



CONSEIL NATIONAL
DE PRODUCTIVITÉ

July 2019

Report

Productivity and competitiveness: where does France stand in the Euro zone?

First report



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PRODUCTIVITY AND COMPETITIVENESS: WHERE DOES FRANCE STAND IN THE EURO ZONE?

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JULY 2019

FOREWORD

This first report by the National Productivity Board (NPB) seeks to present an overview, for France, of the key issues and questions concerning productivity and competitiveness. This is an original exercise that is set to evolve in step with the discussions with the social partners and other stakeholders, as well as with the other national productivity boards organised within a European network.

The substantive work accomplished by rapporteurs – Vincent Aussilloux, Amandine Brun-Schammé, Flore Deschard, Margarita Lopez-Forero, Sébastien Turban (France Stratégie), Matthieu Jeanneney (Directorate-General of the Treasury), Matthieu Lequien (Banque de France), Fanny Mikol (Directorate for Research, Studies and Statistics/Dares) and Rémi Monin (National Institute of Statistics and Economic Studies/Insee) – has made a valuable contribution to this report, and I should like to extend sincere thanks to them on behalf of all the NPB for their dedication and professionalism. First and foremost, however, it is grounded in the joint deliberations of the Board members who played an active part in writing it. Harking from diverse backgrounds, these members are economists and researchers who are currently working or have previously worked in academic centres or international organisations and who share their views here completely independently of the economic and political authorities. The NPB's work has been constructively informed by the extensive range of expertise covered by these specialists in macroeconomics, productivity, innovation, foreign trade, the labour market and business analysis.

This initial report aims at determining current knowledge on productivity in France and on the country's competitiveness in the context of the euro area. By doing so, certain points have been clarified, but a number of overlooked grey areas also emerge – sometimes casting doubt over questions or concepts that had been considered largely defined. Without addressing every single question, this report does, however, make it clear that productivity and competitiveness are two distinct concepts, with

very different implications, not least for a country forming part of a monetary union. Several of the points identified, and as yet unresolved, will be the focus of future deliberations led by the Board.

Philippe Martin

Chair of the National Productivity Board

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SUMMARY

Following a recommendation of the European Council in September 2016, all EU Member States sharing the euro must set up a National Productivity Board. These boards are in charge of analysing the developments and determinants of productivity and competitiveness within their respective countries, while taking into account the interactions with other Member States with the aim of improving economic policy coordination within the euro area. This first report clarifies some questions and clearly establishes that productivity and competitiveness are two different concepts with very different implications, in particular within the context of a monetary union. Productivity gains are the main source of growth in industrialised countries. Understanding the sources of its slowdown over the past twenty years is therefore a fundamental issue. This slowdown constitutes a puzzle which is not completely understood today, and which has given rise to a debate around the concept of "secular stagnation". If the low productivity gains scenario were to become persistent, it would imply a stagnation in purchasing power for most people as well as difficulties in financing the ecological transition and social protection for instance, in a context of growing ageing-related needs.

While the two concepts are sometimes confused, competitiveness raises a different set of questions than does productivity. Competitiveness takes on a particular dimension in a monetary union. It is defined here as a country's ability to balance its flows of resources with the rest of the world. Measured by the current account, this external balance depends largely on the ability to sell one's goods and services internationally, which in turn is mainly determined by cost-competitiveness and non-cost competitiveness (e.g. product quality). As opposed to productivity, competitiveness is necessarily defined relative to our partners. From an accounting point of view, a national current account surplus can only exist if partner countries are running a current account deficit. Unlike productivity improvements, an increase in competitiveness happens necessarily at the expense of other countries. Thus, productivity gains are a positive-sum game at the global level, whereas it is necessarily a zero-sum game for competitiveness.

Hence, the accumulation of current account surpluses cannot in itself be considered an economic policy objective. Still, monitoring the current account balance, the trade balance, and the evolution of market shares, remains legitimate. Indeed, accumulating external deficits over too many periods can eventually put at risk the external debt financing and take the form of a balance of payments crisis with a large fall in wages, consumption, investment and employment. External debt sustainability is particularly relevant within the euro area, as cost-competitiveness can no longer be rapidly restored through exchange rate movements between euro area partners and requires an adjustment in relative wages, which can be particularly painful from a social and economic point of view for deficit countries. The accumulation of current account surpluses is not risk-free either.

As far as productivity is concerned, all countries in the area, both individually and collectively, have an interest in its improvement because it is a guarantee of prosperity. With respect to competitiveness - particularly between euro area countries - the purely national dimension of determining labour costs is not sufficient. It must be part of a cooperative framework under which imbalances that could endanger the area as a whole are mutually monitored. Current rules have failed to correct the serious imbalances of current-account surplus countries, which have severely damaging consequences for all euro area countries.

This first report of the National Productivity Board (NPB) is organised in two parts. The first part presents a fairly broad overview of the factors, which may be common to OECD countries or specific to France, that can be behind the national productivity slowdown. In the second part, the report focuses on the link between the country's competitiveness and current account imbalances in the particular context of the euro area.

Specific factors have accentuated the productivity slowdown in France

Productivity is slowing down in developed countries...

Productivity measures a country's productive efficiency and can be evaluated either by estimating labour productivity, measured as value added per worker (or per hours worked), or by quantifying total factor productivity (TFP) which measures the combined efficiency of labour and capital. In this sense, TFP corresponds to the increase in production that cannot be attributed to the

increase in the quantity of production factors in use. France is a country with a high level of productivity, which is similar to that of Germany. However, both productivity measures have slowed down in France and in the OECD since the late 1990s. Some consider this slowdown as an indication of a persistent weakness in demand or of excess savings at the global level, while others view it as a simple slowdown in technological progress, which some consider to be only temporary. The common thread in these divergent positions is that the slowdown in productivity in France is mainly due to factors that are common to all developed countries.

First of all, the structure of production has shifted towards sectors with lower productivity levels, namely services as compared to industry. However, since the 2000s, it has rather been the productivity slowdown *within sectors* that has contributed to the overall slowdown.

Second, the contribution to growth of information and communication technologies (ICTs) has been weakening since the early 2000s. This is primarily due to the slowdown of progress within the ICT sector itself, but it also reflects the fact that gains from organisational changes brought by these new technologies, and the reallocation of activity towards firms that are best able to use them, have become less pronounced. It may well be the case that productivity will rebound as a result of new technologies such as artificial intelligence, quantum computing or the use of 3D chips, or as the gains associated to current ICTs, which may take some time to be fully exploited, ramp up.

Third, productivity dispersion between firms has increased at the same time as aggregate productivity has declined. Productivity growth has been weaker within industries displaying the largest divergences in productivity. This may reflect a poor allocation of resources between firms. A weakening of technological diffusion, which could be due to a growing difficulty in harnessing technological progress, may be part of the explanation for this increasing divergence.

Other factors might have played a role in the productivity slowdown but their relevance is still open to debate. For instance, the structural decline in interest rates may have contributed to the productivity slowdown by making less productive firms or investments more profitable than before. Likewise, the evolutions in the levels of market concentration and competition may have had an impact on productivity by reducing incentives to innovate or invest.

The productivity slowdown that has been observed in France is thus primarily the result of several factors that are common to advanced economies. Still, there exist additional factors that are more specific to our country.

... but some specific characteristics may explain a more pronounced slowdown in France

First, we emphasise the fact that the skills of the French workforce are below the OECD average and that there is hardly any sign of improvement. This is particularly problematic given the growing requirements related to technological change. The French education system is characterised by a greater skills gap between people from different social backgrounds relative to other countries. Adult skills are lower than the average of the countries participating in the OECD surveys. In addition, those skills appear to decline over the working life, in particular due to a lack of lifelong learning opportunities which is particularly prevalent among the most vulnerable employees. France also lags behind other countries in terms of soft skills.

Additionally, France exhibits a significant mismatch between workers' skills and those required for their jobs. Surveys on the quality of management and organisational practices within firms also show an average score for France in this area. In particular, the *World Management Survey* suggests that French firms are relatively less efficient on the "human" dimensions of management as opposed to the production techniques.

Second, the French production system may have some characteristics that are likely to hinder productivity. In France, the gap between firms at the technological frontier and the rest is more pronounced for low skilled services that are not exposed to international competition. Besides, the productivity level of the most efficient firms in low skilled services in France is lower than that of the best performing countries while this is not the case in the manufacturing sector and in skilled services.

Furthermore, French firms are lagging behind in ICT adoption and diffusion, which could, in particular, be explained by these very deficiencies in management quality and professional skills. Additionally, a stronger rigidity in the labour market may also be a contributing factor, as well as the greater prevalence of regulatory barriers in the product market. These barriers, by limiting competitive pressure, might reduce the incentives for mobilising the best performing technologies, and for investing.

More generally, the French performance in terms of innovation appears to be significantly lower than that of the main leading European countries. A possible explanation could be that domestic expenditure on R&D is lower than the Lisbon Strategy objectives. In particular, this shortfall comes from weak private investment, which in turn mainly stems from a structure of production that is relatively less

oriented towards industry compared to our partners. The efficiency of France's expenditure on R&D is being questioned, and some discussions have pointed in particular the lack of interactions between public and private research.

Finally, other idiosyncratic factors could also contribute to explain the French specificities, although their consequences have not yet been clearly identified.

Employment protection could constrain firms' ability to adapt to technological renewal, but it could in turn foster worker productivity and firms' investment in human capital. Higher taxes on production might have also weighed on productivity growth. Finally, French multinationals' decision to locate their production facilities abroad could undermine the productivity gains measured on the national territory. These issues will be assessed in future work by the National Productivity Board.

The current account deficit in France points to a competitiveness problem but more generally reflects a deficiency in adjustment mechanisms within the euro area.

French competitiveness, as measured by the current account, has worsened in the early 2000s

Productivity is often confused with competitiveness. In this sense, a productivity slowdown would then explain why France's trade performance is relatively poor. Yet this equivalence is of limited relevance. All other things being equal, it is true that productivity improvements reduce unit costs of production and may then result in increased market shares. However, if production costs (e.g. wages) were to follow productivity gains (which should be the case in the long run), these gains would not necessarily translate into competitiveness gains through lower prices. Likewise, a country's trade "performance" depends on a variety of factors that go beyond productivity, such as sectoral specialisation or the level of domestic demand.

Competitiveness is assessed here mainly on the basis of the current account, i.e. the sum of trade flows in goods and services and income transfers between the country and the rest of the world. The current account balance is the result of multiple factors, and deficits or surpluses are not inherently "good" or "bad": an ageing society may benefit from accumulating assets, while a developing country may seek to finance some of its numerous profitable investment opportunities with a current deficit. In theory, the aim is thus to compare the current account balance with a certain "norm" that is dependent on all these factors. This is an exercise carried out in particular by international institutions, including the IMF in its assessment of

external balances. Thus, in the second part of the report, the macroeconomic situation in France is first assessed through the evolution of its current account and then by examining its determinants.

The French current account balance worsened in the early 2000s and then stabilised around a deficit of -1% of GDP after the crisis. Given that France is close to its potential output level, this deficit cannot be explained by its position in the business cycle. More generally, the IMF estimates that the current account balance norm for France was a surplus of 0.9% of GDP in 2017 while the realised balance was a deficit of 0.6%.

The French current account deficit may therefore be moderate, but hides a large trade deficit - which reflects a worsened trade balance in goods - partly offset by a surplus in primary income (net income from foreign investment). According to the CEPII¹, France distinguishes itself within the eurozone by the prominence of its multinationals, which has increased further after the crisis. The combination of the surplus in the primary income balance and the trade deficit suggests that France remains an attractive location for activities related to innovation and design, while its competitiveness as a location for manufacturing has worsened. In this sense, its modest current account deficit hides a competitiveness deficit as a manufacturing location for tradable goods. This could not only generate fewer employment opportunities within the country, but could also hinder productivity growth if it led to a loss of technological control over the key stages of production.

The worsening trade balance in France can no longer be attributed to differences in production costs with respect to other European countries

A comparison of French trade dynamics with European and global trends allows for a better understanding of its trade balance deficit and its deterioration. French market shares for tradable goods have sharply declined since the early 2000s, at a rate above 2% per year until 2016, while they were stable in Germany and Spain. Yet France's sectoral specialisation actually contributed positively to the change in market shares, while the geographical breakdown of its export markets is similar to the major euro area countries. Therefore, the downward trend in its market shares can be attributed to the lower growth in "market by market" exports (defined at the country-product level).

¹ Emlinger C., Jean S. and Vicard V. (2019), « [L'étonnante atonie des exportations françaises](#) », *La Lettre du Cepii*, January.

Although France's price-competitiveness deteriorated with respect to OECD countries between 2000 and 2010, it is mainly "non-price" competitiveness that accounts for the difference between France's performance and its euro area partners'. Cost-competitiveness, as measured by unit labour costs (ULC), has worsened before the crisis. Along with a stable trend in price-competitiveness, this may have produced a sizeable effort on operating margins, which in turn may have adversely affected non-price competitiveness after the crisis. Still, the weakening of French trade "performance" can hardly be accounted for by the difference in production costs between France and its neighbours. Indeed, in comparison to the euro area, capital or intermediate consumption costs are not particularly high in France. In the early 2000s, Germany has been the outlier in terms of labour costs among the main Eurozone countries with a unique stabilisation of nominal ULC in non-tradable sectors. Lastly, compared to other European countries, France features high taxes on production, some of which reduce both productivity and competitiveness through a cascade effect along the production chain.

The euro area current account surplus reflects a persistent demand deficit within the monetary union

The trajectory of the French current account, and more broadly the development of a current account surplus in the euro area after the crisis, could also be the result of changes in savings and investment behaviour of economic actors which mirror the relative price and cost developments between the economies of the area. Indeed, the accounting counterpart of a current account deficit is an investment surplus over national savings. In France, this surplus appeared in an increased public deficit and higher corporate investment before the crisis; while the current account balance stabilisation post-crisis is due to a reduction in the public deficit in tandem with private disinvestment. In Germany, low wage growth in the 2000s translated into improved competitiveness and contributed to a current account surplus. At the same time, the peripheral countries were on an opposite trend, with sharp increases in demand from the private or public sector. This contrasted situation produced a balanced current account at the level of the euro area with important imbalances between countries. The crisis and the sudden stop in the financing of deficit countries forced a sharp adjustment within these economies, while Germany maintained a tight fiscal policy without sufficiently adjusting wages, prices, and its current account surplus. This adjustment asymmetry has led to an excessively low demand within the area (in particular, non-financial firms' net savings appear to be relatively high compared to their pre-crisis level), an increase in its surplus and a deflationary pressure. The latter has pushed the European Central

Bank to implement a highly expansionary monetary policy, with a depreciation of the euro, which in turn reinforces the area's current account surpluses vis-à-vis the rest of the world.

In contrast to the French case, the IMF considers the 3.5% euro area current account balance in 2017 to be above its "norm", which is estimated at 1.5% of GDP. This current account surplus hides larger imbalances, particularly Germany's surplus of 7.3% of GDP (in 2018), which are a problematic issue in a monetary union. Given that adjustments of imbalances within the euro zone can no longer be achieved through nominal exchange rates, they must be achieved either through decreases in prices and wages in countries in deficit or close to balance, or through increases in prices and wages in large surplus countries. The aggregate imbalance of the euro area is due to the fact that the adjustment has almost entirely happened through the first mechanism. Existing studies suggest that a gap of 2 percentage points in inflation rates between Germany and the rest of the euro area would be required in order to rebalance current accounts over a 10-year horizon. This requires higher inflation in surplus countries, which in practice amounts to a real appreciation in these economies. It constitutes the normal adjustment mechanism that economic policies are not supposed to thwart. On the contrary, it is important that economic policies support this adjustment mechanism. This is an argument that also emphasizes the relevance of a more expansionary fiscal policy for countries with surpluses and fiscal space. This would contribute to a rebalancing of savings and investment, as well as relative prices within the Eurozone. It would also help in reducing unemployment in the euro area countries where it is still high, without this decline (which must involve a mix of structural reforms and increasing demand) resulting in a return to current account deficits in these countries. In addition, it would help with the normalisation of the ECB's monetary policy, which is currently overburdened, and would lead to an appreciation of the euro, which in turn would contribute to a reduction of the current account surplus vis-à-vis the rest of the world. More broadly, the dramatic adjustments that occurred after the crisis due to the mismanaged imbalances have shown the need for a thoughtful consideration of the required mechanisms to put in place in order to reduce those imbalances. We consider that the very integrity of the euro area is at stake.

INTRODUCTION

Following the Five Presidents' Report published in June 2015¹ and pursuant to the Council Recommendation of 20 September 2016², the Member States of the euro area committed to setting up a National Productivity Board. The purpose of setting up these independent boards is to improve economic policy coordination within the euro area. To that end, national boards are in charge of analysing the developments and determinants of productivity and competitiveness within their respective countries, while taking into account the interactions with other Member States.

As the economist Paul Krugman points out, “productivity isn’t everything, but in the long run it is almost everything. A country’s ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker”³. The slowdown in productivity that has dogged economies in industrialised countries, including France, for more than two decades is a challenge because rising productivity is the main source of growth in our developed economies. Indeed, in industrialised countries, growth is achieved primarily through more efficient use of their natural, human, financial and technological resources. Such a slowdown is also somewhat puzzling given that we are currently going through a technology shock of significant proportions with the digital economy revolution, and this has sparked an ongoing debate around the concept of “secular stagnation” which could affect our economies. For some, Robert J. Gordon⁴ among them, technological progress and productivity growth are purportedly returning to their historical low norm. Others⁵,

¹ Juncker J. C., Tusk D., Dijsselbloem J., Draghi M. and Schulz M. (2015), *Completing Europe’s Economic and Monetary Union*, Brussels, The Five Presidents’ Report, vol. 22.

² <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C:2016:349:FULL&from=EN>.

³ Krugman P. (1994), *The Age of Diminishing Expectations: US Economic Policy in the 1990s*, Cambridge, The MIT Press.

⁴ Gordon R. J. (2014), “[The turtle’s progress: Secular stagnation meets the headwinds](#)”, in C. Teulings and R. Baldwin (eds), *Secular Stagnation: Facts, Causes, and Cures*, A VoxEU.org eBook.

⁵ Bloom N., Jones C. I., Van Reenen J., and Webb M. (2017), “[Are ideas getting harder to find?](#)”, *NBER Working Paper*, no. 23782, September.

meanwhile, argue that it is becoming increasingly difficult to break new ground and find new ideas, and this explains the decline in productivity.

With society facing new long-term challenges such as climate change, population ageing and changes in the workplace, more resources are necessary for dealing with these, otherwise our standard of living may fall. Accordingly, the sustainability of France's old-age pension system amid an ageing population is largely dependent upon our ability to increase the level of wealth generated per capita to finance the growing need for funds – as shown by the work accomplished by the Pensions Advisory Council (COR). By the same token, setting energy transition in motion calls for significant investment to bring about a meaningful shift in production and consumption systems. To ensure that these investments are not undertaken at the expense of individuals' standards of living, growth must give rise to new resources for financing them. These are just two examples of the importance for the national community of sustained growth and, consequently, of the need to drive productivity forward.

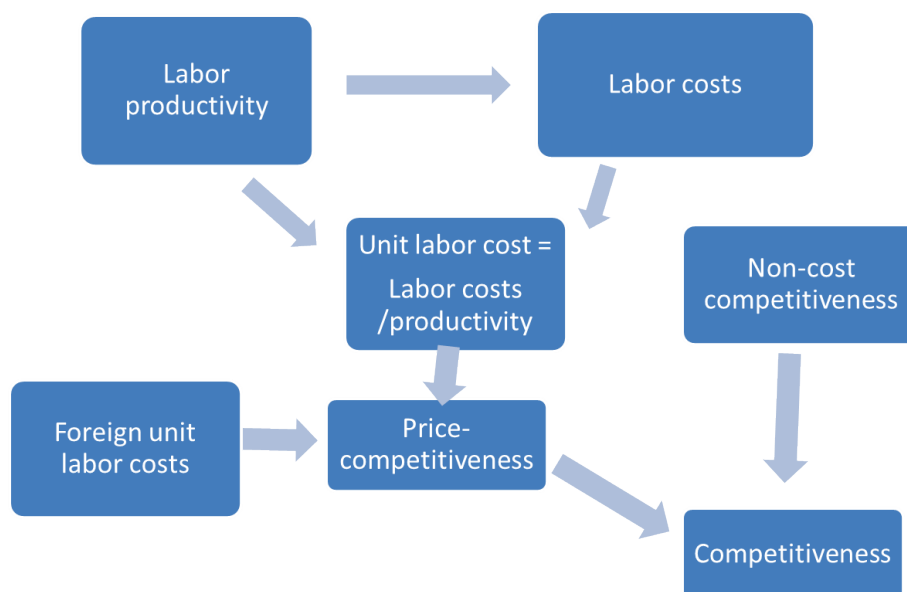
If the low productivity gains scenario were to become persistent, it would imply a stagnation in purchasing power for most people, as well as difficulties in financing social protection especially, at a time of growing ageing-related needs. The consequence would be a heavier tax burden which, in turn, could put a squeeze on purchasing power and further hamper productivity growth. The scope for investing in energy transition and human capital would be reduced, making addressing the key collective challenges even more difficult.

In a scenario where productivity gains pick up again globally, on the back of a fresh wave of technological innovations, the challenge for France would be not to fall behind as it did during the first uptick in productivity gains associated with digital technology in the 1990s and 2000s. Although, in global terms, the country still has some of the highest levels of productivity comparatively, history has taught us that no position can be taken for granted. Take Argentina for example. At the turn of the 20th century, the country's productivity ranked among the highest levels, on a par with the United States. Fast forward a century, however, and its productivity is now more than 60% below the latter, which also explains why the population's standard of living is less than one-quarter of Americans'.

In some economic debates, the terms productivity and competitiveness are used interchangeably. This will not be the case in this report. Productivity is defined (though not always measured) in a precise manner, while the definition of competitiveness lacks such precision, and this is compounded by the mistaken

analogy sometimes drawn between businesses and countries. Here, we will define this term as a country's ability to balance its flows of resources with the rest of the world, and so avoid depending on external funding, which is by nature volatile. A country that is heavily dependent on foreign capital to finance its growth, and therefore its standard of living, may plunge head-first into a serious economic and social crisis in the case where external funding dried up on account of mistrust in the economic policy being conducted or excessive pile-up of debts for example. Measured by the current account, this external balance of resource flows depends largely on the ability to sell one's goods and services internationally. We measure it primarily by the export market share and the import penetration rates on the domestic market. Competitiveness in terms of trade in goods and services is itself mainly determined by what international trade economists call cost-competitiveness and non-cost competitiveness¹ (e.g. product quality). The former can be measured by unit labour costs relative to trading partners. This is where the connection (though not the equivalence) between competitiveness and productivity comes in. For the unit labour cost represents the ratio of labour cost to labour productivity. At a given foreign unit cost, an increase in labour productivity leads to an increase in competitiveness if labour costs climb at a slower rate than productivity. The diagram below illustrates the links between labour productivity, labour costs (national and foreign) and competitiveness.

¹ Non-cost competitiveness encompasses all the characteristics of goods and services, apart from their price, which differentiate them from the competition to justify purchasing behaviour. This might be their quality, more innovative, robust or sophisticated character, associated brand image, quality of before- and after-sales services or how quickly the good or service can be made available for instance.



Productivity growth may be regarded as a legitimate economic policy objective. The competitiveness objective is not as clear-cut, as a current account surplus is not synonymous with growth or employment and competitiveness is always relative to other countries: by construction, unit labour costs only lead to improved competitiveness if they fall in comparison with other countries, according to the trading terms. From an accounting point of view, a national current account surplus can only exist if partner countries are running a current account deficit. However, there is no reason why a domestic increase in productivity should happen at the expense of other countries. On the other hand, in a domino effect, foreign productivity gains can be passed on to partners. Productivity gains are not a zero-sum game at global level, whereas this is necessarily the case for competitiveness. Moreover, if the real labour costs grow at a weaker pace than productivity over the long term, then the gain in competitiveness, to the detriment of other countries, would entail a reduction in the labour share of gross domestic product (GDP). The repercussions in this case might be inadequate investment in human capital, which would adversely affect national growth with a circular relationship setting in between the slowdown in labour productivity and a reduction in the labour share of GDP (Grossman *et al.*, 2017a and b¹).

¹ Grossman G. M., Helpman E., Oberfield E. and Sampson T. A. (2017a), “Balanced growth despite Uzawa”, *American Economic Review*, 107(4), April, p. 1293-1312 ; Grossman G. M., Helpman E., Oberfield E. and Sampson T. A. (2017b), “The productivity slowdown and the declining labor share: A neoclassical exploration”, *NBER Working Paper*, no. 23853, September.

Although the accumulation of current account surpluses cannot in itself be considered an economic policy objective, monitoring the current account balance, the goods and services balance and the evolution of market shares remains legitimate. Ultimately, a country which becomes less competitive than other countries and builds up current account deficits is obliged to sink further into debt compared with the rest of the world. As a certain number of countries found out the hard way during the euro area crisis, accumulating external deficits over too many periods can eventually put at risk the external debt financing and take the form of a balance of payments crisis with a sharp slump in wages, consumption, investment and employment. External debt sustainability is particularly relevant within the euro area, as cost competitiveness can no longer be rapidly restored through exchange rate movements between euro area partners, requiring instead an adjustment in relative wages. As was observed during the euro area crisis, this can be particularly painful from a social and economic point of view, since it comes hand-in-hand with a steep rise in unemployment. Declining competitiveness which leads to increased external debt levels may also end up casting doubt over the country's membership of the euro area. But because competitiveness always rises relative to other countries – unlike productivity – we consider that the objectives of productivity and competitiveness are not the same, especially within the euro area. As far as productivity is concerned, all countries in the area, both individually and collectively, have an interest in its improvement because it is a guarantee of prosperity. With respect to competitiveness – particularly between euro area countries – we do not consider the purely national dimension of determining labour costs to be sufficient. It must be part of a cooperative framework under which imbalances that could endanger the area as a whole are mutually monitored. This is partly the case already with the procedure for monitoring excessive imbalances, which calls for close scrutiny over the variables directly associated with competitiveness¹, but current rules have failed to correct the serious imbalances of current-account surplus countries. These major and persisting imbalances have severely damaging consequences for all euro area countries. This is because, as regards the rest of the world, when competitiveness increases and, with it, the goods and services balance, the euro exchange rate performs its balancing role if this improvement is common to the majority of euro area countries. But if it is specific to a subset of euro area countries, an improvement in market shares within countries outside the euro area is likely to take place to the detriment of the other countries in

¹ The imbalance criteria adopted for euro area countries include: current account imbalance with respective thresholds of +6 % and -4 % of the GDP, a five-year reduction in export market share of -6%, a three-year increase in unit labour costs of +9% and a variation in the real effective exchange rate of -/+5%.

the area, via an appreciation of the euro. What is more, even if the euro does not appreciate enough to balance the current account of the euro area in its entirety, the accumulation of current account surpluses may translate into aggressive trade policy countermeasures on the part of third countries. Since trade policy is common to European Union (EU) countries, protectionist measures taken by a third country in a bid to correct an excessive bilateral deficit (measures which, incidentally, we know are ineffective at correcting a deficit) would not bode well for any EU country – even one in a situation of current account deficit. For these and other reasons, imbalances owing to excessive surpluses must be subject to mutual monitoring and determined action to correct them.

In this first report by the National Productivity Board (NPB), we begin, in Part One, by presenting a fairly broad overview of the trends in France's productivity and the possible factors, which may be common to OECD countries or specific to France, behind the national productivity slowdown. We draw the conclusion that a particularly worrying dimension specific to France concerns skills. In Part Two, the report focuses on the link between the country's competitiveness and current account imbalances in the particular context of the euro area. To make the connection between productivity and competitiveness, in Part Two the report also delves into the changes in input costs (labour and capital) and analyses the growth in unit labour costs. We underscore that these imbalances and divergences in competitiveness take on a particular dimension in the euro area because they can eventually call into question the very integrity and sustainability of the monetary union.

The aim of this initial report is therefore to provide a general overview without getting into the details of a particular question. The NPB then hopes to launch more specific studies on a number of key points that we consider merit further analysis or clarification. It is also our ambition to establish dialogue with our European partners (the other NPBs), our social partners in France and the other stakeholders alike. Whilst it is not our place to reach compromises or iron out potential disagreements, we believe that it is crucial to share the points that form part of an assessment on such questions.

PART ONE

**THE PRODUCTIVITY SLOWDOWN
IN FRANCE
AND THE OECD COUNTRIES**

CHAPTER 1

DEFINITION AND FINDINGS

1. Definitions

There are two main productivity measures. On the one hand, **labour productivity** reflects how efficiently labour combines with other factors of production, the volume of these other inputs available per worker and the speed of embodied and disembodied technical change. At the macroeconomic level, it corresponds to the ratio of GDP to the quantity of labour mobilised, defined either in number of hours worked, number of jobs or full time equivalent jobs. On the other hand, **multifactor productivity** (MFP) measures the combined efficiency of labour and capital. It reflects the influence of technical progress, labour organisation, improvements in know-how and stock of knowledge. Growth in MFP reflects the increase in production that is not explained by the increase in quantities of labour and physical capital used. As such, it is more difficult to measure and can differ depending on the methods used – for it is complicated to measure capital, especially intangible assets, with any precision. Care should therefore be taken when considering MFP, not least in international comparisons and when interpreting data.

Productivity measurement is also under debate. According to Byrne *et al.*¹, mismeasurement of information and communication technologies (ICTs) has been observed, with implications for measuring economic growth. Such bias stems from the difficulty posed by taking changes in investment and production prices in the ICT sector into account, as these happen much more quickly than the price changes observed in the rest of the economy. Although such mismeasurement of prices in this sector has little effect on labour productivity trends, correcting this bias leads to part of the MFP gains being reallocated to the high-tech sector, reflecting a higher pace of

¹ Byrne D., Oliner S. D. and Sichel D. E. (2017), “Prices of high-tech products, mismeasurement, and the pace of innovation”, *Business Economics*, 52-2, pp 103-113, April.

innovation than implied by official measures. With respect to French and US data, Aghion *et al.*¹ argue that, in sectors where new innovation-driven products replace older ones, statistical offices cannot correctly assess how much of the increase in product price is due to inflation versus real productivity growth. Standard procedure in such cases is to apply to new products or varieties produced by new businesses the same quality-adjusted inflation rate as is applied to other products in the sector. These authors claim that the error associated with this inflation calculation practice has reportedly led to productivity growth being underestimated by almost a third in France between 2006 and 2013². That said, despite the major problems encountered in measuring GDP, price indices and therefore productivity, the consensus at present rules out a measurement problem as an explanation for the productivity slowdown since this does not seem to have got worse over the last two decades³.

2. Productivity is slowing down in France and the OECD countries

2.1. In France, productivity levels are relatively high...

From the end of World War II until the mid 1990s, in a similar fashion to most of the other European economies, France went through a catch-up period characterised by high productivity growth rates, whether in terms of labour productivity based on hours worked or multifactor productivity. By the late 1980s, labour productivity rates based on hours worked, which were only half the levels in the United States in 1950, had already caught up relative to American rates⁴ (see Figures 1 and 2).

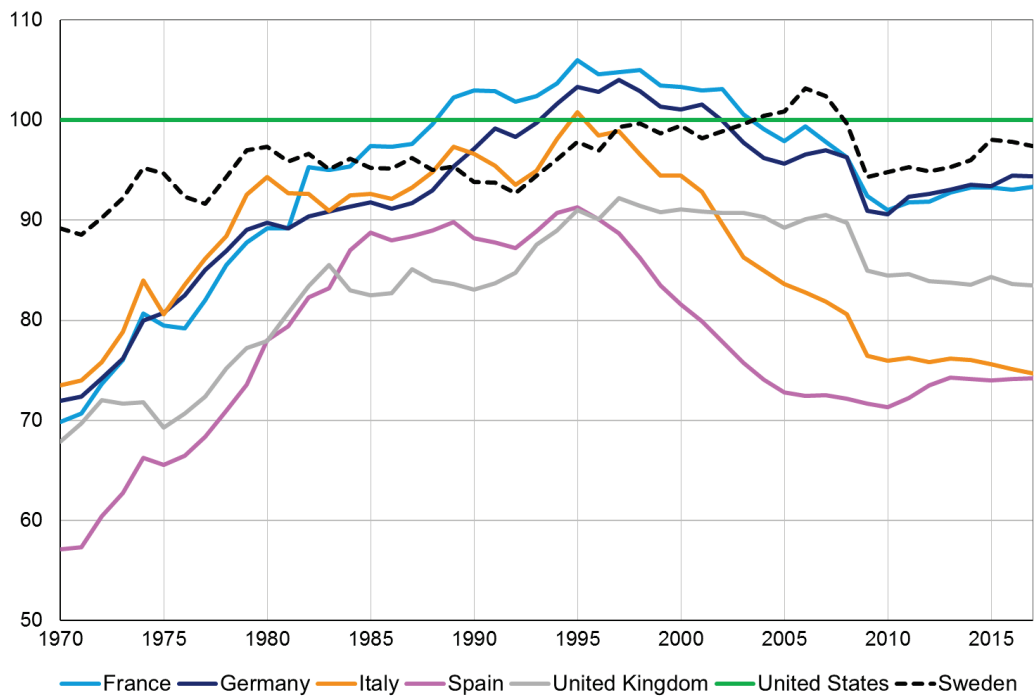
¹ Aghion P., Bergeaud A., Boppart T. and Bunel S. (2018), "Firm dynamics and growth measurement in France", *Journal of the European Economic Association*, 16(4), pp 933-956, August.

² Moulton B. R. (2018), *The measurement of output, prices, and productivity: What's changed since the Boskin Commission?*, The Brookings Institution, July.

³ Sichel D. (2019), "Productivity measurement: racing to keep up", *NBER Working Paper*, no. 25558, February.

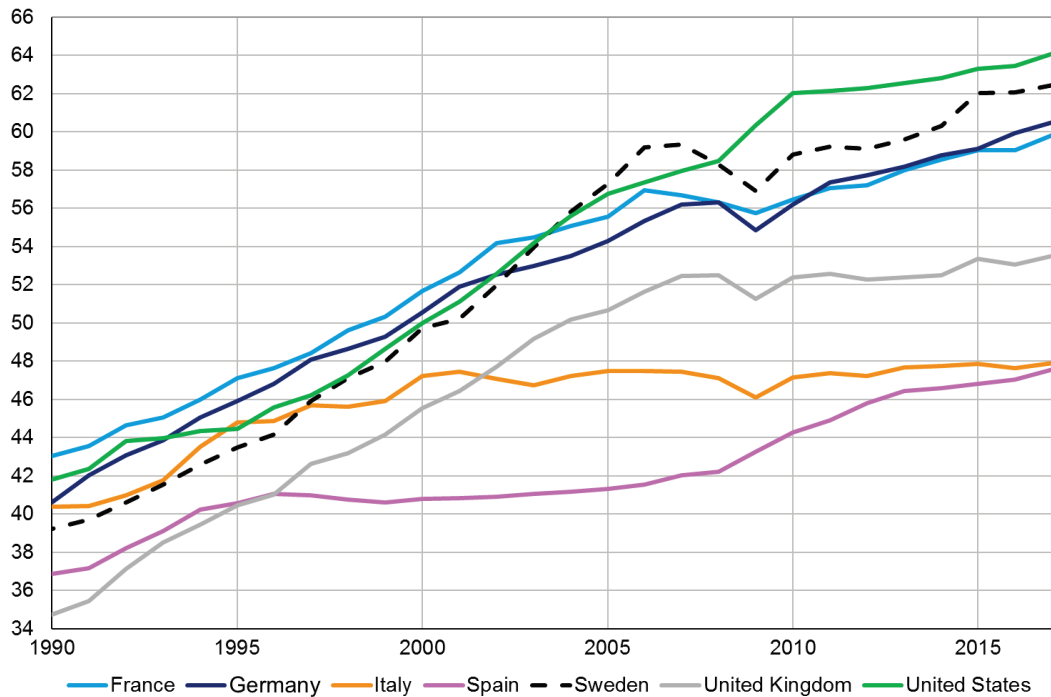
⁴ Productivity levels are not fully comparable owing to quite significant composition effects (lower employment rates among youth, older workers and unskilled workers in France compared with the United States; lower average number of hours worked in France).

