

The Safety Net and Job Loss: How Much Insurance Do Public Programs Provide?

Chloe N. East
University of Colorado Denver
IZA - Institute of Labor Economics
chloe.east@ucdenver.edu

David Simon
University of Connecticut
National Bureau of Economic Research
david.simon@uconn.edu

December 28, 2022

Abstract

An extensive literature documents large and persistent declines in earnings following job loss. We comprehensively study the role of the public safety net in mitigating lost income from no fault job loss using the 1996-2013 Survey of Income and Program Participation. With an individual fixed effects model, we document which public programs provide the most insurance, and how this varies by pre-job loss characteristics. Unemployment Insurance transfers the most income, but the neediest are less well insured compared to middle- and higher- income job losers. This has important implications for the progressivity of the safety net, and how best to support displaced workers.

Keywords: *Job Loss, Safety Net, Unemployment Insurance*

We are grateful to Elira Kuka for making her UI calculator publicly available, as well as Delia Furtado, Hilary Hoynes, Emily Lawler, Emily Nix, Analisa Packham, Danielle Sandler, Barton Willage, Kathryn Edwards, Jason Lindo and seminar participants at the University of Colorado Denver, the University of Nebraska Lincoln, University of New Mexico, Vanderbilt University, the Association for Public Policy Analysis and Management, and the Southern Economic Association. We would like to thank Kristine Kohlmeier, Elizabeth Cox, Yangkeun Yun, Wei Zheng, and Zhengxuan Wu for excellent research assistance. David Simon was supported by funding from the Upjohn Institute Early Career Research Award. All errors are our own.

1 Introduction

1.5% of the U.S. workforce experiences a job loss in an average year (Fernández Campbell, 2019). This is even higher in recessions, and during the first few months of the COVID-19 pandemic, an estimated 22 million people (13% of the workforce) lost their job in the U.S. (Bartash, 2020). Displaced workers—workers who lose their job through no fault of their own—experience a decrease in earnings of 14-66% in the first year after job loss, and these losses often persist for years after separation (Couch and Placzek, 2010). Moreover, the median job loser does not have enough liquid savings to cover even a month’s worth of expenses (Rothstein and Valletta, 2017), suggesting that self insurance is unlikely to be a viable option for many of those displaced. Workers may instead rely on the public safety net for insurance against lost earnings.

This paper is the first to examine the role of the public safety net as a whole, across all major programs, in mitigating lost income due to the economic shock of job loss.¹ We take a comprehensive view of the safety net, looking at many programs beyond just Unemployment Insurance (UI), including the Supplemental Nutrition Assistance Program (SNAP), Temporary Assistance for Needy Families (TANF), Social Security (SS), Supplemental Security Income (SSI), Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), Free and Reduced Price Lunch (FRPL), energy assistance, the Earned Income Tax Credit (EITC), and public health insurance. We document which programs provide the largest income transfers and how this varies by pre-job loss demographics. We shed light on which job losers benefit the most from the safety net, the degree to which they benefit, from which programs those benefits are derived, and when those benefits occur.

To conduct this analysis, we need a data set that allows us to measure both job loss and program receipt for all major safety net programs. To our knowledge no data set exists that links administrative data from the majority of safety net programs to data on all job losers.² Therefore, we use the Survey of Income and Program Participation (SIPP) from 1996-2013. The SIPP collects information about the reason each job ends and detailed monthly information about the receipt and benefit amount of most major cash and in-kind safety net programs. Additionally, the SIPP follows individuals in the initial sample for 3-4

¹We use the term “safety net” programs to describe both means-tested programs and social insurance programs that individuals pay into and can claim benefits from.

²Papers that use administrative data to look at job loss typically use UI receipt to identify displaced workers. But this makes it impossible to look at benefits for those who are not eligible for, or did not receive UI. Further, UI take up itself may be endogenously determined by factors related to the amount of insurance received such as state generosity, worker knowledge of the UI system, and the expected duration of unemployment.

years, so we can examine how safety net benefits change around job loss in event study and difference in difference models with individual fixed effects. Our main sample is displaced workers who are aged 24-55 at the time of job loss, are not on temporary layoff and have at least one year of job tenure prior to the job loss. One drawback of the SIPP is that, as with most major surveys, program receipt is under-reported. We adjust for this under-reporting as suggested by Meyer et al. (2020) and Meyer et al. (2015) and show the patterns of the main results are the same.

Our first finding is that UI is the most important program for providing income replacement for displaced workers, both because it is the most used program for job losers and because it provides the largest benefit amounts. However, because of the time limits on benefit receipt, UI income mostly runs out within two years after the job loss even though earnings remain significantly lower than before job loss. Our second key finding is that the total dollars received of UI payments are regressive. This is likely due to the fact that UI eligibility is conditional on the worker having a minimum amount of job tenure (work history requirements) and meeting requirements on minimum past wages (earnings requirements) and is not available to self-employed and gig workers. Indeed, we show that rates of UI eligibility are lower among the most disadvantaged. The structure and generosity of UI has been heavily debated by economists and policy-makers, with renewed interest due to the COVID-19 pandemic (e.g. Snell (2020); Palmer and Sherman (2020)). Our findings shed light on what changes could be made to better insure the neediest displaced workers.

Our third key finding is that there is an increase in participation in some means-tested safety net programs following job loss, but the magnitude of these transfers is negligible even for low-income households.³ Finally, we find that public health insurance does provide a buffer against the loss in private insurance, especially for children of job losers.⁴

Considering benefits from all major cash and near-cash transfer programs, income replaced by the safety net is regressive for the poorest households. Workers with pre-job loss household income below the poverty line have only 20% of their lost earnings replaced by the safety net. In contrast, workers with household income between 100-399% of the poverty line have 27-31% of their lost earnings replaced.

Our work builds on papers consistently finding large and persistent earnings losses for

³In an earlier draft of this paper, we looked at employer-provided severance pay. Severance pay is uncommon (only about 20% of job losers receive any) and mainly is given to those with higher income. There is a stark increase of \$600 in severance pay in the months immediately following a job loss, but these payments fall to zero within 4 months after job loss. See (East and Simon, 2020) for more details.

⁴Note, our sample is focused on the pre-Affordable Care Act (ACA) period.

displaced workers, summarized by Couch and Placzek (2010). We are the first to comprehensively study the response of the modern safety net for a representative sample of displaced workers in the U.S. and to examine heterogeneous impacts by pre-job loss characteristics. We also contribute to the extensive literature studying the costs and benefits of UI (e.g. Chetty (2008); Rothstein (2011); East and Kuka (2015); Farber and Valletta (2015); Ganong and Noel (2019); Lindo et al. (2020)) by examining *which* workers receive UI and how UI fits into the broader safety net landscape.

Our paper adds to prior work by Rothstein and Valletta (2017) who study changes in program participation and income *among job losers who received UI*. Rothstein and Valletta's focus is estimating changes following UI benefit exhaustion, though they do some investigation of the average changes following job loss as well. We find that UI is the most responsive safety net program to job loss, however, only 59% of our sample reports receiving UI after job loss. Moreover, as we show, UI recipients are much more advantaged than non-recipients. Thus, our contributions are: 1) to study the responsiveness of the safety net to job loss for all job losers, not just UI recipients, 2) to study these effects by pre-job-loss characteristics, 3) to study the response of a more detailed set of safety net programs, and 4) to estimate the dynamic (rather than average) effects of job loss.⁵ We directly compare our results for those who do and do not receive UI in section 4.2.3 below.

Our analysis is also related to the literature on the cyclicity of safety net program expenditures and caseloads in the U.S. (e.g. Bitler and Hoynes (2016); Bitler et al. (2017a)). This past research studied the aggregate state-level responsiveness of these programs to the business cycle, whereas we take an individual-level approach and look at income receipt for the job loser and their household following a job loss.⁶

Section 2 describes the data and estimation sample, Section 3 describes our estimation strategy. Section 4 describes program participation and household resources effects. Section 5 concludes.

⁵Leung and O'Leary (2020) also examine safety net program interaction for job losers in Michigan who are on the margin of UI income eligibility.

⁶Recent work by Hershbein (2021) builds on this state-year approach by implementing an event study model that looks at the dynamics of the effects of recessions on city-level transfer payments.

2 Sample and Program Description

2.1 SIPP Data and Sample Definition

The Survey of Income and Program Participation is a nationally representative panel survey that follows recipients for 3-4 years, asking detailed questions about many types of income receipt. A new panel begins every few years with a new sample, and we use the 1996, 2001, 2004, and 2008 SIPP panels for our analysis.⁷ We define job losers as those that lost their job through no fault of their own: due to a layoff, business closure, or transfer of ownership of the business. Following the literature, we focus on the first job loss we observe after the SIPP panel began (e.g. Stevens (1997)). We drop individuals who report being on temporary layoff. Our sample is heads of household or the spouse/unmarried partner of a household head, who are working-aged (24-55) at time of job loss. To account for the potentially endogenous effect of job loss on marital status, we link job losers to the observed spouse or unmarried partner first observed in the sample.⁸ We further condition on the displaced worker having at least 1 year of job tenure, which is common in the job loss literature (e.g. Oreopoulos et al. (2008); Rege et al. (2011); Schaller and Zerpa (2019)) and has several advantages; first, it allows us to better identify exogenous shocks to income and, second, since we examine income dynamics up to 12 months prior to job loss, this means job transitions will not likely drive pre-trends.⁹

In Table (1) we show baseline demographic characteristics for workers.¹⁰ We do this separately for the full sample of job losers, job losers with 1 year of job tenure, all workers (including those who eventually lose a job), and all workers with 1 year of job tenure. Job losers are less advantaged than their non-displaced counterparts based on their initial monthly earnings and education (column (1) vs. column (3)). Additionally, restricting the sample to workers with at least one year of job tenure yields a higher-earning sample (columns (1) vs. (2) and columns (3) vs. (4)). Job losers with 1 year of job tenure are similar to the full sample of job losers in terms of other demographics—sex, race/ethnicity, marital status,

⁷Redesigns of the survey before the 1996 and after the 2008 panel prevent us from including additional years of data.

⁸Only 4% of our sample becomes neither a head, spouse, nor partner at some point in the sample window. We keep individuals in the sample even after they are no longer a head, spouse, or partner.

⁹We drop observations more than 12 months before job loss and more than 23 months after job loss. For our main analysis, we do not restrict the sample to be balanced. The results on a balanced sample are similar, discussed in section 4.2.

¹⁰The baseline period for job losers is the 3-4 months before job loss, which is the excluded event time dummy in our event study models. The number of job losers is slightly smaller than our final sample because when using an unbalanced panel not all job losers are observed in the three to four months before job loss. The baseline period for all workers is the first survey month.

number of kids—as well as in terms of their duration of unemployment. This 1 year tenure subsample is 65% of all job losers and we prefer this restriction, however, we test robustness to this restriction in Section 4.2. Appendix Figure (A1) shows the distribution of the year of job loss in our sample; there are many job losses in the 2001 and 2009 recessions, but there are job losses in non-recessionary years as well and we test for heterogeneity in the effects by economic conditions below.

To measure program receipt, we look at the monthly amount received of Unemployment Insurance (UI), Supplemental Nutrition Assistance Program (SNAP), Temporary Assistance for Needy Families (TANF), Social Security (SS), Supplemental Security Income (SSI), Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), Free and Reduced Price Lunch (FRPL), and energy assistance. For FRPL, we impute the dollar value of benefits by using the reimbursement rate given to schools, since only participation is reported in the SIPP.¹¹ We also simulate EITC amounts using the NBER Taxsim program (Feenberg and Coutts, 1993) and observed income and household structure information, as described in more detail below in Section 4.3.1. Finally, we examine public health insurance receipt and its interaction with private health insurance. This is important since the latter is often tied directly to employment, especially in the pre-ACA period we study. We adjust all income amounts to be in constant 2015\$.

One concern with using the SIPP is that there is under-reporting of safety net program receipt in survey data (Meyer et al., 2020, 2015)). To address this, we follow Meyer et al.’s (2009) suggestion and explore how the results change when we scale the reported outcome variables by the rates of under-reporting. This changes the levels of the estimates, but does not change the patterns or overall qualitative interpretation of our findings. We show the robustness to this correction for all of our main results. There could be heterogeneity in who under-reports, which is important to keep in mind when we look at heterogeneity in effects by pre-job loss characteristics. However, past work shows either no evidence of differences in under-reporting by income (Meyer et al., 2020) or that lower income households are more likely to correctly report (Card et al., 2004), which would bias against our findings of regressivity. We discuss this in more detail in section 4.2.1.

¹¹We take the maximum per meal reimbursement rate in the 48 contiguous states, multiply by the number of children reported to be receiving these benefits in the household, and finally multiplying this by 22 school days in the month. Reimbursement rates from:

<https://www.fns.usda.gov/cn/rates-reimbursement>

2.2 Descriptive Results

Before estimating a regression model, we examine descriptively how program receipt (ranging from 0-100) evolves around job loss in Table (2). The changes from pre (column (1)) to post (column (2)) job loss are stark: individuals have much lower earnings after job loss and are much more likely to receive safety net program benefits.¹² In the last three rows, we look at three measures of household poverty. To do so, we compare the poverty threshold for the household to three measures of income: 1) total household earned income only, 2) total household cash income (including earnings, UI, SS, SSI, and TANF) and 3) total household cash and near-cash income, which adds the cash value of near-cash safety net programs (SNAP, FRPL, WIC, and energy assistance). We see large increases in the “earnings only” measure of poverty, that are mitigated when we add in income from cash transfers.

From Table (2), it is clear that UI is the most responsive program to job loss in terms of both participation and benefit amounts received. UI is also the only safety net program designed specifically to aid displaced workers. Cash payments from UI are available to workers who lost their job through no fault of their own, and who meet work history and minimum earnings requirements in the base period (often four out of the past five quarters must have been spent working). The exact requirements and methods for calculating eligibility range from state to state. Additionally, not all workers are covered; for example, self-employed workers and gig workers are often not covered by UI. Benefits are typically calculated as a little less than half of the pre-job loss wages, up to a maximum benefit amount, which is again set by each state. Minimum weekly benefits ranged from \$5 (Hawaii) to \$188 (Washington) in 2019. Similarly, maximum benefits (excluding additional benefits for dependents) range from \$235 (Mississippi) to \$795 (Massachusetts). UI is available to workers for 26 weeks in most states, except during recessions, when the Extended Benefit program can provide an additional 13 or 20 weeks. Also, during the Great Recession, a temporary program further extended benefit duration between July 2008 and December 2013.¹³

An important contribution of our analysis is that we look at not only UI, but the full range of safety net programs. SNAP is a means-tested program providing in-kind benefits (debit cards used for food purchases only) and we find it to be, after UI, the second-most responsive program to job loss. There is a much smaller increase in all of the other safety net programs. We describe these programs briefly here. For more in depth information on the various programs see Appendix B.

¹²Note, in this table we do not include the month of job loss in either the pre or post period.

¹³This information is taken from Whittaker and Isaacs (2019).

TANF is a means-tested cash benefit program for families with children, and has stricter eligibility rules and lower statutory benefit amounts relative to SNAP. Social Security (SS) provides cash benefits for the disabled and elderly who meet work history requirements, and Supplemental Security Income (SSI) also provides cash benefits for the disabled and elderly but is means-tested. We cannot separate out whether individuals received SS and SSI due to age or disability requirements; however, because our sample is aged 24-55 at the time of job loss individuals are most likely to qualify for these programs based on disability rather than age. The next program, Free and Reduced Price Lunch is a means-tested nutrition program that subsidizes school lunches for children. WIC is an in-kind means-tested program that provides supplemental food, formula, counseling, and health care referrals to pregnant individuals and mothers of children under age 5. For both WIC and FRPL, we look at whether anyone in the household received these benefits and the total household value of the benefits. The energy subsidies we examine cover household energy use expenses and are also means-tested. The EITC provides cash in the form of a refundable tax credit to low-income households with at least one earner. Finally, Public Health Insurance programs (Medicaid, the State Children's Health Insurance Program and Medicare) health insurance to adults and children.

Given the structure of the programs, we expect UI to be more widely available to higher income job losers. On the other hand, the means-tested programs will likely be used more by lower income job losers. We investigate this in Figure (1). Panel (a) plots receipt of in safety net programs *before* job loss against the household poverty ratio in the first survey month. Panel (b) plots the *change* in receipt two years after job loss, again against baseline household poverty ratio.¹⁴ Panel (b) shows again that UI is clearly the program with the largest increase in receipt post job loss, increasing by 15-25 percentage points (increases are larger in the months immediately following job loss as we show below). Receipt of UI is also increasing in pre-job loss household poverty ratio except at the very top of the distribution, a point we return to in more detail below. The increase in receipt of means-tested programs is much smaller, with participation in SNAP and FRPL increasing only for lower income individuals. Changes in participation in the other programs are very small.

Additionally, even before job loss in Panel (a), displaced workers with household income below 300% of the poverty line received benefits from FRPL, SNAP, and WIC.¹⁵ Given

¹⁴To calculate the household poverty ratio, we use household-level total cash income, and the SIPP-assigned Census poverty threshold for each household, which is based on household size and composition. We show the number of job losers by household poverty ratio in Appendix Figure (A2). In 2020, for a family of 4, the poverty threshold was \$26,200. <https://aspe.hhs.gov/2020-poverty-guidelines>.

¹⁵The eligibility thresholds for these programs is below 300% of the poverty threshold, however, since

that many households received means-tested programs *before* job loss, we will also look at the impact of job loss on the dollar value of benefits received from these programs in our regression analysis, as this may be responsive to the decline in earnings due to job loss, even if the household's program participation doesn't change.

3 Empirical Strategy

We follow the job loss literature (e.g. Jacobson et al. (1993); Stevens (1997); Sullivan and Von Wachter (2009)) and estimate event study models with individual fixed effects to examine the dynamics of income around job loss. In our baseline sample everyone experiences a no fault job displacement and we explore robustness to including a control group discussed more below. Specifically, our baseline model is:

$$y_{it} = \alpha_i + \sum_{\tau=-12, \tau \neq -3, -4}^{24} \beta_\tau D_{i\tau} + \gamma X_{it} + \epsilon_{it} \quad (1)$$

where y_{it} is a measure of income or program participation for individual i at time t . We define τ as time relative to job loss, which occurs at $\tau = 0$. The key set of regressors are $D_{i\tau}$, which are indicator variables for job loser i being τ periods before or after job loss. We group time into two-month bins taking the average of the variables across the two months to improve precision of our estimates, but the results are similar when un-binned. We omit the the third and fourth months before job loss, so β_τ measures the change in income relative to the 3-4 months prior to job loss. We chose this as the omitted period rather than the second and first months before job loss to ensure our reference period is before any anticipatory effects. So, for example, β_2 measures the change in income 2-3 months after job loss, relative to 3-4 months before. Importantly, we include α_i , which is a vector of individual fixed effects that account for all time-invariant characteristics of individuals in our sample. Additionally, the vector of controls, X_{it} , has age fixed effects to account for the age-earnings relationship and a linear control for calendar year-by-month time. We use the SIPP individual weight at the time of job loss, and cluster standard errors at the individual level.

The key identifying assumption in this model is that the timing of job loss is unrelated to individual trends in income. It is important to distinguish what type of causal estimates we can produce with this design. We rely on the plausible randomness of the timing of a worker's no-fault job loss to identify the causal impact of job loss on safety net program

we measure the household poverty ratio based on the first time the household is observed in the survey, variability in income pre-job loss may explain non-zero receipt even for households in the 200-299% bin.

receipt. In other words, we identify the responsiveness of the public safety net to exogenous job loss shocks. We do not study the causal effect of safety net programs on job losers' outcomes and our estimated effects are inclusive of any behavioral effects induced by safety net programs (such as changes in work incentives and crowd out), although we do not directly examine those behavioral effects here.

We also estimate a difference in difference equivalent of equation (1) where we replace all the post-job loss dummy variables with one dummy variable indicating an observation is after job loss, and we omit the pre-job loss dummy variables. This provides a parsimonious way of summarizing our findings, which is particularly useful in our subgroup analysis.

