The More Things Change, the More They Stay the Same: The Safety Net, Living Arrangements, and Poverty in the Great Recession

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ABSTRACT

Much attention has been given to the large increase in safety net spending, particularly in Unemployment Insurance and Food Stamps, during the Great Recession. In this paper we examine the relationship between poverty, the social and private safety net, and business cycles historically and test whether there has been a significant change in this relationship during the Great Recession. We explore the mediating role played by six core safety net programs-including Food Stamps, cash welfare (AFDC/TANF), the Earned Income Tax Credit, Unemployment Insurance, and disability benefits (Supplemental Security Income and Social Security Disability Income)-in buffering families from negative economic shocks. This analysis yields several important findings. First, the relationship between unemployment and official cash poverty remained remarkably consistent with historical patterns during the Great Recession. However, our more expansive alternative poverty measure shows that, if anything, the cyclicality of poverty has increased in the current period. Second, the safety net programs receiving the most attention through the Great Recession (Food Stamps and UI) exhibit adjustments very consistent with their behavior during previous historical cycles. The most dramatic change in the safety net is the post-welfare reform decline of cash assistance in providing protection for the most disadvantaged. Third, changes in living arrangements are modest and for the most part in line with prior cycles. Thus on balance we find, as our title suggests, that despite the attention to the apparent differences in the responses of the private and social safety nets in the Great Recession, the relationship between cycles and economic well-being are as we would have predicted from the historical patterns.

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1. Introduction

The Great Recession led to large increases in unemployment, rising to a peak of 15.6 million persons (seasonally adjusted) in October 2009. Employment declined by more than 8 million between January 2008 and December 2009.[1] While the recession officially ended in July 2009, the unemployment rate remains high, at 7.5 percent in April 2013, several percentage points above the low point prior to entering the Great Recession.

In the wake of this sharp downturn, the share of persons living in poverty also increased. Official poverty increased by 2.6 percentage points, from 12.5 percent in 2007 to 15.1 percent in 2010. During this three year period, the percent of children in poverty increased by 4 percentage points from 18 in 2007 to 22 in 2010. This co-movement of labor market opportunities, economic growth and poverty reflects patterns experienced over prior business cycles (Bitler and Hoynes 2010; Blank 1989, 1993; Blank and Blinder 1986; Blank and Card 1993; Cutler and Katz 1991; Freeman 2001; Gunderson and Ziliak 2004; Hoynes et al., 2006; Meyer and Sullivan 2011).

At the same time, overall expenditures suggest that the social safety net provided significant support to households affected by the Great Recession. In 2011, Food Stamp expenditures amounted to 72.8 billion dollars and more than one in seven people in the U.S. are receiving benefits from the program. Maximum duration of Unemployment Insurance benefits has been extended to up to 99 weeks, far beyond the normal maximum of 26 weeks or even the Extended Benefit maximum of 52 weeks in most states. Additionally, much attention has been given to the "private" safety net, particularly the response of living arrangements. Census figures show that more families are "doubling up" and more young adults are opting to live at home (Johnson 2011).

Against this backdrop of the social and private safety nets, in this paper we examine the relationship between poverty and business cycles historically and test whether there has been a significant change in this relationship during the Great Recession. We analyze both official poverty

[1] All employment outcomes in this first paragraph are seasonally adjusted.

as well as an alternative poverty measure that incorporates taxes and the value of in-kind transfers (Citro and Michael, 1995). Our main analysis uses data from the March Current Population Survey, covering the years 1980 through 2011. We focus on poverty rates among the nonelderly, given the greater connection for this group to fluctuations in the labor market.

We explore the mediating role played by six core safety net programs-including Food Stamps, cash welfare (AFDC/TANF), the Earned Income Tax Credit, Unemployment Insurance, and disability benefits (Supplemental Security Income and Social Security Disability Income)-in buffering families from negative economic shocks. We use high quality administrative data on participation-both caseloads and total expenditures-to examine how use of these programs responded to the Great Recession and how this response differed from that during earlier business cycles. We then return to the CPS and measure how our baseline estimate of the cyclicality of poverty is affected by a simulated "zeroing out" of each of our six safety net programs. This, as we discuss below, is a static exercise but provides a useful description of the protection provided by the safety net. A more complete analysis would require establishing full counterfactuals for eliminating the programs which is outside the scope of our analysis. We also use the CPS to examine the role played by the private safety net by looking at how living arrangements, such as the propensity to double-up and for young adults to be living at home, respond to shocks and how these choices vary over time and across cycles.

Throughout the paper, we identify the impact of the business cycle using variation across states in the timing and severity of cycles. We estimate state panel data models and measure the economic cycle using the state unemployment rate. In robustness tests, we also measure the cycle using the employment to population ratio. We provide two different tests for whether the cyclicality of poverty, the public safety net, and living arrangements in the Great Recession represents a significant break from historical patterns. In the first, we compare the Great Recession to the early-1980s cycle, and in the second we allow for asymmetric responses to the state cycle during national contractions and expansions and test whether the Great Recession period is different from earlier

contraction and recession periods.

This analysis yields several important findings. First, the relationship between unemployment and official cash poverty remained remarkably consistent with historical patterns during the Great Recession. However, our more expansive alternative poverty measure shows that, if anything, the cyclicality of poverty has increased in the current period (that is, poverty increases more with a worsening of the cycle in the Great Recession period). Second, the safety net programs receiving the most attention through the Great Recession (Food Stamps and UI) exhibit adjustments very consistent with their behavior during previous historical cycles. The most dramatic change in the safety net, and one which is evident in the administrative data and our CPS analysis, is the post-welfare reform decline of cash assistance in providing protection for the most disadvantaged. Third, changes in living arrangements are modest and for the most part in line with prior cycles. Thus on balance we find, as our title suggests, that despite the attention to the apparent differences in the responses of the private and social safety nets in the Great Recession, the relationship between cycles and economic well-being are as we would have predicted from the historical patterns. We test the robustness of these conclusions to using an alternate measure of the business cycle, the employment to population ratio, and find that the results are qualitatively similar across either measure, with the exceptions mostly concerned with the response of poverty to the Great Recession.

Our next section reviews the stylized facts about cycles, the Great Recession, and poverty. Section 3 touches on the major social safety net programs we focus on. Section 4 examines the cyclicality of poverty and how it has changed in the Great Recession. Section 5 examines the cyclicality of the public safety net-using administrative program data and the private safety net (through examining living arrangements). Section 6 explores the potential moral hazard of the safety net and Section 7 concludes.

2. Cycles, the Great Recession and Poverty

We begin by examining the changes in poverty that have occurred, historically, across

expansions and contractions in the U.S. Here and throughout the paper, we focus on the period from 1980 through the most recent data available (typically 2011). This allows for the comparison across two severe contractions (that of the early 1980s[2] and the Great Recession) and two smaller contractions (that of the early 1990s and the early 2000s). These cycles can be seen in Figure 1a, where we present our primary measure of the economic cycle—the unemployment rate—annually over this period. The current recession officially began in December 2007 and since that time the unemployment rate has risen from 5 percent in December 2007 to a peak of 10.1 percent in October 2009. While the recession officially ended in July 2009, the unemployment rate remains high, at 7.5 percent in April 2013 (seasonally adjusted), several percentage points above the low point prior to entering the Great Recession. Based on the annual averages, shown in Figure 1a, unemployment in the current recession increased from 4.6 percent in 2007 to 9.6 percent in 2010. Figure 1b shows an alternative measure of the business cycle, the employment to population ratio (EPOP). Note that for the vast bulk of our sample period, these two figures track one another very well; the recent "jobless" nature of the recovery whereby the decrease in unemployment has outpaced the very small increase in EPOP is mostly beyond our sample period and is only slightly visible in 2011.

In addition to the unemployment rate, Figure 1a also includes data on our main measure of family well-being, the percent of persons in poverty, annually for 1980 to 2011. Official poverty status in the U.S. is determined by comparing total pre-tax family cash income to poverty thresholds, which vary by family size, number of children, and presence of elderly persons. (Thus, all persons in the same family have the same poverty status.) In 2011, the poverty threshold for a family of four (two adults, two children) was $22,811. The figure shows that poverty closely follows changes in the unemployment rate, rising in contractions and declining in expansions.

The official poverty measure has numerous drawbacks. Of particular relevance for our work, the measure of family cash income is not a complete measure of family resources. It excludes non-

[2] Two recessions in quick succession led to an increase in the unemployment rate from 5.8 percent in 1979 to 9.7 percent in 1982.

cash government transfers (such as food stamps or housing subsidies or housing vouchers); subtractions from income (such as income or payroll taxes); and additions to income (such as the Earned Income Tax Credit) made through the tax system. Additionally, there is no geographic variation in the thresholds, despite wide variation in costs and wages across regions.[3] These limitations in the official poverty definition have been noted by many, and a National Academy of Sciences (NAS) panel made recommendations for revisions (Citro and Michael, 1995). Following the NAS report, Census started to release experimental poverty measures beginning with data for 1999. This led to the eventual release, in fall 2011, of the Census Supplemental Poverty Measure, which addresses many of the limitations in the official poverty rate (Short, 2011).

Figure 1a also plots NAS alternative poverty (incorporating non-cash transfers, taxes, out of pocket medical expenditures, and work-related deductions in income, and including consumption based measures in the thresholds) for the available years (1999−2011). This NAS measure of alternative poverty, while higher than official poverty, follows a similar trend until the end of the period. To examine more closely the recent period, Figure 2 presents official poverty and NAS poverty (left scale) and the unemployment rate (right scale) for 2007−2011. Notably, official poverty shows a 2.6 percentage point increase, from 12.5 in 2007 to 15.1 in 2010. During the same period, the NAS alternative poverty measure rose by one half of a percentage point. Given the striking differences across these measures and our interest in evaluating the efficacy of the safety net, throughout the paper we make use, to the fullest extent possible, of alternative poverty measures that rely on a comprehensive post-tax post-transfer income concept.[4]

3. The Social Safety Net

[3] Furthermore, the thresholds fail to adjust for many categories of expenses (e.g., shelter, clothing, work related expenses, medical expenses, and utilities), and thus do not capture measures of needs. The thresholds are also updated annually by the CPI-U, which may not well capture changes in needs.

[4] In Figure 1a, we plot Census tabulations of the NAS alternative poverty for available years. In our own empirical analysis of the March CPS data, we are able to construct a consistent alternative poverty measure for calendar years 1980-1986, 1988-1990, and 1991-2011. The details of our measure are discussed below.

Given the severity of the job loss and increases in unemployment in the recent period, it is notable that poverty (as shown in Figure 2) did not increase more dramatically. The aim of this paper is to understand the factors that have led to the relative stability of poverty rates across cycles. In particular, we explore the role of the safety net and of changes in living arrangements. We focus on six central elements of the social safety net: Food Stamps (now called SNAP or Supplemental Assistance for Needy Families), Temporary Assistance for Needy Families (TANF, known as Aid to Families with Dependent Children or AFDC prior to welfare reform), the Earned Income Tax Credit (EITC), Supplemental Security Income (SSI), Social Security Disability Income (SSDI), and Unemployment Insurance (UI). We examine these six programs because they represent the key cash and near-cash elements of the safety net for the non-elderly. [5] Before proceeding, we provide a brief description of these programs and how they have changed leading up to and during the Great Recession.

