

Recent changes in labour productivity in the four main Eurozone economies: breakdown per branch of activity

After fluctuating sharply during the health crisis, hourly productivity in Q4 2022 remains well below its 2019 level in France and Spain, while exceeding it in Germany and Italy. Although a one-off sectoral composition effect had an upward bearing on hourly productivity in 2020 and 2021, the productivity differentials in 2022 in relation to pre-crisis levels mainly reflect an intra-branch effect, i.e. the changes in productivity in the branches of activity themselves.

In France, the loss of hourly productivity in the main branches of activity appears to be greater than amongst its neighbours. This applies to industry in particular, and more specifically to the energy-water-waste branch (probably linked to the difficulties currently affecting electricity production), in addition to the manufacture of transport equipment, where output in automobile manufacturing has deteriorated more significantly than the volume of hours worked in France, Germany and Italy. However, for the manufacture of other transport equipment (aeronautical construction, in particular), this differential appears to be greater in France than in the other three countries. In addition, in France, the rapid development of work-linked training in all branches since the end of 2020 automatically explains a significant proportion of the decline in productivity.

In France, contrary to the situation in Italy and Germany, productivity is struggling to return to its pre-health-crisis level

In Q3 2022, productivity per capita in France, corresponding to the ratio of the value added of the economy to the number of people in employment,¹ was well below its pre-health-crisis level (-3.8% compared to the average level in 2019, ► **Figure 1** on the left). This drop in productivity, reflecting the fact that employment has grown faster than activity, can apparently be explained by several factors (sharp rise in apprenticeships, increase in the number of people on sick leave, workforce retention by certain enterprises in anticipation of a normalisation of activity and in a context of labour market tensions, or even a reduction in concealed work in favour of declared jobs, etc.). In

particular, the sharp rise in apprenticeships is likely to have made a significant contribution (at least 50%) to the decline in France's productivity (► **Box**). In Germany, the apprenticeship system, which was much more highly developed than in France during the pre-crisis period, has generally remained stable since then.

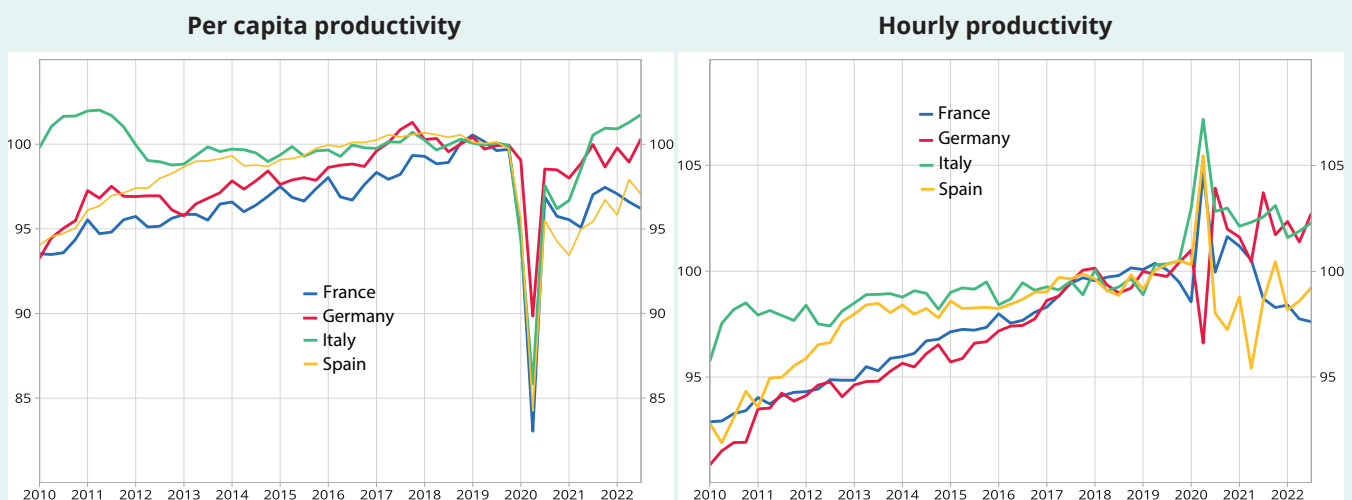
In this respect, it may be useful to compare France's productivity dynamics with the main Eurozone economies in an attempt to identify its specificities.

