



Downturn in French manufacturing labour productivity in 2023: findings and improvement drivers

Results of the survey conducted by the Banque de France in September 2023

In 2023, a number of factors, including absenteeism and unfilled jobs, affected the quantity and productivity of hours worked in manufacturing. Work-study placements increased at 27% of companies, while 11% of firms reported an increase in labour hoarding.

Among the determinants of the downturn in labour productivity since end-2019, 92% of companies signalled higher raw material and energy costs, while 40% highlighted supply difficulties. Companies also cited hiring difficulties (81%), and a lack of skills (60%) or qualifications (43%) among recruited personnel.

According to respondent companies, the main drivers that will boost productivity include actions to reduce labour mismatches and tackle skills shortages and investments in more efficient equipment. However, some firms mention that insufficient financial capacity, a lack of in-house skills or regulatory uncertainty may be holding them back from implementing these solutions.

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JEL codes
D22, D24,
Q4

With the assistance of the Directorate General Services to the Economy and Branch Network Activity and the Banque de France network

Banque de France survey of production conditions in manufacturing, 2023

92%

share of companies that said they had lost productivity owing to increased raw material and energy costs since end-2019

81%

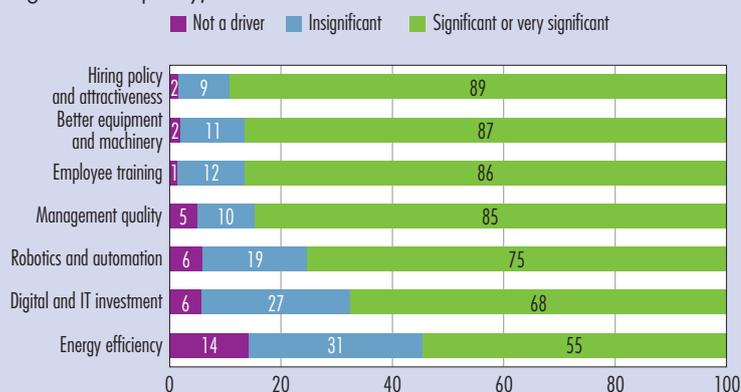
share of companies that cited hiring difficulties as a drag on labour productivity since end-2019

27%

share of companies that reported an increase in apprentices or people on work-study placements in 2023

Main drivers that could help boost the productivity of manufacturers in 2023

(weighted % frequency)



Source: Banque de France (production conditions survey, 2023).

Scope: Manufacturing companies with 20 or more employees.

Note: Weightings take account of sector of activity and company size (see methodological appendix).



Apparent labour productivity has fallen in France since 2019. Devulder et al. (2024) estimate that productivity observed in the second quarter of 2023 was 8.5% below the level that would have been reached had productivity remained on its 2010-2019 trend. They break down the effects of various temporary and permanent factors contributing to the productivity disconnect in market sectors (see below). Ultimately, a significant share of the fall reflects not a loss of productive potential, but rather increased employment intensity of economic activity through a switchover effect between labour productivity and the quantity of jobs.¹

This article looks at the manufacturing sector, which has special importance due to the potential for productivity gains (since productivity in manufacturing is higher and more dynamic than in the services sector) and job creation, at a time of structurally high unemployment. It seeks to identify and quantify the relative importance of various factors that might affect the determinants of labour productivity in the manufacturing sector, such as jobs, hours worked and hourly productivity, and to provide insights into potential drivers that might enable companies to boost their productivity, as well as possible obstacles in their way. To do this, it relies on the Banque de France's survey of production conditions at manufacturing companies, which is conducted every year between September and December. The thematic section of the 2023 survey addressed evolutions in employment and labour productivity. The survey data provide a sector-level and microeconomic perspective that supplements the macroeconomic analysis derived from national accounts data and discussed in another Banque de France article on the topic (Devulder et al., 2024). This is useful because labour productivity trends observed at the macroeconomic level may conceal different developments across sectors of activity or even between companies operating within the same sector depending on their size.

1 The downturn in manufacturing labour productivity in 2023

In 2023, labour productivity was still below its pre-Covid level

Apparent labour productivity indicators have followed an uneven path in France since the outbreak of the Covid health crisis. Based on national accounts data, while employment has been vigorous, economic activity measured by real value added has see-sawed since 2019. By the third quarter of 2023, it was just 1.8% above its 2019 level. This caused productivity to disconnect from its pre-crisis trajectory, as employment growth outpaced the increase in value added.²

After worsening steadily during the health crisis, hourly productivity in non-farm market sectors in the first quarter of 2023 was 4.7% below its end-2019 level (DARES, 2023a). All sectors recorded a drop in productivity. In manufacturing, hourly productivity fell by 7.3% between end-2019 and the first quarter of 2023, contributing roughly 35% of the overall loss of hourly productivity during the period.

The loss of apparent labour productivity per capita in the second quarter of 2023 relative to the pre-Covid trend is estimated at 8.5%. A quantification exercise conducted by Devulder et al. (2024) accounts for just over half of the difference, attributing 1.8 percentage points to temporary factors (primarily labour hoarding, plus job retention schemes to a limited extent) and 3.1 points to more permanent factors, including apprenticeships, changes in workforce composition and the lasting effects of lockdowns.