Figure 1 – Labour productivity per hour worked within the main OECD countries, 1970-2017



Source: OECD; GDP, constant prices (\$ PPP 2010) / hours worked; United States = 100

Figure 2 – Labour productivity per hour worked within the main Euro area countries, 1990-2017, in \$ PPP 2010



Source: OECD; GDP, constant prices (\$ PPP 2010) / hours worked

Box – Employment rates and gaps in productivity based on hours worked

Composition effects may help to explain the differences in productivity levels based on hours worked between countries. In particular, **the under-representation of low-skilled workers in employment is sometimes cited as a reason for France’s high productivity levels based on hours worked.** Compared with countries like Germany, the US or the UK for example, France not only has a higher unemployment rate (9.7% in 2017¹ versus 3.7% for Germany, 4.4% for the US and 4.3% for the UK²) but also a lower employment rate among 15-64 year olds (65.2% in 2017³ as opposed to 75.6% for Germany, 70.4% for the US and 74.4% for the UK⁴). Since unemployed or inactive individuals are likely to be less productive on average than individuals in employment, their de facto exclusion could partly explain the productivity gaps between countries.

In an econometric survey on 22 OECD countries, Bourlès, Cette and Cozarenco (2012)⁵ estimate that a 1 percentage point rise in the employment rate reduces labour productivity by 0.5%. This means that, were France to align with the employment rate of the euro area, labour productivity would fall by 0.8% (by 3.0% and 5.3% respectively if France drew level with the employment rate of the G7 or Germany). A more accounting-based method, taken by the Directorate General of the Treasury, confirms this order of magnitude. Indeed, by assessing the productivity of unemployed or inactive individuals from the point of view of their level of attainment, it can be estimated that, were France’s unemployment rate to fall by 5 points⁶, productivity would dip by 0.5%, and that, were France’s employment rate to rise by 10 points⁷, productivity would drop by around 2%. Note that GDP per capita would increase in all scenarios. Even in the very pessimistic scenario where the productivity of newcomers would be zero, such productivity losses would grow to 5% and 13% respectively, which would only partially explain the more than 20% gap between France and the UK for example.

¹ Annual average for the whole of France.

² Source: International Labour Office.

³ 70.6% in 2017 for 20-64 year olds, the whole of France excluding Mayotte, according to data from the Employment survey.

⁴ Source: OECD.

⁵ Bourlès R., Cette G. and Cozarenco A. (2012), "Employment and productivity: Disentangling employment structure and qualification effects", *International Productivity Monitor*, no. 23, pp 44-54.

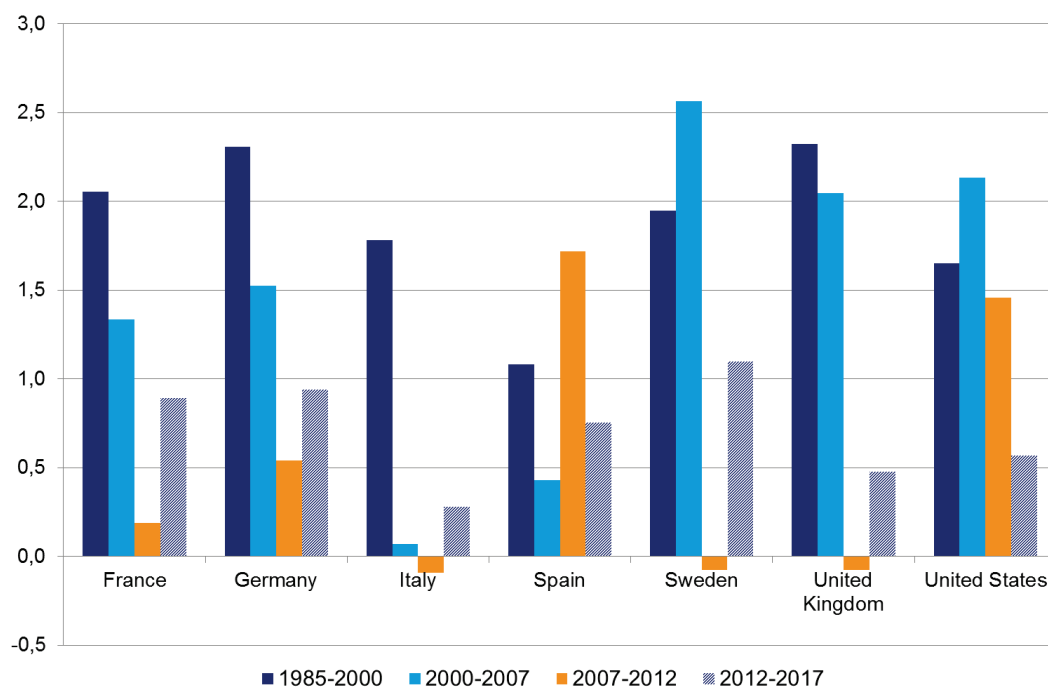
⁶ So to similar levels as those observed in Germany, the US or the UK.

⁷ So to similar levels as those observed in Germany or the UK.

2.2. ...but productivity gains have fallen sharply since the late 1990s

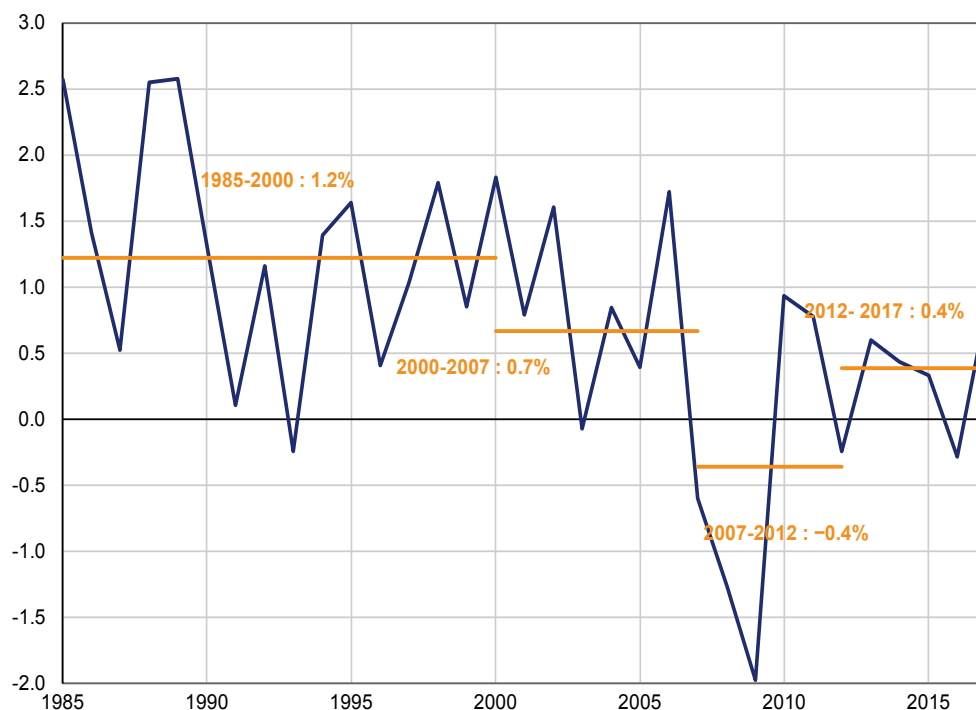
Since the late 1990s, most of Europe's economies, France included, have had to contend with a pronounced slowdown in labour productivity growth (see Figure 3). Three downturns can be observed in labour productivity trends based on hours worked: in the mid 1990s, at the turn of the new millennium and during the crisis, in 2008 – more or less at the same dates as the two downturns identified as regards multifactor productivity.

Figure 3 – Growth in labour productivity per hour worked



Source: OECD; average annual growth rate in GDP, constant prices (\$ PPP 2010) / hours worked

Figure 4 – Growth in multifactor productivity in France, 1985-2017



Source: OECD, NPB calculations (the average annual growth rates over the periods 1985-2000, 2000-2007, 2007-2012 and 2012-2017 are shown in orange)

An initial downturn in productivity based on hours worked and multifactor productivity is observed **at the beginning of the 1980s** across many developed countries¹. This can be explained by various factors including the second oil crisis of the late 1970s and the return to a long-term trend following the catch-up of the post-war period².

In the mid 1990s, a second downturn in labour productivity based on hours worked can be observed in several countries, with the exception of the US (see Figure 3), where productivity posted a decade-long recovery from the mid 1990s aided by the development of information and communication technologies (ICTs)³. Apart from in Sweden and Finland, the upturn in productivity was less marked for Europe's

¹ Bergeaud A., Cette G. and Lecat R. (2016), "Productivity trends from 1890 to 2012 in advanced countries", *The Review of Income and Wealth*, 62(3), pp 420-444.

² Fischer S. (1988), "Symposium on the slowdown in productivity growth", *Journal of Economic Perspectives*, 2(4), pp 3-7.

³ Stiroh K. J. (2002), "Information technology and the U.S. productivity revival: What do the industry data say?", *American Economic Review*, 92(5), December, pp 1559-1576.

economies than for the US over the 1995-2005 period, and they have not yet managed to close this gap with the US¹.

A third downturn in productivity based on hours worked and multifactor productivity is observed **in the early 2000s** across almost all developed countries, including the US. There are several explanations for this slowdown.

When observing long-term trends, it is important to bear in mind that productivity is also affected by cyclical developments in growth, as demonstrated by the trough on Figure 4, from 2007 to 2012 in France.

Several international studies have examined the slowdown in productivity against a backdrop of a risk of secular stagnation². Reintroduced by Summers in 2013³, this concept refers to the risk of a prolonged period of low demand. It has been rounded off by supply factors, not least the decline in investment, reportedly due to the decline in productivity gains amongst other things. Regarding the causes behind the decline, Gordon⁴ considers the fact that the great education waves have run their course in advanced economies, dragging long-term productivity growth down. Other authors, such as Brynjolfsson and McAfee⁵, Pratt⁶ or Brynjolfsson, Rock and Syverson⁷, maintain that this slowdown is temporary and that productivity growth should pick up as the digital revolution forges ahead.

Below, we will be examining the various factors common to all advanced economies.

¹ Van Ark B., O'Mahoney M., and Timmer M. P. (2008), "The productivity gap between Europe and the United States: Trends and causes", *Journal of Economic Perspectives*, 22(1), pp 25-44.

² Jaubertie A. and Shimi L. (2016), "Où en est le débat sur la stagnation séculaire ?" *Trésor Eco*, no. 182, October.

³ Summers L. H. (2013), "IMF Fourteenth Annual Research Conference in honor of Stanley Fischer", Larry Summers' Blog, 8 November.

⁴ Gordon R. (2012), "Is U.S. economic growth over? Faltering innovation confronts the six headwinds", *NBER Working Paper*, no. 18315, August.

⁵ Brynjolfsson E. and McAfee A. (2014), *The Second Machine Age – Work, progress, and prosperity in a time of brilliant technologies*, New York, W. W. Norton & Company.

⁶ Pratt G. A. (2015), "Is a Cambrian explosion coming from robotics?" *Journal of Economic Perspectives*, 29(3), pp 51-60.

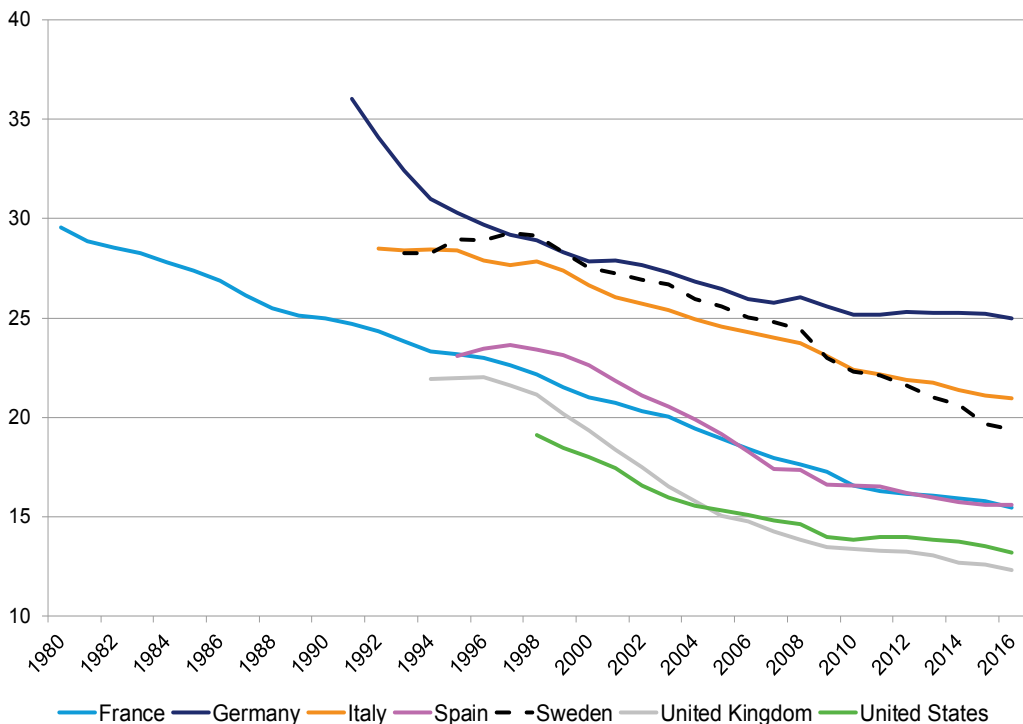
⁷ Brynjolfsson E. Rock D. and Syverson C. (2017), "Artificial intelligence and the modern productivity paradox: A clash of expectations and statistics", *NBER Working Paper*, no. 24001, November.

CHAPTER 2

EXPLANATORY FACTORS COMMON TO ALL DEVELOPED NATIONS

1. Sectors with low productivity gains are gaining ground in the economy

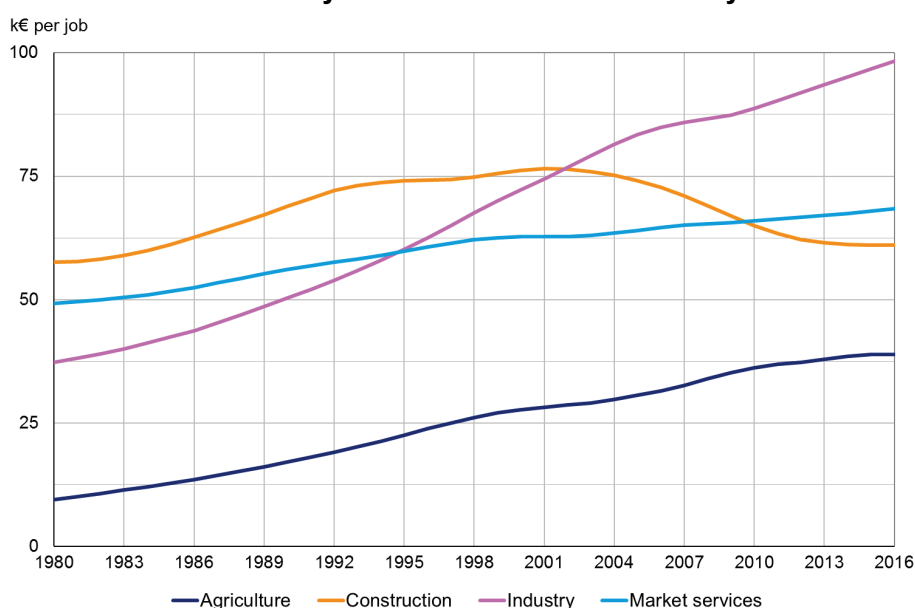
Figure 5 – Share of industry employment in total market economy, 1980-2016



Source: OECD (STAN database), NPB calculations, industry employment (B-E) in percentage of employment of market economy excluding real estate activities.

The "tertiarisation" of the economy adversely affects the growth in productivity gains as these are not as dynamic in the services sector as they are in industry (Figure 5). In France's case, the share of industry has fallen from 30% in 1980 to around 15% of market sector employment¹. On the other hand, the agricultural sector's decline from 12% in 1980 to 4.5% of market sector employment has had a positive effect on productivity gains. Since the early 2000s however, these structural effects have no longer been of much consequence given that shifts in employment shares between the main sectors have slowed considerably. Accordingly, since the turn of the new millennium, the main factor behind the fall in productivity gains has been the productivity slowdown within the French economy's most prominent sectors (see Figure 6 and Figure 7). The policy to bring down employers' social contributions on low wages in France, which has helped to ramp up growth in terms of employment, has automatically slowed labour productivity gains. By lowering the labour cost compared with the cost of capital, a substitution effect comes into play which increases the quantity of labour per unit produced. These reductions in employers' social contributions concentrated on low wages have also driven up employment in low-productivity sectors.

Figure 6 – France
Productivity in volume of market economy*



In volume at chained prices of the previous year

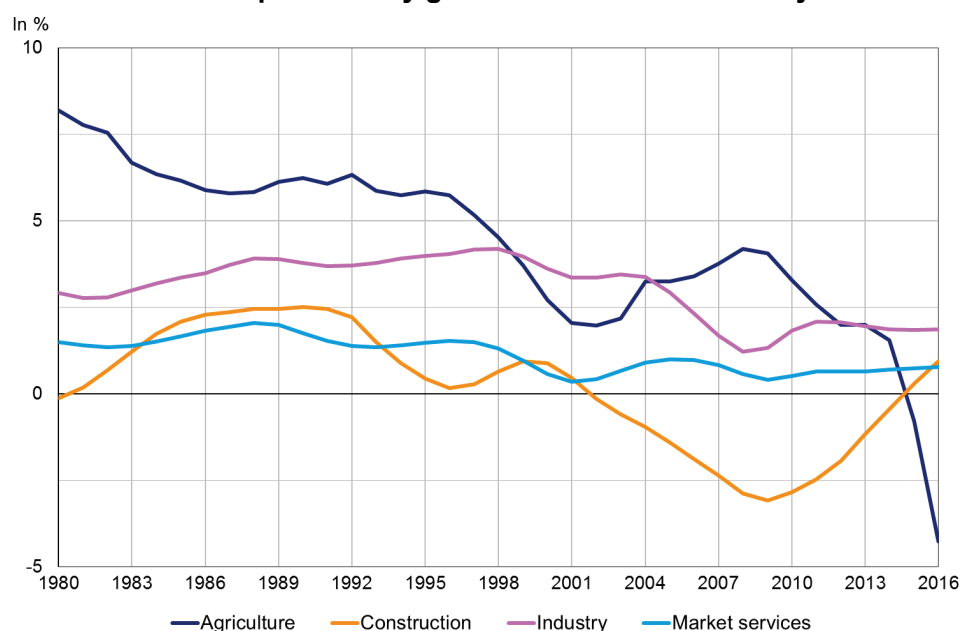
* Total market economy, excluding real estate activities.

Productivity per employee smoothed out by HP filter (lambda=6.25)

Source: Insee 2017 annual accounts – 2014 base

¹ Excluding real estate activities.

Figure 7 – France
Annual productivity gains in the market economy*



In volume at chained prices of the previous year

* Total market economy, excluding real estate activities.

Productivity per employee smoothed out by HP filter ($\lambda=6.25$)

Source: Insee 2017 annual accounts – 2014 base

2. Fall in the contribution ICTs are making to growth

Until the early 2000s, productivity gains in the US as well as other countries were strongly fuelled by the dissemination of information and communication technologies (ICTs) in the economy¹. This ICT dissemination effect has since stabilised, at highly disparate levels between countries, and is no longer making as strong a contribution to the growth in productivity gains².

It was between 1995 and 2004 that ICT contribution to the growth in labour productivity based on hours worked was most significant³. Over the next decade, this

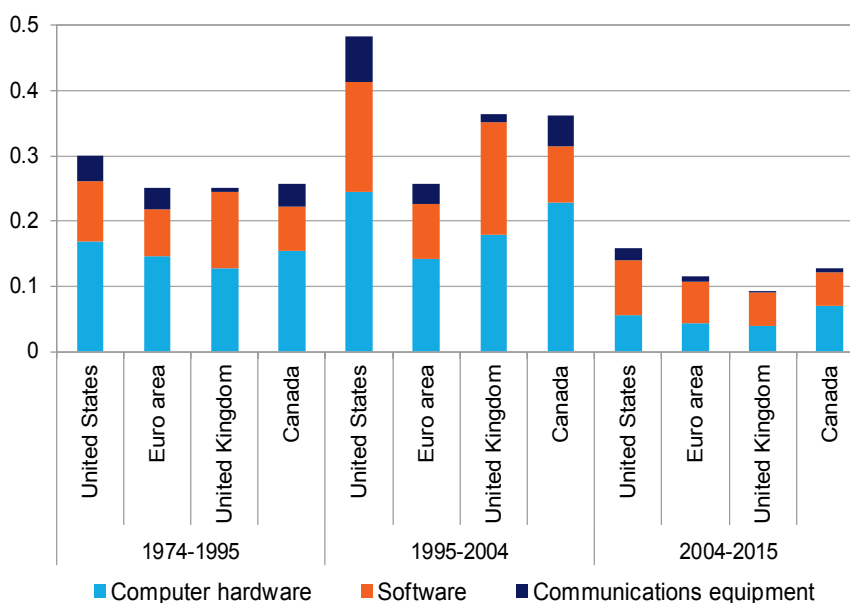
¹ Fernald J. (2014), "Productivity and potential output before, during, and after the great recession", *NBER Working Paper*, no. 20248, June.

² Cette G., Clerc C. and Bresson L. (2015), "Contribution of ICT diffusion to labour productivity growth: The United States, Canada, the Eurozone, and the United Kingdom, 1970-2013", *International Productivity Monitor*, Centre for the Study of Living Standards, vol. 28, pp 81-88.

³ Cette G. and Jullien de Pommerol O. (2018), "Dromadaire ou chameau ? À propos de la troisième révolution industrielle", *Futuribles*, no. 422, January-February, pp 5-17.

contribution dropped by 0.5 points as an annual average in the US, where its strongest contribution between 2004 and 2015 was 0.15. In the euro area, where ICTs did not weigh in so heavily, the average annual contribution fell by around 0.15 points between the two periods (see Figure 8 and Figure 9).

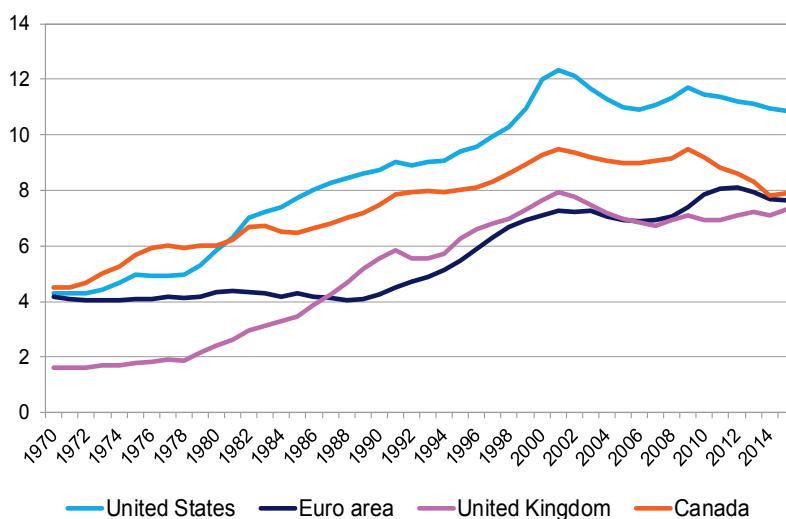
Figure 8 – France – ICT contribution to productivity growth



Contribution of ICT intensity to hourly labour productivity growth. Total economy, percentage points per year.

Source: Cette & Jullien de Pommerol (2018)

Figure 9 – Ratio of ICT capital stock to GDP



The ratio of ICT capital to GDP is defined as the value of ICT capital over nominal GDP.

Source: Cette and Jullien de Pommerol (2018)

The underlying causes for the dwindling dissemination of ICTs are manifold. Directly speaking, the sectors producing such technology have experienced a slowdown in productivity in connection with the decline in technological advances in components – chiefly semiconductors.

Indirectly, these productivity gains have flagged across all sectors that make use of these technologies. First of all because the gains resulting from the organisational changes which businesses were required to make when IT burst onto the scene (mainly via the internet) levelled off in the mid 2000s. ICTs are general-purpose technologies in that they facilitate the development and adoption of new technologies. Through the example of the valve manufacturing industries, Bartel, Ichniowski and Shaw (2007)¹ show that enhancing machinery with IT had made the industrial production process simpler and more flexible, enabled manufacturers to expand their production range to reach more markets and brought about new HR organisations where ICT skills were valued. Some sectors have gone through radical change. In retail, the broadscale roll-out of payment terminals has enabled businesses to increase their sales without having to allocate additional resources to auditing and accounting, and to considerably improve productivity by automating changes in their product prices.

Furthermore, as the productivity gains driven by ICT dissemination have waned, they have slowed the reallocation effects. Foster, Haltiwanger and Krizan (2006)², for example, establish that, in the 1990s, firms that were the most productive and capable of incorporating these technologies into their products continued to grow, while the least productive, and perhaps less intensive in ICTs, steadily left the market.

It is possible that, propelled by the digital revolution, productivity gains begin to gather pace again, either by the increase in performance gains they allow, or by their dissemination across a number of sectors. On the first point, studies seem to indicate that economies could soon be making huge performance gains, not least through the widespread roll-out of the 3D chip and then eventually the development

¹ Bartel A. P., Ichniowski C. and Shaw K. L. (2007), “How does information technology affect productivity? Plant-level comparisons of product innovation, process improvement, and worker skills”, *The Quarterly Journal of Economics*, Volume 122, Issue 4, November, pp 1721–1758.

² Foster L., Haltiwanger J. and Krizan C. J. (2006), “Market selection, reallocation, and restructuring in the U.S. retail trade sector in the 1990s”, *The Review of Economics and Statistics*, 88(4), pp 748-758.

of quantum computing¹, artificial intelligence² and driverless cars. On the second point, the broad consensus is that it takes several decades for a technological revolution to really shake up productive activity³. This means that ICTs' main impact on productivity gains and growth could still be to come. According to Van Ark (2016), the current lull in the productivity gains from the third industrial revolution could in fact be a period of transition between the creation and installation of new technologies and their full deployment. Judging by the previous technological revolutions, this deployment stage is likely to take time as it requires far-reaching changes not just in institutional terms but also in the production and management processes.

3. Are the decreasing interest rates a factor?

One explanation for the rise in productivity dispersion could be the downward trend in real interest rates to very low levels, which has not only proved a lifeline for low-productivity businesses, but also secures a return on low-performing investment projects. The fall in real interest rates since the 1980s could thus have stemmed the outflow of the least effective businesses (drop in the “cleansing effect”)⁴.

Several studies seem to give substance to this explanation in countries in southern Europe (Spain, Italy and Portugal in particular) and over a recent period⁵. In their analysis, Gopinath *et al.* (2017) suggest that there is no such relationship between access to funding and productivity in other countries the likes of Norway, Germany or France. However, Bergeaud, Cette and Lecat (2017) posit that the long-term

¹ Cette G. (2014), “Does ICT remain a powerful engine of growth?”, *Revue d'économie politique*, 124(4), July-August, pp 473-492; Cette G. (2015), “Which role for ICTs as a productivity driver over the last years and the next future?”, *Digiworld Economic Journal*, Communications & Strategies, no. 100, pp 65-83.

² Aghion P., Jones B. F. and Jones C. I. (2017), “[Artificial intelligence and economic growth](#)”, *NBER Working Paper*, no. 23928, October.

³ See, for example, Brynjolfsson E. and McAfee A. (2014), *The Second Machine Age – Work, progress, and prosperity in a time of brilliant technologies*, *op. cit.*; Van Ark B. (2016), “The productivity paradox of the new digital economy”, *International Productivity Monitor*, 31, pp 3-18; Branstetter L. and Sichel D. (2017), “[The case for an American Productivity Revival](#)”, *Policy Brief*, no. 17-26, Peterson Institute for International Economics, June.

⁴ Bergeaud A., Cette G. and Lecat R. (2017), “[Croissance de long terme et tendances de la productivité. Stagnation séculaire ou simple trou d'air ?](#)”, *Revue de l'OFCE*, vol. 153, no. 4, pp 43-62.

⁵ Reis R. (2013), “[The Portuguese slump and crash and the Euro crisis](#)”, *Brookings Papers on Economic Activity*, 46, spring, pp 143-193; Gopinath G., Kalemli-Ozcan S., Karabarbounis L. and Villegas-Sanchez C. (2017), “Capital allocation and productivity in South Europe”, *The Quarterly Journal of Economics*, 132(4), pp 1915-1967.

decrease in interest rates is one of the factors common to all advanced economies that could explain the productivity slowdown in evidence since the mid 1980s¹. Liu, Atif and Sufi (2019) agree by pointing out that lower interest rates could be an incentive for industry leaders to invest even more than the so-called “followers”, in order to cement their productive edge. The latter would then lose their motivation to invest, which would end up widening the productivity gap between leaders and followers and slowing average productivity growth².

Such a chain reaction could also work in the other direction, since weaker productivity gains and therefore weaker potential growth could bring down real interest rates³. Ultimately, a circular relationship could have unfolded, since low rates would beget a decline in productivity, which in turn would beget a decline in rates.

4. The links with trade, industrial and competition policy

Competition can have a positive influence over productivity and innovation, as it not only leads to better allocation of inputs in the economy and their more efficient use within businesses, but also encourages the latter to innovate to gain in performance and thus a competitive edge. In some cases, where competition is too fierce, it can undermine the profitability of innovations however – to the point of dissuading investment in the development of new products or services.

Economic studies corroborate this U-shaped relationship between productivity and innovation on the one hand and degree of competition on the other⁴. Recent debates on competition policy therefore beg the question of whether, particularly in Europe’s case, competition has gone too far – pushing us to “the wrong side of the curve”. A new paper by the Council of Economic Analysis (CAE)⁵, grounded in part on the

¹ Bergeaud A., Cette G. and Lecat R. (2017), “[Croissance de long terme et tendances de la productivité. Stagnation séculaire ou simple trou d’air ?](#)”, *op. cit.*

² Liu E., Mian A. and Sufi A. (2019), “[Low interest rates, market power, and productivity growth](#)”, *NBER Working Paper*, no. 25505, April.

³ Marx M., Mojon B. and Velde F. R. (2017), “[Why have interest rate fallen far below the return on capital](#)”, *Working Paper*, no. 630, *Banque de France*, June; Bean C. (2016), “Living with low for long”, *Economic Journal*, 126(592), pp 507-522.

⁴ Trésor-Éco (2009), “[Concurrence et gains de productivité : analyse sectorielle dans les pays de l’OCDE](#)”, no. 51, February.

⁵ Jean S., Perrot A. and Philippon T. (2019), “[Competition and trade: which policies for Europe?](#)”, *Les notes du Conseil d’analyse économique*, n° 51, mai.

research by German Gutierrez and Thomas Philippon¹, suggests otherwise. In the United States, this research shows that, when concentration increases owing to mergers, competition falls along with investment particularly by industry leaders in intangible assets.

In industries where competition is tougher in Europe, the same – or even slightly higher – levels of productivity can thus be observed compared with the US, which tends to invalidate the assumption that a stronger competition policy in Europe (antitrust, merger oversight and entry barriers) could have a negative effect on the productivity differential between the US and EU. Bassanini and Scarpetta (2002)² confirm that the existence of monopoly rents in certain sectors, made possible by tight regulation which acts as an entry barrier to competitors, may discourage investment since there is less incentive to innovate.

Disruptive innovations are seldom developed by established market players as the incentive to defend their business model – from which they currently derive their income – acts as a deterrent to the development of a new model which would jeopardise this income. This is why a public R&D support programme is usually the springboard behind radical, systemic innovations, which also often require a boost in terms of industrial policy to shape an emerging sector and enable it to meet demand. Some emerging countries have nevertheless turned unconditional, multifaceted support for their industry into a powerful development driver by distorting the competition. By protecting their domestic market from foreign competition and offering direct and indirect financial assistance, via reserved public procurement for example, these countries develop anti-competition policies that can harm the profitability and growth of foreign market leaders, in turn affecting their productivity and investment in innovation. Trade policy has a key role to play in this instance, in countering such policies that distort competition at the international level and in ensuring that businesses gaining an unfair advantage cannot contrive to oust the most productive and innovative businesses.

¹ Gutiérrez G. and Philippon T. (2018), “[How EU markets became more competitive than US markets: A study of institutional drift](#)”, *NBER Working Paper*, no. 24700, June; Gutiérrez G. and Philippon T. (2017), “[Declining competition and investment in the U.S.](#)”, *NBER Working Paper*, no. 23583, July.

² Bassanini A. and Scarpetta, S. (2002), “Does human capital matter for growth in OECD countries? A pooled mean-group approach” *Economics Letters*, vol. 74, issue 3, pp 399-405.

5. Increasingly divergent productivity at business level

The analyses of productivity growth making use of business data are hugely instructive. Over recent decades, productivity gaps between businesses have widened in many industrialised countries. The OECD's Working Papers particularly show that the gap between high-productivity level firms (sometimes referred to as being "at the frontier") and the others (low-productivity level or "laggard" firms) is widening across OECD countries, with more pronounced divergence in the services sector¹. What is causing this divergence and how might it affect aggregate productivity?

In terms of labour productivity, a widening gap between the productivity levels of the highest-performing businesses and the others can be observed (see Figure 10, panel A). Given that the main determinants of labour productivity are MFP and capital deepening, we concentrate on the changes in these variables². It looks as if the main reason for the labour productivity gap is the rise in multifactor productivity of firms at the technology frontier (see Figure 10, panel B). In the services sector, a greater divergence is also apparent in terms of capital deepening between firms at the frontier and the laggards (see Figure 10, panel C). Moreover, aggregate productivity growth is weaker in sectors where divergences across firms are more pronounced³.

Several reasons have been cited to explain this widening productivity gap between firms, but none have yet been unanimously agreed upon. They include the slowdown in technological dissemination between the highest-performing firms and the others. OECD research shows that the growing divergence in terms of MFP persists even when differences in mark-ups between frontier and laggards are taken into account.

The gaps in terms of MFP are largely the result of widening technological gaps, themselves mostly due, it would seem, to differing capacities to manage and adopt technologies that cannot be easily transferred between firms. As such, intangible assets, organisational changes and new skills appear to play a key role in empowering all firms to embrace new technologies and benefit therefrom⁴.

¹ Andrews D., Criscuolo C. and Gal P. (2016). "[The best versus the rest: The global productivity slowdown, divergence across firms and the role of public policy](#)", *OECD Productivity Working Papers*, no. 5, November. Only firms with more than 20 employees were considered.

