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EUROSYSTÈME

Companies

After increasing until 2019, capital operating times are expected to decline in 2020

Results of the survey conducted by the Banque de France in September 2019

In 2019, capital operating times (COT) were up by 1.6%, a comparable increase to that of 2018 (+1.9%) reflecting the adjustments made by businesses to maintain or increase their activity. However, more than 50% of them reported being confronted with a lack of skilled labour.

Recruitment difficulties contributed to limiting the activity of nearly half of the companies surveyed. They concerned a small proportion of staff and key positions, with the constraint varying greatly according to the type of position, the company size and the sector of activity.

The Covid-19 health crisis is expected to have a lasting downward impact on capital operating times, with the effects of the reduction in activity outweighting the need to reorganise the production process. Subsequently, future challenges should involve the reorganisation of production, possible bottlenecks in raw materials or supplies.

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JEL codes
D21, D24
J21, J23

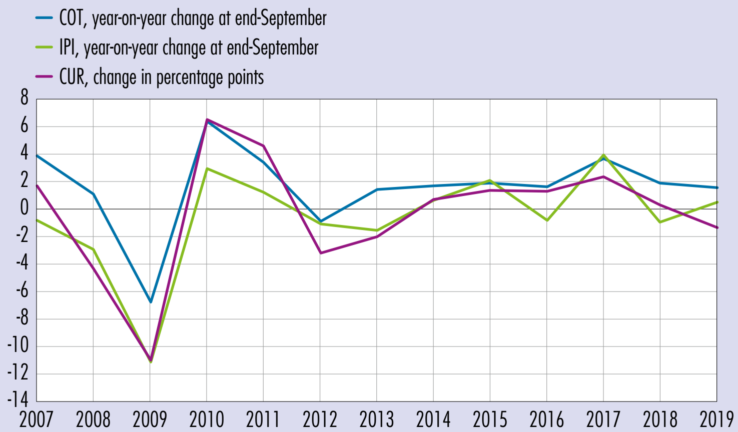
1.6%
average increase
in capital operating times (COT) in 2019

52%
share of companies facing barriers to the extension of COT

44%
share of companies whose activity is limited by recruitment difficulties

Changes in capital operating times (COT), the industrial production index (IPI) and the capacity utilisation rate (CUR)

(%)



Scope: Manufacturing companies with 20 or more employees (for COT); Manufacturing companies (for IPI and CUR).
Sources: Banque de France (COT and CUR) and Insee (IPI).

1 Capital operating times continued to rise in 2019

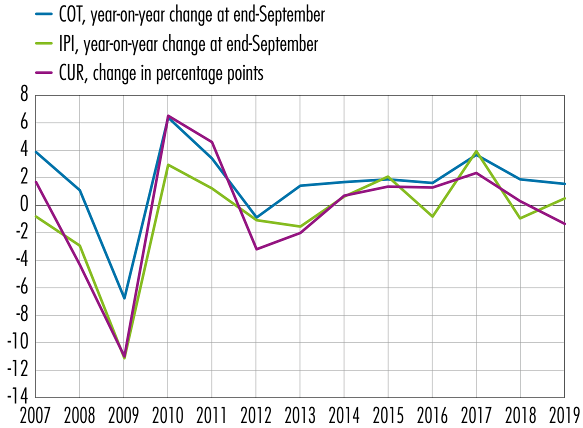
The production conditions survey of the Banque de France[1] provides information on the adjustments made by businesses to respond rapidly to variations in demand without changing their investment behaviour. Indeed, when faced with an unexpected rise or fall in demand, businesses first adjust via the capacity utilisation rate (CUR) and capital operating times (COT). They then adjust the quantity of labour and capital – see in particular the study by Cette, Lecat and Jiddou (2016), which draws on these survey data.

COT changes in line with industrial activity

Between 2018 and 2019, capital operating times grew by 1.6% on average, a rate comparable to that observed between 2017 and 2018 (+1.9%). At the same time, indicators in industry, in particular the capacity utilisation rate and the industrial production index (IPI) – see Chart 1 and Table 1 below – fluctuated little and GDP grew only slightly.

