VALUE ADDED FROM TRADE FOR KEY BUSINESS AND FINANCIAL SERVICE INDUSTRIES: INITIAL ESTIMATES

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The value of exports to the domestic UK economy does not equal gross export flows, as some of the value-added within UK exports may have been generated abroad. For key business and financial service industries we present new and initial estimates giving a lower bound for the value-added component of exports generated directly by the domestic exporting sector, called the direct domestic value-added component of exports. Our initial estimates suggest that at least 38 per cent of UK monetary financial institutions (MFIs) exports in 2016 was direct domestic value-added amounting to £14.6bn, of which £5.0bn came from exports to the EU. These initial estimates suggest that approximately 80 per cent of accountancy and legal services exports in 2014 were direct domestic value-added amounting to £1.7bn and £5.2bn respectively, of which £500mn and £1.7bn came from exports to the EU respectively.

Keywords: value-added from exports; business services exports; financial services exports.

JEL codes: C81, F10.

1. Introduction

The aim of this paper is to outline a methodology and present initial estimates of the value-added from exports of key service sectors in the UK. For monetary financial institutions (MFIs) this methodology has been developed as part of a collaboration between the Economic Statistics Centre of Excellence (ESCoE) and the Bank of England.

Conventional export statistics measure gross flows. However, gross export flows are not necessarily an accurate measure of the impact of exports on the domestic economy. The value of these gross exports does not equal the value-added generated in the exporting economy and its components such as profits and wages, with implications for employment. For example, an exported good may use imported inputs or inputs from other domestic industries, which in turn use imports as inputs in their production processes. Therefore only a portion of the value-added or revenue from the export accrues in the exporting country with the rest accruing in other countries that provided the intermediate imports. Given the increasingly global nature of supply-chains and production networks, increasing interest is being paid to estimates showing where the value-added of gross exports accrue. The statistics estimated in this paper allow us to paint a more accurate picture of the impact of exports on each domestic economy but does not address indirect or reimported value-added.

The value of UK gross exports from industry x can be split into four categories (OECD, 2013):

a. *Direct domestic value-added*: the value-added generated by the UK exporting industry (x) itself

b. *Indirect domestic value-added*: the value-added

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originating from other UK industries (different from industry *x*) that are incorporated in the exports of industry *x*.

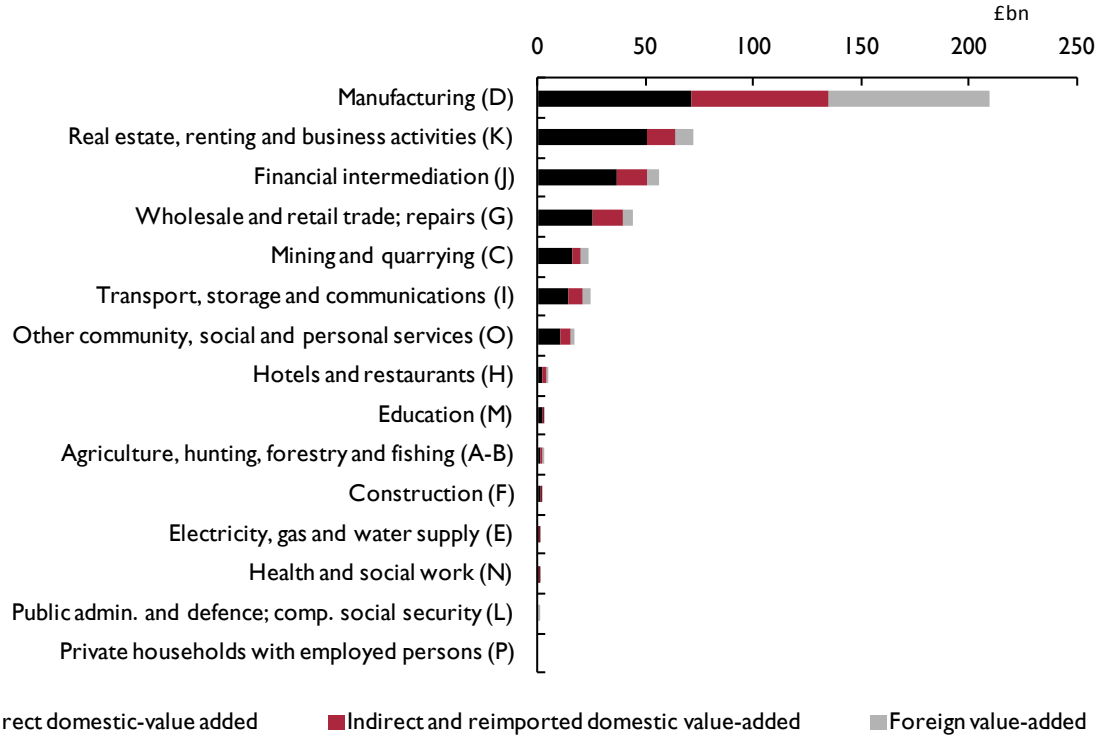
c. *Re-imported domestic value-added*: the value-added of any UK industry which has been exported for the production of intermediate goods or services abroad and subsequently embodied in UK imports used in the production of UK exports by industry *x*.

d. *Foreign value-added*: the value-added accrued in other countries which export goods and services to the UK which then form intermediate inputs for UK exports by industry *x*.

