Why have French exporters lost market share?

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France's balance of trade has crumbled since 2000. The goods trade deficit stood at 2.1% of GDP in summer of 2016 compared with 0.6% in 2000. It widened mainly between 2000 and 2010, and then stabilised overall.

The reason for this erosion is first the loss of market share by French exports. Although France has maintained its position as the fifth largest exporter since 2004, its exports of manufactured goods dropped from 5.1% of world trade to 3.1% in 2015. This loss of 2.0 points was especially pronounced through to 2010; since then France has more or less conserved its global market share.

The main cause of the decline in the French position is the growing share of the emerging economies in world exports, especially China. This development of the emerging economies in world trade has affected all the advanced countries, but France has lost more market share than its main Eurozone partners. The 2.0 point drop in France's share of the global market is the result of two trends combining: first, a loss in each of the major markets, whether the Eurozone, the rest of the European Union or the rest of the world; second, a structural effect which reflects an unfavourable geographic orientation since the region towards which France most naturally exports, the Eurozone, is also the least dynamic.

The decline in market share was more the result of poor export performances in the various markets than poor geographic orientation. In order to understand this under-performance of exports, the export model presented here differentiates the European Union from the rest of the world. It shows that for sales to the European Union, the drop in France's export performance between 2000 and 2010 was mainly due to the growing weight of the emerging countries and more buoyant wage costs in France than in the rest of the Eurozone. The slight improvement in export performances since that time is the result of a small upturn in cost competitiveness and a depreciation of the Euro. For sales to non-European countries, the main determinants of the decline in performance over fifteen years are the rise in the share of emerging countries and the real effective exchange rate of the Euro. The lower level of fragmentation of the value-added chains of French foreign trade accounts for only a small proportion of the poor export performance.

In the coming quarters, the expected acceleration in world demand for French products bodes well for a sustained dynamism in exports to the European Union and a strong upswing in exports to other countries.

Why have French exporters lost market share?

France's balance of trade crumbled between 2000 and 2010 and has scarcely recovered since

France's balance of trade, defined as the difference between the value of exported and imported goods, fell from –0.6 GDP points in 2000 to –2.7 points in 2010 (*Graph 1*). It has risen slightly since then and stood at around –2.1 GDP points in Q3 2016.

This recent improvement is mainly due to the sharp decline in oil prices since mid-2014, which brought down France's energy bill. The balance of trade for manufactured goods alone deteriorated between 2000 (+0.8 GDP points) and 2010 (–1.0 GDP point) but has not recovered during the recent period: it has hovered around –1 GDP point since 2010 and was at –1.0 point in Q3 2016 (*Box 1*).

French enterprises have lost export market share since 2000

The erosion of the balance of trade since 2000 is due mainly to losses in export market share by French enterprises. Their market share for goods fell from 5.1% of world trade in 2000 to 3.1% in 2015 (*Graph 2*).

However, several other advanced countries also lost market share, notably the majority of EU countries, and France has remained the world's fifth largest exporter since 2004, behind Germany, the United States, China and Japan, coming just ahead of South Korea and the United Kingdom in 2015.

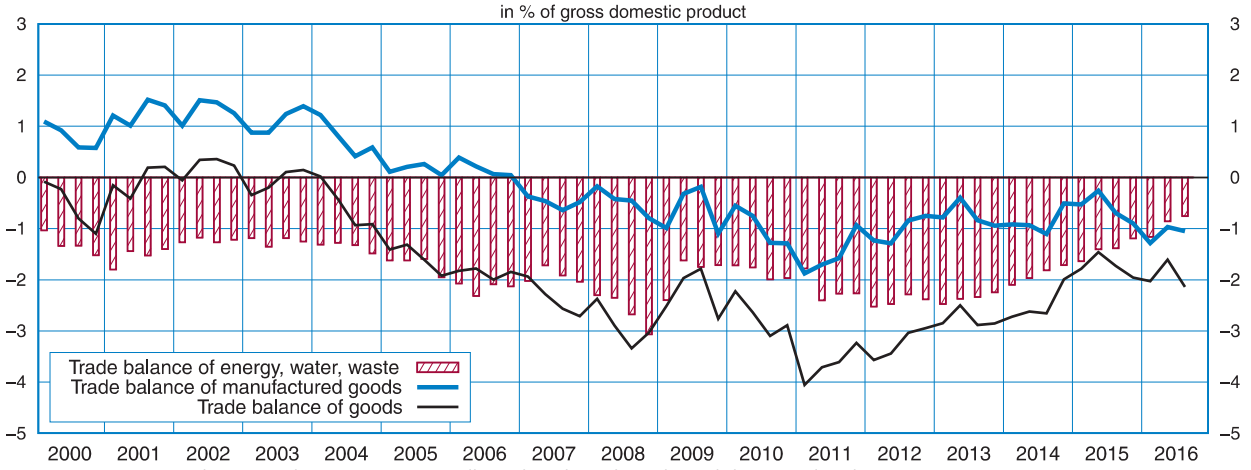
The advanced countries have lost market share, especially to emerging Asia

Between 2000 and 2015, the export market share of the advanced economies fell back from 69.2% to 54.9%, in favour of the emerging economies, especially those in Asia (*Graph 3*; see *Appendix 1* for the perimeter definitions). Consequently, if French exports had behaved in the same way as the exports of the advanced economies as a whole, then market share would have dropped from 5.1% in 2000 to 4.0% in 2015. In other words, the loss of market share experienced by France is due in part to the catch-up by the emerging economies and the strong growth in their exports.

Between 2000 and 2015, the emerging economies did indeed gradually become part of the global economic fabric. China in particular has steadily gained market share since joining the World Trade Organisation (WTO) at the end of 2001: in 2015, its exports represented 13.8% of global exports, around 3.5 times more than in 2000 (3.9%). The enlargement of the European Union in 2004 to include the Central and Eastern European Countries (CEEC) also contributed to this overall trend. Elsewhere in the world, free trade zones were created or extended: the Free Trade Area (AFTA) for the Association of South East

1 - Trade balance of France

in % of gross domestic product



Source: INSEE, Quarterly National Accounts, seasonally and working day adjusted data in value, base 2010

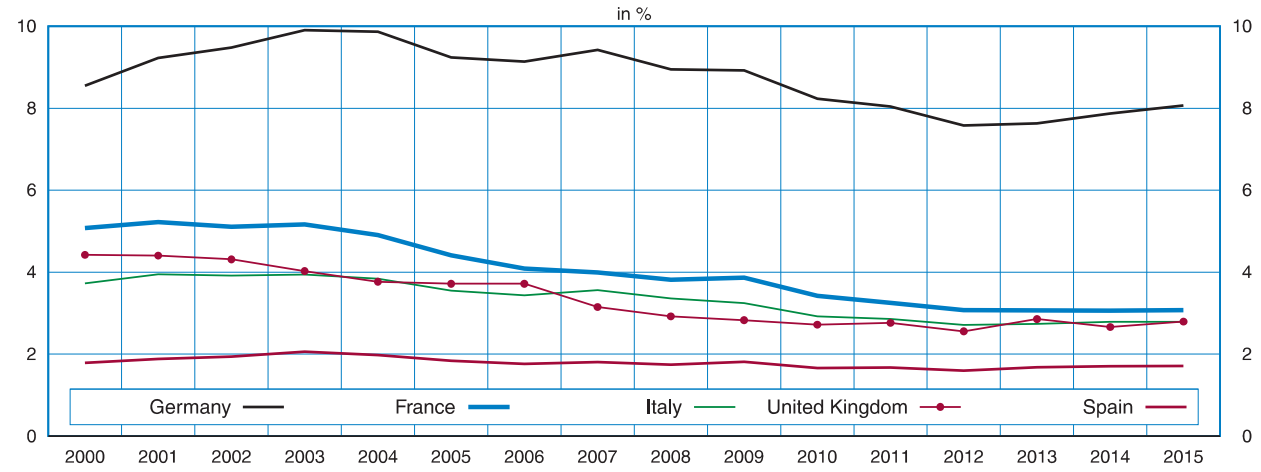
Asian Nations (ASEAN) came into force in 2003, and a succession of enlargements of MERCOSUR in the 2000s. All in all, the emerging economies increased their market shares of world trade significantly, from 30.8% in 2000 to around 45.1% in 2015.

The decline in France's market share is due to a poorer export performance rather than to the geographic orientation of its sales

France lost more than the other Eurozone countries

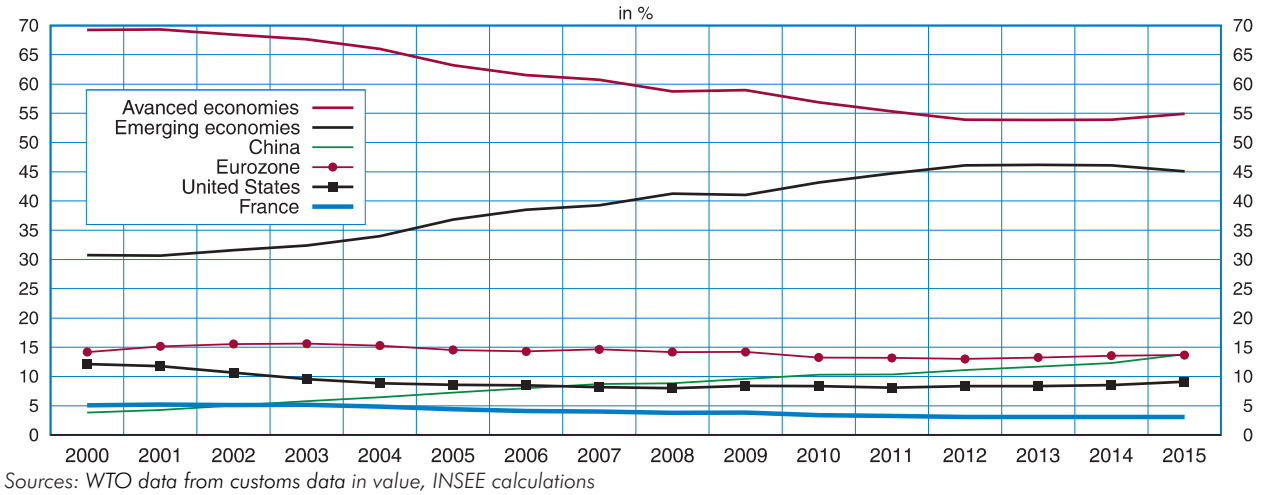
France lost more market share from 2000 to 2015 (–2.0 points) than other advanced economies. Among the major European exporters, only the United Kingdom made losses on a similar scale (–1.6 points), while the market share of French exports declined far more than that of Italian (–1.0 point), German (–0.5 points) or Spanish (–0.1 points) exports. In fact, the other major Eurozone countries currently have a trade surplus.

