

IRLE WORKING PAPER  
#101-14  
February 2014

## Scraping By: Income and Program Participation After the Loss of Extended Unemployment Benefits

Jesse Rothstein and Robert G. Valletta

Cite as: Jesse Rothstein and Robert G. Valletta. (2014). "Scraping By: Income and Program Participation After the Loss of Extended Unemployment Benefits". IRLE Working Paper No. 101-14.  
<http://irle.berkeley.edu/workingpapers/101-14.pdf>

# **Scraping By: Income and Program Participation After the Loss of Extended Unemployment Benefits**

**Jesse Rothstein**

Goldman School of Public Policy & Department of Economics  
University of California, Berkeley  
2607 Hearst Avenue #7320  
Berkeley, CA 94720-7320 USA  
Phone: 1-510-643-8561  
E-mail: [rothstein@berkeley.edu](mailto:rothstein@berkeley.edu)

**Robert G. Valletta**

Economic Research Department  
Federal Reserve Bank of San Francisco  
101 Market Street  
San Francisco, CA 94105 USA  
Phone: 1-415-974-3345  
E-mail: [rob.valletta@sf.frb.org](mailto:rob.valletta@sf.frb.org)

**February 2014**

\* We thank Marianne Bitler, Julie Hotchkiss, and participants at the IZA/OECD/World Bank Conference on Safety Nets and Benefit Dependence (May 2013) and the All-California Labor Conference (September 2013) for comments, plus Jeongsoo Kim of the Census Bureau for SIPP data advice. We also thank Leila Bengali for outstanding research assistance. Rothstein thanks the Russell Sage Foundation for financial support. The views expressed in this paper are those of the authors and should not be attributed to anyone else at the Federal Reserve Bank of San Francisco or the Federal Reserve System.

## **Scraping By: Income and Program Participation After the Loss of Extended Unemployment Benefits**

### **Abstract**

Despite unprecedented extensions of available unemployment insurance (UI) benefits during the “Great Recession” of 2007-09 and its aftermath, large numbers of recipients exhausted their maximum available UI benefits prior to finding new jobs. Using SIPP panel data and an event-study regression framework, we examine the household income patterns of individuals whose jobless spells outlast their UI benefits, comparing the periods following the 2001 and 2007-09 recessions. Job loss reduces household income roughly by half on average, and for UI recipients benefits replace just under half of this loss. Accordingly, when benefits end the household loses UI income equal to roughly one-quarter of total pre-separation household income (and about one-third of pre-exhaustion household income). Only a small portion of this loss is offset by increased income from food stamps and other safety net programs. The share of families with income below the poverty line nearly doubles. These patterns were generally similar following the 2001 and 2007-09 recessions and do not vary dramatically by household age or income prior to job loss.

**Scraping By: Income and Program Participation  
After the Loss of Extended Unemployment Benefits**

**1. Introduction**

During the recent Great Recession and its aftermath, job losses were unusually severe and unemployment durations reached historical highs in the United States. The severe labor market dislocation prompted a series of unprecedented extensions of available unemployment insurance (UI) compensation, from the standard 26-week period up to a maximum of 99 weeks for most eligible job seekers. One goal was to bolster the traditional automatic stabilizer role of UI benefits, enabling recipients and their families to maintain their consumption during extended periods of joblessness and thereby increasing aggregate spending (Gruber 1997, U.S. CBO 2012).

The weak labor market persisted for much longer than 99 weeks, however, and over time increasing numbers of UI recipients exhausted the maximum weeks of UI available to them prior to becoming reemployed. In this paper, we examine the characteristics and indicators of economic well-being of these individuals (who we refer to as “exhaustees”) during the post-recession period. Extended UI exhaustees have been the subject of only limited past research (Needels, Corson, and Nicholson 2001; U.S. CBO 2004; U.S. GAO 2012). We compare exhaustees in recent years with those who exhausted UI benefits during the milder, but also extended, labor market downturn of the early 2000s. Our motivations are twofold. First, we hope to shed light on the consequences of UI exhaustion for recipients and their families. The effect of UI exhaustion on consumption is central to models of optimal UI duration, and, while we cannot measure consumption directly, changes in family income are suggestive (particularly given limited savings and wealth holdings for UI recipients; see Gruber 1997, 2001 and Chetty

2008). Second, we seek to understand program interactions. Do other safety net programs, such as food stamps, cash welfare, or disability insurance, provide a cushion for families that have exhausted their UI benefits? Any such interactions have important implications for both the budgetary cost of UI extensions and the design of UI policy.

Existing research on interactions between UI and other forms of public assistance in the United States generally has focused on disability insurance (DI) (Lindner 2011; Lindner and Nichols 2012; Rutledge 2012; Mueller, Rothstein, and von Wachter 2013; Inderbitzin, Staubli, and Zweimuller 2013).<sup>1</sup> We examine a broader range of outcomes, including: (i) traditional, temporary safety net programs such as supplemental nutrition assistance (SNAP, also known as “food stamps”), cash welfare (TANF), and Medicaid; (ii) family members’ earned income; and (iii) summaries of well-being such as poverty rates. We rely on panel data from the Survey of Income and Program Participation (SIPP), enabling us to identify and track the labor force status, income receipt, and participation in public assistance programs of large, nationally representative samples of individuals during the months immediately surrounding job loss and UI benefit terminations. We use both the 2001 SIPP panel, covering the period from late 2000 to late 2003, and the 2008 panel, currently covering mid-2008 to early 2013, enabling a comparison across a relatively mild and severe recession, respectively.

We identify large numbers of UI exhaustees: Based on our weighted counts, about 3 million UI recipients exhausted their benefits during the period covered by our 2008 SIPP extract (roughly, between late 2009 and early 2013). Our descriptive analyses indicate that UI exhaustees in both episodes have broadly similar characteristics to UI recipients who find jobs

---

<sup>1</sup> Much of this work relies on administrative data that ends before the Great Recession. Even with data covering the post-recession period, direct analysis of UI to DI transitions is complicated by the extensive time lags between initial DI application and eventual receipt (see e.g. Autor et al. 2011; Mueller, Rothstein, and von Wachter 2013).

before exhausting their benefits, with the obvious primary exception that exhaustees experience longer unemployment durations. We then examine the dynamics of family income for the exhaustee sample, using monthly data for the periods surrounding the initial job loss and the end of UI benefits. We find that recipients' own earnings account for 55-60 percent of pre-separation household income, and that among UI recipients benefits compensate for about half of the loss in earnings following job loss. When UI benefits are exhausted, we see small but sometimes statistically significant increases in participation in SNAP, other forms of social assistance, and Social Security retirement benefits. However, the increase in total payments from these programs averages only around 2 percent of pre-separation household income, or less than one tenth of the lost UI income. Total family income falls by roughly 18 percent, and poverty rates rise by about 15 percentage points (on a base of 20-25 percent). Although details differ somewhat between the 2001 and 2008 panels—and the larger number of exhaustees in the 2008 panel allows for more precision and a larger number of statistically significant effects—the patterns are broadly similar across the two cycles. In addition, the basic patterns are similar in our descriptive analyses and in a more formal event-study regression framework (as described in Section 6).

Our findings shed new light on the experiences of the long-term unemployed during an exceptionally prolonged period of labor market weakness. However, our chosen data impose a few limitations on the analysis. First, we cannot precisely identify the date on which UI benefits were exhausted. We proxy “exhaustions” by long-term UI benefit spells that end and are not immediately followed by a return to work. (Details of our definition are provided in Section 4.) In an unknown but likely small share of cases, these represent individuals who stopped receiving benefits before their legal limits (perhaps because they stopped searching for work, a

requirement for UI receipt). Moreover, we miss some true exhaustions where the recipient became reemployed immediately after his or her benefits expired. Second, we focus on measures of family income, though the welfare consequences of UI exhaustion and the design of optimal UI policy depend on consumption (Chetty 2008). It is possible that families are able to smooth consumption across the sharp changes in family income that we document. However, in light of the large reductions in family income during UI spells and the extended duration of these spells in the Great Recession, families are unlikely to have substantial liquid assets at the time of exhaustion (Gruber 2001). Third, our SIPP data and empirical methods are better suited for capturing high-frequency changes in income in the months immediately surrounding exhaustion than they are at identifying responses that happen months or years later. We therefore do not emphasize effects of UI exhaustion on DI receipt, as the application process for DI can be quite long and variable. We expect that our estimates understate the medium-term effects of UI exhaustion on Social Security income and Medicaid reciprocity as well, but do a better job of capturing effects on receipt of food stamps and other cash transfer programs.

## **2. Regular and Extended UI in the United States**

UI benefits are normally available for 26 weeks in the United States under the joint federal-state Unemployment Compensation (UC) program. Unemployed individuals are eligible to receive benefits if they lost a job other than for cause (typically due to a permanent or temporary layoff) and if they meet state-specific requirements regarding work history and wages during the 12 to 15 months preceding the job loss. Benefits are typically paid only to those who

are available for and actively searching for work, although the exact rules vary across states and are inconsistently enforced.<sup>2</sup>

In most states, UI benefits equal half of the claimant's pre-separation weekly wage, up to a weekly maximum. This maximum varies between \$235 (Mississippi) and \$979 (Massachusetts, including a dependents' allowance). Nationally, average weekly benefits are around \$300. The American Recovery and Reinvestment Act (ARRA), passed in February 2009, authorized an additional \$25/week supplement. This supplement expired in May 2010.

UI benefit durations are often extended in periods of economic weakness. The Extended Benefit (EB) program was established in 1970 to provide 13-20 additional weeks of UI benefits in states with high and rising unemployment rates. States must choose whether to participate in the EB program and, if so, under what conditions EB benefits will be paid. Costs of these payments are traditionally split equally between the state and the Federal government. The ARRA, however, provided for 100 percent federal financing of EB benefits, and many states subsequently opted into the program.

Congress often supplements EB with additional temporary extensions during national recessions.<sup>3</sup> The Temporary Extension of Unemployment Compensation (TEUC) program was in effect from March 2002 through early 2004. This provided for 13 weeks of federally-funded extended benefits in all states, with an additional 13 weeks in states meeting an unemployment rate threshold. TEUC extended regular and EB benefits, bringing total potential durations as high as 72 weeks. The analogous program for the most recent recession is Emergency

---

<sup>2</sup> It is often sufficient for a claimant to state that he or she is actively searching. UI administrators in some states attempt to verify search effort by, e.g., suggesting that the claimant apply for a particular open position. Anecdotally, enforcement efforts have been minimal during the Great Recession and its aftermath, due to challenges posed by unusually large caseloads and also the scarcity of job openings.

<sup>3</sup> See Whittaker (2008) and Whittaker and Isaacs (2012) for details regarding the various historical and recent programs that provide extended UI benefits.



Unemployment Compensation (EUC), first authorized in 2008 and extended and expanded repeatedly since then. At its maximum, it provided for as many as 53 weeks of benefits in high unemployment states, allowing a total of 99 weeks in combination with 26 weeks of regular benefits and 20 weeks of EB).<sup>4</sup> Although EUC (and EB) benefits were conditioned on state unemployment rates, most states qualified for both, and between late 2009 and 2012 the typical unemployed individual was located in a state where the full 99 weeks were available. UI availability declined substantially during 2012, through a combination of EUC changes that reduced the number of weeks available, reductions in normal UI durations below 26 weeks in some states, and (most importantly) declines in state eligibility for EB and EUC benefits.<sup>5</sup>

The first panel of Figure 1 shows the evolution of UI benefit durations over the last two business cycles. The solid and dashed lines show the minimum and maximum durations of benefits across states, while the dotted line shows the mean (weighted by the number of job losers in each state, measured from monthly Current Population Survey data). The maximums of 72 and 99 weeks in the early 2000s and 2009-12 are immediately evident. The figure also shows that mean durations of available UI benefits were slightly above 40 weeks for most of 2002 and 2003, fell to 26 weeks from 2004 through mid-2008, then rose rapidly, reaching nearly 99 weeks from late 2009 through early 2012.<sup>6</sup> The average fell to around 64 weeks by late 2012 and stayed near that level through September 2013, the last month shown.

---

<sup>4</sup> For additional details regarding the prevalence, distribution across states, and labor market effects of EUC and EB, see Rothstein (2011) and Farber and Valletta (2013).

<sup>5</sup> Generally, unemployment rates drifted down slowly through this period. This caused some states to lose eligibility for some EUC benefits. In addition, EB rules limit benefits based on the two- or three-year change in the unemployment rate; many states lost eligibility because their rates had fallen below their lagged values, even though they remained high.

<sup>6</sup> 13 weeks of EB benefits were available in Alaska in mid-2005 and in Louisiana in late 2005 and early 2006 (following Hurricane Katrina).

The second panel of Figure 1 shows the number of UI recipients, separately for regular state programs and for the extended and emergency programs. Both rose during each of the labor market downturns and fell afterward. However, the cycle is more dramatic for the extended/emergency programs: Regular program recipiency rose from under 3 million in 2007 to a peak of just over 6 million in 2009, then gradually returned to around 3 million by late 2013. By contrast, EUC and EB caseloads rose from 0 in early 2008 to a peak just shy of 6 million in early 2010, falling back to under 2 million by late 2013.

Figure 2 shows several measures of labor market weakness or slack—the unemployment rate and the average duration of unemployment in Panel A, and the ratio of the number of unemployed to the number of job openings in Panel B. Each shows that the 2007-2009 recession was much more severe than the 2001 recession; that the labor market nadirs occurred near the end of the 2007-09 recession but well after the end of the 2001 recession; and that labor market weakness persisted for years after these nadirs, with slow recovery from 2003 through 2007 and from 2009 through the end of the series in late 2013.

### **3. UI Exhaustion and Alternative Income Sources**

A long literature examines the effect of unemployment insurance extensions on labor market outcomes (see, e.g., Katz and Meyer 1990, Card and Levine 2000, Rothstein 2011, and Farber and Valletta 2013). Evidence from the 1980s (Katz and Meyer 1990) indicates relatively large effects of UI benefit durations on the probability of reemployment, but analyses of more recent data find much smaller effects (Rothstein 2011, Farber and Valletta 2013). Differences might be due to changes in the structure of the labor market—in particular, to declines in the incidence of temporary layoffs—or to differences in economic conditions between the periods.

In addition, some of the earlier studies examined effects of benefit durations on unemployment exit, and were unable to measure re-employment directly. The two recent studies find that the primary channel by which UI extensions affect unemployment duration is via labor force attachment rather than job finding, and that the probability of labor force exit rises notably following the exhaustion of UI benefits (see also Card, Chetty, and Weber 2007).

Other behavioral effects of unemployment insurance are less well understood. In particular, there is little evidence regarding the way that UI interacts with other income transfer programs, such as food stamps, retirement benefits, disability insurance benefits, and cash welfare. UI may serve as a substitute for these programs, by providing temporary income support during unemployment spells. Alternatively, UI may act as a complement with other programs, if UI disincentive effects reduce job-finding and recipients increase their use of other programs to supplement low UI benefits during their extended unemployment spells.

Gruber (2001) examined the wealth holdings of the unemployed. He found that the typical job loser in the 1984-92 SIPP panels had enough liquid assets to replace only 5.4 weeks of earnings, with the long-term unemployed having less than half as much wealth as the short-term unemployed. In other work, Gruber (1997) examined how the consumption spending of the unemployed varies with the generosity of UI benefits. His results indicate that more generous benefits are associated with higher levels of consumption during unemployment, suggesting that UI benefits substantially enhance consumption smoothing for recipients.

