

On French corporate immaterial investment

By [Sarah Guillou](#)

A note on the [immaterial singularity of business investment in France](#) from 26 October 2018 highlighted the significant scale of investment in intangible assets by companies in France. In comparison with its partners, who are similar in terms of productive specialization, the French economy invests relatively more in Research and Development, software, databases and other types of intellectual property. Looking at gross fixed capital formation (GFCF) excluding construction, the share of intangible investment reached 53% in 2015, compared to 45% in the United Kingdom, 41% in the United States, 32% in Germany and 29% in Italy and Spain.

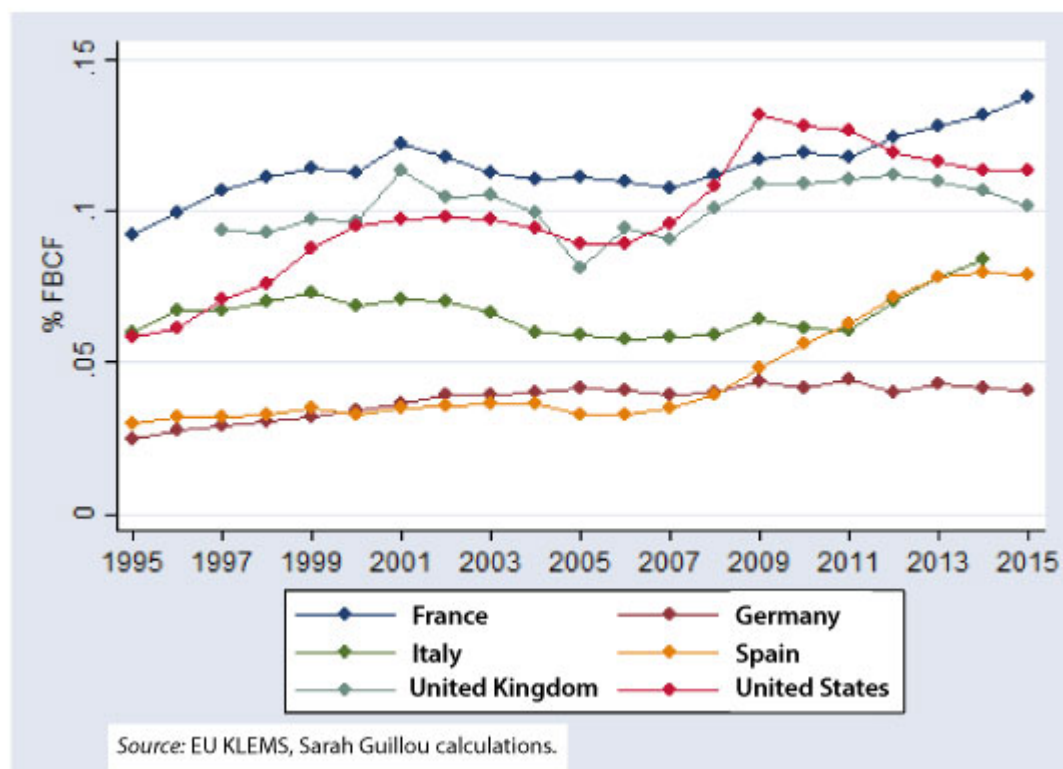
These results are corroborated by statistics that evaluate other dimensions (INTAN basis), outside the national accounts, of intangible investments, such as those in organization, training and marketing. France is not lagging behind its partners in this type of asset either (see Guillou, Lallement and Mini, 2018).

As for the national accounts, these include two main intangible assets: R&D expenditure and expenditure on software and databases. In terms of R&D, French investment performance is consistent with the technological level and structure of its production specialization. If the French economy had a larger manufacturing sector, its spending on R&D would be much larger. What is less coherent is the extent and intensity of investment in software and databases, to such an extent that one cannot help but wonder whether this immaterial dimension of investment is almost unreal.

Figure 1 illustrates that “Software and databases” investment

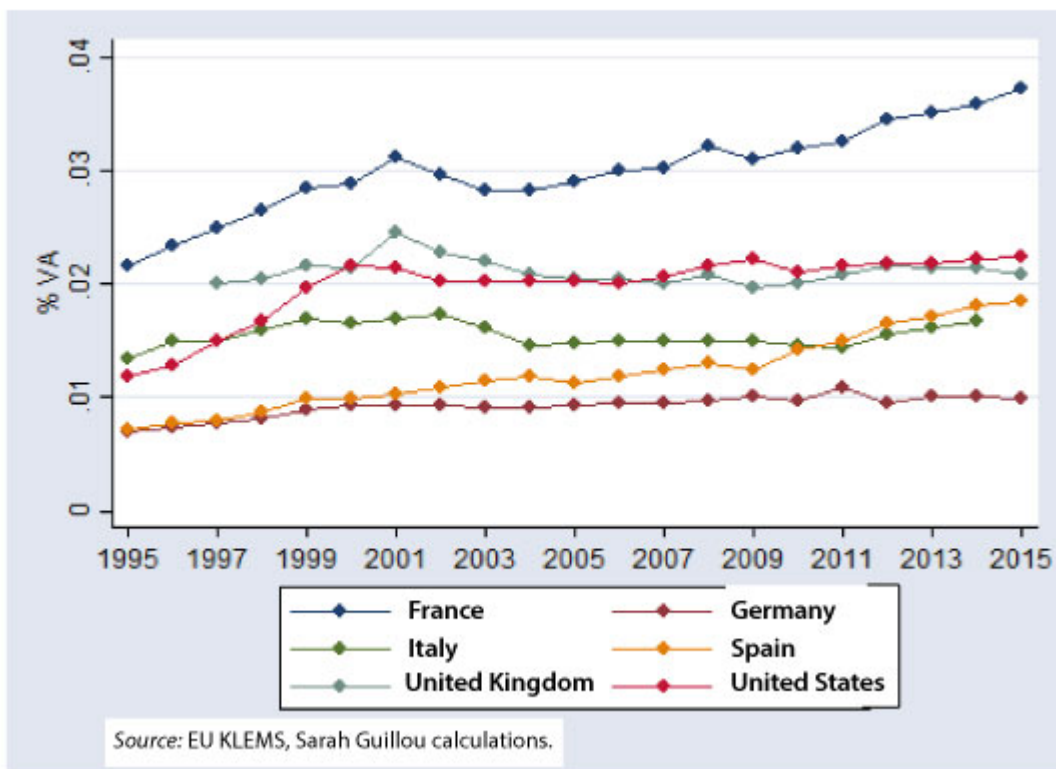
is larger in France than in the rest of the European countries. The share is, however, close to the levels observed in the United Kingdom and the United States. Of course, this share reflects the weakness of other targets for investment such as machinery and equipment specific to the manufacturing sector (see the earlier note on investment).

Figure 1. Share of GFCF in software and databases in total market sector GFCF



In terms of the rate of investment, that is to say, investment expenditure as a ratio of value added of the market economy, the dynamism of the French economy in terms of software and databases is confirmed: France clearly outdistances its partners.

**Figure 2. Rate of investment in software and databases
in the market sector**



This also raises questions because it reveals a gap of 2 percentage points of the VA relative to the United States and 3 points relative to Germany. French companies invested 33 billion euros more in software and database than did German companies in 2015. Note that in 2015 total GFCF excluding construction was 285 billion euros in Germany and 197 billion in France. Moreover, the gap in the investment rate across all types of assets in France was 4 percentage points vis-à-vis Germany ([see Guillou](#), 2018, page 20).

This gap can be explained only under the conditions, 1) that the production function of the French economy uses more software and databases than its partners, or 2) that the GFCF software and databases item is either artificially valued in relation to the current practices of France's partners, which may be the case, or because the value of the software asset is more important in France (companies may choose to put spending on software in current spending), either because the asset value is greater (which is possible because part of this

value, that of software produced in-house, is up to the discretion of the companies).

Understanding this gap is of considerable importance, because it is decisive for making a diagnosis of the state of French corporate investment and the state of its digitization (see Gaglio and Guillou, 2018). The aggregate macroeconomic value of GFCF includes GFCF in software; if this is overestimated, it has implications for the macroeconomic balance and the contribution of GFCF to growth. The measurement of total factor productivity would also be affected, as the overestimation of capital (fuelled by investment) would lead to underestimating residual technical progress. So not only would the investment effort of French companies be overestimated, but the diagnosis of the nature of growth would also be off.

But there are reasons to question how real this gap is. In other words, shouldn't the immateriality of GFCF be viewed as a flaw in reality?

On the one hand, it is not clear that France's productive specialization justifies such overinvestment in software and databases. For example, the comparison with Germany, the United Kingdom, Italy, the United States and Spain shows specialization that is relatively close, with the exception of the manufacturing sector, which has a much greater presence in Germany. The share of the "Information and Communication" sector in which digital services are located correlates well with GFCF in software, but this sector is not significantly more present in France. It represents 6.5% of the value added of the market economy, compared to 6% in Germany and 8% in the United Kingdom ([see Guillou, 2018, page 30](#)).

On the other hand, the data from the input-output tables on consumption by branch of goods and services coming from the digital publishing sector (58) – a sector that concentrates the production of software – do not corroborate French

superiority. The following graphs show that, whether considering domestic consumption (Figure 3) or imported (Figure 4), intermediaries' consumption of digital services in France does not confirm the French domination recorded for GFCF in software and databases. On the contrary, these two graphs show that the French economy's consumption of inputs from the digital publishing sector is not especially high and even that domestic consumption has fallen.

While the overlap between "software and databases" on the one hand and "digital publishing services" on the other is not perfect, there should not be a contradiction between the trends or the hierarchies between countries – unless software expenditure consists mainly of software produced in-house, in which case it will be recorded as assets rather than as consumption of inputs from other sectors.