2 - World export market share of goods by value for the main EU members



Source: WTO data from customs data in value

3 - World export market share of goods by value



Sources: WTO data from customs data in value, INSEE calculations

Why have French exporters lost market share?

France lost share in each of the major markets

If the world is divided into three main markets (Eurozone, EU countries outside the Eurozone, the rest of the world), French exports to these markets all made a negative contribution to the overall decline of 2.0 percentage points of global market share (*Table 1* and *Appendix 2*). France lost market share in each of these markets, with fairly similar contributions: –0.6 points for the Eurozone, –0.4 points for the rest of the EU and –0.6 points for the rest of the world, or a cumulative contribution of 1.6 points. In addition, France suffers from an unfavourable geographic orientation (which contributed –0.4 points in all) since the market towards which it naturally exports the most, the Eurozone, is also the least dynamic. Additionally, the dynamism effect of trade with third countries does not make up for the loss of market share in these destinations - which means that even the contribution of this market is negative overall (–0.3 points).

In comparison, exports by Germany, Spain and Italy to these third countries were not contributing factors to the decline in their respective global market shares. For Germany, the opening up of the Central and Eastern European countries probably benefitted its exporters more than French exporters.

More generally, German exports gained some share and Spanish exports kept their share in each of these markets. For Germany and Spain, the overall downturn was simply the result of a structural effect, the reduced weight of the European market in world trade. As with French exports, Italian exports lost market share in each of the major markets, but in a less pronounced manner, so that their total loss since 2000 is half that of France.

Compared with other Eurozone members, France's exports lost share in all markets

At a more detailed level, French exports have lost market share relative to the other Eurozone Member States in each of the geographic areas since 2000 (*Graph 4*), but these losses have not been uniform. In fifteen years, French exports have been more resilient in Asia (–1.2 points since 2000) than in the Eurozone (–3.0 points); the decline has been even greater in the rest of the European Union (–5.1 points) or the North American market (NAFTA, –4.5 points). Market share in the OPEC countries was unusual in that it fell sharply in 2012, against a backdrop of sanctions against Iran.

Market share dropped mainly between 2000 and 2010

Like the balance of trade, market share declined above all from 2000 to 2010, for France and for its main European partners (*Table 2*). Since then, market share has stabilised, or almost stabilised, for Germany, Spain and Italy; for France, losses have diminished.

Table 1 - Changes in export market share, contributions by geographic destination zone

in points

from 2000 to 2015	France	Germany	Italy	Spain
Contribution to the Eurozone	**–1.4**	**–1.2**	**–0.9**	**–0.4**
of which effect of change in market share in the zone	–0.6	0.1	–0.2	0.1
of which effect of change in weight of the zone in world trade	–0.8	–1.3	–0.6	–0.5
Contribution to non-eurozone countries in the European Union	**–0.4**	**0.1**	**–0.1**	**0.0**
of which effect of change in market share in the zone	–0.4	0.2	–0.1	0.0
of which effect of change in weight of the zone in world trade	0.0	–0.1	0.0	0.0
Contribution to other countries	**–0.3**	**0.6**	**0.0**	**0.3**
of which effect of change in market share in the zone	–0.6	0.2	–0.3	0.1
of which effect of change in weight of the zone in world trade	0.3	0.4	0.3	0.3
Total loss of market share	**–2.0**	**–0.5**	**–1.0**	**–0.1**

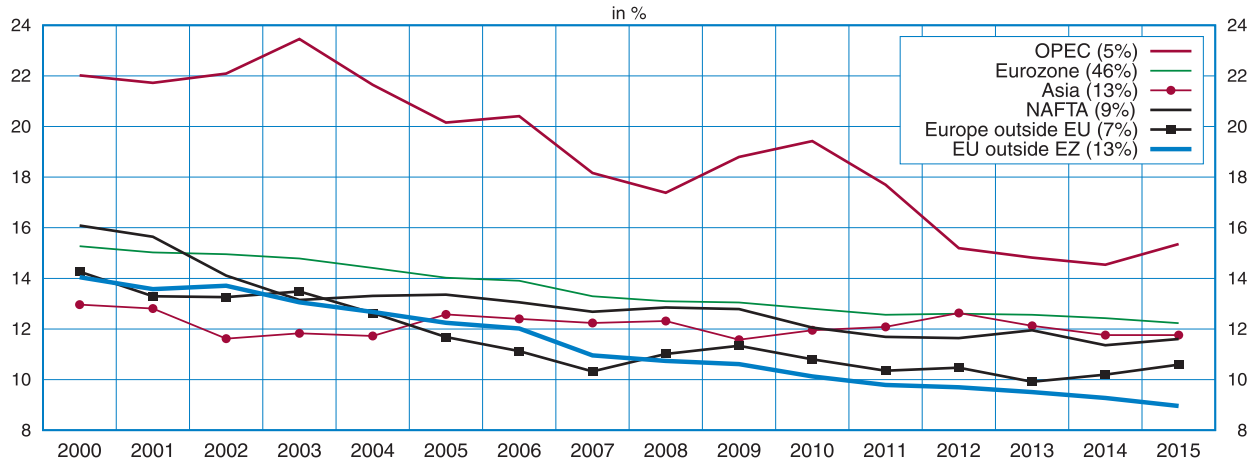
How to read the graph: between 2000 and 2015, French exports lost 2.0 points of world market share, with sales in the Eurozone accounting for –1.4 points; this contribution can be broken down on the one hand into an effect related to loss of market share in the zone and on the other hand a structural effect due to the fact that the Eurozone lost some of its weight in world trade (*Appendix 2*).

Sources: WTO data from customs data, INSEE calculations

The decline in market share for French exports is concentrated on certain products

UNCTAD data (*Appendix 1*), which are available over a shorter period, can specify in which products the decline is concentrated: from 2001 to 2014, the 1.7 point fall in market share of French exports was due mainly to vehicles and parts and accessories thereof (contribution of –0.4 points to the total loss), electrical machinery and equipment (–0.3 points) and nuclear reactors, boilers, machinery, appliances and mechanical equipment (–0.3 points). These three items from the manufacturing industry accounted for 40% of French exports but also for almost two thirds of overall market share loss between 2001 and 2014 (*Table 3*).

4 - Market share of French exports in relation to the rest of the Eurozone according to destination



Note: the market share of a group of countries is defined here as the ratio of French exports of goods to these countries to total imports of goods by these countries from the Eurozone.
How to read the graph: in 2000, France's export market share in the OPEC countries' market in relation to the Eurozone was 22.0%; it dropped to 15.4% in 2015.
Source: WTO data from customs data

Table 2 - Changes in export market share by sub-period

in points

	France	Germany	Italy	Spain
2000 to 2010	–1.7	–0.4	–0.9	–0.1
2010 to 2015	–0.3	–0.1	–0.1	0.0
2000 to 2015	**–2.0**	**–0.5**	**–1.0**	**–0.1**

Sources: WTO data from customs data, INSEE calculations

Table 3 - Changes in export market share by product from 2001 to 2014

in points

Change in share of French exports in the World	**–1.7**
of which main negative contributions (<–0.1 points)	
Motor vehicles (13% of French exports in 2001)	–0.4
Electrical machinery and equipment (12% in 2001)	–0.3
Nuclear reactors, boilers, machinery and mechanical appliances (13% in 2001)	–0.3
Organic chemical products (3% in 2001)	–0.1
Paper and paperboard (2% in 2001)	–0.1
of which main positive contributions (>+0.1 points)	
Aircraft and spacecraft (6% in 2001)	0.1

Sources: CNUCED data from customs data, INSEE calculations

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Box 1 - The specific features of trade in services

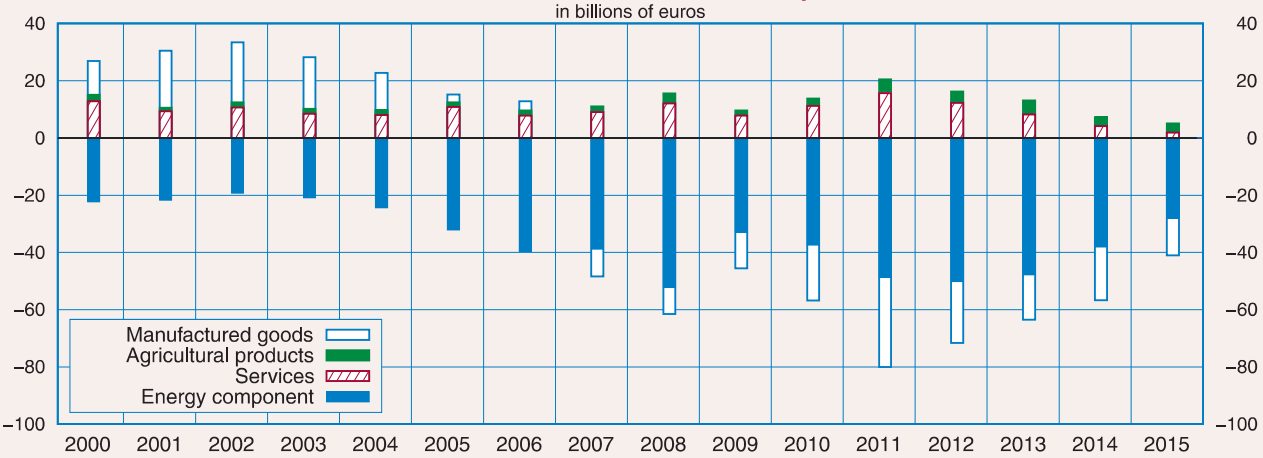
The scope of products under consideration is limited only to goods

The scope of traded products considered in this study is limited only to goods for international comparisons of market shares and only to manufactured goods for estimates of export performance and econometric models. In 2015, manufactured goods represented 69% of exports and 68% of imports, and were responsible for a large share of fluctuations in the overall balance of trade (*Graph 1*). Hydrocarbons and agricultural products do not fall within the scope, as the energy component is very closely linked to fluctuations in the price of oil and does not always respond to the same determinants as other goods. The same is true for agricultural products where the balance of trade shows a surplus but the determinants seem very specific as they are very much linked to climate conditions.

In addition, trade in services is not closely linked to the economic cycle and international comparisons of these types of trade are tenuous, hence trade in services has been excluded from the scope.