Several recent papers examine the relationship between unemployment insurance and disability insurance (DI) applications. Lindner and Nichols (2012) explore the effect of UI benefit generosity and eligibility criteria on DI applications. Rutledge (2012) and Mueller, Rothstein, and von Wachter (2013) examine the effect of UI durations on DI application.

Rutledge finds that the presence of a UI extension is positively associated with DI applications among those who were claiming UI when the extension was announced. Mueller et al., however, use recent UI extensions as a source of variation in the date of UI benefit exhaustion and find no effect of impending or recent exhaustion on DI application.

Beyond these studies, very little is known about the financial situation or consumption behavior of individuals who have exhausted their UI benefits.<sup>7</sup> Gruber's (2001) analysis suggests that such individuals are quite unlikely to have substantial remaining assets upon which to draw, but direct tests are difficult. We are aware of one study that used the 2001 panel of the SIPP to investigate the characteristics of individuals who had exhausted their UI benefits in late 2001 and early 2002 (U.S. CBO 2004).<sup>8</sup> Those who were still not employed as of three months after the end of their UI benefits had average monthly family incomes of \$2,530, about half of the pre-unemployment level. The vast majority (\$1,970) of the post-UI income derived from earnings of family members other than the exhaustee. Only 7 percent had Social Security income, while one in ten were receiving food stamps. Of the UI exhaustees, 36 percent were in poverty; this rose to 73 percent for those who did not have other earners in the family.

#### **4. SIPP Nonemployment Spell Data**

Our analyses of UI recipients and exhaustees use panel data from the Survey of Income and Program Participation (SIPP). The SIPP is a nationally representative sample of individuals and the households in which they reside. It was designed specifically to “provide accurate and comprehensive information about the income and program participation of individuals and

---

<sup>7</sup> Bitler and Hoynes (2013) find that UI benefits have been more strongly counter-cyclical than many other safety net programs in recent decades, serving to substantially reduce cyclical variation in poverty.

<sup>8</sup> See also Needels et al. (2001), U.S. GAO (2012).

households in the United States, and about the principal determinants of income and program participation.”<sup>9</sup> As such, it is well-suited for the analysis of receipt of UI and other types of income, changes over time, and related labor market outcomes. The SIPP is structured as a series of non-overlapping panels, with new panels beginning every three or four years and respondents to each panel interviewed every four months. Each interview collects income and related data for each of the preceding four months, while labor force status is recorded for each week. This permits direct measurement of employment transitions and duration of unemployment and nonemployment.

The 2001 and 2008 SIPP panels coincide closely with the periods of UI benefit extensions associated with the 2001 and 2007-09 recessions. The 2001 panel consisted of 9 waves, covering October 2000 through January 2004. For the 2008 panel, sixteen waves are planned. Presently, data for the first fourteen waves, covering May 2008 through April 2013, are available.<sup>10</sup>

#### ***4.1. Sample construction***

To construct our sample, we begin with individuals age 18 to 64 (at the time they enter the panel) who report job separations followed by positive weeks of unemployment at any time during the 2001 or 2008 SIPP panels.<sup>11</sup> We restrict attention to separations that follow jobs that lasted at least three months, as separations following short-term jobs are unlikely to result in new UI eligibility. Although the SIPP does not record the reason for job separation, by limiting our

---

<sup>9</sup> See the description at <http://www.census.gov/sipp/intro.html>.

<sup>10</sup> Because interviews for each wave are staggered across a four-month period, the complete number of calendar months covered by each panel is slightly larger than the number of waves multiplied by four.

<sup>11</sup> See the Appendix for additional details regarding sample construction and definitions.

sample for our primary analyses to those who receive UI income we ensure that separations reflect job losses rather than quits.

We use weekly labor force status to define the duration of post-separation unemployment spells and time to reemployment. We count individuals as becoming reemployed when they spend at least four consecutive weeks in employment (though we backdate the end of the nonemployment spell to the beginning of this period).<sup>12</sup> We apply a similar rule to identify labor force exits, requiring four consecutive weeks without active search. To minimize arbitrary censoring in the data, we exclude individuals who attrit from the panel prior to the final potential data month.

In our analyses of UI exhaustees, we focus on job separations that lead to UI receipt for at least four months during the non-employment spell. We define a UI exhaustion as occurring when UI benefits end at least one month before the last month of the non-employment spell. The latter restriction is meant to exclude those who might have drawn more UI benefits but did not because they became reemployed.

A well-known measurement issue in the SIPP and other panel surveys is “seam bias,” or the tendency for changes in reported outcomes to concentrate in the first month covered by a new interview wave (see e.g. Moore 2007; Ham, Li, and Shore-Sheppard 2009). We see evidence of this in our measure of UI reciprocity: Roughly twice as many measured exhaustions occur in the last month of an interview wave as would be expected by chance. We take two steps to minimize seam bias. First, our analyses generally focus on averages over four or more months

---

<sup>12</sup> Many of our sample construction procedures follow Cullen and Gruber (2000) and Chetty (2008), for example in regard to our rules for identifying re-employment. However, we broaden our samples beyond the relatively narrow sets of unemployment spells that they examine, and we use a broader measure of nonemployment, including individuals who leave the labor force, rather than unemployment. The four-week requirement roughly corresponds to the CPS definition of non-participation.

prior to or following exhaustion, so each period includes at least a full wave of data. Second, we ran several robustness checks, including: (i) re-estimation of our specifications controlling for the position of the month relative to the interview; (ii) exclusion of exhaustions that occur in the last month of a wave; and (iii) reweighting the data to balance the distribution of exhaustions across reference months. None of these alterations leads to substantive changes in the results.

#### ***4.2 Sample characteristics***

Table 1 displays detailed descriptive statistics for our samples of nonemployment spells from the 2001 and 2008 panels, with a breakdown by UI reciprocity and exhaustion illustrating the construction of our primary analysis sample of UI exhaustees.<sup>13</sup> For each panel, we divide the sample of spells into sub-groups defined by whether any UI income was received during the spell, and if so, whether the UI income was received during the entire spell or else ended while the individual was still unemployed.

The tabulations in the first few rows of Table 1 show that we identify about 11,400 job separations leading to unemployment spells in the 2001 panel and about 16,500 in the 2008 panel, representing about 8,100 and 14,800 individuals (some individuals experience repeated spells).<sup>14</sup> The weighted counts in a subsequent row show, for example, that this represents nearly 54 million individuals experiencing job separation followed by unemployment in the 2008 panel. While this is a very large number, it is readily reconciled with data on monthly gross labor force

---

<sup>13</sup> The SIPP sample includes cross-sectional weights and longitudinal weights for analyses of particular calendar periods. None of these correspond very well to our sample definitions, which require only that individuals remain in the sample until after their UI benefits end. Our primary analyses therefore rely on unweighted estimates, though we have verified that our basic results are robust to using the SIPP cross-sectional weights (as described in Section 6.3). The descriptive statistics in Table 1 and Appendix Table 1 are weighted for illustrative purposes, generally using the SIPP cross-section weights corresponding to the final month of each nonemployment spell.

<sup>14</sup> In the full sample of separations, about one-third of nonemployment spells last for one month or less. Among UI recipients, the proportion is about half that (15-20 percent).

flows from the Current Population Survey (CPS). The CPS data show over 2 million transitions from employment to unemployment per month during the time period corresponding to the 2008 SIPP panel, for a total of much more than 54 million over our period. The difference is likely explained by our more stringent criteria for identifying labor force transitions, which lead us to count fewer flows for those who cycle between short-term jobs and unemployment than do the CPS definitions

Columns 3-4 and 7-8 of Table 1 indicate that UI income is reported for only about one-third of the unemployment spells in both panels and that in most cases it is received each month of the reported unemployment spell. Among spells for which UI income is reported, the nonemployment spell extends beyond the end of UI benefits about one-fifth of the time in the 2001 panel and a little under one-sixth of the time in the 2008 panel. This corresponds to 504 UI exhaustee spells in the 2001 panel and 1098 in the 2008 panel, experienced by 414 and 822 individuals (implying multiple exhaustion spells for individuals in about one-fifth of the cases). The weighted counts show that this corresponds to about 1.7 million individuals in the 2001 panel and about 3.0 million in the 2008 panel.<sup>15</sup>

Table 1 shows that unemployment durations are longer in the 2008 panel, as expected, and that those spells that we classify as “exhaustions” have longer durations than those that we do not. This is the primary observable difference between exhaustees and non-UI-recipients or non-exhausting recipients. Appendix Table 1 provides a breakdown of additional individual characteristics; it shows that older individuals are more likely to receive UI benefits than are younger workers.<sup>16</sup> The second page of Table 1 lists tabulations of individual and household

---

<sup>15</sup> A recent study from the U.S. GAO (2012), using data from the Displaced Workers Survey, identified about 2 million exhaustees from 2007 through early 2010.

<sup>16</sup> Appendix Table 1 also shows that selected demographic groups are somewhat overrepresented among



income. It shows that individual earnings prior to job separation are somewhat higher for UI recipients than nonrecipients, as expected due to the earnings history requirements for UI reciprocity, but that they do not differ between exhaustees and other recipients. Total household income prior to job separation is also somewhat higher for UI recipients than nonrecipients. The bottom row of Table 1 lists poverty rates for the sub-samples, showing relatively high rates for UI exhaustees (based on income including transfers, and averaged over all months in the non-employment spell). In addition, Appendix Table 1 lists selected components of total household income, including earnings of other family members and also cash and in-kind income from government programs. These additional income sources will be analyzed in detail in Sections 5 and 6.

Figure 3 provides additional information on unemployment and nonemployment durations by plotting survivor curves separately for the 2008 and 2001 samples (based on the complete samples of job separators from columns 1 and 5 of Table 1). These curves show the percentage of spells (vertical scale) that are ongoing after a given number of months (horizontal scale). We consider two definitions of spell survival for our samples of job separators—survival in unemployment, using dashed lines, or survival in non-employment (including non-participation), using solid lines. As noted above, each type of spell is allowed to continue beyond brief periods out of the relevant state, and is judged to have ended when the individual exits the state for a period that exceeds four weeks. The plot shows longer unemployment and nonemployment durations in the 2008 panel than the 2001 panel, as expected based on the greater severity of the labor market downturn in the recent period and the tabulations in Table 1.

---

UI exhaustees versus UI recipients more generally, including women and ethnic minorities. This is consistent with the finding from a study of UI exhaustion during the tight labor market of the late 1990s (Needels et al. 2001).

In the 2008 panel, about 25 percent of unemployment spells last 6 months or more, while roughly 40 percent remain non-employed for this long. This compares to about 17 percent and 30 percent, respectively, in the 2001 panel.<sup>17</sup>

More relevant for our analysis is survival from the date at which UI benefits are exhausted. Panel B of Figure 3 shows survival curves from the end of UI benefits for our exhaustee sample (as defined and listed in columns 4 and 8 of Table 1). It looks strikingly similar to the distribution of survival times from the beginning of the unemployment spell (Panel A), consistent with an approximately exponential distribution of spell lengths (i.e., with a constant hazard rate that does not change dramatically after the exhaustion of UI benefits). Many nonemployment spells continue long after the end of UI benefits. For example, in the 2008 panel, nearly one half of UI exhaustees remain unemployed or out of the labor force 6 months after their UI benefits end.

Many UI exhaustees receive fewer months of UI benefits than appear to be available in their states at the relevant time. We are unable to distinguish whether these individuals were eligible for less than the maximum benefit duration (due, e.g., to insufficient earnings histories), whether their benefits were cut off, whether they voluntarily stopped claiming UI despite having the option to continue, or whether their UI benefit durations are misreported. Panel A of Figure 4 displays the distribution of months of UI receipt for UI exhaustees, while Panel B displays the distribution of the ratio of the number of months of benefits to the maximum number that should

---

<sup>17</sup> These spell durations are longer than those based on matched CPS samples (e.g., Rothstein 2011, Farber and Valletta 2013). For example, Farber and Valletta (Table 3) report that in 2009-11 about 14 percent of unemployment spells following job loss in matched CPS data last 6 months or longer (compared with 25 percent of spells in our 2008 SIPP panel). Both Rothstein (2011) and Farber and Valletta (2013) discuss the likely mismeasurement of spell lengths in matched CPS data due to classification errors in monthly status. It is likely that the panel features of the SIPP reduce these errors, enabling more accurate measurement of spell durations than in the matched CPS data.

be available given state and federal law.<sup>18</sup> The ratio plot in Panel B shows that a substantial number of exhaustees (by our definition) have UI durations notably shorter than the statutory maximum available in their state (i.e., ratios well under one). In the 2008 panel, about 45 percent of our exhaustee sample receives fewer months of UI benefits than we calculate as their maximum eligibility. Nevertheless, there is clear evidence of a “hump” in the distribution around a ratio of one, corresponding to benefit durations equal to the statutory maximum. We opt to include the shorter durations in order to maximize the available sample size and also because it is likely that the duration of individual UI eligibility falls short of the state maximum in many cases (in which case the shorter durations reflect actual outcomes rather than reporting error). To minimize the influence of potential reporting error, however, we also discuss estimates below that restrict the sample to spells exceeding 75 percent of the apparent maximum.<sup>19</sup>

## 5. Income Dynamics Surrounding Separation

We lay the groundwork for our analysis of UI exhaustion by first examining outcomes before and after job loss. This serves the dual purpose of identifying the outcomes of interest

---

<sup>18</sup> We measure the denominator by merging the SIPP data to a database of maximum UI durations by state and month constructed from Department of Labor “trigger notices,” as described in Rothstein (2011) and Farber and Valletta (2013). This database yields durations in weeks; we divide by 4.33 (52/12) to obtain durations in months. The numerator is the number of calendar months in which benefits were received, which can exceed the number of full months of benefits when spells start or end mid-month. Thus, the ratio could legitimately be as high as 1.17 for uninterrupted spells (when 26 weeks of benefits are spread across seven calendar months), and could be higher still when UI spells are interrupted by short periods of employment or non-participation. UI durations that exceed the maximum may also arise due to seam bias, which could cause some individuals who exhaust UI during the first three months of the survey wave to report exhaustion in the fourth (final) month of the wave. We discuss this issue in Section 4.1.

<sup>19</sup> The EUC program (as well as EB in many states) was temporarily suspended twice in 2010. This likely interrupted individual benefit reciprocity. However, the impact is minimal in our data, because the suspensions were short and mostly did not correspond to complete calendar months, and because benefit payments were made retroactively after reauthorization. We confirmed in our data that there is no noticeable uptick in measured UI exhaustion rates during the suspension months.

and also providing a set of initial facts about the size of the “hole” in household budgets that UI benefits are intended to help fill.

