

Article

Asymmetries in trade data: extending analysis of UK bilateral trade data

This article takes a deep dive into understanding the methods and sources behind bilateral trade data asymmetries for selected priority countries, including the United States, Ireland, France and Germany.

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1 . Executive summary

This is the third publication in our series exploring UK trade data asymmetries, which are the differences in the trade data reported by a country and the corresponding data reported by a bilateral partner. Building on our [earlier analysis published in July 2017](#) and our [deep dive analysis published in January 2018](#), we have taken two clear steps.

Firstly, we have expanded our analysis to include a range of additional bilateral partner countries with which we have some of our larger trade in services data asymmetries, and in which there is a high level of user interest, namely Germany, France, the Netherlands, Belgium and Luxembourg. These, in addition to the US and Ireland with whom we are already engaged in deep analytical collaboration, will be the primary focus of our work in the future.

Our second step has been to put in place a long-term analytical plan to explain asymmetries. This article reflects the first step in that plan: an understanding of our bilateral partners' trade in services sources. Armed with this understanding, our next steps will be to understand the role these sources play in explaining asymmetries, and will include methodological, definitional and statistical factors.

Table 1 summarises results from this article. The size of the trade in services asymmetries is provided from a UK perspective, that is, UK export less partner country import and UK import less partner country export, for the latest year covered in the analysis (2016).

Table 1: Summary of export and import asymmetries by partner country, 2016 (£ billion)

Partner Country	Export Asymmetry (£bn)	Service type(s) displaying largest export asymmetry and value (£bn)	Import Asymmetry (£bn)	Service type(s) displaying largest import asymmetry and value (£bn)
US	17.1	Other business services (10.6)	-19.6	Financial services (-5.6)
Republic of Ireland	1.4	Insurance and pension services (-1.1)	-11.4	Telecommunications, computer & information services (-4.8)
Germany	-1.6	Financial services (2.5) Other business services (-2.5)	-10.5	Other business services (-3.0)
France	-2.7	Financial services (4.2)	-7.5	Other business services (-3.4)
The Netherlands	-0.8	Financial services (3.6)	-10.4	Other business services (-3.8)
Belgium	-2.7	Other business services (-2.0)	-4.8	Other business services (-1.9)
Luxembourg	-7.2	Financial services (-4.9)	-8.4	Financial services (-5.2)

Source: Office for National Statistics, Bureau of Economic Analysis, Central Statistics Office, Deutsche Bundesbank, National Bank of Belgium, Banque de France, Statistics Netherlands and National Institute of Statistics and Economic Studies of the Grand Duchy of Luxembourg

A clear pattern has emerged from this analysis: the largest asymmetries can be found in financial services, other business services, and telecommunications, computer and information services. The sources and methods used to compile these service types are the focus of our deep dive analysis with the US.

Our next steps will be to extend this deep dive into sources and methods to the other countries included in the analysis, and to exchange lower level unpublished data for analysis where this is permitted by national data security legislation.

The objective of our overall plan of understanding sources and methods is to allow for further clarity around what drives asymmetries in order to further explain asymmetries to our users. For example, our work has revealed that, in common with the UK, the other EU countries included in the analysis are all fully (or almost fully) compliant with the most up-to-date international standards, as specified in the [IMF Balance of Payments Manual Version 6 \(BPM6\) \(PDF, 3MB\)](#). However, in contrast to the UK, several EU countries included in the analysis use administrative data from Value Added Tax (VAT) returns and/or from the EU VAT Information Exchange System (VIES), in the compilation of trade in services data, for example, for periodic benchmarking. We are actively pursuing access to trade-related data from the HM Revenue and Customs (HMRC) VAT and EU VIES systems to assess its possible role in explaining asymmetries.

In summary, our work to explain asymmetries continues, with this release communicating the increased depth and range of our analysis to facilitate this goal.

2 . Introduction

UK trade statistics continue to be under close scrutiny and of high importance for the UK's trade negotiations as the UK leaves the European Union (EU). As previously reported, we are delivering a range of developments as part of our [UK trade development plan](#) to meet the demands for high-quality informative trade statistics. This work includes analysis and explanation of the UK's trade asymmetries.

We set out [an initial approach to our deeper analysis of trade asymmetries](#) in our second article. Asymmetries are the differences in the trade data reported by a country and the corresponding data reported by a bilateral partner. The approach included initial analysis of the available data, our engagement and collaboration with our counterparts measuring these statistics in other countries, and research into data sources and methods. A summary of the data sources used to estimate UK trade data at Office for National Statistics (ONS) was also included, and we have included brief comparisons of UK and partner country sources and methods in this article.

The first phase of our ongoing analysis and investigations into UK trade data asymmetries focused primarily on gaining a better understanding of the published datasets and the context and known reasons for asymmetries. In our second article we conducted [deep dives into the UK's bilateral trade data](#) to understand better some of the differences in data sources and methods that might contribute to the trade asymmetries, particularly with specific countries, namely the US and Ireland. Our third article continues this process in relation to the US and Ireland.

It also extends analysis to a further five trading partner countries, namely Germany, France, the Netherlands, Belgium and Luxembourg. We have participated in a number of bilateral trade data asymmetries discussion meetings with the German, French and Belgian central banks and the national statistical offices of the Netherlands and Luxembourg, which are responsible for trade in services statistics. The focus of the discussions has been initial analysis of UK/bilateral partner asymmetries conducted by the UK, based on our published bilateral UK/partner country trade in services data and the equivalent data produced by the bilateral partner.

The bilateral partner data were converted from euros to sterling using exchange rate data from the Bank of England, and asymmetries were calculated for both exports and imports. The analysis included a comparison of the approach of each bilateral partner to the measurement of trade in services, based on published information on UK and partner country trade in services data sources and methods, and additional information obtained via the bilateral discussion meetings.

As outlined in our second article, there is also a high level of user interest in UK trade activity with China. However, while the UK publishes estimates of bilateral services trade with China, China does not currently publish bilateral trade in services data. Nevertheless, we are continuing to build channels of communication with China, particularly in liaison with our colleagues at the Organisation for Economic Co-operation and Development (OECD).

As set out previously, asymmetries can be caused by a range of conceptual and measurement variations between the estimation practices of different countries. It is also commonly agreed that when estimates are based on business surveys, it is easier to identify firms that export services than those that import services. Statistical agencies are likely to have different source data, estimation methods, and methodological and definitional differences. No two sources will ever capture exactly the same estimate of trade, and the "true" value for a given statistic is unknown and could lie between the two country estimates or outside that range.

Our next stages of analysis aim to explain whether the difference in estimates is statistically significant or within a statistically acceptable overlap range. For the latter, this will explain to users that asymmetries, while seemingly large numerically, do not differ at source data stage in terms of statistical significance. Our steps following that will be to understand how our processes of data aggregation to published output differ, which is part of our long-term aim in further explaining asymmetries. Our ability to provide this will be facilitated by the exchange of low-level data where this is permitted by national data protection legislation.

Asymmetries exist across global trade statistics and have been present for many years. It will never be possible to completely eliminate them, but we are actively assessing the UK's trade asymmetries in order to better understand the causes and to develop approaches to try to reduce some of them where possible. The UK is not alone in focusing on this issue: the international community is working together to better understand the reasons for asymmetries and to reduce them through bilateral discussions and other means. We are proactively engaged in this work and have taken forward collaborative bilateral discussions with a wide range of countries with which we have some of our larger trade data asymmetries.

2.1 Note on revisions

Users will note that in this article the use of updated data has impacted on [the size of trade asymmetries with partner countries \(US, Ireland\)](#) that we published in our second article on asymmetries in January 2018. The revisions result from improvements in the methodology used to calculate UK trade statistics.

We documented revisions to UK trade statistics prior to the publication of Pink Book 2018¹. The impact of revisions was mostly felt, at a world total level, in financial services and other business services. The impact at a country level differs, with increases in levels for some countries and decreases for others. In some instances, this leads to a widening or narrowing of trade data asymmetries.

2.2 Calculating asymmetries

In our earlier work, we presented some data on the basis of total absolute asymmetry (export asymmetry plus import asymmetry) as well as on export asymmetries and import asymmetries. Our expert users have informed us that a focus on export and import asymmetries is most useful from their perspective, so we have focused on export and import asymmetries in this article rather than total absolute asymmetries.

Export and import asymmetries are calculated as the difference between the estimates of the declarant country and those of the partner country. Throughout this article we refer to export asymmetries and import asymmetries separately. When the sign of the asymmetry is negative it means that the partner country reports estimates higher than ONS. When the sign is positive it means ONS reports estimates higher than the partner country.

Table 1.1: Explanation of positive and negative export and import asymmetry

	When sign is negative	When sign is positive
Imports Asymmetry	Partner country estimates exports to the UK higher than ONS estimates imports from the partner country	Partner country estimates exports to the UK lower than ONS estimates imports from the partner country
Exports Asymmetry	Partner country estimates imports from the UK higher than ONS estimates exports to the partner country	Partner country estimates imports from the UK lower than ONS estimates exports to the partner country

Source: Office for National Statistics

Notes on: Introduction

1. [UK trade data impact assessment from new developments, 1997 to 2016. Detailed assessment of changes to balance of payments annual estimates, 1997 to 2016.](#)

3 . Asymmetries analysis: United States

This section presents analysis of UK-US bilateral trade asymmetries. There are two main themes:

- an update of UK-US trade asymmetries using the most recent data, consistent with Pink Book 2018, including quantifications of known differences
- a drill down into low-level services components for financial services, other business services, and telecommunications, computer and information services

3.1 Approach

As with our article published in January 2018, we compare UK data with data published by the Bureau of Economic Analysis (BEA) in the US. However, the UK data used here are not currently published at this level of detail so results should be treated as indicative only. We are working towards publishing these lower level data in future.

In order to prepare the dataset, a download of US exports and imports was taken from the BEA website . These data were converted to sterling using exchange rates from the Bank of England since the BEA publishes estimates in dollars. Once data were in the same currency, an exercise was performed to match our services categories to those used by the BEA since the service categories that the BEA presents at a low level are different to those we use.

Matched categories are presented in Annex 1. An example of this matching is construction services. This is included within other business services by the BEA but it has been matched to the construction services category for this analysis.

The years presented in this analysis are 2014 to 2016. The BEA has published total trade with the UK up to 2017, however, a breakdown by service product is not available at the time of publication.

3.2 Results

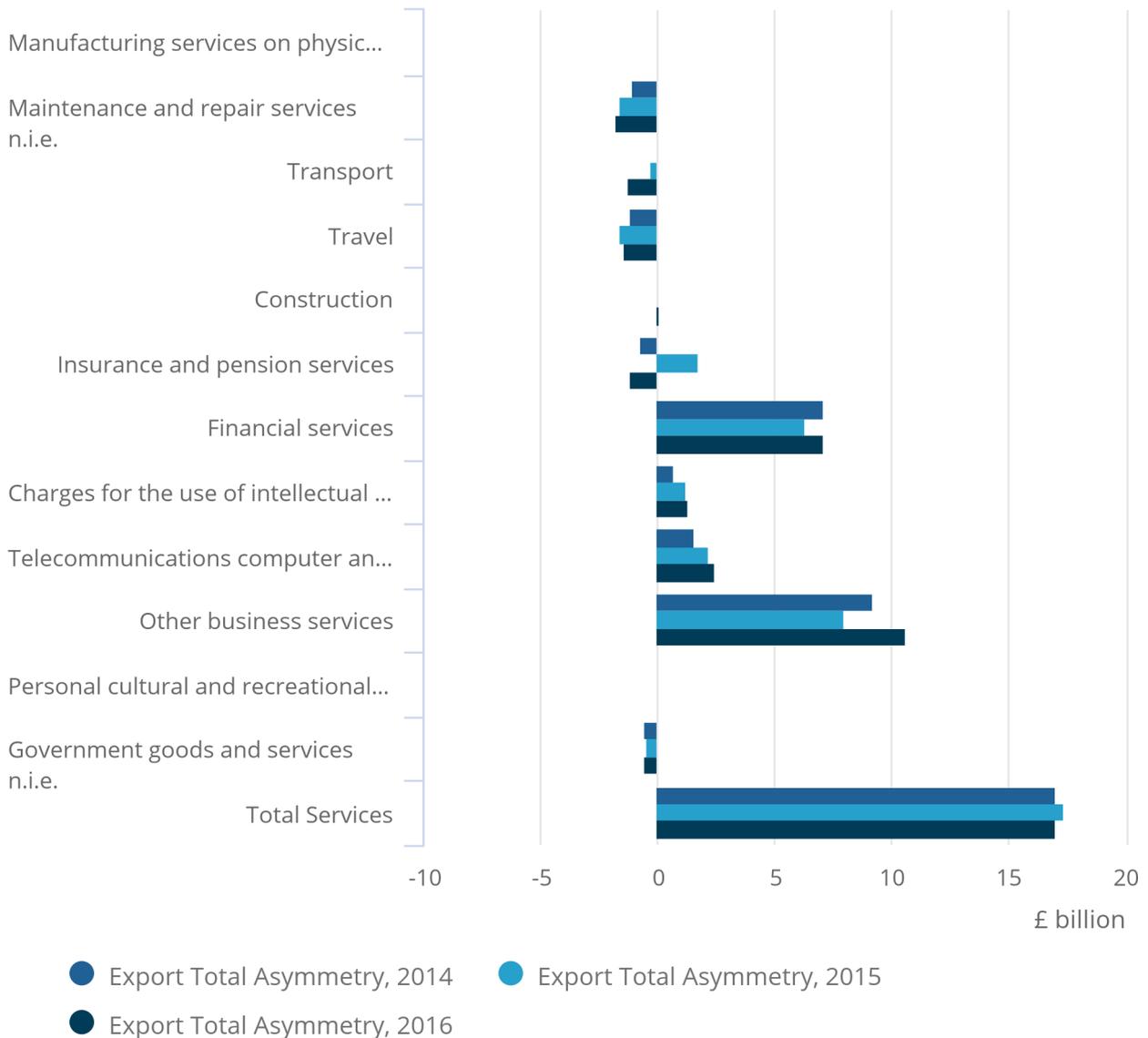
3.2.1 High-level asymmetry

The latest data show that the UK exports to the US reported by us are higher than the imports from the UK reported by the BEA for 2016 (Figure 1). The total exports asymmetry with the US is £17.1 billion.

Breaking down this asymmetry by individual services, Office for National Statistics (ONS) data are higher than the BEA for other business services (£10.6 billion); financial services (£7.1 billion); telecommunications, computer and information services (£2.5 billion); charges for the use of intellectual property (£1.3 billion), and construction (£0.1 billion).

Figure 1: UK-US trade in services asymmetries: UK exports – US imports by service type, 2014 to 2016

Figure 1: UK-US trade in services asymmetries: UK exports – US imports by service type, 2014 to 2016



Source: Office for National Statistics and Bureau of Economic Analysis

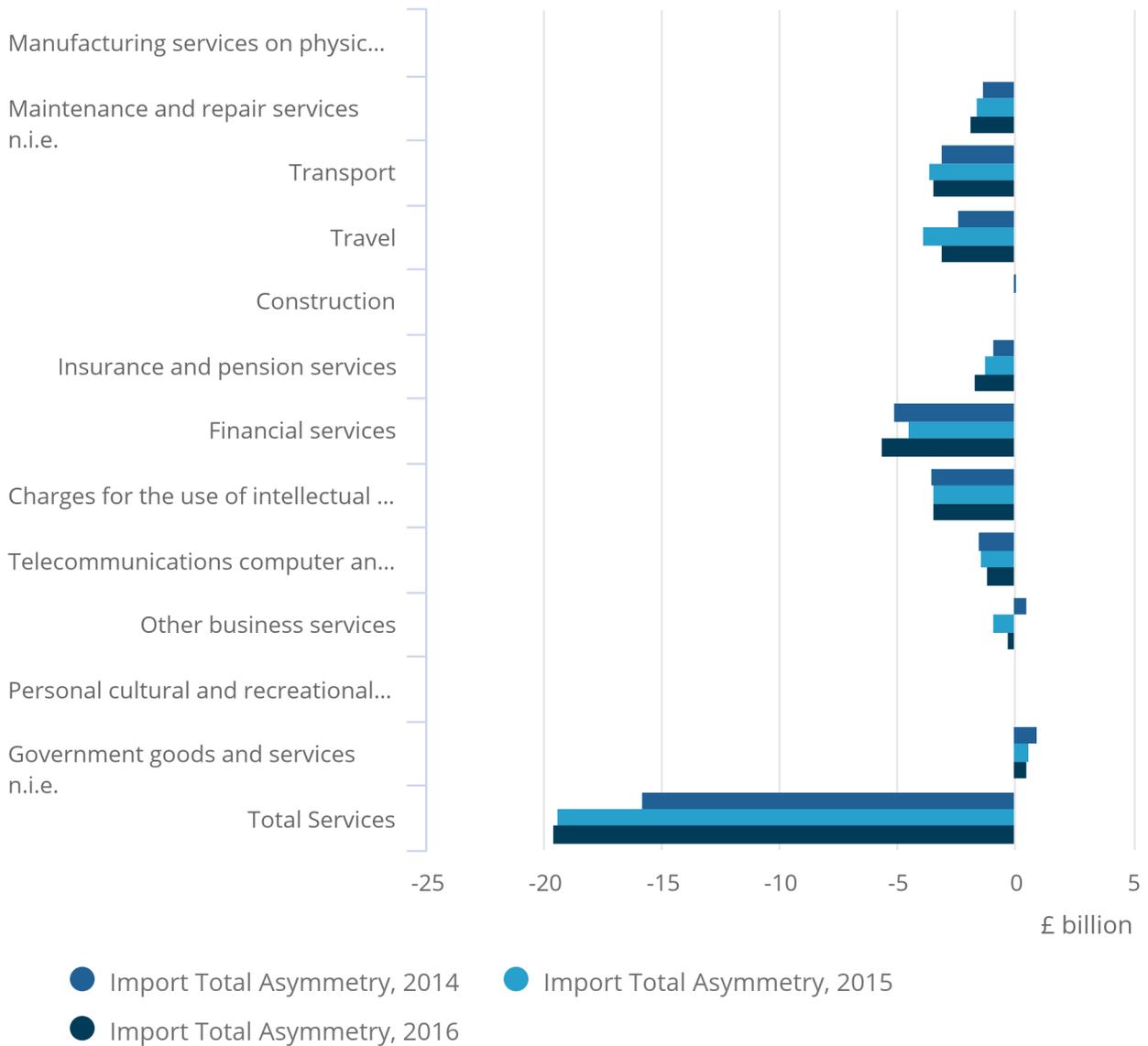
The import asymmetry is presented in Figure 2; the total asymmetry is negative £19.6 billion, which means the BEA estimates of exports to the UK are higher than imports from the US reported by us.