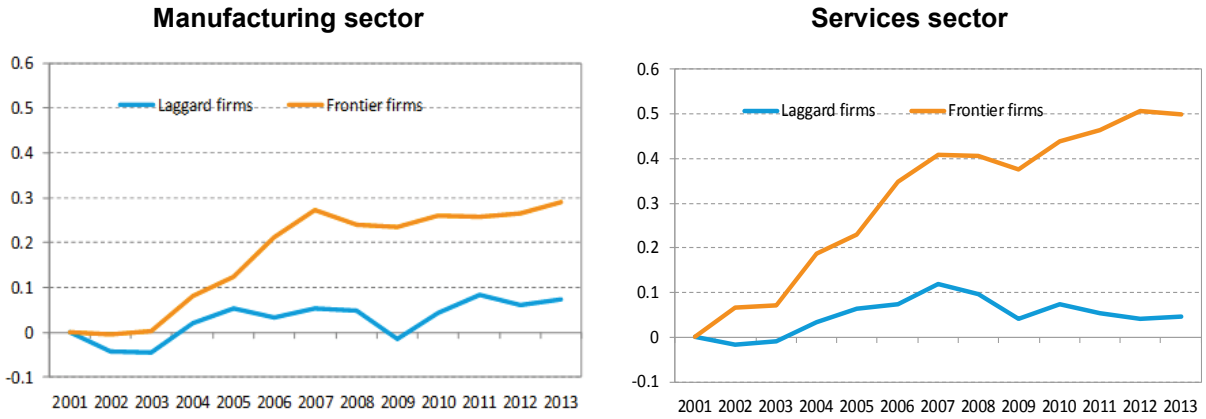
² Other factors may evidently contribute to determining labour productivity too, including, but not limited to, frictions in inputs and product markets, the degree of competition and institutions.

³ *Ibidem*.

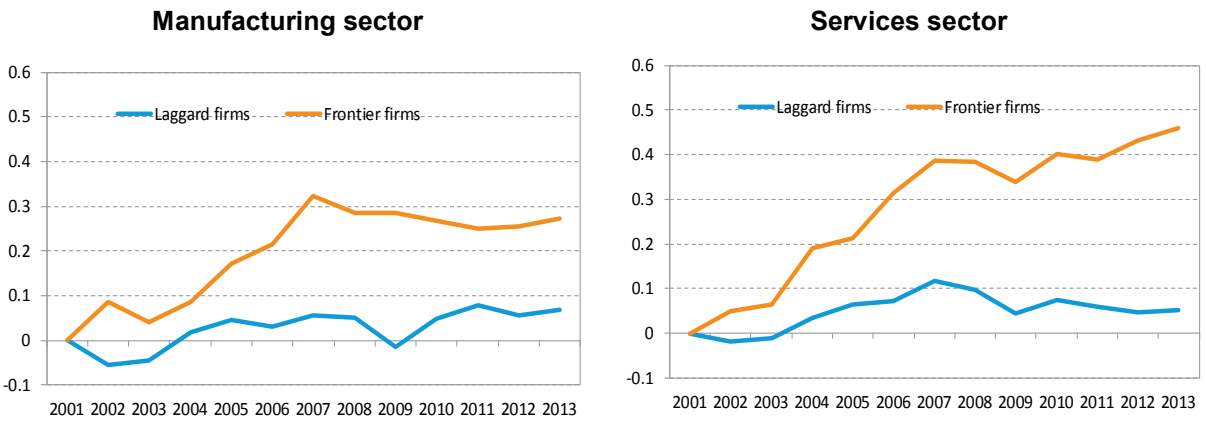
⁴ Brynjolfsson E., Rock D. and Syverson C. (2017), "[Artificial intelligence and the modern productivity paradox: A clash of expectations and statistics](#)", *op. cit.*

Figure 10

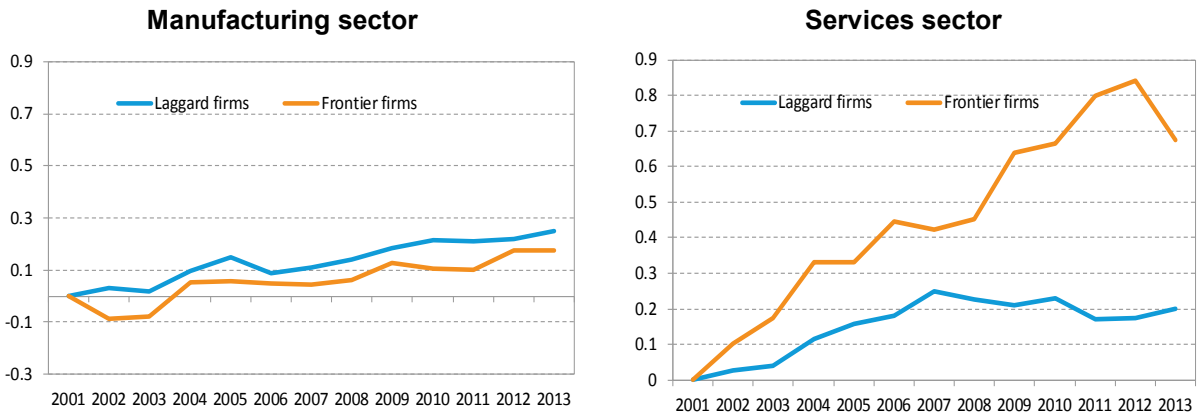
A: Labour productivity gap between frontier* and laggard firms (in levels)



B: Total factor productivity gap between frontier* and laggard firms (in levels)



C: Capital deepening gap between frontier* and laggard firms



* Frontier firms are defined as the 5% of firms with the highest productivity level.

Source: OECD, Andrews and al. (2016)

Such divergences between firms also seem to concern sales, relative wages, factor shares and mark-ups¹. The analyses available indicate a rise in the market power of corporate leaders, measured by the mark-ups, which could explain the weak growth of aggregate productivity. Some authors thus speak of a widespread downturn in competition due to a relaxation in antitrust rules or increase in market regulations. Others suggest that the main mechanism at work is the "winner takes (almost) all" phenomenon fuelled by the new business models associated with digital technology. This would lead to a global reallocation of market shares towards the best governed, most cutting-edge firms which attract the best workers.

The weak persistence of firms at the technology frontier should be noted, however: this does not square with an explanation for slowdown primarily based on the shoring up of corporate leaders' dominant positions to the detriment of competitors². OECD analysis on the basis of firm-level data thus shows that, over the 2001-2009 period, fewer than 15% of firms identified as being at the frontier in a given year are still there four years later³. The best-performing companies could be the ones that do not solely (or necessarily) benefit from the best technologies but also (or rather) manage to make the most of the organisation of their output at international level to source intermediate inputs at a better price and locate production sites in low-cost countries⁴. Supporting this theory is the fact that firms at the technology frontier are usually multinationals⁵.

It may well be a combination of these factors that explains the lack of technological dissemination between firms. Given the observed slowdown across all advanced economies, these factors are likely at work across the board, albeit in different proportions. Their respective weight has not yet been established. Below, we concentrate on analysing the factors which are proving decisive in France and may be specific to this country.

¹ IMF (2019), *World Economic Outlook*, Chap. 2: "[The rise of market power and its macroeconomic effects](#)", April.

² In France, firms at the frontier remain there for less than three years; Cette G., Corde S. and Lecat R. (2017), "[Stagnation de la productivité en France : héritage de la crise ou ralentissement structurel ?](#)", *Économie et statistique*, no. 494-495-496, October.

³ Andrews D., Criscuolo C. and Gal P. N. (2015), "[Frontier firms, technology diffusion and public policy: micro evidence from OECD countries](#)", *OECD Productivity Working Papers*, no. 2.

⁴ Bellone F. (2017), "Comment – Productivity slowdown and loss of allocative efficiency: A French disease?", *Économie et statistique / Economics and Statistics*, 494-495-496, pp 37-43.

⁵ Andrews D., Criscuolo C. and Gal P. (2016), "The best versus the rest: The global productivity slowdown, divergence across firms and the role of public policy", *OECD Productivity Working Papers*, no. 5.

CHAPTER 3

EXPLANATORY FACTORS SPECIFIC TO FRANCE

Studies bearing on France bring several factors to light which are playing a key role in the slowdown in productivity gains.

1. Insufficient levels and matching of skills

France's performances are merely average when it comes to workforce skills. Given the technological shifts taking place, this stumbling block is holding the country increasingly back in a way that could be proving decisive in the decline in productivity gains.

1.1. Attainment and skills of the working population

The results for France of the OECD's PISA 2015 survey on science, mathematics and reading are around the average for OECD countries and show precious little improvement on the previous cycles. France has similar results to Austria, the United States and Sweden, but lags behind Germany and Belgium.

The French education system is still dichotomous: upheld by a stable proportion of high performers above the OECD country average, it is dragged down from below, with a proportion of struggling students that is still higher than the OECD average. Students from the most disadvantaged neighbourhoods in France (bottom quartile of the socio-economic background indicator) are four times more likely than others to struggle at school (versus the OECD average of three times)¹. What these results tell

¹ OECD (2016), *PISA 2015. Les défis du système éducatif français et les bonnes pratiques internationales*, OECD Publishing, December.

us is that the French school system fuels inequality more than elsewhere and, in doing so, gives rise to a strong social determinism. Even though public policies have helped to reduce the number of early school leavers, every year 100,000 youngsters still drop out of education without a diploma in France.

The OECD's PIAAC survey, which provides insight into the attainment of young workers who have recently left the school system, shows that the difficulties identified by the PISA survey are not ironed out upon entering the job market. The skills level among 25-34 year olds is below-average compared with the countries participating in the survey and the skills gap according to social background is more pronounced than in the other countries, despite the significant improvement in average attainment levels. More generally, what is clear from this survey is that literacy and numeracy skills in France are among the poorest of the countries taking part in the assessment, largely because of the results among 45-65 year olds – the 16-44 year-old age group achieves scores closer to (though still below) the average (see Figure 11). In France, intergenerational skills differences are quite marked in comparison with the other participating countries, owing to a relatively late expansion of mass secondary and higher education.

The OECD surveys also demonstrate that the skills French citizens acquire during their initial education become rapidly obsolete. In mainland France, in 2013, 22% of 16-65 year olds had low proficiency levels in writing and 28% in numeracy (versus the OECD average of 16% and 19% respectively). This skills imbalance, once in the workplace, lays bare a problem concerning access to lifelong learning. The adult training provision does not sufficiently reach those who could benefit most from it: only 32% of adults in France have taken work-related training over the past 12 months, when this proportion exceeds 60% in the top-performing countries (Norway, the Netherlands, Sweden, Finland, Denmark and New Zealand)¹. As is the case in most countries, uptake of adult training programmes in France is particularly low among the low-skilled (17%). It is also relatively low among older citizens² (45 years and over, 28%) and micro-business employees. The dual structure of France's job market, with the predominance of short-term contracts, is a barrier to accessing vocational training for employees in the most precarious circumstances. Although employees in low-skilled jobs appear to be just as interested in training as others, they are much less likely to apply for such training. The context of the company and its practices in terms of training and, more broadly, of human resource management

¹ OECD (2017), *Getting Skills Right: France*, OECD Publishing, Paris.

² DARES (2016), "[Formation professionnelle : quels facteurs limitent l'accès des salariés seniors ?](#)", *Dares analyses*, no. 31, June.

are key factors in this respect¹. A reform is in progress aimed at enhancing vocational training and reducing these inequalities.

Figure 11 – Working population’s reading and numeracy skills



Source: OECD PIAAC survey 2012

On account of its teaching methods during initial education, France is lagging behind in terms of such behavioural skills as confidence in one’s own abilities, self-esteem, anxiety management and perseverance, and such social skills as cooperation, respect and tolerance, which have a decisive impact on overall social and economic performance. Indeed, echoing the problematic areas where French students are concerned, the international surveys show that French adults have less confidence in their own abilities and value security over innovation. Similarly, reporting lines in businesses are more vertical and prone to conflict than in other European countries, which not only has a decisive impact on productivity, innovation and growth, but also on the level of well-being in France².

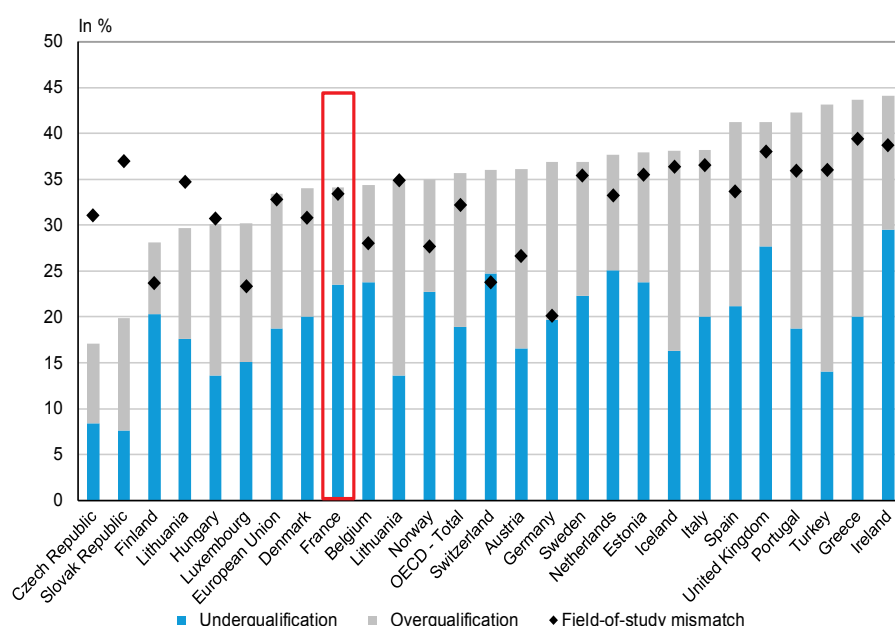
¹ Dubois J.-M. and Melnik-Olive E. (2017), "La formation en entreprise face aux aspirations des salariés", *Céreq Bref*, no. 357, July.

² Algan Y. Huillery E. and Prost C. (2018), "Confiance, coopération et autonomie : pour une école du XXI^e siècle", *Les notes du Conseil d’analyse économique*, no. 48, October.

1.2. Skill matching: a problem

France must also address difficulties concerning the use of available skills: a significant proportion of employees are in a job that does not match their level of qualification or field of study. France lies just within the OECD average from this point of view with 35% of French employees in a job that does not match their qualification. 23% of employees are under-qualified for their job, a rate which is among the highest in OECD countries (see Figure 12). Poor matching of skills to jobs has a negative impact on labour productivity¹.

Figure 12 – Skills- and Field-of-study mismatches in 2016, share of 15-64 year-olds (%)



Source: OECD Skills for Jobs Database

According to a recent OECD paper based on PIAAC data², a greater skill mismatch would appear to coincide with lower labour productivity via the allocative efficiency channel. The authors³ show that the differences in skill mismatch across countries stem from differences in public policies⁴.

¹ McGowan M. A. and Andrews D. (2015), "Labour Market Mismatch and Labour Productivity: Evidence from PIAAC Data", *OECD Economics Department Working Papers No. 1209*.

² *Ibid.*

³ McGowan M. A. and Andrews D. (2015), "Skill Mismatch and Public Policy in OECD Countries", *OECD Economics Department Working Papers No. 1210*.

⁴ In addition to greater participation in lifelong learning, other channels for a better matching of skills to jobs include higher managerial quality and a housing policy that fosters residential mobility.

1.3. Inadequate managerial quality

According to Bloom *et al.* (2014)¹, a substantial proportion of productivity gaps across countries or firms can be explained by the quality of management and organisational practices. Various dimensions of effective management are highlighted in the analyses: (i) ability to assess and supervise performance as well as to improve existing procedures; (ii) ability to set and comply with appropriate targets and to revise the strategy if performances are off-target; (iii) ability to decentralise the decision-making process, empower employees and encourage teamwork; (iv) ability to make best use of human resources by setting up systems for motivating performance and promoting talent.

Surveys on management quality and organisational practices within firms show that France's score is average in this regard. The composite indicator of the [World Management Survey](#) ranks France a fairly long way behind the English-speaking economies, Germany and the Nordic economies².

Although French businesses attain a relatively high score in terms of improving existing procedures and production techniques, their performances as regards the human aspects of management are relatively weaker. Accordingly, the European surveys conducted by Eurofound among corporate management and employees alike show that France lags well behind across all the dimensions identified as having a positive influence on managerial quality: empowerment of employees, supervision of managers and organisation of work (see Figure 13).

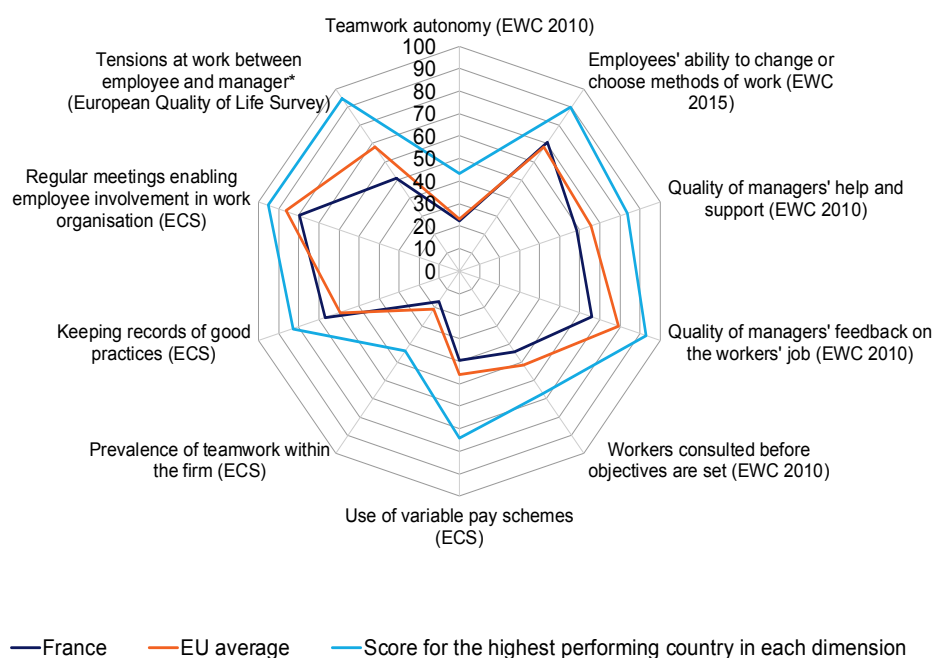
These are decisive aspects. A recent France Stratégie-led study on French data in the market economy, not including agriculture,³ thus establishes that high investment in terms of human resources (forward management of skills, strong use of digital tools, high access to training) and of work organisation (participatory management, regular feedback, teamwork, etc.) achieved performance levels (net value-added and net profit) 20% higher than firms that had not put such organisational and managerial practices in place.

¹ Bloom N., Lemos R., Sadun R., Scur D. and Van Reenen J. (2014), "JEEA-FBBVA Lecture 2013: The new empirical economics of management", *Journal of the European Economic Association*, 12(4), pp 835-876.

² www.worldmanagementsurvey.com.

³ Benhamou S., Diaye M.-A. and Crifo P. (2016), *Responsabilité sociale des entreprises et compétitivité*, study, France Stratégie, January.

Figure 13 – Quality of management in France and the EU



The score in each dimension represents the share of persons having answered the corresponding question for a certain category of answer or having answered positively. *Best scores are negative responses. See Aussilloux V., A. Sode (2016), "Compétitivité : que reste-t-il à faire ?" France Stratégie 17-27.

Source: France Stratégie (2016), based on the Eurofound European Working Conditions Survey (EWCS), European Company Survey (ECS) and European Quality of Life Survey (EQLS)

French firms' weakness in this regard could have a direct impact on the skills deficit among the working population¹, since good managerial practices are directly correlated with the quality of human capital and intensity of competition on the product market. Cultural factors could also be behind the rigidity of French reporting structures, for international surveys indicate that the French are more mistrustful of the majority of their institutions – not least their companies². Such poor social relations coupled with this inability to demonstrate mutual trust could considerably limit the scope for cooperation and therefore the implementation of best managerial practices.

¹ Employment and Skills Network (2017), [Renforcer la capacité des entreprises à recruter](#), report by working group no. 4, rapporteur: Morad Ben Mezian, France Stratégie, August.

² Algan Y., Cahuc P. and Zylberberg A. (2012), *La Fabrique de la défiance*, Paris, Albin Michel.

1.4. Increasing need for skills in an age of global production chains

If they are to integrate and grow on new markets, activity sectors across the board need workers who can demonstrate not only strong cognitive skills, but also managing and communicating skills along with a readiness to learn¹. Suitable and advanced skills are particularly needed to increase the gains in productivity enabled by companies joining global production chains. And yet, France is situated average among OECD countries when it comes to both participation in global value chains and skills. Some countries (Germany, South Korea and Poland among them) seem to have taken greater advantage of global value chains by playing a more active part in them thanks to a strong skill set. And the countries that scaled up their participation in global value chains most between 1995 and 2011 saw their productivity levels rise the most owing to a better quality and range of inputs² and dissemination of knowledge³. This additional increase varies between 0.8 percentage points in sectors offering the least potential for production segmentation, and 2.2 points in those offering the greatest segmentation potential – the majority of technologically advanced industries in particular.

2. French production is under-performing

2.1. More dispersed productivity levels within low-skilled services

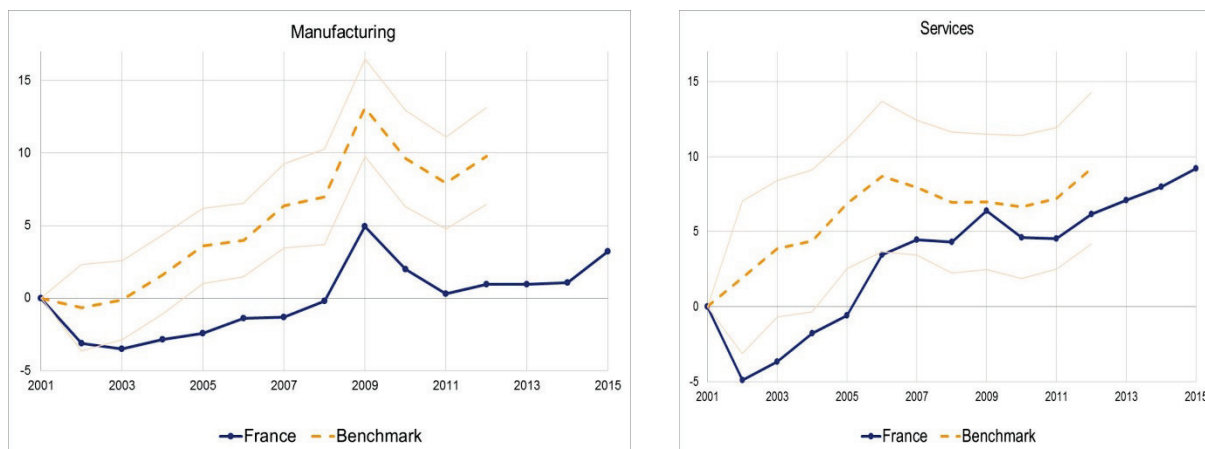
When we look at the specific case of France, labour productivity results are not the same as those observed for other OECD countries. The labour productivity gap between the highest-performing and least-performing firms has grown faster in France than in other OECD countries in the services sector, but the opposite is true in the manufacturing sector (see Figure 14).

¹ OECD (2017), *OECD Skills Outlook 2017: Skills and Global Value Chains*, OECD Publishing, Paris, November.

² Amiti M. and Konings J. (2007), "Trade liberalization, intermediate inputs, and productivity: Evidence from Indonesia", *American Economic Review*, 97(5), December, pp 1611-1638.

³ MacGarvie M. (2006), "Do firms learn from international trade?", *The Review of Economics and Statistics*, 88(1), February, pp 46-60.

Figure 14 – Evolution of labour productivity dispersion



The figure plots the estimated year dummies of a regression of log-productivity (labour productivity) dispersion (90th and 10th percentiles ratio) within country-sector pairs, using data from the following countries: Germany, Australia, Austria, Belgium, Canada, Chile, Denmark, Finland and France.

Source: OECD MultiProd project

The MFP dispersion, meanwhile, has risen at a much swifter rate in France than in other OECD countries in the services sector, and to a comparable extent in the manufacturing sectors (see Figure 15). What therefore comes across is that MFP dispersion has increased more quickly than labour productivity dispersion in France, in both the manufacturing and services sectors alike. Since labour productivity is primarily determined by MFP and capital deepening, this suggests that the latter climbs more quickly among laggards than among the highest performers.

Figure 15 –Evolution of multifactor productivity dispersion



The figure plots the estimated year dummies of a regression of log-productivity (multifactor productivity à la Wooldridge) dispersion (90th and 10th percentiles ratio) within country-sector pairs, using data from the following countries: Germany, Australia, Austria, Belgium, Canada, Chile, Denmark, Finland and France.

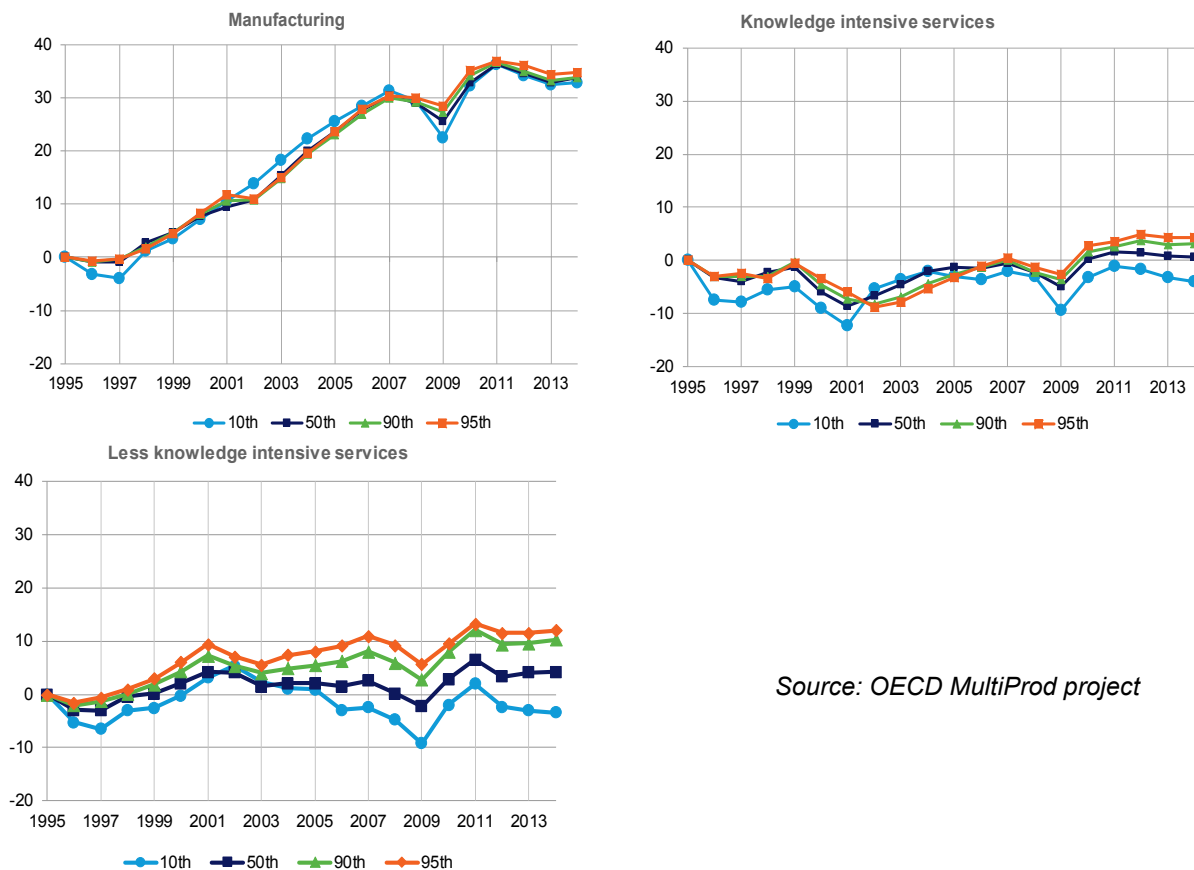
Source: OECD MultiProd project

In France then, it would seem that the least-performing firms are thus making more efforts in terms of capital deepening. As Brynjolfsson *et al.* (2018) suggest, these mixed behaviours and performances between French firms at the frontier and low-productivity level firms in the services sector could be explained by investment delays in managerial quality, training and good organisational practices which are necessary to a successful adoption of new technologies.

It can be observed that, since 1995, labour productivity dispersion has grown the most in the low knowledge-intensive services (see Figure 16). This dispersion has increased much less in the knowledge-intensive services, and hardly at all in the manufacturing sector.

One explanation might have to do with the very nature of sectors: since the manufacturing sector and knowledge-intensive services are more open to international competition, firms must all strive harder to retain their competitive edge and survive. Their efforts naturally include embracing new technologies but also investing in the intangible assets required to harness the advantages of digital transformation for example.

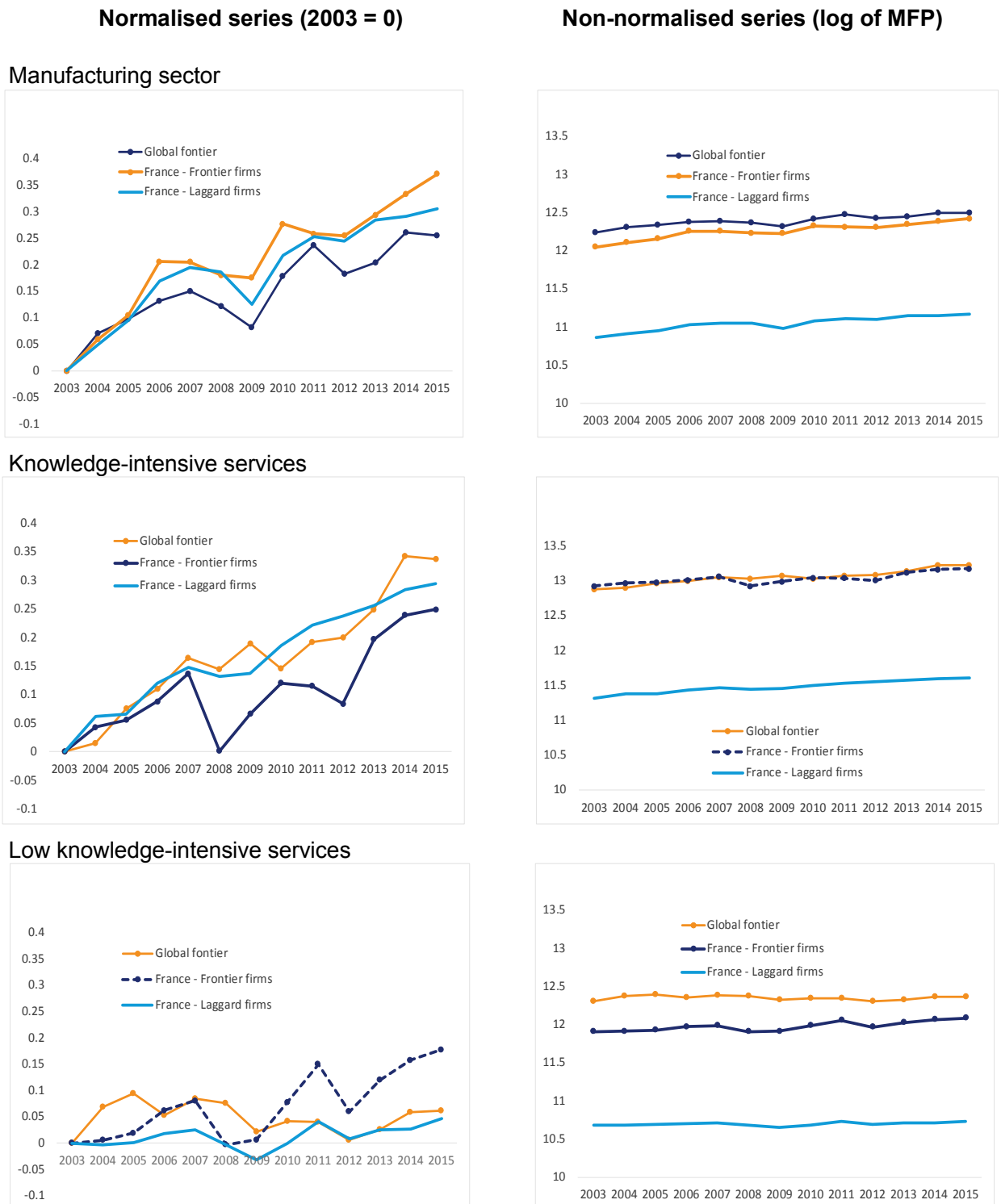
Figure 16 – Evolution of labour productivity in France for the 10th, 50th, 90th and 95th percentiles the labour productivity distribution



Source: OECD MultiProd project

French knowledge-intensive services firms at the frontier exhibit the same MFP levels as firms at the frontier in the other OECD countries. Regarding the manufacturing sector, although there is still some ground to make up, French firms at the frontier are not far off the global frontier. For the low knowledge-intensive services however, the highest-performing French firms lag behind the other OECD countries in terms of MFP. The quality of management and initial education and lifelong learning of workers in such sectors as retail, accommodation and food services where short-term contracts are predominant, rigidities on the labour market, regulations which restrict competition and barriers to worker and company mobility are all factors that could account for the weaker performance in terms of productivity of low knowledge-intensive services in France.

Figure 17 – Evolution of MFP gap: absolute and normalised per sector

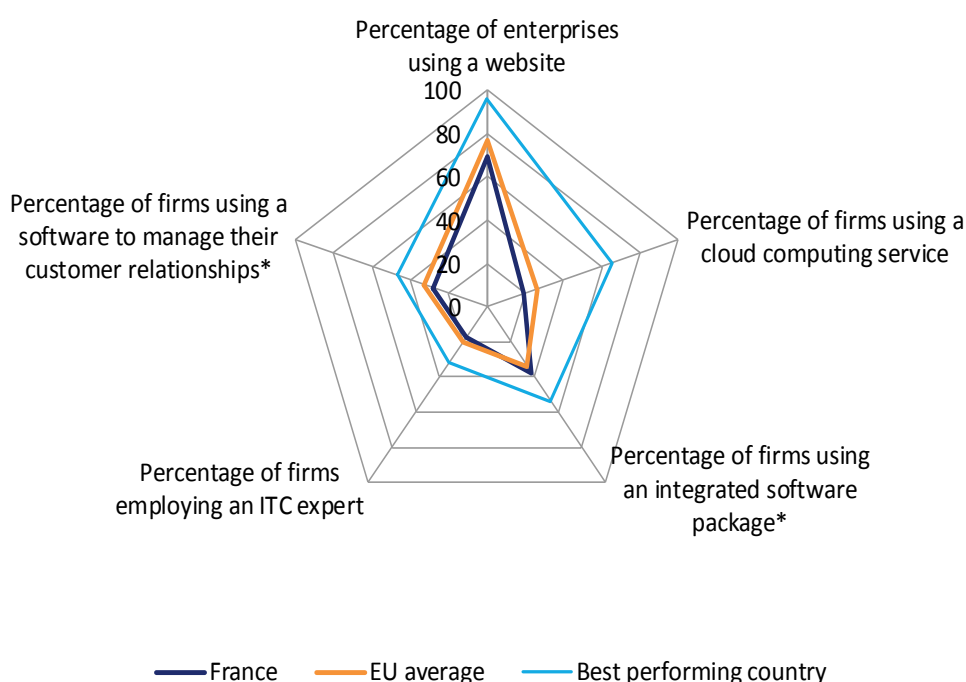


Source: OECD MultiProd project

2.2. Insufficient automation and dissemination of digital technology within firms

Despite their high investment rate in software¹, French firms have been slower to adopt and disseminate ICTs – even as compared to advanced European countries (see Figure 18).

Figure 18 – Digital diffusion within French firms in 2018*



* Most recent data available: 2017.

Best performance: websites and cloud computing: Finland; Software for integrated management: Belgium; ICT specialist: Ireland; Software for customer relationship management: Germany.