Figure 5 displays the time pattern of total household income during the period leading up to and following an initial job loss, labeling the month in which the job was lost as 0 and the surrounding period by the time relative to that month. Income is measured as a share of its average level over the period 2-4 months before the job loss event. Estimates are shown for the full sample of UI recipients (including those who do not exhaust their benefits) and for our UI exhaustee sample. For the exhaustee sample, we show estimates for total household income and for income less UI benefits. Among all UI recipients, household income falls by about 10 percent following job loss in the 2001 panel and by about 20 percent in the 2008 panel. In the UI exhaustion sample, household income drops about 20-25 percent following job loss. This reflects roughly 50 percent declines in non-UI income, about half of which are made up by increases in UI. The larger decline in income (in 2008) and greater persistence in the exhaustee sample relative to the full UI recipient sample reflects the longer duration of unemployment spells among exhaustees, as many UI recipients become reemployed quite quickly and the income decline following job loss largely evaporates within six months. Among exhaustees, income does not recover meaningfully within the six-month window that we examine.

Table 2 summarizes household incomes and their composition during the three months prior to and the six months after job loss, along with the difference between them. The sample is restricted to individuals who remain nonemployed during the sample frame. Bold text indicates a pre-post difference that is statistically significant at the 5 percent level.

The tabulations in Table 2 again show that household income drops about 20-25 percent on average (or about \$1,400) after job losses that lead to long-term unemployment spells and

eventual UI exhaustion. Own earnings account for slightly more than half of household income prior to job loss in this sample of UI recipients, and fall to near zero after separation. UI benefits replace about 40 percent of the lost earnings on average. These two factors account for nearly the entirety of household income changes observed after job loss.

Other income components show only small changes. Earnings of other household members increase a bit following job loss (significantly so in 2008). The bottom portion of the table shows that the incidence of positive earnings for other household members does not change, so this indicates that work by other household members rises along the intensive margin but not the extensive margin. Reciprocity of SNAP (food stamp) benefits also increases after separation, as does Medicaid coverage.<sup>20</sup> As expected, the last row of the table shows large and statistically significant increases in poverty rates following job loss. The poverty rates in our sample rise from about 7-8 percent—lower than the 13-15 percent average for the general population during our sample frame—to an elevated level of about 20-25 percent. All of these patterns are similar between the 2001 and 2008 SIPP panels.

## **6. Income Dynamics Surrounding UI Benefit Exhaustion**

### ***6.1 Average outcomes over time***

We now turn to our examination of the period surrounding exhaustion of UI benefits. Figure 6 shows average total household incomes over this period, as before measuring them as a share of pre-displacement income. Here, month 0 corresponds to the final month in which UI income was received, and month 1 to the first month without UI income. (Recall that our exhaustee sample is limited to individuals who do not begin an employment spell lasting four

---

<sup>20</sup> Higher levels of SNAP benefits in the 2008 panel versus the 2001 panel are consistent with the extensive analysis of the food stamp program provided in Ganong and Liebman (2013).

weeks or more in the month following UI receipt.) Estimates for the full exhaustion sample show that household income falls by about 15 percent of its pre-displacement level in the month following the end of UI benefits. Average incomes rebound somewhat thereafter. This reflects the return to work of some exhaustees in months two and three. A second series shows estimates restricted to individuals who remain non-employed.<sup>21</sup> Here, there is no little or no rebound; incomes remain 30-40 percent below the pre-displacement level through the end of our sample.

Figure 7 shows average income levels from different sources for ongoing non-employment spells. It shows a slight immediate increase in own earnings after loss of UI benefits that fades after a few months, offset in part by consistent small increases in earnings by other family members and receipt of government transfers other than UI benefits. Figure 8 repeats the exercise for poverty rates, showing that poverty rises substantially following the loss of UI benefits.

As before, the patterns in Figures 6-8 generally indicate stability during the period preceding and the period following the loss of UI benefits. We thus turn next to an examination of average outcomes over the period three months prior to and six months following the cessation of UI benefits. Table 3 has the same structure and underlying sample of nonemployed UI exhaustees as Table 2, but it focuses on the period surrounding UI exhaustion and includes only observations from months during the non-employment spell. That is, an individual who returns to work three months after exhaustion is included in the sample for months +1 and +2, but excluded from the sample for subsequent months.

Table 3 shows that when UI benefits expire households lose UI income equal to about one-quarter of pre-displacement household income, or about one-third of their income just prior

---

<sup>21</sup> As noted earlier in the discussion of Figure 3 (Section 4.2), in the 2008 panel nearly one half of UI exhaustees remain non-employed 6 months after their UI benefits stopped.

to UI exhaustion, roughly the mirror image of the increase following job loss. The drop in UI income is buffered somewhat by increases in other income sources. The main offsetting increase is in own earnings from intermittent employment, amounting to a bit less than 10 percent of pre-displacement income, or less than one-fifth of pre-displacement own earnings. We see some significant increases in other income sources—SNAP benefits, other social assistance, and Social Security payments—in the 2008 panel, but the dollar amounts are very small, adding up to not more than one-tenth of the lost UI income.<sup>22</sup> As a result, the net effect of UI exhaustion is for household income to decline by 10-15 percent of its pre-displacement level, or \$400-\$600 per month, on average, and for family poverty rates to rise by about 16 percentage points (on a base of 20-25 percent). Once again, all of these patterns are similar across the 2001 and 2008 SIPP panels. Moreover, Appendix Table 2 shows that they are largely unchanged when we restrict the sample to UI exhaustion spells for which time spent on UI is at least 75 percent of the legislative maximum in the state.

## ***6.2 Event study of UI exhaustion***

We now turn to more formal econometric analyses of income dynamics surrounding exhaustion (or other termination) of UI benefits, accounting for time trends and for unemployment duration effects. We restrict the analyses to our sample of UI exhaustees (as used in Table 3) and focus on a narrow timeframe around the last month in which UI benefits are received (3 months before and after, excluding the month prior to the last month of UI reciprocity). Although loss of UI benefits may have longer term effects as well, focusing on a narrow time frame places the loss of UI benefits in stark relief.

We estimate regressions of the following form:

---

<sup>22</sup> This is broadly consistent with the findings in U.S. GAO (2012), which uses a different sample and method of identifying exhaustees.

$$y_{isdt} = \alpha_{is} + \lambda_d + \beta_t + \varepsilon_{isdt} \quad (1)$$

In this equation,  $i$  indexes individuals and  $s$  indexes nonemployment spells (typically one per individual, but some have multiple spells in our data). The vector  $\alpha$  represents fixed effects for each spell. The subscripts  $d$  and  $t$  refer to two time dimensions (in months): time since the beginning of the non-employment spell ( $d$ ) and time since the end of the period of UI reciprocity ( $t$ , with negative numbers corresponding to months before UI exhaustion). Equation (1) includes complete vectors of fixed effects for each dimension, represented by  $\lambda$  and  $\beta$ . The term  $\varepsilon$  is a residual that is orthogonal to the explanatory variables by construction. The estimated standard errors are clustered by individual. We estimate this equation for a set of income-related dependent variables  $y$ , beginning with total household income, then considering income components one at a time, and ending with an indicator for family poverty.

Our goal is to estimate the independent effect of UI exhaustion on the income-related outcomes, controlling for individual heterogeneity and nonemployment duration effects. The latter are captured through the  $\beta_t$  coefficients. The controls for duration of nonemployment are included because UI exhaustion is more likely to occur at longer durations and duration itself may affect the other outcomes that we analyze, such as participation in other government income maintenance programs. The fixed effects for each spell account for observed and unobserved characteristics of individuals that affect their spell durations and may systematically relate to the other outcomes we examine. Together, the duration and spell controls will absorb a wide variety of unrelated determinants of outcomes that may correlate with the loss of UI benefits, making it



likely that our estimated exhaustion effects reflect causal impacts of that loss rather than other individual characteristics and features of the economic environment.

Equation (1) does not include explicit controls for calendar time, though time-varying economic conditions are likely to be systematically related to UI exhaustion and the other outcomes that we examine. Importantly, spell effects ( $\alpha_{is}$ ), unemployment duration effects ( $\gamma_d$ ), and calendar time effects are not separately and nonparametrically identified – this is a version of the age-time-cohort identification problem that is familiar from demographic studies. However, the effects of interest in our analysis are the exhaustion-time coefficients  $\beta_t$ . These are identified from variation across cohorts and across states for any particular cohort in the duration of UI benefits (relative to an excluded category; we normalize  $\beta_{-1}=0$ ). Thus, in estimating versions of equation (1) that include parametric or nonparametric calendar time controls, we found that none of the substantive results regarding the effects of time since UI exhaustion effects differ from those presented below.

### **6.3. Event study regression results**

Table 4 contains the results for our primary event-study analysis of post-UI outcomes for our sample of UI exhaustees. We estimate equation (1), normalizing  $\beta_{-1}=0$  and setting  $\beta_t = \beta_{-5}$  for  $t < -5$  and  $\beta_t = \beta_4$  for  $t > 4$ . As above, the analysis is restricted to individuals who remain nonemployed after the loss of UI benefits, and monthly observations following the end of the nonemployment spell are dropped.

Not surprisingly, given the patterns seen in Figures 6-8, the  $\beta$  coefficients are fairly stable before and after the “event” in period 0. Thus, in the interest of economy of presentation, we report averages of the pre-exhaustion period (corresponding to  $(\beta_{-4} + \beta_{-3} + \beta_{-2})/3$ ) and the post-exhaustion period  $((\beta_1 + \beta_2 + \beta_3)/3)$ , along with the difference between them.

The pattern of results with full regression controls in Table 4 are similar to those without controls in Table 3, with respect both to the relative magnitude and statistical significance of the effects of UI exhaustion and to the similarity of results between the 2001 and 2008 SIPP panels. The direct effect of UI exhaustion is to reduce household income by about one-fourth of its pre-displacement level, or about one-third of the level prior to exhaustion of UI benefits. This loss is offset somewhat by increases in other income sources, mainly own earnings, with only trivial changes in non-UI transfer payments. The net decline in total household income following loss of UI (for individuals who remain nonemployed) is about 15 percent in both panels. Poverty rates increase by about 15 percentage points after UI exhaustion.<sup>23</sup>

To probe these patterns further, Table 5 presents analogous event-study regression results for sub-samples of UI exhaustees. For brevity and space considerations, we list only the average difference between the period before and after the end of UI benefits (corresponding to the results in columns 3 and 6 in Table 4). We provide two breakdowns, by age (divided at 50) and by three income groups (defined by terciles of household income prior to job loss). The results differ little across the two age groups, with one exception: Individuals aged 50 and over show the expected higher likelihood of receiving Medicaid and Social Security benefits and a lower probability of slipping into poverty after UI exhaustion in the 2008 panel.<sup>24</sup> When we look across income groups, as expected the loss of UI benefits has the smallest proportional effect on total household income in the top pre-displacement income group. In 2008, point estimates

---

<sup>23</sup> These results are all based on unweighted analyses; Appendix Table 3 replicates the analysis with SIPP sample weights and shows that the results are not sensitive to the use or exclusion of weights. Also, Appendix Table 4 shows that these results are largely unchanged when we restrict the sample to UI exhaustion spells for which time spent on UI is at least 75 percent of the legislative maximum in the state.

<sup>24</sup> Additional age breakdowns not reported show that the results regarding Social Security receipt are primarily driven by individuals age 62 and over, as expected given the normal age requirements associated with claiming Social Security benefits.

indicate that low-income households are more likely to turn to SNAP and other social assistance than are other households, but these estimates are not statistically significant.

As expected, poverty rates prior to exhaustion vary substantially across the groups defined by pre-displacement income—44 percent of the lowest income group in the 2008 panel is in poverty four months before UI exhaustion, as compared to 9 percent of the middle group and 6 percent of the highest group. (The rates are similar in the 2001 panel.) Somewhat surprisingly, however, the middle income group exhibits the highest absolute increase in poverty following UI exhaustion, particularly in the 2001 panel. The highest income group's increase is smaller but still substantial; in the 2008 panel, this group sees the largest proportional increase.

## **7. Conclusions**

Little is known about individuals who remain unemployed after their UI benefits are exhausted, in part because in normal times this is an unusual occurrence. During the Great Recession and its aftermath, however, the severity of long-term unemployment created large numbers of UI exhaustees, despite the historically unprecedented extensions of available benefits. Using panel data from the SIPP, we find that the characteristics of UI exhaustees during this period and in the early 2000s are similar to the characteristics of other individuals who are unemployed due to a job loss but do not exhaust their benefits. Of course, UI exhaustees have longer unemployment durations.

Our descriptive analyses and event-study regressions reveal that the loss of UI benefits creates substantial hardship for the large numbers of UI exhaustees who remain nonemployed. The non-UI social safety net does not seem to catch individuals who fall off of UI (with the possible exception of Social Security benefits for older workers). Total household income falls

by an amount that is close to the drop in UI income itself, with little to no offset occurring through increases in any income sources other than own earnings through intermittent employment. Living standards drop quickly and substantially for large numbers of UI exhaustees, and the incidence of poverty spikes.

Our results imply that UI benefits in general, and in particular extended benefits during our two SIPP sample frames of 2001-04 and 2008-12, function as an important element of the social safety net in the United States that is not duplicative of other programs (consistent with Bitler and Hoynes 2013). We find limited evidence for UI benefits operating as substitutes or complements with other programs (Inderbitzin, Staubli, and Zweimuller 2013). Given the large numbers of individuals who received extended benefits during 2008-12, and the subsequent large numbers who have exhausted them, these considerations loom especially large in recent years.

There are two important caveats to our analysis, however. First, we measure income rather than consumption—it is possible that consumption falls less sharply than income when UI benefits end. In our view it is unlikely that UI exhaustees have substantial remaining savings, however, suggesting that the consumption drop at UI exhaustion is likely to be non-trivial. It is particularly unlikely in the post-2008 period: Few in 2007 foresaw such an extended downturn, so few workers would have built up sufficient precautionary savings to carry them through such long periods of unemployment.

A second caveat is that we look primarily at short-run consequences of UI exhaustion. This may cause us to miss some program interaction effects, particularly with respect to programs (like Disability Insurance or the Earned Income Tax Credit) with long lags between eligibility and receipt. Further analyses that track UI exhaustees over a longer timeframe would be useful in this regard.

**Appendix: Additional Details on the SIPP Extract Construction**

Age: We restrict the samples to individuals age 18 to 64 when they first entered the panel (wave 1 or later) and make the further restriction that individuals must always report being between age 18 and 69.

Qualifying nonemployment spells: We include only individuals who separate from a job and become unemployed after the beginning of the panel (or after entering the panel) and who are present in at least two consecutive waves.

Nonemployment duration: Labor force status is measured on a weekly basis. Nonemployment spells begin with a job separation and increment weekly until a valid spell end is reached. The valid end of a nonemployment spell is identified by a string of four consecutive weeks in which the individual is employed (with the spell identified as ending in the first week of the 4-week string). Because we employ this 4-week forward-looking check, spells only increment if there are actually 4 weeks of observations to check (which eliminates the final panel month from the sample for all individuals).

Labor force transitions: The two transitions we calculate separately and use for the spell survivor curves in Figure 3 are from unemployment to not in labor force (UN) and from unemployed to employed (UE). As above, a transition occurs only when an individual spends four consecutive weeks out of unemployment. A UE transition is judged to have occurred if the majority of labor force status values in the 4-week check period are employed. If there is a tie (e.g. with two weeks of employment and two weeks of nonparticipation), we look at the 5th week. If there is no 5th week (end of sample period) or the 5th week indicates that the person has returned to unemployment, then the transition is counted as an exit out of the labor force (UN).