For the UK, some data are available on the different value-added components within exports from the Input Output tables published by the Office for National Statistics (ONS) and the Trade in Value Added (TiVA) dataset developed by a joint OECD–WTO initiative. However, both of these datasets are only available with a lag and neither contains estimates solely for banks and building societies (monetary financial institutions) nor for accounting and legal services sub-industries.

Around 91 per cent of value-added of UK financial intermediation[1] exports in 2011 was estimated to be generated domestically (categories a–c above) amounting to around £50bn (figure 1), with the majority of this generated directly by the UK financial intermediation sector itself (direct domestic value-added, category a). Accounting and legal services form part of industry k (real estate, renting and business activities), whose domestic value-added in exports was estimated to be similarly high at around 89 per cent in 2011, amounting to about £64 billion. In addition, value-added generated by the financial intermediation and legal and accounting industries will also act as inputs to exports by other industries. This shows the importance of considering these industries when studying the value of exports from the UK.

Figure 1. The value-added components of UK gross exports for different industries, 2011[(a)]



Source: OECD-WTO TiVA.

Note: (a) Data converted from US dollars to GBR sterling using the average exchange rate for 2011 between the currencies, published by the Bank of England. The ISIC Rev.3 code for each of the industrial sections is shown in brackets. The industries in the OECD-WTO TiVA database are currently defined according to ISIC Rev.3.

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Financial intermediation and business services are very diverse. Legal services encompass, for example, business and commercial law, criminal law, and labour law which would each be expected to have different export intensities. Similarly, parts of accounting services, such as bookkeeping and payroll services, will turn out to be more domestically focussed, while others such as tax consultancy will be more export-oriented. Similarly, the financial intermediation sector is very diverse, containing banks and building societies (together monetary financial institutions or MFIs), securities dealers, fund managers, insurance companies and pension funds, as well as various other financial institutions. Subsectors within the financial intermediation sector will have different levels of exports and different levels of domestic value-added associated with these exports. Gross exports by UK MFIs (ISIC Rev 4 64.10) was estimated to be around £25bn in 2015 (ONS, 2016a), accounting for around 40 per cent of exports of financial services and insurance and pension services. However, the OECD-WTO TiVA dataset doesn't offer estimates of the domestic value-added content of exports within subsectors of the financial intermediation sector.

This paper outlines potential methodologies for constructing initial estimates of the direct domestic value-added content of exports for MFIs and for business services.

These methodologies make use of available granular data. Insofar as the structure of each sector (e.g. distribution of firms) under consideration is different from that assumed in the calculations, these initial estimates may not be wholly indicative. We will aim to refine these estimates further by investigating alternative methodologies using additional data in future work.

In section 2, we present a methodology and initial estimates for 2014–16 of the direct domestic value-added content of exports from MFIs in the UK. The estimates could be interpreted as a lower bound for the actual direct domestic value-added content of gross MFI exports as further indirect value-added could be generated by the MFI sector. The methodology uses data from statistical forms reported to the Bank of England by individual MFIs to construct the aggregates. These statistical forms are also the source data for the MFI estimates in the ONS trade figures. In section 3 the paper provides a proposed methodology for constructing estimates of the direct domestic value-added from legal and accounting services exports for 2014, using data from the Annual Business Survey (ONS, 2017b). Section 3 also provides initial results for these key business services industries, and uses these results to examine which sub-industries are most reliant on exporting to the EU in value-added terms. The final section concludes.

2. Methodology and estimates for MFIs

a) Methodology

This section briefly explains the data required to calculate the direct domestic value-added (DDVA) in exports for any industry before explaining the data available for UK MFIs and the assumptions underlying our initial estimates. Further detail on how these estimates are constructed can be found in Pilkington and Rowe (2017).