In the third quarter of 2023, productivity per capita of employees was 7.2% below its end-2019 level on average

¹ According to Garnier and Zuber (2023), apparent labour productivity, calculated by dividing GDP by the workforce or by hours worked, does not measure the efficiency of the national economy because it fails to capture potential but unused labour resources. The ratio of output to the total working age population thus reveals a small gain in labour efficiency in France between mid-2019 and mid-2023 – comparable to Germany's performance – driven by an increase in the employment rate, despite the downturn in hourly productivity.

² The macroeconomic indicator of apparent labour productivity is derived from the national accounts and divides real value added by a measure of the amount of labour supplied (typically the number of jobs or the number of hours worked). It therefore decreases from one period to the next if value added decreases by more than the amount of labour, or if labour increases more rapidly than value added.



in manufacturing sectors excluding manufacturing of coke and refined petroleum products.³ Especially steep drops were recorded in the transportation equipment (-19.6%) and agri-food (-8.0%) sectors. In comparison, construction saw an even larger decrease, with productivity per capita 14.5% below its pre-crisis level, while in market services, the gap was just 2.1%.

According to the Banque de France's macroeconomic projections (December 2023), labour productivity per capita is set to recover gradually (notably as labour retention eases in certain sectors), reverting to its pre-crisis level by the end of 2026.

The amount of work supplied in manufacturing increased between 2022 and 2023, but remains subject to constraints

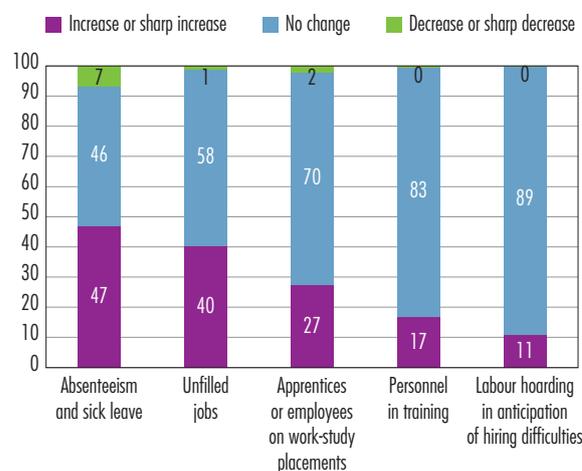
For 2023, manufacturing companies reported a 1.8% rise in overall headcount and a 3% increase in the amount of hours worked (excluding temporary personnel) compared with 2022.

However, various factors limited the increase in the amount of work supplied in 2023, affecting both the volume of employment and its utilisation rate (see Chart 1). The primary factors mentioned by companies include a 12-month rise in absenteeism relative to September 2022⁴ and an increase in unfilled jobs. These factors limit the amount of hours worked below the level desired by companies and may act as supply-side constraints.

Absenteeism, notably due to sick leave, reduces working time and hence labour productivity per capita. On average, 47% of manufacturers said that absenteeism increased in 2023, while just 7% said that it went down (see Chart 2 below). The deterioration is less pronounced in the transportation sector, where 34% of companies

C1 Change in the main factors that affected labour over the last 12 months

(weighted % frequency)



Source: Banque de France (production conditions survey, 2023). Scope: Manufacturing companies with 20 or more employees. Note: Change over the 12 months to end-September 2023. Weightings take account of sector of activity and company size (see methodological appendix).

reported increased absenteeism, while 22% noted an improvement.

The number of unfilled jobs rose at 40% of companies (see Chart 3 below), and particularly among large enterprises (58%, compared with 36% of small and medium-sized enterprises – SMEs). The resulting pressures were felt especially keenly in the transportation equipment (68%) and agri-food (49%) sectors.

Around 17% of companies reported an increase in personnel in training: this included 28% of large enterprises and 13% of SMEs. Conversely, part-time work was roughly stable over 12 months.

