

# Chicago Fed Letter

## How much of the decline in unemployment is due to the exhaustion of unemployment benefits?

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Prior studies have examined the impact of extended unemployment insurance (UI) benefits on the rise in the unemployment rate in this recession and early recovery. We use real-time microdata from the Bureau of Labor Statistics' *Current Population Survey* (CPS) to examine whether there has been a reverse effect recently as benefits have been exhausted. We find that if UI benefits had lasted indefinitely, the unemployment rate would have been cumulatively about 0.1 to 0.3 percentage points higher between October 2009 and January 2011, which represents about 10% to 25% of the decline in the actual rate over that period.

During the most recent recession, the unemployment rate—especially the

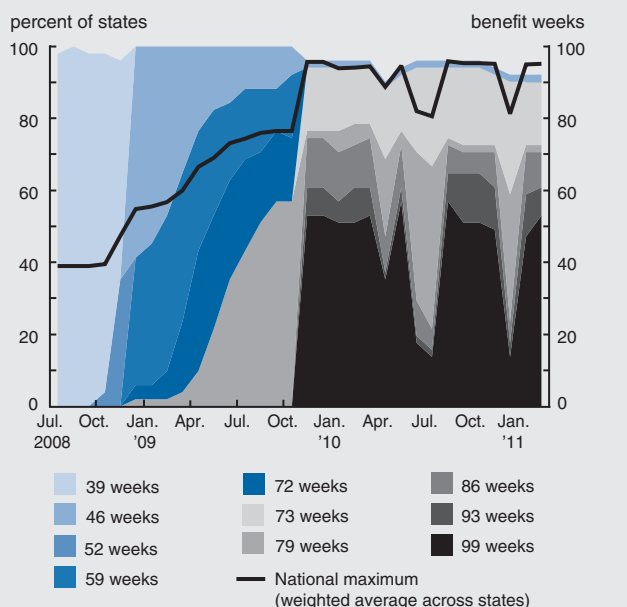
long-term unemployment rate<sup>1</sup>—rose to historical highs. After a surge following the financial crisis in fall 2008, the unemployment rate peaked at 10.1% one year later in October 2009. During this period of unusually high unemployment, two federal programs—Extended Benefits (EB) and Emergency Unemployment Compensation 2008 (EUC)—have extended UI benefits substantially beyond the normal limit of 26 weeks, with eligible individuals in some states able to receive as many as 99 weeks of unemployment compensation.

efforts, leading to a lower job-finding probability. Second, in order to qualify for the benefits, unemployed individuals might have a higher incentive to stay unemployed rather than leave the labor force. Both lead to a lower probability of exiting unemployment, longer average unemployment duration, and thus a higher unemployment rate.<sup>2</sup> Indeed, several recent economic studies have found that UI extensions can account for 0.5 to 1.5 percentage points of the increase in the unemployment rate during the most recent recession and early recovery.<sup>3</sup>

As of March 2011, the unemployment rate had declined to 8.8%. Furthermore, most of the people who entered unemployment two years ago have by now likely reached the limit of their UI benefits. If the UI extensions contributed to the rise in the unemployment rate in this recession and early recovery, will the opposite now also be true? Are exhaustions of UI benefits now contributing to the decline in the unemployment rate?

In this *Chicago Fed Letter*, we study the evolution of UI benefit extensions and the effect of their depletion on the

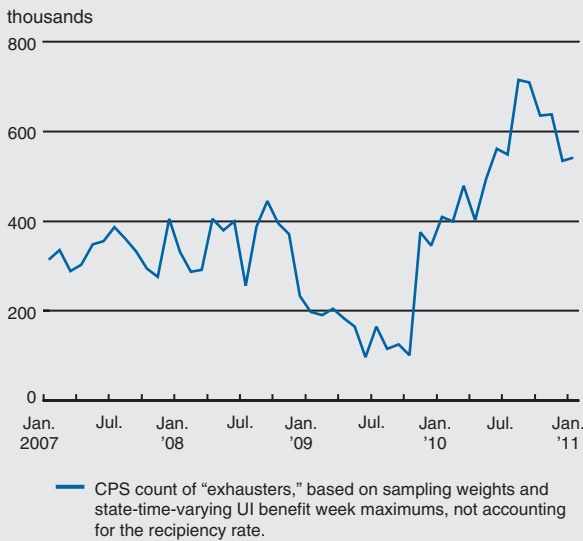
### 1. Maximum potential weeks of UI benefits



Source: Data from U.S. Department of Labor, Employment and Training Administration, EB and EUC Trigger notices, available at [http://workforcesecurity.doleta.gov/unemploy/claims\\_arch.asp](http://workforcesecurity.doleta.gov/unemploy/claims_arch.asp).

