

Working Paper Series

No. 09-2021

Trade Data Statistics

Michael Gasiorek and Nicolò Tamberi

University of Sussex Business School

m.gasiorek@sussex.ac.uk | n.tamberi@sussex.ac.uk

Abstract:

The UK-EU Trade and Cooperation Agreement (TCA) entered into force in January 2021. At the same time, the collection method for UK-EU trade statistics changed, moving from Intrastat to customs declarations. As a result, the gap between UK reported exports to the EU and their mirror flows reported by the EU widened substantially. Imports are not affected as the UK will not change their collection method before 2022. This considerable difference in UK exports casts doubts on which dataset should be used to analyse the effects of the TCA on UK-EU trade, whether UK or EU reported data. After reviewing the methodological changes, we believe that the change from country of consignment to country of origin in EU imports declarations represents the main break in the series. We advise analysts and researchers to use HMRC reported exports flows instead of their EU reported mirror flows. Comparison of data by country of origin and consignment and comparisons of trade flows with freight traffic data confirm our beliefs.

JEL codes: F14; Y10

Key words: UK-EU trade statistics; Trade and Cooperation Agreement

TRADE DATA STATISTICS

Introduction

This paper discusses the trade statistics for the analysis of UK-EU trade flows following the introduction of the Trade and Cooperation Agreement (TCA) in January 2021. Given the importance of the TCA to the UK, it is fundamental for analysts to be able to properly evaluate its impact on trade flows for the Government to implement adequate policies.

For such analysis to be informative, the accuracy of trade statistics is of utmost importance. However, together with the introduction of the TCA in January 2021, both the UK and EU member states changed the methodology used to collect UK-EU trade. This break in the time series renders the interpretation of TCA effects more difficult.

In the past weeks, commentators have noted large discrepancies between UK-EU trade data reported by different sources (among which [Thomas Sampson](#) and [Ben Chu](#) on Twitter and [this article](#) on the FT) and the ONS discussed the issue in a [blog](#). In this paper, we discuss the differences in trade data as reported by the HMRC and ONS for the UK and the corresponding mirror statistics as reported by EU member states. Second, we explore whether the change in the methodology of data collection had a significant effect on trade statistics when compared to another proxy of trade flows: using freight transport data.

In our opinion, the best source for the analysis of UK-EU trade in 2021 is data reported by the HMRC or ONS, and not the mirror flows reported by EU member states. This is because the former series has undergone smaller methodological changes in data collection after 2021. For UK exports to the EU, both the UK reported exports and EU mirror flows undertook methodological changes, but these are smaller for statistics reported by the UK. On the other hand, HMRC reported imports did not undertake any methodological change and they will not for the rest of 2021. According to HMRC, this is done 'to mitigate the effects of staging customs controls, and to comply with the Northern Ireland Protocol' (see [HMRC help page](#)), and the data collection method for imports will not change before January 2022.

ONS and HMRC data

The ONS and HMRC report trade data on a different basis, and this can cause some differences between the value of trade reported by the two agencies. Note that such differences are intended and should not be considered a mistake. Goods trade data are originally collected by HMRC, which records as trade each transaction involving goods leaving or arriving in the UK customs territory.¹ This collection methodology is developed by the United Nations and is defined in the UN Manual of International Merchandise Trade Statistics (IMTS 2010).

On the other hand, the ONS publishes trade statistics on a Balance of Payments basis according to the IMF 6th edition of the Balance of Payments and International Investment Position Manual (BPM6). Recording trade according to BPM6 is necessary for the compilation of GDP figures by the ONS, and it uses a slightly different definition of goods trade. In particular, the BPM6 method is based on principles of residence and change of ownership. The ONS compiles its goods trade statistics starting from HMRC data and then makes the necessary adjustments to have the goods flows conform to BPM6.

One of the main differences between ONS and HMRC data is how trade flows not involving ownership changes are treated. If a good arrives in the UK for maintenance or processing *without* any change in ownership, this will be recorded as goods trade by the HMRC (IMTS basis) but not by the ONS (BPM6 basis).

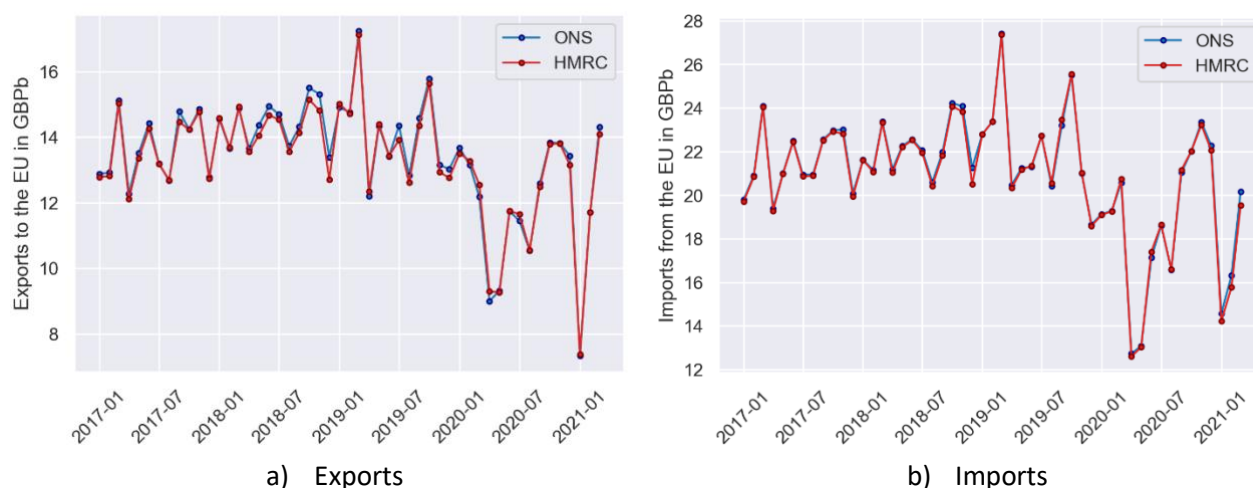
¹ A few transactions are not included by HMRC, such as transit trade and goods that never enter into free circulation on the UK statistical territory. For details on intra-EU trade see HMRC Notice 60.