UI exhaustion: UI receipt is measured at the monthly level in the SIPP. We consider in our UI analyses only individuals who received UI for at least four months during their non-employment spells. An exhaustee is a recipient who has at least one month of non-receipt preceding the end of the non-employment spell.

Poverty measurement: We use the SIPP variable that indicates whether the household is in poverty, computed by the Census Bureau using exact household composition and the official Census poverty thresholds based on family composition.

## References

- Autor, David, Nicole Maestas, Kathleen Mullen, and Alexander Strand. 2011 “Does Delay Cause Decay? The Effect of Administrative Decision Time on the Labor Force Participation and Earnings of Disability Applicants.” MRRC Working Paper #2011-258, September.
- Bitler, Marianne, and Hilary Hoynes. 2013. “The More Things Change, the More They Stay the Same: The Safety Net, Living Arrangements, and Poverty in the Great Recession.” Working paper, UC Irvine and UC Berkeley, May.
- Card, David, Raj Chetty, and Andrea Weber. 2007. “The Spike at Benefit Exhaustion: Leaving the Unemployment System or Starting a New Job?” *American Economic Review*, Papers and Proceedings 97: 113-118.
- Card, David and Philip B. Levine. 2000. “Extended Benefits and the Duration of UI Spells: Evidence from the New Jersey Extended Benefit Program.” *Journal of Public Economics* 78(1-2): 107-138.
- Chetty, Raj. 2008. “Moral Hazard versus Liquidity and Optimal Unemployment Insurance.” *Journal of Political Economy* 116(2): 173-234.
- Cullen, Julie Berry, and Jonathan Gruber. 2000. “Does Unemployment Insurance Crowd Out Spousal Labor Supply?” *Journal of Labor Economics* 18 (3, July): 546–72.
- Farber, Henry S., and Robert G. Valletta. 2013. “Do Extended Unemployment Benefits Lengthen Unemployment Spells? Evidence from Recent Cycles in the U.S. Labor Market.” Working Paper, Princeton University and Federal Reserve Bank of San Francisco (April).
- Ganong, Peter, and Jeffrey B. Liebman. 2013. “The Decline, Rebound, and Further Rise in SNAP Enrollment: Disentangling Business Cycle Fluctuations and Policy Changes.” NBER Working Paper No. 19363, August. Cambridge, MA: National Bureau of Economic Research.
- Gruber, Jonathan. 1997. “The Consumption Smoothing Benefits of Unemployment Insurance.” *American Economic Review* 87(1): 192-205.
- Gruber, Jonathan. 2001. “The Wealth of the Unemployed.” *Industrial and Labor Relations Review* 55(1, October): 79-94.
- Ham, John C., Xianghong Li, and Lara Shore-Sheppard. 2009. “Seam Bias, Multiple-State, Multiple-Spell Duration Models and the Employment Dynamics of Disadvantaged Women.” NBER Working Paper No. 15151, July. Cambridge, MA: National Bureau of Economic Research.

- Inderbitzin, Lukas, Stefan, Staubli, and Josef Zweimller. 2013. "Extended Unemployment Benefits and Early Retirement: Program Complementarity and Program Substitution." IZA Discussion Paper 7330, April.
- Katz, Lawrence F., and Bruce D. Meyer. 1990. "The Impact of the Potential Duration of Unemployment Benefits on the Duration of Unemployment." *Journal of Public Economics* 41(1): 45-72.
- Kroft, Kory, and Matthew J. Notowidigdo. 2011. "Should Unemployment Insurance Vary with the Unemployment Rate? Theory and Evidence." NBER Working Paper No. 17173, June. Cambridge, MA: National Bureau of Economic Research.
- Landais, Camille, Pascal Michaillat, and Emmanuel Saez. 2010. "Optimal Unemployment Insurance Over the Business Cycle." NBER Working Paper No. 16526, November (revised January 2013). Cambridge, MA: National Bureau of Economic Research.
- Lindner, Stephan. 2011. "How Does Unemployment Insurance Affect the Decision to Apply for Social Security Disability Insurance?" Working paper, Urban Institute. Washington, DC.
- Lindner, Stephan, and Austin Nichols. 2012. "The Impact of Temporary Assistance Programs on Disability Rolls and Re-Employment." Working Paper 2012-2. Chestnut Hill, MA: Center for Retirement Research at Boston College.
- Moore, Jeffrey C. 2007. "Seam Bias in the 2004 SIPP Panel: Much Improved, but Much Bias Still Remains." Working paper, US Census Bureau, December.
- Mueller, Andreas I., Jesse Rothstein, and Till M. von Wachter. 2013. "Unemployment Insurance and Disability Insurance in the Great Recession." Working paper, Columbia University, UC Berkeley, and UCLA, September.
- Needels, Karen, Walter Corson, and Walter Nicholson. 2001. "Left Out of the Boom Economy: UI Recipients in the Late 1990s." Report, Mathematica Policy Research, October. Princeton, NJ.
- Rothstein, Jesse. 2011. "Unemployment Insurance and Job Search in the Great Recession." *Brookings Papers on Economic Activity*, Fall: 143-210.
- Rutledge, Matthew S. 2012. "The Impact of Unemployment Insurance Extensions on Disability Insurance Application and Allowance Rates." Working Paper 2011-17, revised April 2012. Chestnut Hill, MA: Center for Retirement Research at Boston College.
- U.S. Congressional Budget Office. 2004. *Family Income of Unemployment Insurance Recipients*. Washington, DC: Congress of the United States. March.
- U.S. Congressional Budget Office. 2012. *Unemployment Insurance in the Wake of the Recent Recession*. Washington, DC: Congress of the United States. November.

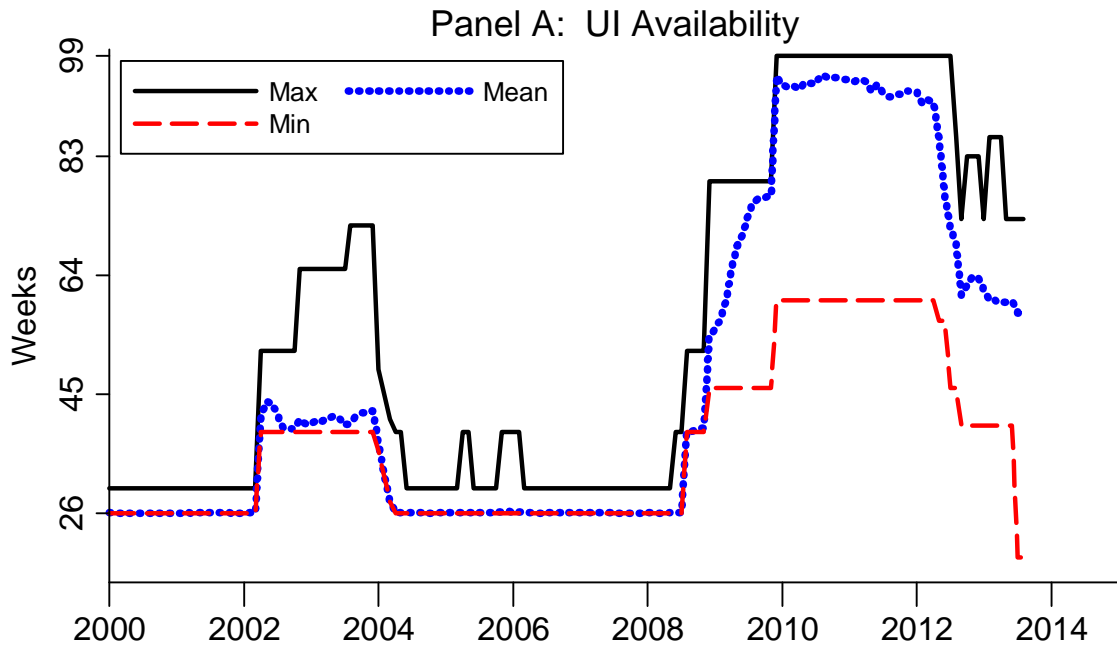


U.S. Government Accountability Office. 2012. "Unemployment Insurance: Economic Circumstances of Individuals Who Exhausted Benefits." GAO-12-408. Washington, DC: February.

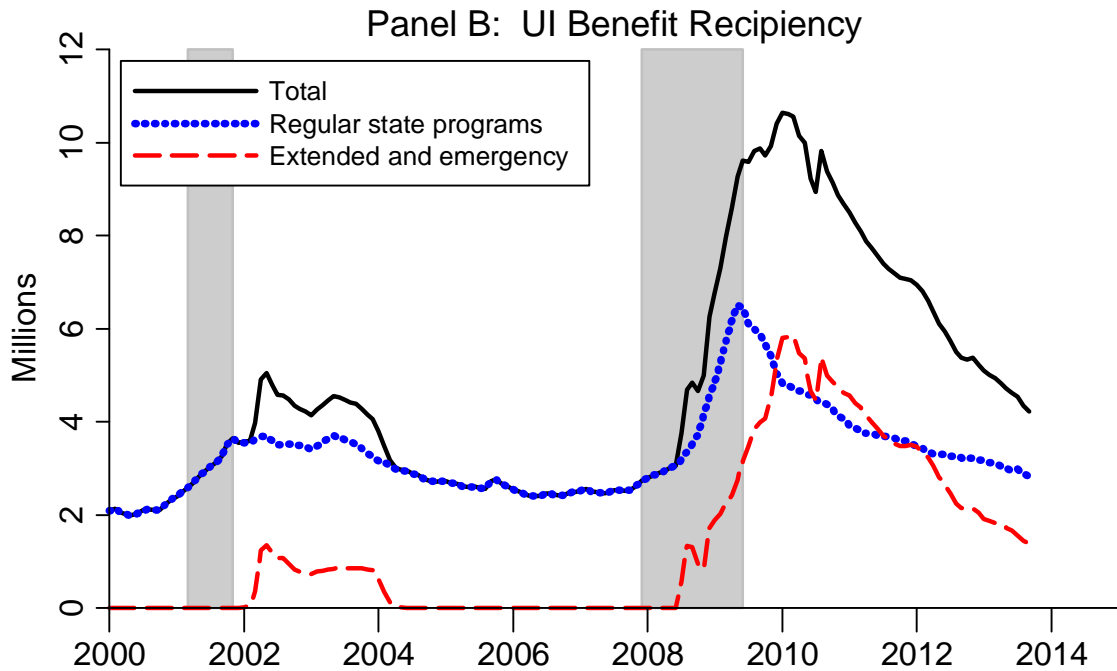
Whittaker, Julie M. 2008. "Extending Unemployment Compensation Benefits During Recessions." Report RL34340, Congressional Research Service, December.

Whittaker, Julie M., and Katelin P. Isaacs. 2012. Unemployment Insurance: Programs and Benefits." Report RL33362, Congressional Research Service, April.

Figure 1: UI Benefits



Note: Authors' calculations from U.S. DOL and BLS data. Minimum and maximum measured across states, average weighted by job losers in monthly CPS data. Temporary programs suspensions (Apr, Jun/Jul, and Dec 2010) ignored.



Note: From U.S. DOL (seasonally adjusted). Gray areas denote NBER recession dates.

