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Whatever It Takes: Subsidizing Short-Time Work During the COVID-19 Pandemic in France

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In response to the COVID-19 pandemic, the French government established several policies to support the economy throughout the crisis. Subsidies for short-time work were a key policy, accounting for over half the cost of emergency and stimulus measures to date. The purpose of this program was partly to preserve employer-employee links and, more broadly, to address the uncertainty at the beginning of the crisis and implement targeted transfers.

According to the French national accounts, in August 2021 private-sector employment in France had just reached its precrisis level, suggesting that the policy package was effective. But the recovery features a tight labor market, with an increase in the number of vacancies per job-seeking individual. This recent evolution raises concerns that short-time work subsidies may have contributed to reducing job search and increasing labor market tightness, which may impede the recovery.

In this chapter, I first provide a comprehensive description of the short-time work program introduced in France, how it evolved with the pandemic's changing circumstances, and its macroeconomic significance among the broader set of emergency measures the government introduced during the crisis. The short-time work program was a program of unprecedented scale, establishing the French government's commitment to do "whatever it takes" to protect workers and jobs during the COVID-19 crisis.[1]

Second, I provide a simple framework to assess the cost-benefit analysis of the short-time work subsidy program, drawing on evidence at the micro- and macroeconomic levels. At the micro level, I analyze the economic effects of the short-time work program, compared with those of other emergency measures, by leveraging recent evidence on each policy's take-up and ability to target firms and individuals that were most in need, firms' stated levels of satisfaction with the policy, and the policy's propensity to inefficiently support "zombie firms," defined as firms that are likely to go bankrupt in the long run without public support. Although some firms appeared to have windfall gains, the short-time work program seems to have performed better than some of the other support programs—in particular, deferred tax and social contribution payments.

At the macro level, I argue that the program's main benefit was likely to drastically reduce uncertainty and preserve consumer confidence and business investment going forward, which allowed for a quick rebound of the French economy.[2] As of the fall of 2021, the recovery in France appears strong, but the country faces two new macroeconomic challenges. First, the job market has become very tight. Second, public support programs were so strong that firms' bankruptcy rates have fallen by half, creating the potential for a wave of "catch-up bankruptcies" if public support programs are withdrawn too soon or for a fall in allocative efficiency if the programs are not withdrawn quickly enough. To strike this balance, the French government is transitioning from a "whatever it takes" approach to a tailor-made approach to public support programs.[3]

The remainder of the chapter is organized as follows: The next section describes the parameters of short-time work programs and their evolution during the crisis, and the third section presents my analysis of their economic effects. The fourth section concludes.[4]

Short-Time Work Programs in France During the COVID-19 Pandemic

In this section, I describe short-time work programs in France during the COVID-19 pandemic, first highlighting their macroeconomic importance and then describing the characteristics of the subsidies.

Short-Time Work Subsidies Played a Major Role in the Macroeconomic Stabilization Strategy. The economic and health crises brought about by the COVID-19 pandemic were unprecedented. In 2020, French gross domestic product (GDP) fell by 7.9 percent, compared with 6.9 percent in the rest of the eurozone. Excess mortality between March 2020 and February 2021 was 13.1 percent. In the United States, the recession was smaller (–3.5 percent in 2020), but excess mortality was larger (22.1 percent between March 2020 and February 2021).[5]

To mitigate the economic consequences of lockdowns, in March 2020 the French government launched four main programs to mitigate the economic crisis: a short-time work policy, a solidarity fund, state-backed loans for firms, and deferred or reduced tax payments for firms. Between March 2020 and June 2021, these four programs amounted to €212 billion, or about 10 percent of France's GDP, including €35.2 billion for short-time work, €31.2 billion for the solidary fund, €140 billion for state-backed loans,[6]and €5.6 billion for deferred or reduced taxes.[7] The solidarity fund became more important later into the crisis, with a total amount of €0.7 billion for the first wave compared with €7 billion for the second wave. These programs were all introduced quickly.

Economically, these policies can be divided into two types: Liquidity policies are meant to be reimbursed, while the solidarity fund, short-time work policies, and tax reductions are subsidies, which are not meant to be refunded.

Characteristics of Short-Time Work Subsidies. I now describe the main parameters of the short-time work policy in France and then highlight several changes to the policy and implementation choices throughout the pandemic.

Main Parameters of the Short-Time Work Policy. Short-time work policies with public subsidies existed in France even before the COVID-19 crisis. The policies work based on three interrelated principles. First, employers are no longer obligated to give work to their employees; the workload can be reduced to zero hours.

Second, employees receive a benefit amounting to 70 percent of their pretax wage, paid by the employer, up to 4.5 times the minimum wage.[8] This benefit is subject to lower taxes, with an overall rate of 6.7 percent;[9] in particular, the benefit is exempt from income tax and social insurance contributions. As a result, for the average worker, the benefit of 70 percent of the pretax wage accounts for 84 percent of the posttax wage. Furthermore, the benefit has a floor equal to the minimum wage, such that workers paid at the minimum wage receive 100 percent of their posttax wage.[10]

Third, the employer receives a benefit equal to 70 percent of the employee's pretax wage, with a floor equal to the minimum wage. In this way, the employer is fully refunded for the benefit the employee receives.

The Evolution of the Policy During the Crisis. The policy evolved during the crisis, especially regarding the third principle. During the first lockdown from March to May 2020, all employers were fully refunded for short-time work. In the second phase of the crisis, employers were refunded only 85 percent of the employee benefit, except for firms that kept a full refund, subject to eligibility criteria—namely, if (1) they were shut down due to regulations, their industry (e.g., with a state-ordered closure of restaurants, gyms, night clubs, etc.), or their location (e.g., with a regional lockdown) or (2) they were part of a set of sectors particularly affected by the crisis (including travel and leisure, hotel, restaurants, etc.). The differential treatment by industries or location during this phase of the crisis was deemed necessary to ensure that shutdowns remained politically and socially acceptable.[11] The policy did not impose any constraints on quits or layoffs.