C1 Changes in capital operating times (COT), the industrial production index (IPI) and the capacity utilisation rate (CUR)

(%)



Scope: Manufacturing companies with 20 or more employees (for COT); manufacturing companies (for IPI and CUR).
Key: Between September 2018 and September 2019, COT increased by 1.6% and the IPI by 0.5%; between 2018 and 2019, CUR decreased by 1.3%.
Sources: Banque de France (COT and CUR) and (IPI).
Note: For the calculation of the change in COT, the weights take into account company size and sector (see methodological appendix).

Capital operating times in small and medium-sized enterprises[2] slowed markedly between 2018 and 2019,while they accelerated slightly in large enterprises[3] (see Table 1). This resulted in a convergence of COT growth rates between SMEs and large enterprises. Similarly, COT growth rates also fell in line across sectors. However, the transport equipment sector stands out with a strong increase. This sector has historically shown particularly sharp variations – see Charts 2a and 2b.

1 Until 2019, the production conditions survey was published as the "survey on capital operating times". This survey is the only one in France to cover capital operating times. The average capital operating time corresponds to the average number of hours during which the equipment is used in a week defined in September. The companies surveyed answer the following question: "What is the variation in your capital operating time over the past twelve months (the week of 2 to 8 September 2019 compared to the week of 3 to 9 September 2018)?". For more details, see the methodological appendix at the end of this article.

2 Small and medium-sized enterprises (SMEs) are defined by a workforce size of 20 to 499 employees.

3 Large enterprises are defined by a workforce size of 500 or more employees.

T1 Changes in capital operating times (COT) and the industrial production index (IPI), by company size and sector

(year-on-year change in September, in %)

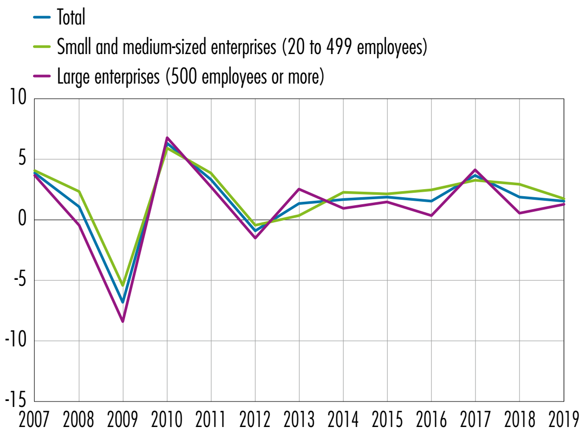
	Change in the capital operating time						Change in the industrial production index					
	2007	2009	2012	2017	2018	2019	2007	2009	2012	2017	2018	2019
Total	3.9	-6.8	-0.9	3.7	1.9	1.6	-0.8	-11.1	-1.1	4.0	-1.0	0.5
By company size												
Small and medium-sized enterprises (20 to 499 employees)	4.1	-5.4	-0.4	3.3	3.0	1.8						
Large enterprises (500 employees or more)	3.7	-8.4	-1.5	4.2	0.6	1.3						
By sector												
Food, beverages and tobacco products (C1)	3.3	2.2	2.5	-0.5	0.5	0.3	0.9	0.0	-0.5	-0.6	-2.8	0.7
Electrical, electronic, computer equipment and machinery (C3)	4.3	-7.3	1.8	4.4	5.0	0.5	0.5	-24.1	-1.5	3.5	-0.6	2.5
Transport equipment (C4)	7.0	-11.7	-7.3	8.0	0.6	5.6	-5.1	-7.2	-4.9	11.3	-1.0	0.2
Other industrial products (C5)	3.2	-7.2	-0.8	3.3	1.7	0.9	-0.4	-10.8	0.0	3.8	-0.5	0.5

Scope: Manufacturing companies with 20 or more employees (for COT); Manufacturing companies (for IPI).
Key: Between September 2018 and September 2019, COT increased by 1.6% and IPI by 0.5%.
Sources: Banque de France (production conditions survey for COT) and Insee (monthly industry surveys for IPI).
Note: For the calculation of the change in COT, the weights take into account company size and sector (see methodological appendix).

