Compendium

New frontiers in trade analysis

Summarises recent developments to UK trade in goods and services statistics.

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1 . Introduction

The recent developments in trade statistics have allowed the number of data series we publish to increase 100-fold over the last two years, from around 1,000 to just over 100,000 series and has been described as a "game-changer" by our users. This improvement was crucial in responding to the significantly increased demand for more detailed trade statistics following the UK's vote to leave the European Union. These data were necessary to help provide a better understanding of the UK's trading relationship with the rest of the world and has enabled analysis to be undertaken at a level of detail never previously possible. For example, that we import more travel services (UK residents' expenditure whilst travelling abroad) from Spain than any other country in the world and export more cars to the US than any other country.

We are delivering against an ambitious trade development plan which is currently in its third phase. At the start of the development project in 2016, we were publishing around 1,000 data series across Trade in Goods and Trade in Services. In 2016, Trade in Goods was produced by country and by one-digit commodity on an annual basis for 234 countries, and Trade in Services was being produced on an annual basis across the same countries, split by 12 service types. By the end of Phase 1, we had expanded the International Trade in Services (ITIS) survey to enable the publication of country by service type data for the industries measured by the ITIS survey (which represents approximately 58% and 45% of total trade in services exports and imports, respectively). We also started to publish analysis on Trade Asymmetries, where different countries' data can often paint differing pictures with each other.

By the end of Phase 2 in the Autumn of 2018, we moved to publishing around 100,000 data series on new and improved trade IT systems. This includes Trade in Goods now being produced on a monthly basis split by 234 countries and 125 commodities, as well as an annual by-industry dataset, and Trade in Services now produced on a quarterly basis split by 67 countries and 31 service types, a level of granularity never available before.

2 . Developments to trade in services

Services represent approximately 80% of the UK economy's output, therefore their accurate and detailed measurement is crucial to fully understanding the UK economy. However, this comes with many measurement challenges. Whilst trade in goods is largely measured using comprehensive administrative data, trade in services is compiled using over 20 data sources, with the primary source being the ITIS survey, which accounts for approximately half of total UK trade in services.

The International Trade in Services (ITIS) survey collects information quarterly and annually, with the annual survey having a much bigger sample size than the quarterly survey. Until recently, the quarterly sample size was not suitable for calculating statistics by country and service type. This meant detailed data could only be released annually. There therefore remained interest in providing detailed trade in services statistics more frequently.

The first stage for improving trade in services statistics required increasing the sample for the quarterly ITIS survey. The sample was doubled from approximately 1,100 businesses to 2,200 businesses, with the first results collected for Quarter 1 (Jan to Mar) 2017. Estimates compiled using the increased size were published following the collection of data for Quarter 2 (Apr to June) 2017. The International trade in services by partner country, UK: April to June 2017 statistical bulletin included quarterly estimates of UK trade in services statistics by 54 countries, whereas previously the smaller sample meant only nine non-EU countries could be calculated.

The ITIS survey does not collect information for all industries of the UK economy. Notable exclusions from the survey include travel, transport and banking. This means that the survey covers approximately 58% of UK exports of services, and 45% of services imports. Information on these industries come from the International Passenger Survey (IPS) and the Bank of England, among other sources. Therefore, our development plan included combining this information together to produce detailed statistics covering trade in services for the whole UK.

In October 2018, trade in services data were published at a level of detail and frequency that has never been available before, with quarterly data by 31 service types and 67 countries. This was a significant improvement, with service type by country UK trade in services data previously only published on an annual basis in the UK Balance of Payments, The Pink Book, which includes 12 top-level service types by 68 countries. This improvement in service type detail was enabled by making significant quality improvements, through using the improved quarterly country breakdown derived from the increased and optimised quarterly ITIS survey. This release will continue to be updated on a quarterly basis, with the latest estimates published in January 2019.