Amongst the other major Eurozone economies, Spain also recorded a significant decline in per capita productivity (-3.0% in Q3 2022 compared to the 2019 average). In contrast, by mid-2021, productivity in Germany and Italy had returned to levels close to those seen before the health crisis.

¹ The definition of employment used is that adopted by the national accounts and corresponds to the average employment over the quarter. It also corresponds to total employment, i.e. including employees and the self-employed.

► 1. Per capita and hourly labour productivity in the four largest Eurozone economies

base 100 = 2019



Last point: Q3 2022

Scope: All branches of activity, payroll employment and self-employment.

How to read it: per capita labour productivity was more than 3.8% below its 2019 level. Hourly labour productivity was 2.4% below its 2019 level.

Source: INSEE, Destatis, Istat, INE, national accounts, INSEE calculations

French economic outlook

Beforehand, productivity had fluctuated sharply during the health crisis: the decline in activity at the time of the lockdown periods was accompanied by much smaller reductions in employment due to introduction of the short-time working schemes, which kept people in employment with reduced working hours and led to an automatic decline in per capita productivity. In order to ignore variations in per capita productivity resulting from short-time working schemes and from other factors influencing working time (absence due to sick leave, changes in the amount of working time), the hourly productivity indicator – corresponding to the ratio of the value added of the economy to the number of hours actually worked – shall be used for the rest of this analysis (► **Figure 1** on the right).

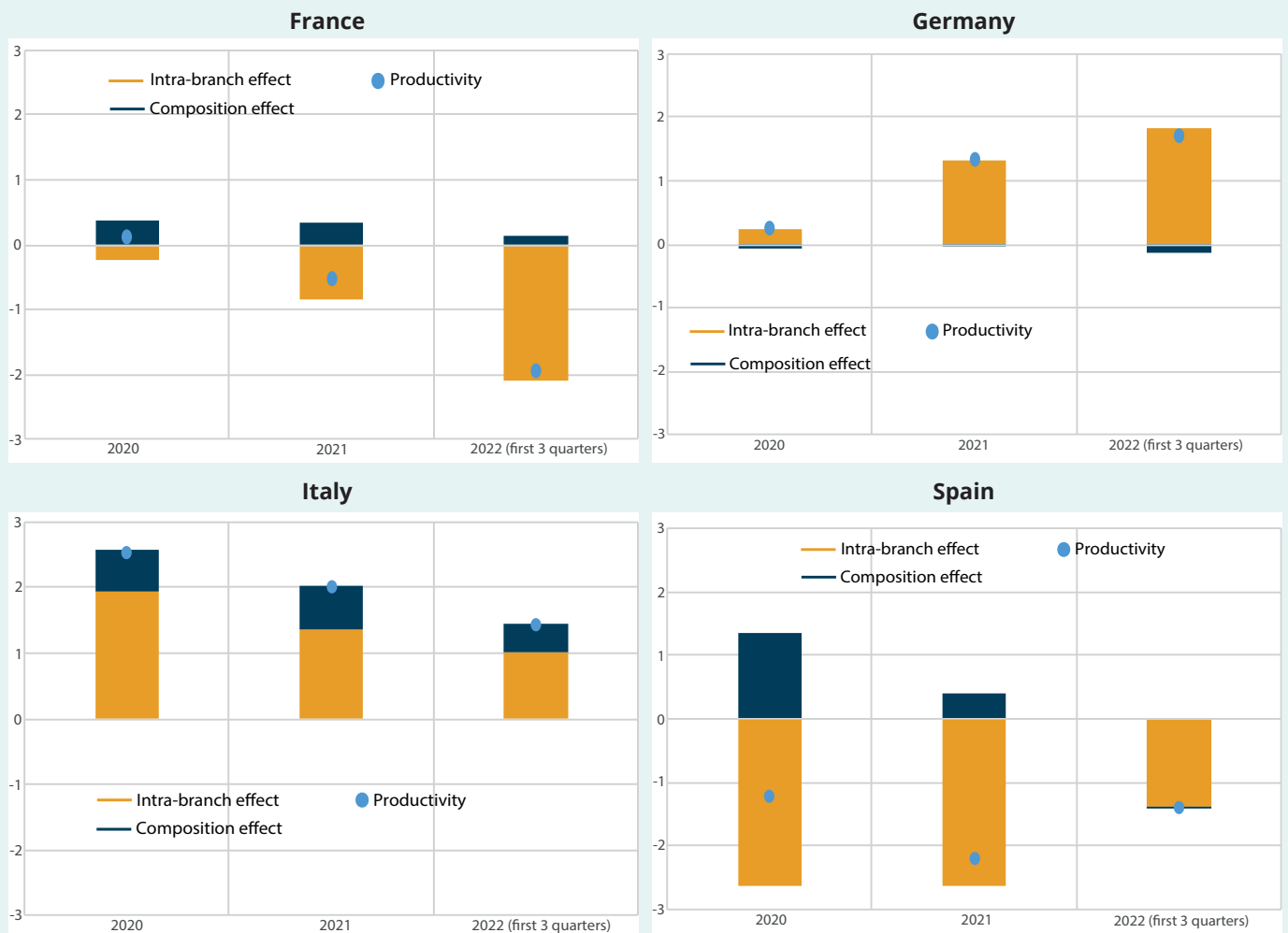
During the health crisis, hourly productivity did not decline and even occasionally increased in different countries, which mainly reflected sectoral composition

