CENTRE FOR BREXIT POLICY

COINCIDENCE IS NOT CAUSATION

Why Brexit is Not the Cause of Lower Goods Exports to the EU

MAY 2023

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The CBP aspires to trigger a deep and wide debate about what Brexit should mean for the UK over the next decade or two. By providing a focus for the development of post-Brexit public policy, the CBP hopes to help formulate an overarching framework for the UK that maximises the opportunities Brexit affords. This will be promoted to Government, Parliamentarians, and the public welcoming contributions from those who want to see Brexit open a new and fruitful chapter in our country's life.

The CBP has three core objectives:

- **Identify the benefits and opportunities of Brexit across the full spectrum of economic, trade, social, foreign, defence and security policy areas proposing new policies for the Government's agenda**
- **Continue to make the intellectual, evidence-based case for a 'real' Brexit and provide the Government with clear and constructive advice on how to deal with ongoing negotiation and implementation issues. A 'real' Brexit means regaining full control over our laws, borders, seas, trade, and courts.**
- **Check any attempts to dilute Brexit, as well as serving as a catalyst and rallying point for positive news stories that, over time, will be able to persuade and demonstrate the many substantial advantages of Brexit**

Delivery of these objectives is based on professional, substantive fact-based research by experts in their fields leading to authoritative reports, short papers, OpEds, events, and briefing meetings - both within and without Government.

The CBP is supported by a cadre of expert CBP Fellows drawn from multiple disciplines to provide additional expertise and experience in developing an agenda for policy change that will ensure the British people benefit from Brexit

AUTHOR

Phil Radford[1]

Phil Radford specialises in sectoral trade research. Previously, he worked as a management and strategy consultant in London, Chicago and Singapore and has written on trade and security topics in Australia, Southeast Asia, and the UK. He is author of '***The Case for Low Corporate Taxation: Lessons from the Pharmaceutical Industry'***, published by the Centre for Brexit Policy in November 2022, and multiple trade-related papers by Civitas. He was a contributor to Brexit Central in 2019.

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EXECUTIVE SUMMARY

In recent months, a ubiquitous public narrative has emerged claiming that Brexit has been uniformly bad for UK trade. In particular, it has been alleged that Brexit is responsible for the fall of goods exports to the EU since 2019.

Because of the distorting effects of the Covid-19 pandemic and impact of the Ukraine war, it has been difficult to discern objectively what the real trends in UK export performance have been, much less what have been the underlying drivers. However, with the publication of full-year 2022 trade data by the Office for National Statistics (ONS) in February 2023, this was expected to change.

In the event, drawing conclusions from this data proved difficult because of the combined distortions caused by rampant inflation, changes with energy supply chains, and effects of UK Government policy. Many commentators have drawn erroneous conclusions as a result of relying solely on aggregate trade data.

One way around this challenge is to step away from headline trade numbers and analyse the UK's goods exports, sector by sector. This reveals a very different picture to the negative Brexit consensus proclaimed in late 2022.

A thorough sectoral analysis of the new trade data plus an investigation into sectoral commercial activity, industrial trends, and international comparisons reveals five major conclusions:

1. **The aggregate performance of goods exports to the EU has been much better than commonly believed and it is now clear that EU goods exports have recovered more quickly than goods exports to non-EU countries**
2. **There are multiple, different causes to UK's current export underperformance — and Brexit is far from the most prominent**
   - **Global export falls are spread unevenly across the UK's global export mix and are concentrated in only two sectors**
     - The UK's global export woes are concentrated in motor vehicles and aerospace, which critically are the UK's two largest goods export sectors
     - By 2022, almost half of the UK's goods export sectors (43 per cent by value) exceeded the values achieved in EU markets in 2019, in real terms
   - **Events over the past three years have affected every sector differently. Key findings are:**
     - The direct cause of lower **automotive** exports was reduced UK production principally owing to factory shutdowns in 2021 and a shortage of microchips in 2022
     - Falls in **aerospace** exports were driven by airlines slashing orders and delivery requests in response to the severe drop in global travel
     - Export declines of **energy** products to the EU were caused by long-term disinvestment in the North Sea
     - Declines in EU exports of **pharmaceuticals** were a continuation of a long-term decline in manufacturing, owing to uncompetitive tax policies
     - **Apparel and footwear** exports to the EU declined because of changes in how goods exports are classified
     - Brexit appears to be a factor in reduced **food products** exports to the EU

3. **Brexit is not the prime driver of declines in UK goods exports: only 17 per cent of sectoral declines in goods exports to the EU in 2022 can be directly attributed to Brexit's impact on UK-made goods**

   - **Falls in goods exports to the EU were concentrated in Motor Vehicles and Oil & Petroleum in 2021**
   - **In the 2022 data, almost half of EU goods export sectors (by value) exceeded their 2019 totals in real prices and were 'back to normal'**
     - This included multiple major sectors typically accounting for 43 per cent of the value of our manufacturing goods exports to the EU, excluding oil and gas
     - 'Back to normal' for UK to EU trade implies flat growth, as in a typical year UK goods exports to the EU do not grow (value of goods exports to the EU since 2000 have fluctuated between £150 and £170 billion without exhibiting any sign of sustained growth)
   - **Only about 17 per cent of the falls in goods exports to the EU in 2022 might be directly attributed to Brexit** (defined as goods made in the UK)
     - 63 per cent was in sectors where falls are industry wide or temporary (cars), involve trends that set in before Brexit (pharmaceuticals), or relate to goods that aren't made in the UK and only transhipped across the UK (apparel and footwear)
     - 20 per cent was in sectors where goods exports to non-EU markets also fell, and so Brexit is unlikely to be the principal cause of export decline
     - 17 per cent was in sectors where Brexit is clearly or possibly the cause of a decline in goods exports (food, agriculture, jewelry, toys, sports goods)
   - **2022 trade data shows that non-EU goods exports are underperforming EU goods exports**

4. **The UK's particular mix of goods exports explains why UK trade was bound to underperform G7 countries in 2021 and 2022**

   - **The core reasons have nothing to do with Brexit, but rather how the UK's differing mix of goods export sectors were impacted by global events**
     - Those sectors that were worst impacted by COVID – specifically autos and aerospace – happened to be the UK's biggest goods export industries; a unique misfortune among G7 countries
     - The UK's declining hydrocarbon industry resulted in the UK benefiting only marginally from soaring demand during the Ukraine war — while energy exports from US and Canada rocketed
     - The sectors where goods exports proved stable during the pandemic – specifically machinery and electrical machinery – make up a bigger share of other G7 countries' goods exports
   - **The UK's unique export mix also explain why non-EU goods exports are lagging goods exports to the EU**. In 2019, non-EU markets took
     - 66 per cent of UK exports of aerospace goods (by value), and within this portion, the heavily hit civilian aerospace component predominates
     - 56 per cent of UK exports of automotive goods (by value), and by 2022, exports were down by almost the same percentage amount as in EU markets (25 per cent, as opposed to 27% in EU markets)

     The scale of export falls in these two sectors in non-EU goods trade alone equates to the falls in all other sectors in EU goods trade, regardless of the cause.

5. **Commentators and analysts are concentrating on the wrong issues: fixating on Brexit's trade impact obscures negative, long-term trends that inflict far greater damage on the UK's export performance**
    - **The impact of Brexit's is trivial relative to the issues underlying sectoral problems. Compared to the £55 billion deficit in energy the UK endured in 2022, the £2.7 billion impact of Brexit isn't just small - it's trivial**
    - **Underlying sectoral issues should be the focus of trade analysts, commentators, industry, and government. If scale of impact drives focus, then our, pharmaceuticals, autos, and energy sectors should be the prime focus of attention.**
    - **Trade commentators and analysts have failed to provide rigorous, sectoral trade research and analysis that can inform policy. Until this changes, UK trade policy is flying blind.**

INTRODUCTION

On 10 February 2023, British economics commentators suddenly went quiet. This was the day the Office for National Statistics (ONS) published its full-year trade data for 2022.

This should have been a day of judgement. Either the data for UK trade in 2022 should have confirmed the doom-laden analyses of last year, which largely ascribed a 15-17 per cent fall in trade to the impact of Brexit.[2] Or, the data should have showed that 2021 was a blip, and that UK goods exports to the EU had bounced back.

Instead, we got neither. The headline data from ONS in fact showed UK goods exports to the EU at record highs: £188 billion as against £166 billion in 2019. But the data was complicated by three factors that made direct comparisons problematic.

First, inflation ripped asymmetrically through all the trade data, with ONS assessing its impact at over 70 per cent for fuels, and just 4 per cent for motor vehicles. Second, the value of crude oil goods exports to the EU rose by £7.3 billion to £18.4 billion, while UK production remained stagnant. Third, natural gas goods exports to the EU – mostly re-goods exports – rose from £2.4 billion to £7.4 billion.

These factors make direct comparisons with 2019 a hazardous exercise. The net result is that our goods exports to the EU are either at record highs in current prices, or still 7.4 per cent down on 2019 values, if you apply deflators including to energy.[3]

One way around this challenge is to step away from headline trade numbers and analyse the UK's goods exports, sector by sector. This reveals a very different picture to the negative Brexit consensus proclaimed in late 2022.[4]

The following sections of the paper comprise a series of sectoral investigations, trend analyses and international comparisons. They show that:

- **Aggregate performance of goods exports to the EU has been much better than commonly believed and it is now clear that EU goods exports have recovered more quickly than goods exports to non-EU countries**
- **There are multiple and varying causes sector-by-sector for global goods export underperformance**
- **Brexit is not the prime driver of declines in UK goods exports: only 17 per cent of sectoral declines in during 2019–22 can be directly attributed to Brexit's impact on UK-made goods**
- **The UK's particular mix of goods exports explains why UK trade was bound to underperform G7 countries in 2021 and 2022**
- **Commentators and analysts are concentrating on the wrong issues: fixating on Brexit's trade impact obscures negative, long-term trends that inflict far greater damage on the UK's export performance.**

The following sections of the paper explain these conclusions in depth.

2 See, for example, Office for Budget Responsibility: Economic and fiscal outlook: November 2022.

3 Applying the industry wide ONS export deflator for goods exports minus precious metals.

4 See, for example, The Financial Times. Brexit and the Economy: the hit has been substantially negative. December 2022. Link.

AGGREGATE EU GOODS EXPORT PERFORMANCE MUCH BETTER THAN COMMONLY BELIEVED

The first thing to note in the ONS trade data published in February 2023 was some radical revisions to the 2021 data.

The new February ONS data shows that aggregate EU goods export performance has not been as bad as commonly believed and it is now clear that EU goods exports have recovered more quickly than goods exports to non-EU countries. Key observations are:

1. **UK fuel goods exports to the EU in 2021 were not as low as first assessed.** The ONS has added a hefty £3.3 billion to our exports of crude oil and petroleum for 2021 and has deleted £840 million from its estimates of ship and floating structures exports for 2019. At one stroke, this means 19 per cent of the £26 billion *net* fall reported by the ONS[5] in 2021 (as against 2019) never in fact happened.
2. **There were significant 'blips' in the 2019 data.** Specifically, exports of jewelry shot up from an average £1.1 billion in 2014–2018 to £1.9 billion in 2019 before falling to £780 million in 2021 and £964 million last year. And so, when the ONS, and other institutes benchmarked UK trade in 2021 against its performance in 2019, they included an aberrant £800 million spike.
3. **Taking inflation into account, goods exports to the EU have recovered more than goods exports to non-EU countries.** Adjusting for inflation (see Appendix A) the value of our goods exports to the EU are now just 7.4 per cent lower as compared to 2019. But our goods exports to non-EU countries have not recovered. They are still down 12.9 per cent on 2019 values.

So, in 2021, goods exports to the EU declined by just 12.8 per cent, in real prices. This 12.8 per cent figure is highly relevant as our goods exports to *non*-EU countries declined by an almost identical 12.9 per cent in 2021.

In other words: the revised ONS data for 2021 shows that our goods exports to EU and non-EU countries performed equally badly in that year, in value terms. But the data also shows that, last year, our goods exports to EU markets (net) regained almost half of the value they lost in the period 2019 to 2021.[6] Meanwhile our goods exports to global markets hardly recovered at all.

This suggests that a 'blame Brexit' approach is implausible. Clearly something more serious is impacting UK trade; otherwise our non-EU goods exports wouldn't be underperforming our goods exports to EU markets.

A good way to understand the relevant causal factors is to step away from economic models and aggregate data, and look at trade, sector by sector. This means looking at the specific goods exports sectors where major falls have occurred, identifying the actual goods involved, quantifying the falls, and then asking: 'why?'.

5 Minus precious metals. All data in this paper is less precious metals unless otherwise stated.

6 Transhipments of natural gas account for some of this rebound, but not much. The jump in goods exports of natural gas to the EU in 2022 was just over £5 billion, in nominal terms. The jump in total goods exports to the EU in 2022 (not including precious metals) was £38.3 billion.

MANY CAUSES OTHER THAN BREXIT FOR FALLING GLOBAL GOODS EXPORTS

Sectoral analysis hardly figured at all in the negative reaction that dominated recent UK trade commentary. Nor did it emerge in commentaries that used aggregate data to make comparative studies of UK trade intensity, volumes, or trade relationships.[7] Perhaps one reason is that most of the commentary about trade originated from macro-economists who deal principally in aggregate data. Another, perhaps, is that some commentators had prior, anti-Brexit positions to defend. They may have been tempted to 'cherry pick' data that supports an entrenched perspective. This is a form of statistical confirmation bias.

A sectoral approach, however, has one great advantage: if multiple factors – not just Brexit – are impacting UK trade, then a sectoral analysis will reveal rather than obscure them. In a sectoral analysis, wide, 'cover-it-all' explanations become impossible to sustain unless they are apparent in multiple sub-sets of data.

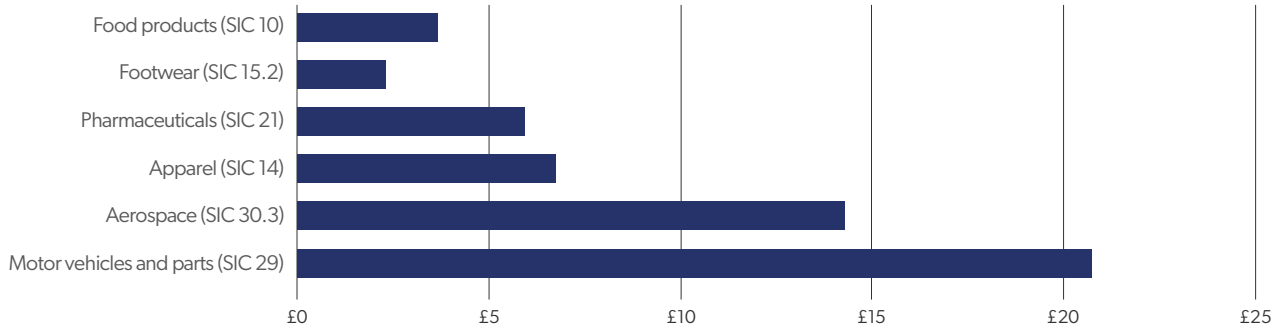
So, what does a sectoral analysis reveal? By how much have UK goods exports fallen, and in which specific sectors?