Figure 2: Labor Market Conditions

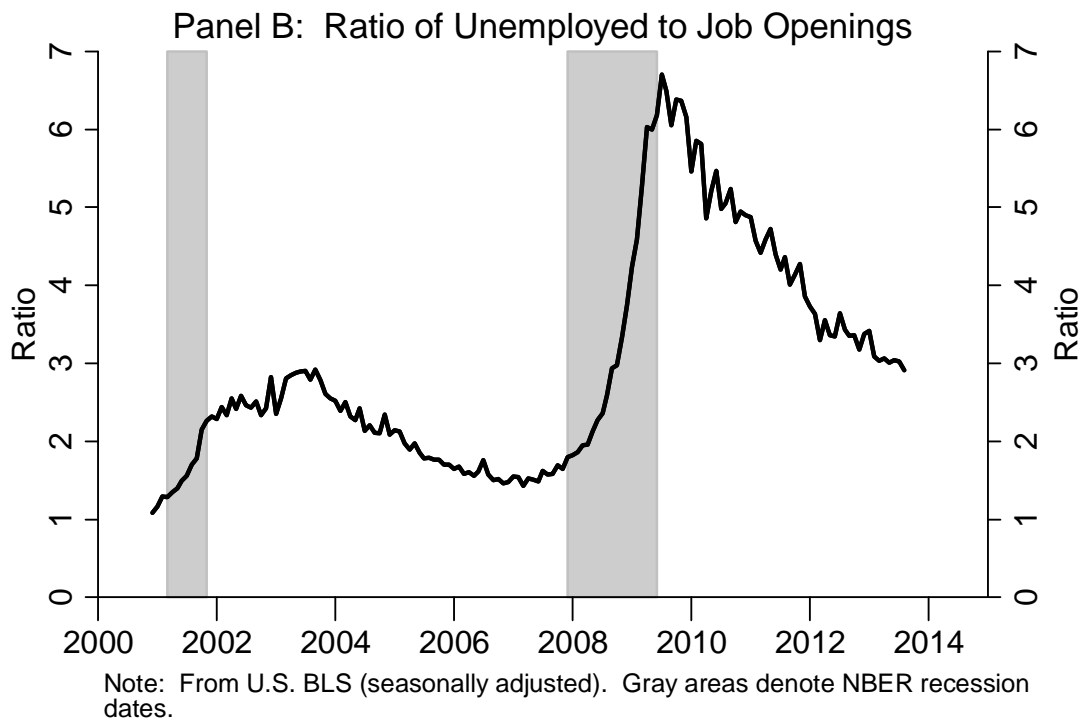
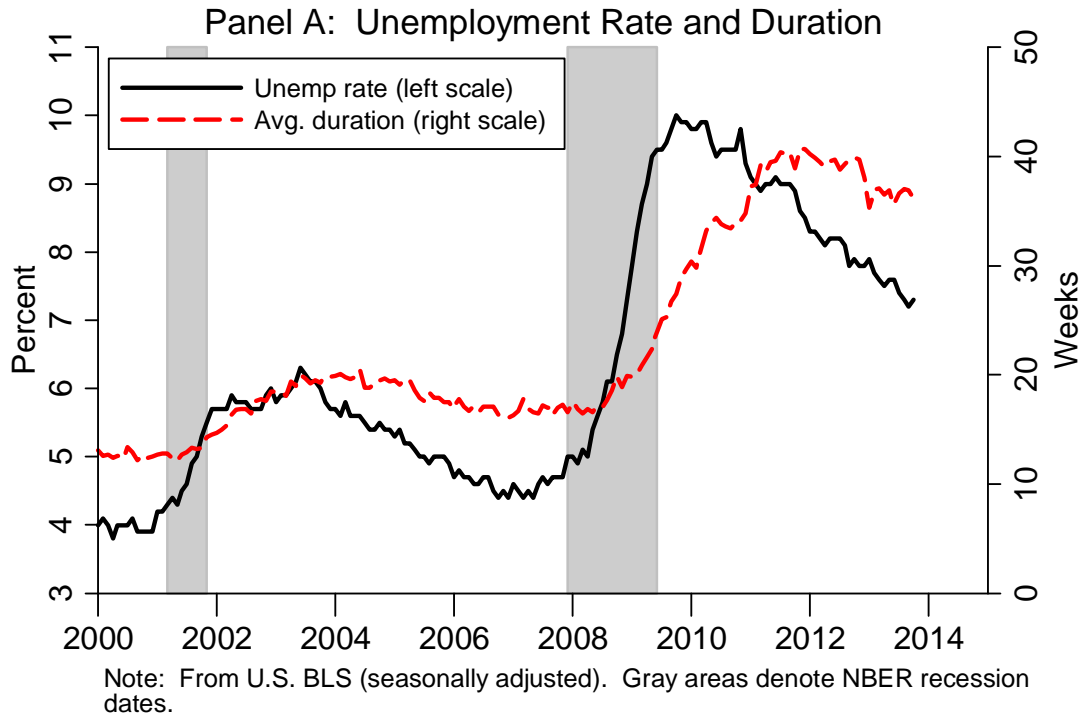
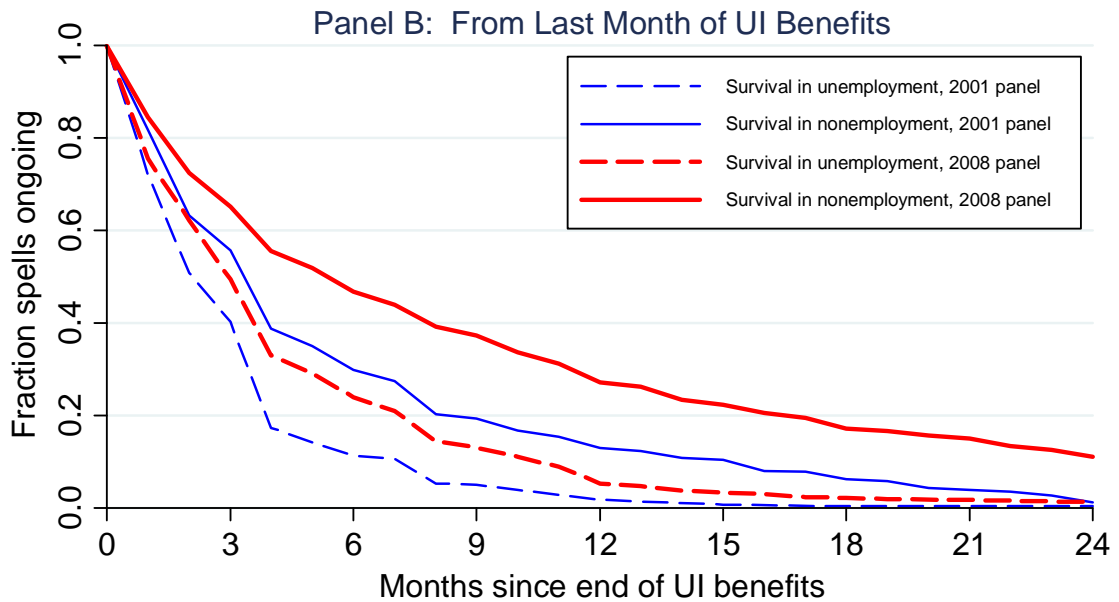
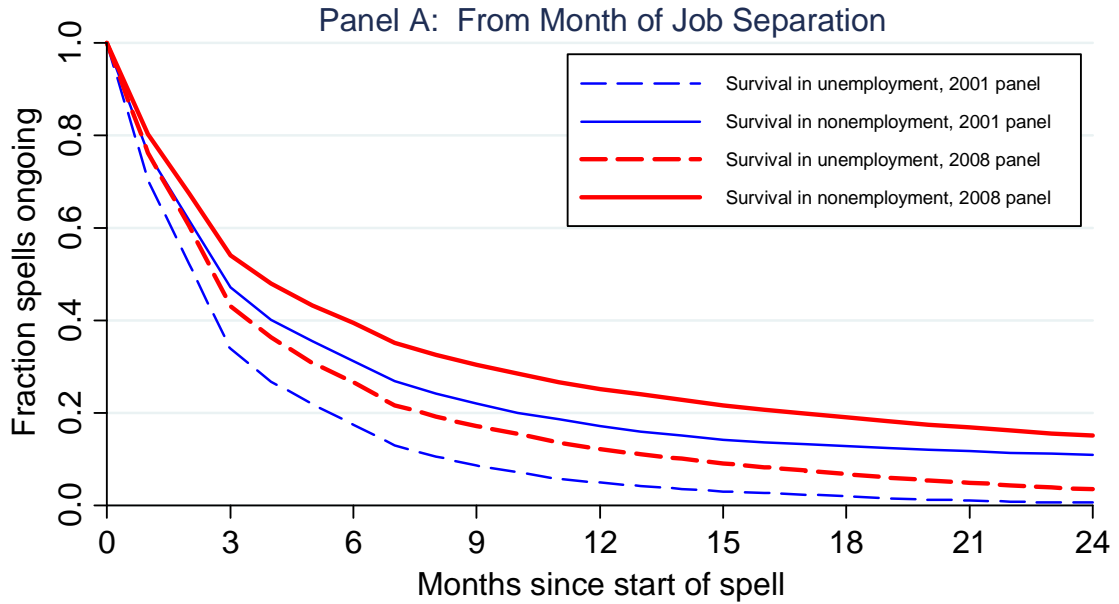
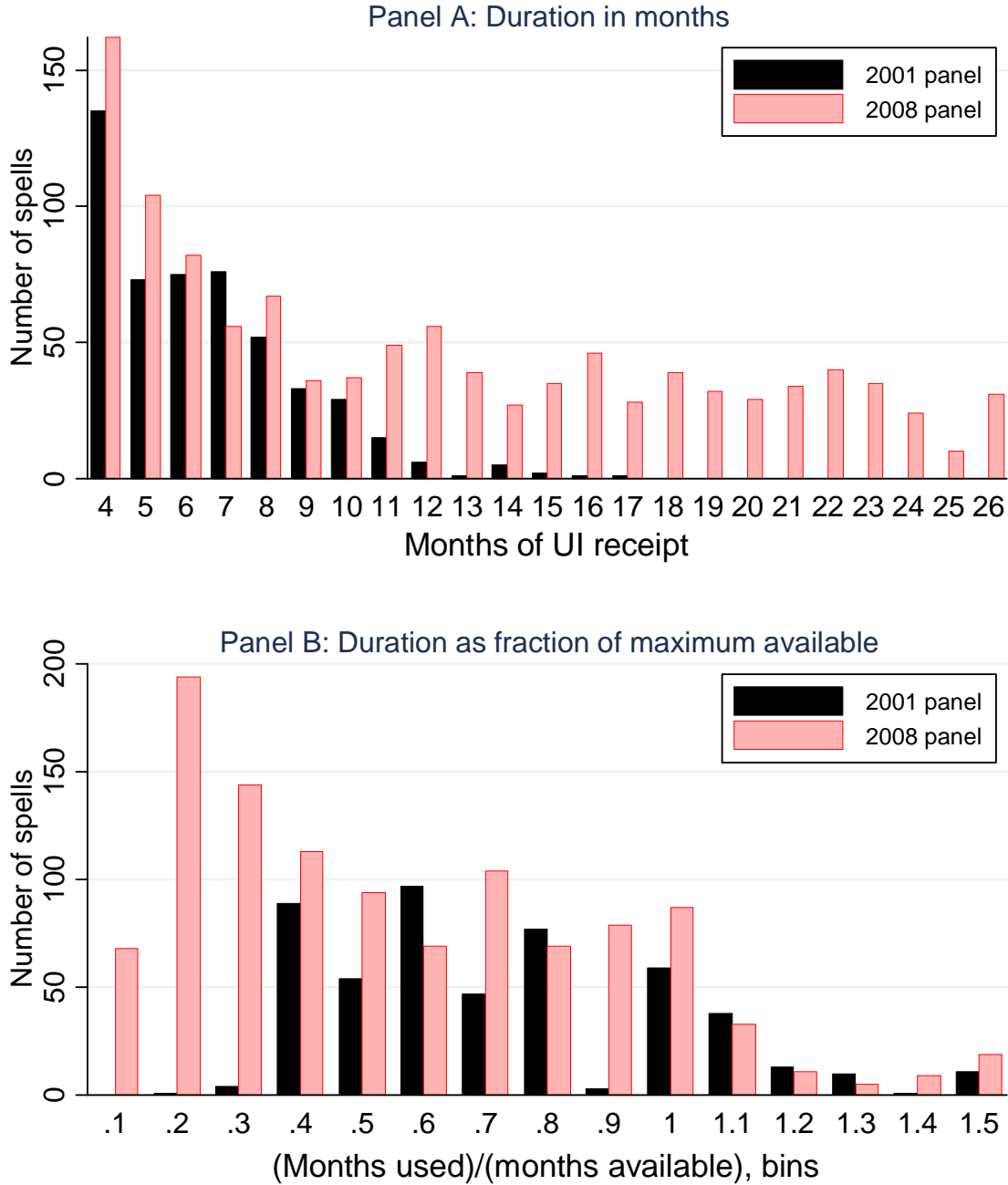


Figure 3: Spell Survivor Rates  
Kaplan-Meier Estimates, by SIPP Panel



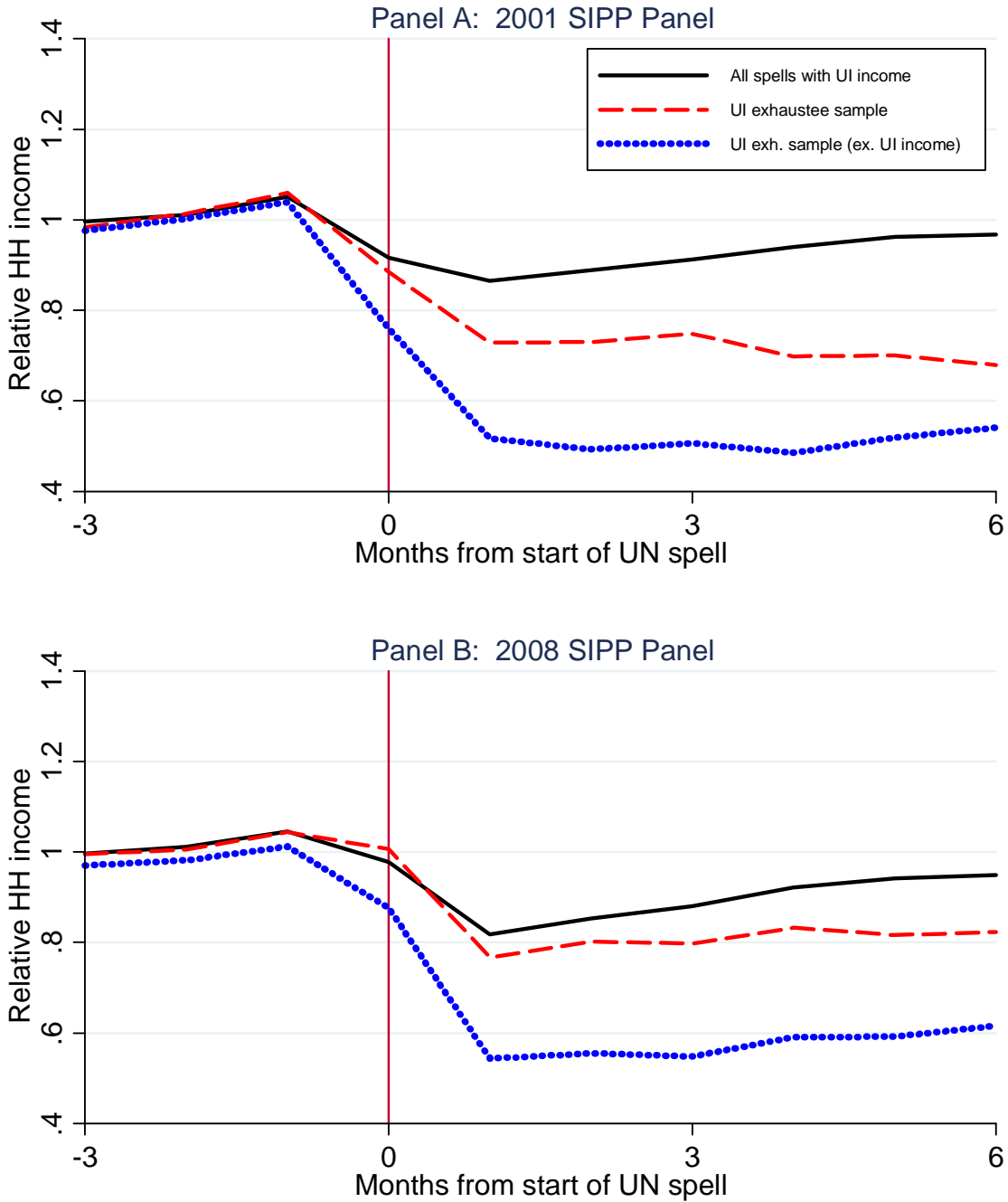
Note: Unweighted data. Unemployment spells initiated by job loss, can convert to nonemployment spell. Each spell treated as a distinct event. Post-UI spells require at least 4 months of UI, excludes those with UI received 1-2 months after spell ended.

Figure 4: Distribution of UI Benefit Duration  
 UI exhaustee sample



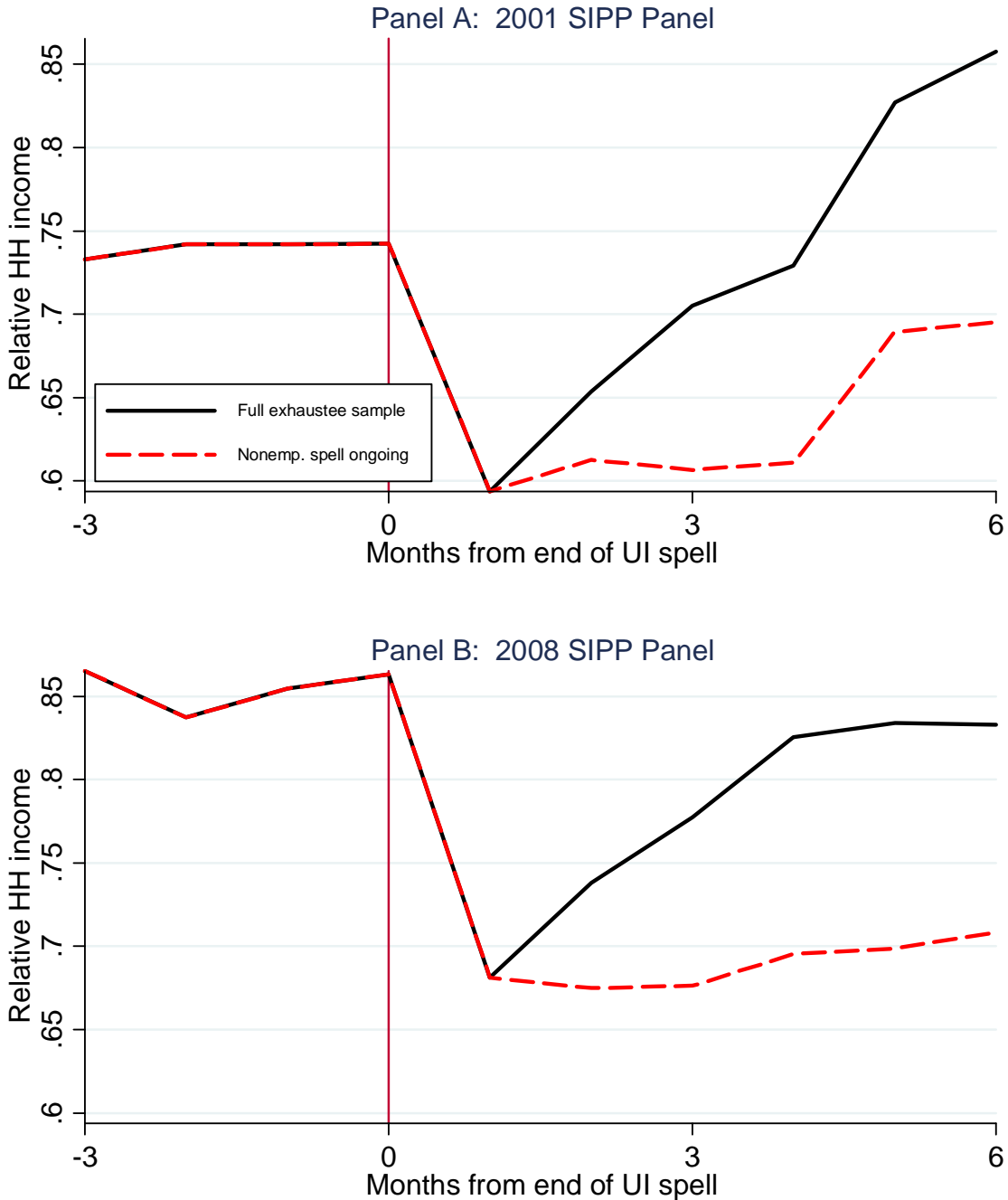
Note: Unweighted SIPP data. UI exhaustion sample consists of nonemployment spells following job loss in which UI was received for at least 4 months but no UI was received in the first two months following reemployment; see text for details. UI duration is the number of calendar months with positive UI income, and is censored at 26 months in panel A. Maximum available benefits are the number of weeks available in the month the last UI payment was received, divided by (52/12).