effects, as the branches most affected by the restrictions on activity (particularly accommodation and food services), with a relatively lower-than-average level of productivity, contributed much less to overall production (► **Garcia and Loublrier, 2021**). In 2020 and 2021, this composition effect had a strong upward bearing on hourly productivity, in France but also in Italy and Spain (► **Figure 2**). In Germany, this composition effect was almost non-existent, possibly due to less stringent restrictions on activity or a different breakdown by branch. By 2022, the composition effect had significantly weakened in France, Spain and Italy, and the loss of productivity in these countries was mainly due to an intra-branch effect.

With the disappearance of health restrictions, and the resumption of activity in the least productive branches, the composition effect has diminished. In Q3 2022, hourly productivity exceeded its pre-health-crisis levels

► 2. Difference in hourly productivity compared to the 2019 average (all industries excluding real estate services)

difference from the 2019 average and contributions to this difference, in points



Note: the data for 2022 concerns the first three quarters of the year only. Real estate services are excluded from the scope of the analysis here because they are also likely to significantly increase the composition effect measured in the various countries in 2022. Composition effects are calculated using the ten-item branch classification.

How to read it: in France, in 2020, productivity was 0.1% above its 2019 level, with a 0.4 point composition-effect contribution and a -0.2 point intra-branch-effect contribution.

Source: INSEE, Destatis, Istat, INE, national accounts, INSEE calculations

in Germany and Italy. In Spain, where activity has not yet regained its end-2019 level, hourly productivity in Q3 2022 remained 0.8% below its 2019 level. Finally, in France, hourly productivity in Q3 2022 stood at more than 2.4% below its 2019 level.

