



## French goods exports and the challenge of the Covid-19 crisis

The Covid-19 pandemic that hit the world in 2020 demonstrated that, on an economic level, some countries may be more exposed than others to the impact of health restrictions by virtue of their particular trade specialisation. The analysis presented in this article relies on data on external goods trade. A decomposition of export market shares is used to distinguish the contribution of sectoral and geographical specialisation effects from that of purely “performance” effects. The analysis shows that France’s exports were hit harder by the Covid-19 crisis than those of the other three major euro area economies, due to the country’s decision to impose a tighter lockdown during the first wave of the epidemic. France’s sectoral specialisation, and in particular the major role of its aeronautics sector, amplified the initial impact of the shock. It also weighed on the country’s subsequent export recovery.

**Antoine Berthou**  
Economic Affairs and International Cooperation Directorate  
Competitiveness Research Network

JEL codes:  
F17, F41,  
F47

**Guillaume Gaulier**  
Macroeconomic Analysis and Forecasting Directorate  
Competitiveness Research Network

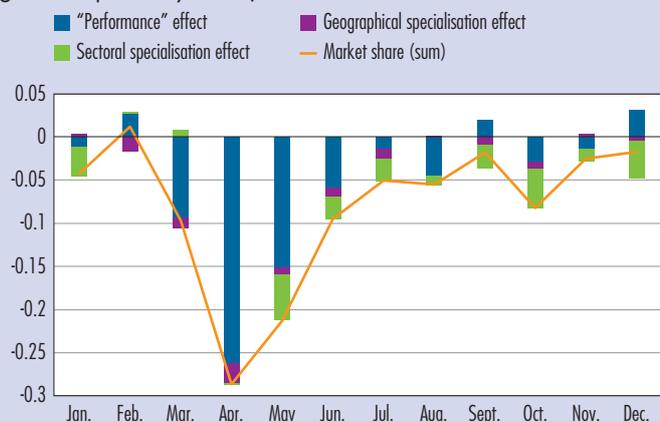
**–8%**  
decline in France’s market share of world goods exports in 2020

**–2.3%**  
contribution of France’s sectoral specialisation to the decline in its export market share

**–0.7%**  
contribution of France’s geographical specialisation to the decline in its export market share

### Structural decomposition of the growth in France’s export market shares in 2020

(annual change in log points of France’s market share of world goods exports, by value)



Source: Trade Data Monitor data (in USD) and authors’ shift-share decomposition of export market shares.

Note: Market shares are calculated as the share of French exports (in USD) in the trade flows (exports and imports) of the 31 largest exporters in the Trade Data Monitor database.



The Covid-19 pandemic prompted a wide range of government responses aimed at limiting the spread of the contagion. The introduction of social distancing measures, which went as far as complete lockdowns of the population, slowed the spread of the epidemic and had a major impact on the economy. The restrictions affected supply by limiting agents' ability to work or firms' ability to organise production, with significant variations in impact across sectors. The measures also affected demand by limiting agents' ability to consume, notably as a result of shop closures, but also due to restrictions on domestic travel.

These two shocks, to supply and demand, caused unprecedented disruption to international trade in goods (see Berthou and Stumpner, 2021). In France's case, as for other countries, exports plummeted at the height of the health crisis as a result of the restrictions imposed at the domestic level (supply effect), as well as by partner countries (supply effect via imported inputs, or demand effect via the intermediate or final consumption of those partners). The impact of the measures varied widely across sectors, and specialisation therefore played an important role in determining export outcomes in 2020.

The analyses in this article show that, in 2020, France's exports were more adversely affected by the public health crisis than those of the other major euro area economies (Germany, Italy, Spain). This overreaction can be explained by the fact that France imposed a stricter lockdown in spring 2020 than its closest partners (Germany), and by a more unfavourable trade specialisation due to the high weight of the aeronautics sector in France's goods exports. While the effects of France's more stringent lockdown have dissipated since the end of 2020, the difficulties in the aeronautics sector are tending to persist. The public health crisis is therefore having a more lasting impact on France's exports as the country's sectoral specialisation is proving unfavourable in the context of the Covid-19 pandemic. Travel restrictions and border closures have also caused major damage to the tourism industry, which is another of France's stronghold export sectors.

