VERSION 2, MARCH 2021[1]

What policies help businesses retain employees during an economic downturn?

The COVID-19 pandemic has caused an unprecedented disruption to labor markets in the United States and abroad. Unemployment rates have surpassed levels experienced during the Great Recession of 2008–2009. Massive levels of unemployment can have devastating impacts on individuals, businesses, and labor markets. This rapid evidence review summarizes three strategies governments and businesses can use to retain employees during economic downturns:

1. Work share or short-time compensation[2]
2. Temporary layoffs and furloughs
3. Employment protection programs[3]

The evidence presented here is based on the Clearinghouse for Labor Evaluation and Research's (CLEAR)[4] rapid review of 78 publications, some of which summarize the findings from multiple studies. Across the 78 publications, 21 were classified as causal, 41 were classified as descriptive, and 16 were other types of studies such as literature reviews, opinion pieces from subject matter experts, or policy papers. Figure 1 shows the number of studies, classified by topic and type of research.

A supplement to this rapid evidence review synthesis provides citations with links to the publications, further information about study findings, and details about how this rapid review was conducted.

Work share or short-time compensation (STC) is a program within the state unemployment insurance (UI) system that businesses can use as an alternative to layoffs. Under STC programs, businesses that experience a temporary decrease in demand can reduce employees' work hours. This helps businesses by reducing their labor costs in the short term while allowing them to retain their skilled employees. STC programs help workers by enabling them to retain their employment and benefits and earn some income, albeit a reduced income. Some individuals may also qualify to collect prorated UI compensation for lost income due to the reduced work schedule.

Temporary layoffs and furloughs are when workers are placed on unpaid leave, often with benefits, and expect to return to work within six months. Furloughs are a type of temporary layoff that may include a complete stoppage of work or a reduced work schedule, such as working four days a week for a year. For U.S. employers, this strategy has many of the same benefits as STC and is often less expensive to administer. For workers, the lack of pay associated with temporary layoffs is a significant challenge. Currently, federal and state policies have expanded UI benefits in response to the COVID-19 pandemic, including to some furloughed workers.

Employment protection programs are a set of strategies federal and state governments can use to subsidize partial payment of employee wages or benefits for individuals who are unable to work due to the pandemic. A number of countries have implemented some form of labor subsidy to incentivize employers to retain their employees. Countries' programs vary in terms of how much lost pay they replace and under what conditions.

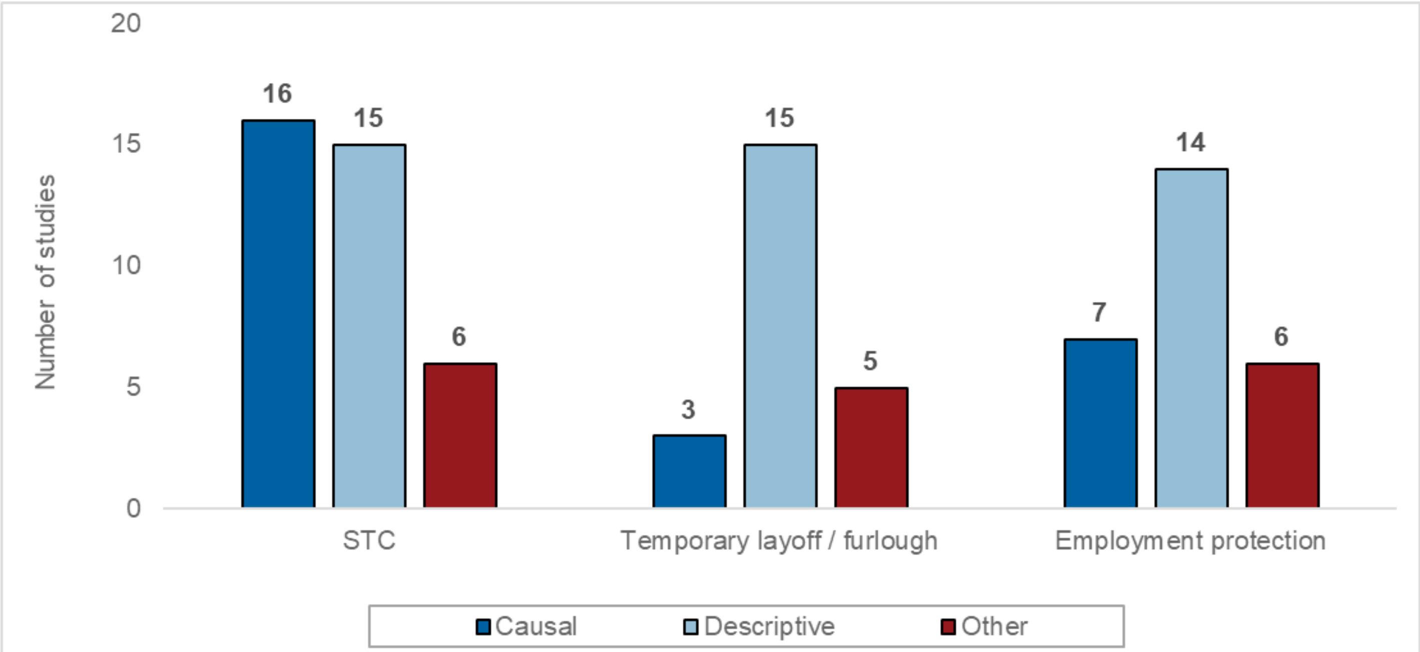
[1] The previously published Version 1 of this synthesis included literature published through June 30, 2020; Version 2 adds thirty-one citations published through March 08, 2021. CLEAR continues to search for relevant literature and may update this synthesis as new research emerges.

[2] This strategy is also referred to as short-time work (STW), work sharing, and shared work.

[3] This strategy is also referred to as paycheck or payroll protection or paycheck guarantees.

[4] CLEAR is the U.S. Department of Labor's Clearinghouse for Labor Evaluation and Research. Its mission is to make research on labor topics more accessible to practitioners, policymakers, researchers, and the public, to support evidence-informed decision making. CLEAR does this by conducting systematic evidence reviews, summarizing individual studies of programs, and synthesizing research across individual evidence bases. To date, CLEAR has conducted more than 18 evidence reviews and summarized more than 1,000 studies.

Figure 1. Types of studies by topic



Note: Counts sum to more than seventy-eight because some studies fall into multiple categories.

STC = short-time compensation.

1. Work share or short-time compensation

▶ **Short-time compensation (STC) programs can benefit businesses and permanent workers.** STC programs provide employers with a method to reduce labor costs without laying off workers. This allows businesses to retain their employees during an economic downturn and avoid costs associated with hiring and training new employees when demand returns. For employees, STC programs can help avoid layoff and the subsequent stress from being laid off and allow workers to maintain some income through work, keep their health insurance benefits, and, in some cases, receive prorated unemployment insurance (UI) compensation to make up for lost earnings (Balducchi et al. 2016; Boeri & Bruecker 2011; Burchell et al. 2020; Cahuc & Carcillo 2011; Cahuc, Kramarz, & Nevoux 2018; Hijzen & Martin 2013; Hijzen & Venn 2011; Kopp & Siegenthaler 2019; Organisation for Economic Co-operation and Development (OECD) 2010). A study of OECD countries during the Great Recession estimated that STC programs saved over 200,000 jobs in Germany and 400,000 jobs in Japan. STC also had substantial impacts on employment in Belgium, Finland, and Italy (OECD 2010). Nevertheless, not all studies of STC programs show favorable findings (Arranz, Garcia-Serrano, & Hernanz 2018; Cahuc & Nevoux 2019; Kawaguchi et al. 2020; Skuterud 2007). Notably, the most rigorous evaluation of STC programs in the United States found that among firms that used STC, layoffs remained the primary workforce reduction strategy (Walsh et al. 1997). Furthermore, a number of studies of STC programs abroad have shown that even when they do preserve jobs for permanent employees, they often do not benefit temporary workers (Boeri & Bruecker 2011; Cahuc et al. 2018; Cahuc & Nevoux 2019; Hijzen & Venn 2011; Steiner & Peters 2000). This aligns with other research showing that employers are more likely to use STC programs to retain high- or medium-skilled workers who would be more costly to replace (Gonzalez-

Uribe & Wang 2020). This is an important consideration for the current pandemic, which disproportionately affects low-skilled service workers who are not able to work remotely, such as those in the food service or hospitality industries (Andreason 2020).

- **STC programs can help stabilize labor markets during economic downturns.** STC programs can help stabilize both the supply and demand sides of the market. On the supply side, STC programs help firms decrease labor costs to match reduced demand for their goods and services. On the demand side, STC programs spread limited work amongst workers so more households have at least some income to continue purchasing goods and services, helping to sustain demand (Balleer et al. 2015; Bauermann 2020; Dias da Silva et al. 2020; Lepage-Saucier 2016). During the Great Recession, STC programs helped stabilize employment and reduce unemployment in many countries, such as Germany, Japan, and Italy (Herzog-Stein, Horn & Stein et al. 2013; Hijzen & Martin 2013). One study estimated that a 1 percentage point increase in STC take-up in Germany was associated with a 1 percentage point decrease in unemployment and a 1 percentage point increase in employment during the most recent recession (Cahuc & Carcillo 2011). However, some studies demonstrate that continued use of STC during an economic recovery can negatively impact overall employment if employers use STC to preserve jobs that could be preserved without the subsidy or jobs that would not be feasible without the subsidy (Cahuc & Nevoux 2019; Elsby, Hobijn, & Sahin 2010; Hijzen & Martin 2013; OECD 2010).

- **The level of uptake of STC programs influences its impact on macroeconomic conditions.** In countries or states where few businesses participate, the effects are not substantial enough to impact macroeconomic conditions (Abraham & Houseman 2013). In a study examining the use of STC in 17 states in the United States during the Great Recession, findings showed that too few employers participated in the STC program for it to substantially mitigate aggregate job losses (Abraham & Houseman, 2013). The uptake of STC varies widely across countries and by state within the United States. European countries such as Germany are more likely to use STC as a way to reduce overall person-hours during economic downturns, whereas the United States is more likely to reduce person-hours by reducing the number of workers, such as through layoffs (Elsby et al. 2010; Eyméoud et al. 2021). Uptake of STC also varies by industry, with the greatest adoption usually occurring in the manufacturing sector.

- **Government policies can influence the uptake of STC programs.** The extent that governments educate and incentivize employers to use STC can impact the uptake of this strategy (Abraham & Houseman 2014; Guipponi & Landais, 2020; Houseman et al. 2017; Walsh et al. 1997). Awareness and uptake of STC has remained relatively low in the United States (Balducchi et al. 2016); however, some states have enacted reforms to encourage businesses to adopt STC. For example, Rhode Island instituted reforms to make the application and claims process more efficient and less burdensome and proactively contacted employers who were engaged in layoffs to share information about STC programs (Abraham & Houseman 2014). Since the onset of the COVID-19 pandemic, federal and state governments have relaxed or waived rules to encourage the use of STC programs. The federal government has made it easier for states to establish work-sharing programs, and some states are not charging employers' UI accounts for the STC benefits paid to workers while the federal government is fully reimbursing states for STC benefits.[5] Early analysis of the use of STC in the United States during the pandemic suggests that the passage of the Coronavirus Aid, Relief, and Economic Security (CARES) Act (2020) was associated with increased use of STC among the 27 states with STC programs (Krolikowski & Weixel 2020).

Abroad, countries such as Belgium, Italy, and Germany have different policies in place to encourage STC programs over layoffs; these policies include strict employment protection laws that require employers to give advance notice for layoffs and provide severance payments to employees who are laid off (Boeri & Bruecker 2011). In countries with strict employment protections, it is more advantageous for businesses to retain employees at reduced hours than to lay off workers and have to pay them severance. A 2011 descriptive study found that during the Great Recession, Germany's use of STC and work-time accounts helped incentivize employers to avoid layoffs. Work-time accounts allow employees to acquire paid time off (PTO) instead of overtime pay. Germany also has a policy that requires employers to pay workers for any overtime/PTO if they are laid off, which incentivizes employers to avoid layoffs (Burda & Hunt 2011).

2. Temporary layoffs and furloughs

▶ **Businesses can also use temporary layoffs and furloughs to contain costs without permanently laying off workers.** Temporary layoffs and furloughs are predefined periods of unpaid leave with the expectation that the employee will return to work within six months (Bureau of Labor Statistics [BLS] 2020). Furloughs are a type of temporary layoff used across the public and the private sectors; they can be full time (a temporary layoff) or part time, such as through a shortened work week. Like STC programs, temporary layoffs preserve the worker–employer relationship and typically allow workers to maintain benefits during periods of unpaid work (Ginsburg & Liu 2010; Richtel & Leonhardt 2008; Sucher & Gupta 2018). Workers who are temporarily laid off full time are also typically able to collect UI benefits; however, many workers in part-time furlough, such as those forced to work a shortened work week, earn too much to qualify for partial UI benefits while furloughed (K. Abraham, personal communication, June 1, 2020). During the COVID-19 pandemic, temporarily laid-off workers may be eligible for paid sick leave through federal policies such as the Families First Coronavirus Response Act or through modified state UI programs (Boccia et al. 2020; Xie 2020).