Figure 3. Consumption of digital publishing companies of domestic services (per 1000 of value added)

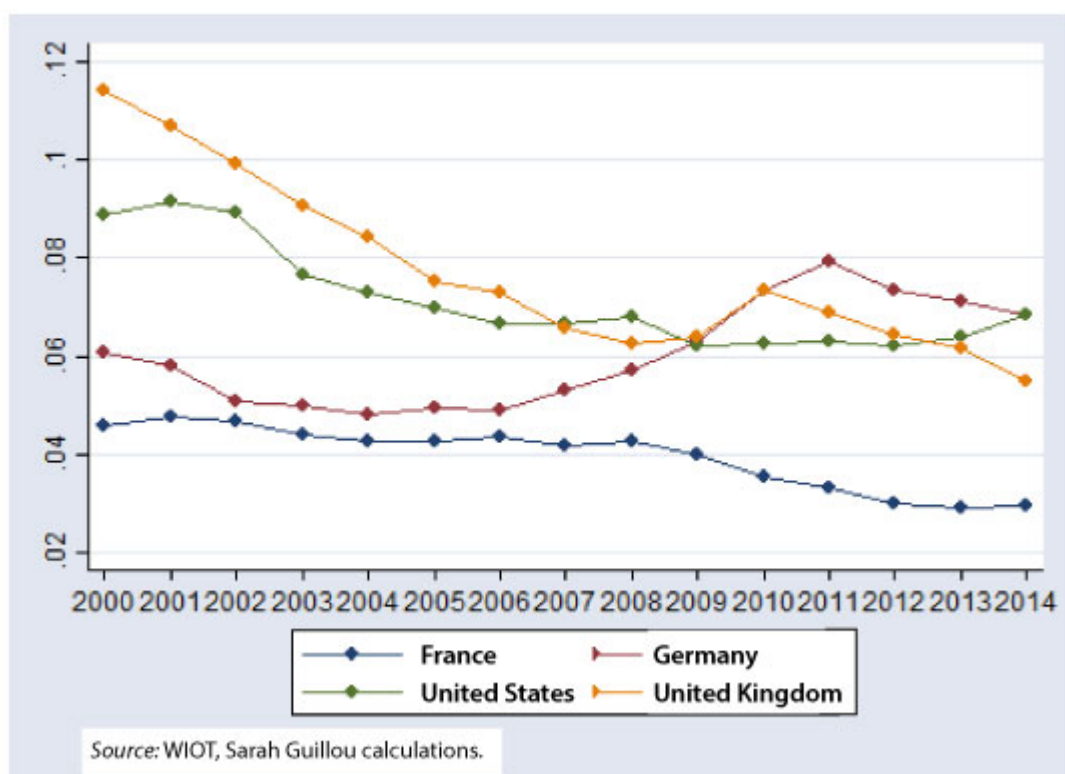
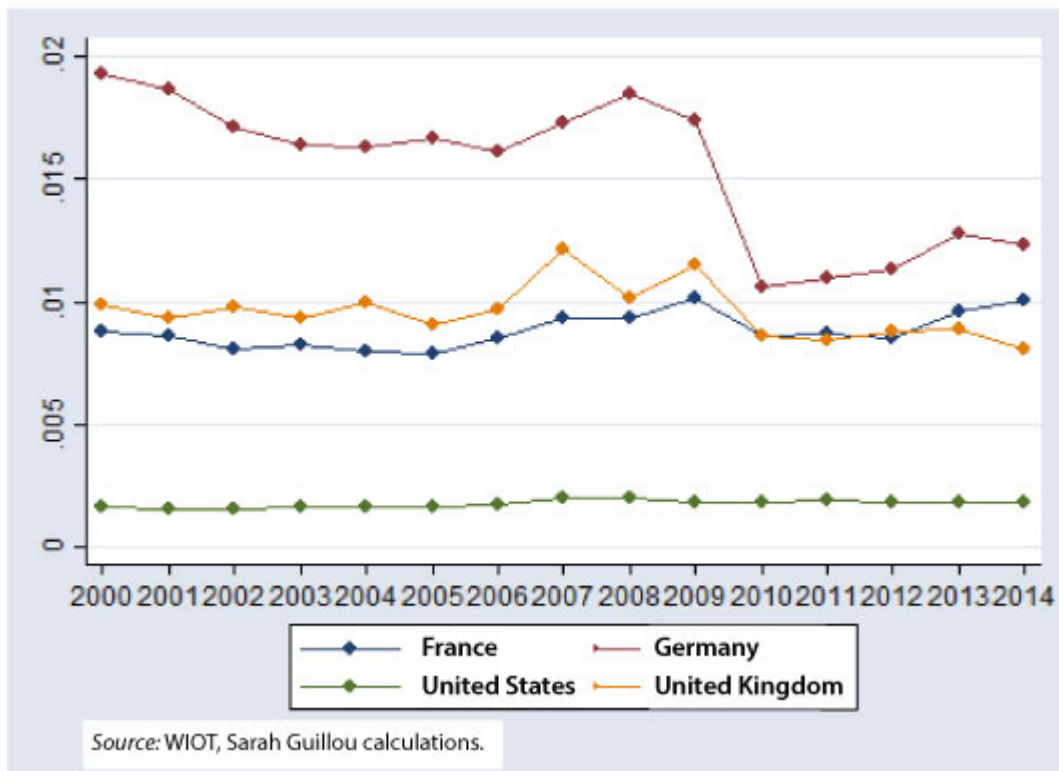


Figure 4. Consumption of digital publishing intermediaries of imported services (per 1000 of value added)



As a result, investment in software and databases would be mainly the result of in-house production, whose capital asset value (recorded as GFCF) is determined by the companies themselves. Should we conclude that GFCF is overvalued? This is a legitimate question. It calls for more specific investigation by investor and consumer sectors in order to assess the extent of overvaluation relative to economies comparable to France.

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The dilemmas of immaterial capitalism

By [Sarah Guillou](#)

A review of: Jonathan Haskel and Stian Westlake, *Capitalism Without Capital. The Rise of the Intangible Economy*, Princeton University Press, 2017, 288 pp.

This book is at the crossroads of the debate about the nature of current and future growth. The increasing role of intangible assets is indeed at the heart of questions about productivity gains, the jobs of tomorrow, rising inequality, corporate taxation and the source of future incomes.

This is not simply the umpteenth book on the new economy or on future technological breakthroughs, but more fundamentally a book on the rupture being made by modes of production that are less and less based on fixed, or material, capital and increasingly on intangible assets. The digressions on an immaterial society are not new; rather, the value of the book is that it gives this real economic content and synthesizes all the research showing the economic upheavals arising from the increasing role of this type of capital.

Jonathan Haskel and Stian Westlake describe the changes brought about by the growth in the share of immaterial assets

in the 21st century economy, including in terms of the measurement of growth, the dynamics of inequality, and the ways in which companies are run, the economy is financed and public growth policies are set. While the authors do not set themselves the goal of building a new theory of value, they nevertheless provide evidence that it does need to be reconstructed. This is based in particular on the construction of a database – INTAN-invest – as part of a programme financed by the European Commission and initiated by the American studies of Corrado, Hulten and Sichel (2005, 2009).

By immaterial assets is meant the immaterial elements of an economic activity that generate value over more than one period: a trademark, a patent, a copyright, a design, a mode of organization or production, a manufacturing process, a computer program or algorithm that creates information, but also a reputation or a marketing innovation, or even the quality and / or the specific features of staff training. These are assets that must positively increase a company's balance sheet; they can depreciate with time; and they result from the consumption of resources and therefore from immaterial or intangible investment. There is a broad consensus on the importance of these assets in explaining the prices of the goods and services we consume and in determining the non-price competitiveness of products. These assets are determining elements of "added value".

However, despite this consensus, the measurement of intangible assets is far from commensurate with their importance. Yet measuring assets improperly leads to many statistical distortions, with respect to: first, the measurement of growth – because investments increase GDP – second, the measurement of productivity – because capital and added value are poorly measured – and finally, to profits and perhaps also the distribution of added value if intangible capital is included in expenditure and not in investment. The authors show in particular that the increasing importance of intangible assets

can explain the four arguments underpinning secular stagnation. First, the slowdown in productivity could be the result of an incorrect valuation of intangible added value. Furthermore, the gap between the profits of companies and their book value could be explained by an incomplete accounting of intangible assets that underestimates capital, in addition to the slowdown in investment despite very low interest rates. Finally, the increase in the inequalities in productivity and profits between firms is the result of the characteristics of intangible assets, which polarize profits and are associated with significant returns to scale.

Awareness of the measurement problem is not recent. The authors recall the major events that brought the experts together to deal with the measurement of intangible assets. They cover up to the latest reform of the systems of national accounts that enriches the GFCF of R&D, including the SNA, 2008, in particular the writing of the *Frascati Manual* (1963, 2015), which lays the foundations for the accounting of R&D activity. But even today it is not possible to account for all intangible assets. This is due in part to the fact that there is still some reluctance in corporate accounting with respect to integrating intangible capital insofar as it has no market price. So while it is simple to book the purchase of a patent as an asset, it is much more difficult to value the development of an algorithm within a company or to give a value to the way it is organized or to innovative manufacturing processes, or to its internal training efforts. Only when something is traded on a market does it acquire an external value that can be recorded, unhesitatingly, on the asset side of the balance sheet.

Nevertheless, the challenge in measuring this is fundamental if we believe the rest of the book. Indeed, the increasing immateriality of capital has consequences for inequalities (Chapter 6), for institutions and infrastructure (Chapter 7), for financing the economy (Chapter 8), for private governance

(Chapter 9) and for public governance (Chapter 10).

The stakes here are critical because of the specific characteristics of these immaterial assets, which are summarized in the “four S’s” (Chapter 2): “scalable, sunkedness, spillovers and synergies”. This means, first, that immaterial assets have the particularity of being able to be deployed on a large production scale without depreciating (“scalable”). Second, they are associated with irrecoverable expenses, that is, once the investment has been made it is difficult for the company to consider selling the asset on a secondary market, so there is no turning back (“sunkedness”). Next, these assets have “spillovers”, or in other words, they spread beyond their owners. Finally, they combine easily by creating “synergies” that increase profitability.

These characteristics imply a modification of the functioning of capitalism, which we are all already witnessing: they give a premium to the winners, they exacerbate the differences between the holders of certain intangible assets and those who are engaged in more traditional activities, they polarize economic activity in large urban centres, and they overvalue the talents of managers capable of orchestrating synergies between immaterial assets. At the same time, the prevalence of these assets requires modified public policies. This concerns first, the protection of the property rights of these intangible assets, which are intellectual in nature and difficult to fully appropriate due to their volatility. Even though intellectual property rights have long been established, they now face two challenges: their universal character (many countries apply them only sparingly) and achieving a balance (they should not lead to creating complex barriers that render it impossible for new innovators to enter, while they should be sufficiently protective to allow the fruits of investments to be harvested). Moreover, spillover effects need to be promoted by ensuring a balance in the development of cities and the interactions between

individuals, while also creating incentives to the financing of intangible investments. Bank financing, which is based on tangible guarantees, is not well suited to the new intangible economy, especially as it benefits from tax advantages by deducting interest from taxable income. It is therefore important to develop financing based on issuing shares and developing public co-financing. More generally, the public policy best suited to the intangible economy involves creating certainty, stability and confidence, in order to deal with the intrinsic uncertainty of risky intangible investments.