A key characteristic of our initial estimates is that they are calculated from granular data at an institutional level, thus acknowledging that each firm does not exhibit the same product, export and intermediate consumption behaviours. In addition our estimates will attempt to estimate the proportion of total DDVA in exports that stems from trade with the EU. In doing so a variety of statistical returns collected by the Bank of England are used and it becomes necessary to split output/exports into product buckets in order to determine destination of exports.

i. The calculation of the direct domestic-value added of exports for any industry

Gross value-added (GVA) for each industry is a key concept in the National Accounts. It is calculated for each firm or industry as:

$$\textit{Gross value added} = \textit{Output} - \textit{Intermediate consumption} \quad (1)$$

Therefore GVA is the difference between the value of what a firm produces (output) and the value of goods and services consumed as inputs to the process of production (intermediate consumption). Therefore in our case GVA can be constructed for each MFI and then summed together to calculate aggregate GVA for the sector as a whole.

The direct domestic value-added of exports is the value-added component of exports generated by exporting firms themselves. Therefore it is the same concept as GVA but applied to exports. It is calculated as:

$$\textit{Direct domestic value added of exports} = \textit{Exports} - \textit{Intermediate consumption associated with exports} \quad (2)$$

Again, DDVA can be constructed for each MFI and then summed to calculate aggregate DDVA for the sector as a whole.

ii. The data available for constructing the direct domestic value-added of exports for MFIs

Total MFI output is split into four categories for the

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purpose of National Accounts compilation: Financial intermediation services indirectly measured (FISIM), net spread earnings (NSE), fees and commissions and other operating income. Further information on these types of output can be found in Pilkington and Rowe (2017). As output can be split into these categories, so can exports. Crucially, however, intermediate consumption is collected independent of its use. Therefore, for each unit of intermediate consumption, it is not possible to determine the type of output created or where this output is consumed. As shown in equation 2 the "intermediate consumption associated with these exports" is needed to calculate the DDVA in exports and so an assumption needs to be made.

The key assumption used to generate our initial estimates for the direct domestic value-added of MFI exports is that *at a firm level*:

$$IC_{E,k} = Exports_k \; x\left(\frac{(IC_k)}{Total\ output_k}\right) \tag{3}$$

where subscript '*E*' and '*k*' represent exports and an individual institution respectively and '*IC*' represents intermediate consumption.

That is the proportion of intermediate consumption used by the firm to produce its average unit of output is the same regardless of whether that unit of output is produced for the domestic market or exported.

By doing so we can consider the products each firm specialises in and the extent to which it exports, ultimately resulting in a more accurate reflection of true activity. However, as different inputs may be needed to produce products for domestic markets to export markets the accuracy of our estimates could be compromised, but this is less so than if the calculation was to simply use sector aggregates.

Using the four components of output the calculation for DDVA in exports ($DDVA_E$) is:

$$\begin{aligned} DDVA_E = \sum_{k=1}^{n} & \left[Fees_{E,k} - \left(\frac{Fees_{E,k}}{Output_k} x IC_k\right)\right] \\ & + \left[NSE_{E,k} - \left(\frac{NSE_{E,k}}{Output_k} x IC_k\right)\right] \\ & + \left[FISIM_{E,k} - \left(\frac{FISIM_{E,k}}{Output_k} x IC_k\right)\right] \\ & + \left[Other\ income_{E,k} - \left(\frac{Other\ income_{E,k}}{Output_k} x IC_k\right)\right] \end{aligned} \tag{4}$$

where '*n*' equals the number of firms. Using this formula, DDVA in exports will be the sum of DDVA in exports for each product aggregated across the population. This formula has been constructed to establish $DDVA_E$ by product as it is necessary to establish this breakdown before deriving a location split.

iii. Estimating $DDVA_E$ by location of counterparty

Calculating $DDVA_E$ on a product basis will allow for more dynamic and accurate estimation of the destination of DDVA in exports by counterparty, between the EU and non-EU. The accuracy with which the destination can be estimated varies by product. Fees and commissions for example can draw on explicit information collected by the Bank of England for exports between EU and non-EU countries. In contrast, FISIM estimation relies on approximations of output based on a bilateral breakdown of non-resident loan and deposit stocks.

iv. Data source and assumptions

The Bank of England's statistical return Form PL collects much of the data needed for these calculations on a quarterly basis. These are then aggregated to establish our annual series.

The population also changes annually on the Form PL so that it can maintain average coverage of 95 per cent on a quarterly basis and 98 per cent on an annual basis. As not all MFIs are included in the population it is necessary to estimate the remainder of the population.

b) Estimates

i. Value-added of exports

Our initial estimates suggest that around £14.6bn of the £38.2bn of MFI exports in 2016 was value-added generated directly by the domestic MFI sector immediately prior to exporting (table 1). This is a lower bound for the direct domestic value-added content of gross MFI exports as further value-added could be generated by the MFI sector if MFI domestic outputs act as inputs to the outputs of other domestic sectors which in turn act as inputs to MFI exports. Estimates by product suggest that spread earnings were the largest component of the direct domestic value-added of MFI exports across the period (£4bn of £15bn in 2016, table 1).