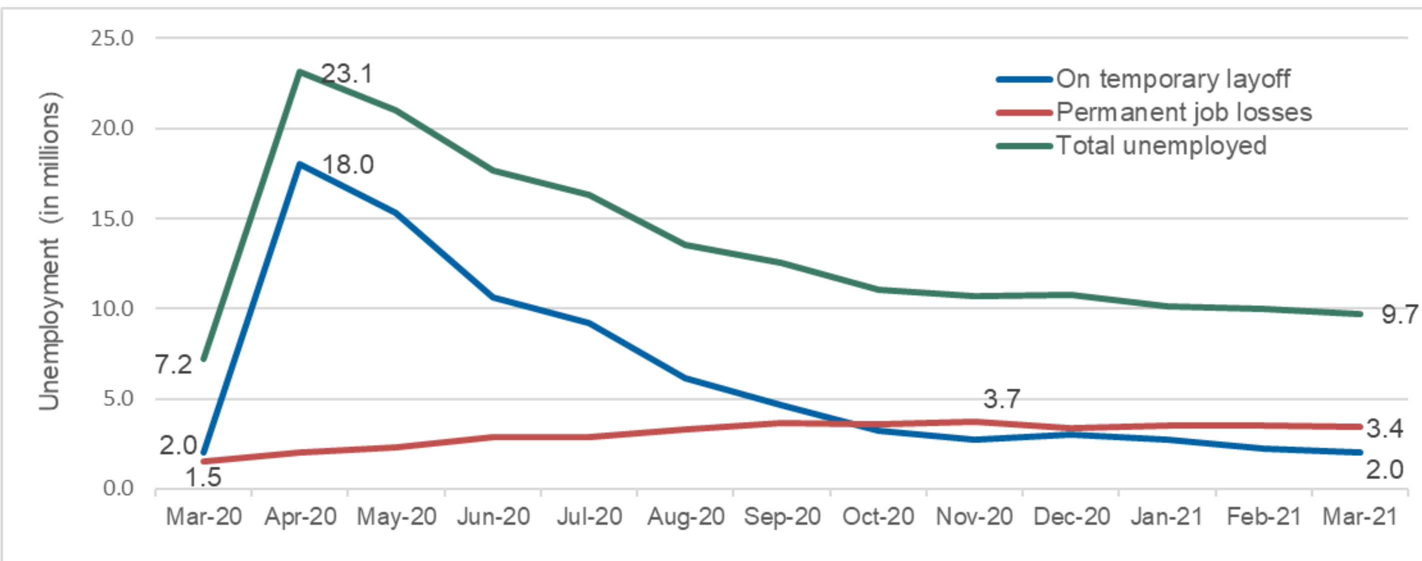
U.S. employers furloughed and temporarily laid off an unprecedented number of employees during the COVID-19 pandemic (BLS 2020; Eichhorst et al. 2020). According to recent estimates, temporary layoffs accounted for 78 percent of unemployment at the peak of unemployment in April 2020 (BLS 2021). Temporary layoffs were especially prevalent in service-sector jobs, such as those in the leisure and hospitality sectors, and people identifying as Hispanic or women have been particularly affected by the pandemic (Houseman 2020; Shibata 2020). Similar patterns have been observed across countries. For example, a descriptive analysis assessing which groups of workers were most likely to be affected by furloughs under the Coronavirus Job Retention Scheme (CJRS) in the United Kingdom during the COVID-19 pandemic found that those older than 30, women, and mothers were significantly more likely

[5] Written communication with Katherine Abraham (June 1, 2020).

to be furloughed under the CJRS. Additionally, workers without sick leave were significantly less likely to return to work after furlough (Adams-Prassl et al. 2020).

▶ **Most workers on temporary layoff or furlough were called back to work, suggesting that this strategy helped facilitate early recovery.** As illustrated in Figure 2, many temporarily laid off workers were recalled back to work in May 2020, as government restrictions lifted. Over time, temporary layoffs decreased, while permanent layoffs increased. From March 2020 to September 2020, more people were temporarily laid off than permanently laid off; as of October 2020, permanent layoffs exceeded temporary ones (BLS 2020). Despite this trend, analyses of data from early in the pandemic suggest that temporary layoffs are not turning into permanent layoffs at rates higher than before the pandemic—although Wolcott and co-authors note that this may change as the recession wears on (Hall & Kudlyak 2020; Wolcott et al. 2020). Additionally, a recent analysis by the Urban Institute suggests that temporary layoffs and furloughs helped workers with employer-sponsored health insurance maintain their insurance during their layoff (Karpman, Zuckerman, & Peterson 2020). Furthermore, descriptive evidence suggests that individuals in the United Kingdom who were furloughed as part of the CJRS had better mental health than individuals who were permanently laid off (Burchell et al. 2020).

Figure 2. U.S. unemployment in March 2020 through March 2021, by type



Source: U.S. Bureau of Labor Statistics (2020).

▶ **Temporary layoffs and furloughs may help stabilize labor markets during economic downturns.** Evidence suggests that workers on temporary layoff reduce spending, but by considerably less than workers who are permanently laid off (Browning & Crossley 2008; Handwerker 2020; Lepage-Saucier 2016). Furthermore, once furloughed workers are recalled, their consumer spending rebounds to levels similar to before their layoff. Because reductions in consumer spending can deepen recessions, these patterns suggest that temporary layoffs may help reduce the severity of recessions (Lepage-Saucier 2016). Nevertheless, temporary layoffs have downsides. Preliminary evidence suggests that people who are temporarily laid off tend to be on UI for a longer length of time than other groups, perhaps because temporarily laid-off workers are less intensive in their search for new work because they expect to be recalled. Some authors further claim that furloughs do not yield cost savings or long-term employee retention (Baranik et al. 2019; Jacobs 2009; Lee & Sanders 2013).

3. Employment protection programs

▶ **Employment protection programs can reduce unemployment during economic downturns.** A quasi-experimental study examining employment protection legislation (EPL) enacted in 21 countries during the Great Recession found that EPL reduced earnings losses (Gonalons-Pons & Gangl 2021). Moreover, the study demonstrated that workers' earnings rebound quicker after an economic downturn in countries with stronger employment protections. Similarly, a quasi-experimental study of a program to encourage lending to small businesses in the United Kingdom during the Great Recession suggests that the program helped small firms hold onto their skilled employees (Gonzalez-Uribe & Wang 2020). The authors suggest that this finding should inform the policy response to the COVID-19 crisis, and they caution that pay guarantees alone may leave out the most vulnerable workers. Finally, a study examining European labor market regulation found that when firms are financially penalized for laying workers off, public spending has a smaller net effect on the economy, meaning fiscal stimulus policies are most effective when firing costs are low (Cacciatore et al. 2021).

▶ **Employment protection programs might have softened the macroeconomic effects of the pandemic in the short term.** A number of countries, such as the United Kingdom, United States, Japan, Germany, and Denmark, are operating some form of employment protection programs or paycheck guarantees to stabilize the economy in response to COVID-19 (Barraza et al. 2020; Bauermann 2020; Beinhocker 2020; Kawaguchi et al. 2020; Stiglitz 2020). Implementation varies across countries but generally includes government reimbursement of employers who retain and continue paying their workers despite their inability to work. Economists and social welfare advocates argue that these policies are a way to stabilize markets in the immediate and medium term by incentivizing businesses to retain employees (McGaughey 2020; Thompson & Grabowski 2020). A descriptive study of the economic impact of government policies on firms in Denmark during the COVID-19 pandemic showed that firms who took up labor-based aid reported lower layoffs and more furloughs than firms that received fixed-cost support or fiscal-based tax delays. However, the authors note that this should not be interpreted as a causal relationship (Bennedsen et al. 2020).

Early analysis of the labor market impacts of the pandemic suggest that additional policy interventions may be needed to effectively interrupt long-term negative macroeconomic impacts (Boccia et. al 2020; Burke et al. 2020; Chetty et al. 2020; Stiglitz 2020). As demonstrated during the Great Recession, high unemployment can stunt spending, which in turn exacerbates labor market stagnation, decreases tax revenue, and impedes economic recovery. For example, during the Great Recession, state tax revenues fell by around 8 percent, which economists have associated with declines in economic growth of about 1.2 percentage points (Belz & Sheiner 2020). States, faced with increased medical and UI costs and decreased tax revenues due to COVID-19, may be forced to cut spending in the future. Some economists who study the Great Recession suggest that these spending cuts could further impede the recovery (Belz & Sheiner 2020; Stiglitz 2020), whereas federal spending could increase the spending capacity of states and individuals and hence spur a recovery (Aaronson & Alba 2020; Casado et al. 2020; Stiglitz 2020). Conversely, other economists argue that high unemployment benefits, policies subsidizing employee retention, licensing restrictions, and barriers to business formation will hinder reallocation responses to COVID-19, which will further stymie the recovery (Maria-Barrero 2020).

▶ **Early evidence suggests the U.S. Paycheck Protection Program (PPP) has provided relief, but more help is needed.** Evidence from analysis of data from early in the pandemic suggests that the CARES Act, and the PPP specifically, reduced unemployment at the early stages of the COVID-19 crisis (between December 2019 and April 2020) (Barraza et al. 2020). But one study suggests that as PPP loans expire, employers may be laying off workers whom they had previously maintained using PPP funds, suggesting that PPP loans may only be effective in the short term (Pardue 2021). Another study using PPP loan application data and a difference-in-differences design found that applying for a PPP loan was associated with a 0.6 percent increase in employment for businesses with 1 to 250 employees and a reduction in business closures; however, the authors also found that the PPP loans were associated with a 1.0 percent decrease in employment among businesses with 250 to 500 employees (Hubbard & Strain 2020). Many other studies have highlighted how demand for assistance from these programs surpassed the funding available; the first two times Congress allocated additional funding for the PPP loans, funds were exhausted within days, and many small businesses reported having trouble accessing assistance (Boccia et al. 2020; Burke et al. 2020; Stiglitz 2020). Additional descriptive and qualitative research on the distribution of PPP loans highlights potential disparities in who applied for PPP loans, who received aid, and whether the loans went to those hardest hit by the pandemic and economic downturn (Atkins et al. 2021; Ball et al. 2020; Fairlie & Fossen 2021; Neilson et al. 2020; Santellano 2021).

▶ **Countries have unique contexts and different methods for administering employment or paycheck protection programs.** For example, in Austria and Germany, the government provides direct subsidies to employers so they can continue paying their workers (Granja et al. 2020; Humphries et al. 2020). In the United States, the PPP was administered through the Small Business Administration via banks. Early evidence suggests that the approach taken by the United States was slower to distribute funds; and some descriptive analysis also suggests PPP loans did not get to the places hardest hit by COVID-19 (Granja et al. 2020; Liu & Volker 2020).

Where are the gaps in the research on employee retention strategies?

- **Use of and evidence about STC programs in the United States is limited.** Most of the evidence on STC programs is from other countries with very different economies and social safety nets (OECD 2010). This makes it hard to know how the STC research conducted abroad relates to the United States context (Granja et al. 2020; Humphries et al. 2020; Walsh et al. 1997). Even at the peak of unemployment during the pandemic, less than 1 percent of individuals on unemployment were participating in STC programs (Houseman 2020). In contrast, in Germany, STC use increased dramatically from 3.4 percent in March 2020 to over 12 percent in May 2020 (Möhring et al 2020).

  More research is needed to understand the low uptake of STC in the United States and to test methods to address employer gaps in knowledge or other concerns with using STC. Because the pandemic is forcing many businesses to operate at reduced capacity to enable social distancing, STC may be a particularly appropriate policy intervention (Guipponi & Landais 2020). Although existing evidence suggests that there are ways to increase employer participation in STC in the United States, such as through active marketing of the program by states and finding ways to make the program easier and less costly for employers to administer, these strategies have not been rigorously tested across multiple states (Abraham & Houseman 2014; Houseman et al. 2017; von Wachter 2020; Walsh et al. 1997).

- **Research on the impact of temporary layoffs and furloughs on macroeconomic, employer, or employee outcomes is limited.** Despite the use of furloughs across the public and the private sectors, there is limited evidence of the efficacy of this approach relative to layoffs or other strategies such as STC. More research is needed to evaluate the long-term effects of countries' various forms of employment protection programs. Comparative evidence is also needed on the extent to which countries with more generous benefits or strict employer protections relate to outcomes for businesses, employees, and labor markets.
- **It is hard to know how existing evidence of these strategies translates to a global pandemic context.** Much of the evidence cited in this brief is based on analysis of the Great Recession and the ensuing recovery. The labor market disruptions caused by COVID-19 are qualitatively and quantitatively different than occurred in the Great Recession and even in the Great Depression. Economists and leading financial analysts suggest that conditions caused by the COVID-19 pandemic might be more akin to a natural disaster than the precipitating and resulting factors of other historic downturns such as those two (Burke et al. 2020). Additionally, the policy responses of many countries to the pandemic, including the United States, are unlike any previous policy response to an economic crisis in scale, further muddling comparisons to previous policies or time periods.
- **The impacts of the pandemic and resulting economic contraction are affecting groups differently.** A mounting number of studies are showing the disparate and negative impacts of COVID-19 on the health and economic well-being of groups already disadvantaged, such as low-income earners, Black workers, women, and younger workers (Andreason 2020; Anders & Macmillan 2020; Byrne et al. 2020; Piyapromdee & Spittal 2020). Some subject matter experts are urging adoption of policy responses targeted to the groups most impacted by the pandemic and economic hardships (Fujita et al. 2020; Gonzalez-Uribe & Wang 2020).

Rapid Evidence Review Supplement: Citations and Further Information

This supplement to the rapid review, "What policies help businesses retain employees during an economic downturn?" provides citations and brief summaries of the studies discussed in the rapid review. The final section describes the approach used to create the rapid review.

