CHAPTER

Data-Driven Opportunities to Scale Reemployment Opportunities and Social Insurance for Unemployed Workers During the Recovery

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DECEMBER 2021

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ABSTRACT

As unemployment insurance (UI) benefits and other economic stimulus measures are rolled back, less-educated, minority, younger, and female workers remain at risk of economic hardship and long-term consequences from ongoing job loss and unemployment during the recovery. This chapter discusses opportunities to quickly and effectively expand and scale economic supports and workforce services to assist low-income workers and those at risk of long-term unemployment. The initiatives I describe are designed to yield immediate benefits. They would leave the UI and workforce systems more resilient and more equitable going forward and they could readily be expanded into comprehensive reforms. The approaches recognize the new and uncertain economic environment by integrating ongoing learning and improved data collection. They also take into account shifting economic needs and political climate during the recovery with an employment-centered approach to cyclical labor market policy.

1. Introduction

The US labor market is emerging from its deepest crisis since the Great Depression. The job losses and unemployment induced by the COVID-19 pandemic were of unprecedented scale and were concentrated among workers who were already vulnerable to adverse economic and social outcomes, such as less-educated workers, Blacks, Hispanics, younger individuals, and women. Despite the ongoing economic recovery, past experience indicates job loss and unemployment will continue for some time even after the recession is officially over and even absent economic effects from a resurgent pandemic. Moreover, a substantial number of individuals remain at risk of long-term scarring effects from the COVID-19 recession: job losers, the long-term unemployed, and young labor market entrants (*e.g.*, von Wachter 2020). At the same time, the economic recovery brings opportunities to deploy workforce services to reintegrate unemployed workers into employment and assist them in obtaining better jobs.

Job loss during recessions has been shown to lead to a range of long-lasting consequences for workers, including long-term losses in earnings, increases in mortality, and consequences for their families (*e.g.*, Davis and von Wachter 2011; Sullivan and von Wachter 2009). Long-term unemployment and unemployment insurance (UI) benefit exhaustion in particular have been associated with increases in poverty (*e.g.*, Rothstein and Valletta 2017; Ganong and Noel 2019). As in past major recessions, long-term unemployment is an important and potentially worrisome phenomenon during the recovery from the COVID-19 crisis. The fraction of the unemployed that have been out of work for 27 weeks or more stands at 40.9% (May 2021), close to the postwar peak during the Great Recession of 45.5% (April 2010) and is likely an underestimate of the true rate (BLS 2021). In California, 50% of all UI claimants and 20% of the pre-crisis labor force received more than six months of UI benefits, with higher incidence rates of long-term unemployment among more vulnerable workers and poorer and historically marginalized communities (Bell et al. 2021a).

In addition, the prolonged crisis has put financial strain on many of the often lower-income households most strongly affected by job loss and long-term unemployment. Furthermore, even though the United States has not fully recovered the employment lost at the start of the pandemic, vaccination rates are stalling, and COVID-19 remains a threat to public health, many states and the federal government have scaled back unemployment insurance benefits and other economic stimulus. While this is meant to help speed reemployment, it may put many low-income workers at risk of economic hardship since regular UI benefits are well below federal poverty thresholds (Bell et al. 2020a). Without further intervention, reentry into the workforce may also perpetuate existing inequalities if lower-income minority

and female workers return to the same low-paying jobs they had before the crisis. Moreover, many workers whose jobs were permanently lost due to the pandemic may be better suited pursuing new training opportunities rather than immediate reemployment (Barrero et al. 2020).

A key question is what can be done to further reemployment during the recovery, and to assist those workers who are particularly at risk of economic hardship and of the long-term adverse effects of job loss and long-term unemployment. This chapter takes the view that existing programs and services can be effectively scaled to help avoid hardship while further speeding reemployment and assisting workers in obtaining better-paying jobs. The chapter discusses four broad opportunities to expand and scale economic supports and workforce programs effectively by harnessing existing programs and data infrastructures. The policies proposed are, in rough order of urgency:

1. Harness states' UI systems and similar large social programs to scale and target income support and workforce services to workers at risk of poverty or of adverse consequences from job loss and long-term unemployment.

2. Expand and subsidize Short-Time Compensation programs to speed rehiring, reduce churn, and allow and encourage job-related training during the recovery.

3. Institute a trigger-based policy grounded in economic theory that automatically adjusts benefits and eligibility for UI benefits to raise recipiency and equity.

4. Reform the UI data infrastructure to enable data-driven UI and workforce policy and support effective and equitable real-time decision making.

While all of these policies would provide substantial improvements to the US social insurance and workforce system in future recessions or another pandemic, a key aspect of these proposals is that they would have an immediate impact during the current economic recovery. Most, if not all, could be implemented by specific actors at the federal and state level without establishing new programs or creating new funding streams. Throughout, we refer to those workers that are either currently experiencing economic hardship or likely to experience adverse consequence from job loss or long-term unemployment as "at risk." During this crisis, many of these at-risk workers come from communities or have characteristics that had put them at a disadvantage in the labor market before the crisis, such as minorities, women, or lower-educated workers.

This set of proposals also recognizes and addresses several potential challenges to better insuring and reintegrating at-risk workers in the current environment. Given the scale of job loss, there are likely large numbers of long-term unemployed workers but limited funding for workforce development programs and other employment services. For example, in fiscal year 2018–2019, California served about 500,000 workers in federally funded workforce programs, such as the Workforce Innovation and Opportunity Act (WIOA) and the Wagner-Peyser Act programs. In contrast, nearly four million workers received more than six months of UI benefits in the year following the onset of the COVID-19 crisis. Hence, effectively targeting a potentially limited amount of services and resources may become crucial, as I discuss in Section 2.

Another concern is that the characteristics of long-term unemployed, discouraged, and other at-risk workers differ from those in past recessions due to the nature of the pandemic. Job losses in food services, retail, social, and personal services disproportionately affected lower-income, younger, and more vulnerable workers. These workers neither correspond to the profile of typically more mature "dislocated workers" who may have lost stable, higher-wage jobs due to economic restructuring, nor to the typical profile of hard-to-employ individuals who are the focus of WIOA Adult and Youth programs. Thus, labor market policy will be navigating uncharted waters during the recovery, and it will need to continuously adapt and improve. The proposals specify opportunities to structure outreach and services to allow for an ongoing learning process about the take up and effectiveness of programs among minorities, younger workers, women, and lower educated workers.

Finally, each proposal highlights specific actions that could be taken immediately by specific actors to scale workforce programs and other services. Where appropriate, the proposals also lay out medium- or longer-term actions to improve the nation's social insurance and workforce system. Although the proposals are not meant to offer a blueprint for wholesale reform, each proposal would constitute key components of reform and could be further scaled.

