





Capital operating times plummeted in 2020 amid the unprecedented use of teleworking

Results of the survey conducted by the Banque de France in September 2020

In 2020, capital operating times (COT) decreased by 4.9% in the manufacturing industry. This decline, comparable to the downturn in the industrial production index (IPI), reflects adjustments made by businesses to address the shock caused by the health crisis.

There was a significant increase in teleworking, particularly in large companies. The factors behind this strategy include not only firms' desire to reduce health risks, but also issues linked to well-being at work. There are, however, various barriers that limit its implementation, such as the inability to do some jobs remotely, the risk of productivity losses, and difficulties accessing digital technology.

The accelerated implementation of teleworking resulted in an unexpected increase in investments by companies during the first lockdown period. Going forward, the use of teleworking is likely to be sustained at above pre-crisis levels, affecting investment and corporate real estate.

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With the contribution of the Directorate General Services to the Economy and Branch Network Activities of the Banque de France

-4.9% average reduction in capital operating times (COT) in 2020

25% percentage of companies' staff teleworking during the March 2020 lockdown

54% percentage of companies anticipating teleworking rates above pre-crisis levels



Scope: Manufacturing companies with 20 or more employees (for COT); manufacturing companies (for IPI and CUR).





1 Capital operating times plummeted in September 2020 but should rebound in 2021

The Banque de France production conditions survey¹ provides information on short-term adjustments made by companies to respond quickly to changes in demand. When faced with an unexpected rise or fall in demand, businesses initially adapt by adjusting their capacity utilisation rate (CUR) and capital operating times (COT). They then adjust the amount of labour and capital required - see in particular the study by Cette, Lecat and Jiddou (2016), which draws on this survey data.

COT decreased in line with industrial activity

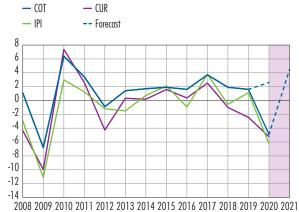
In September 2020, COT declined by 4.9% yearon-year, following a 1.6% year-on-year increase in September 2019 (see Chart 1). Following this unexpected downturn in 2020, COT were 7.5 points below the level forecast by companies in 2019 for 2020.² The reduction in COT is comparable in size to the fall in industrial activity over the same period, as measured by the industrial production index (IPI). The capacity utilisation rate (CUR) also fell from 77.1% in September 2019 to 73.1% in September 2020. These figures reflect an economic downturn due to the health crisis and a continuing slowdown in activity in September 2020.

The expectations of companies surveyed are fairly positive for COT, which is expected to rebound in 2021 (+4.4%).

The effects of the crisis have been heterogeneous across companies, depending on their size and sector

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

(year-on-year change as at September, %)



Sources: Banque de France (COT and CUR) and INSEE (IPI). Scope: Manufacturing companies with 20 or more employees (for COT); manufacturing companies (for IPI and CUR) Key: Between September 2019 and September 2020, COT decreased by 4.9%, the IPI by 6.2% and the CUR by 5.2%. Notes: To calculate change in COT and the CUR, weightings take into account the sector and company size. The 2020 forecast appears on a mauve background.

(see Chart 2 below). In 2020, large companies made more significant reductions in COT (-5.9%) than small and medium-sized enterprises (SMEs:³-4.1%), but the former expect a stronger rebound in 2021 (+5.3%) than the latter (+3.8%). In the transport equipment sector, companies reduced their COT more sharply than the rest of the industry, with a 14.6% decrease between 2019 and 2020. This sector also expects the strongest rebound in percentage terms: +7.4% in 2021.4

¹ Until 2019, the production conditions survey was published under the name "Survey on capital operating times". This survey is the only survey in France to target COT. The average capital operating time is calculated as the average number of hours that equipment is used during a defined reference week in Septembe Surveyed companies answered the following question: "What is the change in your COT over the last twelve months (week of 7 to 11 September 2020 compared to week of 2 to 8 September 2019)?". For further details, please refer to the methodology notes in the appendix to this article

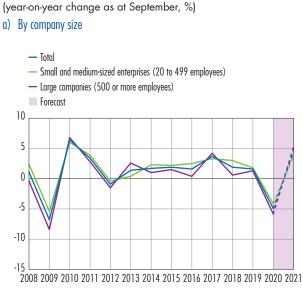
² See Nevoux et al. "After increasing until 2019, capital operating times are expected to decline in 2020", Banque de France Bulletin, No. 229/2, May-June. 3 Small and medium-sized enterprises (SMEs) are defined as having a workforce of 20 to 499 employees. Large enterprises are defined as having a workforce of 500 or more employees.