CITATIONS AND STUDY SUMMARIES

This supplement presents the citations and summaries using the same organization as the rapid review with an additional category for other literature cited in the gaps in the research section. Each citation is included in each section in which it was referenced (which could be more than one), though the study is summarized only on first appearance. The subsections are as follows:

1. Work share or short-time compensation
2. Temporary layoffs and furloughs
3. Employment protection programs
4. Gaps in the research

1. Work share and short-time compensation

Abraham, K. G., & Houseman, S. N. (2013). Short-time compensation as a tool to mitigate job loss? Evidence on the U.S. experience during the recent recession. *Industrial Relations, 53*(4), 543–567. https://research.upjohn.org/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1198&context=up_workingpapers

- Type of research: Descriptive (quantitative)
- The authors examined the relationship between short-time compensation (STC) and employment by looking at aggregated employment outcomes for **U.S. states** with STC compared to states without STC from **2005 to 2009**. They focused mainly on companies in the manufacturing sector, as this industry is a frequent user of STC. Using **Current Employment Statistics data** from the Bureau of Labor Statistics and **regression models,** the authors found that in states with STC, the hours for manufacturing employees were reduced but employment did not decline. This was especially true during 2008 and 2009. The authors argue that greater use of the STC program would have had a greater impact on aggregate job losses in the 17 states with STC.

Abraham, K. G., & Houseman, S. N. (2014). Proposal 12: Encouraging work sharing to reduce unemployment. *Policies to Address Poverty in America*, 129. https://www.hamiltonproject.org/assets/legacy/files/downloads_and_links/work_sharing_abraham_houseman.pdf

- Type of research: Other (subject matter expert policy paper)
- The authors' goal was to present recommendations to the federal government on how to increase the use of work share in the **United States**. Drawing on their expertise and a review of the existing

literature, the authors advise the government to take these steps to encourage the use of work share over layoffs:

1. Make work-sharing a requirement for state UI programs.
2. Change requirements to discourage state provisions that may discourage employer participation.
3. Provide states with the capacity and funding to promote their programs.
4. Subsidize payments during economic downturns.

Andreason, S. (2020). *COVID-19, workers, and policy*. Center for Workforce and Economic Opportunity, Federal Reserve Bank of Atlanta. https://www.frbatlanta.org/cweo/workforce-currents/2020/03/18/covid-19-workers-and-policy.aspx

- Type of research: Other (policy paper)
- This author used **Bureau of Labor Statistics data** from **2017 and 2018** to compare employees who can work remotely with those who cannot and attempts to identify approaches to support those unable to work remotely. The author provides statistics showing that less than 30 percent of **U.S.** employees can work remotely and that some who can are not able to do so consistently. Further, many employees who cannot work remotely do not have adequate paid time off (PTO) allocated to them. The author suggests that viable options to ensuring job security as a result of the pandemic include state and employer expansion of PTO, expanding the Family and Medical Leave Act to include compensation for daily expenses, providing rapid response services (such as job training, referrals, and income supports), providing discretionary grants for dislocated workers, unemployment insurance (UI), and work-sharing programs.

Arranz, J. M., Garcia-Serrano, C., & Hernanz, V. (2018). Short-time work and employment stability: Evidence from a policy change. *British Journal of Industrial Relations, 56*(1), 189–222. https://onlinelibrary.wiley.com/doi/abs/10.1111/bjir.12250

- Type of research: Causal (quasi-experimental)
- The authors examined whether short-time work (STW) programs achieve their goal of preserving jobs and keeping workers employed in **Spain**. They used **administrative data from the Continuous Sample of Working Life**, an **instrumental variable approach**, and **difference-in-differences regression** models to analyze the effects of an STW intervention on Spanish workers in **2009**. The authors found no significant impact of the intervention on the likelihood of remaining employed with the firm after one year and a negative relationship after two to three years. Specifically, the probability declined 4 percent after a year and 8 percent three years later.

Balducchi, D. E., Wandner, S. A., Goger, A., Miller, Z., Shetty, S., Agbayani, C., & Eucogco, J. (2016). *Employer views about the short-time compensation program: A survey and analysis in four states Final report* (Contract Number: DOLQ121A21885. Task Order: DOLU121A21916.) U.S. Department of Labor, Employment and Training Administration. https://wdr.doleta.gov/research/FullText_Documents/ETAOP-2016-01_Final-Report-Acc.pdf

- Type of research: Descriptive (quantitative)

- The authors conducted a **survey of 2,415 employers** (77 percent using STC and 33 percent not using it) from four states (**Kansas, Rhode Island, Minnesota, and Washington**) to investigate the awareness of, participation in, and perceptions of the STC program. They found that knowledge about and use of STC programs was limited, but both employers and employees who participated in the program were satisfied with it. Uptake was highest within the manufacturing sector and among businesses with skilled workers.

Balleer, A., Gehrke, B., Lechthaler, W., & Merkl, C. (2015). Does short-time work save jobs? A business cycle analysis. *European Economic Review, 84*, 99–122. https://econpapers.repec.org/article/eeeeecrev/v_3a84_3ay_3a2016_3ai_3ac_3ap_3a99-122.htm

- Type of research: Descriptive (quantitative)
- The authors conducted a case study to explore the relationship between STW and unemployment in **Germany**. The authors used **Institute for Employment Research Establishment Panel** data, a representative panel-survey of German high ranked managers and **simulation models** to look at the differences between the base model of STW (rule-based STW) and discretionary components to the STW program. They found support for a direct positive effect of STW on unemployment within the rule-based component but not for the discretionary interventions.

Bauermann, T. (2020). *Governmental policies to reduce unemployment during recessions: Insights from ABM*. (Ruhr Economic Papers #847). https://www.econstor.eu/bitstream/10419/217260/1/1698260466.pdf

- Type of Research: Descriptive (quantitative)
- The author used **simulation models** to investigate the efficacy of three common policy options governments can use to counteract the impacts of an impending recession: (1) reducing unemployment benefits while increasing job search requirements; (2) increasing fiscal stimulus through cash transfers; and (3) increasing use of STW. Using an agent-based macroeconomic model, the author simulated the impact of each policy option on rates of unemployment in **Germany**. The author had several findings. First, reducing unemployment benefits has no effect on unemployment in the short-term and limited effects in the long-term; offering higher unemployment benefits leads to long-term increases in unemployment. Second, fiscal stimulus and STW policies both decrease short-term unemployment. Third, while fiscal stimulus and STW both support economic recovery by stabilizing demand, STW has the added benefit of stabilizing the supply side by allowing firms to adjust their output to meet shifts in demand.
- Related citation: Bauermann, T. (2020). Times of crises and labour market reforms. In H. Verhagen , M. Borit, G. Bravo, & N. Wijermans (Eds.), *Advances in social simulation* (pp. 63–69). Springer Proceedings in Complexity series. Springer. https://link.springer.com/chapter/10.1007/978-3-030-34127-5_6

Boeri, T., & Bruecker, H. (2011). Short-time work benefits revisited: Some lessons from the Great Recession, *Economic Policy, 26*(68), 697–765. https://www.econstor.eu/bitstream/10419/52126/1/66530885X.pdf

- Type of research: Causal (quasi-experimental)
- The authors used **OECD (2010) data** from **1970 to 2009** to examine the impact of STW in several countries during the Great Recession. The authors also used data from the **Institute for**

Employment Research Establishment Panel from **Germany** to do a micro-level analysis of the impact of STW there. Using **instrumental variables** in both sets of analyses, the authors found that STW contributed to reduced job losses during the crisis. However, the number of jobs saved was smaller than the full-time equivalents of jobs impacted, suggesting that there may have been some deadweight costs associated with these programs. Additionally, the authors claim that other institutions, like plant-level bargaining over hours, wages, and employment levels may be more effective than STW. Lastly, the authors caution that the STW programs vary greatly across countries.

Burchell, B., Wang, S., Kamerāde, D., Bessa, I., & Rubery, J. (2020). Cut hours not people: No work, furlough, short hours, and mental health during COVID-19 pandemic in the UK (Working Paper). University of Salford–Manchester. http://usir.salford.ac.uk/id/eprint/57487/1/V6%20Draft%20COVID%20paper%20GHQ-12%20and%20employment%2020200629.pdf

- Type of research: Descriptive (quantitative)
- This paper examines the relationship between the economic downturn and mental health during the **COVID-19 pandemic** in the **United Kingdom**. Using survey data from the **Understanding Society COVID-19 Study and the General Health Questionnaire**, the authors calculated **descriptive statistics** and used **regression models** to examine how exiting paid work related to mental health. The authors found a strong correlation between unemployment and poor mental health, even after controlling for other factors. Further, having some work was correlated with better mental health than having no work at all. In the context of COVID-19, those who were furloughed as part of the Coronavirus Job Retention Scheme (CJRS), meaning they maintained their connection to their employer, and those who moved to part-time employment reported comparable levels of mental health as those employed full time, with similar patterns for men and women. This suggests that the CJRS and work share are effective in mitigating mental health deterioration.

Burda, M. C., & Hunt, J. (2011). *What explains the German labor market miracle in the Great Recession?* Brookings Institution. https://www.brookings.edu/wp-content/uploads/2011/03/2011a_bpea_burda.pdf

- Type of research: Descriptive (quantitative)
- In this descriptive study, the authors explore the extent that STW and work-time accounts contributed to **Germany's** recovery **during the Great Recession**. Using **regression models** with data from the **German Federal Statistical Office** and the **Institute for Economic Research**, they found that STW and the use of work-time accounts were associated with large reductions in person-work hours during the recession. Work-time accounts allow employees to acquire PTO instead of overtime pay. This benefits the employer by deferring labor costs (they get the labor in the present but defer payment to the future). Germany's policy that requires employers to pay workers for any overtime/PTO they have if they are laid off incentivizes employers to avoid laying off workers.

Cahuc, P., & Carcillo, S. (2011). Is short-time work a good method to keep unemployment down? *Nordic Economic Policy Review, 1*(1), 133–164. http://norden.diva-portal.org/smash/get/diva2:701988/FULLTEXT01.pdf

- Type of research: Causal (quasi-experimental)
- The authors used **OECD (2010) data** on **25 OECD countries between 2007 and 2009** on STW take-up rates and unemployment and employment quarterly data to investigate whether STW is a good method to keep unemployment down. Using an **instrumental variable method**, they found that STW programs used in the Great Recession had significant beneficial effects in preserving employment. However, the authors note that STW programs can also induce inefficient reductions in working hours and hence impede economic recovery.

Cahuc, P., Kramarz, F., & Nevoux, S. (2018). When short-time work works. *SSRN Electronic Journal*. Sciences PO Economics Discussion Paper 2018-03. https://spire.sciencespo.fr/hdl:/2441/6596a4s9af8lt872jnqvm5jg73/resources/2018-cahuc-et-al-when-short-time-work-works.pdf

- Type of research: Causal (quasi-experimental)
- The authors examined how STW programs affected the employment rate in **France during the Great Recession**. Using a regression model and a **causal identification strategy based on the geography of the program**, they found that STW had a positive (but not significant) effect on employment growth and a positive, significant impact on the share of permanent jobs maintained and the survival of credit-restrained firms that faced large negative revenue shocks. The authors did not find impacts for firms that faced smaller revenue shocks.

Cahuc, P., & Nevoux, S. (2019). *Inefficient short-time work*. Sciences PO Economics Discussion Paper 2019-03. https://spire.sciencespo.fr/hdl:/2441/68ufmnnh3j9vmblf03huqt18qe/resources/2019-cahuc-and-nevoux-inefficient-short-time-work.pdf

- Type of research: Causal (quasi-experimental)
- The authors examined whether the STW subsidy reforms following the **2008–2009 Great Recession** were an efficient use of public funds in **France**. They focused on firms that used STW between **2002 and 2014**. The authors exploited seasonal variation in employment and an **instrumental variable approach** to demonstrate increased use of STW from 2008 to 2014 and that reducing the use of systematic STW would have been economically efficient. They conclude that more research is needed to better understand the best combination of UI policies to maximize use of STW among firms that need it without encouraging the use of the policy by firms that do not need it.

Dias da Silva, A., Dossche, M., Dreher, F., Foroni, C., & Koester, G. (2020). *Short-time work schemes and their effects on wages and disposable income*. European Central Bank: Eurosystem. https://www.ecb.europa.eu//pub/economic-bulletin/focus/2020/html/ecb.ebbox202004_06~6b0e718192.en.html

- Type of research: Descriptive (quantitative)
- The authors suggest that STW schemes are effective in cushioning the economic decline in the **European Union** resulting from the **COVID-19 pandemic**. Using data from the **European Central**

Bank and other sources, they analyzed the STW policies of the five largest countries in the European Union (**Germany, Italy, Spain, France, and the Netherlands**). They calculated wage-replacement rates (the percentage of annual income that is replaced by STW compensation) and estimate STW take-up rates (the percentage of people eligible for compensation benefits who take advantage of it). While the impacts of STW were found to vary according to the extent of reduction in working time, the authors conclude that STW benefits are significantly mitigating the negative effects of the pandemic on households' disposable income while also reducing income uncertainty.

Eyméoud, J. B., Petrosky-Nadeau, N., Santaeulàlia-Llopis, R., & Wasmer, E. (2021, February). *Contrasting U.S. and European job markets during COVID-19* (FRBSF Economic Letter 2021-05). Federal Reserve Bank of San Francisco. https://www.frbsf.org/economic-research/files/el2021-05.pdf

- Type of research: Descriptive (quantitative)
- This paper compares the economic responses of the **United States** and **European Union** to the labor market shocks of the **COVID-19 pandemic**. The authors note that in response to the pandemic, U.S. policymakers mainly focused on providing targeted income support to households, while E.U. policymakers mainly supported extensive STW schemes to avoid layoffs. The paper reports that the rise in unemployment was much smaller in the European Union than in the United States, increasing by only 0.4 percentage point in Germany and decreasing by 0.2 percentage points in France (compared to a 11.5 percentage point increase in the United States). However, the change in the total number of work hours was similar, falling 14 percent in the United States and 20 percent in the European Union in the second quarter of 2020, and 9 percent in the United States and 5 percent in the European Union in the third quarter of 2020. In addition, unemployment rose more sharply in the United States within in-person sectors than within telework sectors, but this pattern was not seen in Europe. These results suggest that STW was effective in mitigating unemployment increases during the pandemic. However, given that the pandemic has resulted in a shift from in-person to online economic activity, STW may reduce productive efficiency by lessening workers' incentive to leave lower-productivity firms for jobs in higher-productivity firms.