What emerges from this reading is a clear awareness of the need to promote the development of investment in immaterial assets, but also a demonstration that the growing immateriality of capital is giving rise to forces driving inequality. This duality can prove problematic.

More specifically, three dilemmas are identified. The first concerns the way intangible investments are financed. The highly risky nature of intangible investments – because they are irrecoverable, collateral-free and with an uncertain return – calls for investors to take advantage of diversification and dispersal. And yet, as the authors show, what companies in this new economy need are investors who hold large, stable blocks of shares so as to be engaged in the company's project. The second dilemma concerns state support. It is justified because these have a social return that goes beyond their private return and, in the face of shortfalls in private financing, public financing is necessary. However, corporate taxation has not yet adapted to this new sources of wealth creation, and states face growing difficulties in raising taxes and identifying the taxable base. Furthermore, states are competing to attract businesses into the new economy through fiscal expenditures and subsidies. The third dilemma is undoubtedly the most fundamental. This involves the contradiction between inequalities, whether in the labour market (job polarization [\[1\]](#)), in the goods market

(concentration) or geographically (geographical polarization), which are caused by the rise of intangible capital, on the one hand, and on the other hand the need for strong social cohesion, trustworthiness and human urban centres that provide favourable terrain for the development of the synergies and exchanges that nourish intangible assets. In other words, the inequalities created affect the social capital, which is detrimental to the future development of intangible assets.

It is in the resolution of these dilemmas that this new capitalism will be able to be in accord with our democracies.

[1] See Gregory Verdugo: [“The new labour inequalities. Why jobs are polarizing”, OFCE blog.](#)

No love lost for Chinese investors!

By [Sarah Guillou](#)

In his [speech of 15 January 2017](#), France’s Minister of Economy and Finance, Bruno Le Maire, speaks of “plundering investments”, suspecting Chinese investors of wanting to “loot” French technology. These statements inscribe the Minister of the French Economy in line with economic patriotism from Colbert to Montebourg, but this time, they are part of a broader movement of distrust and resistance to investment from China that is hitting all the Western countries. And while the French government is planning to

expand the scope of decrees controlling foreign investment, many other countries are doing the same.

France is not the only country to want to modify its legislation to reinforce the grounds for controlling foreign investors. The inflow of foreign capital was primarily viewed as a contribution of financial resources and a sign of a territory's attractiveness. France has always been well placed in international rankings in these terms. In 2015, France ranked eleventh in the world in terms of foreign direct investment inflows, with USD 43 billion, mainly from developed countries (compared with USD 31 billion for Germany and 20 billion for Italy). And since French resident investors have invested USD 38 billion abroad (Germany and Italy, USD 14 and 25 billion respectively), the balance is in favor of productive capital inflows, which exceed capital outflows.

However, France has always distinguished itself by its greater political mistrust of foreign equity, especially when it comes to its "flagship" industries. But now this mistrust is being echoed in Western countries with regard to Chinese investors, and not only across the Atlantic where all the political actors have had to sing in tune with the economic patriotism of the Trump administration. Chinese investors are also perceived as predators by the Germans, the British, the Australians, and the Italians, to name just a few.

It must be said that China's industrial strategy is very proactive, and the external growth strategies of Chinese business is being supported by a policy aimed at moving upmarket and acquiring technology by any means. Moreover, the presence of the State behind the investors – it is characteristic of China to have private and public interests tightly interwoven as well as a strong State presence in the economy because of its communist past – creates potential conflicts of sovereignty. Finally, China is threatening more and more sectors in which Western countries believed they had technological advantages, which is worrying governments (see

the *Policy Brief de l'OFCE* by S. Guillou (no. 31, 2018), "Faut-il s'inquiéter de la stratégie industrielle de la Chine?" [Should we worry about China's industrial strategy]). Finally, China is not exactly exemplary in terms of taking in foreign investment, as it erects barriers and constraints often associated with technology transfer.

Western countries are reacting by increasing the scale of their controls: issues touching on national security and public order are being supplemented by strategic technologies and the ownership of databases on citizens. In France, the Minister of the Economy, Bruno Le Maire, announced that he wanted to extend this to the storage of digital data and to artificial intelligence. In Germany, the acquisition of Kuka, the manufacturer of industrial robots by the Chinese firm Midea, has led to strengthening German controls, and in particular the refusal of the purchase of the Aixtron semiconductor maker.

In the United States, it is on the grounds of the acquisition of banking data that the acquisition of MoneyGram by Ant Financial – an offshoot of Alibaba – led the Committee on Foreign Investment of the United States (CFIUS) to issue a negative opinion very recently. The European project to create a committee identical to the CFIUS has not yet been concluded, and it has not attracted the support of all EU members as some look kindly on Chinese investors.

This policy, while not coordinated, is at least common among the main recipients of Chinese investment. France is not the only one to hold this position. This kind of unanimity among the Western clan is rare, but it also involves risks.

The first is isolationism: too many barriers lead to giving up partnership opportunities, which in some areas are increasingly unavoidable, as well as opportunities for strengthening Western companies. The second is the risk that equity bans will be circumvented by Chinese investors.

Acquisitions are not always hostile, and companies that are being acquired are often ready for partnerships that can take other forms. Thus the failure of the merger of Alibaba with the American MoneyGram was offset by numerous agreements that the company sealed with European and American partners to facilitate the payments of Chinese tourists, in particular to allow the use of the Alipay payment platform. It will certainly seal a partnership of this type with MoneyGram. These partnerships lead to technology transfers and to sharing skills, or even data, without the counterpart of capital inflows. The third risk concerns the flow of Chinese capital into Asia and/or Africa, for example, allowing the capture of markets and resources that will handicap Western firms. Any Chinese capital available will have to be invested. The absence of Western partners will imply a loss of control and isolation that could be detrimental.

It is thus necessary to come back to the use of well-chosen but demanding controls, which are absent from the dichotomous reasoning that prevailed in the Minister's statements, if not his intentions. As long as French technology is attractive, this should be celebrated and the pluses and minuses of alliances need to be assessed. It will only be a matter of years before China's technology becomes as attractive as France's. And the Chinese will not fail to come and remind Mr. Le Maire of his position.

Europe's competition policy –

or extending the domain of integration

By [Sarah Guillou](#)

The principle of “fair competition” was set out in the general principles of the Preamble to the Treaty of the European Communities (TEC) in 1957, as was the commitment that the Member States will enact policies to ensure this fairness. Competition policy – overseen by the Competition Directorate – is the benchmark policy for market regulation, but also for industrial strategy and, more recently, for fiscal regulation.

The need for a competition policy flows directly out of Europe’s project to establish a common market, and numerous attempts at industrial policy have come to grief on the altar of Articles 81 to 89 of the TEC (and now Articles 101 to 109 of the Treaty on the Functioning of the European Union), which establish the framework for competition. In practice, the two policies are clearly complementary in the European Union, and the space granted to the former develops thanks to the set of exceptions to the latter.

Competition as a general framework in the European Union

As a foundation of the common market, respect for and controls on market competition is a general principle underlying all European policy. More fundamentally, competition can be considered a *constitutional* principle of the European Union. It makes it possible to define the European space, the common space whose existence depends on controls on competition between States. Europe’s competition law is therefore developed first of all to control economic competition between the States. The aim is to prevent the States from adopting policies that create benefits for companies in their own territory and discriminate against companies from other

States.

Within the European Commission, the Competition Directorate therefore has a significant role and responsibility. Supervision of competition is exercised through the control of mergers and cartels on the one hand, and the control of State aid on the other. To monitor cartels or any other abuse of a dominant position, competition law is exercised *ex post* to protect consumers and competitors from predatory behavior and abusive pricing. Control over concentration developed generally from the second half of the 1980s, in synch with the increase in the size of mergers and the opportunities for European rapprochements, which resulted from the success of the single market. Moreover, mergers and acquisitions are increasingly the subject of negotiations between the companies involved and the European Commission and conclude with a transfer of activity. For example, the acquisition of Alstom's energy division by General Electric in 2015 was accompanied by the sale of part of the gas turbine business to the Italian company Ansaldo Energia. This control has given the Commission an active role in the structuring of the market, which amounts to a super power, but since the 1990s, fewer than 1% of notifications concerning concentrations have led to a veto by the Commission.

European supervision of aid has been relatively continuous since it presupposes a permanent exercise of supervision of "undistorted competition" in the European area. It is a tool both to control any distortions of competition created by a Member State granting advantages to its companies and to fight against a race to "who grants most" in terms of subsidies. Thus, Article 87 (1) of the Treaty establishing the European Community states that State aid is considered to be incompatible with the common market, and Article 88 gives the Commission a mandate to monitor such aid. But Article 87 also specifies the criteria the Commission uses to investigate aid.

Business subsidies are subject to the Commission's

authorization if they exceed 200,000 euros over three years and they are not included in the set of exemptions decided by the EU. The majority of aid investigated is authorized (almost 95%). As for France, the percentage of aid disallowed out of the amount granted is in line with the European average. There have of course been some noteworthy decisions, such as when EDF was required to repay 1.4 billion euros in 2015 following tax assistance dating back to 1997. But the Commission also recently allowed the French State to acquire an interest in the capital of PSA Peugeot Citroën (2015). Similarly, the Commission authorized the public-private partnership underpinning the construction of the Hinkley Point nuclear power plant in Great Britain.

Some recent developments in the exercise of this control should be noted. The regulation of State aid has been used to examine the provisions of tax agreements negotiated by companies with certain governments such as Ireland, Luxembourg and the Netherlands. By favouring some companies to the detriment of their competitors, these tax agreements create not only distortions in competition but also competition between States to attract the profits and jobs of the large multinationals. For example, in October 2016, the Commissioner for Competition, Margarethe Vestager, described the tax agreement that Apple had received in Ireland as unauthorized State aid, and accordingly required the Irish government to recover 13 billion euros from Apple. This use of the regulatory power over State aid constitutes a turning point in competition policy, in that it recalls that the object of competition policy is to ensure that competition between States does not go against the notion of $\square\square$ a common market.

