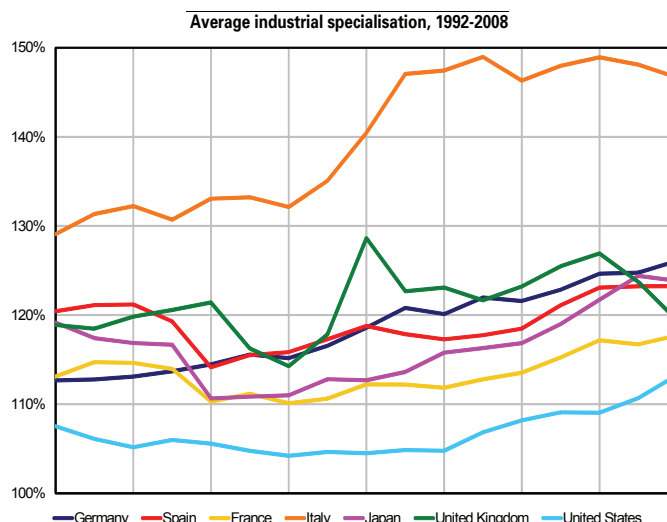


Specialisation trends in major advanced countries since the 1990s

- With a faster decline of industry as a share of GDP, France's productive structure has been diverging from that of countries with the highest specialisation in industry such as Germany and Japan—a trend accentuated by the 2008 crisis. Conversely, France's growing specialisation in services has brought its productive structure closer to that of the United Kingdom and United States.
- As the economic downturn impacted certain sectors more severely than others in 2000–2011, the French industrial base is becoming more specialised and shrinking at the same time. Owing to the decline in the automobile sector and, to a lesser extent, in electrical and optical products, industrial production has concentrated on (1) low and medium-low technology sectors such as manufacture of food products and beverages and metal products, and (2) on high or medium-high technology sectors such as aeronautics and machinery and equipment. However, even the sectors that had resisted rather well—such as the chemical and pharmaceutical industries—appear to have weakened slightly since the 2008 crisis.
- Specialisation, has increased in recent years in most of the countries studied—most notably in the euro area after the adoption of the single currency.
- While France has strengthened its trade specialisation in the leading export sectors (manufacture of food products and beverages, chemicals, pharmaceuticals and aeronautics), its trade position in medium technology sectors—particularly the automotive industry—has weakened. The trade specialisation indicator underscores France's similarities with the United Kingdom in terms of specialisation in aeronautics and pharmaceuticals, and with Spain in manufacture of food products and beverages. By comparison, Germany displays a more generalist export profile, including in medium-technology products such as automobiles, machinery and equipment and electrical and optical products, for which French specialisation has declined.
- The combined analysis of trade and industrial specialisations highlights the role of comparative advantage as a driver of change in industrial specialisation. In France, weak export performance appears to have quickened the decline in the automotive industry, electrical products and textiles, whose share of industrial value added has been reduced by the loss of export market share and competition from imports. By contrast, some high-performing export sectors such as manufacture of food products and beverages, pharmaceuticals and aeronautics are increasing their share of French industrial value added.



Source: OECD STAN; calculations: DG Trésor.

1. France is becoming more specialised in services as industry's share of output declines

1.1 Since 2000, the French economy has been specialising in services, while industrial sectors are in retreat

France displays a generalist production profile, although its economy's specialisation has been increasing slightly since 2000. This trend is reflected in (1) the decline of industrial sectors as a share of French GDP by comparison with the other countries studied (Germany, Italy, Japan, Spain, United Kingdom and United States) and (2) a growing specialisation in services, particularly in financial and insurance activities and construction activities,

whose share of GDP has grown by comparison with the other countries studied.

France's increasing specialisation in services has persisted since the 2008 crisis. While manufacturing activities continue to decline, service activities have seen their share of GDP rise by more than in the other countries in the sample. It should be noted, however, that this trend is mainly due to the contraction of specific sectors since the 2008 crisis, namely construction in Spain and in the United Kingdom, and financial and insurance activities in the United Kingdom, United States and Japan, while these sectors have been less affected in France¹.