In October 2020, a new, less generous regime was defined for the short-time work policy, but its deployment was delayed several times. With the new parameters, the employee benefit was set to 60 percent of the pretax wage (rather than 70 percent), and the employer had to cover 40 percent of the benefit (rather than 0 percent in the first version of the policy and 10 percent in the second version). Moreover, the floor was reduced to 90 percent of the minimum wage (rather than 100 percent).

This regime started being enforced on July 1, 2021, except for a set of firms that retained a full refund, subject to the same two eligibility criteria described above—that is, being subject to a state-ordered closure or being part of a struggling sector. In those cases, the employee benefit remains at 70 percent of the pretax wage. As the economic recovery firms up, the subsidy rate will be gradually reduced for all sectors and all firms. It is planned that, as of December 2021, employers should have to cover 40 percent of the short-time work benefit in all sectors and regardless of the evolution of their sales.

Finally, on July 28, 2020, a new "long-term part-time work program" ("*activité partielle de longue durée*") was introduced. This program, which requires a signed agreement between the employer and its employees, allows for a reduction of work time up to 40 percent over the total duration of the agreement, which can cover up to 24 months over a period of three years. Contrary to the policies described above, which can be used only up to a year, the long-term part-time work program is meant to support sectors that may be underperforming for several years—for example, the travel or aircraft manufacturing industries. Use of the program is subject to the obligation to avoid layoffs.

In the initial version of this policy, which was active until June 1, 2021, the employee received 70 percent of the pretax wage, and the employer obtained a full refund. The floor for the pretax wage was set to the minimum wage—that is, €8.11—and a ceiling was set at €27.68. Since July 2021, the employer has to cover 10 percent of the employee benefit, and the floor is set to 90 percent of the minimum wage.

Implementation Choices and the Importance of Fraud Detection. A key feature of short-time work programs was that they could be deployed quickly. In this case, employers had up to 30 days *after* putting their employees on short-time work to apply for the subsidy, and they could be refunded retroactively.

The large take-up of the part-time work program during the crisis dramatically increased the workload of civil servants at the Labor Ministry to process these requests, which was an organizational challenge but was necessary so that firms could be refunded quickly. During the lockdown in March 2020, 1.1 million firms applied for short-time work, but only 100,000 firms were previously registered in the history of the program. Before the crisis, 84 full-time civil servants were involved in processing requests for short-time work. During the crisis, the Labor Ministry allocated about 1,200 civil servants to this task, both in the central administration in Paris and in the local branches of the ministry throughout the country, including 300 new short-time workers who were recruited specifically for this task.[12]

Despite this effort, it proved difficult to address all applications in time. Starting in April 2020, the Labor Ministry decided to automatically approve applications under 48 hours; much of the oversight was done automatically using existing databases, and fraud detection was organized ex post. Starting in October 2020, the delay to validate applications increased from two days to two weeks, with increased oversight.

The fraud detection program was launched in May 2020 and strengthened in September 2020. The strategy combines ex ante and ex post audits based on firms' balance sheets and random audits. As of June 2021, the Labor Ministry had carried out 47,700 audits. In 62 percent of cases, the audits revealed no fraud and no inaccuracies. In 31 percent of cases, the audit revealed that the firm had provided an incomplete or inaccurate application; in 87 percent of those cases, the firm had to partly reimburse public funds. Finally, 7 percent of cases appeared to constitute outright fraud—for example, involving identity theft or the creation of fictitious firms.

To carry out these audits, the ministry focused on applications (1) with high wages per hour; (2) in sectors that had a very high take-up rate for short-time work, such as construction; (3) from firms with a majority of white-collar workers, for whom remote work was likely possible; and (4) from new firms. About 400 civil servants were involved in these audits, which led to wide-ranging cooperation among several ministries including the Ministry of Labor, the Ministry of Budget, and the Justice Ministry. The relatively high rates of inaccuracies or fraud indicate that preparing better fraud-detection policies, with the ability to be quickly scaled up, would be an important task to prepare for the next crisis.

Short-Time Work Subsidies During the First Lockdown. To measure the take-up of the short-time work policy, the main available data source is a survey run by the statistical division of the Labor Ministry, the ACEMO-Covid survey.[13] This survey has a sample of 38,000 companies, representative of all firms with at least 10 employees. Using this survey, as of May 2021, the cumulative number of hours involving a short-time work subsidy reached 3.363 billion hours, corresponding to €35.2 billion, about 1.6 percent of GDP.

As shown in Figure 1, take-up reached its peak in April 2020, when 29 percent of private-sector workers received short-time work benefits, while the French economy was in full lockdown. It then fell gradually to reach 2 percent in September 2020. In the second lockdown, the take-up rate increased again to 8 percent of private-sector workers. It then hovered around that level and declined to 5 percent in May 2021.

Take-up was heterogeneous across sectors. Hotels and restaurants accounted for about one-fourth of (full-time-equivalent) employees who benefited from the program, while they account for only 6 percent of total private-sector employment. Take-up was also heterogeneous by firm size. Small and medium-sized firms were the main beneficiaries of the program. Firms with more than 250 employees account for 41.2 percent of private-sector employment but only 28.7 percent of the hours subsidized by the program.

Other data sources paint a similar picture about the broad use of the short-time work subsidies. A survey conducted at the end of June 2021, whose results are reported in Table 1, shows that eight in 10 firms have used at least one of the public support programs during the crisis. Short-time work programs were by far the most prevalent; close to two-thirds of firms used them.