Where there are negative asymmetries, that is, BEA data are higher than ours, financial services has the largest asymmetry (negative £5.6 billion). For imports, there is a small asymmetry of negative £238 million for other business services, which has the largest exports asymmetry (£10.6 billion).

There are some differences by service type as we report imports from the US greater than the BEA reports exports from the US for two services. Government goods and services (not included elsewhere) has an asymmetry of £0.5 billion and construction has a small asymmetry of £5 million.

Figure 2: UK-US trade in services asymmetries: UK imports – US exports by service type, 2014 to 2016

Figure 2: UK-US trade in services asymmetries: UK imports – US exports by service type, 2014 to 2016



Source: Office for National Statistics and Bureau of Economic Analysis

3.3 Quantifying asymmetries at a high level

Asymmetries can be understood as having methodological, definitional and statistical roots. There are also differences in the timeliness of taking on international best practice.

The UK is compliant with the international standards for the production and presentation of balance of payments, including trade in goods and services, as specified in the [IMF Balance of Payments Manual Version 6 \(BPM6\) \(PDF, 3MB\)](#). For methodological differences, we present components that are classified in one service type by us and in another service type by the BEA. These methodological differences do not help explain the trade asymmetry at a total services level, as the component is included somewhere in total services, but can help explain asymmetries between service types. The methodological differences that have currently been identified are shown in Table 2.

Table 2: currently identified methodological differences where UK and US classify a particular type of trade in different service categories, 2016 (£ billion)

Component	Service category where ONS classify component	Service category where BEA classify component	UK Exports /US Imports (£bn)	UK Imports /US Exports (£bn)	Source for quantification
			2016	2016	
Personal, cultural and recreational (PCR) services	PCR services. Separately identified.	Within intellectual property & other business services. Not separately identified.	1.2	0.2	ONS
Construction services	Construction services. Separately identified.	Within other business services. Separately identified.	0.2	0.1	ONS
Outright sales /purchases of patents	Within research & development services within other business services. Not separately identified.	Within intellectual property. Not separately identified.	ONS

Source: Office for National Statistics and Bureau of Economic Analysis

Notes:

1. .. Indicates that data might be disclosive and have therefore been omitted.

Definitional differences can help explain the total services asymmetry as well as the asymmetry for a particular service type. These differences are where one country includes a type of activity in their services trade, whilst the other reporter excludes this activity from their services trade and may or may not include it in other accounts. Depending on the nature of the definitional difference, adjusting for it may reduce or increase the asymmetry.

Table 3 shows the definitional differences that have been identified through discussions with the BEA and an indicative estimate of the magnitude of each difference, where available. We have previously identified the inclusion of Crown Dependencies in US trade statistics by the BEA as a source of asymmetry, and we have now received indicative estimates of the value from the BEA, although it is important to note that these are not official statistics as trade with the Crown Dependencies is not separately identifiable in the BEA's data.

As explained in Section 2.2, we have received feedback from expert users that the preferred way of presenting asymmetries is separately for imports and exports. We have, however, previously calculated a total absolute asymmetry, adding together the imports and exports asymmetry. If this were to be done, the total asymmetry for trade with the US for 2016 would be £36.6 billion, and as shown in Table 3 a total of £11.3 billion of this can be quantified due to identified definitional differences.¹

Table 3: Currently identified definitional differences between UK and US trade figures which affect total services trade and indicative estimates, 2016 (£ billion)

Difference	Services category affected	Conceptual basis	UK Exports /US Imports (£bn)	UK Imports /US Exports (£bn)	Source for quantification
			2016	2016	
BEA include Crown Dependencies in definition of UK, ONS excludes as conceptually incorrect to include (European System of Accounts 2010)	All	Crown Dependencies should be excluded	1.2	0.6	BEA
Manufacturing services on physical inputs owned by others are included in services trade by ONS and in goods trade by BEA	Manufacturing services on physical inputs owned by others	Should be included in services trade	0.1	0.1	ONS
Passenger sea transport is included in services trade by ONS, not captured by BEA	Transport	Should be included in services trade	1.6	0	
Construction imports related to work done in the US are included by ONS, not captured by BEA	Construction	Should be included in services trade	0	0.1	ONS
Pensions trade is included in services trade by ONS, not captured by BEA	Insurance and pension services	Should be included in services trade	ONS
Financial Intermediation Services Indirectly Measured (FISIM) included in services trade by ONS and implicitly included in income in the balance of payments statistics by BEA	Financial services	Should be included in services trade	1.9	1	ONS
'Margins on Buying and Selling Transactions': Net Spread Earnings (NSE) included in services exports by ONS, not captured by BEA[1]	Financial services	Should be included in services trade	4.7		ONS
Outright sales/purchases of franchises and trademarks are included in services trade by BEA and in the capital account by ONS	Intellectual Property	Should be included in the capital account			ONS
Total of currently identified definitional differences			9.5	1.8	

Source: Office for National Statistics and Bureau of Economic Analysis

Notes:

1. The estimates for a particular activity are given a positive sign where we include the activity in trade in services and the BEA excludes the activity in trade in services. The estimates for a particular activity are given a negative sign where we exclude the activity in trade in services and the BEA includes the activity in trade in services. Therefore, the signs are consistent with the total asymmetry shown (ONS - BEA data), and the sum of each of the differences shows how much of the total asymmetry has been estimated. This means that the figure of £11.3 billion is the sum of what we can explain for the exports asymmetry and the import asymmetry, which equates to £7.7 billion when the offsetting effects are taken into account (compared with the figure of £4 billion taking offsetting effects into account in the January 2018 publication).

2. Where estimates are between £0 and £0.05bn, a value of +£0.0bn is shown. Where estimates are between £0 and -£0.05bn, a value of -£0.0bn is shown.

3. NSE estimates shown are calculated using monetary financial institutions data only.

4. .. Indicates that data might be disclosive and have therefore been omitted. Components may not sum to totals due to rounding.

5. Users should note that Net Spread Earnings have been revised in Pink Book 2018.

Our work with the BEA in recent months has been focused on mutual understanding of the sources used to populate UK and US trade in services statistics. They are summarised in Annex 4a for user interest. Our next steps in comparing sources with the BEA will be to understand the overlapping and diverging content and coverage of these sources in more detail.

No two sources will ever capture exactly the same estimate of trade; our next stages of analysis aim to explain whether the difference in estimates is statistically significant or within a statistically acceptable overlap range. For the latter, this will explain to users that asymmetries, while seemingly large numerically, do not differ at source data stage in terms of statistical significance. Our steps following that will be to understand how our (UK and US) processes of data aggregation to published output differ, which is part of our long-term aim in further explaining asymmetries.

3.4 Low-level asymmetry case studies

In order to increase the depth of our asymmetries explanation, we have conducted analysis at a lower level of service product than is published. Using the matched categories presented in Annex 1, we present here case studies of low-level asymmetries. Case studies were chosen from those services where data were available for all low-level categories within a service: financial services, telecommunications, computer and information services, and other business services. Further detail about these services and their data inputs can be found in Annex 2.

3.4.1 Financial services

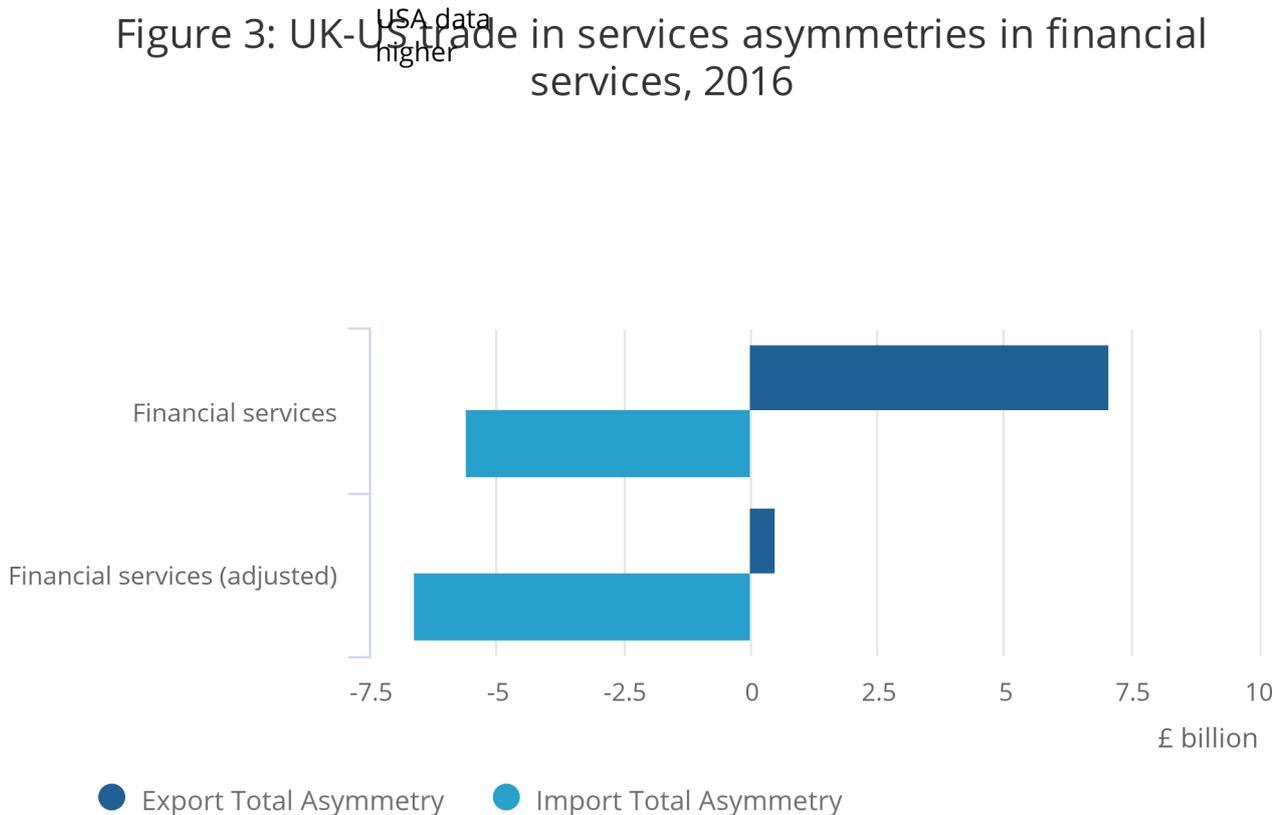
Financial services are of significant importance to the UK economy, with London regarded as a global financial hub. Our data show the UK exported financial services of £13.5 billion to the US and imported £4.7 billion. This was the largest exported service after other business services.

[Sources of UK-US asymmetries identified](#) in our article published in January 2018 are presented with updated figures in Table 3. The BEA does not include financial intermediation services indirectly measured (FISIM) in trade statistics, nor do they capture net spread earnings.

Using the values contained in Table 3, we can present an adjusted picture for the financial services asymmetry (Figure 3) taking FISIM and net spread earnings differences into account. When making these adjustments, the exports asymmetry reduces from £7.1 billion to £0.5 billion, largely as a result of removing net spread earnings from export data. The imports asymmetry increases from negative £5.6 billion to negative £6.6 billion. As a future step towards reconciling the export asymmetry, the BEA is exploring methods to estimate FISIM, although its inclusion would increase the import asymmetry, as would the inclusion by the BEA of net spread earnings.²

Figure 3: UK-US trade in services asymmetries in financial services, 2016

Figure 3: UK-US trade in services asymmetries in financial services, 2016



Source: Office for National Statistics and Bureau of Economic Analysis

Notes:

1. The units in this chart were originally published in millions. We have since made this chart consistent with others in the publication but presenting as billions. This data has not been changed or revised.

Table 3.1: Summary of ONS sources for the UK and BEA sources for the US for Financial Services, 2016

Financial Services	ONS UK Source	BEA US Source
7	Bank of England International Trade in Services Survey (ITIS) Financial Services Survey (FSS) Baltic Exchange Survey Bank for International Settlements Survey	BEA quarterly and benchmark surveys of US international services transactions

Source: Office for National Statistics and Bureau of Economic Analysis

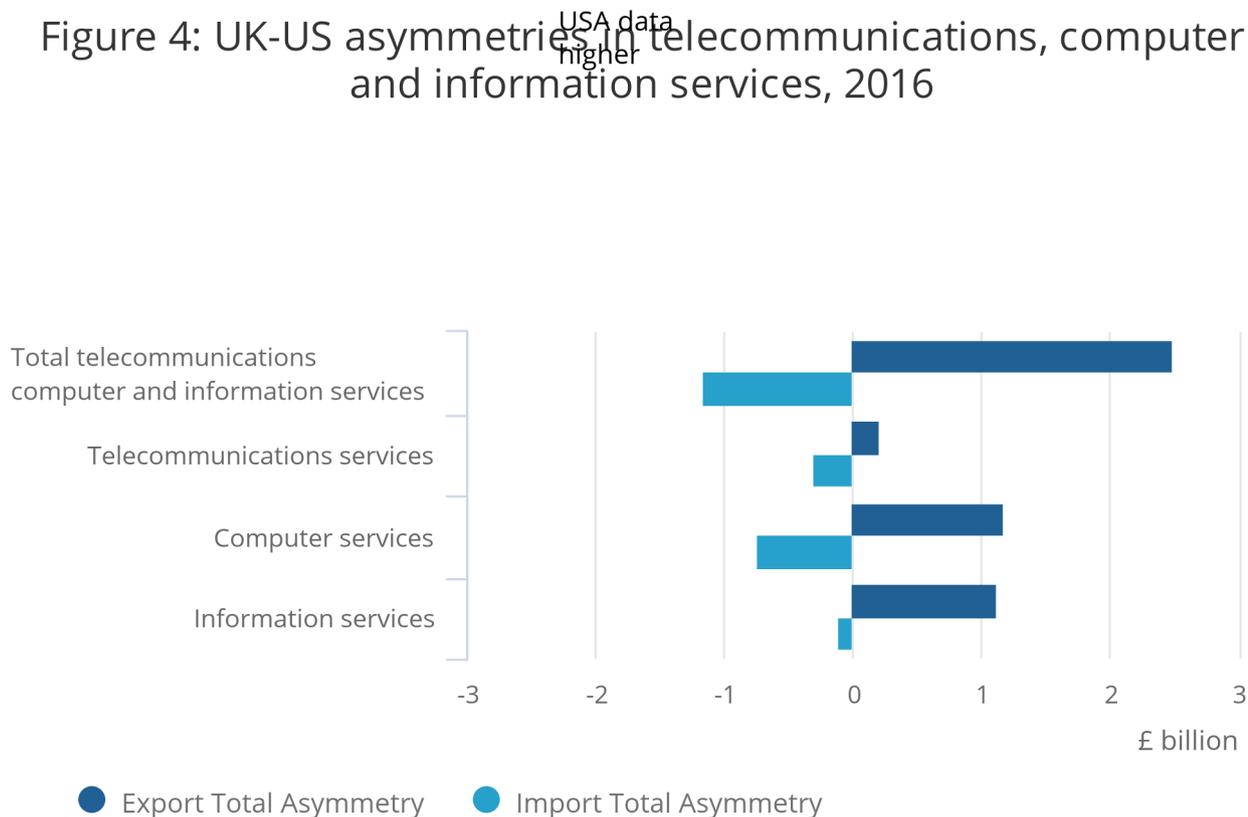
3.4.2 Telecommunications, computer and information services

Telecommunications, computer and information services is an area where we consistently report exports to the US higher than the BEA reports UK imports, and the BEA reports exports to the UK higher than we report imports. The sign of the asymmetry is always the same for all services within this category for exports, and likewise for imports.

The exports asymmetry of £2.5 billion is driven by computer services (£1.2 billion) and information services (£1.1 billion). For imports the negative £1.1 billion asymmetry, where the BEA reports higher exports than we report imports, is mostly driven by computer services (negative £0.7 billion) (Figure 4).

Figure 4: UK-US asymmetries in telecommunications, computer and information services, 2016

Figure 4: UK-US asymmetries in telecommunications, computer and information services, 2016



Source: Office for National Statistics and Bureau of Economic Analysis

Table 3.2: Summary of ONS sources for the UK and BEA sources for the US for Telecommunications, computer and information services, 2016

TCI Service	ONS UK Source	BEA US Source
9	ITIS	BEA quarterly and benchmark surveys of US international services transactions

Source: Office for National Statistics and Bureau of Economic Analysis

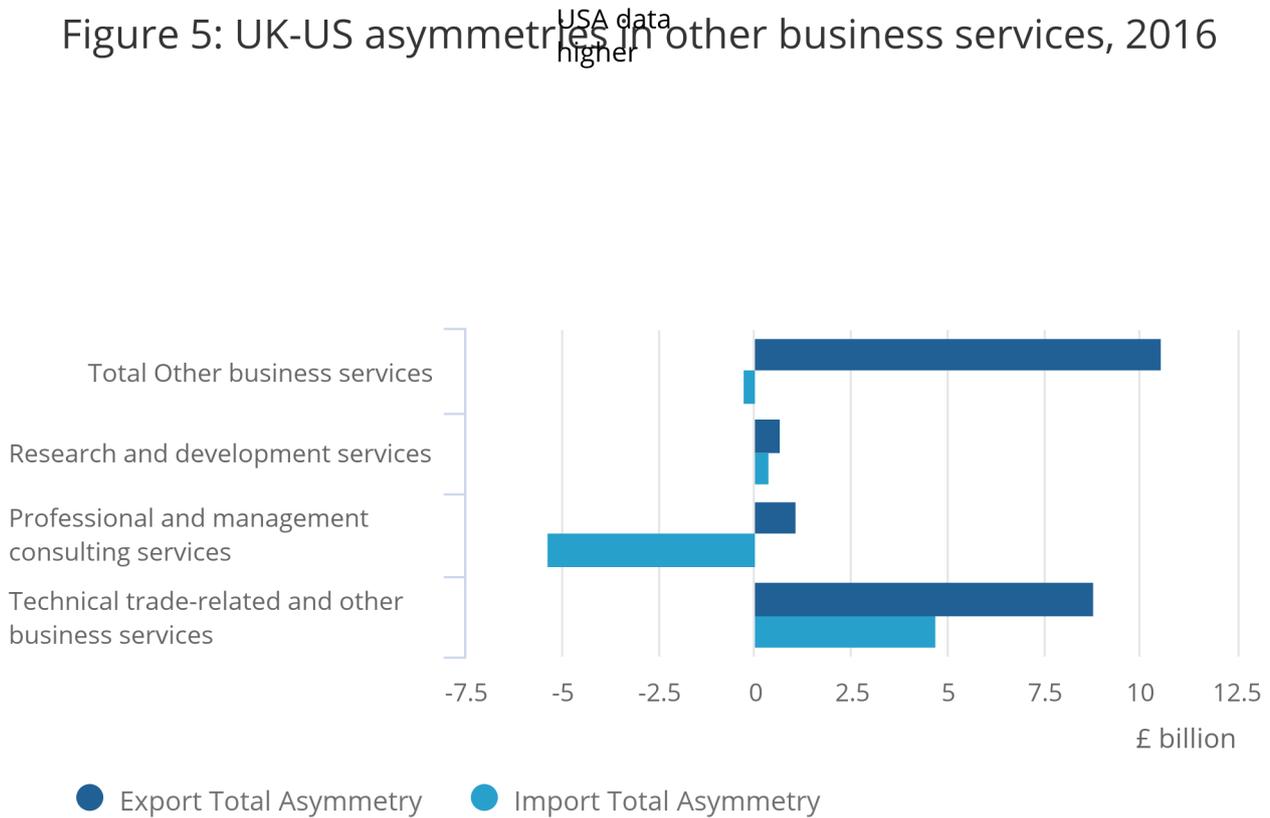
3.4.3 Other business services

Other business services has a total export asymmetry of £10.6 billion and an import asymmetry of negative £0.2 billion. This tells us that we report higher exports to the US than the BEA reports imports from the UK, and the BEA reports exports to the UK slightly higher than we report imports. For exports, we report all services higher than the BEA reports imports. The asymmetry is driven by technical, trade-related and other business services (£8.8 billion).