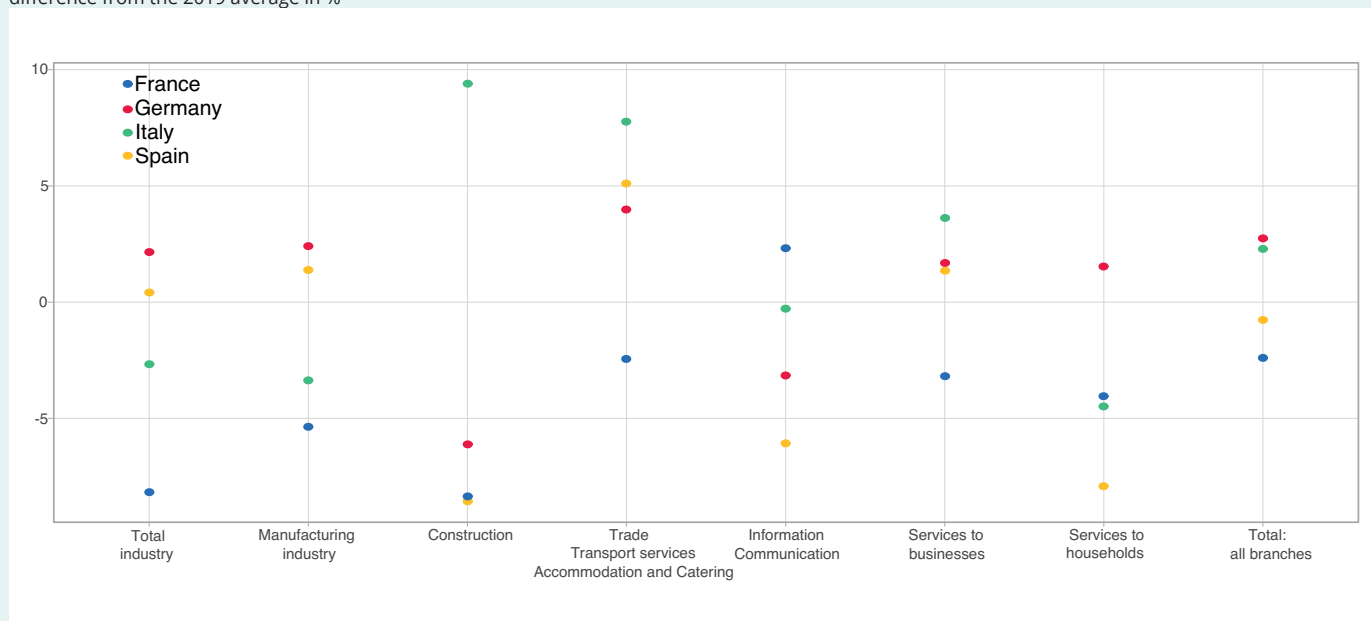
In France, industry has a notable impact on hourly productivity

Analysis of the changes in value added and hours worked per branch suggests that the deterioration in productivity has been more widespread in France than in neighbouring economies (► [Figure 3](#)), which is probably partly due to the dynamic growth in apprenticeships. In Q3 2022, industrial branches in France recorded a greater loss of hourly productivity than service activities, relative to the average for 2019. In industry, which accounts for around 10% of all hours worked, productivity has dropped by 8.2% since 2019. This decline is the result of a sharp deterioration in value added (-9.6% between 2019 and Q3 2022), while in comparison, there has only been a slight drop in the number of hours worked (-1.6%, ► [Figure 4](#)).

Excluding industry, hourly productivity fell sharply in construction in France between 2019 and Q3 2022 (-8.4%). In Spain, where this branch has been struggling since the 2008 economic crisis, the decline is of a similar magnitude. In Germany, productivity in the same sector also fell sharply, but to a lesser extent (-6.1%), while in Italy it rose sharply (+9.4%): the buoyancy of Italian construction is undoubtedly explained by the public infrastructure projects launched as part of the post-COVID stimulus plan.

► 3. Hourly productivity per branch in Q2 2022, in the four main Eurozone economies, relative to the average for 2019

difference from the 2019 average in %



How to read it: in France, productivity fell back by 8.2% in industry between 2019 and Q3 2022.

Source: INSEE, Destatis, Istat, INE, national accounts, INSEE calculations

In France and in industry, productivity has deteriorated particularly strongly in the production of energy and transport equipment

Two branches of activity in particular have contributed to the decline in hourly productivity in French industry: energy, water, waste, and the manufacture of transport equipment (► [Figure 5](#)). In these two branches, value added remained well below its pre-health-crisis level in Q2 2022, while the volume of hours worked declined to a much lesser extent (transport equipment) or hardly at all (energy, water, waste).

The value-added data available via the Eurostat website does not enable the performance of a more detailed comparative analysis between countries than at the level of manufacturing industry. One way to remedy this shortcoming, albeit approximate, is to consider, within each industrial branch, the output of that branch (as estimated by the industrial production indicators (IPI)) relative to the number of hours worked, as both of these figures are available at a relatively disaggregated level for each of the countries monitored, but only up to Q2 2022 for employment. The resulting indicator differs from hourly productivity, of course, since production is not identified with value added. However, for France and for the transport equipment and energy, water and waste branches, the picture painted by the ratio of industrial production to hours worked is qualitatively similar to that of hourly productivity, which may also enable it to be considered at more detailed levels of disaggregation.

