Weight of Industry in the French Economy (1978-2003) : a comparative survey

April 2005

Summary by Gilles Le Blanc, (2004) "Weight of Industry in the French Economy (1978-2003): a comparative survey", *International Benchmarking Reports*, Paris, Institut de l'entreprise.

What does industry in France mean today? Can we really say that its economic weight has been marginalized in favour of the service industry, thereby fuelling a de-industrialisation of the country? How does the industrial situation in France differ from that of other economic powers? What have been the key developments over the last twenty-five years?

All these questions are at the centre of the current public debate about relocations, the international specialisation of the French economy and the initiatives for desirable industrial policies. The purpose of this report is to help conduct an economic analysis of these issues from two angles:

- firstly, to give an accurate picture of precisely where industry in France is today in economic terms, using quantitative indicators and a comparison with the other classic "industrial powers";
- secondly, to offer an interpretation of the key developments that have occurred over the last twenty-five years, based on recent work and research into the economy.

The approach used therefore combines a statistical evaluation, a geographic comparison and a historic review. The document is arranged in seven major sections: after a definition of industry and a summary of the major developments in France between 1978 and 2002 (§1), we shall examine, in turn, the economic weight of industry based on five key variables: added value (§2), employment (§3), investment (§4), R & D (Research & Development) (§5), and external trade (§6). We shall consider the relative position of industry in France, according to these various dimensions, in relation to its European partners (Germany, United Kingdom, Italy) as well as the United States and Japan (§7).

EVALUATION OF THE WEIGHT OF INDUSTRY IN FRANCE ACCORDING TO FIVE INDICATORS

▪ Definition of the scope of industry and its economic justification

Historically, the concept of industry refers to the act of producing, in other words, the transformation of materials and semi-processed goods into products. The various economic characteristics, which, in our view, seem to be decisive and which will inform the proposed definition of the scope of industry are:

– **standardisation** of products and processes which allows the use of mechanical power with machines, the automation of tasks and mass production offering economies of scale;

– a fast, sustained pace of **innovation** (products, processes and organisation) relying on scientific and technological advances (in modern terms, the work of R & D);

– the significant level of fixed assets and **capital investments** (factories, machines, production line required for manufacturing (wasted costs spent before launching the production) and continual modernisation of the production facilities.

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Using these criteria, we can define from the national statistical nomenclature, review no. 1 2003 (*nomenclature d'activités française NAF révision 1, 2003*) a scope of industry comprising three sections: extractive industries (section C), manufacturing industry (D), production and distribution of electricity, gas and water (E). This approach, in terms of the technical specificities of the production process or the organisation into industries can be usefully supplemented by the *Nomenclature Économique de Synthèse* (*NES*), adopted by *INSEE*[1] in 1994, which proposes groups based on the nature of the markets. Our definition of industry will include the following six sections:
– agricultural and food industries EB;
– consumer goods industries EC;
– the motor Industry ED;
– equipment industries EE;
– intermediary goods industries EF;
- energy EG.

Scope of industry = C + D + E (NAF) = EB + EC + ED + + EE + EF + EG (NES)

Table summarising the different variables that demonstrate the weight of industry in the French economy

Share of Industry	1978	2002
In added value in volume	24.2%	22.3%
In GDP as a value	26.3%	17.8%
In the working population	25.5%	16.4%
Millions of industrial jobs (full-time equivalent)	5.5	3.9
In productive investment*	33.8%	25%
In the internal expense of companies' R & D	92.4%	86.3%
In the total internal R & D expense	57.8%	54.6%
In exports of goods and services	76.3%	78%
In imports of goods and services	81%	84.2%

measured by the gross formation of fixed capital of non-financial companies, * 1992 data*

In summary, these raw data show:

– a stabilisation of industrial added value in volume but a decrease in value on account of the differentiated changes in industrial prices and services,
– a 30% fall in full time equivalent manufacturing jobs, which now only represent 16% of the working population,

[1] *INSEE - Institut National de la Statistique et des Etudes Economiques* = France's national institute for statistics and economic surveys

– a reduction in the weight of the total investment in industry, due primarily to the sharp fall in investment in the energy branch ; the share of the manufacturing and food industry sectors is stable at 25% of the investment of non-financial companies over the period,
– the sustained predominance of the work of industrial R & D in companies' R & D expenses and its pre-eminent weight in national research and development (including public expenses),
– a predominant role of industry in trade, its share of exports of goods and services even increasing over the period.

The analysis according to branch highlights the central but often misunderstood role of the semi-processed goods sector (glass, textiles, wood, paper, chemicals, metals, plastics, electric and electronic components) in the scope of industry identified. In 2002, this branch represented 34% of added value in French industry, 32% of investments, 31% of exports and its relative share in manufacturing jobs increased from 27% to 37% over the last twenty-five years. It is the result of a drive to create added value and increase productivity which has limited the fall in jobs at a rate that is twice as low as in industry as a whole.

