



# Labor Market Transitions and the Availability of Unemployment Insurance

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## Abstract:

Economists often expect unemployment insurance (UI) benefits to elevate unemployment rates because recipients may choose to remain unemployed in order to continue receiving benefits, instead of accepting a job or dropping out of the labor force. This paper uses individual data from the Current Population Survey for the period between 2005 and 2013—a period during which the federal government extended and then reduced the length of benefit availability to varying degrees in different states—to investigate the influence of program parameters in the UI system on monthly transition rates of unemployed individuals. The main finding is that unemployed job losers tend to remain unemployed until they exhaust UI benefits, at which point they become more likely to drop out of the labor force; transitions to a job appear to be unaffected by UI benefit extensions. These findings imply that the longer periods of benefit eligibility under the federal programs EUC08 and EB—up to 99 weeks in many states in 2011 and 2012—contributed to the elevated jobless rates observed during that period, but not via lower employment. By the same token, the sharp contraction of benefit weeks that occurred in 2012 and continued more gradually in 2013 likely contributed to declines in unemployment and participation rates beyond what one would expect based on the improving economy alone. Similarly, the December 28, 2013 sudden cutoff of federal UI payments to an estimated 1.3 million jobless Americans who had been looking for work for more than six months is adding to the pace of transitions from unemployment to dropping out of the labor force, thus reducing the unemployment rate and the labor force participation rate further in the first half of 2014, although very modestly.

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This paper presents preliminary analysis and results intended to stimulate discussion and critical comment. The views expressed herein are those of the author and do not indicate concurrence by the Federal Reserve Bank of Boston, or by the principals of the Board of Governors, or the Federal Reserve System.

This paper, which may be revised, is available on the web site of the Federal Reserve Bank of Boston at <http://www.bostonfed.org/economic/wp>.

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## I. Introduction

Economists often expect unemployment insurance (UI) benefits to elevate unemployment rates because recipients may choose to remain unemployed—instead of accepting jobs or dropping out of the labor force—in order to continue receiving benefits. Researchers have attempted to quantify the effect of UI benefit availability on the unemployed ranks and on the U.S. unemployment rate. The federal extensions of available weeks of UI in the recent recession and recovery to date—Emergency Unemployment Compensation 2008 (EUC08) and the Extended Benefits (EB) program—have augmented interest in this issue, and have provided fresh data with which to investigate these questions.

This paper uses individual data from the Current Population Survey between 2005 and 2013 to investigate the influence of program changes in the UI system on the monthly transition rates of unemployed individuals from unemployment to out of the labor force and from unemployment to employment, as compared with staying unemployed. The main findings are as follows:

- Unemployed job losers have low rates of transition out of the labor force until their duration of unemployment approaches the maximum available months of UI benefits in their state at that time.
- Further, the transitions from unemployment to out of the labor force are greater in the month after UI benefits are exhausted and thereafter than in the month of exhaustion or the month before exhaustion.
- There is no discernible relationship between emergency and extended (E/E) UI availability and transitions from unemployment to employment.

These patterns are consistent with the view that during the Great Recession and recovery to date, many job losers continued to look for work, did not succeed in finding jobs, and kept their status as “unemployed” until their benefits were exhausted, after which they gradually dropped out of the labor force. This suggests that under the federal programs EUC08 and EB, longer periods of benefit eligibility—up to 99 weeks in many states in 2010 and 2011—contributed to the elevated jobless rates observed during that period, but *not* via lower

*employment*. By the same token, the sharp contraction of benefit weeks that occurred in 2012 and continued more gradually in 2013 likely contributed to declines in unemployment and participation rates beyond what one would expect based on the improving economy alone.

Similarly, the December 28, 2013 sudden cutoff of federal UI payments to an estimated 1.3 million workers who had been looking for work for more than six months is adding to the pace of transitions from unemployment to out of the labor force, reducing the unemployment rate and labor force participation rate further in the first half of 2014, although very modestly. However, there has been no corresponding improvement in employment rates for the cutoff individuals; the estimates in this paper imply that their job-finding is not responsive to the availability of EUC08 and EB. The longer federal benefit periods provided income support to long-term unemployed job losers in an economy that apparently still has too few jobs on offer for them.

This paper proceeds as follows: the next section summarizes several research papers—and one in particular—that address similar questions. Section III-A then describes the relevant characteristics of the U.S. federal-state unemployment insurance system, and how these features have evolved during the Great Recession and the recovery to date. Section III-B describes how I use data from the U.S. Current Population Survey to calculate the month-to-month transitions among the three types of labor force status, while Section III-C describes the regression approach. Section IV introduces my indicators of UI program parameters, presents my estimates of their effects on individuals' transitions out of unemployment, and tests for asymmetries in those effects. (An appendix describes several robustness checks conducted to confirm the key results.) Section V present coefficient estimates for the control variables included in the regressions. The final section discusses the estimates and describes recent changes in the UI landscape and what these may imply about measured unemployment and participation in the coming months.

## **II. Closely Related Research**

Recent analyses of the effect that UI extensions may have had on labor market status include Rothstein (2011) and Farber and Valletta (2013). Both of these papers find that the availability of

UI benefits has raised the unemployment rate during eligibility periods. Rothstein estimates that “at least half” of the effect was attributable to reduced labor force exit, while Farber and Valletta find that the increased unemployment rate almost entirely reflects job losers who, in the absence of longer benefit availability, would have dropped out of the labor force. Both of these papers and the research that I report in this study identify the effects of UI program parameters by using variation across states and over time in the maximum weeks of benefits available; this is done in conjunction with data on an individual’s unemployment duration and state of residence. In measuring the UI weeks still available to an individual, Rothstein also takes account of program breaks associated with legislative failures to renew the UI extensions—that is, he assumes that individuals act as if the programs will end as legislated. Farber and Valletta, by contrast, smooth through those program breaks, as do I.

Farber and Valletta use matched data on individuals observed for four consecutive months in the Current Population Survey. Each two-month match for an individual is characterized by a transition (or a lack of transition) from one labor market status to another. They adjust their observed transitions for immediate reversals—for example, recoding any moves from unemployment to employment or not in the labor force and then back to unemployment as staying in unemployed status. They obtain their estimates in the context of a discrete-time hazard specification modeling the probability that an unemployment spell ends at duration  $X$ , given that it has lasted at least until  $X$ . According to the Farber-Valletta estimates, while exits from unemployment to employment ( $U \rightarrow E$ ) are virtually unaffected by the UI program extensions, individual duration relative to state-month UI maximum plays a significant role in exits from unemployment to not-in-the-labor-force ( $U \rightarrow N$ ). Specifically,  $U \rightarrow N$  transitions are lower for individuals whose own jobless duration is within the eligibility period for extended and emergency benefits, but this restraint ends when their unemployment duration goes beyond the maximum weeks of UI available in their state. In addition, the  $U \rightarrow N$  transition rate appears to be slightly higher in the month in which the individual’s benefits would be exhausted, but this estimated “exhaust-month” effect is not significantly different from zero.

### III. Data and Estimation

#### *A. The State-Federal UI System and Federal Extensions*

Before the Great Recession, most states offered 26 weeks (six months) of “regular” unemployment insurance benefits to qualifying job losers.<sup>1</sup> The federal government typically supplements these state benefits during times of high unemployment via the permanent Extended Benefits (EB) program and the temporary “emergency” benefit extensions that are enacted during specific recessions.<sup>2</sup> With some exceptions, the eligibility for these federal extended benefit programs generally follows the rules of the individual state’s regular benefit programs. Starting in June 2008, the EUC08 program provided 13 weeks of federally funded “Tier 1” UI benefits in all states to unemployed individuals who exhausted their regular state benefits. In November 2008, this first tier was raised to 20 weeks and was supplemented with Tier 2 benefits providing an additional 13 weeks in states with “high” unemployment rates.<sup>3</sup> Subsequent legislation added two additional tiers of add-on weeks as of November 2009, each with a higher state unemployment rate “trigger.” The permanent EB program provides additional weeks of federally funded UI benefits to unemployed individuals who have exhausted state regular and EUC08 unemployment benefits in states where the unemployment rate is not only high but also has risen compared with a two-year (or later three-year) “look-back” period. During most of the Great Recession, the permanent EB program added 13 or 20 weeks of benefits, with 20 weeks available in higher-unemployment states. Thus, the availability of these federal emergency and extended (E/E) benefits varies across states

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<sup>1</sup> Individual states impose a variety of restrictions on UI eligibility; these pertain to employer characteristics, the reasons for the job loss (those who are fired for cause or who leave voluntarily are not eligible), as well as to an individual’s length of tenure on the job, usual weekly hours, and so on. During the recovery from the Great Recession, some states reduced their “regular state UI” benefit eligibility maximum to less than 26 weeks; by mid-2013, there were eight states with regular state UI maximums under 26 weeks.

<sup>2</sup> The permanent Extended Benefits program is funded 50-50 by the federal government and the states; however, during the Great Recession, the federal government took on 100 percent of the funding.

<sup>3</sup> “High” unemployment is determined by either the seasonally adjusted “total unemployment rate” averaged over the latest available three months of data or by the “insured unemployed rate” averaged over 13 weeks, depending on state law.

depending on state-level “triggers”—indicated by a state’s unemployment rate compared to some benchmark—so as to provide additional weeks of benefit eligibility in states with higher joblessness.<sup>4</sup>

Based on data compiled by the Center on Budget and Policy Priorities—which I have smoothed through program breaks and have updated (throughout 2013 and into 2014) with end-of-month Department of Labor “trigger notices”—Table 1 reports the maximum weeks of unemployment insurance available by state and month from January 2008 through March 2014.<sup>5</sup> Figure 1 summarizes this information, showing the maximum benefit weeks in the states with the highest and lowest maximum weeks of UI benefits as well as the maximum weeks of benefits available to the average and median unemployed job loser over the period. As Table 1 shows, a maximum of 99 weeks of UI benefits was available in up to 30 states between late 2009 and spring 2012, but residents of three states were never offered more than 60 weeks and another eight states topped out at 73 weeks. These maximums fell in 2012 and 2013 as individual state jobless rates came down from their recession highs, states cut the maximum weeks of benefit eligibility, and/or benefit eligibility was reduced for other reasons.<sup>6</sup>

### *B. Current Population Survey*

Using month-to-month transitions in labor force status based on matched data from the Current Population Survey (CPS), I focus on the unemployed and their transitions from unemployed to employed (U→E) and from unemployed to not in the labor force (U→N); the

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<sup>4</sup> See Stone and Chen (2013) for a description of the federal-state partnership that provides unemployment insurance to people who have lost their jobs.