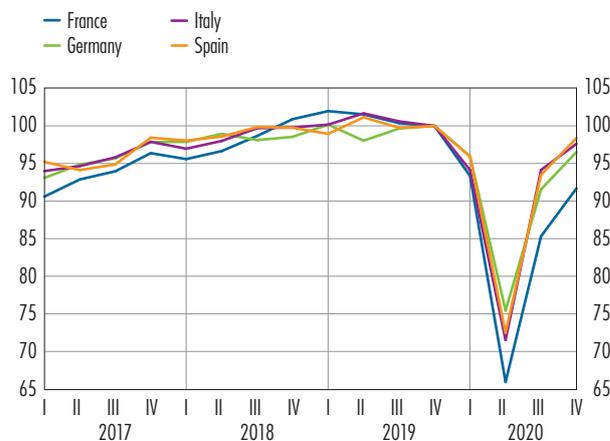
### 1 A marked underperformance in French exports in 2020

**Compared with the other large euro area economies, France's exports fell more sharply and took longer to rebound**

All large euro area economies saw a steep drop in exports at the height of the public health crisis, in the second quarter of 2020, followed by a marked rebound as of the third quarter of that year (see Chart 1). However, the dynamic varied somewhat across countries, with France experiencing a smaller rebound than its main intra-euro area partners: Germany, Italy and Spain. Compared with these three countries, France's exports fell more sharply and remained more persistently weak, including during the recovery phase. In the second quarter of 2020, exports of French goods were around 34% lower in value terms than in the fourth quarter of 2019 (Germany: -25%; Italy: -28%; Spain: -28%). In the fourth quarter of 2020, the value of French goods exports was 10% lower overall than in the fourth quarter of 2019, whereas in the three other economies it had almost returned to pre-crisis levels.

#### C1 Goods exports by value

(Quarterly national accounts, Q4 = 100)

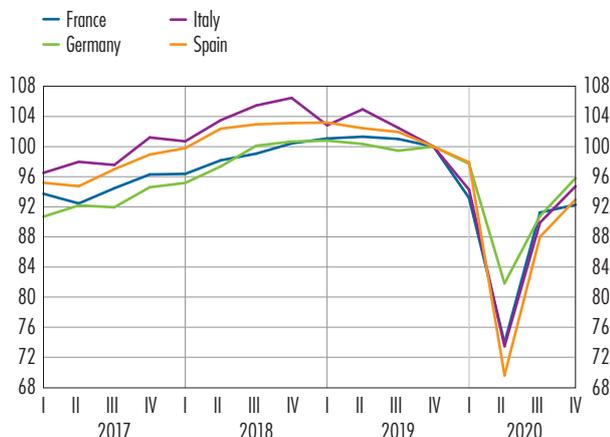


Source: Quarterly national accounts, data adjusted for seasonal and working-day variations.



### C2 Goods imports by value

(Quarterly national accounts, Q4 = 100)



Source: Quarterly national accounts, data adjusted for seasonal and working-day variations.

The trend in France's goods imports, by contrast, was more in line with that observed in the other large euro area economies (see Chart 2). The value of French goods imports fell sharply in the second quarter of 2020, as in Italy and Spain, but this was followed by a rapid resurgence from the third quarter onwards. At the end of 2020, however, imports in all major euro area economies were still well below pre-crisis levels, which can in part be explained by the introduction of new restrictions in Europe in response to the second wave of the pandemic.

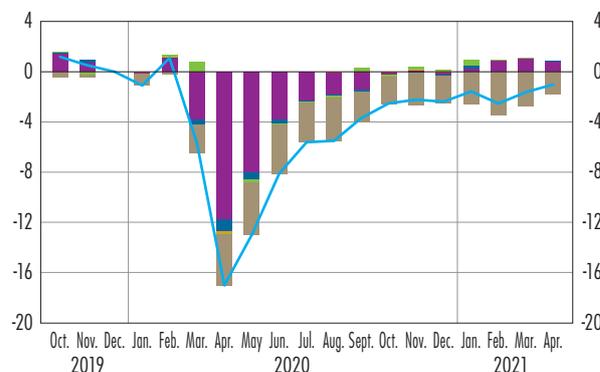
### An underperformance that is largely attributable to the aeronautics sector