⁴ There has been only a partial rebound in terms of production level (around 45% of the decline in activity experienced in 2020: taking 100 as the 2019 level, this equates to a production level of 85.4 in 2020 and 91.7 in 2021).



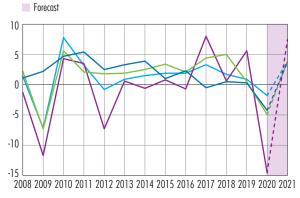


C2 Change in capital operating times (COT)



b) By sector of activity

- Food, beverages and tobacco products
- Electrical, electronic and computer equipment and machinery
- Transport equipment
- Other industrial products



Source: Banque de France (production conditions survey). Scope: Manufacturing companies with 20 or more employees.

Key: a) Between September 2019 and September 2020, COT decreased by 4.9% in the manufacturing industry; b) Between

September 2019 and September 2020, COT decreased by 14.6% in the transport equipment sector.

Notes: Weightings take into account the sector and the size of the company (see appendix on methodology). The 2020 forecast appears on a mauve background.

To adjust COT and optimise the use of their capital stock,⁵ companies can change employees' working hours or adapt their use of shift work, an intensive working arrangement whereby several operators work in turn on a given workstation to optimise the use of equipment.⁶

Weekly working hours decreased

Another way companies can reduce COT is by decreasing weekly working hours. Between 2019

and 2020, they fell from 36.4 hours to 36.0 hours on average (see Chart 3 below).

This dynamic was very similar for both SMEs and large companies. The decrease was sharper in the electrical, electronic, computer equipment and machinery sector (C3) than in the other manufacturing sectors: -1.8% compared with -1.0%.

⁵ Extending COT is generally all the more advantageous when fixed production costs are high, since it reduces the average cost per unit produced. 6 For further details, please refer to the methodology notes in the appendix.







BOX 1

The use of shift work varies with the economic outlook but remains overall stable

Shift work is a working arrangement whereby the same job or set of jobs is performed by different staff in different teams on a rotational basis. In 2020, 77% of manufacturing companies with 20 or more employees implemented shift work. On average, 31% of employees worked shifts. These percentages were slightly lower than in the previous year (-2 percentage points).

As in the previous years, the share of companies using shift work was particularly high (93%) among large companies compared with SMEs (64%). The share of companies using shift work was also much higher in the transport equipment sector (89%) than in the other sectors (see table).

In companies using shift work, a significant share of the workforce was employed under these working arrangements (40% on average). Half of all shift workers worked discontinuous shifts while the other half worked either semicontinuous (12 percentage points) or continuous (8 percentage points) shifts.¹

Regardless of the size or sector of activity, discontinuous shift work was always the preferred arrangement, followed by semi-continuous shift work and lastly continuous shift work. More specifically, the distribution of these working arrangements varied little with the size of the company, but it did vary across sectors. In particular, the use of discontinuous shift work was relatively more frequent in agri-food companies (C1), while continuous shift work was relatively more frequent in the other industrial products sector (C5).

	Share of companies using shift work	Share of employees doing shift work across all companies				Share of employees doing shift work across all companies that use shift work			
		Total	of which discontinuous	semi- continuous	continuous	Total	of which discontinuous	semi- continuous	continuous
Total	77	31	15	10	6	40	20	12	8
By company size									
Small and medium-sized enterprises (20 to 499 employees)	64	29	14	9	6	45	22	14	9
Large companies (500 or more employees)	93	34	17	10	8	37	18	11	8
By sector of activity									
Food, beverages and tobacco products (C1)	78	35	24	8	3	45	31	10	4
Electrical, electronic and computer equipment and machinery (C3)	68	23	10	7	6	34	14	11	9
Transport equipment (C4)	89	30	15	13	2	34	17	14	3
Other industrial products (C5)	77	33	14	10	9	43	18	13	12

Share of companies using shift work and share of staff involved, by company size and business sector in 2020

Source: Banque de France (production conditions survey).

