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.

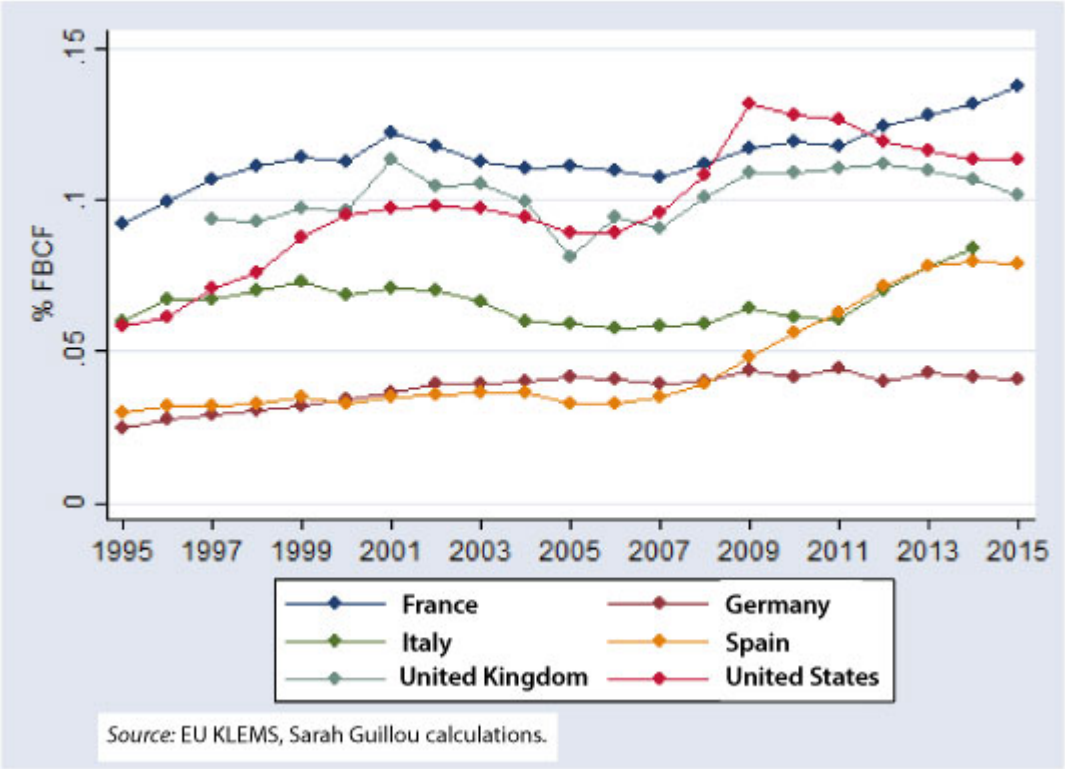
These results are corroborated by statistics that evaluate other dimensions (INTAN basis), outside the national accounts, of intangible investments, such as those in organization, training and marketing. France is not lagging behind its partners in this type of asset either (see Guillou, Lallement and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

