

**MEMÒRIA DEL TREBALL DE FI DE GRAU DEL GRAU EN
NEGOCIS I MÀRQUETING INTERNACIONALS (ESCI)**

The impact of labor costs on the French industrial competitiveness

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NIA: 2439

CURS ACADÈMIC: 2014-2015

DATA: 25/05/2015

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1. INTRODUCTION

Over the course of the last few decades of the twentieth century, worldwide access to information and reduction of transport costs completely transformed the industrial manufacturing market. German and Nordic automobile suppliers understood that they needed to optimize their supply chains and adapt their product value propositions to this new environment in order to remain competitive. France, on the other hand, did not have the flexibility to make those changes. Consequently, its low productivity and lack of differentiation had a terrible effect on its industry.

Today, France needs to urgently address its trade deficit and find a way to reinforce the competitiveness of its manufacturing products abroad. But in order to determine which measures should be adopted, it is necessary to thoroughly understand the causes of the French industrial crisis.

My initial intention was to study the evolution of productivity of the French industry and assess how labor costs affect competitiveness. After discussing the possibilities and constraints of this project with Lluís Torrens, we reached the conclusion that dissecting the French industry and focusing on a single sector would lead to more precise and meaningful results.

Moreover, I wanted to analyze how the automation of production processes had affected competitiveness. Therefore, my intention was to focus on a highly automatized sector, which had been strongly harmed by the lack of competitiveness. The automotive industry met both requirements and it is still one of the key sectors of the French economy. Hence, we decided to focus on automobile manufacturing.

This project is divided in two main sections. The first one describes the events and public policies that led to the current economic crisis in France. In this section, I also examined the consequences of labor and structural reforms on industrial productivity and competitiveness.

In the second part, I analyzed the characteristics of the French automobile industry and compared it to the successful model used by German vehicle manufacturers. Finally, I evaluated the effects of automation on productivity and discussed which paths France should take to adjust its structural weaknesses.

2. OBJECTIVES

The main objectives of this project are:

1. To understand the current competitiveness crisis in France and assess its causes and consequences
2. To analyze the effects of labor costs and automation of production on the automobile manufacturing industry
3. To evaluate the structural reforms that will be needed to redress the long-term sustainability of the industrial activity in France

3. BACKGROUND

Although the 2008 financial crisis and its effects on the French economy have been widely studied, not much light has been shed on the inherent weaknesses of its industry. Moreover, the increasing competition within the EU and the emergence of manufacturers in developing countries have highlighted the importance of readdressing its concerning lack of competitiveness.

The French industry suffers from high labor costs, low productivity and intense fiscal burden. Therefore, France will have to focus on effectively reforming its industrial structure and fiscal policy in order to ensure long-term growth.

4. ECONOMIC AND FINANCIAL CRISIS

4.1. Historical perspective

The problem France experiences today is the result of years of policies created to protect and support the economy. These measures illustrate the influence that *colbertism* still exerts on the country and globalization has only accentuated the system's flaws.

During the late 1980's and the early 1990's, France went through a period of great structural changes and reforms. The socialist party, led by François Mitterrand, was in charge of the government and decided to gradually liberalize the business activity in France. At that time, the country had to reduce its debt and modernize its industry, which led to a remarkable investment and economic growth. The Single European Act allowed France to further develop its industrial model by promoting privatization and moving closer to the rest of European economies.

The creation of a single market and the consequent increase in competition among European companies prevented the much-awaited cooperation among EU nations in terms of technology and innovation. Therefore, France was not able to take advantage of all the forecasted benefits of the European Union.

In May 1995, Jacques Chirac took the office as the president of France. The country had evolved from interventionism and protectionism to competing with foreign producers in a liberalized global environment. The subsequent introduction of the Euro in France meant losing monetary power and giving up the authority to devalue, which further decreased the power of the French government to redress competitiveness.

In order to compensate for industrial delocalization and growing unemployment, Chirac adopted labor policies aimed at protecting employees and promoting industrial innovation. The creation of competitiveness poles and the establishment of an Industrial Innovation Agency in 2005 illustrate the redirection of France's industrial policy.

However, the IIA's proposals faced strong opposition from the European Union and the French government did not invest enough in the development of industrial clusters. These obstacles ended up putting French industrial manufacturers under a lot of pressure. Hence, the lack of substantial reforms to promote innovation can be considered one of the underlying roots of the current competitiveness crisis in France.

4.2. The Economic Crisis

In 2008, the collapse of the United States financial system triggered a chain reaction that nearly pulls down the global economy. Governments had to bailout some of their most important financial companies in order to sustain their industries and economic stimulus in the

US prevented even more adverse effects. However, many countries (notably in Europe) are still struggling to cope with the devastating aftermath of the crisis.

In France, the low degree of specialization of its economy in the construction and financial sectors, as well as its relatively narrow rate of exports, limited the effects of the financial crisis. Since the French economy was less exposed to the international markets and its government was more willing to protect the industry, the country did not struggle as much as the United Kingdom, Portugal or Spain.

Between 2008 and 2013, the French GDP grew at a rate of 0,7% whereas the average GDP growth for the Eurozone was -1.4%¹. Private debt in France is also not as high as that of other EU members. In these aspects, the country held out better than most economies in the Eurozone.

One of the main problems of France is that it has had to borrow substantially to compensate for significant public deficit. During the crisis, this issue has further developed and in 2013 public debt accounted for roughly 110% of France's GDP. (See Exhibit 10) Indebtedness in France is also the effect of inefficient public spending. The country has suffered chronically high rates of unemployment during the last decades and government stimulus has not gone in the direction of increasing the industrial productivity through R&D.

In 2013, the European Commission gave France a period of 2 years to reduce its public deficit from almost 4,5% of its GDP to 3%. In 2014, this figure only decreased by 0,1% whereas countries in Southern Europe are already going through much more noticeable structural reforms. After the report Gallois was issued, which highlighted the competitiveness constraints of the French industry², the Hollande government implemented the Responsibility and Solidarity Pact. This agreement included measures to reduce labor costs and to minimize structural deficit³. However, it has suffered considerable political and popular repudiation.

Reducing public spending is a rather difficult task for France. The French government devotes millions of euros each year to social protection systems (32% of its GDP). Consequently, public spending helps maintain the sustainability of public schools, public hospitals, culture, sports,

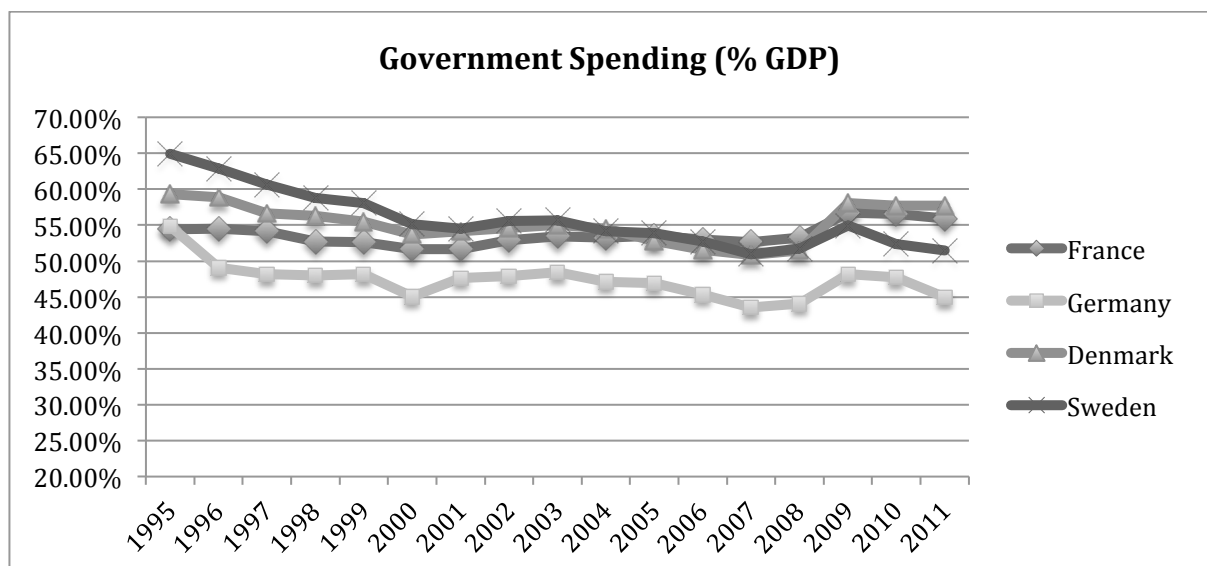
¹ <http://nadaesgratis.es/admin/algunas-consideraciones-sobre-el-eficit-publico-en-Francia> [Accessed February 2015]

² <http://www.economie.gouv.fr/competitivite-rapport-louis-gallois> [Accessed February 2015]

³ <http://www.economie.gouv.fr/files/files/PDF/DP-PLFR-2014.pdf> [Accessed February 2015]

public transports and social housing among other essential public services. But it also allows France to keep up with urbanization and to provide assistance to socially and economically disadvantaged groups.