Elsby, M. W. L., Hobijn, B., & Sahin, A. (2010). *The labor market in the Great Recession*. Brookings Papers on Economic Activity. https://www.brookings.edu/wp-content/uploads/2010/03/2010a_bpea_elsby.pdf

- Type of research: Descriptive (quantitative)
- In this paper the authors used **Job Openings and Labor Turnover Survey data** to examine the long-term effects of the **Great Recession** on the **U.S. labor market**. The authors describe two trends to be wary of: (1) record increases in long-term unemployment yield, which may lead to persistently long-term unemployed workers with weak search effectiveness; and (2) extension of unemployment compensation, which may lead to a modest increase in unemployment.

Gonzalez-Uribe, J., & Wang, S. (2020). *The effects of small-firm loan guarantees in the UK: Insights for the COVID-19 pandemic crisis*. https://juanitagonzalez-uribe.net/wp-content/uploads/2020/05/Gonzalez_Uribe_Wang_13052020.pdf

- Type of research: Causal (quasi-experimental)
- In this quasi-experimental (**instrumental variables**) study, the authors examined the effects of the **Enterprise Finance Guarantee**, a credit guarantee program to encourage lending to small businesses in the **United Kingdom during the Great Recession**. Using a **difference-in-differences approach**, the authors found that after the program launched eligible firms increased their borrowing, profits, survival, productivity, and employment but not their investment. Using an instrumental variables approach, they found that results are driven by firms with employees who have high training costs. Results suggest that the guarantees enabled a small number of firms to retain workers, helping them rebuild the businesses after the crisis. For the COVID-19 crisis, however, the authors conclude that responses based on guarantees alone will leave out poorer workers, who are more likely to have jobs with low training costs.

Guipponi, G. & Landais, C. (2020). *Building effective short-time work schemes for the COVID-19 crisis*. VOX CEPR Policy Portal. https://voxeu.org/article/building-effective-short-time-work-schemes-covid-19-crisis

- Type of research: Other (subject matter expert opinion piece)
- The authors of this blog post argue that the **COVID-19 crisis**, with its mandated reduction in hours of work and massive liquidity crunch for firms, is a textbook case for the use of STW. Taking into account available evidence and the current situation, the authors propose guidelines to effectively implement STW.

Herzog-Stein, A., Horn, G. A., & Stein, U. (2013). Macroeconomic implications of the German short-time work policy during the Great Recession. *Global Policy, 4*, 30–40. https://onlinelibrary.wiley.com/doi/full/10.1111/1758-5899.12054

- Type of research: Descriptive (quantitative)
- In this study, the authors used data from the **Federal Employment Office and Institute for Employment Research** to examine the macroeconomic implications of STW, particularly focusing on the quantification of safeguarded jobs in **Germany during the Great Recession**. Using **macroeconomic models,** the authors found that STW played an important role in safeguarding employment during the economic crisis. However, other policies—such as working time accounts, contractual arrangements on working time reductions, and reductions of overtime—were equally important. The authors conclude that these features of the German employment model are key to understanding the country's success in maintaining employment during the recession.

Hijzen, A., & Martin, S. (2013). The role of short-time work schemes during the global financial crisis and early recovery: A cross-country analysis. *IZA Journal of Labor Policy, 2*(5). https://izajolp.springeropen.com/track/pdf/10.1186/2193-9004-2-5

- Type of research: Causal (quasi-experimental)
- The authors evaluated the impact of STW schemes on labor market outcomes such as employment rates, average hours worked, and total hours worked in **OECD countries during the Great Recession**. **Exploiting variation in take-up rates by country over time**, the authors found that STW increased flexibility in working hours and helped preserve jobs by helping maintain employment and reduce unemployment. However, the authors also found the continued use of STW during the recovery period had a negative effect on employment.

Hijzen, A., & Venn, D. (2011). *The role of short-time work schemes during the 2008–09 recession* (OECD Social, Employment and Migration Working Papers). Organisation of Economic Co-operation and Development. https://www.oecd-ilibrary.org/social-issues-migration-health/the-role-of-short-time-work-schemes-during-the-2008-09-recession_5kgkd0bbwvxp-en

- Type of research: Causal (quasi-experimental)
- The authors evaluated the impact of (STW schemes on employment and average hours worked in **16 OECD countries during the recession of 2008 and 2009**. Using a regression model, the authors exploited **country and time variation in take-up rates** to analyze the quantitative impacts of STW schemes on employment and average hours worked. They found that STW schemes helped preserve permanent jobs and promoted average hour reductions for permanent workers during the downturn. However, the authors did not find any significant impact on the employment and average hours of temporary workers.

Houseman, S. (2020). *IZA COVID-19 crisis response monitoring: United States*. https://www.iza.org/wc/files/downloads/iza_crisismonitor_countryreport_us_202006.pdf

- Type of research: Descriptive (quantitative)
- This report offers updates on the economic status of the **United States** as the country navigates the **coronavirus pandemic**. Citing **official unemployment statistics from the Bureau of Labor Statistics,** the author reports that **as of February 22, 2021**, unemployment has decreased slightly from the 14.7 percent high in mid-April, 2020. As businesses have been allowed to partially reopen, the amount of people claiming UI has fallen. Payroll employment was reported to have fallen by 20.7 million as individuals across industries lost their jobs, with the steepest decline in the leisure and hospitality, education, health, retail, and professional/business service industries. The author also reports that although policies such as the Coronavirus Aid, Relief, and Economic Security (CARES) Act incentivize the use of work share, less than 1 percent of workers receiving UI benefits are part of a work-share program, possibly reflecting workers' low familiarity with work share.

Houseman, S., O'Leary, C. J., Abraham, K. G., Bennici, F., Labin, S., & Sigman, R. (2017). *Demonstration and evaluation of the short-time compensation program in Iowa and Oregon*. W. E. Upjohn Institute for Employment Research. https://research.upjohn.org/cgi/viewcontent.cgi?article=1081&context=externalpapers

- Type of research: Causal (experimental)
- The authors' objective was to assess the effectiveness of an intervention to raise awareness of STC among employers and their interest in and use of it. They conducted a **randomized controlled trial** comparing an intervention to increase use of STC in **Iowa and Oregon**. The authors found that the intervention was more effective in Oregon than in Iowa. While Oregon saw 19 to 24 more plans following the intervention (both among firms already using STC and those new to the program), there was no effect on the use of STC in Iowa. The authors argue that continued outreach about STC will be important, particularly during a recession, until the program becomes well-known.

Kawaguchi, K., Kodoma, N., & Tanaka, M. (2020). Small business under the COVID-19 crisis: Expected short- and medium-run effects of anti-contagion and economic policies. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3634544

- Type of research: Causal (quasi-experimental)
- This paper examines the short-term trade-off between **Japan's** health and economic goals, and potential benefits from the country's containment and economic recovery policies **during the COVID-19 pandemic**. Using data from **a survey of small business managers' expectations about policies and business performance during the pandemic**, the authors used a **regression discontinuity design** to assess the impact of lump-sum subsidy payments to businesses and STW on firms' expectations of survival. The authors found that lump-sum benefits improved firms' perceived chances of survival, but most firms did not use or expect to use STW. STW was not found to impact firms' perceived chances of surviving.

Kopp, D., & Siegenthaler, M. (2019). *Short-time work and unemployment in and after the Great Recession*. KOF Swiss Economic Institute Working Paper 462. https://www.econstor.eu/bitstream/10419/204798/1/1676275878.pdf

- Type of research: Causal (quasi-experimental)
- These authors examined whether the **Swiss** STW program reduced unemployment from **2009 to 2015**. The authors used **quarterly establishment-level panel data and several administrative data sources** to compare changes in permanent layoffs into unemployment and establishment survival and size **for establishments that applied successfully compared with establishments that applied unsuccessfully for STW** (the authors make the case that this group is a valid control group). The authors suggest that STW increases the likelihood of establishment survival and prevents rather than postpones dismissals; their study estimated that the 7,880 establishments treated in 2009 would have dismissed approximately 20,500 workers into unemployment (0.46 percent of the labor force) until 2012 without STW.

Krolikowski, P., & Weixel, A. (2020). *Short-time compensation: An alternative to layoffs during COVID-19* (Economic Commentary). Federal Reserve Bank of Cleveland. https://www.clevelandfed.org/en/newsroom-and-events/publications/economic-commentary/2020-economic-commentaries/ec-202026-short-time-compensation.aspx

- Type of research: Descriptive (quantitative)
- This report examines the costs and benefits of STC. Using **UI claims data from the U.S. Department of Labor**, the authors **describe** the prevalence, costs, and benefits of STC during the Middle Class Tax Relief and Job Creation Act (**2012**) and the CARES Act (**2020**). The number of states with STC programs has remained constant at 27 for the previous eight years, including during the COVID-19 pandemic, but STC use increased after the passage of the CARES Act (from 0.2 percent before the pandemic to a high of 0.8 percent in July 2020; it has remained at 0.7 percent as of September 2020). The authors attribute most of this rise to the increased use of STC in **Michigan and Washington**. For example, STC utilization increased by more than 7 percent in Michigan. The authors further report that the STC saves jobs and prevents firm failure and job destruction, while costing less than other hiring subsidies. In contrast, they note that STC might be

more expensive to employers than layoffs, hinders the reallocation of workers from failing firms to expanding firms, and could induce a firm's brightest workers to leave.

Lepage-Saucier, N. (2016). The consumption response to temporary layoffs and hours losses. *Labour Economics, 41,* 177–193. https://www.sciencedirect.com/science/article/pii/S0927537116300525

- Type of research: Causal (quasi-experimental)
- The article examines the influence of labor market displacement on consumption among households in the **United States**. Using data from the **Current Population Survey**, the author calculates **regressions and uses propensity score matching** to compare households' consumption expenditures, specifically comparing households with employed, temporarily laid-off, and recalled workers (those with a known recall date) **since 2001**. The article reports that workers on layoff decreased consumption by 17 percent, while recalled workers decreased consumption by 13 percent. There was no reported change in consumption when workers suffer reductions in working hours as opposed to being laid off. Regarding job loss due to firm closure, workers who return to work show no differences in consumption from those who never lost their job, while those who remain unemployed decreased consumption by 18 percent. These results suggest that policies encouraging temporary reductions in working hours hold promise, as reductions in hours do not negatively affect household consumption.

Organisation for Economic Co-operation and Development (OECD). (2010). *OECD employment outlook 2010: Moving beyond the jobs crisis*. OECD Publishing. http://www.oecd.org/employment/emp/48806664.pdf

- Type of research: Causal (quasi-experimental)
- This book chapter discusses **the OECD (2010)** updated findings on labor markets developments and policy responses in its participating countries during, and in the recovery phase of, the **recession of 2008 and 2009**. Using **cross-country variation in take-up rates as an instrument,** OECD found that in many countries STW schemes played an important role in preserving jobs during the crisis. Effects were particularly large in **Germany** and **Japan**, where OECD estimates STW accounts saved over 200,000 and nearly 400,000 jobs respectively by the third quarter of 2009. STW also had substantial impacts on employment in **Belgium, Finland, and Italy**. The positive impact on employment was limited to workers with permanent contracts as opposed to temporary or part-time jobs.

Shibata, I. (in press). The distributional impact of recessions: The global financial crisis and the COVID-19 pandemic recession. *Journal of Economics and Business*. https://www.sciencedirect.com/science/article/pii/S014861952030415X

- Type of research: Descriptive (quantitative)
- This article examines the distributional impacts of the **COVID-19 pandemic** in the **United States,** compared with those of **Global Financial Crisis of 2008**. Using data from the **Current Population Survey**, the author calculates **descriptive statistics and regressions** to analyze the characteristics of workers and jobs, as well as wage distribution of workers in the United States between 2007 and April 2020. The article reports that the employment rate for workers ages 21 to 70 fell by 9 percent from January to April 2020 (12 percent when excluding workers who were absent from work). Among those who were still employed, the average number of hours worked decreased by

3.3 percent (1.3 hours). Concurrently, the unemployment rate among this group increased by 9.3 percent during the same period (13.5 percent when including those who were employed but absent from work). In contrast to the Global Financial Crisis, workers in the service sector suffered the most during the pandemic. However, patterns of change in hours worked were reportedly very similar between the two recessions. Whereas workers in teleworkable occupations were insulated during both recessions, non-teleworkable occupations were much more severely affected during the current recession. Nearly all industries (with the exception of agriculture, construction, and financial sectors) have seen a sharper increase in unemployment in this recession than the previous. Further, the unemployment rate of social industries (those that usually require face-to-face interactions to conduct business, for example, retail, restaurants, and so on) is almost twice that of non-social jobs during the current recession, while the hours worked have sharply declined. Permanent job losses reportedly comprised less than 2 percent in total change in unemployment, whereas temporary layoffs were close to 50 percent. On the other hand, permanent layoffs comprised 40 percent of the change in unemployment during the Global Financial Crisis. These results suggest that the pandemic recession had different effects on the labor market than did the Global Financial Crisis.