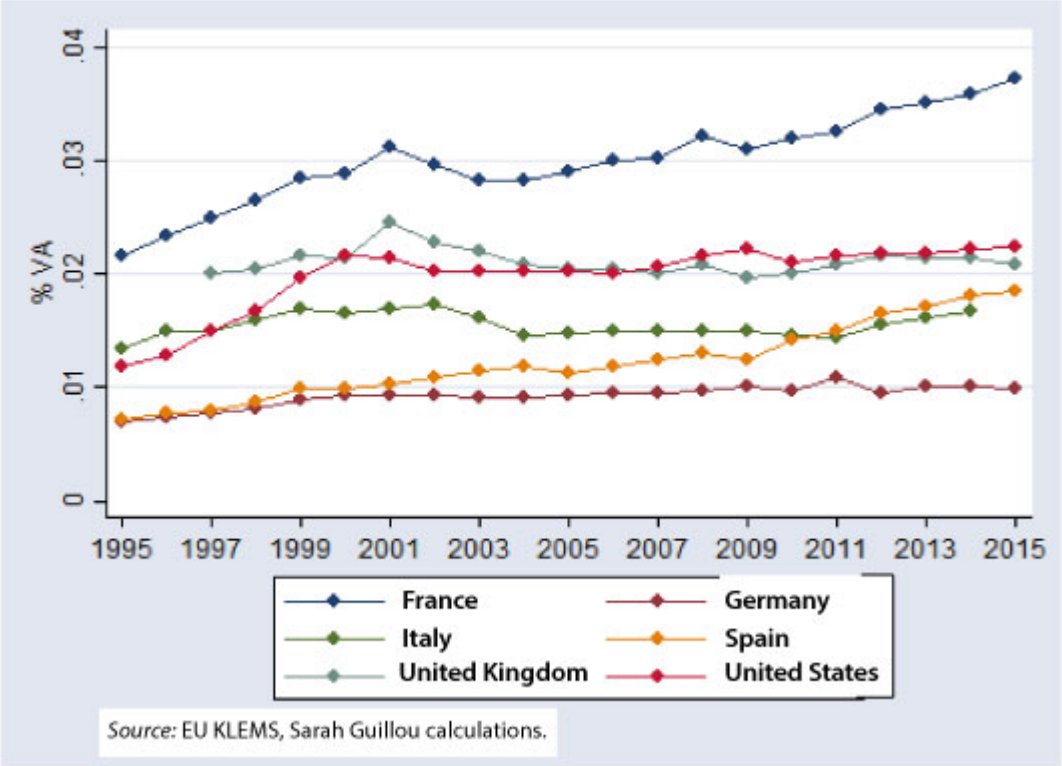
is larger in France than in the rest of the European countries. The share is, however, close to the levels observed in the United Kingdom and the United States. Of course, this share reflects the weakness of other targets for investment such as machinery and equipment specific to the manufacturing sector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

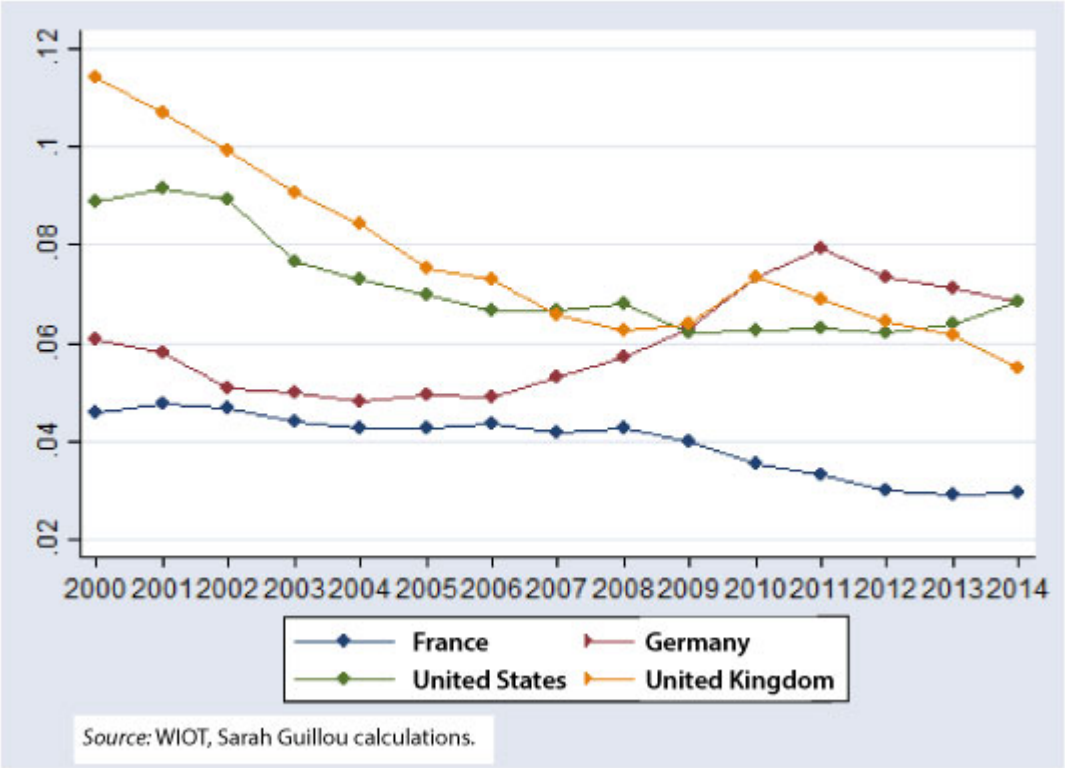
On the one hand, it is not clear that France's productive specialization justifies such overinvestment in software and databases. For example, the comparison with Germany, the United Kingdom, Italy, the United States and Spain shows specialization that is relatively close, with the exception of the manufacturing 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.