2. Connecting and targeting income support and workforce programs

2.a. Need

With a high rate of long-term unemployment and reduction in UI benefits in many states, a large number of often low-wage and vulnerable workers are at risk of adverse long-term consequences and economic hardship. At the same time, with the recovery gaining traction and available funding for workforce programs increasing,

there are increasing opportunities to help these workers reenter the workforce and find better jobs. Job search assistance programs in particular have been shown to be impactful and cost effective, while job training programs can lead to long-term improvements in job outcomes (Card et al. 2018). Yet, these and other workforce services are often underutilized by the unemployed.

Policymakers need the ability to reach out to large groups of potentially at-risk workers with income support, workforce and other services quickly and effectively. Large programs such as UI or the Supplemental Nutrition Assistance Program (SNAP) serve millions of workers and collect information on earnings and family status that can in principle be used to assess need. Yet, these and other state and federal programs often operate independently with limited referral between them. While funding for income support and workforce services is often available, many unemployed or low-income workers are not aware of programs for which they might be eligible. Further, given the scale of the crisis, many workers may be in need of and eligible for government assistance for the first time, and hence not aware of available services.

2.b. Proposal

(1) **Connect:** Harness existing service relationships between large government programs, the workers they serve, and the data infrastructure used to provide services to quickly and effectively reach out to at-risk workers with information about additional income support and workforce services.

(2) **Target:** Systematically target workers most in need with information about income support and workforce services using administrative individual data that is already being used to assess eligibility and hence contains relevant information for predicting need and eligibility for other programs.

(3) **Evaluate:** Use large-scale, targeted outreach to build short-, medium-, and long-term evaluation mechanisms to improve effectiveness of services and refine targeting.

2.c. Details and discussion

2.c.1. Connect

Federal, state, and local government agencies already serve many low-income and other individuals and maintain databases of contact information, service records, and information on economic and family status used to assess eligibility for their clients. This network of existing service relationships can be used to reach out to

individuals at high-risk of long-term unemployment or hardship with information about additional services for which they might be eligible. This outreach can occur via direct emails or text messaging, or through postings on online service accounts. By sharing relevant weblinks and information on how to access other programs, such messaging would point workers and other vulnerable individuals directly to available services. (In addition, agencies can use their standard communication channels for general messaging, such as their websites, press releases, or Twitter feeds.) Importantly, such outreach can take place based on data available within a given program and does not require potentially complex changes to data infrastructure, such as combining data of different agencies.

An example of a successful outreach campaign through the UI system occurred in California, where the UI agency (the Employment Development Department, EDD) sent messages to claimants about the availability of CalFresh benefits, California's SNAP program. Motivated by the potential expiration of UI benefits at the end of December 2020, staff from EDD and California's Labor and Workforce Development Agency (EDD's parent agency) coordinated with the CalFresh team at the California Department of Social Services (CDSS) to develop appropriate language to advertise CalFresh benefits to UI claimants at risk of benefit exhaustion.[1]

The messaging occurred through a post in the online accounts that claimants access for certifying UI benefits. EDD piloted the messaging for two days in December, when the extension of UI benefits had not yet been signed into law. Only claimants who were at risk of exhausting benefits at that point received the message. The outreach was highly effective in that it led to a rise in CalFresh applications of close to 40,000 in a single day. It was also efficient in that over 90% of applicants qualified for CalFresh benefits, allaying concerns that the messages would lead to a large number of ineligible claims. However, the large spike in applications led to bottlenecks at county welfare offices. In a second wave of outreach in June 2021, policymakers incorporated lessons learned from the first round and expanded messaging to include information about rental subsidies and health-care benefits.

This outreach was a success for several reasons. Staff at EDD and CDSS cooperated directly to coordinate the content and timing of messaging, including capacity constraints at county welfare offices throughout the state. An online screening tool for CalFresh allowed workers to assess eligibility in a few screens. EDD also included links to other services in its messaging throughout Spring 2021 without direct cooperation among agencies administering those programs, demonstrating that direct agency coordination was not always necessary

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1   The cooperation was important in particular since CalFresh eligibility rules had been modified throughout the crisis in response to federal legislation.

Social service providers that could be involved in such outreach are UI, SNAP, Medicaid, and Temporary Aid for Needy Families (TANF). All these programs are administered by state agencies with federal oversight. As a result, while state agencies take the lead on administering benefits, federal partner agencies such as the US Department of Labor (UI), the US Department of Agriculture (SNAP), or the US Department of Health and Human Services (Medicaid, TANF) can play an important role in developing and promoting blueprints for using the programs' data infrastructures for scaling outreach. In addition, the Social Security Administration and the Internal Revenue Service, among others, serve millions of potentially vulnerable individuals directly through Social Security Disability Insurance (SSDI), Supplemental Security Income (SSI), Social Security, or the Earned Income Tax Credit (EITC).

With the staggering increase in claimants during the crisis, the UI program is a promising candidate for connecting potentially vulnerable individuals to income support programs such as SNAP, or to workforce services programs such as job search assistance or job training. After many years of low uptake among the unemployed, state agencies administering the UI program now have expanded its reach to millions of workers at risk of long-term unemployment, and often administer federally funded job search assistance programs, such as Wagner-Peyser, and more intensive workforce services for dislocated or low-income workers funded by the WIOA. Since the unemployed must certify for benefits weekly or bi-weekly, depending on the state, UI agencies regularly communicate with their clients, and hence are able to inform them about the workforce services they manage, or other relevant services, such as SNAP, Medicaid, or state and local rental relief programs.

Messaging can go beyond sharing direct web links or contact information to other programs. A growing body of work in behavioral science examines the impact of many aspects of messages sent by government agencies, including the content, framing, and medium of the message (Thaler and Loevenstein 2008; Bhanot and Linos 2020). Such research is available to agencies to improve their outreach strategies. Furthermore, as we discuss in the next two sections, messaging can be greatly improved through targeting, and through data that is routinely collected in the process of messaging.

Outreach through existing service relationships, in particular the UI program, can be scaled quickly and extensively. However, not all individuals will be reached by such efforts. Many lower income and older individuals do not use cell phones, PDAs, PCs, or other devices to interact with government service providers. Some marginalized communities may not be receiving UI, SNAP, or other benefits in the first place, and hence will not benefit from this type of outreach.

The traditional approach to reach such workers is to harness the networks and relationships of local government agencies or community-based organizations. In addition, through the expanded reach of UI, SNAP, and other services during the crisis, it is worth exploring how clients' own social and work networks may be harnessed to further spread the word or be used as a referral mechanism. Such "respondent-driven" outreach is frequently used to survey hard-to-reach populations. A similar approach can be used to reach out to whole communities.

2.c.2 Target

Outreach should be targeted to those individuals most in need, most likely to benefit, and most likely to be eligible. Targeting increases the effectiveness of messaging and leads to an efficient use of client and staff resources spent on applying and screening for services. Most large social service providers have information about clients that allows for targeting, such as eligibility (*e.g.*, income or family status) or need (e.g., benefit exhaustion). If messaging is to be scaled quickly, limited targeting can still raise the effectiveness of messaging or help to control the potential flow of service applications. In the absence of any ability to target, simple and straightforward online screening tools can help effectively convey eligibility for a program (*e.g.*, the role of family status for eligibility for SNAP or the EITC).