<sup>5</sup> The data in Table 1 smooth through a number of mostly brief breaks in the federal benefit availability that occurred when the Congress failed to reauthorize UI before previous authorizations expired. On these occasions, beneficiaries could continue to collect benefits in their current “tier” but could not transition to the next tier; after the reauthorization, cutoff beneficiaries were reinstated and paid the benefits that accrued during the break. The longest such break extended from June 2 to July 22, 2010.

<sup>6</sup> In 2012, 32 states lost eligibility for the Extended Benefits program because their jobless rates had been elevated for so long. The EB program had a two- and then three-year look-back period used to judge “high” unemployment and these states had not seen their jobless rates rise enough to retain eligibility for federal Extended Benefits (see Center on Budget and Policy Priorities, 2012). In addition (as noted in footnote 1 above), eight states reduced their state regular UI maximum weeks to less than 26 weeks, which brought proportional reductions in EB and EUC08 maximum weeks.

remaining possibility is that the unemployed individual retains his or her unemployed status in the second month (U→U).<sup>7</sup> The data simply compare an unemployed individual's labor force status across two consecutive months to observe any transitions. These two-month matches do not take advantage of the additional months that each individual is observed in the CPS sample other than by including each two-month match as an additional observation.<sup>8</sup> Because we are interested in transitions out of unemployment, the sample is either all unemployed workers in the first month or all unemployed *job losers* in the first month. Job losers include the unemployed who are on temporary layoff, those who have permanently lost jobs, and those who complete temporary jobs. The unemployed who are not considered job losers are new entrants to the labor force, re-entrants to the labor force, and individuals who quit their jobs (job leavers). Job losers are more likely to be eligible for unemployment insurance than are other unemployed individuals.<sup>9</sup> Figure 2 displays the transition rates for all unemployed and unemployed job losers between 2007 and 2013. Throughout this period, job losers were more likely to stay unemployed and were less likely to drop out of the labor force than other unemployed individuals. Furthermore, as the recession hit hard in 2009—total payroll employment dropped by about 4 percent during 2009—the fraction of individuals who remained unemployed increased and the fractions dropping out of the labor force and

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<sup>7</sup> One would expect the extended and emergency unemployment insurance program parameters to have very small, if any, effects on other labor market transitions—including moves into unemployment from employed or not in the labor force status—because E/E benefit rules come into play only after regular state benefits have been exhausted.

<sup>8</sup> Using these two-month matches implies that these data include more reporting errors than do data based on four-month matches. The Current Population Survey observes individuals for four consecutive months, they drop out of the sample for the next eight months, and then are observed again for four consecutive months. As noted above, Farber and Valletta (2013) use four-month matches and recode any of the four observations to eliminate immediate reversals in status on the assumption that these reversals reflect reporting errors. Note, however, that even these corrections do not remove the problem of inconsistencies between individuals' reported duration of unemployment and their recent labor force status transitions (e.g., the person who moves from N to U (which for Farber and Valletta would require N→U→U) and that same month reports unemployment duration of 20 weeks).

<sup>9</sup> Farber and Valletta (2013) include only job losers in their analysis. Quitters and new entrants are not eligible for UI benefits. While a job loser who drops out of the labor force (meaning s/he stops actively seeking work) may retain UI eligibility for a time if he/she resumes an active job search, there is no way to distinguish such potentially eligible individuals from other reentrants.

(especially) finding jobs declined.

### *C. Regression Approach*

The analysis uses simple linear probability models for each transition in labor market status—that is, the dependent variable in one equation is a dummy variable equal to one when the individual moves from unemployed status in the first month to not in the labor force in the second month, and equals zero if the individual stays unemployed or becomes employed in the second month. A second equation models the transitions from unemployed to employed status. The third equation’s dependent variable is equal to one for those individuals who are unemployed in both months and is zero for those transitioning out of unemployment into either employment or not in the labor force. The three dependent variables (and the average transition rates) sum to one and because the specification is linear and the included variables are the same across equations, the estimated coefficients sum to zero across the three equations.

In addition to the variables measuring how long an individual has been unemployed both in terms of weeks and relative to maximums in his/her state—as discussed below—these regressions include a variety of individual characteristics (including gender, age, education, marital status, and presence of own children), the U.S. GDP gap, time-varying state economic indicators,<sup>10</sup> and state and month fixed effects (the latter to account for seasonality). Table 2 reports the means of all the included variables for the full sample of unemployed individuals and for the job-loser subsample. The estimation results for these other variables are discussed below in section V-C. Appendix Table A.1 reports all of the estimated coefficients except the fixed effects.

## **IV. Relative Unemployment Duration**

### *A. Variable Definitions and Descriptive Relationships*

The duration of unemployment reported by each unemployed person in the first month of

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<sup>10</sup> The state-level variables measure employment growth and separate a state’s total job growth into two parts. Predicted employment growth indicates the employment growth rate that would occur in the state if each broad industry in the state grew at that industry’s national growth rate; idiosyncratic employment growth is the remainder.



the two-month match (that is, before the transition is observed) is used to create a set of variables measuring “relative” unemployment duration. These variables compare an individual’s reported unemployment duration with the maximum benefit weeks available at the end of that month in the state where that person lives. The eight relative duration variables distinguish between exhausting regular state UI benefits (when no emergency or extended benefits are available and the regular benefit maximum is binding) and exhausting E/E benefits (whichever combination represents the maximum possible benefit weeks), and further distinguish between the month of benefit exhaustion, the month-before, and the month-after for both types of exhaustion (regular or E/E). The relative duration variables also indicate whether an individual’s unemployment duration falls within the period of eligibility for E/E benefits earlier than the month-before-exhaustion or falls more than a month after exhaustion of all UI benefits. The set of relative duration variables is thus intended to express the key UI program parameters in the terms that are most relevant for each currently unemployed individual.

Figure 3 displays the job flows for unemployed job losers whose unemployment duration falls into two broadly aggregated relative duration periods: (1) during E/E eligibility (E/E eligible, including month-before-exhaustion and month-of exhaustion); (2) after all UI benefits are exhausted (month-after-exhaustion and later). These data indicate that unemployed job losers were less likely to find jobs and more likely to drop out of the labor force, on average, after their combined state and extended federal benefits were exhausted than before the benefits were exhausted.

### *B. Coefficient Estimates for Relative Duration Variables*

Table 3 reports estimated coefficients on the set of relative-duration variables from individual  $U \rightarrow E$ ,  $U \rightarrow N$ , and  $U \rightarrow U$  transition regressions. The top panel’s coefficients are based on data from the period January 2005 through November 2013, reflecting the three types of transitions occurring in paired months between January-to-February 2005 and November-to-December 2013. The first three columns report coefficients based on the subset of the unemployed who are job losers. In addition to duration-relative-to-maximum (relative duration) variables, these regressions also include a set of individual unemployment duration

ranges (to capture the background variation in transitions out of unemployment associated with simple duration of joblessness independent of UI program parameters) and the additional individual characteristics and economic background variables listed above.

For U→E transitions (the left-most column), the estimated coefficients on the relative duration variables are not significantly different from zero, with the exception that those individuals whose unemployment duration is either one month shy of exhausting regular state UI benefits or has reached the month of exhaustion are somewhat more likely to move into jobs.<sup>11</sup> Since the exhaustion of regular state UI benefits is relevant (and this variable is turned on) only when E/E benefits are not available (hence January 2005 through June 2008 in the regression sample), these coefficient estimates can be seen as indicating responses in a non-depressed economy when jobs are more likely to be available. This result is thus consistent with earlier research finding that in more normal economic times some individuals wait until their UI benefits are exhausted or almost exhausted to accept a new job.<sup>12</sup>

By contrast, the U→N coefficients on relative duration are mostly positive and are significantly different from zero in the month after E/E benefits are exhausted and in subsequent months; the coefficient is marginally significant (at the 5 percent level) for job losers in the month before exhaustion. The size of the estimated coefficients generally rises as the exhaust-month approaches and passes.<sup>13</sup> The coefficient estimates indicate that about 4.5 percentage points more unemployed job losers move out of the labor force in the month *after* they would exhaust their emergency and extended benefits than in the penultimate month or month of exhaustion, controlling for all the other included variables, including simple duration.

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<sup>11</sup> Note that these coefficients on the month-before-exhaustion of regular state UI and the exhaust-month for regular state UI cannot be distinguished from zero for job losers in the full sample (column 4 of the top panel in Table 3) nor in estimates for the shorter period starting in January 2008 (columns 1 and 4 of the second panel in Table 3). By contrast, in the probit and multinomial logit specifications shown in the appendix, the U→E coefficients on month-before-exhaustion and month-of-exhaustion of regular state UI benefits are positive and significantly different from zero.

<sup>12</sup> A widely cited example is Katz and Meyer (1990).

<sup>13</sup> Recall that the data do not tell us when an individual actually exhausts his or her benefits: The individual data do not report receipt of UI benefits, they include only the individual's self-reported unemployment duration, which is compared with the maximum weeks of benefits available in his/her state that month.

The omitted category includes individuals whose duration is within the period of eligibility for regular state UI benefits.<sup>14</sup>

Howell and Azizoglu (2011) summarize earlier research and data on labor market transitions during the Great Recession and foreshadow, in a sense, the above estimates. For their literature review, they conclude that “while there is no evidence that the UI extensions have decreased job-finding rates, they may have substantially increased long-term unemployment rates by discouraging workers from dropping out of the formal labor market.” Howell and Azizoglu provide “indirect evidence” of such a participation effect by noting that the outflows from long-term unemployment to not in the labor force status dropped sharply in 2008 when the federal UI extensions went into effect and stayed low through 2010.

### *C. Extensions versus Cutbacks in Benefit Weeks: Asymmetric Responses?*

The general pattern (shown in Table 1 and Figure 1) of more weeks of UI benefits being added in many states, especially during 2009, and then weeks being cut back during 2012 and thereafter raises a question as to whether job losers’ responses to currently available maximum weeks relative to their own unemployment duration might differ depending on whether changes in maximum weeks have only recently made them eligible or ineligible for E/E UI benefits. I calculate dummy variables by state and month indicating that (i) the current month has lower maximum benefit weeks in the state than the previous month or (ii) the next month has higher maximum benefit weeks in the state than the current month. Recall that the current month is the beginning month for measured transitions and “relative duration” is calculated in terms of the maximum benefit weeks available in the current month. Then the interaction terms of these dummy variables with month-before-, month-of-, month-after-, and more-than-month-after-exhaustion are included in the regressions to see if the labor market transition responses to relative duration are different for those experiencing a recent change in eligibility or recent change in “time remaining” before benefit exhaustion.

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<sup>14</sup> When no emergency or extended benefits are available in the state, meaning that the maximum is the regular state maximum, the omitted category includes individuals whose duration falls short of the regular state maximum by at least a month.