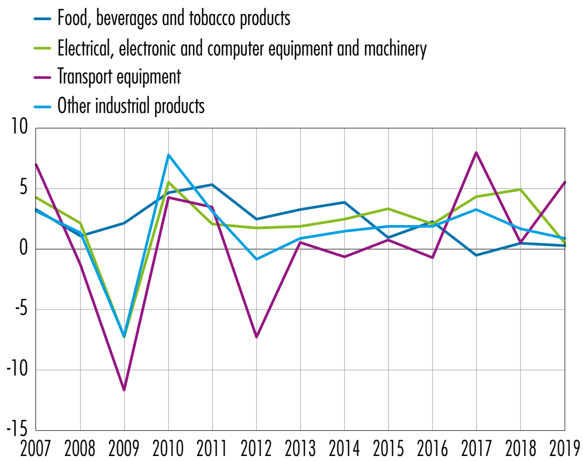
C2 Change in capital operating times (COT)

(year-on-year change in September, in %)

a) by company size



b) by sector



Scope: Manufacturing companies with 20 or more employees.
Key: a) Between September 2018 and September 2019, COT increased by 1.6%; b) Between September 2018 and September 2019, COT increased by 5.6% in the transport equipment sector.
Source: Banque de France (production conditions survey).
Note: Weights take into account company size and sector (see methodological appendix).

Recourse to shift work raises COT

In order to raise COT, and thus the use of their capital stock, companies can extend their employees' working hours or reorganise production by having recourse to shift work, so that several operators take over from one another on the same post.[4]

In 2019, 79% of manufacturing companies with 20 or more employees had recourse to shift work. This share is higher in large enterprises (94%) than in SMEs (68%), and is also highest in the transport equipment sector (88% – see Table 2).

Shift work accounts for a total of 33% of the workforce in all companies surveyed. Companies having recourse to shift work employ 43% of their workforce for this purpose, broken down as follows: 20% in discontinuous shift work, 14% in semi-continuous shift work and 9% in continuous shift work.[5] This breakdown appears to be homogeneous across the different categories of companies. However, it varies from one sector to another, but discontinuous shift work is still predominant over semi-continuous shift work, which, in turn, is preferred to continuous shift work (cf. Table 2).

Weekly working hours remain stable

Capital operating times also depend on the average weekly working time, which remained relatively stable between 2018 and 2019, inching down from 36.4 to 36.3 hours.[6]

The working week was broadly similar across SMEs and large enterprises (see Chart 3a). It hardly varied across sectors, ranging between 36.0 and 36.8 hours in 2019, compared with 36.2 and 36.8 hours the previous year (see Chart 3b).

T2 Share of companies having recourse to shift work and share of the workforce concerned, by company size and sector of activity in 2019

(%)

	Share of companies having recourse to shift work	Share of the workforce concerned within all companies				Share of the workforce concerned within companies having recourse to shift work			
		Total	o/w discontinuous	semi-continuous	continuous	Total	o/w discontinuous	semi-continuous	continuous
Total	79	33	15	11	7	43	19	14	9
By company size									
Small and medium-sized enterprises (20 to 499 employees)	68	29	13	11	5	43	20	16	8
Large enterprises (500 employees or more)	94	39	18	12	10	42	19	13	11
By sector									
Food, beverages and tobacco products (C1)	75	34	20	10	5	46	27	13	6
Electrical, electronic, computer equipment and machinery (C3)	74	23	11	7	5	31	15	9	7
Transport equipment (C4)	88	37	14	13	10	42	16	15	12
Other industrial products (C5)	80	36	16	13	8	46	20	16	10

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

4 Shift work corresponds to a way of organising work in which the same post or set of posts is occupied, by rotation, by different staff members belonging to different teams. For more details, see the methodological appendix.