On the other hand, a good that changes ownership but never leaves the British soil can be recorded as trade by the ONS but it is generally not recorded by HMRC. For a more detailed description of the differences between IMST and BPM6 methods, see this [Eurostat article](#).

Given that under the European Single Market many firms organised supplied chains at the EU-level, transactions involving no change of ownership might represent an important aspect of the UK-EU trade relation.² For instance, intra-firm transactions across borders or processing and re-imports can be very important for the organisation of EU-wide supply chains. We, therefore, believe that the HMRC data, which record such transactions, are better suited to evaluate the evolution of UK-EU trade following the TCA. However, note that if subsidiaries involved in intra-firm trade are separate legal entities and the transaction involves a change of ownership, it will also be recorded in the ONS data.

Figure 1 plots the trade values as reported by the HMRC and the ONS for UK exports to (panel a) and imports from (panel b) the EU over the period January 2017-March 2021. Since the HMRC OTS (overseas trade statistics) data are not seasonally adjusted, we use the ONS data ‘Trade in goods: country-by-commodity exports’ aggregating SITC products. This is because the alternative total trade in goods by partner series published by the ONS are seasonally adjusted, and would not be directly comparable to HMRC data. As we can see from Figure 1, when differences between ONS and HMRC data are minimal when both are non-seasonally adjusted.

Figure 1: ONS and HMRC data on UK trade with the EU



Source: HMRC OTS, ONS Trade in goods: country-by-commodity exports and authors’ elaboration. The ONS data by SITC have been aggregated to total exports/imports. Data are not seasonally adjusted.

Mirror flows: HMRC and Eurostat data

Data on international trade are always reported twice: once from the exporter side, and once from the importer side. Because of this duality, data reported by the partner are called mirror flows. While these two values should be the same in principle, they rarely are. Asymmetries in international trade data are a well-known phenomenon (see for instance this [ONS article](#)). There are multiple reasons for which mirror flows are not equal, some technical and some unexplained. The technical reason is the way in which goods trade is recorded by the exporter and by the importer. For the majority of countries, goods are recorded on a ‘free on board’ basis (FOB), which is the value of the good as it is shipped from the exported territory. Imports are recorded on a ‘cost of freight and insurance’ basis (CIF), which includes the cost of freight and

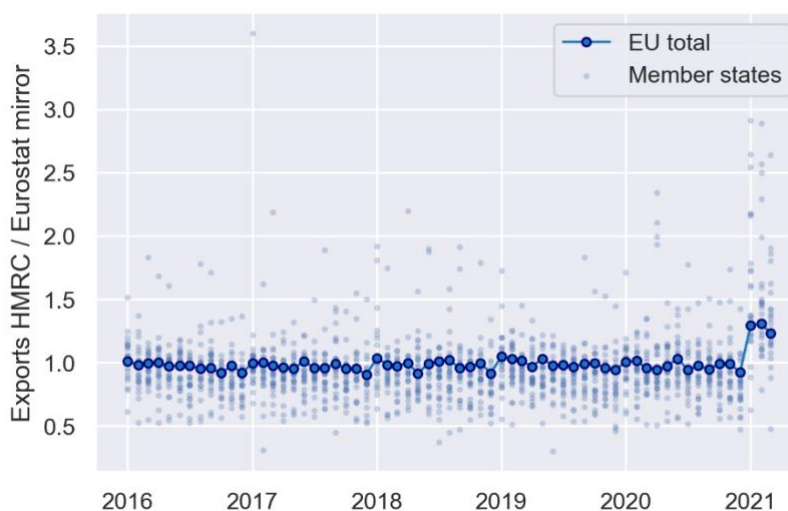
² In BPM6 manufacturing services (processing, assembling, ...) and maintenance on goods owned by foreigner are recorded as services trade transactions and not goods transactions. For details, see Chapter 10 of BPM6.

insurance incurred in transportation from the exporter to the importer territory. Few countries report trade statistics on both CIF and FOB basis, but even then, mirror flows do not match exactly. Other issues that can determine asymmetries in mirror flows are currency conversions, trade reported on a general or special basis,³ allocation of trade to partner countries, the timing of when the transaction is recorded. To these issues, we have to add potential errors in reporting and other unknown factors.

It is important that when we look at mirror statistics we compare trade flows measured on the same basis. In this case, we use data measured on an IMTS basis, therefore using HMRC data for the UK as a reporter and Eurostat data sourced from Comext for data reported by EU member states. While the issues aforementioned imply that there will always be some gap in mirror flows, the discrepancy between the HMRC and Eurostat Comext data for UK exports to the EU in 2021 is much larger than in previous years.

Figure 2 plots the ratio of UK exports to the EU27 as reported by HMRC over its mirror flow reported by the EU in its Comext database (that is, EU imports from the UK in Eurostat Comext data). Shaded dots represent each member state while the connected darker points are the ratio for EU total.⁴ A ratio of 1 means that the HMRC and its mirror flow are identical. We can see that over the period 2016-2020 for total trade the ratio is close to 1, meaning that overall the discrepancies are not very large (although for some member states they can be). On the other hand, in 2021 exports data as reported by HMRC are substantially higher than their mirror flows, showing about 40% more trade! As we will explain below, we believe that this large difference is due to the change in data collection methods and that the Eurostat mirror flows are underreported compared to the pre-2021 methodology. This is not to say that European countries are actively trying to depict the negative effects of Brexit, rather, it reflects a change in the way exports are attributed to the UK or other countries.