A breakdown by sector of France's external trade in goods, carried out at product level and using official customs data, shows that the aeronautics sector has made a large contribution to France's export underperformance since the start of the Covid-19 crisis (see Chart 3). Aeronautics accounted for around a quarter of the total drop in the value of French goods exports in April 2020 compared with December 2019. The overall impact on the trade balance was offset by a decline in imports of aeronautical goods: as the sector is highly reliant on imported inputs, a decline in exports leads mechanically to a decline in imports of assembled parts for use in exported aircraft. In contrast, products such as masks (see note to Chart 3), consumer electronics, and other healthcare products (including

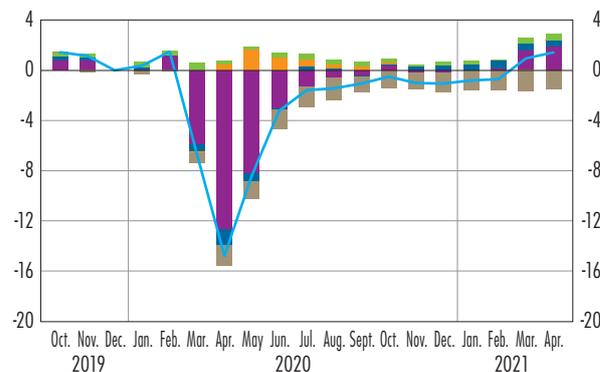
### C3 Breakdown of variation in trade in non-energy goods versus December 2019

(EUR billions)

#### a) Exports



#### b) Imports



Legend for Chart C3:  
 ■ Consumer electronics and electrical goods  
 ■ Other goods  
 ■ Other healthcare products  
 ■ Aeronautical products  
 ■ Masks  
 — Total non-energy goods

Source: Customs data.

Note: "Masks" refers to other textile products including surgical masks and other Covid-19 related products. "Other healthcare products" refers to pharmaceuticals and medical equipment.

vaccines) have contributed to a rise in the value of our imports since the start of the Covid-19 crisis.

Overall, these statistical elements highlight the significant heterogeneity between shocks to individual sectors throughout the Covid-19 crisis. The vulnerability of individual economies to the health crisis has thus been strongly influenced by sectoral specialisation. In France, the aeronautics sector has been severely affected on the demand side, due to the reduction in airline activity caused by travel restrictions, but also on the supply side due to temporary disruptions to global value chains in the spring of 2020.



## 2 The explanations are linked to the lockdown and to export specialisation

### The lockdowns in spring 2020 had a major impact on external trade

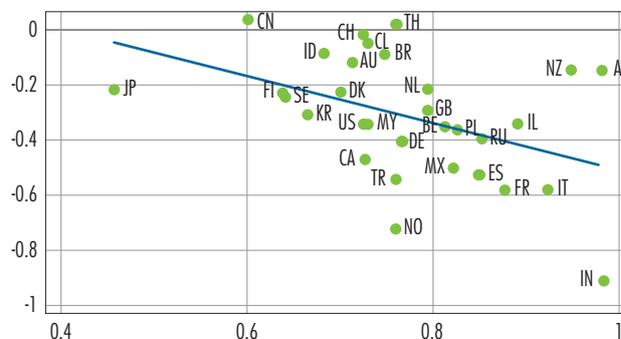
The stringent lockdown imposed in France in the spring of 2020 weighed heavily on our exports. Indeed, there is a downward relationship between the intensity of the lockdowns<sup>1</sup> imposed in April and the fall in goods exports, by value, between April 2019 and April 2020 (see Chart 4). If we compare France (FR) and Germany (DE) on this chart, we can clearly see that the stronger intensity of the lockdown in France than in Germany in spring 2020 was accompanied by a bigger fall in France's goods exports. The same can be seen when we compare France to other advanced economies over the same period, for example Sweden (SE), Japan (JP), South Korea (KR), the United States (US) and Great Britain (GB) – all imposed less stringent lockdowns than France over the period and all experienced a smaller fall in exports.