MFI exports rose in 2016, partially due to an increase in 'other' exports which primarily relate to business done by MFIs for other entities of the same parent group located abroad (e.g. head offices, branches, subsidiaries).

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Table 1. Estimates of the gross exports and the direct domestic value-added of gross exports by product, MFIs

	2014	2015	2016
Total MFI gross exports (£mn)	31,221	31,908	38,218
o/w commissions and fees	8,441	8,310	9,567
Spread earnings	9,611	10,269	10,522
FISIM	7,118	7,107	8,288
Other*	6,051	6,222	9,841
Total direct domestic value-added content of gross MFI exports (£mn)–lower bound	12,862	13,813	14,635
o/w commissions and fees	3,467	3,281	3,473
Spread earnings	4,180	4,734	4,220
FISIM	3,300	3,504	3,861
Other*	1,915	2,293	3,081
% Share of direct domestic value-added content within...			
Total MFI gross exports	41.2	43.3	38.3
Commissions and fees	41.1	39.5	36.3
Spread earnings	43.5	46.1	40.1
FISIM	46.4	49.3	46.6
Other*	31.6	36.9	31.3

Note: 'Other' relates to income from intra-group cost recharges and at present is not included in the ONS Trade in Services statistics.

Table 2. Destination shares and total GVA for MFIs

Year	Destination shares			Total GVA £mn
	UK	EU	Non-EU	
2014	78%	8%	13%	59,657
2015	77%	8%	15%	60,744
2016	77%	8%	15%	64,063

Table 3. Proportion of direct domestic value-added associated with exports and domestic turnover – MFIs

Year	Destination			Total
	UK	EU	Non-EU	
2014	55%	43%	40%	51%
2015	55%	42%	44%	52%
2016	54%	38%	39%	50%

To compare our estimates with the ONS Pink Book estimates for total financial services it is useful to exclude 'other' exports from the MFI estimates as exports of this type are currently not included in the ONS Trade in Services statistics. Excluding 'other' exports, our estimate of total MFI exports (£25.7bn in 2015) is almost identical to the £25.6bn published by the ONS (2016a), as both estimates use the data sourced and aggregated by the Bank of England.

In nominal terms, the direct domestic value-added content of gross MFI exports has increased slightly between 2014 and 2016 (table 1). However the share of direct domestic value-added within gross exports has not, falling slightly from 41 per cent in 2014 to 38 per cent in 2016. FISIM is the product with the highest share of direct domestic value-added in its exports (47 per cent in 2016).

ii. Value-added by destination of output

We have been able to split these initial estimates for the direct domestic value-added of exports into exports to the EU27 and non-EU. We are also able to compare these estimates with estimates for the value-added generated by MFIs on domestic business. This generates one metric of the importance of different markets to MFIs value-added.

77 per cent of MFIs' total gross value-added (£64bn) in 2016 is estimated to be related domestic business (table 2). 8 per cent of MFIs value-added is estimated to be related to EU exports and 15 per cent related to non-EU exports in 2016, this amounts to £5.0bn and £9.7bn respectively. Appendix 1 contains estimates for the direct domestic value-added and turnover associated with each destination in each year. ONS (2016b) estimated the total GVA of the whole financial intermediation industry (ISIC Rev.4 K) to be £124bn.

Whilst the total GVA generated by MFIs has increased between 2014 and 2016, the share of GVA related to each destination is estimated to have stayed broadly similar (table 2).

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iii. Comparison of output and value-added by destination of output

As detailed in table 1, the share of direct domestic value-added within gross exports is estimated to be 38 per cent in 2016. However in order to look at the direct impact on the MFI sector of each £1 exported it is informative to compare the value-added component generated by the MFI sector across output which is sold to different markets.

The share of direct domestic value-added within exports to the EU and non-EU is estimated to be broadly similar in 2016 (38 per cent and 39 per cent respectively, table 3). However, estimates suggest that the share of MFI value-added in MFI domestic output is higher (54 per cent in 2016). Further work is needed to investigate this difference. It could be that a different mix of products is consumed in the domestic and export markets (for example if higher value-added products were consumed more in the domestic market) or it could be that exporters have a higher proportion of intermediate consumption than domestic producers when producing the same product.

Our estimates suggest that MFI exports may be slightly less focused on EU27 markets than exports of other financial services. 39 per cent of MFI exports excluding 'other' exports were estimated to be exported to the EU in 2015, compared to 45 per cent of financial service exports as a whole (ONS, 2017a).

