Unemployment Insurance and Macroeconomic Stabilization

Gabriel Chodorow-Reich, *Harvard University and the National Bureau of Economic Research*
John Coglianese, *Board of Governors of the Federal Reserve System*

Abstract

Unemployment insurance (UI) provides an important cushion for workers who lose their jobs. In addition, UI may act as a macroeconomic stabilizer during recessions. This chapter examines UI's macroeconomic stabilization role, considering both the regular UI program which provides benefits to short-term unemployed workers as well as automatic and emergency extensions of benefits that cover long-term unemployed workers. We make a number of analytic points concerning the macroeconomic stabilization role of UI. First, recipiency rates in the regular UI program are quite low. Second, the automatic component of benefit extensions, Extended Benefits (EB), has played almost no role historically in providing timely, countercyclical stimulus while emergency programs are subject to implementation lags. Additionally, except during an exceptionally high and sustained period of unemployment, large UI extensions have limited scope to act as macroeconomic stabilizers even if they were made automatic because relatively few individuals reach long-term unemployment. Finally, the output effects from increasing the benefit amount for short-term unemployed are constrained by estimated consumption responses of below 1. We propose five changes to the UI system that would increase UI benefits during recessions and improve the macroeconomic stabilization role: (I) Expand eligibility and encourage take-up of regular UI benefits. (II) Make EB fully federally financed. (III) Remove look-back provisions from EB triggers that make automatic extensions turn off during periods of prolonged unemployment. (IV) Add additional automatic extensions to increase benefits during periods of extremely high unemployment. (V) Add an automatic federally financed increase in the weekly UI benefit amount during recessions. We caution that these reforms may not by themselves have a large macroeconomic impact. Still, they would help to better align the UI system with its *microeconomic* objective. Together with other policy reforms to automatic stabilizers, these proposed changes to the UI system could help to mitigate future recessions.

Introduction

Government-administered unemployment insurance (UI) benefits serve society in two ways. First, they provide a cushion for individuals experiencing a period of joblessness. UI kept millions of jobless workers and their families out of poverty during the Great Recession. Second, by transferring resources to households with high propensities to consume—those that spend, rather than save, additional income—and by mitigating income risk from job loss, UI can increase aggregate expenditure in periods of economic slack and serve as a *macroeconomic stabilizer.*

This chapter concerns the macroeconomic stabilizer role of UI and the scope for enhancing its potency. We start by reviewing the current UI system in the United States. In brief, each state administers its own system, known as the regular UI program. Regular UI provides up to 26 weeks of benefits in most states. A permanent, joint state-federal program called Extended Benefits (EB) automatically extends the number of weeks of benefits available when a state's unemployment rate crosses a statutory threshold. In addition, during national recessions Congress has historically passed legislation providing emergency benefits that further extend the number of weeks an individual can collect.

We then make four analytic points:

1. Recipiency rates among short-term unemployed are quite low, in part due to how some states implement the regular UI program. If all states followed the practices of high recipiency rate states, then UI transfers would reach substantially more individuals, especially during recessions.
2. Historically, EB, the automatic extension component of UI, has played almost no role in providing timely, countercyclical stimulus. Emergency programs have reached more individuals during periods of high unemployment but are subject to implementation lags.
3. Except during an exceptionally high and sustained period of unemployment, large UI extensions have limited scope to act as macroeconomic stabilizers even if they were made automatic. Instead, during typical recessions or early in severe recessions, not enough individuals reach long-term unemployment to make UI extensions quantitatively important as macroeconomic stimulus.
4. A federally financed increase in the benefit amount for the short-term unemployed—the bulk of the unemployed early in a recession—likely has an output multiplier of between 0.5 and 1 when monetary policy is constrained due to estimated propensities to spend of well below 1, but the evidence cannot rule out a multiplier as small as 0 or as large as 2.

We then offer proposals that would improve on the countercyclical provision of UI benefits: (I) Expand eligibility and encourage take-up of regular UI benefits. (II) Make EB fully federally financed. (III) Remove look-back provisions from EB triggers that make automatic extensions turn off during periods of prolonged unemployment. (IV) Add additional EB triggers at 9 percent and 10 percent unemployment rates, which would cumulatively provide individuals up to 73 total weeks of weeks of benefits in periods of very high unemployment. And (V) add a federally financed increase in the weekly benefit amount when a state triggers onto EB.[1] For the reasons discussed in the body of the chapter, we do not expect adoption of these reforms to have a large macroeconomic impact. Still, they would help to better align the UI system with its *microeconomic* objective and also somewhat improve the automatic stabilizer role that UI plays. As part of a portfolio of policy reforms to enhance automatic stabilization, these proposals could help to mitigate the severity and duration of economic downturns.

The chapter proceeds in four sections. The first overviews the current UI system and the historical pattern of UI transfers. The second section examines in greater detail the potential for UI extensions to raise transfers, including a detailed accounting of UI transfers during the Great Recession and simulations of unemployment duration in several different recession scenarios. The third section reviews evidence on the marginal propensity to consume (MPC) out of UI benefits, other effects of UI including on job search effort, and the overall UI multiplier. The final section details the policy proposals and presents estimates of their quantitative impact in different recession scenarios. The chapter also includes three online appendices.[2] Appendix A contains additional details on the simulation exercises. Appendix B reviews the academic literature on the theory of optimal UI transfers. Appendix C lists important characteristics of the regular UI program by state.

Background

This section describes the UI system in the United States, including the role of the EB program and temporary emergency extensions enacted during periods of high unemployment.

Each state administers its own UI program, including determining eligibility for benefit receipt. Eligibility depends on both nonmonetary and monetary factors. In almost all states, nonmonetary eligibility refers to the requirement that the individual became unemployed involuntarily and not for cause and that the individual engage in active search for new employment if not on temporary layoff. Monetary eligibility refers to

sufficient prior earnings over the previous quarters. Prior earnings also determine the individual's weekly benefit amount. In 2018 the average weekly benefit amount was $359 but with substantial variation (a standard deviation of $75) across states.

Eligible individuals who file a UI claim first receive benefits under their regular UI state program. These benefits are paid from a state's UI trust fund that is financed by payroll taxes levied on employers. Prior to 2008 every state had a maximum potential benefit duration for regular UI benefits of at least 26 weeks. As of this writing, 39 states and the District of Columbia offer up to 26 weeks of benefits, Massachusetts and Montana offer up to 30 and 28 weeks, respectively, and 9 states (Arkansas, Florida, Georgia, Idaho, Kansas, Michigan, Missouri, North Carolina, South Carolina) cap regular UI benefits at fewer than 26 weeks.[3]

The federal EB program triggers on when unemployment in a state exceeds certain statutory requirements known as trigger thresholds. When this happens, UI recipients in that state who have maxed out on their weeks of benefits may receive up to an additional 20 weeks of benefits depending on the state's unemployment rate. Under current law, the federal government finances 50 percent of EB. Table 1, adapted from Chodorow-Reich, Coglianese, and Karabarbounis (2019), lists the eligibility criteria for Tier

TABLE I.

Extended Benefits Criteria

Tier	Weeks	Triggers
1	13	A state must have either • an insured unemployment rate of at least 5 percent and that is at least 120 percent larger than the average of the last two years during the same reporting period; • (optional) an insured unemployment rate of at least 6 percent; or • (optional) a total unemployment rate of at least 6.5 percent and that is at least 110 percent of the minimum of the rate during the same reporting period in the last two years.
2	7	(Optional) A state must have a total unemployment rate of at least 8 percent and that is at least 110 percent of the minimum of the rate during the same reporting period in the last two years.

Source: Adapted from Chodorow-Reich, Coglianese, and Karabarbounis 2019 (table A.1).

Note: The insured unemployment rate used for the EB triggers is the average of the insured unemployment rate in the 13 weeks ending 2 weeks before the week of the trigger notice. The total unemployment rate used for the EB triggers is the average of the total unemployment rate in the three months ending with the last month of data reported as of the third Friday before the Sunday starting the week of the trigger notice. All programs and tiers obey a 13-week rule whereby once triggered on a tier a state remains on that tier for at least 13 weeks (barring any changes in law), and once triggered off a tier the state remains off for at least 13 weeks.

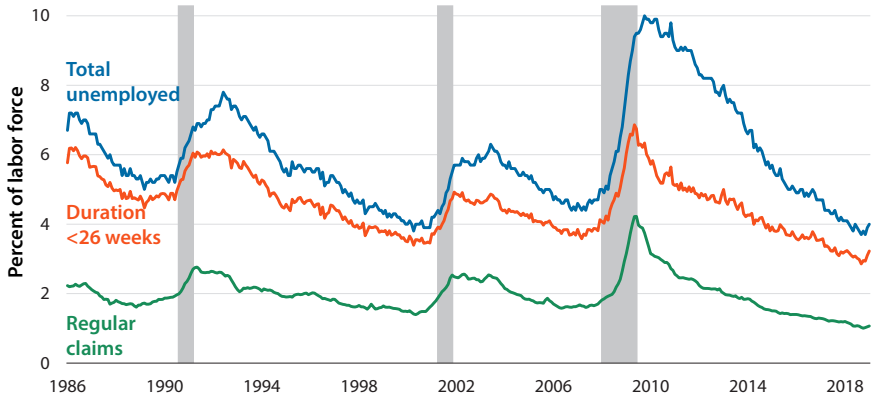
1 (13 weeks of benefits) and Tier 2 (7 additional weeks of benefits) of EB. Tier 1 contains one mandatory trigger based on both the level and the rate of increase in the insured unemployment rate (IUR)—the ratio of regular UI claimants to employment covered by UI law—and two optional triggers, one based on the level of the IUR and the other based on the level and rate of increase in the total unemployment rate (TUR). The TUR is a broader measure of unemployment that includes all unemployed workers, regardless of whether they are receiving UI. The Tier 2 trigger is entirely optional and depends on the current and past TUR. Whether a state adopts the optional triggers depends on state law. Essentially all triggers onto EB during the 2008–13 period occurred via the TUR triggers rather than the IUR triggers, which have become harder to reach as recipiency rates in regular UI programs have declined.

The federal government also may enact temporary emergency legislation to provide additional weeks of benefits beyond EB, commonly known as Emergency Unemployment Compensation (EUC). Typically, such legislation provides for a uniform increase in weeks in all states and additional weeks in states with high unemployment. In addition, such benefits are fully paid for by the federal government.

Figures 1 and 2 summarize historical patterns of UI recipiency. Figure 1 focuses on the regular UI state program. The green line illustrates the stabilizer role of UI; in each recession (demarcated by the gray shaded areas), the share of the labor force receiving regular UI benefits rises, with the

FIGURE I.

Regular UI Claims, 1986–2019



Source: U.S. Department of Labor 1986–2019, Bureau of Labor Statistics 1986–2019b.