Figure 5: Household income (pre/post separation)  
Ratio to pre-separation average



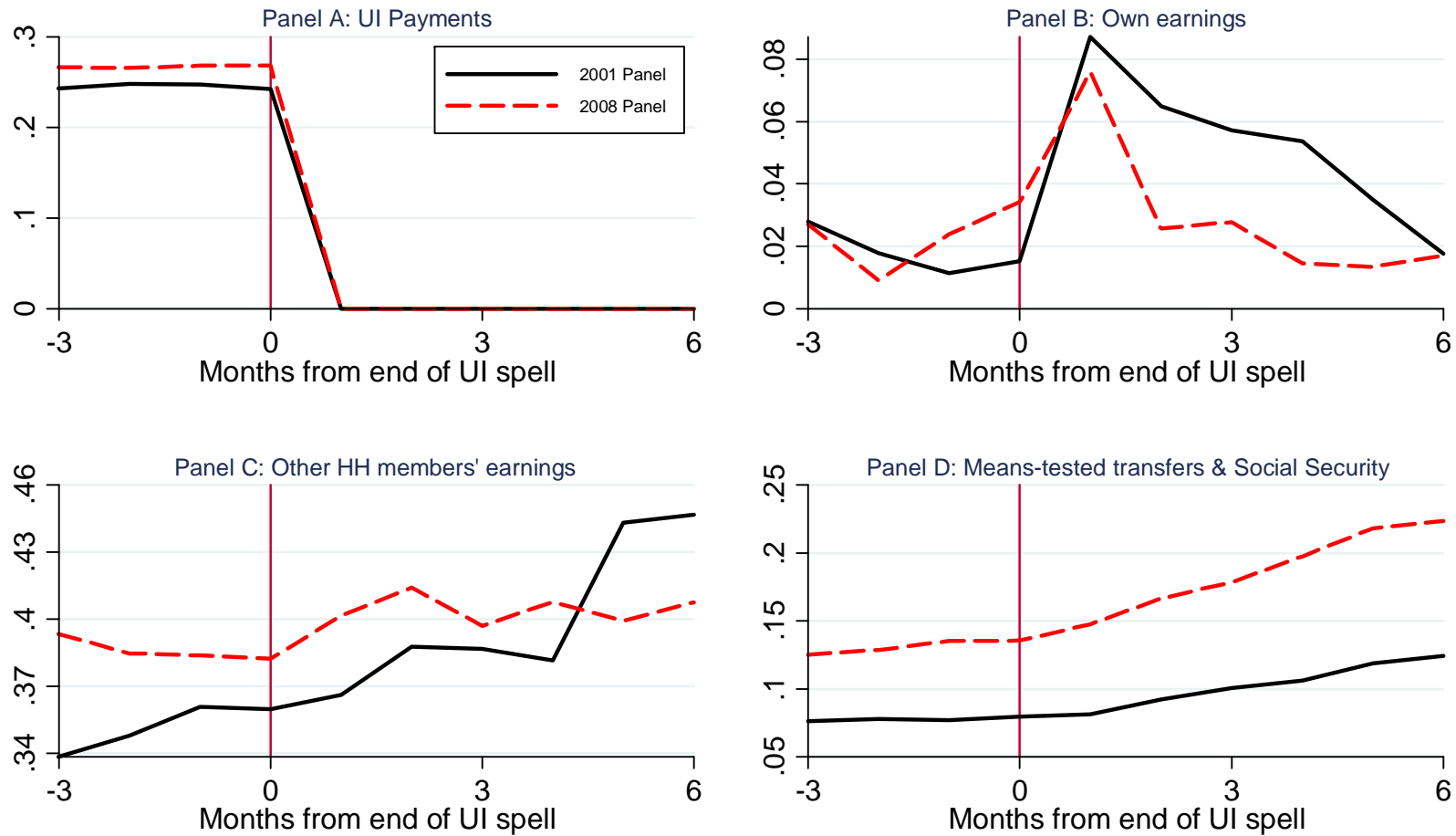
Note: Samples restricted to UI recipients. Job separation occurs in month 0. UI exhaustion sample is spells for which UI benefits stop prior to job finding. Unweighted data. Each spell treated as a distinct event.

Figure 6: Household income (around UI exhaustion)  
Ratio to pre-separation average



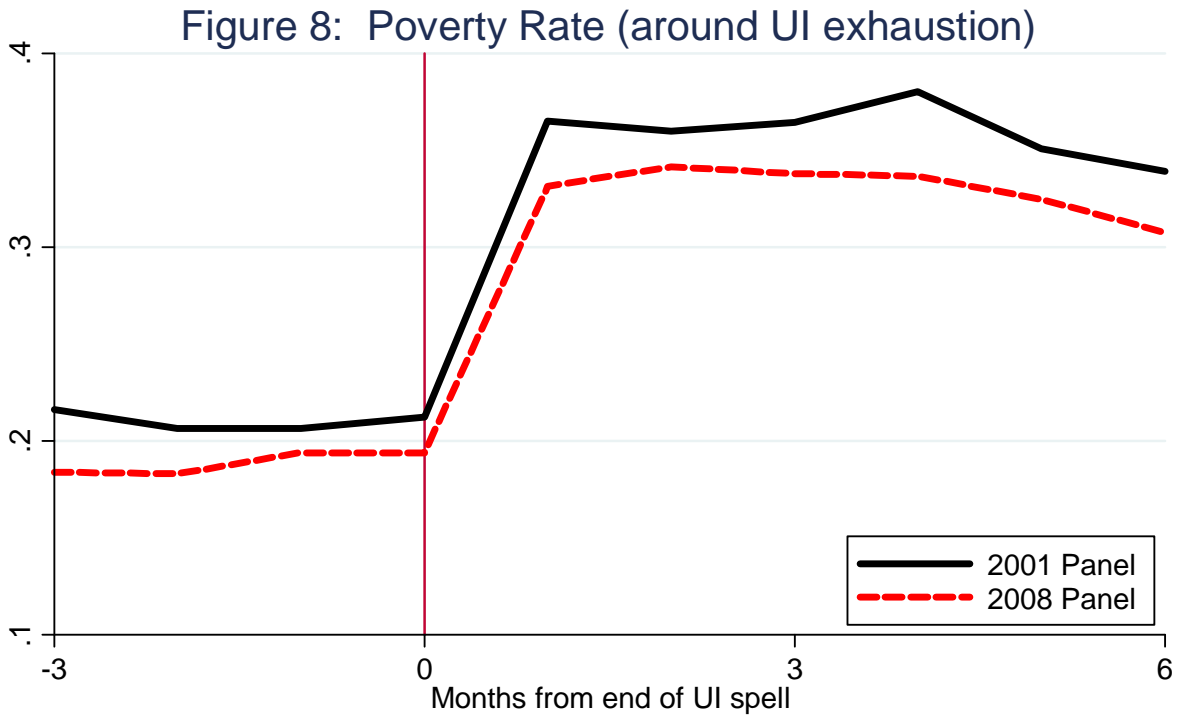
Note: Sample restricted to UI recipients who lose UI prior to job finding (UI exhaustion sample). The final month of UI reciprocity is month 0. Unweighted data. Each spell treated as a distinct event.

Figure 7: Components of Household Income (around UI exhaustion)  
 Ratio to pre-separation average HH income



Note: See notes to Figure 6. For months > 0, only ongoing non-employment spells are included. Vertical axis scale differs across panels.





Note: See notes to Figure 6. For months > 0, only ongoing non-employment spells are included.

Table 1: Descriptive Statistics, SIPP Nonemployment Spells (2001 and 2008 Panels)  
(completed or censored in final panel month)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	2001 Panel				2008 Panel			
	<u>All<sup>1</sup></u>	<u>No UI</u>	<u>Received UI income<sup>2</sup></u>		<u>All<sup>1</sup></u>	<u>No UI</u>	<u>Received UI income<sup>2</sup></u>	
		<u>To end of spell<sup>3</sup></u>	<u>Ends before spell ends</u>			<u>To end of spell<sup>3</sup></u>	<u>Ends before spell ends</u>	
Number of spells	11377	8284	2097	504	23519	16526	5151	1098
Percent of total	100.00	72.81	18.43	4.43	100.00	70.27	21.90	4.67
Number of individuals	8124	5916	1430	414	14755	10285	3190	822
Number of individuals (weighted)	33,473,622	24,167,998	6,001,962	1,743,253	53,829,009	37,477,637	11,664,926	3,039,469
Duration of nonemployment spell								
Average	16.1	13.4	14.1	56.9	23.7	17.8	24.7	97.1
Share <27 weeks	0.821	0.867	0.849	0.096	0.751	0.826	0.674	0.060
Share 27-52 weeks	0.117	0.086	0.135	0.464	0.126	0.098	0.193	0.212
Share 53-99 weeks	0.045	0.034	0.015	0.310	0.071	0.042	0.115	0.295
Share >99 weeks	0.016	0.012	0.001	0.130	0.052	0.034	0.019	0.433
Exit routes								
Exit to employment	0.803	0.821	0.797	0.569	0.783	0.810	0.753	0.534
Censored	0.197	0.179	0.203	0.431	0.217	0.190	0.247	0.466

(Continued)

Table 1 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	2001 Panel				2008 Panel			
	<u>All<sup>1</sup></u>	<u>No UI</u>	<u>Received UI income<sup>2</sup></u>		<u>All<sup>1</sup></u>	<u>No UI</u>	<u>Received UI income<sup>2</sup></u>	
			<u>To end of</u>	<u>Ends before</u>			<u>To end of</u>	<u>Ends before</u>
			<u>spell<sup>3</sup></u>	<u>spell ends</u>			<u>spell<sup>3</sup></u>	<u>spell ends</u>
<b>Income amounts (current \$)</b>								
Average monthly UI (UI>0 only)			952	911			1100	1089
Monthly earnings <sup>4</sup>								
Prior to job loss	1931	1667	2644	2804	2167	1860	2948	2725
After spell ends (emp only)	1881	1697	2508	1980	1973	1807	2480	1973
Monthly HH total income								
Prior to job loss	4707	4588	4966	5353	5409	5278	5725	5542
During non-emp spell	3892	3913	4033	3447	4458	4488	4484	3867
During non-emp spell - with UI				3665				4136
During non-emp spell - no UI				3206				3549
Share of observations in poverty	0.215	0.228	0.138	0.292	0.240	0.264	0.156	0.276

## Notes:

(1) Includes all spells, even those in which UI is received for fewer than four months.

(2) Includes only spells in which UI is received for four or more months.

(3) Includes all spells in which UI income is still being received at the end of the spell or again within two months after spell ends.

(4) Monthly earnings not available for all spells (due to restriction that earnings are computed 2-4 months prior to (after) spell start (end)).

Note: Calculations use SIPP cross-section weights (except unweighted "number" counts). Weight value generally corresponds to final month of nonemployment spell, except weighted counts, which are based on the average final weight across all spell months.

**Table 2. Household income before and after job separation, 2001 and 2008 panels**

	(1)	(2)	(3)	(4)	(5)	(6)
	2001 Panel			2008 Panel		
	Pre	Post	Diff	Pre	Post	Diff
Household income (\$/month)	4,898 [3,263]	3,345 [2,936]	<b>-1,554</b> (157)	5,306 [3,483]	3,879 [3,053]	<b>-1,426</b> (122)
Income components (relative to pre-displacement household income)						
Total	1.000 [0.000]	0.711 [0.446]	<b>-0.289</b> (0.029)	1.000 [0.000]	0.802 [0.620]	<b>-0.198</b> (0.027)
Own earnings	0.597 [0.292]	0.044 [0.122]	<b>-0.553</b> (0.020)	0.553 [0.309]	0.028 [0.166]	<b>-0.525</b> (0.016)
Other HH member earnings	0.306 [0.294]	0.341 [0.368]	0.034 (0.019)	0.303 [0.303]	0.381 [0.534]	<b>0.078</b> (0.022)
UI	0.010 [0.055]	0.207 [0.212]	<b>0.196</b> (0.014)	0.024 [0.089]	0.234 [0.229]	<b>0.211</b> (0.010)
SNAP	0.009 [0.040]	0.017 [0.058]	<b>0.009</b> (0.002)	0.022 [0.081]	0.031 [0.099]	<b>0.009</b> (0.002)
Other social assistance	0.011 [0.055]	0.011 [0.051]	0.001 (0.003)	0.010 [0.052]	0.015 [0.070]	<b>0.005</b> (0.002)
Social Security	0.035 [0.109]	0.045 [0.148]	0.010 (0.007)	0.049 [0.126]	0.065 [0.152]	<b>0.015</b> (0.004)
Any income, by source						
Own earnings	0.950 [0.171]	0.076 [0.155]	<b>-0.874</b> (0.015)	0.943 [0.186]	0.043 [0.122]	<b>-0.900</b> (0.010)
Other HH member earnings	0.612 [0.475]	0.600 [0.461]	-0.012 (0.018)	0.579 [0.479]	0.579 [0.467]	-0.001 (0.014)
UI	0.036 [0.148]	0.780 [0.225]	<b>0.743</b> (0.018)	0.090 [0.258]	0.825 [0.242]	<b>0.735</b> (0.015)
SNAP	0.076 [0.256]	0.125 [0.302]	<b>0.049</b> (0.015)	0.130 [0.329]	0.175 [0.355]	<b>0.045</b> (0.011)
Other social assistance	0.060 [0.232]	0.066 [0.231]	0.006 (0.012)	0.055 [0.221]	0.065 [0.233]	0.010 (0.008)
Social Security	0.137 [0.342]	0.152 [0.352]	0.014 (0.010)	0.177 [0.376]	0.203 [0.391]	<b>0.026</b> (0.009)
Covered by Medicaid	0.062 [0.237]	0.112 [0.286]	<b>0.050</b> (0.015)	0.091 [0.278]	0.115 [0.290]	<b>0.024</b> (0.010)
Household in poverty	0.074 [0.224]	0.239 [0.357]	<b>0.165</b> (0.022)	0.079 [0.248]	0.209 [0.362]	<b>0.130</b> (0.015)

Notes: "Pre" columns report average values and standard deviations (in brackets) over the three months prior to the month in which job separation occurred. "Post" columns report average values over the period beginning the month after job separation and ending 6 months later or in the last month of the nonemployment spell, whichever comes first. "Diff" column reports the difference in means and the standard error (in parentheses) of this difference. Relative income measures divide monthly income by source by average household income in the period 2-4 months prior to the initial job loss. Households for which this average is below \$500 are set to missing; ratios are censored at [0,10]. N=466 spells in 2001 panel, 1,035 spells in 2008 panel (columns 4 and 8 in Table 1, less observations with missing values of average household income). Differences that are statistically significant at the 5% level are bolded.

