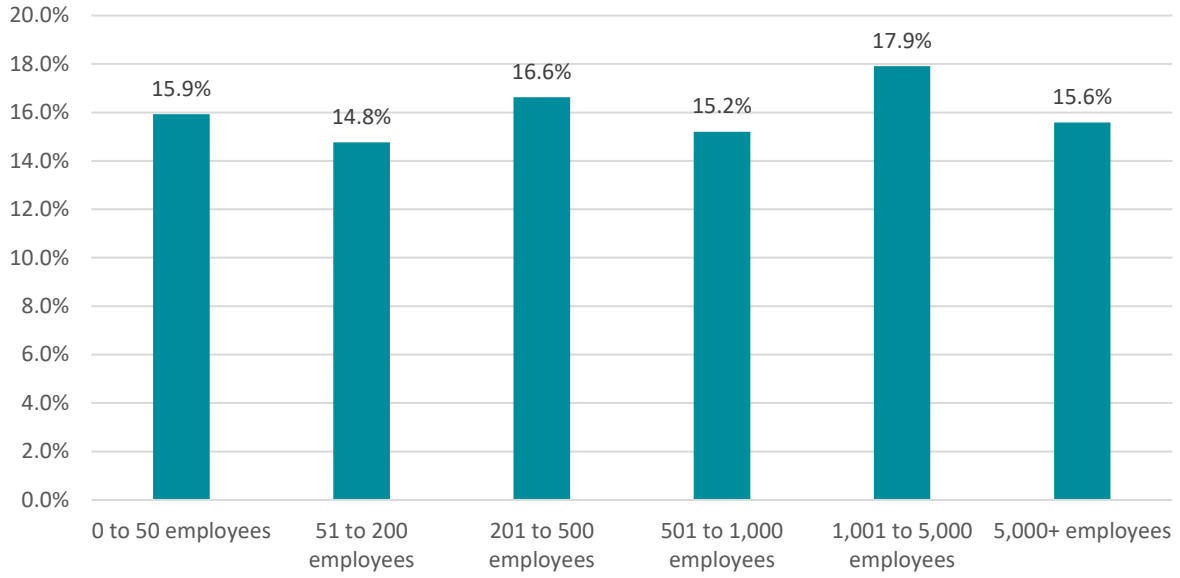
This metric is the highest in the software/digital services sector, where 17.1% of potential revenue was estimated to be lost. In absolute terms the manufacturing industry was responsible for more than half of the overall decline, £24.4 billion (14.8% of manufacturing revenue from EU exports).

Figure 4 breaks down the relative loss of revenue by firm size. Firms with 51-200 employees reported the least impact; their revenue loss from EU exports is 14.8%. This share rises to 17.9% for businesses with 1,001-5,000 workers. Therefore, the survey shows that unrelated to how many people a company employs, the attributed percentage loss is considered similar.[10]

9 Please note that in these tables, when we refer to EU VAT reforms, the estimates refer to only 6 months – here it refers to Q1 and Q2 as this is the period before the reform came into place. The figures in this column therefore represent the additional revenue foregone in Q1 and Q2, which we would have expected to occur if VAT reform had been introduced at the start of the year.

10 We also checked whether it is feasible to present the estimated revenue losses in monetary, broken down by firm sizes. Across the entire economy, data on total turnover generated broken down by business sizes, implied that around half of all revenue generated comes from companies which employ more than 250 workers. Based on that distribution and assuming symmetrical impacts for exporters here approximately £23.8 billion out of £47.6 billion revenue not recognised would have been attributed to these large firms. However, this turnover distribution is an average for all UK companies, not just exporters, and as the share of large businesses is almost 4 times higher for exporters than in general (1.5% compared to 0.4% per ONS data), we can't be confident on how turnover is distributed among small and large firms. Therefore presenting these impacts robustly in monetary terms was

Figure 4: Relative loss of revenue by firm size



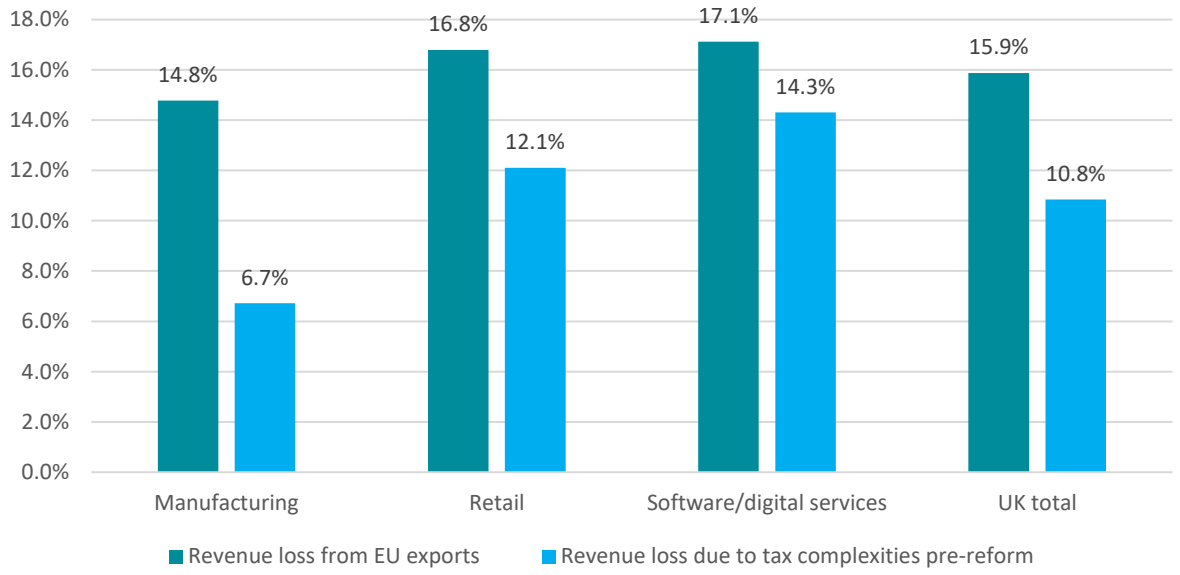
Source: Sapio Research, Cebr analysis

According to respondents however, the EU VAT reform had a slightly positive impact on their business when it comes to exports: they claimed that revenues increased by 4.2% due to the changes implemented on 1 July 2021, relative to the first two quarters of 2021. Based on this, we estimate that if the reform had come 6 months earlier, exporters could have recovered almost £5.2 billion from exports that did not occur due to administrative complexity, meaning the revenue foregone could have been 10.8% lower if VAT reform had been introduced at the start of 2021.

This harmed the software/digital services sector especially (14.3%), while the manufacturing industry felt this on a lesser extent (6.7%). Figure 5 shows the relative loss of revenue due to tax complexities in the EU, as well as the proportion of this loss which could have been recovered if IOSS reforms had been implemented at the start of 2021. Figure 6 provides the relative increase of revenue which is attributed to the EU VAT reform.

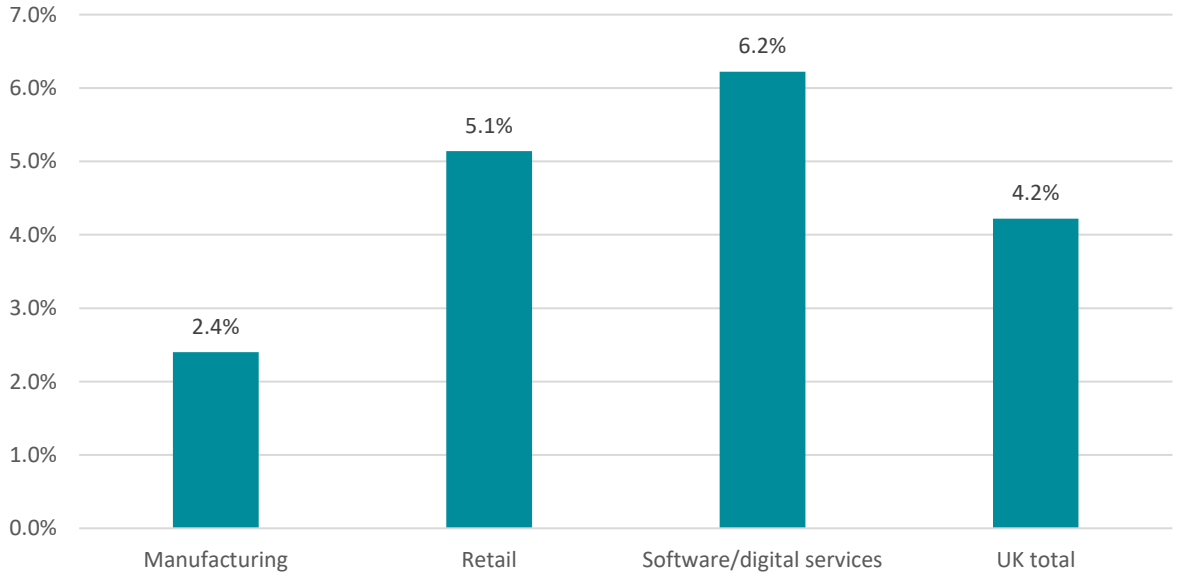
unfortunately not feasible, although it is reasonable to assume that more than 50% of the total £47.6bn revenue foregone, was likely to have been for larger exporters with at least 250 employees.

Figure 5: Relative revenue losses due to tax complexities



Source: Sapio Research, ONS, Cebr analysis

Figure 6: Relative revenue increase post-reform, compared to Q1 and Q2 of 2021



Source: Sapio Research, ONS, Cebr analysis

While this report specifically focuses on exports from the UK to the EU, it is also very likely that imports from the EU to the UK were also affected by cross-border taxation. While quantifying this formally was not a part of the scope of this project, if EU importers were harmed by the same relative extent, – which might be a slight overestimate as the effects of Brexit and its consequences are asymmetrical – they lost £48.0 billion overall. As EU exports to the UK are even more manufacturing-heavy than UK exports to the EU, these manufacturing loses in European firms make up 77.8% of the total reduction, or £37.3 billion. Table 2 further displays the potential revenue loss from EU exports to the UK due to the cross-border taxation between the EU and the UK, assuming symmetrical relative costs of tax complexity. Given the assumptions around symmetry of impacts and the lack of primary data on the impacts on EU exporters to the UK, these impacts should be considered illustrative only. Further research would be needed to ascertain this with confidence.

Table 2: Potential overall decrease of revenue for EU exporters to the UK due to tax complexities, 2021, £ million

	Total revenue from exports to UK	Revenue loss due to tax complexity
Manufacturing	£230,734	£37,327
Retail	£2,061	£366
Software/digital services	£9,092	£1,609
Total	£285,013	£47,953

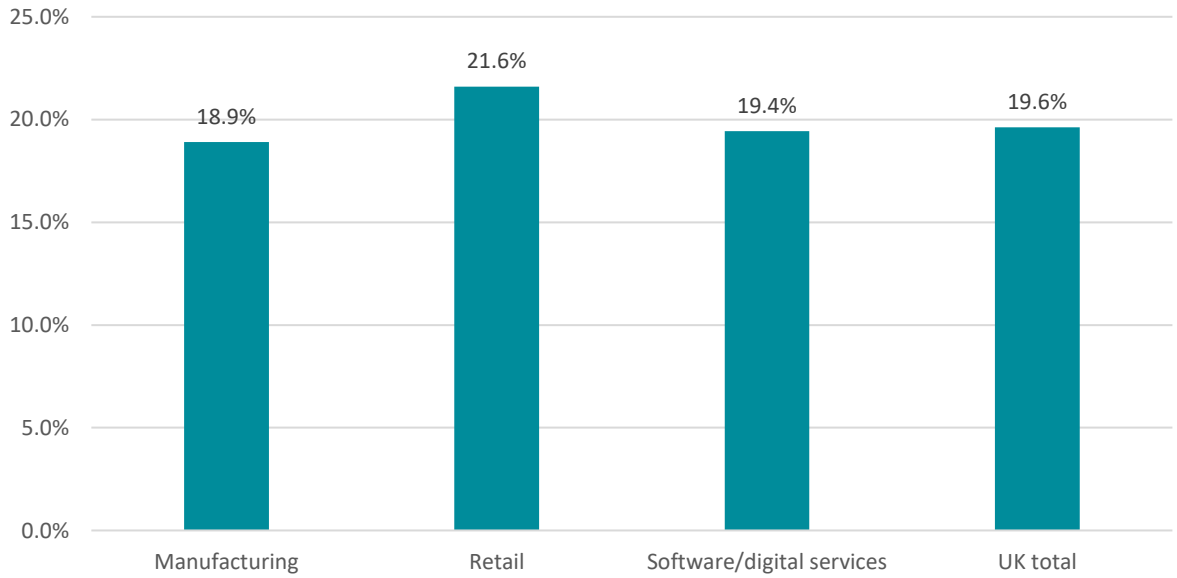
Source: Sapio Research, ONS, Cebr analysis

3.2 Loss of GVA due to time spent on tax administration

Not only is there a cost associated with sales not occurring due to tax complexity, but the exports that do occur come with a higher administrative burden. Please note however that this does not mean that this is the total loss of GVA in the economy, but rather only the loss due to workers spending extra time on tax administration compared to the domestic market, and how much value they could have produced if they had spent that time elsewhere. The cumulative impacts across all channels are prevented in Section 4.1.