We check the robustness of our results to potential bias caused by using two-way fixed effects estimators with staggered treatment timing by simply plotting the unconditional means of the outcomes of interest over time relative to job loss.¹⁶ These means are very similar to our regression-adjusted estimates, discussed in Section 4.2.2 below. Additionally, we check the robustness of our main results to including non-job losers as a control group and the results are very similar (see Section 4.2.2 and Appendix D).¹⁷

4 Effects on Safety Net Program Receipt

4.1 Job Loss and Earnings: Replication

We begin by replicating the literature that documents large and persistent declines in earnings following an involuntary job loss. Figure (2) and column (1) of Appendix Table (A1) show the results of the event study analysis on job losers' monthly earnings (in 2015\$). In the first six months following the job loss, there is a monthly earnings loss of \$2,270-3,118, about 49-67% relative to the pre-job loss mean (\$4,627).¹⁸ One year after the job loss, earnings losses are \$1,656 (36%). These magnitudes are similar to that found in the prior literature, which has primarily examined annual rather than monthly earnings and has found annual earnings losses of 14-66% in the first year after job loss (Couch and Placzek, 2010). Also consistent with past findings, we see evidence of persistence in these earnings losses;

¹⁶Since there are no fixed effects when simply graphing the raw means, if the job loss is truly exogenous, as we argue, there is no bias. This simple approach removes the concern for bias due to heterogeneous treatment effects that is discussed in the literature (e.g. Callaway and Sant'Anna (2021)).

¹⁷Krolkowski (2018) points out that by choosing a control group that never loses their job, the econometrician imposes the assumption of employment stability over the observed period as the counterfactual. This could result in larger estimated effects of a job loss if the true counterfactual is that job loss might occur for the control group at some point in the post period.

¹⁸Note that when $\tau = 0$, the earnings loss is smaller because the job loss happens during this two-month period, and not always at the beginning of it, so we do not consider this in the post job loss calculation.

earnings are still \$1,181 lower than pre-job loss at the end of our sample period, 2 years after job loss. There are no downward pre-trends in earnings before job loss—if anything earnings were slightly increasing before job loss but the magnitudes of these changes are very small relative to the changes we see after job loss. This supports our identifying assumption of job loss timing being unrelated to trends in income.

4.2 Job Loss and the Safety Net

Next, we explore how the receipt of safety net programs responds to job loss using the same event study model. Figure (3) panels (a) and (c) report the results. For ease of presentation, we show only the coefficients, but all these coefficients and their associated standard errors are reported in Appendix Table (A2). Note, we scale all the dummy variables by 100, so the vertical axis measures the percentage point change. In Panel (a), it is clear that the program with the largest increase in receipt relative to pre-job loss is UI. There is a statistically significant 45 percentage point increase in the months following the job loss (see column (1) of Appendix Table (A2)). UI receipt is time-limited, so we also observe a sharp decline in receipt of UI as we move away from the job loss, but there is still a significant increase in UI receipt of 7 percentage points 2 years after the initial job loss. The longest potential duration of UI receipt in our sample period was 99 weeks during the Great Recession; the fact that individuals are still receiving UI after this point is likely due to the fact that job losers often suffer multiple job losses (Stevens, 1997).¹⁹

In Panel (c) we re-scale the vertical axis after dropping UI to better examine the effects on other programs. There are statistically significant increases of 2-3 percentage points in SNAP and FRPL receipt following job loss (see columns (2) and (6) of Appendix Table (A2)). Compared to the pre-job loss mean receipt these effects are large—42% and 15%—but this is because receipt of these benefits was low before job loss. We see suggestive evidence of increases in TANF, SS, SSI, WIC, and Energy benefits, but these effects are even smaller and generally not significant (see Appendix Table (A2)). Interestingly, participation in SNAP and FRPL remain significantly higher than pre-job loss for at least two years after the job loss. This could be due to: 1) the persistent earnings decline after job loss, which allows individuals to remain eligible for these programs; 2) these programs dis-incentivizing work after job loss; 3) or job loss leading to receipt of programs that families had already qualified for but had not made use of. In what follows, we explore whether there are meaningful

¹⁹A worker could lose a job again within two years of the first job loss and re-qualify for UI because the vast majority of states require 20 weeks of work, plus meeting minimum earnings requirements. Information from: <https://oui.dol.eta.gov/unemploy/content/sigpros/2000-2009/January2008.pdf>.

increases in the benefits received from these programs, regardless of whether receipt of these programs changed.²⁰

Given that under-reporting is a potential concern, we adjust for under-reporting in panels (b) and (d). Mechanically, this means dividing the program participation and benefit amount variables by the estimated rates of under-reporting and using these scaled variables as the outcome variables in our models. These rates come from Meyer et al. (2015), are specific to the SIPP, and are available for each survey year in our sample.²¹ The qualitative take away of results is unchanged. The only magnitude that does meaningfully change is the percentage point change in UI receipt; after adjusting for under-reporting this is roughly 75 percentage points (instead of 45 without adjusting).

We next estimate the extent to which these programs make up for the lost earnings in Figure (4) and Appendix Table (A1). Means-tested programs are available for low-income people *before* job loss, but often the program's benefit structure is such that the benefit amount increases as income decreases, so the dollar value of benefits for those already enrolled may increase with job loss. The black dots replicate the estimates on earnings from Figure (2), and the blue dots indicate the effect of job loss on earnings plus UI income. The other colored marks show the effect on income sequentially adding in other safety net program income that could act as a replacement for lost income (all measures are inclusive of zeros). From this figure it is clear that UI is the most important program for job losers, not only in terms of receipt, as seen above, but in terms of the dollar value of income received. It is the only program that meaningfully makes up for the lost income following the job loss in the full sample, despite the large percentage increases in receipt of other programs.

On average, UI provides \$510 in benefits in the months immediately following job loss.²² In comparison, SNAP, which is the second largest program in terms of transfer dollars 2-3 months following job loss, provides only \$14 in monthly benefits on average. Again, we explore how these results differ when we adjust for under-reporting in Figure (5). As with receipt, the pattern is the same and the only estimates that meaningfully change in

²⁰In Appendix Table (A2) we do see a few significant coefficients before job loss for a few programs. This includes an increase in UI receipt 1-2 months before job loss. However, in all cases there is no clear pre-trend and there is a clear break in trend in participation around the time of job loss in these programs. So, we do not view the results after job loss as being driven by a pre-trend. It is likely that there is some measurement error in reported time of layoff in the survey data that could explain these small irregularities.

²¹When available, we scale separately by the participation under-reporting rate for our receipt variables and by the dollars received under-reporting rate for dollars transferred variables shown below. Otherwise, we scale by the participation under-reporting only. We do not have rates of under-reporting for energy benefits, so we drop that outcome from this set of results.

²²For this calculation, we subtract the estimated effect on earnings from the estimated effect on earnings plus UI income for the 6 months following job loss in Appendix Table (A1).

magnitude are the dollar value of UI benefits.

To understand how much of the difference in benefits transferred across programs is due to differences in benefit generosity, we tabulate the mean monthly benefit amount received after job loss for each program, *conditioning on program participation* in Figure (6). For participants, UI is the most generous program in terms of average monthly benefit paid. SS and SSI benefits are the second most generous after UI (but are much more restrictive in terms of who qualifies, especially in our age range 24-55 at the time of job loss). Finally, the means-tested programs (SNAP, TANF, FRPL, WIC, and energy assistance) provide relatively small benefit amounts to participants compared to other programs.

Taken together, transfer dollars from all of these programs make up on 23% of the lost earnings for the full sample (41% after adjusting for under-reporting). To put these effects into context, we note that, even after adjusting for under-reporting, the replacement rate from all these programs combined is lower than the statutory UI replacement rate of around 50%, which economists have said is already too low (Von Wachter, 2019).

It is possible that private sources of insurance make up for the remaining loss in income. For example, if friends or relatives provide support following a job loss, then job losers could be fully insured once these other sources are accounted for. A related possibility is that these public safety net programs crowd-out these sources of private insurance(Cullen and Gruber, 2000; Engen and Gruber, 2001).²³ To understand these possibilities we can learn from how consumption changes following a job loss. The literature has found a drop in consumption of 6-10%, with slightly larger losses for more disadvantaged workers (East and Kuka, 2015; Hendren, 2017; Ganong and Noel, 2019). Importantly, this drop is observed for necessities such as food. Thus, even accounting for all potential sources of insurance, including the ones we examine here, and any potential crowd-out, the average job loser is not fully insured.

We test the robustness of these results to changes to the sample definitions: changing the job tenure restriction to be 6 months or 18 months instead of 1 year; or requiring the sample to be balanced. These checks, shown in Appendix Figures (A3)-(A5), confirm that our findings are not sensitive to any of these sample definition choices.

4.2.1 By Pre-Job Loss Household Poverty Ratio

Because eligibility for many safety net programs is conditional on income tests (means-tested), we examine heterogeneous effects by the pre-job loss household poverty ratio mea-

²³Studying crowd-out directly is outside the scope of this paper.

sured in the first survey month. To easily compare the effects across income groups, we estimate a difference in difference equivalent of the event study model.²⁴ Specifically, we replace the event time dummies with one post-job loss dummy, and we plot the coefficient on this dummy by pre-job loss household poverty ratio bins. Bins go from 0-99% up to 800+% of the poverty line. The outcomes are the dollar value of safety net benefits received by each program.

Figure (7) demonstrates that the value of the safety net for job losers varies greatly by income, shown in the bars with each program represented by a different color. Households with income below poverty before job loss receive less than half of the transfer dollars than households with incomes between 400-699% of the poverty line (\$316 compared to \$672-787). And, as we saw before, UI makes up the vast majority of transfer dollars to displaced workers. This is true even for workers below poverty, who are likely eligible for many means-tested programs.

We next tabulate the estimated change in total transfer dollars *as a percent of the estimated loss in earnings following job loss*, by pre-job loss household poverty ratio. This is a more standard measure of regressivity. The gray line in Figure (7) plots this replacement rate.²⁵ This pattern follows an inverse “U” shape across the income distribution, and by this measure the safety net is still regressive at the bottom of the income distribution. Workers below poverty pre-job loss receive replacement rates of 20%. In contrast, for workers in households at a poverty ratio between 100-399%, the replacement rate is 27-31%, on average. For workers above 400% of the poverty line, the replacement rate begins to decline, likely due to the caps on UI benefit amounts.²⁶

We also adjust these results for under-reporting as before in Figure (8). Again the pattern is the same. The estimated rates of under-reporting we use here do not vary by household income, so we are assuming the same rates of under-reporting across the income distribution. However, in recent work, Meyer et al. (2020) find no significant relationship between a household’s income to poverty ratio and the likelihood they incorrectly report not

²⁴Note that because our sample is unbalanced, more weight is put towards observations directly around the time of job loss. However, the baseline results are very similar to results on the balanced sample, as discussed above.

²⁵To calculate the replacement rate, we sum the estimated dollars received across all programs in Figure (7) by household poverty ratio group to form the numerator. For the denominator, we estimate a difference in difference model by household poverty ratio group with earnings as the outcome variable, and use the coefficient on this post period dummy.

²⁶We also explore whether this same pattern holds when we split the sample by individuals’ pre-job loss earnings quintile in the first survey month in Appendix Figure (A7). The same overall pattern is seen: more dollars in aid go to higher earner quintiles and the replacement rate as a function of pre-job loss earnings is U-shaped.

receiving SNAP benefits in the SIPP. Additionally, past work has shown that if anything, lower income households are *more* likely to accurately report Medicaid benefit receipt (Card et al., 2004), which would exaggerate the regressive pattern in safety net receipt we see here. This suggests that assuming the same rates of under-reporting by household income is a reasonable assumption.

To shed further light on why UI may be less protective at the bottom of the income distribution, we tabulate UI eligibility rates based on observed income history and self-employment status by pre-job loss poverty. Recall that UI eligibility is conditional on meeting minimum work history and prior earnings requirements, and, in our time period, self-employed individuals were not covered by UI. These results are shown in Appendix Figure (A6). In the blue bars we calculate eligibility based only on income history observed in the SIPP. In the red bars, we examine how much the self-employment exclusion matters by plotting the percent eligible based on income history while assuming those who report self-employment income are not eligible for UI.²⁷ Not all workers in our sample are eligible for or receive UI (an important distinction between our analysis and that of Rothstein and Valletta (2017)); the average eligibility rate based on income only is 88% and the average excluding those with self-employment income is 82%. And, as expected, workers at the bottom of the income distribution (below the poverty line pre-job loss) are roughly 9-10 percentage points less likely to be covered by UI based on income than those with income 100-199% of the poverty line (blue and red bars, respectively). For incomes above 200% of the poverty line, rates of eligibility are fairly stable across the income distribution.

4.2.2 Robustness

To further investigate the robustness of our results, we add in a control group and account for potential bias in two-way fixed effects models by omitted the fixed effects.

In Appendix Figures (D1), (D2), (D3) and (D4), we show results that correspond to Figures (2), (3), (4) and (7), but include a control group of workers who did not lose their jobs. Specifically, we estimate a version of equation (1) where the event time dummies are all zero for the control group. This effectively puts the control group with the “excluded” period of 3-4 months before job loss. The control also helps us to identify the calendar time and age controls. The pattern of results with the added control group are nearly identical. See Appendix D for more details on the control group definition and method.

A new and rapidly growing literature has raised concerns about two-way fixed effects

²⁷Information on income eligibility is from the UI benefit and eligibility calculator in Kuka (2020).

models in the context of differential treatment timing (e.g. Goodman-Bacon (2021); Callaway and Sant'Anna (2021)). We re-estimate our model omitting individual fixed effects and age fixed effects and instead we control for age and time linearly (see Appendix Figure (A8)). Reassuringly, the results are nearly identical to our baseline results, indicating that heterogeneous treatment effects are likely not biasing our results.

4.2.3 Heterogeneity by UI Receipt

Prior work has studied the responsiveness of the safety net to job loss and UI benefit exhaustion *among job losers who received UI* (Rothstein and Valletta, 2017). We find that UI is the most responsive program, however not all job losers receive UI, so studying the response for all job losers is valuable. To further emphasize this point, we show summary statistics of job losers split by UI receipt in Appendix Table (A3). UI recipients have pre-job loss earnings about \$400 higher than non-recipients. UI recipients are about half as likely to have household income below the poverty line pre-job loss as non-recipients. In Figure (9), we show the dollar values transferred and the replacement rate splitting the sample by UI receipt. It is striking, but perhaps unsurprising given our prior findings, that the replacement rate for UI recipients is roughly 30%, whereas the replacement rate for non-recipients is close to 0%. Thus, there is no meaningful safety net for displaced workers who do not receive UI. These results highlight the value of considering all job losers to fully understand the responsiveness of the safety net to job loss.

4.2.4 Heterogeneity by Presence of Children

Children are an important factor in determining receipt and benefit amounts for some safety net programs. In most states UI benefit amounts are larger for workers with children, and TANF, FRPL and WIC are only available to those with children. Likewise, SNAP eligibility is unconditional on work for individuals with children. Appendix Figure (A9) shows that (as expected) FRPL benefits are concentrated among workers with kids, as are SNAP benefits, however the total value of safety net transfers are actually somewhat larger for workers without children due to larger UI benefits. There is minimal difference in the replacement rate between workers with and without children (again shown as the line in gray). This suggests that, per person, transfers are much lower in households with children than in those without.

4.2.5 Heterogeneity by Economic Conditions

Finally, we examine if the effects are different for individuals who are displaced during a recession or not in Appendix Figure (A10). We define recessions using the NBER business cycle dates.²⁸. In our sample, recessions include the Great Recession and the 2001 Dot Com recession. Interestingly, the dollar value transferred is slightly lower for those displaced in recessions, but the replacement rate is higher for those displaced in recessions, suggesting that the average wages of these workers displaced in recessions is lower.

4.3 Other Safety Net Programs

We look at two additional safety net programs that by their nature do not fit naturally into the analysis above: the Earned Income Tax Credit (EITC) and public health insurance.

4.3.1 The Earned Income Tax Credit

The EITC is one of the largest transfer programs for low-income individuals who work. However, unlike other programs, the EITC is not reported monthly in the SIPP. The EITC is typically received as a lump sum payment as a part of a families' tax return once a year. This not only complicates measurement of program receipt, but may also limit its ability to buffer lost income in the short term. Additionally, it is ambiguous whether the EITC will increase or decrease post job loss since the EITC is a non-linear function of earned income (Bitler et al., 2017b). Using the SIPP to simulate changes to annual EITC receipt, we find that there is very little response of the EITC to job loss. For the full sample, the EITC only increases by approximately \$41 *annually* post-job loss. We discuss our methodology and show our results in detail in Appendix C.

4.3.2 Public Health Insurance

We consider another major facet of the safety net: public health insurance. Unlike near-cash transfers, such as SNAP, health insurance is more difficult to monetize. Insurance is not only valued in terms of the amount spent on premiums, but also in the protection against risky events that it provides. Therefore, we look at insurance separately from these other programs. Earlier work has examined how job losers' health insurance and that of their children changes around job loss, finding that declines in employer-provided private health insurance are at least partially offset by increases in public health insurance (Schaller and Stevens, 2015; Schaller and Zerpa, 2019). We build on this by looking at the impacts across

²⁸<https://www.nber.org/research/business-cycle-dating>

all members of the household (rather than just the job loser or their children) and looking at heterogeneity by pre-job loss household poverty ratio.

Figure (10) shows changes in health insurance by type, plotting the likelihood of having any insurance, public insurance, or private insurance. Panel (a) focuses on job losers own coverage and in the first 6 months after job loss there is a significant 18 percentage point decline in private insurance coverage after job loss. This is modestly offset by a significant 2 percentage point increase in public insurance. (These coefficients and standard errors are reported in Appendix Table (A4).) The impacts of insurance loss on job losers are slightly larger than those found in Schaller and Stevens (2015). Panel (b) shows a similar pattern for the likelihood that *any adult* in the household (including the job loser) is covered by insurance. The decline in the likelihood that *any adult* is covered by private insurance is smaller than for the job loser, though is offset similarly by public insurance. It is also striking how persistent these effects are; one and a half years after job loss the likelihood of not having any insurance for at least one adult in the household is still 3 percentage points lower (and 9 percentage points lower for the job loser).

Finally, Panel (c) looks at health insurance of *any child* in the household. In the first 6 months after job loss, private insurance coverage decreases by 9 percentage points. The mediating effect of public insurance in offsetting declines in private insurance is larger for children than adults; there is a 7 percentage point increase in public health insurance. Within six months after the job loss, overall insurance coverage for children has returned to the baseline levels. The difference from the results on adults is likely due to income eligibility thresholds being on average much higher for children than adults.²⁹ We have also run these models on indicators for no child/adult in the household having any insurance or public/private insurance and we find that the results follow a similar pattern.

Figure (11) considers the patterns across pre-job loss household poverty. Panel (a) shows results for any adult and Panel (b) for any child, where both panels plot the coefficients from difference in differences models on an indicator for having private insurance (in red) and for having public insurance (in blue). The results reveal that public insurance is more progressive than the cash and near-cash safety net. Focusing first on adults, households in poverty experience smaller declines in private insurance and larger increases in public insurance than those in higher parts of the income distribution. The relatively small decline in private insurance may be due to lack of private coverage even while working. Adults

²⁹Insurance coverage is actually larger for children over a year post-job loss than it was pre-job loss, potentially reflecting that job loss encourages receipt of public insurance for families who qualified pre-job loss. However, the standard errors are large on these coefficients (see Appendix Table (A4)).

in households with the highest incomes have the smallest declines in private insurance and little to no increase in public insurance.³⁰ Overall, these results suggest that middle income households are the ones most vulnerable to losing adult health insurance coverage following a job loss with a net decrease (the difference between the blue and red bars) of above 15 percentage points for any adult having insurance in households at 200-299% of the poverty level (versus a slightly more than 5 percentage point net decline in any adult with coverage for families with pre-job loss earnings below the poverty line).³¹

For children, the pattern by household income is similar, though public insurance is both more generous and somewhat less progressive. In households below the poverty line, children's loss in private insurance is on average completely offset by public insurance. The increase in public insurance for children with pre-job loss household incomes of 100-499% of the poverty line is similar in magnitude to children in households below poverty. However, there are larger declines in private insurance for children in these households as well.