Box 1: Specialisation: methodology and data used^a

Methodology: To measure a country's relative specialisation, we use the Hoover-Balassa index, which allows a comparison of national ratios (for employment, value added and other aggregates) with average values observed for a reference sample:

$$HB_{p,S} = \frac{\frac{X_{p,S}}{\sum_S X_{p,S}}}{\frac{\sum_p X_{p,S}}{\sum_S \sum_p X_{p,S}}} \quad \text{With:}$$

- X an indicator of economic activity, expressed in nominal terms, which may consist of employment, value added or exports;
- S a sectoral indicator;
- p a geographic index denoting the country examined.

The index is expressed in three forms:

- the productive specialisation index of country p in sector S is measured by the ratio of nominal value added of sector S to the GDP of country p , compared with the average ratio calculated for all countries in the sample;
- the industrial specialisation index of country p in sector S is measured by the ratio of nominal value added of sector S to the value added in industry (excluding construction) of country p , compared with the average ratio calculated for all countries in the sample;
- the trade specialisation index of country p in sector S is measured by the ratio of nominal exports of sector S to country p 's total exports, compared with the average ratio calculated for all countries in the sample.

Country p 's average specialisation, relative to aggregate X , is the weighted sum of the specialisation indices across all sectors of the study. It should be noted that, by construction, the interpretation of the specialisation index requires examining countries (and sectors) of relatively comparable size.

Data: Our study covers seven countries: France, Germany, Italy, Japan, Spain, United Kingdom and United States. The value added by industry data are taken from the STAN (STructural ANalysis) database compiled and maintained by the OECD. The version used here is STAN Rev.3, which spans the period 1992-2008 for all countries in the sample (the new version of STAN [Rev.4] does not cover all seven countries studied and does not provide the desired detailed level of activity after 2009). These data are harmonised across all countries and sectors studied, and are available at a very detailed level: our analysis includes 28 sectors, corresponding to sections C, D, E and K of ISIC (International Standard Industrial Classification of All Economic Activities).

To extend the study beyond 2008, we have used other sources:

- (i) Annual national accounts for value added by industry. Some activities have been aggregated to harmonise the level of detail between countries; the analysis therefore covers 13 sectors.
- (ii) The WTO base for exports by product type using the United Nations SITC (Standard International Trade Classification). It should be noted that these data are therefore compiled by product, not by sector. We have chosen level 2 of SITC (16 product types).

Because of the more detailed classification and the greater harmonisation between countries, we have used the data from the OECD Structural Analysis (STAN) database (1992-2008) to prepare the charts presented in this study. The other sources serve only to comment on post-2008 trends.

a. Our project was inspired by the study by G. Le Blanc (2007), "La France souffre-t-elle d'une mauvaise spécialisation industrielle? Enquête sur les profils comparés de spécialisation des principales puissances industrielles (1999-2002)", Les Notes de l'Institut de l'Entreprise.

(1) The construction sector's share of French GDP declined from 6.4% in 2008 to 6.0% in 2013, while the share of financial and insurance activities rose from 3.8% in 2007 (3.6% in 2008) to 4.4% in 2013.

1.2 The gap between France's specialisation profile and that of the most industrialised countries has widened

Three groups of countries emerge from an analysis of similarities in production between countries (see chart 1):

- First group (1st quadrant): In Germany and Japan, industrial sectors-particularly the high-technology sectors-contribute substantially to specialisation²;
- Second group (2nd quadrant): In Italy and Spain, there is a heavy preponderance of service activities-particularly construction and hotels and restaurants-and the specialisation profile comprises low-technology industrial sectors (manufacture of food products and beverages in Spain, textiles in Italy);
- Third group (3rd quadrant): In the United States and United Kingdom, mining and quarrying activities account for a large share of specialisation. Another distinctive characteristic is the specialisation in services, particularly financial and insurance activities and real estate and support service activities.