Industrial policy is expressed in the exceptions to competition policy

Note that while competition policy is well defined at European level, there are many meanings of industrial policy in Europe, almost as many as there are members. This makes it more

difficult to find policy compromises prior to the definition of such a policy. Moreover, the institutional logic and the economic logic are not the same. As already noted, competition policy has a strong institutional anchorage, which is not the case with industrial policy. Even though the European Coal and Steel Community was at the origin of the European Community, industrial policy is not at the heart of the European project. Moreover, the economic logic is different: competition policy is defined with reference to space (the relevant market), whereas industrial policy can be understood only by integrating the life cycle of companies and industries, and therefore in reference to each country's industrial history. In a shared sense, industrial policy can be defined as policy that is aimed at orienting an economy's sectoral and / or technological specialization. It is therefore easy to grasp the dependence of industrial policy on national preferences. The tool favoured by the States to express this policy is aid to companies, whether directly or indirectly.

State aid is classified according to 15 objectives, ranging from "preservation of the heritage" to aid for "research and development and innovation". For the EU as a whole, the three categories that are largest as a percentage of total aid are: environmental protection (including aid for energy savings), regional aid, and aid for R&D and innovation. The amounts involved are far from negligible: in 2014, for example, 15 billion euros for France and 39 billion for Germany. A higher amount of aid in 2014 was due largely to an increase in aid for renewable energy as a result of the adoption in 2014 of revisions on the rules on this type of aid. Germany is the country that contributed the most to this increase. Support for renewable energies is indeed at the heart of its industrial policy.

European industrial policy develops as exemptions to the application of control on aid and hence to competition policy. These exemptions are set out in the general regulations on

exemptions by category. There are many Block Exemptions, which revolve around the following five themes: innovation and R&D, sustainable development, the competitiveness of EU industry, job creation, and social and regional cohesion. It can be seen in this set of exemptions that supervision is also the expression of Europe's policy choices on orienting public aid, and thence directing public resources towards uses that are in line with these choices. These choices are the result of a relative consensus on the future of the European economy which shapes industrial policy. The largest categories of aid are research and development and environmental protection. In a word, the European economy will be technological and sustainable. This is a policy of orientation and not a policy of resources, and it takes shape within the overarching framework of the policy on competition.

What future for Europe's competition policy?

It seems that, given the primacy of competition policy and its foundational role for Europe's union, competition policy is the conductor of microeconomic policy. It has, up to now, proved capable of adapting. Thus, in compliance with the European project, economic constraints and societal orientations have led to changes in the definition of exemptions on the control of aid, which have allowed for the expression of industrial policy. Similarly, it has seized upon the fiscal hyper-differentiation between certain States, which sharply contravened European integration and the common market.

Competition policy must not be weakened in authority or scale, but it must retain its capacity to adapt both to industrial orientations and to the deployments of Member States' strategies on competition with each other. It is also an essential counter-power to the growing strength of the multinationals, and governments must support it in this sense rather than becoming the mouthpieces of their national champions.

Could Trump really re-industrialize the United States?

By [Sarah Guillou](#)

Callicles to Socrates: "What you say is of no interest to me, and I will continue to act as I have previously, without worrying about the lessons you claim to give." Gorgias, Chapter 3

Only 8% of the jobs in the United States are now in industry. Donald Trump, the new President of the United States, wants to reindustrialize America and is speaking out against the opening of factories abroad and the closing of local factories. Is there any economic rationale for the indiscriminate communications of the new US President?

Trump's statements about manufacturing abroad by major American corporations are disturbing to an economist. It is as if threatening the multinationals, raising tariffs on their imports, and menacing them with punitive taxes will suffice to get them to reconsider their decisions to outsource. Beyond the fact that Trump's method is the antithesis of the rule of law, what is surprising to an economist is that these statements ignore not only everything that is known about the logic of globalizing value chains but also the nature of past trends in industrial production and its future prospects. They therefore raise more perplexity than support (see the [note of X. Ragot](#) on macroeconomic policy).

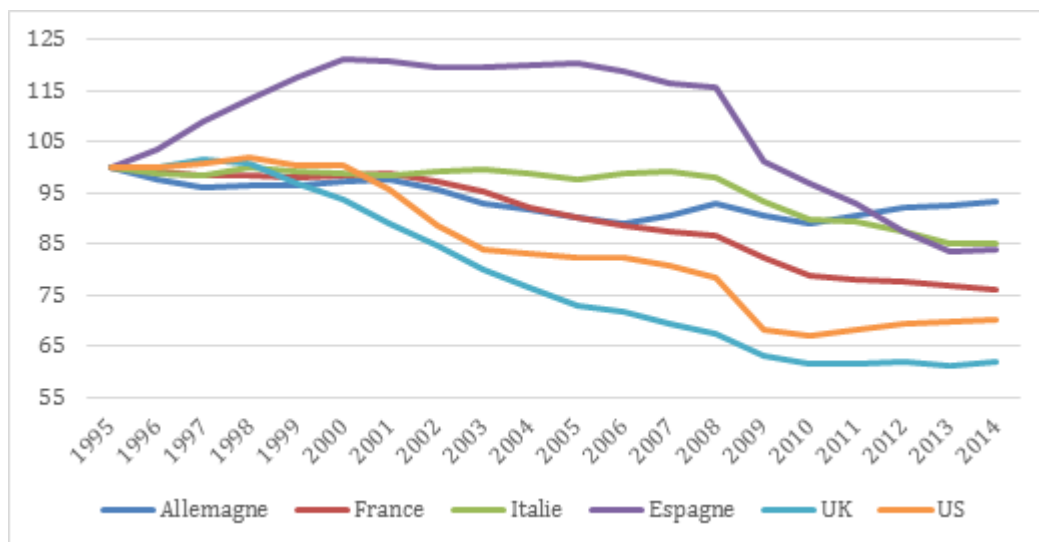
The only truth in Trump's rhetoric is the fact of intense American deindustrialization. So let's start from the state of

American industry to understand the grounds for the working-class nostalgia on which this rhetoric is based.

America's worn-out industrial fabric – fertile terrain for blue-collar nostalgia

Donald Trump taps into the wellsprings of voter nostalgia for a time when the manufacturing sector was in full swing. It is clear that America's deindustrialization was intense, even though it opened up commercially much less than Europe did. For the many workers who lack social protection it has been brutal. The countries where the discourse in favor of re-industrialization has been most widespread are those where the decline in industrial employment was most pronounced, namely the United States, the United Kingdom and France. All three have lost more than a quarter of manufacturing jobs since 1995^[1].

Figure 1: Changes in jobs in manufacturing (base 100 in 1995)



Source: EU Klems for European countries. Federal Bank of St Louis (FRED) for the United States.

Figure 1 shows the similarity in the trends in these three economies since the end of the 1990s: France started to lose jobs a little after the United States and United Kingdom, and the end of this trend, which can be seen in the US and UK as

of 2009, is still not clearly visible in France, which has continued to shed jobs, although at a slower pace than at the beginning of the period.

The United States lost more than 5 million jobs since 1995, compared to more than 1.5 million in the United Kingdom and 900,000 in France, representing 29%, 38% and 24%, respectively, of the losses over the period. Of course, at first gains in productivity permitted a smaller decline in value-added, but this was less the case from 2000 onwards, given the slowdown in productivity gains in the manufacturing sector. It should also be noted that manufacturing employment has risen since 2010 in the US, but once again slowed from 2015 (see [Bidet-Mayer and Frocain, 2017](#)).

The causes of deindustrialization have been clearly identified. Deindustrialization has affected all the old industrial powers because of both technical progress and the shift of manufacturing value into industrial services. At the global level, manufacturing output now represents only 16% of GDP, making the 12% American level quite honorable. Moreover, the United States is still a major player in global manufacturing, second only to China in the volume of production.

Finally, once it is understood that the incorporation of technology in manufacturing value-added will not slow its pace and that the robotization of the repetitive tasks specific to mass production will continue or even accelerate, it is certain that future industrial production will be even less job-rich (on this topic see [M. Muro](#)).

In terms of the rise of the Trump electorate, only a small fraction of the voters located in a small part of the northern United States were actually victims of deindustrialization. But industry is a symbolic sector, an emblem of the economic power of yesteryear, of martial imperial power, of the birth of the consumer society and then of the emergence of Asia's

economic powers, the new homes of the world's factories. This particularly affects a section of the middle and working class that has not seen its income improve over the last 20 years (as is suggested in the "elephant" graphic of [Branko Milanovic](#))[2]). Finally, America's deindustrialization can be seen as symmetric with the industrialization of China and other emerging countries like Mexico, whose economic success is taken as a scapegoat by this middle class. But while globalization has had differentiated effects on individuals based on their qualifications, it cannot be superimposed on deindustrialization.

Starting from this nostalgia for the industrial might of yesteryear, Trump chose to become personally involved in companies' outsourcing decisions in order to win the vote of these middle class forces who'd suffered from deindustrialization. His interventions have consisted in directly going after companies by calling on them to modify their decisions. Let's take a look at the most striking episodes in order to grasp the respective motivations of the actors.

Symbolic, eye-catching industrial symbols

First there was the case of Carrier, an equipment manufacturer in Indiana that makes heaters and air conditioners, which in February 2016 announced its decision to move 1,400 jobs to Mexico. Having seized on this case during his campaign, once elected Trump went on to negotiate in November with the heads of the company. In exchange for relief on taxes, charges and regulations, Trump demanded that some of the jobs be kept in Indiana. The local authorities also joined in the negotiations in an effort to coax the company. On November 30, the company announced its intention to retain 1000 jobs on the site. This victory was highly symbolic, in every sense of the word, given that the American economy creates more than 180,000 jobs every month. Carrier's parent company, United Technologies, conceded that this turnaround will not cost it that much, especially if

it gets an attentive ear from the President, and also because United Technologies is a manufacturer of military equipment and is heavily dependent on public procurement (10% of its sales according to the *New York Times*).

