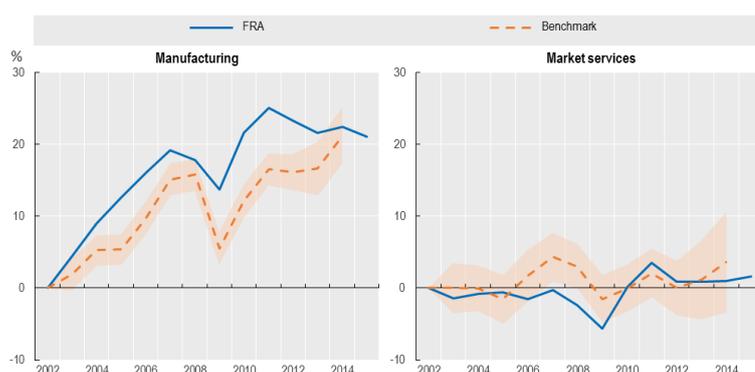


France

In recent years, productivity growth has been disappointing in many countries. Given the importance of productivity for societies, this poor productivity performance has prompted widespread policy concerns about the possibility of a global and persistent productivity slowdown. Economic theory of long-term growth indeed shows that productivity is the key driver of increasing prosperity of nations. Conversely, persistently weak productivity growth can be a threat, with possible harmful consequences for social cohesion and political stability. The importance of productivity growth is even more relevant in ageing societies where it could help to accommodate the impact of demographic pressures on public budgets.

Aggregate productivity in France is high. Even though GDP per hour worked in France was seven percent lower than in the United States in 2017, it is about 25 percent higher than the OECD and EU28 averages. It is also higher than the G7 average. However, French aggregate productivity growth has slowed down with respect to previous decades. Moreover, the growth rate of GDP per hour worked has been lower in France than the EU28 and the Euro Area averages over the period 2010-16, and about the same as in the OECD overall (OECD, 2018). This country profile provides evidence based on firm-level data, which confirm this trend. While productivity has grown in the average manufacturing industry, it has stagnated in market service industries, with a consequent negative effect on the aggregate performance, given the important and increasing weight of this sector in GDP.

Figure 1: Cumulative change in labour productivity
Manufacturing and non-financial market services
France vs benchmark countries, 2002-15



Note: This figure reports the estimated year dummies of a panel-data regression of average log labour productivity within industries in France, and within country-industry pairs in a set of benchmark countries, taking the first year as baseline. Results are estimated separately for manufacturing and non-financial market services based on detailed industries, following the SNA A38 classification (see Desnoyers-James, Calligaris and Calvino, 2019). Benchmark countries include Australia, Austria, Belgium, Canada, Chile, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Sweden, and Switzerland. The period considered is 2002-15.

Source: MultiProd database, February 2019

Highlights

- Labour productivity within French market service industries has stagnated over the entire 2002-15 period; in manufacturing industries, productivity has grown until 2011 but has stalled since.
- Productivity dispersion has increased more than wage dispersion over the period, which may be linked to the effect of labour market institutions.
- The productivity-wage premium is weaker than in other countries, especially at the top, suggesting a partial decoupling of wages and productivity.
- Labour allocation has increasingly contributed to aggregate productivity in manufacturing, while the contribution in services is quasi-nil, although increasing.



Country background

The French economy is expanding, but it faces important challenges regarding social cohesion. Productivity gains over the past decade have been too low to sustain the current level of government spending and social protection. Although productivity is high in France overall, productivity growth has slowed down and weighed on potential output growth. Weak competition, the complexity of the tax system, the rigidity of the labour market, and skill mismatch hinder productivity growth, although recent productivity-friendly reforms are expected to improve the business environment (OECD, 2017).

The productivity slowdown observed in France since the late nineties is common to most advanced economies. The slowdown arises in part from structural factors such as the tertiarisation of the economy (as low-productivity service industries account for an increasing part of value added), or the stabilisation of the contribution of ICT to potential growth (Cette, Clerc and Bresson, 2015). The slowdown also reflects specificities of the French economy, in particular the progressive absorption of low-skilled workers in the labour market resulting from active employment policies. These policies, which include a simplified regime for micro-entrepreneurs, reduced labour taxes on low wages, and the CICE tax credit (Crédit d'impôt pour la compétitivité et l'emploi), may have depressed aggregate productivity at the same time as they made the labour market more inclusive (OECD, 2017).