We are also starting to collect information for trade in services based on modes of supply. This categorises services by the way in which they are traded:

- Mode 1: cross-border supply, where the service is traded remotely

- Mode 2: Consumption abroad, where the consumer travels abroad for the service

- Mode 3: Commercial presence, where subsidiaries provide the service of the foreign parent in the host economy

- Mode 4: Presence of natural persons, where the supplier travels to provide the service to the consumer

The quarterly ITIS survey tested specific questions on Mode 1 in some surveys sent in September 2018. This was a pilot of around 100 companies, collecting information for Quarter 3 (July to Sept) 2018. Following the pilot, we plan to add modes of supply questions to the next annual survey, which would collect information for 2018. Meanwhile, the pilot results will be used to inform our next steps towards developing statistics on modes of supply.

3 . Explore the new trade in services data with our interactive tools

We have produced some interactive tools to help explore the data.

Data are provided in as much detail as possible without disclosing the details of any individual companies, however, this means that some figures have been suppressed to protect confidentiality. The interactive will show no data available if the data are zero, suppressed or unavailable at this level of detail.

By hovering over a country, you can see the amount of total services the UK trades with that country. For example, hovering over the USA shows that other business services was both the top service type imported to the UK from the USA, and exported from the UK to the USA.

Figure 1: UK trade in services with the rest of the world, exports and imports, 2017

If however, you are interested in trade in services by service type then you can explore our new more detailed dataset, which was published on 23 January 2019; UK trade in services by partner country experimental data: July to September 2018. This interactive tool allows you to explore the different levels of service type data for both imports and exports. For example, clicking on the block transportation shows that in 2017, air transportation was the largest service type exported in that category.

Figure 2: UK services exports, 2017

Figure 3: UK services imports, 2017

4 . Developments to trade in goods

Over the past year we have delivered more granular data for the UK's trade in goods, providing detail of trade in goods by country and commodity and developing for the first time estimates of UK trade in goods by country, commodity and industry.

Our trade in goods by country and commodity data provide granular detail of the UK's exports and imports in 125 commodities with 234 countries, on a monthly, non-seasonally adjusted basis, from 1998 to the latest period that we publish monthly.

The balance of payments statistics of trade in goods that we compile are derived principally from data provided by HM Revenue and Customs (HMRC) on the physical goods exported from and imported to the UK. However, such data are on a different basis from that required for balance of payments statistics. HMRC trade data are collected on an Overseas Trade Statistics (OTS) basis, that is, the physical movement of goods, whereas trade figures within the balance of payments (BoP) are based on the change of economic ownership; sometimes goods move across a border but do not change economic ownership, so are not considered to be an export. Adjustments are applied to the data so that they are consistent with the BoP and the wider UK National Accounts. Additional coverage and valuation adjustments are made to ensure estimates are BoP-consistent, along with the removal of non-monetary gold.

In addition, by using linkages between HMRC data and data from the UK Inter-Departmental Business Register (IDBR) we have created an experimental dataset that, for the first time, provides estimates of UK trade by industry as well as country and commodity, on an annual basis from 2008 to 2016. Information provided on the IDBR allows us to identify the industry that traders operate in, allocating trade to industry, then aggregating to provide detail of trade by Standard Industrial Classification. These data are consistent with balance of payments and national accounts outputs. Work is ongoing to develop the matching method used in the compilation of these experimental statistics, for more information on the methodology see UK trade in goods by industry, country and commodity: 2008 to 2016.

5 . Explore the new trade in goods data with our interactive tools

What goods do the UK trade with the rest of the world? Our data break down UK trade in goods with 234 countries by 125 commodities.

Use our map to get a better understanding of UK trade in goods with a particular country. Select a country by hovering over it or using the drop-down menu.

Figure 4: UK trade in goods by commodity and country, exports and imports, 2017

Use our interactive tools to understand UK trade of a particular commodity. Select a commodity from the drop-down menu, or click through the levels to explore the data.