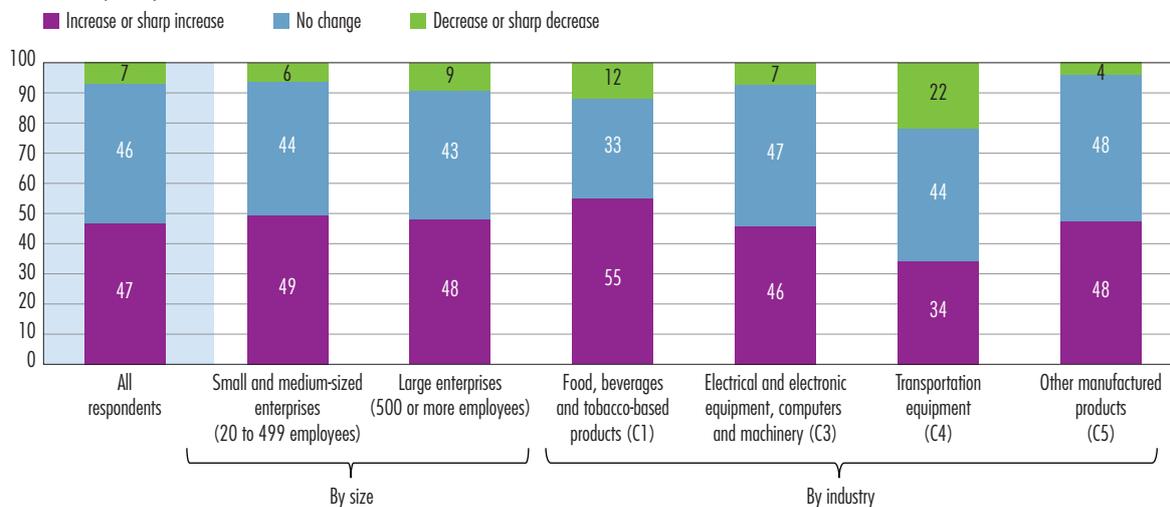
³ Authors' calculations based on quarterly national accounts (detailed results for the third quarter of 2023) and INSEE's quarterly estimates of salaried employment.

⁴ According to Devulder et al. (2024), the exceptional increase in absences due to sick leave observed since 2020 in market sectors faded in the first half of 2023 and its impact on productivity per capita was close to zero. This suggests that increased absenteeism in manufacturing in 2023 may have been offset on average by a decrease in other market sectors, or that the increase was driven by factors other than sick leave (workplace accidents, undocumented absences, leave to care for a sick child, etc.).



C2 Change in absenteeism and sick leave in 2023

(weighted % frequency)



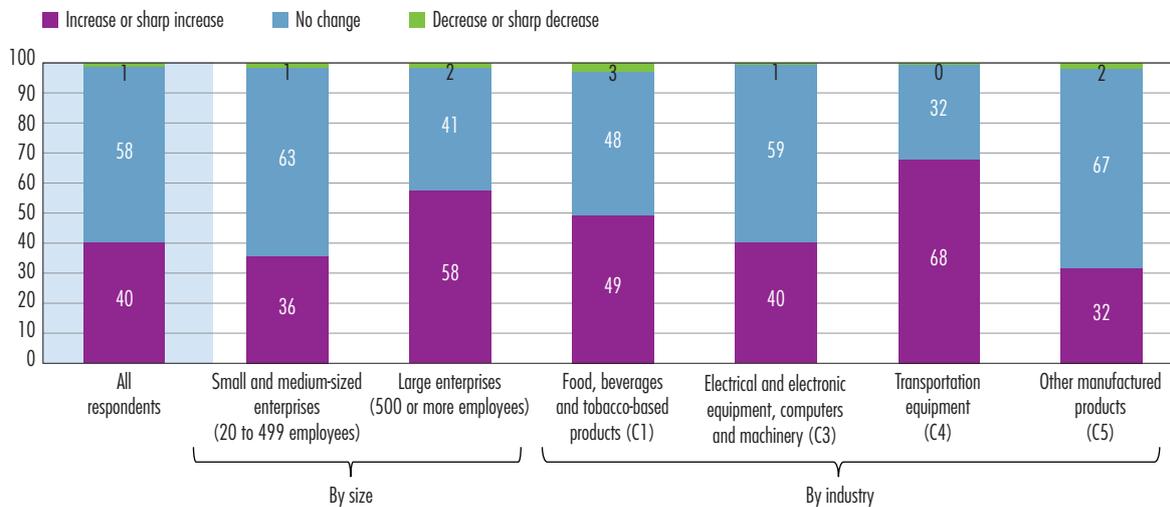
Source: Banque de France (production conditions survey, 2023).

Scope: Manufacturing companies with 20 or more employees.

Note: Weightings take account of sector of activity and company size (see methodological appendix).

C3 Change in unfilled jobs in 2023

(weighted % frequency)



Source: Banque de France (production conditions survey, 2023).

Scope: Manufacturing companies with 20 or more employees.

Note: Change over the 12 months to end-September 2023. Weightings take account of sector of activity and company size (see methodological appendix).

Analyses of recent labour productivity trends generally underline the impact of the sharp increase in work-study schemes in employment since the health crisis, driven by a surge in apprenticeships. This accounted for one-third of net salaried job creations over the period from end-2019

to end-2022 (DARES, 2023b). The rise of work-study schemes has altered the structure of employment and could also have a direct impact on apparent labour productivity. Specifically, people on work-study placements are counted as full-time workers in employment statistics. Yet a portion



of their work time is given over to training and they are also, on average, less productive than more seasoned employees. Productivity per capita thus decreases automatically when the proportion of people on work-study placements in employment goes up, even though these schemes may positively impact potential employment and productivity in the long run by permanently lowering the unemployment rate.