With additional time and data, more sophisticated targeting is feasible. One approach is to predict the likelihood of an adverse event, often done with the goal of early intervention. For example, the UI system currently targets certain workforce services to workers based on their probability of exhausting UI benefits through the Worker Profiling and Reemployment Service (WPRS) and the Reemployment Services and Eligibility Assessment (RESEA) programs. The California Policy Lab (CPL) has helped Los Angeles County to target housing support based on the probability of experiencing a spell of homelessness (Bertrand et al. 2019). An alternative is to target a program to those workers for whom research suggests it will be most effective (Knaus, Lechner, and Strittmatter (2020) provide an example how this could work for the case of job search assistance in Switzerland). This kind of targeting can raise the impact of limited resources. Such an approach requires separate, credible estimates of treatment impacts for a meaningful number of client groups, which often are not available. Nevertheless, new statistical methods and IT capacity can harness increasing amounts of data to make such impact-based targeting potentially feasible for large social programs (von Wachter 2021).

2.c.3. Evaluate

Changing characteristics of workers at risk of long-term unemployment has pushed federal and state workforce systems into uncharted territory. Programs serving dislocated workers from traditionally shrinking sectors (such as WIOA's Dislocated Worker Program) or sectors affected by trade (such as Trade Adjustment Assistance, TAA) may not work in the same way for retail, restaurant, or other service workers seeing their lines of work diminished because of structural changes brought or accelerated by the pandemic. There is an urgent need to obtain additional evidence on the effectiveness of workforce services and other programs for such workers. Resulting impact estimates can be used to improve the services that are being provided. If such evidence is available for a sufficiently large number of client groups, they can also be used to improve targeting.

If outreach efforts are designed from scratch, they can be structured such that short-term impact estimates can be recovered in close-to-real time as the program is being rolled out. A well-designed outreach effort will collect basic statistics on how many clients accessed emails, text messages, and the web links they contained. In addition, the design of who is targeted or the design of the content of messages could be used to obtain impact estimates. Policymakers should consider designing targeting strategies to obtain program impact estimates, such as targeting workforce services based on the probability of exhaustion of UI benefits. Traditionally, UI claimants being considered for services are stratified into tiers by their probability of exhaustion. Outreach can begin with the top tier of claimants, while clients are assigned to workforce services, tier by tier, until capacity is reached. If the lowest tier cannot be served completely, participants within that tier can be randomly assigned.

Another design could instead select a random group of individuals within each tier who are assigned to more intensive workforce services and the control group is assigned to basic workforce services. Then, one would obtain valid impact estimates for each separate predicted exhaustion tier. The information can then be used to adjust the program and its targeting. Such a strategy of stratified randomization is particularly appropriate if the optimal approach to targeting is not known (for example, if targeting the highest tier is not necessarily optimal). In this example, those individuals at highest risk of benefit exhaustion may not necessarily be the ones who will benefit most from the services offered.[2]

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2   If it is difficult to target based on individual characteristics, an alternative strategy is to randomly select groups of individuals, and then reach out to groups sequentially over time. Due to randomization, this can yield valid control groups unless economic conditions change very rapidly. Such an approach can be particularly useful if there is a concern with capacity in processing caseloads of new program applicants, such as in the SNAP-UI example from California.

Finally, there is a growing literature that tests the efficacy of the content, framing, and style of messages, especially when sent from a government provider (Linos et al. 2020). Testing the efficacy of messaging is valuable in its own right to continue improving the outreach strategy. In addition, different types of messages can be used to manipulate the number of individuals responding to the outreach. In that case, message types function as an experiment (with imperfect take up) and can be used to estimate program effectiveness.

3. Short-time compensation: employment-based labor market insurance

3.a. Need

Short-Time Compensation (STC, sometimes also called Work Sharing) provides workers with partial UI benefits while they remain employed at reduced hours and full benefits, and employers with the opportunity to reduce labor costs by reducing employee hours while avoiding layoffs. Currently, STC also allows firms to rehire previously laid off workers on a part-time basis. By temporarily subsidizing part-time work, STC provides flexibility to firms and helps to speed the rehiring process during the recovery. By limiting layoffs, it also helps to minimize the number of job seekers and hence crowding in the labor market. High expected and actual rates of recall among the unemployed, a substantial amount of partial UI receipt, and churn in and out of the UI system during the COVID-19 crisis suggests that attachment of workers and employers has remained high (Bell et al. 2021b). While STC has not seen broad uptake during this crisis, this could be remedied effectively in several ways, which are discussed below.

Importantly, even if firms permanently reduce employment as a result of the recession, as would be the case if the economy is undergoing reallocation between sectors, shifting such permanent layoffs into the future when the recovery has gained strength can reduce the long-term cost of layoffs for workers and society. More generally, STC insures workers against earnings losses over the business cycle by linking payments to employment rather than unemployment, helping to reduce some of the well-known drawbacks of UI. Low-income workers on STC are still eligible for the EITC, taking into account that today much of income support in the United States is now provided through the tax system.

3.b. Proposal

(1) Scale:

> (1a) Develop targeted outreach to employers using approaches outlined in Section 2.

> (1b) Allow payroll processors to file STC plans for their customers.

> (1c) Require firms receiving government business loans to enroll in STC.

(2) Subsidize: Establish a direct subsidy for firms taking up the STC program instead of pursuing layoffs.

(3) Train: Allow workers and firms on STC to participate in subsidized training activities.

3.c. Details and discussion

3.c.1. Scale

To participate in the STC programs, firms have to first file an STC plan with the UI agency that specifies the number of workers involved, the number of hours reduced, and the number of layoffs avoided. Hours reductions usually cannot be more than 60% or less than 10%, and a minimum amount of a companies' employees have to participate. Once the plan is approved, the firm and participating employees jointly certify for UI benefits weekly, and workers receive prorated UI benefits based on the earnings loss. While UI claimants who work part time while receiving UI benefits can also receive prorated benefits by filing UI benefits on their own, these are lower than corresponding STC benefits, and workers are not guaranteed to keep receiving health and pension benefits.

A central challenge to the STC program, which is part of the UI program and available in more than 30 US states, is that it is not well known among employers. Evidence suggests that participating employers are satisfied by the program and that informing employers can raise awareness of the program (Houseman et al. 2017). The data that states employ to administer the UI program can be used to develop targeted outreach strategies in a similar fashion as discussed for workers in Section 2. For example, those firms could be initially targeted with information about STC that (1) have a lot of workers working part time while receiving partial UI benefits; (2) typically recall many workers or whose workers experience a lot of churn in and out of UI; and/or (3) have used STC in the past.[3]

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[3] To process incoming claims swiftly, it is helpful if the STC program is as fully automated and as accessible online as the rest of the UI program. This was a hold up for advertising and scaling the program in California before mid-2021. Earmarked federal funding for the improvement and establishment of STC programs can be used for this purpose.