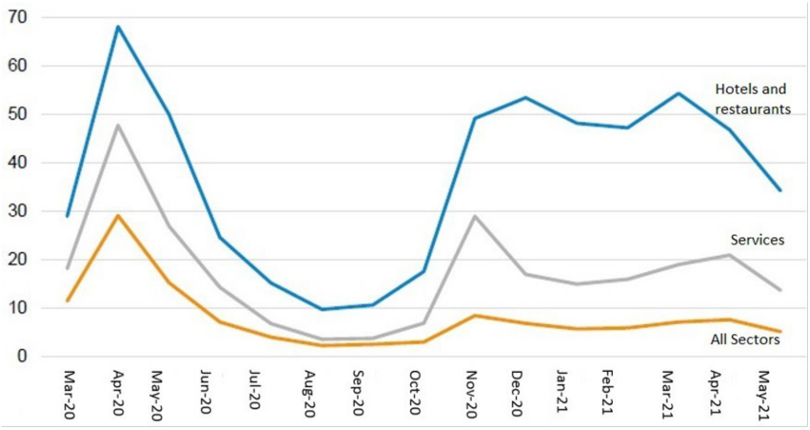
According to a recent study of the statistical division of the Labor Ministry,[14] workers benefiting from short-time work subsidies tend to be younger and have lower incomes. These differences are largely due to the composition of sectors that used short-time work subsidies most—in particular, hotels and restaurants. White-collar workers accounted for about 10 percent of workers on short-time work arrangement during the first lockdown; their share increased to 20 percent (i.e., close to their share in total private-sector employment) during the summer of 2020 and started falling back to 10 percent after October 2020. Overall, the policy was redistributive in favor of lower-income workers, and there was no bias by gender.

Economic Effects of the Short-Time Work Subsidy Program

In this section, I provide an analysis of the economic effects of short-time work policies, first discussing a conceptual framework and then providing firm-level and macro-level empirical evidence.

Conceptual Framework for the Cost-Benefit Analysis of Short-Time Work Subsidies. Using tools from economics, the standard approach for

Figure 1. Share of Employees on Short-Time Work Across Sectors, March 2020–May 2021



Source: Benoît Coeuré, "Premier rapport du Comité d'évaluation du plan France Relance," France Stratégie and the Inspection Génerale des Finances, October 26, 2021.

cost-benefit analysis of short-time work subsidies proceeds in two steps: (1) isolating the motives for public intervention by explaining why the social optimum diverges from the private optimum and (2) setting the optimal subsidy level by equating the social marginal cost of subsidies to their social marginal benefit. A growing literature in economics follows this approach[15] and has highlighted two main market failures that may justify subsidies for short-time work: inefficient layoffs due to liquidity constraints and inefficient search due to slack labor markets.

The idea that there may be inefficient layoffs stems from training costs and firm-specific human capital making it costly for firms to replace workers and for workers to change jobs. In principle, the private equilibrium may be able to achieve the optimum amount of labor hoarding during a crisis. But in the presence of liquidity constraints, firms may have to resort to inefficient layoffs, which short-time work subsidies can help alleviate. Thus, short-time work subsidies may be set optimally to address the liquidity constraints that would otherwise cause excess sensitivity of employment to productivity shocks. However, in France, firms' liquidity levels actually increased during the COVID-19 crisis, thanks to state-backed

Table 1. Share of Firms Using Public Support Programs During the COVID-19 Crisis

	Used	Did Not Use	N/A
Short-Time Work	65%	35%	0%
State-Backed Loans	37%	63%	0%
Deferred Taxes and Social Contributions	35%	64%	1%
Solidarity Fund	27%	72%	1%

Source: Benoît Coeuré, "Premier rapport du Comité d'évaluation du plan France Relance," France Stratégie and the Inspection Génerale des Finances, October 26, 2021.

loans.[16] Therefore, it appears difficult to take this theoretical justification as grounding for short-time work subsidy programs.

A second potential theoretical justification is based on the idea of inefficient job search. Recessions are usually characterized by slackness in the labor market—that is, many workers are searching for jobs, and firms post few vacancies, such that the equilibrium level of job search may be too high relative to the social optimum. In such a case, short-time work subsidies may be optimal because they discourage job search by subsidizing low levels of labor supply. However, the French labor market has remained tight during the COVID-19 pandemic, with an increase in labor market tightness in 2021 (as discussed later), which casts doubt on the relevance of this potential theoretical grounding for public intervention.

In practice, it appears that the widespread use of short-time work subsidy programs during the crisis stemmed from two sources: fairness concerns and uncertainty management. Indeed, short-time work was primarily used as a response to state-ordered shutdowns of several sectors of the French economy. To prevent the spread of the epidemic, President Emmanuel Macron announced mandatory home lockdowns for 15 days starting at noon on March 17, 2020, which was extended twice and ended on May 11, 2020. It appeared "fair" to alleviate the costs to business owners and workers, which short-time work subsidies helped achieve.

Furthermore, lockdowns created high levels of uncertainty. Given the widespread use of the program, support to firms and workers through short-time work subsidies might have dramatically reduced uncertainty and helped maintain aggregate demand. This is in contrast with the standard view of social insurance during a recession, which, according to economic research, usually cannot prop up aggregate demand simply because too few people benefit from it.[17]

Thus, the unprecedented nature and magnitude of the COVID-19 crisis makes it difficult to carry out a cost-benefit analysis of short-time subsidy programs based on maximization and optimization at the margin. Short of such a framework for optimal short-time work subsidies, in the remainder of the chapter, I ask two questions to shed light on the program's performance.

First, were there obvious design flaws of the short-time subsidy program? Using firm-level data in the next section, I assess several potential flaws regarding (1) whether the level of support was deemed sufficient by firms that used the subsidies, (2) whether non-take-up resulted from design flaws, (3) the extent of windfall gains for firms that did not need the program but received transfers, and (4) the extent of allocative efficiency costs through support for zombie firms. In conducting this analysis, I compare the performance of short-time work subsidy programs to that of the other major support policies used during the crisis.

Second, do short-time work subsidies contribute to addressing the overall macroeconomic challenges faced by the French economy? In the "Macro-Level Analysis" section, I address this question by documenting the state of the recovery to date, with a particular focus on the large fall in bankruptcy rates and the increase in labor market tightness.

Firm-Level Analysis. I now discuss firm-level evidence shedding light on the performance of the short-time work subsidy policy.

Firms' Stated Levels of Satisfaction with Short-Time Work Subsidies. Large-scale surveys of firms can help inform the cost-benefit analysis of public support programs in real time. A survey conducted at the end of 2021[18] helps analyze whether the level of support for firms that used the programs was calibrated appropriately and the reasons for non-take-up among other firms.