When looking at the import asymmetry we can see that an asymmetry of negative £5.3 billion for professional and management consulting services is offset by technical, trade-related and other business services of £4.7 billion (Figure 5).

Figure 5: UK-US asymmetries in other business services, 2016

Figure 5: UK-US asymmetries in other business services, 2016



Source: Office for National Statistics and Bureau of Economic Analysis

Table 3.3: Summary of ONS sources for the UK and BEA sources for the US for Other Business Services, 2016

Other Business Services	ONS UK Sources	BEA US Source
10	<p>ITIS</p> <p>Higher Education Statistics Agency</p> <p>Bank of England</p> <p>Chamber of Shipping</p> <p>Commercial Bar Association</p> <p>International Passenger Survey</p> <p>Security Dealers' Survey</p>	BEA quarterly and benchmark surveys of US international services transactions

Source: Office for National Statistics and Bureau of Economic Analysis

Notes for: Asymmetries analysis: United States

1. The previous total asymmetry for 2016 published in January 2018 was £32.8 billion for 2016 and £6 billion of differences were quantified.
2. [Survey of Current Business: Understanding Asymmetries Between BEA's and Partner Countries' Trade Statistics](#)

4 . Asymmetries analysis: Ireland

Published information on bilateral trade is not publicly available for the Republic of Ireland (referred to as Ireland in this article) for all 12 top-level service categories. As a result, we are not able to present at this stage detailed asymmetries in trade data as was the case for the US. What can be presented here are some high-level asymmetries for exports and imports. This updates the analysis we presented in our [second article on asymmetries](#) in January 2018.

4.1 Approach

To prepare data, a download of Ireland exports and imports was obtained from the Eurostat website . These data are provided to Eurostat by Ireland's CSO. Data were taken from the Eurostat website since it is presented on a Balance of Payments and International Investment Position Manual (BPM6) basis, consistent with Office for National Statistics (ONS). These data were converted from euros to sterling using exchange rate data from the Bank of England. Service categories were matched with our trade data and asymmetries calculated for both exports and imports. These are presented in Figures 6 and 7.

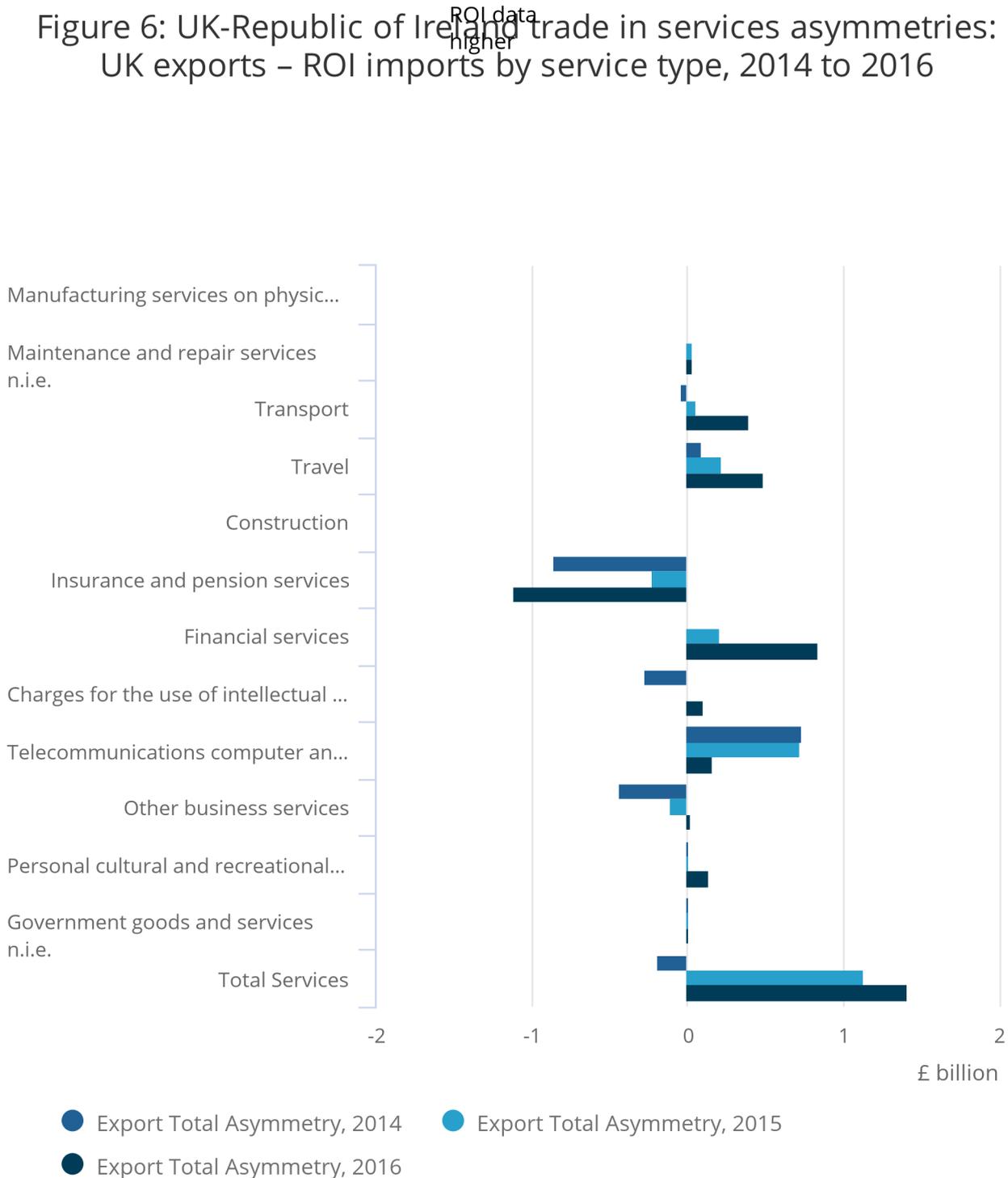
4.2 Results

The total asymmetry picture for UK exports and Ireland imports is £1.4 billion in 2016. All services are reported by ONS as having higher data for exports to Ireland than Ireland reports imports from the UK, except for insurance and pension services. The asymmetry for this service type, which is the largest for all services, is negative £1.1 billion in 2016. The second-largest asymmetry is financial services at £0.8 billion.

For both exports and imports, an asymmetry in construction services cannot be estimated as data for Ireland are unavailable on the Eurostat website. Likewise, for manufacturing services on physical inputs owned by others, data for Ireland are unavailable for imports.

Figure 6: UK-Republic of Ireland trade in services asymmetries: UK exports – ROI imports by service type, 2014 to 2016

Figure 6: UK-Republic of Ireland trade in services asymmetries: UK exports – ROI imports by service type, 2014 to 2016

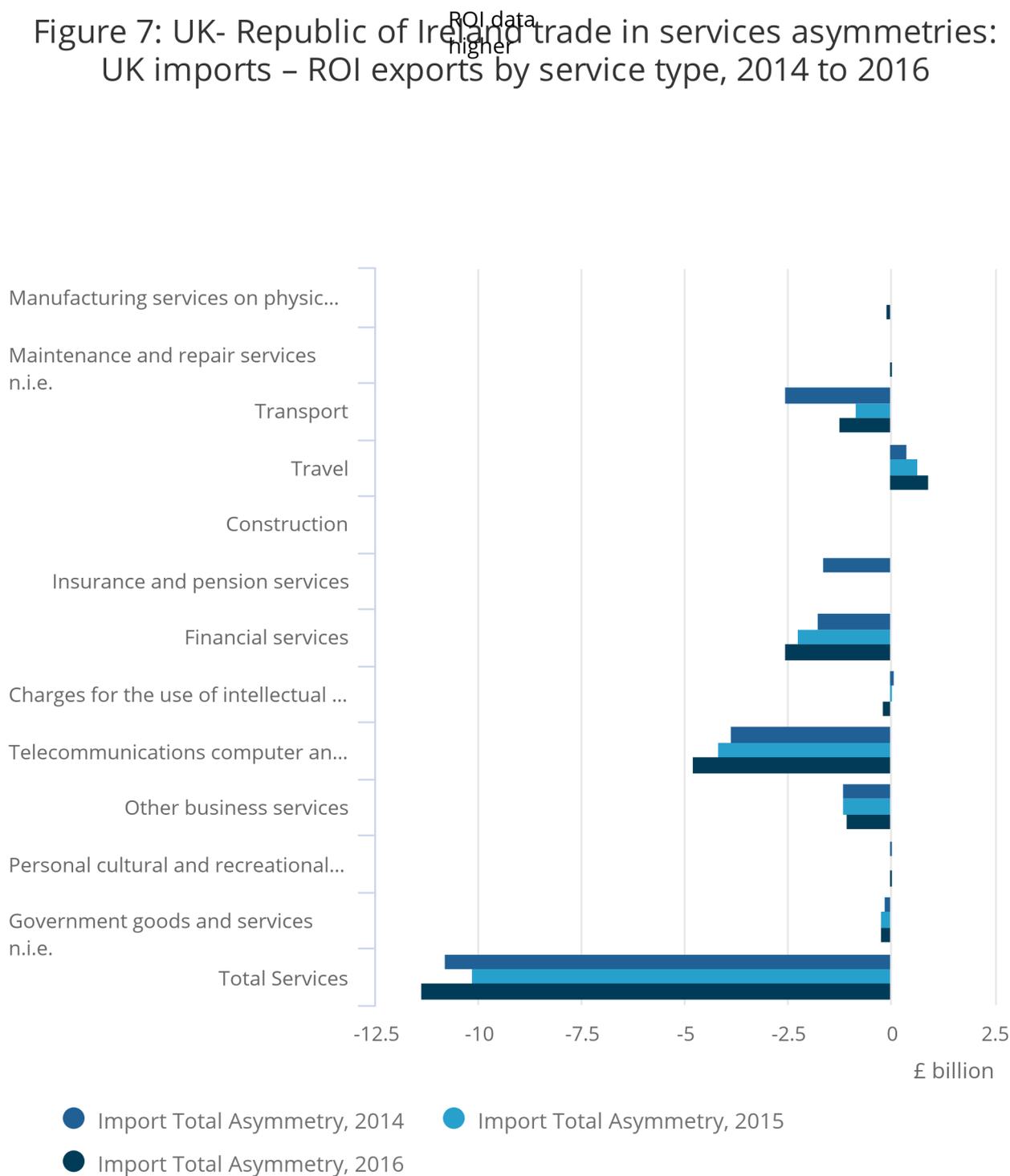


The overall asymmetry for UK imports and Ireland exports is negative £11.4 billion in 2016. This means that for all services, reports of exports by Ireland are higher than we report for imports from Ireland. This is the case for most services – maintenance and repair services, travel and personal, cultural and recreational services being the three exceptions.

When examining the detail of services, the data show that the largest asymmetry with Ireland is for telecommunications, computer and information services (negative £4.8 billion). This asymmetry shows that the data reported by Ireland is higher for exports from Ireland than levels we reported for UK imports. Financial services show the next largest asymmetry (negative £2.5 billion) and the sign is in the same direction, that is, Ireland reports higher exports to the UK than we report imports.

Figure 7: UK- Republic of Ireland trade in services asymmetries: UK imports – ROI exports by service type, 2014 to 2016

Figure 7: UK- Republic of Ireland trade in services asymmetries: UK imports – ROI exports by service type, 2014 to 2016



The sources used by CSO in the compilation of trade in services statistics are summarised in Annex 4b for user interest. Sources used include both surveys and administrative data. Our next steps will be to explore the detail of sources for both countries to better understand any statistical or methodological differences.

Our deeper analysis with the US and Ireland highlighted the commonality of financial services in UK services asymmetries with both countries. It is also clear that an understanding of how our sources, and our methods of working with these sources, differs, is essential in our next steps of explaining asymmetries. The next section of the article shares our progress in extending our asymmetries analysis to additional trading partners.

Notes for: Asymmetries analysis: Ireland

1. [Eurostat: International trade in services \(since 2010\) \(BPM6\)](#), downloaded 30 July 2018.

5 . Asymmetries analysis: Germany

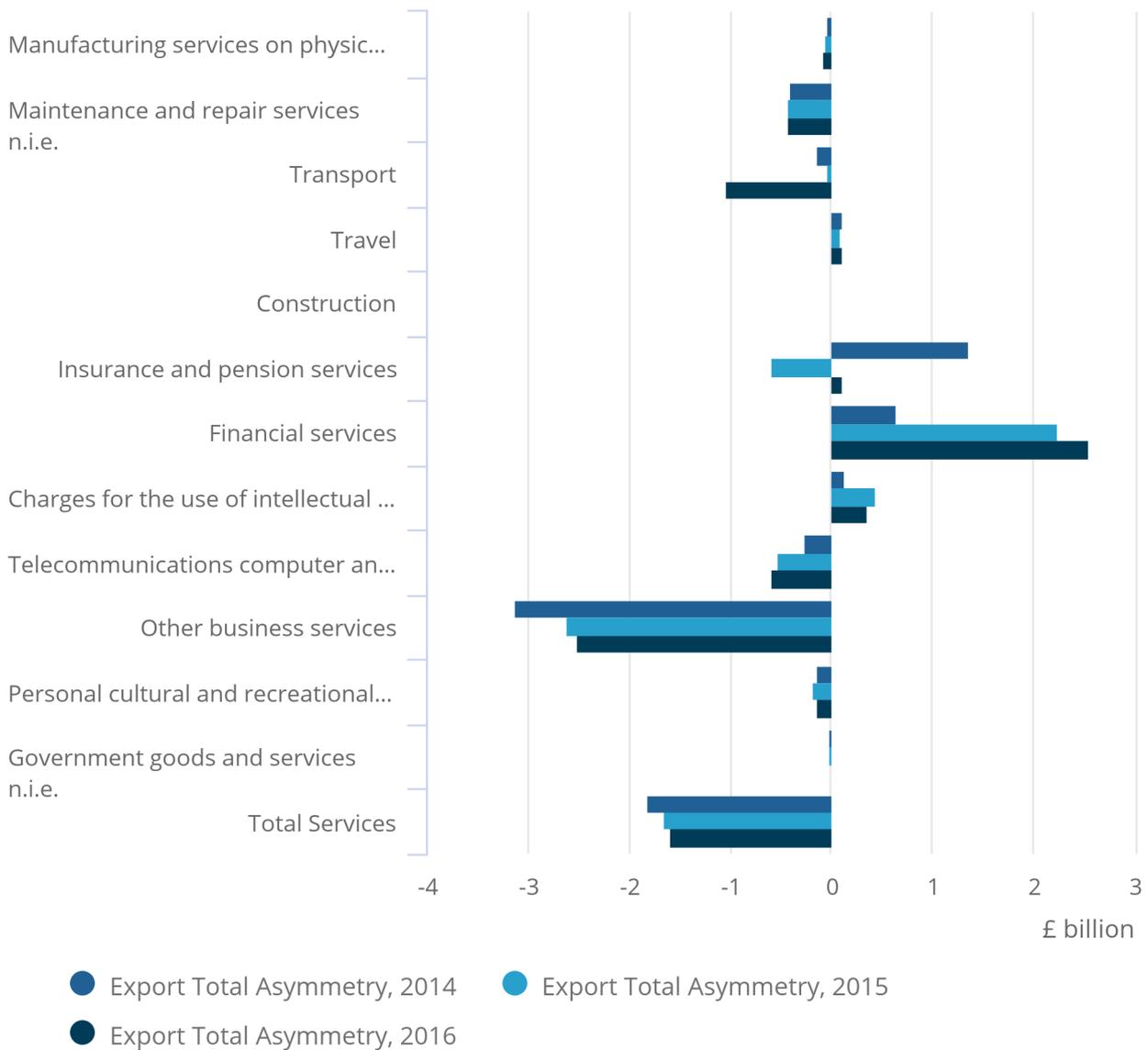
5.1 Results

The asymmetries between UK exports of services and German imports of services are presented in Figure 8, which indicates that:

- the total asymmetry between UK exports and German imports of services was negative £1.6 billion in 2016
- the largest asymmetries can be found in UK exports and German imports of financial services at £2.5 billion in 2016, and other business services at negative £2.5 billion in 2016

Figure 8: UK-Germany trade in services asymmetries: UK exports – Germany imports by service type, 2014 to 2016

Figure 8: UK-Germany trade in services asymmetries: UK exports – Germany imports by service type, 2014 to 2016