Figure 7 shows the share of employees' time, who work with tax policies, which is attributed to EU tax administration. This is the effective time which we can assume could be reallocated productively if there was frictionless trade between the UK and EU with no costs of tax complexity. On average, this stands at 19.6%, or almost a fifth of these workers' time. It is especially high in the retail sector, where 21.6% of administrators' time is spent on EU tax administration.

Figure 7: Share of time spent on tax administration on the EU for employees who work on tax compliance



Source: Sapio Research, ONS, Cebr analysis

Table 3 below presents the loss of GVA from EU exports due to this time spent on tax administration. While the prior sub-section set out the positive impact on firm revenues, survey evidence also suggests that the time spent on tax administration increased post-IOSS

introduction. We therefore model also the share of this loss which is attributed to the new EU VAT policies.[11]

Table 3: Decrease of GVA from EU export due to time spent on tax administration, 2021, £ million

	Total GVA from EU exports	Total loss of GVA from EU exports due to time spent on tax administration	GVA loss due to EU VAT reforms[12]
Manufacturing	£52,163	£108	£14
Retail	£1,259	£4	£1
Software/digital services	£9,425	£23	£3
UK total	£132,540	£386	£53

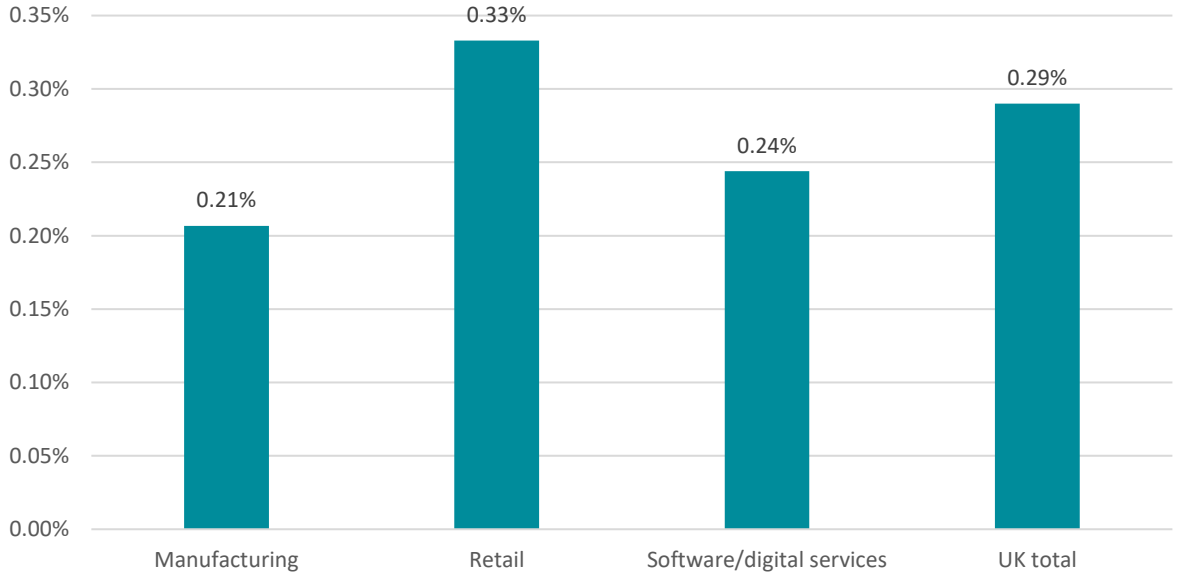
Source: Sapio Research, ONS, Cebr analysis

The overall loss of GVA due to time spent on tax administration is £386 million. This means exporters lost 0.29% of their produced value just because their workers need to spend time understanding, following and executing administrative tasks imposed on exports to the EU. These are distributed evenly within the sectors: all three industries produced 0.2-0.3% less than they would have in a domestic market. As the manufacturing sector is the largest one in terms of exports, the loss is the highest here as well: time spent on tax administration resulted in a loss of £108 million. Figure 8 shows the relative loss of GVA from EU exports for which time on tax administration is responsible.

11 It is worth noting that given IOSS was implemented less than a year ago, some of the additional time spent understanding the new system may represent a transitory cost, which while incorporated in our figures, does not represent a long-term cost above and beyond the costs reported pre-July 1st 2021.

12 As in Section 3.1, this reflects impacts only realised over half of 2021; this time Q3 and Q4. The figures in this table are therefore the cost of the additional time taken to handle tax administration tasks post-VAT reform. The figures in the middle column incorporate these estimates and the wider costs of tax complexity throughout 2021.

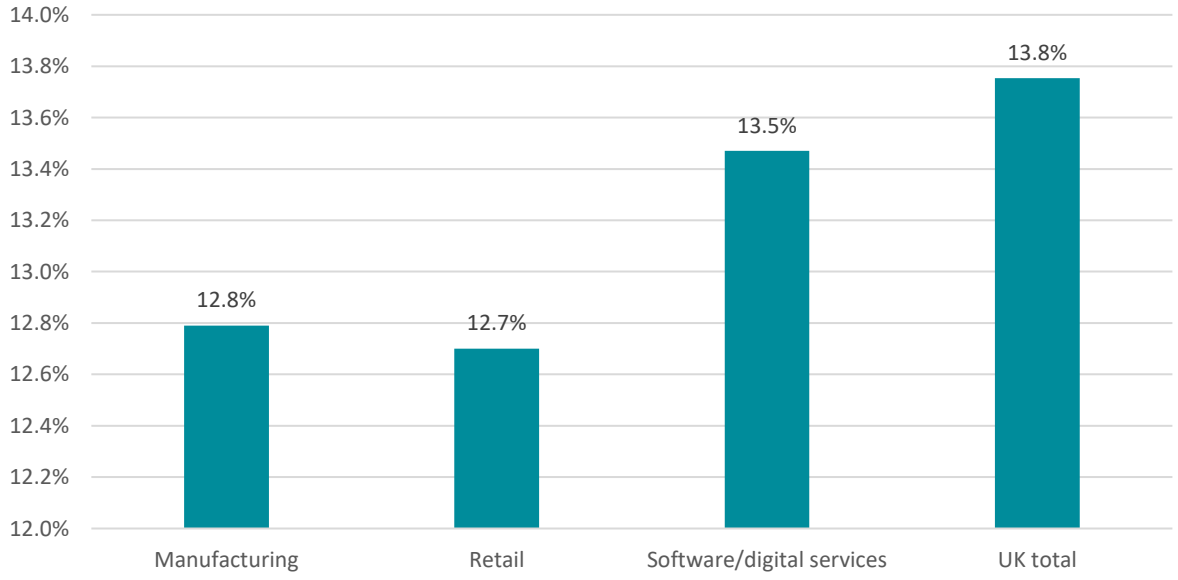
Figure 8: Relative loss of GVA due to tax administration



Source: Sapio Research, ONS, Cebr analysis

Furthermore, while the newly implemented reforms helped recover some of the lost revenue (as seen in Section 3), we need to take into consideration that since administrators needed to spend additional hours to familiarise themselves with the new policies, therefore this slightly harmed their productivity. Workers could have contributed £53 million more if they hadn't needed to spend time on implementing EU VAT reform rules. This means that 13.8% of the total loss due to tax administration would not have been recognized if there had been no reform on taxation. However, this ratio is driven mostly by other sectors than the three analysed here, as only the software/digital services industry lost almost as much as the whole economy (13.5%), while neither the manufacturing, nor the retail sector reaches 13%. This comes hardly as a surprise, as IOSS payments and reports are done monthly compared to the previous system done quarterly. Figure 9 presents these estimates visually.

Figure 9: Relative increase of time spent on administration due to EU tax reforms

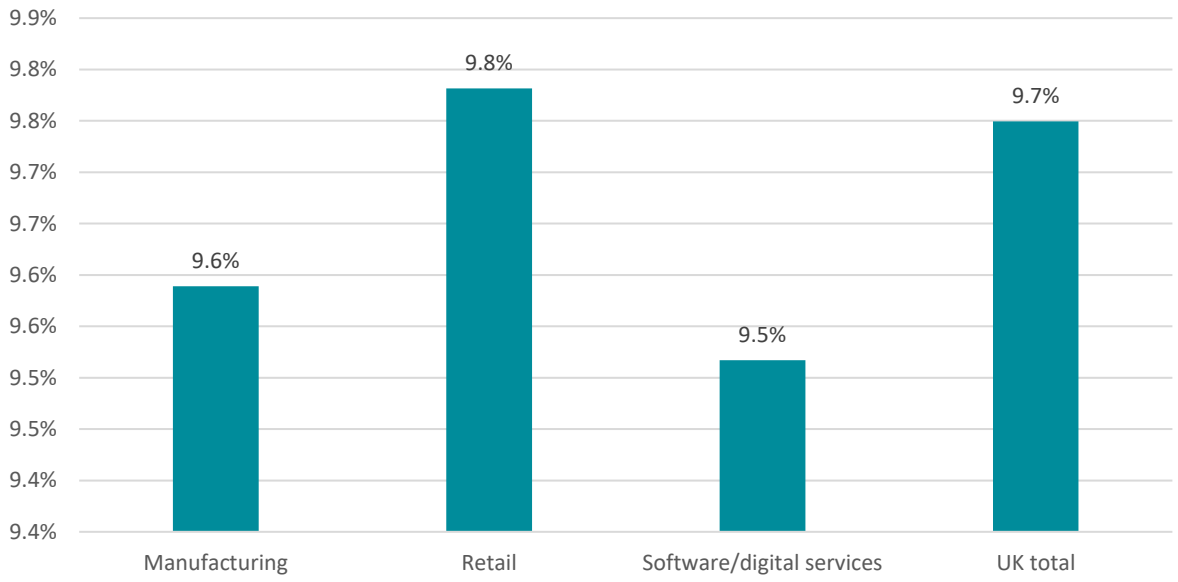


Source: Sapio Research, ONS, Cebr analysis

3.3 Increase in non-people costs

Next, we address the effects of the EU taxations on exporters' non-people costs. Figure 10 shows the percentage increase in all non-people costs driven by tax complexity compliance. Exporters experienced an increase in costs of 9.7%, compared to an alternative market with frictionless trade. Table 4 shows these extra non-people costs for exporters in monetary terms. In total, exporters saw an increase of £10.7 billion in their non-people costs due to tax complexity. Again, as UK exports to the EU are relatively manufacturing-heavy, this sector experienced the largest absolute increase £7.8 billion (9.6%).

Figure 10: Relative increase of non-people cost due to tax administration



Source: Sapio Research, ONS, Cebr analysis

Table 4: Rise of non-people costs due to EU tax administration, 2021, £ million

	Total non-people cost from EU exports (£ million)	Non-people cost attributed to tax complexity (£ million)
Manufacturing	£88,608	£7,753
Retail	£791	£71
Software/digital services	£7,667	£666
UK total	£119,939	£10,654

Source: Sapio Research, ONS, Cebr analysis

Intermediary costs

Firms which register to IOSS are required to appoint an intermediary, which consequently comes with expenses. Table 5 presents the specific amount spent on intermediary costs post-IOSS.