3. Methodology and estimates for legal and accountancy services

Next we explain how to use firm-level data from the Annual Business Survey (ABS) to construct new experimental estimates of both exports and the proportion of GVA associated with exports for finely disaggregated business service industries.[2] The ABS is a survey of UK non-financial businesses undertaken by the ONS, with a sample size of about 62,000 British businesses.[3] The ABS sample frame includes the universe of larger firms with 250 employees or more, and stratified sample of small and medium enterprises (SMEs).[4] While the ABS excludes public administration, financial services and the activities of households, it does offer detailed firm-level data for business and professional services, including firm-level data on exports of services to EU and non-EU countries. As such, it is interesting to explore the possibility of using the ABS to construct disaggregated export statistics. In addition, the ABS includes measures of firm-level approximate gross value-added (aGVA). This allows us to construct measures of the direct domestic value-added from exports for finely disaggregated business service industries.

We focus on one of the UK's key 2-digit business services sectors: 69 Legal and accounting activities, and use 2014 data. The ABS provides data on:

- Firm-level services exports to EU, non-EU clients
- Firm-level aGVA at basic prices[5]
- Firm-level turnover by finely disaggregated legal or accounting service activity.

For even-numbered years, this ABS firm-level turnover and aGVA data is available by two methods of disaggregation: 5-digit SIC code and by fine turnover category. Here, we focus on the data by fine turnover category for three reasons. First, accounting and legal services are each only broken down into three 5-digit SIC sub-industries, compared to four or more activities, so that the latter allows for a finer disaggregation. Second, a firm's 5-digit SIC code is determined by its main activity (which does not even need to make up a majority of its turnover), and all turnover is allocated to this single SIC code. This may be problematic, for example, if some accounting services firms provide not only accounting and auditing services (69.201), but also tax consultancy (69.203) or bookkeeping services (69.202). In contrast, the ABS provides information on the distribution of turnover across activities within firms, which better allows us to accurately disaggregate the turnover from more complex multi-service firms. However, this also gives rise to a limitation on the data, as firms with SIC codes from other industries such as Management consultancy might also be providing legal or accounting services, which our ABS data does not pick up. A final key consideration are constraints on the reporting of the disaggregated data due to disclosiveness. For example, for the 3-digit industry accounting services (69.2), one of the three 5-digit sub-industries has too small a number of non-zero turnover and aGVA observations to allow safe disclosure of the data at the 5-digit level. This issue does not arise with the disaggregation based on activities used here, as the number of non-zero firm-level observations of turnover and aGVA exceeds 500 for all activities, well above the disclosure thresholds.

To obtain estimates of firm-level turnover $T_{i,j,k}$ of service type i to location j by firm k, we assume that exports are distributed equally across turnover types in each firm. That is, we construct

$$T_{i,j,k} = \gamma_{j,k} \cdot T_{i,k} \tag{5}$$

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where $T_{i,k}$ is firm k's total turnover of service type i and $\gamma_{j,k}$ is the share of turnover to location j for firm k. This proportional attribution method would not introduce any bias into the estimated turnover figures if either each firm were specialised in a single type of service, if each firm sold to only one location or if the propensity to export each type of service were equal.

To obtain corresponding estimates of firm-level Gross Value-Added (GVA) of service type i to location j by firm k, we construct:

$$aGVA_{i,j,k} = \tau_{i,k} \cdot \gamma_{j,k} \cdot aGVA_k \quad (6)$$

where $\tau_{i,k}$ is the share of turnover type i for firm k, $aGVA_k$ is firm k's total approximate GVA at basic prices and $aGVA_{i,j,k}$ is firm k's aGVA for service type i sold to location j. Now, the proportional attribution method assumes that aGVA is distributed equally both across turnover types and across exports to different locations and domestic turnover. If firms tend to export services with higher than average value-added, then our measures of the proportion of aGVA associated with exports would be biased downwards. At the same time, our measures of the proportion of aGVA associated with domestic consumption would be biased upwards.