STC has bipartisan support, in part because it promotes employment rather than subsidizing unemployment. Congress fully funded STC programs in 2012 to reduce crowding in the labor market after the Great Recession (Strain and Hassett 2014). Working with employer stakeholders, such as the Chamber of Commerce, or firms providing services to many employers, such as payroll processors, scheduling platforms, or human resource management platforms, would help with advertising the program. Similarly, as discussed in Section 2, harnessing insights from behavioral science for framing messaging and providing clearly accessible information will also help, as STC is a complex program involving the participation of both workers and firms. Several states have successfully scaled STC during the COVID-19 crisis (*e.g.*, Michigan or Washington) and their experience can be used as a model.

The US Congress and the US DOL should allow payroll processors to assist employers in filing STC plans. The administrative process of filing an STC plan can be burdensome for a single employer that does not know the program. Since payroll processors have to be notified of reductions in work hours, it makes sense to involve them in filing an STC plan. Given the large number of businesses they serve, payroll processors would quickly gain substantial expertise in filing such plans and would be able to effectively interface with the occasionally cumbersome web or paper forms provided by UI agencies.

Currently, businesses that operate in multiple states must comply with different STC program rules for each state. The complexity introduced by conflicting state rules can deter these employers from participation altogether. To avoid these complications, the US Congress should consider establishing a unified set of rules for states' STC programs and requiring the program in all states, which would also aid with scaling the STC program through the involvement payroll processors. Another alternative would be to institute a federally funded, national STC program, as outlined in von Wachter and Wandner (2020). To further aid in the take up and scaling of STC during recessions or national crises, a national program could simplify the STC benefit formula to allow payroll processors to directly compute and pay STC benefits to workers, provide information about adherence to program rules to the US DOL, and be reimbursed directly by the federal government.

US Congress should also require establishments to participate in an STC program if they receive emergency business loans (von Wachter 2020). While not all firms receiving loans will make employment adjustments, the fact that they applied for an emergency loan likely signifies the firm may need to do so during or after the period of the loan. STC provides these firms with a mechanism to reduce labor costs while avoiding layoffs as they are adjusting to changing economic conditions through the recession and recovery. Enrollment in an STC program also helps to guarantee

that business loans stabilize jobs and ultimately benefit workers. Furthermore, by creating a direct link between business loans and worker-level data in the UI system, this step allows for measuring the impact of emergency business loans on employment outcomes.

3.c.2. *Subsidize*

Enrollment in the STC program should be subsidized because firms are unlikely to internalize the social value of reducing layoffs and crowding in the labor market. This is because the cost of job loss to workers occurs over the long run in the form of lower wages, especially (but not only) if job losses occur in recessions (Davis and von Wachter 2011; Lachowska, Johnston, and Mas 2020; Schmieder, von Wachter, and Heining 2020). In addition, enrolling in STC is more costly for firms than either full or partial UI because they must continue to pay for health care and pension benefits and incur administrative costs from joining the program. While in theory firms benefit from retaining skilled workers, the reality in a slack labor market is that firms are likely to be able to rehire laid-off workers.

In the Great Recession and the COVID-19 crisis, benefit payments were fully paid for by the federal government instead of by states' UI trust funds. However, not all states have passed the cost-savings from STC on to participating firms in the form of lower payroll tax rates. Firms that have laid off workers in the past will face higher payroll taxes, known as an experience rating. The federal government should automatically fund STC fully during recessions and exempt firms from increases in payroll taxes due to a rise in UI receipt by their workforce through participation in an STC program. In addition, participating firms should receive a payroll tax credit to offset some or all of their costs from paying for health care and other benefits. Since firms are usually aware of the tax penalty from a rise in UI participation due to experience rating, federal subsidies are likely to increase STC participation during downturns and reduce the cost from unemployment layoffs if these program terms are clearly communicated to firms.

3.c.3. *Train*

A structural challenge within the UI system is that dislocated unemployed workers are not able to apply benefits to worker training programs. Instead, unemployed workers who receive benefits must continuously search for full-time work.[4] The

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4   An important exception to this rule is the TAA program, where earnings, subsidies, and training are typically combined. In addition, as of 2012, 16 states provided additional UI benefits to permanently laid off workers who require training to improve their skills (*e.g.*, National Employment Law Project 2012). For example, UI claimants who file for Extended Training Benefits by the 16th week of unemployment in California can obtain benefit extensions, but total benefits cannot exceed 52 weeks.

rationale is to avoid subsidizing investments in training that may take place in the absence of UI benefits and that would typically be funded by workers or their employers. Another concern is that training taking place during unemployment may be less effective than training occurring on the job. Training programs that tie workers to potential employers are often deemed more successful at improving labor market outcomes. However, in deeper downturns, an unintended consequence is that UI claimants are prevented from using a period of low job availability to invest in their skills.

The federal government should allow workers on STC to engage in training while their hours are reduced and while they are receiving partial unemployment benefits. Similarly, it should allow firms to establish training plans as part of STC that would aim to increase the skills of the workforce.[5]   To minimize the risk of abuse, the implicit training subsidies provided by STC could be limited to downturns. Moreover, one could limit training to those employers expecting work sharing to last a certain minimum number of weeks. Nevertheless, the risk of abuse is relatively small compared to the potential benefits, since STC programs are currently small, and potentially large benefits would result from allowing workers to better use periods of slack work while also preventing layoffs. As STC programs grow, it will be important for the US DOL to pursue a formal, randomized evaluation of the STC as it has done with other programs.

4. Adjusting the UI system over the business cycle via automatic triggers

4.a. Need

It is widely recognized that the UI program should automatically adjust to labor market conditions, rather than relying on ad hoc action by US Congress and/or state legislation. Despite the presence of a trigger-based, state-level Extended Benefit program, removing discretionary action has proven difficult, partly because of a lack of agreement about appropriate automatic triggers. The COVID-19 crisis showed that automatic triggers are needed beyond increasing benefit durations in recessions. It is also necessary to adjust eligibility requirements and benefit levels over the business cycle as well. Improvements to and extensions of the current trigger-based system can be achieved by harnessing data generated from the UI system itself.

Current Extended Benefits programs provide additional weeks of UI benefits when the state's insured unemployment rate (the fraction of employees receiving UI benefits) or the state's unemployment rate as measured by the Bureau of Labor Statistics

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5   A small number of states help defray employers' training costs as part of Back-to-Work programs (Kugler 2015).