Skuterud, M. (2007). Identifying the potential of work-sharing as a job-creation strategy. *Journal of Labor Economics, 25*(2), 265–287. https://econpapers.repec.org/article/ucpjlabec/v_3a25_3ay_3a2007_3ap_3a265-287.htm

- Type of research: Causal (quasi-experimental)
- The author evaluated the impact of **Quebec's** work-sharing policy on job creation. Using data from the **Canadian Labour Force Survey** between **1996 and 2002**, and a **triple-difference approach**, the author observed a 20 percent decrease in weekly hours of work beyond 40 among full-time, hourly, non-unionized workers. Further, evidence suggests that the policy failed to raise employment at either the provincial level or within industries.

Steiner, V., & Peters, R.-H. (2000). *Employment effects of work sharing: An econometric analysis for West Germany*. ZEW Discussion Papers 00-20, ZEW–Leibniz Centre for European Economic Research. https://ideas.repec.org/p/zbw/zewdip/5305.html

- Type of research: Descriptive (quantitative)
- The authors examined the effects of a reduction in weekly hours in the **West German manufacturing industry** on employment from **1978 to 1995** using **econometric models** based on industry panel data. For the analysis, they categorized workers into unskilled, medium-skilled, and high-skilled groups. Based on wages, they found no direct employment effect from a reduction in weekly hours for any group. However, after adjusting wages for income lost due to the reduction, the authors found an indirect negative effect on employment for unskilled and medium-skilled groups and that the negative effect was stronger for unskilled workers.

Walsh, S., London, R. A., McCanne, D., Needels, K., Nicholson, W., & Kerachsky, S. (1997). *Evaluation of short-time compensation programs: Data set* (No. 7b239a4765ab4852bbc552adc75b74a0). Mathematica Policy Research. https://www.mathematica-mpr.com/-/media/publications/pdfs/labor/short-time_compensation_fnlrpt.pdf

- Type of research: Causal (quasi-experimental)

- The authors focused on STC programs implemented in **California, Florida, Kansas, New York, and Washington** in **1992**. Using a **matched comparison group** approach, they analyzed the effects of STC on employees by comparing participating states to their matched non-participating states. The authors found that among firms using STC, layoffs remained the primary workforce reduction strategy and that firms continued to lay off employees while using STC. These firms had substantially higher average UI charges compared to STC charges, and experienced higher UI charges than firms that did not use STC. STC did not appear to benefit ethnic and racial minorities, young people, or women, and there was no evidence that STC disproportionately protected the jobs of these groups. On a positive note, the authors found that STC does not appear to threaten the solvency of state Unemployment Trust Funds. STC benefits were at least fully experience rated as other UI benefits and were quickly regained through higher taxes. However, the authors concluded that Unemployment Trust Funds impacts could be more serious if STC participation rates were much higher and overall shifts in tax schedules more constrained.

2. Temporary layoffs and furloughs

Adams-Prassl, A., Beneva, T., Golin, M., & Rauh, C. (2020). *Furloughing* (Cambridge Working Papers in Economics: 2079). University of Cambridge, Faculty of Economics. http://www.econ.cam.ac.uk/research-files/repec/cam/pdf/cwpe2079.pdf

- Type of research: Descriptive (quantitative)
- This paper describes the characteristics of furloughed workers. Using **two waves (April 9–11, 2020, and May 20–21, 2020) of real-time survey data**, the authors calculate **descriptive statistics and correlations** to analyze which groups of workers were most likely to be affected by furloughs under the CJRS in the **United Kingdom during the COVID-19 pandemic**. The paper reports that those older than 30, women, and mothers were significantly more likely to be furloughed under the CJRS. Although no gender gaps existed in the decision to initiate furloughs among childless workers (that is, men and women without children were equally as likely to begin the furlough process), women were less likely to have their salary sufficiently replaced. Additionally, workers without sick leave were significantly less likely to return to work, and furloughed workers were less optimistic about their future job prospects than non-furloughed workers. The authors suggest that work-share and furlough schemes such as CJRS are likely to have significant consequences for vulnerable workers.

Baranik, L. E., Cheung, J. H., Sinclair, R. R., & Lance, C. E. (2019). What happens when employees are furloughed? A resource loss perspective. *Journal of Career Development, 46*(4), 381–394. https://journals.sagepub.com/doi/pdf/10.1177/0894845318763880

- Type of research: Descriptive (quantitative)
- The authors examined how furloughs affect employees' well-being (level of burnout, work–family conflict, and life satisfaction). Their descriptive study is based on **surveys** of 221 **U.S.** workers employed at the time of the survey in **2013,** the year of a federal government shutdown. **Using descriptive statistics**, the authors suggest that a furlough was associated with the loss of resources, which was related to decreases in life satisfaction and increases in work-family conflict and burnout five weeks after the shutdown ended. They found that individuals who perceived the

furlough as causing greater resource loss had more negative reactions to being furloughed. The authors suggest that their findings demonstrate that furloughs can negatively affect employees and that these effects persist after the furlough has ended.

Boccia, R., Burke, L., Burton, D., Greszler, R., Michel, A., Michel, N., Schwalbach, J., Sheppard, P., & Winfree, P. (2020). *Congress should focus on pandemic control and fix the CARES Act for an economic rebound*. Heritage Foundation Backgrounder No. 3484. http://report.heritage.org/bg3484

- Type of research: Other (policy paper)
- The authors of this report highlight problems with the **Paycheck Protection Program (PPP)** and recommend changes. Specifically, the authors advise the **United States** Congress to focus on containing the coronavirus through targeted, temporary measures that keep workers attached to employers and avert widespread business failures. Further, they argue that stimulus spending on unrelated projects would do nothing to reduce the virus's spread and will likely impede economic recovery. The authors caution Congress to fix problems introduced in the hastily drafted CARES Act.

Browning, M., & Crossley, T. F. (2008). The long-run cost of job loss as measured by consumption changes. *Journal of Econometrics, 145*(1), 109–120. https://www.sciencedirect.com/science/article/pii/S0304407608000560

- Type of research: Causal (quasi-experimental)
- This study attempts to quantify the costs of job displacement, specifically temporary versus permanent layoffs. Using data from the **Canadian Out-of-Employment Panel survey**, the authors **construct a theoretical framework** and use **propensity score matching** to compare the consumption growth of temporary layoffs to those of permanent layoffs among Canadian workers from **1993 to 1995**. The article reports an average consumption loss of 2.5 percent among workers temporarily laid off and a 3.1 percent loss among workers permanently laid off. Taking propensity score matching into account, the average consumption loss among permanently laid off workers increases to 6.4 percent. Older workers and workers with high job tenure reported large decreases in consumption if laid off permanently. These results suggest that consumption losses are not only stronger among permanent layoffs but are permanent given the robustness of the effects.

Burchell, B., Wang, S., Kamerāde, D., Bessa, I., & Rubery, J. (2020). See description in Section 1.

Bureau of Labor Statistics. (2021). Temporary layoffs remain high following unprecedented surge in early 2020. *TED: The Economics Daily*. https://www.bls.gov/opub/ted/2021/temporary-layoffs-remain-high-following-unprecedented-surge-in-early-2020.htm?view_full

- Type of research: Descriptive (quantitative)
- This article summarizes unemployment in the **United States during the COVID-19 pandemic**. Using data from its **Current Population Survey**, the author calculates **descriptive statistics** to characterize unemployment **from 2020 and 2021**. Unemployment reportedly rose by 1.5 million in March 2020, with temporary layoffs constituting a majority of the increase, and further increased by 16 million in April 2020. Although the number of unemployed people began to decrease in

May, the number of people who permanently lost their jobs and reentrants to the labor force increased in June. By October 2020, the number of people who permanently lost their jobs was higher than that of temporary layoffs (3.6 million versus 3.2 million). By 2021, temporary layoffs accounted for 25 percent of unemployed people, while permanent job losses accounted for 33 percent of unemployed people. These results provide a glimpse into how the COVID-19 pandemic has affected the U.S. labor market.

Eichhorst, W., Marx, P., & Rinne, U. (2020, October). Maneuvering through the crisis: *Labor market and social policies during the COVID-19 pandemic* (IZA Policy Paper No. 164). IZA Institute of Labor Economics. http://ftp.iza.org/pp164.pdf

- Type of research: Descriptive (quantitative)
- This paper examines variations in the economic impact of the **COVID-19 pandemic** on different countries, socio-economic groups, and sectors. The authors note that the **United States** has seen the steepest decrease in employment, with no substantial increases in the use of STW in comparison to the **United Kingdom and countries in the European Union**. Job market disruptions appear similar across countries at the sector level and are concentrated among low-skilled workers and sectors most affected by the lockdown. The authors also note that, across all countries, unemployment benefits have considerably expanded, highlighting the need for policy measures to guide the implementation of benefits programs going forward. To this end, the authors recommend using digital tools to increase resilience among economic shocks, taking a long-term perspective of STW during the pandemic, establishing social protection for self-employed workers, and developing stronger models for school-to-work transition for younger workers.

Ginsburg, J. A., & Liu, Y. (2010). *Layoffs and alternatives to layoffs*. Worcester Polytechnic Institute. https://digitalcommons.wpi.edu/iqp-all/2451

- Type of research: Descriptive (quantitative and qualitative)
- In this descriptive study, the authors assessed the effects of layoffs and alternatives to layoffs. The authors conducted **surveys with a nonrepresentative sample of 325 U.S. firms** to describe the effects of layoffs and their alternatives, their uses in industry, and their impact on firms. Using **descriptive statistics and regression models**, they explored whether alternatives were used more frequently than layoffs, whether layoffs and alternatives were effective at cutting costs, and whether a company's culture played any role in whether the firm chose layoffs over alternate strategies. Layoffs were the most frequently used cutback strategy among the 54 firms that responded (a response rate of 16 percent).

Gonzalez-Uribe, J., & Wang, S. (2020). See description in Section 1.

Hall, R. E., & Kudlyak, M. (2020, December). *Unemployed with jobs and without jobs* (NBER Working Paper 27886). National Bureau of Economic Research. https://www.nber.org/system/files/working_papers/w27886/w27886.pdf

- Type of research: Descriptive (quantitative)
- This paper examines characteristics of unemployment in the **United States** labor market **during the COVID-19 pandemic**, comparing said characteristics to those of other recessions. Using data

from the **Current Population Survey** and **unemployment data from employers**, the authors calculate **descriptive statistics** to compare recall unemployment (those who are on furlough or temporary layoff) and jobless unemployment (those who have permanently lost their jobs) from 1965 to 2020. The paper reports that among other recessions, jobless unemployment rose to 9 percent of the labor force. In comparison, during the pandemic, recall unemployment rose to 11.5 percent (constituting 78 percent of all unemployment), whereas jobless unemployment rose to 3.2 percent. The recall unemployment rate increased another 10.1 percentage points from March to April 2020. From its April 2020 peak, the aggregate unemployment rate declined by 8.1 percentage points, whereas the recall unemployment rate declined by 9.8 percentage points. By November 2020, total unemployment was 6.7 percent (1.7 percent recall, 4.9 percent jobless), and recall unemployment constituted 26 percent of total unemployment. The work-finding rate for recall-unemployed people was reportedly double that of jobless-unemployed people. These results suggest that the pandemic recession was largely dominated by temporary layoffs in comparison to other recessions, which allowed the total unemployment rate to decline faster than in other recessions.

Handwerker, E. W., Meyer, P. B., & Piacentini, J. (2020, December). Employment recovery in the wake of the COVID-19 pandemic. *Monthly Labor Review*. https://www.bls.gov/opub/mlr/2020/article/employment-recovery.htm#:~:text=From%20April%20to%20July%2C%20this,employment%20more%20quickly%20than%20others

- Type of research: Descriptive (quantitative)
- This article analyzes factors that have influenced labor market recovery in the **United States** during the coronavirus pandemic. Drawing from research conducted **since March 2020**, the article notes that job losses during the pandemic have not been this large since World War II, with twice as many jobs lost in March and April 2020 than in the entire 2007–2009 Great Recession period. From February to April 2020, 22 million people lost their jobs, with the majority on temporary layoff. This number decreased to around 11 million in November as workers were recalled, though the number of permanent losses increased from 5 to 8 million during this time. Telework was significant in protecting some jobs, with the unemployment rate increasing by 6 percent for telework jobs compared to 14 percent for non-telework jobs. These results suggest that although the economy experienced a significant recovery through the recall of temporary layoffs, recovery has since slowed as many layoffs became permanent and future recovery might continue to be slow.

Jacobs, K. (2009). The high cost of furloughs. University of California, Berkeley, Center for Labor Research and Education. http://laborcenter.berkeley.edu/pdf/2009/furloughs09.pdf

- Type of research: Descriptive (quantitative)
- In this brief, the author assessed how furloughs are an inefficient method for addressing budget deficits. The author used **descriptive statistics** to analyze data from the **Office of the State Controller** and assess the net savings to the **California** State General Fund for fiscal year **2009–2010**. They conclude that the California state government furloughs in fiscal year 2009–2010 were a particularly inefficient form of budget savings. They state that each dollar cut from the state's

general fund saved less than 37 cents in wages and benefits for that fiscal year, and this savings fell to 11 cents once losses from subsequent years were factored in.

Karpman, M., Zuckerman, S., & Peterson, G. (2020). Adults in families losing jobs during the pandemic also lost employer-sponsored health insurance. Urban Institute.