There are some noteworthy exceptions to this statistical finding, however. If we compare France to Italy over the same period, we can see that both countries saw comparable falls in exports, despite Italy having imposed a tighter lockdown than France in April 2020. Aside from lockdown intensity, other determinants, linked for example to the microeconomic and sectoral structure of countries' export sectors, may have led to differences in export outcomes.

A more rigorous statistical analysis is therefore needed, to take account of all other measurable factors that may have affected export trends in the major euro area economies in 2020, both in the downward phase and in the subsequent recovery at the end of spring and start of summer 2020. Berthou and Stumpner (2021)<sup>2</sup> show that **the effects of the lockdowns on exports tended to be somewhat muted in the second half of 2020**. One explanation may be that firms had adapted to the new public health restrictions since the spring of 2020.

## C4 Lockdown intensity in April 2020 and relationship with goods exports (by value)

(x-axis: lockdown intensity; y-axis: annual change in exports in log points)



Source: Antoine Berthou and Sebastian Stumpner (2021), "Trade under lockdown", Banque de France, forthcoming. Data from the Trade Data Monitor and University of Oxford. Note: Lockdown intensity is measured using a composite indicator developed by the University of Oxford.

Using a similar approach, we aim to identify, for the main euro area economies, the role played by the sectoral and geographical specialisation of external trade flows in the response of exports at the macroeconomic level.

## The fall in global demand for aeronautical products contributed strongly to the loss of market shares

A detailed analysis of world trade by exporting country, importing country and product (see Appendix 1) makes it possible to identify the contribution of sectoral and geographical specialisation effects to the change in the export market shares of France and its main euro area trading partners. The residual contribution to the change in market shares can be interpreted as a "performance" effect, which is independent of sectoral and geographical specialisation effects.

France's share of "world" goods exports (those of 31 major exporting countries), by value, deteriorated sharply during the first lockdown in March 2020 (see Chart 5). A breakdown of the change shows that the decline in France's global market share in April 2020 can mainly be explained by an unfavourable "performance" effect, which is independent of sectoral and geographical

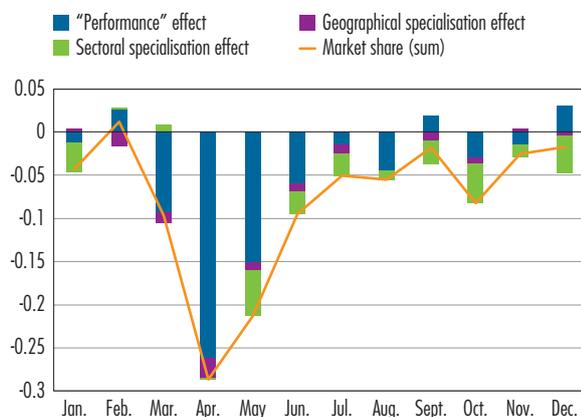
<sup>1</sup> The stringency of the lockdown is measured by a composite indicator compiled by the University of Oxford and available for a large number of countries, which takes into account all restrictions put in place during the public health crisis, including workplace closures, restrictions on public gatherings and on transportation, school and restaurant closures, etc.

<sup>2</sup> In a research paper linked to this study and based on the same data, the authors present an econometric analysis of 31 large exporting countries, showing the different channels of transmission of the Covid-19 shock to exports and imports at a granular product level.



### C5 Structural breakdown of the change in France's export market shares in 2020

(annual change in log points in France's market share of world goods exports, by value)



Source: Trade Data Monitor data (in USD) and authors' shift-share decomposition of export market shares.

Note: Market shares calculated as the share of French exports (in USD) in the trade flows (exports and imports) of the 31 largest exporters in the Trade Data Monitor database.

specialisation effects. France's poor export performance may thus have been caused by the greater stringency of its lockdown in April relative to (i) other countries that are geographically close and experienced a simultaneous wave of the epidemic but introduced less stringent restrictions (for example Germany), (ii) other countries with a similar level of economic development but which were hit at a later stage by the epidemic (for example the United States), or (iii) emerging countries that experienced waves at a different stage (such as China and India).