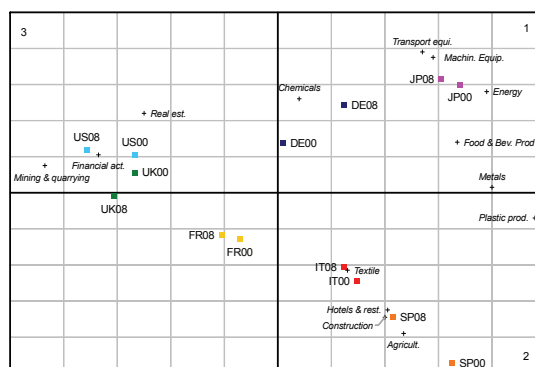
France occupies an intermediate position between the second and third groups: it shares a specialisation in financial services with the United States and United Kingdom, and in construction and low-technology industrial activities (manufacture of food products and beverages, plastics products and metal products) with Spain and Italy.

Between 2000 and 2008, France diverged from the countries most heavily specialised in industry, such as Germany. This is due to France's declining specialisation in key manufacturing sectors including automobiles and electrical, computer and optical products: these sectors constitute Germany's leading industries and have gained strength during the period studied.

In the same period, French specialisation converged towards those of the United Kingdom and United States.

All three countries are positioned in service activities (real estate and support activities, financial and insurance activities); they also display a common specialisation in chemicals, pharmaceuticals and aeronautics. In addition, France shares with Italy a specialisation in real estate and support activities and wholesale and retail trade/repair, but the two countries have different industrial production profiles, particularly as regards the share of the textiles and wearing apparel sectors. Conversely, Spain's specialisation differs from that of France, with a larger share of construction and hotels and restaurants, but the gap between the two countries narrowed between 2000 and 2008, particularly with the rise in the share of financial and insurance activities in Spain and the decline in manufacturing activities in both countries.

Chart 1: Principal component analysis by productive specialisation profile in 2000 and 2008



Source: OECD STAN; calculations: DG Trésor.

Chart construction: We performed a principal component analysis for the seven countries for 2008 and 2000. The sectoral contributions to specialisation in 2008 are used as active variables in the construction of the axes (19 sectoral variables). According to Kaiser's rule, the first four eigenvalues are relevant to the analysis as they exceed unity. We have kept only the first two here, but together they account for over 56.6% of total inertia. We use the sectoral contributions to specialisation in 2000 as supplementary variables and project them on the chart to plot changes in similarities between countries in the period studied (2000-2008).

Box 2: The decline of industry in France

The decline of industry in France has been largely documented in previous DG Trésor publications^a. Several factors are responsible^b: the faster rise of productivity gains in industry than in services; the change in the structure of consumer demand, with a growing share of consumption allocated to services; and the outsourcing of services previously performed in the manufacturing sector. International competition has also had an impact, for it appears to play an ever greater role in the destruction of industrial jobs in France, reflecting the country's loss of competitiveness.

While industry's share of value added is declining in all developed countries, the pace of the downtrend is faster in France than in other European countries.

However, as a report by the French Council for Economic Analysis reminds us^c, the extent of deindustrialisation should be nuanced, for the traditional definition of industry as the production of goods is a poor reflection of actual developments in the sector. Many tasks once performed in the manufacturing sector are being outsourced to the service sector. At the same time, we are witnessing an "industrialisation of services", i.e., a shift towards a value creation process in the service sector modelled after the industrial sector, with the attainment of significant economies of scale (presence of fixed costs) and productivity gains, particularly in information technologies. These two trends are blurring the boundary between industry and services and require us to qualify the conventional statistical definitions.

a. See for example: Ferrero, G., Gazaniol, A. and Lalanne, G. (2014), "Challenges facing the French manufacturing sector", *Trésor-Economics* no. 124.

b. Demmou, L. (2010): "The decline in industrial employment in France (1980-2007): how to account for it?", *Trésor-Economics* no. 77.

c. Fontagné, L., Mohnen, P. and Wolff, G. (2014), "Pas d'industrie, pas d'avenir?", Conseil d'Analyse Économique (CAE), no. 13, June.