Cash Welfare (AFDC/TANF): Since its creation as part of the 1935 Social Security Act, AFDC provided cash welfare for single parent families with children. The program is means tested, requiring households to satisfy income and asset tests. A joint state-federal program, states set benefit generosity, while federal rules dictated most of the remaining eligibility and benefit rules. The benefits were structured in a manner typical for income support programs: if a family had no income, they received the maximum benefit or "guarantee." As their earnings increased, their benefit was reduced by the benefit reduction rate, leading to an implicit tax rate on earned income. Historically, this rate varied between 67% or 100%, providing strong disincentives for work (Moffitt 1983). Concerns about work disincentives (as well as disincentives to form two-parent families) led

[5] The largest cash or near-cash safety net program is Social Security Old Age and Retirement benefits. Given our focus on the non-elderly, we do not analyze this program. Other programs which are part of the safety net, but are smaller in magnitude or cover a smaller segment of the population include public housing, WIC, the National School Lunch and Breakfast programs, and state programs such as General Assistance. Note that two of our major safety net programs are in part or fully social insurance programs: SSDI and UI are funded by premiums and received after a triggering event. However, we argue that these programs have become important parts of the safety net as well, and neither are fully funded by premiums, and in fact the largest amount of UI benefits in some recent years have come from Federal general revenues.

to the wholesale reform of the program. The Personal Responsibility and Work Opportunity Act (PRWORA) was enacted in 1996 and replaced AFDC with TANF. TANF now includes work requirements (with financial sanctions for noncompliance), a maximum of five years of *lifetime* use of welfare, and in many states, enhanced earnings disregards. These changes were designed to facilitate the transition from welfare to work and to reduce dependence on cash welfare. Caseloads fell to historic lows as a share of the population potentially eligible in the wake of this important reform.[6]

Food Stamps: Like AFDC/TANF, Food Stamps is a means tested program (whereby eligible families and individuals must satisfy income and asset tests) and benefits are also assigned using maximum benefits and then benefits are reduced by a benefit disregard or tax rate as earned income increases. But in contrast to AFDC/TANF, Food Stamps is a federal program with little involvement and few rules set by the states, and income eligibility threshold and benefits are adjusted for changes in prices each year.[7] Additionally, unlike many means-tested programs, Food Stamp eligibility is not limited to certain targeted groups such as families with children, aged, and the disabled. The benefit reduction rate is relatively low (30%), the income eligibility threshold is higher than other U.S. cash welfare programs, and the program serves the working and nonworking poor. Food stamp benefits can be used to buy a wide array of food items and the behavioral response to food stamps is similar to the response to cash (Fraker et al., 1992; Hoynes and Schanzenbach, 2009; Ohls et al., 1992). Welfare reform left Food Stamp rules relatively unaffected but did limit benefits for legal immigrants (who were deemed ineligible) and able-bodied adults without dependents 18-49 (who were limited to 3 months of benefits in a 3 year period). The 2002 Farm Bill reinstated benefits for legal immigrants.

[6] Even prior to welfare reform, the threshold at which eligibility for AFDC ended was very low in the income distribution. In 1996, on the eve of welfare reform, the median state provided benefits to families with income up to 68 percent of poverty and the median state's benefit level for a family of three was about 36% of the poverty guideline (U.S. House of Representatives 1996).

[7] Benefits are tied to the cost of a "market basked of foods which if prepared and consumed at home, would provide a complete, nutritious diet at minimal cost", the so-called Thrifty Food Plan, and then indexed periodically for increases in prices.

The American Recovery and Reinvestment Act of 2009 (federal stimulus or ARRA) led to a $25 (13.6 percent) increase in the maximum Food Stamp benefit (though October 2013) and also suspended the three-month time limit on able bodied childless adults temporarily in 2009 and 2010. In addition, beginning with regulatory changes in 1999 and continuing with the 2002 Farm Bill, the USDA has encouraged states to make changes in how they implement the program's rules to make access to benefits easier. This has led to relaxing of asset requirements and expanding eligibility in some cases beyond the federal income eligibility limit in what has been called broad-based categorical eligibility (U.S. GAO 2007). For a recent description and analysis of the effects of these changes in SNAP policies on participation and take-up, see Ganong and Liebman (2013).

EITC: The federal EITC is a refundable tax credit with benefits targeted to families with children. The EITC functions as an earnings subsidy and as such is only extended to working families. The goal of the EITC is to increase after-tax income of lower earning taxpayers, primarily those with children, while incentivizing work. The expansion of the EITC, facilitated through tax acts in 1986, 1990 and 1993, has featured prominently in the movement toward more `in-work' assistance in the U.S. safety net (and with welfare reform, a decline in out-of-work assistance). The potential income transfer is substantial – in 2012 for a single taxpayer with two children, the maximum credit is $5,236 (annual payment) and the phase-out range extends to those with earned income of up to $41,952. Aside from its dramatic expansion in the 1990s, the EITC has undergone minimal changes in the past decade or more.[8] Notably, as part of the 2009 ARRA, the EITC expanded to include a more generous schedule for families with three or more children.

UI Benefits: Unemployment insurance is a social insurance program which provides temporary and partial earnings replacement for involuntary unemployed individuals with recent employment. As a social insurance program, UI is not means tested (limited to those with low income) and eligibility is a function of earnings history. UI benefits consist of three separate

[8] Beginning in 2002, the earnings eligibility range increased modestly for married couples (previously the schedule depended only on number of children).

"programs". Recipients receive benefits for a fixed duration, typically up to 26 weeks, through "regular" state benefits, funded by employer contributions. Under the Extended Benefits program, jointly funded by states and the Federal government, UI benefits can be extended for 13 or 20 additional weeks in states experiencing high unemployment rates. Lastly, in most major downturns, Congress has enacted emergency extensions to unemployment; these programs tend to be relatively short lived and are explicitly countercyclical and fully federally funded.[9] In the Great Recession, both extended and emergency programs provided expansions to UI (for a summary, see Rothstein 2011). Many states implemented Extended Benefit programs in the Great Recession, but as costs are typically split between the states and the federal government, some states chose not to participate. The 2009 ARRA, however, shifted the full cost of extended benefits to the federal government and other states opted in. Additionally, in June 2008 Congress enacted the Emergency Unemployment Compensation program, which (eventually) raised maximum UI benefit durations to as long as 99 weeks (Rothstein 2011). As the unemployment rate within a state declines below certain thresholds, eligibility for the longest durations ends. For example, in California, the state EDD reports that eligibility for the final 10 weeks of benefits will end as of August 17, 2013 (EDD, 2013). Some states have responded to the slow recovery by cutting the maximum duration of their state benefits (e.g., NC has a maximum state duration of 19 weeks), while sequestration has also lead to some cuts in EUC benefits.

Disability benefits: SSI is a cash "welfare" program, where for participants (like AFDC) income and assets must be below the eligibility maximum requirements. SSI is primarily a federal program, although some states have supplemental benefits. Eligibility for SSI benefits is limited to

[9] States administer their programs and set payroll taxes and benefit levels. Funding for regular state benefits are paid by the state trust fund while fiscal responsibility for the extended program is shared by the states and the federal government. Recently, the emergency extensions have been fully federally funded. During some downturns, the federal government has also helped fund the extended program. States can also borrow from the federal government to fund expenditures from their UI trust funds, NCSL (2013) reports that 16 states currently have outstanding loans totaling $19 billion. These states include AZ, AR, CA, CT, GA, IN, KS, KY, MO, NV, NY, NC, OH, RI, SC, and WI.

disabled adults, disabled children and aged (age 65 or older) low income persons. Eligibility for disabled adults requires establishing a documented work-limiting condition, the inability to engage in "substantial gainful activity." Children are determined to be disabled if they have impairments which cause "marked and severe functional limitations." Given our focus on the nonelderly, we limit our attention to SSI expenditures paid to the disabled and exclude payments to the elderly (where possible). SSDI is a social insurance program, funded by payroll taxes while working; benefits depend on employment and earnings history. Like SSI, eligibility requires that the existence of a work-limiting disability must be established (in fact, the same disability determination process is used for both SSI and SSDI for adults). Recipients transition to the old age Social Security programs when they reach retirement age. SSDI is not income-tested and is received by poor and non-poor families.

In Figure 3, we plot real per capita expenditures from 1980 to 2011 for these six social safety net programs.[10] The shaded regions are annualized contractionary periods, based on the NBER recession dates.[11] To provide more detail, Table 1 presents further data for these programs for 2010 (the high point of the unemployment rate in the Great Recession); the table documents the number of recipients, total expenditures on each program, and average monthly benefits for participants. Among the means-tested benefits, at the end of this period, total benefit spending through SNAP and the EITC are the largest, followed by SSI and then TANF cash benefits. Furthermore, SNAP spending is increasing in the Great Recession much more quickly than is spending on the other means-tested programs. Notably, in the wake of the 1996 federal welfare reform, TANF is a very small program—Table 1 shows that in 2010, fewer than 2 million families received cash TANF

[10] TANF expenditures include only the cash benefit payments and SSI only includes benefits paid to the blind and disabled (excludes payments to the aged). The EITC data are available only through 2010. For details on the data and sources see the data appendix.

[11] The official NBER recession dating is monthly; this figure presents annual data. We constructed an annual series for contractions based on the official monthly dates, augmented by examination of the peaks and troughs in the national unemployment rate. See Bitler and Hoynes (2010) or Appendix Table 1 for more information on the annual dating.

benefits at a cost of $10.7 billion compared to $64.7 billion for SNAP and $58.6 billion for EITC.

As is clear on this figure, UI is a central income replacement program in recessions and the increase in UI expenditures in the Great Recession is striking. Table 1 shows that at the peak of the national unemployment rate, the emergency program represented a large share of dollars spent on UI—in 2010 emergency benefits were about $70 billion compared to a combined $69 billion for regular and extended benefits. SSDI and SSI do not appear to have strong cyclical variation, although the graph shows the dramatic (for SSDI) and steady (for both) increase in expenditures in the programs throughout the period.

The amount of income provided to participants varies dramatically across the programs. Table 1 shows that average monthly benefits for the social insurance programs far exceed the benefits for the income-conditioned programs. Average monthly benefits (in 2010) are around $1,300 for UI recipients and $1,068 for SSDI recipients. Among disabled SSI recipients, the average monthly benefits are $518; for TANF they are $402; for Food Stamps, they are $285; and at the bottom, for the EITC, they are $187.[12]

Figure 3 illustrates several changes in the safety net that motivate our work. First, with the decline of AFDC/TANF (as a result of welfare reform) and the expansion of the EITC, the safety net for low income families with children has transformed from one subsidizing *out-of-work* families into one subsidizing *in-work* families. Second, repeated federally-funded expansions to UI have led to longer benefit durations and more income protection. Third, benefits disbursed through the Food Stamp program have dramatically expanded in the Great Recession. Fourth, these changes have taken place against a backdrop of a steady rise in disability benefits through SSI and SSDI accelerating in the early 1990s. This last increase in part is related to declines in labor market opportunities for some workers (Autor and Duggan 2003; Black et al., 2002).

Given these changes to the safety net, we are interested in exploring how and to what extent

[12] The average EITC benefit is substantially higher if limited to families with children.

these programs are providing protection to at-risk families in the Great Recession. In particular, we explore how the reductions in labor market opportunities in the Great Recession translate into changes in poverty and family well-being. Has the growth in the social safety net buffered families against the adverse impacts of the Great Recession? How does this compare to prior recessions? To help guide our thoughts about this, Figure 4 presents summary statistics for participation in these programs, based on the March Current Population Survey, for the trough of the Great Recession (2010 calendar year, 2011 CPS survey) compared to the trough of the early 1980s recession (1982 calendar year, 1983 CPS survey). We construct two samples in each year—all nonelderly individuals and the subset of those individuals in households with (cash, pre-tax) income less than 200 percent of official poverty. We plot the share of households with income from various sources: SNAP, AFDC/TANF, UI, SSI, and SSDI. Because of data limitations in 1982, the "SSDI" measure (for both years) includes all payments through OASDI (social security retirement, survivor, and disability benefits). This figure shows the clear fall in the importance of AFDC/TANF, and the corresponding rise in Food Stamps and SSI. Interestingly, the fraction of households with UI is slightly lower in 2010 than 1982.[13]

Given the many changes in the safety net over the intervening period, it is also of interest to understand the extent to which households are participating in more than one of these programs, especially given concerns about cumulative work disincentives (Mulligan 2012). While total per capita spending can be obtained by simply adding up the numbers in Figure 3, to understand multiple program participation we must have data on simultaneous participation in these programs. One such source of data on multiple program use is the March CPS which we use for single program participation in Figure 4 above. Returning to the comparison of the trough years of 1982 to 2010, the data show that in 1982, about 15% of the nonelderly population was on SSI/AFDC/Food Stamps or the Low Income Heating Assistance Program, while in 2010 this number was little changed at 17%.

[13] Given possible increases in underreporting of some of these programs over time (Meyer, Mok and Sullivan 2009), the increase in SNAP and SSI is even more striking.