Next, we use these firm-level estimates of $T_{i,j,k}$ and $aGVA_{i,j,k}$ to construct estimates of total turnover and aGVA for each legal and accounting services activity and each destination (UK, EU and non-EU). We do this by taking a weighted sum across all firms with two-digit SIC07 code 69, so that the estimated turnover of service type i to destination j is constructed as:

$$T_{i,j} = \Sigma_k T_{i,j,k} \cdot a_k \cdot g_k \quad (7)$$

where a_k is the ABS design weight (aweight) and g_k is the ABS calibration factor (gwtto) for firm k.[6] Analogously, the estimated aGVA at basic prices of service type i to destination j is constructed as:

$$aGVAi,j = \Sigma_k aGVA_{i,j,k} \cdot a_k \cdot g_k \quad (8)$$

The experimental estimates for turnover and aGVA by disaggregated legal and accounting service activities, constructed using (7) and (8), are presented in Appendix tables A.1 to A.4. Next, we use this data to obtain a clearer picture of the importance of exports to EU and non-EU countries of specific accounting and legal services activities on the domestic economy. We aim to ask two key questions for each accounting and legal service activity:

1) How important a component of total demand are exports?
2) What is the direct impact on the UK's domestic economy of each £1 exported?

We answer the first question in tables 4 and 5 by comparing aGVA across locations for each service activity. This allows us to obtain a more accurate picture of which precise accounting and legal service types are most reliant on exports, both to EU and to non-EU countries. For example, $aGVA_{i,EU}$ provides a measure of the domestic economic activity deriving from exports of service type i to the EU, while $\frac{aGVA_{iEU}}{aGVA_{iUK}+aGVA_{iEU}+aGVA_{i,nonEU}}$ gives the share of domestic economic activity (i.e. domestic aGVA) in services type i which is associated with exports to the EU. The larger is this share, the more reliant are providers of these types of services on EU export demand.

Table 4. Destination shares and total aGVA by accounting service activity

Accounting services industry	Destination shares UK	EU	Non-EU	Total aGVA £mn
Financial auditing services	84%	5%	11%	3,700
[num obs- all non-zero]	[504]	[481]	[480]	[504]
Accountancy services	93%	2%	5%	4,100
	[544]	[489]	[486]	[544]
Bookkeeping services	92%	3%	5%	800
	[503]	[481]	[480]	[503]
Payroll services	93%	2%	5%	1,700
	[530]	[480]	[478]	[530]
Other accounting	91%	3%	7%	1,500
Services	[497]	[475]	[474]	[497]
Tax consultancy services	82%	5%	12%	3,200
	[502]	[482]	[481]	[502]
Involvency and	84%	5%	11%	1,200
Receivership	[488]	[475]	[476]	[488]
Total accounting services	86%	4%	10%	12,200
	[548]	[492]	[489]	[548]
Other products	80%	7%	13%	6,300
	[503]	[477]	[476]	[506]
TOTAL	84%	5%	11%	18,400
	[562]	[494]	[491]	[565]

For each accounting service activity (row), the destination shares give the share of approximate GVA which goes to each destination calculated as $\frac{aGVA_{iEU}}{aGVA_{iUK}+aGVA_{iEU}+aGVA_{i,nonEU}}$. For example, of the £X million aGVA of financial auditing services Y per cent is associated with exports to the EU. The final column gives the total aGVA from that service acitivity across all destinations in £ millions, calculated as $aGVA_{i,UK} + aGVA_{i,EU} + aGVA_{i,nonEU}$. The number of observations in each cell is given in square brackets below. 'Other products' are goods or services sold by a business with an accounting services SIC code, but which correspond to another industry. Accountancy services is further decomposed into bookkeeping, payroll and other accounting services.

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Table 5. Destination shares and total aGVA by legal service activity

Legal services industry	Destination shares UK	EU	Non-EU	Total aGVA £mn
Criminal law	89%	3%	8%	300
[number of observations]	[591]	[562]	[554]	[591]
Commercial and business law	72%	10%	18%	9,600
	[673]	[636]	[639]	[673]
Civil law	77%	8%	15%	900
	[664]	[628]	[629]	[664]
Labour law	82%	6%	12%	3,000
	[652]	[606]	[608]	[652]
Patents, copyright and intellectual	61%	9%	30%	600
Property	[627]	[611]	[610]	[627]
Notarial services	88%	4%	8%	200
	[587]	[569]	[567]	[587]
Arbitration, conciliation	70%	9%	21%	500
	[591]	[578]	[577]	[591]
Other legal services	79%	6%	14%	6,800
	[666]	[617]	[618]	[666]
Total legal services	76%	8%	16%	21,800
	[724]	[651]	[655]	[724]
Other products	88%	4%	8%	1,700
	[576]	[548]	[548]	[576]
TOTAL	77%	8%	15%	23,500
	[737]	[653]	[656]	[737]

For each legal service activity (row), the destination shares give the share of approximate GVA which goes to each destination calculated as $\frac{aGVA_{iEU}}{aGVA_{iUK}+aGVA_{iEU}+aGVA_{i,nonEU}}$. For example, of the £X million aGVA of commercial and business law services Y per cent is associated with exports to the EU. The final column gives the total aGVA from that service activity across all destinations in £ millions, calculated as $aGVA_i = aGVA_{i,UK} + aGVA_{i,EU} + aGVA_{i,nonEU}$. The number of observations in each cell is given in square brackets below. 'Other products' are goods or non-legal services sold by a business with a legal services SIC code, but which correspond to another industry. Total aGVA from auction legal services is less than £100mn and rounds to zero.