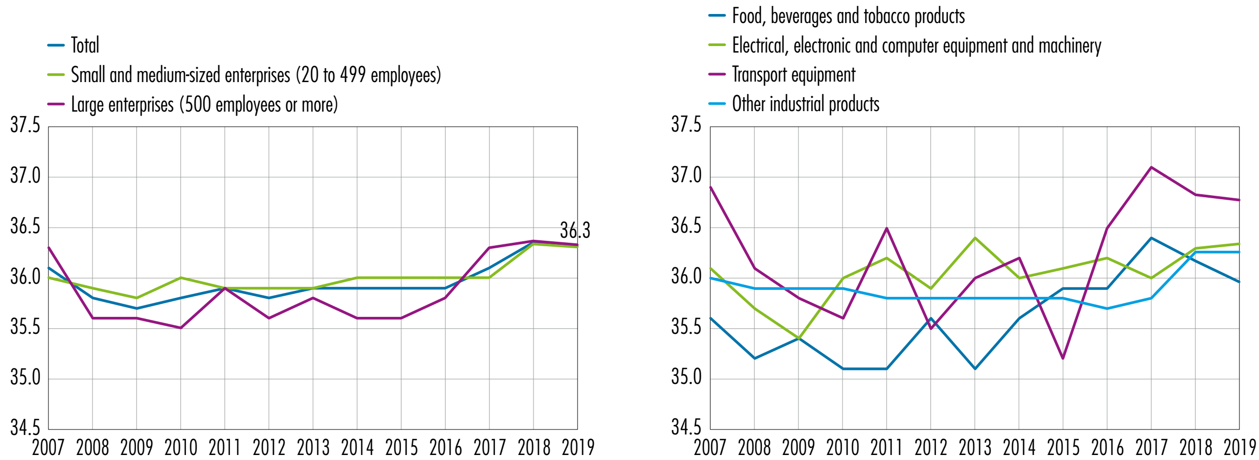
5 For more details, see the methodological appendix.

6 As a comparison, according to the quarterly survey "Activité et conditions d'emploi de la main-d'oeuvre" (Acemo) of the Direction de l'Animation de la recherche, des Études et des Statistiques (Dares) of the Ministry of Employment, the average weekly working time in industry as a whole was 35.4 hours at end-September 2019, as it was at end-September 2018.

C3 Weekly working time
(in hours)

a) by company size

b) by sector



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

2 Barriers to the extension of capital operating times persist in 2019

In 2019, 52% of companies (compared to 51% in 2018) reported facing barriers to extending capital operating times to meet increased demand. Of these companies, 53% believed that these barriers had prevented them from raising COT to the desired level (compared to 52% in 2018). This percentage stands at 63% for SMEs (see Table 3).

T3 Share of companies facing barriers to extending COT, by size and sector of activity
(%)

	2016	2017	2018	2019
Total	44	41	51	52
o/w those that consider these barriers to be limiting	*45*	*55*	*52*	*53*
By company size				
Small and medium-sized enterprises (20 to 499 employees)	43	43	48	50
o/w those that consider these barriers to be limiting	*45*	*51*	*60*	*63*
Large enterprises (500 employees or more)	47	38	54	55
o/w those that consider these barriers to be limiting	*45*	*60*	*43*	*42*
By sector				
Food, beverages and tobacco products (C1)	43	42	44	43
o/w those that consider these barriers to be limiting	*45*	*50*	*37*	*49*
Electrical, electronic and computer equipment and machinery (C3)	45	37	48	47
o/w those that consider these barriers to be limiting	*43*	*55*	*74*	*55*
Transport equipment (C4)	47	20	59	67
o/w those that consider these barriers to be limiting	*22*	*66*	*19*	*42*
Other industrial products (C5)	44	49	51	52
o/w those that consider these barriers to be limiting	*54*	*54*	*62*	*58*

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

A lack of skilled labour remains the first barrier to extending COT

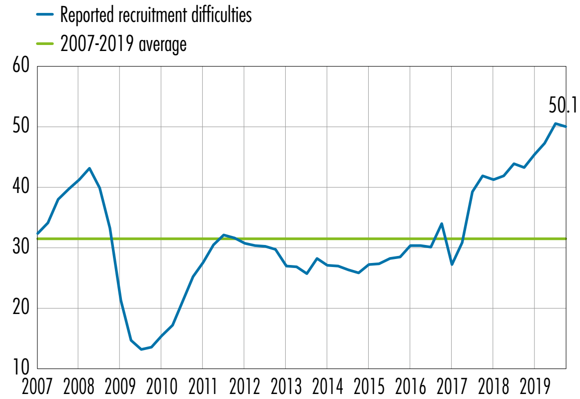
Among the companies facing barriers to extending their COT in 2019, 62% reported a lack of skilled labour. Since 2015, this lack of skilled labour has ranked first among the seven barriers to extending COT identified by the survey (see Table 4).

This is in line with the results of Insee's quarterly survey on the business climate in industry, in which 50.1% of companies reported recruitment difficulties, a level well above its long-term average of 31.6% (see Chart 6).