Within the energy, water and waste branch, industrial production in the energy sector in France has declined

French economic outlook

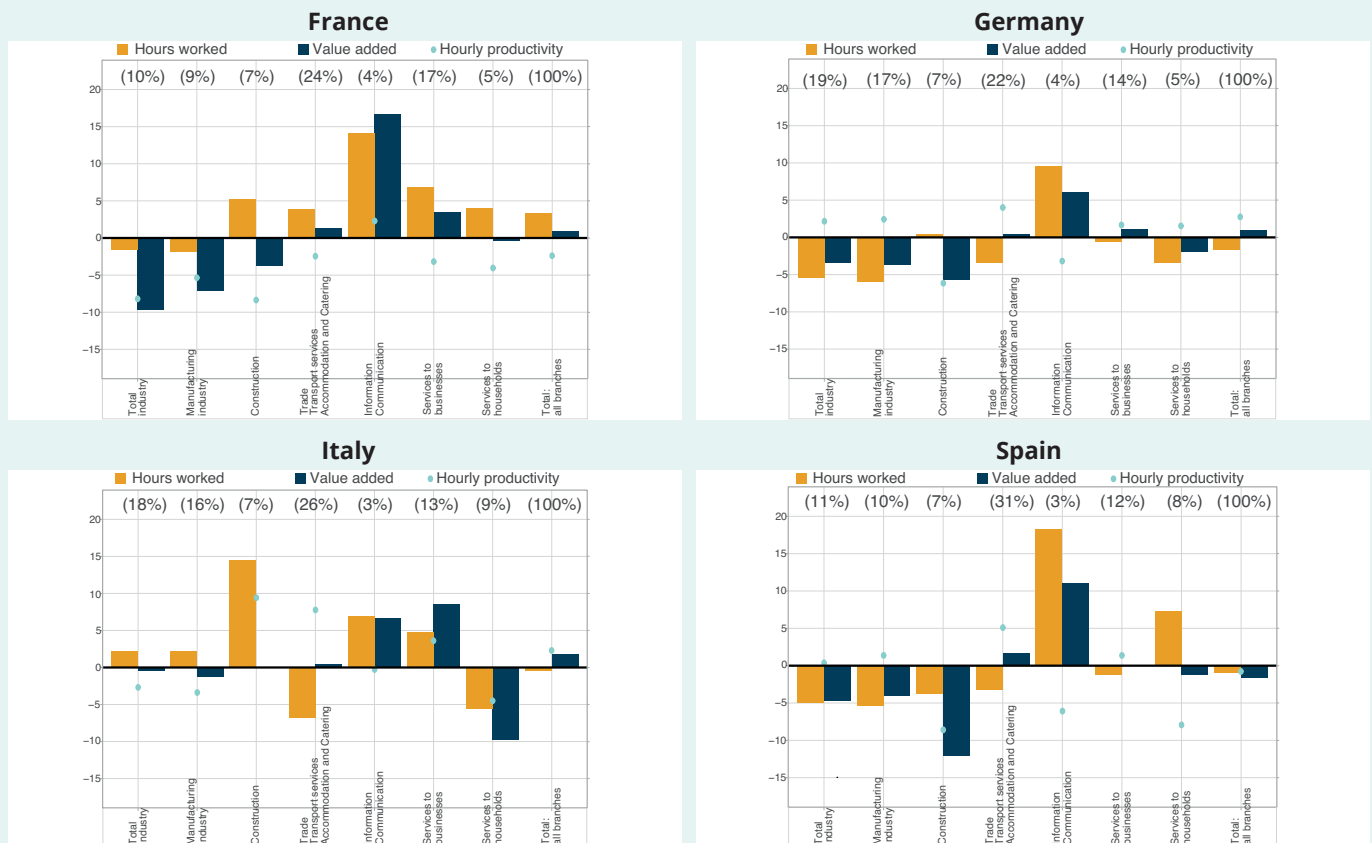
sharply (-10.2% in Q2 2022 compared to the average for 2019), while the hours worked have remained virtually unchanged (► **Figure 6**). This also applies to Germany, although to a lesser extent. In contrast, energy production has not declined at all in Spain and only very slightly in Italy. In France, the difference between production and hours worked probably reflects the difficulties affecting electricity production, in a sector in which there is relatively little opportunity to adjust the volume of work to fluctuations in activity. In Germany, however, it may relate to the difficulties in gas distribution in the context of geopolitical tensions in Eastern Europe.