Global Export Falls Concentrated in Two Sectors

The standout feature of UK trade in 2021 and 2022 is how unevenly export falls are spread across the UK's global export mix. The other feature is that big falls are concentrated in just a few sectors.

The chart below shows where the main damage has been done across *all* UK goods exports over the period 2021 and 2022. It shows the principal sectors where there has been a major fall in the value of goods exports to both EU and non-EU markets. The values combine the shortfalls in 2021 and 2022 in all markets, and are relative to export values in 2019 in real prices. Outside of these sectors, falls are relatively minor, except for hydrocarbons, which are excluded owing to volatility and the role of trans-shipments.

Combined Falls In UK Export Sectors In 2021 & 2022 vs 2019 (£ bn- 2019 prices)



Source: ONS, UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2021 Q4, 10 February 2023. Deflators: ONS IDEF Annual deflators, according to SITC chapters. Published March 2023. **Notes:** Oil and refined petroleum just for 2021, owing to price volatility and impact of re-goods exports of natural gas. Data for apparel, footwear and food is EU-only, as slight increases increased in values in non-EU trade in either 2021 or 22.

It is instantly clear that, in *global* terms, the UK's export woes are heavily asymmetrical and concentrated in just two sectors: motor vehicles and aerospace. Critically for the UK, these are also the UK's two largest goods export sectors. In 2019, for example, they accounted for a combined 22.2 per cent of all UK goods exports. As a proportion of total sectoral falls, their share of the total was almost double in 2021 *and* 2022.

7 See for example, Office for Budget Responsibility: *Economic and Fiscal Outlook*: November 2022, page 26. Link; The Financial Times. *Brexit and the Economy: The hit has been substantially negative*. December 2022. Link.

The declines in exports of motor vehicles and aerospace are so severe that – for the first time in 2022 – the UK's machinery sector (SIC 28) has shot past autos and aerospace to become the UK's most valuable goods export sector, according to ONS data. This synchronised, auto-aerospace nosedive matters in terms of international comparison for one vital reason: the prominence of those two sectors in UK's export mix makes us a standout among G7 countries.

Incidentally, by 2022, almost half of our goods export sectors (43 per cent by value) exceeded the values achieved in EU markets in 2019, in real terms. This supports evidence from the chart above that the UK's goods export underperformance is localised; it is not spread evenly across our diverse goods export sectors.

Many Non-Brexit Causal Factors

In order to understand the causal factors of these goods export falls, the sectors that have suffered £1 billion-plus falls in any given year are analysed in detail in Appendix B. Because these sectors encompass the biggest sectoral falls experienced by UK goods exports in 2021 and 2022, they are therefore the proper focus for any analysis of UK's post-Brexit goods export performance.

The analysis in Appendix B includes real-prices valuations of falls in goods exports to EU and non-EU markets in 2021 and 2022. Percentage drops make for ready comparison. This section also includes commercial research to identify precisely what challenges these industries face in the UK and elsewhere. Readers are urged to consult these sections as they progress through this paper. This is because commercial activity within each sector has a profound impact on UK production and therefore exports – and yet this type of analysis is almost always absent from trade commentary.

The inescapable conclusion is that events over the past three years have affected every sector differently. There are multiple, different causes to UK's current export underperformance — and Brexit is far from the most prominent.

Nor are the falls necessarily where commentators might expect. Some very big sectors – eg, aerospace – are doing just fine in EU markets but have nose-dived in non-EU markets. Meanwhile, 'apparel' and 'footwear' suffered very steep falls in EU markets in both years, but not markets outside the EU. There is no consistency whatsoever.

The detailed findings from Appendix B are summarised below:

- **The direct cause of lower automotive exports was reduced UK production principally owing to factory shutdowns in 2021 and a shortage of microchips in 2022.** Predictably, falls in exports are almost equally spread between EU and non-EU markets, although the UK's larger non-EU markets mean non-EU trade has suffered more in value terms. Factory closures in Swindon, South Wales and Liverpool also impacted production in 2022. According to the companies involved, however, these closures were either temporary or due to factors other than Brexit.
- **Falls in aerospace exports were driven by airlines slashing orders and delivery requests in response to the severe drop in global travel.** This sector delivered the single biggest impact on UK goods exports in the period 2021–2022: an £8.2 billion drop in aerospace exports to non-EU markets in 2021. The direct cause is lower output of civilian aerospace goods (principally wings and turbo-jet engines) as airlines reduced orders and delivery requests in response to the severe drop in global air travel. Losses are almost entirely confined to non-EU markets, which take two-thirds of exports. UK-EU trade in this sector benefits from defence-related goods, where demand remained stable.

- **Export declines of energy products to the EU were caused by long-term disinvestment in the North Sea**. According to official data, total energy production in the UK in 2021 was at its lowest level in 50 years, and 14 per cent lower than in 2020. While the UK's natural gas production rebounded in 2022, oil production remains subdued. This hit UK-to-EU exports hard in 2021 (by £4.9 billion) simply because the EU is the UK's principal market for energy exports. The picture in 2022 is clouded by vast re-exports of natural gas, but a major source of net UK-to-EU exports is drying up simply because of long-term disinvestment in North Sea oil and gas.
- **Declines in EU exports of pharmaceuticals were a continuation of a long-term decline due to uncompetitive tax policies.** Some UK exports were doomed to fall post-Brexit because they were already in decline. UK exports of pharma goods to EU markets began to stagnate in 2010 and have never recovered from massive offshoring of manufacturing to EU countries over the past 13 years – including to Ireland.[8] What should worry analysts is how this is now impacting our non-EU exports, which until recently delivered one of UK's most valuable sectoral surpluses.
- **Apparel and footwear exports to the EU declined because of changes in how goods exports are defined in national accounts.** Apparel and footwear exports to EU markets have fallen precipitately (by 65 per cent and 73 per cent respectively). However, these sectors involve goods that are principally 're-exports'. The UK stopped being a major clothing and footwear manufacturer decades ago. The data is extreme because goods that used to be classified as 'UK goods exports' are no longer classified as such owing to rule-of-origin stipulations in the UK-EU trade agreement. This means either goods are still flowing, but no longer 'count' as UK goods exports, or supply chains now swerve around the UK. Either way, the implications for UK value-add are negligible.
- **Brexit appears to be a factor in reduced food products exports to the EU.** This is one of the few sectors where the data implies a Brexit impact. Food products exports to EU markets have fallen, while exports to non-EU markets have risen — and yet food manufacturing is one of the UK's biggest industries. This is the basic pattern a trade analyst would expect to see in the data if Brexit were exerting a major impact on UK trade. The data for agriculture implies the same, although the UK also acted as an EU import hub for some produce (e.g., tropical fruits) before Brexit.

Thus, sectoral analysis makes clear there were many factors affecting UK goods exports and these factors were different in each sector. But how prominent were Brexit effects in the overall declines that our goods exports incurred in trade with EU markets in 2021 and 2022? The next section addresses this question.

BREXIT IS NOT THE DRIVER OF DECLINES IN GOODS EXPORTS TO THE EU

First, what was the total damage? Adding up all 'falls' in the sectors where goods exports dropped in the new data for 2021 gives a total of £23.3 billion for goods to the EU, and £23.5 billion for goods exports to non-EU markets (in 2019 prices).

Total Of Sectoral Falls In Goods exports	2021	2022
To EU markets (v's 2019, real prices)	£23.3 billion	£16.5 billion
To non-EU markets (v's 2019, real prices)	£23.5 billion	£21.2 billion

Source: ONS, UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2021 Q4. 10 February 2023. 2019 prices.. Deflators: ONS IDEF Annual deflators, according to SITC chapters. Published February 2023. Notes: Includes all sectoral falls according to SIC classifications. Where there is a major divergence within a sector, subsectors have been used for calculation. Thus, in the 2021 data, crude oil 6.1 is included as a 'fall' without being balanced by SIC 6.2, natural gas. Both are excluded from the 2022 data, as values increased dramatically, along with transhipments.

8 See for example, CBP's paper: *The Case for Low Corporate Taxation: Lessons from the Pharmaceutical Industry*. November 2022. Link.

These 'sectoral falls' slightly exceed net falls because the value of goods exports rose in some sectors. This effect becomes more pronounced in the data for goods exports to the EU in 2022. For example, the net fall in the real value of goods exports to the EU in 2022 fell from £21.2 bn to £12.2 bn in 2022, but the total for sectoral falls in 2022 was £16.5 billion. This is because in 2022 almost half our goods export sectors (by value) registered increases above the 2019 benchmark (see below).

2021 EU Goods Export Falls Concentrated In Motor Vehicles and Oil & Petroleum

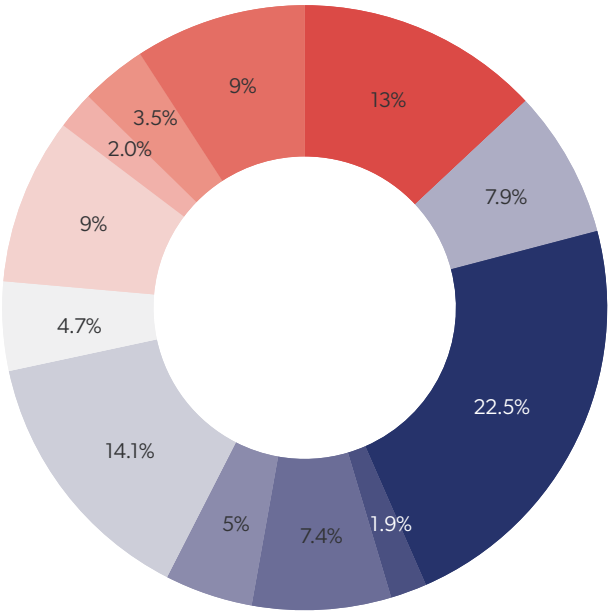
Next, which sectors were responsible for the biggest falls in goods exports to the EU? Here, the key observation mirrors what we've already witnessed in global export performance: falls in goods exports to the EU were concentrated in just a few sectors in 2021, and this trait became more pronounced in 2022.

- Motor vehicles and parts (SIC 29) delivered 23 per cent of falls in 2021 and 30 per cent in 2022
- Oil and petroleum (SIC 6; SIC 19.2) delivered 21 per cent of the £23 billion of falls in 2021, *before* price volatility and trans-shipments began to warp UK trade data in 2022[9]
- Apparel (SIC 14) and footwear (SIC 15.2) delivered 19 per cent of falls in 2021, and 28 per cent in 2022
- Food products (SIC 10) and agriculture (SIC 01) delivered 11 per cent of falls in 2021 and 2022
- Refined petroleum (SIC 19.2) accounted for 8 per cent of the total falls in trade in both years, which is consistent with reduced UK oil production
- Pharmaceuticals (SIC 21) recovered some of its losses in 2022 in EU markets, but still accounted for nearly 5 per cent of falls

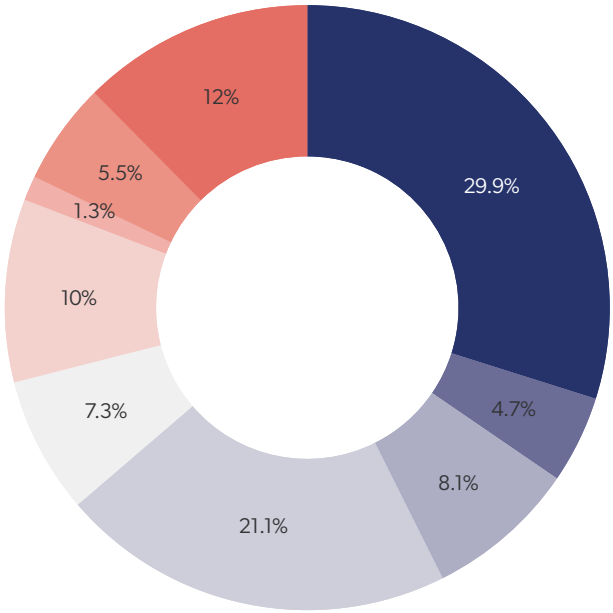
The 'Other' sectors include minor falls incurred in multiple sectors: textiles (SIC 13), rubber and plastics, (SIC 22), non-metallic products (essentially glass and porcelain, SIC 23), fabricated metal products (SIC 25) and electrical equipment (SIC 27). In each case, these sectors *also* incurred falls in goods exports to non-EU markets as well.

9 Crude oil and natural gas have been removed from the 2022 data. This is because price volatility makes accurate deflation almost impossible, and because of the role of transhipments in gas goods exports. It's worth noting, however, that increased production and transhipments of natural gas probably outweighed reduced volumes of crude oil, meaning that as a group, SIC6 would probably have no place in the 2022 data in this chart, in any case.

Sectors Responsible For The £23.3 Billion Total Of Falls In 2021 UK Good Exports To EU (vs 2019)



Sectors Responsible For The £16.5 Bn Total Of Falls In 2022 UK Goods Exports To EU (vs 2019)



- CRUDE PETROLEUM
- MOTOR VEHICLES AND PARTS
- AEROSPACE
- PHARMACEUTICALS
- ELECTRONICS
- REFINED PETROLEUM
- WEARING APPAREL
- FOOTWEAR
- FOOD PRODUCTS
- AGRICULTURE
- JEWELLERY, SPORTS GOODS, GAMES AND TOYS ETC
- OTHER

Source: ONS, UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2022 Q4, 10 February 2023. Deflators: ONS IDEF Annual deflators, according to SITC chapters. Published February 2023. **Notes:** Oil and refined petroleum excluded from 2022 data, owing to price volatility and impact of re-goods exports of natural gas. The 2019 value for SIC 30 goods exports is adjusted to account for the £800 million spike in jewelry goods exports in 2019. In the 2022 data, 'Other' includes marginal falls in textiles, electrical equipment, fabricated metal parts, rubber and plastics, non-metallic mineral products. In each case, falls are mirrored in goods exports to non-EU countries.