Source: Eurostat. Coverage: firms with over 10 employees

Less extensive uptake of digital technology across the economy² could be caused by a skills shortage among the working population and insufficient investment in new technologies on the part of Management. Businesses are in need of both a workforce that is capable of adapting and becoming proficient in these new tools and managers

¹ Guillou S., Lallement R. and Mini C. (2018), "L'investissement des entreprises françaises est-il efficace ?", *Les Notes de La Fabrique*, France Stratégie and La Fabrique de l'industrie, October.

² OECD (2017), *OECD Digital Economy Outlook 2017*, OECD Publishing, Paris.

who are willing to tap into such tools to enhance performance¹. The regulatory environment and degree of competition are also instrumental in the use and adoption of digital tools (see, for example, Aghion *et al.*, 2009, Guerrieri *et al.*, 2011, Cette and Lopez, 2012).

Efficient use of ICTs calls not just for higher average qualifications than for other technologies, but also for new working arrangements which may be restricted by overly tight labour market regulations. Amid swift technological renewal, the replacement rate among firms at the technology frontier is likely to be high, and the same goes for jobs. In this case, a high level of job protection could be detrimental for firms in these sectors, so deterring investment in them. As such, countries with the highest levels of protection in place could end up specialising in sectors where the pace of technological change is slower, with a negative effect on productivity. Samaniego (2006)² thus demonstrates a strong negative relationship between indicators of ICT use and the employment protection indicator. This finding is corroborated by Bartelsman, Gautier and Wind (2016)³, who show that innovative sectors presenting a capital risk are relatively small in countries with the strictest employment protection legislation. Firms investing extensively in ICT capital are more likely to grow and less likely to leave the market than others, but this difference is less marked in countries whose job markets are tightly regulated. In this case, it is those firms investing less intensively in ICT that grow and retain their market position. Van Reenen *et al.* (2010) argue that this mechanism accounts for nearly half of Europe's ICT uptake gap compared with the US, and regulations on the product market are responsible for 16%.

2.3. Regulatory barriers are higher in France

As demonstrated by the OECD indicators, regulatory restrictions on the product markets have major implications in France. By acting as entry barriers to competitors and impediments to corporate growth, they hold back gains in productivity through the effects of competition on innovation. Cette, Lopez and Mairesse (2018)⁴ develop an

¹ Haller S. A. and Siedschlag I. (2011), "Determinants of ICT adoption: Evidence from firm-level data", *Applied Economics*, 43(26), pp 3775-3788.

² Samaniego R. (2006), "Employment protection and high-tech aversion", *Review of Economic Dynamics*, vol. 9, issue 2, pp 224-241.

³ Gautier P., Bartelsman E. and Wind J (2016), "Employment protection, technology choice, and worker allocation", *International Economic Review*, vol. 57, no. 3, pp 787-826.

⁴ Cette G., Lopez J. and Mairesse J. (2018), "Rent creation and sharing: New measures and impacts on TPF", *NBER Working Paper Series*, no. 24426, March.

original method for measuring unjustified rents generated by the regulations and estimating the subsequent impact on wages and productivity. By their reckoning, in an extreme scenario where France adopts the regulation levels of the OECD's higher performers, MFP could rise by around 5%, which is the second highest level across OECD countries after Italy. Whereas France's level of regulation as measured by the OECD indicators has fallen over time, the link with the slowdown in productivity growth may be due to a more marked negative impact in recent times because of the increasing importance of ICT use and adoption.

With certain regulations on the product market easing competitive pressure, there may be less incentive to mobilise the most advanced technologies. The existence of monopoly rents in certain sectors may discourage investment, since a company in such a position has too little to gain from adopting a new technology (Bassanini and Scarpetta, 2002)¹. These authors also point out that red tape – which they equate to entry barriers for new firms (reporting requirements, registration with a corporation or sector-level chamber, cost of acquiring a licence, complexity and ambiguity of regulations and procedures) – hinders investment in ICTs. Countries where the burden of red tape and entry barriers are lowest are also those boasting the highest levels of ICT investment and productivity growth.

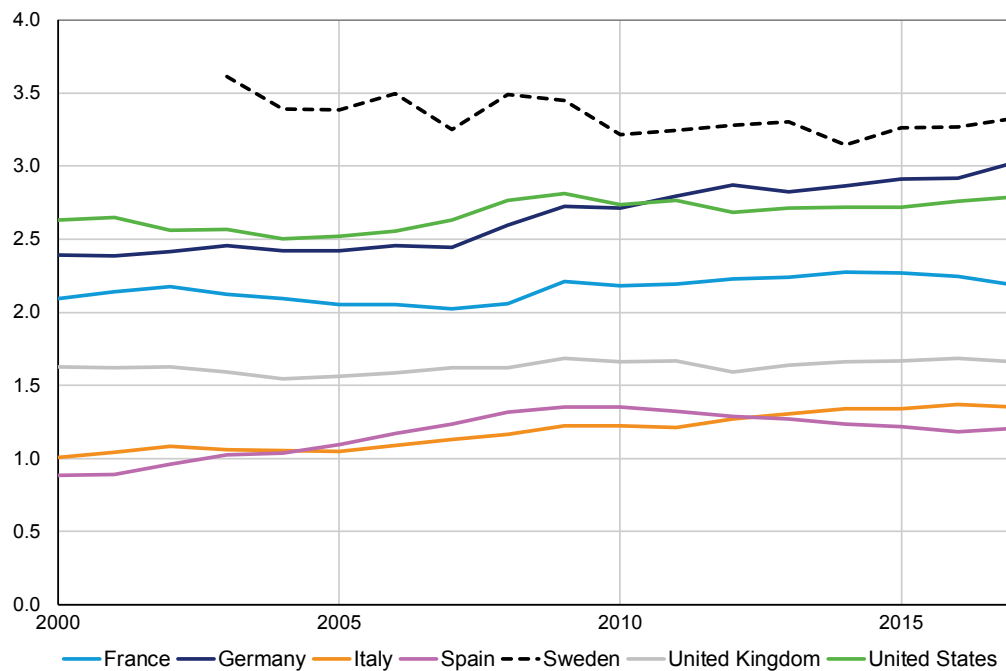
2.4. Research & development efficiency could be improved

The European innovation scoreboard posts a relatively strong position for France, whose innovation indicator is 9% above the EU average (European Commission, 2018). But when compared with the most innovative European countries (Sweden, Denmark, Finland, the Netherlands, the UK and Germany) however, France's performances do not look so impressive.

It is a similar picture regarding the level of public and private Research & Development (R&D) expenditure. France is behind the leading countries – Scandinavia and Germany – but ahead of the Mediterranean countries (Italy and Spain) and the UK. The level of R&D spending was slightly above 2 GDP points in the early 2000s, and began rising steadily over time from 2008 up to 2.3 GDP points – particularly driven by the research tax credit reform (see Figure 19). And yet the level of R&D is still short of the Lisbon strategy target (restated in the Europe 2020 strategy) of 3 GDP points, split between 1 point for public R&D expenditure and 2 points for private expenditure.

¹ Bassanini, A. and Scarpetta S. (2002), "Growth, technological change, and ICT diffusion: Recent evidence from OECD countries", *Oxford Review of Economic Policy*, vol. 18, issue 3, pp 324–344.

Figure 19 – Investment expenditure in R&D as a percentage of GDP



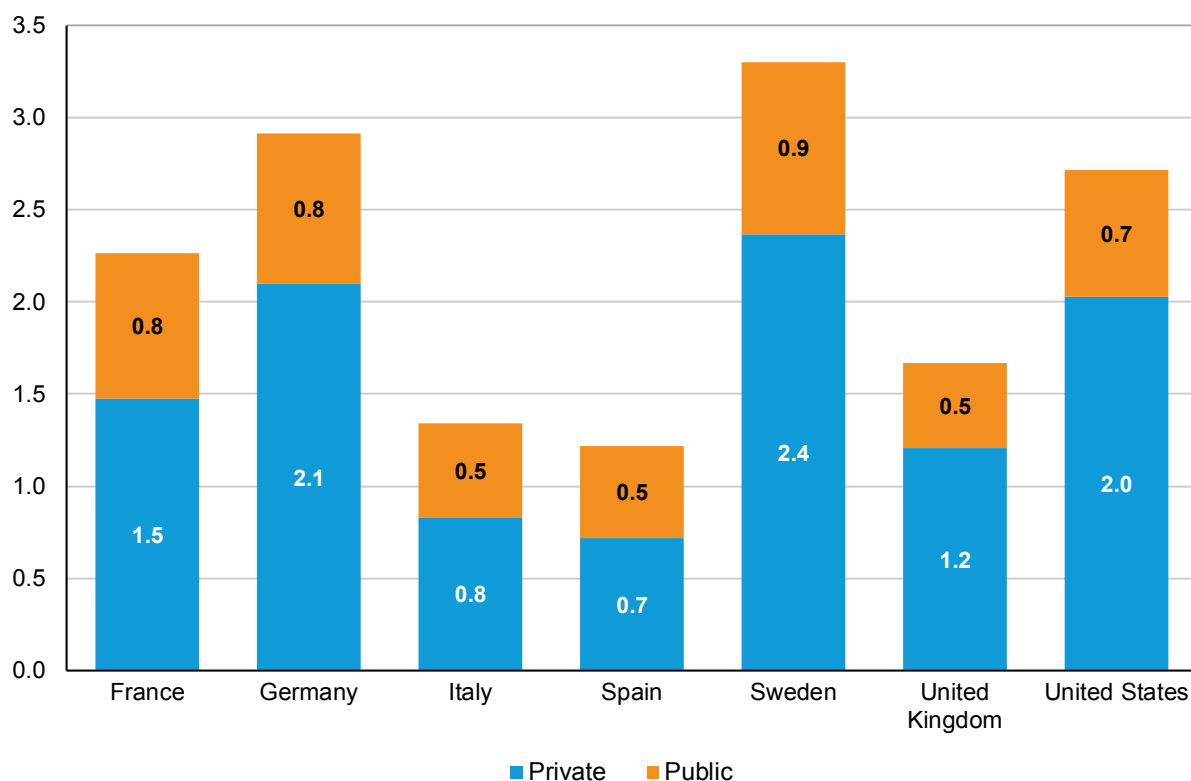
Source: OECD, NPB calculations

France's public R&D spending is not far off the 1 GDP point target, and similar to the leading countries (Germany and Scandinavia)¹. Its private expenditure in this regard is far shy of Germany's though, with a 0.6 GDP point differential, and some distance away from the 2 GDP point target (see Figure 20). This differential can largely be explained by a sectoral composition effect of the two economies, however: industry, which is more R&D-intensive, accounts for a greater share of Germany's value added, and within the industrial sector, there is a much higher representation of R&D-intensive medium high-technology industries in Germany than in France (automobile, machine tools). When adjusted for sectoral structure effects, France turns out to be more R&D-intensive than Germany according to calculations by the Directorate-General for Enterprise (DGE) and Directorate-General for Research and Innovation (DGRI)².

¹ Military R&D spending stopped being factored into the OECD figures in 2010.

² DGE and DGRI (2016), *L'innovation en France - Indicateurs de positionnement international*, 2016 edition, Ministry of National Education, Higher Education and Research / Ministry of Economy, Industry and the Digital Sector, Paris, July.

Figure 20 – Breakdown of R&D expenditure between the public and private sector in 2015



Source: OECD, NPB calculations

At microeconomic level, the link between R&D and productivity was first demonstrated years ago¹. But at macroeconomic level, the increase in corporate R&D spending does not seem to have coincided with an increase in productivity of the same magnitude. Several reasons can be cited to explain this phenomenon, although no consensus has been secured on any of them so far.

First of all, the growth in private R&D spending over the past few years can be attributed to the research tax credit (RTC) reform in 2008, which most likely enabled the fall in R&D expenditure during the crisis to be limited. The most recent research suggests that the RTC has effectively sustained corporate R&D spending. One euro extra in public aid allocated via the RTC approximately generates one euro extra in R&D spending by the beneficiary firms². It is still too early to be able to establish a clear relationship between an increase in R&D and additional gains in productivity

¹ Hall B. and Mairesse J. (1995), “Exploring the relationship between R&D and productivity in French manufacturing firms”, *Journal of Econometrics*, 65, pp 263-293.

² CNEPI (2019), *L’impact du crédit d’impôt recherche*, opinion of the National Committee for Innovation Policy Assessment, France Stratégie, March 2019.

within the context of the 2008 RTC reform, however, for the timeframe within which R&D must be considered is long and varies across sectors. This means that it may not yet be possible to fully appreciate the transfer of R&D to productivity.

Second, the transformation of new knowledge generated by R&D into innovation and productivity requires mobilisation of a transmission chain, from basic public research all the way to industrialisation and marketing by firms, taking in the steps of applied research, experimental development and transfer of knowledge and public research technologies to the private sector and corporate research departments. France is somewhat behind in terms of developing the public research-private sector interface¹: companies channel less funding into public R&D, cooperation is less common than in the leading countries and relatively few public researchers move into the private sector.

Finally, the general trends regarding R&D productivity have been examined by recent studies². Some authors thus maintain, in light of US data, that corporate R&D is posting diminishing returns, with examples given across several sectors, including microelectronics, development of new crop seeds, medical and pharmaceutical research.

These factors aside, others are also likely to have an impact on the slowdown in productivity growth, without their effects having been clearly identified in the literature. Subsequent research could be carried out within the context of the National Productivity Board to fine-tune and clarify the assessment thus far.

Employment protection, for example, may positively or negatively influence productivity gains. Amid swift technological renewal, the replacement rate among firms at the technology frontier is likely to be high, and the same goes for jobs. In this case, a high level of job protection could be detrimental for businesses in these sectors, so deterring investment in them. Over the recent period, allocation of employment does not seem to have improved as much in France as it has across other European countries³. When compared with the European average, occupational mobility, measured by the proportion of employees who change

¹ Directorate-General of the Treasury (2017), "[Quelle intervention publique pour favoriser le transfert des résultats de la recherche publique vers les entreprises ?](#)", *Working paper of the Treasury DG*, no. 2017/05, May.

² Bloom N., Jones C. I., Van Reenen J. and Webb M. (2017), "[Are ideas getting harder to find?](#)", *op. cit.*

³ Berthou A. (2016), "[Current account adjustments and productivity dynamics during the crisis](#)", *Banque de France Bulletin*, no. 43, pp 59-70.

occupation, is noticeably lower in France: over the 2011-2014 period, around 3% of individuals in employment for at least two consecutive years change occupation, versus 1.8% in France¹. That said, if employment protection reduces in tandem with a decline in its quality, then this may have repercussions for productivity gains. Diminishing employment quality associated with less advantageous conditions in terms of recruitment, pay and/or career rubs off negatively on employees' motivation. It can also lead to businesses being less inclined to invest in specific human capital and train employees (Askenazy and Erhel, 2017)².

Policies to relieve the labour cost on low wages in France, which have come in different forms over the past two-plus decades (social contribution cuts and tax credit for home-based employment), have aimed at developing employment among the low-skilled in particular. In this way they have contributed to the slowdown in labour productivity gains particularly in the low-technology intensive services sector, where the proportion of low-wage jobs is high.

In the same way as for R&D expenditure, investments by French businesses – once looked at in relation to value added – are high compared with other European countries, and the gap is particularly pronounced for manufacturing sector firms (Guillou, Mini and Lallement, 2018³). The fact that French multinationals are more likely to locate their manufacturing lines of business abroad and the tax environment are two initial reasons for this, but require confirmation. Indeed, further research is necessary since the implications in terms of productivity may be significant: the productivity gains associated with such investments could primarily benefit production sites located outside France, with only modest effects on national productivity gains. Since multinationals account for a significant share of France's value added, investments and exports, such strategies may have major ramifications for the country's trade balance and, more broadly, its competitiveness. It is therefore necessary to identify the reasons why French companies have a greater tendency than their European counterparts not to choose to locate their production centres on national soil.

¹ Bachmann R., Bechara P. and Vonnahme C. (2017), "Occupational mobility in Europe: Extent, determinants and consequences", *Ruhr Economic Papers*, no. 732.

² Askenazy P. and Erhel C. (2017), *Qualité de l'emploi et productivité*, Cepremap collection, no. 43, Éditions Rue d'Ulm, March.

³ Guillou S., Lallement R. and Mini C. (2018), "L'investissement des entreprises françaises est-il efficace ?", *op. cit.*

PART TWO

COMPETITIVENESS

CHAPTER 4

THE CURRENT ACCOUNT: A MEASURE OF FRENCH COMPETITIVENESS

To assess an economy's competitiveness, the current account is the primary indicator since it measures the balance of trade flows in goods and services and the income transfers between the country and the rest of the world. The current account balance measures the growth in the country's net international investment position (NIIP), which is its net stock of external assets as compared with the rest of the world. A positive current account balance means that the country holds an increasing stock of such assets. On the other hand, a persisting current account deficit leads to a negative NIIP and therefore, eventually, to payment of interest expenses to the rest of the world.

The current account is the result of various movements, in terms of global trade, domestic demand or fluctuations in exchange rates or energy and raw material prices. A current account surplus or deficit is not inherently "good" or "bad". For instance, an ageing society may benefit from accumulating assets in preparation for future dissaving, and would therefore have a positive current account balance. However, a country with numerous profitable investment opportunities may be better advised to obtain funding from abroad, and therefore aim instead for a current deficit. Moreover, the current account level may depend on the economic situation. An output gap exacerbated via a demand deficit may lead to temporarily higher savings and temporarily lower investment in particular¹. In theory, the aim is thus to compare the current account balance with a certain "norm" that is dependent on all these factors. This is an exercise carried out in particular by international institutions, including the IMF in its External Balance Assessment. This Part therefore sets out to assess the macroeconomic situation in France by analysing the

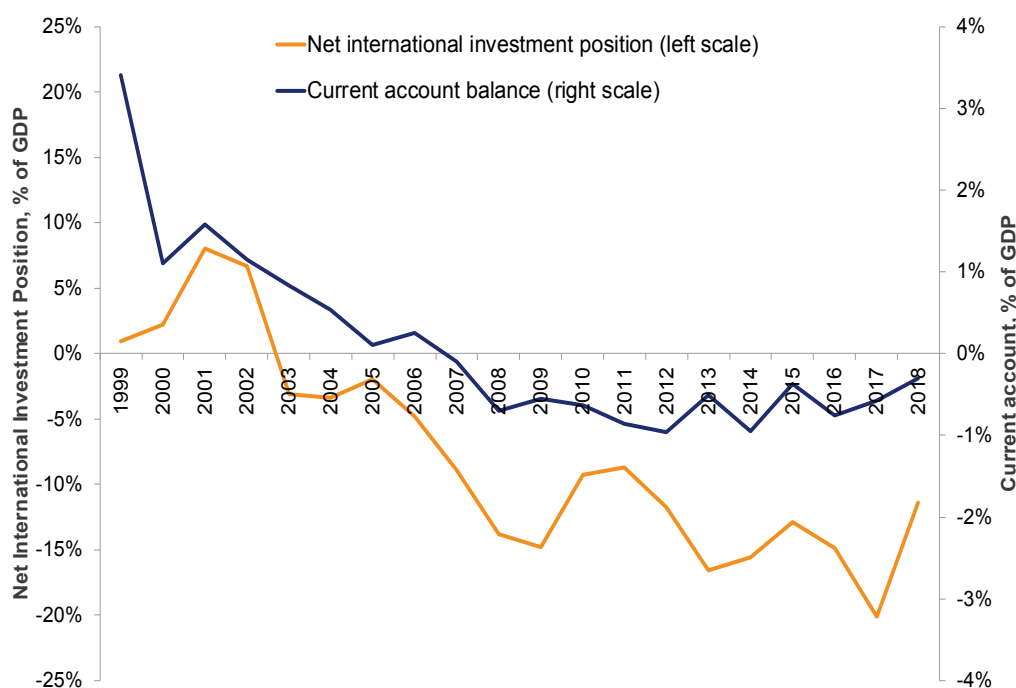
¹ Cubeddu L. M. *et al.* (2019), "The external balance assessment methodology: 2018 update", *IMF Working Paper*, WP/19/65.

evolution of its current account, and then by examining each of its determinants in turn, in terms of both price and non-price competitiveness and net savings across the different sectors of the economy.

1. A slight current account deficit which has not widened since 2008

Although the current account balance was positive at the turn of the new millennium, the current account got progressively worse from 2007, becoming negative at -1% of GDP in 2012 (see Figure 21). This deficit has narrowed slightly since, reaching -0.6% in 2017 and -0.3% in 2018. Throughout the whole period, including during the last stabilisation phase, France's NIIP has got worse in terms of GDP points: by 2017 it was -20% and -11% in 2018 (the variation in 2018 was mostly due to a valuation effect in financial assets at the end of the year).

Figure 21 – Current account balance and net international investment position, in percentage of GDP



Source: Eurostat

France's current account deficit is relatively limited, but this may hide underlying imbalances resulting from the economic situation and the composition of the deficit.

1.1. Impact of prevailing economic conditions

As highlighted above, an economic downturn typically leads to an artificial reduction in the current account deficit through declining investments, consumption and therefore imports. Analysis of France's current account balance therefore depends on the country's position in the economic cycle, which is measured by two closely connected concepts: the output gap (relative gap between actual and potential GDP) and the non-accelerating inflation rate of unemployment (NAIRU).

For 2018, the output gap is estimated as coming somewhere between – 0.7% (French Economic Observatory/OFCE) and +0.5% (European Commission) of potential GDP. This gap is significant, but around an average close to zero. Even if we take OFCE's estimations, a narrowing of the output gap would not widen the current account deficit by any great extent. The differences in the output gap measurement are also apparent in NAIRU estimates. For France, these range from 7.5% (OFCE) to 9% (European Commission). Such divergences are not, however, likely to call into question the analysis according to which **smaller domestic cyclical imbalances would not significantly change France's current account balance.**

More generally, to compare France's current account (CA) level relative to the expected norm, we could use the IMF's results, which post a CA "norm" in line with economic fundamentals. For a cyclically-adjusted CA of -0.6% of GDP in 2017, the IMF situates the CA "norm" at +0.9%. The -1.6% gap estimated by the IMF is similar to the gap estimated for the 2013-2015 period.

Beyond the economic situation, measures to bring down the *structural* unemployment rate could have significant repercussions for the current account balance. A positive or negative effect on the current account depends directly on the way structural unemployment would be reduced. Accordingly, an improvement in training levels among the labour force which benefits the employment rate could also benefit industry in particular, which remains instrumental for exports of goods. On the other hand, pressing on with liberalisation measures in sectors sheltered from global competition as well as policies in favour of housing and transport, and streamlining public spending, would have more of an indirect effect on the competitiveness of the French economy.

1.2. Current account components

France's modest current account deficit hides a large trade deficit, compounded by a deficit regarding so-called "secondary" income (current transfers between individuals

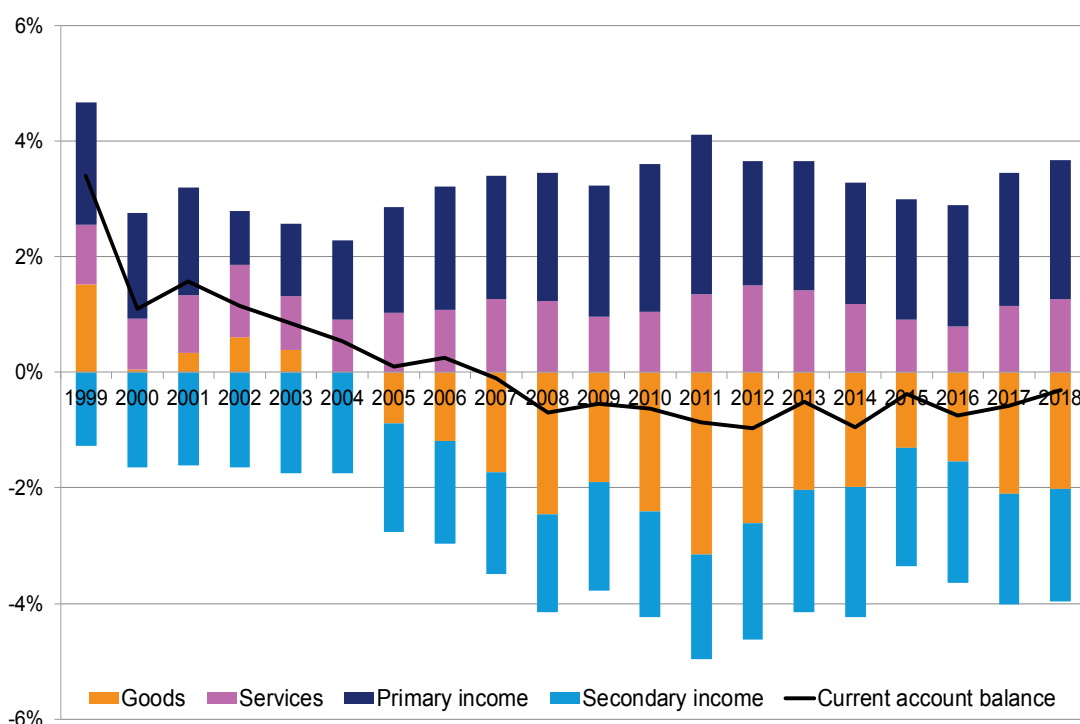
or governments); both of these deficits are partly offset by a surplus in services and in “primary” income (net income from foreign investment) (see Figure 22). France’s widening current account since 2005 is primarily the result of the balance on goods (see Table 1).

As the CEPII¹ points out², France distinguishes itself within the euro area by the prominence of its multinationals – a particularity that is growing since the French multinationals’ foreign workforces and revenues rose by nearly 60% between 2007 and 2014, which is double the rate of German or Italian multinationals. The automobile sector provides a striking example: although French car manufacturers’ design and R&D activities have, for the most part, remained based in France, the share of their France-based production has plummeted (to a far greater extent than for German makes) – illustrating the separation between activities associated with intangible investment and production activities. The combination of the surplus in the primary income balance (despite a negative net international investment position) and the trade deficit therefore suggests that France remains competitive for activities related to innovation and design, while its competitiveness as a location for manufacturing has worsened: In this sense, its modest current account deficit hides a competitiveness deficit as a manufacturing location for tradable goods. Over and above this competitiveness deficit, the structure of France’s current account is not conducive to growth. It could not only generate fewer employment opportunities within the country, but also hinder productivity growth: a country deriving most of its income from the ownership of production sites abroad and intellectual property rights without exporting goods and services could eventually lose technological control over the key stages of production. If production know-how is primarily amassed outside national territory, this can end up raising doubts over the ability to maintain R&D activities on domestic soil – as interaction with production engineers is important in this respect. Furthermore, income from foreign investment is not shared out in the same way as income from labour, and this can exacerbate inequalities.

¹ Leading French centre for research and expertise on the world economy

² Emlinger C., Jean S. and Vicard V. (2019), "[L'étonnante atonie des exportations françaises](#)", *La Lettre du Cepii*, no. 395, January.

Figure 22 – Breakdown of France’s current account between 1999 and 2018, in percentage of GDP



Source: Eurostat, NPB calculations

Table 1 – Current account balance and its components in France, in percentage of GDP

	2000	2008	2018	2000-2018 difference
Current account	1.1%	-0.7%	-0.3%	-1.7%
Goods	0.0%	-2.5%	-2.0%	-2.1%
Services	0.9%	1.2%	1.3%	0.3%
Primary income	1.8%	2.2%	2.4%	0.5%
Secondary income	-1.7%	-1.7%	-1.9%	-0.3%

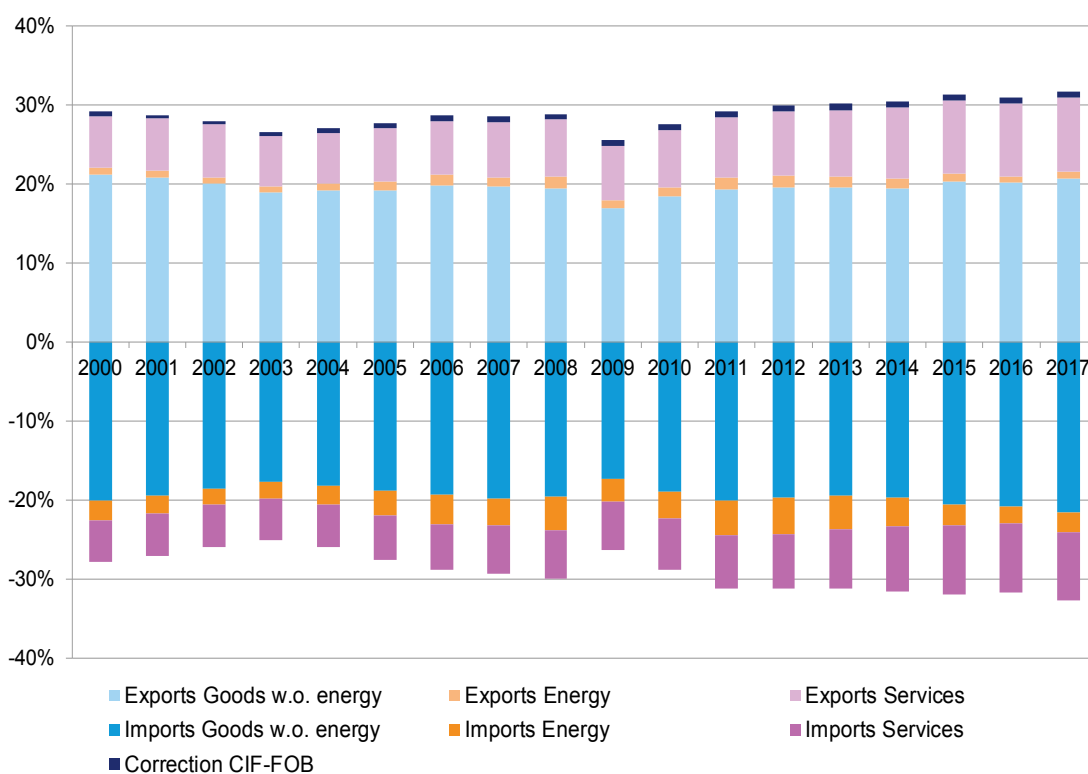
Source: Eurostat, NPB calculations

2. Balance on goods and services and market shares

As mentioned above, the balance on goods and services in France – i.e. the goods and services trade balance – has got noticeably worse since the 2000s. In particular, having achieved equilibrium by 2000, the balance on goods had fallen to -2.1% of

GDP in 2017 (see Figure 23). Whereas exports of goods have stayed relatively stable at around 20-21% of GDP, returning to their 2000 level in 2017, imports of goods have grown by 3 GDP points over the same period. The balance on services, however, has been relatively stable throughout the period, standing at +1% of GDP with imports and exports following the same trajectory: they were stable from 2000 to 2009, before rising sharply post-crisis (see Figure 23). To gain a clearer understanding of these trajectories and analyse the role played by competitiveness, it is worthwhile comparing France's trends to European and global trends. In particular, export market shares illustrate the comparative growth of domestic exports at a given global export level.

Figure 23 – Trade in goods and services in France, in percentage of GDP

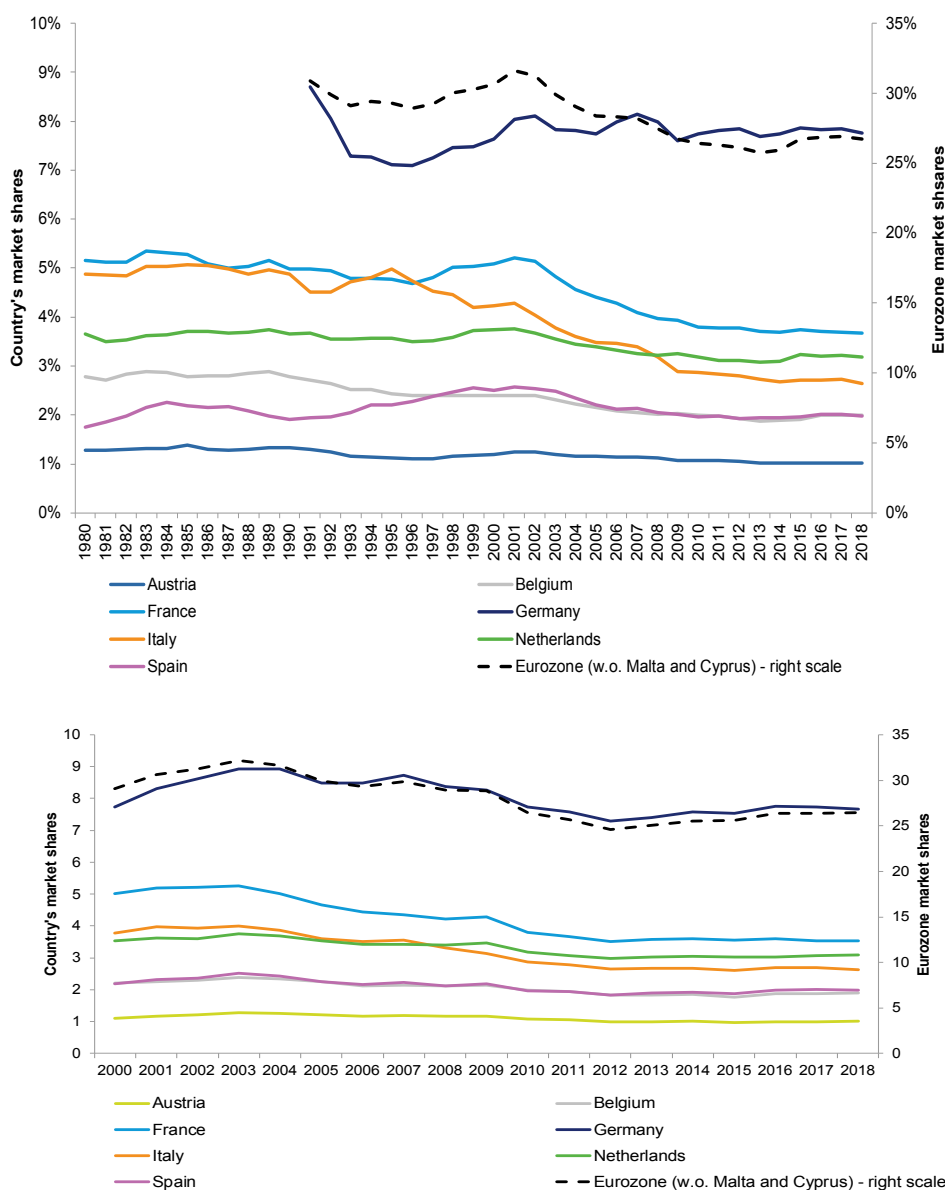


Note: In 2017, services imports were 8.6 % of GDP and services exports were 9.3 % of GDP. The energy sector includes mining and quarrying, and the manufacture of coke and refined petroleum products in the Nace Rev. 2 classification.

Source: Insee, national accounts, 2014 base

After twenty years of virtual stability, France's market shares for merchandise trade (exports/global trade) have tumbled since the early 2000s at an annual rate of more than 2% until 2016 (see Figure 24).

**Figure 24 – Share of world exports
in volume and value**



Note: In 2017, France's share of world exports in volume was 3.7 %. In 2017, France's share of world exports in value was 3.5 %.

Source: OECD, NPB calculations

Over the same period, market shares for merchandise trade were stable in Germany and Spain. They fell in Italy but to a lesser extent than in France. These downward trends in the market shares of developed countries can partly be explained by the arrival of emerging countries on the global trading scene – not least China. Indeed, their share in global trade has almost doubled between 1995 and today.

Nevertheless, not all developed countries have been affected in the same way, and some have managed to maintain their market shares over the period. Other factors must therefore be sought to explain the deterioration in France's trade performance over the period.