(BLS) is above a certain threshold. While the trigger based on the unemployment rate usually provides extended benefits more often, not all states have adopted it. Moreover, the more common trigger for the Extended Benefit program based on the insured unemployment rate is flawed in that it only counts workers on regular UI benefits, not those receiving extended benefits. Extended Benefit programs have played a minor role in recent recessions, with the majority of benefit extensions enacted and paid for by US Congress.[6]

4.b. Proposal

(1) **Extend durations:** Use a measure of UI benefit exhaustion to design triggers for benefit extensions grounded in economic rationale.

(2) **Increase benefits:** To raise UI uptake and prevent hardship, UI benefits should be automatically increased during recessions.

(3) **Broaden access:** Eligibility criteria for UI plays an important role in determining UI access and should be relaxed during recessions to raise UI coverage and better assist claimants as they adjust to changing labor market conditions.

4.c. Details and discussion

4.c.1. Extend durations

Workers exhausting UI benefits have been found to be at heightened risk of poverty and long-term unemployment (Rothstein and Valletta 2017; Ganong and Noel 2019). Several reemployment programs of the UI system, such as the Worker Profiling and Reemployment Services (WPRS) and Reemployment Services and Eligibility Assessment (RESEA) programs, consider a UI claimant's risk of benefit exhaustion when determining eligibility for more intensive workforce services. The exhaustion rate among all UI claimants in a given state also reliably predicts the need for additional UI benefits in that state. In terms of economic theory, the incidence of benefit exhaustion is directly linked to a rise in the value of insurance provided by the UI system (Schmieder, von Wachter, and Bender 2012). Hence, estimates of the exhaustion rate should be used to trigger benefit extensions.

Current approaches rely on measures based on the insured unemployment rate or the overall unemployment rate. While these are common measures of labor market tightness and hence natural candidates, neither fully captures UI claimants' ability

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6   In recessions, the federal government sometimes pays for half of state Extended Benefits or makes Emergency Unemployment Compensation available, also as a function of triggers based on the unemployment rate.

to find jobs. In particular, triggers based on the number of UI recipients have been flawed, since they do not count claimants receiving UI benefit through extension programs. Hence, as long-term unemployment increases in deep recessions and more individuals transition to extended UI benefits, the total number of regular UI recipients shrinks, which may trigger benefits to turn off prematurely (Bell et al. 2021c). This can be fixed by redefining the default triggers currently used by state extended benefit programs to better reflect the state of the labor market by also counting UI claimants receiving extended benefits.

However, the choice of the threshold for triggering changes in program benefits is arbitrary. Instead, devising triggers based on the exhaustion rate provides a more natural benchmark. For example, a sensible goal would be for the duration of UI benefits to be set such that the exhaustion rate during recessions is no higher than during expansions. Insofar as job losses are more costly in recessions, one could aim to keep the exhaustion rate during recessions lower than that in expansions.

4.c.2. Increase benefits

The primary focus of policy discussions about UI automatic triggers has been on the duration of benefits. In some cases, such as during the COVID-19 crisis, and to a lesser extent during the Great Recession, benefit levels have been increased as well. However, UI benefit increases during recessions should have a permanent place in the tool kit of state and federal policy for three reasons. The standard argument for raising UI benefits during recessions is that the insurance value of UI payments increases; this can arise because unemployment spells become longer on average, depleting workers' savings, or because the likelihood of job loss among members of the same household increases. In addition, the stimulus effects of UI payments for the economy are likely greater during recessions, since unemployed workers spend additional income. Since benefits apply to all UI claimants immediately, raising benefit levels can have a substantially higher stimulus effect than benefit extensions.

Finally, an important but typically overlooked argument is that increasing UI benefits raises the rate of UI receipt (Anderson and Meyer 2002). At the typical benefit rate of 50% of prior earnings, lower-income workers are likely unable to cover rent and necessities from UI benefits alone. At this level of income replacement, even middle-income workers may be compelled to skip UI for lower paying jobs since many may not have sufficient savings to supplement UI on their own. Raising the recipiency rate not only raises the insurance value of UI by reaching a larger number of workers, it's also likely to do so among more vulnerable workers. Higher and broader recipiency increases the value of the UI program as a platform through which workers can be connected to other economic support or workforce services as discussed in Section

2. Given this may speed reemployment, raise labor force attachment, or lead to better jobs, part of the cost of additional UI benefits may pay for itself.

To avoid ad hoc benefit changes that are subject to the political process, one approach is to tie benefit increases to the same triggers as those for benefit extensions. While the exhaustion rate is theoretically motivated and intuitive for triggering increases in benefit durations, no similar rule of thumb exists for triggering increases in benefit levels. Developing such triggers would be a valuable avenue for future research. Balancing the rate of UI receipt among earnings groups or linking benefit levels to the median duration of UI spells may be promising concepts to start with.

4.c.3. Broaden access

Automatically adjusting nonmonetary eligibility criteria during recessions should also be considered. Eligibility criteria specify the circumstances under which a worker can file for UI benefits, such as the reason for a job loss, the extent of job search required, and which type of jobs the worker must search for. For example, in many states previously full-time workers have to look for full-time work and are typically not able to engage in full- or part-time job training. Similarly, workers who quit their jobs because their spouse had to relocate or because they had to care for a family member are ineligible for benefits.

As layoffs increase and job finding rates decline during recessions, it is worth considering automatically relaxing certain benefit eligibility criteria. For example, it is likely that during recessions more workers need to relocate with their family or spouse for job opportunities, or that workers may need to take part-time jobs to make ends meet. Similarly, workers may be better served developing new skills than looking for work during deeper recessions. The American Recovery and Reinvestment Act (ARRA) provided financial incentives for states to adopt provisions relaxing eligibility along these margins (National Employment Law Project 2012).

Automatically adjusting UI eligibility criteria provides additional insurance coverage and thereby helps to raise the UI recipiency rate. As in the case of raising benefit levels or benefit durations, greater program uptake likely increases coverage among more marginalized workers. In turn, greater program uptake allows larger numbers of workers to be connected to additional services that may speed reemployment. A further advantage of visibly tying benefit criteria to the business cycle is that workers are aware of modified UI rules during recessions. This could be particularly valuable if workers can maintain UI benefits while pursuing re-training opportunities, which may help to prevent longer-term unemployment among dislocated workers.

5. Use UI data and research to enable data-driven policy

5.a. Need

The UI system has a wealth of untapped information that could be used to improve our understanding of the economy, the effectiveness of the UI program as a social insurance mechanism, and the administration of the UI program. This data can also be used to better target workforce services and identify opportunities to reduce program costs. One key advantage of UI data, relative to other economic data, is that it is available on a weekly or even daily basis. Broader and more informed use of UI data, along with improvements to data management systems would have an immediate benefit at the federal level and throughout the country.

5.b. Proposal

(1) **Modernize:** Modernize reporting requirements of states' UI systems to the US DOL to improve the ability to monitor the economy, to assess the functioning of the UI system, and to provide accurate information about the UI program to the public and policymakers, all in close to real time.