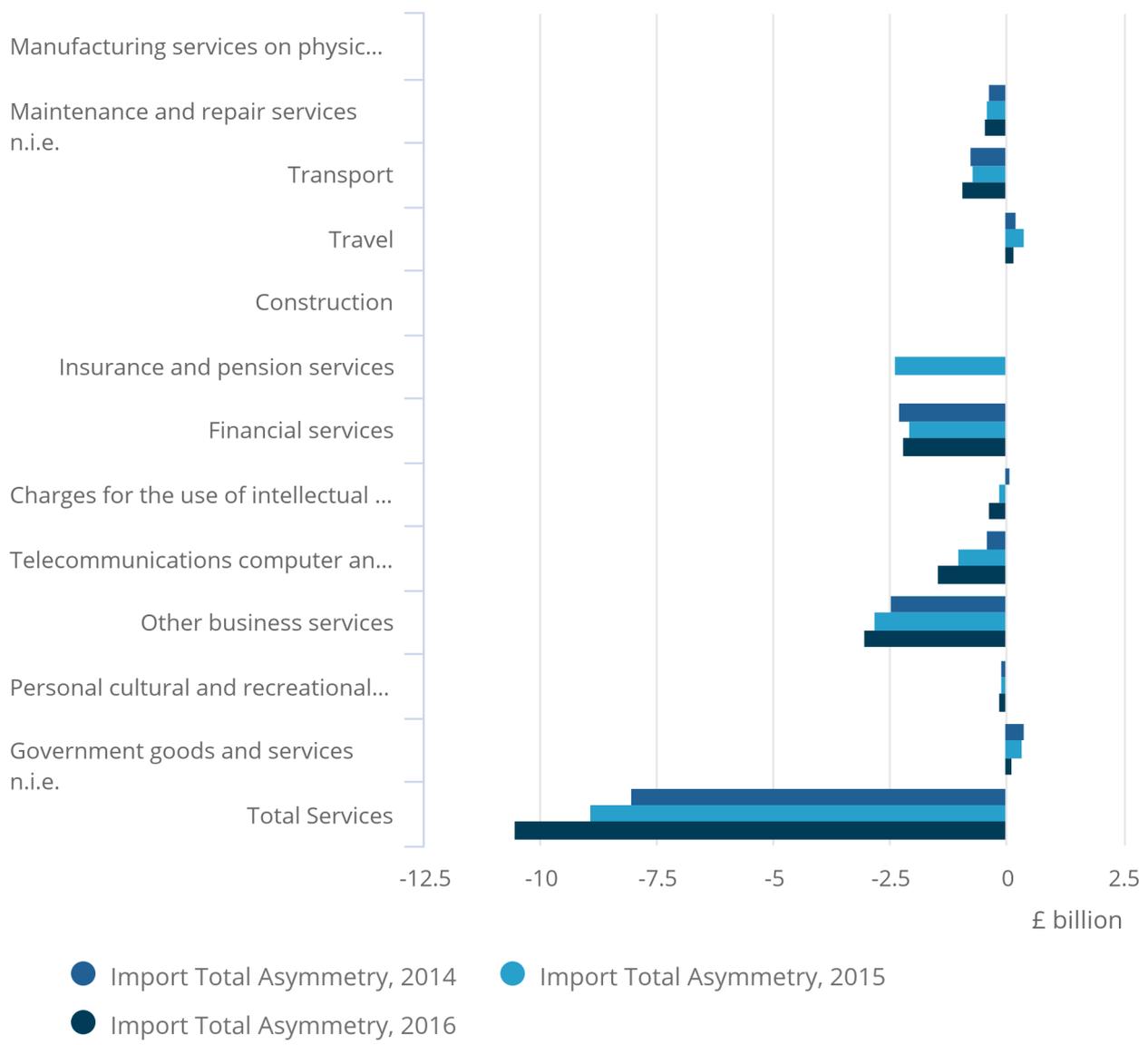
Source: Office for National Statistics and Deutsche Bundesbank

The asymmetries between UK imports of services and German exports of services are shown in Figure 9, which indicates that:

- the total asymmetry between UK imports and German exports of services was negative £10.5 billion in 2016
- the largest asymmetries can be found in UK imports and German exports of other business services at negative £3.0 billion in 2016, financial services at negative £2.2 billion in 2016, and telecommunications, computer and information services at negative £1.5 billion in 2016

Figure 9: UK-Germany trade in services asymmetries: UK imports – Germany exports by service type, 2014 to 2016

Figure 9: UK-Germany trade in services asymmetries: UK imports – Germany exports by service type, 2014 to 2016



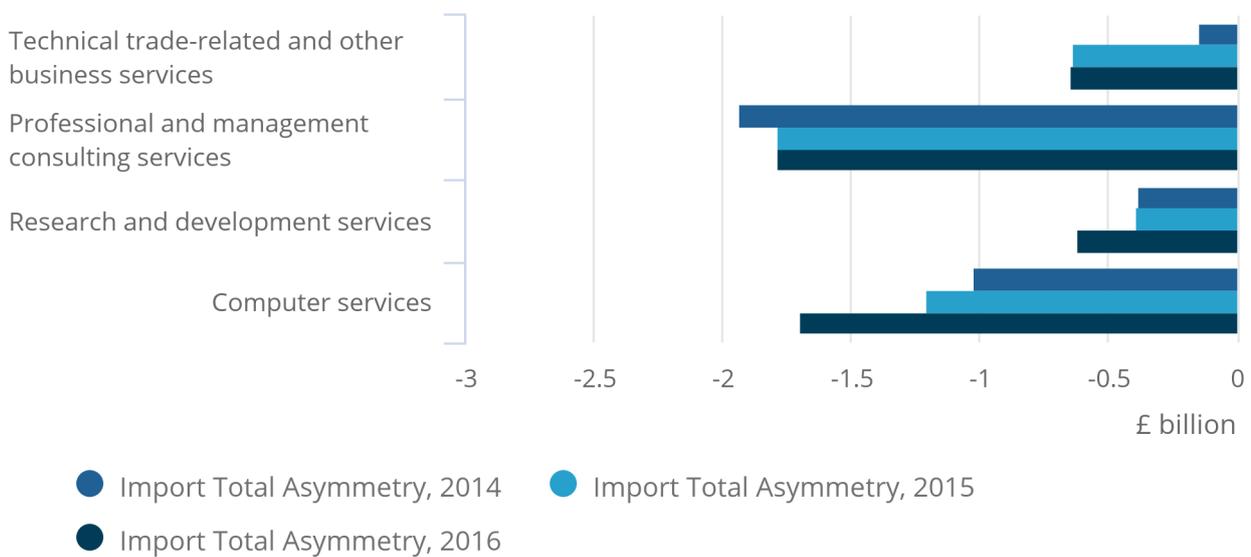
Source: Office for National Statistics and Deutsche Bundesbank

Figure 10 demonstrates some important areas of trade in services asymmetries based on the lower-level data provided by the German central bank, the Deutsche Bundesbank, and the equivalent Office for National Statistics (ONS) data as follows:

- within other business services, professional and management consulting services displays a particularly high asymmetry in relation to UK exports and German imports at £1.5 billion in 2016

Figure 10: UK-Germany trade in services asymmetries: UK exports – Germany imports by lower-level service type, 2014 to 2016

Figure 10: UK-Germany trade in services asymmetries: UK exports – Germany imports by lower-level service type, 2014 to 2016



Source: Office for National Statistics and Deutsche Bundesbank

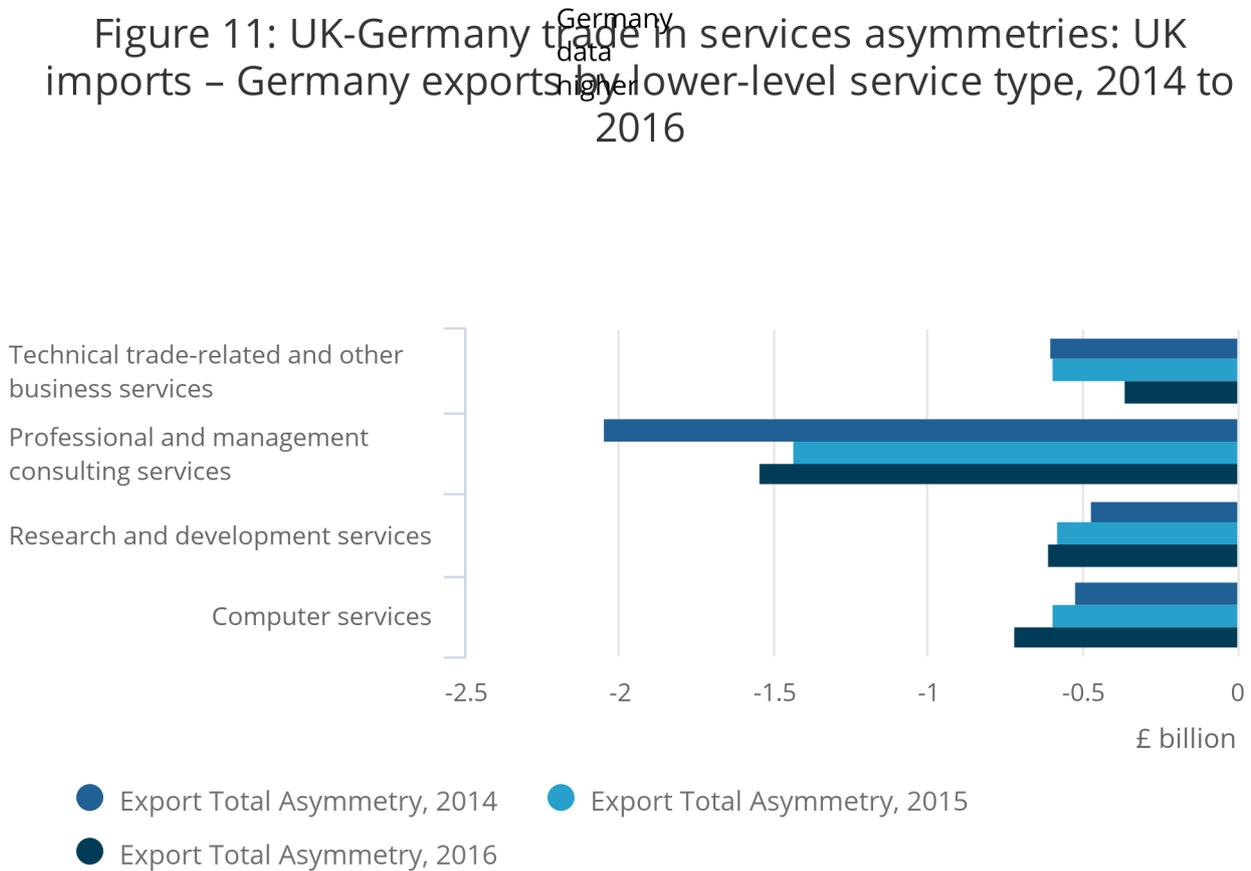
Figure 11 demonstrates some important areas of trade in services asymmetries based on the lower-level data provided by the Bundesbank and our equivalent data as follows:

- within other business services, professional and management consulting services displays a particularly high asymmetry in relation to UK imports and German exports at negative £1.8 billion
- UK imports and German exports of computer services has a particularly high asymmetry at negative £1.7 billion

This analysis of lower-level drivers of asymmetries gives us a clear focus for our next steps.

Figure 11: UK-Germany trade in services asymmetries: UK imports – Germany exports by lower-level service type, 2014 to 2016

Figure 11: UK-Germany trade in services asymmetries: UK imports – Germany exports by lower-level service type, 2014 to 2016



Source: ONS and Deutsche Bundesbank

[The UK and Germany have different approaches to the measurement of trade in services.](#) The UK uses a combination of surveys, including the International Trade in Services (ITIS) survey, the International Passenger Survey (IPS), and a large number of administrative sources. These were documented in detail in our second article.

Annex 4c provides a summary comparison of sources and methods used by the UK and Germany to measure each component of trade, based on published information on sources and methods.

Germany uses an “obligatory” monthly Direct Reporting System, which captures international transactions above a threshold of €12,500 from all residents, including enterprises, banks, public authorities and individuals.

Germany also uses a number of additional data sources:

- travel expenditure (imports) is collected in a household survey, and travel receipts (exports) are obtained from credit card information reported by card issuers supplemented by estimates based on data from accommodation statistics amongst other things
- insurance services are based on insurance supervisory data combined with reports on premiums and claims
- financial services (the FISIM component) are estimated based on stocks and interest rates
- government expenditure of foreign soldiers in Germany are estimated using a model
- transactions of foreign embassies in Germany are estimated by mirroring the expenditure of German embassies abroad

Our next steps will be to more fully understand how these differences in sources between the UK and Germany may explain the presence of asymmetries in trade data. Germany has informed us that they are fully compliant with international standards as specified in the [IMF Balance of Payments Manual Version 6 \(BPM6\) \(PDF, 3MB\)](#), which again suggests that further analysis of where our sources differ would be beneficial. However, Germany does not include “margins on buying and selling transactions” (that is, spread earnings). This difference is summarised in Table 4, along with an indicative value of UK and German “margins on buying and selling transactions” at £1.0 billion.

Table 4: currently identified definitional differences between UK and Germany trade figures which affect total services trade and indicative estimates, 2016 (£ billion)

Difference	Services category affected	Conceptual basis	UK Exports / German Imports (£bn)	UK Imports / German Exports (£bn)	Source for quantification
			2016	2016	
'Margins on Buying and Selling Transactions': Net Spread Earnings (NSE) included in services exports by ONS, not included by Germany	Financial services	Should be included in services trade	1		ONS
Total trade in services asymmetry in published figures			0.6		

Source: Office for National Statistics and Deutsche Bundesbank

6 . Asymmetries analysis: France

6.1 Results

Figure 12 shows the exports asymmetry for UK exports and France imports was negative £2.7 billion in 2016. Overall, France reports more imports from the UK to France than we report exports to France from the UK. There are three positive export asymmetries. The largest of these export asymmetries in 2016 is for financial services at £4.2 billion. Government services (not included elsewhere) and construction are the other two positive export asymmetries, relatively small at £50 million and £9 million respectively.

All other services have a negative export asymmetry. Other business services at negative £3.9 billion is the largest negative export asymmetry and the second-largest asymmetry overall.

Figure 12: UK-France trade in services asymmetries: UK exports – France imports by service type, 2014 to 2016

Figure 12: UK-France trade in services asymmetries: UK exports – France imports by service type, 2014 to 2016

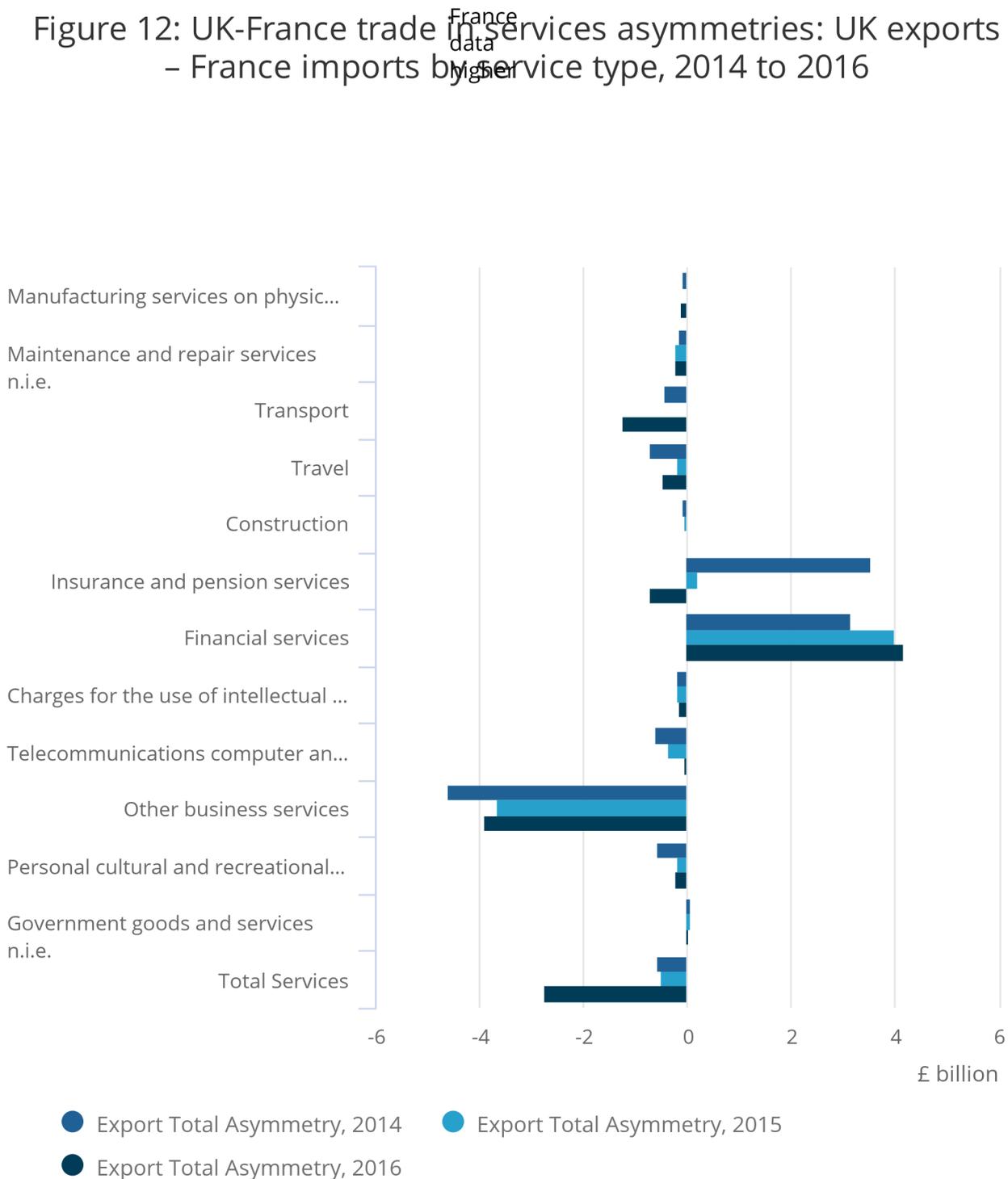


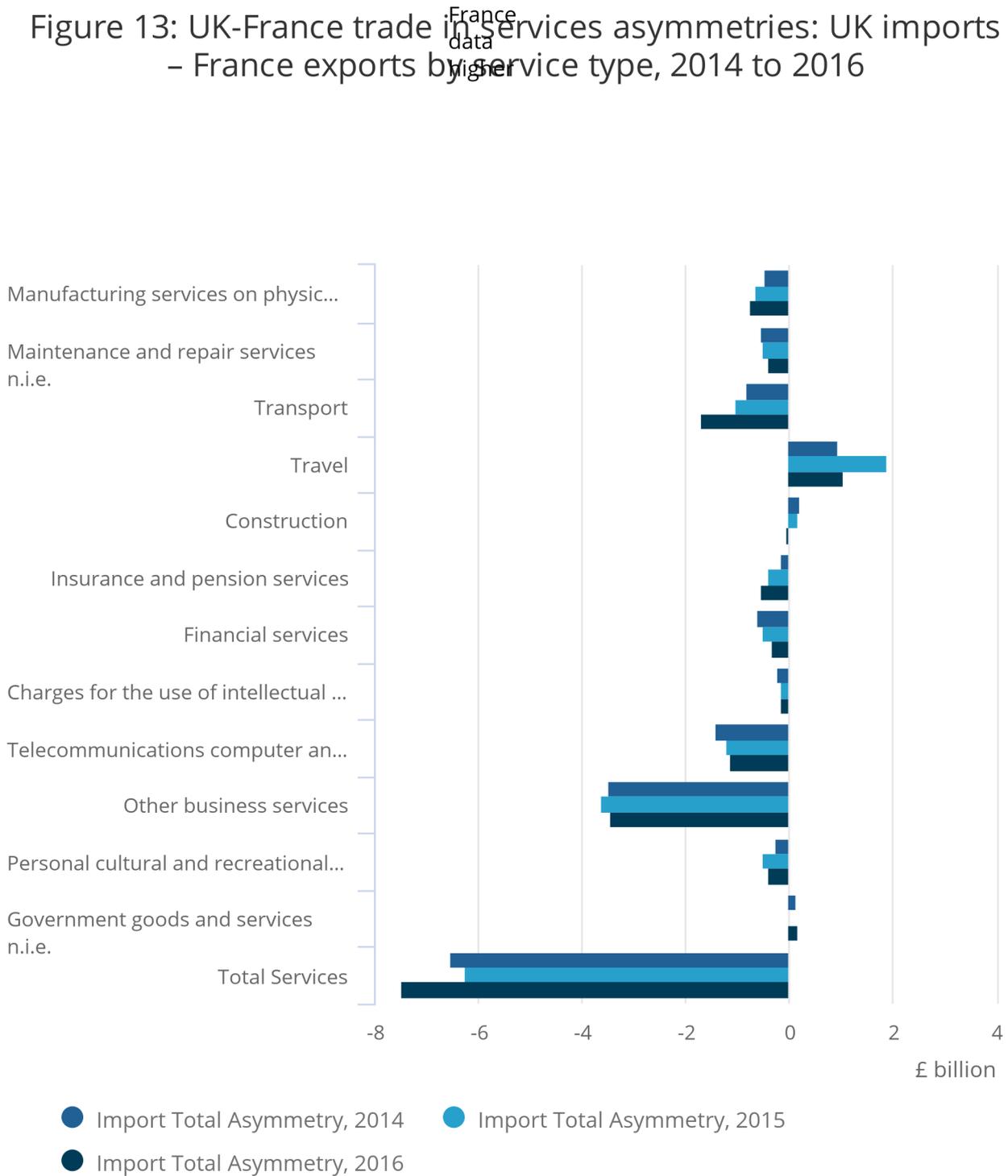
Figure 13 shows the imports asymmetry using data on French imports from the UK reported by us and data on French exports to the UK. The imports asymmetry in 2016 was negative £7.5 billion, that is, the data reported by France are higher than that reported by us for the UK. The largest import asymmetry is in other business services at negative £3.4 billion, followed by transport at negative £1.7 billion.