**Table 3. Household income before and after the end of UI payments, 2001 and 2008 panels**

	(1)	(2)	(3)	(4)	(5)	(6)
	2001 Panel			2008 Panel		
	Pre	Post	Diff	Pre	Post	Diff
Household income (\$/month)	3,421 [3,201]	3,001 [3,012]	<b>-419</b> (122)	3,985 [3,021]	3,394 [3,171]	<b>-591</b> (92)
Income components (relative to pre-displacement household income)						
Total	0.739 [0.498]	0.635 [0.523]	<b>-0.104</b> (0.029)	0.852 [0.676]	0.711 [0.775]	<b>-0.141</b> (0.028)
Own earnings	0.019 [0.129]	0.116 [0.297]	<b>0.096</b> (0.021)	0.020 [0.136]	0.093 [0.387]	<b>0.073</b> (0.016)
Other HH member earnings	0.349 [0.431]	0.373 [0.438]	0.024 (0.018)	0.387 [0.561]	0.402 [0.626]	0.015 (0.019)
UI	0.246 [0.230]	0.000 [0.000]	<b>-0.246</b> (0.015)	0.267 [0.244]	0.000 [0.000]	<b>-0.267</b> (0.011)
SNAP	0.017 [0.059]	0.018 [0.059]	0.001 (0.003)	0.033 [0.103]	0.038 [0.114]	<b>0.005</b> (0.002)
Other social assistance	0.014 [0.064]	0.016 [0.069]	0.002 (0.004)	0.016 [0.082]	0.022 [0.096]	<b>0.006</b> (0.003)
Social Security	0.046 [0.152]	0.053 [0.158]	0.007 (0.005)	0.081 [0.194]	0.098 [0.221]	<b>0.017</b> (0.006)
Any income, by source						
Own earnings	0.067 [0.249]	0.361 [0.481]	<b>0.294</b> (0.035)	0.060 [0.237]	0.253 [0.435]	<b>0.193</b> (0.021)
Other HH member earnings	0.618 [0.486]	0.631 [0.483]	0.013 (0.019)	0.601 [0.490]	0.619 [0.486]	0.018 (0.013)
UI	0.976 [0.152]	0.000 [0.000]	<b>-0.976</b> (0.010)	0.982 [0.134]	0.000 [0.000]	<b>-0.982</b> (0.006)
SNAP	0.146 [0.353]	0.155 [0.362]	0.009 (0.019)	0.216 [0.412]	0.261 [0.439]	<b>0.044</b> (0.012)
Other social assistance	0.084 [0.277]	0.094 [0.293]	0.011 (0.016)	0.078 [0.269]	0.106 [0.308]	<b>0.028</b> (0.010)
Social Security	0.161 [0.368]	0.187 [0.390]	<b>0.026</b> (0.011)	0.231 [0.422]	0.276 [0.447]	<b>0.045</b> (0.011)
Covered by Medicaid	0.133 [0.340]	0.155 [0.362]	0.021 (0.018)	0.126 [0.332]	0.169 [0.375]	<b>0.043</b> (0.013)
Household in poverty	0.253 [0.435]	0.418 [0.494]	<b>0.165</b> (0.032)	0.216 [0.412]	0.377 [0.485]	<b>0.160</b> (0.021)

Notes: "Pre" columns report average values and standard deviations (in brackets) over the three months prior to the last month in which UI income was received. "Post" columns report average values over the period beginning the month after the last month of UI receipt and ending 6 months later or in the last month of the nonemployment spell, whichever comes first. "Diff" column reports the difference in means and the standard error (in parentheses) of this difference. Relative income measures divide monthly income by source by average household income in the period 2-4 months prior to the initial job loss. Households for which this average is below \$500 are set to missing; ratios are censored at [0,10]. N=466 spells in 2001 panel, 1,035 spells in 2008 panel (columns 4 and 8 in Table 1, less observations with missing values of average household income). Differences that are statistically significant at the 5% level are bolded.

**Table 4. Summaries of event study estimates for components of household income**  
 (coefficient estimates relative to last month of UI receipt (t=0); standard errors in parentheses)

	(1)	(2)	(3)	(4)	(5)	(6)
	2001 panel			2008 panel		
	Average, t=-4, -3, -2	Average, t=+1,+2,+3	Difference	Average, t=-4, -3, -2	Average, t=+1,+2,+3	Difference
Household income (\$/month)	-106 (84)	<b>-522</b> (132)	<b>-416</b> (171)	-10 (58)	<b>-595</b> (73)	<b>-586</b> (82)
Income components (relative to pre-displacement household income)						
Total	-0.016 (0.017)	<b>-0.148</b> (0.026)	<b>-0.131</b> (0.035)	-0.018 (0.014)	<b>-0.173</b> (0.023)	<b>-0.155</b> (0.024)
Own earnings	<b>-0.022</b> (0.010)	<b>0.096</b> (0.016)	<b>0.118</b> (0.023)	<b>-0.034</b> (0.010)	<b>0.041</b> (0.008)	<b>0.075</b> (0.008)
Other HH member earnings	0.007 (0.013)	-0.024 (0.020)	-0.031 (0.028)	0.013 (0.008)	0.023 (0.017)	0.010 (0.019)
UI	-0.009 (0.007)	<b>-0.236</b> (0.012)	<b>-0.227</b> (0.015)	0.004 (0.003)	<b>-0.270</b> (0.008)	<b>-0.274</b> (0.008)
SNAP	0.001 (0.001)	0.000 (0.003)	-0.001 (0.004)	-0.001 (0.001)	0.004 (0.002)	<b>0.005</b> (0.002)
Other social assistance	0.000 (0.001)	0.000 (0.003)	0.000 (0.004)	0.000 (0.001)	<b>0.006</b> (0.003)	0.006 (0.003)
Social Security	-0.001 (0.002)	0.004 (0.004)	0.004 (0.004)	-0.006 (0.005)	0.006 (0.006)	<b>0.012</b> (0.006)
Any income, by source						
Own earnings	<b>-0.024</b> (0.009)	<b>0.146</b> (0.016)	<b>0.170</b> (0.019)	<b>-0.026</b> (0.005)	<b>0.085</b> (0.007)	<b>0.111</b> (0.008)
Other HH member earnings	0.006 (0.012)	-0.005 (0.018)	-0.010 (0.024)	0.003 (0.006)	0.011 (0.009)	0.008 (0.011)
UI	<b>-0.088</b> (0.016)	<b>-0.910</b> (0.017)	<b>-0.822</b> (0.028)	<b>0.017</b> (0.008)	<b>-0.958</b> (0.008)	<b>-0.975</b> (0.008)
SNAP	0.012 (0.011)	0.007 (0.016)	-0.005 (0.021)	-0.008 (0.005)	0.016 (0.009)	<b>0.024</b> (0.010)
Other social assistance	-0.010 (0.008)	-0.008 (0.014)	0.002 (0.017)	-0.002 (0.004)	<b>0.019</b> (0.007)	<b>0.021</b> (0.008)
Social Security	-0.011 (0.006)	0.016 (0.009)	<b>0.027</b> (0.012)	-0.007 (0.004)	<b>0.026</b> (0.008)	<b>0.034</b> (0.009)
Covered by Medicaid	0.004 (0.010)	-0.006 (0.017)	-0.009 (0.023)	0.000 (0.005)	0.016 (0.009)	0.016 (0.010)
Household in poverty	0.005 (0.014)	<b>0.156</b> (0.024)	<b>0.151</b> (0.027)	-0.006 (0.007)	<b>0.140</b> (0.015)	<b>0.146</b> (0.015)

Notes: Sample defined as in Table 3. See text for description of event study regression model. Standard errors are clustered by individual. Estimates that are statistically significant at the 5% level are bolded.

**Table 5. Event study analyses for subgroups**  
 (coefficient estimates relative to last month of UI receipt (t=0); standard errors in parentheses)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	2001 panel - pre/post difference					2008 panel - pre/post difference				
	Age < 50	Age >= 50	Low income	Middle income	High income	Age < 50	Age >= 50	Low income	Middle income	High income
Household income (\$/month)	<b>-419</b>	-406	<b>-287</b>	<b>-701</b>	-478	<b>-681</b>	<b>-440</b>	<b>-396</b>	<b>-813</b>	<b>-553</b>
	(198)	(343)	(130)	(248)	(552)	(115)	(110)	(131)	(120)	(164)
Income components (relative to pre-displacement household income)										
Total	<b>-0.115</b>	<b>-0.181</b>	<b>-0.123</b>	<b>-0.171</b>	-0.109	<b>-0.176</b>	<b>-0.122</b>	<b>-0.197</b>	<b>-0.192</b>	<b>-0.078</b>
	(0.041)	(0.061)	(0.055)	(0.061)	(0.060)	(0.037)	(0.026)	(0.071)	(0.027)	(0.019)
Own earnings	<b>0.124</b>	<b>0.094</b>	<b>0.176</b>	<b>0.120</b>	0.026	<b>0.087</b>	<b>0.058</b>	<b>0.104</b>	<b>0.072</b>	<b>0.054</b>
	(0.028)	(0.039)	(0.040)	(0.039)	(0.031)	(0.012)	(0.009)	(0.022)	(0.011)	(0.010)
Other HH member earnings	-0.022	-0.055	0.003	-0.033	-0.068	0.004	0.019	0.042	-0.009	0.003
	(0.034)	(0.046)	(0.043)	(0.051)	(0.053)	(0.030)	(0.019)	(0.057)	(0.020)	(0.016)
UI	<b>-0.228</b>	<b>-0.225</b>	<b>-0.319</b>	<b>-0.229</b>	<b>-0.115</b>	<b>-0.281</b>	<b>-0.264</b>	<b>-0.416</b>	<b>-0.265</b>	<b>-0.157</b>
	(0.017)	(0.033)	(0.028)	(0.025)	(0.013)	(0.010)	(0.013)	(0.019)	(0.011)	(0.006)
SNAP	-0.002	0.004	-0.002	0.002	0.000	0.006	0.002	0.010	<b>0.003</b>	0.001
	(0.005)	(0.002)	(0.008)	(0.002)	(0.001)	(0.003)	(0.002)	(0.006)	(0.002)	(0.000)
Other social assistance	0.000	0.001	0.004	-0.004	0.000	0.003	<b>0.008</b>	0.015	-0.001	0.003
	(0.005)	(0.003)	(0.009)	(0.006)	(0.001)	(0.004)	(0.004)	(0.010)	(0.002)	(0.002)
Social Security	0.001	0.017	0.008	-0.004	0.007	-0.001	<b>0.035</b>	0.014	0.011	<b>0.009</b>
	(0.003)	(0.015)	(0.007)	(0.010)	(0.004)	(0.007)	(0.009)	(0.017)	(0.006)	(0.003)
Covered by Medicaid	-0.022	0.024	-0.017	0.003	-0.012	0.004	<b>0.031</b>	0.042	-0.021	<b>0.031</b>
	(0.026)	(0.043)	(0.036)	(0.051)	(0.028)	(0.013)	(0.013)	(0.023)	(0.013)	(0.014)
Household in poverty	<b>0.143</b>	<b>0.179</b>	<b>0.151</b>	<b>0.225</b>	<b>0.091</b>	<b>0.166</b>	<b>0.114</b>	<b>0.157</b>	<b>0.162</b>	<b>0.123</b>
	(0.030)	(0.056)	(0.045)	(0.049)	(0.041)	(0.020)	(0.022)	(0.034)	(0.023)	(0.021)

Notes: Base sample, estimation, and pre/post differences defined as in Table 4 (columns 3 and 6). Income groups defined by tertiles of household income prior to job separation. Estimates that are statistically significant at the 5% level are bolded.

Appendix Table 1: Additional Descriptive Statistics, SIPP Non-employment Spells (2001 and 2008 Panels)  
(completed or censored in final panel month)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	2001 Panel				2008 Panel			
	<u>All<sup>1</sup></u>	<u>No UI</u>	<u>Received UI income<sup>2</sup></u>		<u>All<sup>1</sup></u>	<u>No UI</u>	<u>Received UI income<sup>2</sup></u>	
			<u>To end of spell<sup>3</sup></u>	<u>Ends before spell ends</u>			<u>To end of spell<sup>3</sup></u>	<u>Ends before spell ends</u>
Number of spells	11377	8284	2097	504	23519	16526	5151	1098
Age (years)								
Average	37.9	37.0	40.4	41.2	39.7	38.7	41.8	43.5
Share <25	0.199	0.239	0.088	0.074	0.162	0.200	0.065	0.076
Share 25-44	0.493	0.474	0.539	0.542	0.465	0.458	0.496	0.418
Share 45-54	0.183	0.158	0.257	0.239	0.208	0.177	0.285	0.271
Share 55+	0.125	0.129	0.115	0.145	0.166	0.164	0.154	0.235
Education categories								
<High School	0.172	0.187	0.124	0.142	0.130	0.140	0.103	0.114
High School	0.340	0.328	0.382	0.366	0.298	0.295	0.305	0.319
Some College	0.312	0.311	0.325	0.272	0.367	0.357	0.388	0.383
College Grad	0.130	0.128	0.130	0.155	0.147	0.146	0.153	0.136
>College	0.046	0.047	0.039	0.064	0.058	0.061	0.051	0.048
Race								
White	0.803	0.796	0.851	0.772	0.805	0.802	0.818	0.771
Black	0.147	0.154	0.108	0.153	0.128	0.132	0.118	0.141
Asian	0.032	0.031	0.027	0.056	0.030	0.029	0.030	0.040
Other	0.018	0.019	0.015	0.019	0.037	0.037	0.034	0.047
Female	0.446	0.458	0.388	0.462	0.409	0.428	0.351	0.423
Married	0.471	0.448	0.540	0.530	0.477	0.454	0.541	0.503

(Continued)



Appendix Table 1 (continued)