Figure 2: HMRC and Eurostat mirror flows for UK exports to the EU



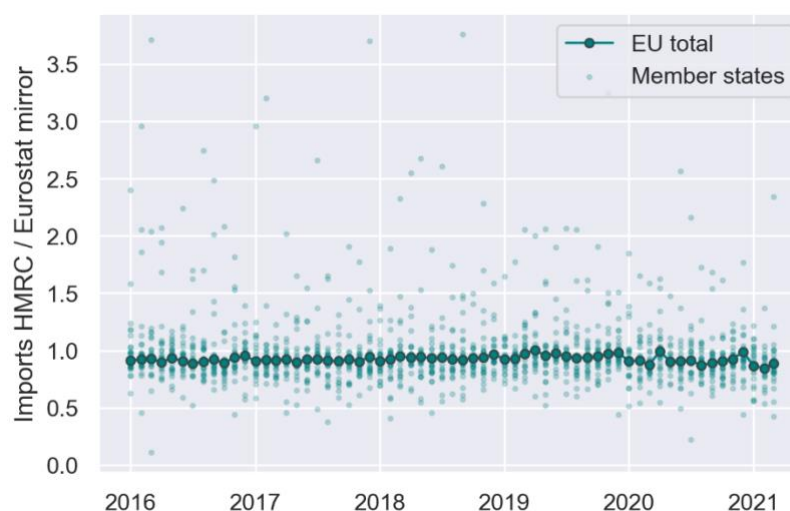
Source: authors' elaboration of HMRC and Eurostat data. The

Figure 3 reports the ratio of HMRC reported imports and their Eurostat Comext mirror flows. For imports, we cannot see a big difference in the 2021 values, and we should be less concerned with differences in mirror flows. This can be explained by the fact that the imports collection method undertook a smaller methodological change as compared to exports (more on this below).

³ This refers to the inclusion, or not, of goods that entered a country but are not in free circulation. For instance, goods held in a customs warehouse.

⁴ We trimmed the y-axis 4 for ease of visualisation, although there are only a few datapoints above this threshold.

Figure 3: HMRC and Eurostat mirror flows for UK imports from the EU



Source: authors' elaboration of HMRC and Eurostat data. The vertical axis is trimmed at 4. EU total is given by the sum of UK trade with the 27 EU members.

From Intrastat to customs declarations

Prior to 2021, all intra-EU trade – which then included UK-EU trade – was recorded with the Intrastat survey. This is a short form which all businesses (above the reporting threshold) are required to submit, and accounts for 93% of UK value of trade for arrivals (imports from the EU) and 97% of the value of dispatches (exports to the EU). The remaining value of trade (7% for arrivals and 3% for dispatches) are then estimated using VAT data and allocated at the partner and HS 2-digit level.

In 2021, the method changed. Both HMRC and Eurostat (via national agencies) started to record exports via customs declarations. On the other hand, HMRC still records imports with the Intrastat system, while the EU moved to customs declarations. Imports from the EU will be recorded with the Intrastat declaration at least until December 2021. Therefore, HMRC reported imports flows did not see any methodological change for now, and this series can be safely used for analysis.

Eurostat trade flows nomenclature

Under the Eurostat nomenclature, intra-EU exports recorded under Intrastat are called *dispatches* and extra-EU exports recorded with customs declarations are called *exports*. Intra-EU imports are called *arrivals* and extra-EU imports are called *imports*.

Country of origin vs country of consignment

The main difference that we think is driving the wedge between the HMRC reported exports and their mirror flows is how partner countries are recorded in Intrastat and customs declarations. Let's consider the HMRC reported flows. Under both Intrastat and customs declarations, the trade partner for exports is the country (or Member State) of the final destination of the goods.⁵ This means that there was no change in the way HMRC recorded trade partners. On the other hand, for intra-EU imports (arrivals) the trade partner

⁵ See Eurostat explanation:

https://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=DSP_GLOSSARY_NOM_DTL_VIEW&StrNom=CODED2&StrLanguageCode=EN&IntKey=16610235&RdoSearch=&TxtSearch=&CboTheme=&IsTer=&ter_valid=0&IntCurrentPage=1

is considered the *country of consignment*, while for extra-EU imports the trade partner is the *country of origin*. The two definitions are different:

- The country of consignment is the country from which the goods were shipped to the importing country.
- The country of origin is the country where i) the good fully originated; or ii) the last transformation or substantial processing took place.

Hence, under Intrastat, a good originating in China that has been shipped to the UK and is then shipped from the UK to Germany without any substantial processing would be recorded by Germany as imports (arrivals) from the UK using the country of consignment criterion. Hence, this is the way the flow would have been recorded prior to January 2021. However, with the customs declaration and using the country of origin criterion, the same flow would be recorded by Germany as imports from China, not from the UK. This is the way the flow is currently recorded. This implies that EU imports from the UK as reported by Eurostat have seen a larger methodological change in 2021 than UK exports to the EU reported by the UK. In particular, the 2021 Eurostat figures will be ‘underreported’ compared to the Intrastat methodology. It appears highly likely that this explains the upward jump that we see in the ratio of exports/mirror flows reported in Figure 2.