Almost Half of Goods Export Sectors Back to Normal (No Growth)

Meanwhile, in the 2022 data, almost half of EU goods export sectors (by value) exceeded their 2019 totals in real prices, including multiple major sectors: aerospace goods (SIC 30.3), machinery (SIC 28), chemicals (SIC 20), beverages (SIC 11), iron and steel (SIC 24.1-3), fabricated metal products (SIC 25), and computers and electronic equipment (SIC 26). In a typical year, these six sectors account for 43 per cent of the value of our manufacturing goods exports to the EU, which exclude oil and gas.

This implies that almost half our export sectors are 'back to normal' – at least in our EU trade. And the reader should note: flat goods exports is 'back to normal' for UK to EU trade:

- In a typical year, UK goods exports to the EU do not grow
- Since 2000, the value of our goods exports to the EU fluctuated between £150 and £170 billion without exhibiting any sign of sustained growth[10],[11]

As an aside, this simple, observable fact should – in itself – raise questions about the benefit the UK received from membership of the Customs Union and Single Market.

10 ONS: UK Trade in goods by Classification of Product by Activity, annual goods exports time series dataset, current prices, seasonally adjusted. Feb 2023. ONS Annual IDEF EU goods export deflator, minus precious metals. 2019 prices.

11 According to the latest ONS data, the value of UK goods exports to the EU in 2022 was just £5.1 billion below its real prices average for 2000 to 2019 (calculated in 2019 prices, using the ONS EU goods export deflator).

Brexit Accounts for Only 17 Per Cent of Goods Export Declines to the EU

An analysis of the causal factors for falls in our exports to the EU (shown in Appendix B) allows the effects of Brexit to be separated from the many other factors affecting our exports to the EU as explained above. The results of this analysis are summarised in the table below:

Declines In UK-To-EU Goods Export Sectors In 2022 vs 2019	2022 vs 2019[1]	Cause	Brexit Induced?	Per Cent of Total Decline
Motor Vehicles and Parts (SIC 29)	-£ 4.9 bn	Shortages of microchips and planned factory closures. Near-equivalent falls in non-EU goods exports.	No	43 per cent
Pharmaceuticals (SIC 21)	-£ 0.8 bn	Long-term decline owing to uncompetitive taxation. Equivalent falls in non-EU goods exports.	No	
Refined Petroleum (SIC 19.2)	-£ 1.3 bn	Decline in North Sea production	No	
Wearing Apparel (SIC 14)	-£ 3.5 bn	Entrepot trade: Reclassification of goods and supply chain re-routing of goods sourced from 3rd countries and trans-shipped to EU. No real impact on goods exports of goods made in the UK.	Goods not made in UK	28 per cent
Footwear (SIC 15.2)	-£ 1.2 bn			
Other (including textiles, rubber and plastics, mineral products	-£ 2.0 bn	Possibly Brexit, but falls also recorded in non-EU trade	UNLIKELY	12 per cent
SECTORS UNAFFECTED BY BREXIT	**-£ 13.6 bn**			**83 per cent**
Food products (SIC 10)	-£ 1.6 bn	Trade friction	Yes	17 per cent
Agriculture (SIC 13)	-£ 0.2 bn		Yes	
Jewelry, sports goods, games and toys (SIC 32)	-£ 0.9 bn	Likely trade friction	Probably	
TOTAL MAJOR FALLS IN GOODS EXPORT SECTORS	**-£ 16.5 bn**			

Source: 1: ONS, UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2022 Q4, 10 February 2023. 2019 prices. Deflators: ONS IDEF Annual deflators, according to SITC chapters. Published February 2023.

Notes: Oil and refined petroleum excluded from 2022 data, owing to price volatility and impact of re-goods exports of natural gas. The 2019 value for SIC 30 goods exports is adjusted to account for the £800 million spike in jewelry goods exports in 2019.

* Under terms of TCA, there should be minimal trade friction

As the table shows, only a small part – about 17 per cent – of the falls in goods exports to the EU in 2022 might be directly attributed to Brexit (defined as goods made in the UK). The full summary of causal factors are as follows:

- **Sectors where falls are industry wide or temporary (cars), involve trends that set in before Brexit (pharmaceuticals), or relate to goods that aren't made in the UK and only transhipped across the UK (apparel and footwear) account for 63 per cent of ongoing underperformance in 2022.**
- **Sectors where goods exports to non-EU markets also fell, and so Brexit is unlikely to be the principal cause of export decline account for 20 per cent.**
- **Sectors where Brexit is clearly or possibly the cause of a decline in goods exports (food, agriculture, jewelry, toys, sports goods) amount to only about 17 per cent of the ongoing declines in 2022.**

EU Goods Exports Outperform Non-EU Goods Exports

Before moving in, it is important to set our EU goods export trade in context.

As already pointed out, the 2022 trade shows that our non-EU goods exports are underperforming our EU goods exports. In real prices, goods exports to non-EU markets remain £22.3 billion below 2019 levels, while goods exports to EU markets are down just £12.2 billion.[12]

By far the biggest casualty in our *non*-EU trade is in aerospace – thanks to the UK's status as one of the world's biggest suppliers to the global aerospace industry. Aerospace goods exports suffered a cataclysmic £8.2 billion, or 36 per cent fall in non-EU markets in 2021 and are still down 24 per cent on 2019 values. Given that we export roughly twice the value of aerospace goods to markets outside the EU than in it, this fall has had a huge impact on the UK's overall trade performance.

Motor vehicle goods exports have also taken a huge hit in non-EU markets. Again, our non-EU markets for auto goods are already bigger outside the EU than in it, by around 25 per cent in a 'normal' year. The percentage declines of our auto goods exports in EU and non-EU markets are now almost identical: £4.9 billion, or 27 per cent (in EU markets) vs £5.8 billion, or 25 per cent (in non-EU markets). But since non-EU markets are bigger, the impact is greater.

Pharmaceutical goods exports have also taken big casualties in non-EU trade, with goods exports currently down 13 per cent, or nearly £2 billion.

The relative proportions of falls in sectoral goods exports in our non-EU trade in 2021 and 2022 are shown in charts in Appendix D. These charts are the direct counterparts to the two pie charts above that show sectoral goods exports to the EU.

UK GOODS EXPORT MIX DRIVES UNDER-PERFORMANCE AGAINST G7 COUNTRIES

As UK goods exports to the EU recovered during 2022, criticism of UK trade performance changed tack. Analysts drew attention to the fact that UK trade appeared to be recovering from the impact of COVID-19 more slowly than our competitors:

- Typical was the ONS article, '*Recent Trends in International Trade Flows of G7 Economies*', published in October 2022. In it, ONS observed that 'there was a fall in the size of trade flows relative to GDP for all G7 countries following the pandemic, although its effect has been larger in the UK.'
- In April 2023, the *Financial Times* conducted its own analysis of ONS data and concluded that 'Britain's goods exports are lagging all other G7 economies.'[13]

This begs an obvious question: *what has caused UK goods exports to underperform other industrial economies in 2021 and 2022?* Brexit is an obvious culprit. But the evidence from a sectoral analysis is that Brexit is just one of many causes. So, what's going on? What differentiates the performance of UK goods exports from other G7 economies?

12 ONS, UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2021 Q4, 11 March 2023. Precious metals excluded. Deflators: ONS IDEF Annual deflators, according to SITC chapters. Note: the ONS publishes slightly different deflators for goods exports (minus precious metals) for EU and non-EU export markets. The 2022 value for EU markets is 1.225 (for 2019 prices); for non-EU markets it is a slightly less severe (1.192).

13 *Financial Times*: UK's goods exports lowest in G7 following Brexit, study finds. April 2023. Link

This is where a sectoral analysis of UK trade performance bears comparative fruit**.** The chart on page 8 shows which UK goods export sectors have been hardest hit, and the detailed analysis in Appendix B shows why. For the purposes of international comparison, the following points are pertinent:

- Motor vehicles and aerospace combined delivered over 40 per cent of the sectoral falls in UK goods exports in 2021 and 2022. These are usually the UK's two biggest goods export sectors, and they've been the hardest hit by global events, including pandemic-related factory stoppages and a shortage of microchips.
- Hydrocarbon output from the North Sea dropped precipitately in 2021. Natural gas production has recovered, but oil production hit an all-time low in 2021, with no uptick forecast for 2022.[14]
- The UK's machinery industry (SIC 28) performed strongly in 2021 and 2022. Goods exports have grown slightly on 2019 values in EU markets and dipped slightly in non-EU markets. This was sufficient, in 2022, to make machinery the UK's most valuable goods-export sector for the first time.

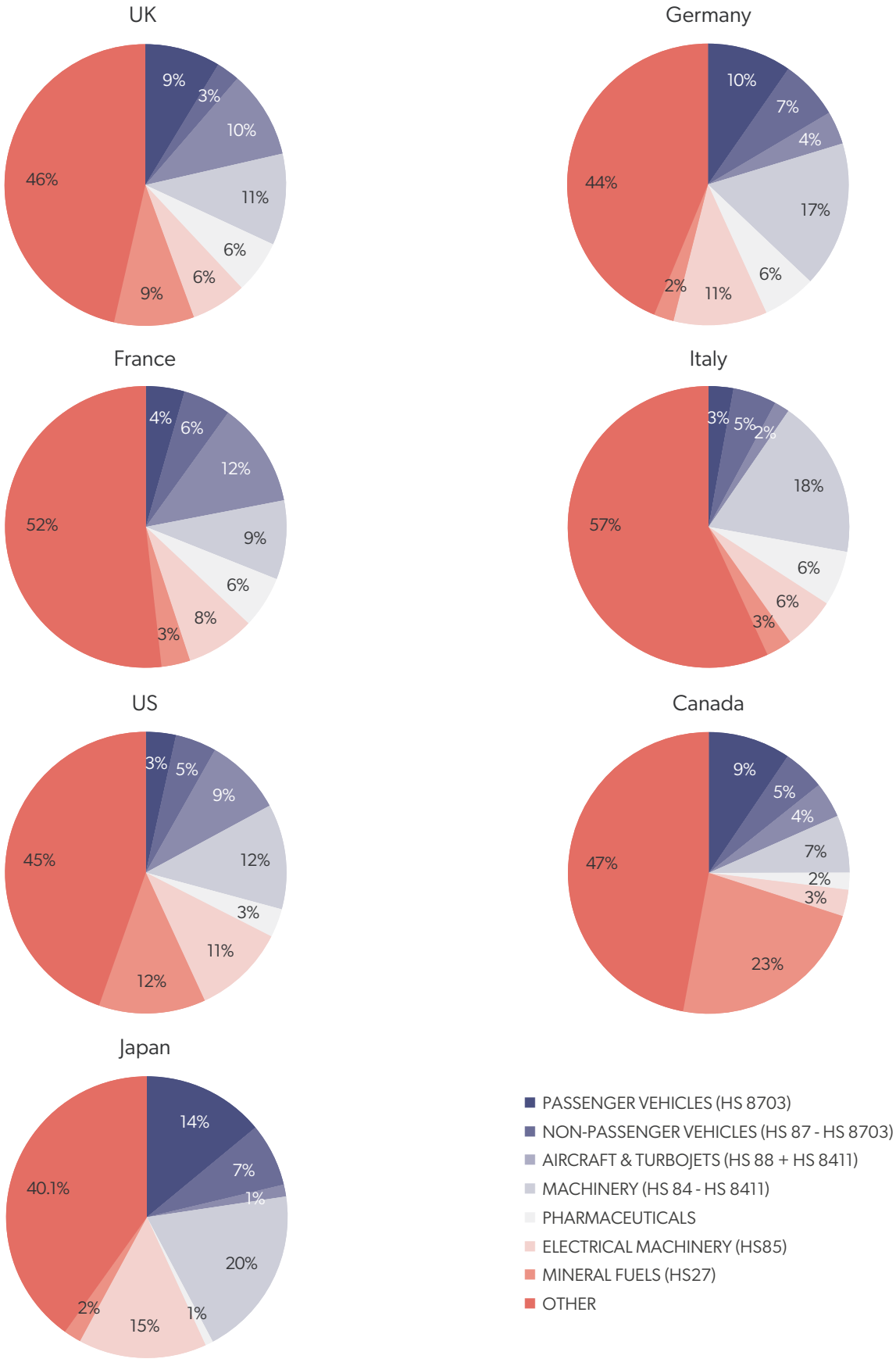
These factors should be kept front of mind when comparing the UK's goods export mix to our competitors. They explain why UK's trade was pre-destined to perform poorly in 2021 and 2022.

1. **The profile of the UK's goods export sectors is different from those of the G7.** The chart below is constructed from the UN Comtrade Database, using HS classifications. It shows the relative share of goods exports of most sectors analysed in this report across G7 countries. The data is taken from 2019 – i.e., the year before COVID-19 began to impact trade flows. It highlights a key point: that the proportion of each country's goods exports delivered by specific sectors varies enormously between G7 countries**.**

14 Department of Business, Energy and Industrial Strategy. Energy Trends, December 2022. Pp.1

Major 2019 Goods Export Sectors in G7 Countries as a Proportion of Total Goods Exports

(Less Precious Metals)



Source: UN COMTRADE. Precious metals extracted from all data. Accessed February 2023. **Note:** the HS classification system differs substantially from the SIC classification system used for the rest of this analysis. In the HS system, turbojets form part of the HS 84 Machinery, as do other aerospace components. This is why, in this classification system, Machinery appears a slightly more valuable export industry than aerospace for the UK.

From the chart, it can be seen that:

- Passenger vehicles and aerospace goods combined delivered 19 per cent of all UK goods exports, according to HS classifications. This is the highest combined percentage for these two sectors among G7 countries. In contrast, these two sectors delivered just 5 per cent of goods exports for Italy.
- Meanwhile, machinery (minus turbojets) plus electrical machinery together make up a smaller percentage of UK goods exports than any other country except Canada. Those two sectors make up a huge proportion of goods exports for Germany (28 per cent), Italy (24 per cent), the US (23 per cent) and Japan (34 per cent).
- Lastly, the US and Canada have enormous mineral fuels-export industries. The UK's is big by European standards, but production is in long-term decline. In contrast, production in the US and Canada is booming. This mattered in 2022, when the Ukraine war sent demand and prices soaring.