Figure 5: UK goods exports, 2017

Figure 6: UK goods imports, 2017

Use our interactive map to get a better understanding of UK trade in goods by a particular industry with a particular country. Select a country by hovering over it or using the drop-down menu.

Figure 7: UK trade in goods by industry and country, exports and imports, 2016

6 . Using our new trade in goods datasets to explain recent movements in exports and imports of road vehicles

Introduction

The UK's trade in road vehicles changed in the latest 12-month period to November 2018, compared with trade across most of the past decade, as total exports and imports fell for the first time in nine years compared with the same period in previous years.

Using our new trade by industry and country by commodity datasets, published for the first time in 2018, we firstly show the importance of the motor industry to the UK economy and then highlight trade with the countries that explain the fall in exports and imports of road vehicles in the latest 12-month period.

For the first time, we are able to report industry statistics for the motor industry from the Annual Business Survey (ABS) alongside our new trade by industry figures, providing an indication of how important the industry is to the UK economy. The statistics are based on the Standard Industrial Classification (SIC) and show production output, approximate gross value added (aGVA), the number of enterprises, the number of people employed by those enterprises, the percentage of exporting enterprises, and exports and imports by industry.

We then use our country by commodity dataset to show that, while overall exports and imports of road vehicles fell in the 12 months to November 2018, the picture is very different when looking at trade with the EU and countries outside the EU. This analysis shows that the fall in exports and imports is mostly explained by trade with the EU, as exports to countries outside the EU continued to grow.

The motor industry is an important contributor to the UK economy

Using our trade in goods by industry dataset, we are now able to look at the value of UK exports and imports alongside wider industry-related statistics on a consistent industry basis. Further information on the SIC classification is available.

Table 1 shows 2016 statistics for industry SIC 29 manufacture of motor vehicles, trailers and semi trailers and SIC 45 wholesale and retail trade and repair of motor vehicles and motorcycles, from the Annual Business Survey (ABS). Data for these two industries include the following:

- SIC 29 manufacture of motor vehicles, trailers and semi trailers includes manufacture of motor vehicles for transporting passengers or freight, various parts and accessories, along with manufacture of trailers and semi-trailers

- SIC 45 wholesale and retail trade and repair of motor vehicles and motorcycles includes all activities (except manufacture and renting) related to motor vehicles, including wholesale and retail sale of new and second-hand vehicles, repair and maintenance of vehicles and wholesale and retail sale of parts and accessories

The ABS data show the combined turnover of industries SIC 29 and SIC 45 was £267.8 billion in 2016, which represents 7% of total industry turnover in the UK. Industry SIC 29 manufacture of motor vehicles, trailers and semi trailers accounted for 28% of the combined turnover for industry SIC 29 and SIC 45, along with 4% of the combined number of enterprises and 21% of the total people employed within industry SIC 29 and SIC 45.

According to the ABS there was a total of 78,000 enterprises operating within industries SIC 29 and SIC 45 in 2016, make up 3% of the total number of UK businesses. These enterprises employed a combined 750,000 people, which made up 3% of total UK employment in 2016.

The ABS also shows that the percentage of UK exporting enterprises from industry SIC 29 was 27% in 2016, compared with 6% for industry SIC 45.

Table 1: Economic indicators related to SIC 29: manufacture of motor vehicles and SIC 45: wholesale and retail trade and repair of motor vehicles and motorcycles, 2016

	Industry SIC 29	Industry SIC 45
Turnover	£74.4 billion	£193.4 billion
aGVA	£17.0 billion	£32.4 billion
Number of enterprises	3,235	74,675
Number of people employed	159,000	591,000
Percentage of exporters	26.70%	6.00%

Source: Office for National Statistics

Notes

1. aGVA is an approximate measure of GVA which is a measure of the income generated by the surveyed businesses (and the industry or sector they represent) less their intermediate consumption of goods and services used up to produce their output. Back to table

2. Percentage of exporters estimates are based on experimental data. Back to table

Using our new trade by industry exports and imports datasets, we can now show UK trade data alongside wider SIC industry statistics. Table 2 shows exports and imports for SIC industries 29 manufacture of motor vehicles and 45 wholesale and retail trade and repair of motor vehicles and motorcycles in 2016. These exports and imports are shown to and from the EU and countries outside the EU.