France has regularly ranked high among the rich countries in terms of public spending. But the underlying causes of this phenomenon are inherent to France’s political and economical views of the role of the state. Unlike the United States, which relies on a private health care system and pension funds, France provides public medical and social coverage. Therefore, limiting the social protection expenditure and moving towards more liberal political measures should give France the possibility to reduce its debt and improve its macroeconomic situation.



Source: OECD

Such cutbacks in spending might also result in higher inequality and thousands of jobs lost (due to the reduction of the aggregate demand). Thus, a reorganization of services and spending, as well as cutbacks in the least-sensitive government areas should define the course of action of the French government in the next few years.

4.3. Government reforms and fiscal policy

In order to understand why industrial competitiveness is one of the most damaged areas of the French economy⁴, it is essential to analyze the structural reform carried out by the

⁴ <http://www.latribune.fr/actualites/economie/france/20141219trib2dfb68ed0/ouf-l-annee-se-terme-enfin-pour-l-industrie-manufacturiere.html> [Accessed May 2015]

government during the last 15 years. In the early 2000's, France decided to increase tax burden on industrial manufacturers, while Germany and the Nordic countries were already loosening their fiscal policies.

Nicolas Sarkozy (2007-2012) and François Hollande (2012-) increased fiscal pressure on the return of capital, which strongly impaired investment and productivity growth. Moreover, French companies assume extremely high social contributions compared to the rest of countries in the Eurozone. The result is that many corporations struggle to remain competitive and survive (notably small and medium enterprises).

Income tax is also particularly high in France and has not decreased significantly since the year 2000 (unlike in Germany, Italy or the United Kingdom). The liberalization of the Nordic countries has also implied lower fiscal pressures and the income tax in France has become quite a disadvantage in terms of attractiveness among foreign investors. Thus, elevated income taxes limit the long-term growth of French companies due to the narrower foreign investment.

In the last few years, the French government has kept protecting companies with clear structural flaws and weak added value. As a consequence, a big proportion of public spending only helps the industry in the short-term and discourages long-term development. Therefore, the French industry needs a progressive liberalization of the goods and services markets, higher flexibility and more competition, which will serve as an incentive for companies to improve the quality of their goods and innovate.

Increased competition will also result in lower prices for consumers, which in turn means more foreign competitiveness for companies. Hence, France should move towards a liberalization of its market economy and a more flexible fiscal policy that promotes private investment, in order to foster long-term economic growth.

However, France has historically been prone to defend consumers' rights over companies' demands. Thus, political influence stands in the way of reforms and the French government is facing a tough job to implement the aforementioned measures without losing considerable popular support.

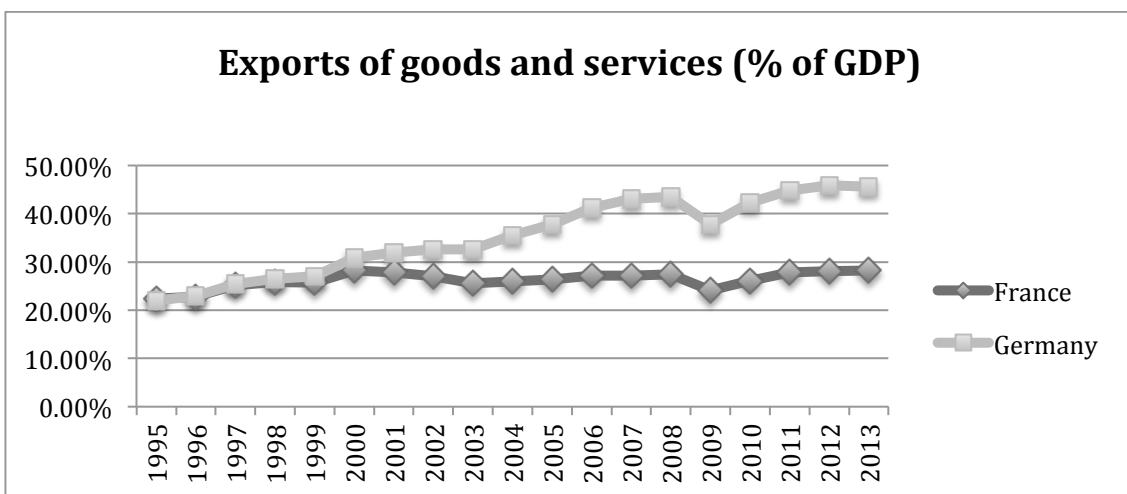
5. INDUSTRIAL DECLINE

5.1. Competitiveness crisis

During the last thirty years, the number of manufacturing jobs in France has decreased by roughly 40% and its trade deficit has strongly increased. This situation contrasts with the industrial evolution of countries like Germany or the United Kingdom, who also suffered the consequences of the 2008 global economic crisis. Hence, studying the policies and economic circumstances that led to France's industry loss of competitiveness is essential to understand what the country should do to overturn this situation.

One of the main problems France suffers today is its level of industrialization. If we take a look at the weight of the manufacturing sector as a percentage of GDP, we can see that France was far less industrialized in the early 2000s than most other European Countries. The Spanish, German and Italian industries represented a significantly higher percentage of their countries' GDP and during the last 15 years this issue has been further accentuated. (See Exhibit 7)

Although rich European countries such as Germany and Austria have also been affected by a gradual deindustrialization, France suffered a much steeper decline in its industrial production. It could be argued that this decline is due to the growing trend in France of externalizing some of its industrial activities, which results in an artificially low industrial weight. The problem is that this phenomenon cannot explain France's low Exports to GDP ratio compared to other EU nations, which seems to indicate that French manufacturers have not been able to take advantage of raising demand in Asia as well as their European peers.



Source: World Bank

In addition, France is today one of the European countries with the highest trade deficit for industrially manufactured products (still below the United Kingdom) and the foreign exchange rate for the Euro does not seem to play a big role in France's loss of industrial competitiveness, since Germany, Italy and the Netherlands are achieving strong commercial surpluses for industrial products. Therefore, France increased substantially its public debt in order to deal with the aforementioned current account deficit.

Finally, countries in Southern Europe with big trade deficits and high debt-to-GDP ratios that started applying austerity measures in 2008 have seen their current accounts improve significantly over the last few years. If we analyze the macroeconomic evolution for European countries, the positive correlation between trade surpluses, degree of industrialization and GDP per capita becomes clear⁵. Hence, the steady deindustrialization and growing trade deficit of France explains to a great extent why its GNI per capita has not experienced the growth experienced by Germany during the last fifteen years. (See Exhibit 4)

The decline in productivity suffered by the French industry has also led to several concerning consequences. While its research and development expenditure (% of GDP) is relatively adequate, the annual growth rate for R&D expenditures in France has been slightly lower than 1% during the last decade. Therefore, Germany and Denmark (among others) are increasing their R&D relative budgets much faster than France. In the long run, this situation can have devastating consequences and further decrease the Industry-University collaboration as well as the number of high-tech entrepreneurial projects.

In terms of input, France is one of the countries in Europe with the highest number of doctorates and qualified researchers. However, this situation does not translate as well as it should into industrial innovation and creation of qualified jobs.