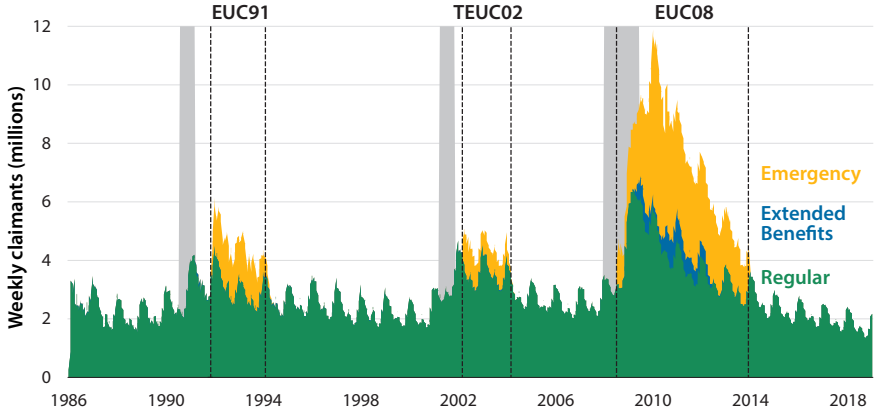
Note: Shaded areas denote recessions.

peak occurring roughly coincident with the end of the recession. The large vertical differences between the green line and the orange and blue lines, on the other hand, demonstrate the relatively low recipiency rate of regular UI benefits. For example, in 2018 only 28 percent of unemployed individuals, or 35 percent of unemployed individuals reporting unemployment duration of fewer than 26 weeks, received regular UI benefits. The low recipiency rate reflects a combination of restrictive monetary and nonmonetary eligibility criteria as well as a take-up rate of well less than one among qualifying individuals.

Figure 2 compares regular UI benefit receipt with EB and emergency programs. The gray shaded areas again demarcate recessions, while the dashed vertical lines show periods during which emergency programs were in effect. Three features stand out. First, the vast majority of UI recipients receive regular UI state benefits, and did so even during the 1991 and 2002 emergency programs. Why? All individuals start by receiving regular UI state benefits; even during these periods of heightened unemployment many individuals became reemployed quickly, leaving fewer individuals who are unemployed for longer than 26 weeks. Second, there is a policy lag between the onset of a recession and the enactment of an emergency program. Indeed, the 1991 and 2002 emergency programs began *after* the recessions had already ended. Third, EB has historically accounted for little

FIGURE 2.

Number of UI Recipients, 1986–2018



Source: U.S. Department of Labor 1986–2019.

Note: Gray, shaded areas denote recessions. EUC91 refers to the Emergency Unemployment Compensation Act of 1991. TEUC02 refers to the temporary extended unemployment compensation under the Job Creation and Worker Assistance Act of 2002. EUC08 refers to the EUC enacted under the Supplemental Appropriations Act of 2008.

THE HAMILTON PROJECT Equitable Growth

benefit receipt even among the long-term unemployed who are receiving benefits.[4]

To summarize, UI payments increase early in recessions primarily because more individuals receive regular UI program benefits. In contrast, extensions of UI benefits have historically played a surprisingly small role in providing macroeconomic stimulus early in recessions. Temporary federal emergency programs typically ramp up transfers late in recessions or even after the recession has ended, while the automatic part of benefit extensions, EB, has accounted for very little benefit receipt historically.

UI Extensions and UI Transfers

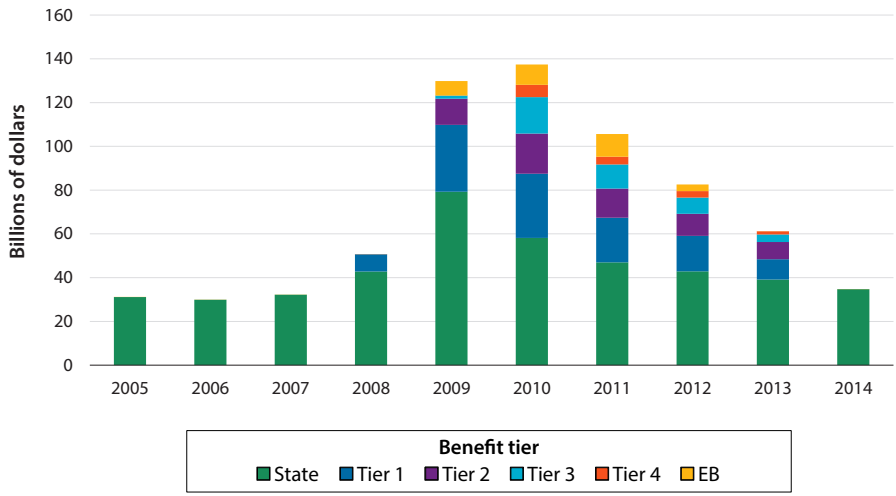
This section investigates further the scope for UI extensions to affect the magnitude of UI transfers. It shows that, except in historically rare circumstances of very high and persistent unemployment, benefit extensions have only a modest effect on total UI transfers because relatively few individuals reach very long-term unemployment.

UI EXTENSIONS DURING THE GREAT RECESSION

The Great Recession offers a useful starting point for assessing the potential for UI benefit extensions to increase total UI transfers. The period 2008–13

FIGURE 3.

UI Spending By Tier, 2005–14



Source: U.S. Department of Labor 2005–14; authors' calculations.

Note: Amounts are not adjusted for inflation. Each tier provides additional maximum weeks of benefits according to unemployment rate thresholds specified in law.

THE HAMILTON PROJECT Equitable Growth

featured a series of benefit extensions—both automatic and discretionary—that pushed the maximum number of consecutive weeks an individual in a high unemployment state could receive UI to a record 99 weeks. At the same time, the unemployment rate rose from a prerecession low of 4.4 percent in May 2007 to a peak of 10.0 percent in October 2009, and did not fall below 8.0 percent until September 2012.

Figure 3 shows total UI outlays over 2005–14 by benefit tier (i.e., state-provided regular UI, EB, and the four tiers of EUC benefits). Before the Great Recession began, virtually all UI payments consisted of regular UI state benefits. Federal emergency legislation provided EUC benefits that began in July 2008, which allowed individuals in all 50 states and the District of Columbia to receive an additional 13 weeks of benefits. This was expanded in November 2008 to provide 20 (rather than 13) weeks of additional benefits in all 50 states and the District, and an additional 13 weeks of benefits in states with an unemployment rate above 6 percent. Of the $18 billion increase in total UI transfers in 2008 relative to 2007, these benefit extensions account for $8 billion and additional claims of regular UI state benefits account for the remainder.

The national unemployment rate averaged 9.3 percent in 2009 and total UI payments reached $130 billion. The $98 billion increase in UI payments between 2007 and 2009 demonstrates the potential for the UI system to serve as a macroeconomic stabilizer. However, figure 3 shows that roughly half ($47 billion) of this increase occurred solely as the result of additional claims of regular UI benefits. An additional $31 billion of the increase came from Tier 1 EUC benefits covering the first 20 additional weeks of benefit receipt after exhaustion of regular UI benefits. Because of the high unemployment rate, a number of states already qualified for an additional 20 weeks of benefits under the EB program. Therefore, of the $98 billion increase in UI in 2009 relative to 2007, at least $64 billion could have occurred even without *any* new federal legislation.[5] This result simply reflects the fact that throughout 2009 relatively few unemployed workers had been unemployed for more than 46 weeks.

The new tiers of EUC benefits play a more important role starting in 2010. Their increased importance largely reflects the shifting distribution of unemployed workers toward longer durations by that year. Nonetheless, even in 2010 the majority of UI went to regular UI or EUC Tier 1 claimants who had fewer than 46 weeks of benefit receipt. Only $15 billion went to claimants on EUC Tier 4 or EB who had duration greater than 73 weeks. A similar pattern holds in 2011 and 2012.

The Great Recession therefore offers three lessons for the scope for increasing UI transfers during recessions:

1. Even in a severe recession, regular UI provides the bulk of the increase in transfers. As such, reforms to enhance the automatic stabilizer properties of UI should also address regular UI benefits.
2. Even in a severe recession, early on, relatively few unemployed workers have duration long enough for UI extensions to affect them.
3. In the later years of the Great Recession, UI extensions raised total UI transfers by about 0.5 percent of GDP, but very little of this increase came from payments to individuals with duration longer than 73 weeks.

EVIDENCE FROM SIMULATIONS

The next recession will have a different trajectory from that of the Great Recession. This subsection complements the previous analysis by using labor market simulations to explore the distribution of unemployment duration under a wide array of unemployment rate paths.

We consistently find the following patterns:

1. Most UI-eligible individuals are unemployed for 26 weeks or less.
2. Rarely do a substantial share of the unemployed have a duration past 46 weeks, except for the later years in the most severe scenario.
3. The share of unemployed with duration longer than 73 weeks remains small even in the most severe scenario.

The simulations build from individual-level labor force transitions, which depend on both the business cycle and an individual's labor market history. Online appendix A describes the procedure in detail. In brief, we start by dividing labor market status into four categories: employed, unemployed and UI-eligible, unemployed and UI-ineligible, or nonparticipating. We construct monthly transition rates across these labor market statuses, accounting for differences across states as well as the difficulty that long-term unemployed have in finding employment.[6] This analysis enables us to simulate unemployment in different recessions.

Figure 4a plots the path of the unemployment rate and figure 4b shows the cross-sectional duration distribution of unemployment at the unemployment rate peak for a simulated recession that approximates the experience of the Great Recession, which we label the Severe Recession.[7] As in the Great Recession, the simulated unemployment rate increases by more than 5 percentage points before falling steadily during the recovery. The peak in the simulated unemployment rate occurs about two and a

half years after the start of the recession. Even at the peak, relatively few unemployed individuals have very long durations, with two thirds of the unemployed having spells of less than 26 weeks and 85 percent having spells of less than 46 weeks. Only 5 percent of unemployed workers have unemployment spells longer than 73 weeks.

We also consider three additional recession scenarios: Mild, Short Severe, and Very Severe Recessions. In the Very Severe Recession, we multiply the inflows into unemployment by 150 percent and multiply the inflows into employment by 50 percent relative to the Severe Recession. In the Mild Recession, we instead multiply inflows into unemployment by 50 percent and inflows into employment by 150 percent. Finally, in a Short Severe Recession, we alter the flows as in the Very Severe Recession but force these fluctuations to revert in half of the time.[8]

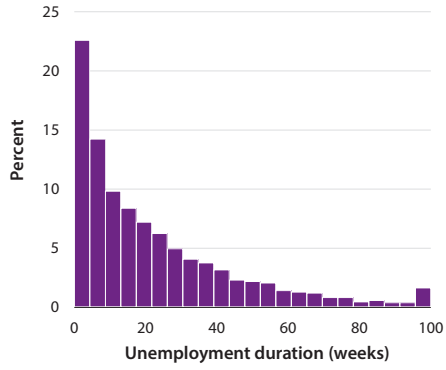
Figure 5 shows for each scenario the number of unemployed individuals (as a fraction of the labor force) by UI eligibility and, for those who are potentially UI-eligible, by unemployment duration broken down into bins representing different hypothetical tiers of UI extensions. Each scenario features a large increase in the number of individuals eligible to collect regular UI benefits (i.e., those unemployed for 26 weeks or fewer). Potential UI extensions play a smaller role. In the Great Recession–like Severe scenario, one year into the recession only 0.8 percent of the aggregate labor force has duration between 27 and 46 weeks and could potentially collect benefits; this share peaks two years into the recession at 1.2 percent. The

FIGURE 4A.