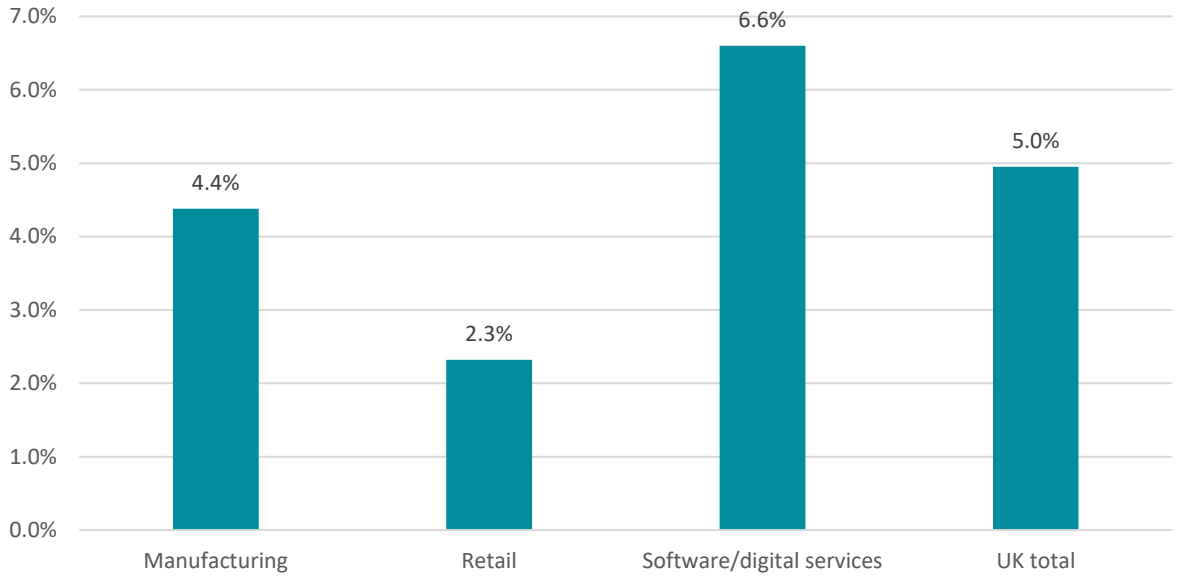
Table 5: Rise of non-people costs due to EU tax administration, 2021, £ million

	Intermediary costs (£ million)
Manufacturing	£340
Retail	£2
Software/digital services	£44
UK total	£528

Source: Sapio Research, ONS, Cebr analysis

The amount spent on intermediaries to support IOSS compliance was £528 million overall, which is 5.0% of all estimated increases in non-people costs (i.e. 5% of the total non-people costs £5.7 billion attributed to tax complexity). This proportion is the highest in the software/digital services industry, (6.6%), while manufacturing felt this effect to a lesser extent (4.4%). The proportion of the increase in non-people costs which is considered to be IOSS-driven costs to intermediaries can be seen in Figure 11.

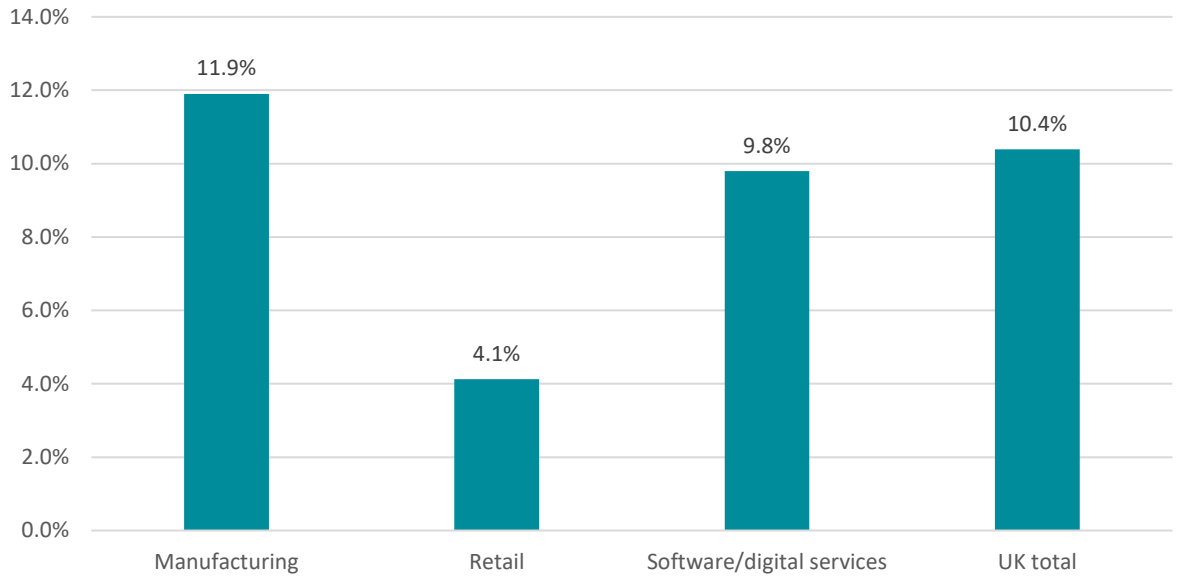
Figure 11: Relative increase of non-people cost due to tax intermediaries post-reform



Source: Sapio Research, ONS, Cebr analysis

Please note however that the 5.0% increase due to intermediaries does not mean this is by how much an exporter's EU tax administration costs rise – in fact, this is much more. As many of the businesses are still not registered to IOSS, they do not need to appoint an intermediary. Furthermore, many of them who registered did not appoint one because the marketplace they are selling on handles this for them. Based on the survey conducted by Sapio, respondents who needed to appoint an intermediary saw an increase of their non-people costs related to EU tax administration by 10.4%. In the manufacturing industry, this jumps to 11.9%, while exporters in the retail sector report a significantly lower effect, 4.1%. Figure 12 illustrates this.

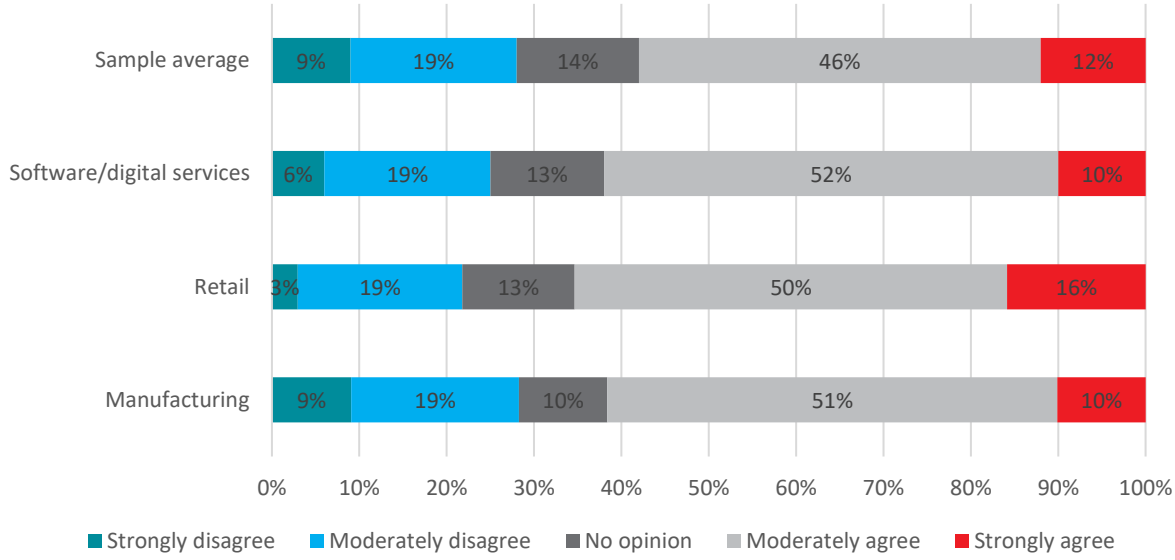
Figure 12: Relative increase of non-people cost due to tax administration associated with appointing intermediaries, for those who appointed an intermediary



Source: Sapio Research, ONS, Cebr analysis

The costs of EU taxation are concerning for exporters as well. In the survey we asked the following question: *To what extent do you agree with the following statement? 'The costs of tax compliance associated with exports to the EU are a significant concern for my business'.* Figure 13 shows the result of this. Overall, 58% of the respondents agreed with the statement. This ratio is the highest in the retail sector, as 66% stated that they are concerned. Only 28% disagreed with the statement, which confirms that in general, the majority of EU exporters are worried about cross-border taxation.

Figure 13: 'The costs of tax compliance associated with exports to the EU are a significant concern for my business'[13]



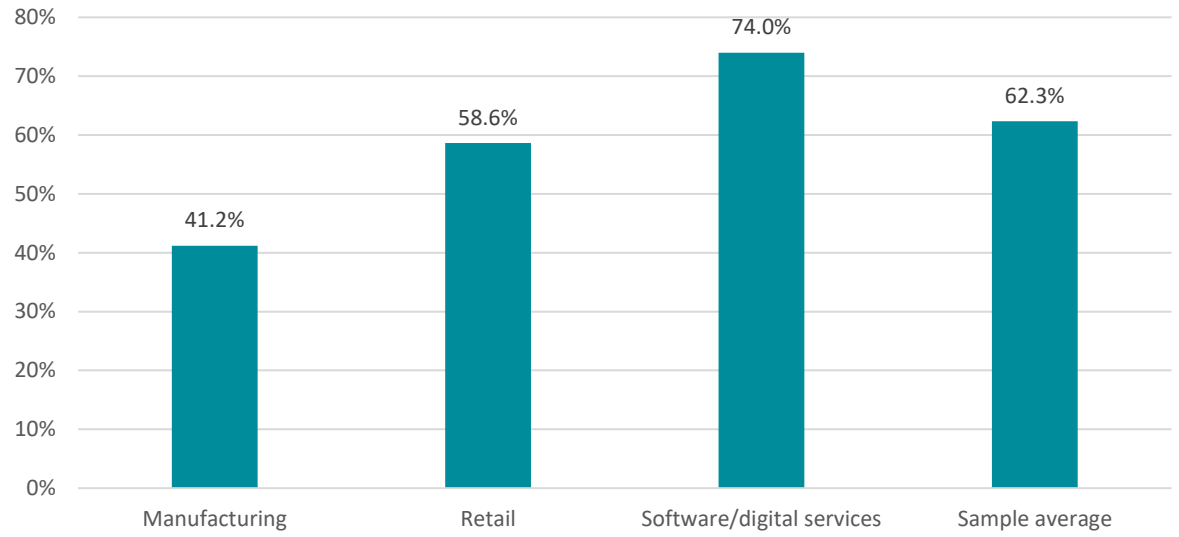
Source: Sapio Research, Cebr analysis

3.4 The wider effects of IOSS and the EU VAT reform

The survey also consisted of numerous qualitative questions, which are presented in this sub-section. Figure 14 shows that 62.3% of the respondents registered to the new scheme, however in the dominant manufacturing sector, this ratio is currently standing only at 41.2%. In contrast, 74.0% of exporters in the software/development industry have already adopted IOSS.

13 In this and the upcoming figures in the section regarding IOSS the total values were not weighted, therefore we present the sample averages rather than the UK averages. We would assume that as the manufacturing sector is underrepresented in the survey compared to the value this industry exports, the UK averages would shift to that direction.

Figure 14: Proportion of exporters who registered to IOSS



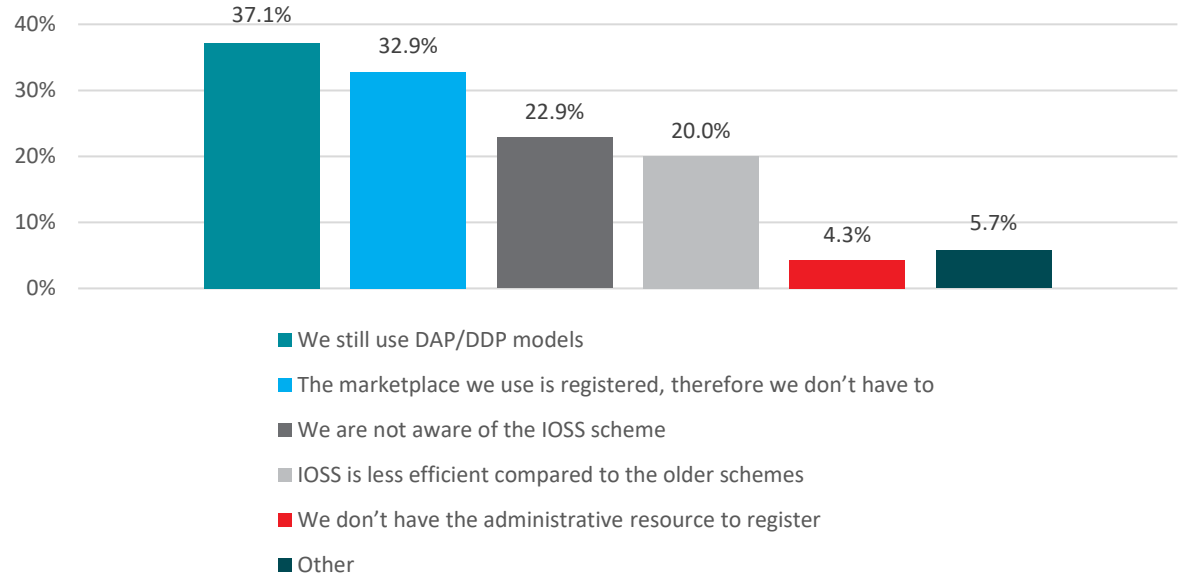
Source: Sapio Research, Cebr analysis

The main reason businesses don't register to IOSS is that because indeed they still use the DAP/DDP models[14] as before; 37.1% of non-IOSS registered respondents selected this option. Almost a third of the respondents claimed the marketplace they use registered on behalf of them, therefore they do not need to. Moreover, 22.9% are unaware of the new scheme, while a fifth of them believe IOSS is not as efficient as the older methods. Figure 15 provides these figures accordingly.[15]

14 (DAP: Delivery at Place, the seller is responsible for the delivery including transport costs, costs of import are borne by the buyer; DDP: Delivery Duty Paid, seller pays import costs)

15 Please note that since only 74 respondents stated they haven't yet registered to IOSS, we did not have enough answers from each industry researched, therefore we only show the overall results in this figure.