In France, for the manufacture of transport equipment, the drop in hourly productivity calculated in this way concerns both the automobile industry and the other transport equipment industries (particularly aeronautical). In the automotive industry, productivity has also dipped markedly in Germany and Italy, but less sharply than in France. In all three countries, this decline may reflect workforce retention behaviours, as the sector has been experiencing severe supply-chain difficulties since 2020. However, for the manufacture of other transport equipment, the decline in hourly productivity seems specific to France and Spain. ●

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► 4. Changes in hourly productivity, hours worked and value added between 2019 and Q3 2022, in the four main Eurozone economies

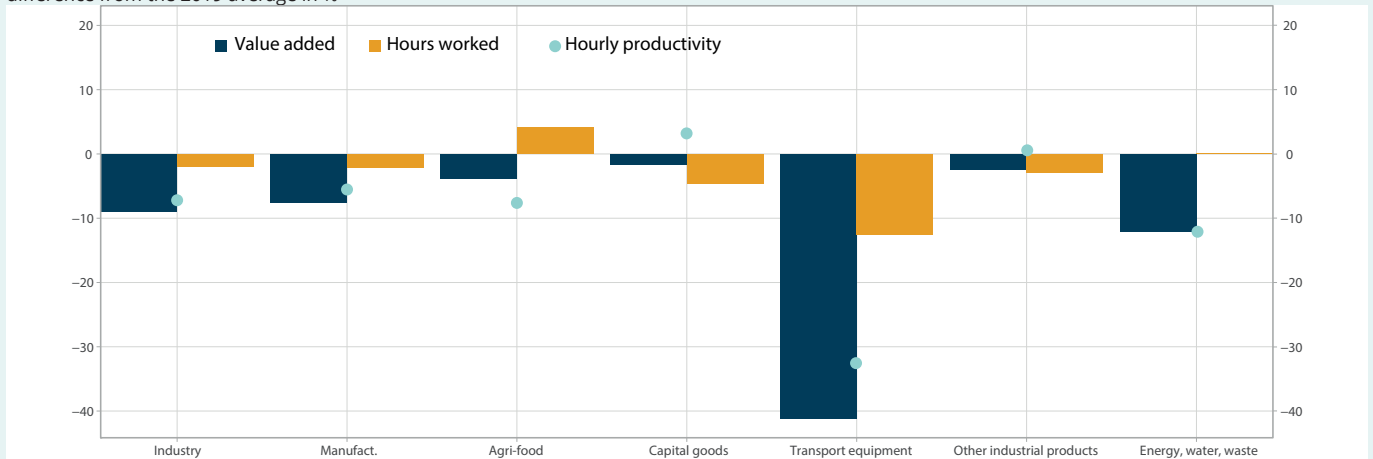
Difference relative to the 2019 average as a % (the share of hourly employment for the branch in total hourly employment is shown in brackets under the branch name)



How to read it: in France, productivity fell back by 8.2% in industry between 2019 and Q3 2022. Over the same period and in the same branch, employment in hours edged down by 1.6% and value added dropped by 9.6%. In Q3 2022, industry accounted for 10% of the total hours worked in the French economy. Source: INSEE, Destatis, Istat, INE, national accounts, INSEE calculations