The current deindustrialization of European nations and the move towards service-based economies implies that industrial activity will hardly be able to reduce unemployment and public deficit. Nonetheless, a more competitive industry is crucial to increase the number of highly qualified jobs, which will ultimately help France's industry move towards achieving a competitive edge in high value-added sectors.

⁵ David Dollar and Aart Kraay (2004). Trade, growth, and poverty. *Economic Journal* 114 (493): F22-F49. Recovered from: <http://www.imf.org/external/pubs/ft/fandd/2001/09/dollar.htm>

Hence, the French government should promote private investment in research and development, entrepreneurial projects in the high tech industries and a closer cooperation between universities and companies.

5.2. Which factors have had the biggest impact on the competitiveness downturn?

One of the factors with the greatest effect on productivity is labor cost. The wage costs of market-related services determine a large part of production costs for the manufacturing industry. If these costs rise, they impair the competitiveness of French exports, leading to trade deficit. Thus, industrial corporations have to trim their margins significantly so that higher labor costs do not affect final prices.

In 2010, Germany and the Nordic countries all had higher annual costs per employee than France. While in most cases, high costs per employee are related to intensely industrialized economies (Germany and the Nordic countries), France shares this characteristic despite its relative deindustrialization.

If we analyze the total labor costs per hour worked, which gives us a much unambiguous and homogeneous vision, France still ranks well above the average for the European Union. Several factors help explain this situation:

1. **Higher wage growth:** wage growth rates have been constantly higher in France than in the rest of the EU. During the first 8 years of the twenty first century, hourly wages for the manufacturing industry grew in France at a rate of 38% whereas average wage growth in the rest of the Eurozone accounted for 26%. The only two countries with higher growth rates for hourly wages (Portugal and Greece) experienced significant declines in labor costs after the financial crisis of 2008.
2. **Employer's social contributions:** French social security has one of the highest employer's social contribution rates in Europe. The weight of these costs is almost 10 percentage points higher in France than in Germany. Therefore, reducing the weight of France's employers' contributions would result in much more adequate labor costs.

3. **Minimum wage:** the minimum wages in France represent 63% of the median salary and 51% of the average salary for the whole country according to the OECD. Thus, France's relative minimum wage is particularly high compared to the other Western economies of the European Union, which ultimately increases general wages.

4. **Industrial specialization:** economies specialized in the high-tech sectors tend to have higher average wages and fast-growing productivity. In the manufacturing industry, a great proportion of production costs is determined by market services. Since France has much higher hourly costs for market-related services than most economies in the Eurozone, its cost and price competitiveness is strongly impaired.

However, the competitiveness crisis in France is not only a matter of relatively high labor costs, but it is also affected by the productivity of its industry. In economics, productivity is measured as gross value added (the difference between output and intermediate consumption, i.e. the net contribution to the economy of each industry or sector) divided by the total number of hours worked by people in employment. This measure is closely correlated with the level of technological development, unemployment, public infrastructures and education.

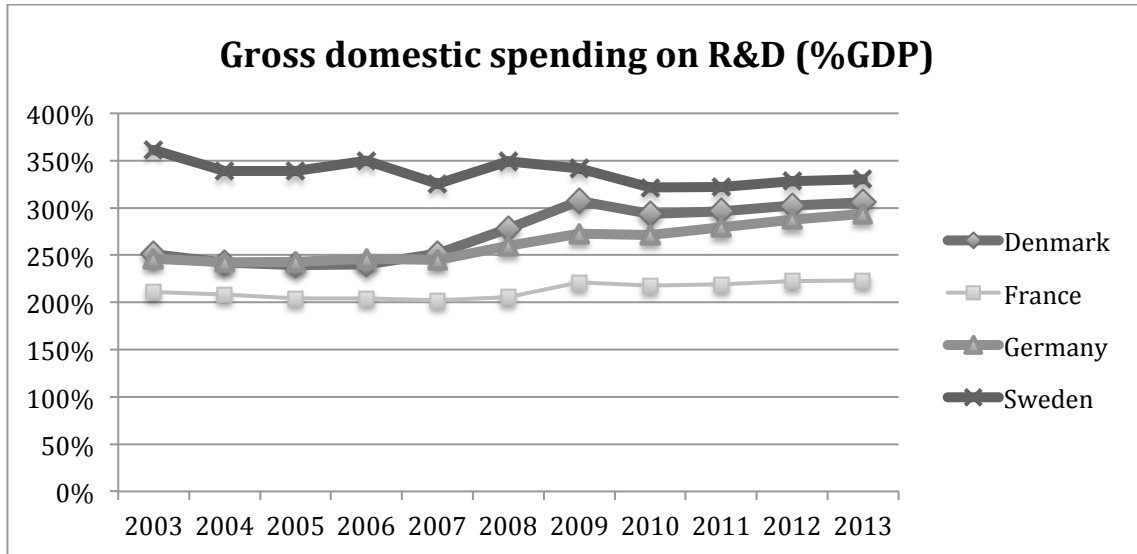
If we analyze the level of productivity of the manufacturing industry for the different countries in the Eurozone, the results also benefit the Nordic countries. France comes right after Germany in terms of productivity and the countries in Southern Europe are clearly the ones with less productive manufacturing sectors (See Exhibit 8).

In general, the countries with high hourly costs in their manufacturing industries also have high productivity rates (namely the Nordic countries, Germany, etc.). However, France's high labor costs does not go hand in hand with its low manufacturing productivity.

A reason that could explain this phenomenon is the size of France's manufacturing companies. Large companies are able to take advantage of economies of scale, thus increasing their productivity. An industry with lots of average and small-sized companies is not able to take advantage of this phenomenon, which negatively affects its average productivity.

Another characteristic that could explain the rather low productivity of the French manufacturing industry is the lack of necessary spending in productive infrastructure. Higher

technology and capital expenditures allow companies to increase their productivity and France has decreased the relative weight of spending in the manufacturing industry in the last few years. (See Exhibit 14)



Source: OECD

The problem is that France invests strongly in the construction sector and under-invests in productive infrastructure.⁶ In Germany, investment on construction was quite high in the early 2000's due to the effects of reunification. Germany gradually reduced its relative spending in the construction sector, whereas France kept the weight of its investments in construction steady throughout that period.

On the other hand, the rate of investment in industrial equipment and machinery is much lower for France than it is for Germany or Italy. Hence, the low productivity of the French industry could be explained by the inefficiency of its industrial investment policies.

Finally, macroeconomic policies might also be responsible for the low industrial productivity in France. For many years, currency devaluation allowed French companies to remain competitive despite low productivity rates. When France adopted the Euro, this possibility ceased to exist. After 1995, the French government had to systematically promote domestic demand in order to prevent drops in demand during economic downturns. This measure came at the expense of higher real wages, which increased faster than industrial productivity and reduced French exports' competitiveness.

⁶ European Commission: "Macroeconomic imbalance, Germany, 2014" [Accessed April 2015]

Germany, in contrast, supported companies by reducing the employer's social contribution and increasing the value-added tax on consumers. The results were lower real wages and short-term reduction in domestic demand. In the long-term, however, these policies raised the competitiveness of German companies and allowed Germany to increase industrial investment, notably in the automobile industry. Higher competitiveness ended up improving exports, reducing unemployment and increasing real wages.

France did not undertake the wage moderation enforced in Germany during the early 2000's and had to compensate its growing trade deficit with credit. Therefore, the French economy and its industry has been growing artificially through debt.

5.3. Sectors

The competitiveness crisis has had a negative effect on all nearly all areas of the French manufacturing industry. But there are three sectors that specially serve to illustrate this phenomenon.

5.3.1. The Agricultural Sector

The Agricultural industry had always been a strategic asset of France's foreign trade. Over the last decade, countries like Germany or the Netherlands, as well as non-European developing nations, have increasingly become a threat to France's domain in the Agricultural market. Consequently, its exports have not increased at the expected rates and it has lost its leading position in the food-production world market to countries in the European Union.