Reluctance by staff or trade unions to lengthen the working week is the second most common barrier mentioned by business leaders. It recorded the largest increase in 2019, jumping from 39% to 52%. As in 2018, technical barriers (49%) and bottlenecks in raw materials or supplies (42%) were the next most common barriers mentioned by the business leaders surveyed – see Table 4.

C4 Difficulties in recruiting skilled labour

(%)



Scope: Companies in manufacturing and extractive industries.
Source: Insee (quarterly business survey in industry).

Slight rise in the capacity utilisation rate

In 2019, the companies surveyed reported a capacity utilisation rate of 77.2%. Up slightly on 2018 (76.8%), it is in line with the variation in capital operating times.

T4 Breakdown of companies facing barriers to extending COT, by type of barrier

(in %, share of companies that consider the barrier in question to be significant, with several possible choices)

	2015	2016	2017	2018	2019
Lack of skilled labour	54	59	72	70	62
Reluctance of staff or trade unions	36	29	42	39	52
Technical barriers	38	37	44	46	49
Bottlenecks on raw materials or supplies	30	41	45	45	42
Legal or regulatory barriers	30	29	28	28	32
Company agreement	13	14	16	21	29
Industry-wide agreement	7	6	8	11	8
Other[a]	9	10	–	–	–

(a) Since 2017, the "Other" barriers have been removed.
Scope: Manufacturing companies with 20 or more employees.
Key: In 2019, 62% of companies facing barriers to extending COT consider the lack of skilled labour to be a significant barrier. Another 52% consider staff or trade union reluctance as a significant barrier.
Source: Banque de France (production conditions survey).
Note: Weights take into account company size and sector (see methodological appendix).

T5 Capacity utilisation rate (CUR), according to different sources

(%)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
CUR according to production conditions survey	79.3	78.0	70.4	75.8	76.8	74.3	75.4	76.1	74.7	76.3	78.4	76.8	77.2
CUR according to monthly business survey[a)]	83.9	80.3	71.5	76.1	79.7	77.1	75.6	76.1	77.2	78.1	80.0	80.2	79.1
CUR according to Insee[a)]	85.8	85.0	74.1	77.5	82.1	80.9	80.5	81.0	81.9	82.5	84.3	85.4	84.1

(a) Annual average in percentage.
Scope: Manufacturing companies (CUR from the monthly business survey), manufacturing companies with 20 or more employees (CUR from the production conditions survey).
Sources: Banque de France (monthly business survey and production conditions survey) and Insee (quarterly business survey).
Notes: For the calculation of CUR from the production conditions survey, the weights take into account company size and sector (see methodological appendix). The difference with CUR from the monthly business survey is mainly due to different samples and reference periods. The questions in both surveys were harmonised only from 2007 onwards.

Focus of the 2019 production conditions survey: recruitment difficulties

In 2019, the production conditions survey included additional questions on recruitment difficulties. The questions concerned the number of job vacancies, the barriers to recruitment and the solutions to address them.

The results of the survey show that recruitment difficulties vary according to company size and sector of activity and to the socio-professional category of the persons to be recruited (cf. tables below). Overall:

- almost all of the companies surveyed (84%) were seeking to recruit. Most of these companies (74%) were experiencing recruitment difficulties, which penalised the activity of almost half of them (44% – see Table Ta);
- recruitment plans concerned 3.1% of the workforce in all the companies surveyed; these companies consider that 1.9% of their workforce will be difficult to recruit (see Table Tb);
- over 60% of companies identified labour shortages on the local labour market as a major barrier to recruitment,[1] irrespective of the socio-professional category sought. Although on a smaller scale, labour shortages at the national level, in particular for clerks and technicians, also constituted a major barrier to recruitment. Competition from other employers represented a relatively greater barrier to recruitment for executive positions (see Table Tc);
- over 60% of companies considered investment in the training of candidates who do not have all the required skills as the main solution for dealing with recruitment difficulties, irrespective of the socio-professional category sought, but more particularly for non-managerial staff. Temporary employment agencies were also widely called upon for recruiting workers, clerks and technicians, while specialised recruitment agencies were preferred for recruiting executives (see Table Td).

…/…

1. This result is consistent with the results of surveys on recruitment difficulties, such as the "Besoins en main-d'œuvre" survey (Pôle emploi), the "Activités et conditions d'emploi de la main-d'œuvre" (Acemo) and "Offre d'emploi et recrutement (Ofer)" (Dares) surveys, the Insee business survey and the "Wage Dynamics Network" survey (Eurosystem), which identify the lack of a sufficiently skilled workforce as the main barrier to recruiting. This finding also echoes the main barrier to extending capital operating times.