Table 2, Panel A documents that most firms that used short-time work subsidies found the program useful. Fifty-two percent of firms state that it was "key to weather the crisis." Thirty-eight percent of firms mention that the program was "useful but largely insufficient." Finally, 10 percent mention that the program was "not useful at all." These results suggest that the program was calibrated appropriately for a majority of firms.

However, the fact that 10 percent of firms state that the program was not at all useful is potentially an important concern, given the program's financial implications. The available survey evidence does not indicate the share of short-time work subsidies that these firms account for. To obtain an upper bound, one can assume these firms account for at most a proportional share of the funds that were disbursed through short-time work subsidy programs—that is, €3.5 billion (or 0.16 percent of GDP). An important direction for policy going forward would be to assess why these firms did not consider the funds useful, as the implications for public finances are potentially large.

Table 2, Panel B documents the reasons firms did not use the program. Of the firms that did not take up the program, 77 percent state that the main reason was because this program was not necessary for them, as their sales had not decreased much or had increased. These results are encouraging since they suggest that non-take-up was not caused by major issues with the program's implementation.

How Large Were Windfall Gains for Firms? The short-time work support programs were accessible without strict eligibility criteria (in contrast with other policies such as the "solidarity fund," which could be used only by firms with a fall in sales compared with the prior year). Loose eligibility criteria made it possible to support all firms quickly, at the cost of subsidizing firms that may not have needed it. Because the cost of public funds is above one due to distortionary taxation, it is useful to assess to what extent certain firms may have received public support that was not necessary (for example, firms with an *increase* in sales) or whether certain firms' financial difficulties were more than offset by public support (for example, firms with subsidies that *more than offset* the fall in operating surplus). Put another way, were short-time work subsidies adequately targeted?

To assess whether public support programs were targeted adequately toward firms that needed it most, a simple approach is to see whether firms with the highest fall in gross operating surplus were the main beneficiaries of public support programs. Gross operating surplus is defined as value added minus wages and taxes on production, plus production

Table 2. Survey Evidence on Firms' Satisfaction with Short-Time Work Programs

Panel A. Firms' Assessment of Short-Time Work Subsidies Conditional on Take-Up

	What role did short-time work subsidies play for your company?
Short-time work subsidies were key to weather the crisis.	52%
Short-time work subsidies were useful but largely insufficient.	38%
Short-time work subsidies were not useful at all to face the crisis.	10%

Panel B. Firms' Motivations for Not Taking Up Short-Time Work Subsidies

	Why didn't your company use short-time work subsidies?
It was not useful because sales increased or did not decrease much.	77%
You were not eligible.	8%
You didn't want to become dependent upon public subsidies.	7%
Your application was rejected.	4%
The application procedure was too complex.	1%
N/A	3%

Source: Benoît Coeuré, "Premier rapport du Comité d'évaluation du plan France Relance," France Stratégie and the Inspection Génerale des Finances, October 26, 2021.

subsidies. According to the French national accounts, between the second quarter of 2020 and the first quarter of 2021, gross operating surplus fell by 4.0 percent (–€28.4 billion, or 1.29 percent of GDP).

According to the Coeuré commission, the aggregate emergency policies helped offset about 45 percent of the fall in gross operating surplus during the first wave (from March 2020 to September 2020) and fully offset it during the second wave (from October 2020 until March 2021). At the macro level, short-time work subsidies and the solidarity fund helped offset about 75 percent of the fall in gross operating surplus. This finding shows that short-time work programs could not have been used in isolation.

In a few sectors, on average, subsidies contributed to a *net increase* in gross operating surplus; that is, even absent these subsidies, these sectors would have done well, and the gross operating surplus would have increased at the sectoral level. This is the case for three sectors: IT, agriculture, and leisure-related activities (including sports, arts, and museums). In these sectors, short-time work support programs and the solidarity fund contributed equally to the "overshooting" of public subsidies.

Using firm-level data, one can measure the distribution of the changes in operating surplus across firms. The aggregate fall in gross operating surplus could result from either concentrated losses in a small number of firms or more equally spread losses. The data show that, in fact, a majority of firms (59 percent) incurred a fall in gross operating surplus. For 20 percent of firms, the fall in gross operating surplus was above 25 percent. Assuming that without short-time work programs workers would have been paid at their normal rates (an extreme assumption), micro-simulations show that 72 percent of firms would have incurred a fall in gross operating surplus. The short-time work subsidy program is used more strongly at the bottom of the distribution of changes in operating surplus, more so than state-backed loans but not as much as the solidarity funds and deferred tax payments.

The results are broadly similar when analyzing changes in sales, rather than changes in gross operating surplus. During the first wave, over 80 percent of subsidies went to companies with a fall in sales, compared with 75 percent during the second wave.

Overall, the Coeuré commission's analysis shows that the support programs appear to have been targeted primarily at struggling firms but that there were some windfall gains, both because the fall in firms' gross operating surplus was more than offset by public support programs in some sectors and because some firms used the programs while they had an *increase* in their sales. To assess whether it was efficient to support struggling firms, it is necessary to analyze to what extent these firms can be viewed as zombie firms.

How Large Was the Support to Zombie Firms? To assess the role of zombie firms in the take-up of the program, it is instructive to document take-up depending on the firm's financial characteristics. A first proxy for zombie firms uses measures of creditworthiness. The Bank of France assigns credit scores to all firms in the French economy. Using precrisis (2019) credit scores, the Coeuré commission's analysis shows that take-up rates for short-time work vary non-monotonically with creditworthiness. Take-up is lower for firms with an excellent credit score or a poor credit score, compared with firms at an intermediate level. In contrast, other government support programs, such as deferred tax payments, have the highest take-up among firms with the lowest credit scores. This suggests that short-time work subsidies may be less likely than other support programs to support firms that are not creditworthy and are artificially sustained by public support.