What about the very small difference observed in HMRC imports and their mirror flows of Figure 3? As we said, HMRC did not change the method for collecting imports and still uses Intrastat. This means that the partner country is the country of consignment. While the EU moved to customs declarations for its collection of exports to the UK, they still record partner countries as the country of final destination, meaning that there is no change in the recording of this information. The switch from Intrastat to customs can therefore affect the 3% value of estimated intra-EU exports, but this will have a minor impact on trade statistics.⁶

Table 1: Changes in data collection methods for partner countries in UK-EU trade

Flow		HMRC			Eurostat	
		Before 2021	After 2021		Before 2021	After 2021
Exports	System	Intrastat	Customs declarations		Intrastat	Customs declarations
	Partner	Final destination	Final destination		Final destination	Final destination
Imports	System	Intrastat	Intrastat		Intrastat	Customs declarations
	Partner	Country of consignment	Country of consignment		Country of consignment	Country of origin

Note: this is not a complete list of all methodological changes but relate to how partner countries are recorded.

Special vs general trade

Both HMRC OTS data and Eurostat Comext data are compiled according to the ‘special trade’ system for extra-EU trade. Special trade is a way of recording transactions where goods arriving in a customs warehouse and not going into free circulation in the customs territory are not recorded as trade. This is in contrast with the ‘general trade’ system, which records every transaction as trade. On the other hand, intra-EU trade recorded with the Intrastat survey is not compiled on a special or general basis as it is not

⁶ There are also few other changes. One of these is the movement to special trade system discussed in the next section.

collected via customs declarations (see [Eurostat metadata](#)). However, according to the Eurostat explanation the concept used for the intra-EU system is close to the general trade system (see [Eurostat glossary](#)). This could create some differences between pre- and post-2021 data for UK exports to the EU. Because the general trade system includes more transactions than the special system, we should expect UK exports to the EU in 2021, recorded with the new method, to be lower than what they would have been if they were to be recorded via Intrastat. In principle, this should not introduce dramatic differences between UK exports to the EU reported by HMRC and their Eurostat mirror flows, as both series have undergone the same change. However, a combination of the movement from (quasi) general to special system combined with movement from country of consignment to country of origin might introduce further asymmetries between HMRC exports and Eurostat mirror flows.

Northern Ireland

Finally, the UK and the EU still collect trade with Northern Ireland via the Intrastat survey in 2021. This is because the TCA avoided the introduction of a hard border between Northern Ireland and the Republic of Ireland, therefore there are no customs declarations for flows between the two territories. This means that this trade did not see a methodological change in collection.

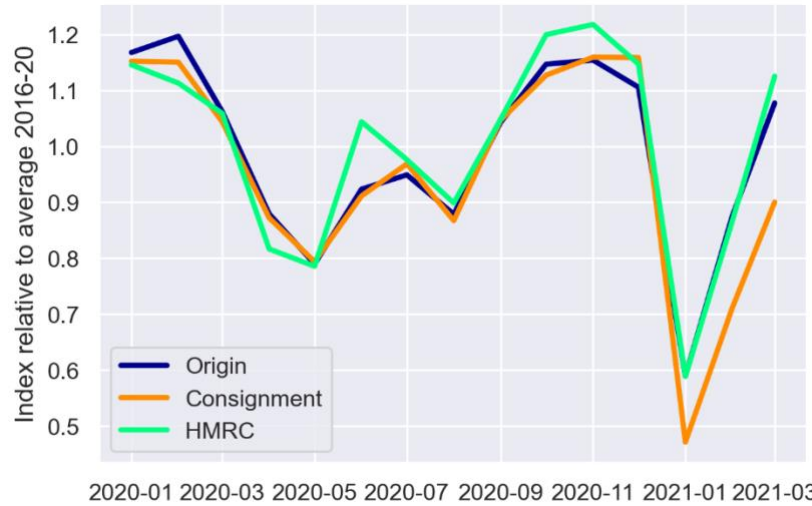
Comparison of data by country of origin and consignment

To check directly whether the difference between trade statistics is mainly due to the switch to country of origin classification, we compare mirror flows (that were always reported by origin) with Eurostat ones that saw a change from consignment to origin in 2021. Unfortunately, not all EU countries report import data on both a country of origin and consignment basis. While all of them report data on a consignment basis to Eurostat, only some also report imports by country of origin.⁷ Of those that report on an origin basis, we were able to collect data for seven countries (Austria, Czech Republic, Germany, Finland, France, Ireland and Spain) up to March 2021 and for nine countries (with the addition of Croatia and Slovenia) up to February 2021. For all these nine countries data on an 'origin' basis are sourced via COMTRADE, apart from Austria, Germany, France and Spain for which data have been sourced from their respective national statistical offices. While this is not the whole EU27, apart from Italy, the largest countries are included. Together, these countries accounted for 58.5% of UK exports to the EU and 52.1% of imports from the EU in 2019, according to HMRC data.

We thus compare the same flow from three different measures: UK exports as reported by HMRC, EU imports by country of consignment (Eurostat Comext) and by country of origin (Comtrade and national sources). Figure 4 plots the three flows for the six EU countries that reported data up to March 2021. Rather than plotting the raw series, we normalised each series by its average over the period January 2016 - December 2020. This is because each series might be slightly different in levels, but what we are interested in, is how much they fell in 2021 relative to previous periods. We can clearly see that HMRC reported exports and mirror flows by country of origin are very close in 2021 and in March they are both above their 2016-20 average. On the other hand, the mirror series by country of consignment shows a more pronounced fall in January 2021 and by March the series is still below its 2016-20 average.

⁷ The list of EU countries reporting national data by country of origin can be found at page 49 of the Eurostat 'User guide on European statistics on international trade in goods' 2020 edition ([link](#)).