4.4 Total Household Resources

Finally, we look at the impact of job loss on several measures of household resources to get a sense of overall well-being following a job loss. We follow Bitler et al. (2017a) and create three measures of household resources. First, we divide total household earned income by the household-specific poverty threshold. Second, we divide total household cash income by the poverty threshold (the standard measure of income used for calculating the poverty rate). This second measure includes cash transfers from UI, TANF, SS, SSI, and severance pay, as well as cash income from other sources. Our third measure adds the cash value of the near-cash safety net programs we measure: SNAP, FRPL, WIC, and energy assistance. The differences between the poverty measures will inform us about how much the cash and near-cash programs help individuals stay out of poverty after a job loss.

Figure (12) displays the results for these three poverty measures, also shown in Appendix Table (A5). Looking only at earned income (Panel (a)), there is an immediate increase in the likelihood of being below 100% and 200% of the poverty line by about 30 percentage points after job loss. This decreases over time, but even two years after the job loss, the likelihood is roughly 10 percentage points higher than pre-job loss. The likelihood of being below 400% of the poverty line based only on earned income follows a similar pattern,

³⁰For adults and children at the top of the income distribution, there are some small declines in public insurance, but these are not statistically significant (results available upon request).

³¹Recall that because our sample is unbalanced, more weight is put towards observations right around the job loss, so these difference in difference estimates look more like the estimates in the first few months after job loss, rather than two years after job loss.

though with smaller effect sizes. Turning to the second measure of poverty in Panel (b), it is clear that the effects on poverty are smaller once we take into account cash transfers. The increase in the likelihood of being below 100% and 400% of poverty are similar, around 15 percentage points following job loss. Interestingly, the increase in the likelihood of being below 200% of poverty is larger than 100% and 400% of poverty, though the level increases are still smaller than when we looked at earnings only. This indicates that cash transfers—as we have shown, primarily UI—reduce the likelihood of falling below the poverty line. Instead, these programs move some of those households into slightly higher parts of the income distribution. Finally, adding in near-cash benefits in Panel (c), does not meaningfully change the effects relative to Panel (b), demonstrating that these programs (SNAP, FRPL, WIC, and energy assistance) are less important sources of income for the average displaced worker at risk of falling into poverty. Overall these results support some of our key findings: the cash safety net substantially reduces poverty following job loss, though poverty still substantially increases and near-cash transfers do little to mitigate this effect.

5 Conclusion

This paper uses an individual fixed effects model to investigate the role of the public safety net in mitigating lost income from no fault job loss. We look at the effects of job loss on receipt and benefit amount of a large number of public programs. We quantify which programs compensate the most for lost income, who benefits from these programs by pre-job loss characteristics, and the dynamics of when programs matter during the two-year period following displacement.

Our results demonstrate that Unemployment Insurance is by far the most responsive safety net program for displaced workers. Additionally, we show that UI, and by extension the safety net as a whole is less generous for those in poverty compared to those with income 100-599% of the poverty line pre-job loss. Public health insurance also plays an important role for low-income families, particularly for children.

These results are important to understanding optimal policy design to insure workers against the common phenomena of involuntary job loss; though an important caveat is that we do not observe all potential sources of insurance for families. With this in mind, the lower amounts of insurance following job loss for poor households is a key finding. This suggests that expanding the generosity of SNAP and FRPL could improve their ability to buffer household income against earnings loss. Alternatively, targeting UI to provide more transfers to those who work in lower wage jobs could also make the system more progressive.

Our findings are particularly relevant in light of the COVID-19 recession and the associated rescue plans. During the COVID-19 pandemic, lawmakers passed several relief laws that expanded UI, SNAP, and FRPL. While not included in our analysis, the expansions to UI counteracted some of the regressivity we documented here, by increasing benefits by a flat amount for everyone, and by extending eligibility to groups that previously were not covered by UI (e.g. self-employed and gig workers) (Bitler et al., 2020; Ganong et al., 2020). Our work shows that many workers and their families, particularly the neediest, would likely have experienced larger increases in material hardship if the federal government had not passed these relief packages.

References

- Bartash, Jeffry**, “The U.S. has only regained 42% of the 22 million jobs lost in the pandemic. Here’s where they are,” 2020.
- Bitler, Marianne and Hilary Hoynes**, “The more things change, the more they stay the same? The safety net and poverty in the Great Recession,” *Journal of Labor Economics*, 2016, 34 (S1), S403–S444.
- , — , and **Elira Kuka**, “Child poverty, the great recession, and the social safety net in the United States,” *Journal of Policy Analysis and Management*, 2017, 36 (2), 358–389.
- , — , and — , “Do in-work tax credits serve as a safety net?,” *Journal of Human Resources*, 2017, 52 (2), 319–350.
- Bitler, Marianne P, Hilary W Hoynes, and Diane Whitmore Schanzenbach**, “The social safety net in the wake of COVID-19,” *Brookings Papers on Economic Activity*, 2020, 2020 (Special Edition), 119–158.
- Buchmueller, Thomas, John C Ham, and Lara D Shore-Sheppard**, “The Medicaid Program,” Working Paper 21425, National Bureau of Economic Research July 2015.
- Callaway, Brantly and Pedro HC Sant’Anna**, “Difference-in-differences with multiple time periods,” *Journal of Econometrics*, 2021, 225 (2), 200–230.
- Campbell, Alexia Fernández**, “American layoffs and firings are at a 20-year low,” 2019.
- Card, David, Andrew KG Hildreth, and Lara D Shore-Sheppard**, “The measurement of Medicaid coverage in the SIPP: Evidence from a comparison of matched records,” *Journal of Business & Economic Statistics*, 2004, 22 (4), 410–420.
- Chetty, Raj**, “Moral hazard versus liquidity and optimal unemployment insurance,” *Journal of political Economy*, 2008, 116 (2), 173–234.
- Couch, Kenneth A and Dana W Placzek**, “Earnings losses of displaced workers revisited,” *American Economic Review*, 2010, 100 (1), 572–89.
- Cullen, Julie Berry and Jonathan Gruber**, “Does unemployment insurance crowd out spousal labor supply?,” *Journal of labor Economics*, 2000, 18 (3), 546–572.
Disability Benefits — How You Qualify
- Disability Benefits — How You Qualify*, Social Security Administration.
- Duggan, Mark, Melissa S Kearney, and Stephanie Rennane**, “*The Supplemental Security Income Program*,” in “*Economics of Means-Tested Transfer Programs in the United States, Volume 2*,” University of Chicago Press, 2015, pp. 1–58.
- East, Chloe and David Simon**, “How Well Insured are Job Losers? The Efficacy of the Public Safety Net,” Working Paper 28218, National Bureau of Economic Research December 2020.
- East, Chloe N and Elira Kuka**, “Reexamining the consumption smoothing benefits of Unemployment Insurance,” *Journal of Public Economics*, 2015, 132, 32–50.
- Engen, Eric M and Jonathan Gruber**, “Unemployment insurance and precautionary saving,” *Journal of monetary Economics*, 2001, 47 (3), 545–579.

Farber, Henry S and Robert G Valletta, “Do extended unemployment benefits lengthen unemployment spells? Evidence from recent cycles in the US labor market,” *Journal of Human Resources*, 2015, 50 (4), 873–909.

Feenberg, Daniel and Elizabeth Coutts, “An Introduction to the Taxsim Model,” *Journal of Policy Analysis and Management*, 1993, 12, 189–194.

Ganong, Peter and Pascal Noel, “Consumer spending during unemployment: Positive and normative implications,” *American Economic Review*, 2019, 109 (7), 2383–2424.

— , **Pascal J Noel, and Joseph S Vavra**, “US Unemployment Insurance Replacement Rates During the Pandemic,” *Technical Report, National Bureau of Economic Research* 2020.

Goodman-Bacon, Andrew, “Difference-in-differences with variation in treatment timing,” *Technical Report* 2021.

Hendren, Nathaniel, “Knowledge of future job loss and implications for unemployment insurance,” *American Economic Review*, 2017, 107 (7), 1778–1823.

Hershbein, Brad J, “Place-Based Consequences of Person-Based Transfers,” *Employment Research Newsletter*, 2021, 28 (4), 1.

Hoynes, Hilary and Diane Whitmore Schanzenbach, “US food and nutrition programs,” in “Economics of Means-Tested Transfer Programs in the United States, Volume 1,” *University of Chicago Press*, 2015, pp. 219–301.

If You Are The Survivor

If You Are The Survivor, Social Security Administration.

Jacobson, Louis S, Robert J LaLonde, and Daniel G Sullivan, “Earnings losses of displaced workers,” *The American Economic Review*, 1993, pp. 685–709.

Krolkowski, Paweł, “Choosing a Control Group for Displaced Workers,” *Industrial and Labor Relations Review*, 2018, 71 (5), 1232–1254.

Kuka, Elira, “Quantifying the benefits of social insurance: unemployment insurance and health,” *Review of Economics and Statistics*, 2020, 102 (3), 490–505.

Leung, Pauline and Christopher O’Leary, “Unemployment Insurance and Means-Tested Program Interactions: Evidence from Administrative Data,” *American Economic Journal: Economic Policy*, 2020, 12 (2), 159–92.

Lindo, Jason M, Krishna Regmi, and Isaac D Swensen, “Stable Income, Stable Family,” 2020.

Meyer, Bruce D, Nikolas Mittag, and Robert M George, “Errors in survey reporting and imputation and their effects on estimates of food stamp program participation,” *Journal of Human Resources*, 2020, pp. 0818–9704R2.

— , **Wallace KC Mok, and James X Sullivan**, “The Under-Reporting of Transfers in Household Surveys: Its Nature and Consequences,” 2015.

Oreopoulos, Philip, Marianne Page, and Ann Huff Stevens, “The intergenerational effects of worker displacement,” *Journal of Labor Economics*, 2008, 26 (3), 455–483.

Palmer, Anna and Jake Sherman, “POLITICO Playbook: NEW: Pelosi leaves the Covid relief blame on Trump’s doorstep,” 2020.

Rege, Mari, Kjetil Telle, and Mark Votruba, “Parental job loss and children’s school performance,” *The Review of Economic Studies*, 2011, 78 (4), 1462–1489.

Rothstein, Jesse, “Unemployment insurance and job search in the Great Recession,” Technical Report, National Bureau of Economic Research 2011.

— and **Robert G Valletta**, “Scraping by: Income and program participation after the loss of extended unemployment benefits,” *Journal of Policy Analysis and Management*, 2017, 36 (4), 880–908.

Schaller, Jessamyn and Ann Huff Stevens, “Short-run effects of job loss on health conditions, health insurance, and health care utilization,” *Journal of health economics*, 2015, 43, 190–203.

— and **Mariana Zerpa**, “Short-run effects of parental job loss on child health,” *American Journal of Health Economics*, 2019, 5 (1), 8–41.

Snell, Kelsey, “What’s Inside The Senate’s \$2 Trillion Coronavirus Aid Package,” 2020.

Stevens, Ann Huff, “Persistent effects of job displacement: The importance of multiple job losses,” *Journal of Labor Economics*, 1997, 15 (1, Part 1), 165–188.

Sullivan, Daniel and Till Von Wachter, “Job displacement and mortality: An analysis using administrative data,” *The Quarterly Journal of Economics*, 2009, 124 (3), 1265–1306.

Wachter, Till Von, “Unemployment insurance reform,” *The ANNALS of the American Academy of Political and Social Science*, 2019, 686 (1), 121–146.

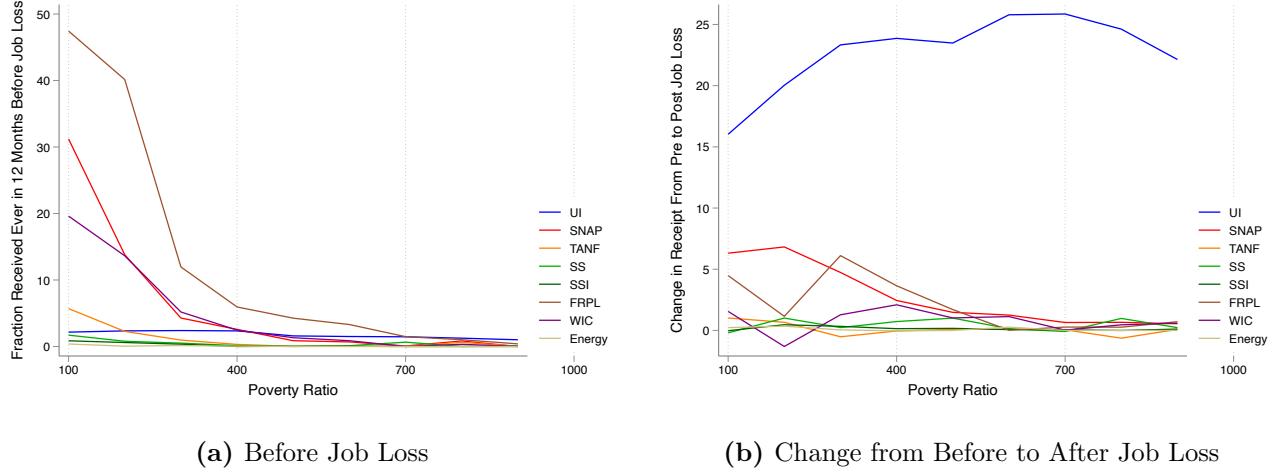
What You Should Know Before You Apply for Social Security Disability Benefits

What You Should Know Before You Apply for Social Security Disability Benefits, Social Security Administration.

Whittaker, Julie and Katelin Isaacs, “*Unemployment Insurance: Programs and Benefits*,” Congressional Research Service, 2019.

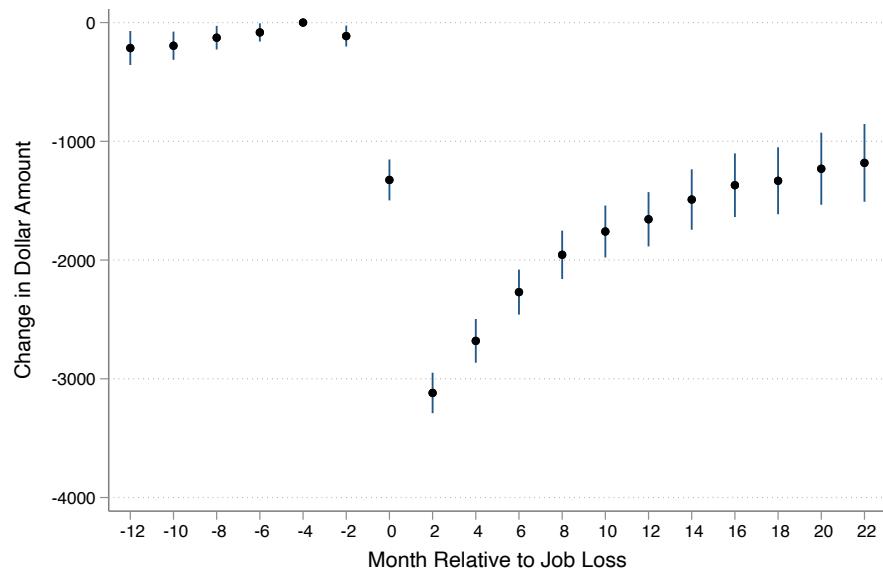
6 Figures

Figure 1: Receipt of Safety Net Programs by Pre-Job Loss Household Poverty



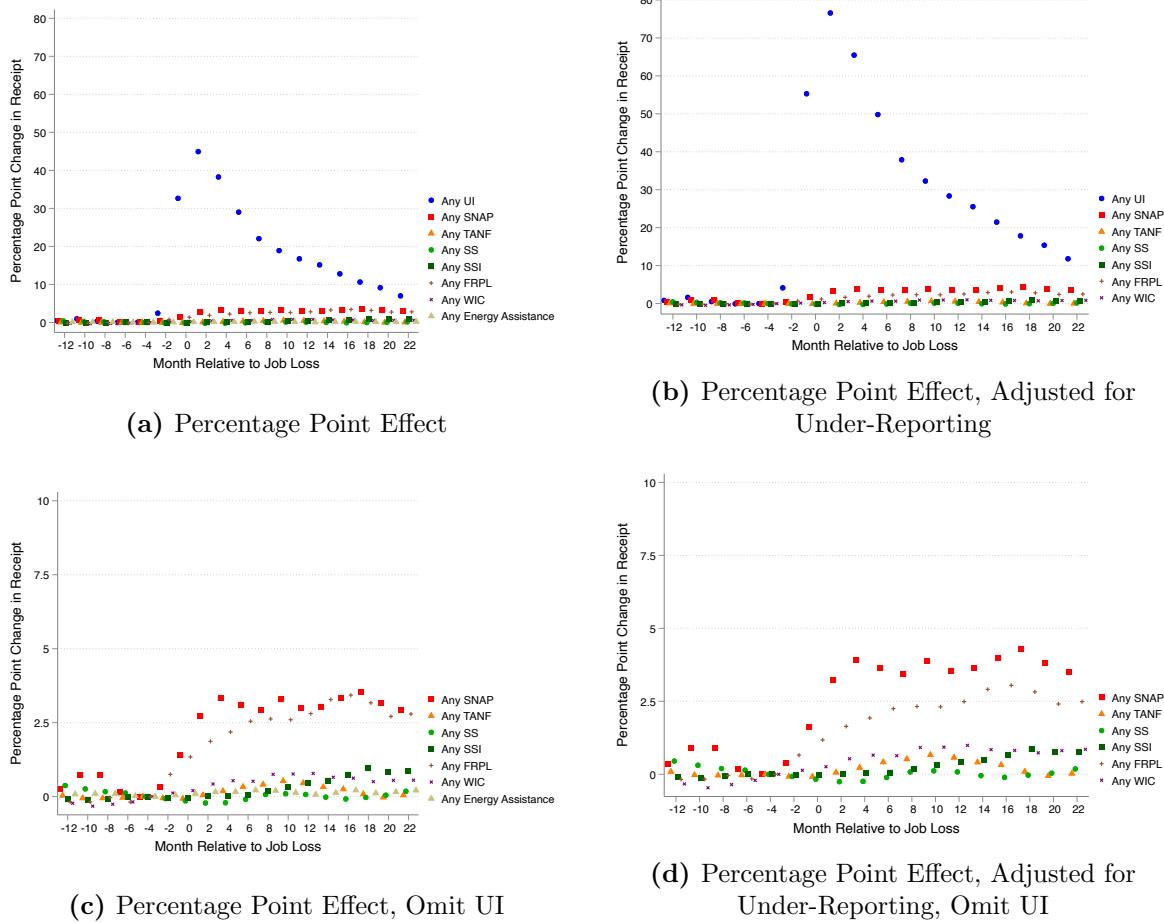
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The results are weighted using the individual survey weight in the month of job loss. The data is collapsed into bins based on the ratio of total household cash income to the household poverty threshold in the first survey month. The bins are below 100% (marked as 100 on the horizontal axis), 100-199% (marked as 200), 200-299% (marked at 300), and so on, up to the highest bin of above 800% of the poverty line (marked as 900). The Census poverty line threshold is assigned to each household in the SIPP based on household size and composition (number of adults and children). Panel (a) plots the likelihood of displaced workers receiving each program in the year prior to job loss. Panel (b) plots the change in the likelihood of receiving each program in the two years after job loss compared to the year prior to job loss.