Overall, most UK imports and French exports are reported higher by France. The two exceptions being travel, with an import asymmetry of £1.1 billion, and government goods and services, with an import asymmetry of £0.2 billion.

This analysis gives us a clear focus for our next steps.

Figure 13: UK-France trade in services asymmetries: UK imports – France exports by service type, 2014 to 2016

Figure 13: UK-France trade in services asymmetries: UK imports – France exports by service type, 2014 to 2016



France has informed us that they are fully compliant with international standards as specified in the [IMF Balance of Payments Manual Version 6 \(BPM6\) \(PDF, 3MB\)](#), which again suggests that further analysis of where our sources differ would be beneficial. A summary of UK and French data sources can be found in Annex 4.

7 . Asymmetries analysis: the Netherlands

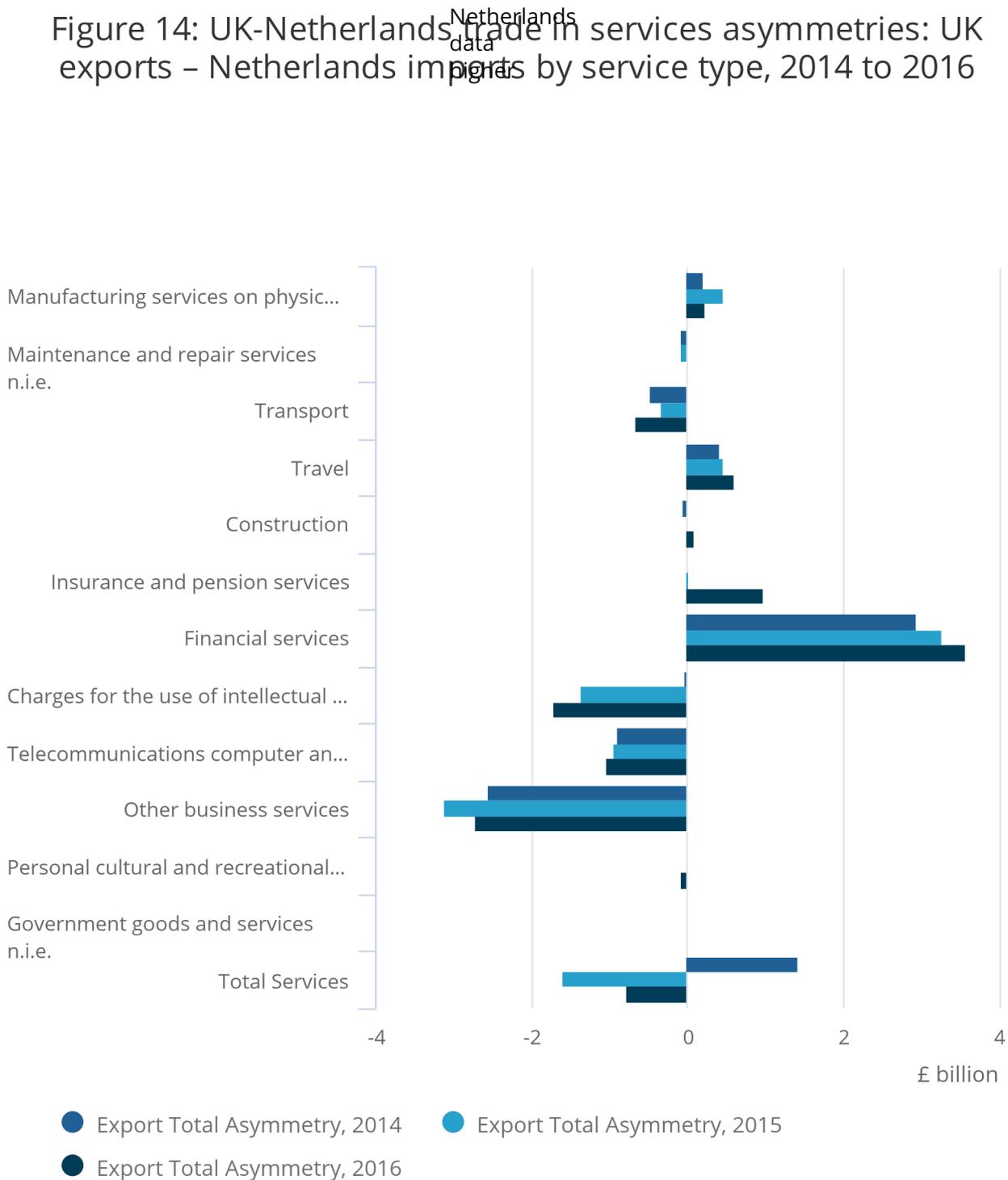
7.1 Results

The asymmetries between UK exports of services and Netherlands imports of services are presented in Figure 14, which indicates that:

- the total asymmetry between UK exports and Netherlands imports of services was negative £0.8 billion in 2016 (Netherlands data higher)
- the largest asymmetries can be found in UK exports and Netherlands imports of financial services at £3.6 billion, other business services at negative £2.7 billion, intellectual property services at negative £1.7 billion, and telecommunications, computer and information services at negative £1.0 billion in 2016

Figure 14: UK-Netherlands trade in services asymmetries: UK exports – Netherlands imports by service type, 2014 to 2016

Figure 14: UK-Netherlands trade in services asymmetries: UK exports – Netherlands imports by service type, 2014 to 2016



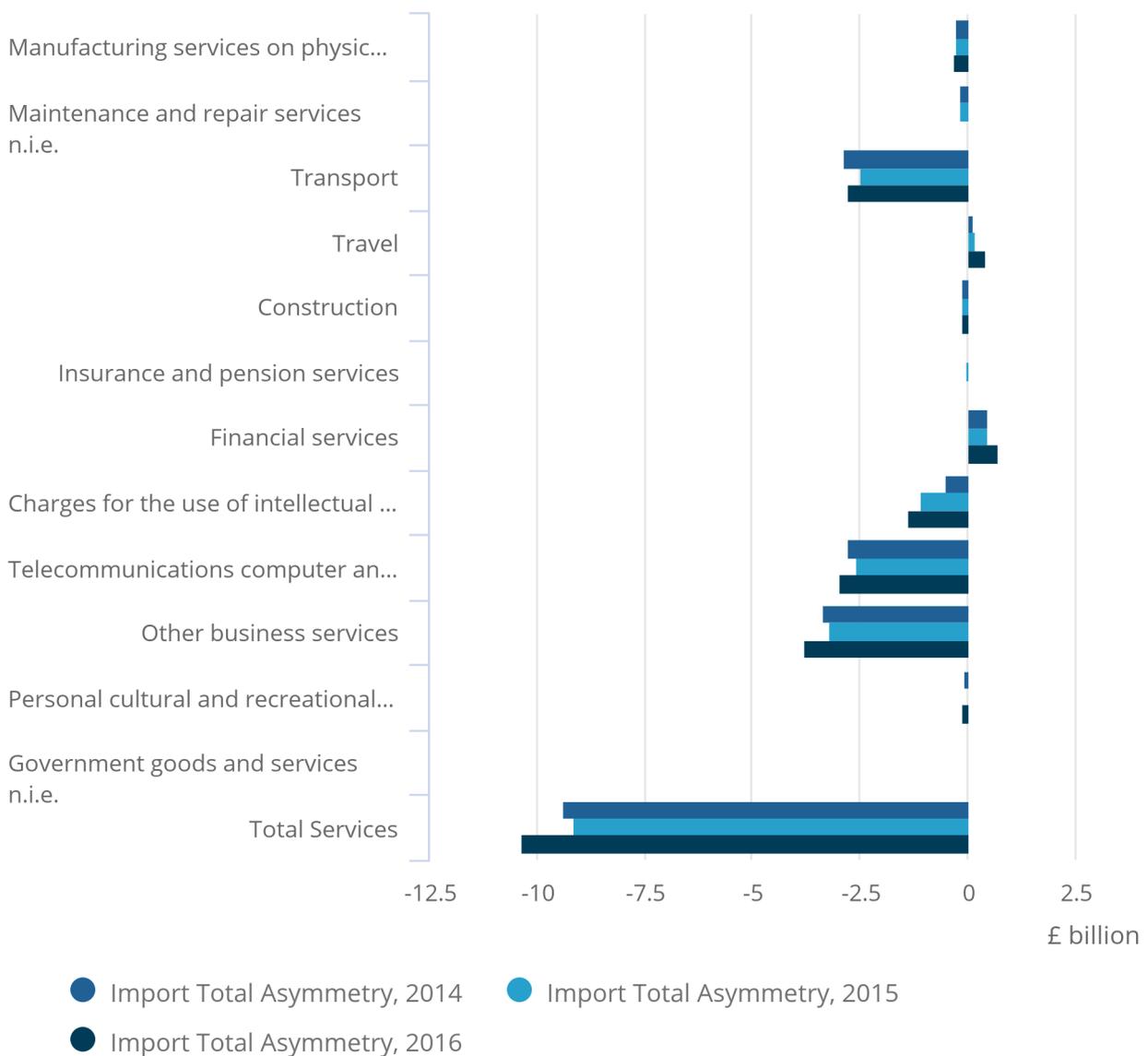
Source: Office for National Statistics and Eurostat

The asymmetries between UK imports of services and Netherlands exports of services are shown in Figure 15, which indicates that:

- the total asymmetry between UK imports and Netherlands exports of services was negative £10.4 billion in 2016
- the largest asymmetries can be found in UK imports and Netherlands exports of other business services at negative £3.8 billion, telecommunications, computer and information services at negative £3.0 billion, transport services at negative £2.8 billion, and intellectual property services at negative £1.4 billion in 2016

Figure 15: UK-Netherlands trade in services asymmetries: UK imports – Netherlands exports by service type, 2014 to 2016

Figure 15: UK-Netherlands trade in services asymmetries: UK imports – Netherlands exports by service type, 2014 to 2016



Source: Office for National Statistics and Eurostat

The UK and the Netherlands have different approaches to the measurement of trade in services. The Netherlands measures its trade in services by using an international trade in services (ITS) survey, comprising a complete quarterly coverage for large enterprises and a quarterly survey of small and medium-sized enterprises, which collects less detail than the direct reporting for large enterprises. Additionally, the results of quarterly surveys on some specific financial enterprises, monetary financial institutions (MFIs) and special purpose entities (SPEs), are used.

The exceptions are travel services, government services, insurance and pension services, and financial services. Travel services are collected via a continuous holiday survey among Dutch households (travel debits), and a lodging and accommodation survey among Dutch enterprises (travel credits). The financial intermediation services indirectly measured (FISIM) component of financial services is compiled in line with international guidance, with FISIM geography based upon separate analysis. The Netherlands also uses data from Value Added Tax (VAT) returns periodically for benchmarking.

Annex 4e contains a summary comparison of sources and methods used by the UK and the Netherlands to measure each component of services trade, based on published information on sources and methods.

Our next steps will be to work collaboratively with the Netherlands to understand the relevance of these different approaches to explaining asymmetries. Statistics Netherlands have confirmed that, like the UK, the Netherlands is also fully compliant with [IMF Balance of Payments Manual Version 6 \(BPM6\) \(PDF, 3MB\)](#).

The Netherlands uses data on trade in services sourced from VAT returns for periodic benchmarking. Currently, the UK does not use data on trade in services sourced from VAT returns. Our next steps will be to pursue acquiring this data to assess its potential role in explaining asymmetries.

8 . Asymmetries analysis: Belgium

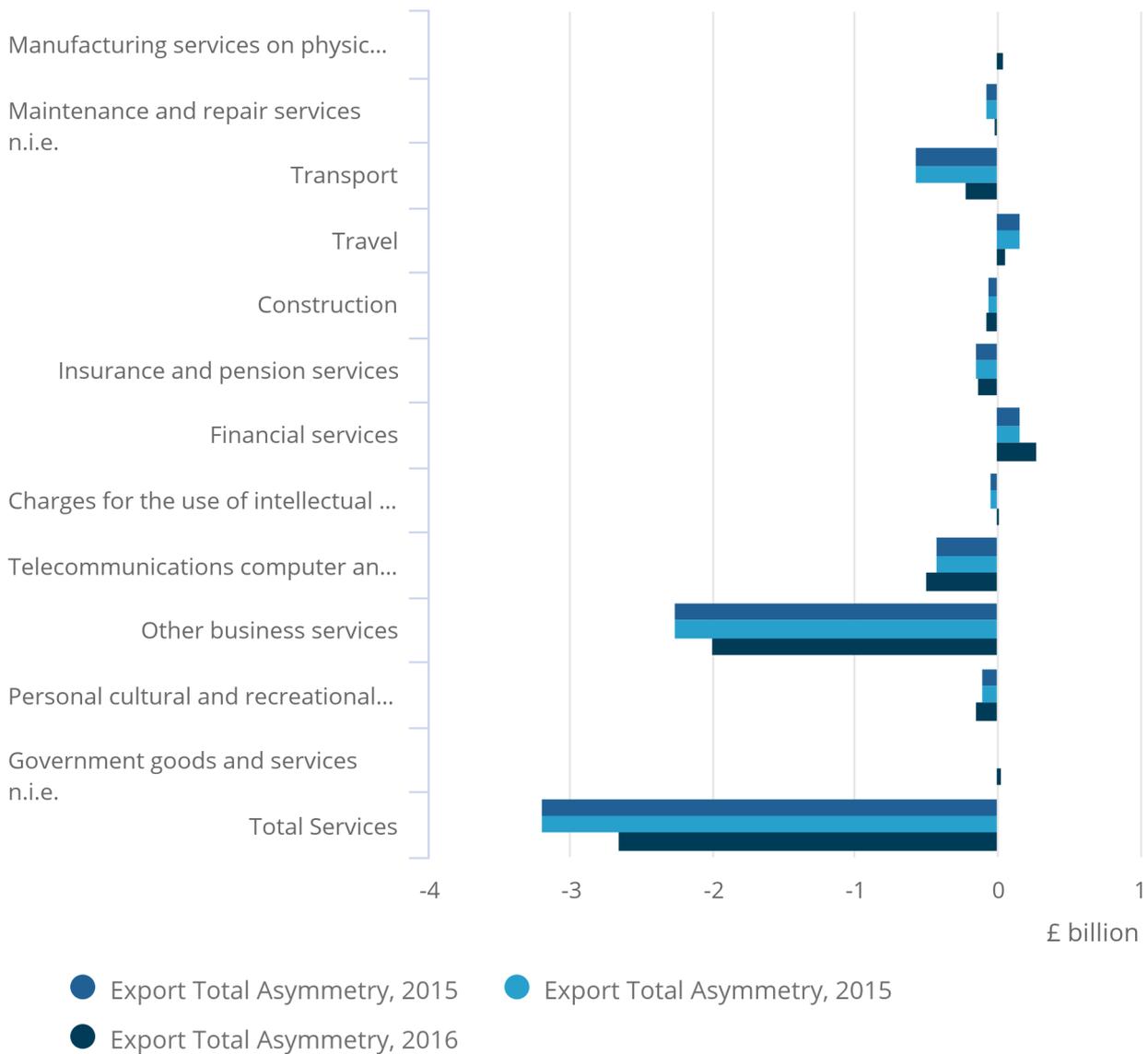
8.1 Results

The asymmetries between UK exports of services and Belgian imports of services are presented in Figure 16, which indicates that:

- the total asymmetry between UK exports and Belgian imports of services was negative £2.7 billion in 2016
- the largest asymmetries can be found in UK exports and Belgian imports of other business services at negative £2.0 billion in 2016

Figure 16: UK-Belgium trade in services asymmetries: UK exports – Belgium imports by service type, 2014 to 2016

Figure 16: UK-Belgium trade in services asymmetries: UK exports – Belgium imports by service type, 2014 to 2016