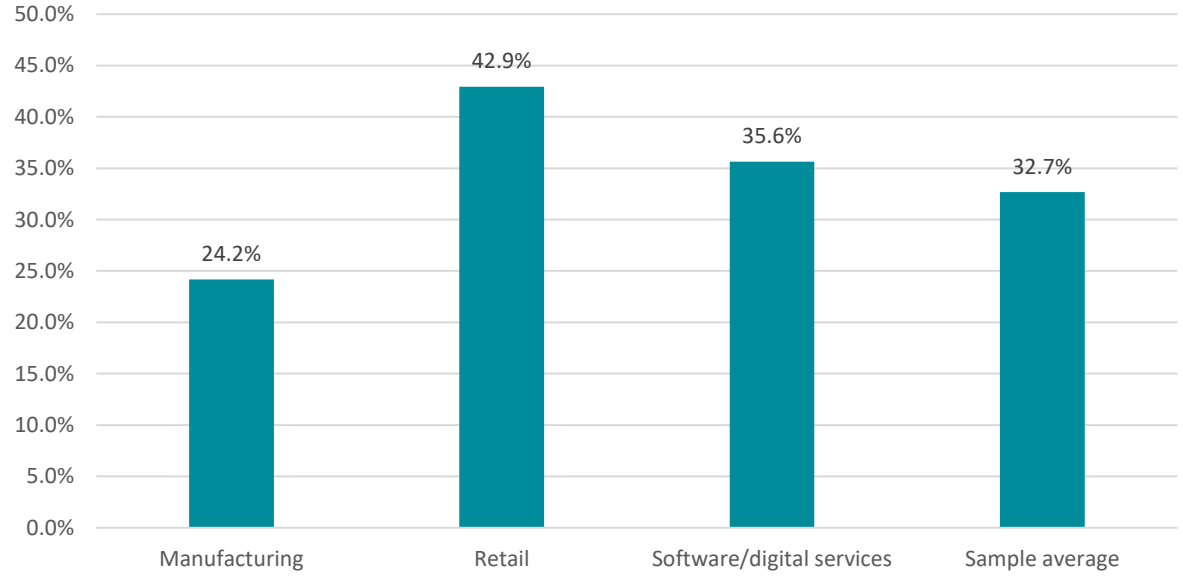
Figure 15: Reason of not being registered to IOSS



Source: Sapio Research, Cebr analysis

Another reason behind why not everyone registered to IOSS is the fact that most products exported are high value, therefore the IOSS does not apply to them. Figure 16 shows that only 32.7% of the respondents' consignments fall under the €150 threshold for IOSS. This proportion is especially low in the manufacturing industry, 24.2%, which might add another explanation regarding why the majority of manufacturing exporters did not register.

Figure 16: Percentage of consignments to the EU that fall under the €150 threshold

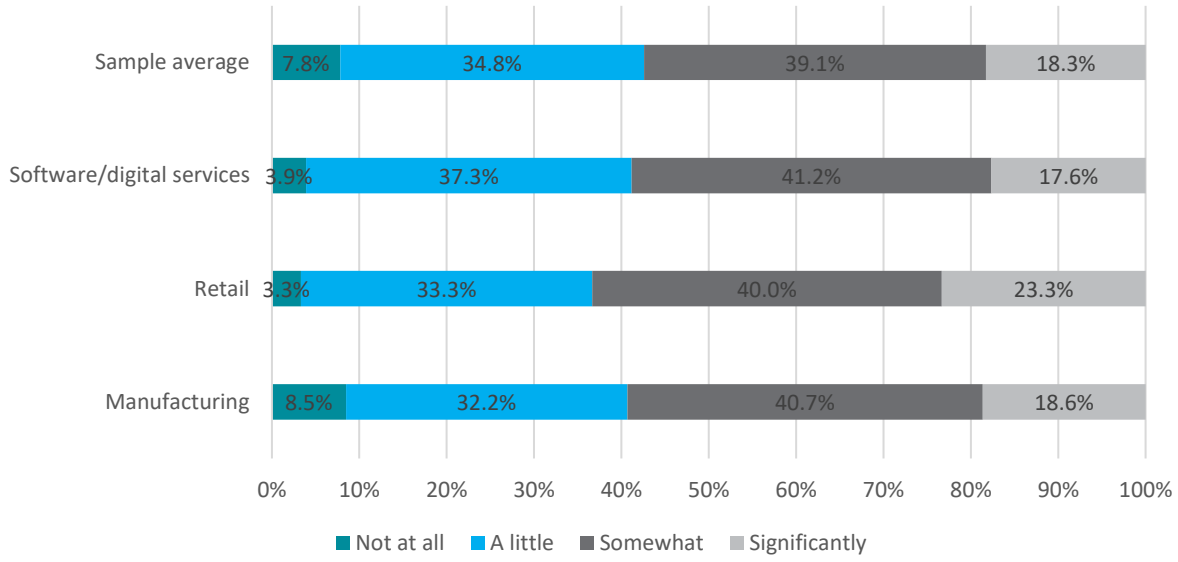


Source: Sapio Research, Cebr analysis

Furthermore, the transition to the new system caused some initial cost of compliance. As discussed in sub-section 3.2, the reforms resulted in an increase of administrative tasks, which

slightly reduced GVA. Figure 17 presents by how much this cost increased on a descriptive level.

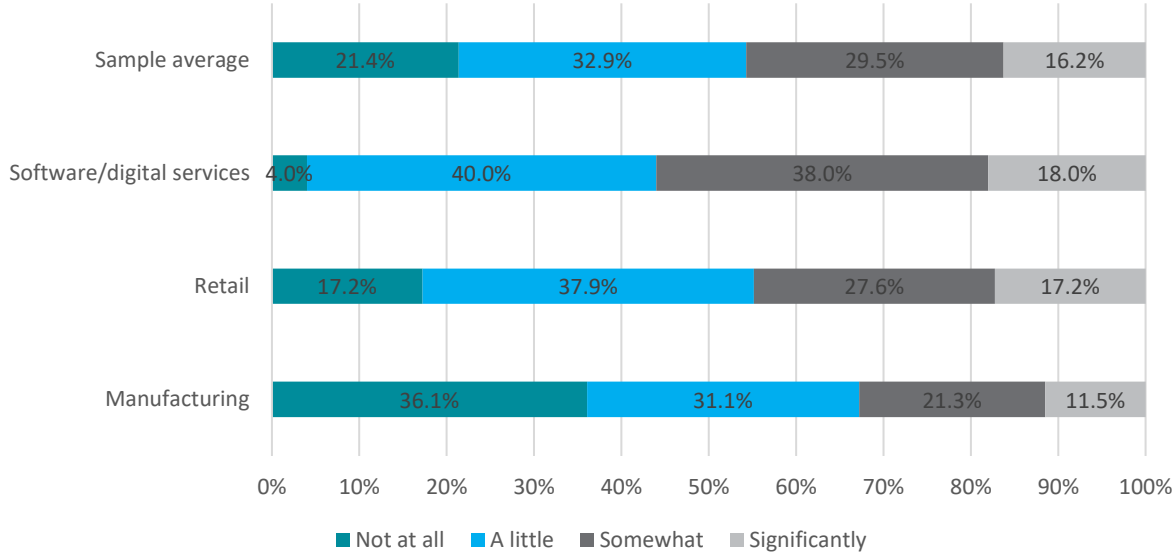
Figure 17: The level of increased cost of compliance due to the transition of the new system



Source: Sapio Research, Cebr analysis

From the survey, 92.2% of all respondents claimed that the transition harmed their business to some extent. This ratio is the highest in the retail sector, with 96.7%. Consequently, it is also the retail sector where the level of increased cost is the highest: almost a quarter (23.3%) of all exporters from the retail sector stated that the transition caused significant issues to them, compared to 18.3% from the sample average. Interestingly however, respondents also believe that the export of low value consignments to the EU were simplified with IOSS. 78.6% answered that the reforms simplified such exports, and this jumps to 96.0% in the software/digital services industry. The manufacturing sector experienced the least level of simplification: 36.1% claimed no effect whatsoever, and 31.1% claimed only a little. Overall, however, it seems that while costs increased first, firms benefited from simpler exports.

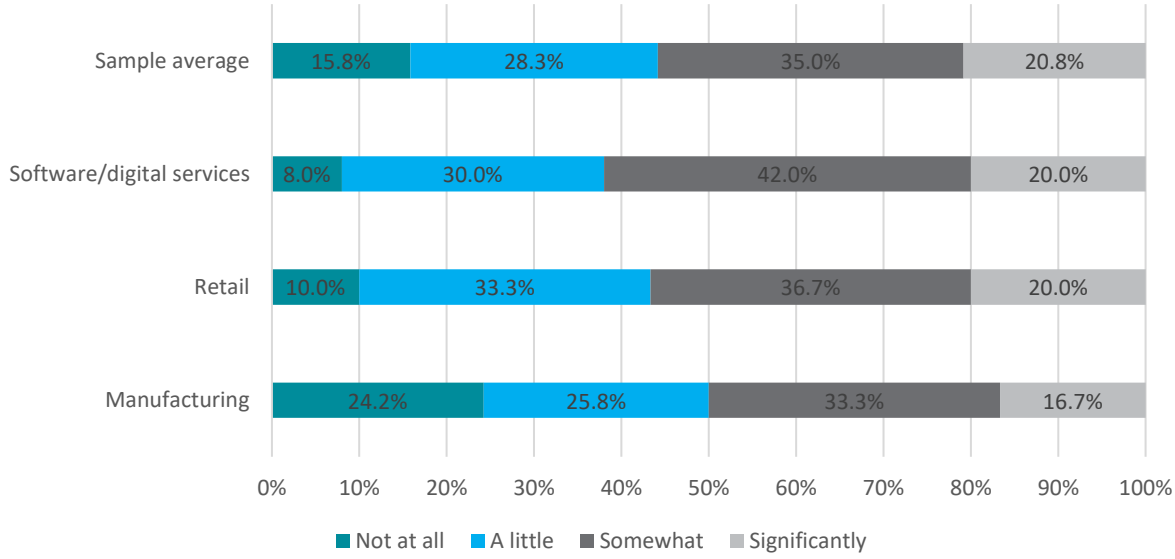
Figure 18: The level of simplification of exporting low value consignments to the EU



Source: Sapio Research, Cebr analysis

On the contrary however, the €150 threshold caused an additional burden to exporters when it comes to exporting high value consignments. Figure 19 presents that 84.2% of respondents claimed an extra burden for high value consignment exports, and 20.8% stated this burden increased significantly. The most impacted sector was the software/digital services, with 92.0% claiming an increase in this burden, while the manufacturing experienced the smallest impact, but still a high proportion (75.8%).