Extending UI benefits could raise the unemployment rate in two ways. First, it might create a disincentive in job search

## 2. Number of exhausters



NOTE: Counts are seasonally adjusted.

SOURCES: Authors' calculations based on data from U.S. Bureau of Labor Statistics, *Current Population Survey*, basic monthly files, and U.S. Department of Labor, Employment and Training Administration, EB and EUC Trigger notices.

unemployment rate, in real time, between October 2009 and January 2011. To estimate this effect, we identify the UI benefit “exhausters” and predict what they would have done had they not exhausted their benefits. This analysis is complicated by the fact that maximum potential UI benefits weeks are state- and time-specific and that we do not actually observe what “exhausters” would have done.

### Measuring exhaustions

First, we compile a database of maximum potential benefit weeks. Due to a multi-tier benefit system that relies on national- and state-level labor market triggers, as well as some differences in laws across states (e.g., which EB triggers will be recognized), there has been considerable variation by state and over time in the number of maximum weeks of UI benefits individuals could receive.<sup>4</sup> Figure 1 shows this heterogeneity explicitly by plotting the fraction of states, plus Washington, DC, with a given level of maximum potential benefit weeks over time. The variation began in September–November 2008 with the triggering of EB and introduction of the EUC tier system, and potential weeks peaked in November 2009 with the addition of two more tiers to EUC and continued worsening of the labor market.

time was 59 weeks is an “exhauster,” since both values are in the 55- to 59-week range).<sup>5</sup> Figure 2 reveals a baseline period of “exhaustions” as people hit the regular benefits maximum (26 weeks), a subsequent decline in November 2008 when second-tier EUC extensions began, followed by a year of almost steadily increasing exhaustions<sup>6</sup> after the additional legislation in November 2009.<sup>7</sup>

### Effects of exhaustions

To assess whether exhausting one’s UI benefits has an effect on one’s labor market status, we track individuals over time<sup>8</sup> and look at the fractions of exhausters transitioning in the next period to employment (this is the unemployment to employment rate, or UE, for exhausters), out of the labor force (UO), and to continued unemployment (UU). Since changes in these rates might merely reflect changing economic conditions rather than responses to UI policy, we compare exhausters’ transitions with those of unemployed individuals who have not yet exhausted their benefits (a control group). However, people with much shorter unemployment spells may generally differ from exhausters in many other observed and unobserved traits that could also affect their transition rates. To deal with this problem, we explore

We then use reports of unemployment duration from the CPS, available through January 2011, to identify when individuals reached their state-specific maximum. Those reaching their state’s maximum in any given month are henceforth known as “exhausters.” Explicitly, we define “exhausters” as individuals reporting an unemployment duration that is within a five-week interval containing the state limit (e.g., an individual reporting 57 weeks unemployment and living in a state where the maximum at that

the “discontinuity” around the UI benefits time limit and focus on exhausters relative to a group of “nonexhausters” who also have relatively long unemployment spells but are just short of reaching their state’s limit.<sup>9</sup> The idea is that the two groups would likely behave similarly had there been no limit on UI benefits. We argue that any differences between these two groups’ transitions into employment and out of the labor force are thus more likely to be due to the effects of UI.

Figure 3 presents the transition rates of UU, UE, and UO for exhausters and nonexhausters over the last three years. Panel A shows that from 2008 onward, nonexhausters became increasingly likely to stay unemployed (UU rate rose from approximately 60% to 80%). In contrast, the corresponding UU probability for exhausters also increased at first, but in mid-2009 it started falling to its early 2008 level. Panels B and C indicate that this visible split between the two groups’ tendencies to leave unemployment, especially from September to December 2010, is not so much due to exhausters being more likely to find a job (UE rates did not differ much) but due to exhausters’ higher likelihood of leaving the labor force (UO rates averaged 16 percentage points higher in the four-month period).<sup>10</sup>

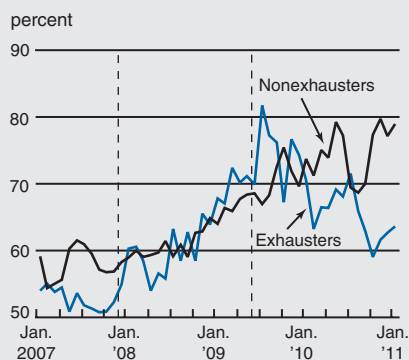
### Counterfactual unemployment rate

With information on both the number of exhausters and the differences in transition rates, we can find out what the unemployment rate would have been (“the counterfactual”) if UI benefits were indefinite and nobody had exhausted their benefits, so that exhausters, too, exhibited the transition rates of nonexhausters.<sup>11</sup> We find that between October 2009 and January 2011, the exhaustion of UI benefits can explain a cumulative change of 0.28 percentage points in the unemployment rate, which means that the headline January unemployment rate, 9.0%, would have been 9.3% without the effect of UI exhaustions.