Besides these structural and country-specific factors, a number of features further hamper business dynamism and productivity growth at the firm level. Regulations on start-ups and restrictions on professional practices pervasively hinder entry and competition in a number of service industries that are important for the economy overall. High dismissal costs undermine both hiring incentives and workers' mobility, and contribute to resource misallocation. Low average digital skills among workers impede the use of digital technologies, while relatively poor management practices prevent the necessary organisational change required to adopt new technologies (OECD, 2017).

Yet recent labour and product market reforms, as well as the *Programme d'investissements d'avenir* for innovation, support productivity improvements (IMF, 2018). Further reforms should aim at making taxes more favourable to employment and productivity while maintaining social protection.

Productivity trends over time

As the main driver of long term economic growth, productivity is eminently important for increasing standards of living and well-being. This country profile provides new evidence on the evolution of productivity over time for France in a comparative setting with respect to a reference group of countries, the “benchmark”. The analysis will focus on labour productivity, defined as value added per worker.

The country profile takes advantage of the unique and detailed information that the OECD has collected thanks to the MultiProd project (Box 1). This includes detailed information on productivity differences within narrowly defined industries, and thus allows for a comparative analysis of the micro drivers of productivity growth. The analysis extends the research on the implications of structural change for the French economy, i.e., increased labour participation by low-skilled workers (OECD, 2017). The country profile focuses on the development of productivity and wage dispersion within industries. Income inequality in France is lower than the OECD average, yet higher than in other core European countries such as Germany, Belgium or the Netherlands (OECD, 2017). The evidence presented highlights that French service industries have experienced a moderate increase in wage dispersion compared to the benchmark, while the trend has even been decreasing in manufacturing.

Figure 1 reports average productivity trends in France for both manufacturing and non-financial market services. The figure presents the average cumulative change in productivity since 2002 within each industry in France, and compares it against the average across each of the benchmark countries. Although changes in the skill composition of the workforce played a role in the evolution of aggregate productivity in France over the observation period (OECD, 2017), the methodology adopted here takes advantage of the richness of the MultiProd data. The analysis focuses on the micro drivers of productivity growth and productivity dispersion within industries, and ignores the role of any sectoral or industrial compositional effect (see Box 1 for the definition of sectors and industries).¹

¹ The implementation of employment policies over the period under consideration increased labour market participation, and such increase is typically correlated with a decrease in aggregate labour productivity (Bourlès, Cette and Cozarenco, 2012).





Several elements emerge from Figure 1. First, labour productivity is correlated with the business cycle. In particular, productivity trends declined during the Great Recession, before picking up. Second, productivity growth stagnated from 2011 onwards. Third, labour productivity increased substantially on average across manufacturing industries, while it stagnated on average across service industries. Given the weight of the services sector in the overall economy, this picture is consistent with the documented reduction in the contribution of TFP to potential growth (OECD, 2017; IMF, 2018; European Commission, 2018).

Productivity growth in French services is comparable to developments in the benchmark countries, while manufacturing productivity grew faster. Yet, cost competitiveness has deteriorated in France over the period under consideration (European Commission, 2018). Moreover, high- and medium-tech industries are underrepresented in the French economy (OECD, 2017). This suggests that restoring cost competitiveness requires stronger productivity growth in services, especially high-tech, as they typically account for a large share of tradable services (Jensen, 2008).

Box 1: The MultiProd project

The MultiProd project contributes to the analysis of productivity by offering new evidence based on firm-level data. This enriches the policy debate on productivity by extending the analysis beyond aggregate industry performance to the important underlying dynamics and developments within industries. Thanks to information at the level of businesses, this new data source offers, for example, new insights on productivity dispersion within industries, its evolution over time and its structural and policy drivers. Policy makers can gain further insights from these measures of “inequality in firm performance” by means of an international comparison owing to the collection of harmonised, and therefore comparable, data. Each country can be then compared to a cross-country benchmark, which sheds light on the strengths and weaknesses of the economy in terms of productivity.