Whether we include interaction terms for UI benefit extensions and cutbacks in the same equation or separately, the only estimated interaction coefficient that is significantly different from zero is on the variable indicating that an individual's unemployment duration is such that he or she will be eligible for benefits next month but is more than a month beyond eligibility according to the current month's maximum benefit weeks. (These results are reported in Appendix Table A.2.) Recall that the estimates discussed above and reported in Table 3 show a significant positive coefficient on more-than-month-after-exhaustion in the  $U \rightarrow N$  equation; this additive interaction coefficient is significant and negative and brings the "total" coefficient for these individuals close to zero. That is, transitions out of the labor force between the current and next month are indistinguishable from zero rather than significantly positive (relative to the base case) for individuals who are well beyond the maximum in the current month but would be within the eligible-weeks cutoff according to next month's rules. None of the coefficients on extension or cutback interaction variables are significantly different from zero in either the  $U \rightarrow E$  equations or the  $U \rightarrow U$  equations.

While not significantly different from zero, the estimated coefficients on the cutback interactions are negative, suggesting that people whose UI benefit eligibility has just been reduced are less likely to drop out of the labor force than otherwise-similar job losers whose eligibility (or weeks remaining) have not recently been reduced;<sup>15</sup> the former have presumably not yet adjusted fully to the (just reduced) current-month maximums. The estimated coefficients on the extension interactions are also negative, indicating that job losers who have exhausted benefits or are nearing exhaustion according to this month's rules but who would have more time before exhaustion according to next month's rules are also less likely to drop out this month than people facing this month's maximums without the promise of more benefit weeks next month. These asymmetry test results reinforce the basic findings reported above—that the pace at which job losers leave the unemployed status and drop out of the labor force picks up after E/E UI benefits are exhausted, but the pace of job finding is unaffected by the availability

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<sup>15</sup> That is, the combined coefficients for cutback months shown in column 3 of Table A.2 are smaller than those shown in column 2 of Table A.2.

or exhaustion of E/E benefits.

## V. Other Influences on Labor Market Transitions: Additional Coefficient Estimates

### A. Background Unemployment Duration

The estimated coefficients on duration ranges (controlling for relative duration and the other variables noted earlier) are displayed in Table 4. For example, the probability that an unemployed job loser will move to a job (the U→E transition, shown in columns 1 and 4) becomes lower as unemployment duration increases, compared to the transition rate to employment during the first four weeks of unemployment (the omitted category). Conversely, the fraction of unemployed job losers who stay unemployed rises with the duration of the unemployment spell, other things being equal (columns 3 and 6). By contrast, job losers are neither more nor less likely to drop out of the labor force as unemployment duration lengthens, as the U→N coefficients on the simple duration variables are indistinguishable from zero in most cases.

### B. Combining Relative Duration and Background Unemployment Duration

To see how the estimated coefficients on the relative duration variables and simple individual unemployment duration ranges work together (as an individual job loser's unemployment duration increases), Figure 4 displays the combined coefficients as a function of weeks spent in unemployment under different UI policy regimes. The combined transition rate (compared with 0–4 weeks duration) depends on the maximum weeks of regular plus emergency plus extended UI benefits available that month in the individual's state.

For example, the orange line in Figure 4 (which is invisible beneath the grey line until it diverges after 56 weeks) shows the U→N transition rate for job losers with different durations of unemployment in states with a maximum of 63 weeks of benefits. (As of November 2013, this was the maximum length of UI benefits available in 19 states, reflecting 26 weeks of regular state benefits, 14 weeks each of Tier 1 and Tier 2 EUC08, 9 weeks of Tier 3 EUC08 benefits, and no extended benefits.) The orange line remains near zero (the transition rate is very close to what occurs during 0–4 weeks duration) until the month before benefits would be exhausted

(weeks 57–60), at which point the transition rate rises above 0.02 (still indistinguishable from zero) where it stays through the “exhaust month” (weeks 61–64). The following month (weeks 65–68), the transition rate jumps by about 4.5 percentage points to 0.07; it stays above 0.06 thereafter.

The other lines representing transition rates in states and months in which UI benefits are available for a maximum of 54 weeks or more have similar increases as weeks of unemployment rise, leading up to the ending (post-UI availability) transition rate in the month after benefits expire; this regularity is inherent in the specification of the estimated equation.<sup>16</sup>

The coefficient patterns are quite similar for job losers in the full sample of unemployed individuals (columns 4–6 in Table 3), although the combined transition rates are generally lower. While the estimated coefficients on the relative duration variables are larger than those for the job loser sample (compare column 5 with column 2 in Table 3), when combined with the considerably more negative “background” duration coefficients estimated for the full sample of all unemployed individuals (column 5 in Table 4), the estimated effects are smaller than those shown in Figure 4. The coefficients estimated over the shorter period starting in January 2008 (the second panel in Tables 3 and 4) produce combined patterns over time similar to those estimated for the longer period for both the job loser sample and for job losers in the full sample.

### *C. How Labor Market Transitions Relate to Other Individual Characteristics and the Economic Environment*

The coefficient estimates on other variables included in the regressions are generally in line

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<sup>16</sup> That is, the highest background-duration range in Table 4 is 53 or more weeks and the highest relative-duration in Table 3 refers to more than one month after benefits are exhausted. Hence the differential transition rate for an individual whose duration is longer than a year and who exceeds the E/E UI maximum in their state by more than one month is equal to 0.063. Individuals in states with maximum weeks of benefits that are less than 54 weeks show higher transition rates out of the labor force around the time the individual’s duration reaches the state-month maximum. This reflects the combined effects of the higher estimated coefficient on month-after-exhaustion with a sizable (although not significantly different from zero) elevation in the transition rate for the background duration range of 40 to 52 weeks compared with shorter (27 to 39 weeks) and longer (53 and more weeks) durations—shown by the dotted line in Figure 4.

with what one might expect; see appendix Table A.1 for detailed estimates. Not surprisingly, among job losers, individuals on temporary layoff are much more likely to find a job than permanent job losers or those who completed temporary assignments. Among the various age groups, job losers who are 35–64 years old are more likely than younger or older job losers to stay unemployed in any month, are less likely to find a job than younger workers, and (at least those who are 35–54 years old) are less likely to drop out of the labor force. Indeed, transition rates to employment fall monotonically with age starting with the 20–24 year-old group. Even among job losers, teens and young adults (aged 16–17, 18–19, and 20–24 years) are more likely to drop out of the labor force than job losers between the ages of 25 and 34 years (the omitted age category in the regressions).

Men are less likely to drop out of the labor force and are more likely to stay unemployed (keep looking for work) than women; married men are more likely to find a job than never-married or formerly married (divorced, separated, widowed) men. Women heading households (no spouse present) with at least one child are less likely to find a job than other women (or men), controlling for the other variables included in the equation. Minorities (blacks, Asians, and other nonwhite races) are less likely to find a job and more likely to drop out of the labor force than otherwise similar whites. Insofar as education is concerned, with one exception, more educated individuals are more likely to find jobs and less likely to drop out of the labor force than are less educated people. The one exception is that job losers without a high school diploma are slightly more likely to find a job than job losers with a terminal high school degree (the omitted category in Table A.1's regressions). While more likely to find a job, those without a high school diploma are also more likely to drop out of the labor force and are therefore significantly less likely to remain unemployed than those who have completed high school but no higher education.

When the national economy is weaker (as measured by the output gap), individuals are less likely to find a job and more likely to remain unemployed. The same is true of economic activity at the state level, with somewhat weaker state-level results regarding finding a job but significant negative effects of predicted state job growth on the probability of an individual staying unemployed.

## VI. Discussion and Implications

Qualitatively, these results are very similar to those of Farber and Valletta (2013). We both find that the action is in  $U \rightarrow N$ , not  $U \rightarrow E$ ; that is, EUC08 and EB appear to add to the number of unemployed, but only by encouraging people who would otherwise drop out of the labor force sooner to remain in unemployed status. I find the largest effect in the month after Emergency or Extended UI benefits are exhausted, and this continues into later months. Farber and Valletta find a steady depressing effect on  $U \rightarrow N$  transitions throughout the period of E/E UI benefit eligibility, no significant change in the month of exhaustion, and an implied increase in  $U \rightarrow N$  transitions the month following exhaustion as the negative effect of being within the eligibility period is removed.

These results imply that during the periods of long Extended plus Emergency UI benefits, such availability elevated the unemployment rate and the labor force participation rate. Figure 1 indicates that for over a two-year period concluding near the end of 2011, the median job loser resided in a state with a 99-week maximum for UI benefits. Figure 5 plots the fraction of job losers (i) whose unemployment duration fell within the period during which they would be eligible for regular state benefits, (ii) whose unemployment duration was within the period during which they would be eligible for E/E benefits, including the month in which they would exhaust benefits (the regression categories “during E/E UI eligibility period,” “next-to-last E/E UI month,” and “month of exhaust E/E UI”) and (iii) whose unemployment duration went beyond the month of UI benefit exhaustion (categories “month after exhaust E/E UI” and “more than month after UI exhausted”). The fraction of job losers with unemployment durations shorter than their state UI maximum weeks (that is, with potential eligibility for E/E UI) rose sharply after EUC08 came into effect in mid-2008 through early 2010 and then stayed fairly high—about one-third of job losers—until late 2011.

The U.S. unemployment rate climbed 3 percentage points from 6.9 percent to 9.9 percent between 2008:Q4 and 2009:Q4 as the participation rate fell 1 percentage point (65.9 to 64.9). Then the jobless rate began to improve gradually, falling from 9.9 percent to 8.7 percent between 2009:Q4 and 2011:Q4, and over these two years the participation rate also declined, from 64.9 percent to 64.1 percent. The coefficient estimates suggest that the decreases in labor



force participation and unemployment during the period of high-benefit-availability in 2010–2011 would have been even greater in the absence of extended and emergency benefits. Farber and Valletta (2013) infer that the availability of E/E UI benefits contributed 0.4 percentage points to the 2010 unemployment rate by delaying job losers’ exits from the labor force.

Since 2011, the maximum length of benefit availability has come down, most markedly in the first half of 2012, but continuing through the end of 2013; see Table 1 and Figure 1. Congress enacted phased cutbacks in E/E benefit weeks, both directly (for example, by reducing maximum Tier 1 weeks from 20 to 14 as of September 1, 2012) and via increases in the “trigger” unemployment rates for states to qualify for higher tiers of EUC08; in addition, jobless rates came down during 2012 in most states.<sup>17</sup> This drop in federal UI benefit availability—and the corresponding increase in the fraction of job losers who would have exhausted benefits (as shown in Figure 5’s green area that depicts the fraction of job losers with unemployment duration “greater than [their] state-month maximum UI weeks) led to increased moves from unemployment to out of the labor force during 2012 and 2013, according to the coefficient estimates.<sup>18</sup> The U.S. labor force participation rate declined from 64.1 to 63.7 between 2011:Q4 and 2012:Q4 and the unemployment rate fell from 8.7 percent to 7.8 percent. The coefficient estimates imply that the cutback in available weeks of UI benefits contributed to decreases in both rates; that is, the drops reflect, in part, a reversal of the policy-related elevation in unemployment and labor force participation that occurred as weeks of benefit availability expanded in 2009, 2010, and 2011.