Second, one can leverage balance sheet data to build a proxy for zombie firms. Using data from the National Institute of Statistics and Economic Studies, zombie firms are defined as firms that are at least 10 years old and were unable to cover their interest charges with their gross operating surplus for at least three consecutive years. To assess the role of zombie firms for the short-time work program and compare it with the impact of other support policies, one can use the latest available comprehensive balance sheet information to define the set of zombie firms. In 2018, these firms accounted for 7.2 percent of all mature firms (i.e., older than 10 years), 4 percent of value added, 7.5 percent of employment, and 8.1 percent of capital. From March 2020 to June 2021, about half of zombie firms used one of the public support programs.

As shown in Table 3, during the first wave (March–September 2020), 4.5 percent of the funds disbursed as short-time work subsidies went to zombie firms, compared with 3.6 percent for the solidarity fund, 3.4 percent for state-backed loans, and 8.1 percent for deferred tax payments. These percentages remained stable during the second wave, from October 2020 to March 2021: The share of zombie firms is 4.3 percent for short-time work subsidies, 2.5 percent for the solidarity fund, 3.4 percent for state-backed loans, and 8.1 percent for deferred tax payments. Thus, short-time work subsidies do better than deferred tax payment in avoiding zombie firms, but they do not perform as well as state-backed loans or the solidarity fund.

Overall, these figures imply that about €1.56 billion of public subsidies for short-time work may have been directed toward zombie firms. Although there may be an efficiency loss from subsidizing these firms, to the first order these funds constitute a transfer toward these firms' workers. In other words, the €1.56 billion figure can certainly be taken as an upper bound for the potential efficiency cost.

Table 3. Share of Zombie Firms Across Support Programs

	First Wave, March–September 2020	Second Wave, October 2020–March 2021
Short-Time Work Subsidies	4.5% (out of €14 billion)	4.3% (out of €6 billion)
Solidarity Fund	3.6% (out of €0.7 billion)	2.5% (out of €7 billion)
State-Backed Loans	3.4% (out of €90 billion)	3.4% (out of €90 billion)
Deferred Taxes and Social Contributions	8.1% (out of €8 billion)	8.1% (out of €8 billion)

Source: Benoît Coeuré, "Premier rapport du Comité d'évaluation du plan France Relance," France Stratégie and the Inspection Génerale des Finances, October 26, 2021.

Third, to assess the importance of zombie firms, one can assess whether firms that actually went bankrupt during the crisis benefited from public support programs. As shown in Table 4, €279 million from short-time work subsidies were used by companies that went bankrupt between March 2020 and March 2021 (i.e., about 0.80 percent of short-time work subsidies and 0.013 percent of GDP). In total, firms going bankrupt during this period used about €1.1 billion of public subsidies.

As previously mentioned, deferred tax payments are the main source of windfall gains, and short-time work subsidies do relatively well compared with their macroeconomic importance. These numbers are a lower bound for the amount of public subsidies going to bankrupt firms, given that the bankruptcy rates fell dramatically during the crisis, as discussed further in a later section.

Macro-Level Analysis. For the macro-level analysis of the short-time work policy, I argue that three main features are relevant: The economic recovery was surprisingly swift, bankruptcy rates fell dramatically, and the labor market has been very tight.

A Surprisingly Swift Recovery. Although the economic crisis was deep and generated much uncertainty in March and April 2020, the economic recovery has been surprisingly swift.

The evolution of macroeconomic aggregates during the crisis can be summarized as follows. First, consumption expenditure fell while

Table 4. Use of Support Programs by Firms That Went Bankrupt Between March 2020 and March 2021 (Millions of Euros)

	First Wave, March–September 2020	Second Wave, October 2020–March 2021	Both Waves
All Programs	241	868	1,109
Short-Time Work Subsidies	78	201	279
Solidarity Fund	51	59	110
State-Backed Loans	13	243	257
Deferred Taxes and Social Contributions	98	364	462

Source: Benoît Coeuré, "Premier rapport du Comité d'évaluation du plan France Relance," France Stratégie and the Inspection Génerale des Finances, October 26, 2021.

household income was preserved, leading to a large increase in household savings, which increased from 15.1 percent of disposable income in 2019 to 21.4 percent in 2020. This accumulated wealth has not decreased in 2021.

Second, corporate investment has performed better than expected, with a fall close to that of GDP, while in previous recessions investment had been very pro-cyclical, with a fall about twice as large as that of GDP.

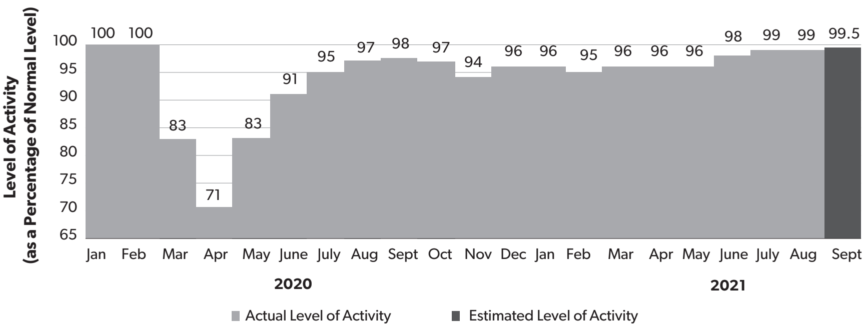
Third, employment has outperformed expectations by far. At the end of the first quarter in 2021, employment was only 1.2 percent below its level at the end of 2019, or a loss of 243,000 jobs; the forecasts early in the crisis were much worse. By September 2021, employment had returned to its precrisis level.

Fourth, firms' profitability has increased. For example, margins have increased by 1.5 percentage points in 2020, compared to 2019.

Fifth, business activity was almost back to its precrisis level by September 2021. According to the survey of business leaders conducted by the Bank of France,[19] in September 2021 the level of activity was back to 99.5 percent of its normal level, as depicted in Figure 2.

Sixth, state-backed loans led to an increase in both the level of liquidity and net debt for firms. France started from a situation with a higher level of corporate debt, at 73 percent of GDP, compared with 63 percent in Italy, 57 percent in the UK, and 41 percent in Germany.