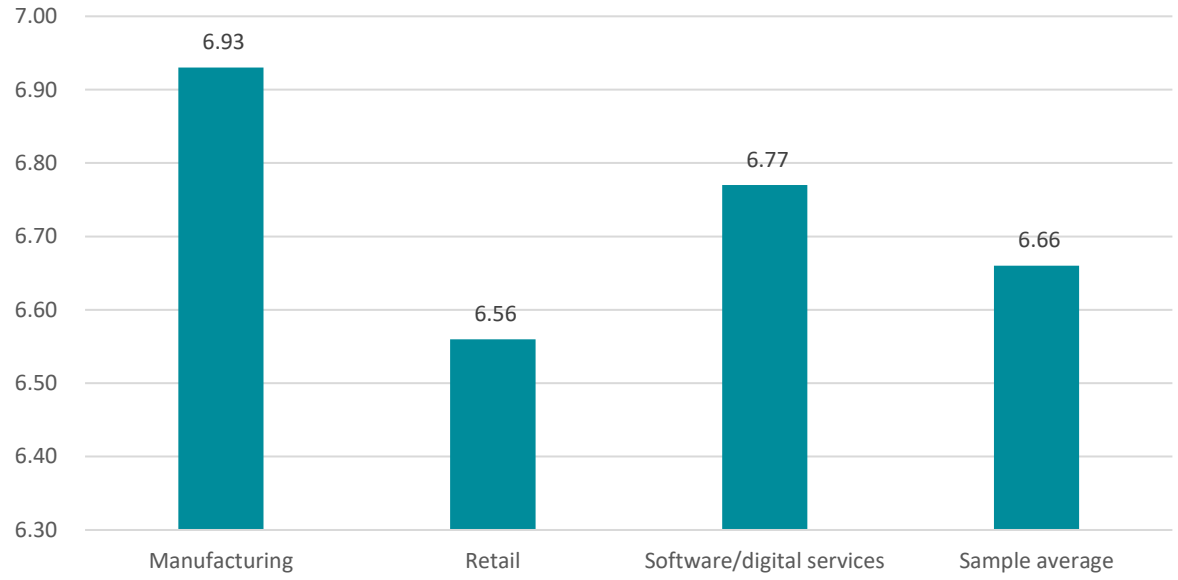
Figure 19: Increase of burden in exporting high value consignments to the EU due to the €150 threshold



Source: Sapio Research, Cebr analysis

Respondents believe that their firm adjusted to the change in EU VAT rules relatively well. Figure 20 shows that on a scale of 0 (not at all adjusted) to 10 (fully adjusted), people gave an average score of 6.66 when they were asked about their level of adjustment. UK exporters from the manufacturing sector adjusted the best, stating a score of 6.93.

Figure 20: Level of adjustment to the new EU VAT rules on a scale of 0-10



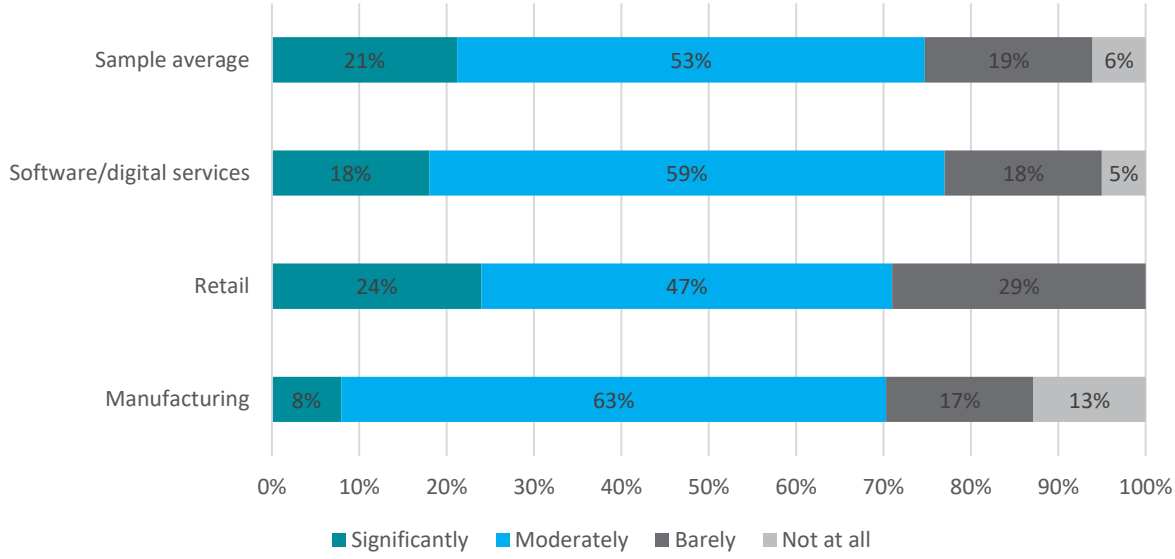
Source: Sapio Research, Cebr analysis

The survey also asked respondents how difficult it was to adjust the new schemes, and how satisfied they are with these, for which they gave average scores of 5.5-6.0, meaning they didn't find it neither too difficult nor easy, and neither satisfied nor dissatisfied.

As mentioned at the beginning of this sub-section, the IOSS can reduce confusion for customers who now see a single cost instead of two. Due to this it could be hypothesised that firms would get more positive customer feedbacks after the implementation of the reforms. Figure 21 shows that indeed this is the case: 94% of respondents stated that the volume of positive feedbacks increased, with a 100% rate in the retail sector.[16] Figure 22 also proves that indeed it is the lack of extra costs which buyers appreciate, 50% stated that they receive more positive feedbacks regarding this, with the manufacturing industry leading with 67%.

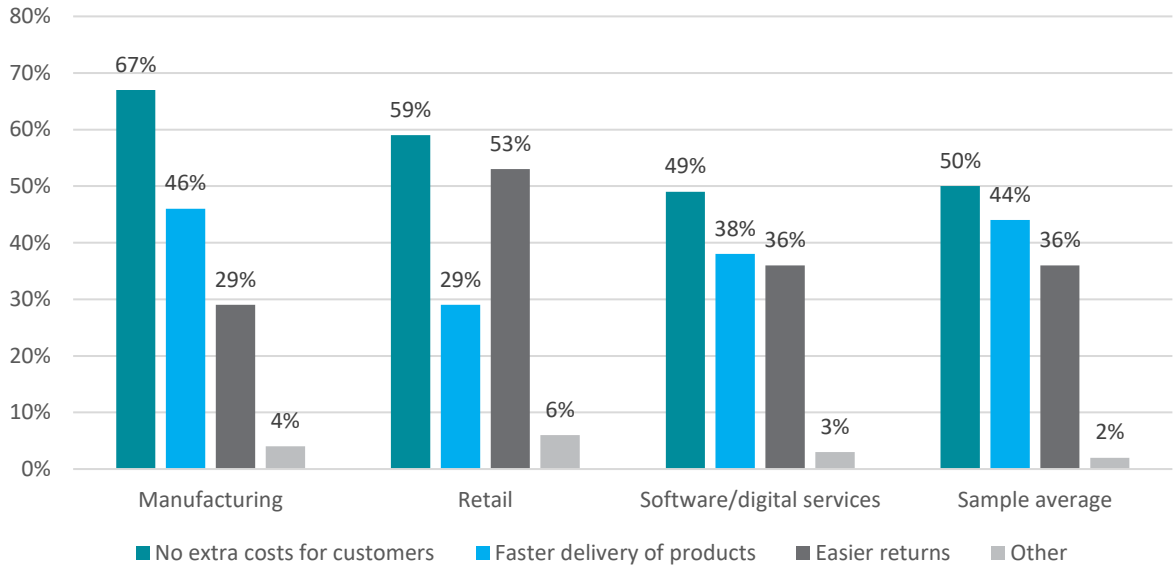
16 As this question was only asked from those who registered to IOSS, the sample size for the retail sector here is only 17.

Figure 21: Increase of positive customer feedback after the implementation of new EU VAT rules



Source: Sapio Research, Cebr analysis

Figure 22: Increase of positive customer feedback after the implementation of new EU VAT rules

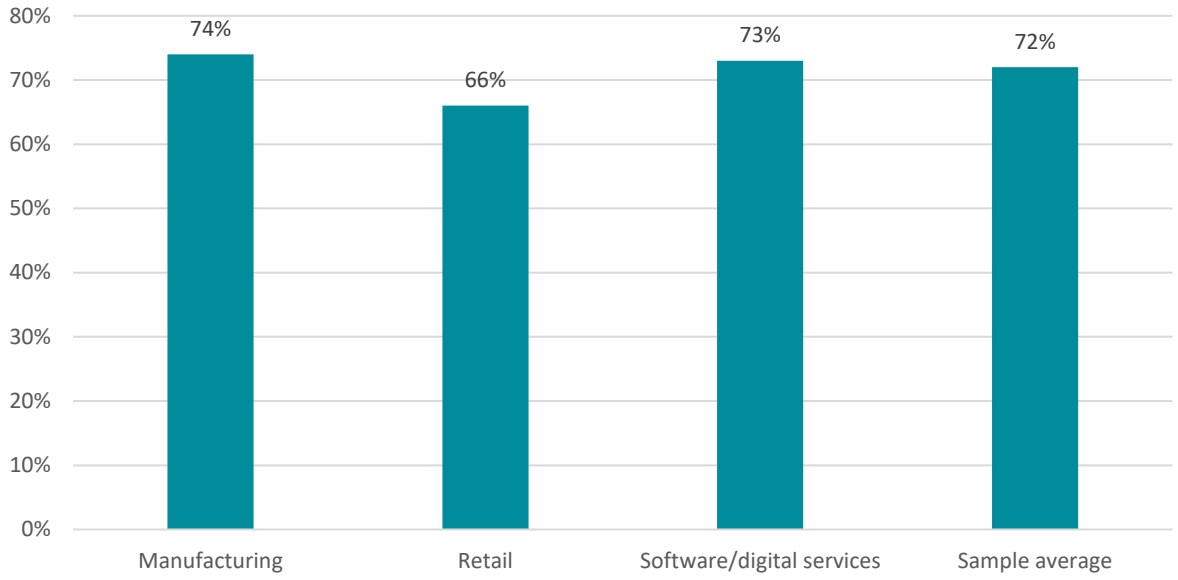


Source: Sapio Research, Cebr analysis

We also wanted to understand whether companies have become discouraged against expanding to other EU countries, or even plan to exit from those in which they are already selling. Figure 23 shows that almost 3 out of 4 firms across the sample have plans to expand

within the EU; this finding is similar across all three industries of interest.[17] At the same time however, 32% of respondents claim that their firms have plans to exit from an EU market. As entering and exiting are not mutually exclusive, and adding up the two ratios would exceed 100%, there are a few companies which plan to relocate their export business.

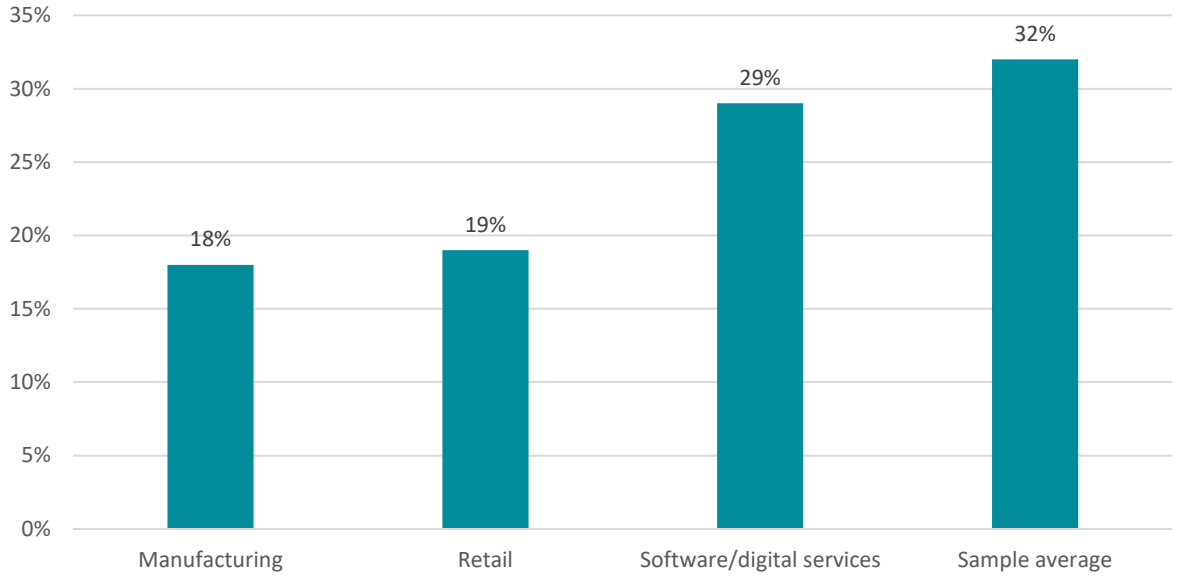
Figure 23: Percentage of firms which plan to export to new EU markets in the future



Source: Sapio Research, Cebr analysis

17 Of course this does not mean that firms weren't discouraged due to Brexit or the EU VAT reforms, as we do not know what this percentage was before these events. It is possible that relatively more firms had such plans – however, 72% is still considered a high proportion.