(2) We use the breakdown by product ranges developed by CEPPI. See Loschky, A. (2008), "Reviewing the nomenclature for high-technology trade - The structural approach", OECD, September.

2. French industry has been specialising since 2000

The findings reported in the previous section are marked by the contraction of industry's share of GDP, which extent differs substantially across the countries in our sample, making it impossible to detect changes within the industrial sector. As a matter of fact, the share of industry as a percentage of GDP fell by 4.1 pp in France between 2000 and 2008 and by only 0.3 pp in Germany. For our purposes, the specialisation index confined to the industrial sector allows us to compare the changes in industrial diversification by country for a given size of industry.

2.1 Some French industries have proved more resilient, increasing inter-industry specialisation

In 2008, French industry seemed diversified by comparison with the other countries studied, despite a specialisation trend observed since the late 1990s. The trend is mainly due to the strengthening of France's position in the key specialisation sectors (metal structures and, to a lesser extent, machinery and equipment), while the share of manufacture of food products and beverages and chemicals in total French industry remained broadly stable over the period under review (2000-2008).

Meanwhile, specialisation in the automotive industry deteriorated sharply, with France falling from fourth position in 2000 after Germany, Japan and Spain to sixth position in 2008 (ahead of Italy). The automobile sector's share of French GDP narrowed from 1.0% to 0.5% between 2000 and 2011. Similarly, French specialisation in electrical, computer and optical products declined sharply: this trend illustrates France's vulnerability to tougher international competition in this sector, particularly with the rise of emerging-country players, while others (Germany and Japan) displayed greater resistance. The share of electrical, computer and optical products in French GDP fell from 0.9% to 0.3% between 2000 and 2011.

From the late 1990s to 2008, inter-industry specialisations increased in most of the countries studied. The specialisation trend was stronger in Italy, Japan, Germany and the United States than in France and Spain; the pattern of specialisation in the United Kingdom reflects the fluctuating share of mining and quarrying activities in industrial value added.

The 2008 financial crisis caused industrial production to collapse in the developed economies: in July 2009, it was down 15.6% in the United States, 22.4% in Japan, 8.2% in the United Kingdom and 16.2% in the euro area from its year-earlier level.

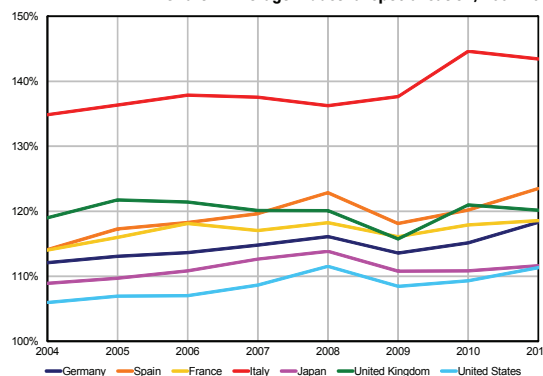
The scope of the contraction in industry has varied across sectors. In particular, the share of transport equipment in industrial value added has decreased in all the countries sampled. The sector was severely impacted by the steep fall in demand³ -at national level, with the downturn in household consumption of durable goods and tighter access to credit; and at international level,

with the sharp contraction in world trade from 2008Q4 onwards. The decline affected the upstream sectors such as metal products, metal structures and plastics products, whose share of industrial value added decreased in 2009. Overall, the contraction in transport equipment-which was more pronounced for the countries holding leadership positions in the sector, has reduced these countries' average industrial specialisation.

Germany, Japan and Spain, for example, experienced a sharp decrease in their average industrial specialisation in 2009, given their specialisation profile (automobiles in Germany and Japan; plastics and metal products in Spain). Meanwhile, the decline in U.S. and U.K. specialisations reflects the reduction in mining and quarrying activities as a share of industrial value added in the two countries.