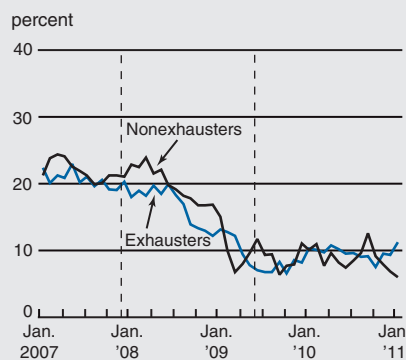
Our estimates might be biased upward for various reasons. In particular, we might have classified too many people as exhausters because of heaping (rounding) in the unemployment duration responses at 104 weeks.<sup>12</sup> To partly offset this, we

### 3. Labor market transition rates

**A. Unemployment to unemployment (UU)**



**B. Unemployment to employment (UE)**



**C. Unemployment to out-of-labor-force (UO)**



NOTE: Rates are seasonally adjusted, three-month moving averages.

SOURCES: Authors' calculations based on data from U.S. Bureau of Labor Statistics, *Current Population Survey*, basic monthly files, and U.S. Department of Labor, Employment and Training Administration, EB and EUC Trigger notices.

derived an alternative estimate, applying a lower reciprocity adjustment factor<sup>13</sup> to the CPS count of exhausters. We also applied the Department of Labor's Employment and Training Administration data on final payments of EB as another alternative for the count of exhausters, since typically EB benefits are paid out after all regular and four tiers of EUC benefits have been exhausted. The resulting estimates of the cumulative change in the unemployment rate were reduced to 0.2 and 0.1 percentage points, respectively, with the latter likely being a lower bound.<sup>14</sup>

### Conclusion

In this article, we were able to use real-time CPS microdata on people counts and labor market transitions, rather than a set of strong assumptions (e.g., assuming all exhausters leave the labor force or using historical averages of transition rates for all unemployed) to estimate the magnitude of the change in the unemployment

rate resulting from UI exhaustions. Our main findings are as follows. 1) The number of people hitting their state's maximum UI benefits weeks rose sharply after November 2009. 2) While, on average, the job-finding probabilities are similar between exhausters and nonexhausters, exhausters appear to be more likely to leave the labor force. 3) If UI benefits had been extended indefinitely and exhausters had thus behaved like nonexhausters, the unemployment rate would have been cumulatively 0.1 to 0.3 percentage points higher between October 2009 and January 2011, representing about 10% to 25% of the decline in the actual unemployment rate over the same period.

Overall, our estimates suggest that UI exhaustions contributed modestly to the decline in the unemployment rate between October 2009 and January 2011. Our alternative unemployment rate path (not shown here) indicates that the effect of UI exhaustions was largest between

September 2010 and December 2010.<sup>15</sup> If there is no further change in the current programs, the same analysis would indicate that UI exhaustions will have a limited and diminishing effect on the unemployment rate in coming months.<sup>16</sup> However, if as labor market conditions improve in the coming years, the UI programs return to normal (no EUC or EB), we would expect to see bigger effects on the unemployment rate (as many recently unemployed hit the 26-week limit). Thus, the cumulative effect of UI exhaustions on the decline of the unemployment rate since late 2009 could be larger than 0.3 percentage points and would thus gradually reverse the effect of UI extensions on the rise in the unemployment rate, estimated in prior studies to be in the neighborhood of 1 percentage point.

<sup>1</sup> The long-term unemployment rate is the share of the labor force unemployed more than 26 weeks.

<sup>2</sup> Nevertheless, extended benefits can be welfare enhancing for many with low savings by reducing their need to take low-paying jobs that do not match well with their skills. See Raj Chetty, 2008, "Moral hazard versus liquidity constraint and optimal unemployment insurance," *Journal of Political Economy*, Vol. 116, No. 2, April, pp. 173-234.