Scope: Manufacturing companies with 20 or more employees.

Key: In September 2020, 77% of companies used shift work. Shift workers made up 31% of all employees, and 40% of all employees at companies using shift work.

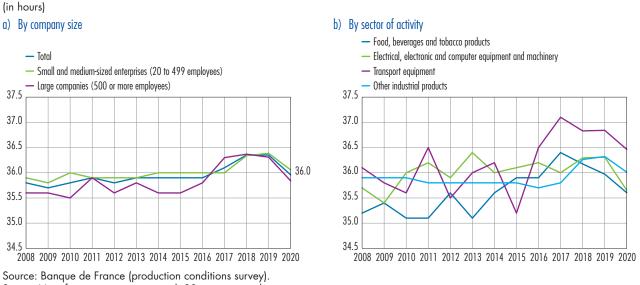
Note: Weightings take into account the sector and the size of the company (see appendix on methodology).

1 For further details, please refer to the methodology notes in the appendix.



Companies

C3 Weekly working hours



Scope: Manufacturing companies with 20 or more employees.

Note: Weightings take into account the sector and the size of the company (see appendix on methodology).

2 The adoption of teleworking in the manufacturing industry has risen sharply, and surged during the first lockdown

Given the exceptional situation due to the health crisis in 2020, a set of specific questions was included on the practice of teleworking in manufacturing companies.

A teleworking shock in the short term

The Banque de France production conditions survey highlights a teleworking shock in the manufacturing industry during the first lockdown: while teleworking was rare before this period – with only 3% of employees practising teleworking on average – **nearly a quarter of personnel worked remotely in March-April 2020** (see Chart 4 below). Teleworking was also implemented more intensively, with staff working remotely approximately four days a week on average during the March 2020 lockdown, compared with one day previously.

The scale of the shock was greater in large companies, with up to a third of staff teleworking during the first lockdown, versus just 6% previously. SMEs (20 to 499 employees) also increased their use of teleworking, with the percentage of staff working remotely peaking at 19% during the first lockdown. The transport equipment (C4) and electrical, electronic, computer equipment and machinery (C3) sectors experienced a particularly strong surge in teleworking, with 35% of staff working remotely during the first lockdown.

When lockdown was lifted in May 2020, the use of teleworking decreased,⁸ with slightly under **9% of staff** at manufacturing companies working remotely during

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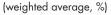
⁸ This trend is documented across all sectors in the Acemo survey on activity and employment conditions ("Activité et conditions d'emploi de la main-d'œuvre"), which indicates that 12% of employees were teleworking on average during the week of 21 September 2020 (18% in companies with more than 500 employees and 5% in companies with 10 to 19 employees), compared with 25% during the first lockdown. However, estimated percentages of staff working remotely in the manufacturing sectors based on the production conditions survey are lower than those in the Acemo survey: 3.5% versus 5.6% in C1, 12.9% versus 18.2% in C3, 12.4% versus 20.3% in transport equipment (C4), and 7.3% versus 7.9% in other industrial products (C5). The results are not directly comparable, however, because the Acemo survey uses a different reference week (week of 21 September) and also covers smaller companies (with 10 employees or more). Some 79% of companies with 10 to 19 employees had no employees teleworking during that reference week and only 5% of the total workforce of those companies was teleworking at the time.



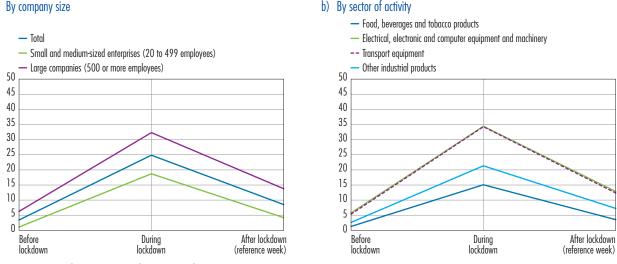
Companies



C4 Percentage of staff teleworking



a) By company size



Source: Banque de France (production conditions survey). Scope: Manufacturing companies with 20 or more employees.