Then there was the episode involving Foxconn, a Taiwanese company that assembles products by Apple – its biggest customer – that decided to set up an assembly plant in the United States, a decision that Trump then brandished as a personal victory. Foxconn already owns production units in the US. This was not *a priori* a relocation of activities, as the company does not envisage simultaneously “disinvesting” in Taiwan. If the company decides to invest in the US, it is because it has good reasons to do so. Among these are expectations about the growth of the US market, the trade obstacles that Trump is threatening to erect and the pressure that its main client (Apple) might bring to bear.

Finally, Trump has tackled the automotive industry. He had already lambasted Ford Motors’ plan to build a plant in Mexico back in the spring of 2016. On 3 January 2017, the company decided to cancel its USD 1.6 billion project in the state of San Luis Potosi in Mexico and announced a USD 700 million investment in a plant in Flat Rock, Michigan, to build electric cars and autonomous cars. Was this a turnaround by the company? In fact, the Mexican plant was designed to build the Ford Focus, small models for which demand has fallen sharply in favour of SUVs and other “crossovers”. Ford’s decision indicates that it is trying to reduce production of this range of vehicles, while Trump’s policy should lead to a revival of American demand for automobiles outside this range. The car maker is nevertheless confirming its decision to shift its production capacity for the Focus model from Wayne, Michigan to Hermosillo, Mexico ([The Economist, Wheel Spin, 2017](#)). These decisions therefore reflect more a repositioning by the company rather than a relocation.

The threat of a 35% customs duty on vehicles from Mexico or a

tax on revenue from imports is obviously being taken seriously by manufacturers. In 2015, the United States imported more than 2 million vehicles from Mexico. Car makers have every interest in showing clean hands in order to obtain other benefits, such as the relaxation of emission regulations. In addition, with the ex-president of ExxonMobil, Rex Tillerson, assuming the post of Secretary of State and defending fossil fuels and Trump's economic recovery programme, manufacturers anticipate a pick-up in purchases.

The series of challenges and reactions is continuing ([Hyundai](#), [Toyota](#), [BMW](#), etc.). Trump is going through all the manufacturers and suspects that any production overseas represents a raid on American jobs. It is not by chance that he is focusing on the automotive industry, as this sector is emblematic of the American way of life, a symbol of US industrial power at a time when the rust belt was still glitzy. But the sector is now highly globalized, and one wonders how at this point Trump can ignore or deny the way the industry is organized and go on deceiving his supporters.

Is there really a pool of jobs to relocate?

Globalization can affect the way companies organize production in two ways. First, in combination with technical progress, it can lead to the disappearance of manufacturing following complete outsourcing, while maintaining control over the chains where profits are realized. This is for instance the case of Apple, which does not have its own plants abroad. Apple cannot be compelled to bring back what it has not taken away! If tariffs increase, Apple will import more expensive components, the State will recover part of the rent from innovation and consumers will pay part of the tax. Second, globalization may also result in outsourcing production, and in this case the company does own production sites abroad, such as in the automotive sector as well as in textiles and toys, like Mattel. Jobs have indeed been displaced, but sometimes the skills as well, which it is not necessarily easy

to find again in the home country.

Mexico's cost advantage is also not about to disappear: the wage costs in Indiana per hour are equivalent to the wage costs in Mexico per day. The same is true for the cost in China. The relocation of this type of employment would entail a sharp drop in wages, unless higher customs duties (which raise foreign wages), lower energy and tax costs and higher productivity (which reduce American wages) led to a new trade-off. But this would require major changes that would inevitably impact the rest of the non-manufacturing economy, i.e. 92% of jobs.

In the end, the job content of imports is not "relocatable" in its entirety. Moreover, a large portion of imports fuel exports: in other words, a major part of Chinese and Mexican jobs activate American jobs whose output is sold abroad because the development of the emerging countries has led to the solvency of demand. There is such interdependence today that no one knows what the consequences of a new employment equilibrium would be for future prices, profits, investments and jobs.

What would be the consequences of industrial relocation?

Consider again the case of Foxconn. If this company invests, it would be to serve the US market. Since production costs are higher there, this implies three possible non-mutually exclusive strategies. The company cuts its margins (Apple too) in order not to reduce its market share: Foxconn and Apple accept this reduction in margins in order to offset the negative impact on sales due to the stigma cast by Trump on the company. The second strategy would be to increase the prices of products on the US market: this would mean consumers are financing the few jobs created. The third strategy: the company develops different production processes, including intensive automation that cuts the labour costs while also reducing logistics costs to serve the US market. At the end of

the day, Foxconn's decision, if it is confirmed, is a fairly standard economic rationale. The Trump effect figures in this mix in so far as it requires Apple to justify its strategy of localization. But if Trump's messages were to jeopardize the company's financial health (though it does of course have margins), then this would jeopardize a flagship of the US economy.

In the case of manufacturers, the multiplication of investments, if confirmed, will inflate both the supply of labour as well as supply of domestic production. This would increase competition among businesses. Not only would wages increase, but margins would be reduced due to higher production costs, higher prices for imported components and heightened competition in the domestic market. It is far from certain that it is US manufacturers who would come out on top. At that point, if it came to accepting the Chinese taking holdings in their capital, they would be hoisted on their own petard! The investment decisions taken by the car makers as a whole could even result in labour shortages – the US job market is close to full employment – leading to higher wages (and hence production costs), resulting in turn in either accelerating robotization or bringing in foreign workers.

So ultimately, if we ask ourselves what would be the impact of additional investments on America, it all depends on what incentives they are responding to. If these respond to new, tighter constraints being put on companies by the new government, then microeconomic theory tells us that a company's output will fall or else be more expensive. If an external event increases a company's costs, it produces less 1) either immediately because it increases its prices, or 2) in the medium to long term because its margins are falling (it has not increased its prices) and it is investing less, or 3) in the long term because it leaves the market. If they are responding to expectations of an increase in demand, then Trump will need to stick to his promises of a recovery.

Finally, if investment is made in exchange for fiscal expenditure (lower taxes, investment subsidies, financial support), then the cost to the public purse will result in lower present or future expenditure. In short, the investment will take place if it benefits the company: whether it locates in the country of origin or abroad, it is always conditional on the promise of future income.

But why defend the multinationals and renounce protectionism?

Proponents of protectionist measures respond: 1) what does it matter if firms produce less in total, if the distribution of their output is more advantageous to the domestic territory; 2) what does it matter if they make less profit, as these multinationals already make so much! This neglects that companies also have integrated strategies – that is, global strategies – and that if they earn less profits, they will invest less, which will eventually impact their future growth. It also neglects that the multinationals are the ones that invest the most in R&D, and that if their stock market value rises they do not distribute all the dividends. It neglects that trade, while not balanced, is bilateral, that is, if we reduce the incomes of our partners by reducing their exports, we reduce our own exports. In other words, if the income of Mexicans falls substantially, they will buy a lot less American goods. Furthermore, protectionism – which always winds up being bilateral (retaliation requires it) – protects not the weak, but the profiteers.

Some argue that protectionist measures are a means of relocating production sites to consumption sites (in order to avoid barriers), and hence to recover activities that have been outsourced. It must be emphasized that protectionism protects the giants, the businesses that can deal with tariff barriers. And while it saves unskilled jobs a little longer, it maintains them in their “unskilled” state. Above all, it hampers the development of a middle class of both consumers and businesses. Inequalities will not be reduced through

protectionism; instead, the society and the economy will freeze up. Protectionism is not the solution to the differentiated gains coming from globalization.

In the United States, the effects of globalization have been relatively pronounced, and despite a dynamic labour market, the distribution of the gains from growth has been very uneven. The constraints on skills adjustments have been intense: thus, the 12% of manufacturing value-added, while very honorable, is concentrated mainly in the electronics and information technologies sector (see [Baily and Bosworth, 2016](#)). A recent work by [D. Autor and his co-authors](#) at MIT demonstrates that the exposure to Chinese imports has led to polarizing votes towards candidates at the extremes of the political spectrum. This reveals the strong sensitivity of voters to the hallmarks of globalization.

Yet while the malaise is real, protectionist measures cannot fundamentally heal it because they will diminish the economic wealth of less well-off groups whose consumption basket contains relatively more imported products, whereas few jobs will be created. Let's look once again at the case of the automobile sector, where the American consumer will see car prices go up: the purchasing power of consumers as a whole will go to the benefit of a small minority of workers in the automobile sector. The reduction in corporate taxation will reduce fiscal revenues and the resources for financing the public goods that benefit less well-off strata the most. And it is not at all certain that this reduction in taxation will have a positive impact on business if at the same time the latter also incurs additional customs duties.

In conclusion, industrial employment will not be revived by protectionist measures. Nor will it lessen the economic malaise of the middle class. With an economic and foreign policy that accentuates the present imbalances – isolationism, protectionism, the revival of full employment – Donald Trump is voluntarily taking his mandate into unstable, unknown

territory. The cynical pragmatism of the world's economic players will not be stamped out by Trump's rhetoric, which will instead undoubtedly generate another type of cynicism, one marked by the horizons of an unexpected, personal mandate, with every man for himself.

[1] Manufacturing is a major subset of industry that excludes the energy business. It is common to associate industry with the manufacturing sector.

[2] Branko Milanovic, *Global Inequality*, 2016, HUP.

Is the decline of industry due to the growth of services?

By [Sarah Guillou](#)

On [Friday, April 8 2016](#), the Observatoire Français des Conjonctures Economiques (OFCE) began a series of quarterly seminars on the analysis of France's productive network. The purpose is to bring together researchers and discussion of the situation, the diversity and the heterogeneity of the companies making up France's production system. This discussion is now being fed by the increasing use of business data. We hope in this way to enrich the analysis of the strong and weak points in the country's production fabric, with a view to guiding the development of public policies aimed at strengthening it. [1]

The first seminar took up the role of services in deindustrialization as measured by the decline of industrial

employment as a share of total employment. Since 2000, the manufacturing industry in France has lost more than a quarter of its work force, i.e. more than 900,000 jobs. A recent note by the INSEE ([Insee Première, No 1592](#)) points out that manufacturing's weight in the economy has been halved from 1970 to today. Even though deindustrialization has aroused greater attention in France than elsewhere, probably because of the country's interventionist tradition and the challenges facing its labour market, it is taking place in all the developed economies. This raises questions about underlying structural trends common to all these countries.