Ta Share of companies seeking to recruit, recruitment difficulties encountered and restriction of business activity in 2019, by socio-professional category

(%)

	Share of companies seeking to recruit	Share of companies encountering recruitment difficulties	Share of companies whose activity is restricted by recruitment difficulties
At least one position in any category	84	74	44
At least one executive position	55	44	15
At least one clerical or technical position	67	55	29
At least one worker position	59	46	24

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

Tb Share of the workforce to be recruited and share of the workforce difficult to recruit in 2019, by socio-professional category

(as a % of total workforce)

	Share of workforce to be recruited	Share of workforce difficult to recruit
All companies, all positions	3.1	1.9
o/w workers	1.7	1.0
o/w clerks and technicians	0.9	0.6
o/w executives	0.6	0.3

Scope: Manufacturing companies with 20 or more employees.
Key: In 2019, on average, companies were seeking to recruit 3.1% of their current workforce, broken down between 1.7% for worker positions, 0.9% for clerical and technical positions, and 0.6% for executive positions. The job vacancies for which companies were having difficulty recruiting represented on average 1.9% of their current workforce, broken down between 1.0% for worker positions, 0.6% for clerical and technical positions, and 0.3% for executive positions.
Source: Banque de France (production conditions survey).
Note: The weights take into account company size and sector (see methodological appendix).

Tc Barriers to recruitment in 2019, by socio-professional category

(in %, share of companies that consider the barrier in question to be "significant" or "very significant")

	Workers	Clerks and technicians	Executives
Shortage of labour on the local labour market	73	91	64
Shortage of labour on the French labour market	41	67	44
Competition from other employers	42	50	54
Low attractiveness of starting salaries	29	24	18
Poor image of the company, sector or position	21	18	19
Arduous employment conditions (employment contract, working hours, etc.)	25	19	4
Arduous working conditions (physical constraints, repetitive tasks, etc.)	33	9	2

Scope: Manufacturing companies with 20 or more employees.
Key: In 2019, 84% of companies facing recruitment difficulties for workers considered labour shortages in the local labour market to be a "significant" or "very significant" barrier, as did 98% of those facing recruitment difficulties for clerks and technician positions and 84% of those facing recruitment difficulties for executive positions.
Source: Banque de France (production conditions survey).
Note: The weights take into account company size and sector (see methodological appendix).

…/…

Td Solutions considered to meet recruitment difficulties in 2019, by socio-professional category
(in %, share of companies considering the solution in question)

	Workers	Clerks and technicians	Executives
Investing in the training of candidates who do not all have the required skills	91	86	64
Calling on temporary employment agencies	89	64	21
Calling on specialised recruitment firms	30	58	85
Improving working conditions (working hours, teleworking, etc.)	31	34	48
Raising starting salaries	22	29	23
Changing the proposed employment contract (nature, duration)	10	9	5

Scope: Manufacturing companies with 20 or more employees.
Key: In 2019, 92% of companies facing recruitment difficulties for worker positions planned to invest in training candidates who did not have the required skills, as did 87% of those facing recruitment difficulties for clerical and technical positions, and 67% of those facing recruitment difficulties for executive positions.
Source: Banque de France (production conditions survey).
Note: The weights take into account company size and sector (see methodological appendix).

3 The Covid-19 health crisis is expected to have a lasting impact on business activity and its organisation in 2020

The Covid-19 health crisis is expected to have a considerable impact on companies in industry in 2020. As a result of an 8% projected fall in GDP in 2020 according to government, capital operating times are expected to decline sharply, together with the capacity utilisation rate.[7]

However, this crisis is likely to have a differentiated effect across sectors. In this respect, the food, beverages and tobacco products sector, and the pharmaceutical and chemical industries, which recorded a more moderate decline in activity, are expected to experience a smaller decrease in capital operating times and the capacity utilisation rate than other industrial sectors, which are particularly affected by this crisis.[8]

This drop in activity, on an unprecedented scale since the Second World War, is also accompanied by constraints on the organisation of the production process, which could be prolonged. In particular, compliance with social distancing measures and health standards, or the unavailability of certain employees on childcare or sick leave, could lastingly force companies to adjust their production lines. As a result, these structural changes are also likely to affect the evolution of capital operating times and the capacity utilisation rate in 2020.