Note: Weightings take into account the sector and the size of the company (see appendix on methodology).

the week of 7 to 11 September 2020. The percentage nevertheless remained high compared to the pre-crisis level, particularly during the post-summer holiday period and before new restrictions were brought in from October. Similarly, the amount of teleworking by employees in eligible positions decreased between the first lockdown and September, standing at two days a week on average⁹ during the reference period in September. This trend is fairly similar for all business sectors and company sizes.

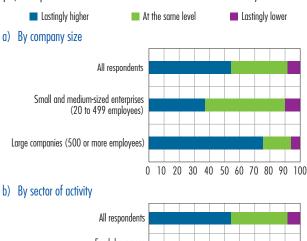
A lasting structural change in working arrangements?

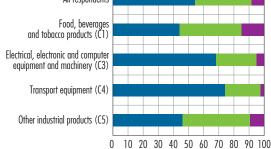
In the manufacturing industry, 54% of companies expect the use of teleworking to remain higher than before the first lockdown (see Chart 5). Large companies with 500 or more employees are more likely than SMEs to expand teleworking. Indeed, slightly over 75% of large firms and 37% of SMEs expect teleworking to remain above pre-crisis levels in the long term.

While this is true for all sectors, some are more affected than others. Around 70% of firms in the transport equipment (C4) and other industrial products (C5) sectors foresee a lasting increase in teleworking.

C5 Expectations on the future of teleworking

(%, compared to the situation before the first lockdown)





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

9 "Two days" was also the most frequent response in the survey on production conditions (mode of the distribution).







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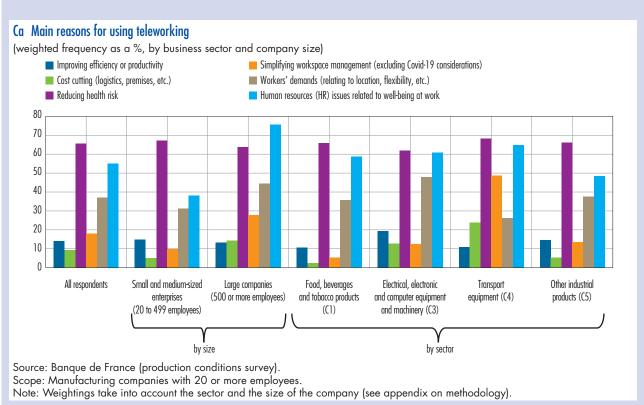
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Among the companies that expect teleworking to remain lastingly above pre-lockdown levels, the vast majority (84%) plan to **increase the number of days worked remotely**. Of that 84%, half of the firms also plan to increase the number of jobs eligible for teleworking. Regardless of their size, about **41% of companies plan to increase the intensity of teleworking (as a proportion of** working time) for employees in existing eligible positions, without extending the share of eligible positions. This latter strategy is more common in some sectors **such as transport equipment** (60% of the companies concerned). In contrast, SMEs are more likely than large companies to increase eligibility for teleworking without increasing the intensity of teleworking (which would remain occasional).

BOX 2

The reasons for implementing a teleworking strategy vary across sectors

For the large majority of companies (66%), regardless of their size and business sector, the primary motivation for adopting teleworking is to reduce health risks (see Chart a). Human resources issues are the second most cited reason overall and the most frequently cited reason for large companies with more than 500 employees (76% of large companies). Workers' demands (relating to issues such as flexible working hours or location) come in third place, **except in the transport equipment sector, which stood out with 50% of companies citing the major challenge of simplifying workspace management.** This finding is consistent with the fact that firms in this sector were more likely to say that they anticipated changing their premises and offices.