Camatte and Gaulier¹ (2018) divide the annual growth rate between 2000 and 2016 of the market shares of several European countries, France among them, into three components: 1) geographic specialisation 2) sectoral specialisation and 3) average gains in market share on these markets (a market is defined in terms of a country and a product)². For the four countries studied, geographic specialisation makes a slightly negative contribution to the annual growth rate of market shares owing to the relatively more sluggish demand in Europe – their primary destination (see Figure 25). France benefits from favourable sectoral specialisation, reflecting an orientation of its exports towards sectors for which global demand is robust. It therefore benefits from fairly strong demand for sectors which represent its strengths. It is the lower export growth on a market-by-market basis, referred to as the “performance effect” (orange bars), that accounts for the downward trend in France's market shares.

This finding is backed up by the study by Bas *et al.* (2015)³ for the CAE, which shows that, over the 2006-2014 period, French exporters' geographic disadvantage compared with German exporters was overcompensated by a more favourable product positioning. In this analysis, the combined contribution of country specialisation and product specialisation to market share gains is virtually nil in France's case – a finding reiterated on the basis of more recent data by the CEPII⁴: the decreases in French market shares cannot be attributed to weaker growth on the part of their export markets.

To fathom what is behind this "performance effect" identified by Camatte and Gaulier (2018), two main dimensions of competitiveness can be distinguished. On the one hand, it can be considered in association with the characteristics of exports in the countries where they are consumed: particular distinction is drawn between price competitiveness and “non-price” competitiveness. On the other, it can be looked at in

¹ Camatte H. and Gaulier G. (2018), "[Spécialisation sectorielle et rechute du commerce extérieur français en 2014-2016](#)", *Bloc-Notes Éco*, Banque de France, 25 June.

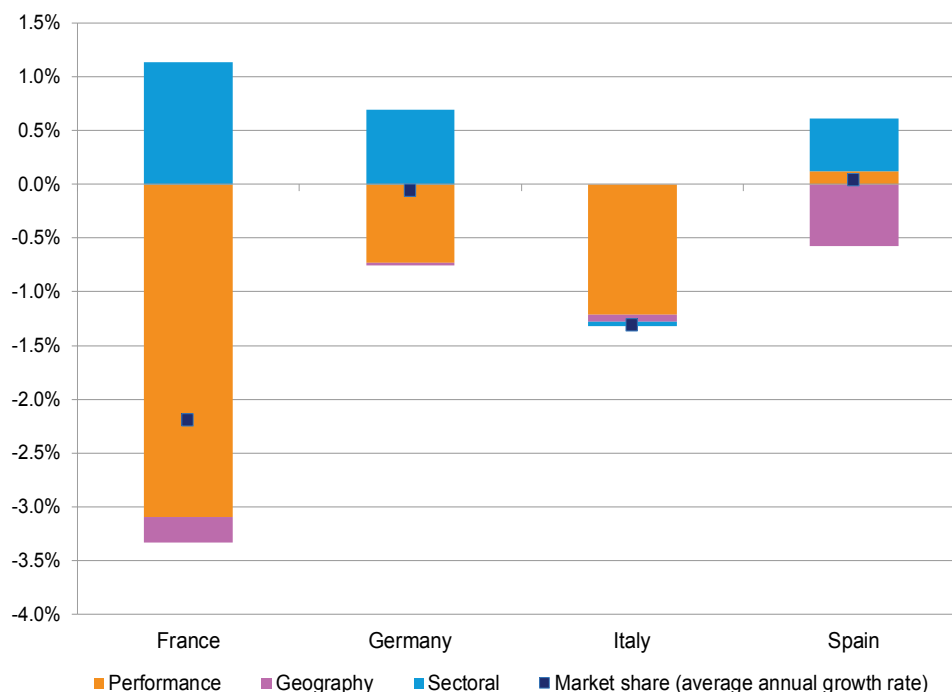
² For the method, see Cheptea A., Gaulier G. and Zignago S. (2005), "[World trade competitiveness: A disaggregated view by shift-share analysis](#)", *CEPII Working Paper*, no. 2005-23, December.

³ Bas M., Fontagné L., Martin P. and Mayer T. (2015), "[À la recherche des parts de marché perdues](#)", *Les notes du Conseil d'analyse économique*, no. 23, May.

⁴ Emlinger C., Jean S. and Vicard V. (2019), "[L'étonnante atonie des exportations françaises](#)", *op. cit.*

terms of the characteristics of domestic production and, among other things, exports. We are particularly interested in production cost competitiveness.

Figure 25 – Breakdown of the annual growth rate of market shares, 2000-2016



Note: Shift-share decomposition based on a variance analysis of disaggregated data (USD bilateral flows between 228 countries for more than a thousand product categories). France's market share fell by 2.2 % per year on average between 2000 and 2016 including 0.2 point because of the geographical breakdown of its exports; while all else equal its sectoral specialization would have led to a 1.1 % per year average growth.

Source: CEPII's BACI database, calculations by Camatte & Gaulier (2018)

3. Measuring the competitiveness of French exports

3.1. Competitiveness in their destination: price and non-price competitiveness

The aforementioned CAE study finds that France's specialisation – whether geographic or sectoral – plays no great role in its market share losses, and thus concludes that “French exporters are less effective than the Germans at selling the same product on the same market”. France's weak export performances could therefore, first and foremost, be put down to insufficient value for money rather than poor country or product positioning.

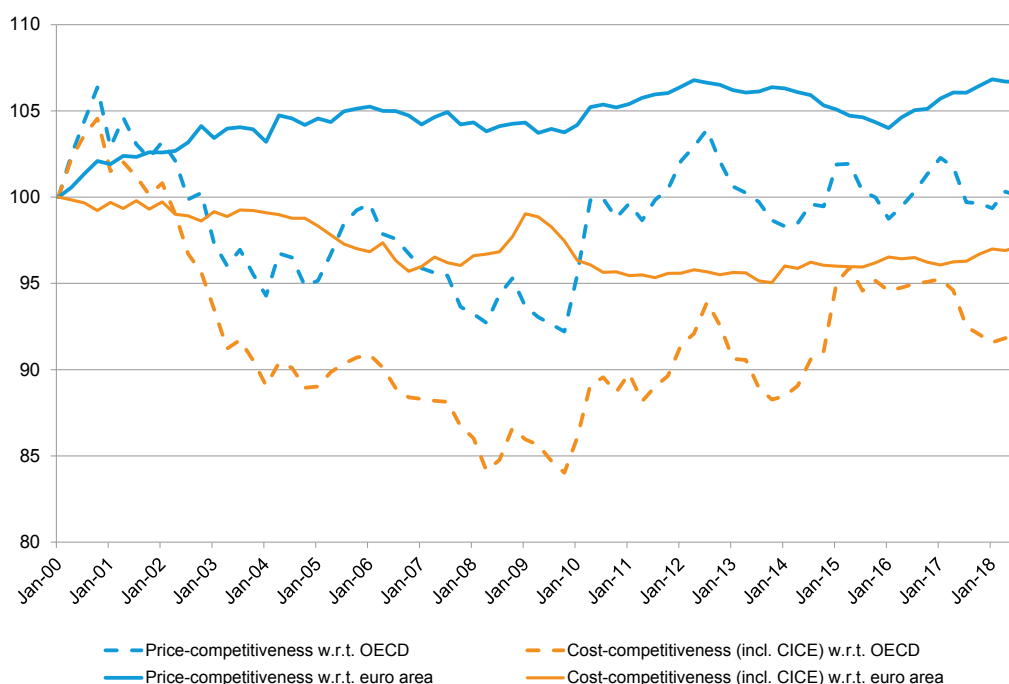
By comparing the export prices practised by France against those practised by its partners, it is possible to ascertain the role of “price competitiveness” in market share trends. For example, the Ministry of Finance¹ has established an indicator of export price competitiveness defined as the ratio of the export price of foreign goods and services to the export price of French goods and services. To measure the foreign prices, the prices practised by each partner are weighted by the degree of competition between France and the country being considered². Defined in this way, French price competitiveness improves when French prices climb more slowly than the foreign prices expressed in a common currency. Such improvement may result from a less substantial export price hike or a decrease in the nominal exchange rate of the euro.

In this regard, France’s price competitiveness has improved in comparison with the euro area since 2000, with a clear upturn between 2000 and 2006 in particular (see Figure 26). On the other hand, price competitiveness in comparison with OECD countries fell over the 2002-2009 period – even if it then returned to its early 2000 levels post-financial crisis – not least in the wake of the euro’s effective depreciation. The exchange effect generates stronger fluctuations in the price competitiveness indicator when France is compared with the OECD rather than the euro area (although both curves indicate a relatively stable price competitiveness since 2010).

¹ For example, see Directorate General of the Treasury (2019), "[Résultats du commerce extérieur 2018](#)", 7 February

² This weighting includes the weight of the importing country in French exports, and the share held by the competing country as far as this importer is concerned.

Figure 26 – Cost and price competitiveness of France compared with its OECD and euro area partners



Reading note: 2000 Q1 = 100. An upward curve corresponds to an improvement in competitiveness.

OECD: all OECD countries with the exception of central Europe (Poland, Hungary, Slovakia, Czech Republic, Slovenia and Estonia), Iceland, Chile and Israel.

Euro area: 10 countries (Germany, Belgium, the Netherlands, Spain, Italy, Austria, Finland, Ireland, Portugal and Greece).

Source: National accounts, OECD EO 104, Treasury DG calculations (2018 foreign trade performances)

Attributing the decline in French market shares – compared with its euro area partners in particular – to worsening price competitiveness hardly strikes as straightforward in this context. So CAE research has sought to distinguish what proportion of the market share trends is down to price competitiveness variations and what proportion is down to “non-price” competitiveness. The non-price dimension of competitiveness is harder to measure than the price competitiveness dimension. The measurement¹ used by the CAE’s authors entails considering it as the proportion of the variation in market share which is not explained by the variations in export prices (and other standard export determinants).

¹ This is based on the method employed by Khandelwal A. P. Schott and Wei S. (2013), “Trade liberalization and embedded institutional reform: Evidence from Chinese exporters”, *American Economic Review*, vol. 103, no. 6, October, pp 2169-95.

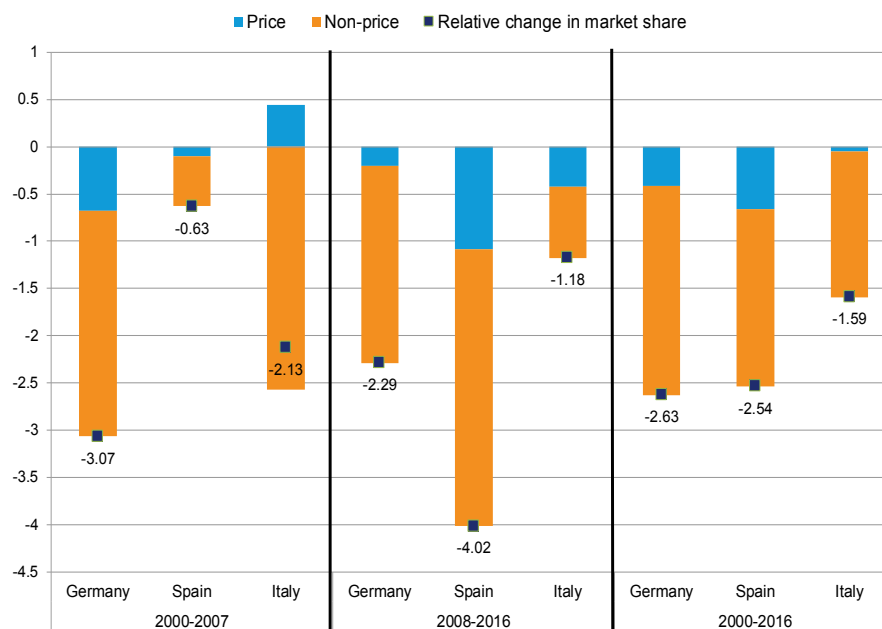
When the two dimensions are measured in this way, it is possible to determine the role they play in the loss of French export market shares. Across the 2000-2016 period, the relative deterioration in market shares is above all due to the deterioration in non-price competitiveness (see Figure 27). It is this dimension in particular that explains the trajectory followed by French market shares compared with the other main euro area members. Care should be taken when interpreting these findings, however, as the export price measurement is fairly uncertain in the statistics, and this can give rise to decomposition problems if the non-price component is effectively measured as a residual after price control.

Today, in particular, such negative growth in non-price competitiveness puts France on a median footing within the main OECD countries. According to the CAE study, France ranks average if the number of sectors forming part of the top ten in terms of non-price competitiveness is counted. In 2016, it thus came in 6th place in the OECD (see Figure 28). But compared with its trading partners, France is on a downward trajectory and tops the global non-price competitiveness rankings in only one sector: aeronautics¹. Germany stands clearly above the other OECD countries since its top ten sectors from a non-price competitiveness point of view are in pole position globally. It has a significant lead on the other OECD countries, and this is especially penalising for French exports given that four of the ten most competitive sectors on the non-price criterion are common to the two countries: Germany, France's closest competitor, outperforms it in terms of non-price competitiveness.

What are the explanations for these price and non-price competitiveness trends? The price differences can stem from two main factors: production costs and the mark-ups practised. Moreover, at a given price, non-price competitiveness has an influence on a company's ability to practise varying mark-ups and therefore adjust the weight of production costs in the final price. It is therefore worthwhile assessing the differences in production cost to gain a clearer idea of the trends in price and non-price competitiveness.

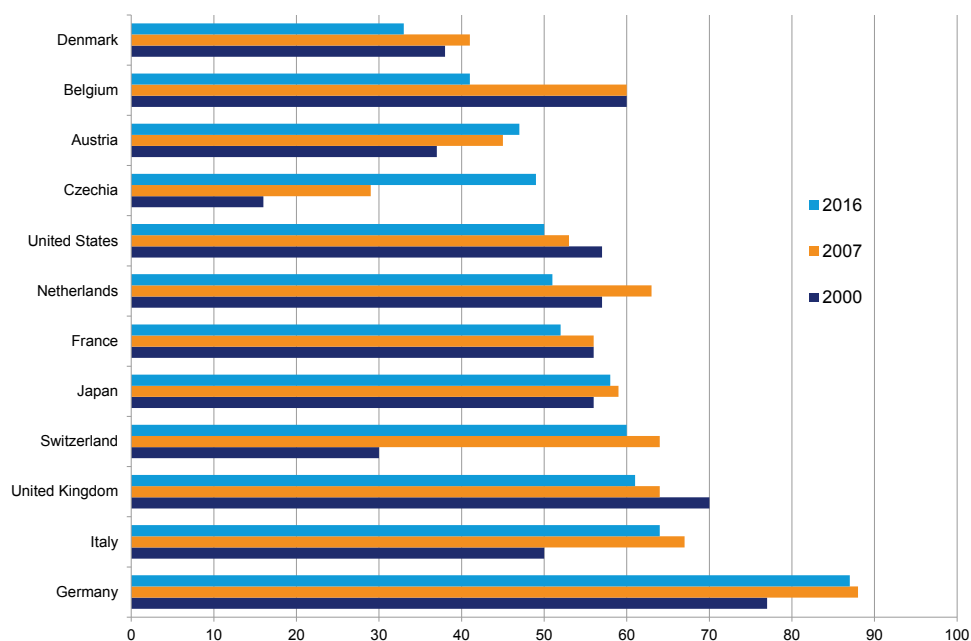
¹ In this sector, it is possible that the procurement and loan conditions, for example – which are probably poorly captured by the price statistics – are significant relatively speaking.

Figure 27 – Annual variations in France’s market shares compared with the other main euro area countries, and price and non-price competitiveness component, as a percentage; 2000-2007, 2008-2016, 2000-2016



Source: Bas et al. 2015, Note du CAE no. 23, updated by the CAE. Between 2000 and 2016, the annual variation in French market shares was 2.6 points lower than the German variation. 0.4 points were due to the evolution of export prices

Figure 28 – Number of sectors by country forming part of the top ten in terms of non-price competitiveness in 2000, 2007 and 2016



Source: Bas et al. 2015, Note du CAE no. 23, updated by the CAE. In 2016, France had 52 sectors in the OECD "top 10" on the non-price competitiveness dimension, out of 102 sector

3.2. Competitiveness in the production process: cost competitiveness and mark-ups applied

Alongside its price competitiveness indicator, the Ministry of Finance has established an indicator of cost competitiveness defined as the ratio of unit wage costs of competing economies (labour cost adjusted for productivity) to France's. The weightings used for the countries are the same as for the price competitiveness indicator.

Compared with its main OECD partners, France's cost competitiveness has made noticeable progress since 2010 (see Figure 26), particularly in connection with the depreciation in the nominal exchange rate of the euro between 2008 and 2012. Such improvement has partly made up the ground lost since the early 2000s. Cost competitiveness in comparison with the euro area decreased less quickly than it did compared with the OECD between 2000 and 2010, and it has stabilised since.

Declining cost competitiveness amid stable price competitiveness may reflect greater efforts on the part of French exporters to reduce their mark-ups than their foreign competitors: the relative export mark-up performance is the ratio of price competitiveness to cost competitiveness. By comparing these two indicators, a major mark-up effort compared with the euro area can be observed between 2000 and 2010, which has since stabilised. On the other hand, in comparison with the OECD, the improvement in cost competitiveness alongside more stable price competitiveness reflects an easing off in French exporters' mark-up effort. This could benefit non-price competitiveness if companies use these additional mark-ups to invest in enhancing their products and production process.

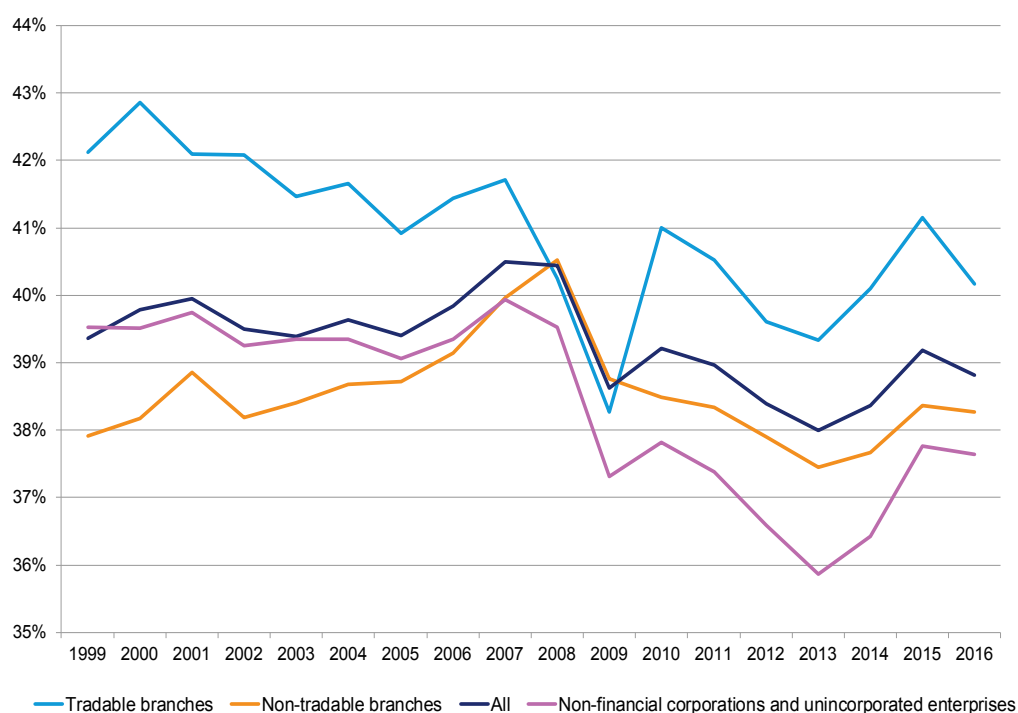
Mark-up behaviour can also be assessed on the basis of national accounting data by measuring the ratio of the gross operating surplus (and mixed income, i.e. the remuneration of individual entrepreneurs) to value added¹. Economy-wide, the mark-up rate increased over the 1999-2008 period from 39.4% to 40.4%, before falling post-crisis again to 38.8% in 2016 (see Figure 29). The trajectories are similar, but the variations more marked if we focus solely on non-financial firms and non-financial individual entrepreneurs. If we distinguish mark-up trends between sectors open to global competition and sheltered sectors², it can be observed that in

¹ Patier B. and Virely B. (2017), "[Le taux de marge des entreprises s'équilibrerait à un niveau plus bas qu'avant-crise](#)", in Insee *Note de conjoncture*, December, pp 39-57.

² Here we apply the sectoral division between open and sheltered sectors adopted by Le Moigne M. and Ragot X. (2015), "[France et Allemagne : une histoire du désajustement européen](#)", *Revue de l'OFCE*, 6(2015), pp 177-231. Because sector-level data are not specifically available for non-financial firms

open sectors mark-ups decrease pre-crisis before levelling out; while sheltered sector mark-ups had increased in the early 2000s before going downhill from 2008. If we concentrate solely on industrial branches, which are part of the open sector, the finding is that Italian and French mark-ups have followed parallel trajectories since 2000, whereas German mark-ups picked up considerably between 2003 and 2007 (see Figure 30).

Figure 29 – Gross operating margin in tradable and non-tradable sectors in France

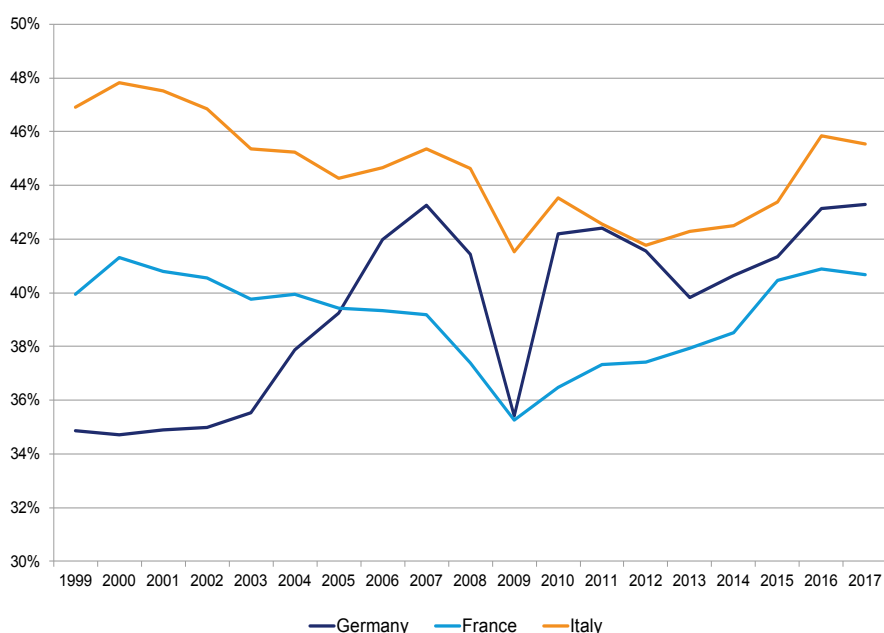


Note: Gross operating margin is computed as gross operating surplus over value added. National accounts do not distinguish branches by institutional sectors: "All" includes the entire economy and all branches, "NFC and " includes the gross operating surplus of non-financial corporations and the mixed income of unincorporated enterprises.

Source: Eurostat. NPB calculations

and non-financial individual entrepreneurs, our analysis is based on the whole of the economy when a distinction is drawn between sheltered and open sectors.

Figure 30 – Gross operating margin in industry in France, Germany and Italy



Note: Gross operating margin is computed as gross operating surplus over value added in the industry sector according to the Nace Rev. 2 classification.

Source: Eurostat, NPB calculations

Several key conclusions come to the fore regarding French competitiveness following the current account analysis. The decline in France’s current account since the 2000s has mainly been driven by the worsening balance on goods between 2000 and 2008. This has led to a greater reduction in France’s global export market shares compared with its euro area neighbours, despite having the same currency. Such loss in market shares has continued throughout the period from 2000 to the present day. It has also been caused by a loss in “non-price” competitiveness, especially since the crisis – a competitiveness which could have been affected by the significant mark-up performance of French exporters prior to 2008. Indeed, France saw its cost-competitiveness fall in comparison with the other euro area countries throughout the 2000-2008 period. Sectoral and geographic specialisation does not seem to have played a decisive role in French competitiveness trends.

Growth in a country’s cost competitiveness depends on all inputs (labour and capital) and the weight of taxation; and the costs generated by intermediate consumption of products from sheltered sectors also have implications for the competitiveness of exporters. The next section sets out to disaggregate the components of France’s cost-competitiveness.

DETERMINANTS OF PRODUCTION COSTS

For a more detailed analysis of production costs, they can be broken down into four main aggregates. Output requires payment of intermediate inputs, labour compensation, capital and taxes on production net of any subsidies received. For example, in 2017, the output of non-financial firms amounted to €2.819 trillion (see Table 2). Intermediate inputs accounted for 58% of the output level. The remaining value added was then divided between wages (28% of the output value or 66% of value added), taxes less subsidies on production (1% of output, 3% of value added), and the gross operating surplus (13% and 32% respectively) which is put towards paying shareholders and loan interests as well as investments.

Table 2 – Distribution of output of non-financial firms, in 2017

Output, in €trillion	Intermediate inputs	Labour compensation	Taxes less subsidies on production	Gross operating surplus
2.819,092	57.9%	27.6%	1.1%	13.4%

Source: Insee

1. Growth of wages and productivity in France

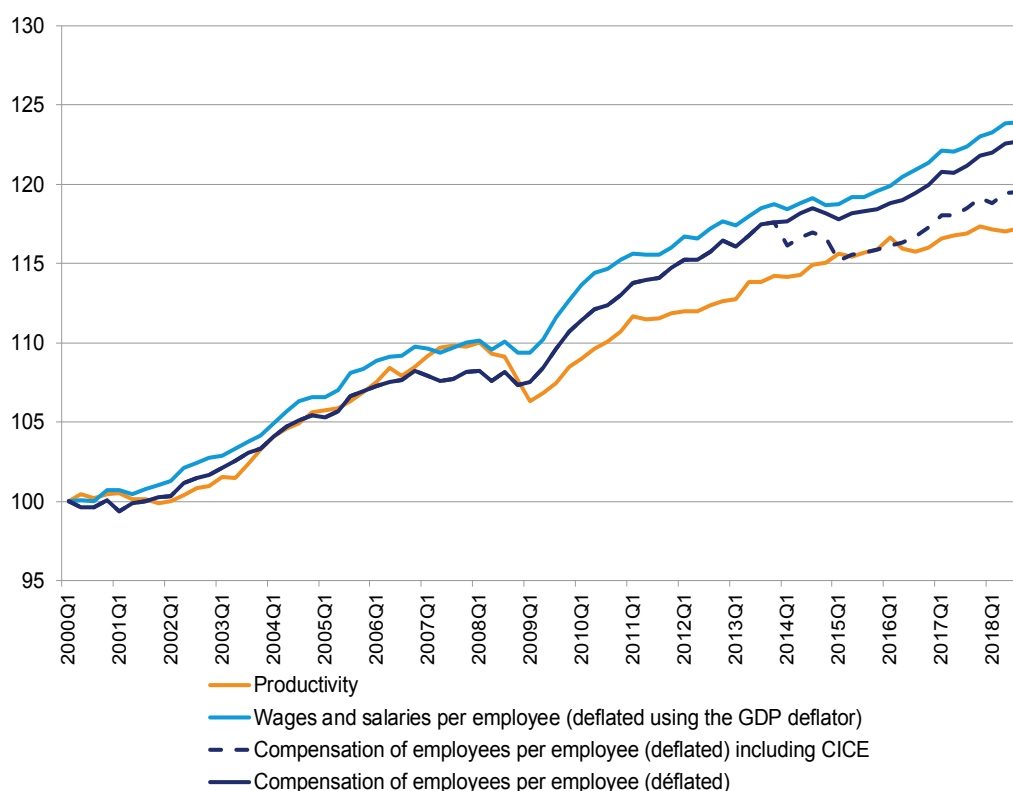
1.1. At the aggregate level and factoring in tax measures, wages have grown in line with productivity in France

Comparative trends in real wages and productivity

Comparative trends in labour productivity and real wages provide a relatively consensual indicator of any labour cost-related imbalances. From the 1990s until the 2008 financial crisis, there was a fairly remarkable correlation between France's wage

growth and productivity growth (see Figure 31), a period which also saw the share of labour compensation remain stable in the value added. During the crisis, apparent labour productivity picked up¹, while the change in wages was modest. The gap between productivity and wages then widened up until 2014, when new cuts in contributions were rolled out (CICE and Responsibility Pact). In Germany, on the other hand, wages grew below the level of productivity before the crisis, and the gap that had opened up was thus partly maintained after the crisis (see Figure 32).

Figure 31 – Growth in compensation and productivity in France

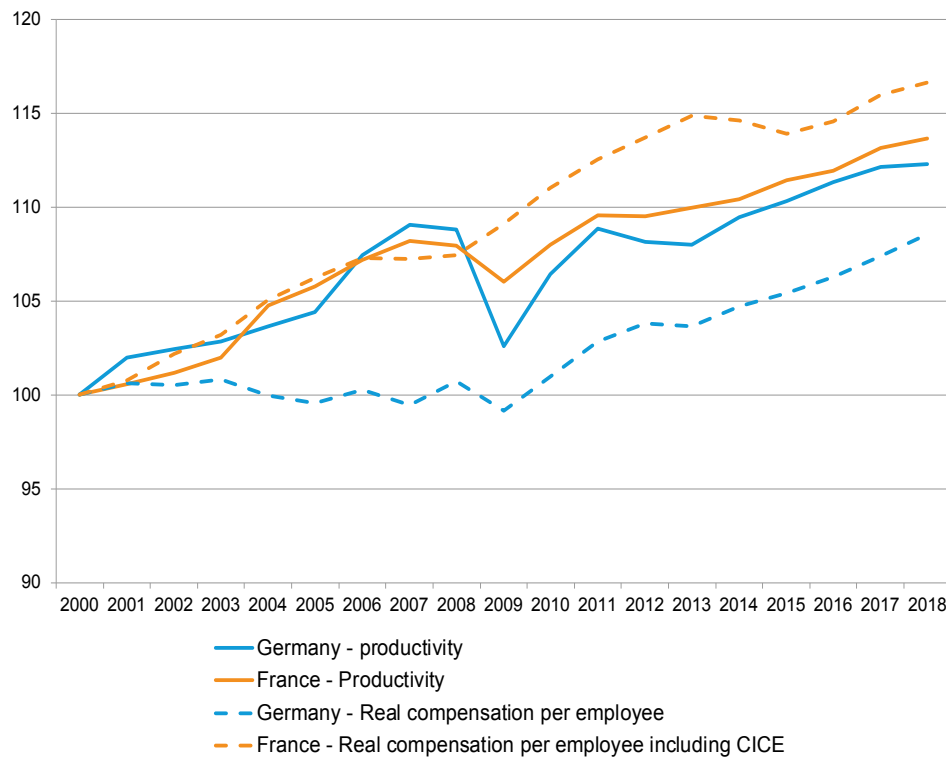


Reading note: 2000 Q1 = 100. Productivity and compensation are measured on the non-agricultural market sector. Compensation of employees is deflated by the GDP deflator.

Source: Insee, NPB calculations

¹ Askenazy P., Bozio A. and García-Peñalosa C. (2013), "Dynamique des salaires par temps de crise", *Les notes du Conseil d'analyse économique*, no. 5, April.

Figure 32 – Growth in compensation and productivity in France and Germany



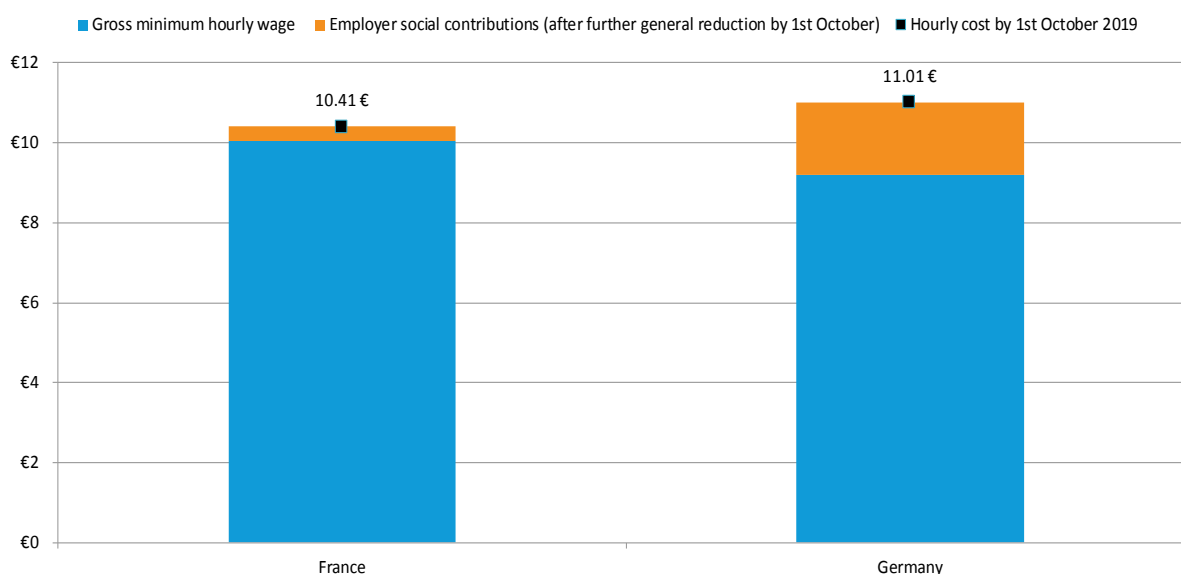
Reading note: 2000 = 100.

Source: Eurostat, NPB calculations

Labour cost at minimum wage level

Labour cost at minimum wage level has been more or less the same in France and Germany since 2017 (in 2017, both costs amounted to €10.41 and €10.56 respectively, and in 2018 to €10.64 and €10.55). The higher gross minimum wage amount in France is offset by lower contributions for French employers at this wage level (see Figure 33). On 1 January 2018, the hourly labour cost in France had risen slightly above this cost in Germany at this wage level, since Germany's minimum wage had not been revised upwards in 2018, unlike the equivalent in France. In 2019, the hourly labour cost in France is expected to fall relative to the German cost: first of all, efforts to bring down the labour cost are set to continue in France, particularly with an additional decrease of some 4 points at national minimum wage level in employer's contributions from October 2019. Moreover, on 1 January 2019, Germany's minimum wage was revised by 2%, and a further 2% revision is expected on 1 January 2020.