Figure 2: Event Study around Job Loss: Own Earnings



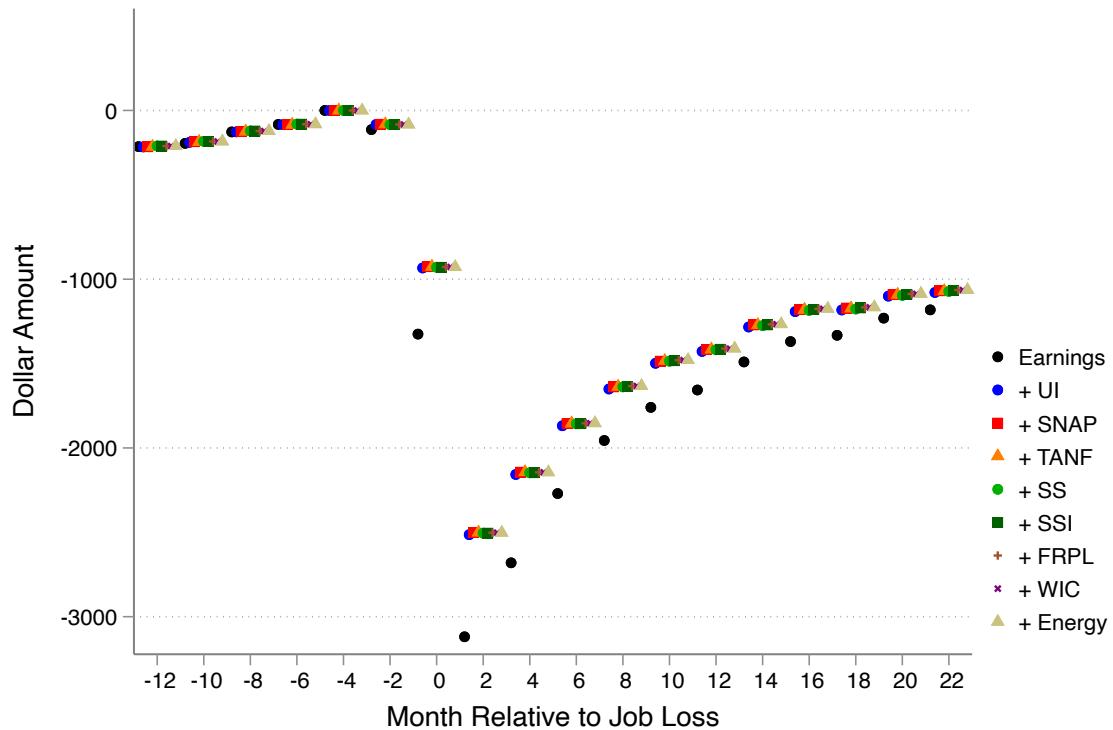
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The model includes event time dummies, individual fixed effects, age fixed effects, and a month-year linear time trend. The horizontal axis denotes months from job loss. The black dots represent the event study coefficients. The results are weighted using the individual survey weight in the month of job loss. Standard errors clustered at the individual level and the 95% confidence intervals are plotted in the vertical lines. The estimates are also reported in column (1) of Appendix Table (A1).

Figure 3: Event Study around Job Loss: Receipt of Safety Net Programs



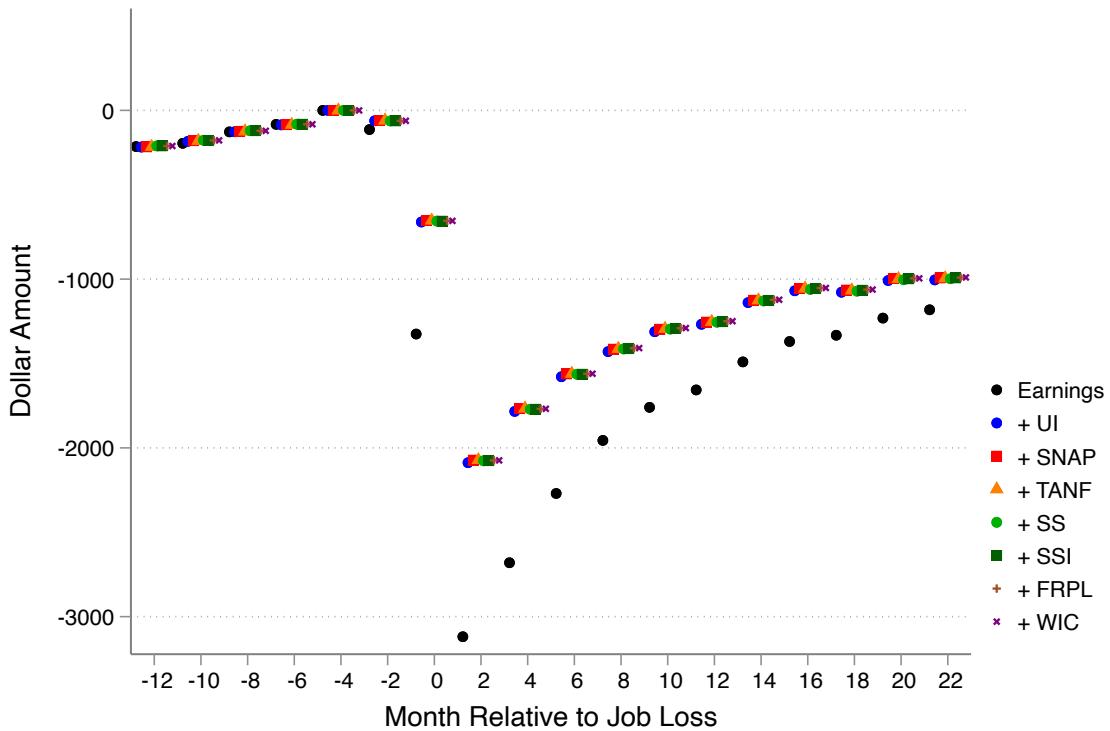
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The model includes event time dummies, individual fixed effects, age fixed effects, and a month-year linear time trend. The horizontal axis denotes months from job loss. The markers represent the event study coefficients. The results are weighted using the individual survey weight in the month of job loss. To adjust for under-reporting, we divide the outcome variables by the program and year specific rates of under-reporting in the SIPP from Meyer et al. (2015).

Figure 4: Event Study around Job Loss: Own Earnings and Dollar Value of Safety Net Programs



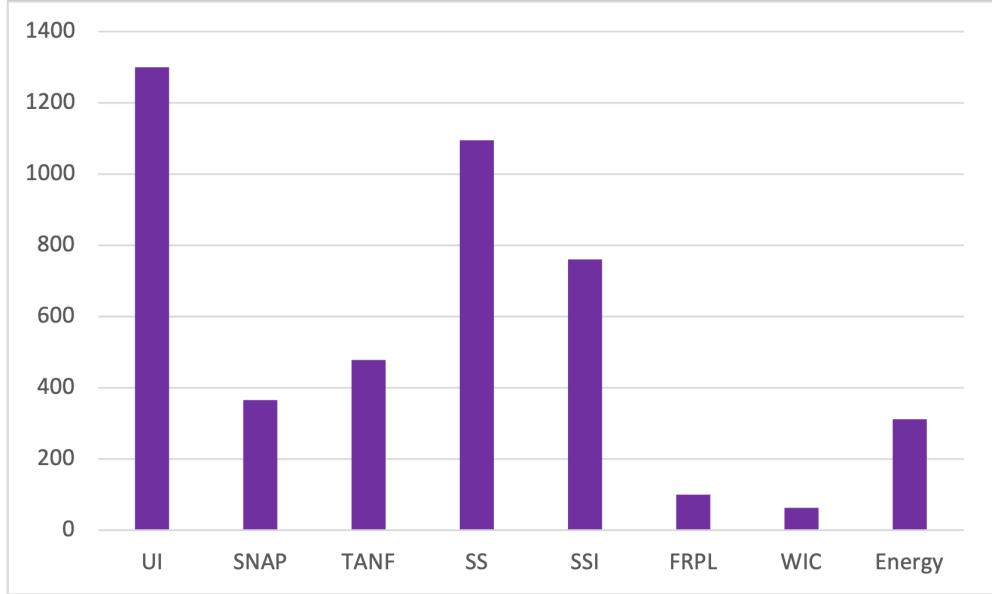
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The model includes event time dummies, individual fixed effects, age fixed effects, and a month-year linear time trend. The horizontal axis denotes months from job loss. The black dots replicate the estimates on earnings from Figure (2), and the blue dots indicate the effect of job loss on earnings plus UI income. The other colored marks show the effect on income sequentially adding in other safety net program income that could act as a replacement for lost income (all measures are inclusive of zeros). There is a set of marks for each event time period. The results are weighted using the individual survey weight in the month of job loss. The estimates and standard errors are also reported in Appendix Table (A1).

Figure 5: Event Study around Job Loss: Own Earnings and Value of Safety Net Programs, Adjusted for Under-Reporting



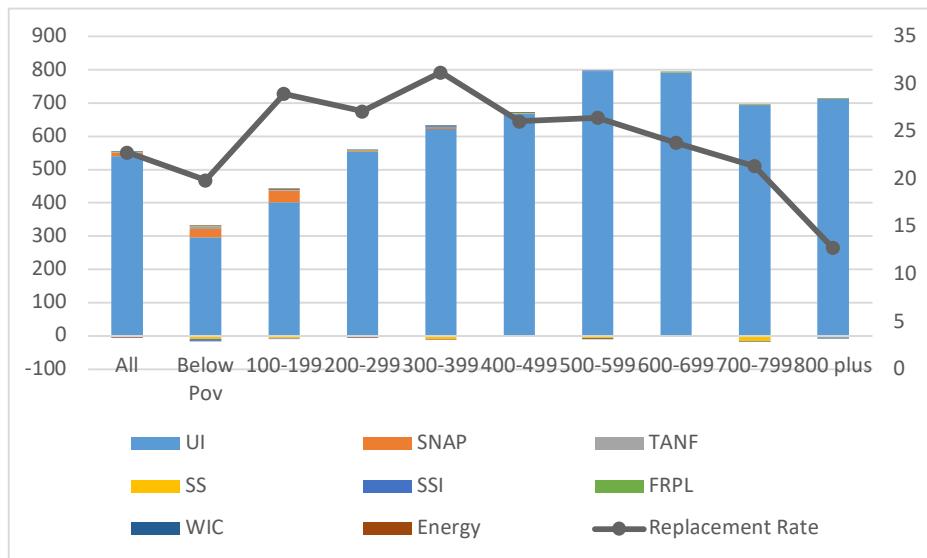
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The model includes event time dummies, individual fixed effects, age fixed effects, and a month-year linear time trend. The horizontal axis denotes months from job loss. The black dots show the estimates on earnings as in Figure (2), and the blue dots indicate the effect of job loss on earnings plus UI income. The other colored marks show the effect on income sequentially adding in other safety net program income that could act as a replacement for lost income (all measures are inclusive of zeros). There is a set of marks for each event time period. The results are weighted using the individual survey weight in the month of job loss. To adjust for under-reporting, we divide the program outcome variables by the program and year specific rates of under-reporting in the SIPP from Meyer et al. (2015).

Figure 6: Monthly Benefit Amount Received Among Participants by Program



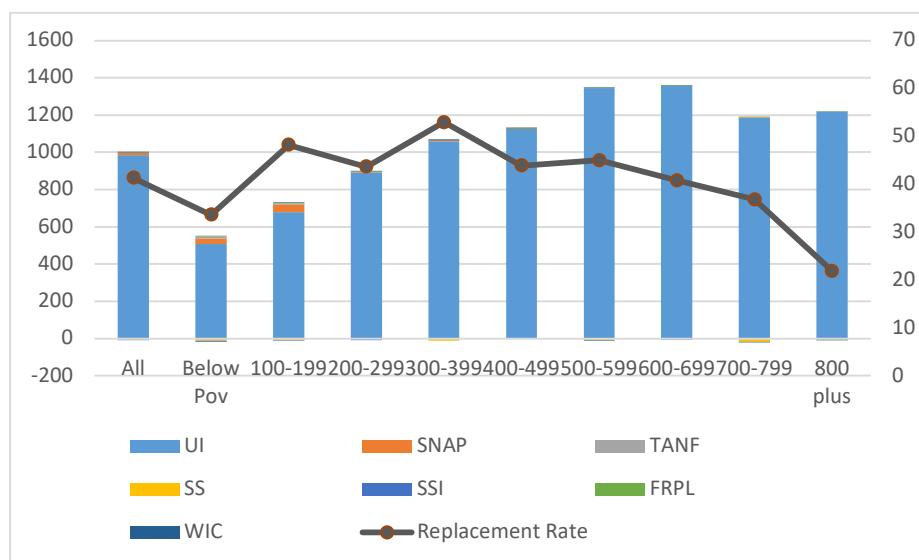
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. Only observations for those who participate in the given program after job loss are included to calculate the mean monthly benefit amount among participants. The results are weighted using the individual survey weight in the month of job loss.

Figure 7: Difference in Difference Estimates of Safety Net Program Value and Replacement Rate, by Pre-Job Loss Household Poverty Status



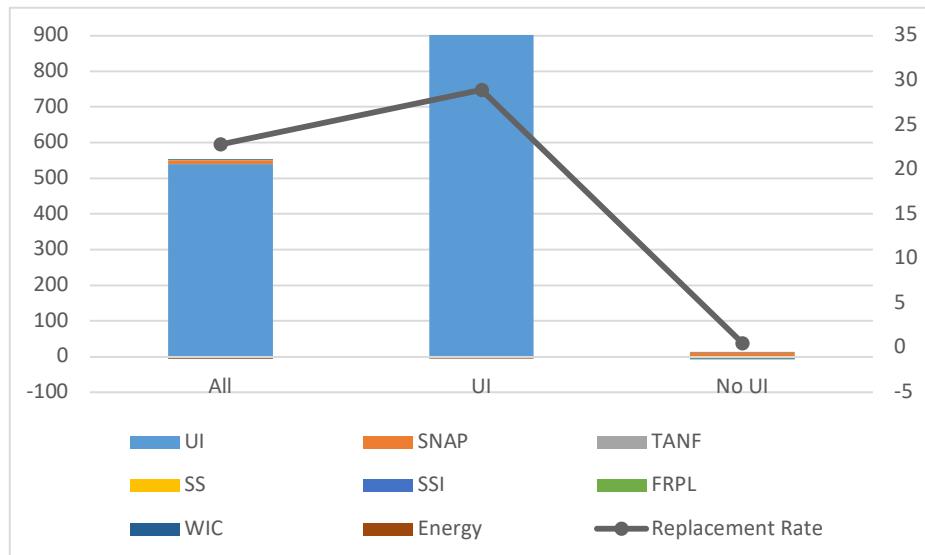
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The plotted estimates are from a difference in difference version of equation (1) with a post period dummy replacing the event time coefficients: $y_{it} = \alpha_i + \beta post_{it} + \gamma_1 X_{it} + \epsilon_{it}$. We estimate this model for the full sample and split by household poverty ratio in the first survey month. The estimates reported in the bars are the effect of job loss on the dollar value of the benefits received from each program, with values reported on the left vertical axis. To calculate the replacement rates (percent of lost income made up by safety net benefits) shown in the line we separately calculate and numerator and a denominator. We sum the estimated effect on each program shown in the bars for the numerator. For the denominator, we run regressions with earnings as the outcome variable and use the estimated coefficient on the "post" dummy for each sample. Values for the replacement rate are reported on the right vertical axis. The results are weighted using the individual survey weight in the month of job loss.

Figure 8: Difference in Difference Estimates of Safety Net Program Value and Replacement Rate by Pre-Job Loss Household Poverty Status, Adjusted for Under-Reporting



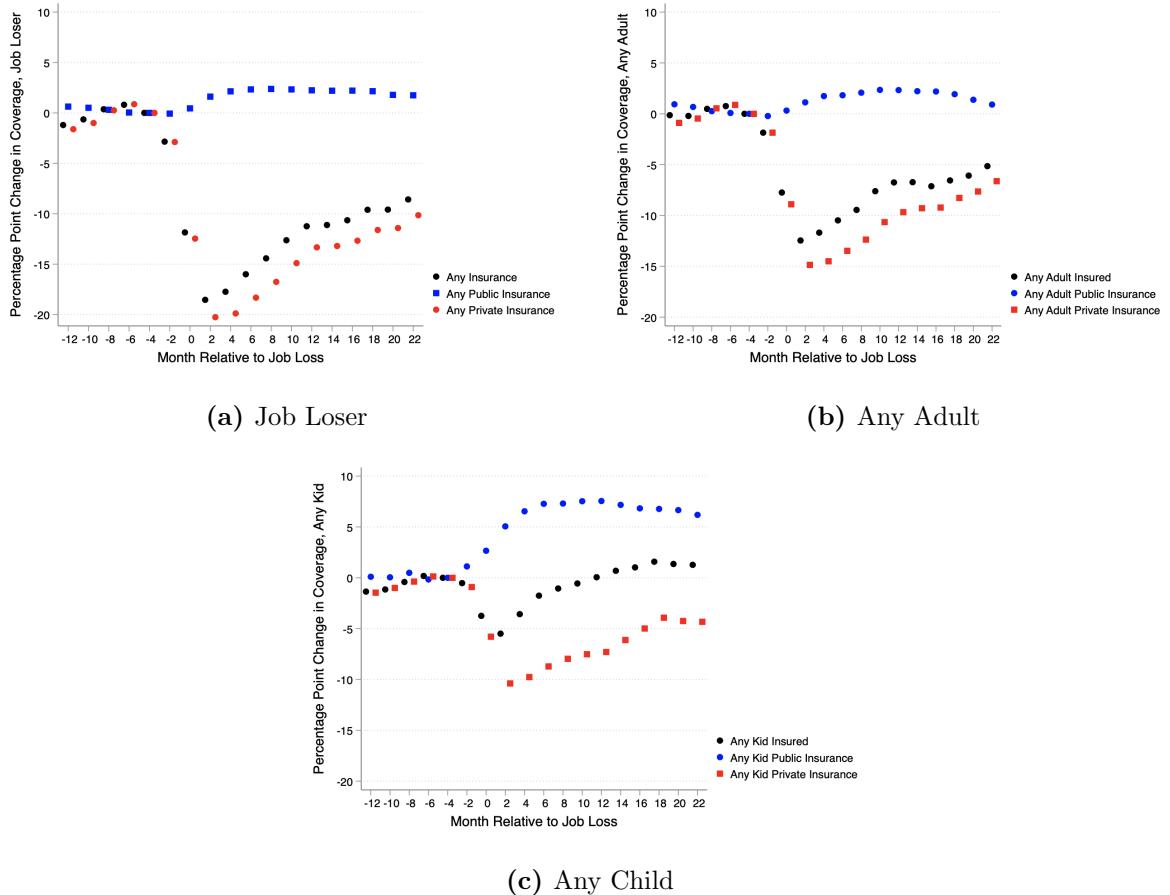
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The plotted estimates are from a difference in difference version of equation (1) with a post period dummy replacing the event time coefficients: $y_{it} = \alpha_i + \beta post_{it} + \gamma_1 X_{it} + \epsilon_{it}$. We estimate this model for the full sample, and split by pre-job loss household poverty status. The estimates reported in the bars are the effect of job loss on the dollar value of the benefits received from each program, with values reported on the left vertical axis. To calculate the replacement rates (percent of lost income made up by safety net benefits) shown in the line we separately calculate numerator and denominator. We sum the estimated effect on each program shown in the bars for the numerator. For the denominator, we run regressions with earnings as the outcome variable and use the estimated coefficient on the “post” dummy for each sample. Values for the replacement rate are reported on the right vertical axis. The results are weighted using the individual survey weight in the month of job loss. To adjust for under-reporting, we divide the program outcome variables by the program and year specific rates of under-reporting in the SIPP from Meyer et al. (2015).

Figure 9: Difference in Difference Estimates of Safety Net Program Value and Replacement Rate Split by UI Receipt



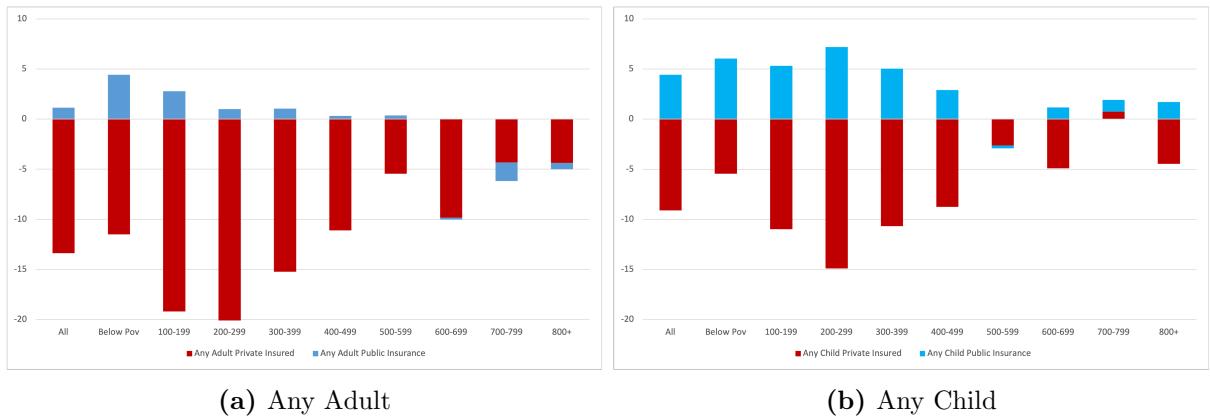
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The plotted estimates are from a difference in difference version of equation (1) with a post period dummy replacing the event time coefficients: $y_{it} = \alpha_i + \beta post_{it} + \gamma_1 X_{it} + \epsilon_{it}$. We estimate this model for the full sample and the presence of children. The estimates reported in the bars are the effect of job loss on the dollar value of the benefits received from each program, with values reported on the left vertical axis. To calculate the replacement rates (percent of lost income made up by safety net benefits) shown in the line we separately calculate and numerate and a denominator. We sum the estimated effect on each program shown in the bars for the numerator. For the denominator, we run regressions with earnings as the outcome variable and use the estimated coefficient on the “post” dummy for each sample. Values for the replacement rate are reported on the right vertical axis. The results are weighted using the individual survey weight in the month of job loss.