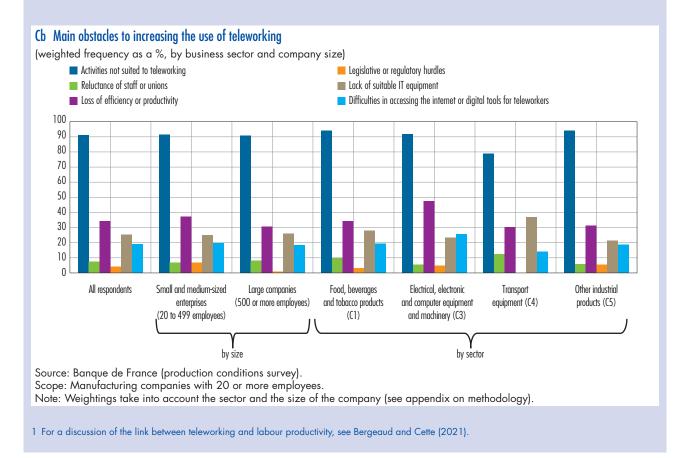




One of the main barriers to expanding the use of teleworking, cited by 91% of companies, is the unsuitability of some jobs for teleworking (see Chart b). This finding is not surprising in the manufacturing industry, where certain jobs cannot be done remotely, particularly in activities directly related to production. Accordingly, **across all the companies that adopted teleworking during the week of 7 to 11 September 2020, approximately 28% of staff worked remotely in "Finance and Accounting" and "Marketing and Sales" departments, versus only 3% in "Production" functions and 10% in "Logistics" departments.**

The fear of efficiency or productivity losses is the second barrier most frequently cited by companies. While the debate on **teleworking's impact on productivity** is ongoing,¹ it is worth noting that **34% of manufacturing companies consider the risk of reduced efficiency and productivity as one of the main barriers to increasing remote working.** By contrast, **14% of companies said that teleworking would generate** productivity or efficiency **gains** that would justify a broader rollout of remote working. The electrical, electronic, computer equipment and machinery sector (C3) showed particularly stark differences of opinion on the impact on productivity: compared with the rest of the manufacturing sector, more companies considered productivity issues to be a major obstacle to the development of teleworking (47%), and more companies also took the opposing view, citing productivity gains as one of the main reasons for adopting teleworking (19%).

Factors relating to digital technology were cited as the third major barrier to the expansion of teleworking in companies, with 25% citing a lack of suitable IT equipment and 19% reporting that teleworkers had difficulty accessing the internet or IT applications. The lack of IT equipment was shown to be a particular concern in the transport equipment sector (37%)









What are the effects on IT investment trends and office real estate?

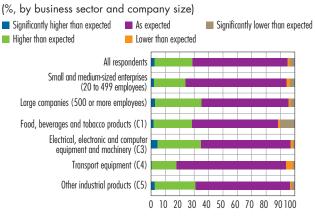
Expanding the use of teleworking calls for investment (in computer hardware, software, security, servers, etc.). Companies reported speeding up their adoption of digital technology to some extent during the lockdown. Nearly **46% of manufacturing companies said they had made unplanned investments in computer hardware and software to facilitate teleworking** during the March 2020 lockdown (41% of SMEs and 52% of large companies with more than 500 employees).

In the manufacturing industry as a whole, 29% of companies plan to step up their IT investments – to higher or much higher levels than originally planned – in the next five years (see Chart 6). The figure is higher for companies that cited a lack of IT equipment as one of the main barriers to developing teleworking in their company (see Box 2 above): 39% versus 25% for companies that did not mention this reason.

How the rise of teleworking will affect commercial real estate remains under debate, especially as anticipated business growth could offset the reduced need for office space.¹⁰ In industry, more than 10% of companies expect their occupancy of offices and premises to change as a result of wider teleworking use. These are mainly large companies with more than 500 employees: 18% are considering vacating their offices or premises, and 3% are considering moving (see Chart 7). These adjustments would be made in the very short term (less than one year) for 13% of them, in one to two years for 34% of them, and in two to five years for 51% of them.

The statistics at the manufacturing industry-level primarily reflect the dynamics in the transport equipment sector. Indeed, the sectoral breakdown once again suggests a more profound strategic restructuring in the transport equipment sector, where 37% of companies plan to vacate premises as a consequence of remote work arrangements. Of these, 29% plan to vacate premises within one to two years, while the vast majority (65%) will take two to five years. Overall, other sectors appear to be less concerned. Lastly, more than 20% of companies did not know whether or not they would change their office occupancy in the next five years.