1 - Annual balance of trade, main component

in billions of euros



Source : INSEE, National Accounts, in value, base 2010

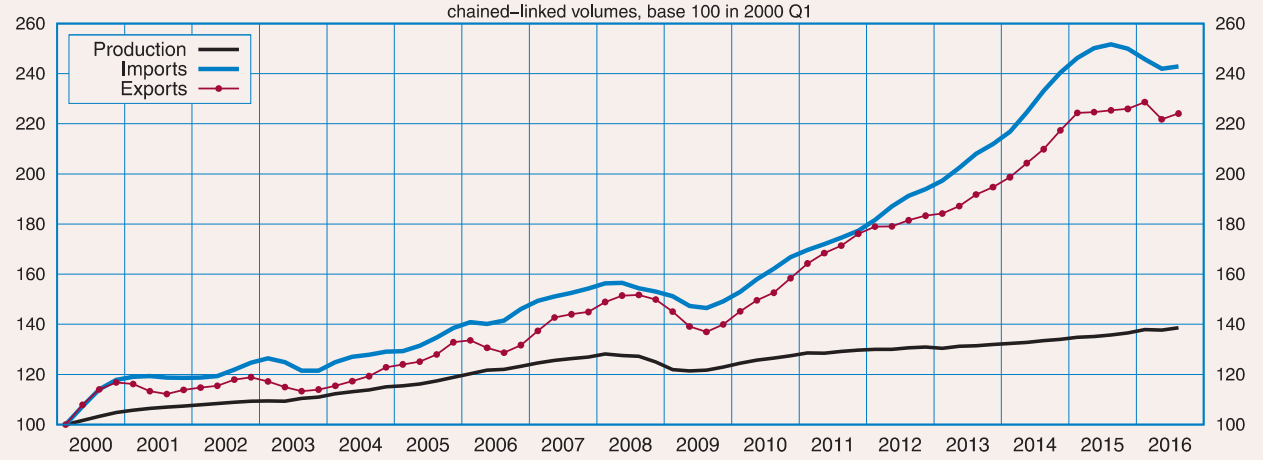
Growth in trade in services is not closely linked to the economic cycle

Trade in services measured in the French national accounts derives mainly from balance of payments data, produced by the Banque de France. This trade has increased very strongly over the last fifteen years: exports and imports of services by volume more than doubled between 2000 and 2015, while production of market services increased only 40% over the same period (*Graph 2*).

Above all, the 2008-2009 crisis marked an interruption: while exports increased on average 1.5 times faster than production from 2000 to 2009, they have increased almost 5 times faster since 2010. And finally their downward trend since 2015 does not seem to be echoed in the growth in activity of market services.

2 - Production, exports and imports of trade services

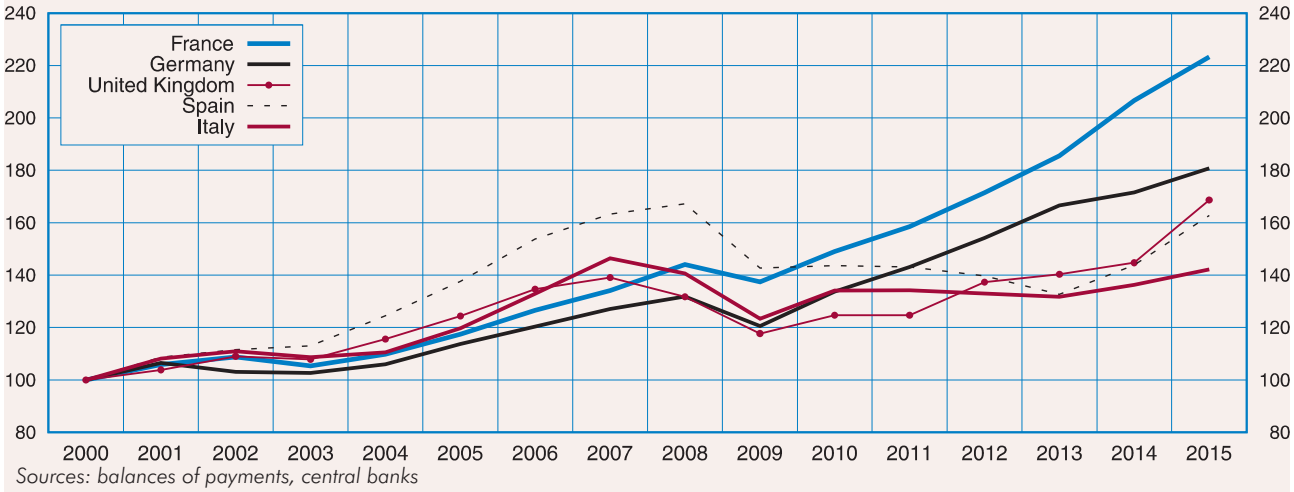
chained–linked volumes, base 100 in 2000 Q1



Source : INSEE, Quarterly National Accounts, base 2010

An international comparison of annual balance of payment data shows that German and British imports have also increased sharply since 2010 (*Graph 3*). ■

3 - Annual imports of services in the balance of payments for the main EU member states



Sources: balances of payments, central banks

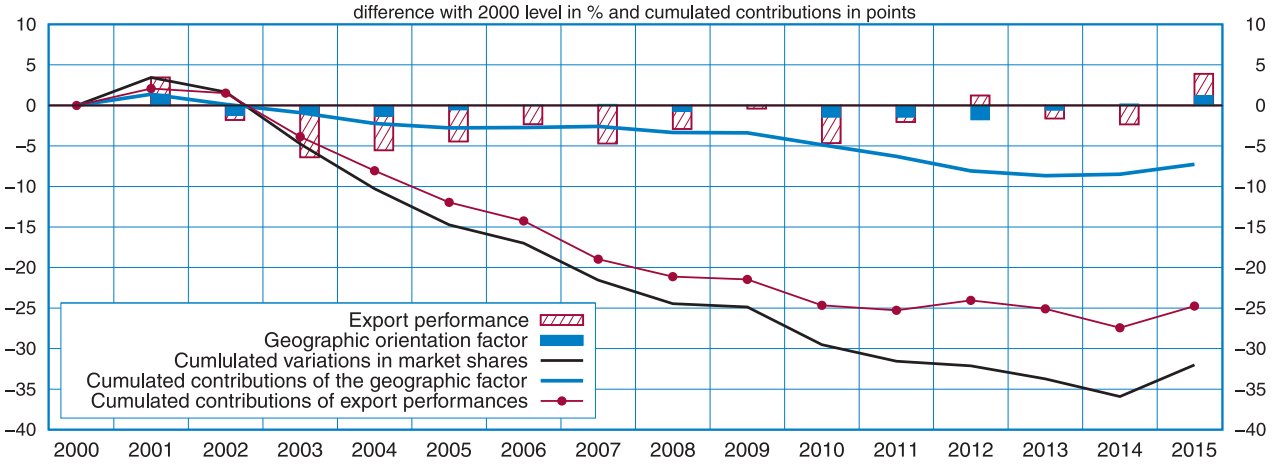
Declines in market share since 2010 are mainly due to a volume effect

The fall in market share of French exports by value between 2000 and 2015 reflects both fluctuations in volumes of trade and relative price variations. Market share of French exports in volume also declined substantially between 2000 and 2015, although a little more moderately than in value (*Appendix 2*).

The decline in market share by volume is more the result of poor export performance than poor geographic orientation

In the variation in French global market share by volume, there is a geographic orientation factor relating to exports (*Graph 5* and *Appendix 2*). This term is measured as the gap between variation in world demand for French goods (i.e. French exports if market share in each of the partners remained constant compared to the previous year) and variation in world trade. Export performance is the residual factor of change in market share by volume, once the effect of the geographic orientation of exports is removed.

5 - Change in market share in volume terms, contributions of export performance and geographic orientation



Scope: manufactured goods
Sources: INSEE, national quarterly accounts chain-linked volumes, base 2010, DG Trésor (world demand and world trade)

Why have French exporters lost market share?

From 2000 to 2010, poor export performances contributed significantly to France's substantial losses of market share, then became neutral overall until 2015. Geographic orientation, on the other hand, has contributed little to the drop in market share since 2000, although more markedly from 2010. This observation confirms both microeconomic analysis (Fontagné, Gaullier, 2009) and macroeconomic analysis (Bas *et al.*, 2015) according to which the geographic positioning of French exports barely accounts for the decline. To understand the losses of market share since 2000 means analysing the dynamics of export performance, adjusted for the effects of exchange rate, commodity prices and geographical orientation. Two sub-periods can be clearly distinguished: a dramatic fall in export performances from 2000 to 2010 (–25%), then near stabilisation from 2011 to 2015.

Since 2010, export performances have deteriorated more in the non-European market

Between 2000 and 2010, losses in performance were broadly parallel in the European market and outside the European Union. On the other hand, the modest improvement since 2010 is mainly due to a better performance on the European market, while the performance outside the EU continued to decline (*Graph 6*).

Equations for exports by zone to understand the drop in export performance since 2000

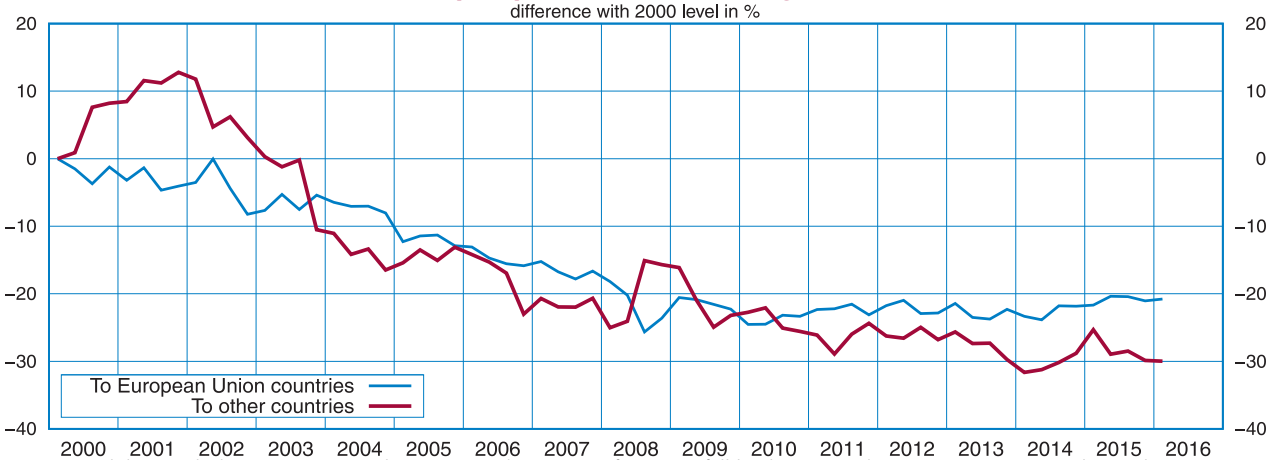
Models by major geographic zone to refine the diagnosis

The determinants commonly used to analyse and predict a country's exports in the short term are mainly world demand for that country's products and price competitiveness or cost competitiveness variables. Models also include events that alter the world balance of trade, like the upsurge of the emerging economies. While these events are common to all the markets concerned, they have not necessarily affected the different zones with the same intensity. To refine the diagnosis, two econometric models differentiate between export destinations (*Appendix 3*): on the one hand the European Union countries (around two thirds of France's total exports), and on the other hand the rest of the world.