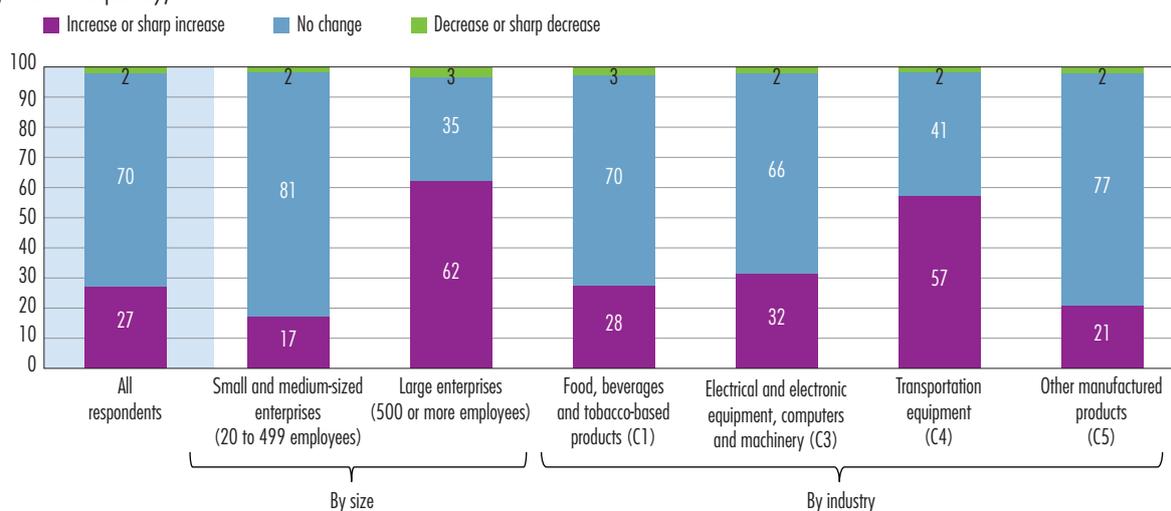
According to Banque de France estimates, the sharp expansion in apprenticeships since end-2019 accounts for 1.2 points of the drop in productivity per capita in market sectors in the second quarter of 2023.⁵

Based on the findings of the Banque de France survey, the number of people on work-study placements rose at 27% of companies (see Chart 4). A bigger share of large enterprises increased work-study hires (62%, compared with 17% of SMEs), with a particularly significant increase in the transportation equipment sector (57%).

Meanwhile, 11% of companies said that they were forced to step up labour hoarding in the year to end-2023 in anticipation of future hiring difficulties; especially firms in the transportation equipment (16%), other manufactured products (11%) and electrical and electronic equipment, computers and machinery (11%) sectors. Large enterprises are also more inclined to adopt this solution (17%, compared with 10% of SMEs). Labour hoarding allows companies to adjust their labour utilisation rate rather than the employment level, in response to temporary changes in demand or supply difficulties for example. Therefore, it contributes to lowering the apparent labour productivity indicator. This is particularly the case in the presence of labour market rigidities or tightness, because companies may choose to hold onto more employees than needed, if they expect hiring or training costs to go up in response to a future rebound in activity. Assistance provided to companies since the Covid-19 crisis may have encouraged hoarding by reducing incentives for firms to adjust their headcount via dismissals/hires.

C4 Change in jobs under work-study schemes in 2023

(weighted % frequency)



Source: Banque de France (production conditions survey, 2023).

Scope: Manufacturing companies with 20 or more employees.

Note: Change over the 12 months to end-September 2023. Weightings take account of sector of activity and company size (see methodological appendix).

⁵ Out of a total difference of 8.5 percentage points of productivity per capita compared with the pre-Covid trend, see the start of the section, above.



2 The main factors responsible for the downturn in manufacturing productivity since 2019, as identified by companies

Multiple determinants affect labour productivity trends and they do not all lead to the same assessment regarding changes in the efficiency of labour and production processes, which complicates the interpretation of macroeconomic data. Some one-off or cyclical factors affect labour productivity only temporarily, such as exceptional business support measures and labour hoarding, while others may have longer-lasting effects on labour efficiency (reallocation of employment between

sectors, continued rise of apprenticeships, long-term effects of the Covid-19 crisis on human capital). The Banque de France survey of production conditions sheds additional light on the main factors that may have caused labour productivity to decrease in manufacturing companies since end-2019.

Higher production costs are cited as the main factor in the productivity downturn