Figure 2. The Swift Rebound of Business Activity



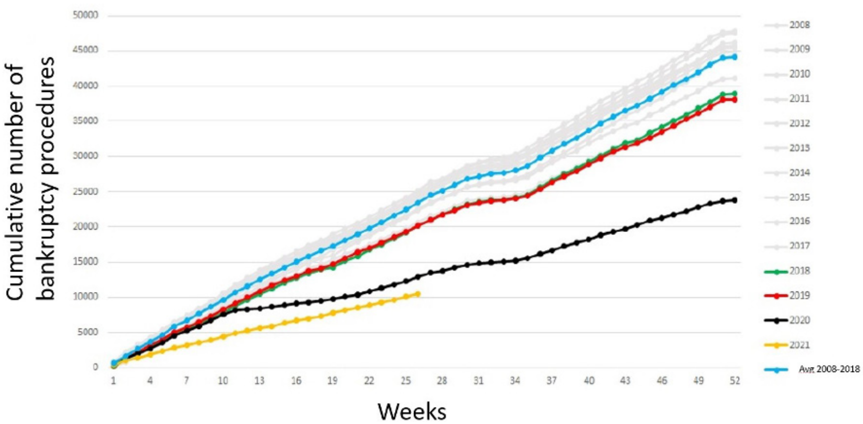
Source: Bank of France, "Update on Business Conditions in France at the Start of September 2021," September 13, 2021, https://www.banque-france.fr/sites/default/files/media/2021/09/24/update_on_business_conditions_in_france_start_of_september_2021_0.pdf.

Overall, the macroeconomic cost of the crisis was shared between public administrations, which shouldered 75 percent of the cost, and companies, which incurred 25 percent of the overall shock. Households were fully offset on average, notably thanks to short-time work programs, which prevented an increase in unemployment. Survey evidence suggests that firms were adequately supported during the crisis. In the representative sample of the Coeuré commission, 21 percent of firms state that the public support they received was "absolutely sufficient," and 56 percent state that it was "rather sufficient"; 16 percent of firms answer "rather insufficient," 2 percent say "totally insufficient," and 2 percent do not answer.[20]

This evidence and the swift recovery in France suggest that the emergency measures, including short-time work, achieved their goals. Economic activity has bounced backed after each lockdown, as measured with real-time bank account data. Short-time work programs likely played a key role, especially early in the crisis, to preserve consumer confidence and business investment by reducing uncertainty and thus maintaining aggregate demand.

However, France now faces new macroeconomic challenges, which I discuss next. In this new macroeconomic context, it appears necessary to gradually wind down short-time work programs.

Figure 3. Changes in Bankruptcy Rates over Time



Source: Benoît Coeuré, "Premier rapport du Comité d'évaluation du plan France Relance," France Stratégie and the Inspection Génerale des Finances, October 26, 2021.

An Unprecedented Fall in Bankruptcy Rates. Due to the generosity of public support policies, including short-time work policies, the bankruptcy rate has fallen substantially in France since the beginning of the crisis, raising the possibility of a wave of "catch-up bankruptcies." The large fall in bankruptcy rates in 2020 and 2021, shown in Figure 3, suggests that many firms that would have gone bankrupt absent a crisis were saved thanks to public subsidies.

The number of bankruptcies fell in 2020 in most European countries, but the decline was larger in France, with a fall of about 40 percent. Using harmonized data sources, recent work by the Organisation for Economic Co-operation and Development (OECD)[21] compares the change in bankruptcy rates across countries. The estimates are shown in Table 5. Only Austria experienced a larger decline in bankruptcy than France did. In the United States, the divergence relative to pre-COVID-19 bankruptcies was much less substantial, with a fall of about 5 percent.

Table 5 also shows that, perhaps paradoxically, there is a positive correlation between the change in GDP and the change in bankruptcy rates in 2020, even though bankruptcies are normally pro-cyclical. Policy decisions regarding shutdowns may explain this pattern. Countries where

Table 5. Changes in Bankruptcy Rates and GDP During the Pandemic Across Countries

Country	Cumulative Percentage Change in Bankruptcies, March–December 2020 Relative to 2019	Year-on-Year Percentage Change in GDP, Q4 2020
Austria	–40.62%	–6.1%
France	–39.65%	–4.3%
United Kingdom	–38.78%	–7.1%
Denmark	–33.75%	–0.5%
Belgium	–32.00%	–4.4%
Italy	–31.62%	–6.6%
Korea	–29.23%	–1.1%
Canada	–23.23%	–3.1%
Finland	–18.60%	–1.7%
Germany	–18.35%	–2.9%
Netherlands	–17.04%	–3.1%
Spain	–14.45%	–8.8%
Japan	–5.39%	–0.8%
United States	–5.39%	–2.3%
Sweden	–1.00%	–1.8%

Source: Organisation for Economic Co-operation and Development, *OECD SME and Entrepreneurship Outlook 2021*, June 28, 2021, https://www.oecd-ilibrary.org/sites/97a5bbfe-en/index.html?itemId=/content/publication/97a5bbfe-en.

shutdowns were less stringent (and where excess mortality was often higher), such as the United States or Sweden, suffered from a smaller fall in GDP. These countries offered less generous public support programs, such that bankruptcy rates fell more in countries with a larger fall in GDP in 2020. These patterns suggest that generous public support programs, including short-time work subsidies, were a key ingredient to make it politically acceptable to shut down large sectors of the economy, leading to an unprecedented fall in bankruptcy rates in several countries despite a large fall in economic activity.