Figure 10: Event Study around Job Loss: Health Insurance Coverage and Type



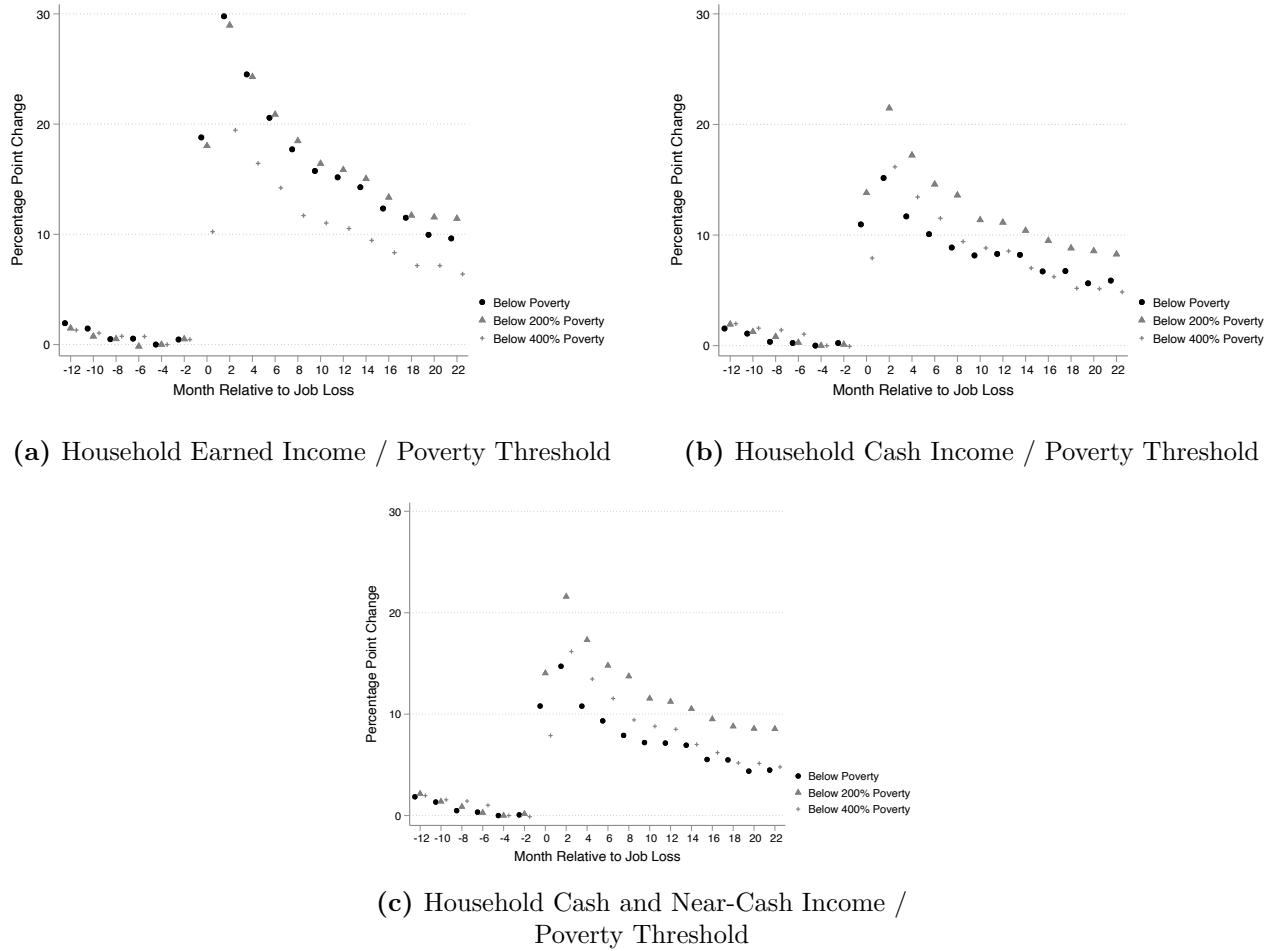
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes the household members of heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. In the top left panel, the outcome variables are indicators for if the job loser has any insurance, private insurance, or public insurance. For the other panels, we look at all adults (top right) and all children (bottom) in the household and create indicators for if *any* of the children/adults in the household have health insurance, public health insurance or private health insurance. The model includes event time dummies, individual fixed effects, age fixed effects, and a month-year linear time trend. The horizontal axis denotes months from job loss. The markers represent the event study coefficients. The results are weighted using the individual survey weight in the month of job loss. The estimates and standard errors are reported in Appendix Table (A4).

Figure 11: Difference in Difference Estimates of Insurance Coverage by Pre-Job Loss Household Poverty Ratio



Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes the household members of heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The plotted estimates are from a difference in difference version of equation (1) with a post period dummy replacing the event time coefficients: $y_{it} = \alpha_i + \beta post_{it} + \gamma_1 X_{it} + \epsilon_{it}$. y_{it} is an indicator for if any of adults (children) in the household have insurance. The red bars represent the percentage point change in the likelihood of having private insurance for adults (left) or children (right). The blue bars represent the percentage point change in the likelihood of having public insurance for adults (left) or children (right). The results are weighted using the individual survey weight in the month of job loss.

Figure 12: Event Study around Job Loss: Household Poverty



Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The model includes event time dummies, individual fixed effects, age fixed effects, and a month-year linear time trend. The outcome variables are the ratio of total household income, as noted, to Census household poverty thresholds, which are assigned to each household in the SIPP based on household size and composition. The horizontal axis denotes months from job loss. The markers represent the event study coefficients. The results are weighted using the individual survey weight in the month of job loss. The estimates and standard errors are reported in Appendix Table (A5).

7 Tables

Table 1: Baseline Demographics of Job Losers and All Workers

	All Job Losers	Job Losers w 1 Year Job Tenure	Full Sample of Workers	Workers w 1 Year Job Tenure
Earnings (2015\$)	4104.82	4745.34	4637.21	5936.79
Age	40.63	41.35	40.01	40.44
Female	0.46	0.45	0.52	0.48
Hispanic	0.17	0.16	0.12	0.10
Non-Hispanic Black	0.12	0.10	0.11	0.10
Non-Hispanic White	0.64	0.71	0.72	0.73
Other Race/Ethnicity	0.05	0.05	0.05	0.05
Less than High School	0.12	0.09	0.09	0.06
High School	0.47	0.46	0.44	0.43
Some College	0.17	0.17	0.16	0.17
College	0.22	0.25	0.29	0.32
Married	0.63	0.65	0.70	0.71
# Kids	1.01	0.97	1.01	0.96
Length of Unemployment in Months	5.9	6.2	-	-
N	7,735	5,166	153,942	88,480

Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55. All dollar amounts are inflation adjusted to be in 2015\$. The results are weighted using the individual survey weight in the first survey month. Job tenure for all workers is measured in the first survey month. Statistics for job losers, except duration of job loss, are calculated for the 3-4 months prior to job loss. The number of job losers is slightly smaller than our final sample because when using an unbalanced panel not all job losers are observed in the three to four months before job loss. Statistics for all workers are calculated in the first survey month.

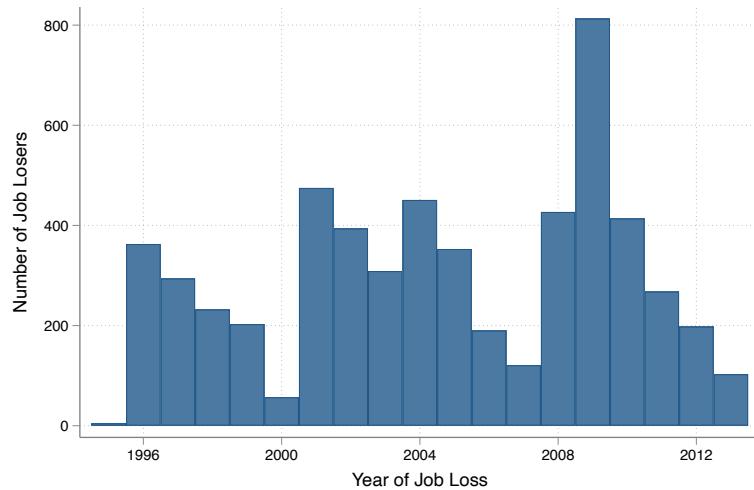
Table 2: Income and Program Participation Before and After Job Loss

	Pre-Job Loss	Post-Job Loss
Monthly Income Receipt		
Receipt of Own UI	1.97	24.42
Receipt of Hhold SNAP	7.02	10.15
Receipt of Hhold TANF	1.24	1.30
Receipt of Own Social Security	0.48	0.96
Receipt of Own Supplemental Security Income	0.27	0.46
Receipt of Hhold FRPL	16.04	18.14
Receipt of Hhold WIC	6.01	6.57
Receipt of Hhold Energy Subsidy	0.08	0.19
Monthly Health Insurance Receipt		
Own Private Health Insurance	0.77	0.61
Own Public Health Insurance	0.05	0.07
Own Any Health Insurance	0.82	0.68
Monthly Income Amounts (2015\$)		
Own Earnings	4658.48	2582.77
Own UI Benefits	21.00	321.66
Hhold SNAP Benefits	25.23	37.20
Hhold TANF Benefits	5.72	6.22
Own Social Security Benefits	4.98	10.82
Own Supplemental Security Income Benefits	1.68	3.58
Hhold FRPL Benefits	20.47	22.63
Hhold WIC Benefits	3.88	4.13
Hhold Energy Subsidy	0.19	0.66
Monthly Predicted EITC	45.01	90.78
Household Poverty Status		
Percent with Earned Income Below Poverty Line	10.45	29.35
Percent with Cash Income Below Poverty Line	7.96	18.29
Percent with Cash Income + Near-Cash Transfers Below Poverty Line	6.68	16.64
N	54,251	95,992

Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The results are weighted using the individual survey weight in the month of job loss. All dollar amounts are inflation adjusted to be in 2015 dollars. Pre-job loss observations are 12 to 1 month prior to job loss. Post-job loss observations are 1 to 24 months after the job loss. We do not include observations in the month of job loss since that is not a clear pre or post period.

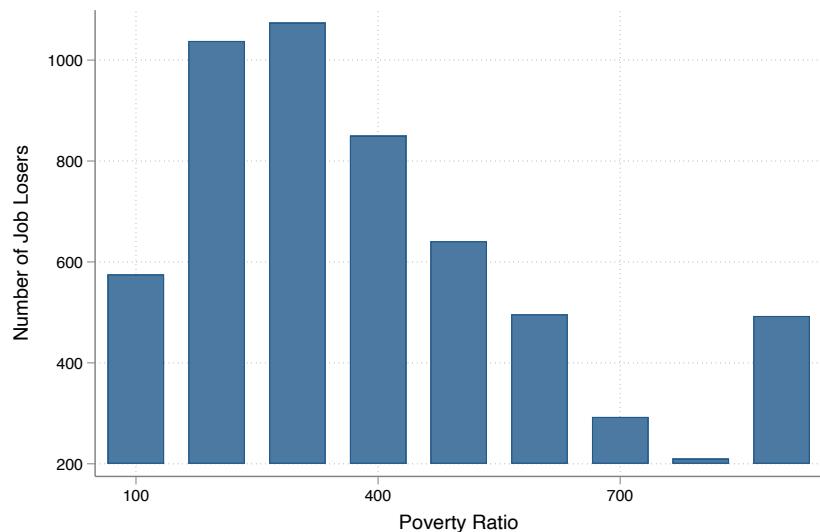
A Additional Results

Figure A1: Number of Job Losers by Year of Job Loss



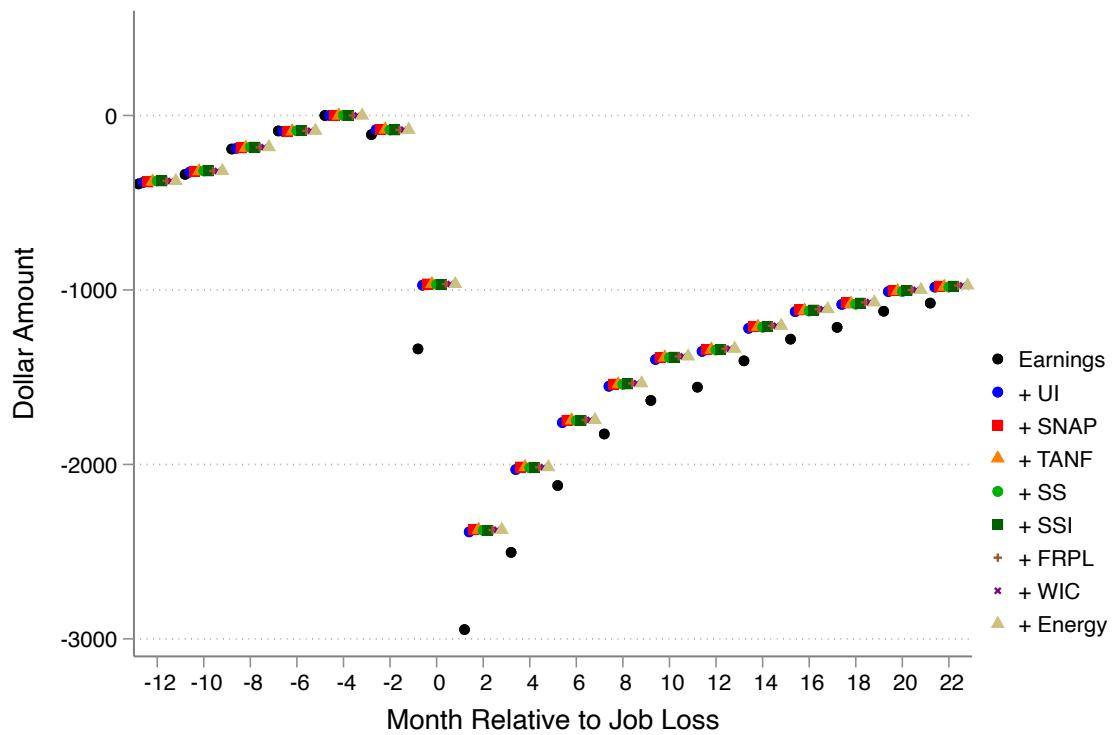
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it.

Figure A2: Number of Job Losers by Pre-Job Loss Household Poverty



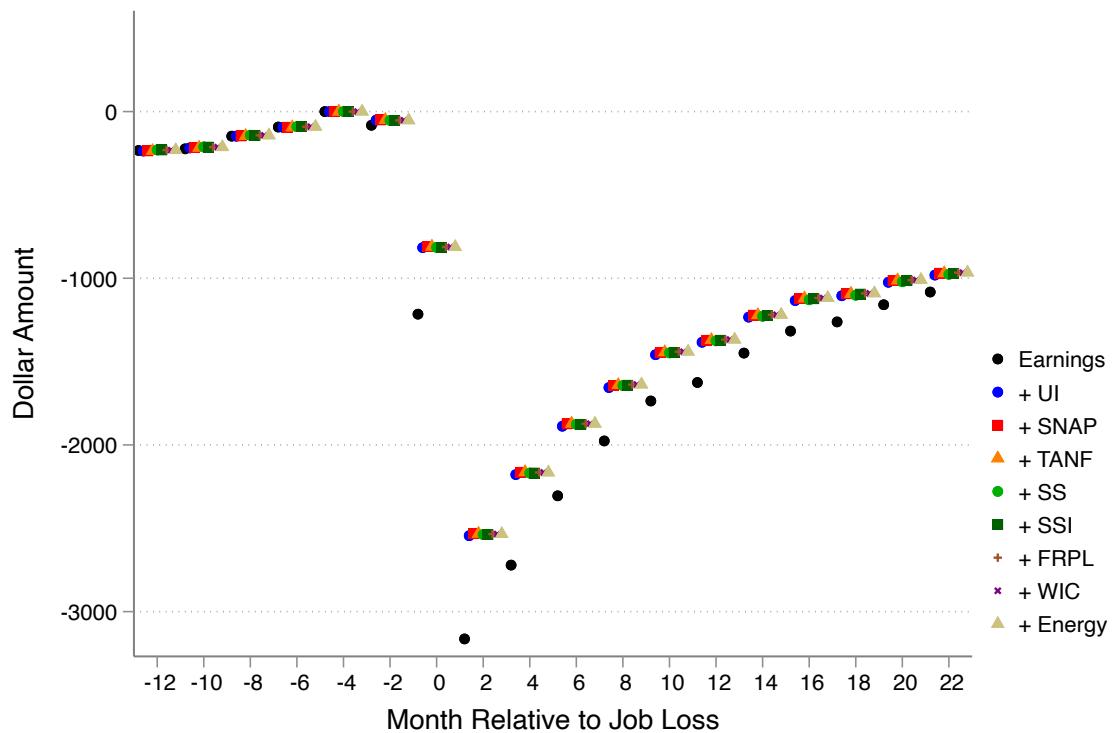
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The data is collapsed into bins based on the ratio of total household cash income to the household poverty threshold in the first survey month. The bins are below 100% (marked as 100 on the horizontal axis), 100-199% (marked as 200), 200-299% (marked at 300), and so on, up to the highest bin of above 800% of the poverty line (marked as 900).

Figure A3: Event Study around Job Loss: Own Earnings and Value of Safety Net Programs, 6 Months Job Tenure



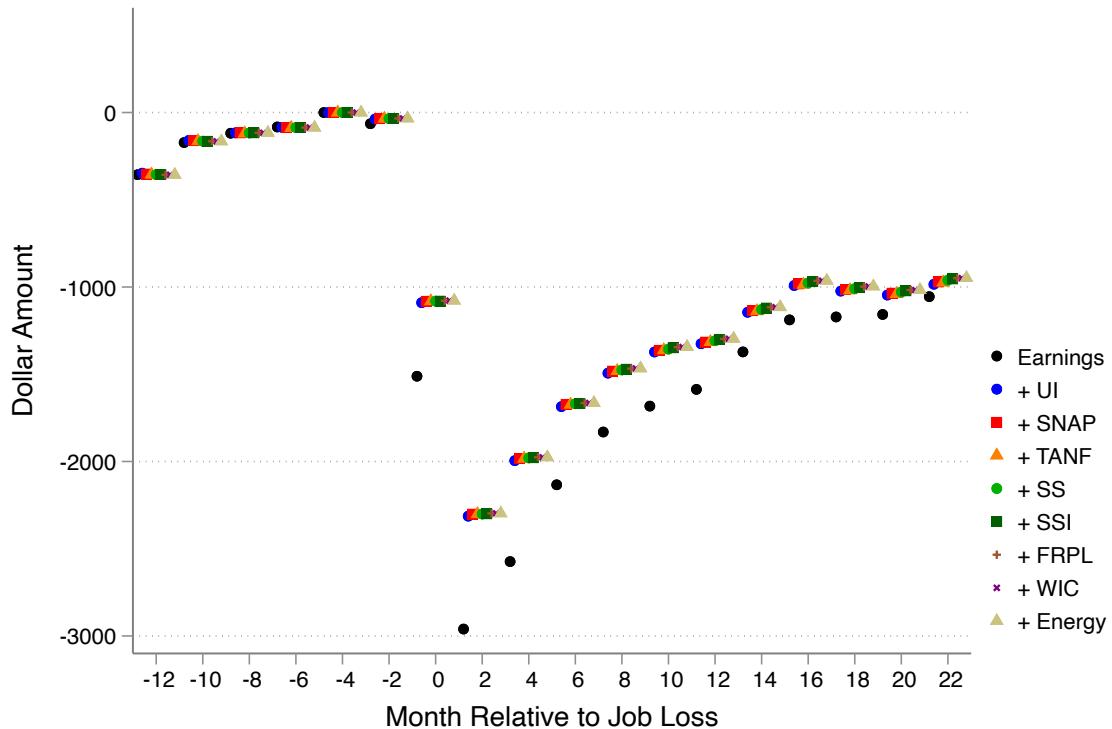
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least 6 months prior to losing it. The model includes event time dummies, individual fixed effects, age fixed effects, and a month-year linear time trend. The horizontal axis denotes months from job loss. The black dots show the estimates on earnings as in Figure (2) for this subsample, and the blue dots indicate the effect of job loss on earnings plus UI income. The other colored marks show the effect on income sequentially adding in other safety net program income that could act as a replacement for lost income (all measures are inclusive of zeros). There is a set of marks for each event time period. The results are weighted using the individual survey weight in the month of job loss.