Among nonelderly persons living in households where *someone* obtained UI, in 1982 14% also had someone receiving Food Stamp benefits; this number rose to 20% in 2010, reflecting the increase in SNAP participation overall. However, for these nonelderly individuals in households with some UI, very few participate in other programs—in 2010 3.1% received TANF and 4.3% received SSI.[14]

Given the large expansion in food stamp use over the past decade, it is also of interest to see what share of those on SNAP are getting another of our programs. Here, we can make use of administrative data used to assess incorrect payments in SNAP (Food Stamp Quality Control data), which get around any concerns about underreporting in survey data. While these data do not go back as far, we can compare recipiency unit participation for 2001 and 2010. We find a large and important decline in participation in cash TANF among SNAP participants, only 8% of SNAP recipiency units have some TANF income in 2010, while fully 23% did in 2001, in part due to the decline in TANF and in part due to the increase in SNAP use by those higher up the income distribution in the Great Recession. Receipt of UI among SNAP units, while increased to 6% (in 2010) from 2% (in 2001) is still quite low.

4. The Cyclicality of Poverty, Historically and in the Great Recession

In this section, we document the historical relationship between economic cycles and poverty and test for a change in that relationship in the Great Recession. Our empirical strategy exploits variation in the timing and severity of cycles across states to estimate the effect of labor market conditions on household outcomes. Specifically, we measure the business cycle using the state unemployment rate. We estimate a basic state panel fixed effects model:

$$(1) \qquad y_{st} = \beta UR_{st} + \alpha_s + \delta_t + \varepsilon_{st}$$

[14]While low, these two income sources did increase among UI recipients between 1982 and 2010. Among those households with income from UI, in 1982 5.5% received TANF and 1.6% received SSI. These changes reflect the overall changes in participation in the safety net-- the decline in AFDC/TANF receipt that started during welfare reform and the steady increases in disability (SSI).

where subscripts refer to state *s* and year *t*. UR_{st} is the state unemployment rate and equation (1) also controls for state and year fixed effects, α_s and δ_t respectively. In all results in the paper, we cluster the standard errors at the state level, and the regressions are weighted using the relevant denominator (here the CPS weighted population in the state-year cell). Given the evidence on the trending down in the employment to population rate (EPOP) beginning prior to the Great Recession (Moffitt 2012) as well as the more recent failure of EPOP to recover as has the unemployment rate, we explore the sensitivity of our results to using the EPOP as an alternative measure of the state economic cycle.

Our analysis uses data from Annual Social and Economic Supplement to the Current Population Survey (CPS), administered to most households in March. The ASEC is an annual survey that collects labor market, income, and program participation information for the previous calendar year, as well as demographic information from the time of the survey. Our sample uses the 1981 through 2012 CPS surveys, corresponding to 1980-2011 calendar year outcomes (the most recent such data available). We construct our outcomes of interest (poverty, living arrangements, safety net income and participation) using households as the economic unit. We assign these household outcomes (e.g., poverty) to each member of the household. Given our focus in the paper, we then limit the sample to include all nonelderly persons. This data is then collapsed, using the March CPS weights, to state by year cells, which are merged to annual state unemployment rates.

Panel A of Table 2 presents the results of this model for data spanning years 1980−2011. The table presents results for official poverty and our alternative post-tax post-transfer poverty. To explore the impacts of the cycle at different points of the income distribution, we present models for the share of nonelderly persons with household incomes below 50 percent, 100 percent, 150 percent and 200 percent of the poverty level. We calculate alternative poverty using data provided in the public-use CPS data and available on a consistent basis back to 1980 (Bitler and Hoynes 2010, 2013). We developed this measure based on the recommendations in the National Academy of Sciences report (Citro and Michael, 1995); it is also closely related to the measure of resources used

in the Supplemental Poverty Measure. Our alternative income measure adds to cash money income the cash value of non-cash transfers (food stamps, school lunch, housing subsidies, energy subsidy, Medicaid, and Medicare), federal employee retirement benefit contributions and the implied rental value of an owner occupied home, and subtracts taxes (FICA payroll taxes, property taxes, net federal and state taxes [including the EITC, child and child care tax credits, and stimulus payments]). We then apply this enhanced resource measure to the standard poverty thresholds.[15]

The first four columns of Table 2 show that cash poverty ("official poverty") is highly cyclical. The results show that a one percentage point increase in the unemployment rate leads to a 0.74 percentage point increase in the share below 100 percent of poverty. This result is well in line with the many prior studies that have examined this relationship (Bitler and Hoynes 2010, 2013; Blank 1989, 1993; Blank and Blinder 1986; Blank and Card 1993; Cutler and Katz 1991; Freeman 2001; Gunderson and Ziliak 2004; Hoynes et al., 2006; Meyer and Sullivan 2011); our estimates here update that work using data through the Great Recession. We also show that the point estimates increase as we move up the income distribution (across columns 1-4). However, given the differences in the baseline rates of the various multiples of poverty across the columns in the table, we also calculate and present percent impacts which are defined as the estimated coefficients divided by the mean of the dependent variables (over the entire time period for which the relevant independent variable is non-zero, here for the entire time period). These normalized coefficients (labeled "% impact" in the table) show that the impact of a one percentage point increase in unemployment leads to a larger percent impact at the bottom of the distribution (e.g., 8.6 percent for

[15] We constructed this alternative measure ourselves, based on data in the public-use March CPS files, to be as consistent over time as possible while including as many components of CPS experimental poverty measures as possible (e.g., Dalaker, 2005). Our alternative poverty measure differs from the SPM in a couple of ways. The SPM family resource measure incorporates deductions for out of pocket medical expenses, child care, and fixed costs of work. The SPM poverty thresholds vary with geographic area and by expenditures on housing, food, clothing, and utilities. We cannot use the SPM measure for our analysis, however, as it is unavailable in public-use micro data before 2010. For more details, see the data appendix. Note that SNAP dollars and energy assistance are self-reported by respondents; other components are imputed by the Census bureau. Meyer and Sullivan (2012) point out that official cash poverty is more closely related to measures of material deprivation than alternative post-tax post-transfer poverty. This raises some concern about relying on an alternative poverty measure, but in order to evaluate the effects of taxes and non-cash transfers we need a measure that incorporates these sources of income.

less than 50% poverty) than higher up the distribution (e.g., 6.1 percent, 4.4 percent, and 3.5 percent at 100%, 150%, and 200% of poverty, respectively).

Columns 5 through 8 present similar models for alternative poverty. The rates of being below the various shares of the poverty threshold measured utilizing a more comprehensive definition of resources are lower than were the cash poverty rates (see the dependent variable means in Table 2). The reductions are particularly large at the lowest income to poverty levels (below 50% and below 100% poverty) and less so at the higher income to poverty levels; with 4.7% of the population being under 50% of official poverty but only 2.4% being under 50% of our alternative poverty, while the corresponding numbers for being under 200% of poverty are 29.6% versus 27.8%. This "tilting" of the income-to-poverty gradient reflects the high levels of various safety net programs and tax credits at the lowest income levels (the addition of tax credits and the value of non-cash benefits leads to increases in resources) and the potentially offsetting effects of taxes and non-cash benefits for the higher income levels.[16] Nonetheless, despite the changes in mean poverty rates and rates of being below various poverty multiples when we move to alternative poverty, the cyclicality of alternative poverty is strikingly similar to the cyclicality of official (cash) poverty. The notable exception to this is extreme poverty (below 50 percent poverty)—the results show that post-tax and transfer extreme poverty is substantially less cyclical than cash income extreme poverty (percent impact of 6.1 compared to 8.6).

We next modify the regression model to explore whether the cyclicality of poverty in the Great Recession represents a significant change from historical patterns. We perform two comparisons. In the first, we compare the Great Recession to the early-1980s recession by estimating the following model:

$$(2) \qquad y_{st} = \beta_{80} D_{80} UR_{st} + \beta_{GR} D_{GR} UR_{st} + \beta_O D_O UR_{st} + \alpha_s + \delta_t + \varepsilon_{st}$$

[16] To be clear, the poverty thresholds are identical between the cash and alternative poverty measures. However the adjustments to income will be positive for some (reflecting the value of non-cash benefits, value of tax credits such as the EITC) and negative for others (reflecting the effect of taxes).

We split 1980−2011 into three periods: the 1980s recession and expansion ($D_{80}=1$), the Great Recession and expansion ($D_{GR}=1$) and the rest of period ($D_{O}=1$). The corresponding coefficients β_k measure the cyclicality over a given period *k* (there is no main effect, so comparisons across the periods can be done simply by comparing the coefficients). These periods are 1980−1989, 1990−2006, and 2007−2011 and are assigned based on the periods from the peak national unemployment rate to the year prior to the subsequent peak of the national unemployment rate.[17] In this specification, we focus on β_{80} and β_{GR}, and test whether the cyclical responsiveness during the Great Recession is different than the 1980s cycle.

In the second comparison we break 1980-2011 into periods of contraction (D_{CON}) and periods of expansion (D_{EXP}) and test if the Great Recession period is different from earlier contraction and recession periods. This approach pools the pre-GR cycles and allows for asymmetric effects in contractions and expansions. We estimate the following model:

$$(3) \qquad y_{st} = \beta_{CON} D_{CON} UR_{st} + \beta_{EXP} D_{EXP} UR_{st} + \beta_{GR}^{CON} D_{GR} D_{CON} UR_{st} + \beta_{GR}^{EXP} D_{GR} D_{EXP} UR_{st} + \alpha_s + \delta_t + \varepsilon_{st}$$

Appendix Table 1 defines the contraction and expansion periods. The coefficients of interest are β_{GR}^{CON} which captures the difference between the cyclicality in the GR and the cyclicality in previous recessions and β_{GR}^{EXP} which captures the difference between the cyclicality in the expansion out of the Great Recession (compared to previous expansions). Thus a statistically significant coefficient estimate for the Great Recession contraction or expansion denotes a difference in the effect of the expansion or contraction during this most recent period compared to the rest of the period; captured by the main effect. We should note there that we only have one year of expansion (2011); these results may change substantially as we move through the expansion and more data become available.

[17] It is worth noting that our identification strategy leverages variation in the timing and severity of cycles across states. Yet we use the national cycle for unemployment to identify these three periods. We do this because of the focus here on the "national" Great Recession and possible changes in the safety net that have taken place during it.

These results are presented in panels B and C of Table 2. Starting with Panel B, five of the eight poverty measures show larger point estimates for the period beginning in 2007 ("UR x GR") compared to the early 1980s cycle ("UR x 1980s"). For only two of these outcomes—alternative income being below 150 or below 200 percent of poverty—are the differences statistically significant [tests not shown]. The results for these two outcomes show that in the 1980s cycle, a one percentage point increase in unemployment led to a 0.7 percentage point increase in the probability that alternative income is below 150% poverty and a 0.8 percentage point increase in the probability that alternative income is below 200% poverty. In the Great Recession period, a one percentage point increase in unemployment led to 0.9 and 1.3 percentage point increases in poverty at those levels. The most striking—although not statistically significant result— is the risk of extreme alternative poverty (below 50 percent of poverty): in the 1980s cycle a one percentage point increase in unemployment led to a 4.2 percent increase compared to a 7.1 percent increase in the Great Recession cycle.

The results in Panel C provide a similar story. The main effects for unemployment (the first two rows of estimates in Panel C) show an asymmetric response to cycles—a one percentage point change in unemployment leads to larger effects on poverty in expansions than in contractions. All eight estimates in the next row ("UR x Contraction x GR") are positive, indicating that the effect of a one percentage point increase in unemployment during the Great Recession leads to larger increases in poverty across the outcomes when compared to all other contractions. Notably, these differences are statistically significant for all four alternative poverty measures. Conversely, seven of the eight coefficients in the last set of estimates ("UR x Expansion x GR") are *negative* and 3 are significantly so, indicating that the effect of a one percentage point increase in unemployment during the expansion coming out of the Great Recession is leading to smaller improvements in poverty across the outcomes (compared to all other expansions), with the caveat that this recovery is ongoing.