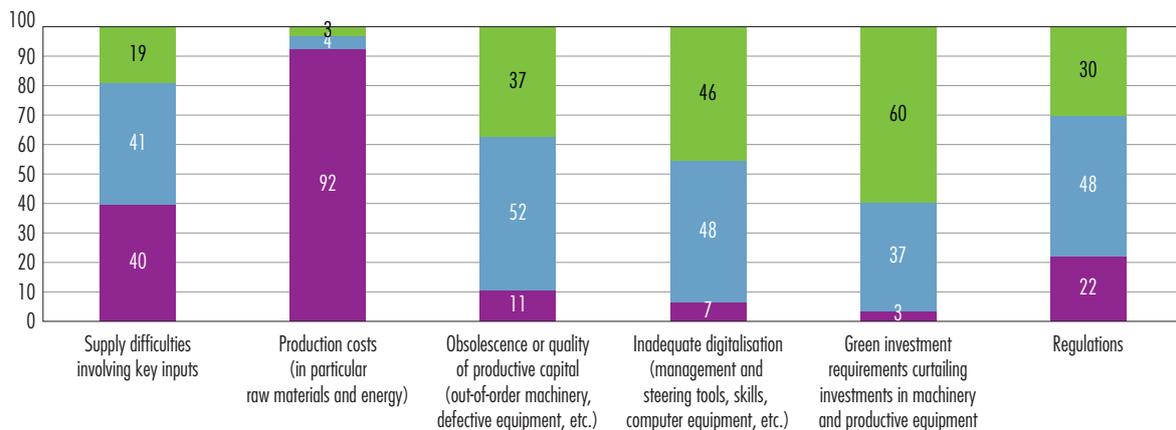
Company responses reveal that the drop in productivity since 2019 may be due to many factors (see Chart 5a below). One of the lead causes is the rise in production

C5 Change in factors that caused productivity to decrease relative to 2019

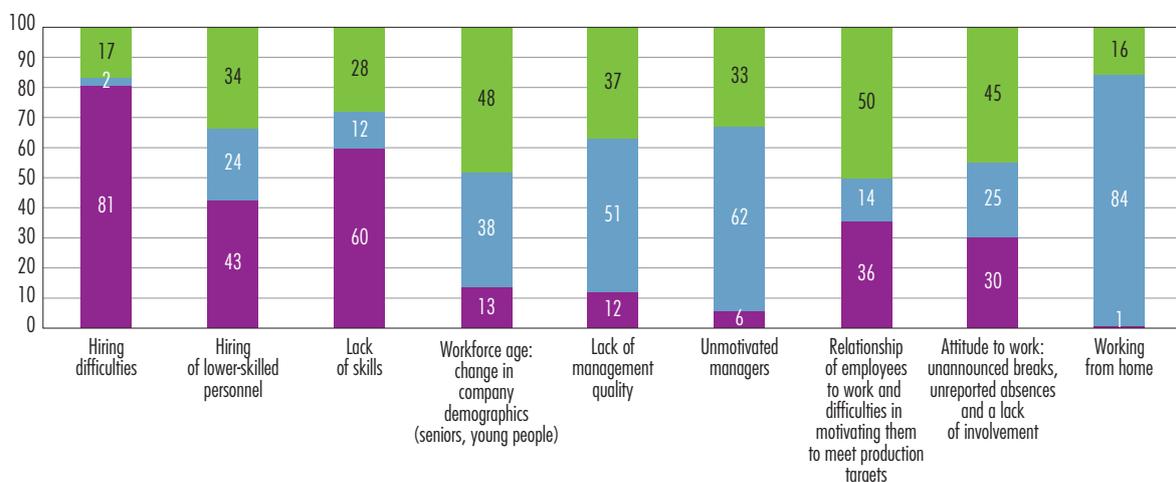
(weighted % frequency)

■ Significant or very significant effect ■ Weak effect ■ No effect

a) Non-work-related factors



b) Work-related factors



Source: Banque de France (production conditions survey, 2023).

Scope: Manufacturing companies with 20 or more employees.

Note: Weightings take account of sector of activity and company size (see methodological appendix).



costs linked to raw material and energy prices, which 92% of manufacturers cite. Further, 40% of firms mention supply difficulties involving key inputs (rising to 68% of firms in the transportation equipment sector and 67% in the electrical and electronic equipment, computers and machinery sector). Indeed, higher input costs may reduce the share of value added in turnover. Manufacturing is particularly exposed to fluctuations in raw material and energy prices and to supply shocks, since production is more input-intensive than in other sectors (excluding transportation services, which are energy intensive). In addition, it is difficult for companies to adjust input costs, at least in the short term.

The results of the monthly business survey, however, show that supply difficulties in manufacturing production have eased steadily since peaking in April 2022, when they affected 64% of companies, compared with 14% in December 2023 (see Chart 6).

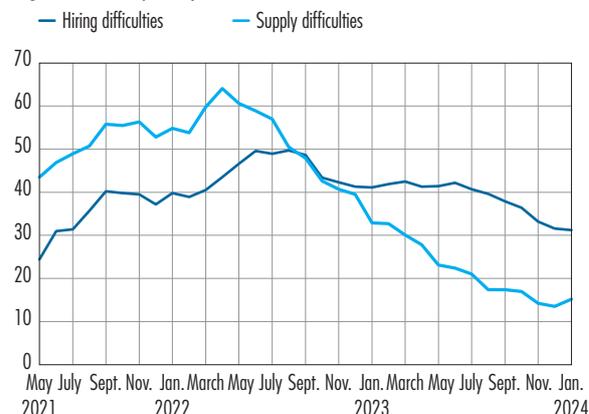
Hiring difficulties and problems relating to the availability of suitable labour remain extremely burdensome

In all, 81% of manufacturers identify hiring difficulties as a significant or very significant driver of the decrease in their productivity since 2019 (see Chart 5b). This is especially true among SMEs (87%, compared with 66% of large enterprises). However, after peaking in summer 2022 and remaining more or less unchanged in the following three quarters, hiring difficulties have eased since July 2023, according to the Banque de France's monthly business survey (see Chart 6).