Moreover, most of France's surplus in the Agricultural sector keeps coming from a few raw products (wines, milk and cereal essentially) whereas many other products show deficits. Thus, exports of high-end wines, champagne and milk sustain the losses in the production of meat, fish or fruit.

Germany has taken advantage of this situation to improve its position in the Agricultural sector through low labor costs (most field workers are low-income immigrants) and higher levels of production due to the incorporation of big producers that used to belong to the German Democratic Republic after the reunification.

The French agricultural sector suffers from high labor costs, excessive taxation and insufficient flexibility. Given its relevance in the economic development of the country, the French government should address these issues as soon as possible⁷.

5.3.2. *The Telecommunications sector*

In the Telecom industry, France has also lost its prominent position to the United States and Asia. French telecommunication companies such as Orange, SFR and Alcatel have suffered strong declines in sales mainly due to the strong European regulation (in terms of prices and competition) and the game-changing irruption of American and Asian technology giants.

The appearance of the 4G technologies and the new environment created by companies like Apple, Samsung or Google, who changed the way information is shared, was completely devastating for the French Telecommunications industry. This new ecosystem requires higher technology and better services, but French companies are not able to afford these changes.

Therefore, the European Union will have to further reformulate its telecom fiscal policies and EU companies will need to redefine the added value of their products if they want to remain sustainable in the long-term⁸.

6. AUTOMOBILE INDUSTRY ANALYSIS

6.1 Why do we focus on the automotive manufacturing industry?

The automobile manufacturing had historically been a key industry for the French economy. This sector has experienced huge geographical and structural transformations to which the most relevant French producers (Renault and Group PSA Peugeot-Citroën) are still adapting.

The sales volume of motor vehicles increased strongly during the first decade of the twenty first century. This upturn was accompanied by a redefinition of global powers. The production

⁷ Measures included in the Common Agricultural Policy are not helping increase productivity significantly

⁸ The European Commission's 2015 Work Programme already moves towards investment in innovation and sustainability of the information and communication technologies

of vehicles in China increased notoriously and several countries in development such as Brazil, India, México and South Korea also raised their share of the world production of cars.

On the other hand, the United States' automotive industry experienced a big downturn in production after the 2007-08 crisis but it is already recovering. In Europe, the crisis was even worst for vehicle suppliers and only Germany has been able to maintain sales relatively steady.

Moreover, companies tend to look for developing markets where labor force is cheaper in which to install their factories. As a result, available infrastructure, domestic workforce and cost-effectiveness are becoming increasingly important for countries that rely on automotive exports.

During the 8 years prior to the world economic crisis, France was one of the countries with the highest increase in labor costs for the vehicle manufacturing industry. But the issue was not only a matter of elevated wages and social compensations. The productivity (measures as gross value added per person employed) of the French automotive sector decreased, whereas the productivity rates for Germany and the United Kingdom grew remarkably.

Limited investment in the French automotive manufacturing industry during that period also resulted in the relatively low automation of its production processes. Automobile suppliers in France had to assume higher production costs and they ended up losing competitiveness in front of German manufacturers. Therefore, French vehicle producers have had to adapt by producing abroad and importing cars back to satisfy domestic demand.

Two French automobile companies have been specially damaged by the loss of competitiveness and they serve to illustrate the key role of productivity for the national economy:

1. **RENAULT:** The French automobile manufacturer is one of France's flagship companies. However, its sales haven't stopped decreasing since the early 2000's and the board of management was forced to relocate two of its biggest factories outside French borders (in Romania and Turkey). Initially, these foreign factories focused on supplying low-end vehicles to the growing demand of developing countries. Today, most of this production is aimed at the European markets due to the high production costs and low productivity of factories in France.

2. **PSA Peugeot Citroën:** In this case, the company has also experienced remarkable growth in the developing markets (especially in Russia and Brazil) where it follows the lead of the *Volkswagen - General Motors* joint ventures. Even though PSA produces relatively more in France (36% of its total production) than Renault (roughly 20%), the sales of its France-based factories keep decreasing whereas its factories in Eastern Europe are becoming more and more important.

High production costs and low specialization have impaired France's position as a world automotive exporter. (See Exhibit 16) Therefore, French vehicle producers have started producing abroad and imported cars back to satisfy domestic demand.

As a condition for PSA and Renault to keep some of its factories in France, their employees accepted in 2013 several labor reforms to promote competitiveness⁹. These measures included a yearlong wage freeze and rising the average weekly working time to 35 hours. Manufacturers and trade unions thus saw reforms as a necessary step to reindustrialize the automobile industry and towards the common good.

6.2. The German model

While the evolution of the French automotive industry is certainly a matter of concern, it is also true that the upturn of vehicle sales in the German market is a clear case of success. German manufacturers sell today almost 6 million cars a year and the figure continues to increase. This growth is not primarily due to a higher domestic demand than in France, but it is the result of several very profitable strategic decisions. Analyzing these measures is extremely valuable to assess the situation in France.

1. Automation of production processes

In order to decrease costs, the German manufacturers decided to invest large amounts of money in automating their production chains. These new technologies led to an increase in

⁹ <http://www.lesechos.fr/idees-debats/cercle/cercle-74583-accord-competitivite-emploi-chez-renault-en-quoi-est-il-exemplaire-1016591.php> [Accessed March 2015]

productivity, lower production costs, more operational flexibility and ultimately enhanced competitiveness.

2. Strategic positioning and investment

In the automotive industry, being at the edge of innovation is essential to be competitive and achieve long-term growth. In Germany, vehicle manufacturers spend much more on research and development than their French counterparts. Companies like BMW or Volkswagen have increased their investment in innovation at a much higher rate than Renault or PSA in France, and this situation has only been emphasized due to the economic crisis.

This way, Germany has been able to specialize in the production of high-end vehicles whereas France keeps relying on the low-end range of products. Since the current global environment moves towards demand of products with high added value, Germany keeps increasing its trade surplus for the automotive sector whereas France's difficulties become increasingly substantial.

3. Outsourcing part of the supply chain

Over the last few years, the strategy of German automobile suppliers in regards to production has consisted in outsourcing the production of spare parts and maintaining the assembly lines at the domestic factories. This way, the German manufacturers take advantage of the low production costs in Eastern European countries to import spare components and end up mainly exporting finished products.

On the other hand, French automotive suppliers transfer the production of finished products to their subsidiaries in developing countries and export the spare parts that their foreign factories need from France. As a result, the weight of motor vehicle exports today is much smaller in France than in Germany.

One of the most powerful German suppliers, Volkswagen, has also promoted the specialization of each of its factories. While the basic components of its cars remain standardized, their added value becomes extremely differentiated among different factories. This allows

Volkswagen to take advantage of profitable economies of scale and to increase the flexibility of its supply chain.

6.3. Analysis of labor costs and productivity in the automotive sector

After discussing the current trends and difficulties that the French automobile manufacturers experience, we decided to study how labor costs affect productivity for these companies. Generally, labor costs are considered the main factor in determining competitiveness. However, the gradual automation of production in the manufacturing of vehicles might have actually been responsible for the divergence between France and Germany in terms of productivity.

We compared France to Germany because German companies have not only outsold French suppliers, but also because their investment and product policies serve as an example for many other European manufacturers. Moreover, we decided to focus on the automotive industry because it relies strongly on the cost-efficiency of its supply chain and it plays a key role on the trade balance of both countries.

In order to assess the level of productivity we used the gross value added per employee, which calculates the difference between the value of output and intermediate consumption. A particularity of this measure is that it does not take into account the number of units produced. More units produced or higher unitary price would both result in increased GVA. Therefore, we have to take into account this bias and dissect the results to obtain a reliable vision.

During the 2000-2007 period, the evolution of apparent labor productivity for the French manufacturing industry remained quite steady. In 2007, the productivity of the German industry was just 8,25% over that of French manufacturers. (See Exhibit 8)

In the automobile industry, however, the situation became much more delicate. Between 2000 and 2007, the apparent productivity of French vehicle producers declined 2,6% whereas it increased 6,9% in Germany. (See Exhibit 11) The automotive sector was thus much more deteriorated for two reasons: higher personnel costs and lower relative investment in machinery and innovation.