As a robustness exercise, we present a similar set of results in Appendix Table 2, where we instead use the EPOP rate as the measure of the state-year cycle (the national EPOP is shown above

in Figure 1b). As with Table 2, we present results for official poverty and alternative poverty and for the pooled sample period (panel A) as well as providing specifications that allow for differential effects in the Great Recession (panels B and C). Broadly speaking, the qualitative findings are similar regardless of whether we use the unemployment rate or EPOP as our measure of the cycle. All measures of poverty are countercyclical (here the coefficients are negative so an increase in the EPOP—representing an improvement in labor market conditions—leads to a reduction in poverty) and the magnitudes of the percent impacts are strikingly similar for the unemployment rate and EPOP.[18] There are, however, a few differences to point out. First, the results in panel B show more similarity across the periods with the EPOP as the cyclical control (in particular a reduction in estimated percent impact in the "rest of period"). Further, the results in panel C of Appendix Table 2 show that, for both official and alternative poverty, the Great Recession period is associated with *less* cyclicality than the rest of the period: 14 of the 16 interaction terms are positive (the main effects are negative) and 8 of the 16 are statistically significant at the 5% level.

The analyses in this and the prior section show that expenditures on several key elements of the safety net have expanded significantly in the Great Recession. These programs include Food Stamps, UI and (perhaps more a reflection of prior trends) SSI and SSDI. On the other hand, spending per capita on the main guaranteed income floor for families with children, TANF, is at an historic low. The net effect of these changes on cash income poverty—as a function of variation in the timing and severity of state cycles—is that increases in unemployment lead to either no significant change or *smaller* increases in official cash poverty in the Great Recession. The effects of the Great Recession on alternative poverty show greater cyclicality (when using unemployment rates

[18] A percent impact of "x" implies that a one percentage point increase in UR (or EPOP) leads to an x% increase in the poverty rate. One might be concerned that these two changes (a one percentage point change in UR versus a one percentage point change in EPOP) might represent very different changes relative to the magnitude of the overall fluctuations in these measures during this business cycle. However, as shown in Figure 1b, the change in the EPOP is quite similar (although opposite signed) from the change in the UR. For example, in the Great Recession, annual unemployment rates increased from 4.6 to 9.6 while the annual EPOP fell from 63.0 to 58.4—both represent changes of 5 percentage points.

as the measure of the cycle) but less cyclicality (when using the EPOP as the measure of the cycle). For both poverty measures and for both measures of the cycle, however, the expansion out of the Great Recession, while nascent, is not showing the reductions in poverty that we would have expected from historical patterns. One caveat to add is that our data only go through 2011, and thus we do not have data during the full recovery from the Great Recession, nor data for several years during which the unemployment rate has been declining while EPOP has been more stagnant.

5. Assessing the Role of Private and Public Safety Nets

The previous section documented the historical relationship between economic cycles and poverty and showed that families were more at risk of falling into poverty due to the shocks during the Great Recession, compared to earlier recessionary periods. Here, we try to learn more about the role of public and private safety nets in buffering families from the effects of economic cycles on poverty and in so doing to understand more about how the effects of the Great Recession differ from the earlier experiences. In particular, we explore two dimensions of protection. First, we explore the private safety net, and in particular focus on household living arrangements. Second, we explore the role of the social safety net.

A. Private Safety Nets and Household Composition

We begin by examining the role of the private safety net in helping absorb shocks from recessions. Individuals and families may adjust to shocks by "doubling up" or sharing living conditions. One example of this is young adults living at (or moving back to) home (Pew Research Center 2009). Another example is two related (or unrelated) families sharing a household. There is a small literature that examines how these living arrangements change with business cycles (London and Fairlie 2006, Mykyta and Macartney 2011, Painter 2010). We contribute to this literature by exploring a variety of measures of household composition, examining a relatively long historical period (1980−2011), and testing for significant changes in living arrangements and the cycle during the Great Recession.

We return to the March CPS data, covering living arrangements in1981−2012, and continue to analyze our nonelderly sample. As above, we construct our measures of living arrangements at the household level, and assign these measures to each person. We then collapse the individual data to state-year cells. The results are in Table 3. As with the above analysis of poverty, we present three sets of estimates: panel A presents estimates for the full sample period (equation 1), panel B compares the Great Recession cycle to the early 1980s cycle, and panel C tests for differences between the GR and the expansion out of the GR, compared to earlier recession and contraction periods.[19]

The first two columns provide basic "count" measures of household composition, with the average number of persons (column 1) and families (column 2) per household. The results show that households increase in size only modestly in economic downturns—a one percentage point increase in unemployment rates leads to 0.6 percent increase in the number of persons and a statistically insignificant 0.4 percent increase in the number of families. Following Mykyta and Macartney (2012), in column 3, we count the number of "extra adults" in the household. We define extra adults to be all persons age 18 or older who are neither the household head nor the spouse of the head.[20] In column 3 we identify households that contain an "unconnected young adult", which we define as a person aged 18-30 who is neither in school nor working full time. These results show slightly larger but still very modest sized responses over the cycle. A one percentage point increase in the unemployment rate leads to an insignificant 1.2 percent increase in the number of "extra adults" and a statistically significant 2.9 percent increase in the propensity that the household contains an "unconnected" young adult as well as a 0.6 percent increase in the number of persons.

[19] Living arrangements are measured of the time of the survey, which is typically in March. To correspond with the analysis of poverty and the safety net, we match the observation in year t to the unemployment rate over the prior calendar year.

[20] Mykyta and Macartney, in their Census report, exclude the cohabitating partner in the count of extra adults. They are able do this because they examine only the most recent years in the CPS, when cohabitants are identified.

Hoynes, Miller and Schaller (2012) document that this most recent recession disproportionately affected several demographic groups, one of which is young adults. To learn more about this young adult group, in final column we limit the sample to those of ages 18-30 and examine their living arrangements. In particular, we construct a measure of "living independently", which we define as those living in their own family or alone with no other relatives except a husband/wife or a child (thus the rest of the young adults are living in a family with some other relative, mostly their parent). On average, throughout our analysis period, 55 percent of those 18-30 live independently. The results in panel A confirm our prior—in downturns, young adults are less likely to live independently, although as with the effects on other measures of living arrangements, the percent impact is small (a one percentage point increase in the UR leads to a 0.7 percent decline in living independently).

Panels B and C explore whether the potentially mediating effects of living arrangements are different in the Great Recession. The most striking differences across downturns correspond to the presence of unconnected young adults (column 4) and young adults living independently (column 5). Surprisingly, given the significant attention to this issue, the effect of a one percentage point increase in unemployment on the propensity to have "unconnected young adults" in the household is *lower* in the Great Recession compared to the 1980s cycle (or compared to the other period). For example, Panel C shows that a one percentage point increase in unemployment during the Great Recession leads to a statistically significantly smaller reduction in the propensity for a household to contain a young adult not in school or full time work compared to the overall effect (coefficient of -0.38 compared to the main effect of 0.95). However, the cyclicality of young adults living independently has *increased* in the Great Recession (insignificant interaction of -0.36 for the contraction of the Great Recession compared to the main effect of -0.30). [21]

B. The Social Safety Net

[21] The results for living arrangements using EPOP as the measure of the state cycle are very similar to the results presented using the unemployment rate.

In addition to the private safety net, the social safety net plays an important role in protecting against economic downturns. We learned something about this with our analysis above, by exploring the differences in the cyclical responsiveness of cash poverty versus alternative poverty. Here we explore these issues more comprehensively. We begin with a direct examination of the cyclical responsiveness of the central safety net programs: AFDC/TANF, Food Stamps, EITC and UI. We do so using administrative data on aggregate state level caseloads and expenditures. This analysis extends existing estimates on the cyclicality of safety-net programs (e.g., Bitler and Hoynes 2010; Blank 2001; Corsetto 2012; Ziliak et al., 2000; Ziliak et al., 2003).

We begin by exploring how the number of recipients or families per capita participating in these programs varies with the unemployment rate, using administrative data. These estimates are provided in Table 4, where we present three panels (estimates of the same sorts of models we presented in Tables 2 and 3). AFDC/TANF, Food Stamps, and UI are measured monthly, while the EITC is measured annually. The counts for AFDC, Food Stamps, and EITC correspond to families or households. The UI data are reported as weeks of UI per month; what we present here is the total population probability of being on UI for 52 weeks on a monthly basis, constructed by dividing total weeks within the month by 52 (unduplicated counts are unavailable). As mentioned above, the UI program consists of three elements: regular state benefits, state extended benefits and emergency benefits. We are able to measure state regular plus extended benefits for the entire period; however we only have emergency benefits beginning in 1988. We thus present results for two UI caseload measures: state regular plus state extended benefits for 1980-2011 and regular plus extended plus emergency benefits for 1988-2011. Each of the safety net caseload measures are divided by state-year population to create per capita measures.[22]

[22] The sources for the administrative data are US Department of Health and Human Services (2013), US Department of Agriculture (2013), US Department of Labor (2010), and US Internal Revenue Service (2012). With the exception of the EITC, which covers 1980-2010, the other safety net programs cover 1980−2011.The state population data comes from SEER. See the data appendix for more details.

The results are in Table 4. Panel A, with estimates for the full sample period, shows that AFDC/TANF, Food Stamps and UI are all countercyclical. Regular plus extended UI is the most responsive of the three, with a one percentage point increase leading to a 13.3 percent increase in per capita regular plus extended benefit receipt and a 16.3 percent increase in total per capita UI recipients. In contrast, a one percentage point increase in the unemployment rate leads to a 5.5 percent increase in per capita caseloads for AFDC/TANF and a 3.6 percent increase for Food Stamps. The final column shows that the EITC has a very small, but statistically insignificant, countercyclical pattern. This is an important result and reflects the "in work" requirement of the EITC. In other work, we show that this masks a modest countercyclical effect for married couples and an insignificant *pro*-cyclical effect for single parents on the EITC (Bitler, Hoynes and Kuka 2013). We argue there that this is consistent with the expected effects of job loss on one versus two parent families.

As a companion to the analysis of caseloads, in Table 5 we estimate similar models for expenditures on AFDC/TANF, Food Stamps and UI and the combined sum of each program. The data here correspond to annual per capita real (2010$) expenditures. The results in panels B and C of Tables 4 and 5 provide tests of whether the responsiveness of the safety net programs has changed during the Great Recession.

Three important findings are apparent from these results.[23] First, in the post-welfare reform era the cyclical protection provided by TANF has all but disappeared. Panel B of Table 4 shows that in the 1980s cycle, a one percentage point increase in the unemployment rate lead to a 5.5 percent increase in AFDC caseloads per capita. During the Great Recession period, this has fallen to a statistically insignificant 0.8 percent increase. The results in Table 5 (panels B and C) show that, during the Great Recession, an increase in unemployment was actually associated with a *reduction* in

[23] These findings are also evident when using the EPOP as the measure of the cycle. The only qualitative difference we find is that UI caseloads and expenditures are more responsive to changes in unemployment rates than to changes in EPOP. This is sensible given the UI program's direct connection to unemployment status.

TANF cash benefits per capita. We ran similar models with a more comprehensive measure of TANF spending, which includes noncash benefits (e.g., child care assistance) as well as cash benefits—and the results are similar to those presented here for cash benefits. Second, the expansions in Food Stamps eligibility in the past 10 years are evident in the point estimates in panels B and C for both caseloads and spending per capita. For example, Panel C of Table 4 shows that the responsiveness of per capita Food Stamp caseloads during the Great Recession is double that for the full period (the coefficient on "UR x Contraction x GR" is 0.066 compared to the main effect of 0.069). Table 5 shows a similar doubling on the effect on Food Stamp expenditures per capita for the Great Recession compared to the full period. Importantly, however, these differences between the Great Recession and the earlier periods are never statistically significant. This finding is echoed by Ganong and Liebman (2013) who examine the determinants of food stamp caseloads and find that almost all of the increase after 2007 can be explained by state and county level labor market conditions. [24] Third, if we limit UI to consider only state regular and extended benefits (column 3), the results suggest that the Great Recession is providing statistically significantly less protection (the coefficient on UR x Contraction x GR is negative in Panel C in both Tables 4 and 5). However, if we use the most comprehensive UI measure (including emergency benefits, which we can do only for 1988+) we find small and statistically insignificant differences in the Great Recession (compared to the rest of the period). This suggests that our finding of more cyclicality in column 3 may in part be due to states spending less on extended benefits when fully federally funded Emergency Benefits are available. From this, we conclude that the large peak in UI spending in Figure 3 is well within historical predictions.