SUMMARY OF THE MAJOR DEVELOPMENTS IN FRENCH INDUSTRY BETWEEN 1978 AND 2002

- **A real drive for growth in industry but a reduction of its relative weight in the economy**

French industry grew and expanded significantly over the period in question. Accordingly, industrial added value increased by 56% in volume (from 180 to 280 thousand million constant euros 1995), i.e. an average annual growth of 2.4%. Industrial investments increased by 10% in constant currency and a doubling of investment can even be observed in relation to added value, (this ratio increased from 7.5 to 15% between 1978 and 2002). However, this growth remains slower than that of the economy as a whole, particularly in the service sector, which is reflected in a reduction of the relative weight of industry. The indicators relating to added value, employment and investment clearly illustrate this phenomenon. However, a different trend can be seen in the variables that describe the weight of industry in R & D (virtually stable over the period) and international trade (exports and imports are increasing slightly). It can also be observed that although industry only employed 16.4% of the working population in 2002, it still represents 30% of salaried workers and 50% of employees in big companies (more than 50 employees).

- **An important phase of modernisation/restructuring of industry in France**

During the first part of the period examined, French industry led an important structural drive to modernise and restructure production facilities. As from 1992, this adjustment led to an upturn in the share of industry in total added value in volume, thus curbing the decrease in the weight of industry in GDP and stabilising at around 17-18%. The most visible manifestation of this modernisation of French industry is the remarkable increase in productivity. An examination of work productivity (that is to say the wealth produced per hour worked) shows that over this period, France, which had an initial handicap of 30%, pulled itself up to the American level of productivity in 2000 (i.e. an increase of 80%). At the same time, the work of the *CEPII*[2] using the method known as *Industry of origin* (which consists of calculating the exchange rates for price parity of production per country and rigorously comparing the levels of productivity) underlines the fact that during the 1990s, France gained a price and productivity advantage over two major European industrial rivals, Germany and the United Kingdom.

[2] *CEPII – Centre d'Etudes Prospectives et d'Informations Internationales* = France's leading institute for research on the international economy

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- **The process of outsourcing**

The massive reduction in jobs (-30% between 1978 and 2002 i.e. – 1.6 million jobs) is the logical consequence of the drive for productivity gains in industry. However, another crucial phenomenon complicates the analysis and makes it difficult to thoroughly assess the real weight of industry in employment: this is the process of outsourcing within companies which is becoming widespread and which increased during the 1990s. However, the result of this development is a transfer of a share of the added value and jobs in the scope of industry towards the service sector. From a statistical point of view, the corresponding business, (maintenance, security, accounts) used to be included in industrial data (even though it was secondary compared to the company's core business) and it is now classified in the business of specialised service companies.

It is therefore interesting to supplement the measurement of the scope of industry, in the strict sense, with an evaluation of "outsourced" industrial services. In order to do so, we need to examine the statistics for the branch known as "commercial services to businesses" (which, alone, represent 70% of the total production of commercial services). This branch includes three major types of services to businesses: telecommunications, advice and assistance (computer services, consulting on strategy and organisation, accounts, audit, legal, communication, advertising and market surveys etc) and the so-called operational services (that is to say, temporary workers, security, cleaning, equipment hire etc.). Between 1985 and 2000, production, in volume of services to businesses, increased by 90%, as against 60% in services as a whole and 50% for the entire commercial economy. In 2002, these services to businesses employed a total of 2.9 million people (full time equivalents) and achieved 160 thousand million euros of added value. Accordingly, overall, the weight of these activities is almost comparable to the industrial sector (the latter representing 270 thousand million euros of added value and 3.9 million people). And a significant fraction (at least 40%) corresponds to services for industrial concerns.

- **The reconstruction of industrial employment**

The significant decrease in industrial jobs arising from increased productivity must also be qualified by a more qualitative assessment of the structure of industrial employment. This is evidenced by two phenomena that are directly related to increased productivity: the transfer of occupational specialities and the general raising of the level of skills. An analysis of the ten professional families (a nomenclature of jobs that combines INSEE's code of professions and socio-professional categories and ANPE[3]'s directory of jobs) between 1982 and 2002 highlights the increased level of skill in industry: it can be observed that qualified workers in the semi-processed goods industries (which form the pivot of the French industrial system which was restructured during 1990s), there has been an increase of more than 30% in the workforce comprising supervisory staff, technical experts and engineers. By contrast, unskilled workers in all industrial branches and skilled workers in the most labour-intensive sectors (mechanics, textiles, wood) are amongst those families that have lost the greatest number of jobs over the period.