After trimming their margins, French exporting companies have rebuilt them since 2010

A decrease in export prices means that the volume of exports can be increased or that new stakeholders can enter the export markets. France's price competitiveness is often measured by indicators that relate export prices to the prices of competitor countries in foreign markets. Variations in relative prices can then be broken down into exchange rate, relative costs (especially wage costs) and margin effort by enterprises. In the case of France, this breakdown highlights the existence of margin behaviour from 2000 to 2010: enterprises limited the effect of the appreciating Euro and the rise in costs on their selling price by

6 - French export performance according to destination



How to read the graph: between 2000 and 2015, French export performance fell back 21% on the European Union market and 29% against non-EU countries.
Scope: manufactured goods
Sources: INSEE, national quarterly accounts base 2010 (exports by area), DG Trésor (world demand and world trade)

trimming their margins; conversely, since 2015 they have tended to use the depreciation of the Euro, lower labour costs and the drop in commodity prices to build them up again (*Graph 7*).

Relative costs reflect companies' economic environment, more so than prices

The relative prices of exports only measure prices for companies that succeed in exporting. Relative costs, however, are a better reflection of companies' economic environment. On the one hand, in large global groups, the decision to establish a production chain does not depend on the final price, but rather on the economic environment, and especially on cost relative to productivity. On the other hand, for an exporting enterprise that has to adapt to market prices ("price taker"), any drop in price has to be endured, to the detriment of its margins if its costs do not come down to the same extent, or if productivity does not increase to offset it: any prolonged reduction in margins can harm its investment capacity, and hence its future competitiveness.

Depending on the product, prices or costs determine market share dynamics

Depending on the product, it tends to be relative prices, or rather relative costs, that mainly determine the dynamics of market share. The aeronautics market, for example, is dominated by two players, one American and the other European, which both manufacture most of their production on their own territory; it is therefore to be expected that their export performance depends primarily on relative prices, and especially currency fluctuations. Conversely, in the automotive industry, where firms are established in many countries and can more easily reallocate production, the relative costs of production are assumed to be better for determining place of manufacture and hence export performance.

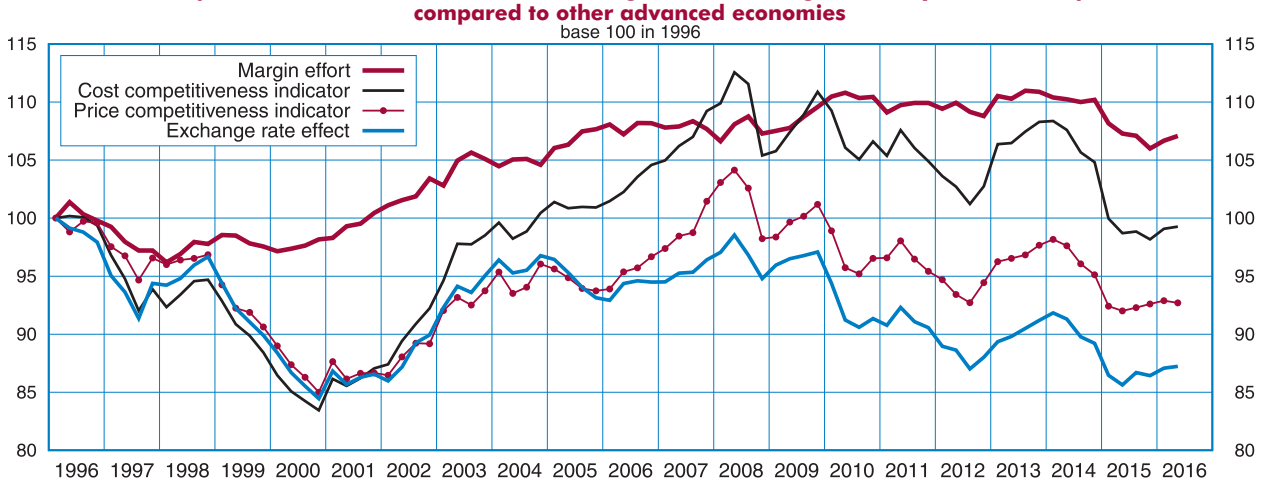
Several price competitiveness and cost competitiveness variables were tested

To differentiate these factors in the model, several variables were tested: the real effective exchange rate of the national currency (Franc, then Euro), relative export prices taken from different national accounts, unit wage costs relative to other advanced countries (or only to other Eurozone countries), and combinations of these variables.

In non-European markets, the most satisfactory model is the one that introduces only the exchange rate. In the EU market, on the other hand, a combination of two variables is preferred: first, the real effective exchange rate of the Euro, which reflects the intensity of competition from countries outside the Eurozone, and second, relative wage costs vis-à-vis countries in this zone.

As these are relative price indicators, the fragility of international data means that estimates with this variable are significantly less effective than those with the real effective exchange rate.

7 - Competitiveness indicators, effective exchange rate and margin effort by French enterprises compared to other advanced economies



Note: the effects of the CICE have been incorporated into the calculation of French wage costs.
How to read the graph: since 2014, the real effective exchange rate has decreased; the decline in the cost competitiveness indicator for French enterprises corresponds to this improvement; these two indicators contributed to an improvement in price competitiveness, although this was less substantial than that in cost competitiveness as enterprises reduced their margins less than before 2014.
Source: INSEE, national quarterly accounts base 2010, OECD

Why have French exporters lost market share?

The exchange rate can account to some extent for French market share losses between 2000 and 2010, especially in the non-European market

In the economic literature (Ducoudré and Heyer, 2014) French exports appear to be sensitive to fluctuations in the real effective exchange rate: median elasticity of exports to the REER comes out at around 0.6. In the models used here, elasticity appeared stronger towards the non-European Union markets (1.4) but weaker for goods coming into the European Union (0.3): in this market the real effective exchange rate contributes considerably less to changes in exports than in the model for the non-European Union countries since French exporters are for the most part in competition with Eurozone countries.

With the model selected for the non-European market, the exchange rate contributed –8 points to loss of market share between 2000 and 2010 (*Table 4* and *Graph 9*). Since then, the Euro has depreciated generally, with a favourable effect on market share (+9 points). In the European Union market, contributions were on a smaller scale: –1 point between 2000 and 2010, and +2 points thereafter.

Fluctuations in relative costs also partly account for the export performance profile

In addition to the exchange rate effect, fluctuations in relative costs vis-à-vis the other Eurozone countries also contributed to the marked deterioration in market share between 2000 and 2010 and then to the slight upturn. Over the first period wage costs in France increased more quickly than in the partner countries in the zone, contributing as much as –12 points to the deterioration in performance in this market. Since then, wages have increased substantially in Germany while in France several measures have been put in place to bring labour costs down: tax credit for encouraging competitiveness and jobs (CICE), the Responsibility and Solidarity Pact (PRS), and the hiring bonus as part of the emergency plan for employment. Thus wage costs have fallen relatively in France and the cost competitiveness indicator has improved. This improvement would have been even more marked if wage costs had not taken a sharp downturn in Spain. In the model, the variable has contributed +1 point to export performance on the European Union market since 2010.

Growth in the emerging economies accounted for the greatest share of performance losses between 2000 and 2015

The accounting contribution made by the growing share of emerging economies in world trade to the poorer French performance can be calculated by assuming a similar change in French performance to that in all the advanced economies. The share of the emerging countries by volume is measured by comparing exports by volume in the emerging economies with world trade (*Appendix 2*). The contribution of this variable is thus calculated beforehand, outside the model, taking into account the emerging economies' share of each market (54% outside the European Union and 24% inside in 2010 for a 44% share of world trade). In the European Union market, the contribution of competition from the emerging countries to French export performance is therefore –10 points (–7 points between 2000 and 2010, and –3 points since then). In the non-European market, the growth of the emerging economies accounted for –28 points between 2000 and 2015 (–24 points between 2000 and 2010, and –5 points since then) out of the total 29% loss.

Table 4 - Contributions to French export performance, according to period and destination

	2000-2015		2000-2010		2010-2015	
	non-European Union	European Union	non-European Union	European Union	non-European Union	European Union
Share of emerging countries	–28	–10	–24	–7	–5	–3
Real effective exchange rate of the Euro	2	1	–8	–1	9	2
Unit wage cost relatively to Eurozone		–11		–12		1
Residue	–3	–1	8	–3	–10	2
Total	**–29**	**–21**	**–24**	**–23**	**–6**	**2**

How to read the graph: between 2000 and 2010, French export performance declined by 24% on the non-European market; the econometric contribution of the emerging countries to world trade was –23 points, that of the Euro exchange rate –7 points.
Source: INSEE

Box 2 – Non-price competitiveness, the other component of competitiveness

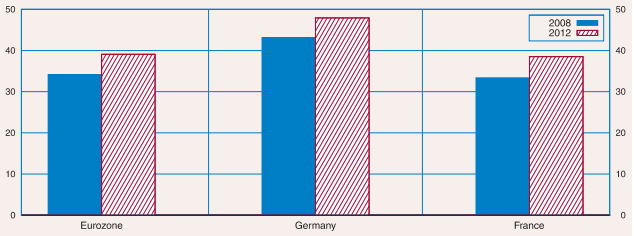
When considering variations in a country's exports, determinants other than world demand for products and prices are grouped together under the term "non-price competitiveness". The economic literature suggests many non-price competitiveness factors. First, the economic environment influences companies' ability to innovate and export. Among other things, the legislative environment, the weight of standards and also the protection of intellectual property can facilitate or, on the contrary, hinder the production or export process. Next, the characteristics of the good or the seller may also influence the purchasing decision: thus quality, range or the acquired or assumed reputation must be taken into consideration. This reputation can be improved through innovation and research and development, but also, for example, through the quality of after-sales service. In general, the confidence established with foreign importers over the long term is a favourable factor of export performance.