Simulated Unemployment Rate: Severe Recession

FIGURE 4B.

Simulated Duration Distribution: Severe Recession



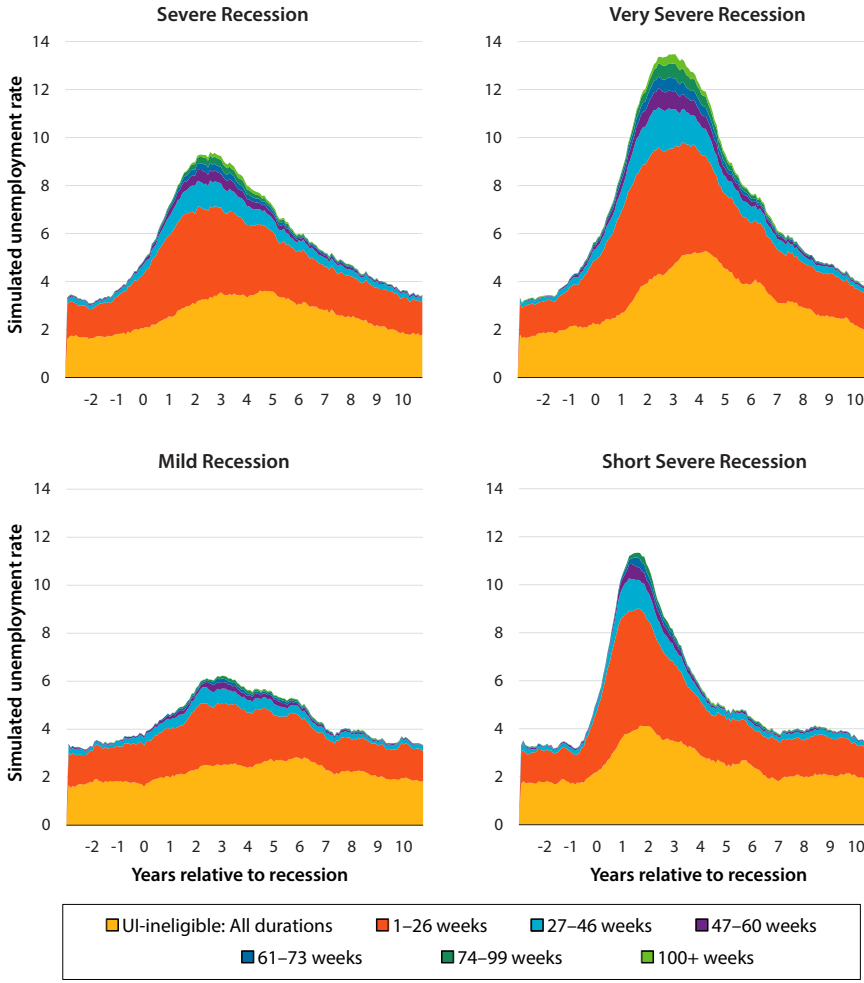
Source: Authors' calculations.

Note: Figure 4a shows the simulated unemployment rate, with the peak observation marked. Figure 4b shows the distribution of unemployment duration at the unemployment peak, with the distribution truncated at 100 weeks.

share unemployed for longer than 46 weeks who could collect benefits does not exceed 1 percent of the aggregate labor force until two years into the recession, and the share unemployed past 73 weeks never exceeds 0.45 percent.

FIGURE 5.

Simulated Unemployment by Duration and Eligibility



Source: Authors' calculations.

Note: Each panel shows the evolution of simulated unemployment, broken down by duration and UI eligibility. The Severe scenario uses aggregate trends for each transition rate as observed in the Great Recession. The Very Severe Recession scenario is based on 50 percent larger fluctuations in aggregate trends relative to the Severe scenario, while the Mild Recession scenario is based on fluctuations that are 50 percent smaller than the Severe scenario. The Short Severe Recession scenario is 50 percent larger than the Severe scenario but lasts half as long.

The Mild Recession contains few potentially eligible individuals with duration longer than the 26 weeks covered by the regular UI system. Most of these individuals fall into the 27- to 46-week range covered by EB. The share of the labor force potentially eligible for UI with duration greater than 46 weeks peaks two and a half years after the start of the recession at 0.6 percent; this share equals 0.4 percent in the month of the unemployment rate peak.

The Short Severe Recession scenario features a more substantial increase in long-term unemployment. Again, most of these individuals have durations in the range of 27–46 weeks. The share unemployed for longer duration peaks around the period of the unemployment rate peak at 1.4 percent. Of these, only 0.3 percent have duration longer than 73 weeks.

The Very Severe Recession scenario offers the largest potential for benefit extensions beyond 46 weeks to matter. However, such extensions become quantitatively important only after most of the rise in unemployment has already occurred. Fourteen months after the beginning of this recession, the unemployment rate has already surpassed 10 percent, yet potentially UI-eligible individuals who have been unemployed for more than 46 weeks remain below 1 percent of the labor force. This share continues to grow, reaching 2.4 percent of the labor force at the unemployment rate peak two and a half years after the start of the recession.

In summary, in none of these scenarios would extending UI benefits beyond the additional 20 weeks available under the EB program have resulted in an appreciable increase in the number of individuals receiving UI benefits within the first year of the recession. In the Mild Recession scenario, few individuals would have been able to collect UI beyond regular UI and EB benefits at any point during the recession and recovery, while in the more severe scenarios more long-term unemployed individuals eventually appear but only years after the start of the recession. This lag prevents UI extensions from providing timely automatic stabilization, while also pointing to the potential contribution to macroeconomic stabilization later in very severe recessions.

Evidence on UI Multipliers

This section reviews evidence on the marginal propensity to consume out of UI transfers and other aspects related to the UI multiplier.

UI EFFECTS ON CONSUMPTION

The most obvious channel through which UI can stabilize the macroeconomy is by supporting consumption expenditure by UI recipients. Gruber (1997)

provides the most widely cited estimate of the effects of UI on consumption using data on food expenditure from the Panel Survey on Income Dynamics (PSID) and cross-state variation in UI replacement rates. He finds that a 10-percentage-point increase in the replacement rate (i.e., the UI benefit as a fraction of the previous wage) is associated with a 2.7-percentage-point smaller reduction in food expenditure upon unemployment, implying that, without any UI, consumption declines during unemployment would be three times larger than they actually are. However, because his data contain only food expenditures and because he can identify UI eligibility but not actual UI receipt, Gruber's estimate does not easily translate into an MPC. Subsequent papers that have faced many of the same challenges have found, if anything, smaller consumption responses to UI.

A recent article by Ganong and Noel (forthcoming) surmounts these hurdles and provides important new evidence on the propensity to consume out of UI income. The authors use deidentified individual-level financial account data to estimate how much the average spending drop in the first month of receipt of UI depends on the average replacement rate in the individual's state of residence. They estimate an MPC on nondurable goods and services of 0.27, meaning that individuals are consuming slightly more than one quarter of UI income in the form of nondurables.[9] They also report a total marginal outflow from an individual's checking account of $0.83 for a marginal dollar of UI receipt but caution that this total includes transfers to savings accounts and paying down debt, in addition to consumption.

Landais and Spinnewijn (2018) offer another recent estimate of the MPC while unemployed using administrative data from Sweden and variation in replacement rates across municipalities and household types. They report an annual MPC (for total consumption expenditure) of 0.4 for employed individuals and between 0.5 and 0.6 for unemployed individuals. Of course, other differences in wealth and the social safety net between the United States and Sweden could limit the relevance of these estimates for the United States.

What about evidence on MPCs in other contexts? Johnson, Parker, and Souleles (2006) and Parker et al. (2013) provide quasi-experimental estimates of the MPC out of the Economic Growth and Tax Relief Reconciliation Act of 2001 tax rebates and the Economic Stimulus Act of 2008, respectively. Both pieces of legislation initiated large ($300–$1,200 per household), one-time payments, and random variation in the timing of receipt of the payments across households allows the authors to trace out the response of consumption expenditure. Johnson, Parker, and Souleles (2006) find an MPC on nondurable goods and services of 0.2–0.4 in the first three months of receipt of the 2001 rebates, rising to roughly two thirds over the first six

months of receipt, and no response of spending on durable goods. Parker et al. (2013) report an MPC on nondurable goods and services of 0.12–0.3 in the first three months of receipt of the 2008 rebate, only small effects on spending thereafter, but a large response of durable goods (especially vehicles), which raises the response of total consumption expenditure to 0.5–0.9. The response of nondurable consumption thus appears broadly similar to the Ganong and Noel (forthcoming) evidence, although differences in the horizon make precise comparisons difficult. Regarding the response of durable goods expenditure, Parker et al. (2013) speculate that the large MPC for the 2008 rebate may reflect a tendency for large one-time payments to serve as down payments for purchases of durable goods, a channel unlikely to apply in the context of monthly UI receipt. Moreover, unemployed individuals may be unlikely to undertake new expenditures on durable goods when they can alternatively continue use of already owned durable goods. Johnson, Parker, and Souleles (2006) and Parker et al. (2013) also find larger consumption responses among low-income households, a finding echoed in other work that finds larger consumption responses among households likely to face liquidity constraints (see, e.g., Baker 2018).

Summarizing this research, plausible estimates of the MPC for recently unemployed individuals are around 0.3–0.4 in the short run (first three months) and around 0.5–0.6 in the medium run (first year). However, statistical uncertainty and inconsistency in the horizon and results across studies make these estimates somewhat tentative. No evidence exists of the MPC for the very long-term unemployed, although economic theory predicts a higher MPC for these individuals because their liquidity has deteriorated further.

OTHER CHANNELS THROUGH WHICH UI CAN PROVIDE STIMULUS

The direct consumption response of UI by recipients constitutes the most obvious but not the only channel through which UI could provide macroeconomic stimulus. Hsu, Matsa, and Melzer (2018) provide evidence of a house price and foreclosure channel. Using both state-level variation in replacement rate generosity and variation in extensions during the Great Recession, they estimate that an additional $3,600 in (annual) benefits reduces the probability of delinquency by 1.44 percentage points and an additional week of benefit extensions reduces foreclosure starts by 0.27 percentage points. They also find that higher UI generosity mitigated the relationship between county-level house price declines and unemployment during the Great Recession.

More speculatively, both Kekre (2016) and McKay and Reis (2017) point out that higher UI can increase consumption by *employed* individuals by reducing their need to engage in precautionary savings. This channel has

BOX I.