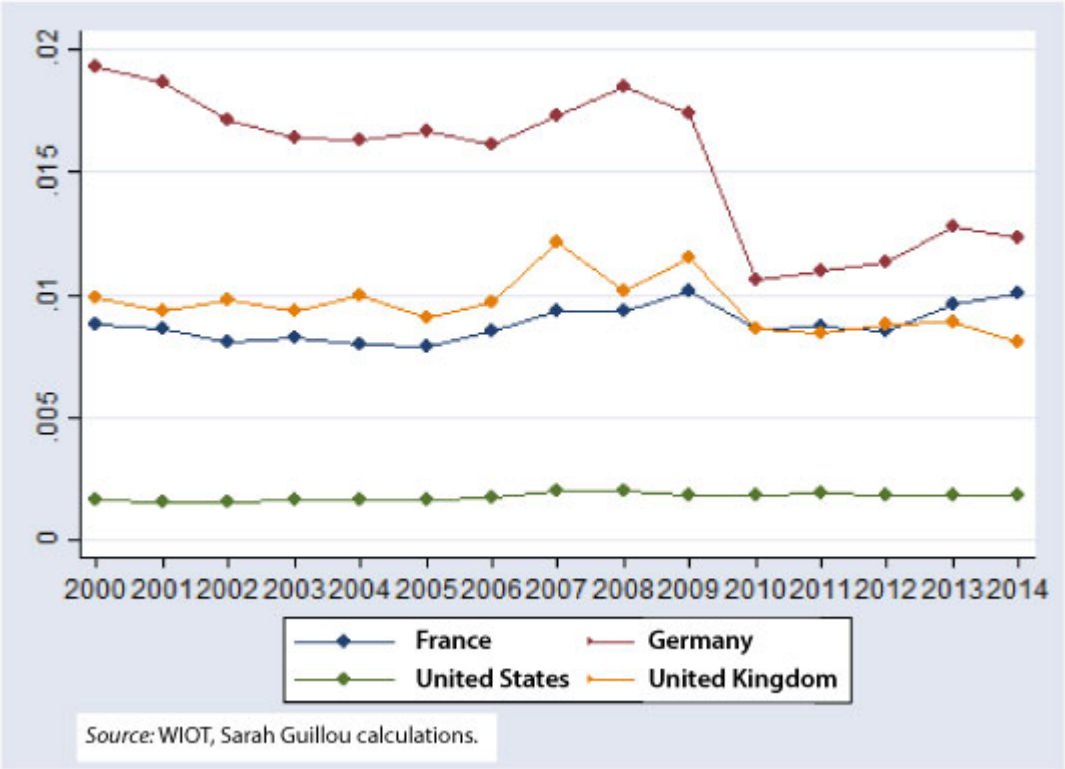
While the overlap between "software and databases" on the one hand and "digital publishing services" on the other is not perfect, there should not be a contradiction between the trends or the hierarchies between countries – unless software expenditure consists mainly of software produced in-house, in 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)



Source: WIOT, Sarah Guillou calculations.

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.

References

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German women work less than French women

By Hélène Périvier and Gregory Verdugo

In terms of the employment rate, French women work less than German women: in 2017 the employment rate of women aged 15 to 64 was 67.2% in France against 75.2% in Germany. But this commonly used indicator does not take into account that to arrange their time German women are more likely to be in part-time work than French women. This is because underemployment and labour market regulations differ in the two countries, in particular as Germany has a plentiful supply of part-time mini-jobs that are held by women more than men. Moreover, the differences in terms of policies affecting the family life-work-life balance in the two countries make it possible to deal with early childhood more extensively in France than in Germany and lead German women to take up part-time work.