(2) **Upgrade:** Expand data collection during the administration of UI benefits to improve program administration and better target workforce services. Create a harmonized federal register of UI claims available for paying cross-states benefits and for evaluation and research purposes.

(3) **Evaluate:** Improve statistics generated and lessons learned about the UI system through evaluations and research by providing access to anonymized, individual-level UI claims and by fostering state and federal research partnerships with academic and other researchers.

5.c. Details and discussion

5.c.1. Modernize

Each state's UI program currently reports a set of statistics to the US DOL on a weekly basis, which in turn is made public. This includes the much-anticipated weekly release of data on initial and continuing UI claims, along with statistics such as the number of UI claimants first paid in a given week (so-called "first payments"). In addition, the US DOL publishes monthly statistics, such as the number of continuing claims by demographic characteristics or industry and provides information on state-specific UI rules and program administration, such as whether extended benefits are active.

First, the reporting system for UI data needs reform. The current system is cumbersome, even by the standard of other US government agencies, and leads to repeated misinterpretation of key statistics. For example, the total number of continuing claims is often reported without including workers who are receiving benefits through extended benefit programs, undercounting the number of individuals receiving UI. Many policymakers, researchers, and journalists are often not aware of which data is included in DOL reporting. For example, the amount of churn in the UI system can be approximated by the number of additional initial claims, but this data is seldom if at all used (Bell et al. 2020a). Moreover, some of the key data is not available in a machine-readable format, making reporting and analysis of the weekly news release difficult.

Second, additional statistics should be added to improve the value of UI data to policy makers and the public. Currently, relevant statistics are only partially provided, contain measurement errors, or are not provided at all. For example, one cannot currently calculate the number or fraction of new initial claims that were rejected. It is also impossible to calculate the number and fraction of UI claimants who exhaust their UI benefits. The number of initial claims often contains repeated claims, either because of duplicate claims, additional claims, or transitional claims (Cajner et al. 2020).

Another important statistic that can be misleading is the number of continuing claims. The number of continuing claims reported by the US DOL and most state UI offices corresponds to the number of weeks claimed by all UI recipients in a given calendar week. This coincides with the number of individuals receiving benefits for a week of unemployment during that same calendar week only if individuals certify for benefits on time (during the week of unemployment) and if they do not certify for multiple weeks. Backward certification, such as occurred frequently during the COVID-19 crisis, causes the standard continuing claims measure to be less informative. Using UI claims records, the CPL generated a measure of the number of individuals receiving benefits in a given calendar week that is robust to retroactive or delayed certifications (Bell et al. 2020b).

Part of these shortcomings can be addressed by expanding the statistics that states must provide to the US DOL. A partial list of such statistics currently not available that could be relatively easily calculated based on existing data is as follows:

- Report initial claims by type (new initial, additional, transitional), by program (regular, extended), and by demographic, industry, occupation, and county.

- Report the number of weekly unduplicated new initial and additional claims.

- Report the rate of benefit denial of new initial claims within a determined number of weeks (*e.g.*, within two, four, or six weeks).

- Report the number of continuing claims by the week of unemployment which the payment corresponds to instead of by the week of certification.

- Report the number of continuing claims by week of unemployment by demographics, by industry, by occupation, and by county.[7]

- Provide harmonized tabulations on race and ethnicity (see also "Upgrade" below).

- For each state, report the number of intra-state claims by state.

An expansion in the number of available statistics would be complementary and aided by improvements to the underlying individual data, discussed next.

5.c.2. *Upgrade*

Integrate. The data generated from administering the UI program is owned by the states and comprises three core data sets: (1) quarterly earnings records of total wages paid that a worker received from each employer (the so-called UI Base-Wage file); (2) quarterly employer records containing total earnings and total employment for each establishment, among others (the so-called Quarterly Census of Employment and Wages, QCEW); and (3) information on which individuals filed for and received UI benefit payments (in the initial claims and continuing claims files, respectively). While the states' UI Base-Wage files and the QCEW data have been integrated into common federal data registers, there is no single data register that contains all US UI claims information and that can be accessed for purposes of program administration, for program evaluation, or for statistical purposes. As a result, this data is rarely used for research on the UI system, and only occasionally accessible for evaluations of the UI program sponsored by the US DOL. The data is also rarely shared between states, limiting opportunities for improving program administration.

There is a history of collecting information generated at the state level in the US federal data system. Perhaps the most well-known example is state individual mortality records based on death certificates, which are sent to the Centers for Disease Control and Prevention (CDC). The CDC sets common standards, harmonizes the data, publishes aggregated statistics, and makes appropriately de-identified,

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7   Since not all individuals certifying for a week of unemployment are actually paid (*e.g.*, some will not receive benefits because of excess earnings) these numbers should be further broken down into the number of individuals actually paid for a given week of unemployment.

individual-level mortality records available for research through a standard process. For the UI system, similar data collection, harmonization, and dissemination processes occur for the QCEW data (through the BLS) and the UI Base-Wage file (through the Census Bureau), though with some important differences from the mortality data as noted below. However, no such aggregated U.S.-wide data exists for the UI claims data.

There is a database that states can use for looking up individual claims and in some cases for exchanging data that could in principle be used to create a harmonized federal data register.[8] A federal government agency would have to be designated to regularly receive standardized extracts of the data from each state, to work with the states to agree on data extraction standards, and to produce a data set that is appropriate for research. The same agency would develop a data dissemination mechanism in cooperation with states. This agency could also be involved in generating statistical information from the program, but this could be taken on by another agency as well. For example, either the BLS or the Census Bureau could be the host agency, while the US DOL—with an appropriately staffed research department—could generate statistics.

A harmonized federal data system would yield immense benefits to state UI agencies, the US DOL, and federal and state policymakers. Among others, it would allow states to better assess reemployment outcomes from their programs, yield substantial improvements in terms of measuring key metrics of the UI system, provide better real-time information on the state of the labor market, and allow for improved and more comprehensive evaluations as a foundation for better and data-driven management of UI claims and implementation of evidence-based reforms.

There are two key steps in achieving such a harmonized data set. The first is a legal step, as currently each state would have to agree to share its data with the federal government. This has worked well for the QCEW, but the individual-level data is not available for research outside of the premises of the BLS. When the data is offered to the research community, the process has shown its shortcomings for the case of the UI Base-Wage file, where only a subset of states agreed to use its data for research, while a substantial number of states chose to review every research project. The data is also available with a three-year lag, limiting its usefulness for generating statistics about the economy. Hence, regulations by US Congress are likely needed to establish a functional, national integrated database of UI administrative records that can support program administration, statistics, and evaluation and research.

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8   The database is called Unemployment Insurance Interstate Connection Network (ICON) and allows state UI agencies to request and receive data for use in the filing and processing of combined wage claims, military, and federal claims. The system provides for the exchange of data between state workforce agencies as well as federal partners.