Optimal UI

UI has the positive feature of helping workers to smooth their consumption: that is, it avoids the necessity of dramatic cuts in consumption after job loss. But UI also can induce moral hazard: workers delay taking a new job because UI benefits make this delay less costly to them. Relatedly, increased liquidity from UI can raise the wage that workers expect upon reemployment. The optimal UI rule originally developed by Baily (1978) and extended by Chetty (2006) balances the consumption smoothing benefit against reduced job-finding related to both moral hazard and higher worker wage expectations. The recent literature extends this approach to additionally incorporate the effect of UI benefits on macroeconomic conditions through changed aggregate search effort and increased aggregate demand. Online appendix B provides a detailed exposition of the economic theory that governs optimal UI.

the potential to substantially increase the scope for UI to increase aggregate consumption. Empirically, Engen and Gruber (2001) use cross-state variation in replacement rates to estimate that halving the replacement rate would increase savings by 0.8 percent of income. Intuitively, individuals at risk of unemployment already tend to have low savings, meaning that more-generous UI cannot further reduce this savings by very much.

MORAL HAZARD AND OTHER NEGATIVE IMPACTS

Provision of UI also may affect the labor market directly by reducing job search effort, increasing reservation wages, and deterring firms from creating job openings. The strength of these effects remains fiercely debated. Krueger and Meyer (2002) survey early studies examining the relationship between UI benefit amount and unemployment duration and report an average elasticity of about 0.5 for the United States, meaning a 10 percent increase in benefit amount increases an individual's unemployment duration by about 5 percent.

Studies that examine the relationship between *benefit duration* and *unemployment duration* typically find smaller effects, with a 13-week benefit extension increasing average unemployment duration by about 1 week (Card, Chetty, and Weber 2007; Card and Levine 2000; Farber and Valletta 2015; Rothstein 2011), although Johnston and Mas (2018) is an

important exception. Consistent with a smaller elasticity from extensions, Kolsrud et al. (2018) find that the moral hazard effect of increasing benefits on search effort declines with the length of the unemployment spell. Additionally, Kroft and Notowidigdo (2016) find evidence of a smaller moral hazard effect during recessions, possibly reflecting the increased difficulty of finding work.

Besides reducing search effort, UI benefits could prolong unemployment by raising the wage individuals require to accept new employment, known as the reservation wage. Using survey evidence, Feldstein and Poterba (1984) found that a 10-percentage-point increase in the benefit replacement rate raises the reservation wage by 4 percentage points for job losers not on layoff. More recently, Krueger and Mueller (2016) and Jäger et al. (2018) reexamine this relationship and find *no* effect of benefits on reservation wages.

Importantly, these *microeconomic* effects of UI on individual search effort and reservation wages do not equate to the *macroeconomic* effect on overall unemployment, because they do not account for market-wide changes in wages, firm vacancy creation, and efficiency in matching of job seekers and vacancies that occur in response to a market-wide change in UI benefits nor do they include the positive stimulus channels discussed in the previous two sections.

OVERALL STABILIZATION IMPACT OF UI

The total output multiplier from UI outlays combines all the channels described above as well as additional general equilibrium feedback effects. These general equilibrium effects mirror the Keynesian multiplier that applies to direct government purchases. For example, a no-monetary-policy-response government purchases multiplier of 1.7 (Chodorow-Reich 2019), an MPC out of UI of 0.6, and no disincentive effects for job seekers together yield a UI output multiplier of $1.7 \times 0.6 = 1.0$ when monetary policy is constrained. A higher MPC or positive impact on consumption of employed individuals would generate a higher multiplier. The Congressional Budget Office (2012) similarly uses an output multiplier of 1.1 for UI extensions whereas the Obama administration assumed a slightly higher multiplier of 1.6 based on an assumed annual MPC out of UI benefits of 1. To put these numbers in perspective, recall that total UI outlays under EB and EUC peaked at $79 billion in 2010, or about 0.5 percent of GDP. Applying an output multiplier of 1 would imply an increase in GDP of 0.5 percent; further applying an Okun's law coefficient of 2.5 would imply a decline in the unemployment rate of roughly 0.2 percentage points as a result of the extensions.

A few studies have estimated the effect of UI extensions on employment or unemployment directly. An empirical challenge arises because, as noted earlier, state UI extensions themselves depend on the state unemployment rate. Chodorow-Reich, Coglianese, and Karabarbounis (2019) circumvent this challenge by examining responses to extensions due to measurement error in the real-time unemployment rate used to determine extension eligibility. They find near-zero effects of UI extensions on state-level unemployment or employment and can statistically reject that a marginal one month of extensions raises or lowers the unemployment rate by more than 0.04 of a percentage point. While their sample mostly contains relatively transient extensions from a high baseline level, they show similar results in subsamples with baseline duration less than 66 weeks and with persistent extensions. Linearly extrapolating their point estimate of –.01 (lower bound of –.04) to the 17-month extension of benefits at the peak of the Great Recession implies a decrease in unemployment due to benefit extensions of 0.17 (lower bound of 0.7) percentage points.

Hagedorn et al. (2015), Boone et al. (2016), and Dieterle, Bartalotti, and Brummet (forthcoming) study counties on either side of a border between states subject to different UI extensions. Hagedorn et al. (2015) find that extensions *raise* unemployment and interpret their finding as the result of reduced vacancy creation by firms deterred by higher reservation wages of workers in high extension areas. Boone et al. (2016) and Dieterle, Bartalotti, and Brummet (forthcoming) question the empirical specification and causal interpretation of the Hagedorn et al. (2015) results and present alternative estimates that find smaller effects similar in magnitude to those in Chodorow-Reich, Coglianese, and Karabarbounis (2019). Di Maggio and Kermani (2015) instead compare replacement rate generosity and estimate an output multiplier of 1.9.

To summarize, both the MPC evidence and the direct evidence on labor markets appear consistent with a federally financed UI multiplier of between 0.5 and 1 when monetary policy does not respond, although this evidence cannot rule out a multiplier as small as 0 or as large as 2. The multiplier may be larger for UI extensions than increases in benefit levels and smaller when monetary policy is active.

Proposals

This section offers a number of proposals that would make UI a better macroeconomic stabilizer. As we discuss in online appendix B, these proposals also have grounding in economic theory of the optimal provision of UI.

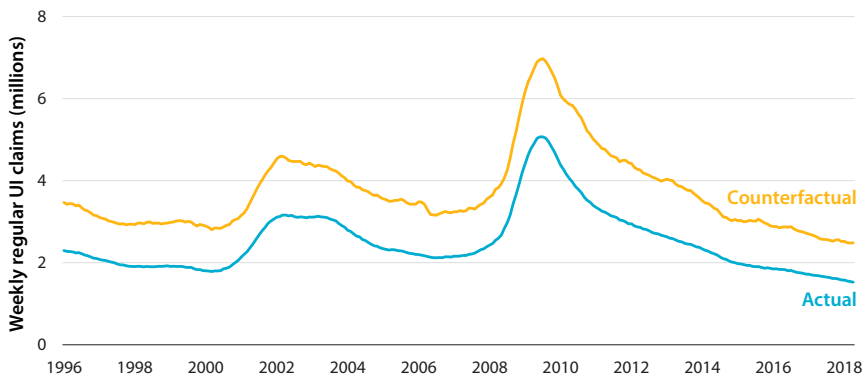
PROPOSAL I: EXPAND ELIGIBILITY AND ENCOURAGE TAKE-UP OF REGULAR UI BENEFITS.

One factor limiting the scope UI plays in countercyclical stimulus is the limited receipt of benefits shown in figure 1. The hurdles to successful completion of an application have received notice in both the popular press (Robles 2014) and the academic literature (Chodorow-Reich and Karabarbounis 2016). Regarding limited eligibility, two factors stand out: (1) harmonizing monetary eligibility across states, including adoption of alternative base periods for calculating earnings; and (2) extending eligibility to part-time workers and individuals seeking part-time employment. Both these reforms would better align the eligibility criteria to a modern labor market in which many individuals have short spells out of the labor force or prefer part-time employment due to family obligations or other considerations.

We have less certainty on how to encourage take-up among eligible individuals because low take-up rates reflect a myriad of administrative and possibly psychological hurdles that resist easy cataloging. West et al. (2016, 70–71) offers several suggestions including reporting employer Federal Unemployment Tax Act (FUTA) contributions on annual tax returns to foster a sense of program entitlement by employees, mandating that employers inform terminated employees of their eligibility, and improving online claims systems. To this list, we would add raising weekly benefit amounts, which would increase the return to filing a claim. As shown

FIGURE 6.

Actual and Counterfactual Regular UI Claims, 1996–2018



Source: U.S. Department of Labor 1996–2019; Current Population Survey (CPS), Bureau of Labor Statistics 1996–2019; authors' calculations.

Note: Counterfactual claims rate is calculated applying the average recipiency rate of the highest ten states to the United States as a whole. Weekly claims are presented as a 12-month moving average.

THE HAMILTON PROJECT Equitable Growth

by Chodorow-Reich and Karabarbounis (2016), periods of higher weekly benefit amounts have coincided, historically, with higher take-up.

To assess the potential for higher recipiency to increase UI transfers during recessions, we turn to the cross-section of states. (We refer to the share of individuals with duration below the maximum who collect regular UI benefits as the recipiency rate for the regular UI system.) Online appendix table C.1 lists the recipiency rate by state for 2018. The recipiency rate ranges from a low of 10.8 percent in North Carolina to a high of 63.4 percent in New Jersey. These differences reflect several factors, including different rules for monetary and nonmonetary eligibility across states, different systems for applying for and collecting UI benefits, and differential generosity of replacement rates. We consider a counterfactual where all states' recipiency rates were raised to the average level in the 10 states with the highest recipiency rates.[10] Figure 6 shows that regular UI claims would have been substantially higher under this counterfactual. The difference is roughly 1 million throughout most of the 1996–2018 period and even larger during recessions, with counterfactual claims greater than actual claims by about 1.5 million during the deepest point of the 2001 recession and by nearly 2 million during the Great Recession. At the current average weekly benefit amount, the additional increase of 1 million recipients during the Great Recession translates into an additional $20 billion of UI transfers per year. Of course, the evidence on MPCs for short-term unemployed may imply a smaller macroeconomic impact of these transfers than transfers under benefit extension programs.

PROPOSAL II: MAKE EXTENDED BENEFITS FULLY FEDERALLY FINANCED.

The EB program has played a small role historically, in part because only a few states have opted into the optional TUR triggers. In fact, except during the period 2009–13 when emergency legislation made EB fully federally financed, at no time have more than 11 states adopted the optional triggers. States can be reluctant to do so because EB is a joint state-federal program, half of which is paid for by the states. While the federal government could make the TUR triggers mandatory or lower the threshold for the IUR trigger, we believe a more effective solution is to make EB fully federally financed, thereby removing the disincentive for states to opt in. Making EB fully federally funded satisfies an additional objective of enhancing regional insurance and alleviating constrained state government finances during economic downturns.

PROPOSAL III: REMOVE LOOK-BACK PROVISIONS FROM EXTENDED BENEFIT TRIGGERS.

As we have argued, only severe and long-lasting increases in unemployment leave enough individuals long-term unemployed for long-term extensions to be macroeconomically important. Yet the look-back provisions, which require the unemployment rate to be above the level in previous years to remain eligible for EB, force states off EB exactly in these circumstances. Policymakers responded in the Great Recession by temporarily extending the look-back horizon to three years. We propose removing these provisions entirely.