C6 Planned investments in computer hardware and software over the next five years to develop teleworking



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

(%) Vacate premises or offices No change planned Move premises or offices Don't know a) By company size All respondents Small and medium-sized enterprises (20 to 499 employees) l arge companies (500 or more employees) 10 20 30 40 50 60 70 80 90 100 0 b) By sector of activity All respondents Food, beverages and tobacco products (C1) Electrical, electronic and computer equipment and machinery (C3) Transport equipment (C4) Other industrial products (C5) 10 20 30 40 50 60 70 80 90 100 0

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

10 See Bergeaud and Ray (2021), Eco Notepad, Banque de France, No. 199, January.

C7 Expectations regarding changes in the occupancy of offices and premises related to teleworking



Companies



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Appendix

Methodology notes

The Banque de France 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. The average capital operating time (COT) is the average number of hours their equipment is used during a defined reference week in September. COT is a component in the analysis of the use of capital and, consequently, of companies' profitability, given that it affects the depreciation charges on productive equipment. It depends both on how work is organised and on the average working time. This survey is particularly useful for assessing business developments in the various manufacturing sectors.

The survey is conducted every year in September, and its **questions** relate to:

- past and expected changes in COT;
- the use of shift work and its composition;
- staff levels and average weekly working hours over the current and previous years;
- barriers to extending COT (not included in the 2020 questionnaire, due to the unprecedented nature of that period);
- the capacity utilisation rate (CUR), without additional recruitment.

Shift work covers three working arrangements:

- 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 the week of 7 to 11 September for 2020 (it was the week of 2 to 8 September in 2019). Companies are entitled to choose another week in the same month if the one planned is not suitable.

For this 2020 edition, new questions have been added in a section on a specific theme. This section of the survey contains **10 questions on the practice of teleworking** at companies and changes occurring in 2020, the reasons for adopting teleworking and the barriers to its development, as well as the past and projected impacts of teleworking on IT investments and the occupancy of offices and premises.

Teleworking is a working arrangement that involves employees making intensive professional use of information technology while working at a location outside their company. The scope of the survey covers both working from home and digital nomadism. It applies to non-temporary employees who have teleworked for an average of at least one day (or two half-days) a week over the period concerned. The **reference periods** for recording changes in staff teleworking are: 6 to 31 January 2020 ("before lockdown") and the week during the first lockdown when the company had the largest share of its staff working remotely (the "peak lockdown period").

- 1. How many of your staff, in percentage terms, were teleworking during the period concerned?
 - a. Before lockdown
 - b. During the peak lockdown period
 - c. During the week of 7 to 11 September 2020
- 2. Regarding your teleworking staff, how many days a week did they work remotely on average during the period concerned?
 - a. Before lockdown
 - b. During the peak lockdown period
 - c. During the week of 7 to 11 September 2020
- Compared to the pre-lockdown situation, in your company do you expect the practice of teleworking to be:
 - Lastingly higher
 - At the same level as before lockdown
 - Lastingly lower







- 4. If you expect the practice of teleworking to remain lastingly higher, are you planning to:
 - Increase the number of positions eligible for teleworking
 - Increase the number of teleworking days per month for positions that are already eligible
 - Both
- 5. In your opinion, what are your company's reasons for using teleworking? (Three choices maximum.)
 - Improving efficiency or productivity
 - Cost cutting (premises, logistics, etc.)
 - Reducing health risks
 - Simplifying workspace management (excluding Covid-19 considerations)
 - Workers' demands (for reasons of location, flexibility, etc.)
 - Human resources (HR) issues relating to well-being at work
- 6. What do you think are the obstacles to increasing the use of teleworking in your establishment? (Three choices maximum.)
 - Activities not suited to teleworking
 - Reluctance of staff or unions
 - Loss of efficiency or productivity
 - Legislative or regulatory hurdles
 - Lack of suitable IT equipment
- For each of the following departments or functions (if applicable), indicate the approximate percentage of staff who were teleworking during the week of 7 to 11 September 2020.
 - a. Management and general administration
 - b. Finance and accounting
 - c. Human resources
 - d. Logistics
 - e. Purchasing
 - f. Production
 - g. Research and development
 - h. Marketing and sales