Other factors mentioned involve the availability of suitable labour. A full 60% of companies, and especially SMEs (66%), mention skill shortages. Likewise, 43% of companies say that they have had to recruit lower-skilled personnel, particularly SMEs (52%, compared with 24% of large enterprises). Also, 36% of firms highlighted the relationship of employees to work and difficulties in motivating them to meet production targets. These suitability issues concern the agri-food and other manufactured products

C6 Hiring and supply difficulties in manufacturing

(weighted % frequency)



Source: Banque de France (monthly business survey).
Scope: Manufacturing companies with 20 or more employees.
Note: Weightings take account of sector of activity and company size.

sectors primarily, and SMEs above all. To a lesser extent, companies also mentioned age factors, linked in particular to the employment of young people or seniors (13%).

A further 30% of companies reported problems in terms of attitude to work, mentioning unannounced breaks, unreported absences and a lack of involvement, while 12% mentioned insufficient management quality. These factors are particularly prevalent in agri-food and electrical and electronic equipment, computers and machinery, followed by the other manufactured products sector.

Conversely, just 1% of companies feel that work-from-home arrangements have had a significant negative effect on productivity, while 16% report a weak negative effect. This could be partly due to the small proportion of manufacturing jobs that can be performed remotely. According to the 2020 production conditions survey, while at most one-quarter of employees were working from home during the first lockdown, that share subsequently fell back to below 15%.



Regulations also influence productivity, far more than determinants relating to productive capital

Among 22% of companies, regulations have had a significant negative effect on productivity since 2019. SMEs were more inclined to mention this factor than large enterprises (24% compared with 16%). The electrical and electronic equipment, computers and machinery sector appears to be slightly less affected than other sectors (9%).

Determinants linked to the capital factor are on average mentioned far less frequently as having had a significant impact on productivity since the crisis, although proportions vary across sectors. Overall, just 11% of companies reported problems in terms of obsolescence or the quality of their productive capital. This factor especially concerned agri-food (23% of companies) and other manufactured products (13%), but was far less prevalent among other sectors (3%). Just 7% of companies mentioned inadequate digitalisation (8% in the other manufactured products sector and 7% in the electrical and electronic equipment, computers and machinery sector). Finally, green investment requirements do not appear at this stage to have had much impact on productivity; 3% of companies mention them, chiefly in the other manufactured products and agri-food sectors (see Chart 5a above).

3 Main drivers and obstacles to improving manufacturing productivity

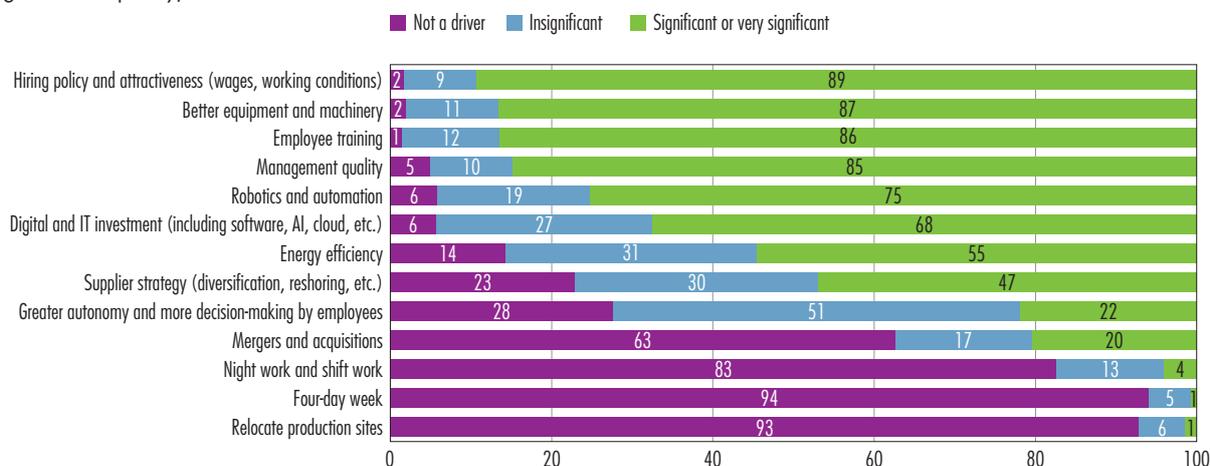
Availability of more suitable labour and new productive investments are identified as significant drivers

Workforce-related drivers are among the top measures mentioned (see Chart 7). A full 89% of companies want to step up their hiring policy and enhance their attractiveness, 86% mention the importance of employee training, and 85% talk about the need to improve management quality.

While they do not see productive capital as the main factor to have depressed productivity since 2019, many companies nevertheless think that additional investments could help them boost productivity. Thus, 87% of companies think that investing in better equipment and machinery could promote productivity, while 75% mention robotics and automation as a way to do this, especially in agri-food (81%) and other manufactured products (77%). Approximately 68% of companies highlight digital and computer technology investments (including 89% of firms in the transportation equipment sector and 78% in the electrical and electronic equipment, computers and machinery sector).