- Type of research: Descriptive (quantitative)
- This report examines changes in health coverage resulting from unemployment in the **United States** during the COVID-19 pandemic. Using data from the first wave of **Urban Institute's Coronavirus Tracking Survey and the Health Reform Monitoring Survey**, the authors calculate **descriptive statistics** to analyze the change in health care coverage among nonelderly adults from late March/early **April through late May 2020** in **35 U.S. states and the District of Columbia**. The authors reported no significant changes in coverage or the share of adults who were uninsured. However, employer-sponsored health insurance coverage declined by 4.9 percent, coinciding with a 3.5 percent increase in private nongroup coverage among this group. A total of 17.7 percent of adults reported that they or a family member were laid off because of the pandemic. Employer-sponsored health insurance decreased by 4.2 percent in states with Medicaid expansion, but there were insignificant declines in states without Medicaid expansion. These results suggest that although adults across the country have lost health insurance as a result of the COVID-19 pandemic, coverage at the national level has remained relatively stable.

Lee, S., & Sanders, R. M. (2013). Fridays are furlough days: The impact of furlough policy and strategies for human resource management during a severe economic recession. *Review of Public Personnel Administration, 33*(3), 299-311. https://journals.sagepub.com/doi/pdf/10.1177/0734371X13477426

- Type of research: Descriptive (quantitative)
- The authors examined various effects of furloughs on management and employee performance of state-government employees in **Georgia** in **September 2010**. During that time, most state agencies furloughed workers on Fridays, to minimize the loss of productivity and maximize workers' flexibility in using time off. The authors surveyed 273 state employees from five randomly selected state agencies (a response rate of 39 percent). Using **descriptive statistics,** they found a positive, significant correlation between furlough days taken and the severity of the financial burden on employees. Further, a majority of those employees either agreed or strongly agreed that job satisfaction had decreased though their work functioning neither deteriorated nor increased. Most workers either stayed home and relaxed or continued to work on their job assignments, and most planned on searching for another full-time job or secondary job. Further, a majority of sampled workers reported noticing either a moderate or substantial decrease in staff morale. Additionally, the authors found that the financial burden is significantly associated with employees' perception of policy appropriateness, and organizational measures to soften the consequences of furloughs had a significantly positive relationship with employees' perception of policy appropriateness. Agency innovation in dealing with furloughs was an important predictor of employees' perception of policy appropriateness.

Lepage-Saucier, N. (2016). See description in Section 1.

Nekoei, A., & Weber, A. (2015). Recall expectations and duration dependence. *American Economic Review, 105*(5), 142–146. https://www.aeaweb.org/articles?id=10.1257/aer.p20151064

- Type of research: Descriptive (quantitative)
- This article examines the nature of temporary layoffs and recalls and their impact on the length of time on UI benefits. Using administrative data from the **Austrian Social Security Database and UI records**, the authors calculate **descriptive statistics** and **hazard rates** to analyze the impact of temporary layoffs on the duration of UI among **Austrian** workers from **2004 to 2013**, comparing temporary and permanent layoffs. The article reports that, in contrast with workers who were permanently laid off, those who were temporarily laid off had shorter employment tenures, but higher wages, before separation. Almost all recalls were reported to have taken place within six months of layoff. Workers on temporary layoff are, on average, recalled after about 10 weeks and experience a small boost in wages. Workers who are permanently laid off are recalled later (if at all) and at lower wages. Temporarily laid-off workers who expect to be recalled, tend to be on UI benefits for longer compared to other groups of workers, suggesting that these workers are less intensive in their search for new work as they expect to be recalled.

Richtel, M., & Leonhardt, D. (2008, December 21). More companies cut labor costs without layoffs. *The New York Times*. http://www.nytimes.com/2008/12/22/business/22layoffs.html

- Type of research: Other (news article)
- The authors discussed short-term cost-saving alternatives to layoffs that allow organizations to retain their staff, while also saving money during an economic downturn. Authors review voluntary salary reduction, unpaid vacation time, end-of-year shutdowns, four-day workweeks, and benefits reductions, such as 401(k) contributions, as options for organizational savings. These interventions may allow a company to save money in the short-term, while holding on to their staff for when the economy improves. However, making cuts repeatedly may lead to discontent among workers.

Shibata, I. (in press). See description in Section 1.

Sucher, S., & Gupta, S. (2018, May–June). Layoffs that don't break your company. *Harvard Business Review*, 122–129. https://hbr.org/2018/05/layoffs-that-dont-break-your-company

- Type of research: Other (policy paper)
- The authors of this paper discuss alternatives to laying off workers while arguing that poorly planned and poorly reasoned layoffs often fail to meet their cost-saving goals. The authors cite studies that when companies implement layoffs, they often see neutral or negative effects on their stock price, persistent lower profitability, increased chances of filing for bankruptcy, lower worker productivity, lower employee commitment, lower job satisfaction, and higher worker turnover. Layoffs are a short-term solution, but organizations may want to seek longer-term solutions to better sustain themselves in volatile market conditions. As an alternative to layoffs, the authors suggest, organizations may want to consider developing a new long-term strategy and engaging in practices such as overhauling their workforce by retraining employees and aiding workers in pursuing interests that may lead to business development opportunities.

Wolcott, E., Ochse, M. G., Kudlyak, M., & Kouchekinia, N. A. (2020, November). Temporary layoffs and unemployment in the pandemic (FRBSF Economic Letter). Federal Reserve Bank of San Francisco. https://www.frbsf.org/economic-research/files/el2020-34.pdf

- Type of research: Descriptive (quantitative)
- This paper compares unemployment in the **United States during the COVID-19 pandemic** to unemployment **during other recessions**. Using data from the **Current Population Survey**, the authors calculate **descriptive statistics** to compare temporary layoffs to permanent layoffs during the pandemic and contrast these rates with other recessions. The paper reports that at its peak in April 2020, the pandemic resulted in an unemployment rate of 14.7 percent, with temporary layoffs accounting for 11.5 percent of the total. This is significantly larger than unemployment from other recessions at the same time (~ 4.5 percent). During this same period, permanent layoffs were reported to be a large fraction of unemployment, but this fraction decreased in May and June while the fraction of unemployed from temporary layoffs grew. Permanent layoffs were smaller during the pandemic than the Great Recession and its aftermath. These results suggest that the pandemic has been dominated by temporary layoffs rather than permanent layoffs. Although these jobs are more likely to return with improving economic conditions, the authors caution that permanent layoffs are likely to increase if the crisis continues.

Xie, Z. (2020). Changes in state unemployment insurance rules during the COVID-19 outbreak in the U.S. Federal Reserve Bank of Atlanta's Policy Hub No. 02-2020. https://www.frbatlanta.org/-/media/documents/research/publications/policy-hub/2020/04/09/changes-in-state-unemployment-insurance-rules-during-the-covid-19-outbreak-in-the-us.pdf

- Type of research: Other (policy paper)
- The **COVID-19 pandemic** led to an unprecedented expansion in UI eligibility across the **United States**. While more than 40 states had modified UI rules by the end of **March 2020**, all states did not respond in the same way. The author summarizes the changes to state UI rules in response to the crisis and explores factors that contributed to the variation in states' responses. Key findings include: (1) states differ on whether and how they extend UI eligibility to workers who are unable to work due to quarantine, COVID-19 related illness, caring for sick family or at-home children; (2) the service sector share of employment in a state is positively correlated with extended UI eligibility coverage; and (3) the number of confirmed COVID-19 cases is only weakly correlated with UI eligibility expansion while the solvency of a state's UI fund does not limit the expansions.

3. Employment protection programs

Aaronson, S., & Alba, F. (2020, April 15). *The unemployment impacts of COVID-19: Lessons from the Great Recession*. Brookings Institution. https://www.brookings.edu/blog/up-front/2020/04/15/the-unemployment-impacts-of-covid-19-lessons-from-the-great-recession/?preview_id=795224

- Type of research: Descriptive (quantitative)
- The authors used **U.S. UI claims data** and **data from the American Community Survey** from **2005 to 2018** to examine how shocks to the economy, such as the current pandemic, play out at the metropolitan level, specifically focusing on unemployment rate. The authors use **descriptive analysis** to show that there is a persistence in unemployment rates across metropolitan areas, with

a positive relationship between past and current unemployment. Idiosyncratic shocks (like COVID-19) disrupt this persistent relationship, but metropolitan economies adjust over time. Finally, the results show that unemployment rates vary across metropolitan areas, and areas with higher employment rates can better weather economic shocks than those with lower rates. The authors advise policymakers to take these findings into account when providing relief funds and crafting policies to address the current economic downturn.

Atkins, R. M. B., Cook, L. D., & Seamans, R. (2021). Discrimination in lending? Evidence from the Paycheck Protection Program. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3774992

- Type of research: Descriptive (quantitative)
- This paper examines the association between race and loan receipt under the PPP in the **United States during the COVID-19 pandemic**. Using data from the **U.S. Treasury, Federal Deposit Insurance Corporation**, and the **U.S. Census Bureau**, the authors estimate **regressions** to analyze the flow of PPP loans to Black-owned businesses during the pandemic. The paper reports that, in the initial round of PPP loans, Black recipients received PPP loans that were 50 to 55 percent smaller than those received by otherwise similar White recipients. However, Black recipients were reported to receive larger loans than White recipients in the second round of PPP loans. The authors suggest that policy design can influence the racial disparities in receipt of government subsidies.

Ball, J., Betteley, D., Pitt, A., Tyson, T., & Vinson, V. (2020). *Implementing employment support schemes in response to the COVID-19 pandemic*. National Audit Office. https://www.voced.edu.au/content/ngv%3A88365

- Type of research: Descriptive (mixed-methods)
- This audit report assesses the efficacy of Her Majesty's Treasury and Her Majesty's Revenue & Customs departments in implementing the CJRS and the Self-Employment Income Support Scheme (SEISS) in the **United Kingdom during the COVID-19 pandemic**. Using **surveys**, **stakeholder-interviews**, and information from **document reviews**, the authors argue that the departments successfully rolled out the schemes ahead of schedule, despite challenges. They estimate that the CJRS and SEISS helped preserve the jobs of 12.2 million people during the lockdown, with 98.5 percent of claims paid within six working days. However, the authors also note that a combined 2.9 million people were deemed ineligible for the programs, and that there was evidence of significant fraud. The authors conclude by advocating for broader financial support from the government and more substantial mitigation of fraud and error.

Barraza, S., Rossi, M. A., & Yeager, T. J. (2020). *The short-term effect of the Paycheck Protection Program on unemployment*. https://webacademicos.udesa.edu.ar/pub/econ/doc144.pdf

- Type of research: Causal (quasi-experimental)
- This paper aims to establish a causal link between the PPP and the mitigation of unemployment in the **United States during the COVID-19 pandemic**. The authors use **unemployment data, banking data, and PPP data** and **an instrumental variables approach** to examine whether the PPP loans preserved jobs as measured by unemployment records. The paper reports that unemployment decreased from the third quarter of 2020 to the fourth quarter. Further, this decrease was found to have occurred irrespective of differences in the speed of loan processing

and took effect after the PPP was enacted. Based on this, the authors suggest that the PPP played a direct role in mitigating unemployment during the COVID-19 pandemic.

Bauermann, T. (2020). See description in Section 1.

Beinhocker, E. (2020). *Estimating the costs of a U.S. paycheck guarantee*. INET Oxford Working Paper No. 2020-07. https://www.inet.ox.ac.uk/files/Paycheck-Guarantee-Costing-4-14-20-UPDATED.pdf

- Type of research: Descriptive (quantitative)
- The author analyzed **Social Security Administration Wage Statistics data** from **2018** to project the potential fiscal costs of introducing paycheck guarantees in the **United States**. Using **regression analysis**, the author found that a program providing a 100 percent paycheck guarantee for all private sector workers, capped at an annual salary of $100,000 and including health care benefits, would cost approximately $115.7 billion per month, or $347 billion for three months. The author considers the sensitivity of this estimate to various assumptions as well as alternative proposal scenarios and concludes that the benefits of such a program in preserving employment outweigh the fiscal costs.

Belz, S., & Sheiner, L. (2020, March 23). *How will the coronavirus affect state and local government budgets?* Brookings Institution. https://www.brookings.edu/blog/up-front/2020/03/23/how-will-the-coronavirus-affect-state-and-local-government-budgets/

- Type of research: Other (policy paper)
- In this report, the authors examined the effects the **COVID-19 pandemic** may have on state and local government budgets within the **United States**. The authors argue that although states came into the pandemic with record-high rainy-day funds, a pro-longed pandemic may force state governments to reduce spending, adversely affecting people's lives. The authors then identify ways the federal government can support the states financially, drawing upon data and lessons learned from the Great Recession.

Bennedsen, M., Larsen, B., Schmutte, I., & Scur, D. (2020). *Preserving job matches during the COVID-19 pandemic: Firm-level evidence on the role of government aid*. http://ide.mit.edu/sites/default/files/publications/bennedsen_larsen_schmutte_scur.pdf

- Type of research: Descriptive (quantitative)
- The authors examined the economic impact of government policies on firms in **Denmark during the COVID-19 pandemic**. Using **survey data** collected from a nationally representative sample of 10,642 Danish firms of different sizes, the authors found that, compared to a normal year, 25 percent more firms experienced revenue decreases greater than 35 percent. They also examined the portion of firms that received different types of aid (labor-based, fixed-cost support, or fiscal-based tax delays). The authors show that firms that used labor-based aid reported fewer layoffs and more furloughs, although they emphasize that this should not be interpreted as a causal relationship.

Boccia, R., Burke, L., Burton, D., Greszler, R., Michel, A., Michel, N., Schwalbach, J., Sheppard, P., & Winfree, P. (2020). See description in Section 2.