The decline of wage adjusted labor productivity for French vehicle manufacturers perfectly illustrates the relative upswing of average personnel costs. (See Exhibit 13). Moreover, investment in machinery and equipment for the automobile production shrank in France by 6,81% during the first few years of the last decade, whereas it increased significantly in Germany. (See Exhibit 15)

Higher personnel costs and limited automation compromised the competitive position of French vehicle manufacturers in the European automotive market. As a result, The French producers lost market share to German and Nordic companies.

6.4. Results and discussion

The increase of labor costs and fiscal taxes, as well as several misguided strategic decisions, has negatively affected the French automotive manufacturer's productivity and profits. Consequently, these companies have not been able to invest in innovation as much as German suppliers. The result is that French manufacturers are losing ground to foreign competitors and the industry urgently needs a restructuring process.

Moving the production of finished products to factories in developing countries has also led to cheaper and less innovative vehicles. Therefore, the French automotive manufacturers have to compete with lots of other suppliers from emerging countries, who can offer similar mid-range cars at inferior prices.

Spain and the United Kingdom also appear to be a threat to the interests of the French automotive sector. The reduction of production costs and the increasing labor flexibility in these two countries will likely help them recover strength in the mid-range segment of the market. France is already introducing reforms to its labor market, but it will need a complete transformation to remain competitive.

Differentiation, environmental sustainability and quality are some of the traits consumers look for in motor vehicle. Thus, French automotive suppliers will have to reorganize their production strategies, further increase their labor productivity and expand their operational margins. Only this way will they be able to invest in research and adapt to the market trends that will define growth for years to come.

7. CONCLUSIONS

The French industry is suffering today the consequences of not readjusting its products and productivity when the globalization started changing the manufacturing goods market. The strong influence of Colbertism on French politics lead to decisions that supported domestic demand and consumers instead of competitiveness.

Protected by the possibility to devalue the Franc, French manufacturers experienced high protectionism and low development during the 1980's. When the Euro was adopted, these companies were not used to fierce competition and lacked the necessary innovation to provide product differentiation.

The reduced investment in research and development also resulted in a lack of automation of production processes, which has had a large impact on industrial productivity. Today, France's decisions are constraint by the urge to reduce its public deficit, which hampers the development of a modern and innovative industry.

Finally, I consider that the success of the German and Nordic models outlines the way ahead for the French industry. These countries decided to reinforce the investment in innovation and loosen the fiscal pressure on the national manufacturing leaders. Hence, France will be able to reverse its industrial downturn if it manages to move closer to Germany in terms of technological development.

Moreover, French manufacturers will need to specialize in exporting high-end value added products. But this will only be possible if the French government undertakes fiscal and structural reforms to increase competitiveness, optimize public spending and enhance productivity.

In the coming years, we will probably see an exponential growth of purchasing power in the emerging countries and a rising demand for product differentiation. This situation will be a perfect opportunity for France to boost exports and it will likely open the doors to the resurgence of the French industry.

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9. ANNEX

Exhibit 1 – General macroeconomic data for France 2013

Country	FRANCE
GDP (current US\$)	2.806 trillion
Total population	65.94 million
GNI per capita (current US\$)	43.520 \$
Life expectancy	82
Industry, value added (% GDP)	20%
Exports of Goods and services	28%
Imports of Goods and services	30%

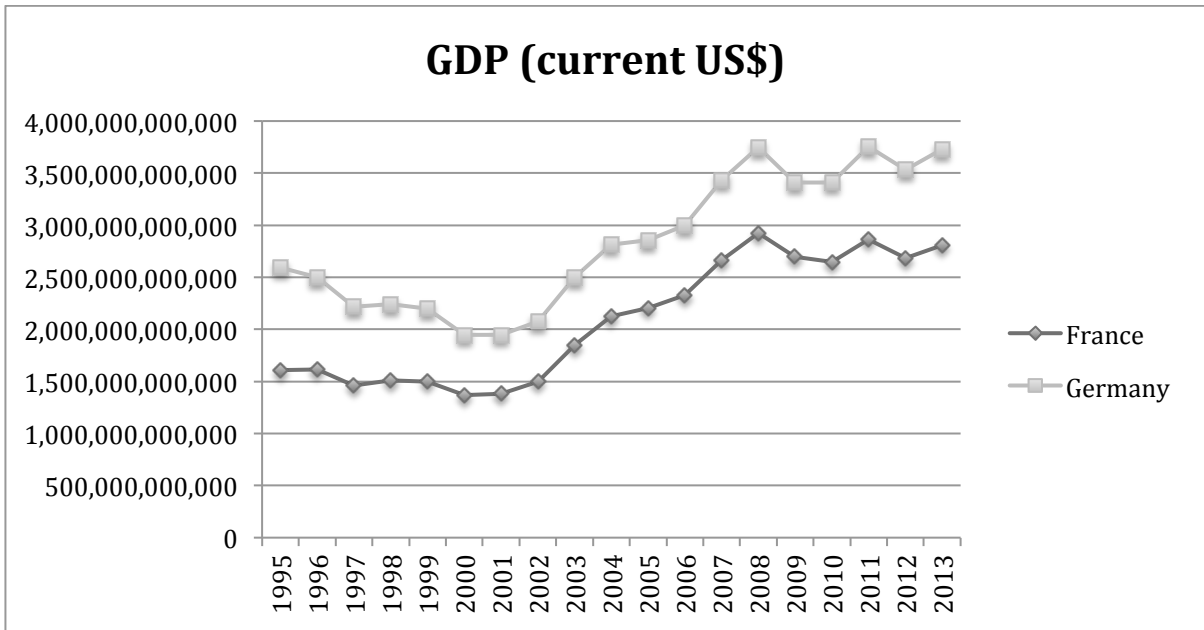
Source: World Bank

Exhibit 2 – General macroeconomic data for Germany 2013

Country	GERMANY
GDP (current US\$)	3.730 trillion
Total population	80.65 million
GNI per capita (current US\$)	47.250 \$
Life expectancy	81
Industry, value added (% GDP)	31%
Exports of Goods and services	46%
Imports of Goods and services	40%