Geographical specialisation also appears to have had a negative impact on France's export market shares in April 2020. This can be explained by the fact that a large share of our exports are to partners that are geographically close to us, and that these countries were also severely affected by the epidemic wave in April. The impact of sectoral specialisation was neutral for France in April, when economic activity was shut down in numerous sectors, including industry. As of May, however, the impact turned negative, and remained so until the end of 2020. A decomposition of the sectoral effects shows which sectors boosted or weighed on France's external trade performance.

In May and June 2020, as trade was gradually recovering with the lifting of the lockdowns (in France and in our partner countries), France's exports continued to be weighed down by a sectoral specialisation effect. In June, this explained nearly a third of the annual fall in France's export market share, and contributed to a slower recovery in our exports compared with our competitors. In December, when the "performance" effect turned positive again, signalling a recovery in our exports, this was completely offset by a negative sectoral specialisation effect.

Over the full year 2020, France's share of world goods exports fell by 8% in value terms. This is in part explained by negative sectoral and geographical specialisation effects (-2.3% and -0.7% respectively). "Performance" effects, excluding sectoral and geographical specialisation, made a larger negative contribution over the full year, of -5%.

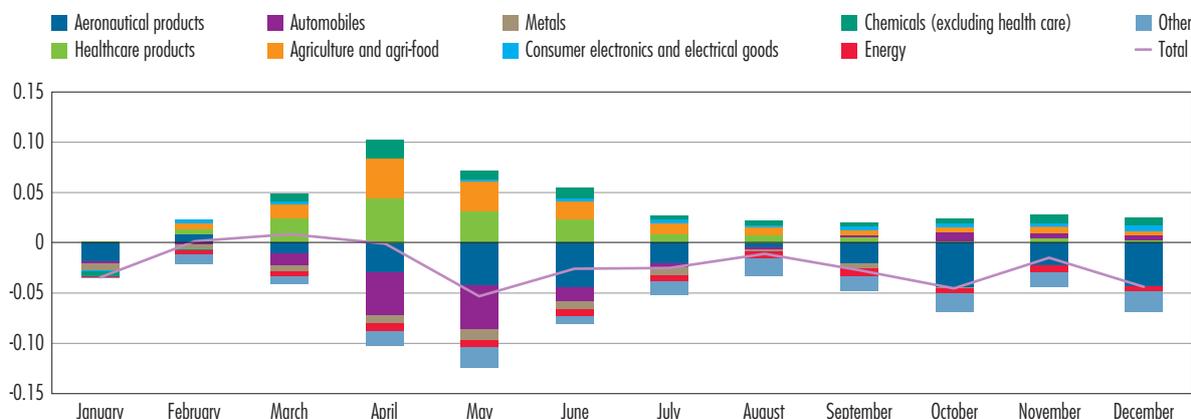
A breakdown of France's sectoral specialisation effect by sector highlights the weaknesses in the country's export specialisation in the context of the public health crisis (see Chart 6). Certain sectors, such as the automobile industry, were badly hit by the Covid-19 crisis in the first months of the pandemic, but began to recover again as of the autumn of 2020 and contributed to the rebound in French exports. Others, such as those linked to health care, agriculture and agri-food, helped to buoy French exports, including at the height of the first wave in the spring of 2020, but this positive effect faded somewhat in the second half of 2020. The aeronautics sector stands out in that it dragged on French exports right from the start of the pandemic, and continued to have a negative impact, including in the second half, even as other sectors (such as the automobile industry) began to rebound.

France's sectoral specialisation has thus contributed to a lasting deterioration in its export performances as the pandemic has continued. Throughout 2020, the weakness in aeronautical exports stemmed from the impact of the public health restrictions, which significantly reduced global air traffic and passenger numbers, and led to the postponement or cancellation of aircraft deliveries to airlines.



### C6 France's export market shares: breakdown by product of the sector specialisation effect

(x-axis: month in 2020; y-axis: contribution of products, annual change in log points)



Source: Trade Data Monitor data (in USD) and authors' shift-share decomposition of export market shares. Calculations were made for some 1,500 products aggregated into 9 large groups.