With capital operating times very likely to decline, and in a context where recruitments are expected to fall significantly (according to Insee, 453,800 net job losses in the first quarter of 2020), the proportion of companies facing recruitment difficulties should decrease.

7 According to Insee's first national accounts estimate, published at end-April 2020, French GDP is expected to drop by 5.8% in the first quarter of 2020. According to Banque de France forecasts *(Update on business conditions in France at the end of April 2020)*, the loss of activity is estimated at around 27% for a typical lockdown week in April, after 32% for the lockdown fortnight in March. The industry was severely affected, with activity levels estimated by business leaders to be at 52% of normal levels in April. Activity is expected to improve after lockdown, averaging 66% of normal levels by end-May.

8 According to business leaders, activity levels in April were at 80% of normal levels in the food industry, 46% in the machinery and equipment sector, 44% in the other industrial products sector and 10% in the automotive sector. For more details, see the Banque de France's update on business conditions in France at the end of April 2020, ibid.

However, to date there is still great uncertainty surrounding the methods and speed of exit from lockdown, and therefore the evolution of these various indicators over the year 2020. The drop in activity directly caused by the lockdown, the prolonged closure of establishments open to the public and whose activity is considered "non-essential", the inability of certain sectors to maintain their activity while ensuring the safety of their employees, as well as the economic exposure of the sectors no longer under lockdown to the sectors still under lockdown (drop in market opportunities and orders) will be determining factors (see Dares, Acemo survey during the Covid-19 health crisis, April 2020).

In addition, the policies implemented by the public authorities, such as short-time work, State-guaranteed loans, the emergency support plan for companies set up by Bpifrance or the deferral of tax and social security payments will also play a crucial role in boosting activity.

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Appendix
Methodology

The Banque de France's production conditions survey

Since 1989, the Banque de France, through its branch network, has conducted an annual survey of manufacturing firms with 20 or more employees on their production conditions. This survey, previously entitled "Survey on capital operating times", was renamed "Production conditions survey" in 2019. The average capital operating time (COT) is the average number of hours the equipment is used during a reference week defined in September. COT is an element in the analysis of the use of capital and, consequently, of companies' profitability, given that it affects the depreciation cost of productive equipment. It depends both on how work is organised and on average working time. The production conditions survey is particularly useful for assessing business developments in the various sectors of manufacturing industry.

The survey is carried out each year in September, among a sample of 1,432 companies in 2019, and its questions concern:

- past and projected changes in COT;
- use of shift work and its composition;
- staff levels and the average weekly working time over the current and previous year;
- barriers to extending COT;
- the capacity utilisation rate, without additional recruitments.

Shift work covers three types of work organisation:

- discontinuous shift work: one break every day;
- semi-continuous shift work: one break per week;
- continuous shift work: no break in production during the week, possibly an annual break.

The **reference week** for the companies surveyed is that of 2 to 8 September for the year 2019 (after week of 3 to 9 September for the year 2018). Companies are entitled to choose another week of the same month if the one planned is not suitable.

The 2019 edition contains new questions regarding companies' recruitment difficulties. This section of the survey consists of five questions, divided into three categories of vacancies:[1]

1. Currently, how many positions are you looking to fill?[2] In which socio-professional category?
2. For how many of these positions are you actually experiencing recruitment difficulties?

1 The three socio-professional categories are: workers, clerks and technicians, and executives. A worker performs manual work within the establishment or company. A clerk performs non-manual work without any managerial role. A technician is a highly skilled employee with technical responsibilities but without any managerial role. An executive is a managerial position within the establishment or company.

2 Planned recruitments refer to positions that are newly created, unoccupied, or still occupied but about to become vacant, for which the establishment or company is actively seeking suitable candidates, either immediately or within the next three months. These positions may be open-ended contracts, fixed-term contracts, or seasonal jobs, even of short duration (less than one month). These positions may concern new jobs, replacements (for maternity or sick leave, retirements, resignations, etc.) or seasonal projects (i.e. linked to a temporary and recurring increase in activity).