To compare the employment situation of women in France and Germany, we use indicators that take into account working time, which we calculate by age to illustrate a life cycle perspective [1]. The results confirm that German women are in part-time work more than their French counterparts, and this is particularly marked at the age of maternity. These differences in women's working hours explain why the gender pay gap is higher in Germany than in France.

Employment rate and employment rate in full-time equivalents by age

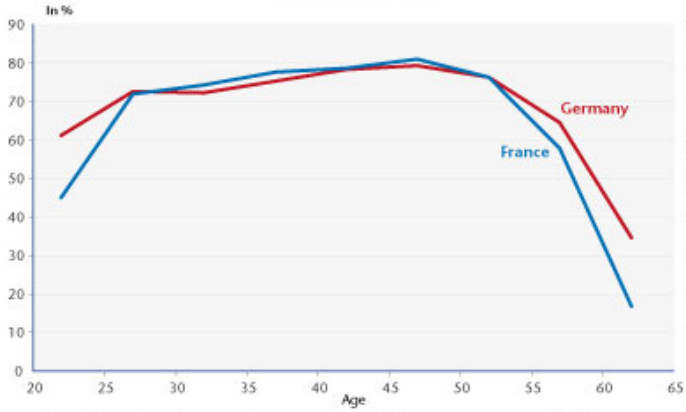
Comparing employment rates with employment rates in full-time equivalents over the life cycle highlights the significant differences between the two countries in terms of the reduction in women's working hours at the ages when the family constraint is the strongest, between 30 and 40 years old. Figures 1A and 1B show employment rates and full-time equivalent employment rates by age for women in 2010, the moment when European countries were to have reached a female employment rate of 60% according to the Stratégie européenne de l'emploi (EES). Figures 2A and 2B show these same indicators for men.

If we restrict ourselves to employment rates, the models seem similar in the two countries: changes in the employment rates over the life cycle for women are quite similar, as is the case for men (with the exception of the ages of entering and leaving working life, which differ between the two countries for both sexes). In Germany as in France, women's employment rate is high, but the gap with men increases between age 30 and 40 (solid lines).

Once part-time work is taken into account, the gender division of labour turns out to be much more marked in Germany than in France (dashed lines) [2].

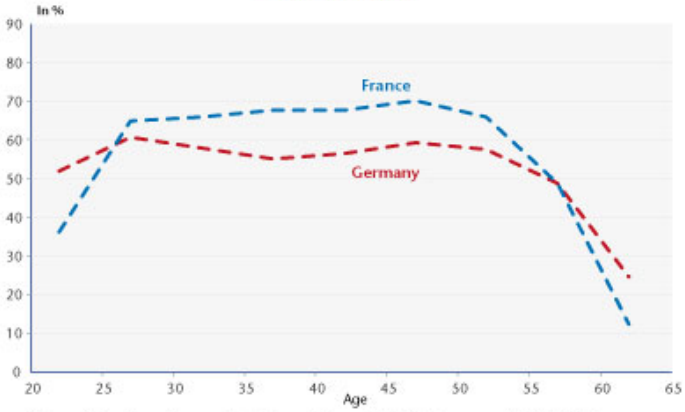
At all ages, the full-time equivalent employment rate for women is lower in Germany than in France (whereas for men it is close to the employment rate, for both countries). From the age of 30, the female full-time equivalent employment rate falls below 60% in Germany, while in France it is above 65%. This means that German women are adjusting their working time more as family constraints become stronger. For men, the full-time equivalent employment rates are close to the employment rates at all ages in both countries.