Figure 4: HMRC exports and mirror imports by origin and consignment for seven EU countries, index

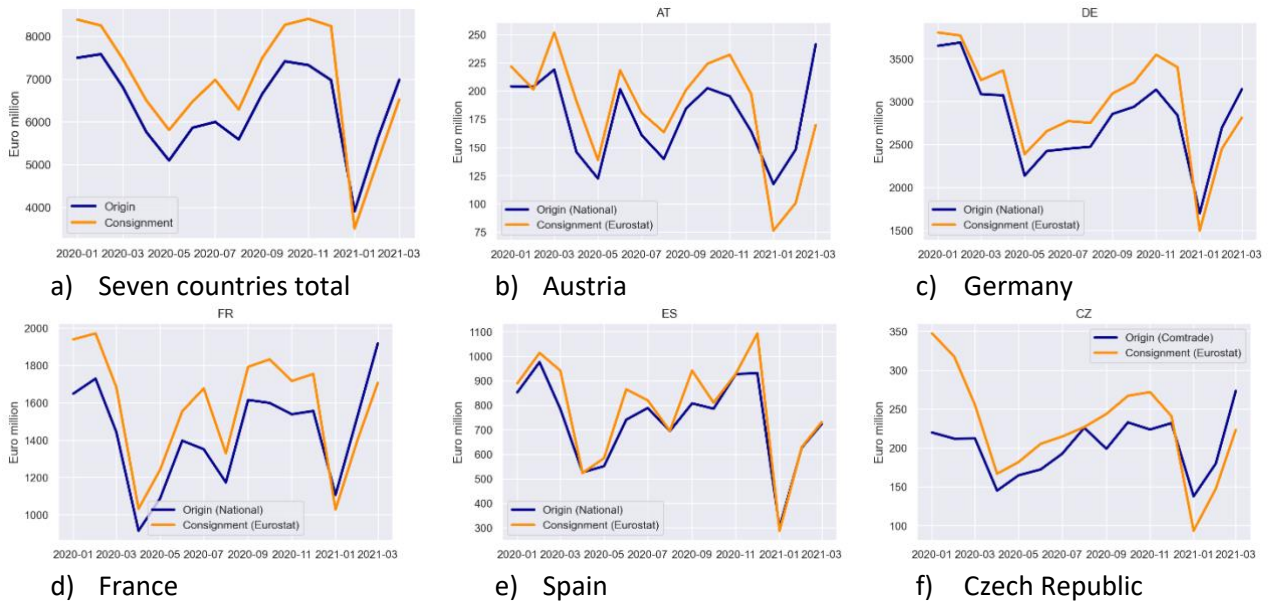


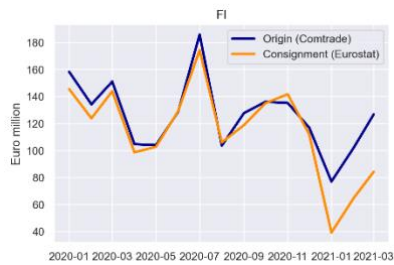
Source: Eurostat, HMRC, Comtrade, national sources and authors' elaboration. The series labelled "Consignment" is the one reported by Eurostat and is by consignment up to Dec2021 and by origin thereafter.

The question remains as to why the Eurostat series and the ones always reported by country of origin differ in levels in 2021 (this difference can be seen in Figure 5 below which plots the series in levels). In theory, they should both be reported on a by origin basis in 2021, yet their levels can be very different. The difference is small in total for the seven countries that reported up to March 2021, but the individual country series can show different stories.

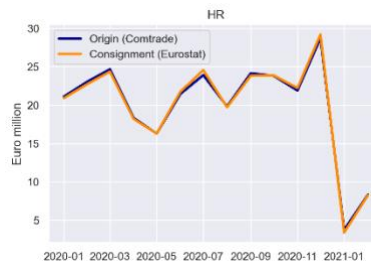
Figure 5 shows imports from the UK by origin and consignment for the seven countries that reported data up to March 2021 as total and for each individual country (data in millions of Euros). Note that in Figure 4 we plot the data as an index, in figure 5 we plot the data in levels. For five out of nine countries, imports by origin are below those by consignment country before 2021, but above in 2021. Croatia and Spain have virtually no difference between the two series after 2021 (Croatia also before 2021), while Ireland shows a post-TCA difference only in March 2021. In principle, since both Eurostat and the other series are reported by country of origin in 2021, we should expect the gap between the two to narrow in 2021, but this is not always the case.

Figure 5: Imports by origin and consignment for each country

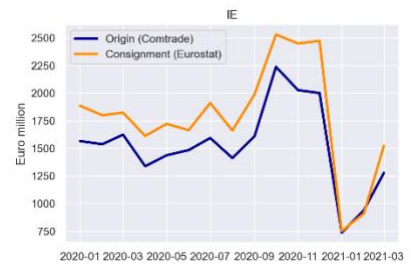




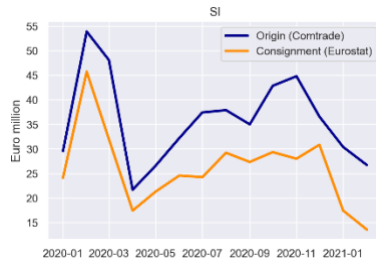
g) Finland



h) Croatia



i) Ireland



j) Slovenia

Source: Eurostat, Comtrade and national statistics. Eurostat series are by country of consignment until 2021, when they started to be recorded by country of origin. Panel a) reports the total for the seven countries that reported data up to March 2021.