2. **The combination of the specific impact of global events on UK goods export sectors with the UK's differing mix of goods export sectors has driven the UK's export performance relative to the G7.** The core reasons have nothing to do with Brexit, but how individual export sectors were impacted by global events**.**

   - **Those sectors that were worst impacted by COVID – specifically autos and aerospace – happened to be the UK's biggest goods export industries; a unique misfortune among G7 countries**. Among G7 countries, the UK was unfortunate in the combined scale of its auto and aerospace industries. Other countries had bigger auto industries, but UK auto exports were dominated (76 per cent) by lower-value, chip-hungry passenger vehicles, and so the industry was more heavily impacted by the global shortage of microchips. Only France has a proportionally larger aerospace industry, but its vehicle export industry is tiny.
   - **Our declining hydrocarbon industry meant we only marginally benefited from soaring demand during Ukraine war — while energy exports from US and Canada rocketed.** Germany, France, Italy and Japan had relatively tiny exports of mineral fuels in 2019, and so had little to gain from increased demand and prices in 2022. In contrast, mineral fuels already delivered 23 per cent of the total value of Canadian goods exports in 2019. Record highs in production on the Alberta Sands in the first ten months of 2022[15] meant energy exports grew, to contribute almost one-third of all Canadian goods exports.[16] The US also benefited massively from increasing hydrocarbon production.[17] In 2022, the increase in the values of exports of crude oil, fuel oil, other petroleum products and natural gas boosted US goods exports by a staggering US$125 billion.[18]
   - **The sectors where goods exports proved stable during the pandemic – specifically machinery, and electrical machinery – make up a bigger share of other G7 countries' goods exports.** As the UK's own trade data testifies, machinery was a good export industry to be in during the pandemic, but it takes up a smaller share of UK goods exports than any other G7 country except France and Canada. According to SITC categories, the UK also has the second-smallest electrical machinery export sector. Only Canada's export mix exhibits a lower proportion, combined, of machinery and electrical machinery.

     Of course, factors other than export mix played their part. The UK failed to benefit from boosts in vaccine goods exports – unlike Germany and the US. Although the UK's pharma industry is still comparable to other European G7 nations, by 2021, our vaccine manufacturing had essentially

15 Financial Post: Canadian oil patch production expected to grow in 2023, exceeding 2022's record output. December 2022. Link

16 ONS: Recent trends in international trade flows of G7 economies. October 2022. Pp 9.

17 US petroleum goods exports have doubled over the past decade. US Energy Information Administration. Today in Energy. March 20, 2023. Link

18 US Bureau of Economic Analysis (US Department of Commerce). US International Trade in Goods and Services, December and Annual, 2022. Link.

disappeared. The two countries that benefited most from this aspect of Covid were the US and Germany where a high proportion of the vaccines were manufactured. The value of medicinal and pharmaceutical products (SITC 54) exports leapt by over 40 per cent in the US, and almost 10 per cent in Germany, according to ONS data.[19]

Other, one-off factors have been analysed in a paper by CBP Fellow, Catherine McBride.[20] These include factors such as petroleum refining goods exports, which helped boost Italian goods exports in 2022.

Meanwhile, the single biggest non-structural factor is likely to prove the UK-EU trade treaty itself. By introducing Rules-of-Origin stipulations for apparel and footwear goods exports, it's likely that a bloc of around 2 per cent of UK goods exports has been permanently expunged from UK export tallies. And regardless of whether those goods are still crossing UK borders, or whether supply chains are now re-jigging around the UK, that 2 per cent is never coming back.

3. **The UK's unique export mix also explain why non-EU goods exports are lagging goods exports to the EU.** The prominence of aerospace and autos in UK's export mix also helps explain the principal un-answered aspect to the new trade data for 2022: *why are UK's non-EU goods exports lagging our EU goods exports?*

   Obviously, Brexit cannot explain this, since if Brexit were the biggest factor impacting UK trade, the opposite outcome would be observable in the trade data. The answer lies in goods export markets. True, the autos and aerospace sectors are – or were – UK's largest goods export sectors. But these goods export markets were also heavily tilted towards non-EU markets.

   - In 2019, non-EU markets took 66 per cent of UK exports of aerospace goods (by value), and civilian aerospace predominates. This explains why almost all the losses in goods exports in this sector are in non-EU markets (see Appendix B). The fall in export values in 2022 (as compared to 2019) was £5.6 billion.
   - In 2019, non-EU markets took 56 per cent of UK exports of automotive goods (by value), and by 2022, exports were down by almost the same percentage amount as in EU markets (25 per cent). The fall in export values in 2022 (as compared to 2019) was £5.8 billion.

   Add up these two impacts in value terms – a reduction of £11.4 billion in goods exports in 2022 (as compared to 2019)[21] – and it's instantly clear why our non-EU trade is struggling more than our trade with the EU. The scale of export falls in these two sectors in our non-EU goods trade alone equates to the falls in all other sectors in our EU goods trade, regardless of the cause (£11.6 billion). In scale, nothing that's happened in our EU goods trade remotely matches the damage that's been incurred by our auto and aerospace sectors in non-EU markets.

Before leaving international comparisons, trade analysists should stop to consider the ultimate 'big picture'. As the ONS made clear in its November update, UK *goods* exports contribute a far lower proportion of our *total* exports (including *services*) at just 51–52 per cent in 2019-2021, as compared to other G7 economies. This meant that UK trade - in its larger sense - was inevitably harder hit than our major competitors, since, according to the ONS, the pandemic appeared to have a higher impact on cross border trade in services relative to goods.[22]

19 ONS: Recent trends in international trade flows of G7 economies. October 2022. Pp 8.

20 Catherine McBride: What the FT didn't tell you about UK goods exports and the G7. *Briefings for Brexit*, April 2023. Link.

21 **Source:** ONS, UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2021 Q4, 11 March 2023. Deflators: ONS IDEF Annual deflators, according to SITC chapters. Published February 2023.

22 ONS: Recent trends in international trade flows of G7 economies. October 2022. Pp 6.

COMMENTATORS AND ANALYSTS CONCENTRATING ON WRONG ISSUES

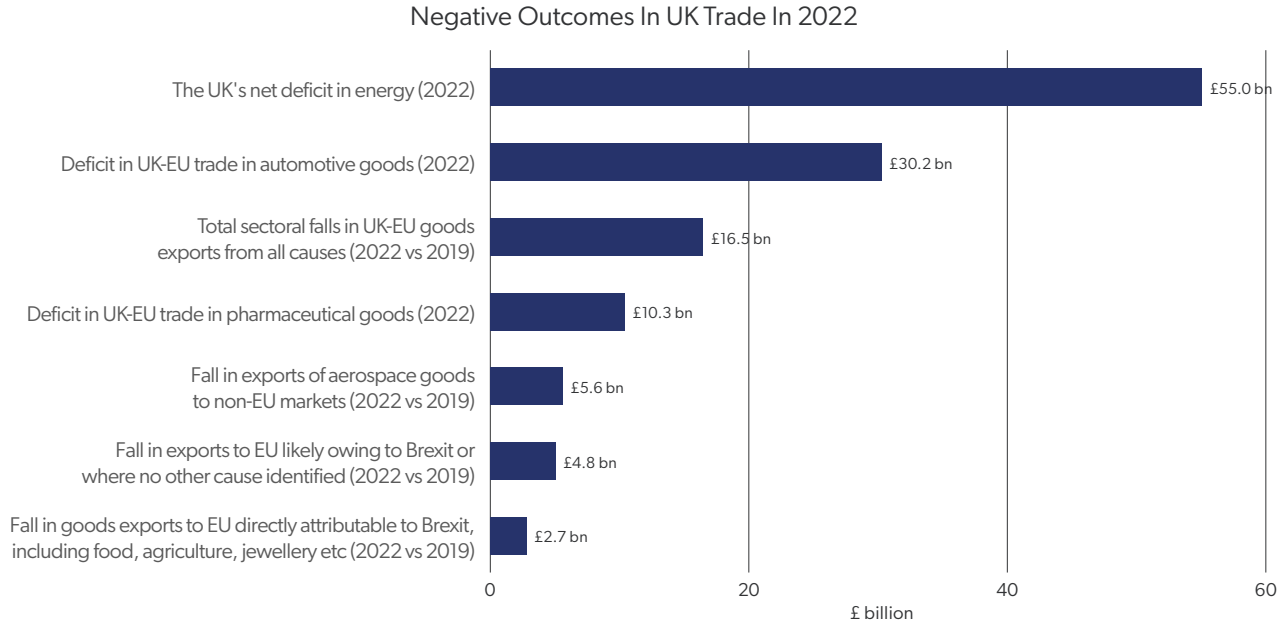
We have demonstrated that Brexit was a minor factor in the decline of goods exports to EU markets in 2021 and 2022. Meanwhile, the UK's particular mix of goods exports explains why UK trade was bound to underperform G7 countries in 2021 and 2022. And we have pointed out that, in 2022, the UK's goods exports to non-EU markets underperformed EU markets, which certainly doesn't fit the 'blame Brexit' consensus proclaimed by the Financial Times at the end of 2021.

The obsessive media narrative about Brexit being the cause of any trade-related problem is not just misguided, it's dangerous. It ignores fundamental realities about UK trade that should be identified and addressed.

Brexit's Impact Is Trivial Relative to Underlying Sectoral Issues

The biggest challenge facing UK commentary is a lack of proportion. Sectoral analysis can help address this defect. It can compare the various 'impacts' against each other, so policy makers can at least see what matters most.

The chart below shows various 'impacts' on UK trade from the data for 2022. These range from export falls due to Brexit and non-Brexit related causes, through to deficits incurred in some of our most vital traded sectors. The point is to see Brexit impacts in proportion to other aspects of UK trade.



Source: ONS, UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2022 Q4, 10 February 2023. Deflators: ONS IDEF Annual deflators, according to SITC chapters. Published February 2023. **Notes:** Oil and refined petroleum excluded from 2022 data, owing to price volatility and impact of re-goods exports of natural gas. The 2019 value for SIC 30 goods exports is adjusted to account for the £800 million spike in jewelry goods exports in 2019.

First, the small numbers. Adding the sectors where falls to EU export markets are definitely or probably due to Brexit delivers a total of £2.7 billion. This includes falls in food, agriculture, jewelry and sports goods. This £2.7 billion represents the real-prices fall in the export value of UK-made goods (as compared to 2019) that can be directly attributed to Brexit. [23]

23 Note that since 2000, the value of goods exports to the EU have fluctuated by about £20 billion but remained more or less static)

Is this a big number? Not in current terms. It's equivalent to just half the damage that 2022 inflicted on our aerospace goods exports to non-EU markets (£5.6 billion), which perturbed few people beyond investors in Rolls-Royce Plc.

What about a more generous definition of post-Brexit trade damage? For the benefit of doubt, add to this £2.7 billion all the minor falls across multiple sectors, like electrical equipment, plastics & rubber, and fabricated metal products, but where falls also occurred in non-EU markets. This total reaches £4.8 billion. It represents the sum of all the falls in UK trade sectors where the cause is either Brexit, probably Brexit, or even just possibly Brexit because no other cause has been identified.

This £4.8 billion loss to goods exports sounds hefty. But it's less than half the £10.3 billion deficit we registered in UK–EU trade in pharmaceuticals alone last year. Note that this fall in pharmaceuticals trade is neither a Brexit-induced fall nor does it result from a COVID-era phenomenon. The deficit was almost exactly the same size in 2019 (£10.4 billion), and it's been growing steadily and painfully ever since 2010 thanks to offshoring of manufacturing (see Appendix B). Yet who's getting upset about that – or doing anything to remedy it?

Now, for the sake of argument, assume, that *absolutely all* the sectoral falls in UK goods exports to the EU that were registered in 2022 – £16.5 billion – are due to Brexit and nothing else. This is the most extreme number that any undiscriminating analyst could conjure for Brexit's impact on UK trade.

Nevertheless, this £16.4 billion shortfall in EU goods exports is still only half the net deficit of £30.2 billion[24] we incurred in UK-EU trade in automotive goods in 2022, which is typical for this sector. And it's only one-third the gigantic £55 billion net deficit we incurred in trade in energy in 2022, which isn't typical but grew from an already huge base. Both of these falls have been growing steadily and predictably over two decades, observable for anyone to see and for policy to act on. Both completely overshadow the continued downturn of goods exports to the EU *from all causes.*

But the most important comparison is with the initial £2.7 billion figure, which is the most likely provable impact of Brexit on UK goods exports in 2022 (defined as goods made in the UK). Compared to the annual £30 billion EU deficit in autos and the £55 billion deficit in energy, this £2.7 billion total isn't just small - it's trivial.

Underlying Sectoral Issues Should Be the Focus

Identifying the causes of most falls in UK trade since 2020 is one thing – but can UK policy do anything about them? Perhaps the UK is temporarily unfortunate. After all, the pandemic and the shortage of microchips alone appear to have caused more than two-fifths of the total goods-export losses as defined in this paper, and those factors hit global industry.

Was 2020 and 2021 just a case of 'bad luck Britain'?

Sadly, not. At least three of the major negative impacts incurred by UK trade in 2022 were due to long term challenges to UK trade that might have been addressed, but haven't been. In value terms, these impacts are far greater than the impacts of Brexit. And it's where UK trade analysts and policy makers should focus their attention – if their chief concern is British prosperity.

24 The deficit was £29.8 billion in 2019, £28.7 billion in 2018 and £28.1 billion in 2017.

They could begin by addressing the following:

- **Pharmaceuticals.** British industry should have benefited hugely from the global demand for vaccines in 2021 and 2022, especially since a British company, AstraZeneca, devised early-on what was considered to be a leading vaccine. But UK pharma manufacturing has never properly recovered from its 2010–2015 downturn, when gross value added in the industry halved.[25] The chief cause was offshoring to more competitive tax jurisdictions in the EU, including especially the Republic of Ireland. By 2021, the UK had ceased to be a major vaccine manufacturer. Of the UK's two biggest pharma companies, AstraZeneca had ceased to make vaccines, and GSK had centralised its vast vaccine manufacturing operations at a gigantic site in Wavre, Belgium.

  The net result of this offshoring is horrendous. The UK's pharma trade with the EU switched from being fast-growing and balanced in the decade to 2010, to being export-stagnant and import-fuelled in the decade afterwards. UK–EU trade in pharma typically clocks up the second-largest annual deficit in UK-EU trade, with an average deficit of £8.7 billion in 2015–2019. What's more, this offshoring is now hitting our non-EU trade, where we used to generate £9–£10 billion surpluses.