	2001 Panel				2008 Panel			
	<u>All<sup>1</sup></u>	<u>No UI</u>	<u>Received UI income<sup>2</sup></u>		<u>All<sup>1</sup></u>	<u>No UI</u>	<u>Received UI income<sup>2</sup></u>	
			<u>To end of spell<sup>3</sup></u>	<u>Ends before spell ends</u>			<u>To end of spell<sup>3</sup></u>	<u>Ends before spell ends</u>
<b>Income sources</b>								
Own earnings								
Prior to job loss % \$>0	0.916	0.902	0.960	0.947	0.889	0.874	0.929	0.928
Prior to job loss (\$>0)	2069	1811	2741	2927	2392	2085	3150	2900
During non-emp spell % \$>=0	0.544	0.602	0.472	0.132	0.476	0.545	0.361	0.080
During non-emp spell (\$>0)	1719	1525	2252	2447	2176	1895	2876	2775
Spouse earnings								
Prior to job loss % \$>0	0.853	0.858	0.832	0.850	0.810	0.814	0.799	0.800
Prior to job loss (\$>0)	2801	2857	2640	3053	3388	3479	3135	3363
During non-emp spell % \$>=0	0.848	0.854	0.833	0.830	0.806	0.810	0.791	0.804
During non-emp spell (\$>0)	2846	2937	2586	2999	3401	3521	3086	3326
Other household earnings								
Prior to job loss % \$>0	0.099	0.096	0.106	0.125	0.105	0.100	0.116	0.110
Prior to job loss (\$>0)	2041	2095	1929	1719	2311	2423	2056	2199
During non-emp spell % \$>=0	0.097	0.095	0.105	0.121	0.102	0.097	0.114	0.106
During non-emp spell (\$>0)	2010	2096	1806	1788	2276	2392	2042	2169
SNAP								
Prior to job loss % \$>0	0.080	0.088	0.049	0.074	0.160	0.176	0.122	0.131
Prior to job loss (\$>0)	217	220	205	186	361	365	347	331
During non-emp spell % \$>=0	0.098	0.104	0.066	0.119	0.186	0.194	0.156	0.202
During non-emp spell (\$>0)	233	233	223	258	365	374	354	331

(Continued)

Appendix Table 1 (continued)

	2001 Panel				2008 Panel			
	<u>All</u> <sup>1</sup>	<u>No UI</u>	<u>Received UI income</u> <sup>2</sup>		<u>All</u> <sup>1</sup>	<u>No UI</u>	<u>Received UI income</u> <sup>2</sup>	
			<u>To end of spell</u> <sup>3</sup>	<u>Ends before spell ends</u>			<u>To end of spell</u> <sup>3</sup>	<u>Ends before spell ends</u>
Other means-tested programs								
Prior to job loss % $\$>0$	0.067	0.074	0.049	0.056	0.069	0.074	0.057	0.052
Prior to job loss ( $\$>0$ )	501	486	625	457	655	656	647	596
During non-emp spell % $\$>=0$	0.071	0.078	0.048	0.069	0.075	0.078	0.063	0.077
During non-emp spell ( $\$>0$ )	511	498	608	522	667	670	657	616
Social Security								
Prior to job loss % $\$>0$	0.145	0.162	0.090	0.132	0.168	0.181	0.133	0.155
Prior to job loss ( $\$>0$ )	935	962	808	848	1286	1322	1162	1207
During non-emp spell % $\$>=0$	0.148	0.163	0.092	0.153	0.179	0.189	0.141	0.222
During non-emp spell ( $\$>0$ )	956	971	837	977	1307	1338	1170	1321
Medicaid receipt								
Prior to job loss % $\$>0$	0.072	0.081	0.045	0.062	0.088	0.097	0.067	0.086
During non-emp spell % $\$>=0$	0.085	0.090	0.060	0.116	0.102	0.104	0.089	0.135

## Notes:

(1) Includes all spells, even those in which UI is received for fewer than four months.

(2) Includes only spells in which UI is received for four or more months.

(3) Includes all spells in which UI income is still being received at the end of the spell or two months after spell ends.

On weights: all values are weighted using the SIPP given final weight that corresponds to the final month of the spell.

**Appendix Table 2. Household income before and after the end of UI payments**  
**Sample with UI duration >= 75% of state maximum**

	(1)	(2)	(3)	(4)	(5)	(6)
	2001 Panel			2008 Panel		
	Pre	Post	Diff	Pre	Post	Diff
Household income (\$/month)	3,579 [3,452]	3,082 [3,130]	<b>-497</b> (173)	3,839 [2,690]	3,038 [2,818]	<b>-800</b> (115)
Income components (relative to pre-displacement household income)						
Total	0.750 [0.546]	0.626 [0.546]	<b>-0.125</b> (0.042)	0.848 [0.733]	0.634 [0.638]	<b>-0.214</b> (0.036)
Own earnings	0.002 [0.028]	0.105 [0.307]	<b>0.102</b> (0.028)	0.003 [0.037]	0.038 [0.162]	<b>0.035</b> (0.012)
Other HH member earnings	0.370 [0.465]	0.381 [0.451]	0.011 (0.025)	0.386 [0.624]	0.394 [0.583]	0.008 (0.021)
UI	0.261 [0.254]	0.000 [0.000]	<b>-0.261</b> (0.023)	0.290 [0.269]	0.000 [0.000]	<b>-0.290</b> (0.021)
SNAP	0.012 [0.045]	0.013 [0.051]	0.001 (0.003)	0.034 [0.106]	0.039 [0.107]	0.005 (0.004)
Other social assistance	0.011 [0.055]	0.015 [0.073]	0.004 (0.005)	0.019 [0.101]	0.027 [0.109]	<b>0.008</b> (0.004)
Social Security	0.045 [0.166]	0.054 [0.172]	0.009 (0.005)	0.087 [0.207]	0.098 [0.209]	0.011 (0.008)
Any income, by source						
Own earnings	0.012 [0.111]	0.347 [0.477]	<b>0.335</b> (0.045)	0.009 [0.094]	0.161 [0.368]	<b>0.152</b> (0.028)
Other HH member earnings	0.640 [0.481]	0.665 [0.473]	0.025 (0.027)	0.585 [0.493]	0.606 [0.489]	0.021 (0.021)
UI	0.988 [0.111]	0.000 [0.000]	<b>-0.988</b> (0.010)	0.985 [0.121]	0.000 [0.000]	<b>-0.985</b> (0.009)
SNAP	0.107 [0.310]	0.107 [0.310]	0.000 (0.022)	0.236 [0.425]	0.284 [0.451]	<b>0.048</b> (0.022)
Other social assistance	0.070 [0.256]	0.074 [0.263]	0.004 (0.021)	0.081 [0.273]	0.116 [0.321]	<b>0.036</b> (0.017)
Social Security	0.149 [0.357]	0.174 [0.380]	0.025 (0.016)	0.230 [0.421]	0.278 [0.448]	<b>0.048</b> (0.019)
Covered by Medicaid	0.124 [0.330]	0.145 [0.352]	0.021 (0.024)	0.116 [0.321]	0.191 [0.394]	<b>0.075</b> (0.024)
Household in poverty	0.240 [0.428]	0.409 [0.493]	<b>0.169</b> (0.045)	0.185 [0.389]	0.403 [0.491]	<b>0.218</b> (0.037)

Notes: "Pre" columns report average values and standard deviations (in brackets) over the three months prior to the last month in which UI income was received. "Post" columns report average values over the period beginning the month after the last month of UI receipt and ending 6 months later or in the last month of the nonemployment spell, whichever comes first. "Diff" column reports the difference in means and the standard error (in parentheses) of this difference. Relative income measures divide monthly income by source by average household income in the period 2-4 months prior to the initial job loss. Households for which this average is below \$500 are set to missing; ratios are censored at [0,10]. N=242 spells in 2001 panel, 355 spells in 2008 panel. Differences that are statistically significant at the 5% level are bolded.

Appendix Table 3: The impact of sample weights

	(1)	(2)	(3)	(4)	(5)	(6)
	2001 panel - pre/post difference from event study Sample with			2008 panel - pre/post difference from event study Sample with		
	Base	weights	Weighted	Base	weights	Weighted
Household income (\$/month)	<b>-416</b> (171)	<b>-397</b> (188)	-328 (202)	<b>-586</b> (82)	<b>-670</b> (83)	<b>-664</b> (96)
Income components (relative to pre-displacement household income)						
Total	<b>-0.131</b> (0.035)	<b>-0.124</b> (0.038)	<b>-0.122</b> (0.038)	<b>-0.155</b> (0.024)	<b>-0.180</b> (0.020)	<b>-0.171</b> (0.024)
Own earnings	<b>0.118</b> (0.023)	<b>0.115</b> (0.025)	<b>0.111</b> (0.025)	<b>0.075</b> (0.008)	<b>0.064</b> (0.007)	<b>0.069</b> (0.008)
Other HH member earnings	-0.031 (0.028)	-0.024 (0.032)	-0.029 (0.033)	0.010 (0.019)	-0.008 (0.014)	0.001 (0.015)
UI	<b>-0.227</b> (0.015)	<b>-0.222</b> (0.016)	<b>-0.218</b> (0.016)	<b>-0.274</b> (0.008)	<b>-0.271</b> (0.009)	<b>-0.266</b> (0.009)
SNAP	-0.001 (0.004)	0.001 (0.004)	0.001 (0.003)	<b>0.005</b> (0.002)	<b>0.006</b> (0.002)	<b>0.011</b> (0.004)
Other social assistance	0.000 (0.004)	0.005 (0.004)	0.005 (0.005)	0.006 (0.003)	0.006 (0.004)	0.007 (0.005)
Social Security	0.004 (0.004)	0.003 (0.005)	0.005 (0.005)	<b>0.012</b> (0.006)	0.014 (0.007)	0.011 (0.007)
Any income, by source						
Own earnings	<b>0.170</b> (0.019)	<b>0.155</b> (0.021)	<b>0.156</b> (0.022)	<b>0.111</b> (0.008)	<b>0.099</b> (0.009)	<b>0.099</b> (0.009)
Other HH member earnings	-0.010 (0.024)	-0.009 (0.027)	-0.003 (0.026)	0.008 (0.011)	0.000 (0.011)	0.011 (0.013)
UI	<b>-0.822</b> (0.028)	<b>-0.822</b> (0.030)	<b>-0.826</b> (0.031)	<b>-0.975</b> (0.008)	<b>-0.974</b> (0.010)	<b>-0.964</b> (0.012)
SNAP	-0.005 (0.021)	-0.010 (0.024)	-0.008 (0.021)	<b>0.024</b> (0.010)	0.022 (0.012)	<b>0.030</b> (0.012)
Other social assistance	0.002 (0.017)	0.019 (0.017)	0.027 (0.018)	<b>0.021</b> (0.008)	<b>0.028</b> (0.009)	<b>0.031</b> (0.012)
Social Security	<b>0.027</b> (0.012)	0.024 (0.014)	0.025 (0.014)	<b>0.034</b> (0.009)	<b>0.042</b> (0.011)	<b>0.038</b> (0.012)
Covered by Medicaid	-0.009 (0.023)	-0.013 (0.026)	-0.015 (0.028)	0.016 (0.010)	<b>0.026</b> (0.011)	<b>0.030</b> (0.012)
Household in poverty	<b>0.151</b> (0.027)	<b>0.149</b> (0.031)	<b>0.154</b> (0.029)	<b>0.146</b> (0.015)	<b>0.148</b> (0.017)	<b>0.149</b> (0.018)

Notes: Base sample defined as in Table 3. Event study regression model corresponds to Table 4 (see text for description). Columns 2 and 5 unweighted but restricted to samples with non-zero weight values. Estimates that are statistically significant at the 5% level are bolded.

**Appendix Table 4. Summaries of event study estimates for components of household income**  
**Sample with UI duration  $\geq$  75% of state maximum**  
**(coefficient estimates relative to last month of UI receipt (t=0); standard errors in parentheses)**

	(1)	(2)	(3)	(4)	(5)	(6)
	2001 panel			2008 panel		
	Average, t=-4, -3, -2	Average, t=+1,+2,+3	Difference	Average, t=-4, -3, -2	Average, t=+1,+2,+3	Difference
Household income (\$/month)	-13 (119)	<b>-692</b> (215)	<b>-679</b> (285)	-71 (59)	<b>-726</b> (99)	<b>-655</b> (110)
Income components (relative to pre-displacement household income)						
Total	0.007 (0.023)	<b>-0.182</b> (0.037)	<b>-0.189</b> (0.048)	-0.018 (0.014)	<b>-0.213</b> (0.029)	<b>-0.194</b> (0.029)
Own earnings	-0.006 (0.011)	<b>0.068</b> (0.020)	<b>0.074</b> (0.029)	0.002 (0.006)	0.015 (0.008)	0.013 (0.009)
Other HH member earnings	0.010 (0.018)	-0.019 (0.027)	-0.029 (0.037)	-0.007 (0.010)	0.035 (0.019)	<b>0.043</b> (0.021)
UI	-0.012 (0.010)	<b>-0.247</b> (0.018)	<b>-0.235</b> (0.021)	-0.010 (0.006)	<b>-0.283</b> (0.015)	<b>-0.273</b> (0.014)
SNAP	0.000 (0.002)	0.001 (0.004)	0.001 (0.006)	-0.003 (0.002)	0.005 (0.003)	<b>0.008</b> (0.004)
Other social assistance	0.003 (0.003)	0.002 (0.006)	-0.001 (0.007)	-0.002 (0.002)	0.005 (0.004)	0.007 (0.005)
Social Security	-0.003 (0.003)	0.009 (0.006)	0.012 (0.008)	-0.004 (0.004)	0.002 (0.007)	0.006 (0.008)
Any income, by source						
Own earnings	0.005 (0.009)	<b>0.119</b> (0.017)	<b>0.114</b> (0.022)	-0.007 (0.005)	<b>0.048</b> (0.009)	<b>0.056</b> (0.010)
Other HH member earnings	0.014 (0.016)	-0.011 (0.024)	-0.025 (0.032)	0.001 (0.011)	0.011 (0.015)	0.010 (0.019)
UI	<b>-0.091</b> (0.023)	<b>-0.921</b> (0.023)	<b>-0.831</b> (0.041)	-0.002 (0.014)	<b>-0.955</b> (0.014)	<b>-0.953</b> (0.015)
SNAP	0.014 (0.015)	0.015 (0.023)	0.001 (0.033)	<b>-0.024</b> (0.009)	0.018 (0.016)	<b>0.042</b> (0.019)
Other social assistance	-0.012 (0.014)	0.010 (0.022)	0.023 (0.029)	-0.001 (0.007)	<b>0.028</b> (0.012)	<b>0.029</b> (0.014)
Social Security	-0.016 (0.009)	0.011 (0.015)	0.027 (0.019)	-0.010 (0.009)	0.023 (0.015)	0.033 (0.019)
Covered by Medicaid	0.010 (0.015)	0.008 (0.026)	-0.003 (0.034)	0.003 (0.010)	<b>0.046</b> (0.014)	<b>0.044</b> (0.016)
Household in poverty	-0.002 (0.019)	<b>0.167</b> (0.033)	<b>0.169</b> (0.036)	-0.006 (0.011)	<b>0.169</b> (0.027)	<b>0.175</b> (0.029)

Notes: Sample defined as in Appendix Table 3. See text for description of event study regression model. Standard errors are clustered by individual. Estimates that are statistically significant at the 5% level are bolded.