The value of total exports for industry SIC 29 was three times greater compared with industry SIC 45 and was mostly explained by exports to the EU, that is, £12.5 billion in 2016; however, exports to EU and non-EU countries were fairly similar for industry SIC 45.

Imports by industry SIC 45 wholesale and retail trade and repair of motor vehicles and motorcycles were £5.9 billion larger than imports by industry SIC 29 in 2016; imports from both industries were primarily from the EU, which accounted for more than 75% of total imports from each industry.

Table 2: UK exports from SIC 29: manufacture of motor vehicles and semi-trailers and SIC 45: wholesale and retail trade and repair of motor vehicles and motorcycles, 2016

£ billion

	SIC 29	**SIC 45**
Total exports	22.0	7.3
EU exports	12.5	3.7
Non-EU exports	9.6	3.6
Total imports	27.3	33.1
EU imports	22.7	25.2
Non-EU imports	4.6	7.9

Source: Office for National Statistics

UK road vehicle exports and imports fell for the first time in nine years in the 12 months to November 2018

The Standard Industrial Trade Classification (SITC) is an international commodity classification and is the basis on which our regular monthly trade statistics are reported. More information on SITC is available.

Using our new country by commodity (SITC) dataset, we can show UK exports and imports of road vehicles, highlighting UK trade with countries that helps explain large changes in trade of road vehicles over the past 18 months. Cars accounted for the majority of road vehicle trade and represented 82% of total exports in 2016 (62% of imports), followed by 13% for road vehicles other than cars (intermediate) (24% of imports).

Figure 8 shows the nine largest contributors to the fall in total imports of road vehicles in the 12 months to November 2018. Figures 9 and 10 show the leading contributors to falling exports of road vehicles to the EU and rising exports to countries outside the EU respectively.

Total UK imports of road vehicles fell £1.6 billion in the 12 months to November 2018, which is the first time imports have fallen for nine years, with imports from the EU accounting for £1.4 billion of the decrease. Eight of the nine largest contributors to the downward movement in total imports were EU countries.

Imports of road vehicles from Germany, Spain and France combined fell £1.4 billion in the 12 months to November 2018, offsetting import growth of other EU countries, mainly Austria (£0.5 billion) and Romania (£0.3 billion). Japan and South Africa were the only non-EU countries included in the top nine contributors to the downward movement in total imports.

Apart from Spain, all nine countries included in Figure 8 showed a positive change in imports in the previous 12-month period to November 2017.