However, non-price competitiveness is a concept that is difficult to quantify, since it covers a multitude of distinct factors, influencing the purchase decision, and unrelated to price competitiveness. In addition, the impact on exports of an improvement in non-price competitiveness is probably more diffuse over time than that of a price variation.

However, several studies conclude that non-price competitiveness can be an important factor in differences in export performance. According to the European Commission (2010), price competitiveness accounted for less than 40% of the change in export performance by Eurozone countries over the period 1998-2008. Price elasticity varies according to the type, the range or the quality of goods exchanged, i.e. the quantities sold are affected to varying degrees by a price variation. Sautard *et al.* (2014) propose a method for classifying goods according to their price elasticity: high- and very high-technology goods (e.g. maritime, space or air navigation products) appear to be least sensitive to price variations, whereas goods such as furniture, textiles and plastic products are classified as being the most sensitive. Next they classify countries according to their market position for products that are sensitive to prices or for high-technology. France is one of the countries where exports are only moderately sensitive to prices. It is present both in the market for goods that are sensitive to prices, where price competitiveness is an important determinant, and in the high-technology and luxury product markets, where non-price factors predominate. As a result, France's median positioning puts its companies in competition over prices, for example with Spain, which has drastically reduced its labour costs in recent years, but also over non-price factors, with countries where exports are less price-sensitive, such as Switzerland, Japan or Germany in sectors where research effort and productive investment are essential. For Sautard *et al.* the deterioration in the French balance of trade during the 2000s appears to be largely attributable to products with a high price component, and France's good positioning in goods for which the quality component predominates has apparently not been enough to compensate for this decline.

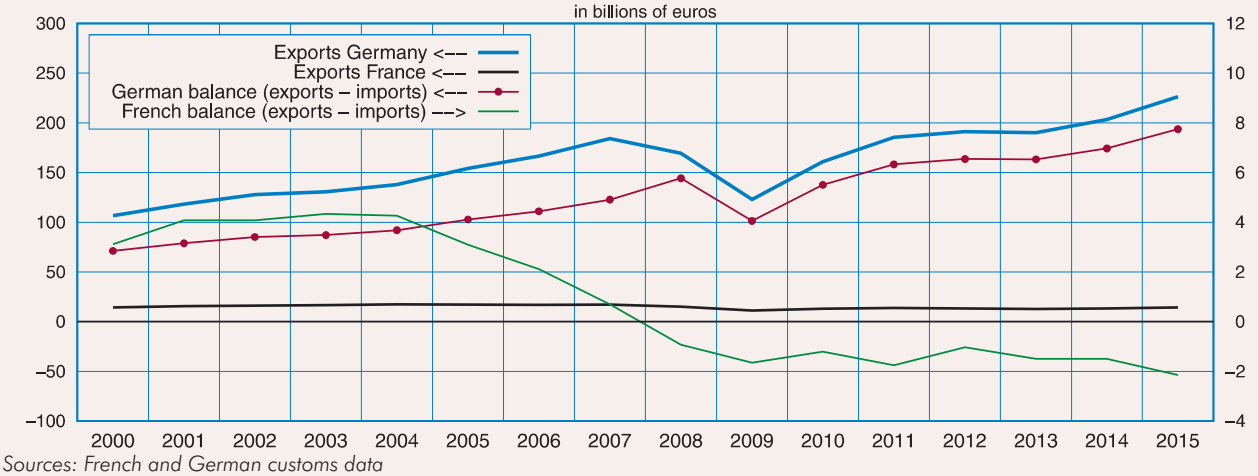
Ferrero *et al.* (2014) concluded that French industry was suffering from a deficit of non-price competitiveness, especially when set against its German counterpart whose better positioning contributed to a lower vulnerability during times when the Euro appreciated. The comparison of the automotive industry in France and Germany illustrates these differences in non-price competitiveness: while the hourly labour cost is higher in the German automotive industry than in its French competitors (*Graph 1*), German automobile exports were both very much higher and considerably more dynamic than French exports between 2000 and 2015 (*Graph 2*). In addition to differences in non-price competitiveness, factors other than the cost of labour in industry could have contributed, especially differences of dynamics in the cost of inputs. ■

1 - Hourly labour cost in the automotive industry



Sources: labour cost survey, INSEE, Destatis

2 - Motor vehicle exports (vehicles and equipment) in current Euros



Sources: French and German customs data

Why have French exporters lost market share?

The model gives a good account of the slight upturn in export performance on the European market since 2010...

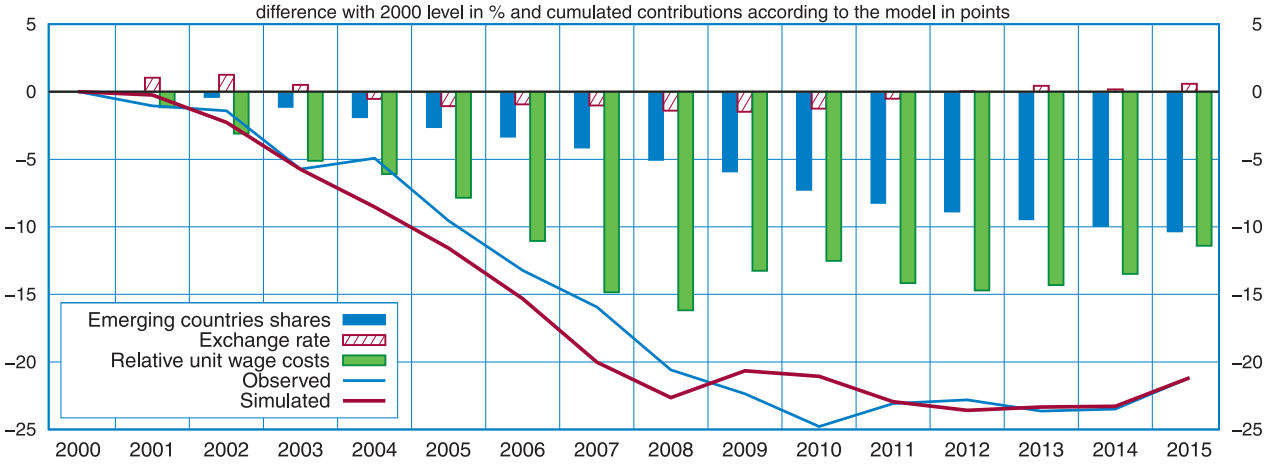
All in all, the model reflects the sharp drop in performance between 2000 and 2010 in the EU, and the slight upturn since then. While the share of the emerging countries continued to increase, albeit at a slower pace than between 2000 and 2010, the reason for this improvement is the slight decline in labour costs (compared with the other Eurozone countries) and the depreciation of the Euro (*Graph 8*).

...but not the further non-European deterioration

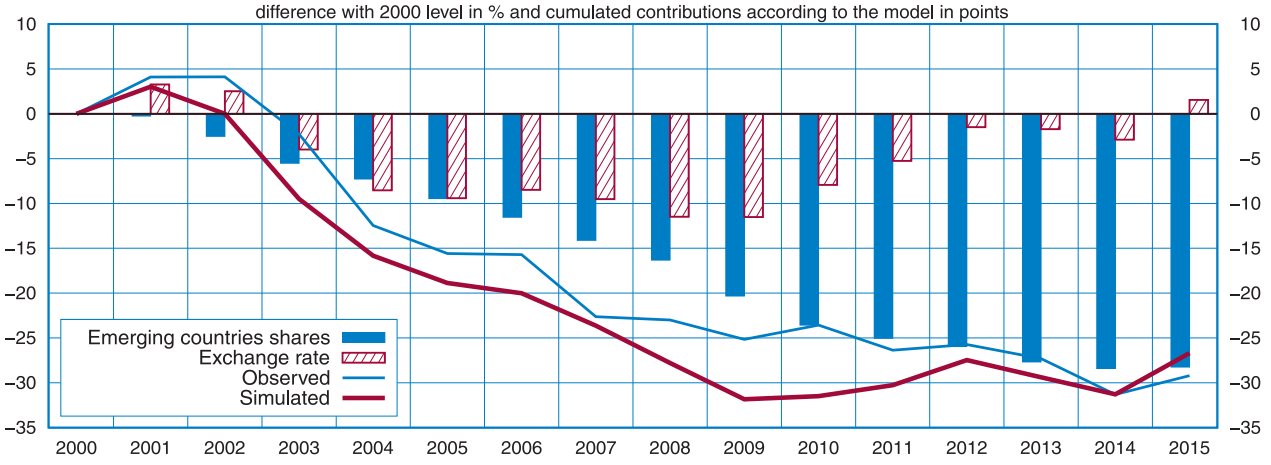
On the non-European markets, performance losses between 2000 and 2010 were the result of the powerful upswing in the emerging economies over this period. However, export performances have continued to deteriorate since then despite the favourable contribution from exchange rate depreciation (*Graph 9*). In addition to a possible loss of non-price competitiveness (*Box 2*), several additional explanations can be put forward. The weakness of aeronautical exports since 2014 has certainly had its effect: this is due both to problems in demand in the business aircraft and helicopter markets, and to problems with supply, especially with procurement. In addition, the introduction of sanctions against Iran in 2012 and Russia in 2015 could also have had an effect, as France previously held strong positions in the products affected by these embargos (*Focus* in *Conjoncture* in France, March 2016, p. 75-76).

8 and 9 - Export performance

European Union



non-European Union



Source: INSEE

Market share losses resulted in the fragmentation of production chains only marginally

Another factor behind the decline in French performance, which could not be used in the econometric simulation, is the growing fragmentation of production chains. The great buoyancy of world exports at the beginning of the 2000s has resulted in part, and in varying degrees in different countries, in an ever-growing fragmentation of production between countries. China's rise to power in world trade has been accompanied by a breakdown of value-added chains which has resulted in an increase in the trade flow content of each unit produced. Conversely, the slowdown in this form of production in recent years is a factor of the marked slowdown in world trade (CEPII, 2015).

The increase in exports for custom work may therefore be a factor, in accounting terms, behind the poor relative performance of French exporters since 2000. On the one hand, the growth in custom work has boosted trade flows in the emerging economies, thus increasing their share of world trade. On the other hand, this phenomenon has also increased in the Eurozone, but to varying degrees according to the country: thus the fragmentation of value chains has increased much more in Germany than in France, probably due to the different business strategies in these two countries. Broadly speaking, French carmakers have chosen to produce vehicles abroad directly, while the competing German brands import spare parts that were previously produced locally, and continue to assemble vehicles in Germany (Bechler et al., 2014 and Buigues and Lacoste, 2016); as a result, the German automotive industry imports a larger share of its intermediate consumptions; it generates more imports of spare parts and exports of vehicles but the value-added content of these exports has increased less rapidly than sales.