Figure A4: Event Study around Job Loss: Own Earnings and Value of Safety Net Programs, 18 Months Job Tenure



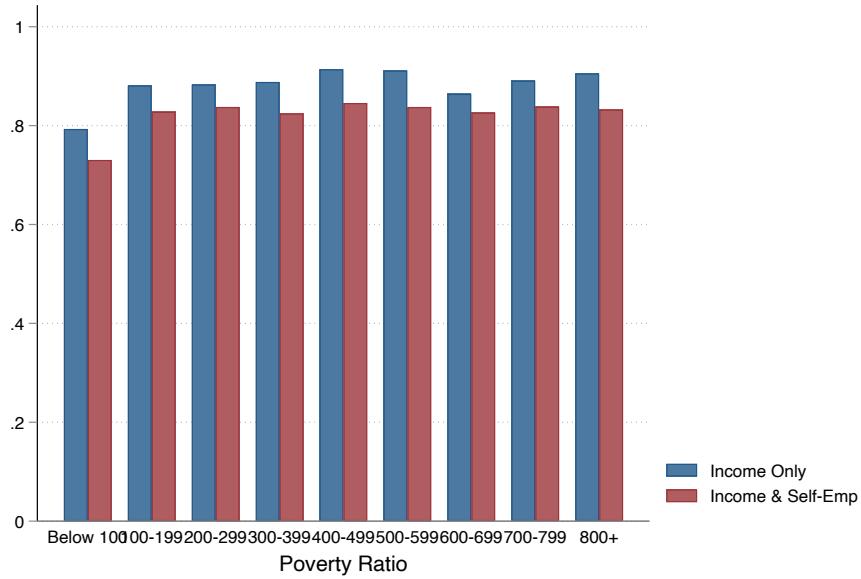
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least 18 months prior to losing it. The model includes event time dummies, individual fixed effects, age fixed effects, and a month-year linear time trend. The horizontal axis denotes months from job loss. The black dots show the estimates on earnings as in Figure (2) for this subsample, and the blue dots indicate the effect of job loss on earnings plus UI income. The other colored marks show the effect on income sequentially adding in other safety net program income that could act as a replacement for lost income (all measures are inclusive of zeros). There is a set of marks for each event time period. The results are weighted using the individual survey weight in the month of job loss.

Figure A5: Event Study around Job Loss: Own Earnings and Value of Safety Net Programs, Balanced Sample



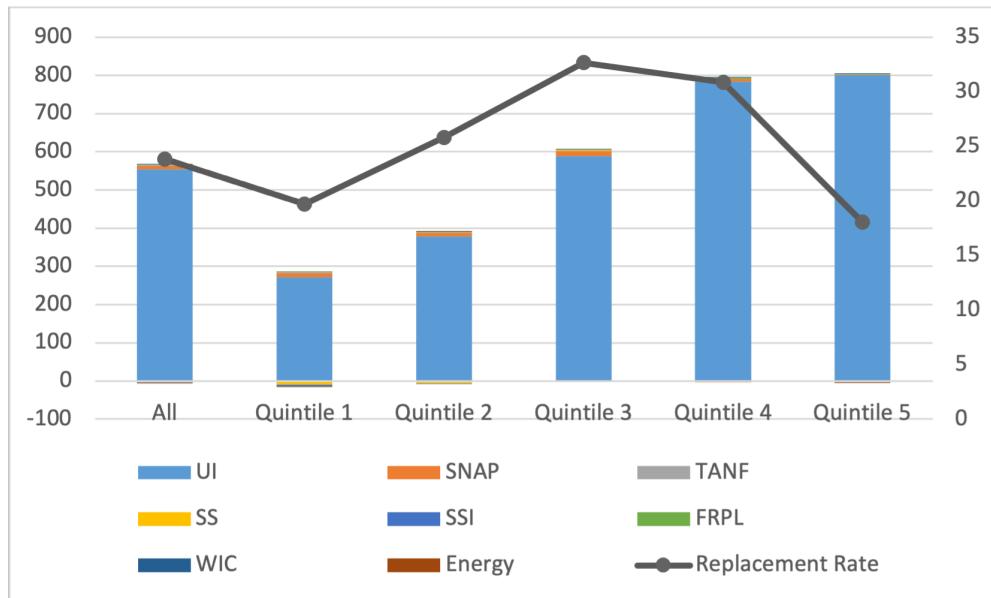
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The model includes event time dummies, individual fixed effects, age fixed effects, and a month-year linear time trend. The horizontal axis denotes months from job loss. The black dots show the estimates on earnings as in Figure (2) for this subsample, and the blue dots indicate the effect of job loss on earnings plus UI income. The other colored marks show the effect on income sequentially adding in other safety net program income that could act as a replacement for lost income (all measures are inclusive of zeros). There is a set of marks for each event time period. The results are weighted using the individual survey weight in the month of job loss.

Figure A6: UI Eligibility by Pre-Job Loss Household Poverty Status



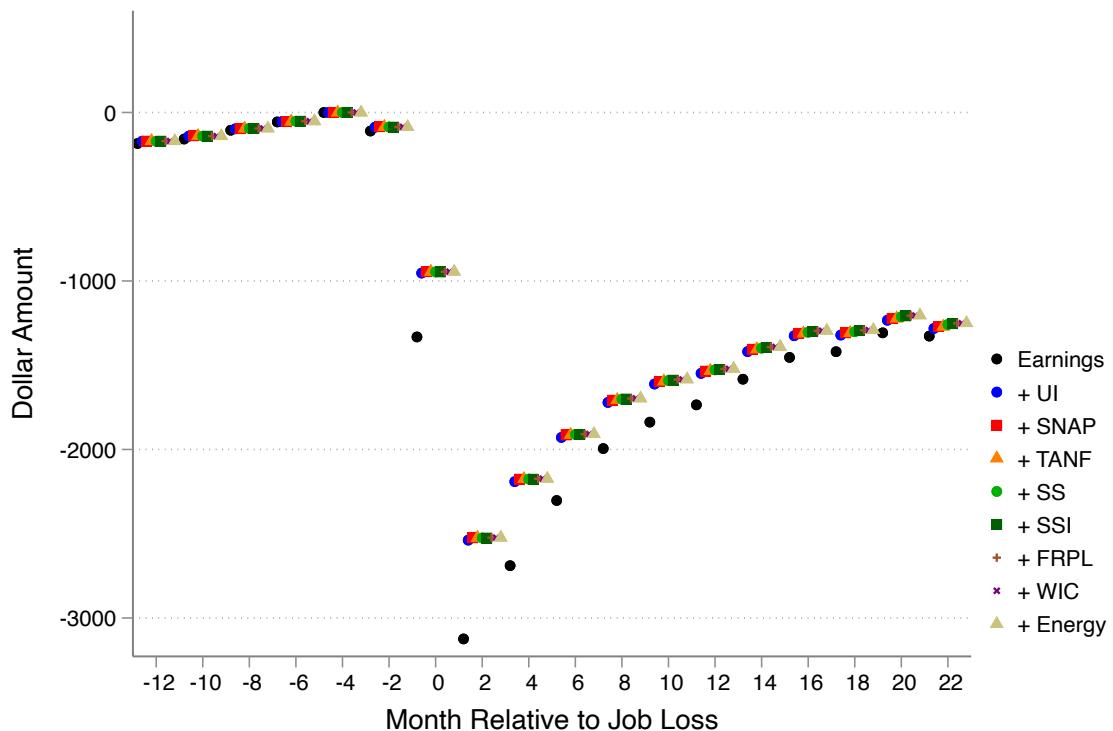
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 in the month of job loss who worked at their lost job for at least one year prior to losing it. The blue bars show percent of the sample eligible for UI based only on the job losers observed income history, while the red bars show percent eligible for UI based on both income and self-employment status. The results are weighted using the individual survey weight in the month of job loss.

Figure A7: Difference in Difference Estimates of Safety Net Program Value and Replacement Rate, by Pre-Job-Loss Monthly Earnings



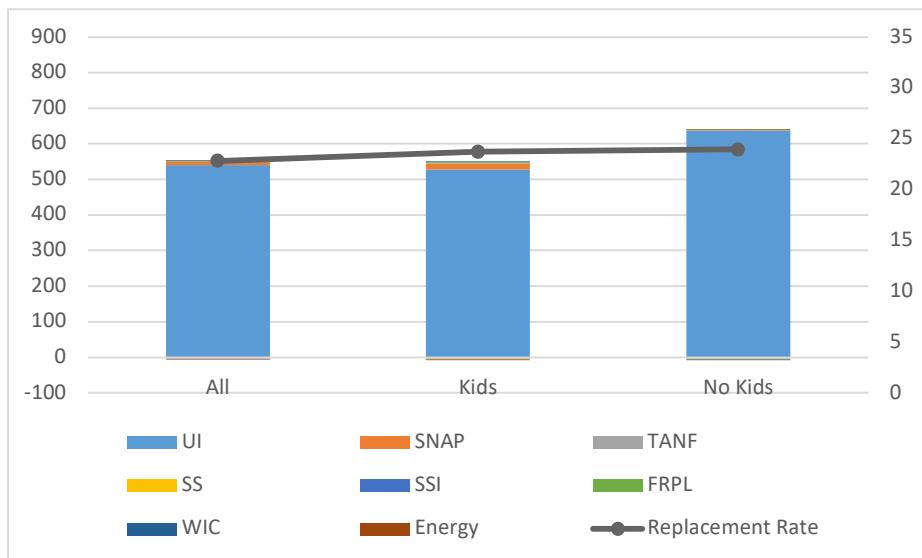
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The plotted estimates are from a difference in difference version of equation (1) with a post period dummy replacing the event time coefficients: $y_{it} = \alpha_i + \beta post_{it} + \gamma_1 X_{it} + \epsilon_{it}$. We estimate this model for the full sample, and split by initial earnings quintile of the job loser. The estimates reported in the bars are the effect of job loss on the dollar value of the benefits received from each program, with values reported on the left vertical axis. To calculate the replacement rates (percent of lost income made up by safety net benefits) shown in the line we separately calculate and numerator and a denominator. We sum the estimated effect on each program shown in the bars for the numerator. For the denominator, we run regressions with earnings as the outcome variable and use the estimated coefficient on the “post” dummy for each sample. Values for the replacement rate are reported on the right vertical axis. The results are weighted using the individual survey weight in the month of job loss.

Figure A8: Event Study around Job Loss: Own Earnings and Value of Safety Net Programs, Omitting Individual and Calendar Time Fixed Effects



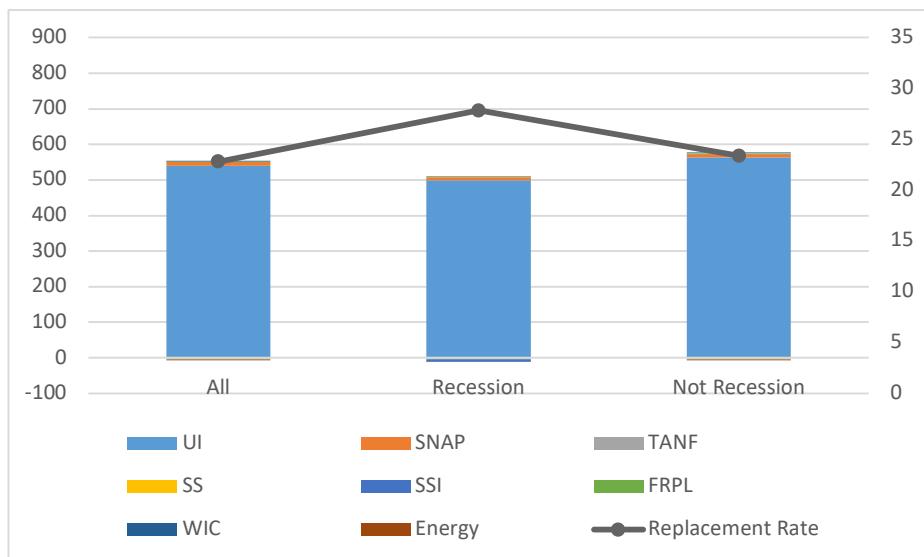
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The horizontal axis denotes months from job loss. The model includes only event time dummies, age fixed effects, and a month-year time trend. The black dots show the estimates on earnings as in Figure (2), and the blue dots indicate the effect of job loss on earnings plus UI income. The other colored marks show the effect on income sequentially adding in other safety net program income that could act as a replacement for lost income (all measures are inclusive of zeros). There is a set of marks for each event time period. The results are weighted using the individual survey weight in the month of job loss.

Figure A9: Difference in Difference Estimates of Safety Net Program Value and Replacement Rate, by Presence of Children in First Survey Month



Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The plotted estimates are from a difference in difference version of equation (1) with a post period dummy replacing the event time coefficients: $y_{it} = \alpha_i + \beta post_{it} + \gamma_1 X_{it} + \epsilon_{it}$. We estimate this model for the full sample and the presence of children. The estimates reported in the bars are the effect of job loss on the dollar value of the benefits received from each program, with values reported on the left vertical axis. To calculate the replacement rates (percent of lost income made up by safety net benefits) shown in the line we separately calculate and numerate and a denominator. We sum the estimated effect on each program shown in the bars for the numerator. For the denominator, we run regressions with earnings as the outcome variable and use the estimated coefficient on the “post” dummy for each sample. Values for the replacement rate are reported on the right vertical axis. The results are weighted using the individual survey weight in the month of job loss.

Figure A10: Difference in Difference Estimates of Safety Net Program Value and Replacement Rate, Split by Whether Job Loss in Recession or Not



Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The plotted estimates are from a difference in difference version of equation (1) with a post period dummy replacing the event time coefficients: $y_{it} = \alpha_i + \beta post_{it} + \gamma_1 X_{it} + \epsilon_{it}$. We estimate this model for the full sample and by whether the job loss occurred during a recession. The estimates reported in the bars are the effect of job loss on the dollar value of the benefits received from each program, with values reported on the left vertical axis. To calculate the replacement rates (percent of lost income made up by safety net benefits) shown in the line we separately calculate and numerator and a denominator. We sum the estimated effect on each program shown in the bars for the numerator. For the denominator, we run regressions with earnings as the outcome variable and use the estimated coefficient on the “post” dummy for each sample. Values for the replacement rate are reported on the right vertical axis. The results are weighted using the individual survey weight in the month of job loss.

Table A1: Event Study around Job Loss: Own Earnings and Dollar Value of Safety Net Programs

	Earnings	Plus UI	Plus SNAP	Plus TANF	Plus SS	Plus SSI	Plus FRPL	Plus WIC	Plus Energy
-12	-214.320*** (73.098)	-215.917*** (72.484)	-215.109*** (72.428)	-214.933*** (72.452)	-210.429*** (72.326)	-210.584*** (72.273)	-210.817*** (72.282)	-210.912*** (72.283)	-210.592*** (72.282)
-10	-195.016*** (60.531)	-188.355*** (59.963)	-185.377*** (59.948)	-185.832*** (59.963)	-183.175*** (59.862)	-183.676*** (59.826)	-183.814*** (59.834)	-183.877*** (59.834)	-183.608*** (59.832)
-8	-127.202** (50.674)	-126.886** (50.343)	-124.299** (50.336)	-124.702** (50.342)	-121.558** (50.290)	-121.667** (50.272)	-122.003** (50.276)	-122.042** (50.275)	-121.875** (50.274)
-6	-82.946** (39.186)	-84.363** (39.111)	-83.728** (39.103)	-84.066** (39.103)	-81.074** (39.115)	-81.019** (39.107)	-81.525** (39.109)	-81.581** (39.109)	-81.572** (39.109)
-2	-113.580** (44.958)	-83.343* (44.853)	-81.433* (44.853)	-81.728* (44.855)	-83.904* (44.850)	-83.961* (44.842)	-83.209* (44.847)	-83.159* (44.847)	-83.159* (44.847)
0	-1325.310*** (87.889)	-933.383*** (87.597)	-926.004*** (87.574)	-926.176*** (87.577)	-929.291*** (87.583)	-929.192*** (87.578)	-927.666*** (87.586)	-927.543*** (87.584)	-927.529*** (87.583)
2	-3118.958*** (86.817)	-2513.935*** (84.645)	-2501.084*** (84.621)	-2500.912*** (84.623)	-2504.996*** (84.606)	-2504.703*** (84.602)	-2502.502*** (84.613)	-2502.280*** (84.610)	-2502.175*** (84.609)
4	-2680.665*** (93.914)	-2157.474*** (91.307)	-2143.317*** (91.300)	-2143.149*** (91.299)	-2147.243*** (91.267)	-2146.930*** (91.251)	-2144.470*** (91.249)	-2144.193*** (91.247)	-2144.162*** (91.247)
6	-2270.123*** (96.618)	-1868.657*** (93.939)	-1854.787*** (93.878)	-1854.312*** (93.872)	-1856.815*** (93.769)	-1856.474*** (93.729)	-1853.736*** (93.726)	-1853.445*** (93.725)	-1853.412*** (93.723)
8	-1955.670*** (103.889)	-1650.680*** (101.428)	-1638.187*** (101.341)	-1637.193*** (101.336)	-1637.918*** (101.201)	-1636.282*** (101.131)	-1633.140*** (101.139)	-1632.664*** (101.142)	-1632.478*** (101.138)
10	-1759.621*** (111.612)	-1498.387*** (109.353)	-1485.755*** (109.233)	-1484.594*** (109.252)	-1485.897*** (109.135)	-1483.166*** (109.053)	-1479.878*** (109.062)	-1479.472*** (109.057)	-1478.960*** (109.055)
12	-1656.503*** (116.557)	-1428.125*** (114.436)	-1416.658*** (114.264)	-1416.031*** (114.282)	-1418.052*** (114.179)	-1414.990*** (114.083)	-1411.702*** (114.088)	-1411.358*** (114.085)	-1410.665*** (114.086)
14	-1490.387*** (129.772)	-1283.175*** (127.723)	-1271.095*** (127.490)	-1271.631*** (127.492)	-1275.032*** (127.352)	-1270.782*** (127.237)	-1267.232*** (127.239)	-1266.989*** (127.239)	-1266.446*** (127.236)
16	-1369.618*** (136.634)	-1192.030*** (134.430)	-1179.690*** (134.222)	-1180.606*** (134.221)	-1185.080*** (134.074)	-1179.607*** (133.956)	-1175.845*** (133.959)	-1175.492*** (133.958)	-1175.069*** (133.951)
18	-1332.421*** (143.734)	-1182.235*** (141.286)	-1170.885*** (141.002)	-1172.693*** (141.004)	-1176.960*** (140.832)	-1170.292*** (140.696)	-1166.983*** (140.707)	-1166.554*** (140.702)	-1166.251*** (140.692)
20	-1230.827*** (154.929)	-1100.398*** (152.560)	-1090.287*** (152.200)	-1092.038*** (152.201)	-1096.013*** (152.019)	-1090.050*** (151.867)	-1087.289*** (151.888)	-1086.946*** (151.884)	-1086.154*** (151.871)
22	-1181.659*** (166.835)	-1078.599*** (164.275)	-1068.880*** (163.884)	-1070.409*** (163.880)	-1072.612*** (163.679)	-1067.221*** (163.500)	-1064.429*** (163.528)	-1064.030*** (163.526)	-1063.299*** (163.517)
Mean Y Before Job Loss	4627.36	4648.68	4673.13	4679.11	4684.39	4686.54	4707.72	4711.62	4711.90
N-Job Losers	5670	5670	5670	5670	5670	5670	5670	5670	5670
N-Observations	155913	155913	155913	155913	155913	155913	155913	155913	155913

Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The model includes individual fixed effects, age fixed effects, and a linear time control for month-year. We display the estimates on the event time variables. The results are weighted using the individual survey weight in the month of job loss. Standard errors clustered at the individual level. * p<0.10, ** p<0.05, *** p<0.01

Table A2: Event Study around Job Loss: Receipt of Safety Net Programs

	UI	SNAP	TANF	SS	SSI	FRPL	WIC	Energy
-12	0.478 (0.521)	0.263 (0.458)	0.036 (0.219)	0.373* (0.221)	-0.096 (0.206)	-0.180 (0.557)	-0.225 (0.389)	0.082 (0.065)
-10	0.932** (0.434)	0.734** (0.358)	-0.055 (0.169)	0.260 (0.180)	-0.121 (0.162)	-0.179 (0.498)	-0.322 (0.307)	0.100* (0.055)
-8	0.311 (0.319)	0.732** (0.284)	-0.054 (0.123)	0.167 (0.133)	-0.069 (0.114)	-0.037 (0.366)	-0.258 (0.236)	0.098* (0.050)
-6	-0.023 (0.194)	0.139 (0.195)	-0.036 (0.078)	0.121* (0.068)	0.000 (0.054)	-0.183 (0.219)	-0.179 (0.156)	0.025 (0.032)
-2	2.420*** (0.245)	0.331* (0.191)	-0.053 (0.068)	-0.068 (0.058)	-0.037 (0.054)	0.751*** (0.255)	0.119 (0.153)	0.047 (0.039)
0	32.642*** (0.637)	1.392*** (0.330)	-0.067 (0.119)	-0.144 (0.104)	-0.037 (0.099)	1.342*** (0.381)	0.202 (0.242)	0.101* (0.055)
2	44.935*** (0.804)	2.730*** (0.442)	0.048 (0.145)	-0.218 (0.151)	0.007 (0.134)	1.866*** (0.479)	0.426 (0.316)	0.151** (0.063)
4	38.252*** (0.843)	3.323*** (0.499)	0.185 (0.175)	-0.208 (0.194)	0.029 (0.171)	2.186*** (0.556)	0.539 (0.388)	0.165** (0.070)
6	29.007*** (0.861)	3.110*** (0.561)	0.327 (0.215)	-0.094 (0.235)	0.048 (0.212)	2.545*** (0.609)	0.519 (0.459)	0.215** (0.106)
8	22.039*** (0.902)	2.933*** (0.621)	0.408* (0.245)	0.071 (0.286)	0.182 (0.260)	2.626*** (0.666)	0.753 (0.517)	0.203* (0.112)
10	18.895*** (0.957)	3.283*** (0.720)	0.526* (0.291)	0.096 (0.321)	0.319 (0.296)	2.600*** (0.762)	0.764 (0.585)	0.129 (0.109)
12	16.732*** (1.018)	2.983*** (0.797)	0.455 (0.309)	0.071 (0.336)	0.451 (0.330)	2.805*** (0.847)	0.782 (0.646)	0.069 (0.122)
14	15.142*** (1.094)	3.044*** (0.900)	0.322 (0.326)	-0.021 (0.383)	0.543 (0.387)	3.281*** (0.919)	0.652 (0.696)	0.127 (0.162)
16	12.781*** (1.149)	3.326*** (0.892)	0.251 (0.341)	-0.081 (0.417)	0.745* (0.445)	3.429*** (0.973)	0.623 (0.745)	0.215 (0.212)
18	10.622*** (1.235)	3.545*** (0.970)	0.083 (0.356)	-0.029 (0.457)	0.958** (0.486)	3.171*** (1.062)	0.506 (0.792)	0.115 (0.192)
20	9.136*** (1.318)	3.161*** (1.038)	-0.025 (0.386)	0.048 (0.496)	0.835 (0.560)	2.709** (1.151)	0.547 (0.841)	0.159 (0.174)
22	6.996*** (1.411)	2.919** (1.138)	0.047 (0.425)	0.179 (0.541)	0.859 (0.595)	2.791** (1.237)	0.553 (0.892)	0.211 (0.186)
Mean Y Before Job Loss	2.03	7.15	1.28	0.53	0.33	16.62	6.03	0.10
N-Job Losers	5670	5670	5670	5670	5670	5670	5670	5670
N-Observations	155913	155913	155913	155913	155913	155913	155913	155913

Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The model includes individual fixed effects, age fixed effects, and a linear time control for month-year. We display the estimates on the event time variables. The results are weighted using the individual survey weight in the month of job loss. Standard errors clustered at the individual level. * p<0.10, ** p<0.05, *** p<0.01

Table A3: Demographics of Job Losers by UI Receipt

	Received UI	Did Not Receive UI
Earnings (2015\$)	4925.53	4497.25
Age	41.78	40.76
Female	0.46	0.45
Hispanic	0.15	0.18
Non-Hispanic Black	0.10	0.12
Non-Hispanic White	0.67	0.62
Other Race/Ethnicity	0.06	0.05
Less than High School	0.08	0.13
High School	0.45	0.47
Some College	0.18	0.15
College	0.26	0.23
Married	0.63	0.68
# Kids	0.90	1.06
Percent with Income Below Poverty	5.38	10.27
Length of Unemployment in Months	7.78	3.76
N	3,038	2,128

Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes for all job losers; heads, spouses, and unmarried partners aged 24-55. UI receipt is defined as claiming any positive amount of unemployment insurance in the 24 months following a job loss. All dollar amounts are inflation adjusted to be in 2015 dollars. The results are weighted using the individual survey weight in the first survey month. Statistics, except duration of job loss, are calculated for the 3-4 months prior to job loss.

Table A4: Event Study Coefficients on Health Insurance

	Job Loser			All Adults			All Kids		
	Any	Public	Private	Any	Public	Private	Any	Public	Private
-12	-1.341 (1.312)	0.218 (0.654)	-1.514 (1.295)	-1.340 (1.255)	0.349 (0.831)	-1.341 (1.249)	-3.001* (1.602)	-0.727 (1.679)	-2.166 (1.675)
-10	-0.787 (1.020)	0.187 (0.498)	-0.940 (1.005)	-1.143 (0.970)	0.212 (0.669)	-0.815 (0.958)	-2.389* (1.244)	-0.587 (1.324)	-1.512 (1.281)
-8	0.219 (0.749)	0.088 (0.395)	0.245 (0.715)	-0.193 (0.708)	-0.062 (0.505)	0.239 (0.677)	-1.283 (0.906)	0.063 (0.968)	-0.752 (0.905)
-6	0.711 (0.439)	-0.069 (0.249)	0.835** (0.402)	0.418 (0.404)	-0.069 (0.305)	0.713* (0.375)	-0.208 (0.498)	-0.293 (0.549)	-0.044 (0.498)
-2	-2.767*** (0.435)	0.006 (0.211)	-2.837*** (0.428)	-1.549*** (0.422)	-0.114 (0.294)	-1.689*** (0.424)	-0.203 (0.546)	1.098** (0.545)	-0.647 (0.538)
0	-11.696*** (0.790)	0.624* (0.379)	-12.399*** (0.781)	-7.147*** (0.763)	0.546 (0.500)	-8.607*** (0.752)	-3.022*** (0.930)	2.758*** (0.912)	-5.301*** (0.974)
2	-18.397*** (1.121)	1.871*** (0.545)	-20.256*** (1.111)	-11.646*** (1.069)	1.466** (0.688)	-14.503*** (1.060)	-4.390*** (1.295)	5.245*** (1.305)	-9.624*** (1.401)
4	-17.575*** (1.367)	2.466*** (0.700)	-19.907*** (1.355)	-10.561*** (1.310)	2.196** (0.868)	-14.013*** (1.305)	-2.121 (1.619)	6.812*** (1.689)	-8.780*** (1.726)
6	-15.775*** (1.638)	2.724*** (0.853)	-18.315*** (1.630)	-8.977*** (1.557)	2.428** (1.047)	-12.796*** (1.564)	0.001 (1.945)	7.530*** (2.066)	-7.482*** (2.068)
8	-14.162*** (1.914)	2.842*** (0.986)	-16.749*** (1.912)	-7.615*** (1.833)	2.827** (1.220)	-11.561*** (1.838)	1.041 (2.243)	7.739*** (2.422)	-6.581*** (2.413)
10	-12.322*** (2.204)	2.857** (1.114)	-14.878*** (2.195)	-5.445** (2.131)	3.238** (1.394)	-9.685*** (2.126)	1.917 (2.573)	8.161*** (2.783)	-5.893** (2.772)
12	-10.885*** (2.490)	2.857** (1.237)	-13.320*** (2.486)	-4.235* (2.402)	3.352** (1.544)	-8.552*** (2.401)	2.888 (2.923)	8.341*** (3.148)	-5.463* (3.128)
14	-10.764*** (2.768)	2.870** (1.398)	-13.225*** (2.780)	-3.928 (2.667)	3.312* (1.731)	-8.055*** (2.676)	3.940 (3.272)	8.127** (3.502)	-3.983 (3.489)
16	-10.268*** (3.046)	2.968* (1.558)	-12.747*** (3.062)	-4.024 (2.946)	3.384* (1.916)	-7.895*** (2.957)	4.770 (3.600)	7.979** (3.868)	-2.521 (3.822)
18	-9.206*** (3.337)	3.004* (1.700)	-11.726*** (3.355)	-3.116 (3.227)	3.261 (2.103)	-6.825** (3.242)	5.772 (3.922)	8.080* (4.247)	-1.118 (4.198)
20	-9.206** (3.644)	2.737 (1.862)	-11.627*** (3.652)	-2.387 (3.526)	2.870 (2.304)	-6.149* (3.528)	5.857 (4.262)	8.156* (4.598)	-1.247 (4.571)
22	-8.149** (3.939)	2.808 (2.000)	-10.398*** (3.950)	-1.171 (3.816)	2.539 (2.471)	-5.071 (3.822)	6.058 (4.611)	7.810 (4.962)	-1.141 (4.938)

Mean Y Before Job Loss

N-Job Losers

N-Observations

155913	155913	155896	155913	155913	155908	90109	90109	90109
--------	--------	--------	--------	--------	--------	-------	-------	-------

Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The model includes individual fixed effects, age fixed effects, and a linear time control for month-year. We display the estimates on the event time variables. The results are weighted using the individual survey weight in the month of job loss. Standard errors clustered at the individual level. * p<0.10, ** p<0.05, *** p<0.01

Table A5: Event Study Coefficients on Household Poverty

	Earned Income			Cash Income			Cash Income + Near-Cash Transfers		
	<100%	<200%	<400%	<100%	<200%	<400%	<100%	<200%	<400%
-12	-1.273 (1.107)	-1.428 (1.241)	-0.399 (1.122)	0.740 (0.997)	0.336 (1.213)	0.837 (1.073)	1.668* (0.936)	0.549 (1.232)	0.813 (1.074)
-10	-0.971 (0.851)	-1.495 (0.977)	-0.258 (0.890)	0.453 (0.770)	0.015 (0.955)	0.703 (0.865)	1.159 (0.739)	0.142 (0.977)	0.674 (0.865)
-8	-1.123* (0.609)	-0.971 (0.693)	-0.127 (0.658)	-0.084 (0.560)	-0.018 (0.686)	0.809 (0.646)	0.364 (0.539)	0.020 (0.706)	0.828 (0.647)
-6	-0.240 (0.368)	-0.837* (0.429)	0.333 (0.409)	0.015 (0.338)	-0.090 (0.429)	0.775* (0.411)	0.264 (0.324)	-0.107 (0.435)	0.756* (0.412)
-4	0.000 (.)	0.000 (.)	0.000 (.)						
0	20.154*** (0.734)	19.335*** (0.823)	10.943*** (0.738)	11.322*** (0.651)	14.547*** (0.799)	8.379*** (0.707)	10.919*** (0.633)	14.789*** (0.781)	8.371*** (0.708)
2	31.891*** (1.080)	31.000*** (1.155)	20.500*** (1.030)	15.738*** (0.925)	22.656*** (1.109)	16.855*** (0.980)	14.909*** (0.892)	22.782*** (1.099)	16.886*** (0.980)
4	27.384*** (1.269)	27.061*** (1.391)	17.827*** (1.227)	12.527*** (1.102)	18.859*** (1.338)	14.329*** (1.161)	11.024*** (1.052)	18.961*** (1.320)	14.383*** (1.161)
6	24.165*** (1.484)	24.250*** (1.658)	15.960*** (1.418)	11.127*** (1.282)	16.551*** (1.600)	12.631*** (1.355)	9.571*** (1.217)	16.776*** (1.569)	12.692*** (1.355)
8	22.062*** (1.705)	22.507*** (1.912)	13.905*** (1.648)	10.157*** (1.494)	15.912*** (1.846)	10.844*** (1.570)	8.199*** (1.411)	16.083*** (1.814)	10.901*** (1.571)
10	20.832*** (1.933)	21.138*** (2.164)	13.698*** (1.849)	9.619*** (1.707)	14.073*** (2.095)	10.631*** (1.758)	7.501*** (1.612)	14.310*** (2.060)	10.646*** (1.759)
12	20.980*** (2.161)	21.335*** (2.423)	13.631*** (2.058)	9.958*** (1.925)	14.309*** (2.341)	10.674*** (1.958)	7.475*** (1.814)	14.450*** (2.301)	10.679*** (1.960)
14	20.885*** (2.393)	21.359*** (2.684)	13.021*** (2.287)	10.099*** (2.155)	14.080*** (2.600)	9.490*** (2.161)	7.285*** (2.025)	14.260*** (2.550)	9.528*** (2.162)
16	19.783*** (2.630)	20.504*** (2.933)	12.399*** (2.501)	8.807*** (2.352)	13.616*** (2.842)	9.062*** (2.373)	5.898*** (2.215)	13.706*** (2.785)	9.079*** (2.374)
18	19.713*** (2.870)	19.671*** (3.237)	11.748*** (2.726)	8.995*** (2.560)	13.367*** (3.143)	8.404*** (2.606)	5.845** (2.411)	13.432*** (3.039)	8.439*** (2.607)
20	18.964*** (3.113)	20.266*** (3.507)	12.243*** (2.941)	8.064*** (2.778)	13.526*** (3.403)	8.722*** (2.801)	4.729* (2.609)	13.612*** (3.305)	8.749*** (2.802)
22	19.309*** (3.351)	20.787*** (3.784)	11.952*** (3.171)	8.466*** (2.996)	13.528*** (3.672)	8.816*** (3.019)	4.808* (2.816)	13.883*** (3.568)	8.785*** (3.022)
Mean Y Before Job Loss	10.84	29.51	63.61	8.22	26.00	61.20	6.77	25.41	61.14
N-Job Losers	5670	5670	5670	5670	5670	5670	5670	5670	5670
N-Observations	155913	155913	155913	155913	155913	155913	155913	155913	155913

Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The model includes individual fixed effects, age fixed effects, and a linear time control for month-year. We display the estimates on the event time variables. The results are weighted using the individual survey weight in the month of job loss. Standard errors clustered at the individual level. * p<0.10, ** p<0.05, *** p<0.01

B Program Details

In this section, we focus on several features of each program besides UI to provide context for expected effects. First, whether programs provide cash or in-kind benefits. Second, whether the eligibility rules include income tests (means-tests) and/or other restrictions (categorical eligibility rules). Third, if there is a substantial waiting period between application time and initial benefit receipt. In our analyses, we focus on individual-level program receipt, except for household-level programs as noted below.

Supplemental Nutrition Assistance Program (SNAP): SNAP is means-tested and households with net income below 130% of the federal poverty line, who meet applicable asset tests, qualify for benefits. Benefit amounts are a decreasing function of total household income. SNAP is available to all income and asset eligible households regardless of marital status and presence of children. For most participants, there are no time limits of benefit receipt, however, for working-aged non-disabled childless adults, there are time limits during periods of low unemployment in the local economy.³² Since SNAP eligibility and benefits amounts are determined based on household information, we examine household-level receipt of SNAP.

Temporary Assistance for Needy Families (TANF): TANF is also a means-tested program that provides cash benefits to low-income families with children. TANF funds are also spent on other services to low-income families, however, we focus on the cash benefit component here. Created as part of welfare reform in 1996, TANF has strict lifetime time limits on program receipt; for example, in 2002, over 30 states had a lifetime limit of 60 months or less.³³ Additionally, states are mandated to impose work requirements on at least some recipients.³⁴ The benefits are also relatively small compared to other programs—the median monthly benefit amount in 2020 was only 27% of the federal poverty line³⁵ and benefit amounts are a decreasing function of household income. As with SNAP, we examine household-level TANF receipt.

Social Security Programs (SS): Several groups of individuals may qualify for SS income: those who retire at age 62 and older, those who are permanently disabled (SSDI), and surviving spouses and dependent children. To be eligible, the individual or decedent needs to have sufficient work history before retirement, disability claim, or death. We condition our sample on individuals aged 24-55 at job loss, and only follow them for up to two years after job loss. So SS retirement benefits are unlikely to be a large part of SS receipt in our analysis. On the other hand, SSDI may be more relevant. To qualify for SSDI, an individual must demonstrate that they are disabled, and that this disability is expected to inhibit their ability to work for at least 12 months. The individual must be earning below a threshold at the time they apply (\$1260 per month in 2020) to demonstrate the disability limits their work ability. It typically takes 3-5 months from SSDI application to decision, which can then be appealed. If approved, there is an additional 5 month waiting period before an individual receives the benefits. Additionally, individuals who receive SSDI can receive Medicare, but there is a two-year waiting period for Medicare, so many receive Medicaid during this waiting period. We focus only on SS benefits received by the displaced

³²Beginning in 1996, after the passage of welfare reform, many non-citizen documented immigrants become ineligible for SNAP, TANF, public health insurance, and SSI. In our sample, we do not condition on citizenship status. This discussion taken primarily from Hoynes and Schanzenbach (2015).

³³<https://www.urban.org/sites/default/files/publication/58396/900769-State-Time-Limit-Policies.PDF>

³⁴<https://www.cbpp.org/sites/default/files/atoms/files/7-22-10tanf2.pdf>.

³⁵<https://www.cbpp.org/research/family-income-support/tanf-benefits-still-too-low-to-help-families-espe>

worker.³⁶

Supplemental Security Income (SSI): Similar to SS, SSI is available to individuals over age 65, blind individuals, and disabled individuals. All three groups must meet income tests, but there is no work history requirement, in contrast to SS. Adult recipients have to have monthly income lower than the minimum monthly benefit amount (\$733 in 2015). Average wait time to decision about disability for SSI is 4 months, and there is no mandatory waiting time after that before benefit receipt.³⁷ We focus only on SSI benefits received by the displaced worker.

Free and Reduced Price Lunch (FRPL): The Free and Reduced Price Lunch Program is available to school-aged children who live in low-income households. Households with income below 130% of the poverty line qualify for free meals, and households with income between 130-185% qualify for reduced price meals. Additionally, categorical eligibility exists for children who receive SNAP benefits, TANF benefits, are a foster child, homeless, a runaway, a migrant, or if the child is in Head Start. In the mid-2000s states began to expand the program information they used to directly certify children's eligibility to also include Medicaid information. School breakfast operates similarly, but participation is more limited in our time period, so we focus on school lunch only. Since only children are eligible for this program, we create a variable indicating whether anyone in the household received these benefits, which is also how the SIPP solicits this information.³⁸

Special Supplemental Nutrition Program for Women, Infants, and Children (WIC): WIC is available to low-income mothers with children under age 5, as well as pregnant women. The program provides vouchers for specific food items and other services, such as nutritional education and referrals to other social services. Individuals meeting these categorical requirements must have income below 185% of the poverty line, or be participating in SNAP, Medicaid, or TANF, and be deemed nutritionally needy (the latter of which in practice is not a very binding constraint).³⁹ Since only some demographic groups are eligible for this program, we create variables indicating whether anyone in the household received these benefits and the total reported household value of WIC benefits.