Conversely, France registered a milder decrease in industrial specialisation than its partners. The main sectors contributing to French specialisation contracted less sharply than in the other countries studied (manufacture of food products and beverages and energy), or actually grew slightly (machinery and equipment) in 2008-2011. Similarly, Italy increased its average industrial specialisation over the same period. First, as in France, the decline in certain industrial activities (machinery and equipment, plastics products) was milder in Italy than in the other countries. Second, textile, wearing apparel and leather activities-the main contributors to Italian specialisation-experienced a smaller contraction than industry as a whole, leading to an increase in Italy's specialisation in that sector.

Chart 2: Average industrial specialisation, 2004-2011



Source: national accounts; calculations: DG Trésor.

How to read this chart: The average industrial specialisation index is equal to the average of sectoral indices weighted by their share of industrial value added. As the period covered by OECD's STAN Rev.3 database ends in 2008, we use national accounts data for the calculation. A high index (for example, Italy's 1.4 in 2011) points to the existence of certain industrial sectors in which the country is highly specialised; these sectors represent a larger share of total industry than in partner countries.

By 2010, industrial specialisation had started to recover, at different paces depending on the countries in the sample. Apart from Japan, which recorded a sharper

(3) See, for example, "The automobile industry in and beyond the crisis", *OECD Economic Outlook*, 2009/2 (no. 86), chap. 2.

slowdown in industrial production in 2009-2011, the average industrial specialisation index had returned to its pre-crisis level in most of the countries observed including France-by 2011.

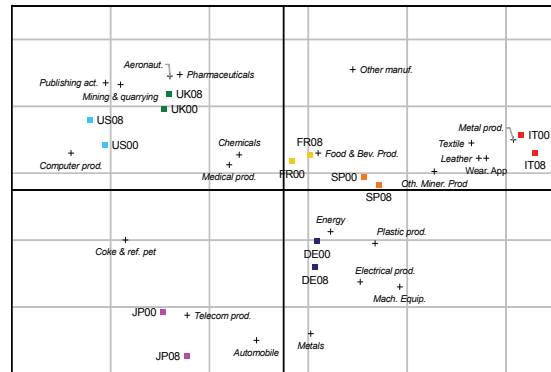
2.2 Because of its generalist profile, the structure of French industry still resembles that of its main partners

The analysis of similarities between countries (see chart 3) reveals the heterogeneity of industrial structures in the countries studied:

- The United Kingdom and United States exhibit a distinctive specialisation in mining and quarrying and manufacture of coke and refined petroleum products (manufacture of refined petroleum products is, however, contracting in the United Kingdom), but also in high-technology industrial activities such as pharmaceuticals and aeronautics;
- Italy and, to a lesser extent, Japan are characterised by a production system concentrated in a set of industrial activities whose specialisation has increased during the period studied: automobiles, telecommunication equipment, electrical appliances and machinery and equipment for Japan; metal structures, leather and footwear, wearing apparel and furs, furniture, and other manufacturing activities for Italy;
- Spain is specialised in low-technology activities (manufacture of food products and beverages, plastics products and metal structures), while Germany's specialisation in medium-technology activities (automobiles, machinery and equipment) rose during the period under review (2000-2008).

Because of its generalist profile, France's industry sector resembles that of its main partners, particularly its European ones. First, with its specialisation in low and medium-low technology, France exhibits similarities with Spain (manufacture of food products and beverages, metal structures), but also with Germany (machinery and equipment, metal structures, energy). Second, France also resembles the United Kingdom and United States, because of the presence of high-technology sectors in its specialisation profile (pharmaceuticals, aeronautics). By contrast, the specialisation profiles of Italy and Japan differ substantially from that of France, because their production systems are concentrated in certain sectors (for example: textiles in Italy, telecommunication products in Japan) in which France has lost specialisation in recent years.