Figure 33 – Minimum wage and labour cost in 2018

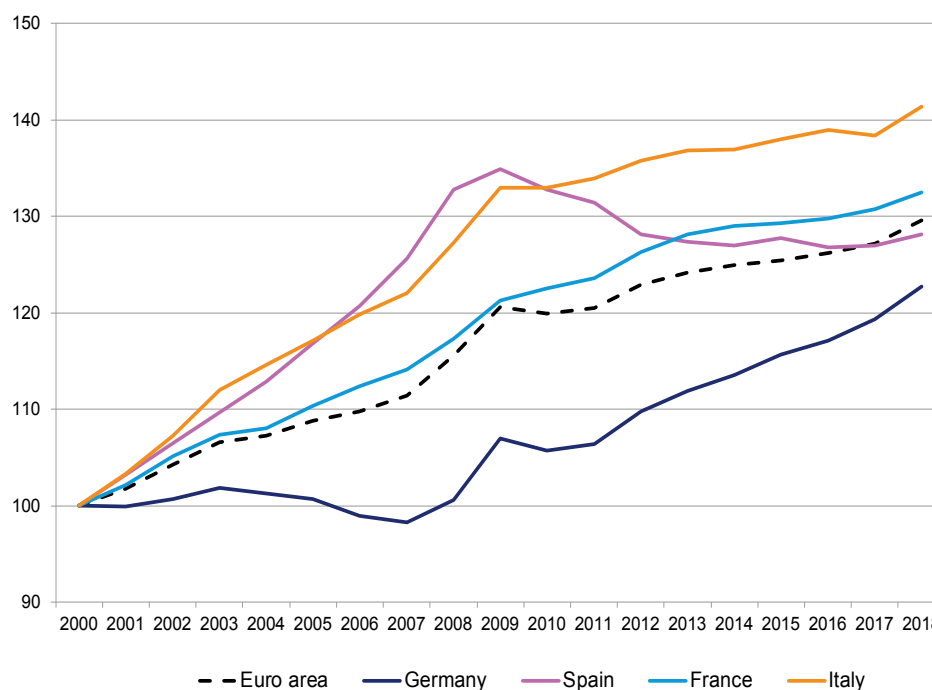


Source: national legislation, Treasury DG calculations

Nominal unit labour costs (ULCs) in level and variation, euro area

Unit labour costs correspond to the labour cost per unit of output produced. Nominal ULC trends in France were very similar to ULC trends in the euro area up until the 2008-2009 financial crisis – growing at an annual pace of +1.8% (which is slightly below the European Central Bank’s target inflation rate) – while German ULCs changed little over this period (see Figure 34). Since the crisis, costs have been converging, with French and Spanish ULCs growing more moderately (+0.9% a year in France, including the CICE) while German wages gathered pace, leading to more dynamic ULCs (+1.4% a year). Italy, meanwhile, is nowhere near correcting the cumulative rise in its ULCs that occurred over the 2000s.

**Figure 34 – Euro area: unit labour costs
(total economy)**



Reading note: 2000 = 100.

Source: Eurostat, NPB calculations

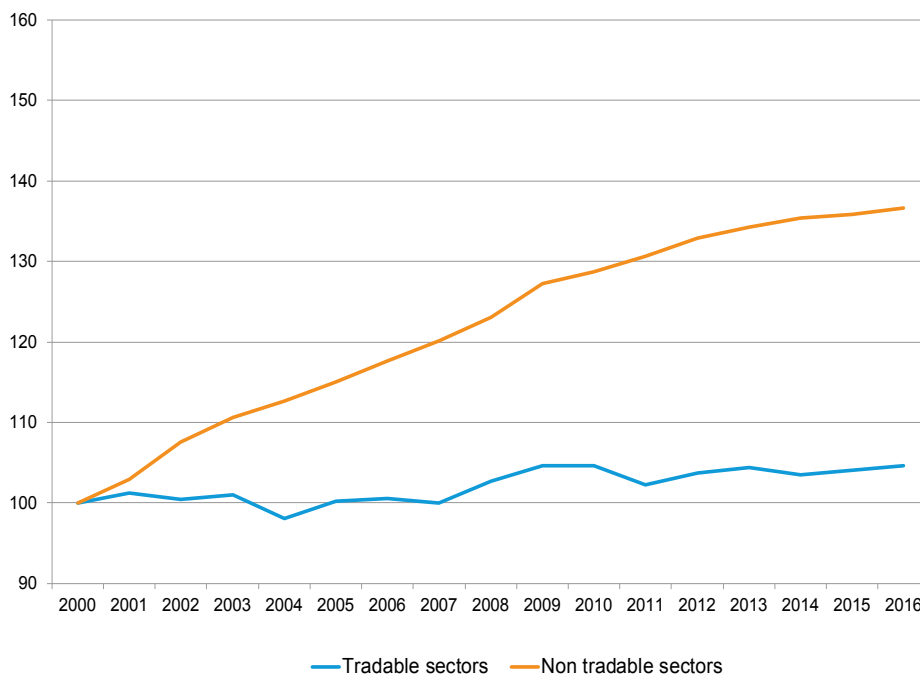
1.2. Unit labour costs have risen more quickly in sheltered than open sectors owing to the productivity differential

In France, the rise in unit labour costs observed at the aggregate level hides disparate trends across sectors. In sectors that are sheltered from global competition¹, ULCs have grown by more than 35% between 2000 and 2016, compared with a less than 5% rise in open sectors (see Figure 35). A 35% rise in 16 years corresponds to an annual growth rate of 2% – which is close to the target inflation rate. It also comes as no surprise that the open sector (such as the manufacturing industry), which traditionally posts more dynamic productivity than

¹ The distribution between sheltered and open sectors is the same as that established by Le Moigne and Ragot in Le Moigne M. et Ragot X. (2015), "France et Allemagne : une histoire du désajustement européen", *Revue de l'OFCE*, 2015/6, no. 142, pp 177-231. Open sector: agriculture, manufacturing sectors, information-communication, financial services, energy, water and waste; Sheltered sector: construction, retail, transportation, accommodation and food services, real estate, non-market services, services for households and businesses.

the sheltered sector (which encompasses most services), sees more modest growth in its ULCs.

Figure 35 – France: unit labour costs in the tradable and non-tradable sectors

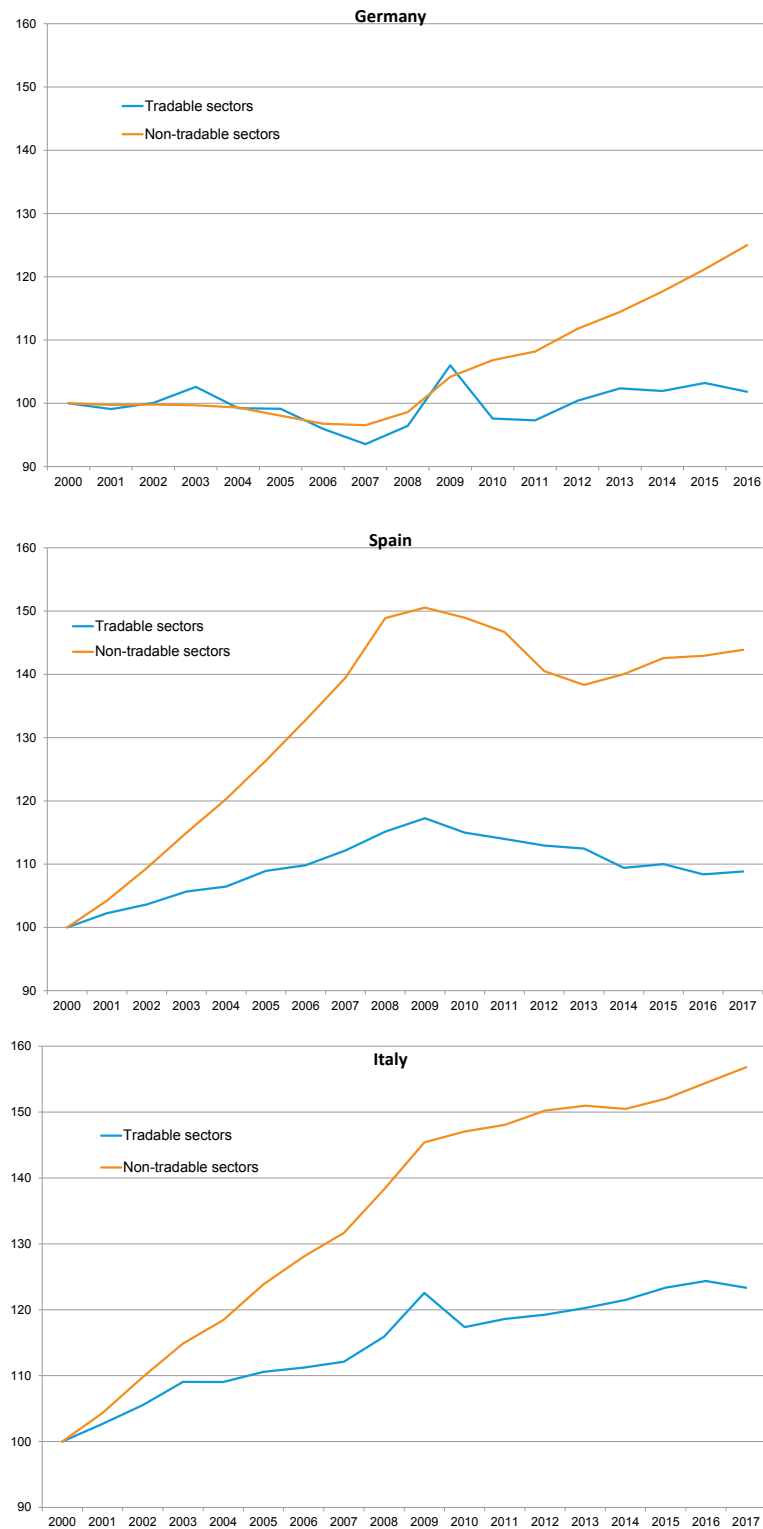


Reading note: 2000 = 100. ULCs are computed as the ratio of employee compensation on value added. The decomposition between tradable and non-tradable branches is based on Le Moigne et Ragot (2015), see main text.

Source: Eurostat, NPB calculations

Such highly disparate trends between sheltered sector and open sector ULCs are also evident among France’s main euro area partners (see Figure 36). That said, Germany is an exception within the main euro area countries for the zero – if not negative – growth in ULCs in the sheltered sector up until 2008. Over this period, a 2% annual growth rate would have resulted in a 17% increase. Since 2008 and the end of this period of moderation in Germany, ULCs in the sheltered sectors increased by nearly 27% until 2016, versus 11% in France over the same period.

Figure 36 – Unit labour costs in the tradable and non-tradable sectors, in Germany, Italy, and Spain



Reading note: 2000 = 100.

Source: Eurostat, NPB calculations

1.3. Does the wage-setting process enable sufficient correlation with productivity?

The gap between apparent labour productivity and wages adjusted for value added prices that emerged following the 2008 crisis (see Figure 31) – which is not specific to France and can also be observed in the euro area – is only partly explained by its macroeconomic determinants (Audenaert *et al.*, 2014¹). Several causes are often cited to analyse this difference, without any accounting for the whole of it.

An initial explanation is a **modification in the labour force qualification structure** after the crisis. The top-earning categories typically have a more stable employment situation and are less affected by economic turmoil. In France, this is the case for the better educated, for whom employment has even increased among executives in particular (Audenaert *et al.*, 2014). Such composition changes – particularly marked between 2008 and 2011 – drive up the average wage and hide a significant adjustment at the individual level. By establishing wage variations given a fixed labour force composition in terms of education and experience, Verdugo (2016)² attributes nearly all of the increase in average real wage³ during the crisis to these composition effects – in France and seven other major euro area countries.

A second explanation that may explain the resilience in wages over the Great Recession concerns the **presence of downward nominal wage rigidity**. This rigidity can be assessed via a macroeconomic approach, factoring in rates of unemployment and inflation (Phillips curve). By estimating a reduced form of a New Keynesian Wage Phillips Curve over the 1985-2014 period, Lopez-Villavencio *et al.* (2017)⁴ suggest that nominal wage rigidity is higher in the United States than Europe, where wage indexation is dominant. To be more exact, three groups of countries can be distinguished. The first includes those countries where wage rigidity is low (Austria, Japan, the Netherlands, Portugal and Norway) and wage moderation can be higher. A second group encompasses those countries where nominal rigidity is high (United

¹ Audenaert D., Bardaji J., Lardeux R., Orand M. and Sicsic M. (2014), "[La résistance des salaires depuis la grande récession s'explique-t-elle par des rigidités à la baisse ?](#)", Insee, Dossier in *L'économie française – Édition 2014*.

² Verdugo G. (2016), "Real wage cyclicity in the Eurozone before and during the great Recession: Evidence from microdata", *European Economic Review* 82, pp 46-69.

³ The wages are measured at individual level and deflated by the Harmonised Index of Consumer Prices. The increase in real wages is not an increase relative to productivity, but an absolute increase.

⁴ Lopez-Villavencio A. and Saglio S. (2017), "The wage inflation-unemployment curve at the macroeconomic level", *Oxford Bulletin of Economics and Statistics*, 79(1), pp 55-78.

States, Ireland and Spain). The other countries analysed by the authors, including France, are in an intermediate position, with relatively high indexation to inflation. But this indexation phenomenon also depends on the economic context and, irrespective of the country, wages have thus proven to be less rigid post-crisis. What is more, according to this research, the magnitude of indexation appears to be linked to the extent to which wage negotiations are centralised. The indexation measured in France is average, but this finding may nevertheless raise questions over the situation of the French system (see Box 1).

Although the link between wages and productivity has been confirmed at the macroeconomic level (except during 2009-2010), microeconomic analysis lays bare major disparities that the average scores belie. For, beyond the unequal level of openness to global competition (see above), a large number of factors may sway the division in value added from one sector or one company to another, including capital deepening, status of the company (independent or part of a corporation), position within the production chain (subcontractor or main contractor) or funding method for example¹. Furthermore, econometric assessments show how difficult it is to establish a correlation between wages and productivity – at least in the short- or medium-term. On the basis of individual data over the 2003-2011 period, Audenaert *et al.* (2014) suggest that the immediate response of wages to a specific business shock (whether upward or downward), for people remaining in employment, is always very slight: the impact on a company's payroll of a 10% shock on its revenues, is only 0.2% in the same year on average².

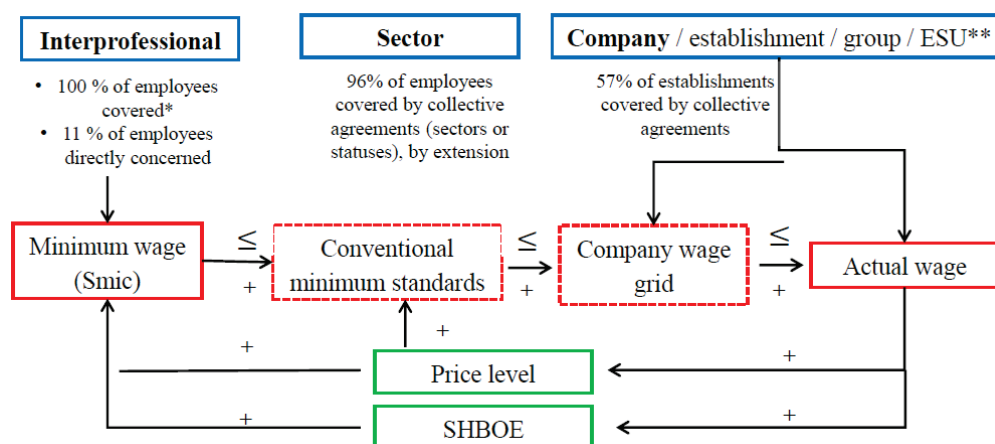
Box 1 – The wage-setting mechanism in France

In France, wage-setting mechanisms, which are based upon interlinked wage negotiation levels (national minimum wage at interprofessional level, collective minimum wage agreements at sector level, company-level agreements), contribute to the revision of individual wages.

¹ Report to the President of the Republic, *Partage de la valeur ajoutée, partage des profits et écarts de rémunérations en France*, Mission chaired by Jean-Philippe Cotis, May 2009.

² Remember, though, that, according to microeconomic theory, wages must be adjusted not to productivity, but to *marginal productivity*.

Diagram of wage negotiation institutions in France



* Excluding apprentices for under 10 years, interns, childminders and foster carers, supported work services for disabled people, or travelling sales representatives, to which the national minimum wage does not apply.

** Economic and social units

Source: Dares, ACEMO; Insee, Employment survey

In a recent study, Gautier *et al.* (2018)¹ break down the impact that these three different levels of collective agreement have on the dynamics of basic gross wages into two separate channels: the activation of pay rises and their magnitude when they come about. Increases in the national minimum wage above all increase the magnitude of pay rises when these are actually put into practice. Increases in minimum wages under sector-level agreements and company-level agreements have more of an effect, meanwhile, on their activation. By taking the recomposition of these two effects into account, they estimate that, all other things being equal and over a timescale of several quarters, a 1% increase in the national minimum wage raises individual basic wages by 0.08% on average², which is a fairly modest effect. This diffusion effect is above all concentrated on the lowest wages: it is dominant at the 1st earnings decile before falling sharply. A similar increase in minimum wages set by collective agreement increases wages by 0.14% and the signature of a company-level agreement by 0.30%. Since minimum wages set by collective agreement and wage scales of company-level agreements cover a broad spectrum of wage levels, the diffusion effects are,

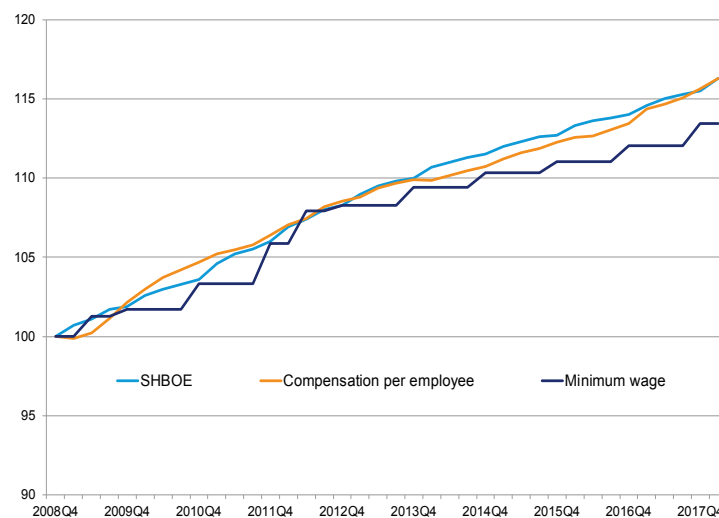
¹ Gautier E., Roux S., and Suarez-Castillo M. (2018), "Le rôle des accords collectifs sur la dynamique des salaires", in *Emploi, chômage, revenus du travail – Édition 2018*, collection Insee références, July, pp 27-38.

² These are "direct" effects of each of the variables on wages, irrespective of the others. Accordingly, the elasticity of the minimum wage estimated at 0.08 here corresponds to a direct impact, not including the diffusion of the national minimum wage via the sector-level minimum wages, which also influence the level of average wages.

fairly automatically, much more uniform over the wage scale in comparison with those of the national minimum wage.

Moreover, because the national minimum wage has been indexed from the outset on half the purchasing power of the basic hourly wage of workers and employees (SHBOE), this by connection therefore has a potential impact on minimum wages set by collective agreement, company-level wage scales and ultimately actual earnings including those of workers and employees too – incurring a risk of circularity between the national minimum wage and the SHBOE, as indicated by Cette *et al.* (2011)¹. It is nevertheless possible to put these findings into perspective because, since the last increase in July 2012, the national minimum wage has risen much more slowly than the SHBOE. More generally, the former has increased at a slower pace than the average wage since 2012, steadily widening the gap until the present day (see Figure below). Over the same period, France has, incidentally, been one of the few countries in the euro area where the relationship between the national minimum wage and median wage has weakened according to OECD data (with Belgium, Luxembourg, Hungary and Slovenia).

Minimum wage, Worker and employee basic hourly wage (SHBOE), and compensation per employee (SMPT)



Reading note: 2008 Q4 = 100. SHBOE: Worker and employee basic hourly wage.

Source: Dares, Acemo; Insee, quarterly accounts

¹ Cette G., Chouard V. and Verdugo G. (2012), "Les effets des hausses du Smic sur le salaire moyen", *Économie et statistique*, no. 448-449, October.

2. A similar cost of capital to other euro area countries

The cost of capital acts upon competitiveness via two channels. First of all, there is a direct impact since it represents the cost of an input. Second, there is an indirect impact as it plays a decisive role in investment choices.

2.1. Costs of capital

The total cost of capital can be defined as the weighted average cost (i) of equity and (ii) of debt¹. French businesses have similar costs of equity to other European businesses and their borrowing costs are among the lowest in Europe.

The cost of equity (COE) is defined as the rate of return expected by an investor to acquire or retain a company's shares given their risk. This is a central cost for all businesses, especially those who carry innovative projects with a more uncertain profitability timeframe. For these uncertain projects, debt financing is hardly appropriate and start-ups tend to finance themselves primarily through equity. In practice, the COE cannot be observed directly, unlike the cost of debt. For a given business, in the same way as for the whole of the economy, it can only be assessed by estimating it on the basis of stock exchange data via an equity valuation model². The results of these estimates show that European businesses' cost of equity is almost as low as it has ever been, and the cost in France is very similar to its European neighbours (see Figure 37).

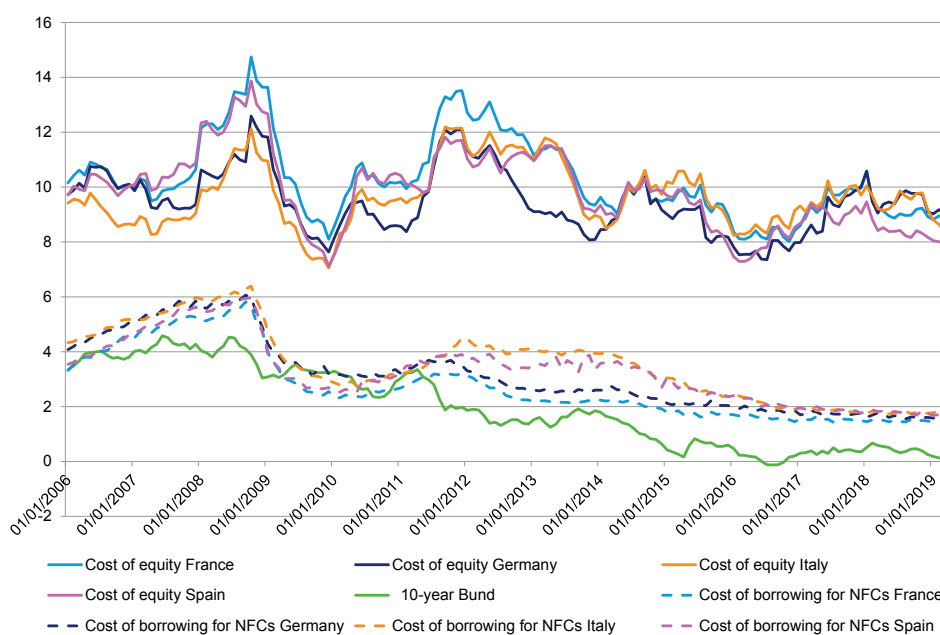
Regarding the cost of debt, bank rates are currently at a record low thanks to the advantageous monetary policy being led by the European Central Bank (ECB). French businesses' borrowing rates are lower than the German, Italian and Spanish rates according to the ECB's composite indicator³.

¹ It is commonly referred to as WACC, which stands for "weighted average cost of capital".

² The COE of French listed non-financial multinationals is estimated in [Mazet-Sonilhac and Mésonnier \(2016\)](#), who describe the method employed. The approach adopted combines two standard approaches, often used in a range of forms by financial analysts (see [Mukhlynina and Nyborg, 2016](#), for a review): the model for valuing shareholders' expected revenues and the capital asset pricing model (CAPM).

³ For more details, see the [ECB's website](#).

Figure 37 – Nominal cost of equity of non-financial multinationals across four major European countries



Note: the BCE synthetic cost of borrowing index is a weighted average of short- and long-term rates for non-financial corporations.

Source: Banque de France and Datastream (cost of equity), European Central Bank (cost of borrowing)

The differences in cost of capital between countries become starker in times of crisis, but remain low. An analysis of the cost of equity estimates for businesses shows that such differences are minor compared with the differences between businesses in different sectors within the same country. That said, what we can see from these results is that, in times of crisis, the prices of French multinational shares are on average better correlated to the variations of the European market (STOXX Europe 600) than those of German, Italian and Spanish businesses.

2.2. The importance of the cost of capital for investment

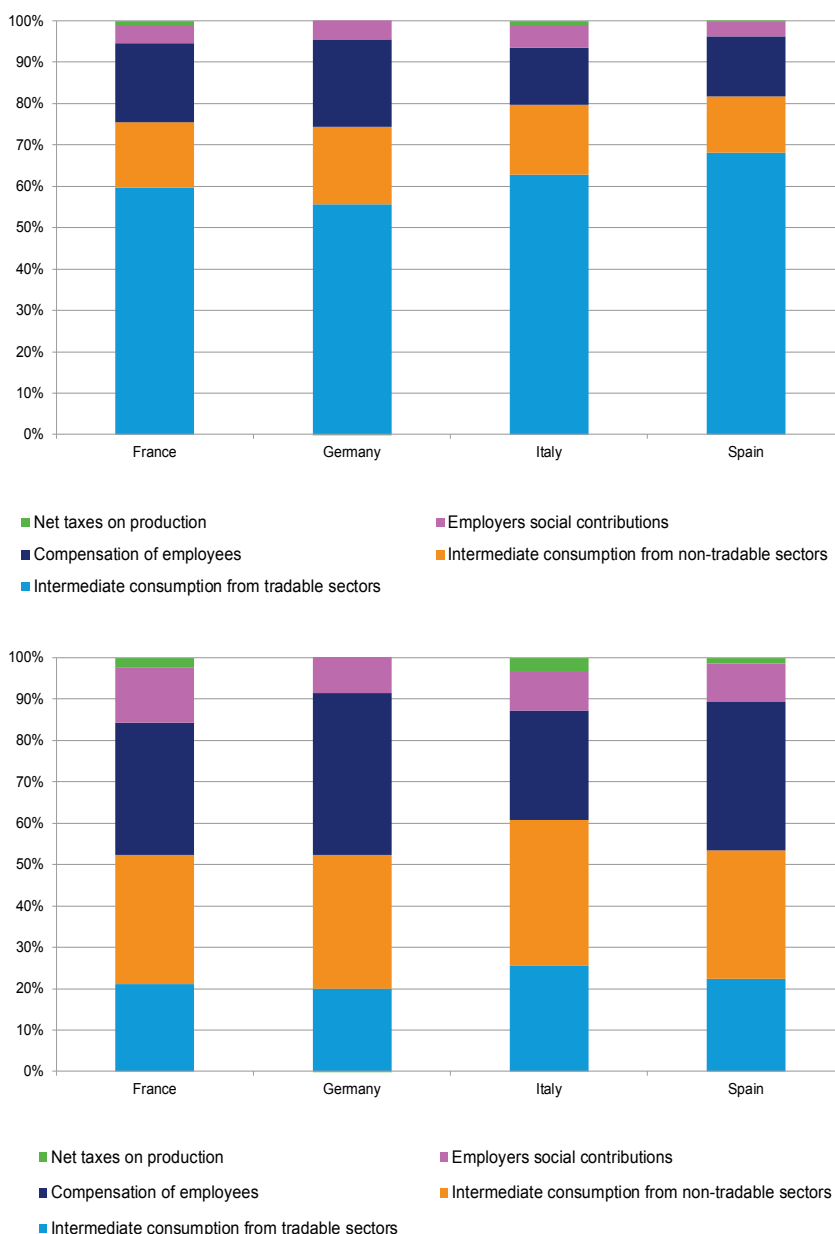
In addition to the direct effect it has on production costs, the cost of capital has an indirect effect on businesses' productivity via its role in investment decisions. A company will invest in a project if its profitability exceeds its financing cost. At macroeconomic level, a high cost of capital in a country would undermine medium-term growth forecasts by bringing down the level of investment. This negative relationship between cost of capital and investment has been empirically documented in a recent study based upon a dataset of consolidated balance sheets for French corporate groups¹.

¹ Carluccio J., Mazet-Sonilhac C. and Mésonnier J. S. (2018), "Investment and the WACC: New micro evidence for France", Banque de France Working Paper Series, no. 710.

3. The cost of intermediate inputs

In France, intermediate inputs accounted for more than 60% of production costs (not including return on capital) in 2015. This proportion exceeds 75% in open sectors, versus 52% in sheltered sectors (see Figure 38).

Figure 38 – Breakdown of production costs in the tradable and non-tradable sectors



Reading note: breakdown of costs of different components forming part of the production process (cost of labour, cost of inputs by type, taxes net of subsidies on production – costs associated with return on capital and income tax have therefore been excluded).

Source: OECD, Insee; NPB calculations

Intermediate inputs sourced from sheltered sectors accounted for 16% of production costs across the industries making up the open sector in 2015 in France. This figure stands at 19% in Germany but only 14% in Spain. What this means is that, although unit labour costs have stagnated in the open sectors, the noticeable increase in such costs (particularly relative to Germany) observed in the sheltered sectors has indirectly contributed to France's weakening price competitiveness (see 1.2), as shown in Figure 35 and Figure 36.

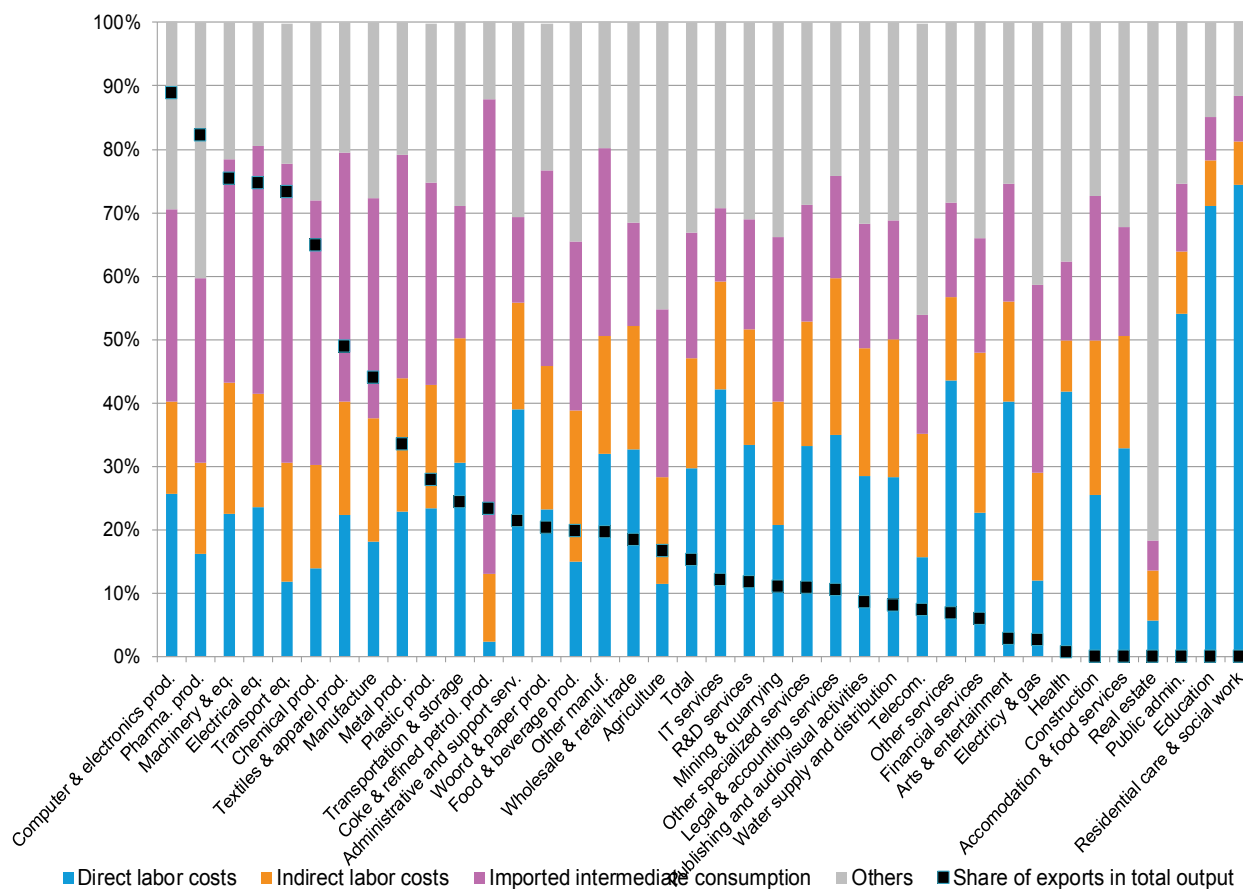
3.1. Imported intermediate inputs

At the aggregate level, it can be worthwhile distinguishing domestic intermediate inputs from imported intermediate inputs, for the former are themselves the result of an output incorporating domestic labour, domestic intermediate inputs and imported intermediate inputs, etc. If we move up the value chain, it ultimately becomes possible to break down production costs between direct and indirect labour costs via the domestic intermediate inputs, imported intermediate inputs and other costs (including the costs of capital in the domestic value chain in particular). By mobilising input-output tables between activity sectors of the national economy, Koehl and Simon (2019)¹ enable production costs to be broken down in this way for the main activity sectors (see Figure 39).

Imported intermediate inputs represent a fairly variable proportion of sector-level production costs, as can be seen in Figure 39. Accounting for around 20% of total sector-level costs, this proportion can range as high as 30% to 40% in the manufacturing industry, not including the manufacture of coke and refined petroleum products for which they make up 80% of production costs. In the services sector, imported intermediate inputs make up a smaller proportion of costs, while the cost of labour represents a relatively greater proportion than in industry. The share of imported intermediate inputs is in the region of 10% to 20% for the market services, with a maximum of 25% for telecommunications. Non-market services account for an almost insignificant share at around 5%.

¹ Koehl L. and Simon O. (2019), "[La part des bas et moyens salaires dans la production : l'importance des coûts indirects](#)", *Insee Analyses*, no. 45, March.

Figure 39 – Accounting decomposition of nominal output of each product



Note: "Others" include gross operating surplus, mixed income, and net taxes on production. Export shares are the ratio of domestic export to total production for a given product.

Interpretation: for the manufacture of computer, electronic and optical products, direct labour costs are 26% of production value, indirect labour costs 15 %, imported intermediate consumption 30%, and the others components are 30 %. Domestic exports for these products are 89% of total production of this product.