To appreciate to what extent this has an effect from a macroeconomic point of view, the domestic value-added content of exports of goods must be analysed. It appears that the French economy has been less involved in this process of fragmentation of production chains than the rest of the Eurozone (*Box 3*). Taking into account the domestic value-added content of exports of manufactured goods rather than exports directly, the decline in the export performance of French enterprises since 2000 compared to its Eurozone partners is a little less pronounced; however, this effect accounts for only a small part (around –3 points) of the overall decline (–22%).

Box 3 – The effect of the growing fragmentation of production chains on measuring export performance

Since the 1990s, world trade has seen the effects of the growing fragmentation of production chains: as highlighted by P. Krugman (1995), the outsourcing of production and the use of contract manufacturers abroad have resulted in a greater sharing of value added between several countries, and an additional increase in the openness of participating countries. This process has led to an increase in exports and imports, and may therefore have had an effect on export market share.

There have been several initiatives, notably at the OECD and the WTO, to better take into account the outsourcing of intermediate consumption production, i.e. to neutralise this process in trade flows. The concept of the value-added content of exports makes it possible to neutralise the effect of the growing integration of production chains in international comparisons, by excluding the import content from exports. Using this concept is generally neutral from the point of view of the current balance: if a country's imports increase by the same amount as the exports, then the current balance is unchanged.

One way of measuring this value-added content of exports is to use the international symmetric input-output tables produced by the OECD, based on data from the national accounts of the different member countries. No estimate can be made for the recent period, as data are only available for 1995, 2000, 2005 and 2008 to 2011.

Why have French exporters lost market share?

An alternative is to estimate the domestic value-added content of exports of manufactured goods using the following approximation:

$$\frac{VAX_i^{manuf}}{X_i^{manuf}} = \frac{VA_i^{manuf}}{Prod_i^{manuf}} + \left(1 - \frac{VA_i^{manuf}}{Prod_i^{manuf}}\right)\left(\frac{PIB_i}{PIB_i + M_i} + \frac{M_i}{PIB_i + M_i}\frac{VAX_i}{X_i}\left(\sum_j a_{ij}a_{ji}\frac{M_j}{PIB_j + M_j}\right)\right)$$

Where we denote:

$a_{ij} = \frac{M_{i \leftarrow i}}{M_i}$, the share of country i in the imports of country j;

$\frac{VAX_i}{X_i}$ the domestic value added content of all exports of country i;

M_i imports of country i;

X_i exports of country i.

In this formula, the first term includes the share of manufacturing value added in manufacturing production and the second reflects the domestic value-added content of intermediate consumptions in the manufacturing sector. The assumption is that the domestic value-added content of all resources is a good approximation of this second term. Local value added $\frac{PIB_i}{PIB_i + M_i}$ must be included for all resources, but also the domestic value added content of imports, $\frac{VAX_i}{X_i}\left(\sum_j a_{ij}a_{ji}\frac{M_j}{PIB_j + M_j}\right)$ i.e. the domestic value-added content of all exports multiplied by the content in French exports of imports from partner countries.

Using the same notations, the value-added content of all exports is expressed as follows: $\frac{VAX_i}{X_i} = \frac{PIB_i}{PIB_i + M_i - M_i(\sum_j a_{ij}a_{ji}\frac{M_j}{PIB_j + M_j})}$

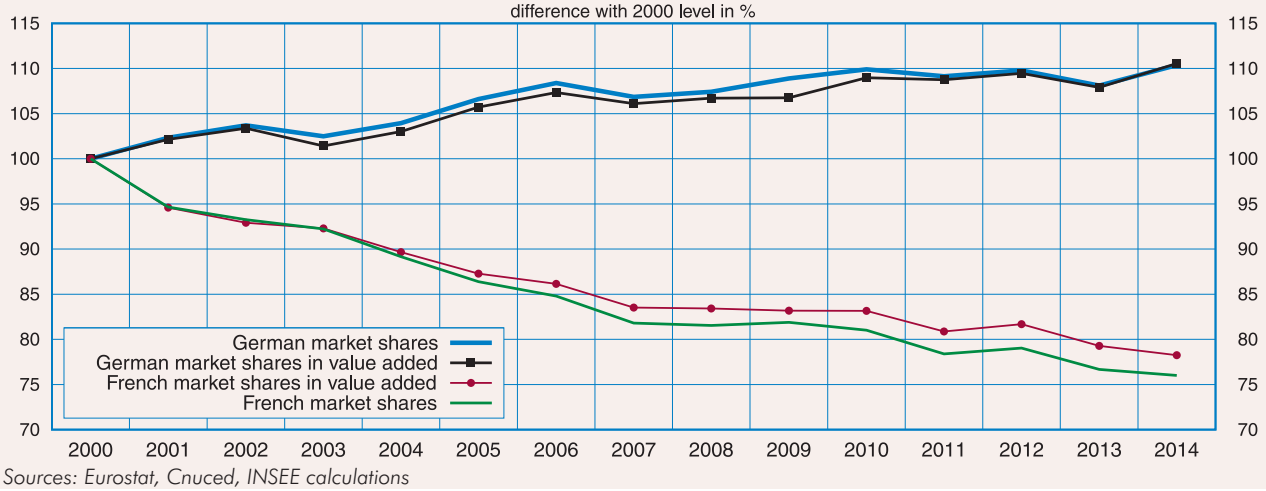
This measure complements the degree of openness, adjusted from the domestic value added which is exported then reimported after processing.

In this calculation, the import content of intermediate consumptions in the manufacturing sector is assumed to be the same as the import content of the whole economy, which is a strong assumption and not generally verified empirically in level form. However, the assumption that these two quantities evolve in parallel is much less strong. In practice, therefore, the change in a country's exports is compared with the value-added content of these exports. In addition, the exact calculation of the value-added content of manufacturing exports, based on the OECD's international input-output tables for the available years, gives a coherent result, along the lines of the approximation method presented in this Box, which supports the original assumption.

For each Eurozone country, change in market share vis-à-vis the zone is calculated in the accounting sense, but also their market share in value added.

From this it can be seen that France has participated in the fragmentation of value chains to a lesser extent than Germany (*Graph*), thus confirming the notion of the "Bazaar Economy" introduced by H. W. Sinn (2009): the increase in German exports led to more imports than was the case in France. On the other hand, the impact on the balance of trade of losses of market share to export was rather less than expected initially. All in all, considering the value-added content of manufacturing exports rather than exports directly, the decline in export performance by French enterprises since 2000 was less pronounced (–19%, against –22%); however, this effect explains only a small part of this decline (3 points). ■

Change in export market share in the Eurozone for France and Germany in the accounting sense and in value added



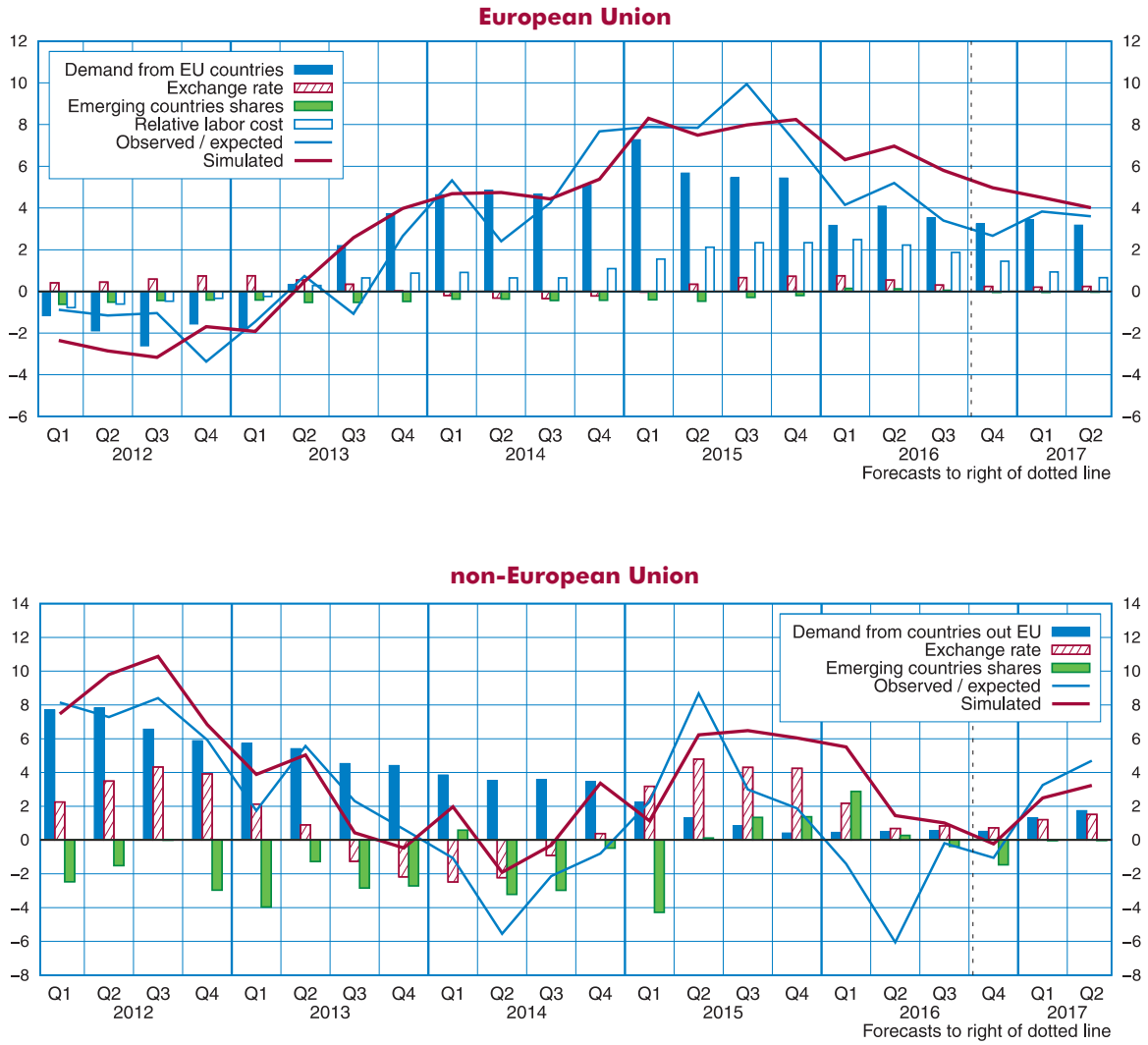
Sources: Eurostat, Cnuced, INSEE calculations

Why have French exporters lost market share?