Burke, L., Burton, D., Fishpaw, M., Greszler, R., Michel, A., Michel, N., Sheppard, P., & Winfree, P. (2020). *The Senate's coronavirus bill: Bailouts, missed opportunities, and positive reforms*. Heritage Foundation. Backgrounder No. 3479. http://report.heritage.org/bg3479

- Type of research: Other (policy paper)
- The authors discuss the **United States** government's financial interventions provided under the CARES Act and how they may be improved. Interventions discussed include government loans to air carriers and other large industries, small business loans, labor incentives, direct payments to citizens, grants to improve health care accessibility, and student debt forbearance. The authors outline these interventions along with their positives and negatives, then offer policy alternatives. Those alternatives include targeted sick leave, waiving rules on retirement plan minimum distribution, federal pre-purchasing for goods and services that it can predict it will need in the future, and expanding the CARES Act and Families First Coronavirus Response Act tax credit to businesses with over 500 employees. Such policies may offer direct cash infusions into businesses hobbled by the COVID-19 pandemic by more targeted means that could have better long-term impacts.

Cacciatore, M., Duval, R., Furceri, D., & Zdzienicka, A. (2021). Fiscal multipliers and job-protection regulation. *European Economic Review*, 132. https://reader.elsevier.com/reader/sd/pii/S0014292120302464?token=F1DC81F05D4EC0FA7E1907E1702B782C27FCCD6A582349D5BEB5BA3A9685FEC07A01EBF4DE466564B9AFA8428BC69829

- Type of research: Descriptive (quantitative)
- This article examines how labor market regulation influences fiscal multipliers in the **European** labor market. The authors construct an economic model, which they then apply to a panel of OECD data on **19 OECD countries** from **1985 to 2010** to analyze how employment protection legislation (EPL) influences fiscal multipliers during periods of normal economic activity and recession. The authors use their model to argue that economies with more stringent EPL have smaller fiscal multipliers, meaning that when firms are financially penalized for laying workers off, public spending has a smaller net effect on gross domestic product. The associations within the panel data corroborate this conclusion. These results suggest that fiscal stimulus policies are most effective when firing costs are low.

Casado, M. G., Glennon, B., Lane, J., McQuown, D., Rich, D., & Weinber, B. A. (2020). *The effect of fiscal stimulus: Evidence from COVID-19* (Working Paper No. 27576). National Bureau of Economic Research. http://www.nber.org/papers/w27576

- Type of research: Causal (quasi-experimental)
- This paper evaluates the effects of fiscal policy on local economic activity in **Illinois during the COVID-19 pandemic**, specifically examining the Federal Pandemic Unemployment Compensation (FPUC) supplement. Using data from the **Illinois UI system** and **spending data from Affinity Solutions**, the authors calculated spending and replacement rates to analyze the influence of the FPUC in sustaining local economic activity. The authors use an **instrumental variables approach** and estimate that reducing the FPUC supplement to $400 would cause spending to decrease by 12 percent, while reducing the FPUC to $200 would decrease spending by 28 percent. The results

suggest that wage replacement programs have a significant influence over sustaining economic activity in the wake of the COVID-19 pandemic.

Chetty, R., Friedman, J. N., Hendren, N., Stepner, M., & Opportunity Insights Team. (2020). How did COVID-19 and stabilization policies affect spending and employment? A new real-time economic tracker based on private sector data. http://iepecdg.com.br/wp-content/uploads/2020/06/tracker_paper.pdf

- Type of research: Descriptive (quantitative)
- In this study, the authors used **data from credit card processors, payroll firms, and financial services firms** from the **United States** to construct descriptive statistics on consumer spending, employment rates, business revenues, and other local metrics to estimate the impacts of the federal government's response to COVID-19. The authors show that COVID-19 was associated with a sharp decline in consumer spending by high-income individuals, which reduced revenues of businesses catering to those households (particularly small businesses in affluent areas) and high unemployment claims in these areas. The authors state that stimulus payments and PPP loans had little effect on small businesses and employment. The authors posit that these results suggest that traditional macroeconomic responses to the crisis were not effective and that social insurance may better mitigate the consequences of a pandemic.

Fairlie, R. W., & Fossen, F. (2021, January). Did the $660 billion Paycheck Protection Program and $220 billion Economic Injury Disaster Loan Program get disbursed to minority communities in the early stages of COVID-19? (NBER Working Paper 28321). National Bureau of Economic Research. https://www.nber.org/papers/w28321

- Type of research: Descriptive (quantitative)
- This paper examines whether funds from the PPP and the Economic Injury Disaster Loan (EIDL) Program reached disadvantaged and minority populations in the **United States during the COVID-19 pandemic**. Using loan **microdata from the Small Business Administration**, the authors analyzed the flow of federal loans to businesses **between April 3 and August 8, 2020**. The authors found that the first round of PPP loans was disproportionately dispersed to non-minority communities, while the second round of PPP loans was disbursed more to minority communities. Overall, there was a small, positive correlation between PPP loan receipt and minority population or business share. The authors found a much stronger correlation between EIDL loan receipt and the minority population share. The authors posit that although both PPP and EIDL loans reached minority communities, EIDL loans were more effective in doing so.

Gonzalez-Uribe, J., & Wang, S. (2020). See description in Section 1.

Gonalons-Pons, P., & Gangl, M. (2021). Regulated earnings security: The relationship between employment protection and unemployment scarring over the Great Recession. *Socio-Economic Review*. https://academic.oup.com/ser/advance-article/doi/10.1093/ser/mwaa049/6118376

- Type of research: Causal (quasi-experimental)
- This article examines whether employment protection institutions have negative effects on economies during economic downturns. Using **employment and earnings history data** from **five surveys**, the authors use a **difference-in-differences** model and multilevel regressions to analyze

how employment protection institutions influenced job loss in the **21 countries** from **2004 to 2014**, specifically measuring job losses, monthly earnings, EPL, unemployment rate changes, and other individual- and country-level variables. The article reports that 71 percent of workers who lost their jobs during the observation period found work before the end of the period, and workers who lost jobs experienced an 11 percent reduction in earnings. The article further argues that EPL reduced earnings losses, and that countries with stronger employment protections experienced fewer permanent effects on earnings during economic downturns than countries with weaker employment protections. Although country differences in UI policies and unionization did not have a significant effect on unemployment in the model, supplementary analyses revealed an association between UI and unemployment scarring. These results suggest that EPL is not detrimental for workers, because, although unemployment duration may increase in countries with strong EPL, the positive effects remain strong in times of crisis.

Granja, J. Makridis, C., Yannelia, C., & Zwick, E. (2020). *Did the Paycheck Protection Program hit the target?* No. 27095. National Bureau of Economic Research. https://www.nber.org/papers/w27095.pdf

- Type of research: Descriptive (quantitative)
- The authors used data from **the U.S. Small Business Association and Reports of Condition and Income (Call Reports)** filed by all active commercial banks in the **fourth quarter of 2019** to describe how PPP loans were distributed as of April 15, 2020. The authors contend that the loans did not go to hardest-hit places. They suggest that the top four banks accounted for 36 percent of small business loans before PPP but disbursed less than 3 percent of all PPP loans.

Hubbard, G., & Strain, M. R. (2020). *Has the Paycheck Protection Program succeeded?* (Brookings Papers on Economic Activity). Brookings Institution. https://www.brookings.edu/wp-content/uploads/2020/09/Hubbard-Strain-et-al-conference-draft.pdf

- Type of research: Causal (difference-in-differences)
- This paper examines the effectiveness of the PPP in responding to the economic crisis caused by the COVID-19 pandemic in the **United States**. Using **PPP loan application data** from the Dun & Bradstreet Corporation, the authors estimate **difference-in-differences** models to assess the effects of PPP application and eligibility. The paper reports that applying for PPP is associated with a 0.64 percent increase in employment for businesses with 1 to 250 employees but a 0.96 percent decrease in employment among businesses with 250 to 500 employees. Additionally, PPP eligibility was associated with an increase of 0.17 Paydex points (an index that measures financial health). This effect was found to be stronger for firms with fewer than 400 employees. Further, PPP eligibility was found to have reduced business closures. These results suggest that the PPP has bolstered the survival of small businesses, although it is still too early to rule these results as conclusive.

Humphries, J. E., Nielson, C., & Ulyssea, G. (2020). *The evolving impacts of COVID-19 on small businesses since the CARES Act*. Cowles Foundation Discussion Paper No. 2230. Yale University. https://cowles.yale.edu/sites/default/files/files/pub/d22/d2230.pdf

- Type of research: Descriptive (quantitative)

- The authors present evidence on how small business owners have been impacted by COVID-19 and the passage of the CARES Act. The authors collected **survey data** from more than 8,000 **small business owners** in the **United States between March 28, 2020, and April 20, 2020.** The authors used **descriptive analyses** and reached three main findings:
    1. Surveyed small business owners were already severely impacted by COVID-19-related disruptions by the time Congress passed the CARES Act; 60 percent had already laid off at least one worker.
    2. Business owners' expectations about the future were negative and had deteriorated throughout the study period.
    3. Smallest businesses had less awareness of government assistance programs than larger firms.

Kawaguchi, K., Kodoma, N., & Tanaka, M. (2020). See description in Section 1.

Liu, H., & Volker, D. (2020). *Where have the Paycheck Protection Loans gone so far?* Liberty Street Economics, Federal Reserve Bank of New York. https://libertystreeteconomics.newyorkfed.org/2020/05/where-have-the-paycheck-protection-loans-gone-so-far.html

- Type of research: Descriptive (quantitative)
- In this study, the authors used data from the **U.S. Small Business Administration** and the **U.S. census** to examine the allocation of paycheck protection loans as part of the PPP of the CARES Act. Using **descriptive statistics**, the authors found that some of the hardest hit areas (especially in the Northeast) received fewer loans than states in less affected areas. Further, they found no statistically significant relationship between the severity of economic hardship and the prevalence of PPP loans in a state. The authors provide evidence that the prevalence of PPP loans in a state is influenced by the existence of previous bank financing relationships as well as whether states have a higher proportion of community banks. Overall, the hardest hit industries received the most funding.
    1. Small business owners had already laid off many employees due to disruptions related to COVID-19 by the time Congress passed the CARES Act.
    2. Business owners' expectations about the future were negative and continued to decline through the sample period.
    3. Small businesses may have missed out on initial PPP aid because of lack of awareness.

McGaughey, E. (2020, May 13). *COVID-19 and job security: How to prevent a 'pandemic of unemployment.'* The London School of Economics and Political Science: British Politics and Policy. https://blogs.lse.ac.uk/politicsandpolicy/covid19-job-security/

- Type of research: Other (opinion piece)
- In this blog post, the author argues that job security is the greatest defense against the impending economic depression. The author suggests that the **United States** is in the worst position economically because it has the worst job security in the world. The **United Kingdom** is in a similar (albeit better) position because its job security measures are minimal at best. The author asserts that in order to withstand the coming depression, job security must be increased by

freezing dismissals, creating right-to-work councils, and providing government job guarantees and universal income to employees through the Social Security program.

Maria-Barrero, J., Bloom, N., & Davis, S. J. (2020). *COVID-19 is also a reallocation shock* (NEBR Working Paper No. 27137). National Bureau of Economic Research. https://www.nber.org/papers/w27137

- Type of research: Descriptive (quantitative)
- In this study, authors used firm expectations from the **Survey of Business Uncertainty** to construct reallocation measures for jobs and sales in the **United States.** The authors found that firms expected to hire three new employees for every 10 layoffs caused by COVID-19, and that 42 percent of jobs lost will be permanent. The authors suggest that unemployment benefits that exceed worker earnings, policies subsidizing employee retention, licensing restrictions, and barriers to business formation will hinder reallocation responses to COVID-19.

Organisation for Economic Co-operation and Development (OECD). (2010) See description in Section 1.

Neilson, C., Humphries, J. E., & Ulyssea, G. *Information frictions and access to the Paycheck Protection Program*. (2020). http://arks.princeton.edu/ark:/88435/dsp01p2676z45h

- Type of research: Descriptive (qualitative)
- This paper examines early experiences with the PPP in the **United States**, which was developed to support small businesses affected by the COVID-19 pandemic. Using **daily survey data from more than 14,000 small business owners** in the United States, the authors find that resources from the PPP were administrated disproportionately to larger firms because of lack of broadly available information and its "first-come, first-served" design, and suggest this may have permanently reduced its effectiveness. Survey data on small businesses in the United States show the smallest businesses were less aware of the PPP and less likely to apply; or, if they did apply, it was later, they faced longer processing timelines, and were less likely to have their applications approved. Businesses that did receive aid had fewer layoffs, higher employment, and were more optimistic about the future.

Pardue, L. (2021). *Small business experiences as the Paycheck Protection Program ends: Evidence from covered period expiration*. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3753629

- Type of research: Causal (difference-in-differences)
- This paper examines the impact of the end-of-employment requirements under the PPP on employment in the **United States during the COVID-19 pandemic**. Using **payroll microdata**, the author calculates **difference-in-differences regressions** to characterize trends in hiring and termination practices among firms following the expiration of PPP requirements to maintain firm headcount. The paper reports that employment decreased by 1.6 percent in the four weeks after PPP coverage expired, primarily driven by increases in employee terminations. Hiring was also reduced by 200 percent. Impacts were larger for firms in counties hardest hit by the pandemic. These results suggest that as coverage under PPP expired, firms were no longer incentivized to maintain a steady number of employees.