- **The increasing role of intangible investments in industry**

A noticeable characteristic of industrial investment over the period is the increase in intangible investments and the dominant role it now plays. Having increased regularly until the beginning of the 1990s, the share of intangible investment in the total investment in industry has stabilised at around 60%. That reflects a very significant structural change in the organisation of industry. This high figure reflects the amounts that

[3] *ANPE – Agence National pour l'Emploi* = French national employment office

industrial concerns have invested in R & D (18 thousand million euros in 2001), in advertising (18 thousand million), training (two thousand million) and in the purchase of software packages (one thousand million).

THE INTERNATIONAL POSITION OF FRENCH INDUSTRY

An analysis comparing the French position with the other historic industrial powers (United States, Japan, Germany, United Kingdom and Italy,) emphasises, first of all, the persistence of industry. Despite alarmist speeches about the economic decline and de-industrialisation, in 2002, for the countries studied, industry, as defined in this survey (the food, manufacturing and energy sectors), represents:

– between 16 and 24% of GDP;
– between 12 and 23% of the working population;
– between 22 and 40% of the investment of non-financial companies;
– between 65 and 95% of companies' internal R & D expenses.

It is therefore incorrect to talk about a marginalisation of industry in these economies. It retains a significant weight in productive capacities, and, for certain aspects (R & D, external trade), a dominant role.

The comparative survey of industrial dynamics over the last twenty-five years also reveals three main results:

– a comparable change in the weight of industry in added value, employment and investment over the period in question; in France, the fall in these relative indicators is comparable to the average for the other countries observed (slightly higher than in Germany and Italy but less marked than in the United Kingdom);
– better French performance as regards R & D and work productivity in industry;
– but a continued unfavourable relative classification of France, as the weight of its industry in the economy in terms of added value, jobs and investment remains weaker than in the other countries surveyed over the entire period examined.

In fact, French industry is in a less favourable position than the other countries surveyed in terms of relative weight in added value (6th in 1978, 5th in 2002), employment (4th in 1978, 4th in 2002), and investment (5th out of five countries analysed in 1978, and 4th in 2002), over the entire period examined. It can be observed that, unexpectedly, the country with the closest profile to France, according to the indicators in question, is the United States.

Despite the marked successes of the drive for modernisation (R & D, investment) and opening up (international trade) of French industry, the final diagnosis is therefore mixed. There is no unanimous economic interpretation of this French position. There are two conflicting theories.

According to the first, which could be described as favourable, at the end of the 1970s, France accumulated a number of handicaps – it was not very modern, behind in investment and not very competitive internationally – which accounts for its initial poor position. Subsequently, it made a significant effort to modernise and restructure, the effects of which have only been gradually felt at the end of the period in question. It can be observed that during the 1990s, the fall of the indicators was less marked in France than in the other countries examined. However, this catching-up had not yet improved the relative position of the country in 2002. So, the nub of the matter is whether it is a medium-term process that is already underway, the impact of which will only be seen in years to come.

According to the second interpretation, it is the structure and composition of French industry that would be at issue and which would explain the persistence - as regards other countries that have a more

favourable structure (Italy and Germany) - of a weaker relative weight of industry in the economy. That is, for example, the theory expressed in the Beffa report[4] (2005) which attributes the decline in industry in France to the over-specialization in "low and medium-low technology" industries (according to the OECD's division of industry into four types: high/medium high/ Medium low/low technology). Although the contribution of these sectors to added value is obvious, this characteristic appears to be less obvious in the structure of exports, which, nevertheless is at the heart of the arguments. In fact, over the years between 1990 and 2000, the OECD's comparative data show a very high increase in exports in high technology industries in France (which increased from 18.3% to 25.6% of the total). Accordingly, the total number of exports from high and medium-high technology represents 65% of French exports in 2000, that is to say, an even lower amount than in Germany where they were 71%. Another different kind of argument is also put forward in this report: the recent (post 2001) loss of competitiveness of France's high technology industry internationally. This is not strictly a problem of specialisation according to the technological intensity or added value of goods but rather, within the field of high technology, relevant choices according to the competitive environment, market opportunities and amounts allocated to R & D. Accordingly, the specific nature of France's industrial R & D are discussed in section 5, in particular, its concentration on a small number of areas with very high technological intensity.

In order to rigorously test this second theory, we need a more in-depth and segmented analysis of the organisation of industry in the other countries, which is outside the scope of this survey. Nevertheless, this report deals with the theme of industrial specialisation of the country, which is at the heart of current debates about the future of industry and the type of public intervention to be favoured in France and Europe in order to preserve and develop a sector whose dynamism, significant weight and role in our economies, are highlighted in this report, contrary to views that are sometimes too simplistic or defeatist.

[4] A report published by a team led by Jean-Louis Beffa, chairman and chief executive of Saint-Gobain, the French glass group.