Figure 8: Change in value of imports of road vehicles from selected countries

12 months to November 2017 and 12 months to November 2018

Figure 8: Change in value of imports of road vehicles from selected countries

12 months to November 2017 and 12 months to November 2018

£ million, non-seasonally adjusted, current price
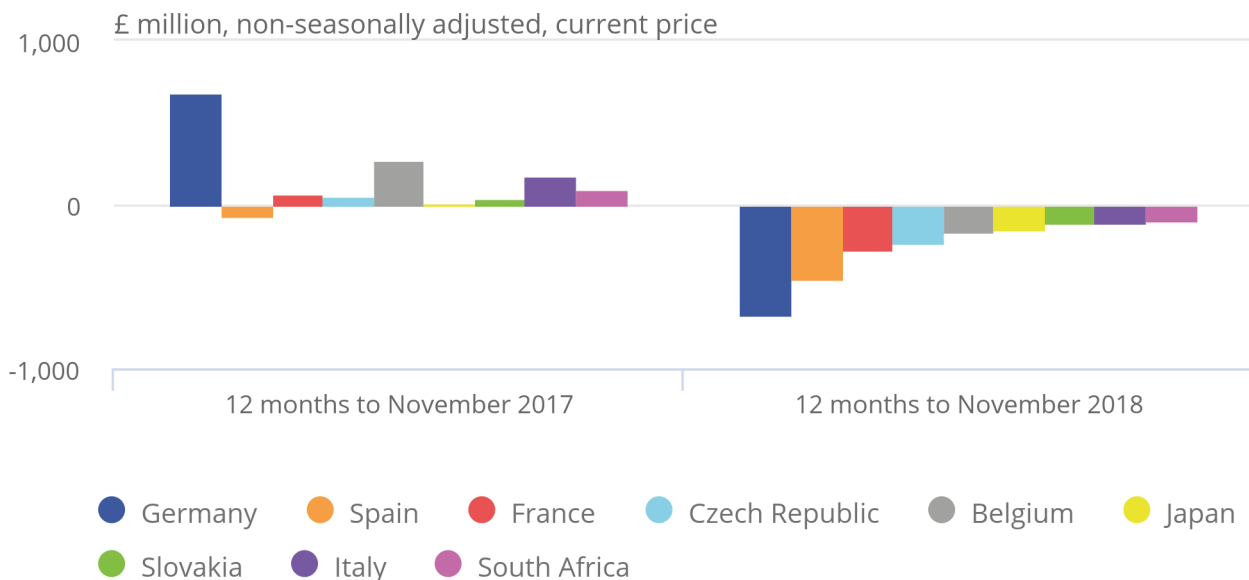
Source: Office for national statistics

According to the [Society of Motor Manufacturers and Traders (SMMT)](#), new car registrations in the UK fell 6.8% in 2018. Diesel cars accounted for the majority of the decline, as new registrations of diesel cars fell 29.6% compared with a 8.7% rise for petrol cars.

A number of factors are likely to have played a part in the fall in UK imports of road vehicles in the 12 months to November 2018, such as:

- the UK government introduced a rise in [Vehicle Excise Duty (VED) in April 2017](#) following the diesel emissions scandal, thereby increasing the cost of VED for cars registered after April 2017, particularly vehicles with large engine sizes, including diesel cars; this caused a large spike in demand in the run up to April 2017 as consumers and businesses brought forward future purchases to avoid paying the higher rate of VED

- the EU introduced Real Driving Emissions tests in September 2017 that require manufacturers to apply more stringent tests to new vehicles; this has caused supply issues across the EU as manufacturers have struggled to get new cars through the tests

- new car sales in the UK have likely also been impacted by the rising cost of buying a new car via a Personal Contract Plan (PCP); according to the Bank of England, around [80% of new car sales in the UK were financed via PCPs in 2017](#) and the cost of these plans has been rising

Figure 9 shows the five largest contributors to the fall in exports of road vehicles to the EU in the 12 months to November 2017 and the 12 months to November 2018.

Exports of road vehicles to the EU fell £0.8 billion in the 12 months to November 2018, after growing £1.3 billion in the 12 months to November 2017. Exports to Germany fell £0.3 billion, followed by declines to Belgium, Italy, France and Spain, which combined accounted for a further £0.5 billion.

Some of the factors driving the fall in UK exports to the EU in the 12 months to November 2018 are similar to those for falling imports to the UK; the diesel emissions scandal has impacted demand for diesel cars across the EU and the same supply issues related to the EU's new Real Driving Emissions tests have also impacted UK manufacturers.

UK exports to all of the five countries included in Figure 9 grew in the previous 12-month period to November 2017.