Our final result is illustrated in the final column of Table 5, where we construct "total safety net expenditures per capita," which is the sum of TANF (column 1), Food Stamps (column 2) and the most comprehensive measure of UI spending (column 4). Here, as in column 4 we are limited to the

[24] When examining the earlier period, especially the Bush expansions in the early 2000s, Ganong and Liebman find more of a role for policy changes in explaining the growth of food stamp caseloads.

years 1988-2011 because of the availability of the UI data. The results are very similar to the results for UI and SNAP—no evidence of increases in the cyclicality of safety net spending in the Great Recession; the interaction effects in Panel C are a statistically insignificant -$874 and -$633. This finding also holds for the full period (and the narrower definition of UI) and for the more comprehensive definition of TANF (including noncash expenditures).

6. The Role of the Safety Net in Providing Protection across Cycles

The analysis in the prior section shows how safety net caseloads and expenditures vary across business cycles and whether that relationship changed during the Great Recession. We extend that analysis by bringing together our analysis of poverty and our analysis of the safety net to explore how the safety net programs affect the cyclicality of poverty. To do so, we return to our CPS nonelderly sample and our alternative poverty measures. For each of our six safety net programs, we (one at a time) "zero out" the income from the safety net program, recalculate alternative household income, and recalculate alternative poverty. This is a "static" calculation in that is assumes nothing else changes in the household. In particular, the counterfactual does not incorporate the behavioral changes that would likely happen if the particular program did not exist.[25] Nonetheless, comparing the cyclicality of the poverty with and without income from the safety net provides a useful description of the extent of protection provided by these programs. Given data limitations in the earlier years in the CPS, here our analysis labeled "UI" captures not only UI but also veteran's payments and worker's compensation. In addition, our analysis labeled "SSDI" captures all OADSI programs including retirement, survivors and disability benefits.[26]

Figure 5 presents some results of that exercise. There are four graphs in Figure 5, one each

[25] In the case of programs where they encompass negative work incentives, then the net effects incorporating the behavioral component could be smaller. Ben-Shalom, Moffitt, and Scholz (2012) review existing literature on the evidence about labor supply effects of these programs.

[26] Beginning in 1989, we can identify separately income from UI, veteran's payments and worker's compensation. About 60 percent of the combined income comes from UI in non-recessionary periods, with larger shares (up to 70 percent or more) in the Great Recession.

for alternative income below 50%, 100%, 150% and 200% poverty. For each safety net program, we plot the change (in percentage points) in the alternative poverty rates that is obtained by zeroing out the safety net program and comparing the resulting income to the relevant share of the poverty threshold (we plot the zeroed out poverty measure minus the base poverty measure). The blue bars on the left of each pair provide these statistics for 2010, the year with the peak unemployment rate in the Great Recession. The red bars on the right of each pair provide the same calculations for 1982, at the peak of the 1980s recession. On the right end of each graph we plot the base alternative poverty rates for the two years. For example, the top left graph shows that zeroing out food stamp benefits leads to almost a 2 percentage point increase in extreme poverty, relative to a base rate of 3.4 (3.5) percent in 1982 (2010). These results illustrate several important findings. First, the decline in importance of cash welfare is evident: TANF has very small impacts on poverty in 2010 while in 1982 TANF provided important protection at 50% and 100% poverty. Second, the growth of the EITC is also evident: in 2010 the EITC has sizable impacts on 100%, 150%, and 200% of the poverty level. Third, Food Stamps contributes more to declines in poverty at 150% and 200% of the FPL in 2010 (relative to 1982). Fourth, the effect of UI is evident at all poverty levels (and rises in importance with poverty level) but its antipoverty impact in 2010 is not dramatically different from 1982. Finally, the disability programs also impact poverty rates with SSI effects concentrated at the bottom of the distribution of the ratio of income to poverty and SSDI gains at 150% and 200% of the poverty threshold. Like UI, the disability programs do not show dramatic changes between these two years.[27]

We then use these "zero-out" poverty rates and estimate the state panel data models just as we did for "base" alternative poverty above (Table 2). We present these results for the full 1980-2011 period in Table 6. There are four panels in the table, one for each of the poverty levels (50%, 100%, 150%, and 200%). For example, in Panel A we estimate models for extreme alternative poverty. The

[27] Meyer, Mok and Sullivan (2009) document that underreporting of safety net participation and expenditures is declining over time in the March CPS (as well as other survey data). This would likely lead to a reduction in the measured antipoverty effectiveness of these programs between 1982 and 2010.

base estimates, in column 1, show that a one percentage point increase in unemployment leads to a 0.15 percentage point or 6.1 percent increase in extreme poverty. This is identical to the result in Table 2 (panel A, column 5). The estimate in column 2 (Table 6, Panel A) shows that the point estimate increases to 0.269—this shows that zeroing out the income from Food Stamps increases the cyclicality of extreme poverty from 6.1 to 8.2 percent (for a one percentage point increase in unemployment). For five of the six safety net programs (SSI is the exception), the results in Panel A show that the zeroing out of the safety net program leads to an increase in the cyclicality of poverty. The effects of the safety net on the cyclicality of poverty are largest at the lowest poverty levels, with more modest changes at 150 and 200% poverty. This illustrates the protection (against economic shocks) that the programs are providing. A more complete analysis would require establishing full counterfactuals for eliminating these programs which is outside the scope of our analysis.[28]

Table 7 extends this analysis and presents estimates for the model that allows for different effects of the unemployment rate during the 1980s recession and the Great Recession (as in Panel B of Table 2). Because of our particular interest in the Great Recession period, we focus on the estimates for that period ("UR x GR"). Figure 6 provides a summary of those results. On the x-axis are the six safety net programs, representing the regressions corresponding to zeroing out income from each program. For each safety net program, there are four data points (bars), one for the each of the poverty rates (50%, 100%, 150%, and 200%). Each of the data points provides the difference between β_{GR} (in equation 2) estimated with "base" case poverty and β_{GR} estimated with the safety net program zeroed out. A negative number here indicates that zeroing out this program leads to an increase in cyclicality. For example, for Food Stamps and 50% poverty, we see in Table 7, base alternative poverty cyclicality is 0.193 and poverty cyclicality after zeroing out food stamps income the coefficient rises to 0.270 (showing that poverty is more cyclical in the absence of Food Stamps).

[28] The analysis is static in the sense that it does not reflect adjustments due to elimination of the program ("zeroing out income"). It does, however, reflect adjustments that occur with responses to changes in unemployment rates given the existing safety net programs.

The difference is -0.077 (0.193−0.270=−0.077) and that is plotted as the far left bar on Figure 6. The Figure shows that, in the Great Recession period, UI benefits are providing the most protection, in terms of reducing the cyclicality of poverty. Food Stamps is also important, but only at the lowest poverty levels (50%, 100%). Like UI, SSDI reduces cyclicality across the distribution but at about half the rate that UI does. The EITC makes an impact on 100% poverty. SSI and TANF are providing little to no protection.

7. The Safety Net and Labor Supply

Ongoing policy discussion in the recent period about the slow recovery has brought attention to the possible role of the expanding safety net in delaying the return to pre-Great Recession employment levels. Mulligan (2012), for example, examines the role of expansions in the safety net and unemployment insurance in leading workers to delay returning to the labor market, a moral hazard effect of the safety net. Economic theory offers clear predictions that safety net expansions should have negative work incentives given the high implicit tax rates on earnings contained in these programs eligibility rules (e.g., Moffitt 1983, Currie 2006). The empirical question is then how large quantitatively are these negative disincentives? To date, very little work speaks directly to this question but we review the available evidence. It is also worth pointing out that one prerequisite for the interactions of these programs to have important effects above and beyond the impact of each individual program is that individuals are participating in many of these programs at the same time. Summary statistics discussed above, however, suggest this is not very common when looking at participation in UI and the other programs. Clearly more work needs to be done in this area, ideally done using high quality linked administrative data (minimizing concerns about underreporting)

The main safety net programs whose expansions during and around the Great Recession have been thought to lead to moral hazard include Unemployment Insurance and Food Stamps. The Federal response to the Great Recession led to an increase in the maximum duration of unemployment insurance to an unprecedented 99 weeks (through the Emergency Unemployment

Compensation 2008 program). Meanwhile, over the 2000s, more generous eligibility rules have eliminated asset limits and otherwise simplified eligibility in many states for SNAP. Ganong and Liebman (2013) examine the effects of these policy changes, but they focus on the outcome of SNAP participation and not on labor supply (and, as noted above they find little role for the policy expansions in leading to increases in SNAP participation). Here, there is clear scope for future work to test the responsiveness of labor supply and earnings to these policy changes.

A few authors have explored directly the link between the recent extensions to Unemployment Insurance and exits from unemployment. Rothstein (2011) suggests that the UI expansions had small but statistically significant effects on exit from unemployment, but that these expansions raised the 2011 unemployment rate by at most 0.1 to 0.5 percentage points. Farber and Valletta (2013) find that the unemployment extensions during both the relatively mild early 2000s recession and the Great Recession caused small and statistically significant declines of similar magnitudes in the exit rate from unemployment. Farber and Valletta (2013) also find that unemployment durations go up slightly, and that these effects are primarily due to fewer exits from the labor force rather than fewer exits into new jobs. Aside from these two studies of UI programs, there have been no studies (to our knowledge) that examine the work disincentives of other elements of the safety net during the Great Recession (or downturns more generally).[29] We are also unaware of papers looking at the effect of UI extensions on participation in other programs, with the exception of Rothstein (2013) and Rutledge (2013) on the effects of the UI expansions on SSDI applications.[30]

8. Conclusion

[29] There is, of course, a large literature that provides estimates of the work disincentives in safety net programs more generally (Moffitt 1992, Krueger and Meyer 2002, Hoynes and Schanzenbach 2012).

[30] In other related work, Lindner and Nichols (2012) examine how participating in the safety net (SNAP, TANF, UI and temporary disability) influences application for disability programs (SSI and SSDI) in a sample of individuals facing job loss. They find that increased use of UI reduces applications for SSDI, while increased use of SNAP increases applications for SSI.

After several decades of mild business cycles, the Great Recession led to unemployment rates unseen since the deep recessions of the early 1980s. At the same time significant changes in the safety net both before and during this most recent downturn make it important to explore the role of the safety net in protecting well-being during the Great Recession. Cash welfare for families with children was transformed in the late 1990s from an entitlement program which functioned as an automatic stabilizer to a time limited program funded by block grants. Over the 2000s, eligibility rules for the food stamp program were made more generous, and participation rates rose even before the start of the downturn. This is also the first severe recession since the EITC was made much more generous in the mid-1990s. The Federal Government responded to this Great Recession through generous expansions in the maximum duration of unemployment benefits to an unprecedented 99 weeks.

In this paper, we explore the role of the public and private safety nets in buffering families against economic shocks, and test whether this relationship has changed significantly during this most recent downturn. We look at the relationship between our measure of the cycle-the state unemployment rate-and both official poverty and our own constructed alternative poverty (which incorporates taxes and transfers) in a state-year panel model. We use CPS data from 1980-2011 and create state by year measures of average official and alternative poverty, and regress them on our measure of the cycle and state and year fixed effects, identifying the effects of the cycle locally by changes within state and over time in the unemployment rate. We then test whether there is evidence that this relationship is different in the current recession. We also examine the role of a variety of public programs including Food Stamps, cash welfare, the EITC, and Unemployment Compensation in responding to the business cycle, relating participation per capita and spending per capita at the state year level to the business cycle in similar panel models with state and year fixed effects.

Surprisingly, we find little evidence that the relationship between official poverty and the business cycle has changed over time. The effects of state labor market cycles during the Great Recession (using either the unemployment rate or the employment to population ratio as measures of

the cycle) are either not significantly different from or exhibit less cyclicality than effects during the pre-Great Recession period. The effects of the Great Recession on a more comprehensive measure of poverty (including taxes and noncash benefits) show greater cyclicality (using unemployment rates as the measure of the cycle) but less cyclicality (using the EPOP as the measure of the cycle) compared to the earlier period. For both poverty measures and for both measures of the cycle, however, the expansion out of the Great Recession, while nascent, is not showing the reductions in poverty that we would have expected from historical patterns. Of course, further evidence on this awaits more data.