Comparison with freight transport data

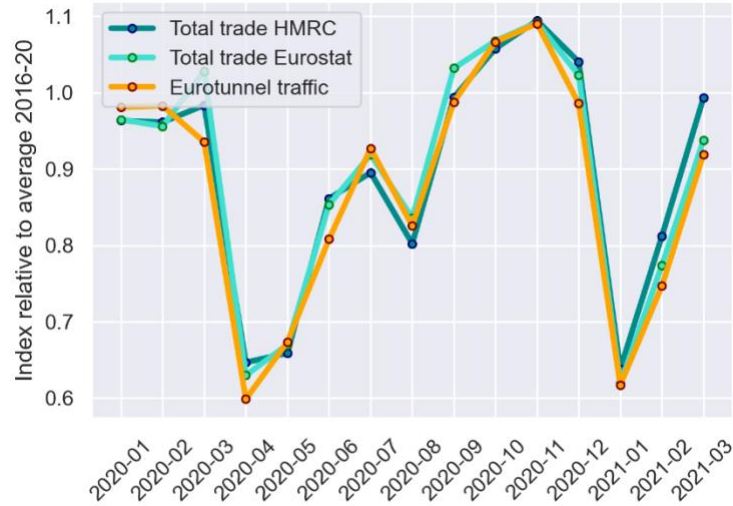
In this section, we compare UK-EU trade with Eurotunnel trucks traffic data, which measures the number of trucks that passed by the Eurotunnel in a month.⁸ These data do not distinguish the direction of traffic, so it is not really possible to attribute this to imports or exports. Juxtaposing trade with traffic data can be informative because the collection method of traffic data did not change in 2021, so comparing the two series will give us an idea of whether the change in collection method for trade data rendered 2021 data really incomparable to pre-2021 data. Importantly, Eurostat data on trade by mode of transport show that in 2020, 59% of UK-EU goods trade (as reported by EU countries) occurred by road. This is a large portion of total trade so Eurotunnel trucks traffic data can be very informative on goods trade. For interested readers, we report UK-EU trade by mode of transport in the appendix.

Figure 6 plots indexes of trade and traffic data. Each series is divided by its average over the period 2016-20 so to have them on a comparable scale. Apart from the initial months of 2016, the traffic data series follow the total trade series very closely, both for HMRC reported data and Eurostat mirror flows.⁹ The fall in traffic in January 2021 is followed closely by both HMRC and Eurostat data, but in the subsequent months, HMRC data are slightly above the traffic data while the Eurostat series follows traffic more closely. In particular, in March 2021, HMRC data show that trade is back to its average level, while both traffic and Eurostat data are at about 93% of their average. However, these discrepancies are in line with the pre-2021 gap between trucks traffic and total trade.

⁸ The Eurotunnel traffic data are downloaded from the Eurotunnel [webpage](#) using data reported in the press releases.

⁹ For HMRC data the EU total represents the sum of UK trade with the 27 EU member states, excluding the categories of 'Store & Provisions', 'Estimates' and 'Low Value Trd EU'. This makes the series consistent with Eurostat data. We also checked that results are robust to the inclusion of these residual categories.

Figure 6: Total trade and Eurotunnel trucks traffic



Source: authors' elaboration of HMRC, Eurostat and Eurotunnel data.

While the traffic data does not have a direction, we also plot it against exports and imports separately using the HMRC reported data and the Eurostat mirror flows in Figure 7 and Figure 8. HMRC reported exports are above the trucks traffic index in February and March 2021. However, there are other instances before 2021 in which the gap between the two series is of similar magnitude. On the other hand, exports from Eurostat mirrored data are often above the trucks traffic index before 2021 but substantially below it in 2021. For imports, we have quite a good fit in 2021 for HMRC data, while Eurostat data appears slightly above the trucks traffic index.