C7 Drivers that could make companies more productive in 2023

(weighted % frequency)



Source: Banque de France (production conditions survey, 2023).

Scope: Manufacturing companies with 20 or more employees.

Note: Weightings take account of sector of activity and company size (see methodological appendix).



In connection with questions of supply and production costs, 55% of companies identify energy efficiency investments as a significant productivity driver, while 47% highlight purchasing strategies to build a more resilient supply chain through diversification or reshoring of suppliers⁶ for example.

Some 22% of business leaders think that giving employees more autonomy and involving them more in decisions could also be an effective driver, especially in the transportation equipment sector (28%).

Meanwhile, 20% of companies think that a mergers and acquisitions strategy would help improve their productivity. An even higher percentage of SMEs think so (23%).

However, fewer than 1% of companies believe that a four-day work week would boost productivity. Relocating production sites is not seen as a major driver either (1% of companies on average, 4% in the electrical and electronic equipment, computers and machinery sector), while just 4% of companies mention organisational issues relating to night work or shift work.

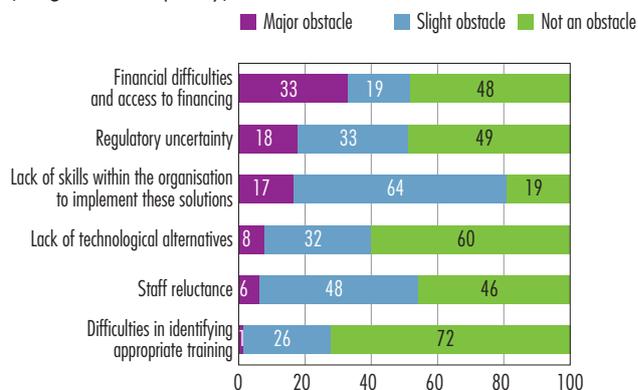
Companies often lack the financing capacity or skills to put these solutions into practice

Although access to credit remains favourable overall (Banque de France, 2024), financial difficulties and issues of access to financing are the main obstacles preventing manufacturers from implementing solutions and additional productive investments, according to 33% of firms (see Chart 8). These issues are cited especially by SMEs (36%, compared with 25% of large enterprises). Companies are also more affected in the other manufactured products and agri-food sectors (39% and 35% respectively).

Regulatory uncertainty is seen as a significant obstacle by 18% of companies on average, especially in the transportation equipment (23%) and other manufactured products (22%) sectors. It is the second-most significant obstacle encountered by large enterprises, as mentioned by 21% of them, compared with 17% of SMEs.

C8 Obstacles to implementing solutions to boost productivity

(weighted % frequency)



Source: Banque de France (production conditions survey, 2023). Scope: Manufacturing companies with 20 or more employees. Note: Weightings take account of sector of activity and company size (see methodological appendix).

A lack of internal skills is highlighted by 17% of companies, with SMEs especially concerned (21%). The transportation equipment sector does not seem to be greatly affected, whereas 23% of companies in the electrical and electronic equipment, computers and machinery sector cite this factor as a significant obstacle to boosting labour productivity. The same view is shared by 20% of agri-food firms and 18% of companies operating in the other manufactured products sector.

In terms of the capital factor, 8% of companies mention a lack of technological alternatives as a drag on implementing some productivity improvement drivers. Regarding the work factor, 6% of respondents mention staff reluctance as a drag.

⁶ For example by opting to use European suppliers rather than (or in addition to) non-EU suppliers.



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Appendix

Methodological information

The Banque de France survey of production conditions

Acting through its branch network, since 1989 the Banque de France has surveyed manufacturers with 20 or more employees annually about their production conditions.

The survey is conducted every year in September and asks respondents about:

- strategies to make supplies less vulnerable;
- the energy mix;
- strategies and planned investments to support the energy transition.

New questions were added to the 2023 survey as part of a thematic section, which contained **seven questions about labour productivity**, the solutions put in place to support it, and difficulties encountered in maintaining it.

The thematic section began with qualitative and quantitative questions about changes in production- and employment-related variables. Companies were thus asked to identify changes that they had noticed with respect to their workforce. They were then asked to identify the difficulties that they had encountered in boosting their productivity, along with potential improvement drivers.