However, the decline in industrial employment is being accompanied by net job creation in services. It also appears that the growth of services is being driven in part by changes in industrial production methods. Products are incorporating an increasingly large component of services, and companies are expanding their portfolio of service products. The fragmentation of production processes – fuelled by the opportunities provided by globalization – is isolating low value-added manufacturing units from high value-added services units.

These changes in production methods need to be analysed to understand the extent of this phenomenon. It seems that the changes occurring within industry are just as much factors driving the decline of industry as the rise of services in employment. In other words, there is a question of how much deindustrialization finds a mirror image in the growth of services, or even its explanation.

Three contributions helped to provide some answers to the following questions: which manufacturers are producing services and with what impact on their performance? What is the role of services in the development of global value chains? Are flows of international services replacing flows of goods? Three main lessons emerge.

1 – “Servitization” and the decline in manufacturing jobs are clearly correlated

Manufactured products are incorporating an increasingly significant amount of services. This can be seen both by the growing share of companies that produce services ([Crozet and Millet, 2015](#)) and export them ([Castor et al., 2016](#)) and by the rising content of services in exports (Miroudot, 2016) [\[2\]](#).

The growth in companies’ value-added “services” may well push all their jobs into the service sector, including what are strictly speaking manufacturing jobs, if the added value of the services becomes dominant. Today an average of 40% of manufacturing employment corresponds to service activities. Furthermore, the fragmentation of production processes is intensifying, as is the distribution around the world of outsourced activities based on the comparative advantages of different locations. If the company maintains an anchor in the home country, it usually keeps only the higher value-added jobs there, in line with the cost of the related work and qualifications, meaning jobs often characterized as services.

Note that these changes in production methods clearly reflect a decrease in manufacturing functions in a product’s added value, which translates into a decline of manufacturing in the sources of the wealth of nations. But it is important not to underestimate the impact of the fragmentation of production units. Thus, jobs in services, formerly attributed to manufacturing, are being reclassified as service jobs even though the underlying production task has not changed, and this is happening regardless of outsourcing abroad.

However, this reclassification is all the more likely as “servitization” accelerates and becomes a must for companies to remain competitive.

2 – The servitization of manufacturing is a competitive factor

Servitization, which is associated with qualitative

improvements in products and more generally the creation of value in manufacturing, is a factor in competitiveness.

As is shown by Crozet and Millet (2015), the production of services by manufacturing enterprises is a factor that enhances their performance. There are actually many French manufacturing companies that produce services, with 70% producing these for third parties (2007 data). The decision to produce services represents an important turning point, and clearly boosts performance. The authors' estimates thus show that taking this decision raises profitability, employment, total sales and sales of goods. Even though there are sectoral variations, the impact on performance is positive, whatever the industrial sector in question.

At the aggregate level, the share of imported services in the export of goods is also growing. In France's exports, the share of services ranges from 30% to 50%, depending on the sector. The fragmentation of production processes is leading to outsourcing certain service functions and to the provision of imported services. This dynamic goes hand in hand with the integration of economies in international trade, with the benefit of globalization opportunities and ultimately with the competitiveness of economies (see [De Backer and Miroudot, 2013](#)).

3 – The direct and indirect export of services will continue to make a positive contribution to the trade balance

The developments described above directly affect the trade in services. It is indeed increasingly services that are the subject of trade in intermediate products, with the latter being estimated at nearly 80% of world trade. Digitalization, along with differentiation through services, is leading to the fragmentation of production with the inclusion of more and more services.

Trade in services in France has not experienced a decline

since the crisis of 2007. Even though the trade balance in services has shrunk slightly since 2012, it has remained positive since the start of the 21st century, and the export of services has been rising faster than for goods. As the world's third largest exporter of services – especially because of tourism – France will see service exports increase as a share of its trade balance. Admittedly, for the moment, the volume of exported services has not offset the negative balance for goods, but the development of intra-firm trade in services and of intermediary services will eventually reverse their respective shares.

Trade in services is even more concentrated than trade in goods. It is mainly carried out by French or foreign multinational corporations, which account for more than 90% of this trade. While just over half of trade takes place with the European Union (EU), this component is running a deficit, while non-EU trade is running a surplus. It is interesting to note that the balance is positive for companies that are part of a French group, but negative for companies belonging to a foreign group (Castor *et al.*, 2016).

In conclusion

It seems that the dichotomy between industry and services is becoming increasingly inappropriate to describe the dynamics of employment and the productive specialization of economies. An approach in terms of productive functions that breaks down the job properly based on whether it involves manufacturing activities strictly speaking or other activities, such as transportation and logistics, administrative support or R&D services, would allow a better understanding of a country's skills and comparative advantages.

More generally, the growth of services and their increasing role in production and exports is giving them an increasingly central role in economic growth. Getting better statistics on the production and export of services and improving the

methods of assessing productivity in services are prerequisites for a better understanding of the role of services in growth and of the levers to be activated to achieve this.

[\[1\]](#) A scientific committee responsible for the organization of the OFCE seminar on the Analysis of the Production System is composed of V. Aussilloux (France Stratégie), C. Cahn (Banque de France), V. Charlet (La Fabrique de l'Industrie), M. Crozet (Univ. Paris I, CEPII), S. Guillou (OFCE), E. Kremp (INSEE), F. Magnien (DGE), F. Mayneris (Univ. Louvain), L. Nesta (OFCE), X. Ragot (OFCE), R. Sampognaro (OFCE), and V. Touzé (OFCE).

[\[2\]](#) Miroudot, S. (forthcoming), "Global Value Chains and Trade in Value-Added: An Initial Assessment of the Impact on Jobs and Productivity", *OECD Trade Policy Papers*, no. 190, OECD Publishing.

Can steel revive Europe's industrial policy?

By [Sarah Guillou](#)

The situation of the European steel industry was on the agenda of the European Council's Competitiveness session held on Monday, 29 February 2016. One of the Council's conclusions was to issue a demand to speed up the anti-dumping investigations by two months. This demand follows a letter sent on 5 February

to the European Commission by ministers from seven European countries, including France, Germany, Italy and the United Kingdom, urging it to take measures to protect the steel sector vis-à-vis what was deemed unfair competition from China and Russia.

The steel industry, which successively pushed forward Europe's industrial development and then European cohesion through the European Coal and Steel Community (ECSC), subsequently became a theatre for the violent winds of globalization and a symbol of Europe's industrial decline – will it now be the sector that leads a revival of Europe's industrial policy?

In retrospect, a question arises as to whether the difficulties facing the European steel industry, which is subject both to the fussy oversight of the European Competition Commission and to low-cost Chinese imports, are partly a symptom of failings in Europe's industrial policy, which is wedged between a very active competition policy and a timid trade policy?

The history of Europe's steel industry does in fact fall closely in line with the history of Europe's industrial policy: from a central and highly sectoral industry at the time of the ECSC, with a great deal of state aid going to the sector under various exemptions, it then became primarily horizontal and subject to competition policy. The sector only found its way by means of trade policy in response to increased competition from emerging countries. No steps have been taken in the steel industry towards European alliances or regroupings since the 1980s, and there have been no Europe-wide plans to rationalize production capacity so as to hold down the decline in jobs in the industry. This decline went hand in glove with the development of the continent's specialization in high-tech steel products. But today even those jobs are under threat. Could a different industrial policy save them?

The state of the industry in Europe

Steel now accounts for 360,000 jobs in the European Union. The European sector has lost nearly a quarter of its workforce since 2009, with job losses accelerating: 3,000 jobs lost in the last 6 months.

In terms of production, the steel industry generates a turnover of 180 billion euros, with an output of 170 million tons from 500 production sites in 23 Member States. If countries are ranked individually in terms of international steel producers, Germany comes in 7th place, Italy 11th and France 15th. The sector is dependent on the import of iron ore, alumina and coal. Fortunately, the decline in steel prices has gone hand in hand with lower prices for these commodities. The industry is highly capital-intensive, requiring major investments. At the same time, the transport of steel coils and flat products is inexpensive, making it easier to import them.

The 2008 economic crisis cascaded through the sector, as steel products constitute intermediate consumption for many other industrial sectors as well as for construction. Steelmakers in Europe also face stricter environmental constraints than elsewhere. The steel industry is a major source of CO₂ emissions, and is very sensitive to carbon prices and to regulatory changes. It is also a key player in the EU's emissions trading system (ETS) for greenhouse gas quotas, and while the crisis has enabled the industry to make profits from the sale of surplus emissions rights, steelmakers who are currently experiencing problems vis-à-vis their non-European competitors will be very sensitive to the forthcoming reform of the system for the 2020-2030 period.

Some companies are now in real trouble, such as Arcelor Mittal, which announced a record loss for 2015 (nearly 8 billion euros), partly due to the need to depreciate its mines and steel stocks. The company, which is heavily in debt

because of its many acquisitions in Europe, plans to close some plants. Tata Steel, for its part, has closed sites in Britain. In Japan, Nippon Steel, which just acquired an interest in the capital of the French firm Vallourec and is preparing to buy the Japanese Nisshin Steel, is doing better.

The difficulties facing a sector that built up excess capacity during the crisis have been aggravated by the economic downturn in China. Thus, 2015 was the first year to experience a decline (-3%) in global production (1,622 million tons), after 5 years of growth. Global production did not adjust immediately to falling demand, with prices initially acting as the adjustment variable. The decline in production was the signal for the closures of steel factories and mining operations. This has marked the end of a cycle of rising Chinese production that strongly destabilized the market.

The Chinese tornado

Chinese production doubled in volume between 2000 and 2014, and on its own now accounts for more than twice the combined output of the next four major producing countries, Japan, India, Russia and the United States. This performance is the result of several factors: massive government support; dynamic growth in construction, in infrastructure investment, and in the Chinese market's production of cars and machinery; and favourable access to iron ore. China produces nearly 50% of the world's steel, i.e. approximately 800 million tons of steel. The second-largest producer is Japan, with 100 million tons. India and the United States are contending for third place, at around 5% of global production. If we count the Europe-28 as a single entity, then it would take second place with 10% (Source: [World Steel Association](#)). But the slowdown in the Chinese economy and the strong inertia characterizing production capacity in the steel industry have created substantial excess capacity, which the authorities are now trying to reduce. Domestically, China needs only about half of its output, so it exports the other half.