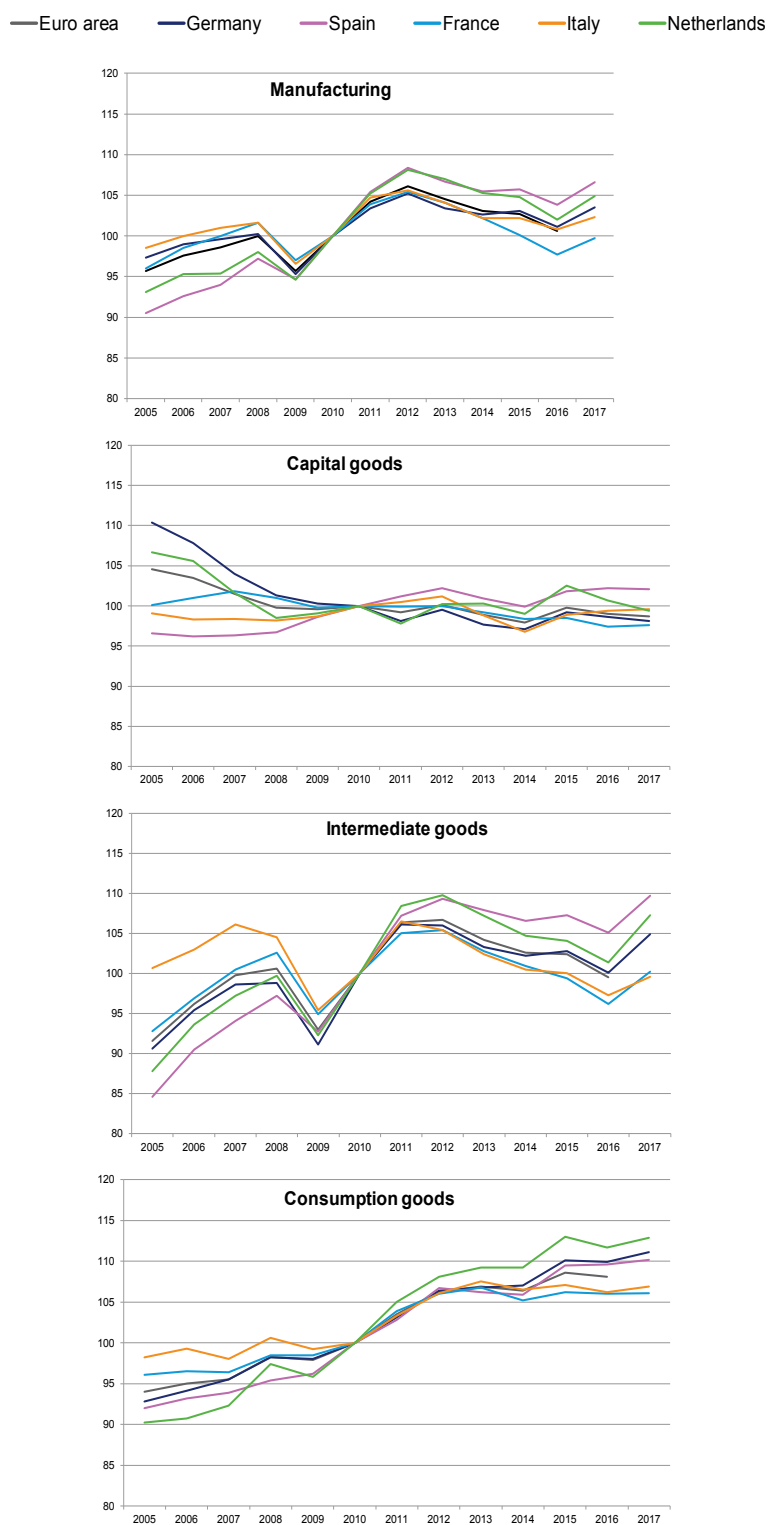
Source: Koehl and Simon (2019), "La part des bas et moyens salaires dans la production : l'importance des coûts indirects", Insee Analyses no. 45, March

The importance of these imports, not least in the manufacturing industry, raises the question of the cost for French businesses of acquiring inputs. There is no systematic study to date on the price levels of intermediate inputs imported by the different countries, and it is therefore not possible to know if French businesses import their intermediate inputs at a higher price than their European competitors. We can, however, compare the price trends of certain goods and commodity groupings, in the form of indices, between European countries, to determine whether the import price trends have been more or less favourable for France.

Figure 40 shows the import price indexes of four commodity groupings for five euro area countries (France, Germany, Spain, Italy and the Netherlands), along with a composite indicator of the euro area. Intermediate goods correspond to intermediate inputs used up during the production process (e.g. basic chemicals, paints, metal parts, power leads, accumulators, etc.). Consumer goods are mainly intended for households (food, clothing, cosmetics, cleaning products and electronic devices) while capital goods are intended for businesses or public bodies (IT servers, machine-tools, medical devices, etc.).

These price indices for different groupings reveal that, since 2005, French businesses have not seen any negative trend in their import prices compared with their European partners. In fact, since 2013 it would appear that import prices for goods manufactured in France have fallen more quickly than for the other euro area countries – particularly those with similar economies (Germany and Italy). The main driver for this more positive trend seems to be intermediate goods. Imported capital good prices are stable across the euro area, and consumer good prices have risen moderately, but once again, without any trends to suggest French businesses are being put at a disadvantage. There is evidently nothing surprising about the extremely strong cointegration of price indexes in the context of the common market and single currency. In light of the degree of integration of European economies, the marginal differences in price indexes between countries are above all likely to reflect marginal differences in the mix of imported products – namely on the one hand, consumer preferences and, on the other, differences in the structure of the productive apparatus and product orientation.

Figure 40 – Industry import price indexes in four different types of goods in France, Germany, Spain, Italy and the Netherlands



Reading note: 2010 = 100.

Source: Eurostat

4. Taxes on production are particularly high in France compared with the other European countries¹

Of the taxes for which businesses are liable, taxes on production have a unique status in France. This somewhat generic term encompasses taxes concerning the production cycle before the realization of income. These include taxes on land and commercial and industrial buildings (CFE), a value-added tax (CVAE), a turnover tax (C3S)², and myriad other secondary taxes. Their weight is particularly high in comparison with our partners – accounting for 2% of France’s GDP and 3.6% of business value added according to a paper by the CAE³. In Europe, only Greece levies more taxes on production. No other country has the equivalent of the French turnover tax (C3S). Taxation on production is considered among the most detrimental form of taxation because of the distortions they engender, both in terms of productivity and competitiveness. Unlike income taxation or VAT, taxes on production directly influence business decisions in terms of production method choices and can therefore affect their productivity.

Taxation of an input (whether a production factor or an intermediate good) can push companies to use other, less productive or substandard inputs. This is therefore an inefficient allocation which can have implications for aggregate productivity. Such a problem might not strike as immediately significant, but recent literature on productivity and its slowdown has shown that its importance should not be underestimated. These distortions within each company can be accentuated at aggregate level owing to propagation along production chains – as demonstrated in the CAE’s paper with respect to C3S.

Based on an empirical work on firm-level data, the CAE’s note shows that a turnover tax like the C3S reduces exports by 1%. Moreover, since imported intermediate inputs are not liable to such a tax, this acts like an intermediate input import subsidy.

¹ Corporate tax, based on profits, is included in the cost of capital and does not form part of taxes on production. Here we look solely at taxes on production. Comparisons of fiscal revenues from corporate tax suggest that, in France – despite a high nominal rate relative to the other European countries – effective taxation is not far off the European average. See, for example, Gouardo C., Le Ru N., Sode A. and Trannoy A. (2016), "[Quels principes pour une fiscalité simplifiée ?](#)", *Note Enjeux 2017-2027*, France Stratégie, August.

² CFE: business premises contribution; CVAE: business value-added contribution; C3S: corporate social solidarity contribution.

³ Martin, P. and Trannoy A. (2019), "[Les impôts sur \(ou contre\) la production](#)", *Note du CAE*, no 53, June.

Several conclusions can be drawn from the analysis of production costs in France. If we factor in the tax measures taken to lower the cost of labour, wages have followed a long-term growth trajectory in line with productivity in France. These measures have cancelled out a greater rise in wages than the growth in productivity following the 2009 crisis. This post-crisis wage hike is at least partly the result of a composition effect, with the least productive employees having lost their jobs.

The unit labour cost has grown at a faster pace in the sheltered sector than in the open sector in France on account of the productivity differential between the two sectors. Germany stands out for its very low wage dynamics in the sheltered sector, which has a positive impact on its cost competitiveness at aggregate level.

The wage-setting process is complex in France, not least because of the several inter-linking negotiating levels (national, sector- and enterprise-level) and the wage dynamics at sector level may not provide a clear enough picture of productivity gains. Further research is necessary to probe this point in greater detail.

The cost of capital does not seem to be a decisive factor to explain the differences in competitiveness between European countries, or to have played a key role in France's loss of competitiveness. Lastly, with regard to the price of imports, French businesses have not seen any negative trends in their import prices compared with their European partners since 2005. That said, France displays one particularity in having high taxes on production (CVAE, C3S and CFE) which have implications for its productivity, competitiveness and attractiveness.

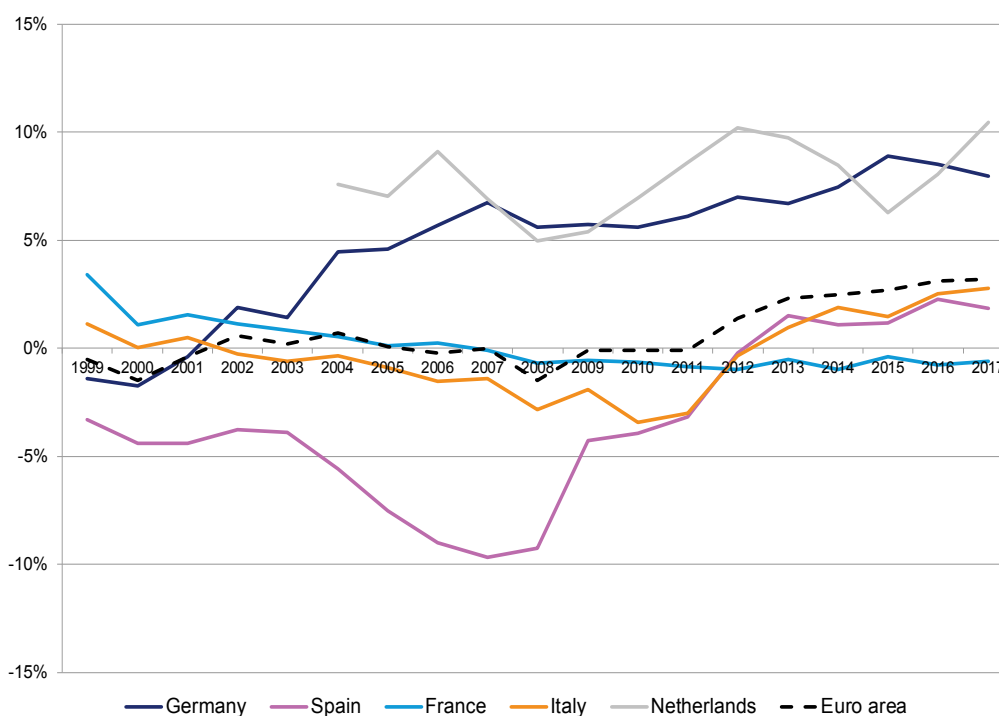
COMPETITIVENESS AND SAVINGS: THE EURO ZONE IN FOCUS

In this final section, we discuss the issues raised by the current account imbalances within the specific context of a monetary union.

1. Current account balances of the main euro area countries

The divergences between the current account balances of the euro area countries grew more pronounced until the 2008-2009 financial crisis (current deficits for “peripheral” countries, accumulation of surpluses in Germany, the Netherlands or Finland). These gaps then partially narrowed from the Great Recession onwards. Italy and Spain now post a current account surplus, while the countries recording a current account surplus before the crisis have since cemented this further. The resorption of these divergences has therefore been asymmetrical, and above all due to falling demand in countries with a negative current account balance (see Figure 41 and the discussion in Chapter 5). Although France has continued to run a slight current account deficit, it is now the most negative among the main euro area countries. Across the euro area, the current account surplus stood at 3.5 GDP points in 2017.

Figure 41 – Current accounts balances in the euro area, in percentage of GDP of the zone being considered



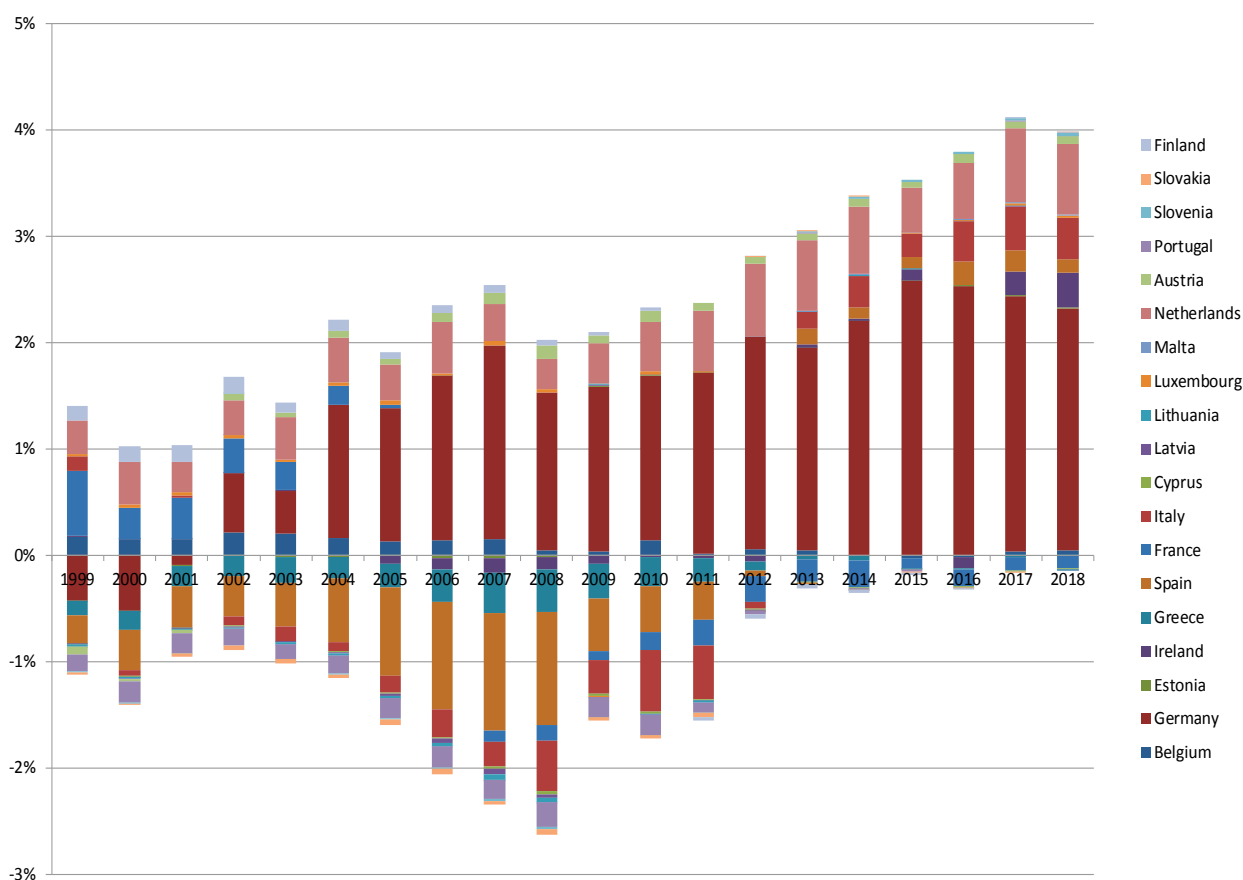
Reading note: France’s current account balance in 2017 was -0.6% of GDP.

Source: Eurostat, NPB calculations

As we mentioned above, there is no way of determining an optimum level for the current account balance on the basis of economic theory. Excessive accumulation of current account deficits or, vice versa, of surpluses, is unwise over the long-term, and might expose economies to external vulnerabilities. In the euro area, internal imbalances shrank after the sovereign debt crisis and the efforts by Southern countries whose negative balance has improved markedly. But persistently high current account surpluses in those countries with positive account balances (Germany, Austria and the Netherlands in particular), coupled with Spain and Italy’s new current account surpluses since the crisis, have generated a significant external imbalance (see Figure 42). The current account surplus across the euro area may therefore lead to an appreciation of the euro, which is likely to harm the competitiveness and growth of the euro area’s most vulnerable countries¹. From a cyclical perspective, the aggregate surplus is a sign of a goods and services supply surplus, which is helping to keep aggregate inflation low, and so delaying monetary policy normalisation.

¹ Blanchard O. J. and Milesi-Ferretti G. M. (2011), “(Why) Should current account imbalances be reduced?”, *IMF Staff Discussion Note*, SDN/11/03, March.

Figure 42 – Contributions to the balance of current transactions of the Euro area, in percentage of eurozone GDP



Reading note: in 2017, France's balance of current transactions was -0.1% of the euro area GDP. The AMECO datasets used here correspond to the current account balance in the national accounts. The figures may differ slightly from the figure for the current accounts from the balance of payments.

Source: AMECO, NPB calculations

To provide a more detailed picture of the divergences in current account balances within the euro area, we focus on the six countries which, since 1999, have accounted for nearly 90% of the monetary union's GDP in its current makeup: Germany, France, Italy, Spain, the Netherlands and Belgium¹.

When the euro was introduced in 1999, the current account balances of these six countries ranged from -3% of GDP in Spain to +5% in Belgium and the Netherlands. France registered a slight surplus and Germany a slight deficit. In the 2000s, the German and Spanish balances swung opposite ways – upwards for the former and

¹ We look at the current account balance level from the national accounts rather than current account data from the balance of payments, not least because balance of payments data are not available prior to 2004 for the Netherlands (and prior to 2007 for Belgium).

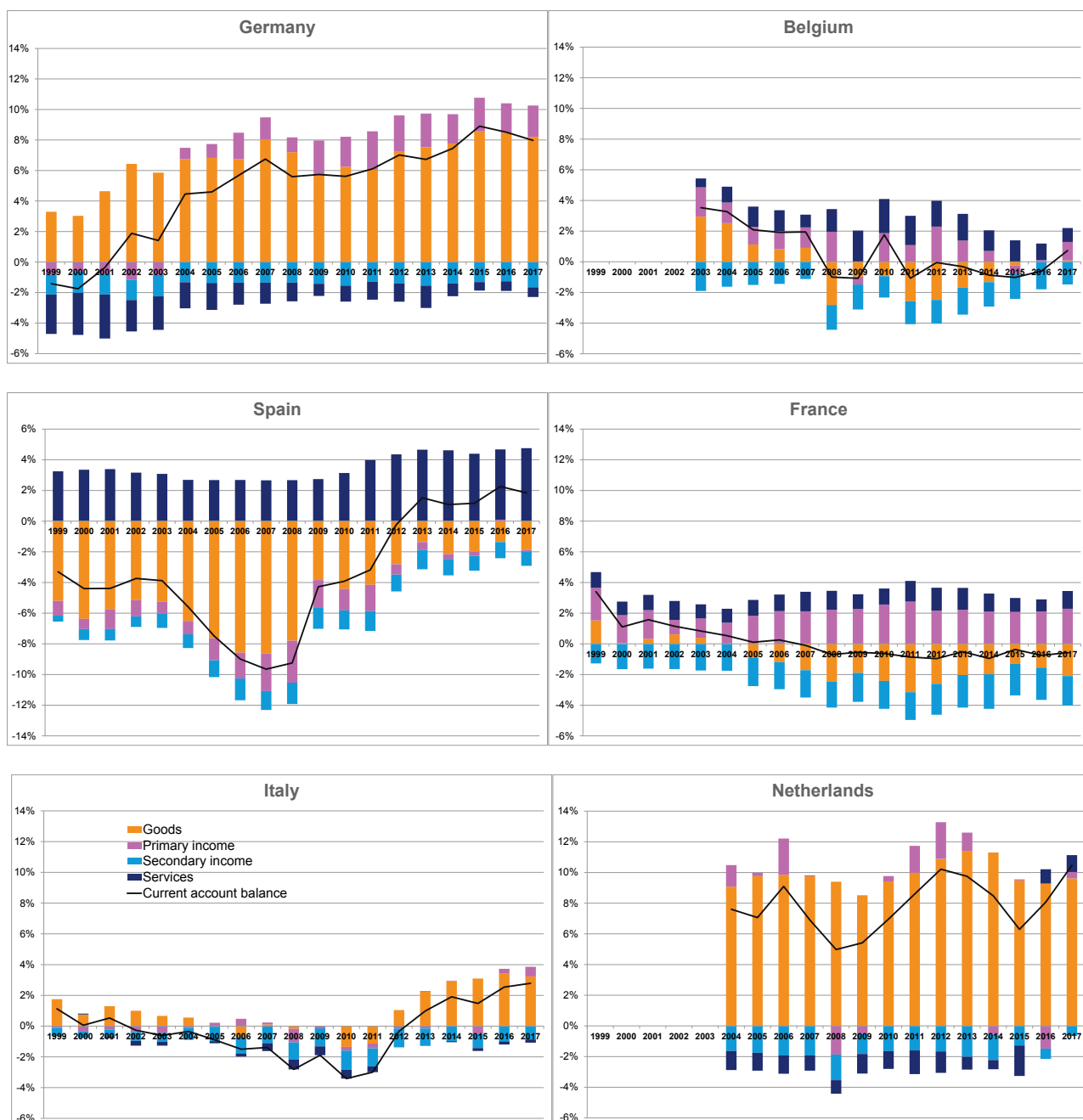
downwards for the latter – while the level of imbalances among the other countries remained moderate. Following the 2008 crisis, Germany’s balance continued to grow, swiftly overtaken by the Netherlands, while Spain’s current account did a sudden U-turn. The trend of France’s balance looks very moderate by comparison. Overall, the aggregate current account balance of the euro area’s main countries has increased significantly since the crisis.

Two analytical approaches can be taken to explain the diverging current account balances across the euro area.

The first – which we adopted in the sections above – looks at the current external balance as the difference between exports and imports in the broad sense – i.e. by including income net of investments abroad (see Figure 43). In this case, a surplus balance is often considered to be the result of good price and non-price competitiveness.

The second approach looks at the current external balance as the sum of the net savings (gross savings less investment) of households, businesses and general government (see Figure 44). In this context, an improvement in the current account balance reflects either the rise in (gross) savings rates of the different stakeholders, or a reduction in their investment rate, or a combination of the two. Through this second approach, the causes of the current account balance divergences are sought among disparate saving and investment behaviours between countries.

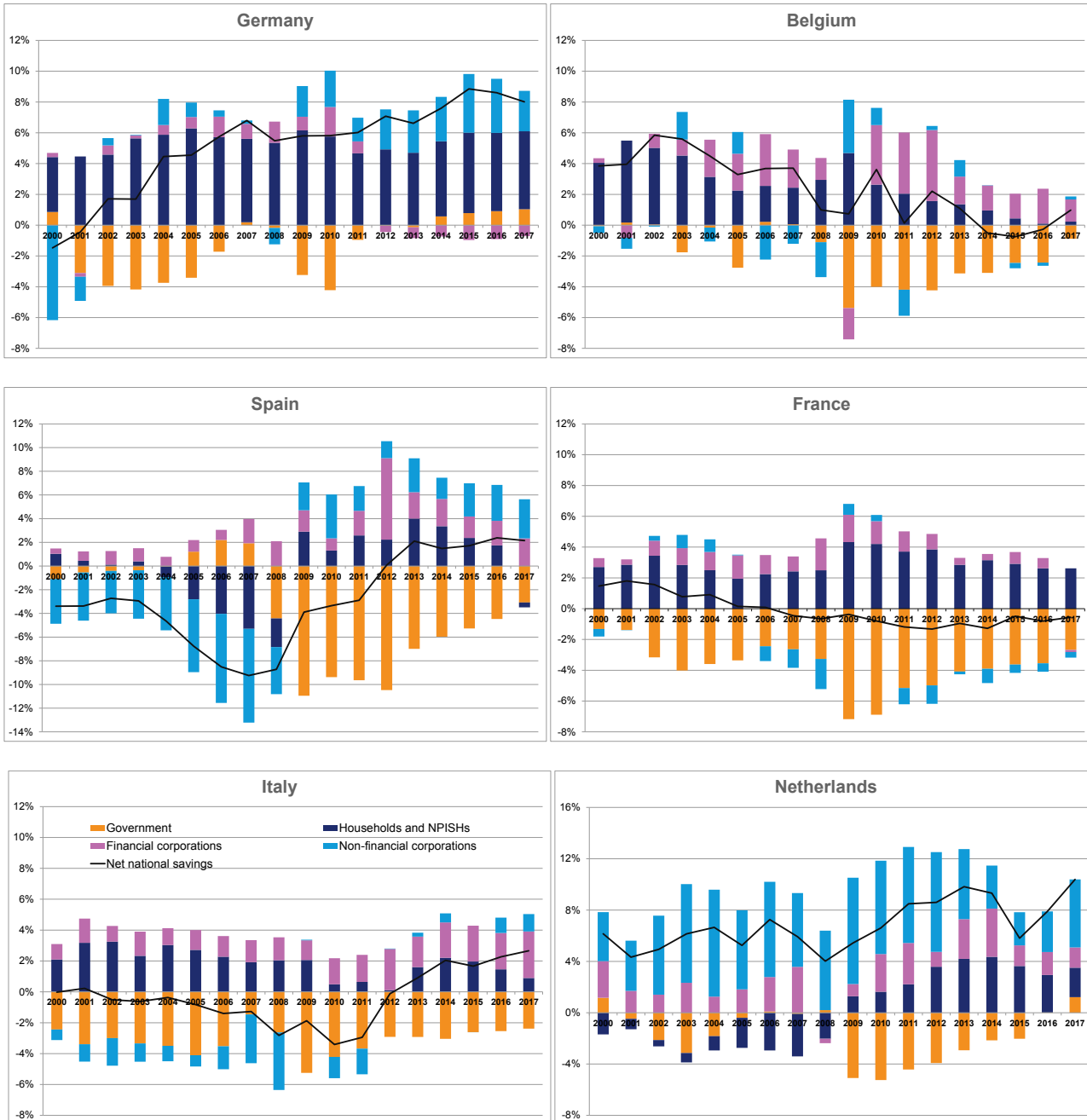
Figure 43 – Breakdown of the current account, in percentage of GDP



Reading note: in 2017, France's current account deficit was 0.6% of the GDP with a deficit on the balance on goods of 2.1% and of 1.9% for secondary income, and a surplus of 1.2% for services and 2.3% for primary income.

Source: Eurostat, NPB calculations

Figure 44 – National net lending/borrowing by institutional sector, in percentage of GDP



Reading note: in 2017, France's net borrowing was 0.6 % of GDP (equal to the current account balance through an accounting identity). It sums up the net borrowing and lending of four institutional sectors. The government balance was -2.7 % of GDP, the balance of households and NPISHs was +2.6 %, it was -0.1 % for financial corporations and -0.4 % for NFCs.

Source: Eurostat, NPB calculations. In black, total national net lending, investment and gross savings balance

Depending on which one of these two approaches is taken, apparently contradictory conclusions may be drawn. As such, a surplus balance may be regarded as positive, stemming as it does from an improvement in competitiveness. But it may also be considered a consequence of insufficient investment – a sign of low attractiveness.

An analysis of current account trajectories must square with both approaches – each one grounded in accounting identities: a country's current external balance is both the savings surplus relative to domestic investment and the difference between exports and imports.

A current surplus may be the result of increasing price competitiveness. For example, a slowdown in wages (which improves competitiveness and therefore the balance on goods and services) brings with it an increase in external demand. At the same time, such a slowdown in wages puts a squeeze on households' investments and spending – which bolsters national savings, thereby generating a savings surplus relative to investment. The surplus stems from the wage-setting process. Both identities are satisfied.

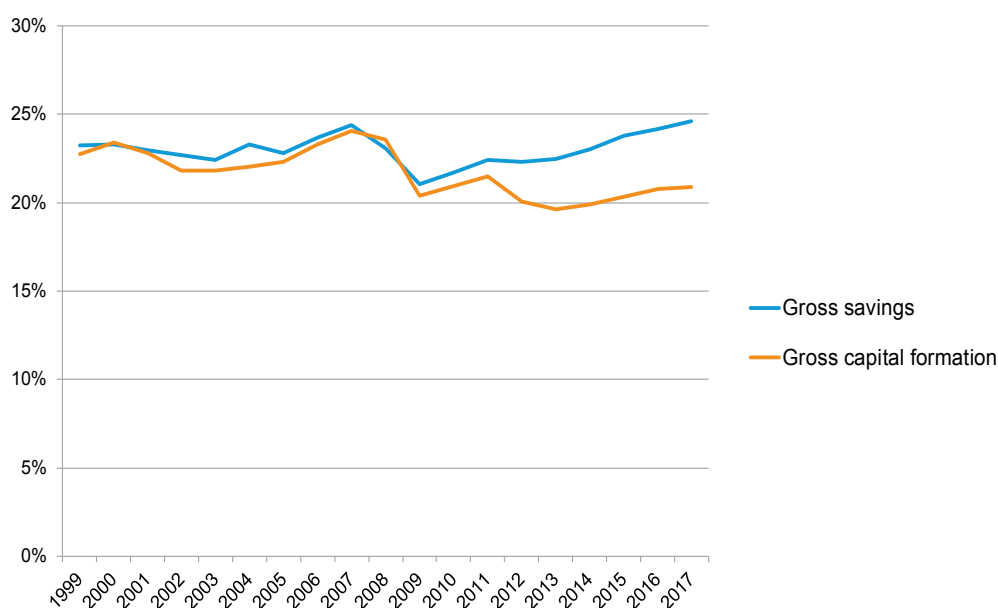
Alternatively, a surplus may be the result of declining domestic demand. For instance, if households decide to save more, businesses to invest less or the government to spend less, then domestic demand falls and unemployment rises. This can drive down wages while driving up competitiveness and the balance on goods and services. The surplus then stems from savings behaviour. Again, both identities are satisfied.

In both cases, the effects are the same: competitiveness improves, the external balance grows and savings surpass investment. But the causes are very different – and should be identified through an analysis of the data in terms of savings and investment, and relative prices. Accordingly, the weakening in Spain's current account balance before the crisis was coupled with relatively resilient export market shares, which suggests that the weakening was associated more with a surge in demand than with declining competitiveness. During this period, the country thus witnessed growing dissaving among households and businesses (see Figure 44).

The underlying cause of the high current account surplus in the euro area today is the record high level of net savings among businesses in Germany, the Netherlands and Spain, and the disappearance of government deficits in the first two countries.

The post-crisis rise in net aggregate savings within the euro area is as much a result of declining investment as rising aggregate gross saving¹ (see Figure 45), which is cause for concern regarding future growth. In 2017, domestic gross saving among euro area countries reached its highest level since 1999, at a time when investment barely topped its very low 2009 level measured relative to GDP.

Figure 45 – Gross saving and gross capital formation in percentage of GDP of six countries



Note: investment is the gross capital formation in the meaning of the national accounts (P5G). Domestic saving is calculated as the sum of net lending (B9) and P5G.

Source: Eurostat, NPB calculations.

An analysis of the trajectories by institutional sector attributes the record gross saving levels to the rise in aggregate gross savings among businesses – which seems to be a long-term trend² – and the general government sector since the crisis. The slowdown in investment is a phenomenon primarily associated with the slump in investment by households (mainly housing) but also in public investment. Investment by non-financial corporations (NFC) has returned to its pre-crisis levels. France is an exception, with companies having a lower level of savings than investment (see Figure 44).

¹ However, a stronger motivation to save may lead to both an increase in savings and a decrease in investment.

² On this subject, see, in particular, Chen P., Karabarbounis L. and Neiman B. (2017), “The global rise of corporate saving”, *Journal of Monetary Economics*, vol. 89, pp 1-19.

The rising proportion of profits is a key contributing factor to corporate gross savings in the euro area¹. In Germany's case, wage moderation can explain the rise not only in net corporate saving but also in cost competitiveness – especially in the non-tradable sector.

The structural increase in NFC's gross savings, the return of their investment to pre-crisis levels and the fall in public and private investment are phenomena that are common to all of the euro area's main countries except France.

2. The consequences of current account imbalances in the euro area

During the first decade following the euro's introduction, Member States paid little attention to current account imbalances. It should be pointed out that, in a monetary union, such imbalances are automatically financed by transfers within the Eurosystem, not unlike what happens with interregional current imbalances within a country. The global financial crisis and then, above all, the European debt crisis, served as a wake-up call. Even in a monetary union, a deficit country can experience a “sudden stop” in its financing. The European debt crisis has shown that such a sudden stop can spark expectations that the affected country will leave the euro zone (which does not happen for a region within a country) and therefore fears that the single currency will break up. Current imbalances must therefore come under closer scrutiny within a monetary union as they can imperil the very sustainability of the euro area itself. This is the reason why the Macroeconomic Imbalance Procedure, which we will come back to in the conclusion, was set up following the crisis.

As highlighted above, it is important to bear in mind that current account “normal” level depend on a range of factors. In particular, population ageing suggests (among other things) that a current account surplus in the euro area relative to the rest of the world should be regarded as “normal”. In practice, the IMF estimates a positive current account norm for all of the countries discussed above (see Table 3). What this means is that the negative current accounts observed in France and Belgium in 2017 fell short of the expected norm, but also that the German and Dutch current account surpluses far exceeded the “structural” levels. Going by these “norms”, the euro area's aggregate current surplus is 2.0 points above what its “normal” level.

¹ *Ibid.*

Table 3 – Actual current account and current account "norm" calculated by the IMF in the context of the External Balance Assessment

	Current account 2017	Current account "norm"	Gap
Germany	8.0%	2.8%	5.2%
France	-0.6%	0.9%	-1.5%
Italy	2.8%	2.5%	0.3%
Spain	1.9%	1.4%	0.5%
Netherlands	10.2%	3.5%	6.7%
Belgium	-0.2%	2.2%	-2.4%
Euro area	3.5%	1.5%	2.0%

Source: IMF (2017)

Three key questions might be asked in this regard: (1) what are the consequences of a current account surplus for the euro area at the aggregate level, particularly at a time of low inflation? (2) What are the consequences of current account divergences that move away from the equilibrium level? (3) Taking a more positive approach, what are the consequences of today's current imbalances which include many surpluses?

A current account surplus for the euro area produces two important externalities for member states. First, the savings surplus it reflects drives up demand for the single currency and fosters an appreciation in the euro. The contractionary effect on the exports of all the area's countries (not just those with a surplus) will decrease the current accounts. What is more, appreciation of the euro also exerts deflationary pressures amid a squeeze on monetary policy and inflation that is already low. Today, current surpluses might therefore be putting too much of a burden on monetary policy at a time when conventional expansionary monetary policy is constrained by interest rates that are already at record low levels¹.

Second, bilateral current imbalances recently returned to the top of the trade policymaking agenda. Even if these measures do not make sense economically, the application of retaliatory trade actions by the United States against countries with which it

¹ With respect to the US, Rachel and Summers (2019) estimate that the increase in the public debt-to-GDP ratio of the advanced economies raised equilibrium real interest rates by 1.5 percentage points between 1980 and 2017: it would be close to 0 today, versus -1.5% if the level of government debt had remained at the same levels as in 1980. This example illustrates how fiscal policy can increase monetary policy's room for manoeuvre; Rachel L. and Summers L. H. (2019), "Public boost and private drag: Government policy and the equilibrium real interest rate in advanced economies", BPEA Conference Draft, Spring.

has a high current deficit carries negative repercussions for all of the countries in the euro area which share the same trade policy. **In more fundamental terms, at the global level, exporting a savings surplus may contribute to a global savings surplus¹ and generate a deflationary bias².** The challenge the euro area faces is then that the rebalancing at the global level – in the absence of enough investment opportunities outside the euro area for the savings surplus – occurs via a contraction in global activity. More generally, the current account surplus spawns a dependence on global activity, the potential effects of which have recently been in evidence.

The sustainability of the euro area requires giving consideration, within the monetary union, to the institutions to be set up and the policies to be rolled out in the event a scenario arises similar to what happened in 2007-2012. In particular, this implies giving thoughtful consideration to how to improve the Macroeconomic Imbalance Procedure – particularly concerning the asymmetric treatment between current account deficits and surpluses³ (see below).

Rebalancing current accounts requires an adjustment of relative prices – the real effective exchange rates in this instance. This is a mechanism where flexibility is necessary in terms of either nominal exchange rates or relative prices. Before the euro, such rebalancing was achieved, in part at least, via devaluations and revaluations in national currencies. Within the monetary union, current account rebalancing necessarily involves temporarily different inflation rates. Such a divergence in inflation rates in the euro area is hampered by the low aggregate inflation and the resistance shown by surplus countries towards a temporary rise in inflation, which is not understood as the equivalent (in the monetary union) of currency revaluation. This resistance from surplus countries to a price-based market adjustment mechanism either places the burden of adjustment on deficit countries (with a deflationary bias), or puts off the adjustment of imbalances – posing a risk for the zone's sustainability.

In its External Balance Assessment, the IMF proposes – in addition to the aforementioned current account "norms" – an estimation of the gap between the real

¹ Bernanke B. S. (2005), "[The global saving glut and the U.S. current account deficit](#)", Board of Governors of the Federal Reserve System (U.S).