Chart 3: Principal component analysis by industrial specialisation profile in 2000 and 2008



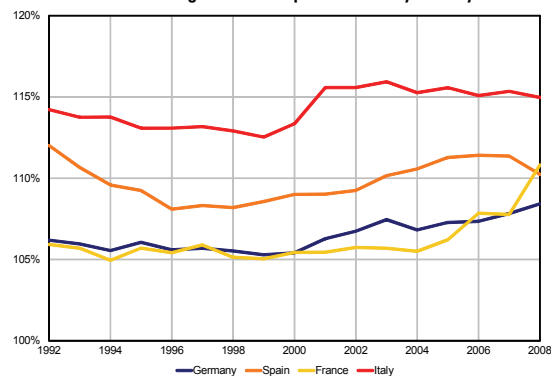
Source: OECD STAN; calculations: DG Trésor.

Construction of the chart: We performed a principal component analysis for the seven countries for 2008 and 2000. The sectoral contributions to industrial specialisation in 2008 are used as active variables in the construction of the axes (25 sectoral variables). According to Kaiser's rule, the first five eigenvalues are relevant to the analysis as they exceed unity. We have kept only the first two here, but together they account for over 57.1% of total inertia. We use the sectoral contributions to specialisation in 2000 as supplementary variables and project them on the chart to plot changes in similarities between countries in the period studied (2000-2008).

2.3 Since 2000, inter specialisation industry has increased substantially in the euro area

The average specialisation index for industrial production rose in the euro-area countries (see chart 4). The trend began around 2000, after the adoption of the single currency.

Chart 4: Average industrial specialisation by country - euro area



Sources: OECD STAN data; calculations: DG Trésor.

Note: The specialisation index is calculated on a sample confined to the euro-area countries included in our study: Germany, Spain, France and Italy⁴.

(4) By construction, a country's relative position in the specialisation indices depends on the reference sample used in the calculation. This explains the difference in specialisation levels of the countries studied with respect to chart 2. In particular, when we restrict the analysis to the four euro-area countries, France appears more specialised than Germany, unlike in chart 2. The reason is that by excluding the United Kingdom and United States, the specialisation indices in aeronautics and pharmaceuticals rise automatically for France, as does their contribution to average specialisation. Charts 2 and 6 must therefore be compared with caution and allowing for the differences between the two reference samples.

Two mechanisms appear to be involved. First, countries specialise according to their comparative advantages in terms of technology (Ricardo) or factor endowment (Heckscher-Ohlin). This specialisation is strengthened by clustering phenomena, which are emphasised in the theory of geographical economics (Krugman). Second, economic and monetary integration lowers trade costs between countries in the area and reduces uncertainties

over the exchange-rate risk for firms. The consequence is an increase in intra-area trade and therefore in the intersectoral specialisation of industry (Krugman, 1993⁵; Krugman and Venables, 1996⁶). These findings are consistent with the empirical studies: using Krugman's index⁷, Midelfart et al. (2003)⁸ note a rising intersectoral specialisation trend in manufacturing in a sample of 14 European countries.

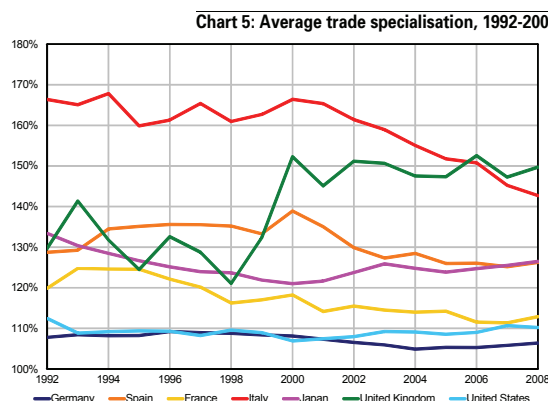
3. The concentration of French exports, down slightly between 2000 and 2008, has been rising since 2010

3.1 In the main sectors contributing to trade specialisation, France has maintained a fairly stable position relative to its major partners, with the exception of the automotive industry

French exports are diversified, but turn out to be more concentrated than German exports.