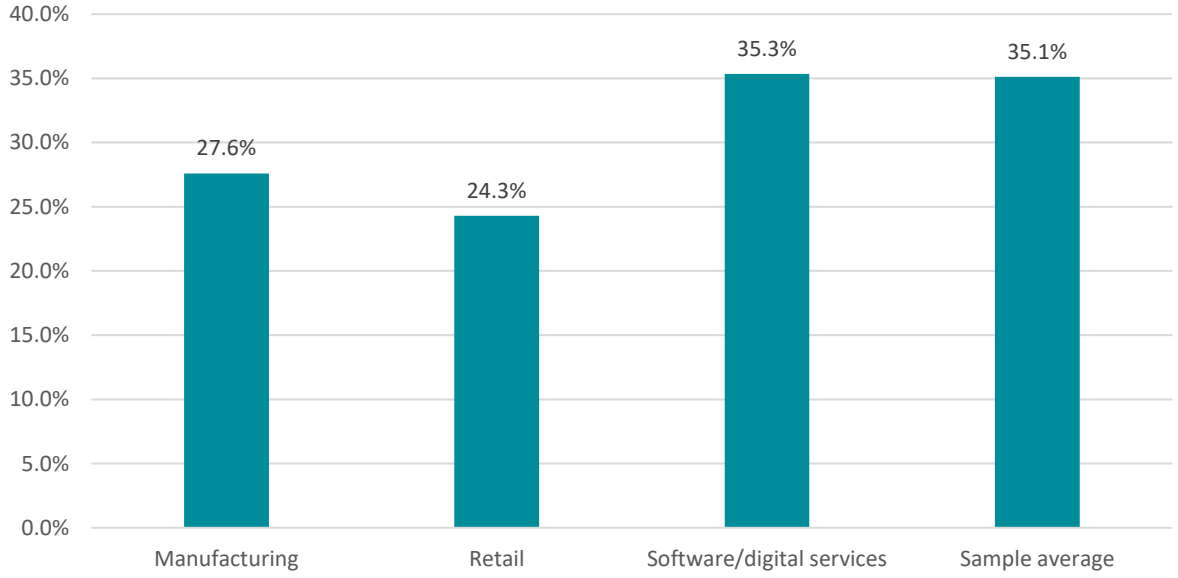
Figure 24: Percentage of firms which plan to exit from EU markets in the future



Source: Sapio Research, Cebr analysis

Finally, according to the survey, 80.0% of the exporters have a return policy on sales to EU customers. These firms state that 9.4% of sales are usually returned to them. On these returned goods however, only 35.1% of VAT is recovered, meaning that 64.9% of VAT is lost. The retail sector has the worst ratio as companies in that industry lose more than three quarters of VAT on returned goods (75.7%). Figure 25 illustrates this.

Figure 25: Percentage of VAT paid on returned goods recovered

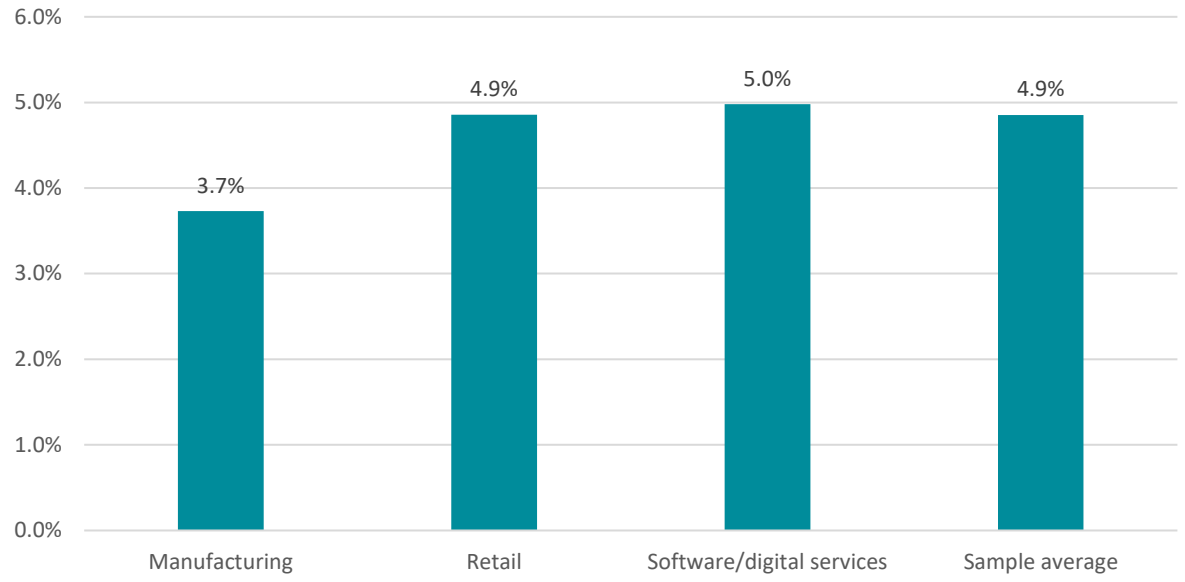


Source: Sapio Research, Cebr analysis

The findings above mean that overall, a significant amount of VAT should have gone back to the sellers but hasn't. Assuming that the average value of a returned sale is equal to the average value of a non-returned sale, Figure 26 shows that overall, 4.9% of total VAT paid out

could have been recovered but was lost. This means that for every £1 of VAT paid almost £0.05 could have gone back to firms but was not returned.

Figure 26: Percentage of total VAT which could have been recovered but lost

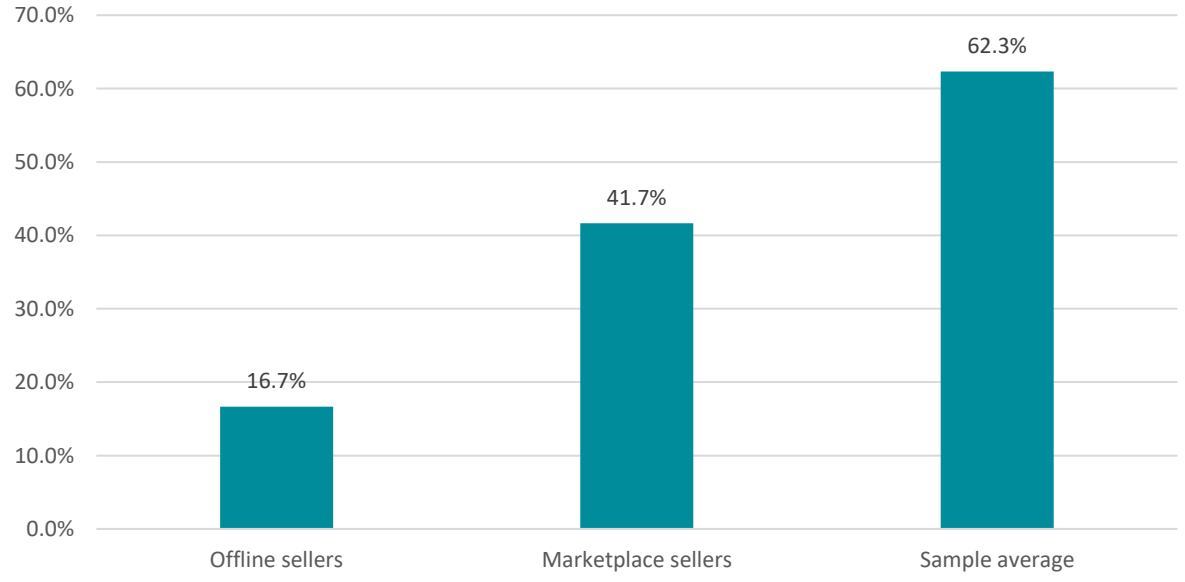


Source: Sapio Research, Cebr analysis

3.5 Comparison of marketplace and offline sellers

In this sub-section we compare sole marketplace sellers to solely offline exporters on key metrics, as well as stating the average across all respondents for context. Figure 27 shows that while 62.3% of all respondents have registered to IOSS, only 41.7% of those who only sell through marketplaces have registered, and the vast majority of offline sellers have not yet.

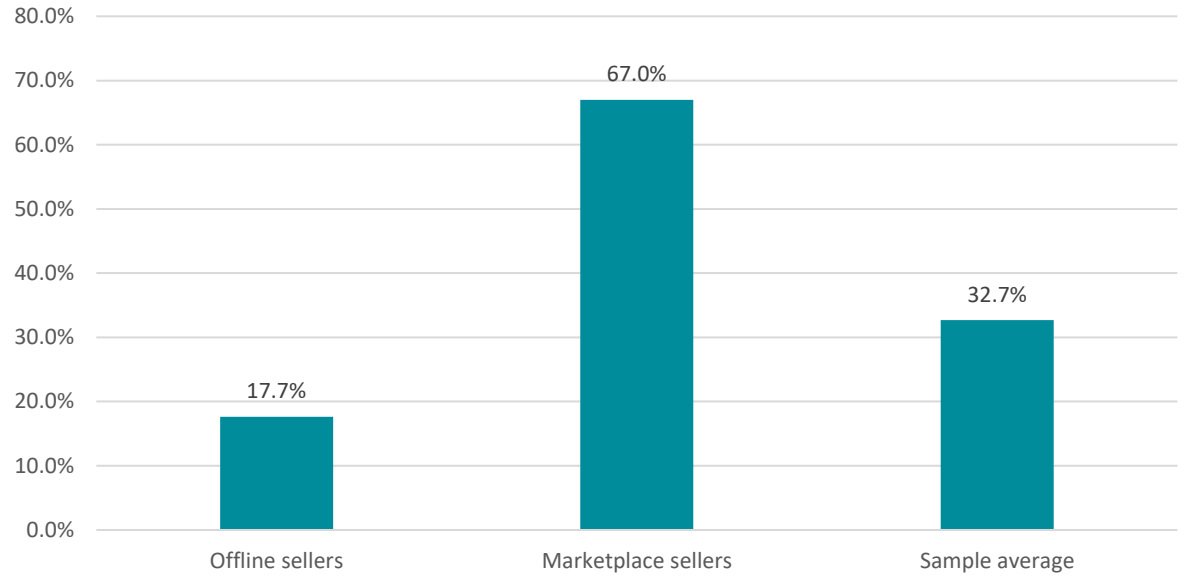
Figure 27: Proportion of exporters who registered to IOSS



Source: Sapio Research, Cebr analysis

This very low number for the offline sellers can be explained by the proportion of consignments which fall under the €150 threshold: only 17.7% compared to the 32.7% for the sample average. However, marketplace sellers have a much higher percentage of goods sold in this IOSS eligible price range (67.0%). Figure 28 presents this data.

Figure 28: Percentage of consignments to the EU that fall under the €150 threshold



Source: Sapio Research, Cebr analysis

For marketplace sellers, it is difficult exclusively from the primary research to draw firm conclusions as to why they have a lower propensity to be registered for IOSS. This is because the sample of solely marketplace sellers who are not registered for IOSS becomes very small. Nevertheless, there is weak evidence amongst this small sample of firms that this may be because the marketplaces themselves are already registered for IOSS.

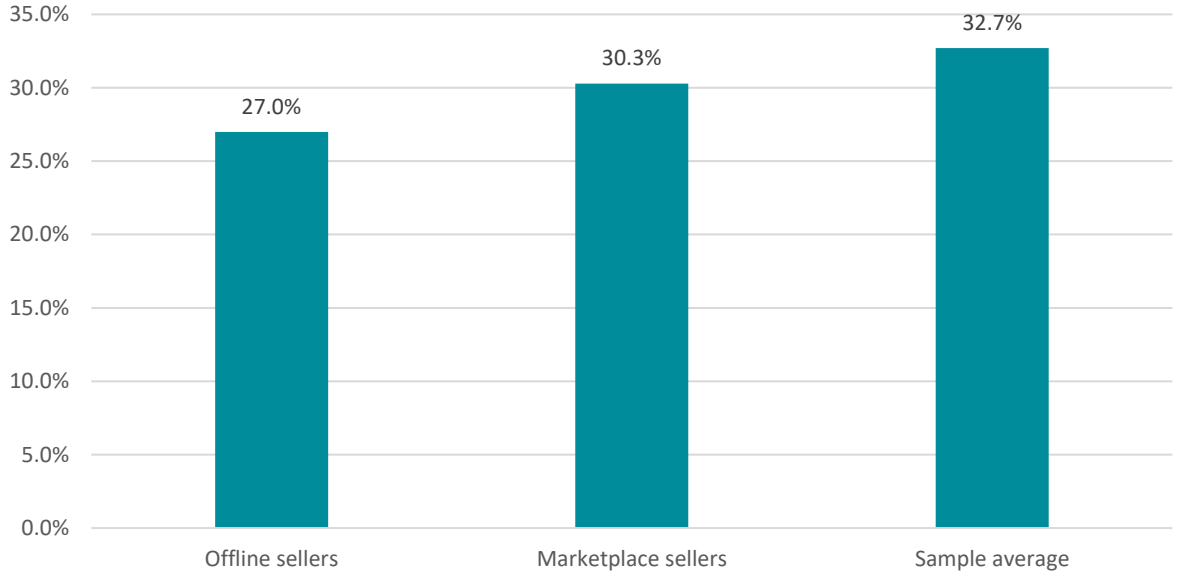
As the above two graphs can be a great measure of how much adjustment is needed due to EU VAT reforms, one might expect that offline sellers did not need to adapt as much as other firms, therefore the shift to a new method is easier. Indeed, as Figure 29 illustrates, offline sellers report a more comfortable adjustment, while marketplace sellers struggle a bit more.