PROPOSAL IV: ADD EXTENDED BENEFIT TRIGGERS AT 9 PERCENT AND 10 PERCENT TOTAL UNEMPLOYMENT RATES.

The simulations in figure 5 reveal a small but growing share of the labor force with unemployment duration beyond 46 weeks in the Severe, Very Severe, and Short Severe scenarios. To cover these individuals, we propose two new permanent triggers: one that would extend the sum of regular UI benefits and EB to 60 weeks when the unemployment rate crosses 9 percent and one that would provide an additional 13 weeks (73 weeks total) when the unemployment rate crosses 10 percent.

We do not see a macroeconomic stabilization rationale for additional automatic tiers beyond 73 weeks (i.e., EB of 47 weeks) since there is little prospect of such tiers mattering quantitatively in providing macroeconomic stimulus. Even in the Very Severe Recession scenario in which the share of the labor force with unemployment duration beyond 73 weeks briefly surpasses 1 percent, this occurs more than two years after the recession starts, giving policymakers ample time to adapt if necessary. Of course, policymakers may still wish to create tiers beyond 73 weeks to provide consumption insurance to individuals who remain unemployed beyond that duration.

PROPOSAL V: ADD A FEDERALLY FINANCED INCREASE IN WEEKLY BENEFIT AMOUNT WHEN A STATE TRIGGERS ONTO EXTENDED BENEFITS.

UI extensions have limited potency as automatic stabilizers because they affect a large number of individuals only after unemployment has already risen and remained elevated for a sustained period. Increasing the weekly benefit amount (WBA), in contrast, raises transfers immediately since it affects both short- and long-term UI recipients at once. On the other hand, since the MPC of short-term unemployed appears to be well less than 1, the output multiplier associated with this policy likely falls below that of direct spending or recently estimated multipliers from tax changes (e.g., Romer and Romer 2010).

TABLE 2.

Annual UI Outlays for Proposals III, IV, and V, by Scenario (Billions of Dollars)

Scenario	(1) Current law EB	(2) + No look-back provisions	(3) + Additional tiers	(4) + $50 WBA increase	(5) Total additional outlays
Severe	15.7	+7.7	+3.1	+17.6	+28.5
Very Severe	20.6	+10.9	+18.2	+23.7	+52.8
Short Severe	21.8	+6.1	+11.5	+23.1	+40.6
Mild	13.0	0.0	0.0	+13.3	+13.3

Source: Authors' calculations.

Note: All estimates are reported as the average annualized rate of UI outlays during the period in each scenario in which the unemployment rate exceeds 6.5 percent. Column (1) reports the average simulated UI outlays using only the TUR triggers for EB. Column (2) reports the increase in simulated UI outlays from removing the look-back provisions in the EB program. Column (3) reports the increase relative to Column (2) from adding an additional tier of 14 weeks when the unemployment rate exceeds 9 percent and an additional tier of 13 weeks when the unemployment rate exceeds 10 percent. Column (4) reports the increase relative to Column (3) from increasing the weekly benefit amount (WBA) for all regular UI and EB recipients by $50. Column (5) reports the total increase from Columns (2)–(4). All simulations use the national-level unemployment rate for determining which tiers of EB are active and assume 100 percent UI take-up among eligible individuals and a constant WBA equal to $353.88 (the national average WBA in 2018).

THE HAMILTON PROJECT | Equitable Growth

As a rule, each additional $1 in the WBA of all UI recipients nationally would create a budgetary cost of between $200 million and $400 million in the first year of a recession. In the most recent recession, the American Recovery and Reinvestment Act raised the WBA for all UI recipients by $25. We propose that all states triggered on to EB receive a $50 WBA increase for all recipients (to be indexed to inflation). This would add between $10 billion and $20 billion in UI transfers in the first year of a recession if it applied to all states (i.e., if all states triggered on to EB). This proposal also dovetails with the first proposal insofar as raising the WBA will induce higher take-up of regular UI benefits in periods of high unemployment.

SUMMARY OF PROPOSALS

To measure the potential impact of Proposals III, IV, and V on total UI transfers during a recession, we return to our simulations described earlier. We start by simulating UI transfers from the EB program in its current form within each scenario.[11] For simplicity, we simulate the EB program at a national level rather than a state level and assume 100 percent take-up with a constant WBA equal to the 2018 national average WBA. We then measure the increase in UI transfers from removing the look-back provisions, adding two additional tiers to EB, and increasing the WBA for all UI recipients by $50 when EB is active.

Table 2 reports the annualized average increase in UI outlays from enacting Proposals III, IV, and V during the period in each scenario in which unemployment exceeds 6.5 percent. We project that removing the look-back provisions would raise UI outlays in the Severe Recession scenario by $7.7 billion/year. Adding two additional tiers at 9 percent and 10 percent unemployment would raise outlays in the Severe Recession scenario by a an additional $3.1 billion/year, and the $50 WBA increase by an additional $17.6 billion/year. In total, enacting Proposals III, IV, and V would result in an increase of $28.5 billion/year in the Severe scenario.

During deeper recessions, the additional tiers provided by Proposal IV would result in substantial additional UI outlays. In the Very Severe Recession scenario, these added tiers increase UI outlays by $18.2 billion/year when the unemployment rate exceeds 6.5 percent, about $15 billion/year more than in the Severe Recession scenario. On the other hand, the additional tiers and removing the look-back provisions have no projected impact in the Mild Recession scenario.

Questions and Concerns

I. The incomes of unemployment insurance recipients are higher than those of recipients in many other safety net programs (e.g., SNAP or TANF). Does this mean that UI is a more poorly targeted program?

UI eligibility depends on having sufficient earnings in the recent quarters prior to involuntary job loss. In addition, while weekly UI benefits are capped, they are not limited to individuals with low levels of assets or low household income. These design features make UI a program that reaches households across the income distribution, by contrast to programs like SNAP that are more targeted to low-income households.

However, unemployment insurance has the unique advantage of targeting individuals and families that have experienced large (and often unexpected) income losses. Because it supports consumption for people in this situation, UI is likely more effective as fiscal stimulus than would be income transfers to people with the same incomes, but who had not experienced job loss.

2. Would your proposal replace the need for Emergency Unemployment Compensation?

When it expired at the beginning of 2014, Emergency Unemployment Compensation provided eligible workers with up to 47 additional weeks of UI benefits (depending on state unemployment rates), all of which were to be received by a worker prior to receipt of any Extended Benefits. Under our proposal, the Extended Benefits program would be made more generous in

terms of weekly benefit amounts, maximum duration, and the likelihood of workers being able to access benefits in their states.

We designed our proposals to provide timely fiscal stimulus that would deliver substantial macroeconomic benefits across a wide variety of recession scenarios. However, in the event of a more prolonged or severe recession than we anticipate—or in the event that additional benefits are deemed desirable for reasons other than macroeconomic stabilization—policymakers may elect to supplement this proposal with emergency benefits.

Conclusion

In this chapter, we have proposed reforms to enhance the role of the UI system in providing macroeconomic stabilization to the U.S. economy. We have also emphasized the limitations for expanding this role, arising from the distribution of unemployment duration and a marginal propensity to consume below one among short-term unemployed workers. Still, together with other policy reforms to automatic stabilizers, these proposed changes to the UI system could help to mitigate future recessions.

Our reform proposals also have merit beyond stabilization of the national macroeconomy. By increasing benefits during economic downturns, these reforms would increase the *microeconomic* benefits of UI for unemployed workers and their families. This objective is especially important for the long-term unemployed who, while rarely a large enough share of the population to have a large macroeconomic impact, may nonetheless benefit the most from the income-smoothing aspect of benefit extensions. Furthermore, federally financed benefit extensions and increases in benefit amounts direct federal aid toward communities experiencing large job losses and a high level of long-term unemployment. The impact on economic activity in these areas likely exceeds the average impact on the national economy which we have emphasized in this chapter.

Acknowledgments

The authors thank Peter Ganong, Camille Landais, participants at the authors conference, and especially Heather Boushey, Ryan Nunn, and Jay Shambaugh for many useful comments and clarifications. The views expressed herein are those of the authors and not necessarily those of the Board of Governors of the Federal Reserve System.

Endnotes

1. We purposefully limit ourselves to the objective of enhancing the contribution of UI to macroeconomic stabilization. See West et al. (2016) and O'Leary and Wandner (2018) for a review of reforms to other aspects of the UI system.
2. Online appendices can be found at the end of the online version of this chapter.
3. ansas has a fixed maximum duration of 16 weeks while Michigan, Missouri, and South Carolina have fixed maximum durations of 20 weeks. Florida, Georgia, Idaho, Kansas, and North Carolina have duration limits that vary with the state unemployment rate and can range as low as 12 weeks in Florida and as high as 26 weeks in Idaho and Kansas.
4. The insignificance of EB reflects several factors. First, in the 1990–91 recession the TUR trigger and second tier of EB did not yet exist and the national IUR peaked at 3.3 percent, so that relatively few states had unemployment high enough to trigger EB. Similarly, during the 2001 recession the national IUR peaked at 3.0 percent and the national TUR peaked at 6.3 percent, again yielding only a few states with unemployment rates high enough to trigger EB. Second, except during 2009–13 when emergency legislation made EB fully federally financed, at no time have more than 11 states even adopted the optional TUR trigger for EB. Finally, in states with both EB and an emergency program, recipients collect benefits under the emergency program first.
5. We calculate this number by summing total monthly EUC Tier 1 payments in states that triggered onto both tiers of EB and then add the increase in regular UI benefits. The total excludes states that had not adopted the optional EB triggers as well as an additional $7 billion of payments in states that qualified for some EB but not the full 20 weeks over the full month.
6. Specifically, we estimate transition rates between the four labor market statuses using individual-level regressions estimated from longitudinally matched Current Population Survey (CPS) panel data, accounting for both common trends at the state level as well as duration dependence at the individual level. In addition to allowing the simulations to track eligibility, dividing unemployment into eligible and ineligible categories allows for differences in the labor market dynamics of these groups during recessions. Individuals separating from employment during recessions are more likely to have been fired or laid off, a distinction that is important for understanding changes in the distribution of unemployment duration over the business cycle (Ahn and Hamilton 2016). For these simulations, we abstract away from earnings history tests and focus on reason for separation as the sole determinant of UI eligibility.
7. This simulation uses national averages of the estimated trends for each transition rate over the 2005–18 period and the estimated duration dependence parameters to randomly simulate labor force transitions in a scenario resembling the Great Recession. Even for historical episodes, simulating the distribution of unemployment duration has several advantages over using the self-reported duration in the CPS. The CPS asks unemployed individuals how long they have been searching for a job and records this self-reported duration. Self-reporting introduces two sources of measurement error. First, individuals often report round even numbers for the duration of their unemployment spell, biasing estimates of the duration distribution around important thresholds. Second, individuals frequently report the duration since their last stable job, even if this duration covers periods of nonparticipation or short-term employment.
8. Each of these scenarios uses the same path of the quit rate as in the severe simulation, which changes little over the simulated recession period. Differences in the cyclicality of ineligible unemployment across scenarios are instead due to differences in the path of the average job finding rate as well as the average reentry rate. The exact procedure for each of these simulated scenarios is described in online appendix A.
9. Interestingly, they find a similar cross-state slope for the decline in consumption expenditure in the first month after benefit exhaustion. However, translating a cross-state slope into an MPC requires that households in high- and low-benefit states do not differentially anticipate the change in income; otherwise, the consumption amount in the pre-period could already respond differentially to the income change. For the MPC in the first month of receipt of UI, this assumption amounts to either (1) households do not anticipate job loss, or (2) households do not know if they live in a high- or low-UI-replacement state. The assumption appears more problematic at exhaustion since by then households know the amount of their weekly UI check and the date of exhaustion is a deterministic

function of time since the start of the benefit spell. For this reason, Ganong and Noel (forthcoming) do not emphasize the cross-state slope at exhaustion. Nonetheless, ignoring these caveats would suggest an MPC at exhaustion of regular UI benefits similar in magnitude to the MPC at onset.