Figure 1a. Women's employment rate by age in Germany and in France, 2010



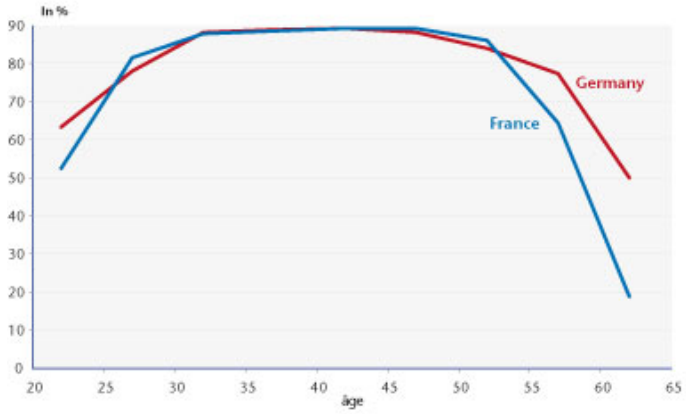
Lecture: Women's employment rate at age 42 was 78.3% in Germany and 78.7% in France.
Source: Labour force surveys, authors' calculations.

Figure 1b. Women's full-time equivalent employment rate by age in Germany and in France, 2010



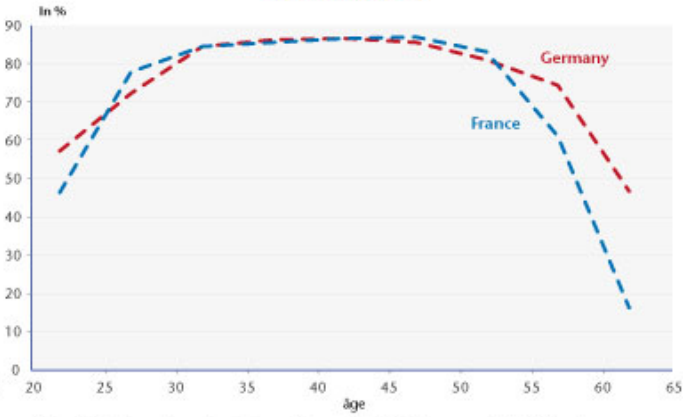
Lecture: Women's employment rate at age 42 was 56.6% in Germany and 67.7% in France.
Source: Labour force surveys, authors' calculations.

Figure 2a. Men's employment rate by age in Germany and in France, 2010



Lecture: Men's employment rate at age 42 was 89.3% in Germany and 89.3% in France..
Source: Labour force surveys, authors' calculations.

Figure 2b. Men's full-time equivalent employment rate by age in Germany and in France, 2010



Lecture: Men's employment rate at age 42 was 86.6% in Germany and 86.9% in France.
Source: Labour force surveys, authors' calculations.

The overall wage gap: the impact of working time

The massive use of part-time work by women in Germany compared to France explains a large part of the wage differentials, which are higher there. The global wage gap indicator calculated by Eurostat [3] shows that the overall wage gap is very high in Germany (45% compared to 31% in France), and that this is due mainly to differences in working time. On average German women work 122 hours a month against 144 for French women, with the average hourly wage rate being comparable (Table).

Table. Overall wage gap in 2014 in France and in Germany

	Average wage level		Average numberof paid hours per month		Employment rate in % (age 15-64)		Overall wage gap
	Men	Women	Men	Women	Men	Women	
France	18.8	15.9	154.0	140.0	67.3	60.4	31%
Germany	19.9	15.4	154.0	122.0	78.1	69.5	45%

Source : Eurostat, Structures of earnings survey (earn_ses_hourly) (earn_ses_monthly) (lfsa_ergaed) (tegges01).

Thus policies aimed at occupational equality cannot leave aside the issue of working time and the quality of the jobs held by women. It seems that from this point of view France is doing better than Germany, although much remains to be done in this area.

[1] This blog is taken from: « La stratégie de l'Union européenne pour promouvoir l'égalité professionnelle est-elle efficace ? », [Is the European Union's strategy for promoting occupational equality effective?], Périvier H. and G. Verdugo, *Revue de l'OFCE*, no. 158, 2018.

[2] Full-time equivalent employment rates were calculated from the European Labour Force Surveys. Each job is weighted by the number of hours worked. A full-time job is defined as a job where the number of hours worked is greater than or equal to 35. If the number of hours worked is between 25 and 34, we assign a weight of 75% of a full-time job, a weight of 50% if the number of hours is between 15 and 24, and a weight of 25% if the number of hours is less than 14 hours.

[3] The gap calculated by Eurostat corresponds to the average wage differential for the entire population.