Energy Assistance: The largest energy assistance program for low-income households is the Low-Income Home Energy Assistance Program. Households must have income below 150% of the federal poverty line and 60% of the state median income level.⁴⁰ Additionally, households participating in SNAP, SSI, or TANF may be automatically eligible.⁴¹ The SIPP collects information about all energy assistance provided by federal, state, and local governments, and we use information about this benefit receipt at the household level.

Public Health Insurance: There are three major public health insurance programs that we include. The first is Medicaid, which provides health insurance to low-income individuals. Historically, the program was much more generous for children and pregnant women than adults, but in the late 1990s and early 2000s states began to expand eligibility to low-income parents and childless adults as well, though income eligibility thresholds were still very low for these

³⁶Information taken from *What You Should Know Before You Apply for Social Security Disability Benefits* (n.d.); *If You Are The Survivor* (n.d.); *Disability Benefits — How You Qualify* (n.d.).

³⁷This information taken from Duggan et al. (2015).

³⁸This discussion taken primarily from Hoynes and Schanzenbach (2015).

³⁹This discussion primarily references Hoynes and Schanzenbach (2015).

⁴⁰https://liheapch.acf.hhs.gov/delivery/income_eligibility.htm

⁴¹<https://www.benefits.gov/benefit/623>

groups compared to children (Buchmueller et al., 2015).⁴² For children, the State Children’s Health Insurance Program also provides health insurance, often to income eligibility thresholds greater than Medicaid. Finally, Medicare provides health insurance to elderly (age 65+) and disabled individuals. Since we restrict our sample to be job losers aged 24-55, elderly eligibility for Medicare is less likely to be important. We categorize any of these programs as public health insurance, and employer or on non-group market insurance as “private health insurance”.

Earned Income Tax Credit (EITC): The Earned Income Tax Credit provides a subsidy that supplements the wages of the working poor and is dependent on family structure and earnings of the household. The phase-in rate, maximum credit amount, and phase-out of the EITC vary by number of dependents, and tax year (there have been a number of expansions over time). Individual states have separately implemented their own EITCs over time usually as done as a percent of the federal credit. The EITC is fully refundable—after reducing a tax liability to zero, the family gets the remainder of the credit as a lump sum payment with their tax returns. Most families who get the EITC receive it in February. While there is an option to get the EITC as a regular check throughout the year, virtually no families take up this option.

⁴²Additionally, the Affordable Care Act allowed states to expand Medicaid eligibility for low-income childless adults, however this didn’t happen until 2014 and our sample ends in 2013.

C EITC Results

We analyze the EITC separately from other programs. We use the detailed income data in the SIPP to simulate EITC amounts and study how the amount of credit a household is eligible for changes with job loss.

It is not clear whether the EITC will increase or decrease after job loss since the EITC is a non-linear function of the tax-unit's (family) earned income (Bitler et al., 2017b). Specifically, there are three phases of EITC eligibility. A “phase-in” region during which the tax credit increases per dollar of earned income. After earned income reaches a set threshold, there is a “plateau region” over which the credit amount is constant, before eventually phasing out at higher levels of earned income (“phase-out” region).⁴³ If job loss causes earned income to decline from the “plateau/phase-out” region to the “phase-in” region (or from a higher to lower point in the “phase-in” region), then the credit amount would decline. If income was high enough pre-job loss that the family did not qualify for the EITC, then job loss could increase the EITC credit amount.

We simulate the amount of EITC a family is eligible for using Taxsim.⁴⁴ Simulating EITC eligibility amounts is complicated by the fact that the EITC uses taxable income from each calendar year to determine eligibility. For workers who lose their job in the middle of the year, calculating pre- and post-job loss EITC values is not straightforward. We address this issue by taking the average of monthly income values we observe for a family both pre- and post-job loss. We then annualize this income by dividing by the number of months observed (separately pre and post job loss) and multiplying by 12. This allows us to predict a pre- and post-job loss EITC amount.⁴⁵ The idea is to predict what annual EITC income would be over two states of the world: a hypothetical year directly before the worker lost their job, and a hypothetical year directly after. Our approach likely over-estimates the EITC eligibility amounts, because in most cases, a job loss happens in the middle of the year and therefore eligibility would be calculated based on a mixture of the high (pre-job loss) income and lower (post-job loss) income. Additionally, not all of those eligible for the EITC participate: participation is estimated to be roughly 80%.⁴⁶

We estimate our difference in difference model to analyze the change in EITC amounts and Appendix Table (C1) shows these results. For the full sample, there is an increase in EITC amount of approximately \$41 *annually* post-job loss. We also break the sample down by pre-job loss household poverty as before. Given the structure of the EITC, it is not surprising that we see the largest increases in EITC after job loss at the bottom of the income distribution. For those with pre-job loss household income above 600% of the poverty line, there are little significant increases in EITC following job loss. However, even those with low income see a very small increase in EITC amounts of just \$128 per year (or just \$10.66 per month). As we discussed above this is likely an upper bound of actual EITC receipt. Therefore, we take this as evidence that the EITC does not provide meaningful income replacement for job losers.

⁴³See Appendix B for more details.

⁴⁴Taxsim is available through NBER at <http://www.nber.org/taxsim> and calculates tax liabilities given information on family income and circumstances based on Federal and State income tax laws. We use Taxsim to generate predicted EITC amounts assuming full takeup among those eligible for the EITC. Some topical modules in the SIPP ask about EITC receipt, however, the EITC isn't asked about regularly enough to estimate as an outcome in a pre- vs. post- job loss model.

⁴⁵In addition to annualized earnings, we use number of children, marital status, and state of the job loser to calculate EITC amounts including any state supplements to the federal EITC.

⁴⁶<https://www.eitc.irs.gov/eitc-central/participation-rate/eitc-participation-rate-by-states>

Table C1: Difference in Difference Estimates of Simulated Earned Income Tax Credit Eligibility

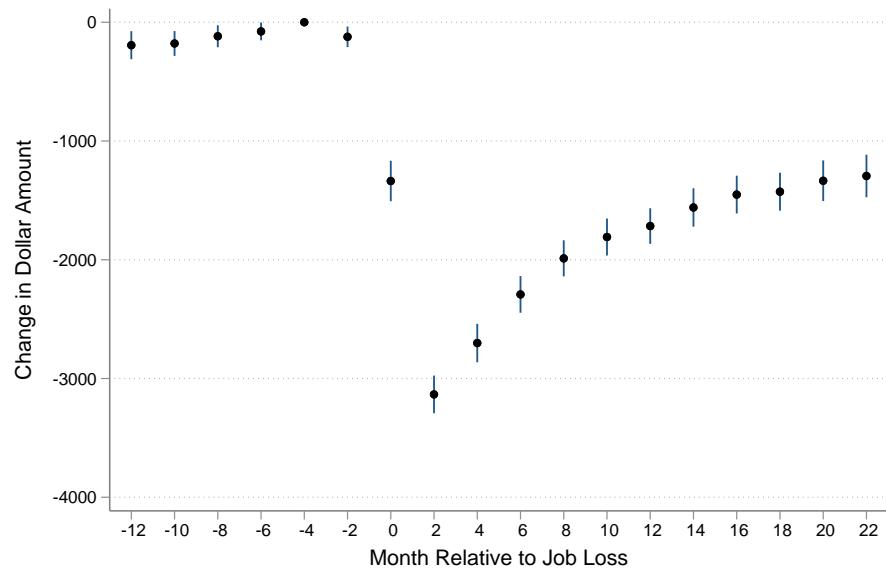
	all	0to100	100to200	200to300	300to400	400to500	500to600	600to700	700to800	800pl
post	41.185*** (5.650)	128.395*** (19.056)	62.557*** (13.747)	39.332*** (9.349)	28.176** (13.063)	23.523 (14.301)	40.440*** (13.291)	29.270 (9.017)	0.533 (20.037)	13.798* (10.722)
Mean Y Before Job Loss	33.56	98.79	54.49	28.45	18.16	18.63	14.36	18.21	15.15	15.07
Observations	13836	1354	2555	2766	2004	1538	1188	738	485	1208

Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The model includes individual fixed effects, age fixed effects, as well as a linear year-month time control. We predict EITC before and after job loss using Taxsim along with family income, marital status, number of dependents, and state of residence. See text for more details. Standard errors are clustered at the individual level. * p<0.10, ** p<0.05, *** p<0.01

D Results with Control Group

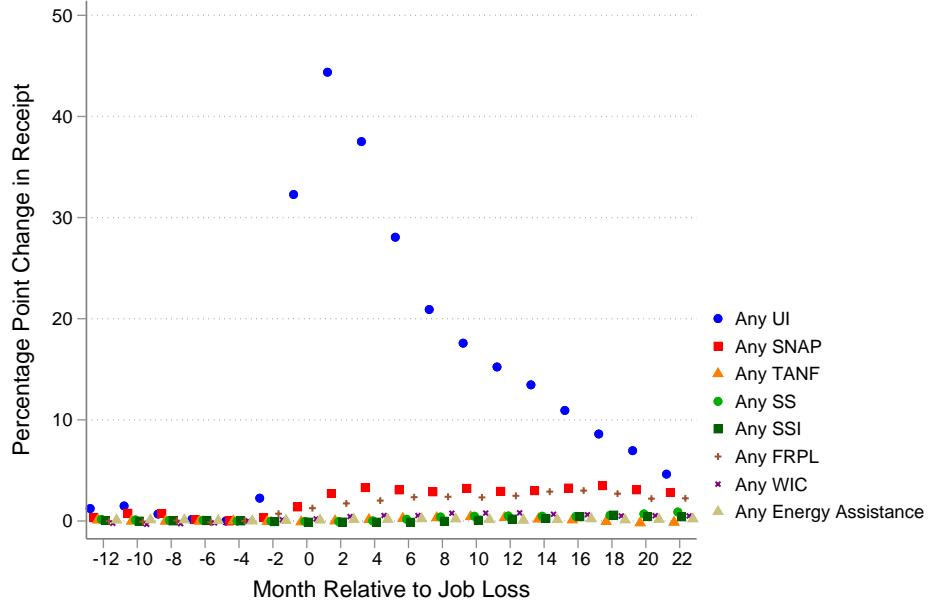
We reproduce our main results including a control group. The control group consists of all workers who did not experience a job loss, who are household heads, spouses, or partners, with at least one year of job tenure and between the ages of 24-55 in the first survey month they were observed in the SIPP. When we split the sample by pre-job loss household income, we use income observed for the control group in the month the worker is first observed in the SIPP. We weight all control group observations using the person weight in the first survey month that individual was observed in the SIPP.

Figure D1: Event Study around Job Loss with Never Job Losers as Control Group: Own Earnings

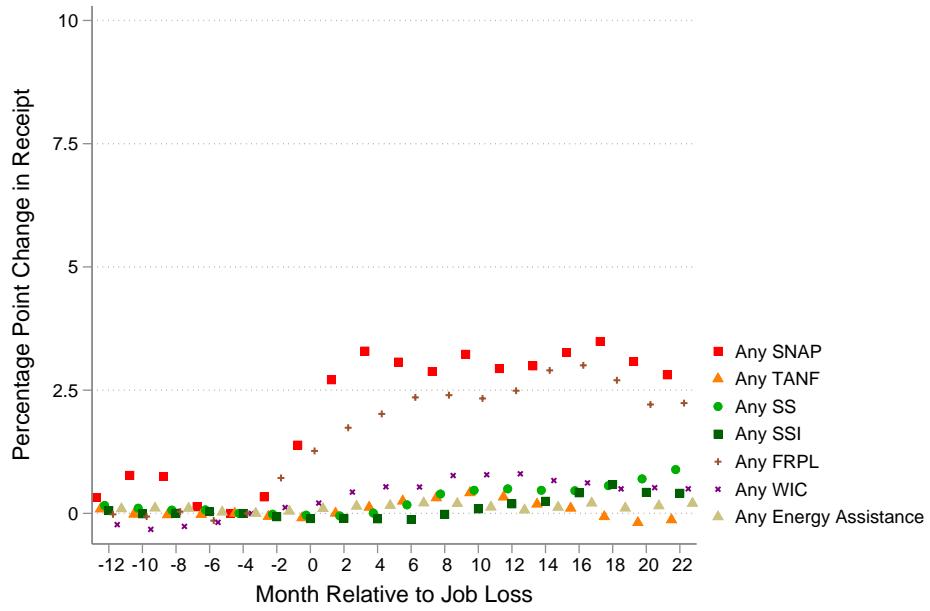


Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The control group is heads, spouses, and unmarried partners aged 24-55 when first observed in the SIPP who worked at their job for at least one year prior to the beginning of the survey. The model includes individual fixed effects, age fixed effects, as well as a linear year-month time control. The horizontal axis denotes months from job loss. The black dots represent the event study coefficients. Job loser observations are weighted using the individual survey weight in the month of job loss. Control group observations are weighted using the individual survey weight in the first month the individual was observed in the SIPP. Standard errors clustered at the individual level and the 95% confidence intervals are plotted in the vertical lines.

Figure D2: Event Study around Job Loss with Never Job Losers as Control Group: Receipt of Safety Net Programs



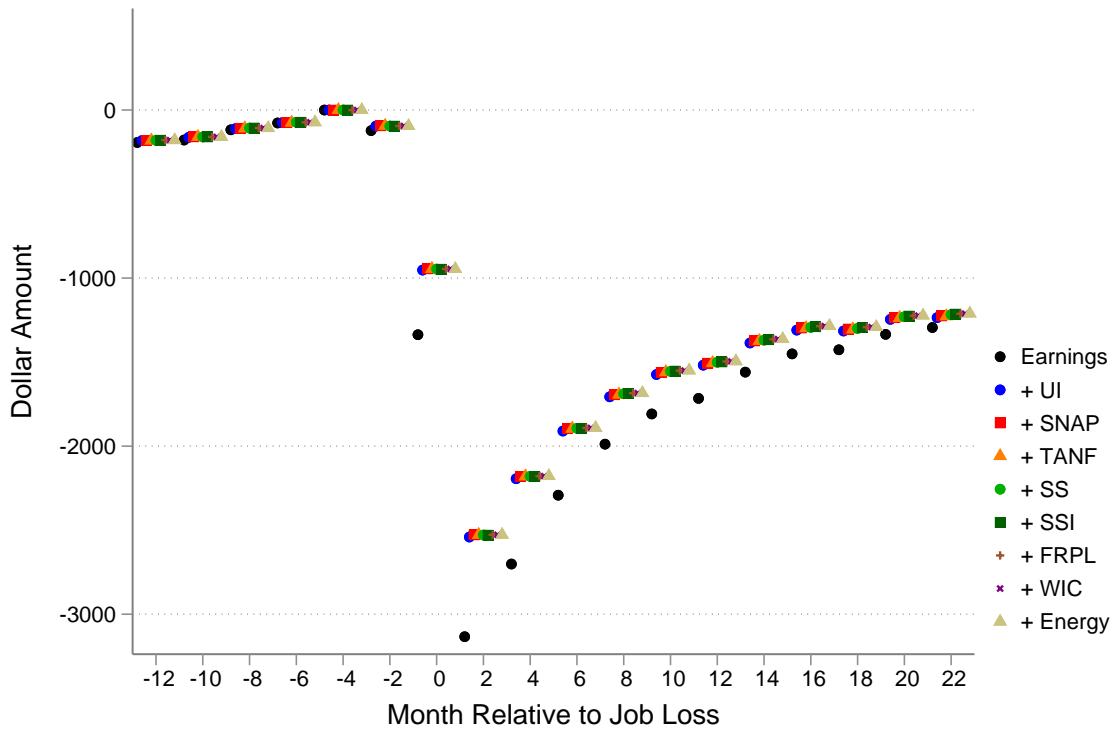
(a) Percentage Point Effect



(b) Percentage Point Effect, Omit UI

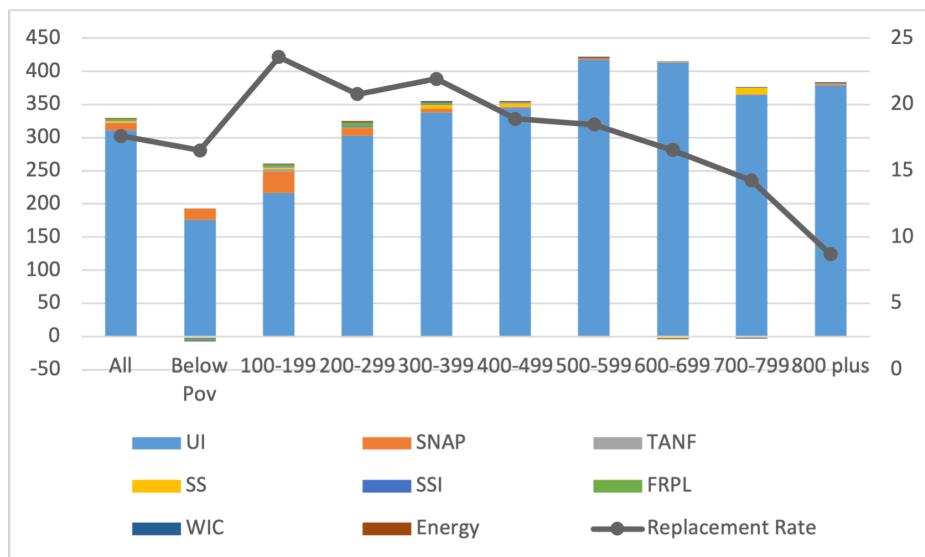
Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The control group is heads, spouses, and unmarried partners aged 24-55 when first observed in the SIPP who worked at their job for at least one year prior to the beginning of the survey. The model includes individual fixed effects, age fixed effects, as well as a linear year-month time control. The horizontal axis denotes months from job loss. The markers represent the event study coefficients. Job loser observations are weighted using the individual survey weight in the month of job loss. We weight all control group observations using the person weight in the first survey month that individual was observed in the SIPP.

Figure D3: Event Study around Job Loss with Never Job Losers as Control Group: Own Earnings and Value of Safety Net Programs



Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The control group is heads, spouses, and unmarried partners aged 24-55 when first observed in the SIPP who worked at their job for at least one year prior to the beginning of the survey. The model includes individual fixed effects, age fixed effects, as well as a linear year-month time control. The horizontal axis denotes months from job loss. The black dots show the estimates on earnings as in Figure (2), and the blue dots indicate the effect of job loss on earnings plus UI income. The other colored marks show the effect on income sequentially adding in other safety net program income that could act as a replacement for lost income (all measures are inclusive of zeros). There is a set of marks for each event time period. Job loser observations are weighted using the individual survey weight in the month of job loss. We weight all control group observations using the person weight in the first survey month that individual was observed in the SIPP.

Figure D4: Difference in Difference Estimates of Safety Net Program Value and Replacement Rate with Never Job Losers as Control Group, by Pre-Job Loss Household Poverty Status



Notes: Data are from the 1996-2008 Survey of Income and Program Participation. The sample includes heads, spouses, and unmarried partners aged 24-55 at the time of job loss who worked at their lost job for at least one year prior to losing it. The control group is heads, spouses, and unmarried partners aged 24-55 when first observed in the SIPP who worked at their job for at least one year prior to the beginning of the survey. The plotted estimates are from a difference in difference version of equation (1) with a post period dummy replacing the event time coefficients: $y_{it} = \alpha_i + \beta post_{it} + \gamma_1 X_{it} + \epsilon_{it}$. We estimate this model for the full sample and split by household poverty ratio in the first survey month. The estimates reported in the bars are the effect of job loss on the dollar value of the benefits received from each program, with values reported on the left vertical axis. To calculate the replacement rates (percent of lost income made up by safety net benefits) shown in the line we separately calculate and numerator and a denominator. We sum the estimated effect on each program shown in the bars for the numerator. For the denominator, we run regressions with earnings as the outcome variable and use the estimated coefficient on the “post” dummy for each sample. Values for the replacement rate are reported on the right vertical axis. Job loser observations are weighted using the individual survey weight in the month of job loss. We weight all control group observations using the person weight in the first survey month that individual was observed in the SIPP.