10. Specifically, we compute recipiency rates at the state level as the ratio of the 52-week moving average of regular UI claims in a state to the 12-month moving average of the number of individuals unemployed for a duration covered by the regular UI system in the state. Then, for each month we compute the counterfactual number of UI claimants for each state as if its recipiency rate were equal to the average recipiency rate among the top 10 states in that month. The exact group of 10 highest recipiency states varies from month to month, but nearly always includes Alaska, Connecticut, Massachusetts, New Jersey, Pennsylvania, and Wisconsin.
11. We consider only the current TUR triggers, including the TUR threshold and look-back provisions, and do not simulate the IUR triggers for both EB tiers. The simulations do not account for any feedback from the amount of UI transfers to the unemployment rate path.

References

Ahn, Hie J., and James D. Hamilton. 2016. "Heterogeneity and Unemployment Dynamics." Working Paper 22451, National Bureau of Economic Research, Cambridge, MA.

American Recovery and Reinvestment Act of 2009 (ARRA) Pub. L. 111–5 (2009).

Baily, Martin N. 1978. "Some Aspects of Optimal Unemployment Insurance." *Journal of Public Economics* 10 (3): 379–402.

Baker, Scott R. 2018. "Debt and the Response to Household Income Shocks: Validation and Application of Linked Financial Account Data." *Journal of Political Economy* 126 (4): 1504–57.

Boone, Christopher, Arindrajit Dube, Lucas Goodman, and Ethan Kaplan. 2016. "Unemployment Insurance Generosity and Aggregate Employment." Discussion Paper 10439, Institute of Labor Economics (IZA), Bonn, Germany.

Bureau of Labor Statistics. 1986–2019. "The Employment Situation." Bureau of Labor Statistics, U.S. Department of Labor, Washington, DC.

———. 1996–2019. "Current Population Survey." Bureau of Labor Statistics, U.S. Department of Labor, Washington, DC.

Card, David, Raj Chetty, and Andrea Weber. 2007. "Cash-on-Hand and Competing Models of Intertemporal Behavior: New Evidence from the Labor Market." *Quarterly Journal of Economics* 122 (4): 1511–60.

Card, David, and Phillip B. Levine. 2000. "Extended Benefits and the Duration of UI Spells: Evidence from the New Jersey Extended Benefit Program." *Journal of Public Economics* 78 (1): 107–38.

Chetty, Raj. 2006. "A General Formula for the Optimal Level of Social Insurance." *Journal of Public Economics* 90 (10–11): 1879–901.

———. 2008. "Moral Hazard versus Liquidity and Optimal Unemployment Insurance." *Journal of Political Economy* 116 (2): 173–234.

Chodorow-Reich, Gabriel. 2019. "Geographic Cross-Sectional Fiscal Multipliers: What Have We Learned?" *American Economic Journal: Economic Policy* 11 (2): 1–36.

Chodorow-Reich, Gabriel, John Coglianese, and Loukas Karabarbounis. 2019. "The Macro Effects of Unemployment Benefit Extensions: A Measurement Error Approach." *Quarterly Journal of Economics* 134 (1): 227–79.

Chodorow-Reich, Gabriel, and Loukas Karabarbounis. 2016. "The Cyclicality of the Opportunity Cost of Employment." *Journal of Political Economy* 124 (6): 1563–618.

Congressional Budget Office. 2012. *Unemployment Insurance in the Wake of the Recent Recession*. Washington, DC: Congressional Budget Office.

Crepon, Bruno, Esther Duflo, Marc Gurgand, Roland Rathelot, and Phillippe Zamora. 2013. "Do Labor Market Policies Have Displacement Effects? Evidence from a Clustered Randomized Experiment." *Quarterly Journal of Economics* 128 (2): 531–80.

Di Maggio, Marco, and Amir Kermani. 2015. "The Importance of Unemployment Insurance as an Automatic Stabilizer." Research Paper No. 15-31, Columbia Business School, Columbia University, New York.

Dieterle, Steven, Otávo Bartalotti, and Quentin O. Brummet. Forthcoming. "Revisiting the Effects of Unemployment Insurance Extensions on Unemployment: A Measurement-Error-Corrected Regression Discontinuity Approach." *American Economic Journal: Economic Policy*.

Economic Growth and Tax Relief Reconciliation Act of 2001, Pub.L. 107-16 (2001).

Economic Stimulus Act, Pub.L. 110–185, 122 Stat. 613 (2008).

Emergency Unemployment Compensation Act of 1991, Pub L. 102-164 (1991).

Engen, Eric, and Jonathan Gruber. 2001. "Unemployment Insurance and Precautionary Saving." *Journal of Monetary Economics* 47 (3): 545–79.

Farber, Henry S., and Robert G. Valletta. 2015. "Do Extended Unemployment Benefits Lengthen Unemployment Spells? Evidence from Recent Cycles in the U.S. Labor Market." *Journal of Human Resources* 50 (4): 873–909.

Feldstein, Martin, and James Poterba. 1984. "Unemployment Insurance and Reservation Wages." *Journal of Public Economics* 23 (1): 141–67.

Ganong, Peter, and Pascal J. Noel. Forthcoming. "Consumer Spending During Unemployment: Positive and Normative Implications." *American Economic Review*.

Gruber, Jonathan. 1997. "The Consumption Smoothing Benefits of Unemployment Insurance." *American Economic Review* 87 (1): 192–205.

Hagedorn, Marcus, Fatih Karahan, Iourii Manovskii, and Kurt Mitman. 2015. "Unemployment Benefits and Unemployment in the Great Recession: The Role of Macro Effects." Working Paper 19499, National Bureau of Economic Research, Cambridge, MA.

Hsu, Joanne W., David A. Matsa, and Brian T. Melzer. 2018. "Unemployment Insurance as a Housing Market Stabilizer." *American Economic Review* 108 (1): 49–81.

Jäger, Simon, Benjamin Schoefer, Samuel G. Young, and Josef Zweimuller. 2018. "Wages and the Value of Nonemployment." Working Paper 25230, National Bureau of Economic Research, Cambridge, MA.

Job Creation and Worker Assistance Act of 2002, Pub.L. 107-147 (2002).

Johnson, David S., Jonathan A. Parker, and Nicholas S. Souleles. 2006. "Household Expenditure and the Income Tax Rebates of 2001." *American Economic Review* 96 (5): 1589–610.

Johnston, Andrew C., and Alexandre Mas. 2018. "Potential Unemployment Insurance Duration and Labor Supply: The Individual and Market-level Response to a Benefit Cut." *Journal of Political Economy* 126 (6): 2480–522.

Kekre, Rohan. 2016. "Unemployment Insurance in Macroeconomic Stabilization." Working Paper, Harvard University, Cambridge, MA.

Kolsrud, Jonas, Camille Landais, Peter Nilsson, and Johannes Spinnewijn. 2018. "The Optimal Timing of Unemployment Benefits: Theory and Evidence from Sweden." *American Economic Review* 108 (4–5): 985–1033.

Kroft, Kory, and Matthew J. Notowidigdo. 2016. "Should Unemployment Insurance Vary with the Unemployment Rate? Theory and Evidence." *Review of Economic Studies* 3 (83): 1092–124.

Krueger, Alan B., and Bruce D. Meyer. 2002. "Labor Supply Effects of Social Insurance." In *Handbook of Public Economics*, Vol. 4, edited by Alan J. Auerbach and Martin Feldstein, 2327–92. Amsterdam, Netherlands: Elsevier.

Krueger, Alan B., and Andreas I. Mueller. 2016. "A Contribution to the Empirics of Reservation Wages." *American Economic Journal: Economic Policy* 8 (1): 142–79.

Landais, Camille. 2015. "Assessing the Welfare Effects of Unemployment Benefits Using the Regression Kink Design." *American Economic Journal: Economic Policy* 7 (4): 243–78.

Landais, Camille, Pascal Michaillat, and Emmanuel Saez. 2018. "A Macroeconomic Approach to Optimal Unemployment Insurance: Theory." *American Economic Journal: Economic Policy* 2 (10): 152–81.

Landais, Camille, and Johannes Spinnewijn. 2018. "The Value of Unemployment Insurance." Slide show. Available at http://econ.lse.ac.uk/staff/clandais/cgi-bin/Articles/slidesVoI.pdf

McKay, Alisdair, and Ricardo Reis. 2017. "Optimal Automatic Stabilizers" Working Paper 22359, National Bureau of Economic Research, Cambridge, MA.

Michaillat, Pascal. 2012. "Do Matching Frictions Explain Unemployment? Not in Bad Times." *American Economic Review* 102 (4): 1721–50.

O'Leary, Christopher J., and Stephen A. Wandner. 2018. "Unemployment Insurance Reform: Evidence-Based Policy Recommendations." In *Unemployment Insurance Reform: Fixing a Broken System*, edited by Stephen A. Wandner, 131–210. Kalamazoo, MI: Upjohn Institute for Employment Research.

Parker, Jonathan A., Nicholas S. Souleles, David S. Johnson, and Robert McClelland. 2013. "Consumer Spending and the Economic Stimulus Payments of 2008." *American Economic Review* 103 (6): 2530–53.

Robles, Frances. 2014, January 7. "Faulty Websites Confront Needy in Search of Aid." *New York Times*.

Romer, Christina D., and David H. Romer. 2010. "The Macroeconomic Effects of Tax Changes: Estimates Based on a New Measure of Fiscal Shocks." *American Economic Review* 100 (3): 763–801.

Rothstein, Jesse. 2011. "Unemployment Insurance and Job Search in the Great Recession." *Brookings Papers on Economic Activity* (2): 143–214.

Supplemental Appropriations Act, 2008, Pub.L. 110-252 (2008).

U.S. Department of Labor. 1986–2019. "Unemployment Insurance Weekly Claims." U.S. Department of Labor, Washington, DC.