The MultiProd database generally covers most sectors of the economy, but in order to enhance cross-country comparability the country profile focuses on manufacturing and non-financial market services (or “services” for brevity). Coke and refined petroleum, and Real estate are excluded from the analysis. Macro-sectors, i.e., manufacturing and non-financial market services, for brevity also referred to as “sectors” in the document, are defined according to a customised 7-sector aggregation of ISIC Rev.4/NACE Rev.2 industries. Detailed industries follow the SNA A38 classification, for brevity also referred to as “industries” in the document.* As of February 2019, the following countries are included in the benchmark group for France: Australia, Austria, Belgium, Canada, Chile, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Luxembourg, Japan, the Netherlands, New Zealand, Norway, Portugal, Sweden, and Switzerland. Due to limited data availability in more recent years, the set of benchmark countries ends in 2014 and is more limited after 2012: Austria, Belgium, Chile, Finland (until 2013), France, Germany (until 2013), Ireland, Italy, Japan and the Netherlands. The data sources for France include: FICUS/FARE, DADS, LIFI, SIRUS (Contours des entreprises profilées). See Berlingieri, Blanchenay, Calligaris and Criscuolo (2017) for a more detailed presentation of the methodology used in the MultiProd project, and Desnoyers-James, Calligaris and Calvino (2019) for more details on data sources, industry coverage and classifications.

* For a summary of Eurostat Nace Rev.2 aggregations, see OECD (2012), [OECD STAN industry list](#).

Productivity and wages

Given the existence of large and persistent differences in productivity between firms, even within narrowly defined industries, the previous insights on the evolution of productivity are now complemented by an analysis of productivity dispersion over time. The analysis will thus focus on productivity differences between firms with different performance, e.g. between best performing firms and those that perform the worst. In doing so, it provides a more complete picture of the evolution of productivity in France, helping policy makers to measure and understand the forces that drive such economic disparities across firms, in order to design better policy responses to the productivity stagnation that France has experienced from 2011 onwards.

Furthermore, new evidence on wage inequality, which increased for a multitude of countries over the last decades, is also presented. In a time of growing concerns for inclusive economic growth, the widespread increase in income inequalities is a source of concerns that policy makers may want to address. Wage inequality is a significant driver of overall inequalities, and empirical evidence demonstrates that it may be attributed to a rise in wage dispersion between firms. Berlingieri, Blanchenay and Criscuolo (2017) relate the increase in wage dispersion to an increase in pay differences between the most and least productive firms, even within narrowly defined industries. Berlingieri,





Calligaris and Criscuolo (2018) explore also the role of firm size, measured as number of persons working at the firm, in explaining productivity and wage differences across firms. Interestingly, their analysis suggest that, while in the manufacturing sector SMEs have significantly lower productivity and wages than their larger counterparts, this is not so clear-cut in services. In services, a larger firm workforce is therefore not necessarily synonymous with higher productivity and higher wages, especially when looking at the difference between medium-sized and large firms. This country profile helps to compare trends in France to global trends for both productivity and wage dispersion. It also looks at how SMEs pay vis-à-vis larger businesses, and how high-productivity firms pay compared to low-productivity ones, in order to provide policy makers with the evidence needed to design informed economic policies.

Dispersion of productivity and wages within industries

Figure 2 reports the average cumulative change of dispersion in labour productivity and wages within each industry in France, and compares it against the average across each of the benchmark countries. Dispersion is measured as the gap in productivity (wages) between the best and worst performing (paying) firms, defined as firms in the top and bottom 10% in terms of performance (wages) in a particular industry in each year.²

Panel (a) shows that the dispersion between the most and the least productive firms in France increased in both manufacturing and services between 2002 and 2015.³ Manufacturing labour productivity dispersion increased less in France than in the reference group since 2002, even though it picked up in the last year. In services, the increase in dispersion was instead significantly stronger in France than in the benchmark.⁴

The evolution is not monotonic. Dispersion reached a first peak during the Great Recession, then decreased in 2010 and 2011 before increasing again. The pattern is particularly stark in manufacturing. Certe, Corde and Lecat (2017) report a comparable pattern of peaking dispersion in the immediate aftermath of the crisis for the whole market economy in France. They suggest that the pattern reflects reallocation difficulties due to market rigidities, as low-productivity firms remain too large, which slows their productivity down, while the opposite is true for successful firms that remain too small.