The thematic section of the questionnaire contained the following seven questions:

1. Your value added in 2022 and your forecast value added in 2023:

- respective amounts in EUR

2. The total number of hours worked in 2022 and the total number of hours worked in 2023 (excluding temporary staff):

- respective number of hours

3. Your headcount:

- average annual headcount in 2022 and 2023
- average annual number of temporary staff in 2022 and 2023
- persons enrolled in work-study schemes:
 - in 2019
 - in 2022
 - in 2023
 - forecast if assistance for this scheme is scrapped between now and 2027

4. Have you seen an increase or a decrease in the following at your company in the last 12 months? (For each, select from between: sharp increase, increase, no change, decrease, sharp decrease)

- Personnel in training
- Part-time jobs
- Absenteeism and sick leave
- Job retention scheme
- Skills mentoring / jobs for seniors
- Labour hoarding in anticipation of hiring difficulties
- Unfilled jobs
- Replacement of posted workers with local workers
- Use of special residency permission scheme
- Apprentices or employees on work-study placements



5. In your opinion, did the following cause the productivity of your company to decrease relative to 2019? (For each, select from between: very significant effect, significant effect, weak effect, no effect)

- Hiring difficulties
- Hiring of lower-skilled personnel
- Lack of skills
- Workforce age: change in company demographics (seniors, young people)
- Lack of management quality
- Unmotivated managers
- Relationship of employees to work and difficulties in motivating them to meet production targets
- Attitude to work: unannounced breaks, unreported absences and a lack of involvement
- Working from home
- Supply difficulties involving key inputs
- Production costs (raw materials and energy especially)
- Obsolescence or quality of productive capital (out-of-order machinery, defective equipment, etc.)
- Inadequate digitalisation (management and steering tools, skills, computer equipment, etc.)
- Green investment requirements curtailing investments in machinery and productive equipment
- Regulations
- Other (specify)

6. In your view, what are the main drivers that would help boost your company's productivity? (For each, select from between: very significant, significant, not significant, not a driver)

- Better equipment and machinery
- Digital and IT investment (including software, AI, cloud, etc.)
- Robotics and automation
- Night work and shift work
- Four-day week
- Greater autonomy and more decision-making by employees
- Employee training
- Hiring policy and attractiveness (wages, working conditions)

- Relocate production sites
- Management quality
- Mergers and acquisitions
- Supplier strategy (diversification, reshoring, etc.)
- Energy efficiency
- Other (specify)

7. What are the main obstacles to implementing these drivers? (For each, select from between: significant obstacle, slight obstacle, not an obstacle)

- Financial difficulties and access to financing
- Lack of skills within the organisation to implement these solutions
- Difficulties in identifying appropriate training
- Staff reluctance
- Lack of technological alternatives
- Regulatory uncertainty
- Other (specify)

The **scope of the survey** covers companies in the following sectors:

- Food products, beverages and tobacco products (NES classification category A17 C1, which made up 16.3% of the headcount of manufacturers with 20 or more employees in 2021);
- Electrical and electronic equipment, computers and machinery (C3, 17.9%);
- Transportation equipment (C4, 16.6%);
- Other manufactured products (C5, 49.3%).

The survey results are weighted using the most recent exhaustive headcount statistics (covering 2021) provided by INSEE. In 2023, the **sample's headcount coverage ratio** climbed to **18.44%**, up from 16.8% in 2022 and 16.4% in 2021. Company size is defined based on the number of employees, including temporary staff. A small or medium-sized enterprise employs between 20 and 499 people, while a large enterprise has 500 or more employees. The final study covered **1,919 questionnaires** and companies.



Companies and headcounts, total population and production conditions survey sample, by company size and sector of activity in 2023

(number in units, share as a %)

	Total population				Production conditions survey sample					
	Companies		Headcount		Companies		Headcount		Headcount coverage	
	Number	Share	Number	Share	Number	Share	Number	Share		
Total	15,717		2,088,581		1,919		385,035		18.44	
By company size										
Small and medium-sized enterprises (20 to 499 employees)	15,108	96.1	1,161,714	55.6	1,792	93.4	195,726	50.8	16.85	
Large enterprises (500 or more employees)	609	3.9	926,867	44.4	127	6.6	189,309	49.2	20.42	
By sector of activity										
Food, beverages and tobacco-based products (C1)	2,465	15.7	339,405	16.3	255	13.3	56,970	14.8	16.79	
Electrical and electronic equipment, computers and machinery (C3)	2,570	16.4	373,855	17.9	353	18.4	74,765	19.4	20.03	
Transportation equipment (C4)	710	4.5	346,607	16.6	103	5.4	66,984	17.4	19.33	
Other manufactured products (C5)	9,972	63.4	1,028,714	49.3	1,208	62.9	186,315	48.4	18.11	

Sources: INSEE (total population) and Banque de France (production conditions survey, 2023).

Scope: Manufacturing companies with 20 or more employees.

Guide: In 2023, within the total population of manufacturing companies with 20 or more employees, there were 15,108 small and medium-sized enterprises (SMEs), making up 96.1% of the total, and they employed 1,161,714 people, or 55.6% of the total headcount. The headcount captured by the production conditions survey sample covers 18.44% of the total population's headcount.

The **variables** presented in the article are **weighted by the product of two ratios**:

- The company's headcount divided by the total headcount of all companies in the production conditions survey belonging to the same size class and the same sector of activity (NES A17) as the company in question;

- The total headcount of all companies in the French economy belonging to the same size class and the same sector of activity, divided by the total headcount of all French manufacturing companies with 20 or more employees. This weighting is itself calculated using the most recent exhaustive headcount statistics (covering 2021) provided by INSEE (see table above).

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