Figure 7: UK exports to the EU and Eurotunnel trucks traffic

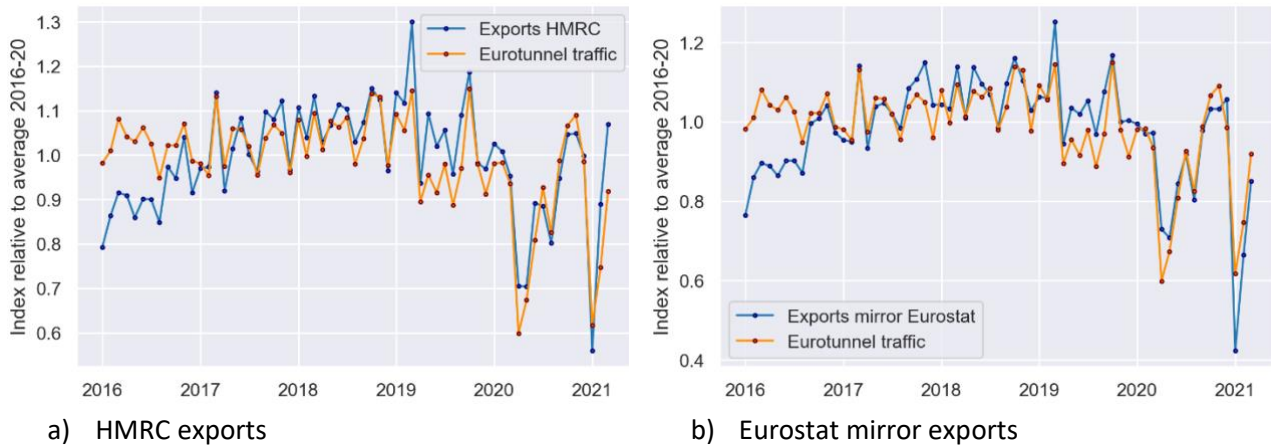
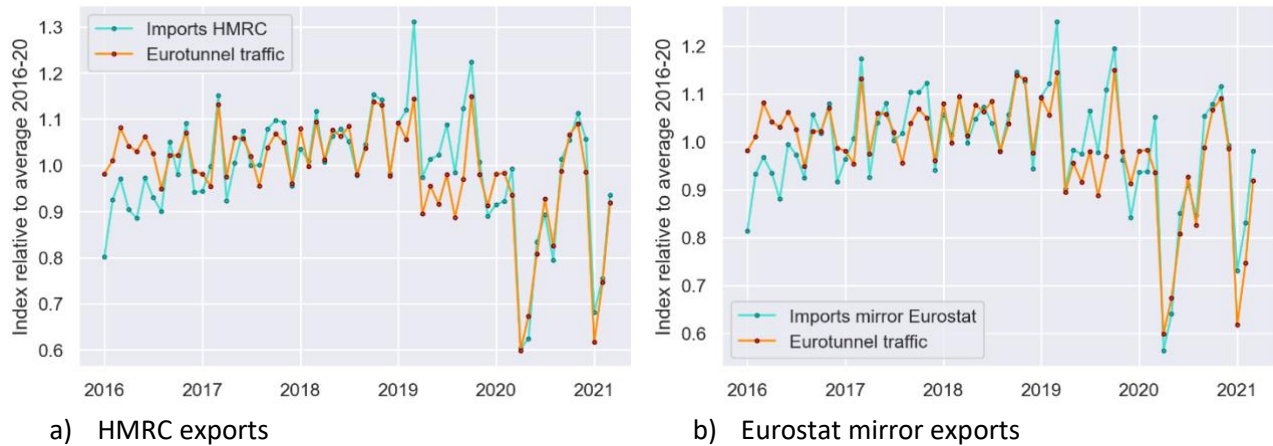
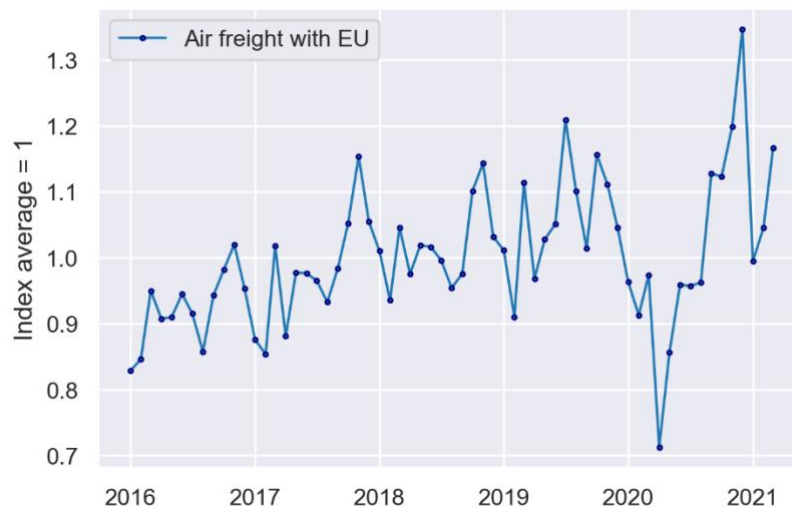


Figure 8: UK imports from the EU and Eurotunnel trucks traffic



Another measure that can be informative is air freight traffic. Eurotunnel traffic data is a better measure of UK-EU trade because only a small fraction of UK-EU trade is transported via airplanes (5% in 2020). Air freight transport data are downloaded from the UK Civil Aviation Authority, which publishes monthly statistics on air freight data, broken down by three partner countries: domestic, EU and non-EU.¹⁰ Figure 9 plots the series of air freight traffic with the EU as partner country. As per the other series, we divided the original series in tonnes by its 2016-20 mean. While the series shows a big drop in January 2021 compared to the last three months of 2021, the January value is just slightly below the period average. This is at odds with the trade value series, and reinforces the idea that air freight traffic data is not a very good proxy for total UK-EU trade.

Figure 9: Air freight traffic data with the EU



Source: authors' elaboration of UK Civil Aviation Authority data.

We then perform some more formal tests of whether any of the two trade series (HMRC and Eurostat mirror) are unexpectedly above or below trucks traffic in 2021 given their imperfect fit prior to 2021. While truck traffic measures total trade better than exports or imports separately, the main question about data reliability is on UK exports to the EU for the motives outlined above. We therefore perform the test both on total trade and on exports and imports separately. The test is carried out with a linear regression estimated by OLS:

¹⁰ The data are published under Table 14 in the UK CAA website.

$$y_t = \alpha + \beta \times trucks_t + \delta_{2021} + \epsilon_t \quad \text{Eq. 1}$$

Where y_t is trade either total, exports or imports in period t . The variable $trucks_t$ is the number of trucks that passed by the Eurotunnel in period t and the coefficient β measures the relation between trade and traffic. The parameter α is a constant measuring the average gap between the trade and truck traffic series. Finally, δ_{2021} is a dummy that equals one in 2021. This is the parameter of interest and will tell us by how much the gap trade/traffic in 2021 is different from the pre-2021 average. If we reject the hypothesis that $\delta_{2021} = 0$ than we conclude that trade in 2021 are not really comparable to pre-2021 ones.

We also estimate a second equation that takes into account information of air freight traffic as well as trucks traffic. While air freight alone might not be a good proxy for UK-EU trade, it still carries some information that can be used together with trucks traffic data. The second model is:

$$y_t = \alpha + \beta_1 \times trucks_t + \beta_2 \times air_t + \delta_{2021} + \epsilon_t \quad \text{Eq. 2}$$

Results for Eq. 1 are reported in Table 2 while those for Eq. 2 including air traffic are in Table 3. For both tables we test the model on total trade, exports and imports using HMRC reported data and the Eurostat mirror flows (so for mirror flows, UK exports refer to EU imports from the UK as reported by EU countries).