Figure 29: Level of adjustment to the new EU VAT rules on a scale of 0-10

Source: Sapio Research, Cebr analysis

Notably however, neither offline nor marketplace sellers reach the average share of revenue which is generated by EU exports. Figure 30 shows that offline sellers record that 27.0% of their income flows in from EU exports, while the sample average is 32.7%. This share for marketplace sellers stands in between the two, 30.3%.

Figure 30: Share of revenue generated by EU exports

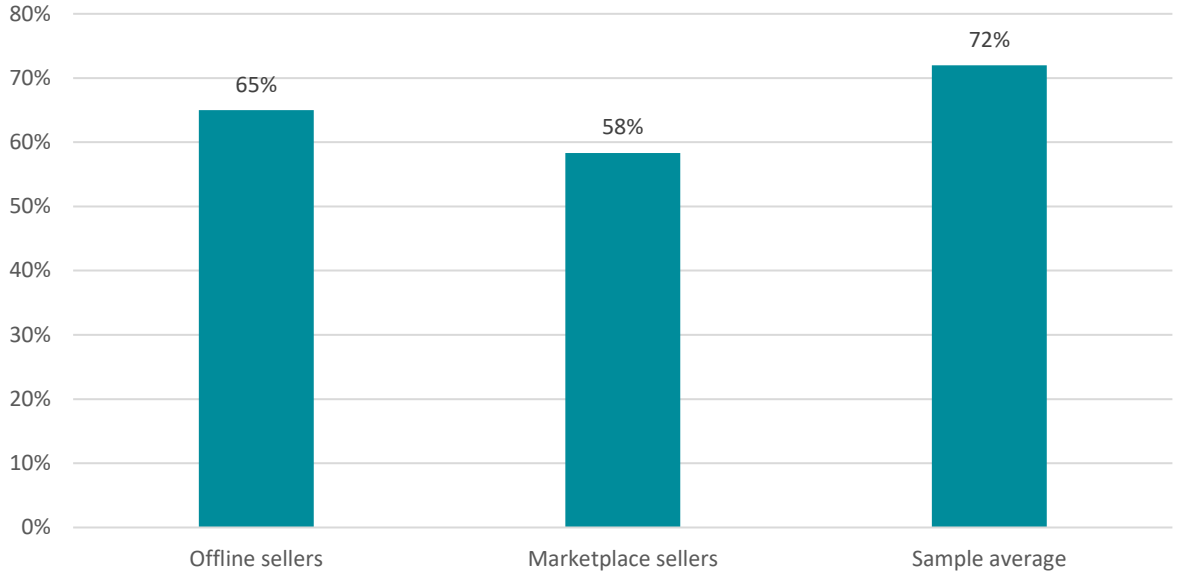


Source: Sapio Research, Cebr analysis

Lastly, when it comes to entering new or exiting from current EU markets, the plans are quite different. Neither offline, nor marketplace sellers are as optimistic about expanding to new territories as the average EU exporter. 72% of respondents stated they have such plans, but this value drops to 65% for offline sellers, and 58% for marketplace sellers. As for plans on

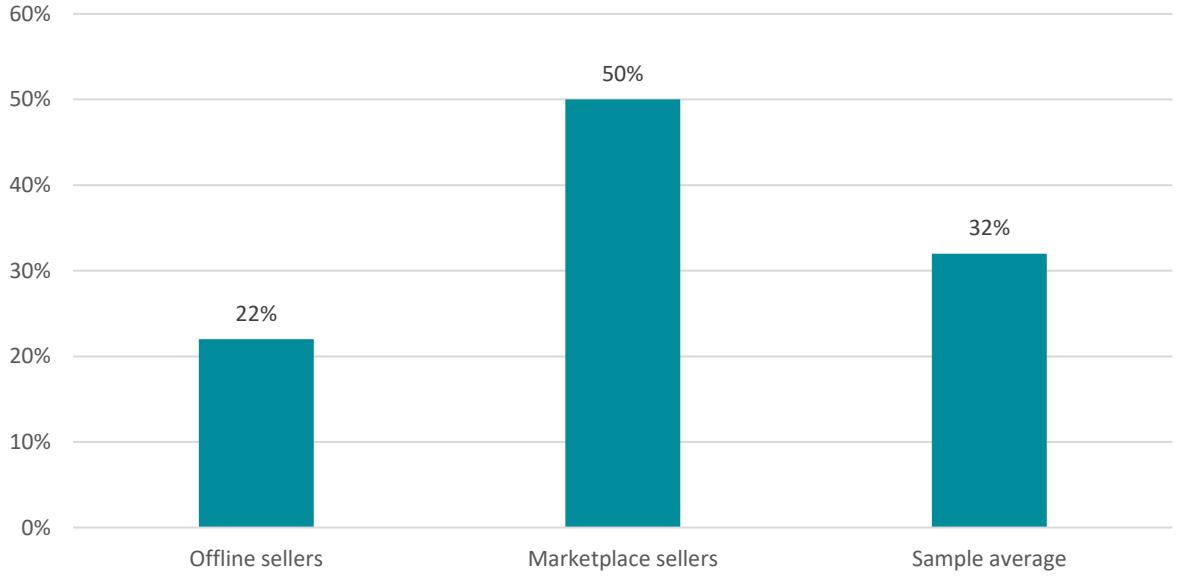
exiting, offline sellers are not as pessimistic: 22% stated they have such plans compared to 32% on average and 50% of marketplace sellers.

Figure 31: Percentage of firms which plan to export to new EU markets in the future



Source: Sapio Research, Cebr analysis

Figure 32: Percentage of firms which plan to exit from EU markets in the future



Source: Sapio Research, Cebr analysis

4. Wider economic impact

The firm-level losses estimated in Section 3 are firstly considered and aggregated in this section, to estimate the first-order loss to UK GDP associated with cross-border tax complexity for exporters to the EU.

As a further consideration, these firm-level losses are expected to decreased profits, a share of which would have been retained for reinvestment, which would have provided a further boost to GDP over the long term. Investment is a broad term which covers spending that can increase the productive capacity of the economy. Assuming that investment successfully increases the productive capital to labour ratio it will increase the output that a worker can produce in a given period of time and hence relate positively to economic growth. The impact of this longer-term channel is also calculated.

4.1 Direct loss of GVA

Due to EU cross-border tax complexity, UK firms lost £38.9 billion in GVA overall.

We use firm-level GVA losses estimated in sub-sections 3.1 and 3.2 for this part of the analysis. We omit estimating the effects of the IOSS as it is still unclear how the reforms will affect the market in the long term.

The effects of the increase in non-people cost were also omitted as the net impact on the UK economy is somewhat ambiguous. Ceteris paribus, the increase in spending on third parties necessitated due to tax complexity will decrease the operating profit of UK exporters, and thus also result in a decline in their GVA.

However it is unclear whether that additional spending on third parties that is required, will benefit other UK-based firms, or those in the EU. If we were to assume that the entirety of this spending is on UK-based businesses, one could argue that the net impact on the UK economy is close to 'zero-sum': UK exporters lose out, but the firms in the supply-chain of UK exporters directly benefit. Alternatively, if the entirety of this spending benefitted EU-based firms, then the entire increase in non-people costs stimulated by tax complexity could be considered a net negative to the UK economy. Given that the question is around UK exporters who do business in both the UK and EU, it is likely that some of this spending will be on both groups. In the absence of data to answer this question, for the sake of prudence we have not included the impacts of this channel on the UK economy, although this does mean our aggregated net impacts across all channels can be considered slightly conservative.

Hence, we estimate the losses to UK GDP on a first-order basis (approximated by the decline in GVA), is a sum of three channels:

1) The direct decline in GVA attributable to UK exporters to the EU, through sales missed out on, as a result of cross-border tax complexity.
2) The wider impact on other sectors of the economy, through a decline in intermediate consumption from UK exporters. This foregone revenue would have supported further demand for goods and services from other UK firms.
3) The productivity decline associated with the administrative time required by exporters to manage current complexities.

Summing up the total GVA losses from these channels, we estimate that cross-border tax complexities for exports to the EU reduce UK GVA by £38.9 billion.

Table 6: Overall reduction of GVA due to EU tax complexities, 2021, £ million

	Directly due to tax complexity	From intermediate consumption	From administrative time increase	Total
Manufacturing	£9,047	£6,741	£108	£15,895
Retail	£254	£102	£4	£360
Information & Communication	£1,947	£924	£23	£2,894
UK total	£25,013	£13,508	£386	£38,907

Source: Sapio Research, ONS, Cebr analysis

The first column shows overall how much GVA is lost due to the fall in revenue. As revenue decreases, non-people cost also falls, meaning less amount was spent on intermediate consumption, such as buying materials from another firm. The value of intermediate consumption is shown in the second column. The third column shows the results from sub-section 3.2 again, and the fourth and last column sums up the total loss of GVA in each industry and in total as well. Based on the previous section, it was expected that the manufacturing industry lost the most from tax complexities, £15.9 billion.

4.2 Loss of employment

As less added value is being produced, tax complexity has an effect on the number of full-time equivalent (FTE) employees. Based on the average productivity in each industry and the total UK economy, we indicatively quantify the potential foregone employment as well. Here, we assume that higher economic output is supported by additional employment, as opposed to higher productivity from the existing employment base.

Table 7 provides by how much employment could have been higher for exporters without tax complexities associated with sales to the EU.

Table 7: Overall loss of FTE due to EU tax complexities, 2021

	Due to tax complexity	From intermediate consumption	From admin time increase	Total
Manufacturing	105,628	78,701	1,262	185,591
Retail	7,581	3,045	125	10,751
Information & Communication	20,663	9,802	245	30,710
UK total	393,629	212,568	6,067	612,264

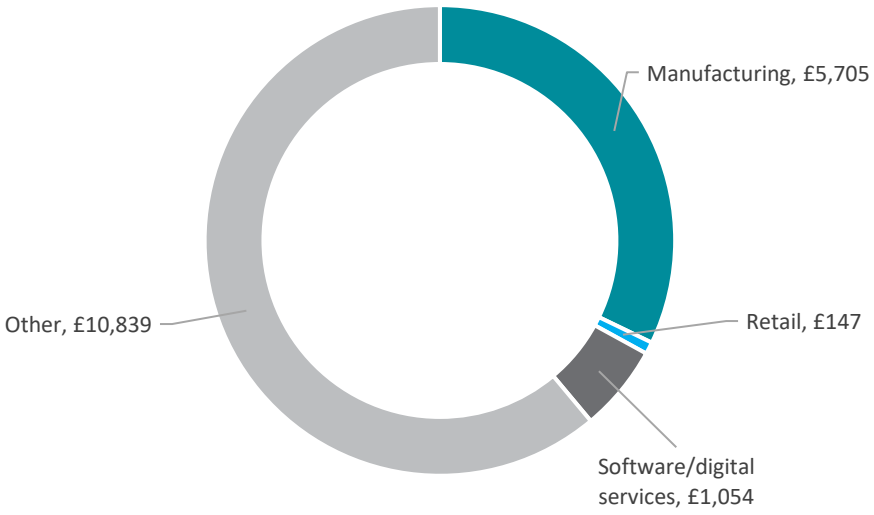
Source: Sapio Research, ONS, Cebr analysis

Overall, businesses which export to the EU could have employed 612,264 more people.[18] In the manufacturing sector, FTEs could have been higher by 185,591. The reason why the relative loss of GVA in the manufacturing industry to the total loss is higher than the loss of FTE is due to the higher productivity rate: one worker creates more value than the average across the economy. Therefore while 40.9% of all GVA lost originates from this sector, this value is only 30.3% in terms of FTEs. The software/digital services industry is showing a similar pattern, while the retail sector has a lower-than-average productivity rate, therefore their effect on the loss of employment is more impactful.

4.3 Loss of profit

The total loss of GVA estimated due to cross-border tax complexities could have been distributed in two ways. It could either have been paid to employees, through higher wages and benefits, or it could have been additional value captured by firm shareholders through higher profits. Per official national accounts data, we can estimate by industry the split between these two groups. Assuming that this ratio would have been held for the lost GVA found, we can calculate the estimated reduction in total industry profits. These profits not recognised from the overall GVA loss are shown in Figure 33. We aggregated the losses from all channels and only show the estimates by industry.