  In the author's opinion, the single number that should most terrify the UK Government in the 2022 data is the £1.9 billion fall in non-EU pharma exports registered in 2022. This implies that the UK's second-biggest non-EU trade surplus is now under long-term threat – thanks to offshoring. If UK governments want to do one thing that will effect a major improvement in UK trade, it should make the UK the most tax competitive jurisdiction in Europe for pharma manufacturing. Any analyst who doubts the viability of this assertion should conduct a routine examination of Ireland's trade data.[26]

- **Automotive.** The £30.2 billion deficit registered in UK-EU trade in auto goods in 2022 is the result of a failure of policy to address long-term, predictable trends in UK trade. The UK–EU deficit in auto goods (SIC 29) already stood at £11.7 billion in 2000 (2018 prices). But since then, the deficit has grown inexorably as global car companies' diverted investment to other countries in the EU, encouraged by massive state subsidies that were un-matched by the UK.[27] This has left the UK a captive market to EU motor manufacturing.[28]

  Like pharmaceuticals, this trend in UK trade is long-term and highly detrimental. And the challenge is ongoing, as carmakers exploit tariff-free trade across Europe to demand subsidies from host countries whenever new investment is required. This cross-channel skid in investment will be harder to tackle than our challenges in pharmaceuticals, but the imperative is obvious. The auto export sector is typically our most valuable. The export of luxury vehicles to markets outside the EU has been the fastest growing constituent in UK's goods-export trade over the past 20 years, with a compound annual growth rate of over 5 per cent. Luxury vehicles is one area of manufacturing where we are highly successful.

  There is hope. With the passage of the Inflation Reduction Act in the US, UK trade commentators have woken up to the impact of overseas subsidies on vital UK industries. They should recognise that the biggest industrial threat posed by subsidies originates on this side of the Atlantic, but at least UK Governments are now cognisant of the threat that confronts them.

25 ONS: Annual Business Survey, 24 June 2021. Link.

26 See for example: Centre for Brexit Policy: *The Case for Low Corporate Taxation, Lessons From the International Pharmaceuticals Industry*. Page 8. Link

27 In 2017, Germany's Handelsblatt reported – on the basis of German Government data – that German carmakers had received more than €115 billion of public money in the preceding decade. Handelsblatt. *Germany's pampered car industry*. May 2017.

28 In 2019, the EU supplied a huge, 83 per cent of our auto imports, but took just 44 per cent of our goods exports, according to ONS data. This is the most extreme differential between share of goods exports and share of imports in all UK trade.

- **Energy**. Most urgent of all, however, is the impact of energy dependency on UK trade. Thanks to the Ukraine War and high prices, the UK's net energy-importer status has caused tens of billions of pounds to flow straight out of citizens' pockets and onto the balance sheets of energy suppliers in the US, Qatar, Norway and other countries, where they sit un-taxed by His Majesty's Treasury.

  In comparative terms, the numbers are stupefying. The UK's net deficit in all energy goods (oil, petroleum, natural gas and electricity) leapt from £20 billion in 2021 to £55 billion in 2022. This is equivalent to half the UK's total annual goods deficit with the EU. In other words, no recent change in UK trade data remotely compares with the damage that energy dependency inflicted on our trade in 2022.

  Like the deficits analysed above, its origins are to be found in trade data stretching back decades. The UK ceased to be a net energy exporter in 2004. But our net deficit increased dramatically only from 2011, as disinvestment in North Sea exploration and production began to tell on UK trade. By 2019, our deficit in energy goods was already one of the biggest drags on our trade, with an annual bill of £10.6 billion.[29]

  Just as with our pharma and our auto sectors, deterioration in trade in energy was the direct result of long-term policy settings. This result was in part deliberate (which does not imply correctness), as UK policy makers sought to divert investment into renewables. But contrast UK policy with the US, which has pursued energy independence as a policy for a decade. In 2022, US trade reaped a bonanza: energy has suddenly become the US's single most-valuable export. In contrast, the cost of energy dependence to UK trade and households has been horrific. And with a price tag of £55 billion in 2022, energy dependency completely overshadows the current impact of Brexit.

Trade Commentators And Analysts Have Failed

In summary, the UK's trade challenges are not remotely the result of a single factor. The sectoral analyses show that multiple factors are impacting the performance of each major UK goods export sector, and that these factors vary from sector to sector. The new data for 2022 shows that the biggest challenges impacting UK trade are, in order of damage inflicted:

1. Dependency on overseas energy, especially natural gas
2. The long-term failure to counteract EU subsidies in the UK car industry
3. The global shortage of microchips in 2022
4. The pandemic-triggered downturn in civil aviation, with its knock-on effect on civil aerospace
5. Offshoring of UK pharmaceuticals manufacturing owing to uncompetitive corporate taxation.

Only after these five challenges does Brexit figure as a cause of Britain's export problems.

The silence from commentators on the UK's latest trade data is ominous. Why – three months after the full trade data for 2022 has been published – has no institution or publication tried to explain why UK goods exports to the EU performed better than our global goods exports last year? Why has no institution or publication addressed the simplistic and monolithic public narrative that Brexit is the underlying cause of every trade issue? These are straightforward questions.

29 ONS: UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2022 Q4. Published February 2023.

The point of trade analysis should be to inform policy – and this is why trade research matters. Without effective insights, appropriate policies cannot be framed. Nor will UK Governments have any sound basis on which to judge the risks or benefits of trade policies and global strategies. Nor – ultimately – will UK governments know how or when to take action on international trade issues.

For example, the UK made expensive financial and political concessions to secure tariff-free trade with the EU via the Trade and Cooperation Agreement (TCA). If the TCA is not working as intended in a specific sector, how will the UK know when to investigate and respond?

The answer lies in rigorous, sectoral trade research. It's understandable that trade research in the UK withered during EU membership. With the EU responsible for UK trade policy, there was little practical point. And this was probably how Brexit-related debate on UK trade came to be dominated by macro-economists.

This needs to change. If UK universities and institutions can start to build a corpus of researchers who focus just on trade – and the inter-relation between specific industries and businesses and their global markets – then debate will be better informed, commentary will become more balanced, and policy makers can begin to address the principal challenges and opportunities in UK trade.

Until that emerges, UK trade policy is flying blind.

APPENDIX A
Adjusting for Inflation and Trade Metrics

For the purpose of analysis, this paper uses Office for National Statistics IDEF Annual deflators, according to SITC chapters, published in February 2023.

This provides separate deflators for exports and imports, and by markets (EU and non-EU). The mapping of SIC categories onto SITC chapters is shown below, along with all relevant metrics.

Readers should note that in our analysis, there was generally a high degree of continuity between sectors impacted in 2021 and 2022. This means that even though inflation impacted different sectors differently, the deflators used here for 2022 did return results that were consistent with trade performance in 2021, when inflation was relatively benign.

SIC Sector (Exports)	EU Deflators		Non-EU Deflators		SITC Chapter
	2021	2022	2021	2022	
Goods exports minus precious metals	1.036	1.225	1.01	1.17	All commodities excluding precious metals.
Agriculture (SIC 1)	1.017	1.127	0.988	1.071	SITC Chapter 0
Food Products (SIC 10)	1.017	1.127	0.988	1.071	SITC Chapter 0
Beverages (SIC 11)	0.96	1.003	0.978	1.055	SITC Chapter 1
Textiles (SIC 13)	1.028	1.11	1.025	1.138	SITC Chapter 8
Wearing apparel (SIC 14)	1.028	1.111	1.025	1.138	SITC Chapter 8
Footwear (SIC 15.2)	1.028	1.111	1.025	1.138	SITC Chapter 8
Refined petroleum (SIC 19.2)	1.063	1.729	1.021	1.704	SITC Chapter 3
Chemicals (SIC 20)	1.13	1.302	0.973	1.137	SITC Chapter 5
Pharmaceuticals (SIC 21)	1.13	1.302	0.973	1.137	SITC Chapter 5
Rubber and plastics (SIC 22)	1.04	1.228	1.021	1.148	SITC Chapter 6
Other metallic mineral products (SIC 23)	1.04	1.228	1.021	1.148	SITC Chapter 6
Fabricated metal products (SIC 26)	1.04	1.228	1.021	1.148	SITC Chapter 6
Computers & electronics (SIC 26)	1.028	1.11	1.025	1.138	SITC Chapter 8
Electrical equipment (SIC 27)	0.989	1.041	1.012	1.15	SITC Chapter 7
Machinery & equipment (SIC 28)	0.989	1.041	1.012	1.15	SITC Chapter 7
Motor vehicles & parts (SIC 29)	0.989	1.041	1.012	1.15	SITC Chapter 7
Air and spacecraft (SIC 30.3)	0.989	1.041	1.012	1.15	SITC Chapter 7
Other manufactured goods (SIC 32)	1.028	1.11	1.025	1.138	SITC Chapter 8

Source: ONS IDEF Annual deflators, according to SITC chapters. Published as 'Annual, quarterly and monthly estimates on the UK's trade in goods and services, including trade inside and outside the EU', Published February 2023. Available on request from ONS.

The impact of inflation on trade data – and energy in particular – encouraged some analysts to switch to volume measurements of UK trade in 2022. However, a sectoral analysis of UK trade shows why straightforward volumetric approaches should be treated with extreme caution.

The danger becomes obvious as soon as analysts take a drive through the UK's most valuable goods-export sector: SIC 29 – Motor Vehicles and Parts. The policy body for this industry in the UK – The Society of Motor Manufacturers and Traders (SMMT) – has stuck resolutely to a 'unit' metric for reporting production and exports all through the Brexit era.

Reporting by volume, however, hides the single biggest trend-shift in UK motor manufacturing of the past 20 years: the shift from mass-market models to luxury vehicles. Statistically, it makes no sense to lump together a Goodwood-crafted Rolls Royce – average price £440,000 – with a £26,000 Qashqai from Sunderland. And even within the same company, actual values are shifting rapidly, owing to the value-add of customisations in luxury models. The average price of a JLR vehicle was £44,000 in 2019. It's now £71,000.[30] Yet the SMMT sticks resolutely to reporting on car units in its monthly bulletins, regardless of value.

The degree to which this impacts trade analysis is obvious from UK trade data. As described in Appendix B, our non-EU export trade is dominated by high-value premium models, while mass-market models deliver a high percentage of our EU exports. The results in value terms are stark. According to ONS data, the value of UK auto exports (SIC 29) to non-EU countries overtook exports to EU countries in 2012, and is now often worth 25% more. [31] But according to the SMMT – which principally uses volume measures – the EU continues to be the UK's biggest overseas markets, taking 58 per cent of UK car exports. Both statements are correct, but the impressions given are direct opposites.

30 The Times. End of the road for Land Rover as Jaguar drives through Change. April 2023. Link

31 SMMT news: Global Demand for British Cars. Accessed March 2023. Link.

APPENDIX B
Sector-by-Sector Analysis of Global Goods Exports

In order to understand the causal factors of goods export falls, this Appendix analyses in detail the sectors that have suffered £1 billion-plus falls in any given year. Because these sectors encompass the biggest sectoral falls experienced by UK goods exports in 2021 and 2022, they are therefore the proper focus for any analysis of UK's post-Brexit goods export performance.

The analysis includes real-prices valuations of falls in goods exports to EU and non-EU markets in 2021 and 2022. Percentage drops make for ready comparison. The Appendix also includes commercial research to identify precisely what challenges these industries face in the UK and elsewhere.

The following sectors are analysed:

1. **Motor Vehicles and Parts**
2. **Aerospace**
3. **Crude Oil and Petroleum**
4. **Apparel and Footwear**
5. **Pharmaceuticals, Computers, and Electronics**
6. **Food and Agriculture**

1. Motor Vehicles and Parts

The direct cause of lower automotive exports was reduced UK production principally owing to factory shutdowns in 2021 and a shortage of microchips in 2022. Predictably, falls in exports are almost equally spread between EU and non-EU markets, although the UK's larger non-EU markets mean non-EU trade has suffered more. Factory closures in Swindon, South Wales and Liverpool also impacted production in 2022. According to the companies involved, however, these were either temporary or due to factors other than Brexit.

Sector (SIC category)	Goods exports	2021		2022	
		Decline in real value from 2019 *(per cent drop)*	per cent of total sector falls, 2019-21	Decline in real value from 2019 *(per cent drop)*	per cent of total sector falls, 2019-22
Motor vehicles and parts (SIC 29)	To EU countries	**-£5.2 bn** (↓ 28 per cent)	22 per cent (of £23 bn)	**-£4.9 bn** (↓ 27 per cent)	30 per cent (of £17bn)
	To non-EU countries	**-£4.8 bn** (↓ 21 per cent)	20 per cent (of £24 bn)	**-£5.8 bn** (↓ 25 per cent)	27 per cent (of £21bn)

Source: ONS, UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2022 Q4, 10 February 2023. 2019 prices. Deflators: ONS IDEF Annual deflators, according to SITC chapters. Published February 2023. **Note:** data for 2022 omits SIC 06 (crude oil and natural gas).

First, the biggest faller in 2021, the auto industry. This is typically the UK's biggest export industry. Up to 2019, it typically delivered 13 per cent of UK goods exports. But the value of auto exports to the EU sank by a spectacular 28 per cent in 2021. And according to the new data, exports for 2022 are still down by 27 per cent as against 2019 values: by £4.9 billion in 2022 as opposed to £5.2 billion in 2021.

The trade data for the auto sector instantly reveal the hazards of a 'blame Brexit' approach. This is because exports to non-EU countries also plunged in 2021. They fell by 21 per cent in 2021 and deteriorated again in 2022. This means that, proportionately, falls in our auto exports since 2019 are now almost equal as between EU and non-EU markets (27 per cent to 25 per cent). And since in value terms we typically export more to non-EU countries than to the EU, this means this biggest hit to our trade is from sales to non-EU countries, with exports down £5.8bn on 2019 levels, in real prices.

The immediate trigger is obvious – low UK production. Last year, UK car production dropped to a 66-year low, at least in volume terms.[32] In January 2023, the Society of Motor Manufacturers and Traders (SMMT) reported that:

- UK car production declined -9.8 per cent in 2022: vehicle output dropped 84,561 units to 775,014
- 2022 production was 40.5 per cent down on 2019, when 1.3 million vehicles were built in the UK.[33]

But what's the cause of lower production? The SMMT stated in January that the main reasons for record low production were '*the crippling shortage of semiconductors … significant structural changes reflecting the loss of production at two volume manufacturing sites and the impact of supply chain pauses in China due to COVID lockdowns*.'[34]

The SMMT pointedly avoids mentioning Brexit, but could it be a contributing supply-side factor? The main reason to suspect not is because the UK's auto-production woes are mirrored overseas. European car production has also suffered steep falls, first owing to COVID lockdowns and then to chip shortages. For example, by mid-2021, auto output in Germany was at just over 60 per cent its mid-2018 level[35]. In Germany, the slowdown is primarily blamed on the global shortage of microchips.