The 400 million tons China exports represent twice Europe's output. The price of the Chinese offer is therefore likely to greatly upset the balances in other countries. Any excess capacity is directed onto foreign markets to be gotten rid of at low prices, as Chinese exporters are not going to fail to sell off their steel products. Hence China's exports to Europe rose from 45 million tons in 2014 to 97 million tons in 2015, which exceeds the 43 million tons produced by Germany.

China is also likely to experience a significant decline in its workforce, and some production sites, drowning in massive debt, have already closed. Chinese steelmakers are losing money, and small units are going bankrupt. Large units, however, are often state property, and are weathering the storm (at the cost of heavy indebtedness) and becoming aggressive predators, in terms not only of price but also of acquisition capabilities. The weak position of Europe's firms is also leaving them vulnerable to foreign takeovers. China Hebei Iron and Steel Group is, for instance, about to acquire a Serbian steelmaker, which would be yet another means of entering Europe.

The policy response

The public authorities have long been heavily involved in the steel sector. It was a strategic sector for post-war economic development, and was the source of European economic construction at a time when the "small steps" policy of Robert Schuman led to putting the coal and steel production of France and Germany under a common authority, later joined by other countries. For a long time the sector then benefited from various public aid measures and subsidies that kept up excess capacity relative to demand, now estimated at 10-15% of output. The sector then was gradually freed from public tutelage, and in the mid-1990s was excluded from the list of sectors in difficulty that were eligible for aid for restructurings and bailouts. Nevertheless, state support never disappeared completely, but today, the European Commission,

through the Competition Commission, is relatively strict about applying the market investor principle to assess the legality of public support.

While tracking distortions in competition on the market, the European Commission recently opened an investigation into Italy's support for the steelmaker Ilva (2 billion euros), and demanded that Belgium repay 211 million euros of aid paid to the steelmaker Duferco. In 2013, the Commission opened an investigation into aid awarded by "Belgian Foreign Strategic Investments Holding" (FSIH), a body created in 2003 by the Walloon management and investment company Sogepa to invest in the steel industry. This aid, paid between 2006 and 2011 by the Walloon government [a Belgian regional government], was considered to constitute unfair competition on the European market. Indeed, for the Commission, private investors would not have voluntarily made such investments.

These subsidies by the Walloon government therefore constituted aid that put competitors at a disadvantage. The Commission recognized that there is very strong foreign competition, but it considered that the best way to cope with this is to have strong, independent European players. It noted that despite the government aid, the Duferco group wound down all its activities in Belgium, meaning that the aid merely postponed the departure of a company that was not viable. The Commission is currently supporting the retraining of workers in the Walloon region through the European Globalisation Adjustment Fund. The point is to combat the recourse to public funding in Europe, which would ultimately be detrimental to the sector.

At the same time, so-called "anti-dumping" trade retaliation measures were implemented by the European Commission. In May 2014, following a complaint from Eurofer (the European steel association), the Commission imposed temporary anti-dumping duties of up to 25.2% on imports of certain steel products from the People's Republic of China and duties of up to 12% on

imports from Taiwan. The EC investigation ultimately concluded that China and Taiwan were selling at dumping prices. More recently, Cecilia Malmström, the head of trade policy at the European Commission, wrote to her Chinese counterparts warning them that she was launching three anti-dumping investigations against Chinese exporters (February 2015) in the field of seamless pipes, heavy plates and hot-rolled steels. Provisional anti-dumping duties (of between 13% and 26%) were also set on 12 February 2016 (complaints in 2015) with respect to China and Russia.

Some thirty anti-dumping measures protect the European steel industry, but the Member States where steel has been hit particularly hard by Chinese competition are calling for stronger measures. Politicians are railing against China's loss-making exports and demanding that Europe take steps. They envy the US, which has acted more quickly and not skimped on the level of the duties it's enacted, i.e. up to 236%. But the nature of these measures depends on the economic status accorded to China. Anti-dumping measures are not defined in the same way. As long as China is not a market economy, it is assumed that it provides strong support for its economic sectors, and that its prices are thus not market prices. Italy is struggling in Europe to prevent China from being granted this status, while the United Kingdom is supporting China at the WTO (even though the industry is also in trouble in Britain). The Commission has postponed its decision until summer.

What policy for tomorrow?

Should we allow the production of steel to disappear in Europe? It still represents more than 300,000 jobs there, though this is of course out of more than 35 million jobs in manufacturing in 2014. The sector is symbolic of heavy industry, and a supplier of the transportation and defence industries as well as construction – its disappearance would definitively turn a new page in European industry.

Do we need to recognize that, according to the theory of comparative advantage, it is better to buy cheaper Chinese steel and use the revenue freed up for other, more profitable uses? For example, shouldn't it be used to upskill employees? In theory yes, but the revenue freed up goes to the purchasers of steel, so it is they who should supply the European conversion fund. What about taxing the consumption of the now cheaper steel? The flaw in the reasoning shows up when you realize that what is true with respect to macroeconomic balances is difficult to reconcile with microeconomic imbalances: those who are losing their jobs today are not the consumers who are benefitting. Ultimately, the microeconomic articulations can unsettle the macroeconomic balances.

The loss of know-how is indeed the main challenge, as it is here that resources are really wasted. In so far as skills are a competitive factor, difficulties related to a lack of demand should be considered transitional problems that need to be managed as well as possible. Neither contributions of foreign capital nor government support should be excluded. What justifies these investments are the returns expected from the use of human capital. To deal with these challenges, alliances on market segments that are not in trouble might be possible, even if they confer excessive market power, so long as they allow margins that make it possible to maintain the business during cyclical difficulties.

This is why competition policy has to be opened up to considerations of industrial policy (which is concerned about expertise) and trade policy (which appreciates the cyclical and / or unfair character of competition).

European actors need to be brought around a table – they are already grouped in Eurofer – and together with the European Commission develop a European plan for managing excess capacity and forging alliances. The Competition Directorate of the European Commission needs to relax its intellectual rigidity and adapt its reading of competition to the nature of

contemporary globalization. Although it is based on an indisputable logic in the name of the single market, the approach of the Competition Directorate is sometimes no longer suited to the way that competition is unfolding on the global value chain today, which has no precedent on the 20th century European market. Who would believe that the market power resulting from a European merger would not be challenged very quickly by foreign forces if the new enterprise began to take advantage of its market power? The limits on market power are much stronger in the 21st century, with low inflation and depressed commodity prices an illustration of this. The risk that multinationals might abuse their power is posed less in terms of excessive prices than excesses in the capture of customers and in tax avoidance. This last point seems to have been understood clearly by the European Commission. In addition to this, there is the added competition from new applications driven by the digital industry, which manufacturers cannot escape. In other words, competition is no longer what it used to be: companies' excessive power is no longer expressed much in prices or restrictions on quantities.

Competition policy, industrial policy and trade policy need to be developed in coordination, with a strengthened Competition Directorate that includes an element of industrial policy and trade policy. While strict controls on competition were a clear priority during the period of forging the single market when competition was essentially focused between the developed countries, today it is urgent to review the linkages between these three policy fields in order to consolidate the future of industry in Europe.

Areva, Flamanville and Fessenheim: key players in France's nuclear turn

By [Sarah Guillou](#)

The recent [law on “the energy transition to green growth”](#), promulgated on 17 August 2015, plans for a fall in nuclear energy's share of electricity production from 75% to 50% by 2025. It also caps the power of the country's nuclear plants at 63.2 GW. This limit corresponds to current capacity and implies that any new reactor start-up (Flamanville, for example) must result in the closure of a reactor with equivalent power. The decision to postpone the expected closure of the Fessenheim plant comes under this and is now part of this energy equilibrium. The conditioning of the closure of Fessenheim is provoking discontent among all those who believed in the unconditional pledge of Francois Hollande during his presidential campaign.

This decision is coming in a new context for French nuclear power policy and in an international and technological situation that is leading the French state to abandon the country's “all nuclear” approach. Areva, Flamanville and Fessenheim are key players in this shift.

Act I began with the revelation of Areva's losses. In early 2015, the announcement of a loss of almost 5 billion euros for fiscal year 2014 relegated the company from first class status to a company in difficulty, alongside Alstom, whose energy branch is being sold to General Electric, with completion this autumn. The Areva group had a turnover of slightly more than 8 billion euros in 2014. The group's problems are due to the simultaneous emergence of difficulties in its environment, including market and regulatory trends, technological

constraints and changes in the competition (see ["Areva, vaincue à la croisée des risques" \[Areva: defeated at the crossroads of risk\], Note de l'OFCE, no. 52, September 2015](#)). With private and public governance having proved incapable of taking timely decisions to deal with these adverse developments, the moment for restructuring has come. Areva now needs 7 billion in financing for the 2015-2017 period (to cover losses and debt maturities, without including any provisions for the TVO site). The proposed agreement with EDF presented in late July concerns Areva NP.

Areva NP is already a joint venture of Areva and EDF that handles the construction of reactors and the assembly of fuel and services for the installed base; it accounts for half of Areva's sales. In late July 2015, it was duly accepted that EDF would increase its share of Areva NP's capital by injecting two billion euros, giving it between 52% and 75% of the capital, depending on the inputs of other investors, along with 400 million for the acquisition of other assets. It was also agreed that the additional costs related to the Finnish Olkiluoto OL3 reactor built by Areva would not be borne by EDF but by the State and Areva. There is still uncertainty about how to handle the risks related to the Flamanville reactor, and EDF is conditioning its commitments on lifting these risks.

Foreign capital could participate in replenishing the capital through the purchase of assets. The most likely candidates are Chinese firms, which are already partners of EDF (CNNC and CGNPC), and Mitsubishi, which has partnered with Areva (see above), alongside France's Engie (GDF Suez). The French government is prepared to bail out the company for at most 2 billion euros.

The integrated model of Areva is therefore on the rocks. Less than 15 years after its birth, Areva's industrial coherence is under question. The company has been forced to allow the entry of industry partners into its capital and into its vast range

of expertise. Its activity is now concentrated on the fuel cycle (the extraction, enrichment and reprocessing of uranium), with nearly one-third of its workload ensured by its client EDF and by maintenance and decommissioning.