3. Is your activity restricted by these possible recruitment difficulties?

4. Are the following factors (i) unsignificant, (ii) not very significant, (iii) significant, or (iv) very significant barriers to recruitment?

   – Shortage of labour with the required skills in the vicinity of the institution or company or in the local labour market

   – Shortage of labour with the required skills across the whole of France

   – Low attractiveness of starting salaries

   – Arduous working conditions (physical constraints, aggressive environment, repetitive tasks)

   – Arduous employment conditions (employment contract, restrictive working hours)[3]

   – Competition from other employers

   – Poor image of the institution or company, sector of activity or position.

5. To address these barriers, what solutions do you consider for each category?

   – Raising starting salaries

   – Changing the proposed employment contract (nature, duration)

   – Improving working conditions (working hours, teleworking)

   – Calling on specialised recruitment firms

   – Calling on temporary employment agencies

   – Investing in the training of candidates who do not have all the required skills.

The **scope of the sample** is made up of companies belonging to the following sectors:

- food, beverages and tobacco products (NES A17 "C1" category, representing 15.9% of the workforce of manufacturing companies with 20 or more employees in 2017);

- electrical, electronic and computer equipment and machinery ("C3", 18.2%);

- transport equipment ("C4", 17.1%);

- other industrial products ("C5", 48.8%).

Between 2018 and 2019, the coverage ratio of the sample decreased significantly, falling from 13.2% to 12.5%. This is due to the drop in the number of respondents belonging to large enterprises in favour of smaller enterprises (see table below).

Company size is defined in terms of the number of employees, including temporary workers. A small or medium-sized enterprise employs 20 to 499 employees, a large enterprise 500 employees or more.

In 2019, 1,432 questionnaires were collected in the framework of the production conditions survey. Of these, 63 were removed for the following reasons: responses from several establishments of the same company (these questionnaires were merged so as to keep only one observation per enterprise), responses from non-manufacturing sectors (outside the scope of the survey), responses from companies whose staff numbers did not correspond to the scope of the survey (20 or more employees), and responses from companies whose COT variation between 2018 and 2019 was missing. In the end, the study covered 1,369 questionnaires and companies.

3 The arduousness associated with the nature of the employment contract comes from the job instability caused by a high turnover of the workforce on the jobs, particularly due to the repeated use of fixed-term contracts. The arduousness associated with restrictive working hours comes from part-time work (either chosen or endured), shift work, and the reconciliation of atypical working rhythms with family life.

The variables presented in this article are calculated by weighting them by the product of two ratios: (i) the company's workforce as a proportion of the total workforce of all companies in the survey belonging to the same size class and the same sector of activity (NES A17) as the company in question; (ii) the total workforce of all companies in the French economy belonging to the same size class and the same sector of activity, as a proportion of the total workforce of all manufacturing companies in the French economy with 20 or more employees. This weighting is calculated on the basis of the most recent and exhaustive workforce statistics (relating to 2017) provided by Insee (see table below).

Number and share of companies and workforce in the total population and in the production conditions survey sample, by company size and sector in 2019

(number in units, share in %)

	Total population				Production conditions survey sample				
	Companies		Workforce		Companies		Workforce		Coverage ratio in terms of workforce
	Number	Share	Number	Share	Number	Share	Number	Share	
Total	15,752	100.0	2,111,697	100.0	1,369	100.0	264,516	100.0	12.5
By company size									
Small and medium-sized enterprises (20 to 499 employees)	15,138	96.1	1,167,541	55.3	1,275	93.1	142,697	53.9	12.2
Large enterprises (500 employees or more)	614	3.9	944,156	44.7	94	6.9	121,819	46.1	12.9
By sector									
Food, beverages and tobacco products (C1)	2,402	15.2	335,045	15.9	153	11.2	30,689	11.6	9.2
Electrical, electronic, computer equipment and machinery (C3)	2,581	16.4	385,255	18.2	262	19.1	54,704	20.7	14.2
Transport equipment (C4)	705	4.5	361,213	17.1	67	4.9	45,418	17.2	12.6
Other industrial products (C5)	10,064	63.9	1,030,184	48.8	887	64.8	133,705	50.5	13.0

Scope: Manufacturing companies with 20 or more employees.
Sources: Insee (total population) and Banque de France (production conditions survey).
Note: In 2019, the share of the workforce in the production conditions survey sample within the workforce of the total population was 12.5%.

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