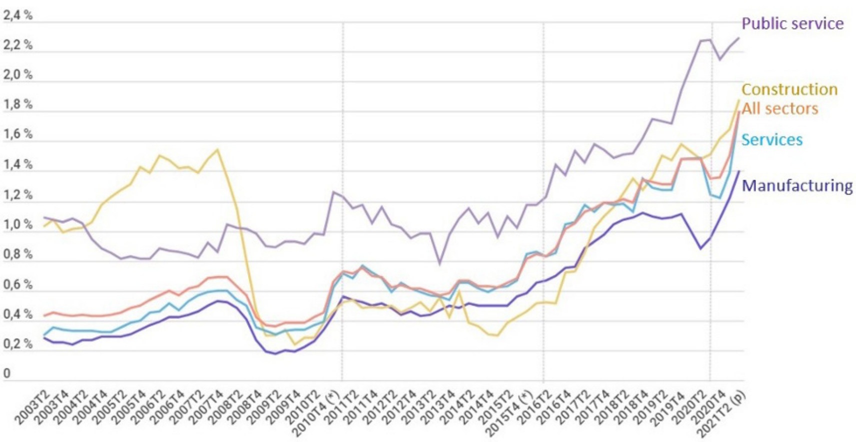
The large decrease in firm bankruptcies in France suggests that public support programs overshot relative to the level of support that was required; indeed, a rule of thumb is that optimal stabilization policy should attempt to smooth bankruptcy rates over time. A challenge of the COVID-19 crisis is the large uncertainty that existed at the beginning about the depth and duration of the crisis. The quick development of vaccines helped strengthen the recovery in a way that was difficult to predict. For this reason, the sustained fall in bankruptcy rates may be interpreted as a symptom that the recovery of fundamentals was unexpectedly fast, rather than as a symptom of overly generous public support programs. Put another way, public support programs, including short-time work subsidies, may appear too generous ex post primarily because fundamentals recovered faster than expected due to unexpectedly quick vaccine development, rather than because the public support programs were too generous relative to the expected shock.

Regardless of the interpretation, a new macroeconomic challenge for France and other high-income countries is to manage the rise in bankruptcy rates going forward. Allowing for an increase in bankruptcy rates going forward appears necessary for allocative efficiency and requires winding down subsidy programs like short-time work programs (while liquidity policies such as state-backed loans could be maintained for a longer period to accompany the recovery). Thus, it is important for the new long-term part-time work program, which was established at the end of July 2021 (as discussed earlier), to avoid being overgenerous going forward. At this stage, the rate set for the employer (which has to cover 10 percent of the employee benefit) remains generous, and it would seem appropriate to consider increasing employers' contributions gradually going forward.

A Large Increase in Labor Market Tightness. The French economy is currently characterized by a strong increase in the job vacancy rate and labor market tightness. The job vacancy rate, defined as the number of job vacancies or vacant positions on the last business day of the month expressed as a percentage of labor demand (occupied positions and vacant positions), has been on an upward trajectory for several years in France, as shown in Figure 4. The increase has continued during the crisis, after a small decline at the beginning of the crisis.

As illustrated in the figure, the increase in vacancy rates is a relatively long-term trend in the French economy. It is unlikely that subsidies for

Figure 4. Changes in Vacancy Rates over Time



Source: French Labor Ministry.

short-time work contributed to the increase in labor market tightness. Recent work by the OECD[22] shows that job search, measured in real time using Google Trends data, has remained elevated throughout the crisis. If anything, the level of job search has remained higher than in the United States. Google Trends data also suggest that job searches haven't been redirected toward sectors with increasing demand during the crisis (e.g., toward education and health and away from tourism and restaurants).

Based on the available evidence to date, the increase in labor market tightness appears to be best interpreted as a structural problem in the French economy, potentially reflecting a mismatch between labor demand and skills and relatively generous unemployment benefits. Short-time work benefits should not be viewed as the main cause of the increase in labor market tightness, but maintaining them for an extended period appears inefficient in this context.

Conclusion

Short-time work subsidies were widely used in France during the COVID-19 crisis. Based on the available data, the policy appears to have achieved its main goals: to compensate workers and firms for state-ordered shutdowns and to reduce uncertainty to maintain aggregate demand. It was instrumental in supporting a quick economic recovery. However, short-time work subsidies do not seem to be a useful tool to address the new macroeconomic challenges facing the French economy, in particular the increase in labor market tightness and the necessary increase in bankruptcy rates to preserve allocative efficiency.

To address these new challenges, it appears necessary to promote structural reforms in the French labor market and avoid maintaining short-time work subsidies for too long. In particular, policymakers must be careful to avoid an overly generous long-term short-time work program. Estimates of fraud rates to date suggest that strengthening fraud-detection programs is another important direction to prepare for the next crisis.

Short-time work subsidies were a key ingredient to make it politically acceptable to shut down large sectors of the economy and order home lockdowns in France. Other countries like the United States reacted less strongly and incurred higher excess mortality and a smaller recession. In this sense, the cost-benefit analysis of short-time work is fundamentally tied to the broader cost-benefit analysis of each country's health and economic strategies during the pandemic.[23]

There is perhaps one obvious aspect in which short-time work subsidies fail a simple and pragmatic cost-benefit test—namely, the next-best alternative use of funds. The COVID-19 pandemic has led to large stimulus packages, but international solidarity has been largely lacking, as illustrated by vaccine nationalism and export restrictions. While France spent over €35 billion in short-time work subsidies (about 1.6 percent of GDP) to date, advanced economies donated less than €10 billion[24] to deliver vaccines in low-income countries.

In a recent International Monetary Fund working paper, Ruchir Agarwal and Gita Gopinath estimate that $35 billion, in the form of grants to low-income countries, would suffice to end the COVID-19 pandemic by promoting vaccination, testing, tracing, and other public health measures.[25] By preventing the rise of novel COVID-19 variants and their health and economic consequences worldwide, it appears to be in the enlightened economic self-interest of France and other high-income nations to promote these policies. This could be achieved with a fraction of the budget that was devoted to short-time work subsidies around the world, or with the amount spent in France alone. Going forward, one can only hope that the "whatever it takes" mindset will start applying across borders, in particular to vaccinate the world.

Notes

1. The idea that public support programs would be established "whatever it takes" ("*quoi qu'il en coûte*") was
promoted by President Emmanuel Macron in a public address at the onset of the crisis, on March 12, 2020.