The safety net's role in protecting the non-elderly from negative shocks has also changed. Cash welfare (AFDC/TANF) is no longer serving as a countercyclical stabilizer in the wake of the welfare reforms of the late 1990s. Point estimates suggest that Food Stamps has become more countercyclical in the most recent period, although the differences are never statistically significant. The other programs we explore show no significant differences in the responsiveness to the cycle of per capita real spending or caseloads between the Great Recession and previous periods. We then test the contribution of these various programs to the responsiveness of poverty to the business cycle in a static sense by comparing the relationship of poverty to the business cycle overall, and then comparing poverty to the cycle if we remove the antipoverty contribution to household income of each program. This exercise suggests UI is playing the most important role, with some evidence that Food Stamps is also important for extreme poverty and poverty. Finally, we explore the role of one aspect of the private safety net, living arrangements. We test the responsiveness to the cycle of living arrangements overall among the nonelderly and then look at the specific living arrangements of 18-30 year olds. This exercise also shows little change from previous recessions.

We conclude that the private and social safety net fared well in protecting the incomes of our most vulnerable households during the Great Recession. While incomes at the low end of the distribution shrink during downturns, the movement during the Great Recession is not out of line with earlier cycles. Food Stamps and Unemployment Insurance feature prominently in this

protection. Yet current and proposed policy changes to these programs may lead to less protection in the next cycle.

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Data Appendix

Contractions/Expansions: We identified annual periods of contractions as the range of years from lowest to highest annual unemployment and the expansions as the range of years from the highest to lowest annual unemployment rates that are near the beginning and end points of the various NBER recessions. We pooled the 2 early 1980s recessions into one contraction. The annual contraction periods are 1979-1982 (NBER recessions: 1/1980-7/1980, 7/1981-11/1982), 1990-1992 (NBER recession: 7/1990-3/1991), 2001-2003 (NBER recession: 3/2001-11/2001), and 2007-20010 (NBER recession 12/2007-6/2009). For more information see Appendix Table 1.

AFDC/TANF administrative data on caseloads and expenditures: AFDC caseloads were downloaded from http://www.acf.hhs.gov/programs/ofa/data-reports/caseload/caseload_archive.html and TANF caseloads (which beginning in 2000 include Separate State Program/Maintenance of Effort) are from http://www.acf.hhs.gov/programs/ofa/resource/caseload/caseload-recent. Unpublished data on AFDC cash expenditures (and combined AFDC/TANF expenditures) for 1980-2000 provided by Don Oellerich at ASPE/HHS. TANF expenditures are from http://www.acf.hhs.gov/programs/ofs/data/index.html. TANF cash expenditures are defined as "Column B of Table F-3, combined spending of federal and state funds with ARRA expended in Fiscal Year 2009, line 5a, basic assistance." The average monthly TANF benefit (used in Table 1) is the average family benefit for 2006, inflated to be in 2010 real $ from http://www.acf.hhs.gov/programs/ofa/data-reports/annualreport8/TANF_8th_Report_111908.pdf , DHHS (2009). All AFDC and TANF data are for the month or the Fiscal Year (year ending Sept 30).

Food Stamp administrative data on caseloads and expenditures: Caseload and expenditures by state and month for calendar years 1980-2009, and for 1/2010-12/2011 come from unpublished USDA data generously provided by Katie Fitzpatrick and John Kirlin, of the Economic Research Service, USDA. Data for Table 1 come from:
http://www.fns.usda.gov/pd/SNAPsummary.htm
http://www.fns.usda.gov/pd/16SNAPpartHH.htm
http://www.fns.usda.gov/pd/34SNAPmonthly.htm

Unemployment Insurance administrative data on caseloads and expenditures: Data for calendar years 1980 through 2011 come from unpublished data provided by the Office of the Chief Economist at the Department of Labor. Average amounts per month are the sum of monthly spending times 4.5 times the average number of weeks in a given month.

SSI administrative data on caseloads and expenditures: SSDI data comes from the Annual Statistical Report on the SSDI Program. Average monthly benefits are for workers. Source:
http://www.ssa.gov/policy/docs/statcomps/ssi_asr/#editions

SSDI administrative data on caseloads and expenditures: SSI data comes from the Annual Statistical Supplement to the Social Security Bulletin. Caseloads and expenditures include the federal and state programs and exclude the aged recipients. Average monthly benefits are for disabled workers.
http://www.socialsecurity.gov/policy/docs/statcomps/di_asr/2011/sect01b.html#table3

Unemployment for U.S. and by state: Number of unemployed and unemployment rate for U.S. and states, annually and by month, come from the Bureau of Labor Statistics' Current Population Survey, accessed from: http://www.bls.gov/lau/. The monthly numbers used in the paper are seasonally adjusted.

Population for U.S. and by state: U.S. population from the Economic Report of the President,

http://www.gpoaccess.gov/eop/2012/B34.xls. State population is from National Cancer Institute SEER data (http://seer.cancer.gov/popdata/download.html) for 1980-2011.

Deflator: The CPI-U is from the Economic Report of the President, http://www.gpoaccess.gov/eop/2012/B34.xls.

Census poverty rates: Official poverty all persons come from the US Census Bureau Report "Income, Poverty, and Health Insurance Coverage in the United States: 2011", report P60-243,Tables B-1 and Table B-2. NAS alternative poverty numbers come from tabulations provided by the US Census Bureau at http://www.census.gov/hhes/www/povmeas/tables.html, the spreadsheet labeled "Official and National Academy of Sciences NAS Based Poverty Rates; 1999 to 2011", downloaded from http://www.census.gov/hhes/povmeas/data/nas/tables/2011/web_tab4_nas_measures_historical_1999_2011.xls We report "MSI-NGA-CE", which means imputed medical out of pocket expenses are subtracted from income (MSI), no geographic adjustments are made (NGA), and the thresholds are based on consumption data from the Consumer Expenditure Survey (CE).

EITC: Data on recipients and the total tax cost of the EITC for 1980-2010 is from Tax Policy Center's Tax Facts on Historical EITC, for Fiscal Years 1976-2010, downloaded from http://www.taxpolicycenter.org/taxfacts/displayafact.cfm?Docid=37. State and year tabulations of caseloads and expenditures comes from U.S. IRS Statistics of Income file.

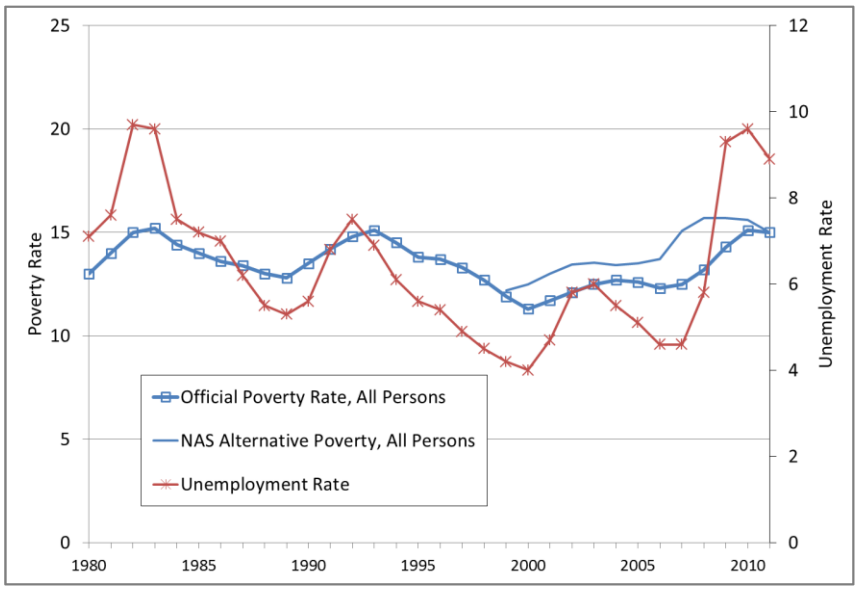
March CPS, Official Poverty and Alternative Poverty: We use the March Current Population Survey for years 1981 through 2012 (covering calendar years 1980 through 2011). The main sample used in the paper measures poverty and relevant living arrangements at the household level, after dropping unrelated children (as does the Census bureau). Thus, total cash or alternative income is summed across household members, and then the income is compared to various multiples of the poverty threshold, and this value attached to all household members. Then, we frequently restrict the analysis to nonelderly persons, using that sample. State by year aggregates poverty levels for example, are the average of the non-elderly poverty level weighted by the supplement person weight for each state for a given year of the March Survey.

Our alternative poverty uses data provided in the public-use CPS data and available on a consistent basis back to 1980 (Bitler and Hoynes 2010, 2013). We developed this measure based on the recommendations in the National Academy of Sciences report (Citro and Michael, 1995); it is also closely related to the resource measures in the Supplemental Poverty Rate first released in 2010 (Short 2011, 2012). In particular, we assign poverty using an expanded "alternative income" measure which we then apply to the standard poverty thresholds. Our alternative income measure (or a measure of resources) adds to cash money income the cash value of non-cash programs (food stamps, school lunch, housing subsidies, energy subsidy, Medicaid, and Medicare), federal employee retirement benefit contributions and the implied rental value of an owner occupied home, and subtracts taxes (FICA payroll taxes, property taxes, net federal and state taxes [including the EITC, child and child care tax credits, and stimulus payments]).

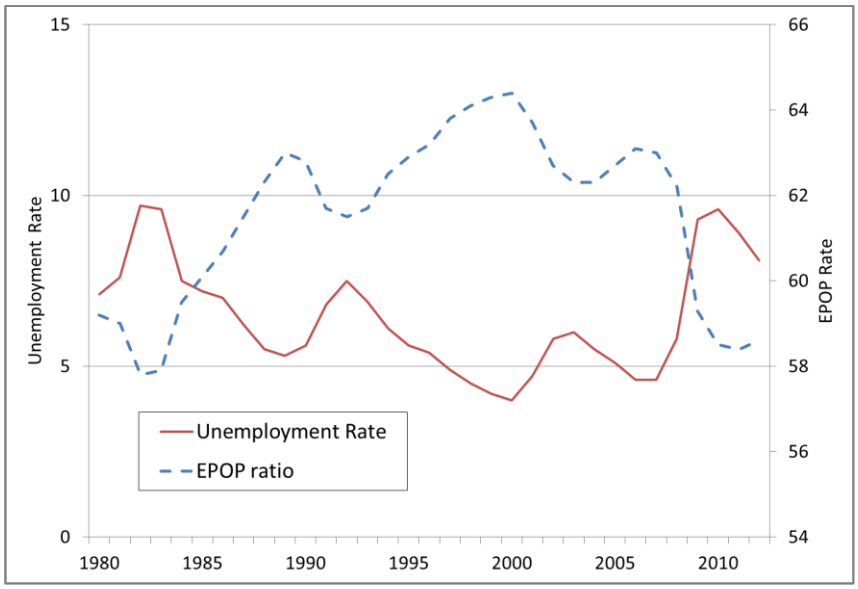
We are able to construct a consistent alternative poverty measure for calendar years 1980-1986, 1988-1990, and 1991-2011. We are using the "old" version of the 1988 data which does not correspond to the 1988 data on these measures so data are missing on alternative poverty for 1988. None of the components of alternative poverty were created in 1991, so this year also is missing alternative poverty. All variables are consistently reported for the other years with a single exception, the total dollars of LIHEAP was not reported until 1982, we have set it to zero for survey years 1980 and 1982.