Table 4 gives the destination shares of aGVA for each accounting service activity, along with that activity's total $aGVA_i = aGVA_{i,UK} + aGVA_{i,EU} + aGVA_{i,nonEU}$. Table 5 gives the corresponding estimates for legal services.

Overall, tables 4 and 5 show that accounting services are more domestically focused than are legal services. The average share of domestic value-added from domestic sales of accounting services is 86 per cent, with only 4 per cent and 10 per cent of British accounting services aGVA associated with EU and non-EU exports, respectively. In contrast, nearly one-fourth of British legal services value-added is associated with exports, with exports to the EU accounting for about 8 per cent and non-EU exports making up the remaining 16 per cent. Among accounting service activities, financial auditing, tax consultancy and insolvency and receivership activities, as well as other product (such as consultancy services) sold by accounting services firms are somewhat more reliant on exports than are accountancy services such as bookkeeping and payroll services.

Across legal services activities, commercial and business law, arbitration and conciliation, and legal services concerning patents, copyright and intellectual property are most heavily export reliant, with the latter deriving 39 per cent of activity from exports. Criminal and notarial legal services are the most strongly domestically focused. Among accounting services activities, financial auditing, tax consultancy and insolvency and receivership activities, as well as the other products (such as consultancy services) sold by accounting services firms are somewhat more reliant on exports than are accountancy services such as bookkeeping and payroll services.

Next, we answer the second question – what is the direct impact on the domestic economy of each £1 exported – by comparing the aGVA with the turnover for each destination and service type.[7] That is, we use the estimates of turnover and aGVA from (3) and (4) to construct a measure of the proportion of aGVA from each service activity which is associated with EU and non-EU exports, and with domestic turnover. The aGVA share of turnover to destination for service activity is given by:

Table 6. Proportion of domestic value added associated with exports and domestic turnover – accounting services

Accounting industry	Destination UK	EU	Non-EU	Total
Financial auditing services	82%	83%	83%	82%
[number of observations]	[504]	[481]	[480]	[504]
Accountancy services	83%	78%	79%	83%
	[544]	[489]	[486]	[544]
Bookkeeping	80%	77%	79%	80%
Services	[503]	[481]	[480]	[503]
Payroll services	84%	76%	77%	83%
	[530]	[480]	[478]	[530]
Other accounting	84%	81%	81%	83%
Services	[497]	[475]	[474]	[497]
Tax consultancy services	82%	83%	83%	82%
	[502]	[482]	[481]	[502]
Involvency and receivership	81%	83%	82%	81%
	[488]	[475]	[476]	[488]
Total accounting services	83%	82%	82%	83%
	[548]	[492]	[489]	[548]

For each accounting service activity (row), the destination shares give the share of aGVA in turnover to that destination calculated from equation (5). For example, the £3,700 mn of aGVA of financial auditing services (table 4) represents 82 per cent of total turnover in financial auditing. The number of observations in each cell is given in square brackets below

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Table 7. Proportion of domestic value added associated with exports and domestic turnover – legal services

	Destination			
Legal services activity	UK	EU	Non-EU	Total
Criminal law	77%	78%	77%	77%
[number of observations]	[591]	[562]	[564]	[591]
Commercial and business law	78%	80%	80%	79%
	[673]	[636]	[639]	[673]
Civil law	79%	79%	80%	79%
	[664]	[628]	[629]	[664]
Labour law	78%	81%	80%	78%
	[652]	[606]	[608]	[652]
Patents, copyright and intellectual property	72%	68%	55%	65%
	[627]	[611]	[610]	[627]
Notarial services	81%	78%	78%	81%
	[587]	[569]	[567]	[587]
Arbitration, conciliation	80%	79%	80%	80%
	[591]	[578]	[577]	[591]
Auction legal services	72%	76%	71%	72%
	[553]	[544]	[544]	[553]
Other legal services	77%	76%	78%	77%
	[666]	[617]	[618]	[666]
Total legal services	78%	79%	78%	78%
	[724]	[651]	[655]	[724]

For each legal service activity (row), the destination shares give the share of aGVA in turnover to that destination calculated from equation (5). For example, the £9,600 mn of aGVA of commercial and business legal services (table 5) represents 79 per cent of total turnover in commercial and legal services. The number of observations in each cell is given in square brackets below.