What about those 'structural changes' mentioned in the SMMT January bulletin? Is that code for Brexit? As it happens, closures at three auto factories impacted our export data in 2021 and 2022, but none of these closures was blamed on Brexit by the executives involved:

1. **Honda's closure at Swindon (July 2021)**. The challenge here is that executives have stated publicly that closure was not due to Brexit[36]. The mostly likely trigger was the EU-Japan Economic Partnership Agreement (EPA), which entered into force in February 2019. This removed the 9–10 per cent tariff barrier between Japanese plants and EU markets.
2. **Ford's closure of its engine plant at Bridgend, Wales (Sep 2020).** As with Honda, the company claimed at the time that the closure was "nothing to do with Brexit".[37] Ford has been disinvesting in UK for over a decade, as part of a strategy to concentrate operations in Germany and Spain. Ford's van plant in Southampton closed in 2013.
3. **The temporary closure of the Vauxhall/Opel Astra plant at Ellesmere Port (April 2022).** Owners Stellantis (formally PSA Group) are retooling the factory to produce EV vans for three brands, Vauxhall, Peugeot and Citroën. Production is due to restart in 2023.[38]

There's still a puzzle in the data. If Brexit isn't to blame, why were UK exports to the EU worse hit in 2021, and slightly worse hit in 2022? The answer is market differentiation. The cars we sell to EU markets are mostly mass-market models. In stark contrast, the cars we sell to markets outside the EU are almost entirely

32 Financial Times. British car production falls to lowest level since the 1950s. January 2023. Link.
33 SMMT. UK car production down but electric vehicle production surges to new record. Jan 2023. Link
34 SMMT. UK car production down but electric vehicle production surges to new record. Jan 2023. Link
35 Deutsche Bank: Automotive Production in Germany still in Back Burner–'Peak Car' behind us. Sept 2021. Link.
36 Reuters: Honda UK plant closure not related to Brexit: Europe boss. February 2019. Link.
37 Reuters: Ford to close engine plant in Wales in latest blow to UK car sector. June 2019. Link
38 AutoExpress. Final British-built Astra rolls off Ellesmere Port production line. April 2022. Link.

luxury vehicles. So, factory closures for mass-market brands disproportionally impacted our EU exports. Then, as chip supplies dwindled in 2021, car makers devoted scarce supplies to luxury models with higher margins. Both events preferenced our non-EU trade.

The good news is that car manufacturing is on an upswing. Barring further disasters, the single biggest source of our trade underperformance will shrink significantly or disappear in 2023. Jaguar-Land Rover (JLR) is now working through a colossal, 215,000 vehicle-backlog. In January, the company reported that chip supply challenges were easing.[39] Meanwhile, the UK's other biggest car exporter, Nissan, reports booming trade at its Sunderland plant. The Qashqai is now Britain's top selling car and over 70 per cent of Sunderland's output is exported to the EU.

The ultra-top end is already in roaring good health. Rolls Royce Motor Cars and Bentley reported record sales for 2022.[40,41] Both companies are predominantly exporters, both are essentially bespoke manufacturers, and both are spooling up investment. Bentley – the heftier of the two – is spending £2.5 billion on a rebuild of its Crewe factory for electric vehicle production.

What this means for trade is that the drop in UK car production is both unrelated to Brexit and (mostly) temporary. Our exports are down by 26 per cent (or £10 billion) from 2019 values, spread evenly between EU and non-EU markets. This 26 per cent drop exerts a huge impact on UK trade data because motor vehicles is usually our biggest export sector. The motor industry's troubles in 2022 mean it now accounts for an astonishing *29 per cent – or almost one-third* – of the ongoing 'hit' UK exports report in all markets as against 2019 values.

Any commentary on UK trade that swerves these fundamental auto facts is not worth reading.

2. Aerospace

Falls in aerospace exports were driven by airlines slashing orders and delivery requests in response to the severe drop in global travel. This sector delivered the single biggest impact on UK exports in the period 2021–2022: an £8.2 billion drop in aerospace exports to non-EU markets in 2021. The direct cause is lower output of civilian aerospace goods (principally wings and 'turbo-jet engines'). Losses are almost entirely confined to non-EU markets, which take two-thirds of exports. UK-EU trade in this sector benefits from defence-related goods, where demand remained stable.

Sector (SIC category)	Goods exports	2021		2022	
		Decline in real value from 2019 *(per cent drop)*	per cent of total sector falls, 2019-21	Decline in real value from 2019 *(per cent drop)*	per cent of total sector falls, 2019-22
Aerospace (SIC 30.3)	To EU countries	**-£0.5 bn** (↓ 3.7 per cent)	2 per cent (of £23 bn)	+£0.7 bn	N/A
	To non-EU countries	**-£8.2 bn** (↓ 35 per cent)	36 per cent (of £24 bn)	**-£5.6 bn** (↓ 24 per cent)	26 per cent (of £21bn)

Source: ONS, UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2022 Q4, 10 February 2023. 2019 prices. Deflators: ONS IDEF Annual deflators, according to SITC chapters. Published February 2023. **Note:** data for 2022 omits SIC 06 (crude oil and natural gas).

39 Jaguar-Land Rover: JLR returns to profit as chip shortages eased in the third quarter. January 2023. Link

40 Rolls Royce: Historic Sales Record Completes Landmark Year for Rolls Royce Motor Cars. January 2023. Link.

41 Bentley: Bentley delivers more cars than ever in 2022. January 2023 Link.

Aerospace is the other big problem area for UK exports – in value terms. Unlike the auto sector, however, the post-Brexit hit to exports is now entirely confined to exports *outside* the EU. Aerospace exports to EU markets dipped by just £0.5 billion in 2021, while exports to global markets plummeted by a stomach-churning £8.2 billion. This delivered easily the single most damaging hit to UK trade in 2021.

Export underperformance to markets outside the EU continued into 2022, with exports still down £5.6 billion. Meanwhile, our exports to non-EU markets have fully recovered, and now worth £0.7 billion more than in 2019.

So, what's going on? Why is aerospace inflicting such damage on UK exports? To understand what's going on, commentators need to grasp three core characteristics:

- First, the UK's aerospace industry 'went global' well before Brexit. In 2019, 64 per cent of our exports by value went to markets outside the EU, according to ONS data. This means that our aerospace industry is more exposed to global markets.
- Second, the aerospace industry really does matter to UK trade. It delivered almost 11 per cent of our total goods exports in 2019. It's the biggest industry in which we are most globally competitive, with an approximate 18 per cent share of global markets.[42]
- Third, aerospace is a fast-growing export industry for the UK. Export growth rates have exceeded 3 per cent per year since 2000, or roughly double our average.

What this means is that any turbulence in the global aviation industry is going to hit UK trade exactly where it hurts.

And as with any trade analysis, it's essential to grasp what goods the numbers refer to. Most of the value of UK aerospace exports (SIC 30.3) is in civil aerospace goods, especially wings, jet engines, and undercarriage assemblies. It also includes aircraft seating – fixed and ejector. However, SIC 30.3 also includes the sub-assemblies UK contributes to multinational military aircraft programs, such as the rear fuselage that BAE Systems contributes to the US-led F-35 fighter program, the front fuselage of Eurofighter Typhoons, and parts for the European A400M transport aircraft. Customers are either aircraft manufacturers (Boeing, Airbus, Lockheed-Martin) or airlines (in the case of jet engines), or governments defence departments.

So why the falls in exports in non-EU customers, while exports to the EU retained their value?

When COVID hit travel, airlines cancelled or delayed orders. This caused Boeing and Airbus to slow delivery and production, and this slowed supplies from UK factories, including Airbus' wing factory at Broughton. It triggered a catastrophe at Rolls-Royce Plc., which makes around one-third of the engines that propel wide-body passenger jets. This is why Rolls-Royce's share price tanked.[43] And note, Rolls-Royce is probably the UK's most valuable single manufacturing exporter. Before ONS re-jigged its data in 2018, it was apparent that aircraft engines typically delivered about 5 per cent of UK goods exports in any given year, or about half the value of the entire aerospace sector.

Were the falls in exports in any way Brexit related? Emphatically not. As the data shows, exports to EU markets actually held up well, falling just 3.7 per cent in 2021, and actually surpassing 2019 levels last year. The carnage was in UK's non-EU trade, where continued low exports 26% ongoing shortfall in UK exports, as compared to 2019. So, why the difference in outcomes?

42 The UK currently has an approximate 18 per cent share of the global market in aerospace, which is a phenomenal achievement. Source: US International Trade Administration. Country reports. Aerospace and Defense. United Kingdom. Link

43 Rolls-Royce was doubly unfortunate. Many of its civil turbo-fan engines generate revenue on 'power-by-the-hour' contracts. This means airlines purchase the engines at or below cost but pay Rolls-Royce for usage. When airlines stopped flying, a huge slice of corporate revenue from civil aerospace disappeared.

There are multiple factors at play. As with our car industry, our non-EU markets aren't just bigger, they also involve different goods. Our EU sales are more dependent on military programs, whereas civil aerospace predominates in global exports. Demand for military jets and defence-related transport aircraft remained strong throughout COVID, so our EU trade held up comparatively well. Meanwhile, airlines cancelled or delayed whatever orders they could. This meant our far-bigger global exports took a nose-dive.

There's a second factor at play, however. Back in June 2006, Rolls-Royce gained a contract that meant its Trent XWB became the *sole* engine available to power the forthcoming Airbus A350 passenger jet. The Airbus A350 has gone on to become best-seller – including with European airlines that typically purchase US-built engines for wide-body jets.[44] Deliveries of the A350 almost halved in 2021, but they kept going and around five out of seven Trent XWB engines are assembled in Derby.[45] The fact that so many XWB engines are fitted to European airlines materially impacts UK–EU trade.

This piece of commercial trivia has direct relevance to debate on UK trade. It shows how some industry sectors cannot be understood without examining corporate fortunes. Afterall, exports only happen when companies make sales, and some UK sectors are heavily dependent on just a few companies. The motor vehicle industry is another example. The fact that a single product like the Rolls Royce Trent XWB engine can sway the data shows how – in some instances – industry analysts are better equipped to interpret trade data than economists.

To conclude: as of 2022, the downturn in civil aerospace is the root cause of a sustained, £5.6 bn fall in UK exports but it's affecting global markets not our EU markets. Brexit is irrelevant, but the impact on UK trade is severe.

The combined 'knock' delivered by the auto (SIC 29) and aerospace (30.3) on our non-EU trade now amounts to £11.4 bn. It accounts for 59 per cent of the hit taken by UK's non-EU exports since 2019. This means the ongoing shortfalls in UK exports to global markets are overwhelmingly concentrated in the UK's two most-valuable export industries — motor vehicles and aerospace – and Brexit's impact on both is zero.

3. Crude Oil and Petroleum

Export declines of energy products to the EU were caused by long-term disinvestment in the North Sea. According to official data, total energy production in the UK in 2021 was at its lowest level in 50 years, and 14 per cent lower than in 2020. While the UK's natural gas production rebounded in 2022, oil production remains subdued. This hit UK-to-EU exports hard in 2021 (by £4.9 billion) simply because the EU is the UK's principal market for energy exports. The picture in 2022 is clouded by vast re-exports of natural gas, but a major source of net UK-to-EU exports is drying up simply because of long-term disinvestment in North Sea oil and gas.

Sector (SIC category)	Goods exports (Total falls)	2021	
		Decline in real value from 2019 *(per cent drop)*	per cent of total sector falls, 2019-21
Crude oil and petroleum (SIC 6.1) + (SIC 19.2)	To EU countries	**-£4.9 bn** (↓ 22 per cent) (↓ 22 per cent)	21 per cent (of £23bn)
	To non-EU countries	**-£3.7 bn** (↓ 27 per cent) (↓ 22 per cent)	16 per cent (of £24bn)

Source: ONS, UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2022 Q4, 10 February 2023. 2019 prices. Deflators: ONS IDEF Annual deflators, according to SITC chapters. Published February 2023. **Note:** data for 2022 omits SIC 06 (crude oil and natural gas).

44 Air France, for example, never selects a Rolls-Royce engine if an alternative is available. Ever.

45 Two out of every seven Trent XWB engines are assembled at a Rolls-Royce factory in Dahlewitz, Germany.

Next, energy. Even with the ONS hefty revisions to the 2021 data, energy still delivered the second-biggest hit to UK-to-EU goods exports in 2021, with a fall of £4.9 billion in the value of exports of crude oil (SIC6.1) and petroleum (SIC 19.2). *Before* the revisions published in February, these two categories delivered a huge 31 per cent of the falls registered across export sectors in 2021.

The role that reduced energy exports played in poor UK trade data in 2021 was rarely commented upon last year – and it deserves especial attention now. First, because some of the reported fall never in fact happened. Second because trade in energy now exerts a gigantic impact on the headline data. During 2022, price volatility and the UK's emergence as a land bridge for gas exports mean that for the purposes of this analysis, energy data has to be treated as a separate category. Otherwise, energy utterly distorts the data.

As it happens, the ONS reports our exports of SIC 6.1 shot up to £18.4 billion in 2022, easily surpassing the £13.5 billion reported in 2019. But this is essentially due to higher prices, not volumes. Two other factors cloud the energy picture.

- **UK re-exports of natural gas to EU markets**. Exports soared, though this was due to volumes as well as prices, as UK pumped imported Qatari and US LNG into the EU via two pipelines to Netherlands and Belgium. The UK exported £7.4 billion-worth of natural gas to the EU during 2022, against an average of just £1.6 billion in 2015–2019.
- **The UK's emergence as an electricity exporter**. The UK clocked up power exports worth over £3 billion in 2022. This is due to capacity shortfalls in France plus UK's ability to generate surplus power from gas plants when offshore wind power approaches full capacity.

In brief, energy caused the single biggest hole in UK export data as reported in 2021. But higher prices, and new forms of exports means that the value of UK energy exports (including gas and electricity) appear to have surpassed their 2019 level no matter how they are measured. Since energy is no longer a 'faller' in UK trade data, and because their value in 2019 prices is a complicated and essentially fruitless calculation,[46] the 2022 numbers have been removed from table above.

But what about 2021, when those huge, reported falls in the value of energy exports delivered the single biggest hit to UK exports? Was that due to Brexit?