By mid-2017 exports should resume their growth, especially towards the non-European market

By using models designed for each major geographic area, the forecasts made each quarter in *Conjoncture* in France can be refined. Indeed, the forecasts by country differentiate between demand from EU countries and demand from the rest of the world. EU demand for French products is likely to maintain its present buoyancy, around +4% per year. In addition, demand from the rest of the world looks set to accelerate sharply (*Graphs 10 and 11*). Lastly, the contributions made by exchange rates and labour costs should still be slightly favourable through to mid-2017. As a result, exports to the European market should remain sustained, and exports to the rest of the world are likely to bounce back substantially; this rebound should be boosted by large deliveries expected in the aeronautics and naval sector, even if this is simply catching up with delays in delivery from the beginning of 2016 (*Foreign trade* sheet and *Special analysis* "After two years of turbulence, the French aeronautical sector is ready to take off again" p.19). ■

10 and 11 - Manufacturing exports by zone (year-on-year change in %) and contributions by main economic determinants in points



Source: INSEE

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Appendix 1 – Sources used to calculate market share

For trade in goods, the two national sources used for this report are customs data and the national accounts (annual accounts at a detailed level; quarterly accounts at a more aggregated level). As customs data are the main source used by the national accounts for flows of goods and the concepts and scope are very similar, there is little difference in data in value terms between these two sources. The national accounts also provide data in volume terms at the previous year's chain-linked prices which neutralise any price fluctuations, by product and by major area (Eurozone, rest of the European Union, rest of the world).

To calculate world market shares and market shares by area, several international bodies collect national data, taken from national customs data or the national accounts. For this study, we used the customs database by value provided by the World Trade Organisation (WTO).

The United Nations Conference on Trade and Development (UNCTAD) collects much more detailed customs data over a shorter period, so that contributions can be calculated by product at a very detailed level. The classification used, the Harmonised Commodity Description and Coding System (HS 2012), is a multipurpose international product nomenclature developed by the World Customs Organisation (WCO). In its most detailed version it identifies around 5,000 products. In this report, the data used refer to the classification into 100 product groups.

Perimeter of groups of countries

In the "advanced" economies, according to the OECD definition, the following were used: Germany, Australia, Austria, Barbados, Belgium, Canada, Cyprus, South Korea, Denmark, Spain, Estonia, United States, Finland, France, Greece, Ireland, Israel, Italy, Japan, Liechtenstein, Luxembourg, Malta, Norway, New Zealand, Netherlands, Portugal, Czech Republic, United Kingdom, Singapore, Slovakia, Slovenia, Sweden, Switzerland.

All other countries are considered as "emerging", which is a much broader scope than that defined by the IMF, for example.

The gap between market share in terms of volume and values is stable

Market share in terms of value varies not only according to variations in the volumes traded, but also according to variations in the relative price of the goods sold. While the data available for world trade by value coincide relatively well, data on trade by volume are more divergent. Two sources, available for sub-annual periods and relating to goods, are usually used for *Conjoncture* in France: the Centraal Plan Bureau (CPB, a Dutch body which provides monthly data, based on customs data), and the French Treasury General-Directorate (quarterly estimates of trade in goods, using data from the national accounts).

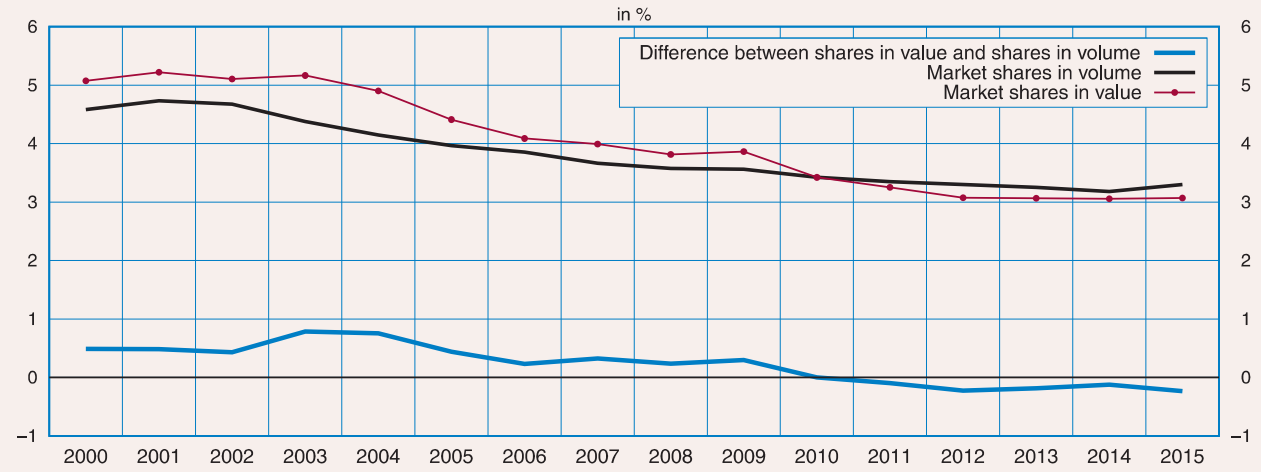
The CPB calculations are based on monthly customs data by value, deflated by price indices when supplied by statistical bodies or otherwise using unit values; they have the advantage of providing early data on a large number of countries, especially those where customs statistics exist but not the corresponding quarterly accounts. However, these calculations may give a different profile of world trade from that estimated from the national accounts. In particular, world trade in the CPB sense is slightly less dynamic over long periods than that calculated using the national accounts due to the deflators chosen (price indices for the national accounts and unit value indices for the CPB).

Since data for trade in goods by value were available for more countries, this justified the decision to make an international comparison of market share based on value, but the calculations for export performances and the econometric models for these exchanges are more relevant when applied to exports by volume.

In this report, France's market share by volume is calculated as the ratio of French manufacturing exports to world trade, as defined by the national accounts. For the period 2000-2015, the loss of market share was less strong in volume than in value due to a negative price effect.

Conversely, the market share of the emerging countries increased more in value than in volume in the 2000s, due to the rise in the price of commodities, of which these countries are overall exporters. In the model, the volume market share used for the emerging countries was calculated from the CPB data as the ratio of emerging economy exports by volume to world trade by volume, since the scope of the CPB was broader than the data from the national accounts of these countries. The volumes calculated by the CPB may differ slightly from those in the national accounts, but this ratio clearly reflects the distortion of trade in favour of the emerging countries as it neutralises the price effect, especially for commodities. ■

Market shares in value terms or in volume terms



Sources: DG Trésor for world imports by volume, INSEE for French exports and WTO for data by value

Appendix 2 – How to analyse and break down variations in market share

Breakdown into contributions by zone or product

Considering the case of the market share of a given country *k*, total market shares can be written in the form of a weighted average of market shares by zone:

$$ms_{total} = X_{k\to world} / X_{world}$$

$$= (X_{k\to EZ} / X_{world}) + (X_{k\to EUoutEZ} / X_{world}) + (X_{k\to ROW} / X_{world})$$

$$= (X_{k\to EZ} / X_{EZ}) * (X_{EZ} / X_{world}) + (X_{k\to EUoutEZ} / X_{EUoutEZ}) * (X_{EUoutEZ} / X_{world}) + (X_{k\to ROW} / X_{ROW}) * (X_{ROW} / X_{world})$$

$$= (ms_{EZ}) * (X_{EZ} / X_{world}) + (ms_{IntraEUoutEZ}) * (X_{EUoutEZ} / X_{world}) + (ms_{ROW}) * (X_{ROW} / X_{world})$$

Where:

- $X_{k\to i}$ represents the respective exports from country "*k*" to zone *i* (world, Eurozone only, EU outside Eurozone and rest of the world);

- X_{world} represents world trade (sum of imports or exports);

- X_{EZ} ($X_{EUoutEU}$, X_{ROW} respectively) represents the Eurozone market (EU outside the Eurozone and rest of the world respectively), i.e. the sum of all world exports to the Eurozone (EU outside the Eurozone and rest of the world respectively);

- ms_i represents market share of country *k* in zone *i*.

To analyse variations in the market share of a given country and calculate contributions according to the receiving country, the approach proposed by J.-P. Berthier (2002) was selected. This consists of a breakdown of the difference between two means which verifies a certain number of properties.

Let $R_j = \Sigma\, a_{i,date\ j}$ x $r_{i,date\ j}$ be the mean on date *j* of elements $r_{i,date\ j}$ weighted by $a_{i,date\ j}$..

with, for the given dates *j* in {1,2}, $\Sigma\, a_{i,date\ j} = 1$

Between two dates, we have the difference $E = R_{date\ 2} - R_{date\ 1}$

In the breakdown, the contribution C_i of component *i* to this difference is calculated in the form:

$$C_i = a_{i,date\ 2}\,[r_{i,date\ 2} - R] - a_{i,date\ 1}\,[r_{i,date\ 1} - R]$$

$$\text{avec } R = \tfrac{1}{2} * [R_{date\ 1} + R_{date\ 2}]$$

Which can be rewritten in the following form:

$$C_i = \tfrac{1}{2} * (a_{i,date\ 1} + a_{i,date\ 2})\,(r_{i,date\ 2} - r_{i,date\ 1}) + (a_{i,date\ 2} - a_{i,date\ 1})\,[r_i - R]$$

with $r_i = \tfrac{1}{2} * [r_{i,date\ 1} + r_{i,date\ 2}]$

The first term represents the effect specific to the variation in element r_i between the two dates. The second term is a structural effect, and all the more important when the weight of element *i*, a_i has varied between the two dates.

J.-P. Berthier shows that this breakdown is the only solution that satisfies the following required properties:

(1) exhaustivity: $E = \Sigma\, C_i$

(2) symmetry: $C_i\,(r_i\,(a_{i,date\ 1}), r_i\,(a_{i,date\ 2})) = -\,C_i\,(ri\,(a_{i,date\ 2}), r_i\,(a_{i,date\ 1}))$

(3) internal aggregation: for all (*i,j,k*) if $R_i = R_j + R_k$ so $C_i = C_j + C_k$

(4) scale invariance: $C_i\,(c.\ r_i\,(a_{i,date\ 1}), c.\ r_i\,(a_{i,date\ 2})) = c.\ C_i\,(r_i\,(a_{i,date\ 1}), r_i\,(a_{i,date\ 2}))$

(5) invariance under translation: $C_i\,(r_i\,(a_{i,date\ 1}) + c\ ,\ r_i\,(a_{i,date\ 2}) + c\ ) = C_i\,(\ r_i\,(a_{i,date\ 1}), r_i\,(a_{i,date\ 2}))$

Using Berthier's approach, the difference between two dates of these market shares can be broken down, with: a_i = share of zone i in world trade and $r_i = ms_i$, market share of country k in zone i, and finally R = total market share of country k.