Figure 9: Change in value of exports of road vehicles to selected EU countries

12 months to November 2017 and 12 months to November 2018

Figure 9: Change in value of exports of road vehicles to selected EU countries

12 months to November 2017 and 12 months to November 2018
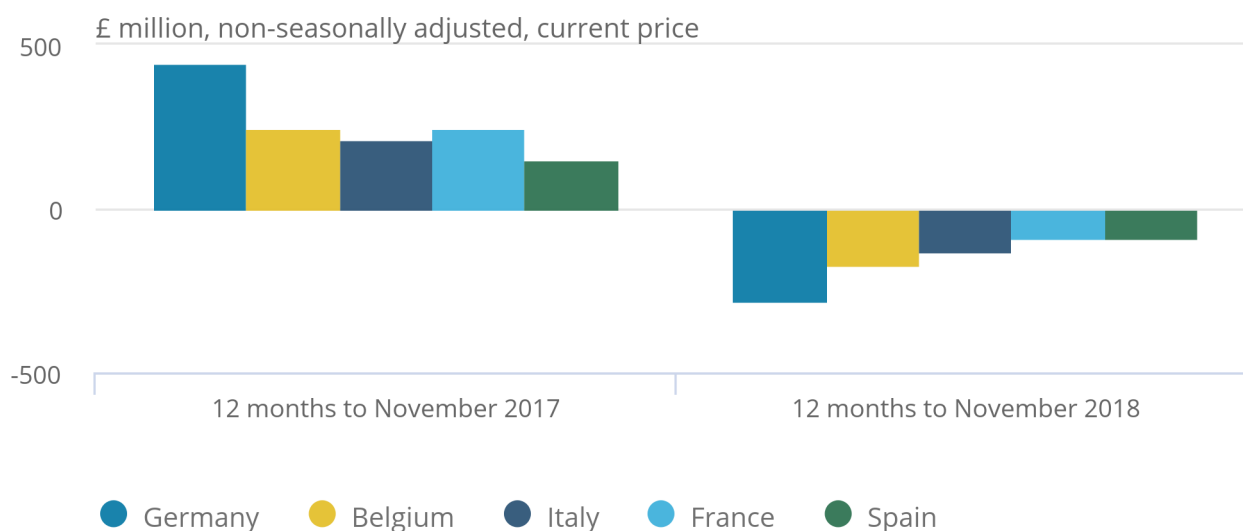
Source: Office for National Statistics

Figure 10 shows the top five largest contributors by country to the positive change in UK road vehicle exports to countries outside the EU in the 12 months to November 2017 and the 12 months to November 2018.

UK exports to countries outside the EU increased £0.7 billion in the 12 months to November 2018; this is despite a large fall in demand from China, which led to a UK export decline of £0.4 billion to China in the 12 months to November 2018.

The main country driving UK export growth of road vehicles to countries outside the EU was the United States including Puerto Rico, as exports increased £0.6 billion in the 12 months to November 2018. However, while exports increased, growth was lower compared with the 12 months to November 2017, when exports increased by just over £1.0 billion. Exports to Japan followed a similar trend of slowing growth in the 12 months to November 2017, but still rose £0.2 billion in the 12 months to November 2018.

Figure 10: Change in value of exports of road vehicles to selected non-EU countries

12 months to November 2017 and 12 months to November 2018

Figure 10: Change in value of exports of road vehicles to selected non-EU countries