Panel (b) of Figure 2 analyses the growth differential between wages in the highest paying firms and those in the worst paying firms. In the manufacturing sector, wage dispersion across firms remained stable over the 2002-11 period, before it started decreasing. In the service sector, wage dispersion increased continuously between 2004 and 2013 but decreased afterwards, so that the overall increase remained moderate compared to the benchmark.

Berlingieri, Blanchenay and Criscuolo (2017) describe the concomitant increase in productivity and wage dispersion in several OECD countries. In the French manufacturing sector however, the dispersion observed in productivity does not seem to translate into a widening of wage differentials between firms, which is an important component of overall wage inequality. In services, there is an increase in the dispersion of wages but it is significantly lower than the increase in productivity dispersion, especially at the end of the period.

The effect of labour market policies and the centralisation of wage bargaining may explain this result. Until the government reformed labour law in the Fall 2017, branch-level agreements were automatically extended to firms not involved in negotiations (OECD, 2017). Moreover, low-skilled workers have fared relatively well in France thanks to the high legal minimum wage, which has grown faster than mean wages for full-time workers over the period 2000-10 (Frémeaux and Piketty, 2013). Further, wage growth has been relatively low in the years following the financial crisis (OECD, 2017). These specificities tend to limit wage dispersion and inequality, but they also contribute to misaligning wages and productivity, which may be detrimental to growth in the long run (see the discussion in Berlingieri, Blanchenay and Criscuolo, 2017).⁵

² This document focuses on one measure of dispersion: the 90-10 productivity (wage) ratio is defined as the ratio between the 90th and the 10th percentile of the productivity (wage) distribution. It is used widely in both the inequality and the productivity literature to assess the spread of the distribution of wages and productivity. The measures are quite intuitive since a ratio of X can be interpreted as “firms at the top of the productivity (wage) distribution, proxied by firms at the 90th percentile, producing, given the same amount of inputs, (or paying) X times as much as firms at the 10th percentile”.

³ Productivity dispersion in France has started to diverge significantly in 2002. Results available upon request show that in the period 1995-2002, productivity dispersion has been stable and even displayed some convergence between 1997 and 2002. The results for the entire period are not displayed in this profile because the benchmark cannot be computed over the entire 1995-2015 period given the lack of data.

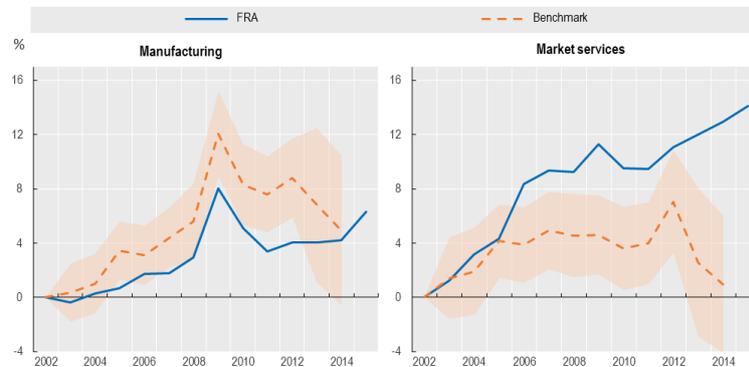
⁴ The trends for the benchmark after 2012 have to be treated cautiously. The number of benchmark countries is reduced after 2012 (see Box 1), which may affect the trends in the dispersion in both productivity and wages due to a compositional effect.

⁵ By limiting the automatic extension of branch-level agreements and favouring bargaining at the firm level, the reform is expected to better align labour costs and productivity, thus improve allocation and competitiveness (IMF, 2018). At the same time, this might result in higher wage dispersion (Berlingieri, Blanchenay and Criscuolo, 2017).