The contribution of zone i to variation in market share between two dates (2000 and 2015) can then be written as the sum of:

- a "principal term" $1/2(a_{i,2015} + a_{i,2000})*(r_{i,2015} - r_{i,2000})$, which is interpreted as the contribution of the variation in market share in zone "i" between the two dates;

- a "structural term" $(a_{i,2015} - a_{i,2000})*(r_i - R)$, which represents the effect of the variations in weight of zone "i" in world trade; it is larger the more the average market share in this zone differs from the market share overall.

Breaking down the data in this way makes it clear why German exports, despite gaining market share in each of the major zones, declined overall between 2000 and 2015 (*Table 1*): the structural effect prevails, in other words, in fifteen years, the weight of the Eurozone, where Germany has some of the highest market shares, decreased in terms of world trade.

This breakdown is applied according to zones receiving exports, but it can also be applied in the same way to an analysis by product (*Table 1*).

Distinction between geographic orientation and export performance in changing market share

To distinguish a geographic orientation factor from a performance factor in variations in a country's market share, a breakdown of market share by volume can be used (*Graph 5*). We can then write:

$$ms = X_{k\rightarrow world} / X_{world}$$

$$= (X_{k\rightarrow world} / WD) * (WD / X_{world})$$

Where:

- as before ms are the market shares of country k, X_{world} is world trade (sum of imports or exports), and $X_{k\rightarrow world}$ the country's total exports;
- WD is world demand for French products, which measures what exports would be if the market share of each of its partners remained constant compared to the previous year.

As a result, a change in market shares between two dates can be broken down to a first order equation as:

$$evol\ (ms) = evol\ (X_{k\rightarrow world}/WD) + evol\ (WD/X_{world})$$

The first term is interpreted as change in export performance; change in (WD / X_{world}) is interpreted as a positive (or negative respectively) geographic orientation factor if the import dynamics of countries importing French goods are greater (or less respectively) than those of world trade. ■

Appendix 3 – Estimating equations for export by zone

Using econometric modelling, the main determinants of French exports of manufactured products can be identified, and from this, French export performances. The originality of the approach presented here is that it models exports to the European Union and those to the rest of the world separately. The impact of cost competitiveness can in fact differ in these two markets with their distinct characteristics; taking these into account gives a better understanding of French export performance.

The method chosen was that of the error correction model where it is easy to identify contributions from the various explanatory factors: demand for French products; price competitiveness or cost competitiveness variables; the contribution made by the increase in market shares of the emerging economies is calculated beforehand, outside the model. Equations are estimated in one step and the restoring force is significantly negative in the sense of the Ericsson MacKinnon test (2002).
The construction of the explanatory variables is described below.

Demand for French products

The demand for French products from the European Union is calculated in the same way as traditional world demand (see *Appendix 2*), but limited to EU member countries. Similarly, demand for French products from countries outside the EU is calculated as world demand limited to third countries. Usually (Armington, 1969), the coefficient for the demand under consideration is limited to 1 in the long-term equation. Thus the long-term relationship accounts for export performance more than the exports themselves.

Why have French exporters lost market share?

Market shares of the emerging economies

To take account of the upswing in world trade in the emerging economies, and China in particular since it joined the WTO in 2001, the export market shares of the emerging economies are used in the model. They are calculated as the ratio of the volume of exports by emerging countries to world trade by volume, with both aggregates supplied by the Centraal Plan Bureau (see *Appendix 1*). This variable gives the decline in export market share for all the advanced economies. The contribution is calculated outside the model, with the assumption that France's share in exports by the advanced economies is constant. In the long-run model this amounts to indexing French exports to demand for the products of the advanced economies as a whole.

Real effective exchange rate

The real effective exchange rate is calculated as the product of the exchange rates with the partner countries weighted by the weights of the respective exchange rates on total foreign trade, or $TCER = TCEN \; x \; IPR$, with:

$TCEN = \prod_{i}^{n} (e_i)^{xi}$; $n=42$, nominal effective exchange rate where $\{e_i\}$ is the bilateral exchange rate between the country's national currency and foreign currency (i) and xi is the weight of country (i) in the weighting system. And:

$IPR = \prod_{i=1}^{n} (IP_R / IP_i)^{xi}$; with IP_R the price index of the reference country and IP_i the price index of country (i).

To obtain the TCER, the TCEN is deflated by the consumer prices in these countries. Thus an increase in TCER corresponds to a deterioration in export price competitiveness.

Relative unit wage cost (vis-à-vis the Eurozone)

For a given country, the unit wage cost is calculated here as the ratio of wage income by value (wage bill and associated contributions or taxes) to GDP by volume. It therefore reflects wage cost per unit of value added produced.

A cost competitiveness index is then calculated from the unit wage costs for France and its main Eurozone trading partners. This index is calculated in the same way as the real effective exchange rate, as a weighted geometric mean of relative wage costs. The weight given to each partner measures the competition that it exerts over each of France's export markets. It takes into account the importance of the market for France (measured by its weight in the context of exports) and the share of this market held by the competitor. This cost competitiveness indicator therefore compares the change in unit wage costs in France with that of its partners: it increases when unit wage costs increase more quickly in France than in its main trading partners (and hence when the cost competitiveness of French companies deteriorates).

This cost competitiveness indicator was calculated for the manufacturing sector alone and for the whole of the economy. The econometric model shows that the indicator for the economy as a whole accounts for French exports of manufacturing products better than the indicator for manufacturing alone. Manufacturing industry costs are not limited simply to paying wages: the price of intermediate consumptions also weighs heavily on the cost competitiveness of manufactured products. For example, a wage increase in the services to enterprises sector affects costs in the manufacturing sector indirectly. Thus even if wages increased less rapidly in the exposed sectors, the wage increase in the protected sectors still influenced the cost competitiveness of exporting enterprises (Sy, 2014).

Modelling exports to the European Union

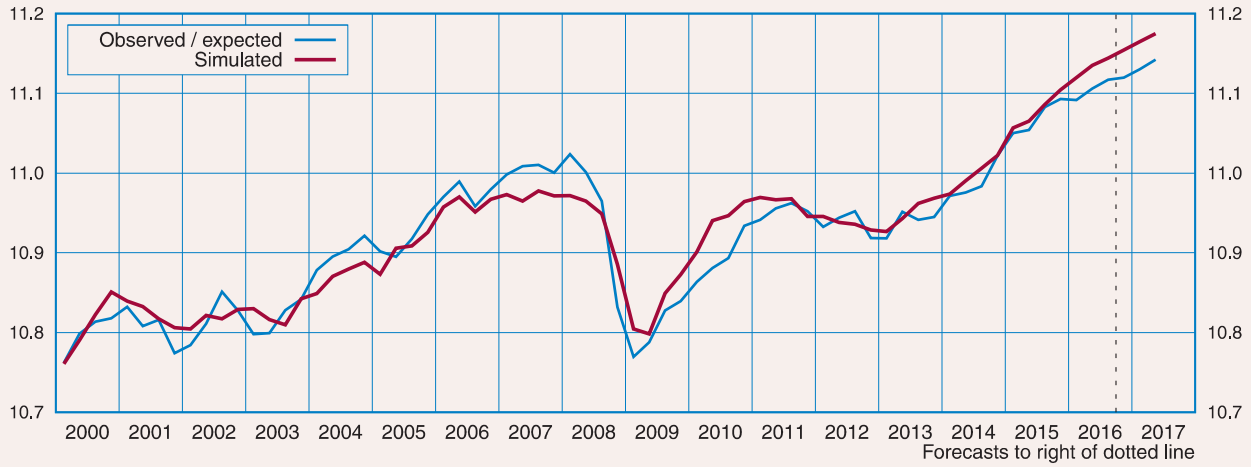
$$\Delta(\log(X_t^{FR\rightarrow UE})) = \underset{(2.1)}{0.65} - \underset{(-3.3)}{0.23}\left[\log(X_{t-1}^{FR\rightarrow UE}) - \log(D_{t-1}^{FR\leftarrow UE}) + \log(1 - Part_{t-1}^{émergents}) + 2.9\log(CSU\_ZE_{t-1}) + 0.27\log(TCER_{t-1})\right] + \underset{(8.4)}{1.0}\,\Delta(\log(D_t^{FR\leftarrow UE}))$$

Where:

- $X_t^{FR\rightarrow UE}$ denote French exports to the European Union;
- $D_t^{FR\leftarrow UE}$ world demand for European Union products;
- CSU_ZE_t relative unit wage costs;
- $TCER_t$ real effective exchange rate;
- $Part_t^{émergents}$: market share of the emerging economies in world trade.

Student statistics for the coefficients are given in brackets below the coefficients.

$R^2 = 0.58$ and standard deviation of the residuals $= 0.019$ – Estimation period: 1997 to 2013



Modelling exports to non-EU countries

$$\Delta(\log(X_t^{FR\rightarrow horsUE})) = \underset{(4.2)}{2.0} - \underset{(-4.0)}{0.28}\left[\log(X_{t-1}^{FR\rightarrow horsUE}) - \log(D_{t-1}^{FR\leftarrow horsUE}) + \log(1 - Part_{t-1}^{émergents}) + 1.4\log(TCER_{t-1})\right]$$
$$+ \underset{(4.2)}{0.51}\Delta(\log(D_t^{FR\leftarrow horsUE})) + \underset{(3.2)}{0.51}\Delta(\log(1 - Part_t^{émergents})) - \underset{(-2.5)}{0.54}\Delta(\log(TCER_t))$$

Where:

- $X_t^{FR\rightarrow horsUE}$ designate French exports to non-EU countries;

- $D_t^{FR\leftarrow horsUE}$ world demand for non-EU products;

- $TCER_t$: real effective exchange rate;

- $Part_t^{émergents}$: market share of the emerging economies in world trade.

Student statistics for the coefficients are given in brackets below the coefficients.

$R^2 = 0.54$ and standard deviation of the residuals $= 0.023$ – Estimation period: 1996 to 2013