Common sense says otherwise. As 2022 has just demonstrated, EU markets will take as much energy as we can supply at a competitive price, and exports shot up. What happened in 2021 was that UK production of crude oil (and natural gas) both plummeted. This fall in production was due to low investment in the North Sea since 2014, plus the effect of delayed maintenance in the Forties field.

- According to official UK DUKES data, total energy production in UK in 2021 was at its lowest level in 50 years, and 14 per cent lower than in 2020.[47]
- Falls in oil and natural gas output account for almost the entirety of this drop in exports.
- Production of primary oils was down 17 per cent compared to 2020, and production of petroleum products (which UK exports to EU, and the Netherlands in particular) reached a record low[48].

Brexit was irrelevant to this fall in output except tangentially, because stockholding obligations have changed. The UK's lower energy production and exports were due solely to domestic factors, principally the long-term decline in investment in North Sea production. The knock-on impact on UK's trade with the EU was huge

46 The ONS trade deflators identify energy as easily the biggest inflationary element in export prices in 2022, with a value of 1.73 over 2019 values. But this number is meaningless for SIC 6.1, since inflation was concentrated in natural gas, not oil. Meanwhile, the market price of power oscillates wildly, and largely determines when exports occur. As is painfully clear, the 2019 price of energy imports and exports is ultimately irrelevant. They were staggeringly high in 2022, and while that benefited UK exports to the EU, it crippled UK balance of payments.

47 UK Department for Business, Energy and Industrial Strategy. Energy Trends: UK October to December 2020 and 2021. (DUKES). Published 31 March 2022. Section 1, page 2. Link (Accessed June 2022)

48 DUKES, 31 March 2022. Section 3, page 7. Link (Accessed June 2022).

because UK has typically been a significant energy exporter to the EU. In 2019, oil, natural gas and refined petroleum combined delivered 13.7 per cent of UK goods exports to the EU. And so, changes in UK output were always going to deliver an instant impact on UK-EU trade – and that's exactly what happened in 2021.

High energy prices came to the rescue of UK-to-EU exports in 2022, but only in the most superficial way. As a net energy importer, our global trade took an almighty hammering. Currently, high oil prices, the UK's land bridge role for natural gas, and new power exports combine to eliminate the hit that the energy sector delivered to UK-EU exports during 2021. Unless prices collapse in 2023, total energy exports to the EU for this year will almost certainly continue above 2019 values, however calculated. But the picture is still grim; with high prices and re-exports obscuring historic lows in hydrocarbon production and exports from indigenous fields.

Brexit is irrelevant to UK trade in energy. It is, however, a neat way to avoid taking responsibility for a painful policy failure. The long-term decline in the UK domestic energy production – including especially oil and gas output from the North Sea – severely dented the value of UK-to-EU exports in 2021. As we shall see, it also robbed Britain of an export opportunity. If UK policy had encouraged energy independence over the past decade, as policy did in the US, then our trade would have enjoyed the same export bonanza that the US and Canada experienced in 2022. But we didn't do that. And the blame lies in taxation policies designed to lure energy investment towards renewables.

The price paid for energy dependence by UK households is horrendous. The cost of imports of all types of energy rocketed to £114 bn in 2022 from £52 bn in 2021. Exports barely covered half that amount, so last year our net deficit in energy leaped by £35 bn to £55 bn. For a moment, compare that £55 bn hit to UK trade to the ongoing, £16.4 bn shortfall in UK goods exports to the EU – from *all* causes. It's three times worse before analysts even start their investigations.

The 2022 trade data for energy is a horror story in terms of energy policy outcomes. Blaming Brexit is not just misleading, it's diversionary.

4. Apparel and Footwear

By 2022, apparel and footwear exports to EU markets had fallen precipitately, by 65 per cent and 73 per cent respectively. However, these sectors involve goods that are principally 're-exports'. The UK stopped being a major clothing and footwear manufacturer decades ago. The data is extreme because goods that used to be classified as 'UK exports' are no longer classified as such owing to rule of origin stipulations in the UK-EU trade agreement. This means either goods are still flowing but no longer 'count' as UK exports, or supply chains now swerve around the UK. Either way, the implications for UK value-add are negligible.

Sector (SIC category)	Goods exports	2021		2022	
		Decline in real value from 2019 *(per cent drop)*	per cent of total, fall	Decline in real value from 2019 *(per cent drop)*	per cent of total, £14bn fall
Apparel (SIC 14)	To EU countries	**-£3.3 bn** (↓ 61 per cent)	14 per cent (of £23 bn)	**-£3.5 bn** (↓ 65 per cent)	21 per cent (of £17bn)
	To non-EU countries	£0.4 bn (↑ +22 per cent)	N/A	£0 bn	
Footwear (SIC 15.2)	To EU countries	**-£1.1 bn** (↓ 67 per cent)	5 per cent (of £23 bn)	**-£1.2 bn** (↓ 73 per cent)	7 per cent (of £24bn)
	To non-EU countries	£0.1 bn (↑ +40 per cent)	N/A	£0 bn	

Source: ONS, UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2022 Q4, 10 February 2023. 2019 prices. Deflators: ONS IDEF Annual deflators, according to SITC chapters. Published February 2023. **Note:** data for 2022 omits SIC 06 (crude oil and natural gas).

With apparel and footwear, analysts at last reach a sector where the data shows a clear divergence in trade outcomes as between our exports to the EU and exports to other countries. The data shows exports to EU markets plunged by over 60 per cent in 2021 and over 70 per cent in 2022, as compared to 2019 values. Meanwhile, exports of apparel and footwear to markets outside the EU actually rose by £500 million in 2021 and dropped back by the same amount in 2022.

In other words: there is an absolute divergence in export performance, with EU exports taking an almighty dive. In fact, these are easily the biggest percentage falls notched up by any sector. And although these sectors are small in terms of overall UK trade – delivering just 2.7 per cent of goods exports in 2019 – the registered falls have had a big impact on headline trade outcomes. The 2022 data shows that the fall in exports of SIC 14 and SIC 15.2 now contributes 28 per cent to the ongoing shortfall in UK goods exports to the EU in 2022.

So, what's going on? Is this finally a sector where Brexit has wreaked its well-predicted havoc?

The answer is yes, but it doesn't mean quite it appears to mean. Yes, the data shows that exports have fallen. But the catch is that none, or almost none of the goods was actually made in the UK to begin with.[49]

First, some technical background. Before 2020, apparel and footwear imported into the UK from outside the EU and then re-exported to the EU showed up in UK trade data as 'UK exports'. But the rules of origin (RoO) stipulations in the UK-EU Trade and Cooperation Agreement (TCA) mean that from 2020 onwards, apparel can only be classified as 'UK goods' if the value of goods exceeds a specific percentage – typically around 50 per cent.

So, what the trade data actually shows is one of two things happening:

1. Apparel and footwear is still being transshipped to the EU, but since EU import rules no longer classify them as UK goods they fail to register as UK exports.
2. Apparel and footwear that used to be transshipped via the UK to EU markets is simply going to those EU markets direct and bypassing UK customs.

Of the two, the latter is the most likely. It makes no sense for fashion companies to require goods made in Asia to traverse two sets of customs, paying relatively high duties on both occasions. However, it takes time for supply chains to adjust. Therefore, it's likely that the current 70 per cent-or so falls in exports will increase, year on year, until what's left are goods that are genuinely made in the UK.

But how do analysts know this?

First, a basic knowledge of the fashion industry reveals that there is almost no clothing or shoe-making industry left in the UK. What's left is either boutique or extremely specialised. And the statistical evidence that trade is dominated by re-exports comes from a careful comparison of export and manufacturing data. This again shows how trade analysts should take a deep breath before leaping to conclusions from headline trade data and examine the actual goods in question.

First: the value UK apparel exports (SIC 14) grew suspiciously quickly in the decade prior to Brexit, from £3.3 bn in 2009 to £5.4 bn in 2019 (2018 prices). But UK *manufacturing* in SIC 14 goods moved in the opposite direction. According to ONS data from the Annual Business Survey (ABS), UK factory output of SIC 14 goods fell semi-erratically from £2.9 bn in 2008 to £2.5 bn in 2019 (current prices), with gross value

49 The UK's fast apparel and footwear industries offshored decades ago, and the fast fashion industry itself is entirely dependent on overseas production. Bangladesh is a massive supplier of UK textiles and clothing, and second only to China, imports from Bangladesh rocketed from £417 million in 2000 to just over £3 billion in 2019. 90 per cent of these exports were textiles and clothing. Imports from Pakistan have also surged to £1.3 bn, and 80 per cent of this is some form of textiles and clothing, according to WITS data.

added (GVA) hovering at about one-quarter of factory output.[50] So there's a clear statistical spoiler alert: this is one of the very rare cases in UK sectoral data where factory output moves in the opposite direction to exports.

Footwear (SIC 15.2) is a similar story. Almost all UK footwear exports go to EU countries (85 per cent in 2019), but as with apparel, the value of those exports far exceeds the value of UK factory output. The total value of UK exports in 2019 was £1.95 billion but the value of UK factory turnover in that year was just £731 million. GVA for the subsector was just £201 million. To put the data another way, footwear comprised just 0.13 per cent of manufacturing turnover in 2019 but delivered 1.1 per cent of manufacturing exports. Footwear too, is – at least was – predominantly a re-export trade.

In summary: the dramatic falls in UK exports in SIC 14 and SIC 15.2 are misleading. They contribute over one-quarter to reported shortfalls in UK to EU exports in the new data for 2022. But in physical terms, this marks just the re-classification of re-exports, or the diversion of Asia-to-Europe supply chains around the UK.[51]

What matters, statistically, is that approximately 3 per cent of UK goods exports to the EU have been revealed as 'not made in UK to begin with' and permanently wiped from UK trade data. Any comparison with 2019 values that fails to take account of this reclassification will continue to give a highly misleading impression of post-Brexit UK trade.

5. Pharmaceuticals, and Computers and Electronics

Some UK exports were doomed to fall post-Brexit because they were already in decline. UK exports of pharma goods to EU markets began to stagnate in 2010 and have never recovered from massive offshoring of manufacturing to EU countries over the past 13 years – including to Ireland.[52] What should worry analysts is how this is now impacting our non-EU exports, which until recently delivered one of UK's most valuable sectoral surpluses. Exports of computers and electronics have also fallen, and this is the tail of a long-term trend, as manufacturing moved to Asia.

Sector (SIC category)	Goods exports	2021		2022	
		Decline in real value from 2019 *(per cent drop)*	per cent of total, £24 bn fall	Decline in real value from 2019 *(per cent drop)*	per cent of total, £14bn fall
Pharmaceuticals (SIC 21)	To EU countries	**-£1.7 bn** (↓ 18 per cent)	7 per cent (of £23 bn)	**-£0.8 bn** (↓ 8 per cent)	5 per cent (of £17 bn)
	To non-EU countries	**-£1.5bn** (↓ 11 per cent)	7 per cent (of £24 bn)	**-£1.9 bn** (↓ 13 per cent)	9 per cent (of £22 bn)
Computers & electronics (SIC 26)	To EU countries	**-£1.1 bn** (↓ 8 per cent)	5 per cent (of £23 bn)	+£0.2 bn	N/A
	To non-EU countries	**-£1.6 bn** (↓ 11 per cent)	7 per cent (of £24 bn)	**-£1.8 bn** (↓ 12 per cent)	9 per cent (of £22 bn)

Source: ONS, UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2022 Q4, 10 February 2023. 2019 prices. Deflators: ONS IDEF Annual deflators, according to SITC chapters. Published February 2023. **Note:** data for 2022 omits SIC 06 (crude oil and natural gas).

50 ONS: Annual Business Survey 2019 results. Release date June 24, 2021.

51 In an excellent recent analysis for Global Britain, Catherine McBride demonstrates some of what's going on using bilateral trade data. She points out how the period 2019-22 shows huge increases in imports of clothing from textile producers – Myanmar, China, Pakistan and Morocco – together with a collapse in imports from the EU – including Romania and the Netherlands. Catherine McBride: Brexit and UK Trade – What's Changed. Global Britain. Link

52 See for example, Radford. The case for low corporate taxation: Lessons from the pharmaceutical industry. November 2022. Link.

The pharmaceuticals and electronics sectors typically jostle for fifth and sixth place among UK's top manufacturing exporters. Each generally accounts for around 8 per cent of UK goods exports. Thus, they contribute a significant portion of the UK's manufacturing exports. What unites them in this study is a common trait: in terms of exports, both were in long-term decline prior to 2020.

This means continued declines in exports in SIC 21 and SIC 26 were predictable well before Brexit, and these declines show up in non-EU markets as well. Blaming Brexit is a lazy, misattribution of causation.

First pharmaceuticals. This is easily the most tragic casualty in UK trade outcomes in recent years — and the most preventable. From 2000 until 2009, the UK pharmaceutical industry was the star performer in UK trade. Exports in this sector outpaced all others, growing by a staggering CAGR of almost 10 per cent. To anyone familiar with trends in UK trade this is an astonishing threshold.

But from around 2009–10 investment in UK pharma drifted overseas. Global manufacturers shifted production from the UK to elsewhere in the EU, including the Republic of Ireland, Belgium and the Netherlands. This shift is apparent in ABS data. This shows that turnover in UK pharma manufacturing dropped in real terms by over one-third from 2010 to 2015, while gross value added (GVA) almost halved. The pertinent facts of UK manufacturing and trade for 2010 to 2015 are these:

- The decline in UK domestic output coincides precisely with the period when UK's pharma exports to the EU stagnated and then declined. This shows the two are connected.
- This stagnation also coincides with a period when imports from the EU almost doubled (2010-2017). This implies that investment for UK consumption moved to the EU.
- Meanwhile our non-EU trade mostly moved in the opposite direction. Imports stagnated, while exports to non-EU markets staged a modest recovery from 2015.

UK factory turnover and GVA began to recover only in 2015. But according to ABS data, GVA in the UK pharmaceuticals sector is still below its 2010 level in real terms.

The point is that a fall in UK pharma exports to the EU in 2021 is part of a series of complex, dramatic trends that began five years before the 2016 referendum. This trend involves investment in pharma manufacturing moving to elsewhere in the EU, which hit UK manufacturing and exports and turned UK suddenly into a net importer of pharma goods from EU, with an annual UK-EU deficit of around £10 bn.