A second, more technical step is to ensure the administrative data is processed appropriately to enable routine use. Since the UI data is based on spells of benefit receipt that evolve over time, and captures a large range of administrative actions, care has to be taken into how to structure an integrated database with the ability to support generating statistics or research and evaluation. A useful blueprint for such processing and dissemination is the UI data provided by the German government through the Institute for Employment Research, the research institute of the federal labor agency administering the UI program (Bender, Haas, and Klose 2000), which is now routinely used by US researchers to study unemployment and UI. Without such a defined structure, a simple collection of ad hoc extracts of UI claims data from different states is likely to be difficult to use and to miss important information.

Upgrade. The data currently available on UI claims is generated as part of the process of administering the program, and hence is not designed to be used for statistical analysis or program evaluation. As is typical with administrative program data, without further processing, individual-level data can be difficult to use and may not generate information that is useful in contexts other than correctly paying UI benefits. The underlying data is generated by individual claimants, by case workers, and by automated processes within a case management system.

This leads to two related issues. The first is that the data that is used for providing statistics or for evaluation has to be extracted from the case management system. Since there are a large number of potential administrative actions recorded in the system, typically only a subset of the data is extracted. Since the case management system is not designed to generate useful data for statistics or evaluation, the extracts may miss relevant information or may not be in a format that is conducive to learning about UI claims.

The case management data is typically extracted into two files. The initial claims file contains information on demographics and basic job background provided by the claimant when a new claim is filed, plus some information from the adjudication of the claim (*e.g.*, whether the claimant has sufficient earnings history to qualify for benefits). The continuing claims file contains information provided by the claimant during weekly (or bi-weekly) benefit certification, plus partial information from the adjudication of the claim (*e.g.*, whether a payment was denied due to excess earnings). The separate extraction can make it difficult to connect events in the initial claims file to actions recorded in the continuing claims file. That in turn makes it hard to reconstruct the various sequences of events that can occur while a claimant is receiving UI.[9]

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9   For example, if after an initial flag that earnings levels are too low to qualify for benefits (shown in the initial claims file) an individual does not receive benefits (no record in the continuing claims file), it is not clear whether that individual appealed and got denied or whether that individual found a job. Alternatively, if an individual opens an additional claim after being laid off again, it can be difficult to associate the additional initial claim to the actual payment in the continuing claims file (or to the reason why payment was denied).

The second, related issue is that by its nature the case management system only records information that is needed for managing the UI claim and may not generate important or useful information needed for statistical or evaluation purposes. For example, the system generates an indicator for a "last payment" if a claimant has received the last payment for which she is eligible for a given program. However, these indicators by themselves cannot be used to construct an indicator for whether a claimant exhausted benefit eligibility across all programs, a crucial statistic for assessing the need for UI benefits (see Section 4). This is because after a last payment of regular benefits, during recessions the claimant might be eligible for a first extended benefit program; after which they might be eligible for additional extended benefits, and so on. This could in principle be resolved by combining the claimant's payment history with her prior earnings (an important factor in determining eligibility). However, because it is not needed for paying benefits, there is no single claim ID that can be used to string together payments received during the same claim.[10]

To be more useful for purposes of program administration and research, UI claims data should be updated to include variables that can be used to describe the evolution of UI claim from initial claiming to last payment. Such variables would include, among others:

- Add timing of different adjudication steps to the initial claims file.

- Generate a claim ID that is not affected by BYB changes (and hence can be used to connect continuous spells of benefit receipt that overlap the end of the BYB and receive a new BYB, but that really belong to the same period unemployment).

- Generate event IDs that link initial claims events (*e.g.*, an additional claim) and continuing claims actions (*e.g.*, a payment or denial).

- Add a system generated indicator measuring benefit exhaustion.

These additions would have to be harmonized across states' UI systems, so any modification of the processes of paying benefits would ideally occur following a coordination process led by a federal agency charged with improving, harmonizing, and disseminating UI data.

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10 While this would be helpful for statistical purposes, it is not needed for paying benefits. The reason is that in general a claim is indexed to the first date benefits are paid, the so-called BYB (Benefit Year Beginning). However, due to the fact that the program requires a resetting of benefits after a year on the program, in longer recessions some claimants can experience changes in the BYB, making it difficult to construct full benefit histories for individuals.

5.c.3. *Evaluate*

Providing access to individual-level administrative data can be extremely valuable for research and evaluation purposes. In fact, many evaluations contracted by the US DOL, which are commonly viewed as the "gold standard" due to its randomized research design and data, are based on administrative UI claims data. However, this data is hard to access for researchers or for evaluation purposes outside of the context of these relatively infrequent and expensive federal evaluations. Hence, a mechanism for accessing processed and harmonized UI claims data at the state and federal level for research and evaluation purposes would make a tremendous difference for research on the UI program, the economy, and other federal programs.

However, frequent use of administrative data can also have direct returns for participating agencies, above and beyond specific evaluation and research findings. A more informed use of UI claims data can improve program administration or statistical analysis of local labor market conditions. However, as is typical for many government agencies, many UI agencies do not have the capacity to flexibly use UI data. In California, the CPL, a joint research institute at University of California–Berkeley and University of California–Los Angeles, has had an ongoing research partnership with EDD, the agency administering UI benefits. Such research partnerships can deliver value to participating agencies in numerous ways. For example, active use of the data helps to clarify potential measurement questions. Curated UI claims files can be easily used to generate dashboards or satisfy customers requests. Improved data can be used to better target workforce services.

For example, in California, CPL had the following research output, among others, during the COVID-19 crisis:

- Measurement of continuing claims, initial claims, and timing of churn in and out of the UI system.

- Provision of research files on initial claims by demographics, industry, and county used for a new dashboard.

- Measurement of the rate of UI exit, the frequency of reemployment, and the rate of benefit exhaustion.

- Analysis of UI recipiency rate and its differences and correlates across areas in the state.

- Analysis of the incidence of long-term unemployment and its differences and correlates across areas of the state.

In addition, better UI data can also be used to institute certain data-driven approaches to case management that can streamline operations and save costs. For example, a data-driven approach can be used to flag cases that could be fast tracked for approval, or support case workers' decision processes. Algorithms could also be used to flag which companies' data is updated frequently, and hence allow making certain wage records available earlier to obtain a more real time tracking of reemployment services.

The UI data is sufficiently complex that without a broader national user base and a user base in each state, it is unlikely that UI agencies will draw the full benefit for program administration. States will be in a better position to use the UI system to advance policy goals if insights are available from research based on UI data. This is why updating UI data systems is not just an academic exercise. It is a necessary input to being able to make policy improvements and will yield important insights that are valuable for all states. In addition, local research partnerships can help states improve their data infrastructure, support local uses of the data, and help build capacity.