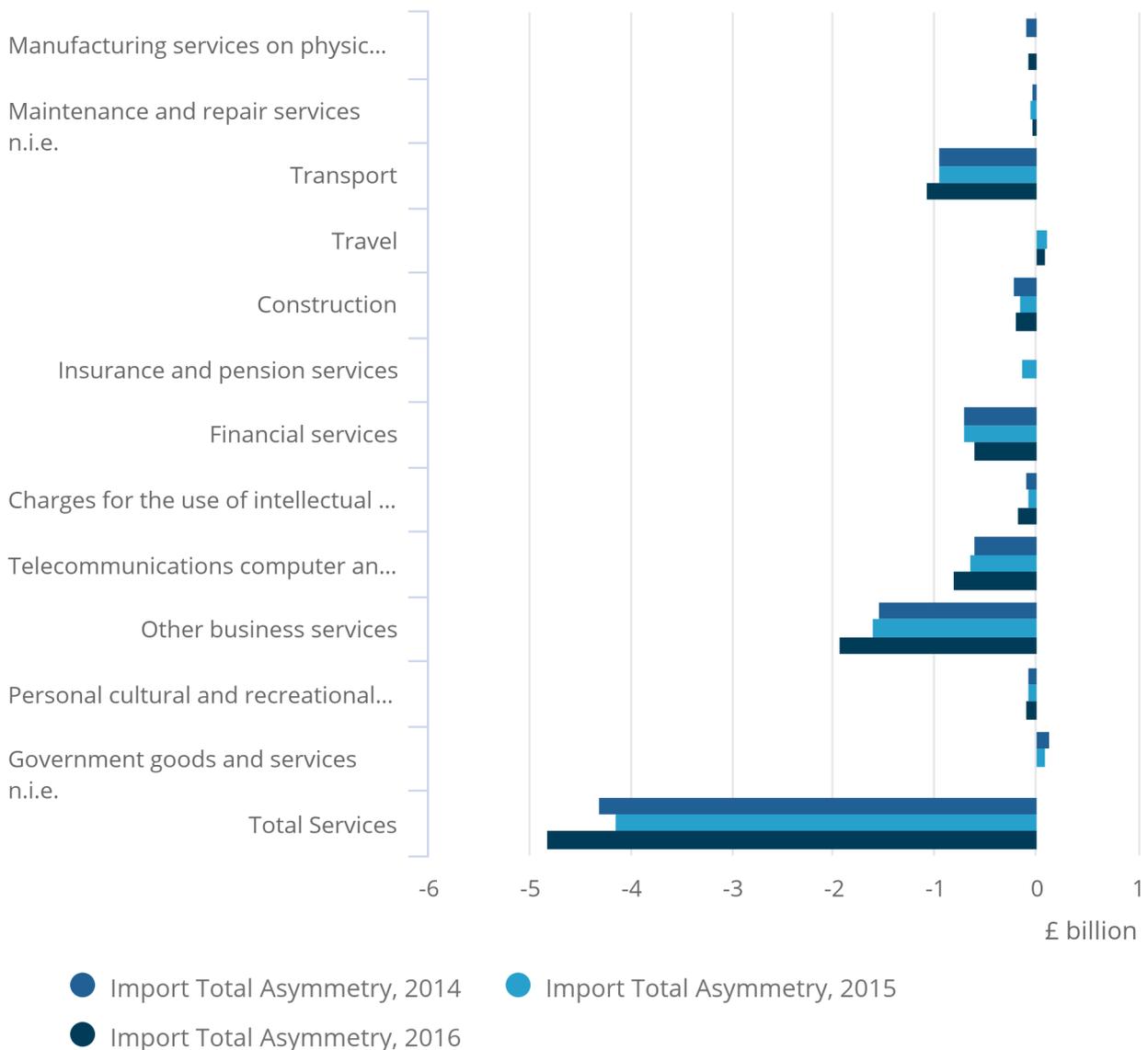
Source: Office for National Statistics and Eurostat

The asymmetries between UK imports of services and Belgian exports of services are shown in Figure 17, and show that:

- the total asymmetry between UK imports and Belgian exports of services was negative £4.8 billion in 2016
- the largest asymmetries can be found in UK imports and Belgian exports of other business services at negative £1.9 billion, transport services at negative £1.1 billion, and telecommunications, computer and information services at negative £0.8 billion in 2016

Figure 17: UK-Belgium trade in services asymmetries: UK imports – Belgium exports by service type, 2014 to 2016

Figure 17: UK-Belgium trade in services asymmetries: UK imports – Belgium exports by service type, 2014 to 2016



Source: Office for National Statistics and Eurostat

The UK and Belgium have different approaches to the measurement of trade in services. Belgium measures its trade in services by using a “modular system” with different target populations and business sample selection methods, different frequencies of reporting in the same survey, and different estimation methods. Business activity (that is, type of service) and business size are taken into account, resulting in a selective approach regarding the content of the surveys and the population of businesses surveyed.

Most services are covered via exhaustive populations of companies (that is, all are surveyed), with extrapolations used for small companies. For exhaustive and non-exhaustive populations, the same level of detail (Extended Balance of Payments Services Classification (EBOPS) and complementary) is used. Good contacts with companies and thorough checks on delivered data are the core of the data collection.

Annex 4f provides a summary comparison of sources and methods used by the UK and Belgium to measure each component of trade, based on published information on sources and methods. Belgium has also informed us that they are fully compliant with the [IMF Balance of Payments Manual Version 6 \(BPM6\) \(PDF, 3MB\)](#), which again suggests that further analysis of where our sources differ would be beneficial. Belgium also uses data from VAT forms in its estimation of trade in services.

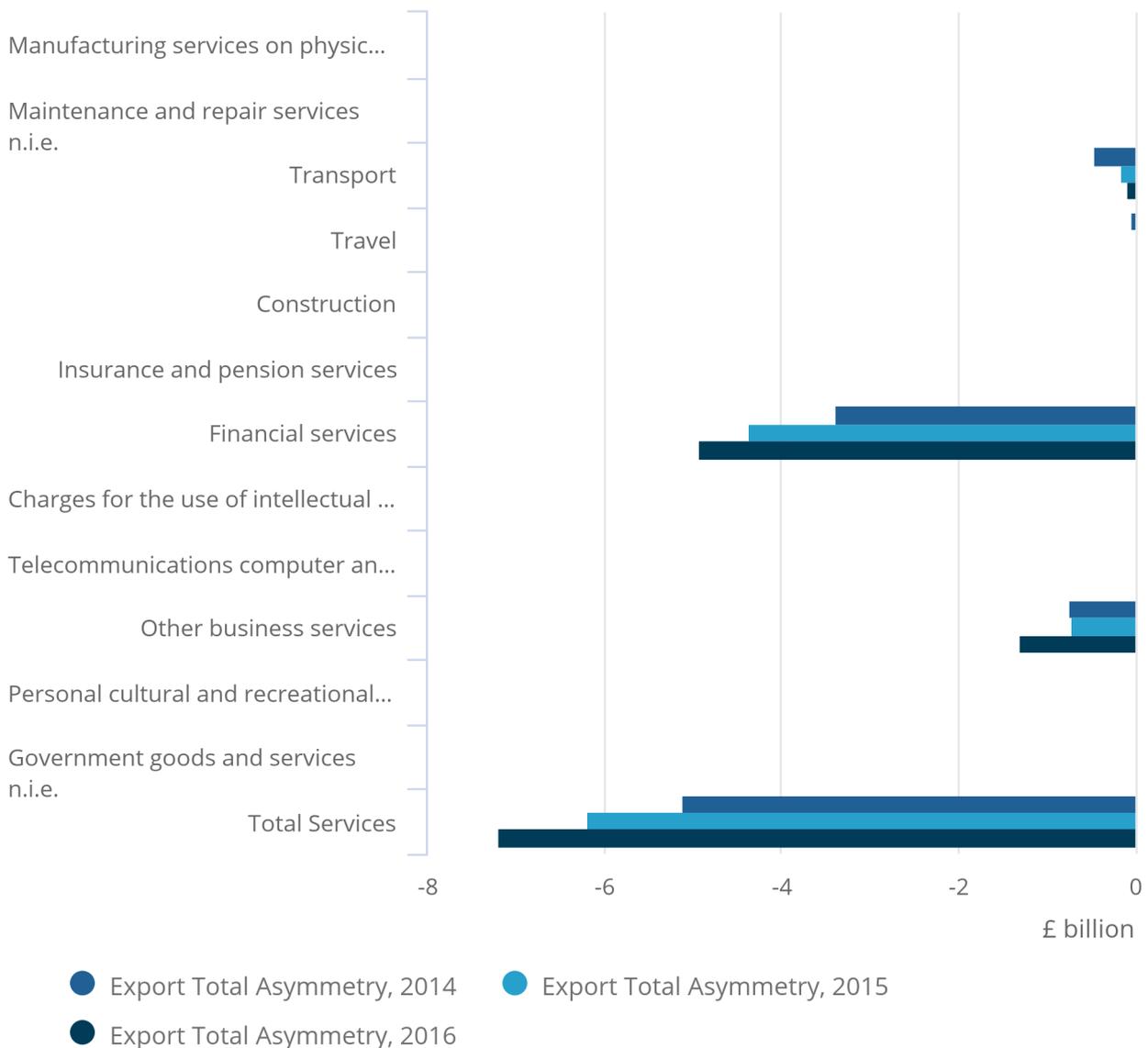
9 . Asymmetries analysis: Luxembourg

The asymmetries between UK exports of services and Luxembourg imports of services are presented in Figure 18, which indicates that:

- the total asymmetry between UK exports and Luxembourg imports of services was negative £7.2 billion in 2016
- the largest asymmetries can be found in UK exports and Luxembourg imports of financial services at negative £4.9 billion, and other business services at negative £1.3 billion in 2016

Figure 18: UK-Luxembourg trade in services asymmetries: UK exports – Luxembourg imports by service type, 2014 to 2016

Figure 18: UK-Luxembourg trade in services asymmetries: UK exports – Luxembourg imports by service type, 2014 to 2016



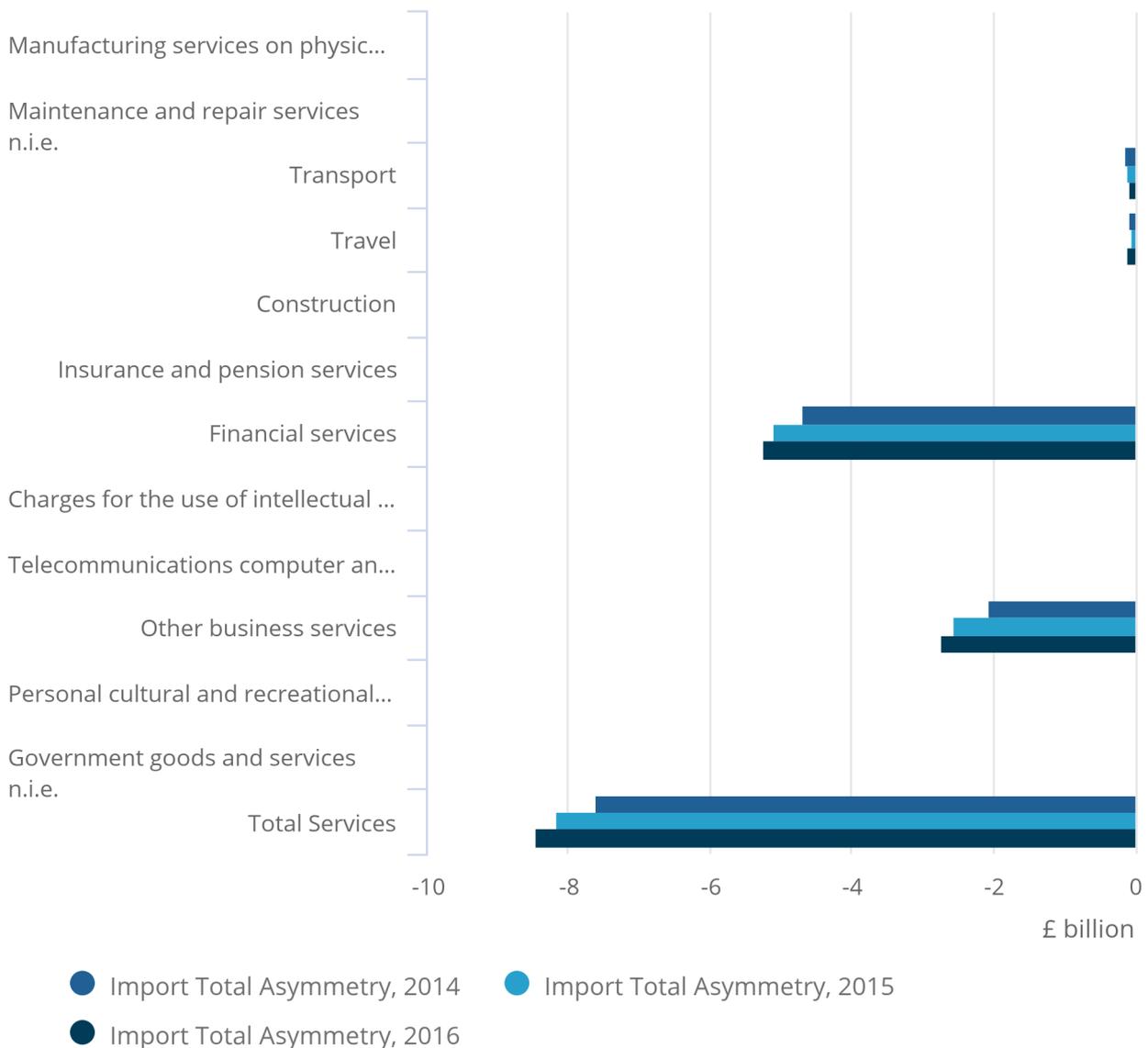
Source: Office for National Statistics and Eurostat

The asymmetries between UK imports of services and Luxembourg exports of services are shown in Figure 19, which indicates that:

- the total asymmetry between UK imports of services and Luxembourg exports of services was negative £8.4 billion in 2016
- the largest asymmetries can be found in financial services at negative £5.2 billion and other business services at negative £2.7 billion in 2016

Figure 19: UK-Luxembourg trade in services asymmetries: UK imports – Luxembourg exports by service type, 2014 to 2016

Figure 19: UK-Luxembourg trade in services asymmetries: UK imports – Luxembourg exports by service type, 2014 to 2016



Source: Office for National Statistics and Eurostat

The UK and Luxembourg have different approaches to the measurement of trade in services. Luxembourg measures its trade in services by using a hybrid collection system with a multitude of data sources and different treatments, depending on the component of trade in services.

There are two main surveys in place. The first is the bank reporting BoP 1.1 survey, in which all resident credit institutions report their international transactions in services on a monthly basis (daily reporting is also permitted, and there is no reporting threshold) to the Central Bank of Luxembourg (BCL).

The second main survey is the “TATS” (“Take all, take some”) monthly and annual survey of international trade in services, which is conducted by National Institute of Statistics and Economic Studies of the Grand Duchy of Luxembourg (STATEC). The “Take all” (TA) survey covers all large enterprises and has approximately 300 reporters, with selection based on several criteria including VAT returns. The “Take some” survey covers the annual reporting of a sample of about 300 mid- to small-sized companies. Companies that are not surveyed are estimated by using data on total imports and exports of services from VAT returns. The national financial supervisory authority, the Commission de Surveillance du Secteur Financier (CSSF) provides data based on the annual reporting of the resident investment fund industry, which is the largest in Europe and the second-largest in the world, and has a large impact on Luxembourg’s balance of payments.

Annex 4g provides a summary comparison of sources and methods used by the UK and Luxembourg to measure each component of trade, based on published information on sources and methods.

Luxembourg have informed us that they are compliant with international standards as specified in the [IMF Balance of Payments Manual Version 6 \(BPM6\) \(PDF, 3MB\)](#), which again suggests that further comparative analysis of sources and methods would be beneficial. However, Luxembourg do not evaluate “margins on buying and selling transactions” for inclusion in financial services. The difference is summarised in Table 5, along with an indicative value of UK and Luxembourg “margins on buying and selling transactions” (that is, net spread earnings).

Table 5: currently identified definitional differences between UK and Luxembourg trade figures which affect total services trade and indicative estimates, 2016 (£ billion)

Difference	Services category affected	Conceptual basis	UK Exports / Lux Imports (£bn)	UK Imports / Lux Exports (£bn)	Source for quantification
			2016	2016	
‘Margins on Buying and Selling Transactions’: Net Spread Earnings (NSE) included in services exports by ONS, not included by Luxembourg	Financial services	Should be included in services trade	0.6		ONS
Total trade in services asymmetry in published figures			6.5		

Source: Office for National Statistics and National Institute of Statistics and Economic Studies of the Grand Duchy of Luxembourg

10 . Wider work to reduce trade data asymmetries

10.1 ONS Trade Development Project

Our work on trade data asymmetries takes place within a wide-ranging and ambitious development project for UK trade statistics. We aim to provide greater analytical capability, capacity and more granular trade statistics for our users. This includes the development of new systems, better use of current data sources, advancements in data linking, and investigations into new data sources and improved methodologies.

We have now completed a first phase review and update of the systems and statistical processes underlying the production of both our trade in goods and trade in services statistics. This has resulted in the re-development of more efficient production systems into the monthly, quarterly and annual production rounds. These new systems developments have facilitated more transparent production and automated quality assurance processes, allowing greater interrogation of the data at all stages of production.

In response to user demand for more timely and granular trade in services data, we have doubled the sample size of the quarterly [International Trade in Services Survey](#) (ITIS), the main data source for trade in services data, and we have also optimised the sample to provide better geographical data. This has facilitated the production of quarterly estimates by country and broad industry grouping, and provides more granular ITIS data at a key point for the UK. Within [Pink Book 2018, our new systems developments have facilitated for the first time the release of additional total trade in services country data](#), providing greater geographic detail of the complete Trade in Services picture for our users. Further information can be found in our May 2018 article.

Later this year, we will also release more detailed trade in services data than has previously been provided, producing both ITIS and non-ITIS data on a lower-level service type by country breakdown. Our investigations into new trade in services data sources continue; we are engaging with potential administrative data suppliers and exploring the possibility of commissioning new survey data in order to supplement our non-ITIS service accounts in particular.

For the first time, in April 2018, we released lower-level trade in goods data on a country by commodity basis as a product of our systems development; this dataset is now fully embedded in our [monthly bulletin](#). Alongside this, we have released a fully interactive data visualisation tool, allowing our users to engage with trade statistics in novel ways. This release comes at a crucial point in the lead up to the UK's withdrawal from the EU, and will be invaluable to those who require more detailed trade in goods data.

Later this year, we will release a new aspect of trade in goods data; trade by industry, commodity and partner country. This data release will be made possible by the innovative use of data linking and new methods of data manipulation, and will meet an important user need on understanding UK trade by industry.

In the last six months, we have also reviewed our data sources and methods for our balance of payments adjustments (used to adjust trade in goods data from a physical movement to a change in economic ownership basis). Focusing on adjustments that are highest priority both conceptually and numerically, we will introduce methodological improvements to our goods adjustments in 2020.

Trade asymmetries are a global phenomenon, and the increasing complexities of global trading patterns mean that sources of asymmetries will be found in both UK and partner countries' sources, methods and compilation practices. The previously described current and future work of the UK Trade Development Project, to review and improve data sources, methodologies, and systems, should help provide users with more detailed, high-quality trade statistics. As our analysis of the causes of asymmetries continues, we will use this information to further understand how current or future project work links to asymmetries. From that we will be able to take the first steps towards reducing trade asymmetries.