In 2013, the available weeks of UI benefits continued to come down in many states because of falling unemployment; in addition, the sequester’s implementation on March 1, 2013 forced a reduction in the *dollar amount* of weekly UI benefits for E/E recipients. That is, the sequester reduced the federal dollars available for E/E benefits, while regular state UI benefit payments

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<sup>17</sup> Additional reductions in maximum weeks of UI benefits occurred in 2012 as described in footnote 6 above.

<sup>18</sup> The total number of unemployed job losers has been declining, but the “fraction after exhausting benefits” has risen. As a result, the estimated *number* of unemployed job losers with unemployment duration greater than the maximum UI benefit weeks available in their state held steady in the vicinity of 1.1 million from January 2011 until the cutbacks at the end of 2013.

were not directly affected. Twenty states cut weekly EUC08 benefit amounts by about 11 percent as of the end of March or early April 2013; another dozen made reductions starting in late April or early May, with some of these states cutting payments by about 13 percent and others limiting the benefit reductions to specific tiers, those recipients moving to a new tier, or new claimants.<sup>19</sup> These approaches to cutting UI benefits were undertaken by additional states later in May and in the summer months, with bigger percentage cuts enacted in order to cover the required reductions. All these cuts in dollar amounts undoubtedly reduced the attractiveness of receiving UI benefits at the margin, but since during the recession and recovery to date most of the significant response to losing E/E UI benefits has taken the form of moves out of the labor force—because job search has not yielded employment—the financial comparison in most cases would seemingly still favor staying in the labor force until UI benefits are exhausted. In addition, two states—Maine and Florida—cut benefit *weeks* from Tier 3 of EUC08 as their way of reducing federal EUC08 spending by the sequester-required amount; residents of North Carolina are no longer eligible for any EUC08 benefits.<sup>20</sup>

Federal payments for EUC08 expired on December 28, 2013. Federal UI payments were also scheduled to expire at the end of 2011 and 2012 until the Congress extended them. Now six months since the 2013 expiration, it has become increasingly unlikely that this program will be extended once again. An estimated 1.3 million workers who had been looking for work for more than six months lost their benefits in late December; at the time this paper was posted, they had already experienced six months without payments. An estimated 850,000 long-term unemployed individuals saw their regular state benefits expire during 2014:Q1 (and an estimated 1.9 million were expected to exhaust regular state benefits during the first half of 2014). When the federal E/E programs were in place, these individuals would have received

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<sup>19</sup> The source of information on state responses to sequestration cuts in federal UI funding is the National Employment Law Project, July 2013. These cutbacks appear to have ended with the federal fiscal year on September 30.

<sup>20</sup> Unrelated to the sequester's cuts in UI benefits, North Carolina enacted changes to state law that resulted in the following footnote being included in federal EUC08 trigger notices as of the end of June 2013: "All states are eligible for up to 14 weeks of First Tier benefits, except North Carolina. Due to violation of the EUC 'non-reduction' rule, the EUC Agreement with NC was terminated."

additional weeks of benefits after their regular state UI benefits were exhausted, but under current law they do not have access to EUC08.<sup>21</sup>

This slashing of UI benefit weeks in 2014 to date compared with late 2013 has presumably added to the pace of transitions from unemployment to out of the labor force, further reducing the unemployment rate and labor force participation rate. The unemployment rate fell from 6.7 percent in December to 6.6 percent in January; this paper's coefficient estimates indicate that about one-third of that drop (0.03 percentage points) could be attributable to the sharp cut in benefit weeks. At the same time, the labor force participation rate rose from 62.8 to 63.0 percent; this paper's estimates imply that this rise would have been slightly larger if UI benefit weeks had not been cut in December. Over the first half of 2014, the estimates suggest that the cumulative effect of the elimination of federal benefit weeks on unemployment and labor force participation rates would be on the order of 0.2 percentage points on the unemployment rate and somewhat more than 0.1 percentage points on the participation rate. Moreover, the estimates in this paper imply that there will be no corresponding improvement in employment rates for the long-term unemployed who lose these UI benefits; their job-finding rate is not responsive to the availability of extended or emergency unemployment benefits. While they were available, E/E UI benefits appear to have had modest effects on labor market behavior and provided welcome income support to long-term unemployed job losers in an economy that apparently still has too few jobs on offer for them.

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<sup>21</sup> The 2014:Q1 estimate is based on National Employment Law Project, November 2013; the January to June 2014 estimate comes from Council of Economic Advisors and Department of Labor, December 2013.

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## Appendix: Robustness Checks

### *Probit and Multinomial Logit Compared with Linear Probability*

Table A.3 reports the estimated coefficients from multinomial logit and probit regressions including the same variables as those reported in Table A.1, estimated for the job-loser sample for the period dating from January 2005 through November 2013. The key coefficients on the relative duration variables and the background duration variables are very similar in sign and significance to those from the linear probability model (compare with the upper panel of columns 1–3 in Tables 3 and 4). In particular, exhaustion of regular state unemployment insurance benefits—when regular weeks are binding (that is, no emergency or extended UI benefits are available)—is associated with increased transitions to employment, but exhaustion of EB or EUC08 has only a weak association with transitions to jobs. Furthermore, the month immediately after exhaustion of E/E UI benefits and later/subsequent months are associated with increased transitions from unemployment to out of the labor force, with the same significance pattern as reported in the upper panel of column 2 of Table 3 for the linear probability model.

### *Demographic Groups*

One question that comes to mind when examining the above results regarding how unemployment duration relative to E/E maximum weeks affects labor market transitions is whether the responsiveness differs across demographic groups. For further robustness checks, I estimated the linear probability equations for the job-loser sample, adding interaction terms for specific groups on the relative duration and background duration variables.

#### **Age**

Comparing younger job losers (under 25 years of age) and older job losers (55 years of age and older) with prime-age job losers (25 to 54 year-olds) yields almost no significant differences in terms of relative duration. That is, the responsiveness of the job losers' labor market transitions to approaching and exceeding the maximum weeks of benefits available in their state does not differ significantly among these broad age groups. Individuals less than 25 years

of age constitute about 14 percent of the unemployed job-loser population, while those 55 years and older represent 19 percent.<sup>22</sup> In the U→N equations, the coefficients on the relative duration interaction variables are generally negative for youth, indicating younger job losers are somewhat less responsive than prime-age job losers to relative duration (net coefficients are closer to zero) when deciding whether to drop out of the labor force in any month, but not significantly so. For older workers, the interaction coefficients on unemployment duration relative to E/E UI maximum benefit weeks are positive, indicating that older job losers' transitions out of the labor force are somewhat more responsive to E/E program parameters than are prime-age or younger job losers, but again, not significantly so.

The age-group interaction terms on the background unemployment duration ranges are also generally not significantly different from zero. The signs are mixed for youth, but the estimated interaction coefficients are all negative for older job losers (and significantly so for durations of 14–19 weeks), implying that older job losers are less likely to drop out of the labor force than are prime-age job losers at each unemployment duration in excess of four weeks. For the omitted category (zero to four weeks unemployment duration), both younger and older job losers are significantly more likely to drop out of the labor force than prime-age, just as is the case when age-group interactions are not included; see the estimated coefficients on detailed age groups in columns 2 and 5 of Table A.1.

## **Gender**

Introducing interaction coefficients for women yields a few estimated coefficients on interacted relative-duration variables that are significantly different from zero. Women's moves out of the labor force from unemployed status are generally slightly less responsive to UI program parameters than men's, and this difference is statistically significant for the month-before and the month when UI benefits are exhausted, as well as more than a month after exhaustion. These three coefficients are positive and significantly different from zero for men and are near zero for women. If women, even job-loser women, were less likely to qualify for UI

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<sup>22</sup> At 28 percent, youth are a much larger fraction of all unemployed than of unemployed job losers, while older workers represent only 15 percent of the unemployed population.

benefits than men—perhaps because of the industries and occupations in which women tend to work—this would provide a possible explanation for women’s weaker responsiveness. The intercept term for women is positive and significantly different from zero at the 0.1 percent level, indicating that women are more likely than men to drop out of the labor force in the first four weeks after losing their jobs. The gender interaction terms on the background duration ranges beyond four weeks are generally not significantly different from zero; the one exception is that women are significantly less likely than men to drop out of the labor force between their fifth and eighth week of unemployment. The estimated signs of the female interaction terms suggest that women are also less likely than men to drop out at unemployment durations of 9–14, 15–19, and 20–26 weeks, compared with the base-case duration of zero to four weeks, but not significantly so. Beyond six months, however, women are more likely to leave the labor force than men at similar durations.

### **Educational Attainment**

The responsiveness of more-educated job losers to UI program parameters is not significantly different from that of less-educated job losers. When a dummy variable for educational attainment beyond a high school diploma is interacted with the relative duration variables, none of the interaction coefficients—across the  $U \rightarrow E$ ,  $U \rightarrow N$ , and  $U \rightarrow U$  equations—are significantly different from zero.<sup>23</sup> A few of the background duration ranges obtain significant coefficients on the more-educated interaction term; specifically, more educated job losers are significantly less likely than less-educated job losers to drop out of the labor force during weeks 9 to 13 and 20 to 26 of unemployment compared with the 0–4 week duration omitted category. And, as noted earlier, the intercept terms in the interacted and non-interacted equations indicate that more educated individuals have lower baseline transition rates from unemployment to out of the labor force.

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<sup>23</sup> Specifically, the dummy variable indicates the individual has some college, a BA, or a degree beyond college. As Table 2 indicates, this more-educated group comprises 45 percent of job losers during the 2005–2013 period.

### *Discussion of Robustness Checks*

All of the robustness checks described above reinforce the paper's basic finding that many job losers remain unemployed—meaning they continue actively searching for work—as long as E/E UI benefits are available. Thereafter, when the duration of their unemployment spell exceeds the maximum weeks of benefits available in their state in that month, they drop out of the labor force at a faster pace. The finding recurs when the equations are re-estimated with probit or multinomial logit. While the average rates of transition differ across demographic groups, the responsiveness to UI program parameters is somewhat stronger for men than women, but not significantly different for younger, prime-age, and older individuals, or for more and less-educated job losers.