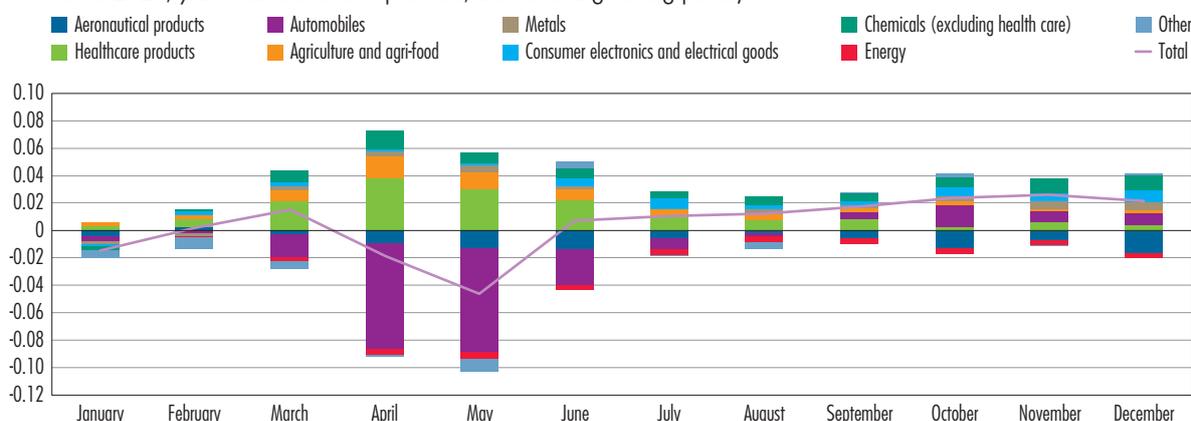
In contrast, Germany's sectoral specialisation appears to have proved rather favourable during the lockdown easing phase (see Chart 7 below). Its specialisation in the automobile industry initially had a negative impact on exports at the start of the crisis, in April, but this rapidly faded and the sector contributed to the year-on-year rebound in exports as of September. The country is also less specialised in aeronautics than France, so it has been less negatively affected by this sector. Aside from automobiles, German exports were also buoyed in the second half of 2020 by the country's specialisation in healthcare products, chemicals (excluding health care), consumer electronics and electrical goods, and transformed metals.

### France's export specialisation calls for vigilance: its offering should be broadened in the long term

A marked sectoral specialisation in a country's exports will lead to losses or gains in export market shares when those stronghold sectors are hit by a specific shock. Exports and imports can therefore diverge over the short term without being a cause for concern. Over the medium term however, sectors where a country enjoys a comparative advantage must maintain sufficiently high surpluses, or the supply side will have to be transformed to push new stronghold sectors to the fore and allow economic growth to remain compatible with the foreign trade balance.

### C7 Germany's export market shares: breakdown by product of the sector specialisation effect

(x-axis: month in 2020; y-axis: contribution of products, annual change in log points)



Source: Trade Data Monitor data (in USD) and authors' shift-share decomposition of export market shares. Calculations were made for some 1,500 products aggregated into 9 large groups.



In the 2000s, France's sectoral specialisation increased (see Camatte and Gaulier, 2018), largely as a result of the success of its aeronautics sector. However, this success coincided with a trend of deindustrialisation in France and with the offshoring of production in other sectors traditionally regarded as French strongholds (such as the automobile industry). As a result, it led to a greater concentration of our exports. This sectoral specialisation proved favourable when global airline traffic was growing rapidly. However, the public health crisis highlighted the downsides of this strong exposure to shocks affecting the aeronautics sector. Germany, in contrast, has a more diversified range of stronghold sectors, with the result that losses in the aeronautics sector have been completely offset by gains in other sectors.

During the Covid-19 crisis, France's "aerodependence" has been detrimental to its export performances: sales of aircraft have plummeted while the collapse in air traffic has led to a sharp fall in export revenues from

travel services. It could take a long time for things to return to normal, and certain effects of the pandemic may persist (maintenance of restrictions, risk of new outbreaks of the virus, airline bankruptcies), or even become permanent (replacement of some business trips with teleconferences). These difficulties would add to the pre-existing challenges faced by the sector, in particular issues linked to the carbon footprint of air travel.