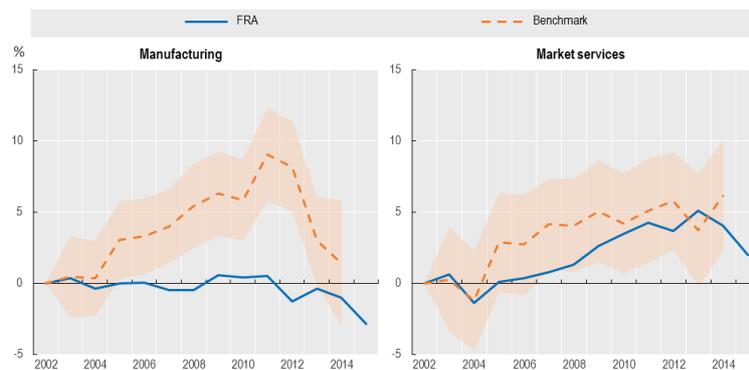


Figure 2. Dispersion of productivity and wages
Manufacturing and non-financial market services
France vs benchmark countries, 2002-15

(a) Cumulative change in labour productivity dispersion, within industries



(b) Cumulative change in wage dispersion, within industries



Note: This figure reports the estimated year dummies of a regression of average log labour productivity and log wage dispersion within industries in France, and within country-industry pairs in a set of benchmark countries, taking the first year as baseline. In the top (bottom) panel, dispersion is measured as the ratio of the 90th percentile to the 10th percentile of the firm-productivity (firm-wage) distribution. The values correspond to the average growth within country-industry since 2002. Results are estimated separately for manufacturing and non-financial market services based on detailed industries, following the SNA A38 classification (see Desnoyers-James, Calligaris and Calvino, 2019). Benchmark countries include Australia, Austria, Belgium, Canada, Chile, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Sweden, and Switzerland. The period considered is 2002-15.

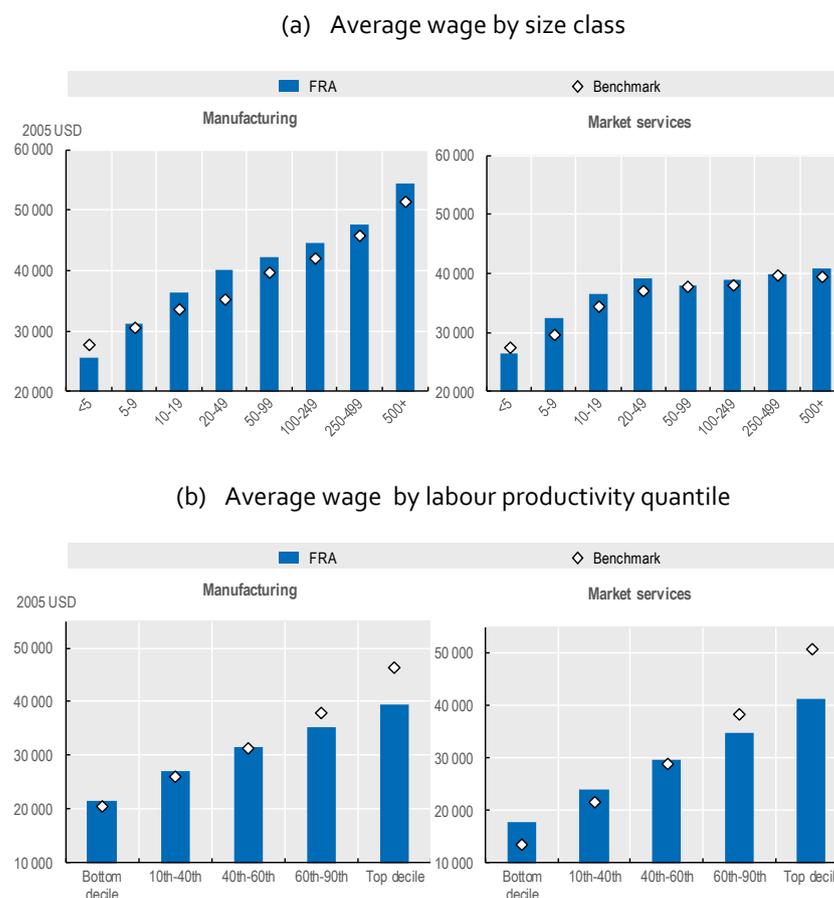
Source: MultiProd database, February 2019.