6. Conclusion

While the US labor market is on track for recovery, important challenges and risks remain, not least from potential variants of the virus and lagging vaccination rates. The proposals outlined in this report not only have the potential to have immediate impact, but also to increase the resilience of the US social insurance and workforce system. This is because they not only seek to address flaws in the UI system—which typically receive the most attention—but strengthen and expand procedures and programs that are aimed at reintegrating workers in the labor market, but that currently do not sufficiently respond to changing economic conditions. Moreover, by focusing on reemployment, several of the proposals discussed here sidestep the passionate and recurring political debate as to the role of unemployment insurance benefits in prolonging the recession. In particular short-time compensation, but also the more effective and expanded use of workforce services and improvement of UI data infrastructure and statistics, are areas with potential for bipartisan support. The proposals also provide important concepts and infrastructure that can be applied to other programs discussed during the crisis, such as targeting and evaluating reemployment bonuses (O'Leary, Decker, and Wandner 2005).

References

Anderson, Patricia and Bruce Meyer. 1997. "Unemployment Insurance Takeup Rates and the After-Tax Value of Benefits." *Quarterly Journal of Economics* 112 (3): 913¬–937

Barrero, Jose M., Nicholas Bloom, and Steven J. Davis. 2020. "COVID-19 is also a reallocation shock." *Brookings Papers on Economic Activity,* Summer 2020 special edition.

Bell Alex, Thomas J. Hedin, Roozbeh Moghadam, Geoffrey Schnorr, and Till von Wachter. (2020a). "August 6th Analysis of Unemployment Insurance Claims in California During the COVID-19 Pandemic." California Policy Lab Policy Brief.

¬——. 2020b. "July 2nd Analysis of Unemployment Insurance Claims in California During the COVID-19 Pandemic." California Policy Lab Policy Brief.

——. 2021a. "March 18th Analysis of Unemployment Insurance Claims in California During the COVID-19 Pandemic." California Policy Lab Policy Brief.

——. 2021b. "March 18th Analysis of Unemployment Insurance Claims in California During the COVID-19 Pandemic." California Policy Lab Policy Brief.

Bell Alex, Thomas J. Hedin, Geoffrey Schnorr, and Till von Wachter. 2021c. "Why Extended UI Benefits were Turned Off Prematurely for Workers in 33 States." California Policy Lab Policy Brief.

Bender, Stefan, Anette Haas, and Christoph Klose. 2000. "IAB Employment Subsample 1975-1995 Opportunities for Analysis Provided by the Anonymised Subsample." IZA DP No. 117.

Bertrand, Marianne, Harold Pollack, Till Von Wachter, Janey Rountree, and Brian Blackwell. 2019. "Predicting and Preventing Homelessness in Los Angeles." California Policy Lab Policy Brief.

Bhanot, Syon P. and Elizabeth Linos. 2020. "Behavioral Public Administration: Past, Present, and Future." *Public Administration Review* 80 (1): 168–171.

BLS. 2021. "Of Total Unemployed, Percent Unemployed 27 Weeks & Over." Retrieved from FRED, Federal Reserve Bank of St. Louis, July 4 2021. https://fred.stlouisfed.org/series/LNS13025703

Cajner, Tomaz, Andrew Figura, Brendan M. Price, David Ratner, and Alison Weingarden. 2020. "Reconciling Unemployment Claims with Job Losses in the First Months of the COVID-19 Crisis." Finance and Economics Discussion Series 2020-055. Divisions of Research & Statistics and Monetary Affairs Federal Reserve Board, Washington, D.C.

Card, David, Jochen Kluve, and Andrea Weber. 2018. "What Works? A Meta Analysis of Recent Active Labor Market Program Evaluations." *Journal of the European Economic Association,* 16 (3): 894–931.

Davis, Steven J. and Till von Wachter. 2011. "Recessions and the costs of job loss." *Brookings Papers on Economic Activity* (2).

Ganong, Peter and Pascal Noel (2019). "Consumer Spending during Unemployment: Positive and Normative Implications." American Economic Review 109: 2383–2424.

Hassett, Kevin A. and Michael R. Strain. 2014. "Worksharing and Long-Term Unemployment." Center for Budget and Policy Priorities.

Houseman, Susan, Frank Bennici, Susan Labin, Christopher O'Leary, Katharine Abraham, and Richard Sigman. 2017. "Modest outreach increases employer awareness and use of short-time compensation (STC)." Study Brief, Upjohn Institute.

Kugler, Adriana 2015. "Strengthening Reemployment in the Unemployment Insurance System." Policy Proposal, Hamilton Project.

Knaus, Michael C., Michael Lechner, and Anthony Strittmatter. 2020. "Heterogeneous Employment Effects of Job Search Programmes: A Machine Learning Approach." *Journal Human Resources,* published ahead of print March 26, 2020,

Linos, Elizabeth, Allen Prohofsky, Aparna Ramesh, Jesse Rothstein, and Matt Unrath. 2020. "Can Nudges Increase Take-up of the EITC? Evidence from Multiple Field Experiments." California Policy Lab Working Paper No. 2020-1

O'Leary, Christopher J., Paul T. Decker, and Stephen A Wandner. 2005. "Cost-effectiveness of targeted reemployment bonuses." *Journal of Human Resources* 40: 270–279.

National Employment Law Project 2012. "Modernizing Unemployment Insurance: Federal Incentives Pave the Way for State Reforms." Briefing Paper May 2012.

Rothstein, Jesse and Robert G. Valletta. 2017. "Scraping by: Income and Program Participation After the Loss of Extended Unemployment Benefits," *Journal of Policy Analysis and Management* 36 (4): 880–908.

Schmieder, Johannes, Till von Wachter, and Joerg Heining. 2020. "The costs of job displacement over the business cycle and its sources: evidence from Germany." Working Paper, UCLA.

Schmieder, Johannes, Till von Wachter, and Stefan Bender. 2012. "The Effects of Extended Unemployment Insurance Over the Business Cycle: Evidence from Regression Discontinuity Estimates Over 20 Years." *Quarterly Journal of Economics* 127 (2): 701–752.

Sullivan, Daniel and Till von Wachter. 2009. "Job Displacement and Mortality: An Analysis Using Administrative Data." *Quarterly Journal of Economics* 124 (3): 1265–1306.

Thaler, Richard H. and Cass R. Sunstein. 2008. *Nudge: Improving decisions about health, wealth, and happiness.* Yale University Press, New Haven, CT

von Wachter, Till. 2020. "Lost Generations: Long-Term Effects of the COVID-19 Crisis on Job Losers and Labour Market Entrants, and Policy Options." *Fiscal Studies,* Special Issue.

——. 2021. "An Overview of Current Results and New Methods for Estimating Heterogeneous Program Impacts." Mimeo UCLA, Prepared for the Social Security Administration.

von Wachter, Till and Steve A. Wandner. 2020. "Proposal for a U.S. national emergency short-time compensation programme during the COVID-19 crisis." http://www.econ.ucla.edu/tvwachter/covid19/National%20Emergency%20STC%20and%20Covid-19.pdf.