The causes are examined in detail in a November paper for the Centre for Brexit Studies.[53] In brief: the principal factor is the lure of lower corporate taxation regimes elsewhere in the EU, particularly Ireland. This trend is alive and well. In February AstraZeneca announced that the UK had lost out to Ireland for a £320 million investment in an active pharmaceutical ingredient manufacturing plant. AstraZeneca pointed squarely at the taxation issue[54] when announcing this decision. Any analyst who was shocked by this announcement is in the wrong job.

Nevertheless, the history of UK trade in pharma offers some stark lessons. First, that one of the UK's star export sectors ground to halt well before Brexit; second, that the principal reason for that was nothing to do with the terms on which UK trades, but an offshoring of investment; and third that the apparent principal cause was the UK's un-competitiveness in multiple aspects of corporate taxation.

53 Radford: The case for low corporate taxation: Lessons from the pharmaceutical industry. Nov 2022. Link.

54 BBC: AstraZeneca: Jeremy Hunt 'disappointed' by drug firm's low tax move. February 2023. <link>

What should cause genuine panic among policy makers is that -£1.9 bn number for our non-EU trade. This is the clearest possible signal that the woes in the UK pharma industry are not remotely related to access to EU markets. What's happening is that pharmaceuticals offshoring to the EU is now so severe it's impacting our non-EU trade. In this case, the EU isn't the solution to UK's ills, it's the origin. Unless the UK fixes its tax competitiveness, more investment will divert from UK factories and the UK's global exports will suffer. Plans for a 'life-sciences superpower' will be still born.

Computers and electronics is a slightly different story. Decline in exports set in far earlier. Exports peaked back in 2002-06 (the data for 2006 is questionable), but since then manufacturing of computing and communications equipment has comprehensively moved offshore, principally to East Asia. A sector that accounted for 22 per cent of UK's entire goods exports in 2000 delivered just 8 per cent in 2019. Curiously, that post-2002 decline in electronics exports is concentrated in UK's EU trade: in real terms the value of exports to the EU in 2019 was worth barely one-third of its value back in 2002.

The point for this analysis is that decline was already hard-wired into the export trend, although currently this is more pronounced in exports to non-EU countries than to the EU itself.

It's not all grim news, however. Over the past six years, UK exporters of 'measuring and testing equipment' (SIC 26.5) have delivered a sustained increase in exports. For analysts this is a sub-sector to watch. It includes various high-tech goods such as emissions and testing equipment, consumption metres, motion detectors and GPS equipment. Gloucestershire-based Renishaw is a representative company. Exports of SIC 26.5 to the EU recovered strongly in 2021 and reached £4.2 billion in 2022.

This sub-sectorial uptick is part of a fascinating pivot from consumer goods to industrial goods that's also apparent in the UK's smaller electrical goods sector. And this side-step in analysis illustrates a key point about UK trade analysis: sometimes analysts need to dig right into sub-sectors to see how trade is actually evolving, because sectoral data itself hides opposing trends.

Nevertheless, the point is clear: Some UK sectors were destined to see exports to the EU fall whether or not the UK stayed in the Customs Union. This is because trade data stretching back two decades shows exports were already in long-term decline. In these instances, the data for 2021 and 2022 should have shocked no-one.

6. Food and Agriculture

This is one of the few sectors where the data implies a Brexit impact. Exports to EU markets have fallen, while exports to non-EU markets have risen — and yet food manufacturing is one of the UK's biggest industries. Below is the basic pattern a trade analyst would expect to see in the data if Brexit were exerting a major impact on UK trade. The data for agriculture implies the same, although UK also acted as an EU import hub for some produce (e.g., tropical fruits) before Brexit.

Sector	Goods exports	2021		2022	
		Decline in real value from 2019 *(per cent drop)*	per cent of total fall	Decline in real value from 2019 *(per cent drop)*	per cent of total, fall
Food products (SIC 10)	To EU countries	**-£2 bn** (↓ 22 per cent)	9 per cent (of £23 bn)	**-£1.6 bn** (↓ 17 per cent)	10 per cent (of £17 bn)
	To non-EU countries	+£0.5 bn (↑ 12 per cent)	N/A	+£0.5 bn (↑ 11 per cent)	N/A

Source: ONS, UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2022 Q4, 10 February 2023. 2019 prices. Deflators: ONS IDEF Annual deflators, according to SITC chapters. Published February 2023. **Note:** data for 2022 omits SIC 06 (crude oil and natural gas).

'Food products' (SIC 10) is the standout sector where exports of goods made in the UK and sold to markets in the EU have fallen substantially since 2019, but exports to the rest of the world have not.

The data isn't quite unambiguous. Rigorous analysis of bilateral trade by Catherine Mcbride shows evidence of stockpiling of long-life products in late 2019, as cliff-edge negotiations threatened the imposition of tariffs.[55] However, the deflated data for 2022 indicates that exporters are struggling to recover exports lost after the UK exited the customs union. The value of food product exports to the EU last year remains £1.2 billion *below* the £8.9 billion average for 2015–2019, in real prices.

Incidentally, 'Agriculture' (SIC 01) – a much smaller category – shows similar traits. Exports are down around 20 per cent from their 2019 values. However, 2019 was a bumper year for exports of non-perennial crops in all markets, so it's not quite as easy to attribute current reduced export volumes to Brexit. Still, assuming that agriculture is equally as impacted by Brexit as food products, these two categories together would account for £1.8 bn (or 11 per cent) of the shortfall in exports in 2022.

Nor should this be a surprise. Exports of food products were one of the very few UK sectors where exports to the EU grew strongly prior to Brexit. Growth rates actually exceeded the average growth rate for EU economies themselves – and that happened in very few sectors. Sadly, the benefit to UK industry was limited simply because the UK isn't much of a food exporter: SIC 10 goods delivered just 2.6 per cent of our goods exports in 2019.

Other Manufactured Goods (SIC 32)

In terms of goods exports to the EU, analysts are now left with just 18 per cent of the 'fallers' to account for.

Irritatingly, a miscellaneous category – 'Other manufactured' goods (SIC 32) – accounts for the biggest single block (or 5.5 per cent) of the remainder of that £16.5 bn underperformance that continued into 2022. This sector includes medical instruments (of which the UK is a fast-growing exporter), jewelry, sports goods, games and toys. This category was down on 2019 values by £980 million in 2021, and £900 million in 2022 — once that £800 million 'blip' in jewelry (SIC 31.2) exports in 2019 is removed.

The standout subsector is jewelry. Once deflated, the 2022 numbers are around £200 million below the average for 2014 to 2018. Like food, the balance of likelihood is that this probably is a Brexit effect. There's a good reason why jewelry exports should fall. Withdrawal from the Houtwipper Agreement means that UK hallmarks are no longer recognised in France and Spain, and that's caused well-reported disruption to exports.[56] Outside jewelry, most subsectors in SIC 32 are down, and this is mostly owing to falls in sports goods and toys. Possibly these are re-exports, but without further analysis it's impossible to say, so the safest course is to add these to the 'caused by Brexit' category.

55 Catherine McBride: Brexit and UK Trade – What's Changed. Global Britain. Page 33. Link

56 The Financial Times. Brexit brings hallmark havoc to UK Jewellers. July 2021. Link.

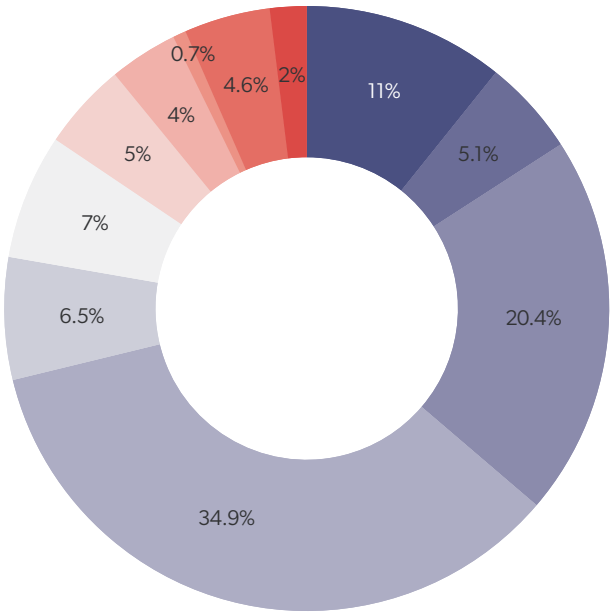
APPENDIX C
Sectoral Falls in The UK's Non-EU Goods Trade

The sectoral falls in goods exports to non-EU markets in 2021 and 2022 reveal subtle variations as compared to the pattern in UK's trade with EU markets. Falls are also concentrated in a few sectors, but some of these sectors are different. This is in itself curious. The UK tends to export the same mix of goods to EU markets as to non-EU markets, though the proportions vary.[57]

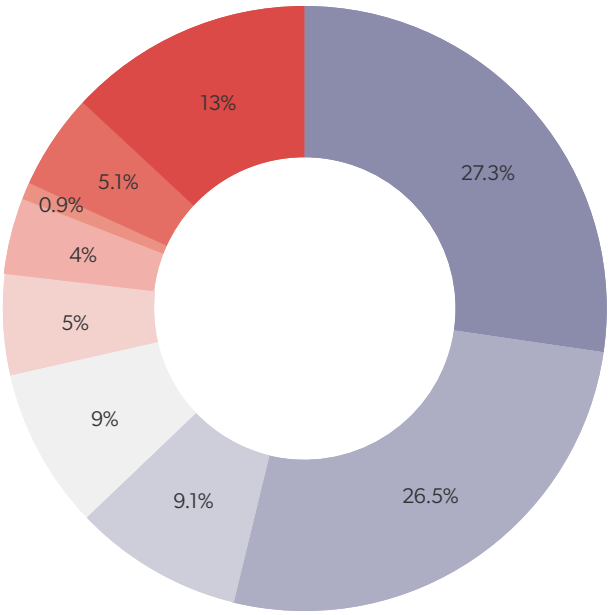
- Motor vehicles (SIC 29) registered similar falls in exports to our EU trade, accounting for 20 per cent of the £23.5 bn of falls in exports in 2021. As with our EU trade, this increased in 2022 – to 27% of total falls.
- However, aerospace (SIC 30.3) is a huge factor in the shortfall in our non-EU trade. The sector delivered a gigantic £8.2 bn fall in 2021, or 35 per cent of the total sectoral falls. A small recovery shaved this to 27 per cent of the total sectoral fall last year.
- Pharmaceuticals (SIC 21) and computers and electronics (SIC 26) account for a growing proportion of underperformance, at 13 per cent in 2021 and 18 per cent in 2022.

Source: *ONS, UK Trade in goods by Classification of Product by Activity, time series dataset, Quarterly and Annual up to and including 2021 Q4, 11 March 2023. Deflators: ONS IDEF Annual deflators, according to SITC chapters. Published February 2023. Notes: Oil and refined petroleum excluded from 2022 data.*

Sectors responsible for the £23.2 billion total of falls in UK good exports to EU, 2021 (vs 2019)



Sectors responsible for the £23.2 billion total of falls in UK good exports to EU, 2021 (vs 2019)



- CRUDE PETROLEUM
- REFINED PETROLEUM
- MOTOR VEHICLES AND PARTS
- AEROSPACE
- PHARMACEUTICALS
- ELECTRONICS
- MACHINERY
- ELECTRICAL EQUIPMENT
- AGRICULTURE
- JEWELLERY, SPORTS GOODS, GAMES AND TOYS ETC
- OTHER

57 EU exports involve higher proportions of chemicals and foodstuffs; non-EU trade takes higher proportions of aerospace and beverages. At a sectoral level, analysts are essentially looking at the same goods. However, critical differences emerge at a sub-sectoral level analysis, especially in motor vehicles and aerospace.

APPENDIX D
Export Sectors and Share of Goods Trade for G7 Countries, 2019

Goods export sectors	UK		Germany		France	
	Value ($bn)	per cent of goods exports	Value ($bn)	per cent of goods exports	Value ($bn)	per cent of goods exports
Vehicles (HS87)	$50.5	11.3 per cent	$245.3	17 per cent	$56.4	9.9 per cent
Passenger vehicles (HS8703)	$38.6	8.7 per cent	$143.9	10 per cent	$25.2	4.4 per cent
Aircraft and turbojets (HS88 +HS8411)	$44.8	10.1 per cent	$56.5	4 per cent	$68.2	12.0 per cent
Machinery (minus turbojets) (HS 84-HS8411)	$46.7	10.5 per cent	$249	17 per cent	$51.5	9.1 per cent
Pharmaceuticals (HS30)	$27.1	6.1 per cent	$91.2	6 per cent	$33.9	6.0 per cent
Electrical machinery (HS85)	$28.4	6.4 per cent	$159.9	11 per cent	$44.9	7.9 per cent
Mineral fuels (HS27)	$40.9	9.2 per cent	$34.1	2 per cent	$18.7	3.3 per cent
Total (and as per cent of goods exports)	$445	(53.6 per cent)	$1,486.5	(56.2 per cent)	$1,486.5	(48.2 per cent)

Italy		US		Canada		Japan	
Value	per cent of goods exports	Value	per cent of goods exports	Value	per cent of goods exports	Value	per cent of goods exports
$41.9	7.9 per cent	$ 133.04	8.2 per cent	$61.4	14.3 per cent	$148.8	21.3 per cent
$15.2	2.8 per cent	$ 56.16	3.5 per cent	$40.7	9.5 per cent	$98.0	14.0 per cent
$9.3	1.7 per cent	$ 145.42	8.9 per cent	$17.6	4.1 per cent	$9.6	1.4 per cent
$97.4	18.2 per cent	$ 196.50	12.1 per cent	$28.3	6.6 per cent	$132.0	18.9 per cent
$33.7	6.3 per cent	$ 53.56	3.3 per cent	$8.5	2.0 per cent	$6.4	0.9 per cent
$32.1	6.0 per cent	$ 173.19	10.6 per cent	$13.1	3.0 per cent	$103.0	14.7 per cent
$15.7	2.9 per cent	$ 199.74	12.3 per cent	$98.7	23.0 per cent	$14.0	2.0 per cent
$533.7	43.1 per cent	$ 1,627.10	55.4 per cent	$429.8	52.9 per cent	$699.3	59.2 per cent

Source: *UN COMTRADE. Precious metals extracted from all data. Accessed February 2023.* **Note:** *the HS classification system differs substantially from the SIC classification system used for the rest of this analysis. In the HS system, turbojets form part of the HS 84 Machinery, as do other aerospace components. This is why, in this classification system, Machinery appears a slightly more valuable export industry than aerospace for the UK.*

COINCIDENCE IS NOT CAUSATION

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