Wages across size and productivity level

The country profile now focuses on differences in average wages for firms of different sizes and different productivity levels across sectors, providing a better understanding of the repartition of gains associated to productivity growth.

In a cross-country analysis on 16 countries, Berlingieri, Calligaris and Criscuolo (2018) find that the stylised fact that larger firms are on average more productive and pay higher wages does not hold so clearly in market services, which are nowadays a dominant part of the economy. This finding implies that larger service firms are not necessarily more productive or pay higher wages, which may call for a reconsideration of applying the same size contingent policies across all sectors of the economy, when size is measured by employment. In addition, if the most productive and highest paying firms in non-financial market services do not have as many employees as their counterparts in manufacturing, this implies that the benefits of high productivity growth may benefit a smaller share of the population in a service economy, posing a challenge for an inclusive model of growth. At the same time, more productive firms pay higher wages in both sectors, reinforcing the importance of policies aimed at improving technology diffusion and productivity for fostering inclusive growth.

Figure 3. Average wage in different size classes and productivity quantiles
 Manufacturing and non-financial market services
 France vs benchmark countries, 2002-15



Note: This figure presents average wages across eight different firm size classes (top panel: fewer than 5 workers; 5 to 9 workers; 10 to 19 workers; 20 to 49; 50 to 99; 100-249; 250-499; more than 500 workers) and across five productivity quantiles (bottom panel: bottom decile; 10th to 40th percentiles; 40th to 60th percentiles; 60th to 90th percentiles; top decile) in France and in the set of benchmark countries. Industrial (SNA A38) data are aggregated up to sectoral (manufacturing and non-financial market services) level using weighted means, and then averaged (unweighted) over time for each country. The benchmark represents the median of country averages. Benchmark countries include Australia, Austria, Belgium, Canada, Chile, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Luxembourg, Japan, the Netherlands, New Zealand, Norway, Portugal, Sweden, and Switzerland. The period considered is 2002-15.

Source: MultiProd database, February 2019.

In the light of these findings based on international evidence, Figure 3 evaluates the connection between size, wage and productivity in France. Panel (a) plots the average wage for eight size groups in France and in the benchmark, separately for manufacturing and services, over the entire period. The monotonic increase of wages with size is present in manufacturing, but is weaker in services. In services, wages rise with size at the very bottom of the size distribution, but they remain stable above 20 employees, with only minor differences between size groups. The pattern is similar in the benchmark.

Panel (b) in turn examines the link between wages and productivity in France, in comparison to the benchmark group. It plots average wages by quantiles of labour productivity. In both manufacturing and services, wages increase in productivity. However, this positive relationship is less pronounced than in the benchmark group. The gap between wage compensation in top productive firms and wages in low-productivity firms is narrower in France than in the reference group. In particular, high productivity French firms pay lower wages than in the reference group. This suggests a partial decoupling of productivity and wages relative to the benchmark, especially at the top. The labour market policies discussed in the previous section constitute a likely explanation.



Resource allocation and productivity

Resource allocation is directly linked to aggregate productivity: the latter is higher (resp. lower) if factors are mostly allocated to high (resp. low) productivity firms. Allocative efficiency varies considerably across countries and sectors (see e.g. Bartelsman, Haltiwanger and Scarpetta, 2004). An Olley and Pakes (1996) decomposition shows the contribution of resource allocation to the level of productivity. It decomposes aggregate labour productivity into the simple (unweighted) average of firm-level productivity and the covariance between size and productivity. The latter term, referred to as the OP gap, is a proxy of allocative efficiency as it increases if more productive firms capture a larger share of labour inputs.

Panel (a) of Figure 4 shows the decomposition for each macro-sector and year. In manufacturing, the OP gap was positive over the entire observation period. It indicates that more productive firms captured on average more labour resources, with a consequent positive effect on aggregate labour productivity. In services, the lower aggregate productivity level with respect to manufacturing seems to arise from the negative or nil OP gap. This suggests that inefficient resource allocation in the service sector may play a role in explaining the difference in overall productivity between manufacturing and services. At the same time, this can also reflect a weaker link between productivity and employment size in the service sector (Berlingieri, Calligaris and Criscuolo, 2018).