Figure 1 Trends in Key Indicators

(a) Annual Unemployment, Official Poverty, and NAS Alternative Poverty

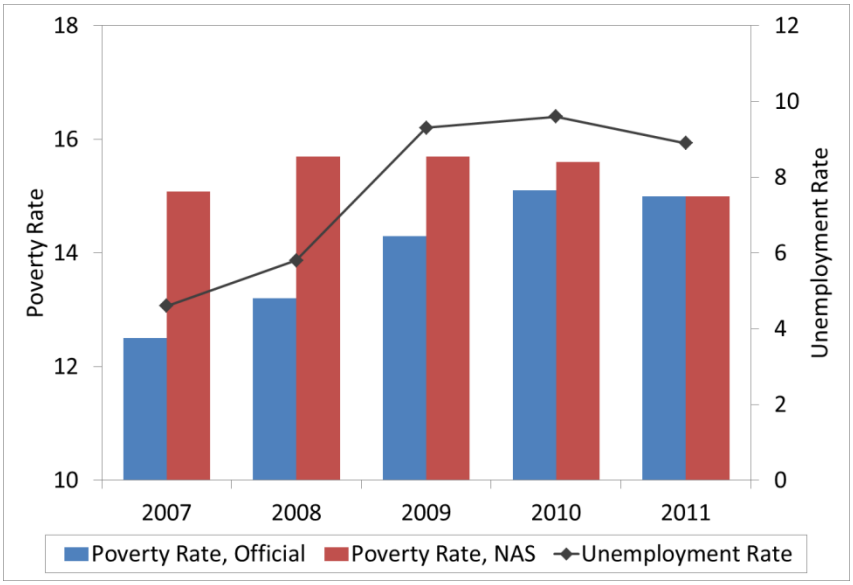


(b) Annual Unemployment Rate and Employment to Population Rate



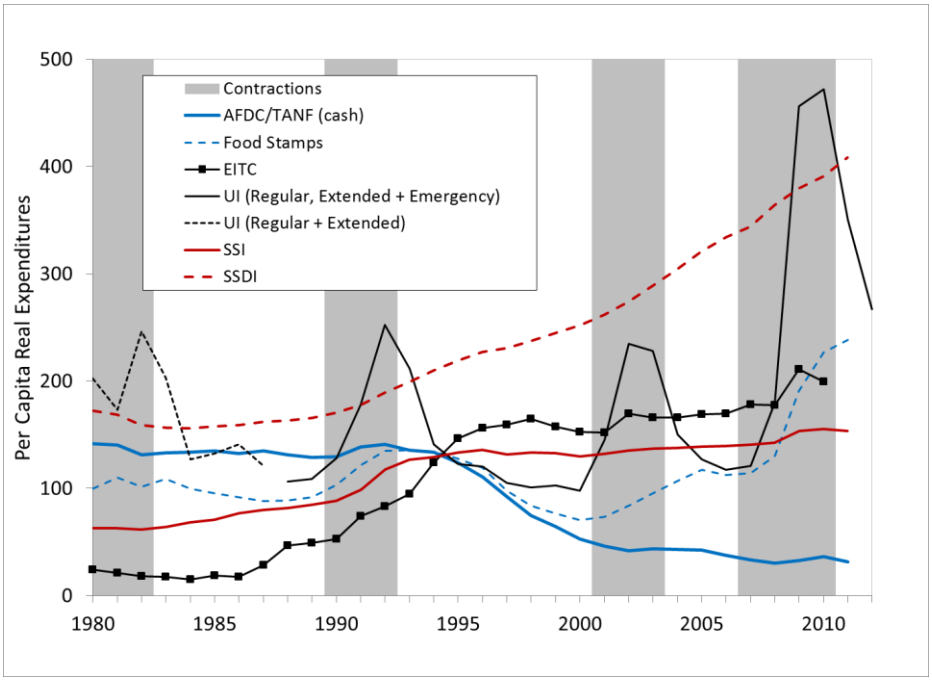
Notes: Measures directly available from published sources; see data appendix. Poverty refers to percent of persons living in families with income below the poverty line. NAS alternative poverty measure uses MSI-NGA-CE version of NAS tabulations. For more details, see data appendix.

Figure 2: Annual Unemployment, Official Poverty, and NAS Alternative Poverty in the Great Recession



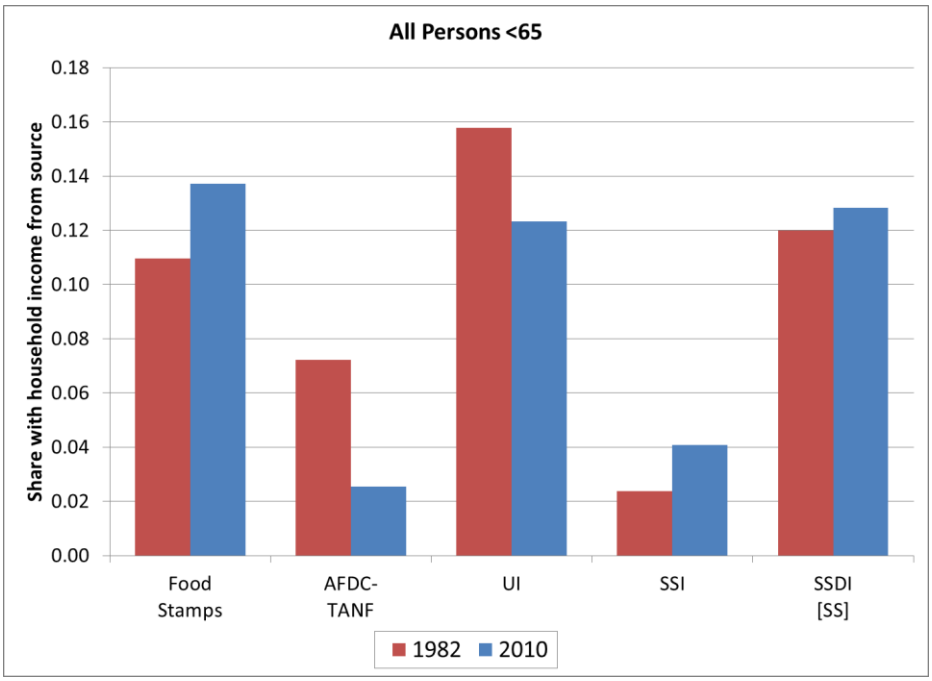
Notes: Measures directly available from published sources; see data appendix. Poverty refers to percent of persons living in families with income below the poverty line. NAS alternative poverty measure uses MSI-NGA-CE version of NAS tabulations. For more details, see data appendix.

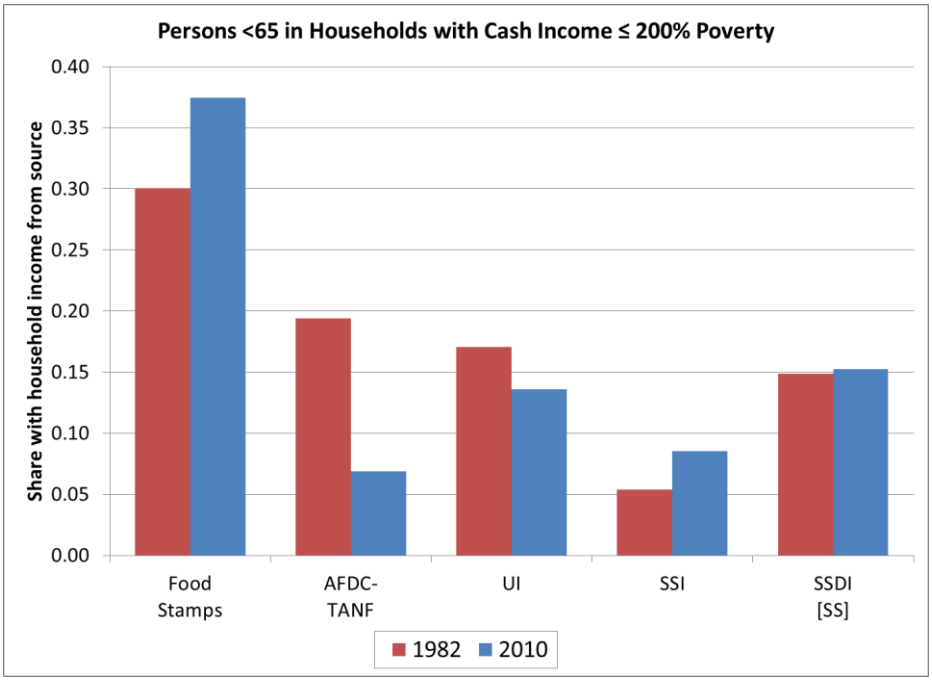
Figure 3: Per capita real expenditures on cash and near cash safety net programs, 1980-2011



Notes: All data are available from published statistics except UI expenditures, which were provided by the Office of the Chief Economist; see data appendix for details. Contractions are annual periods of labor market contraction that closely follow NBER official recessions. Official recessions are dated monthly; we assigned our contraction periods to encompass the periods of rising unemployment rates. See data appendix for details.

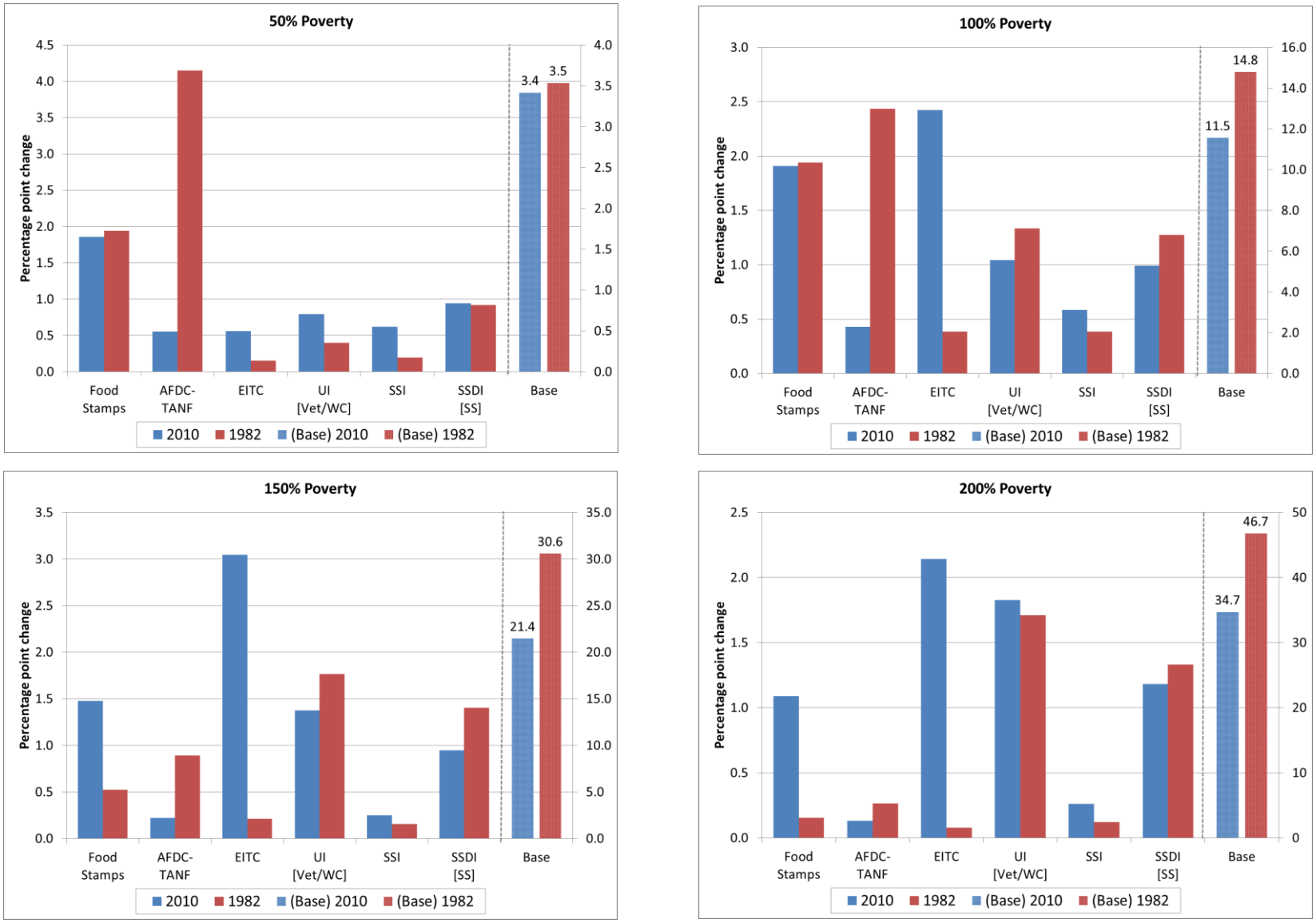
Figure 4: Household Participation in Safety Net Programs for the Nonelderly, 1982 and 2010