Both tables show a very similar story. For HMRC reported data, the dummy for 2021 is never statistically significant, nor for total trade, exports or imports. This is true both including and excluding air freight data. Using Eurostat mirror flows we find no significant difference in 2021 for total trade, but the story is different when we look at exports or imports separately. Here we find a significant under-reporting for UK exports to the EU and an apparent over-reporting for UK imports in 2021 compared to pre-2021 data. However, when we also include information on air freight data, the over-reporting for imports vanishes while the under-reporting for exports remains.

The lowest R-squared of the regressions is 0.62, which is reasonably high. This regression analysis confirms that Eurostat mirror flows are under-reported in 2021 compared to previous years while HMRC data do not appear substantially affected by the change in methodology when we compare them to trucks and air freight traffic.

Table 2: Regressions of trade on trucks traffic

	HMRC			Eurostat mirror		
	Total trade	UK exports	UK imports	Total trade	UK exports	UK imports
Trucks traffic	0.244*** (0.017)	0.090*** (0.009)	0.155*** (0.010)	0.252*** (0.013)	0.084*** (0.008)	0.168*** (0.010)
year=2021	1327.648 (760.429)	754.767 (817.476)	572.880 (444.162)	-144.419 (547.111)	-2084.826** (622.914)	1940.406*** (446.906)
Constant	1378.203 (2189.303)	1180.072 (1160.914)	198.132 (1376.839)	2270.568 (1749.442)	2240.103* (1033.423)	30.465 (1285.888)
Observations	63	63	63	63	63	63
R-squared	0.720	0.621	0.737	0.766	0.706	0.765

Robust standard errors in parenthesis. * p<0.05, ** p<0.01, *** p<0.001. The period considered is Jan2016-Mar2021. Total trade is the sum of exports and imports.

Table 3: Regressions of trade on trucks traffic and air freight traffic

	HMRC			Eurostat mirror		
	Total trade	UK exports	UK imports	Total trade	UK exports	UK imports
Trucks traffic	0.199*** (0.021)	0.074*** (0.011)	0.125*** (0.012)	0.209*** (0.018)	0.064*** (0.010)	0.145*** (0.012)
Air freight	0.330*** (0.082)	0.116** (0.039)	0.214*** (0.045)	0.312*** (0.085)	0.147*** (0.036)	0.165** (0.054)
year=2021	-1070.348 (927.305)	-88.135 (853.527)	-982.214 (554.360)	-2414.253** (800.401)	-3154.391*** (649.848)	740.136 (615.169)
Constant	-5563.509 (2985.834)	-1259.959 (1585.205)	-4303.549* (1663.160)	-4300.142 (2460.288)	-856.071 (1537.050)	-3444.072* (1435.055)
Observations	63	63	63	63	63	63
R-squared	0.804	0.689	0.825	0.835	0.796	0.815

Robust standard errors in parenthesis. * p<0.05, ** p<0.01, *** p<0.001. The period considered is Jan2016-Mar2021. Total trade is the sum of exports and imports.

What is the impact of the TCA?

After concluding that HMRC (or ONS) data should be used to evaluate the impact of the TCA on UK trade with the EU, we provide our estimates of the impact on trade. These estimates are an update of the analysis reported in the [UKTPO briefing paper 57](#) (BP57), which describes the methodology used. Differently from the analysis in BP57, we run the estimation using HMRC data excluding gold trade (HS 7108) and extend the period to April 2021. Our control group against which we compare UK-EU trade is composed of OECD and BRICS countries. Our central results show that UK exports to the EU have been down by 42% in January 2021, but they quickly recovered and there is only weak evidence that exports have been affected also in April 2021. On the other hand, UK imports have been consistently down in all the first four months of 2021, with a total fall in the first quarter of 26%.

Conclusion

The data collection method for UK-EU trade changed in 2021 due to the change from Intrastat - the survey for intra-EU trade - to customs declarations, as the UK became a third country with respect to the EU. The change in methodology did not affect UK imports from the EU, which will be collected via Intrastat until the end of 2021. On the other hand, UK exports to the EU saw methodological changes in data collection, and the same is true for their mirror flows. Moreover, the gap between UK reported exports and their mirror statistics saw a large jump in 2021, with the two series telling different stories about what happened to UK exports with the introduction of the TCA. HMRC data show a sharp decline in UK export to the EU in January 2021 and a quick recovery in the following months, while Eurostat mirror flows show a much more negative picture. This creates questions about which data series should be used to analyse the impacts of the TCA. After reviewing changes in data collection methods and after comparing trade data with freight

traffic, we conclude that UK exports to the EU as reported by the UK (HMRC or ONS) should be used instead of their mirror flows reported by EU countries. This is because the former saw smaller methodological changes compared to their mirror flows.

Appendix: UK-EU trade by mode of transport

We downloaded data on EU trade by mode transport from the Eurostat database (dataset 'Extra-EU trade since 2000 by mode of transport, by HS2-4-6[DS-1262527]' accessed on 13/07/2021). Since the UK is a non-EU country since 2020, Eurostat reports trade with the UK by mode of transport starting from February 2020.

The dataset has eight modes of transport plus an 'unknown' category. We computed the share of exports, imports and total bilateral trade (sum of exports and imports) of the UK with the EU over the period February - December 2020 (we use the EU aggregate as provided by Eurostat). The table is from the perspective of the EU, so 'exports' are EU exports to the UK.

Table 4: EU trade with the UK by mode of transport 2020, %

TRANSPORT_MODE	EXPORT	IMPORT	TOTAL
Air	4.5	5.7	5.0
Fixed Mechanism	0.5	2.0	1.1
Inland Waterway	0.5	0.5	0.5
Post	0.9	2.6	1.6
Rail	3.2	0.9	2.3
Road	61.7	53.9	58.8
Sea	14.7	18.4	16.1
Self Propulsion	1.5	0.6	1.2
Unknown	12.3	15.3	13.4
Total	100	100	100