10.2 Global approaches

As outlined in our previous article, there are a number of global approaches to the reconciliation of trade data asymmetries. For example, the [Organisation for Economic Co-operation and Development \(OECD\) four-step process to reconcile merchandise trade data asymmetries](#); and earlier this year, Thomas Baranga published an alternative method and analysis, [Reconciled trade flow estimates using an FGLS estimator, ESCOE discussion article \(January 2018\)](#). Thomas Baranga is also currently extending his approach from trade in goods data asymmetries to trade in services data asymmetries, and we will provide an update on this development in due course.

11 . Conclusions and next steps

In summary, it is widely recognised that trade data asymmetries are a global issue, and the international community of statisticians and national accountants are working together to better understand the causes of asymmetries and to find ways to reduce them, although it is widely accepted that some asymmetries can be explained by statistical variation in source data. The UK is proactively involved in this work.

In this article, we have explained some of our work to dig deeper into our larger asymmetries, with the support of our bilateral partners such as the US Bureau of Economic Analysis and the Irish Central Statistics Office. We have updated analysis for Ireland, and explored the detail for selected services with the US. We have extended our analysis of trade data asymmetries to include Germany, France, the Netherlands, Belgium and Luxembourg. Where possible we have provided estimates of the size and/or effects of the differences identified.

This analysis has revealed that the service types that exhibit some of the largest data asymmetries are financial services and other business services (US, Germany, France, the Netherlands, Belgium and Luxembourg), and telecommunications, computer and information services (Ireland). Our work has also revealed that, except for Germany, the EU bilateral partners included in the analysis, use trade-related data from Value Added Tax (VAT) returns and/or from the EU VAT Information Exchange System (VIES), in the compilation of their trade data. The UK does not currently use VAT or VIES data for this purpose, but we are now pursuing access to trade-related data from the HM Revenue and Customs VAT and EU VIES systems to assess its possible use and impact in the compilation of trade in services statistics.

In line with the stepwise approach to asymmetries analysis we outlined in our second publication, we are also extending our deeper dive comparisons of the sources and methods used in the compilation of these service types (which have focused on the US and Ireland to date), to conduct detailed comparisons of the sources and methods used in their compilation by our other bilateral trading partners (that is, Germany, France, the Netherlands, Belgium and Luxembourg).

We have recently implemented improvements to our International Trade in Services Survey, which is our largest single source of trade in services data. We are now conducting detailed work on all UK trade in services sources and methods, particularly those relating to the areas of trade in services that display the largest asymmetries, as well as quantifying differences where possible.

As this analysis continues to progress, we will build on the evidence and information, which will provide our users with more clarity about the differences between our data and that of our bilateral partners. We will continue to report our findings as well as the actions we are taking to confirm and improve the quality of our trade data.

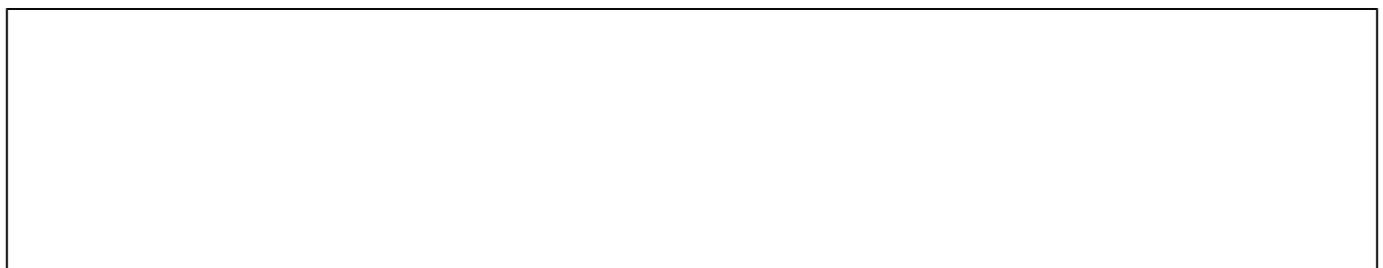
12 . Acknowledgements

The authors, Marilyn Thomas and Ellis Daniel, would like to express their gratitude to the following colleagues at ONS for their important contributions to this work:

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We are also grateful to the officials at the US Bureau of Economic Analysis, Central Statistics Office in Ireland, the national banks of Germany, France and Belgium, and the national statistical offices of the Netherlands and Luxembourg for their collaboration, research and analysis that has made this work possible.

13 . Annex 1: Matched low-level US services



ONS categories for UK trade in services with the US	BEA categories for US trade in services with the UK
1. MANUFACTURING SERVICES ON PHYSICAL INPUTS OWNED BY OTHERS (CP4)	:
1.1 GOODS FOR PROCESSING IN REPORTING ECONOMY - EXPORTS ONLY (CP4)	:
1.2 GOODS FOR PROCESSING ABROAD - IMPORTS ONLY (CP4)	:
2. MAINTENANCE AND REPAIR SERVICES N.I.E (CP4)	Maintenance and repair services n.i.e.
3. TRANSPORT	Transport
3.1 SEA TRANSPORT	Sea transport
3.1.1 SEA TRANSPORT PASSENGER	:
3.1.2 SEA TRANSPORT FREIGHT	Freight
:	Port
3.1.3 SEA TRANSPORT OTHER	:
3.2 AIR TRANSPORT	Air transport
3.2.1 AIR TRANSPORT PASSENGER	Passenger
3.2.2 AIR TRANSPORT FREIGHT	Freight
:	Port
3.2.3 AIR TRANSPORT OTHER	:
3.3: OTHER MODES OF TRANSPORT	Other modes of transport
3.3.1: OTHER MODES OF TRANSPORT: PASSENGER	:
3.3.2: OTHER MODES OF TRANSPORT: FREIGHT	:
3.3.3: OTHER MODES OF TRANSPORT: OTHER	:
3.4 POSTAL AND COURIER SERVICES	:
4. TRAVEL	Travel (for all purposes including education)
4.1 TRAVEL BUSINESS	:
4.1.1 ACQUISITION OF GOODS AND SERVICES BY BORDER, SEASONAL, AND OTHER SHORT-TERM WORKERS	:
4.1.2 TRAVEL BUSINESS OTHER	:
4.2 TRAVEL PERSONAL	:
4.2.1 HEALTH-RELATED	:
4.2.2 EDUCATION-RELATED	Of which: Education related

	Of which: Other business travel and other personal travel /1/
4.2.3 TRAVEL PERSONAL OTHER	:
5. CONSTRUCTION	Construction
5.1 CONSTRUCTION ABROAD	:
5.2 CONSTRUCTION IN THE REPORTING ECONOMY	:
6. INSURANCE & PENSION SERVICES	Insurance services /2/
6.1 DIRECT INSURANCE	:
	Direct insurance and auxiliary insurance services
6.1.1 LIFE INSURANCE	:
6.1.2 FREIGHT INSURANCE	:
6.1.3 OTHER DIRECT INSURANCE	:
6.2 REINSURANCE	Reinsurance
	Risk-pooling
6.3 AUXILIARY INSURANCE SERVICES	Auxiliary insurance
	Premium supplements
6.4 PENSION AND STANDARDISED GUARANTEE SERVICES	:
6.4.1: PENSION FUNDS	:
6.4.2: STANDARDISED GUARANTEE SERVICES	:
7. FINANCIAL SERVICES	Financial services
7.1 EXPLICITLY CHARGED AND OTHER FINANCIAL SERVICES (NON-FISIM)	:
7.2 FINANCIAL INTERMEDIATION SERVICES INDIRECTLY MEASURED (FISIM)	:
:	Brokerage services
:	Underwriting and private placement services
:	Credit card and other credit-related services
:	Financial management services
:	Financial advisory and custody services
:	Securities lending, electronic funds transfer, and other services

8. CHARGES FOR THE USE OF INTELLECTUAL PROPERTY N.I.E.	Charges for the use of intellectual property n.i.e.
:	Industrial processes
:	Computer software
:	Trademarks
:	Franchise fees
:	Audio-visual and related products
:	Movies and television programming
:	Books and sound recordings
:	Broadcasting and recording of live events
:	Other intellectual property
:	Unaffiliated
:	Affiliated
:	U.S. parents' exports to their foreign affiliates
:	U.S. affiliates' exports to their foreign parent groups
9. TELECOMMUNICATIONS, COMPUTER, AND INFORMATION SERVICES	Telecommunications, computer, and information services
9.1 TELECOMMUNICATIONS SERVICES	Telecommunications services /3/
9.2 COMPUTER SERVICES	Computer services
9.3 INFORMATION SERVICES	Information services
9.3.1: NEWS AGENCY SERVICES	
9.3.2: OTHER INFORMATION SERVICES	:
10. OTHER BUSINESS SERVICES	Other business services
10.1 RESEARCH AND DEVELOPMENT (R&D) SERVICES	Research and development services
10.1.1: WORK UNDERTAKEN ON A SYSTEMATIC BASIS TO INCREASE THE STOCK OF KNOWLEDGE (ITIS R&D)	:
10.1.1.1 PROVISION OF CUSTOMISED AND NON-CUSTOMISED RESEARCH AND DEVELOPMENT SERVICES (ITIS 16)	:
10.1.1.2 SALE OF PROPRIETARY RIGHTS ARISING FROM RESEARCH AND DEVELOPMENT (ITIS 20B)	:

10.1.2 R&D OTHER (ITIS 17)	:
10.2 PROFESSIONAL AND MANAGEMENT CONSULTING SERVICES	Professional and management consulting services
10.2.1: LEGAL, ACCOUNTING AND MANAGEMENT CONSULTING, AND PUBLIC RELATIONS SERVICES	:
10.2.1.1: LEGAL SERVICES	Legal services
10.2.1.2: ACCOUNTING, AUDITING, BOOK-KEEPING AND TAX CONSULTING	Accounting, auditing, and bookkeeping services
10.2.1.3: BUSINESS AND MANAGEMENT CONSULTING AND PUBLIC RELATIONS SERVICES	Business and management consulting and public relations services
10.2.2: ADVERTISING, MARKET RESEARCH AND PUBLIC OPINION POLLING SERVICES	Advertising
10.3 TECHNICAL, TRADE-RELATED, AND OTHER BUSINESS SERVICES	Technical, trade-related, and other business services
10.3.1 ARCHITECTURAL, ENGINEERING, SCIENTIFIC, AND OTHER TECHNICAL SERVICES	Architectural and engineering services
10.3.1.1: ARCHITECTURAL SERVICES	:
:	Industrial engineering
10.3.1.2: ENGINEERING SERVICES	:
10.3.1.3: SCIENTIFIC AND OTHER TECHNICAL SERVICES (ITIS 50)	:
10.3.2 WASTE TREATMENT AND DE-POLLUTION, AGRICULTURAL AND MINING SERVICES (ITIS 1,2,3)	:
10.3.3: OPERATIONAL LEASING SERVICES	Operating leasing services
10.3.4 TRADE-RELATED SERVICES	:
10.3.5 OTHER BUSINESS SERVICES N.I.E	:
:	Other /4/
11. PERSONAL, CULTURAL , AND RECREATIONAL SERVICES	:
11.1 AUDIOVISUAL AND RELATED SERVICES	:
11.2 OTHER PERSONAL, CULTURAL, AND RECREATIONAL SERVICES	:
11.2.1: HEALTH SERVICES	:
11.2.2: EDUCATION SERVICES	:
11.2.3: HERITAGE AND RECREATIONAL SERVICES	:
11.2.4: OTHER PERSONAL SERVICES	:
12. GOVERNMENT GOODS AND SERVICES N.I.E	Government goods and services n.i.e.

12.1: EMBASSIES AND CONSULATES	:
12.2: MILITARY UNITS AND AGENCIES	:
12.3: OTHER GOVERNMENT GOODS AND SERVICES N.I.E	:
TOTAL SERVICES	Total services

Source: Office for National Statistics and Bureau of Economic Analysis

14 . Annex 2: Detail of selected service source information

This annex presents a description of the methods and sources for selected services used in the analysis of low-level data for UK-US asymmetries.

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Source	Detail
Financial Services	
International Trade in Services (ITIS)	<p>An annual sample of 15,600 businesses from a sample universe of approximately 90,000 business entities. An 87% sample response rate was achieved in 2016. The sample is drawn from the Inter-Departmental Business Register (IDBR) owned and administered by the ONS.</p> <p>Quarterly sample size is only 2,100 business entities from the IDBR framework since Q1 2017. Annual ITIS (AITIS) has a sample size of approximately 16,500 businesses.</p>
Bank of International Settlements (BIS)	52 central banks globally survey 1283 reporting dealers. Survey is conducted every 3 years. Reported by Locational Banking statistics (LBS).
Bank of England (BoE)	The data source is from the Bank of England – provision of 35 separate elements monthly from their own surveys. Data provided monthly, quarterly and annually.
Financial Services Survey	<p>The survey population consists of approximately 68,000 businesses, from which a maximum of 2,000 businesses can be selected for each survey per quarter. The Financial Services Survey (FSS) is made up of two surveys:</p> <ul style="list-style-type: none"> • Financial Services Survey: Quarterly Return of Assets and Liabilities • Financial Services Survey: Quarterly Return of Income and Expenditure <p>This survey collects information on the assets and liabilities and the income and expenditure of your business. The information supplied forms part of the UK's National Accounts and Balance of Payments which are used by the Treasury and the Bank of England to monitor the economy.</p>
Other	<p>Estimates are based on a survey of Baltic Exchange members. Current data is derived from an annual survey last conducted in 2012.</p> <p>Estimates for Money market brokers and Futures and Options dealers are modelled using data from the profit and loss survey collected by the Bank of England on monetary financial institutions.</p>
Telecommunications	
ITIS	See above
ITIS	See above
Bank of England	See above

Chamber of Shipping	The Chamber of Shipping conducts surveys into its member's participation in foreign trade, on an annual basis. The data from CoS are uplifted to account for UK sea transport companies who are not members using estimates for the gross tonnage of the UK fleet for different types of ship.
Commercial Bar Association and Law Society of England and Wales	The Law Society and Commercial Bar Association survey data covers detail of activity that is not captured by ITIS.
Financial Services Survey	See above
Higher Education Statistics Agency	The survey is a universal census covering all full-time and part-time students completing relevant higher education qualifications.
International Passenger Survey	An annual sample of approximately 750,000 is achieved in terms of estimating inward and outward migration. The survey captures detail on travel and tourism spending.
Security Dealers Survey	Targets securities dealers dealing on their own account and for clients.

Source: Office for National Statistics

15 . Annex 3: Summary of service types

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Category	Description
Trade in goods	Various categories of merchandise trade.
Manufacturing services on physical inputs owned by others	Fees charged for the processing, assembly, labelling and packing of goods.
Maintenance and repair services not included elsewhere (n.i.e.)	<p>Fees charged by foreign businesses for maintenance and repair work on goods owned by the business (imports).</p> <p>Maintenance and repair work on goods owned by foreign residents (exports).</p>
Transport	Sea, air and other transport services. It includes the movement of passengers and freight, and other related transport services, including chartering of ships or aircraft with crew, cargo handling, storage and warehousing, towing, pilotage and navigation, maintenance and cleaning, and commission and agents' fees associated with passenger/freight transportation.
Travel	Services provided to UK residents during trips of less than one year abroad and provided to non-residents during similar trips in the UK.
Construction	Covers work done on construction projects and installations by employees of an enterprise in locations outside the resident economic territory of the enterprise.
Insurance and pension services	Insurance and pension services cover the provision of various types of insurance to non-residents by resident insurance enterprises and the other way around. Insurance services include freight insurance on goods being imported or exported, direct insurance (such as, life, accident, fire, marine, and aviation) reinsurance, pensions and standardised guarantees.
Financial services	Financial intermediary and auxiliary services other than those of insurance companies and pension funds. Includes transactions in financial instruments, other services related to financial activity, such as advisory, custody and asset management services.
Charges for the use of intellectual property n.i.e.	Intangible, non-produced, non-financial assets and proprietary rights (such as trademarks, franchises, brands, design rights, copyrighted literary works, sound recordings, films, television programmes, databases and patents) and other intellectual property that are the end-result of research and development.
Telecommunications, computer and information services	<p>Computer and information services covers computer, news agency and other information provision-related service transactions.</p> <p>Telecommunications (telephone, telex, fax, email, satellite, cable and business network services).</p>
Other business services	A range of services including other trade-related services, operational leasing (rental) without operators and miscellaneous business, professional and technical services.

Personal, cultural and recreational services	Audio-visual and related services, medical services as well as laboratory and similar services, training and educational services, heritage and recreational services include, sporting, gambling and recreational activities; fees and prizes for athletes; social, domestic and other personal services.
Government goods and services n.i.e.	Government services include all transactions by embassies, consulates, military units and defence agencies with residents of staff or military personnel in the economies in which they are located. Other services included are transactions by other official entities such as aid missions and services, government tourist information and promotion offices, and the provision of joint military arrangements and peacekeeping forces.