———. 2005–14. "ETA 5159 Reports: Claims and Payment Activities." Employment and Training Administration, U.S. Department of Labor, Washington DC.

———. 2018. "Significant Provisions of State Unemployment Insurance Laws." Effective January 2018 and July 2018. Employment and Training Administration, U.S. Department of Labor, Washington DC.

West, Rachel, Indivar Dutta-Gupta, Kali Grant, Melissa Boteach, Claire McKenna, and Judy Conti. 2016. "Strengthening Unemployment Protections in America." Center for American Progress, Washington, DC.

Appendix A. Simulations

This appendix contains the details of the simulations described in the main body of the chapter. We simulate several different types of recessions, varying in their severity and duration, and examine how the distribution of unemployment duration evolves over the course of each recession. We start by outlining the specification used to capture aggregate trends in labor market flows during recessions while accounting for individual-level heterogeneity, then describe the data set used to measure these hazards, and finally explain how we simulate recessions from our estimates.

REGRESSION SPECIFICATION

We model individual hazard rates of transitions between four different labor market statuses: employed, unemployed and UI-eligible, unemployed and UI-ineligible, and nonparticipants. The status of individual i in month t is given by $s_{i,t} \in \{E, U^e, U^i, N\}$. There are a total of 16 hazard rates governing the transitions between these four statuses. We model each of these 16 hazard rates at the individual level as a function of both an individual's recent labor market history and aggregate economy-wide trends. Let $\delta_{i,t}^{s' \to s''}$ be a transition indicator equal to 1 if individual i transitioned from labor market status s' to s'' between time periods $t-1$ and t and 0 otherwise, and let $\gamma_{i,t}^{s}$ be an indicator of labor force status equal to 1 if individual i was in status s in time period t and 0 otherwise. For transitions from s' to s'', we run an OLS regression of the form

$$\delta_{i,t}^{s' \to s''} = \underbrace{\sum_{s \in \{E, U^e, U^i, N\}} \phi_s^{s' \to s''}(L)\gamma_{i,t}^{s}}_{\text{Individual-level history dependence}} + \underbrace{f^{s' \to s''}(r(i), t)}_{\text{Aggregate trends}} + \epsilon_{i,t}$$

where $\phi_s^{s' \to s''}(L)$ are the coefficients on individuals' lagged labor force status and $f^{s' \to s''}$ is a smoothly evolving aggregate trend common to all individuals in region r. We repeat this regression for each of the 16 transitions $s' \to s''$.

DATA

To estimate these regressions, we use longitudinally matched monthly data from the Current Population Survey (CPS) covering 1994–2018. Each CPS respondent is interviewed up to eight times over a 16-month period, with four consecutive

months in sample initially followed by eight months out of sample and then four final consecutive months in sample, sometimes referred to as the 4-8-4 rotation group design. We restrict the sample to respondents who complete all eight interviews and estimate the transition probability between the seventh and eighth responses as a function of the labor force status in each of the previous six responses. Specifically, we include dummy variables for each of the four labor market statuses in each of the six lagged responses in the CPS, which cover a 14-month period due to the CPS interview design. For aggregate trends f, we use restricted cubic splines with knots placed every three years estimated separately for each geographic state.

SIMULATIONS

Using the estimates from the sixteen regressions described above, we simulate several recession scenarios. A Severe scenario follows the aggregate trends for the 2005–18 period and simulates a scenario similar to the Great Recession. We additionally simulate larger and smaller recessions by scaling the aggregate trends in hazards up or down.

All simulations start with three burn-in phases to achieve an unemployment duration distribution that is approximately at steady state before the recession. In the first phase, we initialize 10,000 individuals with randomly drawn initial labor market status, using the steady state distribution of $s_{i,t}$. In the second phase, we simulate an additional 13 months for each individual, drawing $s_{i,t}$ from a distribution conditional on $s_{i,t-1}$, where we use the national average transition probabilities as of January 2005. Once we have 14 periods of data, we can use our estimates from the regressions above to construct individual-specific transition probabilities to draw the statuses for subsequent periods. For each month, we use our estimated coefficients $\hat{\phi}$ along with each individual's simulated labor market history and the national averages of the estimated trends $\hat{f}$ for January 2005 to construct four probabilities for $s_{i,t}$ conditional on $s_{i,t-1}$. We simulate labor market histories in this way for 24 months to complete the burn-in.

Once the distribution has been initialized, we then simulate the recession scenario. For each month, we construct transition probabilities for each individual in the panel as the predictions from our regression estimates. Specifically, the probability that individual i ends up in status s'' in month t given that they were in status s' in the previous month can be computed as

$$\pi_{i,t}^{s'\to s''} = \sum_{s\in\{E,U^e,U^i,N\}} \sum_{k\in\{1,2,11,12,13,14\}} \hat{\phi}_{s,k}^{s'\to s''}\gamma_{i,t-k}^{s} + \tilde{f}^{s'\to s''}(t)$$

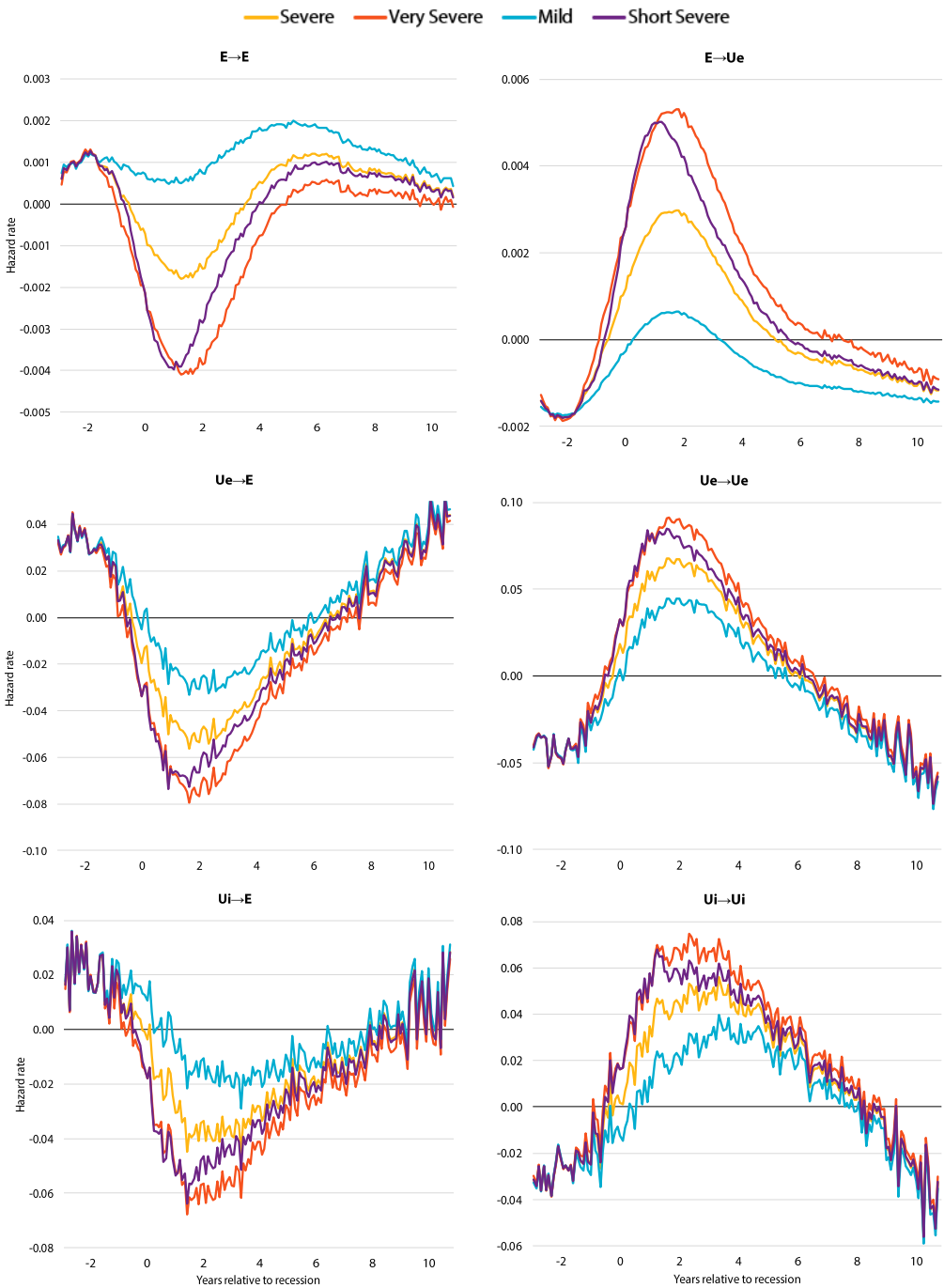
where $\tilde{f}^{s'\to s''}(t) = \sum_r \hat{f}^{s'\to s''}(r,t)\Pr(r)$ is the national average of the estimated trend component, weighted by population. Applying this procedure yields four predicted probabilities (given the previous status $s_{i,t-1}$), which we use to draw the next simulated labor market status for the individual. The values of $\tilde{f}$ change each period as the simulation progresses, pushing the distribution of unemployment duration from its steady state values into the distribution seen during recessions. In the Severe scenario, we use the estimated values of $\tilde{f}$ without any alteration.

To simulate different recession scenarios, we perturb the path of the aggregate trends of each hazard rate $\tilde{f}$ in order to produce each scenario. We perturb several of the inflows to unemployment ($\tilde{f}^{E\to U^e}$, $\tilde{f}^{N\to U^e}$, and $\tilde{f}^{N\to U^i}$) and also perturb several of the inflows into employment ($\tilde{f}^{U^e\to E}$, $\tilde{f}^{U^i\to E}$, and $\tilde{f}^{N\to E}$). To maintain the predicted probabilities adding up to 1, we also perturb several of the remaining flows ($\tilde{f}^{E\to E}$, $\tilde{f}^{U^e\to U^e}$, and $\tilde{f}^{U^i\to U^i}$) with equal and opposite sign as the main perturbations. Each of the perturbed paths used in each of the simulations is shown in appendix figure A.1. For the seven hazards not shown, the same path is used in all of the simulations, equal to the trend estimated from the regressions without any alterations.

With a full simulation of all periods for all 10,000 individuals in the simulation sample, the distribution of unemployment duration in each month can be computed. We drop observations from the burn-in period before plotting, but the computed duration of an unemployment spell may include time spent during the burn-in period, so the initially low number of long-term unemployed in the simulations is not mechanical.