Figure 33: Loss of profit due to tax administration



Source: Sapio Research, ONS, Cebr analysis

Overall profits of EU exporters could have been £17.7 billion higher in the absence of any tax complexity. Slightly less than a third of these profits were lost in the manufacturing industry, a

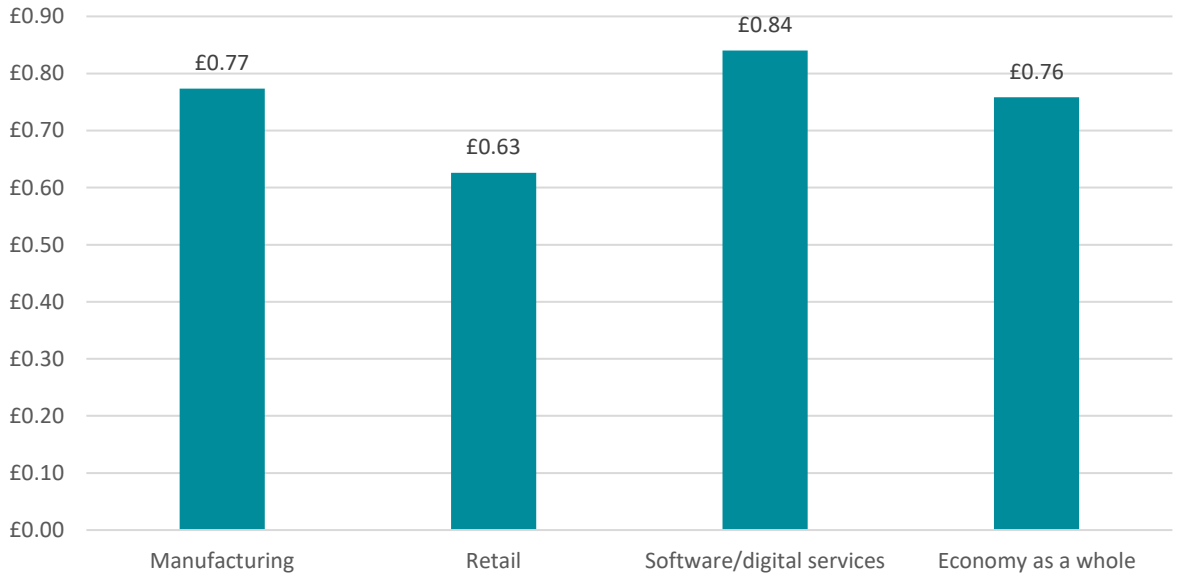
18 Please note that this does not necessarily mean that without cross-border tax complexity, the total FTE in the UK would have been higher by 612,264. With more goods and services being exported, it is likely that more are being imported too. In general, imported products mean consumers and businesses can select from a wider variety of products – and firms have a higher level of competition in domestic markets, potentially causing a decline in employment supported by domestic demand. As the value of imports from the EU to the UK is not researched in this report, we are unable to confirm the net potential change in FTE due to cross-border tax complexity.

total of £5.7 billion. The loss of £1.1 billion from the software/digital services industry adds up to 5.9% of the total fall, while the retail industry's impact is much smaller (0.8%).

4.4 Loss of investment

Cross-border tax complexity harms additional investment, as the additional firm profits estimated in above could have been reinvested into the economy. These profits could have been paid out as dividends to shareholders or used to support additional investment. Due to data availability limitations, we make use of median dividend pay-out ratios between 2015 and 2019 in the USA and find that on average, approximately £0.76 is reinvested by private firms for every £1 increase in profit, across the selected industries.[19]

Figure 34: Additional investment for every £1 of additional profit for selected industries

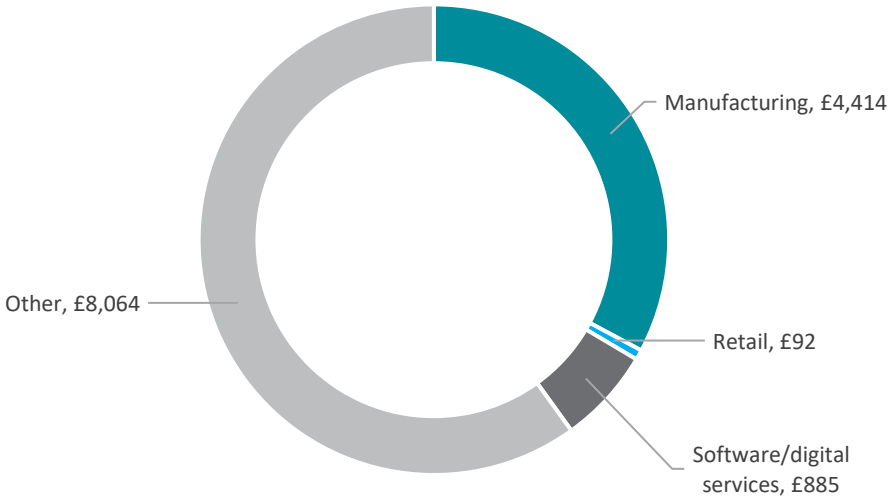


Source: Sapio Research, ONS, Cebr analysis

Driven by these findings and the lost firm profits, we estimate the total investment reduction due to tax complexities at £13.5 billion, as shown in Figure 35 below.

19 We have assumed this finding still holds, despite the COVID-19 situation harming business confidence, potentially limiting investment.

Figure 35: Loss of investment due to tax administration



Source: Sapio Research, ONS, Cebr analysis

Of the £13.5 billion, £4.4 billion (32.8%) was lost in the manufacturing sector, and slightly less than three fifth was missing from other industries not researched in granular detail as part of this report. The software/digital services sector lost £885 million (6.6%), while reduction in the retail industry is still much smaller (£92 million, 0.7%).

4.5 Long-run GDP loss

The investment loss due to cross-border tax is expected to result in a further £16.1 billion of value lost to the UK in the longer-term.

Empirical evidence on the link between investment and economic growth is strong. While there is variation in magnitude, a wide variety of existing studies demonstrate a positive relationship between investment and economic growth. A selection of these is illustrated in Table 8.

Table 8 - Empirical evidence on the relationship between investment and economic growth

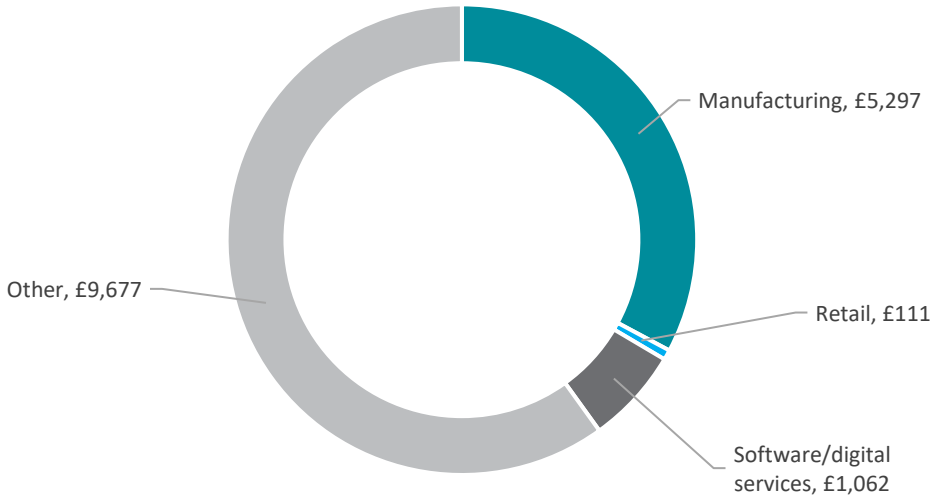
Study	Details and Results
Bakari, S. (2017). 'The Impact of Domestic Investment on Economic Growth: New Evidence from Malaysia'.	A 1% increase in domestic investment leads to an increase of 0.21% of GDP in the long run.
Sinha, D. and Sinha, T. (2002). 'Openness, Investment and Economic Growth in Asia'.	Study on the impact of investment and trade on growth rates of Asian Countries: - Hong Kong: a 1% increase in investment leads to a 0.267% increase in GDP; - Singapore: a 1% increase in investment leads to a 0.173% increase in GDP; - India and Bangladesh: investment has little impact on GDP
Bassanini, A. and Scarpetta, S. (2001). 'The driving forces of economic growth: panel data for the OECD countries'.	Study based on OECD countries between 1971 and 1998. A 1% increase in the propensity to invest in physical capital leads to a 0.39% increase in GDP per capita.
Zou, Y. (2006). 'Empirical studies on the relationship between public and private investment and GDP growth'.	Study looking at the impact of investment on growth in Japan and the US between 1958 and 1997. In Japan a 1% increase in public investment leads to between a 0.33% and a 0.38% increase in GDP (depending on estimation techniques). Private investment leads to between a 0.39% and a 0.42% increase in GDP. In the US a 1% increase in public investment leads to a 0.08% increase in GDP. Private investment leads to a 0.29% increase in GDP.

Source: See referenced articles; Cebr analysis.

Based on the combined findings of these studies, we have assumed an elasticity relating investment to GDP of 0.2. In other words, a 1% increase in domestic investment results in an increase to forecast GDP of 0.2%. This finding can then be used to estimate the realised longer-term GDP loss, as a result of the missing investment. The long-run GDP fall is expressed in nominal terms relative to baseline 2026 GDP forecasts.

Overall, we estimate the £13.5 billion loss of investment will result in £16.1 billion of value lost to the economy of the UK over the longer-terms. Around a third of this is lost in the manufacturing sector (£5.3 billion), and the software/digital services industry also reaches more than £1 billion not recognised. The results of this can be seen in Figure 36.

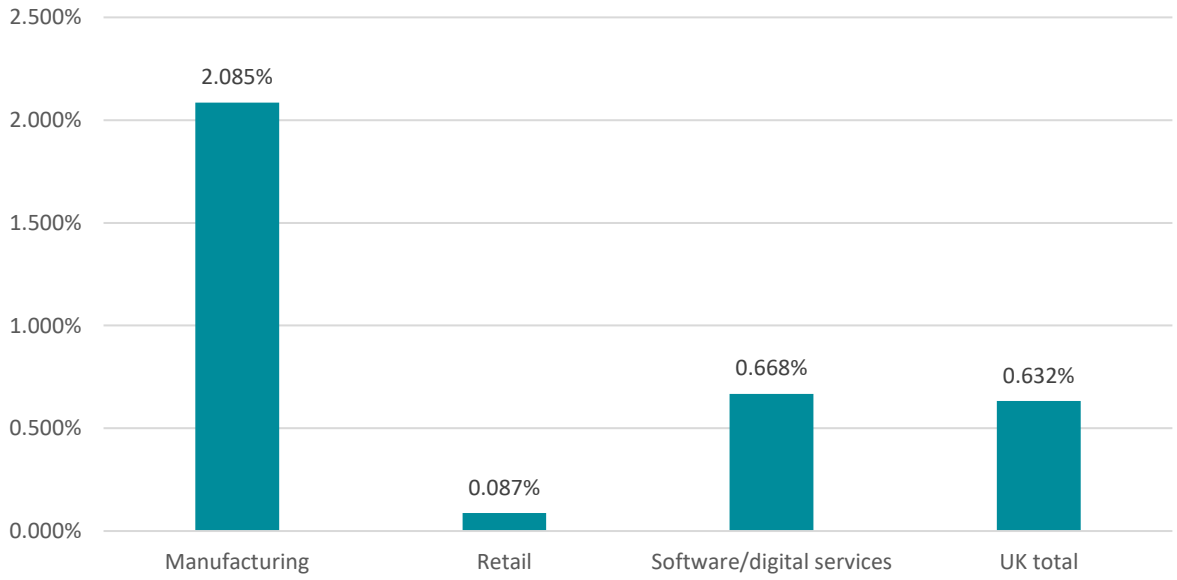
Figure 36: Loss of GDP value due to tax administration



Source: Sapio Research, ONS, Cebr analysis

Relative to forecasted GDP levels of each industry, the impact of adopting real-time data is most significant in the manufacturing sector where the GDP fall is estimated to be around 2.1%. As seen in Figure 37 below, this is more than 3 times greater than the relative uplift estimated for the software/digital services sector and almost 24 times that of retail, where the relative impact is expected to be the lowest.

Figure 37: Wider loss of GDP value due to tax administration relative to baseline forecasts



Source: Sapio Research, ONS, Cebr analysis


Cebr