Source: Office for National Statistics

16 . Annex 4: Summary of data sources for UK and bilateral partner

Annex 4a: UK/US sources

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Service type	UK source	US source
Total trade in services	International Trade in Services (ITIS) Survey, International Passenger Survey (IPS), Bank of England (BoE), Chamber of Shipping, and a large number of administrative sources. No use of Value Added Tax (VAT) data by UK.	
(1) Manufacturing services on physical inputs owned by others	International Trade in Services (ITIS) Survey	Not captured
(2) Maintenance and repair services	ITIS	BE-125 Quarterly Survey of Transactions in Selected Services and Intellectual Property with Foreign Persons Survey Respondents
(3) Transport services	Chamber of Shipping (CoS), Civil Aviation Authority (CAA), Department for Transport (DfT)	<p>BE-9 Quarterly Survey of Foreign Airline Operators' Revenues and Expenses in the United States</p> <p>BE-29 Annual Survey of Foreign Ocean Carriers' Expenses in the United States</p> <p>BE-30 Quarterly Survey of Ocean Freight Revenues and Foreign Expenses of United States Carriers</p> <p>BE-37 Quarterly Survey of US Airline Operators' Foreign Revenues and Expenses</p>
(4) Travel services	International Passenger Survey (IPS) conducted at seaports and airports	<p>US Department of Homeland Security (DHS)</p> <p>US Department of Commerce, International Trade Administration, National Travel and Tourism Office (NTTO)</p> <p>(Admin Data)</p>
(5) Construction services	ITIS	BE-125 Quarterly Survey of Transactions in Selected Services and Intellectual Property with Foreign Persons Survey Respondents

(6) Insurance and pension services	ITIS, Financial Services Authority (FSA), Lloyds syndicate accounts premiums less claims	BE-140 Benchmark Survey of Insurance Transactions by US Insurance Companies With Foreign Persons BE-45 Quarterly Survey of Insurance Transactions by US Insurance Companies With Foreign Persons
(7) Financial services	Bank of England (BoE), ITIS, Baltic Exchange	BE-185 Quarterly Survey of Financial Services Transactions Between US Financial Services Providers with Foreign Persons
(8) Intellectual property services	ITIS	BE-120 Benchmark Survey of Transactions in Selected Services and Intellectual Property With Foreign Persons BE-125 Quarterly Survey of Transactions in Selected Services and Intellectual Property With Foreign Persons
(9) Telecommunications, computer and information services	ITIS	BE-125 Quarterly Survey of Transactions in Selected Services and Intellectual Property with Foreign Persons Survey Respondents
(10) Other business services	ITIS and others	BE-125 Quarterly Survey of Transactions in Selected Services and Intellectual Property with Foreign Persons Survey Respondents
(11) Personal, cultural and recreational services	ITIS	BE-125 Quarterly Survey of Transactions in Selected Services and Intellectual Property with Foreign Persons Survey Respondents *Included in other services*
(12) Government services	Ministry of Defence (MoD), Foreign and Commonwealth Office (FCO)	The data are obtained from government departments

Source: Office for National Statistics and Bureau of Economic Analysis

Annex 4b: UK/Republic of Ireland data sources

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Service type	UK source	Ireland source
Total trade in services	International Trade in Services (ITIS) Survey, International Passenger Survey (IPS), Bank of England (BoE), Chamber of Shipping, and a large number of administrative sources. No use of Value Added Tax (VAT) /VAT Information Exchange System (VIES) data.	Balance of Payments – Survey of Manufacturing and Non-Financial Services Companies
(1) Manufacturing services on physical inputs owned by others	International Trade in Services (ITIS) Survey	Balance of Payments – Survey of Manufacturing and Non-Financial Services Companies
(2) Maintenance and repair services	ITIS	Receipts by resident airline and shipping companies for freight services provided (exports) to non-residents are obtained from these enterprises, the geographical breakdown being provided on a “best estimates” basis where necessary. Imports of freight services are estimated from the official merchandise imports figures in calculating the necessary deduction to transform the imports valuation from a c.i.f (cost, insurance, freight) to a f. o.b. (free on board) basis as required for balance of payments purposes.
(3) Transport services	Chamber of Shipping (CoS), Civil Aviation Authority (CAA), Department for Transport (DfT)	<p>Passenger Card Inquiry (PCI) and from Household Travel Survey (HTS).</p> <p>The PCI is a continuous sample survey of incoming and departing passengers at airports and seaports. It collects details of purpose of journey, country of residence, expenditure and fare costs, and length of stay.</p> <p>HTS is a quarterly household survey that measures domestic and outbound travel patterns involving overnight stays and associated details (expenditure, purpose of trip, type of accommodation used and so on) of Irish residents.</p>

(4) Travel services	International Passenger Survey (IPS) conducted at seaports and airports	The construction service estimates are based on data collected from local authorities and from the Department of Housing, Planning and Local Government.
(5) Construction services	ITIS	Survey of Non-Life Insurance and Reinsurance Companies Survey of Life Assurance and Reinsurance Companies
(6) Insurance and pension services	ITIS, Financial Services Authority (FSA), Lloyds syndicate accounts premiums less claims	Survey of Portfolio Investment BOP30 CBI surveys of credit institutions and investment funds CBI surveys of Financial Vehicle Corporations CBI surveys of Special Purpose Vehicles Balance of Payments – Survey of Manufacturing and Non-Financial Services Companies Survey of Stand-Alone Treasury Companies Survey of Asset Finance Companies, Securities Trading Companies, Agency and Captive Treasuries and Related Financial Services Companies
(7) Financial services	Bank of England (BoE), ITIS, Baltic Exchange	Balance of Payments – Survey of Manufacturing and Non-Financial Services Companies
(8) Intellectual property services	ITIS	Balance of Payments survey sources Details of expenditures by resident enterprises on services purchased from non-residents are obtained from the Balance of Payments surveys of these enterprises Balance of Payments – Survey of Manufacturing and Non-Financial Services Companies

(9) Telecommunications, computer and information services	ITIS	Balance of Payments – Survey of Manufacturing and Non-Financial Services Companies
(10) Other business services	ITIS and others	The estimates included are based on information obtained from a number of sources including data provided by representative and industry bodies as well as media reports and articles.
(11) Personal, cultural and recreational services	ITIS	The data are obtained from government departments and from embassies and consulates located in Ireland.
(12) Government services	Ministry of Defence (MoD), Foreign and Commonwealth Office (FCO)	Balance of Payments – Survey of Manufacturing and Non-Financial Services Companies

Source: Office for National Statistics

Annex 4c: UK/Germany data sources

Service type	UK source	Germany source
Total trade in services	International Trade in Services (ITIS) Survey, International Passenger Survey (IPS), Bank of England (BoE), Chamber of Shipping, and a large number of administrative sources. No use of Value Added Tax (VAT) /VAT Information Exchange System (VIES) data.	Direct Reporting System, some other sources. No use of VAT /VIES data.
(1) Manufacturing services on physical inputs owned by others	International Trade in Services (ITIS) Survey	Direct Reporting System
(2) Maintenance and repair services	ITIS	Direct Reporting System
(3) Transport services	Chamber of Shipping (CoS), Civil Aviation Authority (CAA), Department for Transport (DfT)	Direct Reporting System and cost, insurance and freight/free on board adjustments
(4) Travel services	International Passenger Survey (IPS) conducted at seaports and airports	Household telephone survey (debits); bank settlements, debit /credit card data, social security and higher education statistics and accommodation statistics (credits).
(5) Construction services	ITIS	Direct Reporting System
(6) Insurance and pension services	ITIS, Financial Services Authority (FSA), Lloyds syndicate accounts premiums less claims	Estimated in collaboration with FSO and derived from annual data provided by insurance supervisory authority.
(7) Financial services	Bank of England (BoE), ITIS, Baltic Exchange	Direct Reporting System (explicitly charged financial services) supplemented with estimations for financial intermediation services indirectly measured (FISIM) by FSO (NA).
(8) Intellectual property services	ITIS	Direct Reporting System
(9) Telecommunications, computer and information services	ITIS	Direct Reporting System
(10) Other business services	ITIS	Direct Reporting System
(11) Personal, cultural and recreational services	ITIS	Direct Reporting System
(12) Government services	Ministry of Defence (MoD), Foreign and Commonwealth Office (FCO)	Direct Reporting System and additional data from Department for Foreign Affairs

Source: Office for National Statistics

Annex 4d: UK/France data sources

Service type	UK source	France source
Total trade in services	International Trade in Services (ITIS) Survey, International Passenger Survey (IPS), Bank of England (BoE), Chamber of Shipping, and a large number of administrative sources Value Added Tax (VAT)/VAT Information Exchange System (VIES) data.	BdF ¹ : RTE ² + ECEIS
(1) Manufacturing services on physical inputs owned by others	International Trade in Services (ITIS) Survey	BdF: RTE + ECEIS
(2) Maintenance and repair services	ITIS	BdF: RTE + ECEIS ³ + CIF /FOB adjustment (transport included in the price of goods)
(3) Transport services	Chamber of Shipping (CoS), Civil Aviation Authority (CAA), Department for Transport (DfT)	BdF: travel surveys (EVE ⁴ , SDT ⁵ and EDPE ⁶) and administrative data
(4) Travel services	International Passenger Survey (IPS) conducted at seaports and airports	BdF: RTE + ECEIS
(5) Construction services	ITIS	BdF: RTE + ECEIS with specific items reported by Insurance companies
(6) Insurance and pension services	ITIS, Financial Services Authority (FSA), Lloyds syndicate accounts premiums less claims	BdF: RTE + ECEIS + CRT ⁷ + FISIM
(7) Financial services	Bank of England (BoE), ITIS, Baltic Exchange	BdF: RTE + ECEIS
(8) Intellectual property services	ITIS	BdF: RTE + ECEIS
(9) Telecommunications, computer and information services	ITIS survey	BdF: RTE + ECEIS
(10) Other business services	ITIS	BdF: RTE + ECEIS
(11) Personal, cultural and recreational services	ITIS	BdF: specific information from government + ECEIS
(12) Government services	Ministry of Defence (MoD), Foreign and Commonwealth Office (FCO)	BdF: RTE + ECEIS

1. BdF: Banque de France
2. RTE: Relevé des Transactions Economiques (RTE), within the Regulatory Framework for the Full Direct Reporters
3. ECEIS: Complementary Survey on international Trade in Services
4. EVE: Enquete sur les visiteurs étrangers (sample survey on foreign visitors)
5. SDT: Suivi de la demande touristique (panel survey on French residents tourism expenditure)
6. EDPE : Enquête sur les déplacements professionnels à l'étranger (panel survey on French residents expenditures on business trips abroad)
7. CRT: Compte rendu de transactions (Transactions report), reported by Financial intermediaries for their own transactions

Source: Office for National Statistics and Banque de France

Annex 4e: UK/the Netherlands data sources



Trade component	UK source	Netherlands source
Total trade in services	<p>International Trade in Services (ITIS) Survey, International Passenger Survey (IPS), Bank of England (BoE), Chamber of Shipping, and a large number of administrative sources.</p> <p>No use of Value Added Tax (VAT) data by UK.</p>	<p>Integral quarterly survey of large enterprises; quarterly international trade in services survey (ITSS) for small and medium-sized enterprises. Netherlands balance of payments and national accounts services data consistent. Results of quarterly surveys on some specific financial enterprises, monetary financial institutions (MFIs) and special purpose entities (SPEs), are used.</p>
(1) Manufacturing services on physical inputs owned by others	ITIS	ITSS
(2) Maintenance and repair services	ITIS	ITSS
(3) Transport services	Chamber of Shipping (CoS), Civil Aviation Authority (CAA), Department for Transport (DfT)	ITSS
(4) Travel services	International Passenger Survey (IPS) conducted at seaports and airports	Debits from continuous holiday survey among Dutch households and credits from lodging and accommodation survey among Dutch enterprises.
(5) Construction services	ITIS Long-term construction projects (over one year) where permanent base established are recorded as foreign direct investment (FDI). Purchases of goods for construction are included in construction services.	ITSS. Long-term construction projects are classified as services instead of FDI.
(6) Insurance and pension services	ITIS, FSA, Lloyds syndicate accounts premiums less claims	Central bank premiums data and a statistical model to estimate foreign and domestic ratios. ratios also used for imports along with premiums data from business survey.

(7) Financial services	<p>Bank of England (BoE), ITIS, Baltic Exchange All fees related to the purchase or sale of securities are included in “explicitly charged and other financial services”.</p> <p>Dealers’ margins included (spread earnings, and so on) financial intermediation services indirectly measured (FISIM) based (with EU permission) on resident inter-bank loan rate (not a non-resident rate as specified in Balance of Payments Methodological notes (BPM6)) and FISIM geography based on ITIS data.</p>	<p>Results of quarterly surveys on some specific financial enterprises, MFIs and SPEs, are used.</p> <p>Dealers’ margins included (spread earnings, and so on). FISIM compiled in line with international guidelines, with FISIM geography based on a separate analysis.</p>
(8) Intellectual property services	ITIS	ITSS
(9) Telecommunications, computer and information services	ITIS	ITSS
(10) Other business services	ITIS	ITSS
(11) Personal, cultural and recreational services	<p>ITIS</p> <p>All personal, cultural and recreational services (reported by businesses) are included in this category. Examples include: services and fees relating to motion pictures, radio, TV, musical recordings; medical services by doctors, laboratory services; heritage and recreational services associated with museums, cultural and sporting events, and so on.</p>	ITSS
(12) Government services	Ministry of Defence (MoD), Foreign and Commonwealth Office (FCO)	Other source

Source: Office for National Statistics and Statistics Netherlands

Annex 4f: UK/Belgium data sources

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Trade type	UK source	Belgium source
Total trade in services	International Trade in Services (ITIS) Survey, International Passenger Survey (IPS), Bank of England (BoE), Chamber of Shipping, and a large number of administrative sources. No use of Value Added Tax (VAT) data by UK.	<p>Enterprise surveys – financial and non-financial (monthly for large enterprises with selection exhaustive where turnover is greater than €1 million, 97% response rate at t+85; monthly and/or quarterly for other enterprises, that is, where turnover is less than €1 million, 94% response rate at t+85).</p> <p>Other sources include EU (imports/exports from/to EU institutions), coverage adjustments based on international trade in goods statistics (ITGS). Person and household surveys used for travel. Admin records used as complementary source for financial services and government services.</p> <p>Value Added Tax (VAT)/VAT Information Exchange System (VIES) data on total imports of services and total exports of services. Estimates for the import and export of prostitution services.</p>
(1) Manufacturing services on physical inputs owned by others	ITIS	Services surveys, adjusted for non-response and/or under-coverage FTS.
(2) Maintenance and repair services	ITIS	Services surveys, adjusted for non-response and/or under-coverage using FTS.
(3) Transport services	Chamber of Shipping (CoS), Civil Aviation Authority (CAA), Department for Transport (DfT).	Services surveys, supplemented by info from credit/payment card issuers.
(4) Travel services	International Passenger Survey (IPS) conducted at seaports and airports	Services surveys. Personal and business tourism statistics on accommodation, and household survey used, as well as information from credit /payment card issuers. Mirror data for expenses of Belgian cross-border workers employed in Luxembourg.

(5) Construction services	<p>ITIS</p> <p>Long-term construction projects (over one year) where permanent base established are recorded as foreign direct investment (FDI). Purchases of goods for construction are included in construction services.</p>	<p>Services surveys. Long-term construction projects (over one year) where permanent base established) are recorded as FDI. Long-term construction projects without the creation of a local branch are treated the same as short-term construction projects and are registered as construction services.</p>
(6) Insurance and pension services	<p>ITIS, Financial Services Authority (FSA), Lloyds syndicate accounts</p> <p>premiums less claims</p>	<p>Services surveys – monthly or quarterly survey, selection exhaustive where turnover is greater than €1 million, 98% response rate at t+85; Insurance and reinsurance companies – selection exhaustive where registered, 99% response rate at t+85.</p>
(7) Financial services	<p>Bank of England (BoE), ITIS, Baltic Exchange All fees related to the purchase or sale of securities are included in “explicitly charged and other financial services”.</p> <p>Dealers’ margins included (spread earnings, and so on) financial intermediation services indirectly measured (FISIM) based (with EU permission) on resident inter-bank loan rate (not a non-resident rate as specified in Balance of Payments Methodological notes (BPM6)) and FISIM geography based on ITIS data.</p>	<p>Services surveys – different surveys covering specific subsectors (MFIs, insurance companies, collective investment institutions, etc). Monthly, quarterly or annual survey, selection exhaustive, 100% response rate at t+85. FISIM calculated by national Accounts and based on difference between interbank market rate and interest paid /received by sector (banking /non-banking) for deposits /loans. Asset management costs taken out of income sheet of resident undertakings of collective investments) and imputation of expenses not covered by commissions explicitly charged to shareholders.</p>
(8) Intellectual property services	ITIS	Services surveys.
(9) Telecommunications, computer and information services	ITIS	Services surveys.
(10) Other business services	ITIS	Services surveys.

(11) Personal, cultural and recreational services	<p>ITIS</p> <p>All personal, cultural and recreational services (reported by businesses) are included in this category. Examples include: services and fees relating to motion pictures, radio, TV, musical recordings; medical services by doctors, laboratory services; heritage and recreational services associated with museums, cultural and sporting events, and so on.</p>	<p>Services surveys supplemented by credit /payment card info.</p>
(12) Government services	<p>Ministry of Defence (MoD), Foreign and Commonwealth Office (FCO)</p>	<p>Services surveys.</p> <p>Main ministries and major municipalities, and international institutions.</p>

Source: Office for National Statistics and National Bank of Belgium

Annex 4g: UK/Luxembourg data sources

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Trade type	UK source	Luxembourg source
Total trade in services	International Trade in Services (ITIS) Survey, International Passenger Survey (IPS), Bank of England (BoE), Chamber of Shipping, and a large number of administrative sources. No use of Value Added Tax (VAT) data by UK.	A hybrid collection system with a multitude of sources and different treatments, including two main surveys: the bank reporting BoP 1.1 survey conducted by the Central Bank of Luxembourg (BCL); and the "Take some, Take all" survey of international trade in services, conducted by National Institute of Statistics and Economic Studies of the Grand Duchy of Luxembourg (STATEC). Grossing-up for non-surveyed companies is based on VAT data on total imports and exports of services.
(1) Manufacturing services on physical inputs owned by others	ITIS	FTS and "TATS" survey
(2) Maintenance and repair services	ITIS	FTS and "TATS" survey
(3) Transport services	Chamber of Shipping (CoS), Civil Aviation Authority (CAA), Department for Transport (DfT)	"TATS" survey, including grossing-up.
(4) Travel services	International Passenger Survey (IPS) conducted at seaports and airports.	Administrative sources, regular surveys and accommodation statistics. Debits are partially based on a quarterly survey and debit/credit card expenditure by residents. Education-related travel based on monthly per head estimates by country.
(5) Construction services	<p>ITIS</p> <p>Long-term construction projects (over one year) where permanent base established are recorded as foreign direct investment (FDI).</p> <p>Purchases of goods for construction are included in construction services.</p>	"TATS" survey including grossing-up.
(6) Insurance and pension services	<p>ITIS, Financial Services Authority (FSA), Lloyds syndicate accounts</p> <p>premiums less claims</p>	National supervisory authority data on individual insurance companies.

(7) Financial services	<p>Bank of England (BoE), ITIS, Baltic Exchange All fees related to the purchase or sale of securities are included in “explicitly charged and other financial services”.</p> <p>Dealers’ margins included (spread earnings, and so on) financial intermediation services indirectly measured (FISIM) based (with EU permission) on resident inter-bank loan rate (not a non-resident rate as specified in Balance of Payments Methodological notes (BPM6)) and FISIM geography based on ITIS data.</p>	<p>Bank reporting BOP 1.1 (banking sector), “TATS” survey, CSSF data based on annual reporting of the resident investment fund industry, Standardised Charts of Accounts for estimating the production of SPEs by sum of costs, National Accounts data for FISIM.</p>
(8) Intellectual property services	ITIS	“TATS” survey including grossing-up.
(9) Telecommunications, computer and information services	ITIS	“TATS” survey including grossing-up.
(11) Personal, cultural and recreational services	<p>ITIS</p> <p>All personal, cultural and recreational services (reported by businesses) are included in this category. Examples include: services and fees relating to motion pictures, radio, TV, musical recordings; medical services by doctors, laboratory services; heritage and recreational services associated with museums, cultural and sporting events, and so on.</p>	“TATS” survey including grossing-up.
(12) Government services	Ministry of Defence (MoD), Foreign and Commonwealth Office (FCO)	Monthly direct reporting of general government expenditures and other data (credits) collected by national accounts (STATEC).

Source: Office for National Statistics and National Institute of Statistics and Economic Studies of the Grand Duchy of Luxembourg