² Eggertsson G. B., Mehrotra N. R., Singh S. R. and Summers L. H. (2016), "A contagious malady? Open economy dimensions of secular stagnation", *IMF Economic Review*, vol. 64(4), pp 81-634. In practice, the US Department of the Treasury has, in its half-yearly report on International Economic and Exchange Rate Policies dated October 2013, been critical of the "deflationary bias for the euro area, as well as for the world economy" resulting from the current surpluses in the euro area.

³ Benassy-Quéré A. and Ragot X. (2015), "[Pour une politique macroéconomique d'ensemble en zone euro](#)", *Les notes du Conseil d'analyse économique*, No. 21, March.

effective exchange rates (REER) and their equilibrium rates (see Table 4). Villemot, Ducoudré and Timbeau (2018) perform sensitivity tests using a similar method and confirm these results¹. As pointed out by Gaulier and Vicard (2018)², the rebalancing process would require a gap of 2 percentage points in inflation rates between Germany and the rest of the euro area over a 10-year horizon (or a gap of 1 percentage point over a 20-year horizon). Around a target rate of 2% for the whole eurozone, this would require annual inflation of 3.5% in Germany and 1.5% in the rest of the euro area. At the rate of inflation achieved in 2018 for the euro area of 1.6%, inflation would have to reach approximately 3% and 1% respectively. These rates are to be compared against the inflation observed since the crisis (see Figure 46). In 2018, price inflation – excluding energy – was 1.3% across the euro area and 1.5% in Germany (1.8% and 1.9% respectively for the price index including energy).

Table 4 – Deviations from the equilibrium rate of the real effective exchange rate

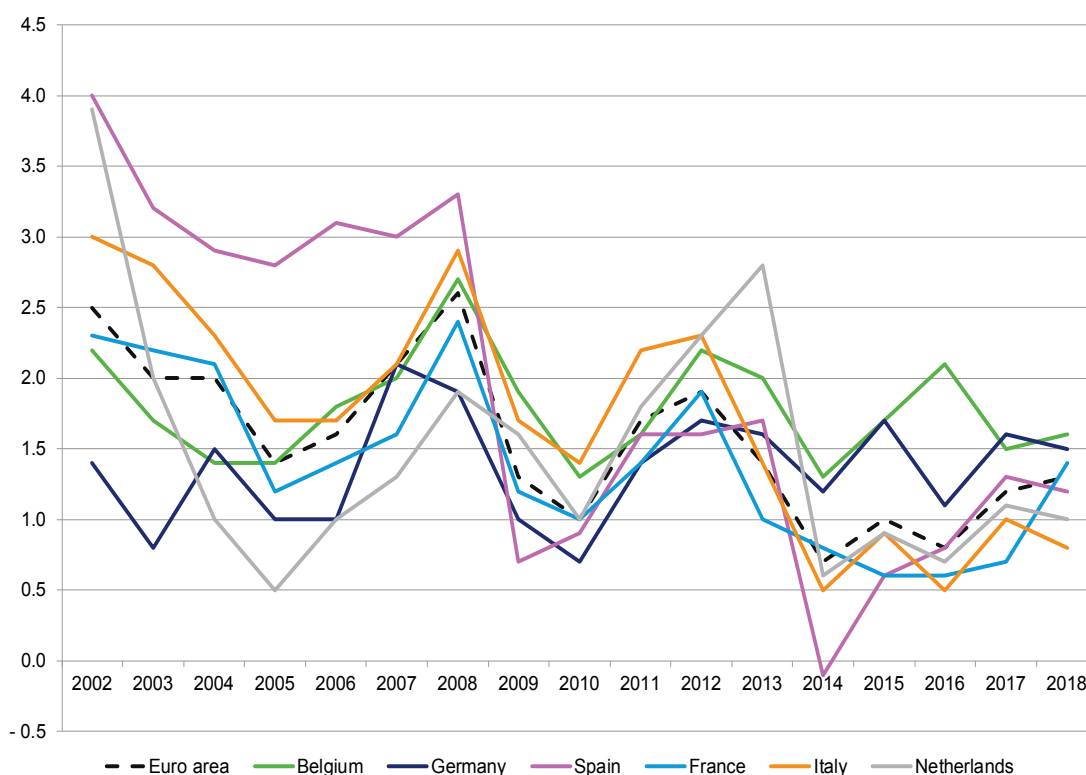
Deviation from the equilibrium rate of the real effective exchange rate	
Germany	-19%
France	4%
Italy	5%
Spain	5%
Netherlands	-1%
Belgium	14%
Euro area	-2%

Source: IMF, External Balance Assessment

¹ Villemot S., Ducoudré B. and Timbeau X. (2018), "[Taux de change d'équilibre et ampleur des désajustements internes à la zone euro](#)", *Revue de l'OFCE*, No. 155.

² Gaulier G. and Vicard V. (2018), "[Some unpleasant euro arithmetic](#)", *Cepii Policy Brief*, No. 21, January.

Figure 46 – Inflation of the harmonised index of consumer prices excluding energy



Reading note: In 2018, consumption prices excluding energy grew by 1.4 % in France.

Source: Eurostat

At the end of this analysis of euro area current accounts, it would be worthwhile summarising the trends that led to these imbalances and suggesting readjustment measures.

Initially, German competitiveness increased after the euro's introduction, which drove up production, resulting in turn in fiscal tightening to avoid adding buoyant domestic demand to external demand.

Countries in the South followed a reverse trajectory, with domestic demand rising because of dynamic lending, in the private or public sector depending on the country. At an aggregate level, these two effects offset one another across the euro area.

During the crisis, the countries in the South experienced a sudden stop in global capital flows. Germany's current account surplus continued to grow which, coupled with fiscal tightening, swiftly lowered government debt. Southern Europe

saw activity contract strongly, triggering a current account surplus and high unemployment which is proving tough to bring down. As such, in terms of the area as a whole, fiscal policy is tightening, domestic demand is too weak, driving the ECB to respond by reducing interest rates, which has triggered in turn a depreciation in the exchange rate and very high current account surpluses across the area – especially in Germany.

Against such a backdrop, the following measures strike as essential. Fiscal loosening should be applied in surplus countries, in the form of public investment for example. This will ease the pressure on monetary policy, which could then be normalised, and reduce in turn the current account surplus in the euro area. Public investments conducive to productivity will enhance surplus countries' supply capabilities, and therefore stem their overheating risks. A second effect of such fiscal loosening will be an adjustment of relative prices through an appreciation within countries implementing this easing policy. Countries grappling with high unemployment will then be able to tackle it (either via structural measures or via a direct increase in demand, depending on whether it is of the structural or cyclical type), without the risk of seeing their current account balance fall.

CONCLUSION

HEIGHTENED EUROPEAN SURVEILLANCE OF CURRENT ACCOUNTS IS KEY TO THE EURO AREA'S SUSTAINABILITY

According to the analyses above, the level of France's current account at present – a measure of its competitiveness – calls for attention over the medium term, without being a destabilising factor over the short term. France might well have the largest current account deficit of the euro area's main countries, but this deficit is still slight. Still, an appreciation of the euro could throw structural weaknesses into focus. What stands out more in Europe's current account imbalances is Germany's surplus which explains much of the euro area's surplus. These imbalances are jeopardising the very future of the euro area, since an appreciation of the euro in the wake of the area's surplus could give rise to current account deficits for countries with poor net international investment positions and therefore to doubts over their ability to finance such deficits and stay in the euro area. The mechanism for adjusting such imbalances must be helped rather than hindered, through an increase in relative wages and prices in the countries with the largest surpluses (since a monetary union no longer has an exchange rate). A more accommodative fiscal policy stance in countries with big surpluses would pave the way for swifter adjustment of the current accounts.

Share the conclusions of National Productivity Boards

There are various types of mechanisms for correcting current account imbalances in the euro area. First and foremost, the observations outlined here point to a need for discussion, not least between the National Productivity Boards (NPBs), for the sake of analysing in more detail the present profile of current accounts, the purpose of

rebalancing and the way to go about such rebalancing. For the public authorities, helping to rebalance domestic prices may involve action on regulated wages and prices as well as policies to inform the social partners about the necessary adjustments. Without proposing a development in the wage-setting processes across each of the European countries, the NPBs should communicate at regular intervals with the institutions involved in the setting of wages and prices.

Second, the NPBs' recommendations must factor in the implications on domestic demand and euro area-wide inflation so as to avoid the costly, deflationary rebalancing that had to be carried out in the wake of the crisis.

Revise the Macroeconomic Imbalance Procedure

Current account imbalances have been identified as one of the main contributing factors to the crises within the euro area: in 2007, all of the countries which soon felt the bite of a financing crisis were posting a current account deficit of more than 6% of GDP while only Greece had a fiscal deficit of more than 3% of GDP.

Upon finding that compliance with the Stability and Growth Pact in no way guaranteed protection from the crises, the European partners, amid adoption of the so-called Six-Pack¹, introduced a Macroeconomic Imbalance Procedure (MIP) aimed at monitoring other imbalances than those in the public sector. Part of the "European Semester", the MIP starts every year in autumn with the publication of the European Commission's "Alert Mechanism Report" which, on the basis of a set of indicators presented in a scoreboard, identifies a group of countries which could potentially present imbalances. The following spring, the Commission publishes an in-depth report on each of the countries under review, which it ranks across four categories (previously five): "no imbalances", "imbalances", "excessive imbalances" and "excessive imbalances with corrective action". The latter category can trigger sanctions.

The results of this new procedure have been disappointing, however, for a number of reasons – chief among which²:

¹ Legislative package comprising five regulations and one directive, adopted in October 2011.

² See Bénassy-Quéré A. (2015), *Economic Policy Coordination in the Euro Area under the European Semester*, Report for the European Parliament (ECON), PE 542.676, November; Darvas Z. and Leandro A. (2015), "The limitations of policy coordination in the euro area under the European Semester", *Bruegel Policy Contribution*, issue 2015/19, November; Bénassy-Quéré A. (2018),

- there are too many indicators and the classification of States lacks transparency;
- there is confusion over the targets: reduce the risk of crisis or increase potential growth?;
- the instruments are poorly identified as regards the targets, and in particular coordination with macroprudential policy is insufficient.

One way of proceeding in this respect would be to remove what concerns structural reforms and long-term targets from within the scope of the excessive imbalance procedure, so as to focus instead on instruments that can be adjusted at the margins (minimum wage, taxation, macroprudential tools) and on short-to-medium-term targets (internal and external balances).

Furthermore, specific country-level recommendations should be grounded in the conclusions reached by European NPBs, as they bear on the exchange rate trends within the euro area – the main source of imbalances within a monetary union.

Leverage fiscal space

Monetary policy has limited scope for helping to rebalance savings and investment today – at least from the point of view of conventional measures. What is more, since by definition the ECB’s monetary policy applies across the whole of the euro area, it is not suited to correcting imbalances within the area.

The savings and investment imbalances identified above then suggest that the euro area could benefit, in particular, from fresh public investment in countries recording a current account surplus. Indeed we have seen that, although domestic savings had returned to their pre-crisis levels, domestic investment was still low. Moreover, countries with a high savings surplus are the very ones with fiscal space– especially given the European fiscal rules. In addition, fiscal spillovers are typically considered higher when monetary policy is constrained¹; and, globally speaking, Eggertsson *et al.* (2016) posit that, amid secular stagnation, expansionary fiscal policies have positive externalities (by reducing the global saving surplus) unlike depreciations and structural reforms. More generally, low interest rates limit the potential crowding-out

“Le macroprudentiel, un élément de plus dans l’arsenal de la politique macroéconomique en zone euro”, *Annales des Mines*, 2018/3, August, pp 79-83.

¹ See, for example, Alloza M., Cozmanca B., Ferdinandusse M. and Jacquinet P. (2019), “Fiscal spillovers in a monetary union”, *ECB Economic Bulletin*, issue 1/2019.

effect of a fiscal stimulus strategy on private demand¹. Finally, borrowing costs are low today. As recently suggested by Blanchard (2019)², the currently low borrowing costs may mean that government debt issuance does not carry fiscal costs (if they remain low compared with nominal economic growth) and that it does not have a substantially negative impact on welfare. All of the six countries analysed above (with the notable exception of Italy) have long had interest rates below the nominal growth rate. As such, countries with a positive current account balance could benefit from this global environment by increasing public investments in order to upgrade infrastructure and boost potential growth.

In the euro area, where there is no exchange rate, current account imbalances are at once more serious and more difficult to correct. They call for relative price and demand adjustments which the various countries' economic policies must seek to help rather than hinder. Dialogue between euro area NPBs must clearly give precedence to identifying which policies to roll out to do just that.

¹ Recent empirical papers have shone the spotlight on a significant level of fiscal spillover, especially when monetary policy is constrained. Dabla-Norris *et al.* (2017) and Poghosyan (2017) estimate that, when Germany implements a fiscal expansion, spillovers to the other euro area countries are around 0.1-0.2, and 0.16 at aggregate level (which includes Germany). Blagrove *et al.* (2017) find positive spillovers to an aggregate of 34 European countries from fiscal expansion in Germany, France or the UK, with an average one-year regional impact of 0.26 for an expansion in Germany. They estimate greater impacts within a monetary zone and when the recipient countries have a high output gap.

² Blanchard (2019), "[Public debt and low interest rates](#)", AEA Presidential Address, 4 January.

ANNEXES

THE NATIONAL PRODUCTIVITY BOARD

In September 2016 the Council of the European Union adopted a recommendation on the establishment of National Productivity Boards in each Member State of the euro area. These boards are in charge of analysing economic productivity and competitiveness levels and developments in comparison with the other Member States, as well as the policies likely to bear upon these two components. Competitiveness analysis encompasses cost and price trends and wage-setting along with non-price competitiveness aspects.

Established in France on 23 June 2018¹, the NPB is based at France Stratégie. Chaired by the Deputy Chairman of the Council of Economic Analysis (CAE), Philippe Martin, it has 11 independent expert members. It performs independent analyses and constructively informs national dialogue on these subjects.

Organisation

The NPB produces an annual report and holds a consultation with the employers' and trade union organisations prior to its final adoption. Any opinions issued by these organisations on the report are appended thereto. The annual report also goes through a consultation process with the public and civil society groups.

The panel of experts may call on the competent government departments and bodies to conduct research and gain access to relevant information.

All European NPBs are organised into a network for the purposes of holding exchanges and, where applicable, comparing their analyses.

¹ See [Decree of 21 June 2018](#).

Membership

The NPB is currently chaired by Philippe Martin for a two-year period which can be renewed.

In addition to its chair, the NPB has a panel of 11 economists who also sit for a two-year period that can be renewed:

- Agnès Bénassy-Quéré, Université Paris 1 Panthéon-Sorbonne
- Olivier Blanchard, MIT and Peterson Institute for International Economics
- Laurence Boone, OECD
- Gilbert Cette, Université d'Aix-Marseille and Banque de France
- Chiara Criscuolo, OECD
- Anne Epaulard, Université Paris-Dauphine
- Sébastien Jean, CEPII and INRA
- Margaret Kyle, Mines ParisTech
- Xavier Ragot, OFCE and Sciences Po
- Alexandra Roulet, INSEAD
- David Thesmar, MIT Sloan School of Management

Team of rapporteurs

The CNP is supported by rapporteurs from the competent government departments:

- Vincent Aussilloux, Chief Rapporteur, France Stratégie
- Amandine Brun-Schammé, France Stratégie
- Flore Deschard, France Stratégie
- Matthieu Jeanneney, Directorate-General of the Treasury
- Matthieu Lequien, Banque de France
- Margarita Lopez-Forero, France Stratégie
- Fanny Mikol, Dares
- Rémi Monin, Insee
- Sébastien Turban, France Stratégie

SECTOR-LEVEL PRODUCTIVITY TRENDS IN FRANCE

Productivity gains¹ across the market branches² of the French economy have slackened since the early 1980s, falling from 2.6% in average annual gain in the 1980s to 1.2% in the 2000s before the crisis, and 0.9% since 2010, after a recessionary period at -0.2% between 2008 and 2010. At the same time, the changes in the structure of France's productive fabric – which began back in the 1960s – continued. The services sector has gained from the fall in employment in agriculture and manufacturing. By 2016, agricultural jobs accounted for a mere 4.5% of total employment in the market branches, and industry represented around 15%, when these figures had stood at 12% and 30% respectively in 1980.

These changes, referred to as "tertiarisation of the economy", have adversely affected the growth in productivity gains as they are not as dynamic in the services sector as they are in industry (see the update on Schreiber & Vicard's research below). Since the early 2000s however, these structural effects have no longer been of much consequence given that shifts in sectoral employment shares have slowed considerably.

¹ Throughout this annex, we refer to labour productivity per capita (full time equivalent).

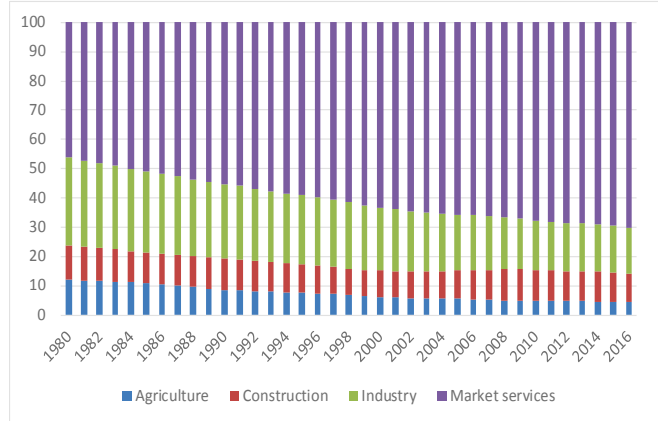
² Because non-market branches account for a very small proportion of the whole economy, their productivity is more difficult to measure and we therefore learn less about total productivity from them than we do from the market branches.

Figure 47
Growth in productivity per capita (full-time equivalent) in the market economy



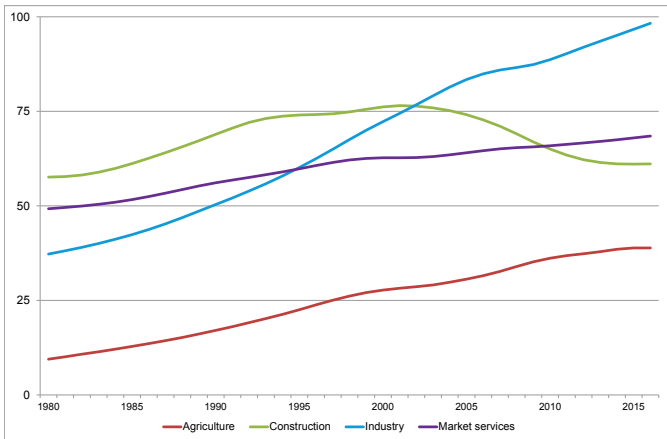
Market economy excluding real estate activities.
 Source: Insee, Annual accounts 2017 – 2014 base

Figure 48
Distribution of employment across the market economy



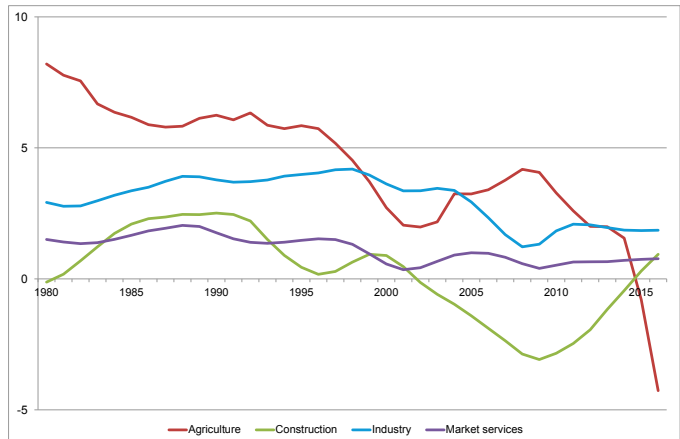
Sector-level total employment.
 Source: Insee, Annual accounts 2017 – 2014 base

Figure 49
Sector-level productivity in volume of market economy



In volume at chained prices of the previous year
 Total market economy excluding real estate activities.
 Source: Insee 2017 annual accounts – 2014 base
 Productivity smoothed out by HP filter ($\lambda = 6.25$)

Figure 50
Sector-level annual productivity gains of market economy



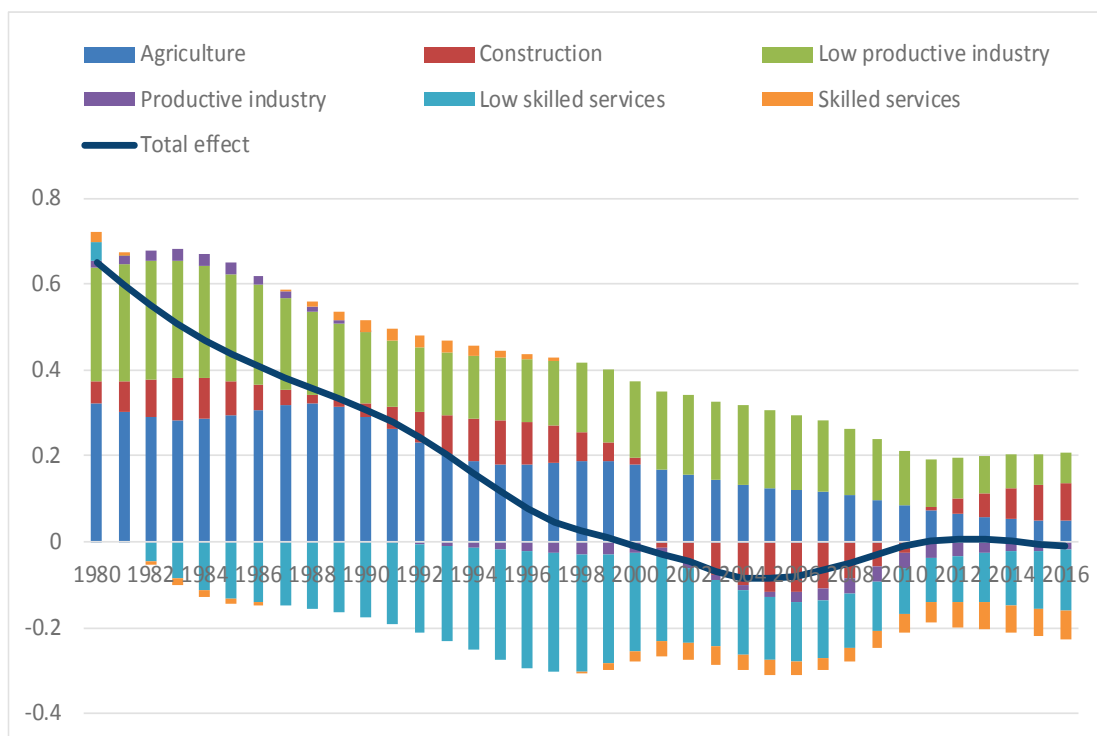
Total market economy excluding real estate activities.
 Source: Insee 2017 annual accounts - 2014 base
 Productivity gains smoothed out by HP filter ($\lambda = 6.25$)

The significant shift in sectoral employment shares to the benefit of service activities with low productivity growth may account for part of the slowdown in apparent labour productivity in the 1990s. However, nearly all of the slowdown in productivity since 2000 is down to a slowdown in the economy's sectors with the highest value-added and employment levels rather than to a shift in sectoral employment towards less productive branches. The hypothesis of "immiserising" tertiarisation of France's economic fabric can thus be dismissed for analysis of recent or projected productivity.

The tendency for sectoral employment shares to shift from the productive industrial branches to the less productive service sectors – especially household services – has played a part in the slowdown in apparent labour productivity at aggregate level. Schreiber and Vicard¹ outline a method for breaking down the aggregate productivity gains into an intra-branch effect, the sum of productivity gains of fixed-weight economic branches and a structural effect which represents the growth in the size of branches at a given level of productivity. In other words, a branch makes a positive contribution to aggregate productivity gains via the structural effect if it is more productive than the rest of the economy and its weight within the economy is growing. On the other hand, it makes a negative contribution if it is less productive than the rest of the economy but its weight is growing all the same. Figure 51 shows the productivity gains associated with such structural effects, distributed across the main branches.

¹ Schreiber A. and Vicard A. (2011), "[La tertiarisation de l'économie française et le ralentissement de la productivité entre 1978 et 2008](#)", *Document d'études*, No. 161, June.

Figure 51
Contribution of the intersectoral reallocation effect to the growth in productivity
based on hours worked



Scope: total market economy excluding all energy activities (BZ, CD, DZ, EZ) and wholesale and retail trade and repair of motor vehicles and motorcycles.

Interpretation: in 1981, the between sectors employment transfers explain a 0.6% increase in productivity. Transfers coming from agriculture sector contribute up to 0.3 points, and those from low productive industries up to 0.2 points.

Source: Insee annual accounts – 2014 base

From 1980 to 1990, the intra-branch component of productivity growth accounts for 80% of total productivity growth in the market branches. The intersectoral reallocation effects explain the remaining 20%: up to 0.5 points on average per year. The shift in employment shares from the agricultural sector to the rest of the economy (the proportion in total employment fell from 12.2% to 8.6%) has had a positive effect on growth, since productivity in this sector is much lower than in the rest of the economy. The same phenomenon can be seen in other low-productivity industrial branches whose total employment shares have dipped from 23.0% to 19.3% – not least the textile manufacturing, wood and paper manufacturing and manufacture of basic metals industries. This also applies to a lesser extent to the construction sector, which was slightly less productive than the rest of the economy through this decade. Moreover, there have been limited job losses in the most productive manufacturing

industries, which explains the negligible contribution to the structural effect. Through this decade, the employment shares of high-productivity services increased slightly faster, from 17.3% to 21.4%, than the employment shares of low-productivity services, which rose from 12.0% to 15.5%.

In the 1990s, the positive effects of intersectoral reallocation flagged, accounting for no more than 8% of productivity growth – an average annual increase of 0.13 points. The tertiarisation of the economy over this decade – with the focus more on low-productivity services – had ramifications for productivity growth. There was less scope for shifts in employment shares from the less productive agricultural and industrial sectors, with the remaining industrial branches recording the same productivity levels as the rest of the economy. Job losses in the low-productivity industries slowed slightly. What is more, the employment share of low-productivity services gathered pace, climbing from 15.5% of total employment to 21.1% in 2000 – whereas gains in the high-productivity services lost traction (+2.3 points to 23.7% in 2000). The low-productivity service sector's growing pace of employment shares was driven by "other service activities" aimed at households and the arts, entertainment and recreation. Low-productivity services aimed at businesses (administrative and support services) as well as accommodation and food services grew at a similar pace to what was observed the previous decade.

From 2000 to 2010, the trends became even more pronounced. The reallocation effects hid two effects which offset one another: the continuation – albeit at a much slower pace – of the same shifts in employment shares from the less productive agricultural and industrial sectors, which positively impacted productivity growth, and the continuing growth in employment shares of the low-productivity services – which had the opposite effect. On a final note, since 2010, the structural effect has remained very slight since the shifts in sectoral employment shares have been very modest. The manufacturing, construction and agricultural sectors have each lost or gained less than a tenth of a point in the total employment share, while the service sectors – in terms of both low- and high-productivity – have grown by a mere 1.4 and 1.2 points, to 26.5% and 24.4% of total employment respectively. The lack of significant shifts in sectoral employment shares therefore implies that the tertiarisation of the economy is having little effect on the growth in labour productivity.

However, Schreiber and Vicard also highlight a dynamic effect in terms of reallocation. A shift in employment shares towards a less productive sector than the rest of the economy, but which posts higher-than-average productivity gains, lowers productivity in the short term, but may pave the way for higher productivity gains in the long term. Over the period under review, shifts in sectoral employment shares

have tended to benefit the less buoyant low-productivity service sectors. Accordingly, via a fixed-weight approach to sectoral employment in the economy, Schreiber and Vicard (2011) demonstrate that this dynamic effect accounted, in the 1990s, for up to 0.4% of annual productivity growth on average. This effect slowed down in the 2000s, not least because of a convergence in the pace of intersectoral productivity gains and, in this instance, owing to the slowdown in productivity gains in agriculture and industry.

PRODUCTIVITY AND INTERMEDIATE INPUTS

Intermediate inputs are goods and services that are either transformed or used up by the production process. They account for a high share of business costs – albeit one that varies widely across industries. Intermediate inputs have generally been given short shrift in academic studies bearing on productivity. Economists usually prefer to focus instead on the notion of value added – the wealth created during the production process – with the possible aim of studying how it is shared out, but also because statistical analysis of the use of intermediate inputs is complicated by the disparity inherent in the vertical integration of production. That said, intermediate inputs are a production factor that can drive technological progress and therefore have the potential to enhance business productivity. The choice of more effective electronic components for the manufacturing industries or the improvement of a fertiliser’s yield in agriculture typically amount to productivity increases that are directly associated with the use of intermediate inputs. If such inputs are not factored into the analysis, the risk is that they are too swiftly attributed to labour or capital – which can end up severely skewing productivity analyses. For Gullickson (1995), “a specification of productivity which excludes intermediate inputs from consideration makes mismeasurement of growth trends more likely, while severely limiting the kinds of analyses to which the measures can be put.”

In addition to the unincorporated technological potential that intermediate inputs harbour for the benefit of the industries which use them, a sector’s productivity gains may also contribute to the growth in downstream sectors’ business via lower prices – associated, depending on the competitive context – with an increase in output. Gains in productivity and efficiency must carry across to businesses. For France, Loupias and Sevestre (2013) show, on the basis of survey data, that the effect productivity has on the costs’ pass-through to prices may be low: a high-productivity business mindful of retaining its market shares may be inclined not to completely pass on an increase in its costs to prices. For the authors, the three concepts of prices, wages and productivity must all be borne in mind: productivity gains can help to offset both

wage increases and upward pressure on prices. With no productivity or labour cost shock clearly identified in the data, determining whether firms do indeed pass their productivity gains on to their customers in the form of price cuts is a challenge since productivity, wages and prices are determined together.

Still in France, Monin and Suarez-Castillo (2018) analyse the pass-through of costs in prices as part of an assessment of the tax credit for competitiveness and employment (CICE). By their estimates, apparent labour productivity, tested as a price variable in terms of level and growth, does not come across as a determinant in price variations – at least over the short term.

Regarding the pass-through of labour cost via prices, in unskilled labour-intensive services (home repairs and improvements, transportation and storage, as well as business support and service activities – temping, private security, property cleaning), the businesses that have benefited the most from the tax credit – i.e. for which the cost of labour has fallen the most – are also the ones that have cut their prices the furthest. On the other hand, across most manufacturing industries or the skilled services (IT, telecommunications, etc.), the authors do not find any effect of the decrease in labour cost associated with the CICE on prices – even in the long term. In the manufacturing industry, variations in the prices of intermediate inputs provide the best explanation for the variation in output prices – from a very short-term perspective.

This last finding is easy to explain since intermediate inputs account for a greater share of costs in industry than in services. Moreover, it can be noted that the pass-through of lower labour costs into price cuts does happen in service sectors that are fairly sheltered from global competition in principle (such as temping, construction or road transportation). That said, it is quite possible that most provisions of service in these sectors are governed by long-term contracts that are renegotiated at annual intervals with indexation to the prices of their inputs – including the cost of labour – which include the CICE. As such, the competitive environment is not necessarily the only determinant of how effectively costs are passed on to prices: the regulatory environment and the structure of trade relations also come into the equation.

1. Résultat des estimations dans les services

	Élasticité prix				Coût des consommations Intermédiaires	Nombre d'entreprises	Nombre d'observations
	Exposition au CICE						
	Contemporaine	Ex ante					
Édition, audiovisuel et diffusion ; télécommunications	-0,14	(0,58)	-0,51	(0,54)	0,20 (0,12)	168	3 559
Activités juridiques, comptables, de gestion, d'archéologie et d'ingénierie	0,40	(0,33)	0,38	(0,23)	0,38*** (0,08)	291	5 689
Activités informatiques et services d'information	0,76	(0,51)	0,63	(0,39)	0,08 (0,09)	97	1 833
Construction spécialisée	-0,28***	(0,11)	-0,10	(0,08)	-0,03 (0,06)	348	5 234
Transport et entreposage	-0,16**	(0,08)	-0,15**	(0,07)	0,06*** (0,01)	461	11 428
Activités de services administratifs et de soutien	-0,23*	(0,13)	-0,31***	(0,11)	0,10*** (0,04)	310	6 880
Activités de services administratifs et de soutien (hors location-bail)	-0,48***	(0,14)	-0,43***	(0,12)	0,11*** (0,04)	187	4 277

Lecture : d'après le modèle, pour les entreprises des services administratifs et de soutien aux entreprises, une hausse de 1 % de l'exposition au CICE entraîne au bout de deux ans une baisse de 0,23 % des prix quand l'exposition au CICE est mesurée de manière contemporaine et de 0,31 % quand elle est mesurée ex ante. Un renchérissement de 1 % des consommations Intermédiaires entraîne une hausse des prix immédiate de 0,1 %.

Notes : période d'estimation : 2009-2015. Pour chaque secteur, les deux élasticités des prix au coût du travail sont mesurées par deux régressions distinctes. L'élasticité des prix au coût des consommations Intermédiaires est estimée en même temps que la spécification utilisant le traitement mesuré de manière contemporaine.

Les écarts-types sont entre parenthèses. *** : Significatif à 1 % ; ** : significatif à 5 % ; * : significatif à 10 %.

Sources : OPISE ; Esane ; MVC ; DADS.

2. Résultat des estimations dans l'industrie

	Élasticité prix				Coût des consommations Intermédiaires	Nombre d'entreprises	Nombre d'observations
	Exposition au CICE						
	Contemporaine	Ex ante					
Fabrication d'aliments, de boissons et produits à base de tabac	0,04	(0,21)	-0,11	(0,18)	0,26*** (0,03)	368	8 051
Fabrication de matériels de transport	-0,35	(0,34)	-0,26	(0,24)	0,58*** (0,14)	78	1 695
Fabrication de produits informatiques, électroniques et optiques ; équipements électriques ; machines	-0,22	(0,35)	-0,12	(0,21)	0,17*** (0,05)	325	6 186
Fabrication de textiles, industrie de l'habillement, du cuir et de la chaussure	-0,31	(0,44)	0,61	(0,39)	0,38*** (0,08)	185	3 324
Métallurgie et fabrication de produits métalliques, sauf machines	-0,73***	(0,22)	-0,53***	(0,18)	0,75*** (0,04)	324	6 836
Fabrication de produits en caoutchouc, plastique, autres produits minéraux et non minéraux	-0,22	(0,22)	-0,25	(0,18)	0,06*** (0,02)	287	6 194
Travail du bois, industrie du papier et imprimerie	0,45**	(0,18)	0,38**	(0,15)	0,16*** (0,03)	241	5 178
Autres industries manufacturières ; réparation et installation de machines	-0,21	(0,31)	-0,25	(0,28)	0,12*** (0,05)	189	3 879

Lecture : d'après le modèle, pour les entreprises de la métallurgie, et fabrication de produits métalliques hors machines, une hausse de 1 % de l'exposition au CICE entraîne au bout de deux ans une baisse de 0,73 % des prix quand l'exposition au CICE est mesurée de manière contemporaine et de 0,53 % quand elle est mesurée ex ante. Un renchérissement de 1 % des consommations Intermédiaires entraîne une hausse des prix immédiate de 0,75 %.

Notes : période d'estimation : 2009-2015. Pour chaque secteur, les deux élasticités des prix au coût du travail sont mesurées par deux régressions distinctes. L'élasticité des prix au coût des consommations Intermédiaires est estimée en même temps que la spécification utilisant le traitement mesuré de manière contemporaine.

Les écarts-types sont entre parenthèses. *** : Significatif à 1 % ; ** : significatif à 5 % ; * : significatif à 10 %.

Sources : OPISE ; Esane ; MVC ; DADS.

Source: *Monin and Suarez-Castillo (2018)*

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