Viewed over the longer term, and not just in 2020, France's specialisation in aeronautics can clearly be regarded as a benefit. Historically, the sector has attracted a highly skilled labour force and has fostered cutting edge innovations that have been disseminated to other sectors of the French economy. However, the increased concentration of France's export sector has left the country highly "aerodependent", or exposed to sector-specific shocks. A broader and more diversified export offering would make the economy more resilient to future shocks entailing strong sector-specific effects, be they health-related, geopolitical or climate-related shocks.



## References

Bas (M.), Fontagné (L.), Martin (P.) and Mayer (T.) (2015)  
"À la recherche des parts de marché perdues", *Les notes du conseil d'analyse économique*, No. 23, May.

Berthou (A.) and Stumpner (S.) (2021)  
"Trade under lockdown", *Working Paper Series*, Banque de France, forthcoming.

Camatte (H.) and Gaulier (G.) (2018)  
"Sectoral specialisation and the downturn in France's foreign trade between 2014 and 2016", *Rue de la Banque*, No. 71, Banque de France, November  
[Download the document](#)

Cheptea (A.), Gaulier (G.) and Zignago (S.) (2005)  
"World trade competitiveness: a disaggregated view by shift share analysis", *Working Paper*, No. 2005 23, CEPII, December.

Fontagné (L.) and Gaulier (G.) (2008)  
*Performances à l'exportation de la France et de l'Allemagne*, report by the Conseil d'analyse économique, No. 81, December.

Gaulier (G.), Santoni (S.), Taglioni (D.) and Zignago (S.) (2013)  
"Market shares in the wake of the global crisis: the quarterly export competitiveness database", *Working Paper Series*, No. 472, Banque de France.  
[Download the document](#)



## Appendix 1

### Methodology for the shift-share decomposition of goods trade

The shift-share method (Chepeta et al., 2005 and Gaulier et al., 2013) is used to break down France's share of the "world" export market into three effects: (i) a geographical specialisation effect (direction of demand from customer countries); (ii) a sectoral specialisation effect (direction of global demand for some 1,500 product categories at the 4-digit code level of the Harmonized System of tariff nomenclature<sup>1</sup>); and (iii) a "performance" effect after controlling for sectoral and geographical specialisation effects.

The different contributions to the change in the trade flows of exporters, importers and products are estimated simultaneously at each date by regressing the growth rates on fixed effects for each dimension (exporter, importer, product). For each exporter, the growth in its market share is expressed as the sum of the exporter fixed effect corresponding to the weighted averages of the importer fixed effects of its trading partners (geographical effect), and the fixed effects of the products it exports (sectoral effect). Demand for each product is global, so there are no differences in growth rates for individual products between countries (the difference

between demand for imports of coal and gas is assumed to be the same in both China and Poland, for example).<sup>2</sup>

We apply this methodology to data from the Trade Data Monitor database. This database contains detailed monthly statistics from a large number of countries on the value of their exports and imports, broken down by product and by partner country. It therefore allows us to carry out our analysis at a highly granular level, and using the most recently available data for a broad geographical scope.

For the purposes of our analysis, we use detailed data for the world's 31 largest exporters. Both export and import data are used for these countries to broaden the coverage of global trade (only trade between third-party countries is excluded). Trade flows (at destination and product level) that disappear or appear ("extensive" margin) are taken into account using an appropriate growth rate and weighting.

The results for France are expressed as changes in global market share (trade flows of 31 countries).

<sup>1</sup> The Harmonized System is an internationally standardised system of names and numbers to classify traded products (source: Wikipedia).

<sup>2</sup> New trade flows or those that disappear ("extensive" margin) are taken into account using a mid-point growth rate that is equal to the change in trade flows divided by half of the sum of total trade flows at the current time and total flows for the same month a year earlier.

---

**Published by**  
Banque de France

**Managing Editor**  
Gilles Vaysset

**Editor-in-Chief**  
Claude Cornélis

**Editor**  
Céline Mistretta-Belna

**Translator/English Editor**  
Vicky Buffery

**Technical production**  
Studio Creation  
Press and Communication

ISSN 1952-4382

**To subscribe to the Banque de France's publications**

<https://publications.banque-france.fr/en>  
"Subscription"