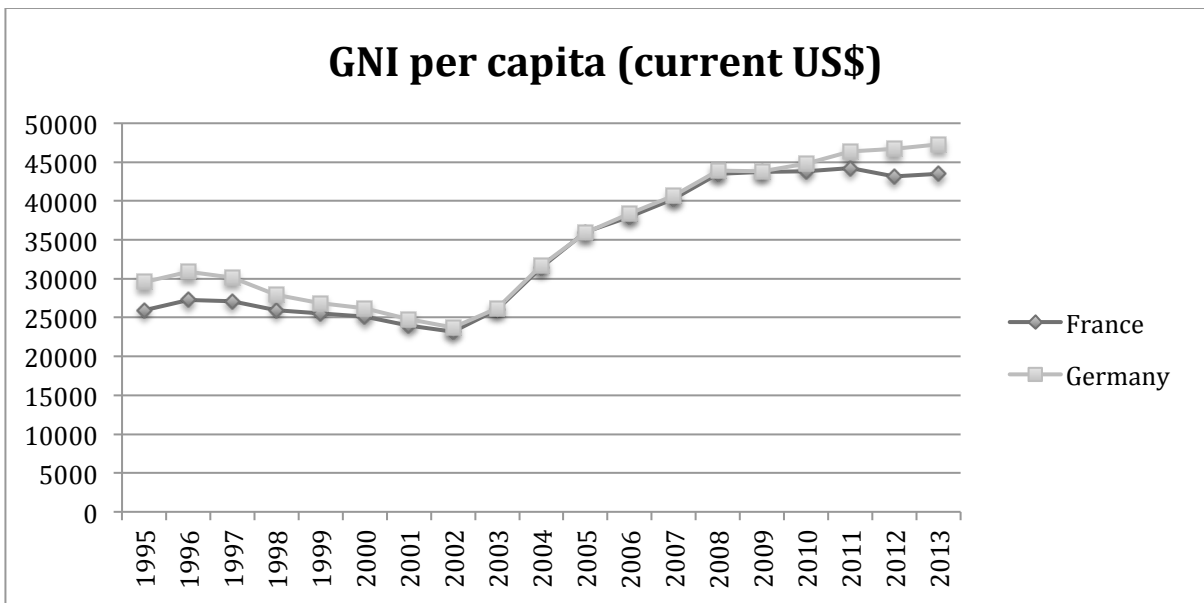
Source: World Bank

Exhibit 3 - Evolution of GDP



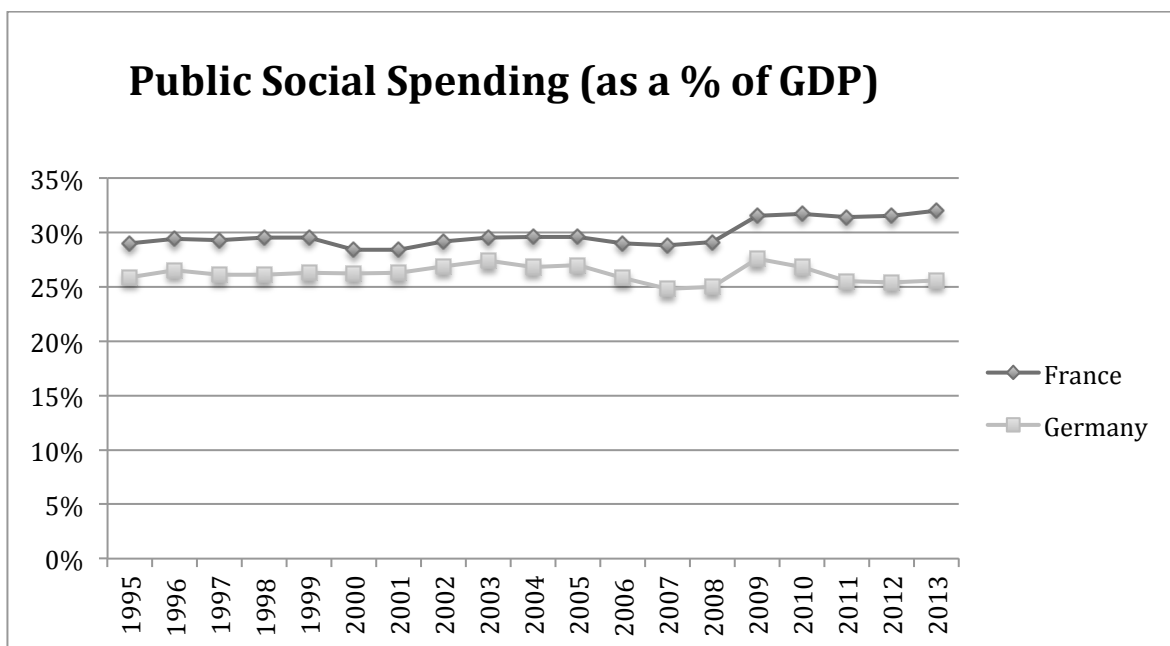
Source: World Bank

Exhibit 4 - Evolution of GNI per capita



Source: World Bank

Exhibit 5 – Public Social Spending (as a % of GDP)



Source: OECD

Exhibit 6 – Public surplus/deficit as a % of GDP

Year	2008	2009	2010	2011	2012	2013
France	-3,30%	-7,50%	-7,00%	-5,20%	-4,90%	-4,30%
Germany	-0,10%	-3,10%	-4,20%	-0,80%	0,10%	0,00%

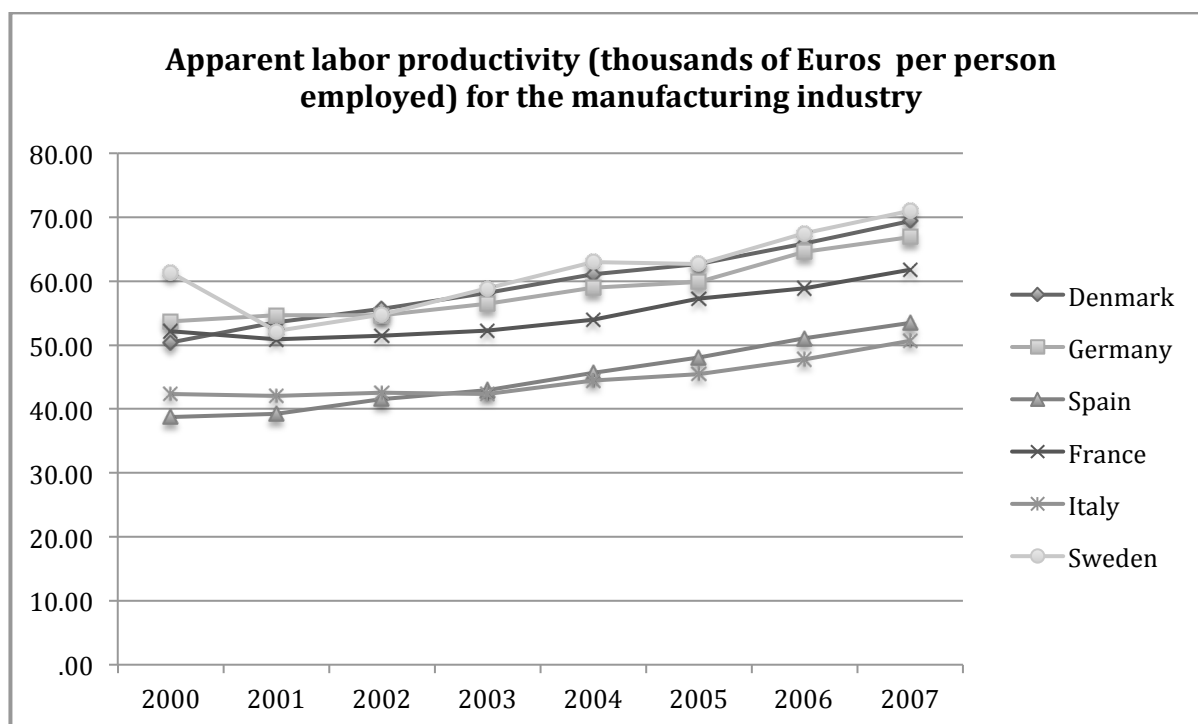
Source: OECD

Exhibit 7 – Weight of the manufacturing industry as a % of GDP

	2000	2013	% Change
France	23,34	19,82	-15,07
United Kingdom	26,94	20,19	-25,08
Spain	30,74	23,34	-24,07
Italy	27,13	23,27	-14,24
Sweden	30,37	25,85	-14,86
Germany	30,76	30,71	-0,17

Source: OECD

Exhibit 8 – Manufacturing industry productivity



Source: Eurostat

Gross value added per person employed for the **manufacturing** industry (2000-07)

Unit: thousands of Euros per person employed

	2000	2007	% Change 2000-07
Sweden	61,4	71,0	15,64%
Denmark	50,4	69,4	37,70%
Germany	53,7	66,9	24,58%
France	52,2	61,8	18,39%
Spain	38,7	53,5	38,24%
Italy	42,3	50,7	19,86%

Source: Eurostat

Gross value added per person employed for the **manufacturing** industry (2010-12)

Unit: thousands of Euros per person employed

	2010	2011	2012	% Change 2010-12
Sweden	77,4	80,4	81,2	4,91%
Denmark	89,0	73,9	79,0	-11,24%
Germany	65,8	68,7	67,2	2,13%
France	62,5	63,8	63,9	2,24%
Spain	52,7	53,9	53,0	0,57%
Italy	51,4	52,9	51,8	0,78%