Table 1

State-by-Month Maximum Available Weeks of Unemployment Insurance Benefits, January 2008–March 2013

Table with 13 columns for years (2008-2013) and 36 rows for states (Alabama-Wyoming). Each cell contains a numerical value representing the maximum available weeks of unemployment insurance benefits for that state in that month. The values range from 25 to 72 weeks.

Source: Center on Budget and Policy Priorities for data through January 2013, plus published U.S. Department of Labor EB and EUC08 end-of-month trigger notices posted at http://www.ows.doleta.gov/unemploy/claims\_arch.asp, and author’s smoothing of program breaks through reauthorization. December 2013 entries are maximum weeks as of December 22 (before federal cutoff). Lightest yellow indicates fewest weeks; darkest red indicates most weeks of benefit availability.

Table 2  
Variable Means for Unemployed Job Losers and All Unemployed Individuals  
State by month, January 2005-November 2013

	<b>Job Losers</b>		<b>All Unemployed</b>			<b>Job Losers</b>		<b>All Unemployed</b>	
	Mean	S.D.	Mean	S.D.		Mean	S.D.	Mean	S.D.
<b>Flows from unemployment</b>					<b>Individual Characteristics</b>				
Unemployed to Employed	0.228	0.420	0.210	0.407	Male	0.609	0.488	0.548	0.498
Unemployed to Not in Labor Force	0.148	0.355	0.221	0.415	16–17 Years Old	0.008	0.090	0.055	0.229
Remain Unemployed	0.623	0.485	0.570	0.495	18–19 Years Old	0.024	0.154	0.074	0.262
<b>Relative Duration</b>					20–24 Years Old	0.103	0.304	0.146	0.354
Month Before Exhaust Regular State UI	0.011	0.103	0.011	0.103	35–44 Years Old	0.220	0.414	0.181	0.385
Month of Exhaust Regular State UI	0.010	0.100	0.012	0.109	45–54 Years Old	0.239	0.427	0.184	0.387
Month after Exhaust Regular State UI	0.006	0.077	0.007	0.081	55–64 Years Old	0.153	0.360	0.116	0.320
During E/E UI Eligibility Period	0.195	0.396	0.172	0.377	65–74 Years Old	0.032	0.175	0.029	0.169
Next-to-Last E/E UI Month	0.007	0.080	0.006	0.077	75 Years and Older	0.006	0.078	0.006	0.075
Month of Exhaust E/E UI	0.006	0.076	0.005	0.073	Race Black	0.152	0.359	0.167	0.373
Month after Exhaust E/E UI	0.015	0.123	0.015	0.121	Race Asian	0.030	0.171	0.034	0.181
More than Month after UI Exhausted	0.102	0.302	0.114	0.318	Race Other	0.040	0.195	0.047	0.212
<b>Unemployment Duration</b>					Education Less than High School	0.168	0.374	0.217	0.412
5–8 Weeks	0.125	0.331	0.135	0.342	Education Some College	0.273	0.445	0.270	0.444
9–13 Weeks	0.122	0.327	0.122	0.328	Education Bachelor's Degree	0.128	0.334	0.118	0.323
14–19 Weeks	0.074	0.261	0.070	0.255	Education Graduate Degree	0.047	0.212	0.044	0.205
20–26 Weeks	0.093	0.290	0.091	0.288	<b>Reason for unemployment</b>				
27–39 Weeks	0.086	0.281	0.079	0.270	New Entrant	~	~	0.086	0.280
40–52 Weeks	0.085	0.279	0.085	0.279	Temporary Layoff	0.215	0.411	0.120	0.326
53 or More Weeks	0.158	0.365	0.152	0.359	Job Quitter	~	~	0.086	0.281
<b>Family status</b>					Termination	0.785	0.411	0.440	0.496
Married Man	0.275	0.447	0.198	0.399	<b>U.S. and State Economic Conditions</b>				
Married Woman	0.167	0.373	0.167	0.373	U.S. Real Output Gap	-4.36	2.62	-4.10	2.69
Formerly Married	0.205	0.404	0.173	0.378	Predicted State Employment Growth	0.03	2.22	0.19	2.14
Woman with Child(ren) & No Spouse	0.072	0.258	0.085	0.279	Idiosyncratic State Employment Growth	-0.20	1.11	-0.15	1.12
At Least One Child	0.315	0.465	0.288	0.453	Number of Observations	189,062		337,362	

Sources: Author's estimates based on data from Table 1, U.S. Census Bureau's Current Population Survey, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis.

Table 3

## Estimated Coefficients on Relative Duration Variables

	Job Loser Sample			Job Losers, Full Sample <sup>1</sup>			Other Unemployed, Full Sample		
	U-->E	U-->N	U-->U	U-->E	U-->N	U-->U	U-->E	U-->N	U-->U
<b>Longer Period, January 2005 to November 2013</b>									
Month Before Exhaust Regular State UI	0.025**	-0.004	-0.021	0.013	0.009	-0.022	0.009	-0.012	0.003
Month of Exhaust Regular State UI	0.018*	0.015	-0.033**	0.007	0.029	-0.036	0.006	0.012	-0.018
Month after Exhaust Regular State UI	0.026	0.028	-0.054*	0.015	0.057 c	-0.072	0.022	0.016	-0.038
During E/E UI Eligibility Period	0.015	0.019	-0.034	0.008 a	0.031 a	-0.039 c	0.031*	-0.005	-0.026*
Next-to-Last E/E UI Month	-0.002	0.038*	-0.036	-0.010 c	0.053 c	-0.044	0.020	0	-0.021
Month of Exhaust E/E UI	0.025	0.039	-0.064*	0.018	0.054 a	-0.071 c	0.033*	-0.011	-0.023
Month after Exhaust E/E UI	0.021	0.084***	-0.105***	0.017	0.097 a	-0.113 b	0.034*	0.038*	-0.072***
More than Month after UI Exhausted	0.011	0.078***	-0.089***	0.004	0.095 a	-0.100 a	0.012	0.050***	-0.062***
R-Squared	0.1193	0.0247	0.0837	<i>same regressions</i>			0.0937	0.0720	0.0786
Observations	189,062	189,062	189,062	<i>as those at right</i>			337,362	337,362	337,362
<b>Shorter Period, January 2008 to November 2013</b>									
Month Before Exhaust Regular State UI	0.004	0.03	-0.035	-0.006	0.044	-0.038	-0.014	0.002	0.011
Month of Exhaust Regular UI State	0.050	0.012	-0.062*	0.040	0.025	-0.065	0.022	0.053	-0.075*
Month after Exhaust Regular State UI	0.074*	0.001	-0.075	0.067	0.027	-0.094	0.031	-0.007	-0.024
During E/E UI Eligibility Period	0.021	0.011	-0.032	0.016 a	0.023 a	-0.039 a	0.039**	-0.018	-0.021
Next-to-Last E/E UI Month	0.002	0.031	-0.033	-0.003 c	0.046 b	-0.044	0.026	-0.013	-0.013
Month of Exhaust E/E UI	0.028	0.032	-0.061*	0.024	0.047 a	-0.071 c	0.039**	-0.022	-0.017
Month after Exhaust E/E UI	0.024	0.078**	-0.102***	0.022	0.092 a	-0.113 b	0.038**	0.029	-0.067**
More than Month after UI Exhausted	0.012	0.071**	-0.083***	0.010	0.088 a	-0.097 a	0.018	0.042**	-0.060***
R-Squared	0.1165	0.0232	0.0760	<i>same regressions</i>			0.0904	0.0719	0.0740
Observations	150,700	150,700	150,700	<i>as those at right</i>			257,616	257,616	257,616
<b>Other Included Variables:</b>									
Duration Ranges	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reason for Unemployment	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State and National Economy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Statistical significance is denoted as follows: \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ . "E/E UI" refers to Emergency or Extended UI Benefits

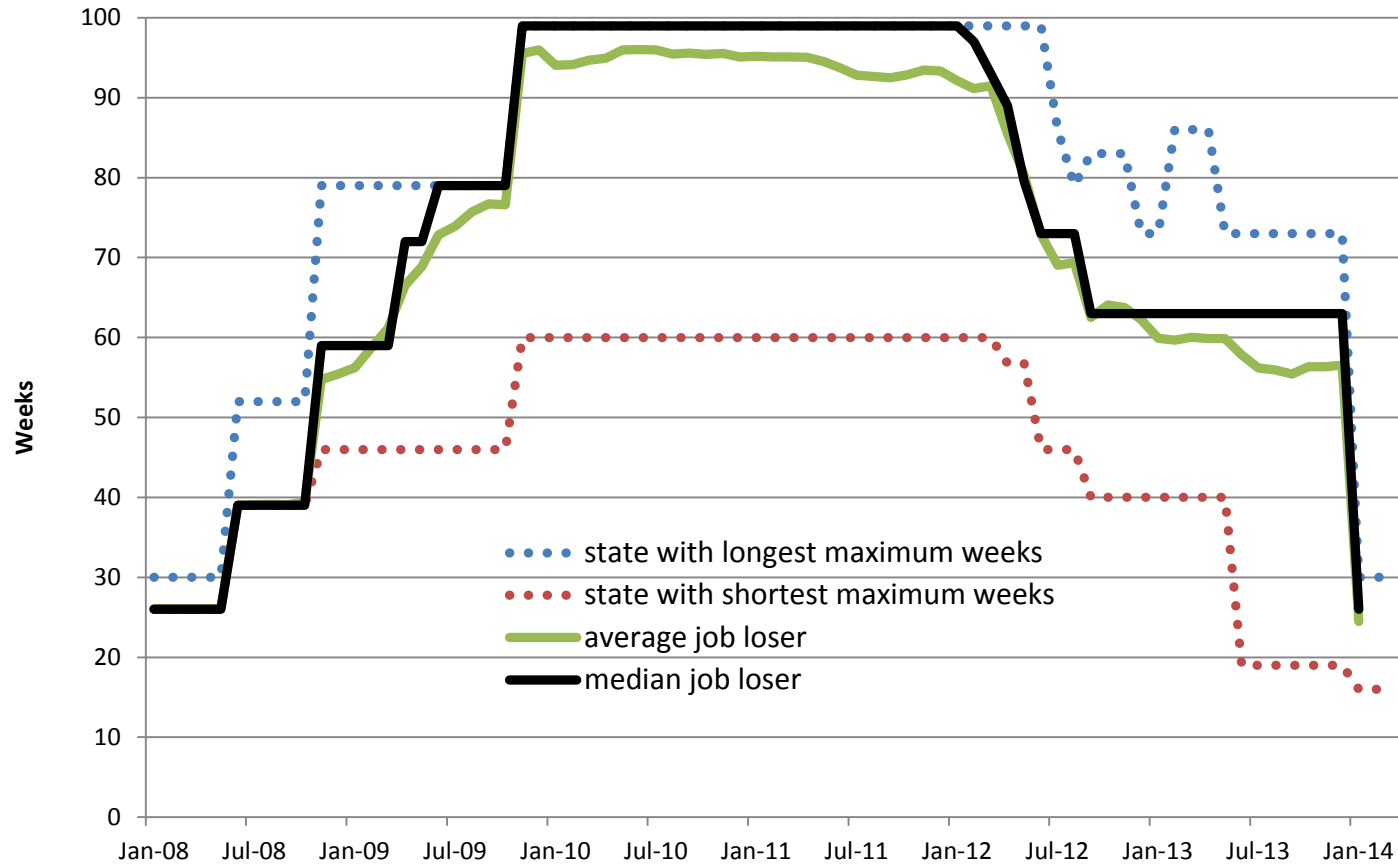
<sup>1</sup>The coefficients for "Job Losers, Full Sample" are the sum of coefficients for all unemployed (at right) and the interaction terms for job losers

"a" indicates that the estimated coefficient for job losers is significantly different from the coefficient for other unemployed with  $p < 0.001$ ; b:  $p < 0.01$ ; c:  $p < 0.05$ .