After trending down in the early 2000s, France's trade specialisation rose in 2008, owing to improved positions in the key export sectors (manufacture of food products and beverages, pharmaceuticals and chemicals, and aeronautics), but also to the decline in automobile exports. In the same period, Italy's trade specialisation declined more sharply. This was due to weaker positions since 2000 in the main sectors contributing to Italian trade specialisation: leather and footwear, wearing apparel and metal structures. Similarly, Spanish trade specialisation decreased because of the contraction in textile and automobile exports since 2000. In the United Kingdom, trade specialisation rose significantly until the early 2000s, then stabilised in the final years of the study owing to the decline in the share of mining and quarrying in total exports, but also to weaker positions in key trade specialisation sectors such as pharmaceuticals.

Apart from a brief decline in 2009, average trade specialisation rose in most of the countries studied in 2008-2012. In France, trade specialisation increased in manufacture of food products and beverages and chemical and pharmaceutical products, whereas automobile exports continued to decline, reflecting changes in French industrial specialisation over the same period.



Sources: OECD STAN data; calculations: DG Trésor.

- (5) Krugman, P. (1993), "Lessons of Massachusetts for EMU", in F. Torres and F. Giavazzi (eds), *Adjustment and growth in the European Monetary Union*, Cambridge University Press, pp. 241-269.
- (6) Krugman, P., and Venables, A. J. (1996), "Integration, specialization and adjustment", *European Economic Review* 40, pp. 959-967.
- (7) Krugman's specialisation index compares a given country's production structure with that of a control group: it is equal to 0 if the country's industrial structure is identical to that of the control group (i.e., the country is not specialised), and can reach a maximum value of 2 if there is no common sector. Under a similar approach to that of the index used here, the Krugman index measures a given country's divergences in specialisation with respect to the control group.

For a given country i , the index is calculated as follows: $K_i = \frac{1}{2} \sum_k \left| \frac{X_i^k}{X_i} - \frac{X^k - X^j}{X - X^j} \right|$, with k a sectoral index.

- (8) Midelfart, K. H., Overman, H., and Venables, A. (2003), "Monetary Union and the Economic Geography of Europe", *Journal of Common Market Studies*, vol. 41 (5), pp. 847-868.

Box 3: An intrasectoral specialisation is also at work

In addition to intersectoral specialisation-emphasised in the classical theory of international trade-the economic literature has established the existence of intrasectoral specialisation, which takes three forms:

- horizontal (variety)^a: in the same market, there are products that have identical or similar uses but different appearances;
- vertical (range)^b: in the same market, there are products that have identical or similar uses but different appearances.
- by value-chain segment^c: as trade costs decline, firms are outsourcing an ever larger share of their value chains to locations where the factor endowment is more favourable; this is known as "task" trade.

Using the BACI database developed by CEPII, the Paris-based research institute, Fontagné, Freudenberg and Gaulier (2005)^d analyse bilateral flows of 5,000 product categories. They point out the importance of specialisation in quality ranges within industries, a particularly significant phenomenon in French-German trade. They also note a recovery in intersectoral specialisation at the end of the period (2000-2005), driven by the growing participation of the emerging countries in world trade.

Their findings are confirmed by Sautard, Duchateau and Rasolofoarison (2013)^e, who identify a tendency for developed countries to specialise in the production of high-end products to cope with competition from emerging countries.

- a. Helpman, E. et Krugman, P. (1985), *Market Structure and Foreign Trade*, Cambridge, MA: MIT Press.
b. Schott, P. K. (2004), "Across-product Versus Within-product Specialization in International Trade", *The Quarterly Journal of Economics* 119(2), p.646-677.
c. Grossman, G.M, Rossi-Hansberg, E. (2008), "Trading Tasks: A Simple Theory of Offshoring," *American Economic Review* 2008, 98:5, pp. 1978-1997.
d. Fontagné, Freudenberg et Gaulier, "Disentangling Horizontal and Vertical Intra-industry Trade", CEPII No. 2005 - 10 July.
e. Sautard, R., Duchateau, V. et Rasolofoarison, J. (2013), « Les biens haut de gamme, un avantage comparatif européen ? », *Lettre Trésor-éco* n°118.