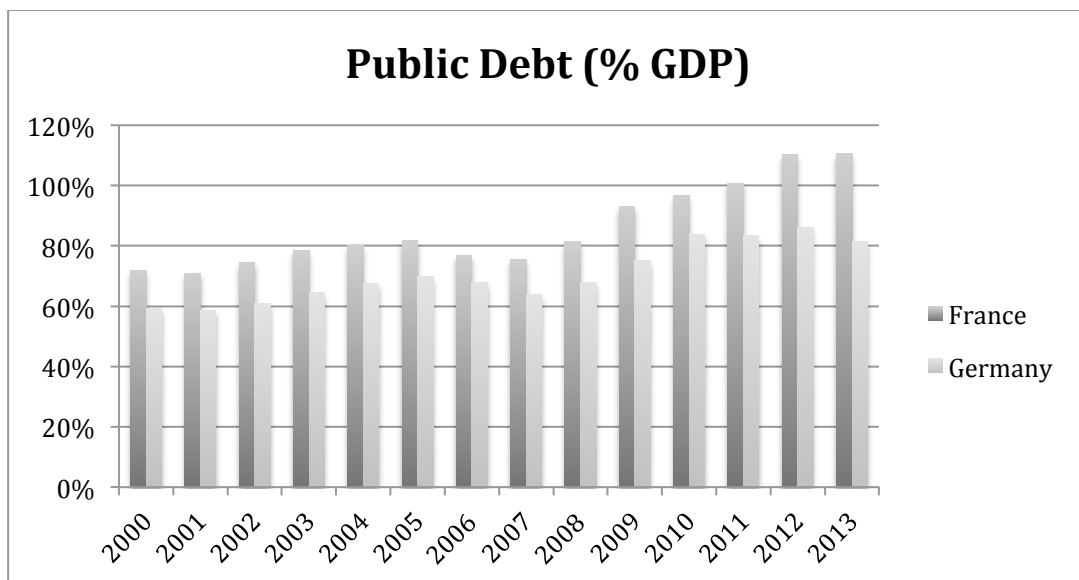
Source: Eurostat

Exhibit 9 – Imports of goods and services as a % of GDP



Source: OECD

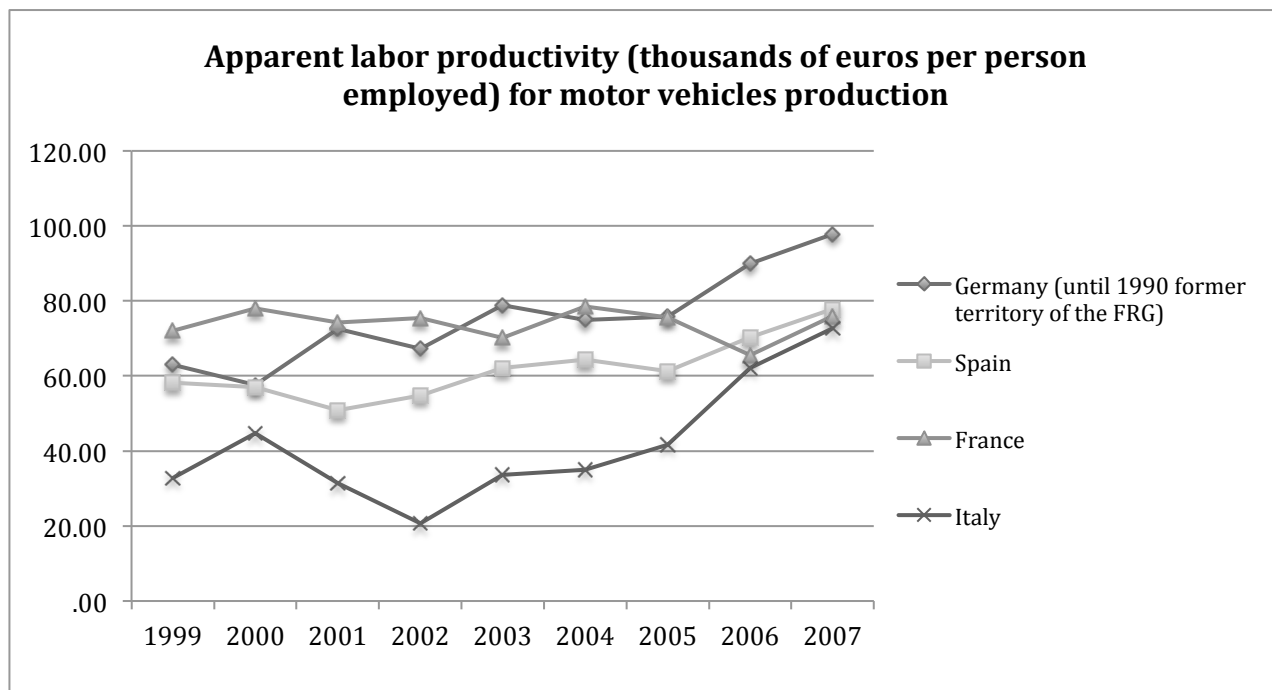
Exhibit 10 – Public Debt as a % of GDP



Source: OECD

Exhibit 11 – Motor vehicles manufacturing industry productivity

Gross value added per person employed for the production of **vehicles** (1999-07):



Source: Eurostat

Gross value added per person employed for the production of **vehicles** (2000-07):

Unit: thousands of Euros per person employed

	2000	2007	% Change 2000-07
Germany	57,6	97,8	69,8%
Spain	57,0	77,8	36,5%
France	78,0	76,0	-2,6%
Italy	44,7	72,8	62,9%

Source: Eurostat

Gross value added per person employed for the production of **vehicles** (2010-12)

Unit: thousands of Euros per person employed

	2010	2011	2012	% Change 2010-12
Germany	103,9	114,9	111,0	7,67%
Spain	65,6	68,2	63,2	-3,66%
France	67,9	63,0	50,2	-26,07%
Italy	74,4	59,5	44,7	-39,92%

Source: Eurostat

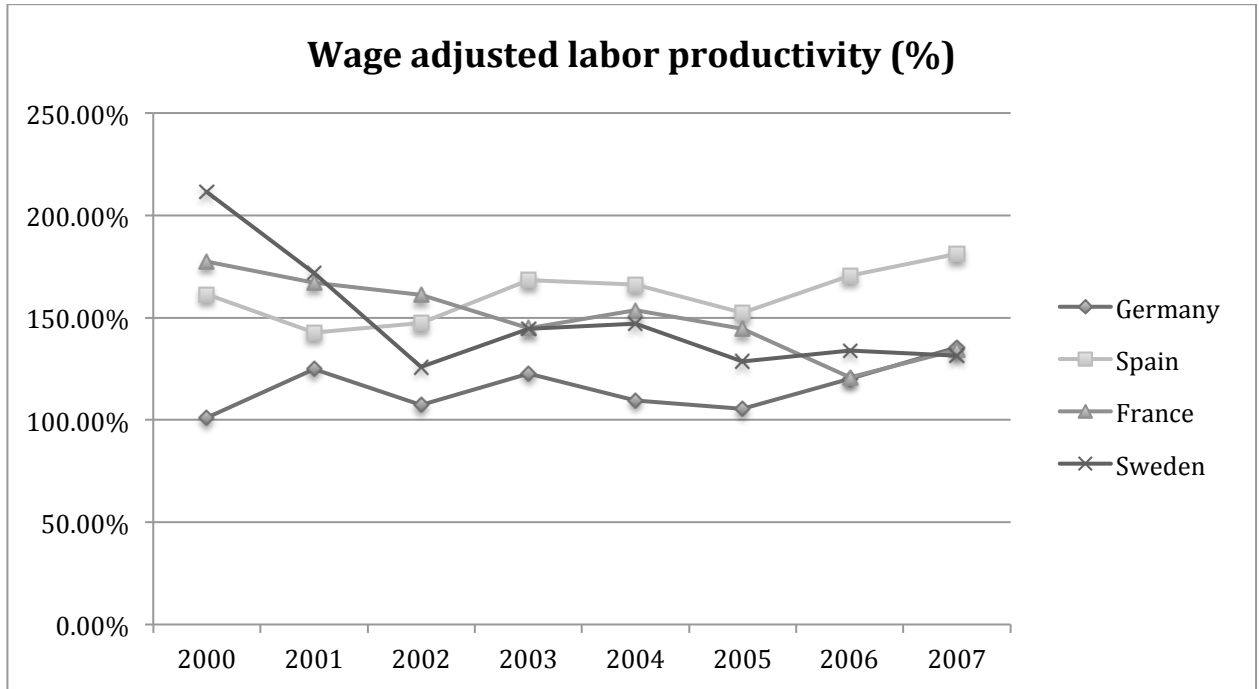
Exhibit 12 – Total production of motor vehicles (in units)