<b>Table 4</b>						
<b>Estimated Coefficients on Individual's Unemployment Duration</b>						
	Job Loser Sample			All Unemployed Sample		
	U-->E	U-->N	U-->U	U-->E	U-->N	U-->U
<b><i>Longer Period, January 2005 to November 2013</i></b>						
Duration 5–8 Weeks	-0.089***	0.001	0.088***	-0.075***	-0.008**	0.083***
Duration 9–13 Weeks	-0.111***	0.004	0.107***	-0.091***	-0.021***	0.112***
Duration 14–19 Weeks	-0.126***	-0.009*	0.135***	-0.106***	-0.036***	0.142***
Duration 20–26 Weeks	-0.141***	0.008*	0.133***	-0.119***	-0.013***	0.132***
Duration 27–39 Weeks	-0.169***	-0.012	0.181***	-0.147***	-0.049***	0.196***
Duration 40–52 Weeks	-0.176***	0.017	0.160***	-0.155***	-0.006	0.161***
Duration 53 or More Weeks	-0.193***	-0.015	0.208***	-0.172***	-0.051***	0.223***
<b><i>Shorter Period, January 2008 to November 2013</i></b>						
Duration 5–8 Weeks	-0.088***	0.000	0.088***	-0.076***	-0.009**	0.085***
Duration 9–13 Weeks	-0.110***	0.003	0.107***	-0.088***	-0.023***	0.111***
Duration 14–19 Weeks	-0.125***	-0.009*	0.134***	-0.106***	-0.036***	0.142***
Duration 20–26 Weeks	-0.139***	0.009*	0.131***	-0.118***	-0.013***	0.131***
Duration 27–39 Weeks	-0.174***	-0.002	0.176***	-0.156***	-0.037**	0.192***
Duration 40–52 Weeks	-0.181***	0.027	0.154***	-0.162***	0.006	0.156***
Duration 53 or More Weeks	-0.194***	-0.007	0.201***	-0.175***	-0.043**	0.218***
Notes: Statistical significance is denoted as follows: *** $p < 0.001$ ; ** $p < 0.01$ ; * $p < 0.05$ .						
See Table 3 for regression details, including list of other included variables, sample sizes, and R-squared.						

Sources: Author's estimates based on data from Table 1, U.S. Census Bureau's Current Population Survey, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis.

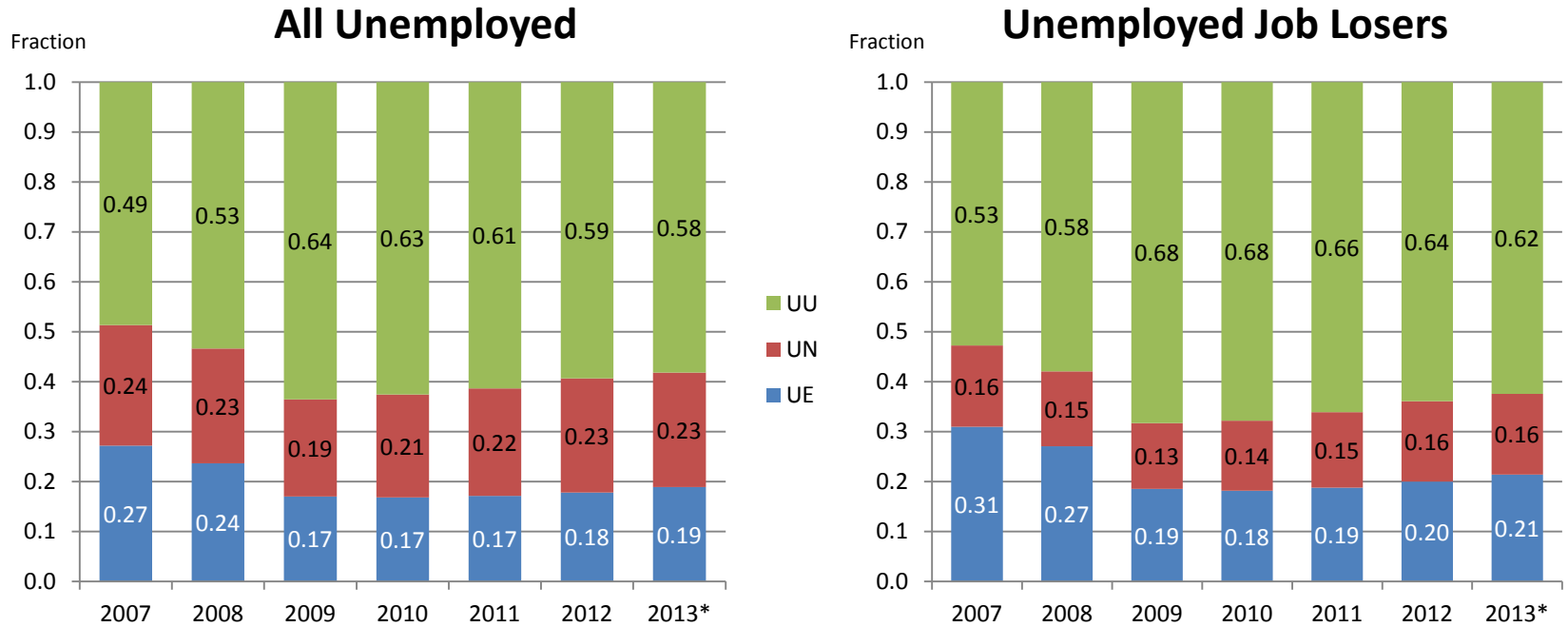
**Figure 1**  
**Maximum Weeks of Unemployment Insurance Available**



Note: Maximum weeks as of end of month except December 2013, when December 22 value—before federal cutoff—is shown.

Source: Author's calculations based on Table 1 and U.S. Census Bureau, Current Population Survey.

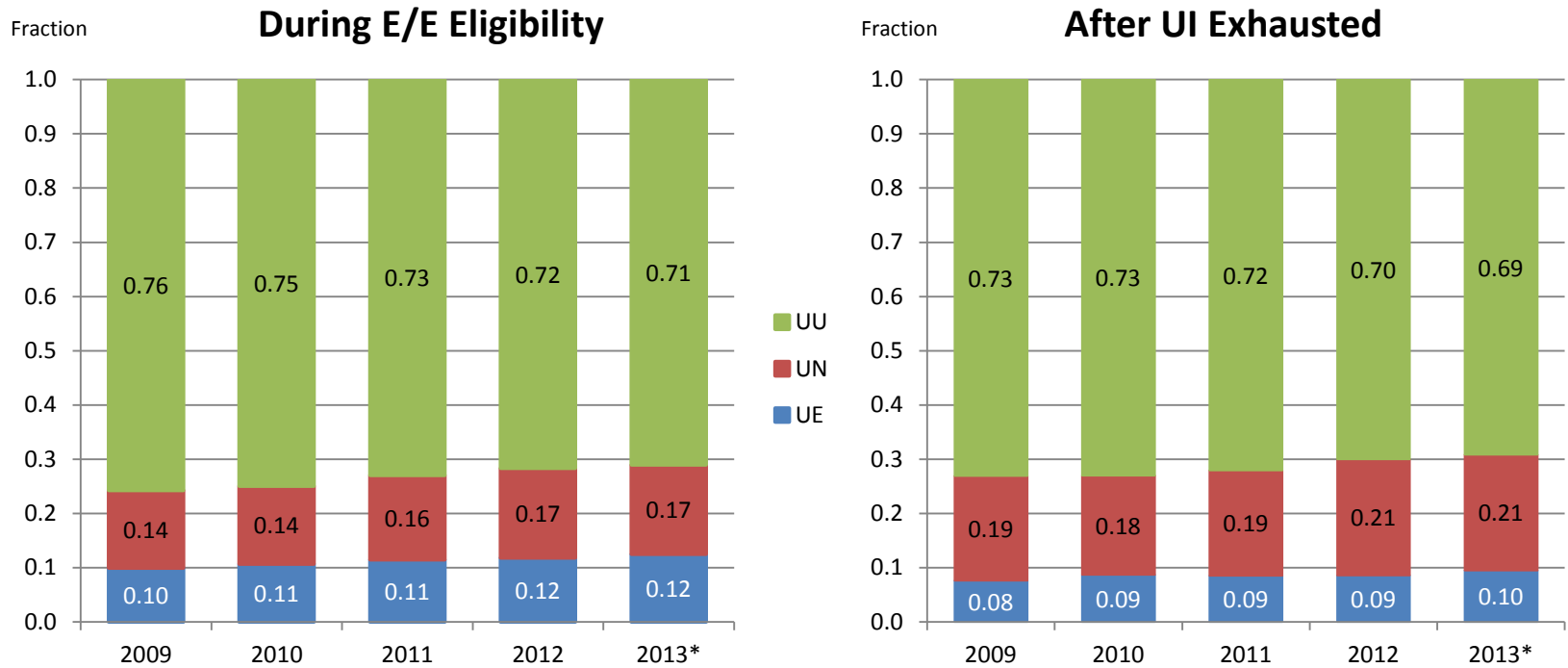
**Figure 2**  
**Transition Rates, Starting from Unemployed Status**



Notes: UU=Unemployed to Unemployed; UN=Unemployed to Not in Labor Force; UE=Unemployed to Employed.  
 \*2013 is the 12-month average ending with November-to-December 2013 transitions.

Source: Author's calculations based on Table 1 and U.S. Census Bureau, Current Population Survey.