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<sup>3</sup> For a summary, see Bhashkar Mazumder, 2011, “How did unemployment insurance extensions affect the unemployment rate in 2008–10?,” *Chicago Fed Letter*, No. 285, April. With the exception of Daniel Aaronson, Bhashkar Mazumder, and Shani Schechter, 2010, “What is behind the rise in long-term unemployment?,” *Economic Perspectives*, Federal Reserve Bank of Chicago, Vol. 34, Second Quarter, pp. 28–51, these studies typically derive their estimates from comparing the unemployment rate in two steady states: pre- and post-UI extensions. They are silent about how the effect evolves in real time.

<sup>4</sup> For 2008–10, we compile a database of triggers for EB and all four tiers of EUC using data from the Department of Labor website, [http://workforcesecurity.doleta.gov/unemploy/claims\\_arch.asp](http://workforcesecurity.doleta.gov/unemploy/claims_arch.asp). We adjust third- and fourth-tier triggers in April, June, July, and December 2010 to account for the fact that although the EUC law expired in these months, individuals already collecting benefits were allowed to finish out their tier.

<sup>5</sup> The exception is 99 weeks. Since answers are *heaped* (i.e., people tend to round their responses) at two years or 104 weeks, very few people actually report 95–99 weeks of unemployment duration. Thus, in states where the maximum is 99, “exhausters” are those reporting unemployment durations between 100 and 104 (rather than 95 and 99) weeks.

<sup>6</sup> For figure 2, we adjusted our maximum potential weeks database for the temporary turnoffs of EB benefits in June, July, and December 2010, which is not an entirely unrealistic adjustment since the EB turnoffs did not affect individuals who had already collected EB benefits. These turnoffs were probably due to the temporary expiration of 100% federal funding for EB.

<sup>7</sup> To verify that our CPS data on unemployment duration are reliable, we compare our exhaustion series to the official Regular Benefits final payments series from the Department of Labor’s Employment and Training Administration website, <http://www.ows.doleta.gov/unemploy/euc.asp>. We find that over the period of 1978–2007 (not shown here), our CPS data line up reasonably well in periods without extensions (with a regression  $R^2$  of 0.45).

<sup>8</sup> That is, we use a matched CPS sample.

<sup>9</sup> Henceforth, we define nonexhausters as individuals reporting an unemployment duration that is short of their state’s maximum by 8–12 weeks.

<sup>10</sup> In general, exhausters are more likely to leave unemployment than nonexhausters, both before and after the recession (see the dotted bars in figure 3), suggesting that the UI benefit limit (26 weeks before July 2008 and as many as 99 weeks after) has had a behavioral impact. The observation that the two groups’ behaviors line up for some interval before they diverge possibly reflects that exhausters at the time were anticipating further extensions to maximum potential weeks, so they acted like nonexhausters.

<sup>11</sup> Specifically, if the actual unemployment rate is  $UR_t = U_t / LF_t$ , we compute the counterfactual unemployment rate as  $\bar{U}R_t = [U_t + .65 * Exhausters_{t-1} * (D\_ue_t + D\_uo_t)] / [LF_t + .65 * Exhausters_{t-1} * D\_uo_t]$ , where  $D\_ue_t = UE_t^{Exhauster} - UE_t^{Nonexhauster}$ ,  $D\_uo_t = UO_t^{Exhauster} - UO_t^{Nonexhauster}$ . The exhauster count comes from figure 2, and the transition rate differentials are derived from figure 3. We scale down our exhauster count by .65, the average UI benefit reciprocity rate from October 2009 to January 2011.

<sup>12</sup> Other factors, such as workers not being eligible to receive the full number of weeks possible (in which case, exhaustion of benefits would happen sooner) or exhaustions not being feasible in the same period as an increase in the maximum (in which case, exhaustion would happen later), affect the timing but may net each other out.

<sup>13</sup> See note 11. We try 40% instead of 65%.

<sup>14</sup> The size of final payments by category is much smaller for EB than for the regular benefits and EUC tiers. The lower count could be because many people do not actually receive the maximum weeks of benefits (EB, for example, has different eligibility rules than EUC). Alternatively, it could be that some people had already collected EB before the final two tiers were added. Thus, the EB final payments series likely underestimates the number of exhausters.

<sup>15</sup> This conclusion is consistent with the findings in Lisa Barrow, 2011, “Explaining the recent decline in the unemployment rate,” *Chicago Fed Letter*, No. 287, June, suggesting that changes in aggregate UO rates (for all unemployed, not just insured unemployed) explain a substantial part of the decline in the unemployment rate from November to December 2010, but not from January to March 2011.

<sup>16</sup> DOL ETA data confirm that final payments for the regular 26-week program peaked in August 2009; even if all 26-week exhausters qualified for the maximum additional 73 weeks, they would have exhausted benefits around January 2011.