Year	2000	2005	2008	2012
Germany	5,526,615	5,757,710	6,045,730	5,649,260
% Change	100	104,18	109,39	102,21
France	3,348,361	3,549,008	2,568,978	1,967,765
%Change	100	105,99	76,72	58,76

Source : OICA

Exhibit 13 – Wage adjusted labor productivity for motor vehicles (in %)

Apparent labor productivity by average personnel costs for **vehicles** (2000-07)



Source : Eurostat

Apparent labor productivity by average personnel costs (%) for **vehicles** (2010-12)

	2010	2011	2012	% Change 2010-12
Germany	144,5	150,8	137,3	-5%
Spain	148,2	151,9	143,9	-3%
France	116,7	108,8	85,9	-26%
Sweden	129,1	125,5	118,9	-8%

Source : Eurostat

Exhibit 14 – Business enterprise R&D expenditure in manufacturing as a % of GDP

	2007	2008	2009	2010	2011	2012	% Change 2007-12
Germany	1,51	1,59	1,58	1,56	1,62	1,68	11%
France	0,75	0,75	0,73	0,69	0,7	0,72	-4%

Source : Eurostat

Exhibit 15 - Gross investment in machinery and equipment for vehicle manufacturers

Unit: thousands of Euros

	1999	2007	% Change
Germany	5.939,4	7.272,4	22,44%
Spain	1.122,1	1.135,9	1,23%
France	2.474,7	2.306,1	-6,81%
Italy	882,5	1.079,7	22,35%
Sweden	591,9	653,0	10,32%

Source: Eurostat

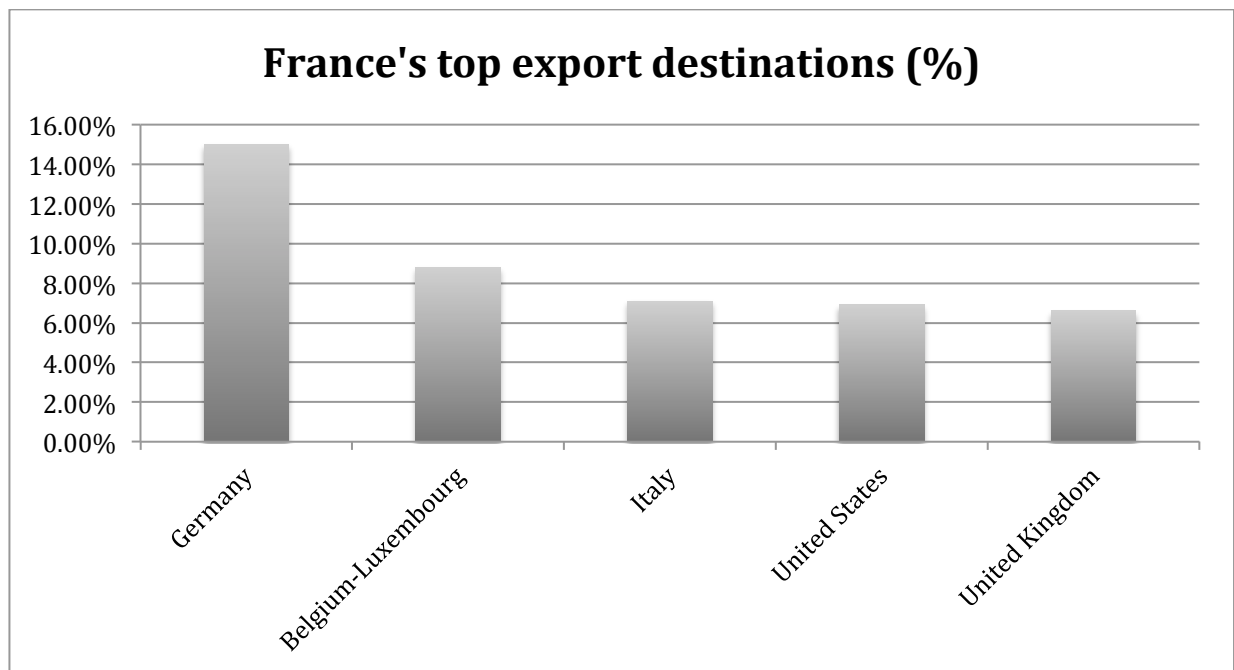
Exhibit 16 – Breakdown of France’s Exports and Imports

Exports :

Top products exported by France (2014):

Product	Share
Machines, engines, pumps	11,50%
Aircraft, spacecraft	9,90%
Vehicles	8,30%
Electronic equipment	7,70%
Pharmaceuticals	6,00%
Oil	4,20%

Source : World Top Exports



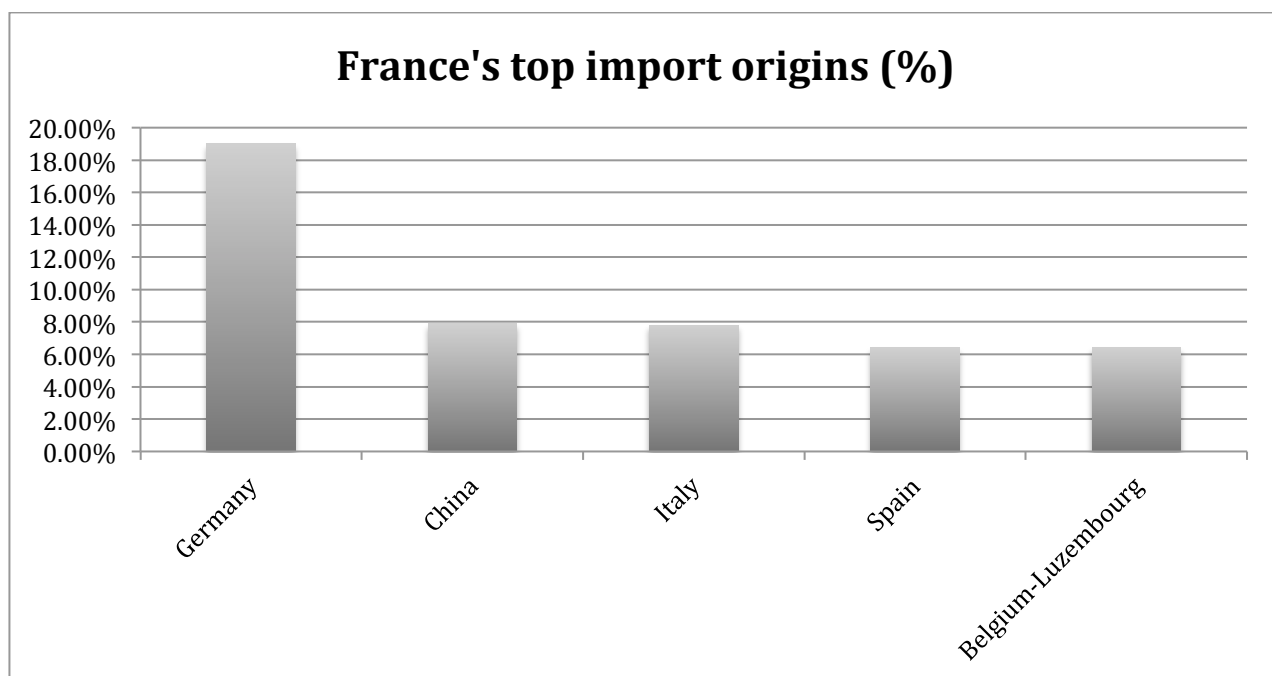
Source : Observatory of economic complexity (MIT)

Imports :

Top products imported by France (2014):

Product	Share
Oil	16,50%
Machines, engines, pumps	11,10%
Vehicles	8,80%
Electronic equipment	8,30%
Aircraft, spacecraft	4,40%
Pharmaceuticals	3,90%

Source : World Top Exports



Source : Observatory of economic complexity (MIT)