### Figure 3 Job-Loser Transition Rates



Notes: UU=Unemployed to Unemployed; UN=Unemployed to Not in Labor Force; UE=Unemployed to Employed; E/E refers to Extended or Emergency UI benefits.

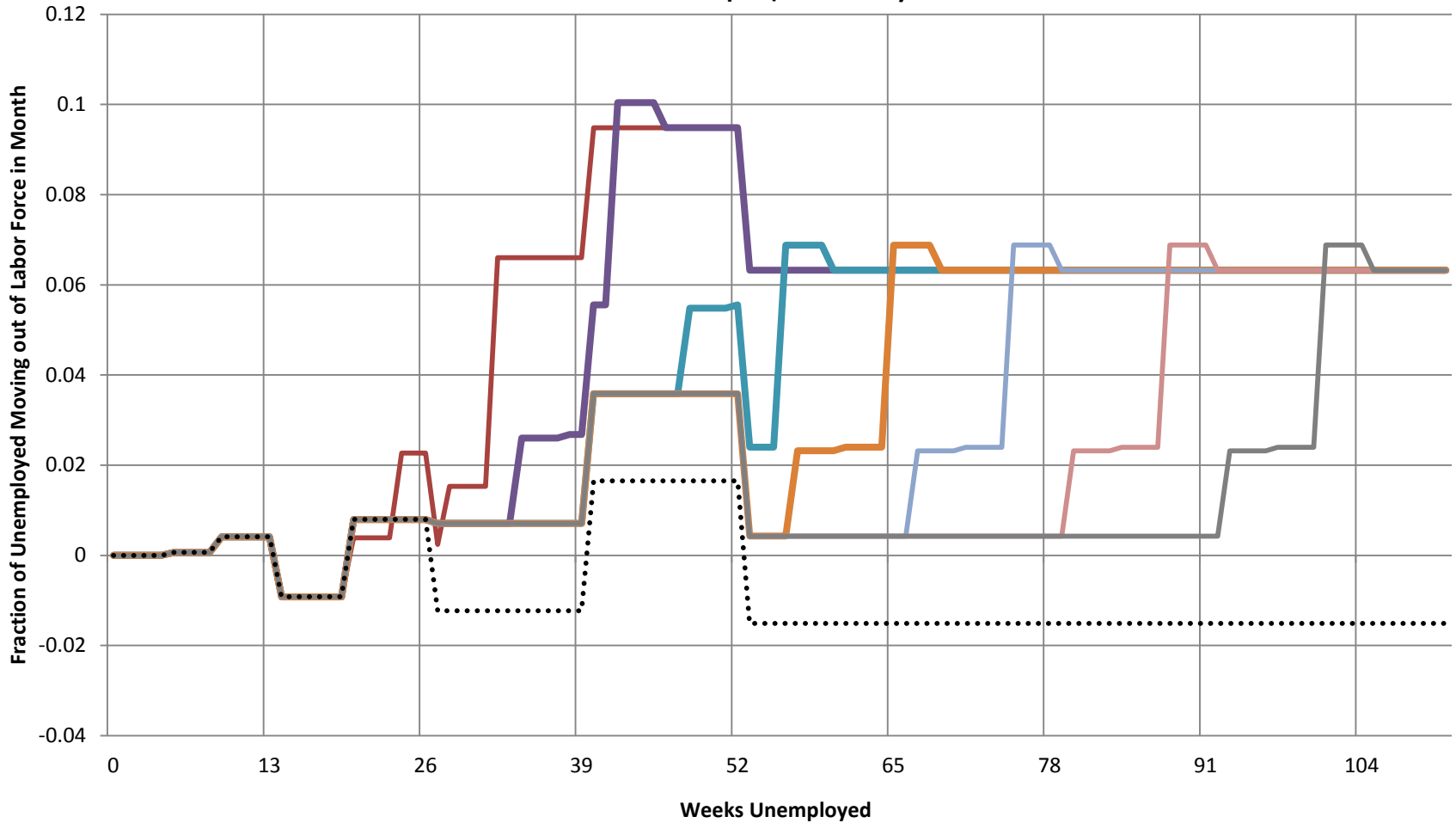
\*2013 is the 12-month average ending with November-to-December 2013 transitions.

Source: Author's calculations based on Table 1 and U.S. Census Bureau, Current Population Survey.

# Figure 4

## Transitions from Unemployment to Not in Labor Force by Individual Unemployment Duration and State-Month UI Maximum Benefit Weeks

Job Loser Sample (2005-2013)



Note: Each plotted line refers to transitions occurring when the maximum weeks of UI benefits in effect in state and month is as follows:

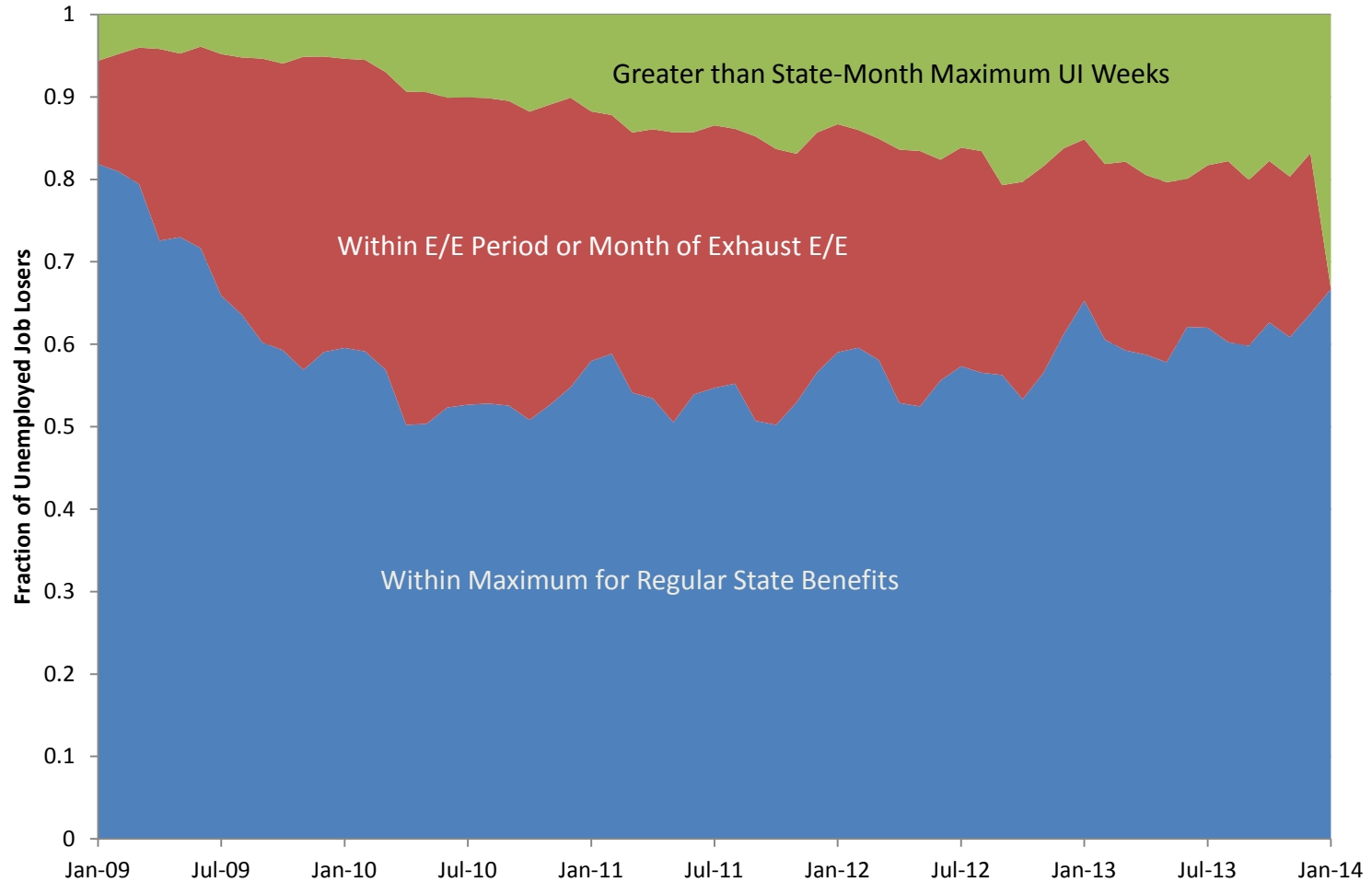
— max=26 (reg) — max=40 — max=54 — max=63 — max=73 — max=86 — max=99 ..... simple duration

**As of November 2013, 13 states had maximum weeks=40; in 9 states, max=54 weeks; in 19 states, max=63 weeks**

Source: The coefficient estimates for U→N transitions shown in column 2 of upper panels of Tables 2 and 3.



**Figure 5**  
**Unemployed Job Losers: Relative Duration of Unemployment**



Note: January 2014 values reflect cutoff of federal extensions on December 28, 2013. No one is within E/E period after cutoff; durations that were previously eligible for E/E are now greater than maximum UI weeks.

Source: Author's calculations based on Table 1 and U.S. Census Bureau, Current Population Survey.

**Table A.1. Regression Coefficients: Baseline Models, January 2005–November 2013**

(Standard Errors Appear in Smaller Type Below the Estimated Coefficients)