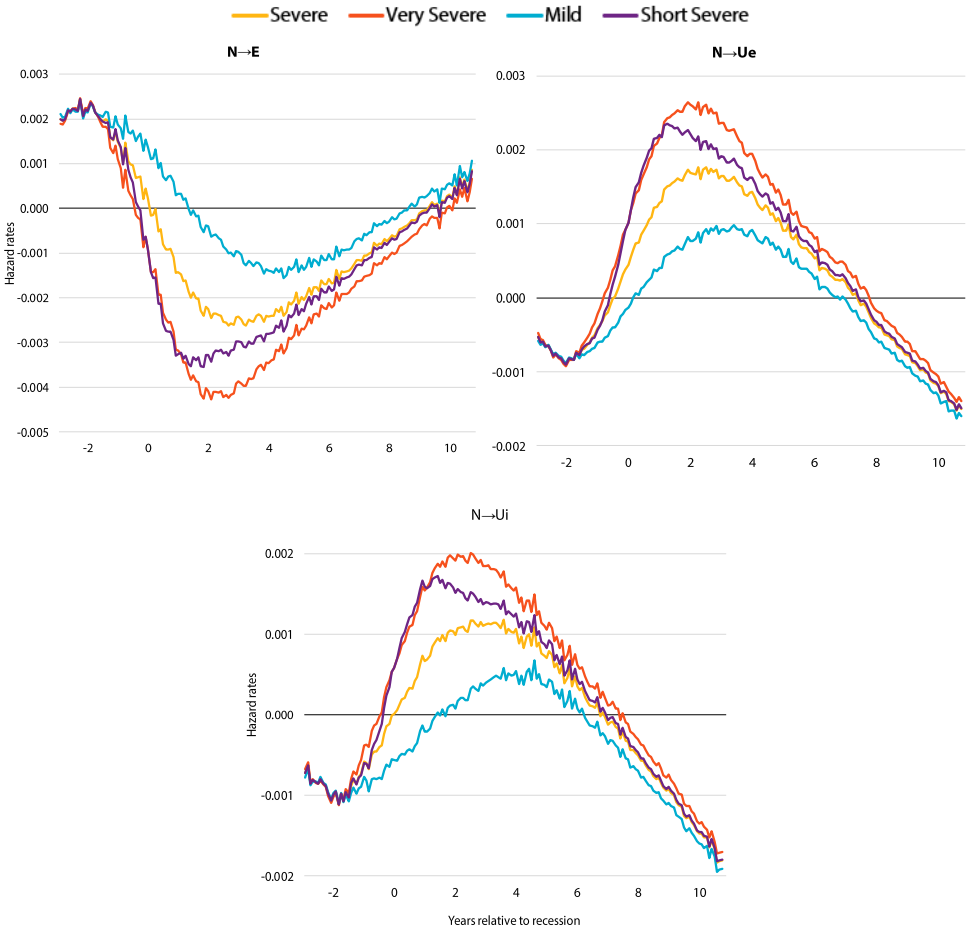
APPENDIX FIGURE A.I.

Aggregate Trends in Hazard Rates Used in Simulations



APPENDIX FIGURE A.I. (CONTINUED)

Aggregate Trends in Hazard Rates Used in Simulations



Source: Authors' calculations.

Appendix B. Theory of Optimal UI Transfers

The academic literature offers a number of insights for the optimal provision of UI. Starting with the seminal work of Baily (1978), a long literature has developed criteria for determining the optimal level and duration of UI benefits in different frameworks. This appendix summarizes the insights from this literature, focusing on distinguishing between microeconomic and macroeconomic factors that influence the determination of optimal UI benefits.

The optimal UI benefits schedule balances the marginal benefit of additional UI against the marginal cost. This trade-off is often expressed as a generalized Baily-Chetty formula equating microeconomic benefits from consumption smoothing against the net cost through several channels:

$$\underbrace{\frac{u'(c^u) - u'(c^e)}{u'(c^e)}}_{\substack{\text{Microeconomic} \\ \text{Benefit}}} = \underbrace{\underbrace{\epsilon^m}_{\substack{\text{Microeconomic} \\ \text{Elasticity}}} + \underbrace{s}_{\substack{\text{Search} \\ \text{Externality}}} - \underbrace{AD}_{\substack{\text{Aggregate} \\ \text{Demand}}}}_{\text{Net Costs}}$$

The left term represents the consumption smoothing benefits of UI to the individual recipient. This term is positive as long as the marginal utility of consumption for the unemployed, $u'(c^u)$, is larger than that of employed workers, $u'(c^e)$. The right term includes three different channels identified by the literature: (1) microeconomic changes in unemployment induced by benefits, ϵ^m; (2) externalities from changes in aggregate search effort, s; and (3) changes in aggregate demand stemming from increased UI transfers, AD.

The optimal UI rule originally developed by Baily (1978) and extended by Chetty (2006) balances the consumption smoothing benefit against the microeconomic cost ϵ^m alone. Implicitly, it ignores the effect of UI benefits on macroeconomic conditions through either aggregate search effort or aggregate demand. The formula nonetheless holds in a wide variety of models, including those featuring dynamic decisions, stochastic employment, and borrowing constraints. The microeconomic elasticity of unemployment duration with respect to UI benefits ϵ^m reflects both reduced search effort due to moral hazard and higher reservation wages due to the relaxing of liquidity constraints. Chetty (2006) provides conditions under which the consumption drop at unemployment is a sufficient statistic for the benefits of additional UI in this framework, capturing all relevant

factors including the leisure value of unemployment and the potential benefits of subsidizing job search.

The main body of the text reviewed evidence on the magnitude of the microeconomic elasticity ϵ^m. Three points merit additional discussion here. First, Chetty (2008) and Landais (2015) present evidence that the microeconomic elasticity mostly reflects the relaxation of liquidity constraints from higher benefit levels and not moral hazard arising from the distortion in the relative price of leisure and consumption. Chetty (2008) shows that only the moral hazard component of the elasticity constrains the optimal level of UI benefits. Second, the finding in Kolsrud et al. (2018) that the moral hazard effect decreases in the length of the unemployment spell implies that benefit extensions generate less moral hazard than increases in regular UI benefits. Third, Kroft and Notowidigdo (2016) find that ϵ^m is much smaller during recessions than expansions, in which case the above equation implies that UI benefits should increase during recessions.

The role of search externalities in determining the optimal level of UI benefits was pioneered by Landais, Michaillat, and Saez (2018). They introduce a general search and matching model of the labor market in which UI benefits have macroeconomic effects in addition to microeconomic effects. As in previous studies, the microeconomic elasticity ϵ^m reflects the elasticity of unemployment to changes in UI benefits for a single worker holding the UI benefits of other workers constant. The new term incorporates the effects of market-wide changes in wages and search effort in response to a market-wide change in UI benefits. This term can be positive if increases in UI benefits reduce the rate of job creation, for example because higher UI benefits ⇒ higher outside option for workers ⇒ higher equilibrium wages ⇒ lower firm profits from hiring a worker ⇒ fewer vacancies created ⇒ fewer workers hired. Jäger et al. (2018) find empirically that higher UI benefits do not cause higher wages in Austrian data, contra this mechanism. In rat-race models (Michaillat 2012), the term s can be negative because search effort by one individual crowds out another. Intuitively, if the labor market matching technology imposes a ceiling on the number of potential hires in a period, then a positive *microeconomic* elasticity that reduces the job search effort of UI recipients may exist along with a zero *macroeconomic* elasticity because the market already contains an inefficient amount of search. Crepon et al. (2013) provide evidence of such crowd-out in practice. The higher likelihood of crowd-out effects during recessions also implies UI benefits should be countercyclical.

In addition to search externalities, macroeconomic changes in UI benefits may affect aggregate demand. Kekre (2016) shows how incorporating this channel adds an additional term, AD, to the generalized Baily-Chetty formula. If the economy features nominal rigidities and workers face borrowing constraints, then extensions of UI benefits increase the consumption of unemployed workers and reduce the precautionary savings motive for employed workers, raising consumption and dampening the effects of economic shocks. This additional channel motivates higher UI benefits during periods when nominal rigidities and borrowing constraints may be binding.

The trade-off between the consumption smoothing benefits of additional UI and its net costs may vary for different margins along which UI benefits can change, making some of these channels more or less relevant for different potential policy proposals. Extensions to benefit duration provide consumption smoothing benefits to long-term unemployed who may have a higher MPC than the short-term unemployed, raising the importance of the microeconomic benefits of UI when considering long-term benefit extensions. At the same time, the evidence shows—as discussed above—that extensions beyond 46 weeks may have a limited effect on aggregate demand because relatively few individuals remain unemployed long enough to collect benefits from these extensions. On the other hand, increasing benefits for the short-term unemployed provides relatively less consumption smoothing but offers some scope to affect aggregate demand because of the greater number of short-term unemployed.

Important for our purpose, theory and evidence of the microeconomic elasticity (Kroft and Notowidigdo 2016) and the search externality (Landais, Michaillat, and Saez 2018) militate in favor of countercyclical UI benefits even if the aggregate demand/stimulus role remains limited for the reasons described in the previous sections. Thus, these proposals have qualitative grounding in the theory of optimal UI based on the microeconomic and search externality components alone.

Appendix C. Important Characteristics of the Regular UI Program, by State

APPENDIX TABLE C.1

Regular UI Programs by State

State	Maximum potential duration (weeks)	Maximum weekly benefit amount	Recipiency rate
Alabama	26	$265	20.6%
Alaska	26	$442	36.8%
Arizona	26	$240	16.4%
Arkansas	16	$451	23.2%
California	26	$450	47.0%
Colorado	26	$585	26.4%
Connecticut	26	$697	54.9%
Delaware	26	$330	30.4%
District of Columbia	26	$435	47.1%
Florida	12	$275	13.2%
Georgia	15	$330	16.7%
Hawaii	26	$625	50.8%
Idaho	14	$410	22.5%
Illinois	26	$638	40.4%
Indiana	26	$390	16.4%
Iowa	26	$566	44.1%
Kansas	16	$474	21.7%
Kentucky	26	$475	22.6%
Louisiana	26	$247	18.2%
Maine	26	$637	25.7%
Maryland	26	$430	28.8%
Massachusetts	30	$1,173	55.3%
Michigan	20	$362	30.9%
Minnesota	26	$705	42.2%
Mississippi	26	$235	16.5%
Missouri	20	$320	26.4%
Montana	28	$523	35.4%
Nebraska	26	$420	16.2%
Nevada	26	$445	28.5%
New Hampshire	26	$427	18.2%

State	Maximum potential duration (weeks)	Maximum weekly benefit amount	Recipiency rate
New Jersey	26	$689	63.4%
New Mexico	26	$488	23.5%
New York	26	$440	40.3%
North Carolina	12	$350	10.8%
North Dakota	26	$601	45.1%
Ohio	26	$598	21.8%
Oklahoma	26	$513	19.8%
Oregon	26	$614	31.5%
Pennsylvania	26	$569	45.3%
Rhode Island	26	$714	43.3%
South Carolina	20	$326	20.0%
South Dakota	26	$396	11.8%
Tennessee	26	$275	17.7%
Texas	26	$494	26.0%
Utah	26	$552	16.0%
Vermont	26	$482	45.0%
Virginia	26	$378	16.5%
Washington	26	$731	28.4%
West Virginia	26	$424	29.1%
Wisconsin	26	$370	34.5%
Wyoming	26	$482	27.0%

Source: Office of Unemployment Insurance, U.S. Department of Labor 2018, authors' calculations.
Note: All statistics are averages for the calendar year 2018.