2. Indeed, the scale of the program was such that there could be a large impact. This stands in contrast with typical crises, in which social insurance policies have been shown to barely affect spending at the aggregate level, simply because they affect too few people. See, for example, Alisdair McKay and Ricardo Reis, "The Role of Automatic Stabilizers in the U.S. Business Cycle," *Econometrica* 84, no. 1 (January 2016): 141–94, https://onlinelibrary.wiley.com/doi/abs/10.3982/ECTA11574.

3. The idea that public support programs should become more targeted and tailor-made ("*sur-mesure*") was promoted by Finance Minister Bruno Le Maire in a series of press, TV, and radio events at the end of August 2021.

4. Throughout this chapter, I draw extensively on a comprehensive report reviewing the emergency programs to support the French economy, which was presented in July 2021 to the French prime minister; the report was written by France Stratégie and the Inspection Génerale des Finances under the direction of Benoît Coeuré. See Benoît Coeuré, "Premier rapport du Comité d'évaluation du plan France Relance" [First Report of the Commission in Charge of Assessing the Efficiency of the French Economic Stimulus Package], France Stratégie and the Inspection Génerale des Finances, October 26, 2021.

5. Coeuré, "Premier rapport du Comité d'évaluation du plan France Relance."

6. In the first quarter of 2021, the Bank of France's estimate of default rates for state-backed loans was 5 percent, implying an expected fiscal cost of €7 billion.

7. Deferred tax payments account for €2.6 billion, and reduced tax payments account for €3.6 billion.

8. The minimum wage was €8.03 in 2020 and €8.11 in 2021.

9. The tax rates are the "contribution sociale géneralisée," equal to 6.2 percent, and the "contribution au rem-boursement de la dette sociale," equal to 0.5 percent.

10. Because of this floor, the benefit is above 84 percent of the posttax wage for all workers earning up to 1.2 times the minimum wage.

11. According to recent evidence from the French Council of Economic Analysis, sectors that were most affected by the crisis and benefited from continued government support, in particular through continued short-time work policies, may have been

overcompensated for their losses. Indeed, analysis of firms' bank records reveals that net debt and liquidity *improved* for small and medium-sized firms in these sectors (e.g., for restaurants, hotels, movie theaters, and museums). See Anne Epaulard et al., "The Financial Situation of SMEs in August 2021 Based on Their Bank Account," September 2021.

12. These statistics and the statistics in the remainder of this section are taken from Coeuré, "Premier rapport du Comité d'évaluation du plan France Relance."

13. France Ministry of Labor, "ACEMO-Covid: Labor Force Activity and Working Conditions During the COVID-19 Health Crisis," https://www.casd.eu/en/source/labor-force-activity-and-working-conditions-during-the-covid-19-health-crisis.

14. See Laetitia Otte, "En 2020, l'activité partielle a concerné tous les secteurs et tous les profils de salaries" [In 2020, Short-Time Work Was Used in All Sectors and All Occupations], France Ministry of Labor, April 20, 2021, https://dares.travail-emploi.gouv.fr/publication/en-2020-lactivite-partielle-concerne-tous-les-secteurs-et-tous-les-profils-de-salaries.

15. For a recent review, see Giulia Giupponi, Camille Landais, and Alice Lapeyre, "Should We Insure Workers or Jobs During Recessions?," *Journal of Economic Perspectives* 36, no. 2 (Spring 2022): 29–54, https://www.aeaweb.org/articles?id=10.1257/jep.36.2.29.

16. For example, the French Council of Economic Analysis has shown the increase in firms' liquidity using real-time data on a large sample of firms' bank accounts.

17. Absent a structural model, it is difficult to quantify the importance of this channel, but doing so is an important task for future research. See, for example, McKay and Reis, "The Role of Automatic Stabilizers in the U.S. Business Cycle."

18. This survey was also used for Figure 1 and is taken from Coeuré, "Premier rapport du Comité d'évaluation du plan France Relance."

19. The Bank of France publishes a range of monthly and quarterly economic surveys that provide a snapshot of the French economy in the form of business climate indicators and short-term forecasts. Here I use the results of the September 2021 survey: Bank of France, "Update on Business Conditions in France at the Start of September 2021," September 13, 2021, https://www.banque-france.fr/sites/default/files/media/2021/09/24/update_on_business_conditions_in_france_start_of_september_2021_0.pdf.

20. Results of Coeuré, "Premier rapport du Comité d'évaluation du plan France Relance."

21. Organisation for Economic Co-operation and Development, *OECD SME and Entrepreneurship Outlook 2021*, June 28, 2021, https://www.oecd-ilibrary.org/sites/97a5bbfe-en/index.html?itemId=/content/publication/97a5bbfe-en.

22. See Organisation for Economic Co-operation and Development, *OECD Employment Outlook 2021: Navigating the COVID-19 Crisis and Recovery*, July 7, 2021, https://www.oecd-ilibrary.org/employment/oecd-employment-outlook-2021_5a700c4b-en.

23. In this respect, economic analysis can merely provide some orders of magnitude. For example, a simple exercise consists in attributing differences in outcomes between France and the United States to differences in their health and economic strategies; that is, a French-style strategy would reduce excess deaths by a factor of two while amplifying the fall in gross domestic product (GDP) by a factor of two. According to these

illustrative estimates, implementing a US-style strategy in France could have increased excess deaths by 55,000 while reducing the fall in GDP by €100 billion. Setting an average age at death of 80 years for COVID-19 victims and a life expectancy of 89, these estimates imply a cost per year of life saved of €200,000, which is surprisingly similar to leading estimates of the statistical value of life.

24. This amount was provided through COVID-19 Vaccines Global Access, abbreviated as COVAX, a worldwide initiative aimed at equitable access to COVID-19 vaccines directed by Gavi, the Vaccine Alliance, the Coalition for Epidemic Preparedness Innovations, and the World Health Organization.

25. Ruchir Agarwal and Gita Gopinath, *A Proposal to End the COVID-19 Pandemic*, International Monetary Fund, May 2021, https://www.imf.org/en/Publications/Staff-Discussion-Notes/Issues/2021/05/19/A-Proposal-to-End-the-COVID-19-Pandemic-460263.