	Job Loser Sample			Full Unemployed Sample		
	U-->E	U-->N	U-->U	U-->E	U-->N	U-->U
Month Before Exhaust Regular State UI	0.025**	-0.004	-0.021	0.009	-0.012	0.003
	0.009	0.009	0.012	0.010	0.011	0.012
Month of Exhaust Regular State UI	0.018*	0.015	-0.033**	0.006	0.012	-0.018
	0.009	0.009	0.010	0.008	0.009	0.011
Month after Exhaust Regular State UI	0.026	0.028	-0.054*	0.022	0.016	-0.038
	0.019	0.020	0.022	0.019	0.019	0.022
During E/E UI Eligibility Period	0.015	0.019	-0.034	0.031*	-0.005	-0.026*
	0.016	0.019	0.020	0.012	0.011	0.012
Next-to-Last E/E UI Month	-0.002	0.038*	-0.036	0.020	0.000	-0.021
	0.018	0.018	0.020	0.018	0.018	0.022
Month of Exhaust E/E UI	0.025	0.039	-0.064*	0.033*	-0.011	-0.023
	0.021	0.023	0.025	0.014	0.021	0.023
Month after Exhaust E/E UI	0.021	0.084***	-0.105***	0.034*	0.038*	-0.072***
	0.017	0.022	0.023	0.015	0.019	0.019
More than Month after UI Exhausted	0.011	0.078***	-0.089***	0.012	0.050***	-0.062***
	0.016	0.019	0.020	0.012	0.013	0.012
<i>Job Loser Interactions:</i>						
Month Before Exhaust Regular State UI				0.004	0.021	-0.026
				0.014	0.012	0.015
Month of Exhaust Regular State UI				0.001	0.017	-0.018
				0.010	0.011	0.013
Month after Exhaust Regular State UI				-0.007	0.041*	-0.034
				0.022	0.018	0.025
During E/E UI Eligibility Period				-0.023***	0.036***	-0.013*
				0.004	0.004	0.005
Next-to-Last E/E UI Month				-0.030*	0.053*	-0.023
				0.013	0.020	0.021
Month of Exhaust E/E UI				-0.016	0.064***	-0.049*
				0.017	0.017	0.021
Month after Exhaust E/E UI				-0.017	0.059***	-0.042**
				0.010	0.016	0.015
More than Month after UI Exhausted				-0.008	0.046***	-0.038***
				0.005	0.004	0.006
Duration 5-8 Weeks	-0.089***	0.001	0.088***	-0.075***	-0.008**	0.083***
	0.004	0.003	0.005	0.003	0.002	0.003
Duration 9-13 Weeks	-0.111***	0.004	0.107***	-0.091***	-0.021***	0.112***
	0.004	0.003	0.004	0.003	0.003	0.003
Duration 14-19 Weeks	-0.126***	-0.009*	0.135***	-0.106***	-0.036***	0.142***
	0.006	0.004	0.006	0.003	0.003	0.003
Duration 20-26 Weeks	-0.141***	0.008*	0.133***	-0.119***	-0.013***	0.132***
	0.006	0.004	0.007	0.003	0.003	0.005
Duration 27-39 Weeks	-0.169***	-0.012	0.181***	-0.147***	-0.049***	0.196***
	0.017	0.018	0.02	0.013	0.012	0.013
Duration 40-52 Weeks	-0.176***	0.017	0.160***	-0.155***	-0.006	0.161***
	0.017	0.018	0.020	0.013	0.012	0.013
Duration 53 or More Weeks	-0.193***	-0.015	0.208***	-0.172***	-0.051***	0.223***
	0.017	0.019	0.021	0.013	0.013	0.013
New Entrant				-0.056***	0.051***	0.005
				0.003	0.005	0.003
Temporary Layoff	0.220***	-0.022***	-0.199***	0.232***	-0.174***	-0.058***
	0.005	0.003	0.004	0.004	0.003	0.005
Job Quitter				0.030***	-0.092***	0.062***
				0.003	0.003	0.004
Termination				0.008*	-0.145***	0.137***
				0.003	0.003	0.004

**Table A.1. Regression Coefficients: Baseline Models, January 2005–November 2013, continued**

(Standard Errors Appear in Smaller Type Below the Estimated Coefficients)

	Job Loser Sample			Full Unemployed Sample		
	U-->E	U-->N	U-->U	U-->E	U-->N	U-->U
Male	-0.003	-0.022***	0.025***	-0.007***	-0.020***	0.027***
	0.004	0.003	0.004	0.002	0.002	0.002
16–17 Years Old	-0.044**	0.168***	-0.124***	-0.029***	0.122***	-0.092***
	0.014	0.011	0.012	0.008	0.008	0.007
18–19 Years Old	0.004	0.074***	-0.078***	0.014*	0.042***	-0.056***
	0.010	0.008	0.008	0.007	0.004	0.007
20–24 Years Old	0.012*	0.024***	-0.036***	0.021***	0.015***	-0.037***
	0.005	0.005	0.004	0.004	0.004	0.003
35–44 Years Old	-0.012***	-0.010***	0.023***	-0.014***	-0.002	0.016***
	0.003	0.002	0.004	0.003	0.002	0.003
45–54 Years Old	-0.027***	-0.012***	0.039***	-0.032***	0.002	0.030***
	0.003	0.002	0.004	0.003	0.003	0.004
55–64 Years Old	-0.051***	0.008**	0.043***	-0.059***	0.035***	0.024***
	0.004	0.003	0.005	0.004	0.003	0.004
65–74 Years Old	-0.066***	0.091***	-0.025*	-0.090***	0.150***	-0.060***
	0.007	0.006	0.01	0.005	0.006	0.008
75 Years and Older	-0.083***	0.152***	-0.070***	-0.105***	0.210***	-0.104***
	0.013	0.016	0.017	0.01	0.016	0.014
Black	-0.033***	0.027***	0.006	-0.042***	0.025***	0.016**
	0.004	0.005	0.006	0.003	0.004	0.005
Asian	-0.026**	0.030***	-0.004	-0.025***	0.036***	-0.011
	0.010	0.004	0.012	0.004	0.007	0.010
Other	-0.018**	0.021**	-0.003	-0.029***	0.025***	0.004
	0.006	0.007	0.006	0.005	0.007	0.004
Less than High School	0.011*	0.027***	-0.038***	-0.005	0.032***	-0.026***
	0.005	0.003	0.005	0.004	0.003	0.004
Some College	0.013***	-0.012***	-0.002	0.016***	-0.010***	-0.006
	0.002	0.003	0.004	0.002	0.002	0.003
Bachelor's Degree	0.030***	-0.032***	0.002	0.035***	-0.044***	0.010*
	0.003	0.003	0.005	0.003	0.003	0.004
Graduate/Professional Degree	0.046***	-0.034***	-0.011	0.041***	-0.046***	0.005
	0.006	0.003	0.007	0.004	0.004	0.006
Married Man	0.034***	-0.024***	-0.010*	0.035***	-0.027***	-0.009*
	0.003	0.002	0.004	0.003	0.003	0.004
Married Woman	0.000	0.032***	-0.031***	-0.010**	0.042***	-0.032***
	0.004	0.005	0.005	0.003	0.004	0.004
Formerly Married	0.008*	-0.009**	0.001	0.008**	-0.012***	0.004
	0.003	0.003	0.004	0.003	0.003	0.003
Woman w/ Child(ren), No Spouse Present	-0.028***	0.013**	0.015*	-0.037***	0.016***	0.021***
	0.005	0.005	0.006	0.003	0.004	0.004
At Least One Child	0.003	-0.006*	0.003	0.000	-0.001	0.001
	0.003	0.002	0.004	0.002	0.002	0.003
Real Output Gap	0.009***	0.002***	-0.011***	0.010***	0.001	-0.011***
	0.001	0.001	0.001	0.001	0.001	0.001
Predicted State Employment Growth	0.001	0.003***	-0.004***	0.000	0.002**	-0.002**
	0.001	0.001	0.001	0.001	0.001	0.001
Idiosyncratic State Employment Growth	0.003*	0.001	-0.004	0.005***	0.001	-0.005***
	0.001	0.001	0.002	0.001	0.001	0.002
Constant	0.310***	0.154***	0.536***	0.306***	0.305***	0.389***
	0.010	0.006	0.013	0.007	0.004	0.009
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
R-Squared	0.1193	0.0247	0.0837	0.0937	0.0720	0.0786
Observations	189,062	189,062	189,062	337,362	337,362	337,362

Notes: Statistical significance is denoted as follows: \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

"E/E UI" refers to Emergency or Extended UI benefits; errors clustered by state.

Table A.2				
Asymmetric Responses When Maximum Weeks are Cut or Extended				
	Estimated Coefficients When			
	No Interactions Allowed	Interactions Included, No-Change Month	Interactions, Weeks Cut Previous Month	Interactions, Weeks Extended Next Month
Next-to-Last E/E UI Month	0.038*	0.042*	0.030	0.014
Month of Exhaust E/E UI	0.039	0.043	0.020	0.034
Month after Exhaust E/E UI	0.084***	0.085***	0.065	0.077
More than Month after UI Exhausted	0.078***	0.079***	0.069	0.016 <sup>a</sup>
<sup>a</sup> This estimate is significantly different from estimate in column 2; $p < 0.05$ .				
Notes: Statistical significance is denoted as follows: *** $p < 0.001$ ; ** $p < 0.01$ ; * $p < 0.05$ ; statistical significance (testing hypothesis of zero coefficient) is not reported for columns 3 and 4.				

Sources: Author's estimates based on data from Table 1, U.S. Census Bureau's Current Population Survey, U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis.

**Table A.3. Probit and Multinomial Logit Regression Coefficients**

Data for Job-Losers Only, from January 2005 through November 2013

	Unemployment to Employment		Unemployment to Not in Labor Force		Unemployment to Unemployment	
	Probit	Multinomial Logit	Probit	Multinomial Logit	Probit	Multinomial Logit
<b>Relative Duration</b>						
Month before Exhaust Regular UI	0.122 ***	0.219 ***	-0.016	-0.017	-0.066 *	
Month of Exhaust Regular State UI	0.103 ***	0.218 ***	0.061	0.120	-0.100 ***	
Month after Exhaust Regular UI	0.161 *	0.343 **	0.119	0.230	-0.169 **	
During E/E UI Eligibility Period	0.055	0.132	0.084	0.177	-0.097	<i>See note</i>
Next-to-Last E/E UI Month	-0.017	0.016	0.166 *	0.287 *	-0.106	<i>below</i>
Month of Exhaust E/E UI	0.136	0.318	0.165	0.327	-0.191 **	
Month after Exhaust E/E UI	0.099	0.319 *	0.338 ***	0.642 ***	-0.315 ***	
More than Month after UI Exhausted	0.084	0.291 *	0.313 ***	0.568 ***	-0.270 ***	
<b>Background duration</b>						
Duration 5-8 Weeks	-0.257 ***	-0.467 ***	0.002	-0.177 ***	0.231 ***	
Duration 9-13 Weeks	-0.337 ***	-0.603 ***	0.019	-0.179 ***	0.283 ***	
Duration 14-19 Weeks	-0.396 ***	-0.731 ***	-0.046 **	-0.327 ***	0.364 ***	
Duration 20-26 Weeks	-0.466 ***	-0.837 ***	0.037 *	-0.178 ***	0.359 ***	
Duration 27-39 Weeks	-0.594 ***	-1.110 ***	-0.050	-0.376 **	0.503 ***	
Duration 40-52 Weeks	-0.640 ***	-1.163 ***	0.069	-0.164	0.440 ***	
Duration 53 or More Weeks	-0.773 ***	-1.486 ***	-0.057	-0.402 **	0.591 ***	
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R-squared	0.1080		0.0288		0.0636	0.0774
Observations	189,062		189,062		189,062	189,062

Notes: Unemployment-to-Unemployment is used as base case for multinomial logit; pseudo-R-squared and number of observations at bottom of right-side column refer to multinomial logit system of equations.

Statistical significance is denoted as follows: \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ ;

E/E UI refers to Emergency or Extended Unemployment Insurance Benefits; errors are clustered by state.