12 months to November 2017 and 12 months to November 2018

£ million, non-seasonally adjusted, current price
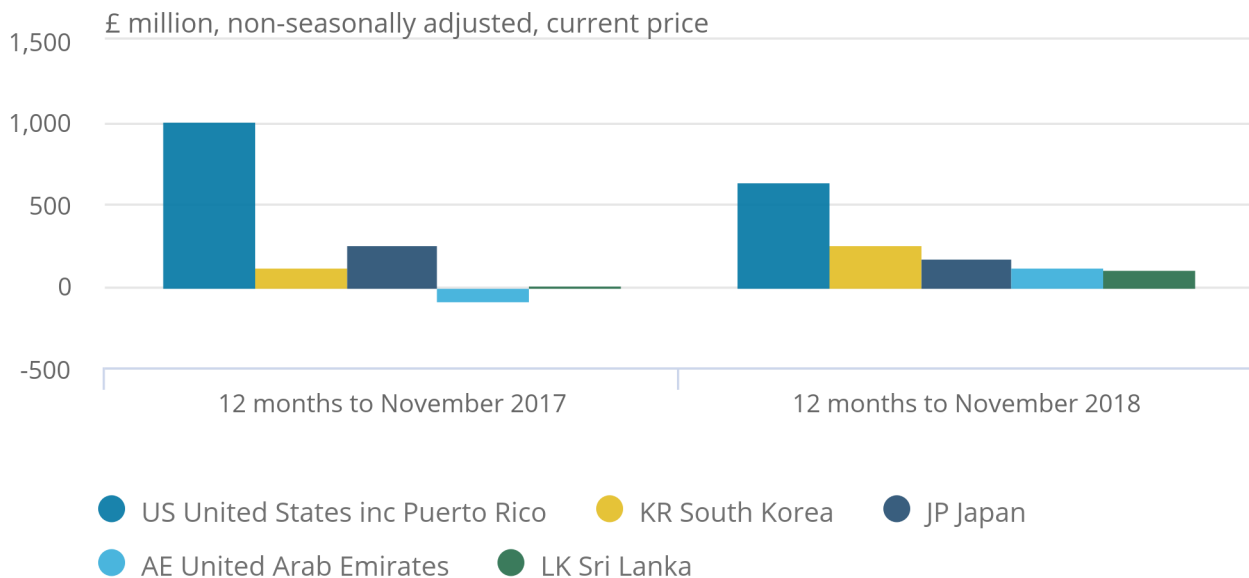
Source: Office for National Statistics

7 . Keeping pace with the demand

In response to user needs, one of our main priorities is to publish detailed trade figures across more dimensions than we do currently; for example, across industries, geographic trade partners and service types. A large focus for the trade development plan is also making improvements to the quality of the trade figures.

We have begun an intensive period of work researching methods and investigating new data sources to continue our expansion of trade in services. We will provide initial estimates of trade in services by industry in the first half of 2019 along with updated estimates of trade in goods by industry. We have also initiated a pilot study, asking more questions through our International Trade in Services (ITIS) Survey, to better understand the mode of supply of services. We expect early estimates from this pilot to be available in summer 2019.

Other developments and analysis we are pursuing are further analysis of trade in services asymmetries, trade in value added, digital trade, and further methodological reviews of our data processing. Our asymmetries work will focus on the main service accounts that show commonality across our datasets. We will share this analysis in spring 2019. Thomas Baranga is also repeating his analysis on global asymmetries, now with services data, which will give us an important insight into the international picture of trade in services asymmetries.

The next stage of the project will also see us work with other government departments to undertake initial work on digital trade, emerging as an important aspect of trade in services. We will undertake both expert user engagement and extensive literature and methodological reviews to begin to understand this complex topic.

Our annual releases in 2019 will see improved methodologies underpinning important statistical and conceptual adjustments, which we apply to our trade in goods data. These releases will also benefit from recent methodological improvements to our trade deflators, used to remove fluctuating price effects from our data series to allow analyses over time. Our methodological review work will continue in both these areas, as we strive to provide users with the highest quality data available to us.

We are delivering at pace against a pressing and ever-expanding demand. Our transformation of UK trade statistics has already delivered data and analysis that are informing the debate and enabling better decisions. We will continue our developments, working collaboratively and innovatively to meet users' demands as the UK leaves the EU and beyond.

We welcome feedback on our new trade statistics, developments and future plans. To provide your comments please email trade@ons.gov.uk referencing "UK trade statistics transformation" in the subject.

8 . Authors

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