► 5. Hourly productivity, hours worked and value added in France in Q2 2022, in industrial branches

difference from the 2019 average in %

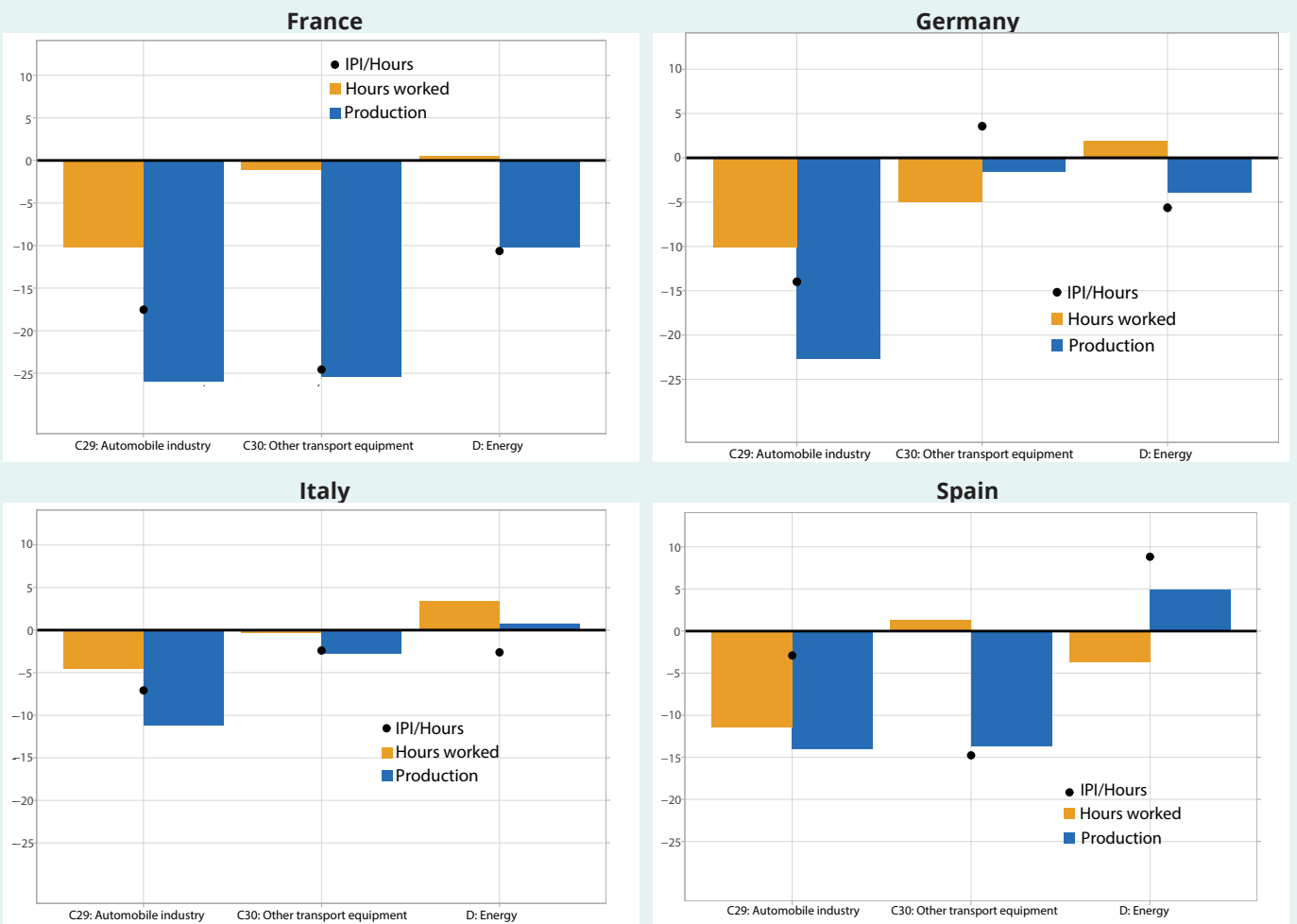


How to read it: in France, productivity fell back by 7.2% in industry between 2019 and Q2 2022. Over the same period and in the same branch, hours worked slipped back by 1.9% and value added dropped by 8.9%.

Source: INSEE, INSEE calculations

► 6. Changes in the ratio of the industrial production index to hours worked in selected branches between 2019 and Q2 2022

difference from the 2019 average in %



How to read it: in France, production in the automotive industry declined by 25.9% percent between 2019 and Q2 2022. Employment slipped back by 10.2%.