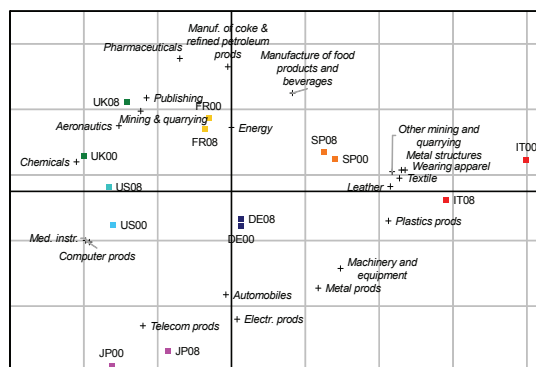
3.2 France's export specialisation is similar to that of the United Kingdom

In 2008, France's export specialisation was similar to that of the United Kingdom and, to a lesser extent, to that of the United States (see chart 6): the three countries share a strong trade specialisation in chemicals, pharmaceuticals and aeronautics. As Fortes (2012)⁹ points out, France specialises in very high technology products, for which it maintains a sizeable comparative advantage that increased in 2000-2008. Meanwhile, the strong position of manufacturing of food products and beverages contributes to the similarity of France's trade profile with that of Spain.

By contrast, the share of automobile exports in French trade specialisation declined significantly by comparison with the other countries studied. In 2008, France was one of the countries least specialised in automobile exports (apart from Italy), while Germany's position was more stable and better preserved in the face of Japan's increased specialisation in the automotive industry. However, despite the contraction in the French automotive industry, French and German specialisations tended to converge between 2000 and 2008. This trend was due to the growing share of pharmaceutical exports in German specialisation and of machinery and equipment exports in French specialisation.

As with France's productive specialisation, its export specialisation remains rather different from the Italian and Japanese profiles, which are concentrated in a few key sectors: metal structures, textiles, wearing apparel and leather in Italy; radio and telecommunication equipment, electrical appliances and automobiles in Japan.

Chart 6: Principal component analysis by trade specialisation profile in 2000 and 2008



Sources: OECD STAN data; calculations: DG Trésor.

Construction of the chart: We performed a principal component analysis for the seven countries for 2008 and 2000. The sectoral contributions to trade specialisation in 2008 are used as active variables in the construction of the axes (25 sectoral variables). According to Kaiser's rule, the first five eigenvalues are relevant to the analysis as they exceed unity. We have kept only the first two here, but together they account for over 57.1% of total inertia. We use the sectoral contributions to specialisation in 2000 as supplementary variables and project them on the chart to plot changes in similarities between countries in the period studied (2000-2008).

3.3 The combined analysis of industrial and trade specialisations highlights France's weakness in the face of heightened international competition

By comparing the changes in France's industrial and trade specialisation indices between 2000 and 2008, we can identify the shifts in French comparative advantage in the export market:

- First, we identify the sectors where export performance has led to greater industrial specialisation: manufacture of wood; energy; wearing apparel and furs; leather and footwear.
- Second, we identify the sectors where the weakening of France's export position has led to a decline in

(9) Fortes, M. (2012), "Export specialization of France and four other leading countries of the European Union between 1990 and 2009", *Trésor-Economics* no. 98.

industrial specialisation: automobiles; electrical products; textiles; medical and precision instruments; manufacture of coke and refined petroleum products. In the automotive and textile industries, the trend has been accompanied by a decline in trade specialisation: the loss of France's comparative advantages against other competitors-particularly emerging-country producers in the textile sector-thus appears to have precipitated the contraction in these sectors. In any event, our findings should be supplemented with fuller studies at sector level in order to understand the reasons for the decline.

- Third, some sectors have suffered a decrease in export specialisation, despite a stable industrial specialisation during the period: non-ferrous metals; trains and other transport equipment; shipbuilding and repair; iron and steel. This situation may indicate a weakness of these sectors, or their strong focus on the domestic market.
- Lastly, France's industrial and trade specialisation has remained stable in the other sectors-particularly manufacture of food products and beverages, chemicals, pharmaceuticals and aeronautics-a sign that the country has preserved its position in these sectors.

Hela MRABET

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