$$aGVA_i = aGVA_{i,UK} + aGVA_{i,EU} + aGVA_{i,nonEU} \qquad (9)$$

By using $aGVA\_share_{i,j}$, we can better distinguish which types of exports are more important for the domestic economy than using simple trade flows. $aGVA\_share_{i,j}$ gives us a measure of the impact on the domestic economy of £1 of services exports of type i to destination j. Values of $aGVA\_share_{i,j}$ close to one indicate that services exported to destination were mainly produced using domestic labour and generating domestic profits, with little input of domestic materials or of imported inputs of any kind.[8]

Tables 6 and 7 give the aGVA shares for accounting and legal services respectively. For both accounting and legal services, each £1 of exports contains about 80p of direct domestic value-added content. Thus, a decline in exports in either of these business services sectors can be expected to have a nearly similar magnitude impact on domestic economic activity. The direct domestic value-added share of exports to the EU and to non-EU countries for accounting services averages 82 per cent or 82p for every £1 of accounting services exports. For legal services, every £1 exported to the EU is associated with 79p of domestic economic activity, while every £1 exported to non-EU countries is associated with 78p of domestic economic activity.

4. Conclusions

In this article, we have new initial estimates of the proportion of direct domestic value-added deriving from exports of banks and building societies (MFIs), and of detailed accounting and legal services activities.

Our initial estimates suggest that 23 per cent of UK value-added from MFIs is derived directly from exports in 2016, breaking down to 8 per cent EU and 15 per cent non-EU. Comparing the value-added component generated by MFIs with the value of MFI exports suggests that at least 38 per cent of UK MFI exports in 2016 was direct domestic value-added amounting to £14.6bn, of which £5.0bn came from exports to the EU. A potential extension is to investigate the relationships between the direct domestic value-added share of exports and the type of firm. Further work is planned to generate estimates for the value-added components of exports for key non-MFI financial services sectors. This will aid comparisons to the currently published data (for example the OECD-WTO TiVA dataset) which is only available for the financial intermediation sector as a whole.

Our initial estimates indicate that 24 per cent of UK value-added from legal services derives directly from exports, breaking down to 8 per cent EU and 16 per cent non-EU, while 16 per cent of UK value-added from accounting services is directly related to exports, breaking down to 5 per cent EU and 11 per cent non-EU. Commercial and business law is estimated to have the largest share of EU exports by value-added (10 per cent), while financial auditing, tax consultancy and insolvency/financial receivership are more EU export-intensive (5 per cent) than accountancy services (2 per cent) such as bookkeeping and payroll services. Further work will apply the methodology described here, both to additional time periods for accounting and legal services, and to additional business service industries. In addition, future work will aim to compare our estimates to published estimates from other sources where possible.

NOTES

1 The current OECD-WTO TIVA dataset defines the industries according to International Standard Industrial Classification (ISIC) Rev.3. Therefore financial intermediation (ISIC Rev.3 Section J) includes divisions 65 to 67 (65 – Financial intermediation, except insurance and pension funding; 66

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– Insurance and pension funding, except compulsory social security; 67 – Activities auxiliary to financial intermediation). The latest ISIC is Rev.4 (released in 2008) and this is used in current ONS publications. In ISIC Rev.4 financial and insurance activities (ISIC Rev.4 Section K) includes divisions 64 to 66, corresponding broadly to 65 to 67 in ISIC Rev 3 respectively. Monetary intermediation, the focus of this paper, is group 64.10 in ISIC Rev 4. Details on the ISIC and the mapping between different revisions are available on the United Nations Statistics Division website.

2 The data used is from ONS (2017b).

3 The ABS data used in this study covers England, Wales and Scotland, so our results only cover Great Britain. The Northern Ireland Statistics and Research Agency (NISRA) conducts its own analogous survey of about 11,000 non-financial businesses, the Northern Ireland Annual Business Inquiry (NIABI).

4 See ONS (2014b) for more information on the ABS sample.

5 aGVA at basic prices is net of VAT, making it the appropriate measure to compare to turnover, which is also reported net of VAT. The ABS also constructs data on aGVA at market prices. See ONS (2014a) for details on the construction of aGVA and how it relates to national accounts GVA measures.

6 See ONS (2014b) for details of the ABS design and calibration weights.

7 Recall that turnover to EU clients are a measure of exports. We use the terms turnover to EU or non-EU clients and exports interchangeably.

8 We measure only the direct impact of exports on aGVA. We neglect the indirect impact on domestic value-added, which would come from the value-added to the producer of the domestic materials which are inputs to the accounting and legal services industries. In this sense, our estimates may understate the domestic aGVA associated with exports.

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