The refocusing strategy, market trends and the preferences incorporated in France's energy policies are mutually consistent. The nuclear market will be centred on the need to maintain plants in operating condition and on decommissioning. Just under 500 reactors are listed worldwide, so there is a vast market for maintenance and decommissioning. This is in fact the area where Areva has won contracts in recent years.

In Act II, Flamanville and Fessenheim found themselves bound by the new energy transition law, illustrating both the technological difficulties involved as well as the budgetary constraints. The completion of the construction of the Flamanville plant is meeting significant technical hurdles from the Nuclear Safety Authority. Its opening is, for the moment, subject to strong conditions. At the same time, the postponement of its opening means that the expected output of electricity production will have to do without it. The closure of the Fessenheim plant, promised for 2016, must therefore be delayed so as to avoid a transition in terms of electrical power output that will have to be filled in one way or another.

Without the capacity in the short run to replace the missing nuclear KWh by KWh from renewable energy, the replacement will have to be done using coal plants – going against the current targets for reductions in CO2 emissions – or by importing electricity – which would hurt the trade balance and could push up electricity prices. Given the necessity of postponing the closure of Fessenheim, the government will not fail to seize the political opportunity of the shortfall between the announcement of the plant's closure and its actual implementation.

Add to these factors the potential compensation – estimated at 5 billion euros – that EDF will request for the early closure of Fessenheim, and it is quite logical that the government is procrastinating as much as possible before deciding on the closing date.

Even today we still do not know the extent to which the State will recapitalize Areva. The government has clearly indicated that it would minimize the amount as much as possible, but for the most part it seems ready to allow foreign players in. So, concomitantly, the law on the energy transition is requiring a decrease in the share of nuclear power and the State is announcing that it can no longer finance the sector in the way it used to. More generally, the globalization of the industry, the rising cost of technology and safety requirements as well as the shift in the preferences of the average voter towards less nuclear power are all combining to redefine the State's commitment to nuclear energy.

The State is thus being politically and economically compelled to withdraw from its "all-nuclear" approach and to accept the end of everything "made in France". The final decisions that will be taken on Areva's future and on the fate of the plants in Fessenheim (which will undoubtedly close in the short term) and Flamanville (whose opening is compromised but financially necessary) will therefore mark a change in the era of nuclear policy, even if the recent energy transition law is subsequently amended by a new party in power.

Is Emmanuel Macron approving a new industrial policy for France?

By [Sarah Guillou](#)

Support for industry is an economic issue that wins adherence from both Right and Left. The entire French political spectrum agrees on the importance of industry for the economy's future. There is also a consensus among economists, who bring together a variety of sensitivities in recognizing the leading role industry plays in driving growth, mainly through exports and innovations – the manufacturing sector is responsible for over 70% of total exports and more than 75% of total R&D spending. This consensus is even international, to such an extent that, paraphrasing Robert Reich, it could be said that, “on the battlefield of national economic ambition, industry is the new boots on the ground”.

In France, everyone also agrees on deploring the decline in industrial jobs and more generally the de-industrialization that has seen industry's share of total employment fall from 25% in 1990 to 10% in 2014. Deindustrialization, which has intensified since the 2007 crisis, crystallizes all the concerns about globalization and all the reproaches made to the French fiscal and regulatory environment.

Governments in general have been quick to support industry and have set up programmes to support innovation, SMEs and R&D spending. The research tax credit (CIR) set up in 1983 has been reinforced by government after government, and perfectly illustrates the political consensus on the matter. But since then numerous programmes to aid companies have been added, creating a tangle of schemes and local and national institutions, leading [a recent OECD report](#) to label the result

relatively incoherent.

Unfortunately, it is clear that France's economic and political consensus has not led to making its industry a global singularity in terms of performance. The country's industrial policy has been unable to counteract the inexorable decline of industry in the face of the service sector.

But judging industrial policy in this way misconstrues its possible objectives. To understand what industrial policy involves, we need to shed our old habits.

On the one hand, opposing industry to services is outdated and is merely a statistical artefact. The services sector is poised to take over innovation and exports, but our statistics have not yet taken stock of these changes. We are still not very clear on how to measure productivity in services or how to understand the channels for innovation in this sector, which do not necessarily pass through R&D. Note, however, that among the companies that benefit from the CIR research tax credit, the number of services firms is increasing every year, reflecting their growing contribution to private R&D spending. Services are a very heterogeneous category: the "Information and communication" category, for example, is less distant from the manufacturing sector than from the real estate business. Furthermore, exports of services are still not well measured (or declared) and are not always very distinguishable from movements of capital. Veiled behind these imperfections in statistics, globalization is not sparing the services sector, which will form an increasing share of international transactions.

Still, for the moment, it is undeniable that the manufacturing sector governs R&D's share of GDP and that the decline in France's market share reveals the productive difficulties companies are experiencing. But we must begin now to anticipate the changes taking place in the boundaries between sectors and not become locked into a reading of economic

activity that is incapable of grasping the areas where added value will be created in the future. Re-industrialization in the sense of increasing the role of manufacturing (or “a return to the age of doing”) is not necessarily the salvation of the economy of the future.

At the same time, industrial policy as such was not responsible for de-industrialization, nor is it able to counteract the decline in industrial employment.

The reasons for de-industrialization – beyond the important role played by technical progress – are to be found in the conditions governing the exercise of economic activity in France relative to the rest of the world: from the incentives to innovate to the incentives to invest, from taxation to regulation, from skills to productivity.

To put it another way, industrial policy was not the cause of the difficulties of Alstom, of AREVA or of Nokia’s takeover of Alcatel-Lucent, and even less so of the logistics merger of Norbert Dentressangle and XPO.

It should be recognized that France’s industrial policy is sometimes erroneously confused with what some call “industrial engineering”. As public companies have historically been the spearhead of industrial policy, policy had the distinctive feature of combining industrial logic with the logic of the economic and political powers, and the two were not always in synch. These inconsistencies could exacerbate the difficulties facing State-owned enterprises.

Industrial policy should content itself with boosting technological trajectories and promoting business growth. The renovation of industrial policy will involve a comprehensive approach to future technologies. The mechanisms for this will include the development of public-private partnerships and the outsourcing of operations to long-term independent administrative agencies. In this respect the political

consensus needs to be extended to include the means for this in order to ensure the continuity of these agencies, so as to stabilize the institutional landscape in which business operates.

Industrial policy is the expression of technological orientations. It can be more or less interventionist and can go beyond more or less simple declarations of intent based on the budgets it is given, depending on overall budgetary constraints. It is especially critical that public funds are committed or private funds are directed so as to finance the demand placed on business. But it is necessary for this public financing to correspond to a genuine request by the State, such as the need for defence equipment to meet foreign policy or the conquest of space, or to a real decision to involve society in its use, such as green energy. Furthermore, in a democracy, the State's request needs to have the support of society, which should be willing to finance, for example, green energy by paying more for carbon and fuel, along the lines of what has been done in Germany.

In this sense, Emmanuel Macron's approach to industrial policy reflects a positive development. Cutting 34 future projects down to fewer than a dozen is relevant, because it helps to clarify the State's commitments and make them more credible. In addition, the digital commitment is the transcription of a technological choice. At the moment "re-industrialization" is focused around the industries of the future, the digitization and modernization of industrial facilities. It would be more honest to dispense with the goal of "re-industrialization" since what is needed is to deal with the economy as a whole and modernize the means of production in order to make France's productive tissue out of a new stronger fabric.

However, the stated objectives are not based on very risky technological choices and do not commit many resources: a 2.5 billion euro tax benefit for companies investing in their productive facilities over the next 12 months (the accelerated

capital cost allowance – “*sur-amortization*” – announced a month ago) and 2.1 billion euros in additional development loans by BPI France for SMEs and ETI over the coming two years. This will thankfully not entail creating another intermediation body for the new policy. As for the role of the State shareholder, the speech was more serene vis-à-vis globalization and more encouraging with regard to European cooperation – as has been shown in the reaction to Nokia’s merger process with Alcatel Lucent. The Minister’s decisions do not however seem to be departing from a full neutrality, as can be seen in the case of the double voting shares that the State has imposed on Renault.

The overhaul of industrial policy remains modest in terms of resources and goals, but it has the merit of setting objectives for policy that it might actually be able to meet.

Which companies are investing in France?

By [Sarah Guillou](#)

At a time when investment has become a priority for the [European Union](#), [the IMF](#) and [France](#), at a time when the French government is preparing legislation to boost business investment, it is urgent to look into who is actually investing in France’s physical capital^[1].

Physical investment in France’s commercial sector is concentrated in certain sectors: manufacturing, trade, transport, real estate, information and communication, along

with the generation of electricity and gas. These “big contributors” totalled 72% of all tangible investment in 1997, and 70% in 2011. This temporal stability obscures two major changes: the manufacturing and real estate sectors saw their contribution to investment change dramatically. The decline in manufacturing’s share of GDP has resulted in a decline in the share of investment in machinery and tools. However, this type of investment includes investments in automation and computerization, which are major vectors for boosting productivity. Nor was this decline offset by investment in the information and communication sector, which also invests heavily in machine tools.

The steep rise in real estate and construction prices inflated construction’s share of investment. It is particularly noteworthy that the increase in construction prices has captured a large share of business spending on capital investment, thereby diverting financial capital from productive destinations. While this dynamic growth in investment in construction has indeed positively influenced investment trends in physical assets, it mainly explains the dynamics of investment in the property sector. Construction prices have not fallen since the crisis, even though the volume of investment has fallen sharply.

The resilience of the investment rate France’s non-financial companies is due in part to investment in construction, but this holds true especially for the real estate sector and the transport sector.

The highest investment rates are on the part of the big corporations and firms with the highest profit rates. Furthermore, the rate of investment is positively correlated with the debt ratio, exporter status, export intensity and R&D intensity. In contrast, human capital indicators such as labour productivity or average hourly earnings tend to be negatively correlated with the investment rate.

The continuation of deindustrialization and the outsourcing of manufacturing could accelerate the decline in investment in machine tools and equipment. The development of information and communication technology and of this sector more generally could offset the decline in manufacturing. Given that investment in machine tools is a source of higher productivity, maintaining a solid level of activity in the manufacturing sector and the information and communications sector is imperative.

[\[1\] Note de l'OFCE no. 50 of 22 April 2015 \[in French\]](#) characterizes the sectors and companies that invest in France.