Source: INSEE, Destatis, Istat, INE, national accounts, INSEE calculations

The rise in the number of work-linked training programmes in France explains a significant proportion of the recent loss of per capita productivity

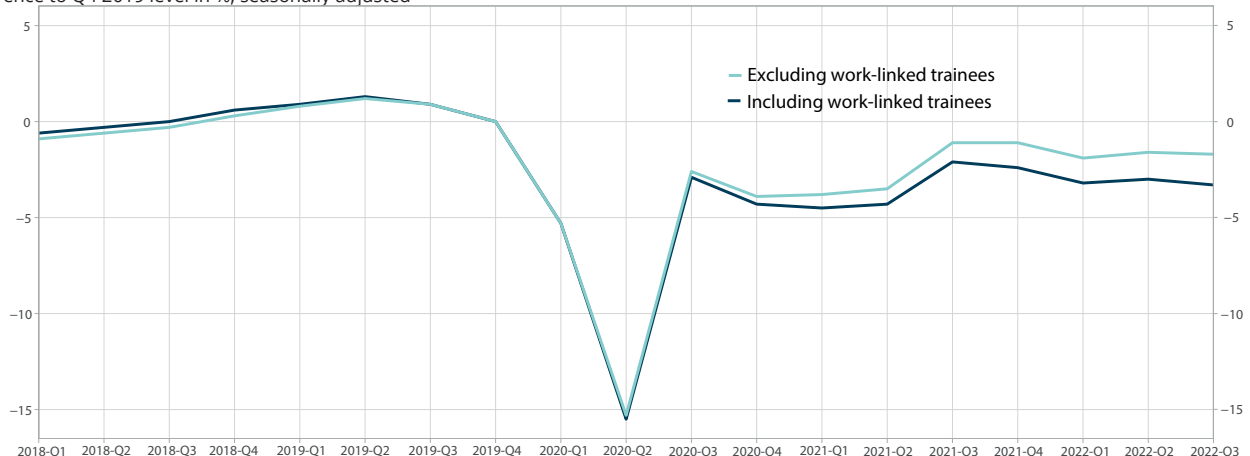
Work-linked training contracts – especially apprenticeships – made a significant contribution to payroll employment dynamics between the pre-crisis period (end 2019) and Q3 2022, with approximately one in three salaried jobs created during this period being in the form of a work-linked training contract. The momentum of this work-linked training pushed down the average level of per capita productivity (value added relative to the number of jobs). Indeed, people on work-linked training contracts spend a proportion of their time in education, even though their legal working time is that of a full-time employee, which means that they are counted as full-time employees in the national accounts. Therefore, they can logically be considered to contribute proportionally less to their company's production than other employees. Moreover, young employees on work-linked training schemes, who by definition have acquired very little experience in their company, are probably less productive than other employees with the same initial qualifications.

Quantifying the contribution of work-linked trainees to the loss of per capita productivity since the end 2019 would require an estimate of the value added created by work-linked trainees alone (or symmetrically, the value added created by non-work-linked trainees). Given the difficulty of producing such an estimate, a polar assumption postulates that the productivity, and therefore the value added, of work-linked trainees is zero. This assumption, which has the merit of simplicity, naturally underestimates the productivity of work-linked trainees and therefore overestimates the latter's contribution to the loss of productivity observed since the end of 2019.

According to this assumption, per capita productivity excluding work-linked trainees in Q3 2022 would stand at 1.7 points below its end-20019 level, i.e. half the decline in productivity recorded when work-linked trainees are included (3.3 points). This would imply that the dynamic growth of work-linked training reduced productivity growth by no more than 1.6 points in the non-agricultural market sector between end 2019 and Q3 2022. ●

► 1. Per capita productivity in the non-agricultural market sector, as a difference relative to end 2019

difference to Q4 2019 level in %, seasonally adjusted



Note: here, productivity is measured as the ratio of the value added of the non-agricultural market sector to payroll employment in the same sector (including or excluding work-linked trainees).

How to read it: in Q1 2018, the productivity of the non-agricultural market sector including work-linked trainees is 0.6 percentage points lower than in Q4 2019.

Source : INSEE, National Accounts and Dares, Apprenticeship Information System, INSEE calculations

Bibliography

Léa Garcia, Alexis Loublie (2021) "During the health crisis, per capita productivity and hourly labour productivity fluctuated considerably", Focus, *Economic outlook* of 14 December 2021. ●