- 8. Did you make unplanned investments in computer hardware and software during lockdown to facilitate teleworking for your employees?
 - Yes
 - No
- 9. Over the next five years, how would you describe your intended investments in computer hardware and software to increase the level of teleworking?
 - Significantly higher than expected
 - Higher than expected
 - As expected
 - Lower than expected
 - Significantly lower than expected
- 10. a. Do you plan to change the occupancy of your offices or premises due to the use of teleworking in your company?
 - Yes: vacate premises or offices
 - Yes: vacate and move premises or offices
 - No
 - Don't know
 - b. If so, within what timeframe?
 - Less than 1 year
 - 1 to 2 years
 - 2 to 5 years
 - More than 5 years
 - Don't know

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

- food, beverages and tobacco products (NES A17 category "C1", representing 16.2% of the workforce of manufacturing companies with 20 or more employees in 2018);
- electrical, electronic and computer equipment and machinery ("C3", 17.8%);
- transport equipment ("C4", 16.8%);
- other industrial products ("C5", 49.2%).







The results of the survey are weighted based on the most recent full workforce statistics (relating to 2018) provided by INSEE. In 2020, the percentage of the total workforce covered by the sample increased to 13.4%, from 12.5% in 2019 and 13.2% in 2018. This increase is due to the drop in the number of respondents belonging to the "large companies" category in favour of smaller companies (see table).

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 company 500 employees or more.

In 2020, 1,703 questionnaires were collected as part of the production conditions survey. Of these questionnaires, less than a hundred were excluded from the study due to: i) responses being received from multiple sites in the same company (these questionnaires were merged so as to keep only one observation per company); ii) responses from companies whose sector or staff numbers fall outside the scope of the survey (20 employees or more in the manufacturing industry); and iii) questionnaires in which the response on changes in COT was missing. In the end, the study involved 1,620 questionnaires and companies.

The variables presented in this article are **weighted** by the product of two ratios: i) the company's workforce as a proportion of the total workforce of all companies in the production conditions survey belonging to the same size category and business sector (NES A17) as the company in question; ii) the total workforce of all companies in the French economy belonging to that size category and business sector, 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 2018) provided by INSEE (see table).

Description of total population and sample for the production conditions survey, by company size and sector in 2020 (number in units, % share)

	Total population				Production conditions survey sample					
	Companies		Workforce		Companies		Workforce		Percentage of	
	Number	%	Number	%	Number	%	Number	%	workforce covered	
Total	15,905	100.0	2,145,313	100.0	1,620	100.0	286,338	100.0	13.4	
By company size										
Small and medium-sized enterprises (20 to 499 employees)	15,274	96.0	1,179,571	55.0	1,523	94.0	163,459	57.1	13.9	
Large companies (500 or more employees)	631	4.0	965,742	45.0	97	6.0	122,880	42.9	12.7	
By sector of activity										
Food, beverages and tobacco products (C1)	2,505	15.7	347,147	16.2	193	11.9	39,345	13.7	11.3	
Electrical, electronic and computer equipment and machinery (C3)	2,573	16.2	382,296	17.8	299	18.5	54,752	19.1	14.3	
, , , ,	2,373		360,368	16.8	299 93	5.7	,	18.7	14.3	
Transport equipment (C4)		4.5	'				53,567			
Other industrial products (C5)	10,113	63.6	1,055,502	49.2	1,035	63.9	138,673	48.4	13.1	

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

Scope: Manufacturing companies with 20 or more employees.

Key: In 2020, the total population included 15,274 small and medium-sized enterprises, making up 96.0% of all manufacturing companies with 20 employees or more. The total workforce of those small and medium-sized enterprises was 1,179,571, making up 55.0% of the total workforce of all manufacturing companies with 20 employees or more. In 2020, the workforce included in the sample for the COT survey represented 13.4% of the total population.







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