Santellano, K. (2021). Compounded inequality: How the U.S. Paycheck Protection Program is failing Los Angeles Latino small businesses. *Ethnic and Racial Studies, 44*(5), 794–805. https://www.tandfonline.com/doi/epub/10.1080/01419870.2020.1844265?needAccess=true

- Type of research: Descriptive (qualitative)
- This article examines the experiences faced by Latino American businesses accessing loans under the PPP in the **United States during the COVID-19 pandemic**. The author conducted **interviews with Latino-owned coffee shops in the Los Angeles** area to highlight the challenges firms faced in accessing PPP funds during the pandemic. The author applies Feagin's conceptualization of institutional racism to highlight racial disparities in access to funds. Interviewees reported an intentional lack of clarity with the process, described as being "given the runaround." It was difficult for many to apply, given busy schedules and a lack of help with the process. These issues compounded the already present difficulty of Latino owners in establishing and maintaining their businesses. Even if they received PPP loans, many interviewees reported that they would have a difficult time repaying the loans given the restrictions of the program. The author argues that these insights suggest that substantial racial disparities exist in PPP distribution, and that the disparities are caused by existing practices of institutional racism that prevent Latino-American small business owners from taking full advantage of resources.

Stiglitz, J. (2020). *Four priorities for pandemic relief efforts*. The Roosevelt Institute. https://rooseveltinstitute.org/publications/four-priorities-for-pandemic-relief-efforts/

- Type of research: Other (subject matter expert policy paper)
- In this policy paper, the author provides policy recommendations for addressing the economic effects of COVID-19, based on the effectiveness of similar policies. The author cites raw data from sources such as **OECD** and **The World Economic Outlook Database,** as well as findings from published studies. The author raises issues with current policies in response to the pandemic, as well as historical policy trends in creating their policy recommendations. The author makes four recommendations:

  1. Provide workers with federal relief, including a minimum of 10 days of paid sick leave, to protect workers, workplaces, and employers from exposure to the contagion.
  2. As an alternative to the CARES Act, provide federal funds directly to employers who retain workers, making up for any shortfalls in revenue.
  3. Provide supplemental government support for employers to train employees who are not fully productive.
  4. Increase education and Medicare funds for state and local governments and maintain or increase the liquidity of firms and households with debt relief programs while being mindful of the sectors that receive funding.

Thompson, D., & Grabowski, L. (2020). Are labor market institutions countercyclical? *Socius: Sociological Research for a Dynamic World, 6*, 1–15. https://doi.org/10.1177/2378023120921620.

- Type of research: Descriptive (quantitative)
- The authors used **time-series data** for **21 OECD countries** from **1985 to 2012** to examine the relationship between labor market institutions and employment outcomes, primarily rates of

unemployment. Using **time-series cross-section regression models,** they found that UI and employment protection laws can play important roles in stabilizing markets during financial crises. UI helps by stabilizing demand; employment protection decreases the cyclical aspect of employment, discouraging firms from shedding workers in economic downturns.

Gaps in the research

Abraham, K. G., & Houseman, S. N. (2014). See description in Section 1.

Andreason, S. (2020). See description in Section 1.

Anders, J., & Macmillan, L. (2020). *Briefing note: The unequal scarring effects of a recession on young people's life chances.* Center for Education Policy & Equalising Opportunities. https://repec-cepeo.ucl.ac.uk/cepeob/cepeobn6.pdf

- Type of research: Other (policy paper)
- In this paper, the authors examined the relationship between economic recessions and the future prospects of youth in the **United Kingdom within the context of COVID-19.** Using an extensive review of past literature, the authors suggest that young workers who leave education early or experience delayed entry into the job market experience longer periods of unemployment well-into their careers (10 or more years in some cases) and may experience a permanent significant reduction in earning potential. The authors further suggest that these effects are more pronounced in youth who are economically and socially disadvantaged (that is, those from low-income families or those who have little education). The authors use past literature to suggest that these "scarring effects" can be mitigated by instituting multifaceted programs supporting job searches and subsidizing employment, while supporting a wide range of educational opportunities for youth to develop relevant skills for the job market.

Byrne, S., Coates, D., Keenan, E., & McIndoe-Calder, T. (2020).*The initial labour market impact of COVID-19*. No. 04/EL/20. Central Bank of Ireland, https://ideas.repec.org/p/cbi/ecolet/04-el-20.html

- Type of research: Descriptive (quantitative)
- The authors examined job losses in **Ireland since the outbreak of COVID-19.** Using **descriptive analyses** of **administrative and survey data,** they found that job losses were more concentrated in the accommodations, food services, and retail sectors. Younger workers and those with lower incomes experienced the greatest job losses. Larger firms were more successful in retaining links with employees through the Temporary Wage Subsidy Scheme, which allows workers to receive government support directly through employer payroll.

Fujita, S., Moscarini, G., & Postel-Vinay, F. (2020). *The labour market policy response to COVID-19 must leverage the power of age*. VoxEU. https://voxeu.org/article/labour-market-policy-response-covid-19-must-leverage-power-age

- Type of research: Other (subject matter expert opinion piece)
- In this article, the authors offer insight into how labor market policy could address the **COVID-19 pandemic**. The authors suggest that age and work experience are the most significant predictors

of the social value of a job match and that the market should aim to preserve the jobs of experienced workers while reallocating essential jobs to younger, less-experienced workers.

Gonzalez-Uribe, J., & Wang, S. (2020). See description in Section 1.

Granja, J. Makridis, C., Yannelia, C., & Zwick, E. (2020). See description in Section 2.

Houseman, S. (2020). See description in Section 1.

Houseman, S., O'Leary, C. J., Abraham, K. G., Bennici, F., Labin, S., & Sigman, R. (2017). See description in Section 1.

Humphries, J. E., Nielson, C., & Ulyssea, G. (2020). See description in Section 2.

Möhring, K., Naumann, E., Reifenscheid, M., Blom, A. G., Wenz, A., Rettig, T., Lehrer, R., Kreiger, U., Juhl, S., Friedel, S., Fikel, M., & Cornesse, C. (2020, July 10). Inequality in employment during the Corona lockdown: Evidence from Germany. *Journal of European Social Policy*. https://www.uni-mannheim.de/media/Einrichtungen/gip/Corona_Studie/JESP-Blog_Mo__hring_et__al_2020.pdf

- Type of research: Descriptive (quantitative)
- This study describes changes in the **German** labor market due to the **COVID-19 pandemic** and social inequality related to these changes. The authors conducted **weekly interviews from March to June 2020** using **a representative sample from the German Internet Panel**. They then tracked employment trends and the social inequalities in these trends based on demographic variables. The authors argue that Germany's STW program effectively mitigated unemployment, with the overall proportion of people who lost their jobs remaining below 2 percent since January 2020. STW use was slightly higher among men than women (10.1 percent versus 7.2 percent in June 2020), and women were more likely to be furloughed without pay than men (2.6 percent versus 0.8 percent in June 2020). Job losses were about twice as likely among those with low or moderate education levels than among those with high education levels. Less-educated workers were also more likely to continue working on-site than high-education workers (75.0 percent and 74.6 percent for those with low and moderate education levels versus 57.2 percent for those with higher educational attainment, June 2020) and were more likely to use STW (13.0 percent and 9.2 percent versus 6.3 percent, June 2020). Finally, those within the lowest income bracket (under 1,000 euros per month) were disproportionately furloughed without pay both early and later on in the pandemic. The authors suggest that social inequalities exist despite STW's success at keeping unemployment low.

Piyapromdee, S., & Spittal, P. (2020). *The income and consumption effects of COVID-19 and the role of public policy* (Discussion Paper No. 141). Puey Ungphakorn Institute for Economic Research. https://www.pier.or.th/wp-content/uploads/2020/06/pier_dp_141.pdf

- Type of research: Descriptive (quantitative)
- The authors examined the labor market impacts of COVID-19 across workers' incomes, assets, characteristics, and household structures in the **United Kingdom**. Using **nationally representative data** from the **U.K. Household Longitudinal Study**, the authors found that less-educated and younger employees were more likely to be laid off, especially if they were female. These workers also had low income and low assets. Using a quantitative assessment of the likely

impact of COVID-19 on households' consumption, the authors found that 70 percent of households in the bottom fifth of income distribution cannot maintain their usual expenditure for more than a week. Further, the authors found that both the United Kingdom's CJRS and the United States' Economic Impact payments can alleviate consumption inequalities, with Economic Impact payments being more effective in the short term and the CJRS more so in the long term.

von Wachter, T. (2020). Lost generations: Long-term effects of the COVID-19 crisis on job losers and labor market entrants, and options for policy. *Fiscal Studies, 41*(3), 549–590. https://onlinelibrary.wiley.com/doi/pdfdirect/10.1111/1475-5890.12247

- Type of research: Descriptive (quantitative)
- This article examines the long-term consequences of large-scale unemployment on people who have lost their jobs and new entrants to the **United States** labor market as a result of the COVID-19 pandemic. Using data from the **Current Population Survey**, **Job Opening and Labor Turnover Survey**, **Employment Training Administration**, **Current Employment Statistics**, and **UI claims data**, the author calculates **descriptive statistics** to analyze losses in employment and wages resulting from layoffs during the pandemic. The article reports that overall job losses due to the pandemic range from 25 to 40 million. Among people who have lost their jobs, the potential lifetime loss in earnings is predicted to be up to $2 trillion. Further, the loss of potential life years among this population could reach 24 million. The author uses these results to suggest the following measures to mitigate said consequences: (1) Instigate fully federally funded, STC benefits during recessions that will not increase payroll taxes; (2) require firm participation in STC to receive emergency loans; (3) allow firms and payroll processors to pay benefits to workers during recessions, reimbursing them through payroll tax credits; and (4) require states to fully automate the processing of STC applications.

Walsh, S., London, R. A., McCanne, D., Needels, K., Nicholson, W., & Kerachsky, S. (1997). See description in Section 1.

ABOUT THE RAPID REVIEW

CLEAR's rapid review of evidence on programs or strategies related to employee retention was created by Mathematica under the CLEAR contract with the U.S. Department of Labor (DOL), Chief Evaluation Office (CEO). The contents of the review do not represent the views or policies of DOL.

Due to the rapid turnaround for this review, the evidence scan did not follow CLEAR's documented systematic approach. The evidence scan for this review had four components. First, CLEAR conducted a literature search using the Business Source Corporate Plus database and Google Scholar. The search terms used for each strategy are provided in Table 1. CLEAR searched for literature published in 2007 or later. Second, CLEAR reached out to three experts in labor-related fields to seek input on programs and studies to include in the review. Third, citations from relevant studies were used to identify additional studies for review. Finally, CLEAR conducts weekly searches to identify additional research released since the initial search. This version of the brief was last updated in March 2021 to include literature published between January 1, 2007, and March 8, 2021; evidence continues to be monitored.

Table 1. Keywords used in database searches by employee retention strategy

Strategy	Topic search terms[a]	Population terms[b]
Work share or short-time compensation	"Work share" OR "shared work" OR workshare OR "short-time compensation" OR "short-time work" OR "work sharing" OR "worksharing" OR "kurzarbeit" OR "chomage partiel" OR "job protection" OR "employment protection" OR "job preservation" OR "employment preservation" AND Recession OR depression OR downturn OR epidemic OR pandemic OR COVID OR coronavirus	Employee OR worker OR employer OR firm OR company OR companies OR country OR countries OR state OR government
Temporary layoffs and furloughs	"Temporary layoff" OR "temporary layoffs" OR "furlough*" OR "cutback management" OR "budget* constraint*" OR "budget* cutback*" OR "unpaid leave" AND Recession OR depression OR downturn OR epidemic OR pandemic OR COVID OR coronavirus	
Employment protection programs	Job retention" OR "employee retention" OR "payroll funding" OR "job protection" OR "Paycheck Protection" OR "Employee retention payroll tax credit" OR "payroll protection" OR "payroll tax credit" OR "employment protection" OR "loan guarantee" AND Recession OR depression OR downturn OR epidemic OR pandemic OR COVID OR coronavirus	

[a]Topic search terms were searched in title, abstract, subject and keyword fields in the Business Corporate Plus searches.

[b]Population terms were searched in title and abstract only in the Business Source Corporate Plus database searches. These were not used in the Google Scholar searches.

CLEAR screened the abstracts of these studies to identify studies that examined specific interventions implemented by businesses and governments in the United States and other countries following pandemics or economic downturns such as the Great Recession. Seventy-eight studies passed the screening and were summarized.

Due to the rapid nature of this review, studies identified for review were not assessed according to CLEAR's causal evidence guidelines. Instead, reviewers used a short rubric to summarize information for each study. Each citation is classified by study type: causal, descriptive, or other. **Causal** research can assess the effectiveness of a strategy—in other words, whether there is a cause-and-effect relationship between the strategy and the results or impacts. High quality causal research (impact studies) can produce the most credible type of evidence. **Descriptive** research does not determine cause-and-effect relationships but uses quantitative methods to identify trends, correlations, projections, and costs and benefits of actions taken. CLEAR also categorized qualitative studies under the descriptive category for the purposes of this rapid review. CLEAR's rapid reviews also summarize **other** types of evidence and research that describe how, where, and why strategies are implemented, and includes opinion pieces by subject matter experts (SMEs). This type of research does not aim to identify cause-and-effect relationships or use quantitative methods but can be useful to identify emerging strategies potentially worthy of future replication and additional study. For more information on how CLEAR reviews and rates different types of studies, see CLEAR's reference documents at https://clear.dol.gov/about.

Mathematica prepared this rapid review for the Chief Evaluation Office of the U.S. Department of Labor under Contract #DOLQ129633249/DOL-OPS-16-U-00086. The views expressed are those of the authors and should not be attributed to the Federal Government or the Department of Labor.