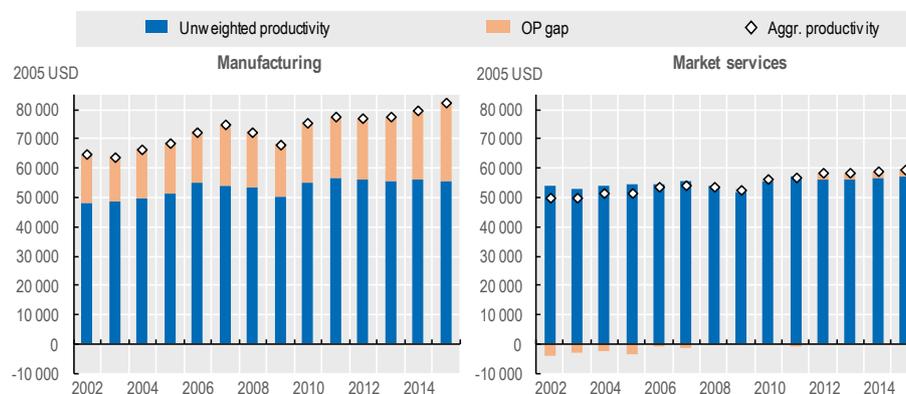
Panel (b) plots the rescaled OP gap over time, which corresponds to the OP gap in a given year divided by the weighted sectoral productivity in the same year. It measures the contribution of resources allocation as a share of aggregate productivity in France. It shows that the OP gap accounted for a sizeable and increasing share of aggregate productivity in manufacturing. In services, the OP gap was relatively low and contributed negatively to aggregate productivity at the beginning of the period, but increased and became positive at the end of the period.

This productivity decomposition suggests that labour resource allocation improved between 2002 and 2015 in France. The small and temporary decrease in the OP gap in manufacturing in 2008-09 is consistent with the fact that the typical counter-cyclical, productivity-enhancing reallocation has not happened during the Great Recession (Foster, Grim and Haltiwanger, 2016). In services, the evolution of the OP gap does not seem to be correlated with the business cycle. This may be linked to the fact that large firms are not necessarily the most productive in the service sector (see Berlingieri, Calligaris and Criscuolo, 2018).

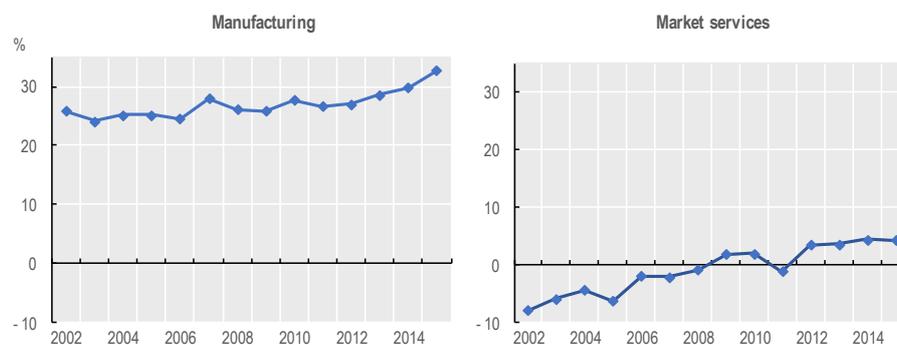


Figure 4. Static productivity decomposition
France, 2002-15

(a) Olley-Pakes aggregate labour productivity decomposition



(b) Rescaled OP gap



Note: Panel (a) of this figure presents the aggregate labour productivity level for each year (in 2005 PPP USD), decomposed into an unweighted productivity term and the covariance term (OP gap). Panel (b) plots the rescaled OP gap, which is the share of the covariance term into aggregate productivity. Results are computed separately for manufacturing and non-financial market services (see Desnoyers-James, Calligaris and Calvino, 2019).

Source: MultiProd database, February 2019.



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OECD Productivity Insights

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