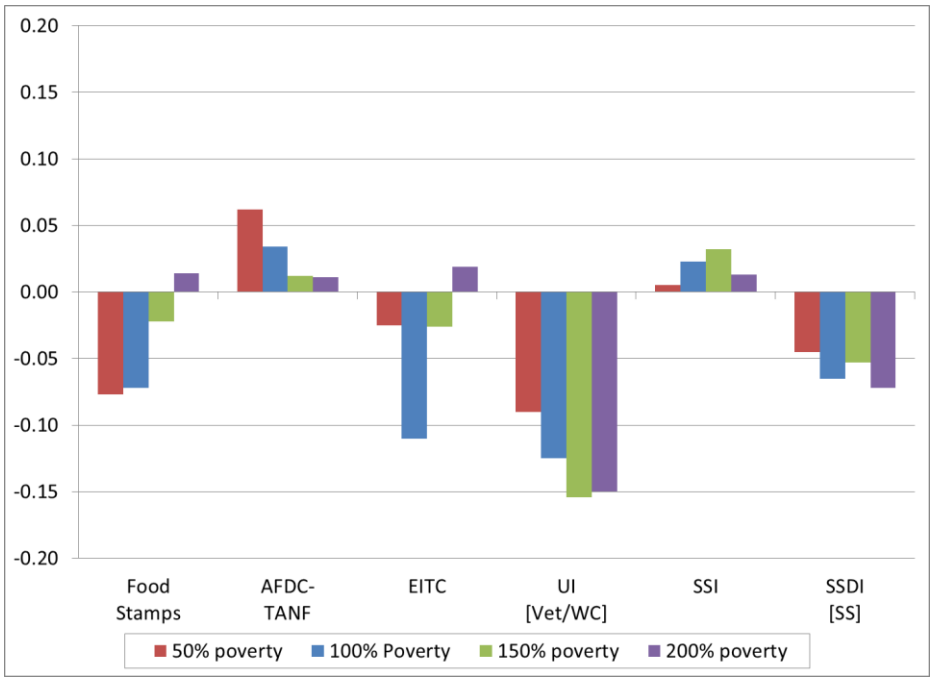
Notes: Authors' calculations from 1983 and 2011 March Current Population Survey data for 1982 and 2010 calendar year income. Sample includes nonelderly individuals. Panel A is all such individuals under 65 and panel B is further limited to nonelderly individuals living in households with cash income below 200 percent of the federal poverty threshold. Poverty is assigned at the household level.

Figure 5: Percentage Point Increase in Alternative Income Poverty, Zeroing out Safety Net Income, 2010 and 1982



Notes: Authors' calculations from 1983 and 2011 March Current Population Survey. Sample includes nonelderly and alternative poverty is assigned using household income. Each data point is the difference between alternative poverty with safety net zeroed out from income minus "base" alternative poverty. On the right end of each figure are the "base" alternative poverty rates for the two years.

Figure 6: Effect of Safety Net Programs on Cyclicality of Alternative Poverty



Notes: Author's manipulations of parameter estimates presented in Table 7. See text for details.

Table 1: Expenditures and Participation in Cash or Near-Cash Safety Net Programs, 2010

	Number of recipient units (thousands)	Total benefit payments (millions of 2010$)	Average monthly benefit
Temporary Assistance for Needy Families, Cash Benefits	1,911	$10,699	$402
Food Stamps	18,618	$64,702	$285
Federal Earned Income Tax Credit	26,170	$58,620	$187
Supplemental Security Income, Nonaged Caseload	6,728	$45,618	$518
Social Security Disability Income	9,398	$114,854	$1,068
Unemployment Compensation - Regular State Benefits	3,927	$59,461	$1,262
Unemployment Compensation - Extended Benefits	604	$9,344	$1,289
Unemployment Compensation - Emergency Benefits	4,508	$69,894	$1,292
Unemployment Compensation - Total	9,039	138,699	$1,279

Notes: Data for all programs refers to 2010 and are in real $2009. See data appendix for sources.

Table 2: Effects of Unemployment Rate on Official Cash Poverty and Alternative Poverty

	Official poverty *(cash pre-tax)*				Alternative poverty *(post-tax, all transfers)*			
	<50%	<100%	<150%	<200%	<50%	<100%	<150%	<200%
				A. Pooled Estimates				
UR	0.403***	0.735***	0.897***	1.036***	0.148***	0.556***	0.844***	1.046***
	(0.054)	(0.072)	(0.113)	(0.137)	(0.024)	(0.061)	(0.118)	(0.157)
% impact	*8.6%*	*6.1%*	*4.4%*	*3.5%*	*6.1%*	*6.6%*	*4.9%*	*3.8%*
				B. By Period (1980s, GR, Rest of Period)				
UR x 1980s	0.384***	0.662***	0.756***	0.821***	0.102***	0.513***	0.697***	0.817***
	(0.062)	(0.075)	(0.121)	(0.154)	(0.033)	(0.062)	(0.146)	(0.160)
UR x Rest of period	0.506***	1.047***	1.317***	1.466***	0.208***	0.732***	1.132***	1.316***
	(0.074)	(0.150)	(0.227)	(0.240)	(0.057)	(0.136)	(0.189)	(0.274)
UR x GR	0.354***	0.624***	0.843***	1.148***	0.193***	0.496***	0.907***	1.302***
	(0.071)	(0.079)	(0.120)	(0.160)	(0.034)	(0.055)	(0.084)	(0.159)
% Impact, 1980s	*7.9%*	*5.2%*	*3.5%*	*2.6%*	*4.2%*	*5.5%*	*3.5%*	*2.6%*
% Impact, rest of period	*11.2%*	*9.0%*	*6.6%*	*5.1%*	*9.1%*	*9.0%*	*6.9%*	*4.9%*
% impact, GR	*7.2%*	*5.0%*	*4.0%*	*3.8%*	*7.1%*	*6.0%*	*5.8%*	*5.1%*
				C. By Expansion/Contraction and GR				
UR x Contraction	0.259***	0.535***	0.601***	0.703***	0.072**	0.336***	0.465***	0.581***
	(0.057)	(0.094)	(0.157)	(0.201)	(0.033)	(0.067)	(0.172)	(0.201)
UR x Expansion	0.502***	0.902***	1.091***	1.176***	0.171***	0.715***	1.033***	1.185***
	(0.052)	(0.101)	(0.150)	(0.177)	(0.039)	(0.086)	(0.126)	(0.184)
UR x Contraction x GR	0.089	0.051	0.180	0.358	0.130**	0.171***	0.384**	0.614**
	(0.060)	(0.129)	(0.222)	(0.298)	(0.048)	(0.072)	(0.181)	(0.275)
UR x Expansion x GR	-0.197**	-0.349***	-0.329	-0.063	-0.045	-0.352***	-0.159	0.191
	(0.080)	(0.125)	(0.211)	(0.230)	(0.078)	(0.106)	(0.130)	(0.166)
Means by period								
Pooled: 1980-2011	0.047	0.121	0.206	0.296	0.024	0.085	0.171	0.278
1980s: 1980-1989	0.049	0.126	0.214	0.306	0.026	0.087	0.173	0.282
GR: 2007-2011	0.045	0.117	0.200	0.288	0.023	0.082	0.169	0.275
Rest of period: 1990-2006	0.051	0.130	0.217	0.306	0.028	0.084	0.158	0.259
N	1632	1632	1632	1632	1530	1530	1530	1530

Notes: Data are from the CPS ASEC calendar years 1980-2011 and are collapsed to the state by year level (weighted). All regressions include controls for state and year fixed effects. The results are weighted by the sum of the CPS weights in the cell. Standard errors are clustered by state and shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 3: Effects of Unemployment Rate on Living Arrangements

	All nonelderly persons				Young adults, age 18-30
	Number of persons	Number of families	Number of "extra" adults	Any young adult with no FT work & no school	Living independently (with no other relatives besides husband/wife or kids)
			A. Pooled Estimates		
UR	2.161**	0.408	0.716	0.752***	-0.407**
	(0.985)	(0.256)	(0.483)	(0.059)	(0.191)
% impact	*0.6%*	*0.4%*	*1.2%*	*2.9%*	*-0.7%*
			B. By Period (1980s, GR, Rest of Period)		
UR x 1980s	2.336***	0.329**	0.334	0.761***	-0.274*
	(0.689)	(0.129)	(0.301)	(0.075)	(0.157)
UR x Rest of period	1.876	0.469	0.682*	0.936***	-0.429**
	(1.503)	(0.286)	(0.378)	(0.105)	(0.281)
UR x GR	2.012	0.538	1.634	0.565***	-0.732**
	(1.782)	(0.570)	(1.168)	(0.168)	(0.332)
% Impact, 1980s	*0.6%*	*0.3%*	*0.6%*	*2.5%*	*-0.5%*
% Impact, rest of period	*0.5%*	*0.5%*	*1.2%*	*3.8%*	*-0.8%*
% impact, GR	*0.6%*	*0.6%*	*2.4%*	*2.3%*	*-1.5%*
			C. By Expansion/Contraction and GR		
UR x Contraction	2.106**	0.447**	0.741**	0.954***	-0.298
	(0.870)	(0.208)	(0.337)	(0.110)	(0.223)
UR x Expansion	2.241***	0.335*	0.296	0.747***	-0.327*
	(0.824)	(0.165)	(0.306)	(0.062)	(0.168)
UR x Contraction x GR	0.097	0.062	0.925	-0.383**	-0.363
	(1.259)	(0.415)	(0.961)	(0.170)	(0.312)
UR x Expansion x GR	-0.597	0.244	1.174	-0.238	-0.542*
	(0.989)	(0.376)	(0.987)	(0.169)	(0.284)
Means by period					
Pooled: 1980-2011	3.599	0.951	0.589	0.261	0.549
1980s: 1980-1989	3.678	0.961	0.563	0.300	0.578
GR: 2007-2011	3.574	0.947	0.575	0.246	0.503
Rest of period: 1990-2006	3.554	0.946	0.672	0.246	0.546
N	1632	1632	1632	1632	1632

Notes: Data are from the CPS ASEC calendar years 1980-2011 and are collapsed to the state by year level (weighted). The first four columns include all nonelderly persons and the second four columns are limited to those age 18-30. All regressions include controls for state and year fixed effects. The results are weighted by the sum of the CPS weights in the cell. Standard errors are clustered by state and shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 4: Effect of Unemployment Rate on Safety Net Caseloads

	Caseload / Population, Monthly				Case./Pop., Annual
	AFDC/TANF	Food Stamps	UI [Reg., Ext.]	UI, 1988+ [Reg., Ext., Emerg.]	EITC
			A. Pooled Estimates		
UR	0.064***	0.132***	0.011***	0.016***	0.035
	(0.015)	(0.038)	(0.001)	(0.001)	(0.044)
% impact	*5.5%*	*3.6%*	*13.3%*	*16.3%*	*0.6%*
			B. By Period (1980s, GR, Rest of Period)		
UR x 1980s	0.086***	0.088***	0.012***	-	-0.024
	(0.024)	(0.029)	(0.001)		(0.061)
UR x Rest of period	0.074***	0.210***	0.011***	-	0.155**
	(0.019)	(0.038)	(0.001)		(0.069)
UR x GR	0.005	0.149	0.009***	-	0.071
	(0.029)	(0.164)	(0.001)		(0.082)
% Impact, 1980s	*5.5%*	*2.8%*	*13.3%*	-	*-0.8%*
% Impact, rest of period	*6.3%*	*6.1%*	*14.8%*	-	*2.3%*
% impact, GR	*0.8%*	*2.8%*	*8.6%*	-	*0.9%*
			C. By Expansion/Contraction and GR		
UR x Contraction	0.079**	0.069**	0.015***	0.015***	0.036
	(0.024)	(0.033)	(0.001)	(0.001)	(0.068)
UR x Expansion	0.082***	0.153***	0.010***	0.013***	0.028
	(0.017)	(0.031)	(0.001)	(0.001)	(0.053)
UR x Contraction x GR	-0.082**	0.066	-0.006***	0.003	0.019
	(0.036)	(0.140)	(0.001)	(0.003)	(0.122)
UR x Expansion x GR	-0.076**	-0.027	-0.004***	0.001	-
	(0.030)	(0.234)	(0.001)	(0.002)	
Mean by period					
Mean of Y, pooled	0.012	0.037	0.001	0.001	0.059
Mean of Y, 1980s	0.016	0.031	0.001	-	0.031
Mean of Y, GR	0.012	0.034	0.001	0.002	0.067
Mean of Y, rest of period	0.006	0.053	0.001	-	0.081
N	19,584	19,488	19,584	14,688	1581

Notes: Data cover 1980-2011 (or 2010 for the EITC). The dependent variables are safety net caseloads divided by the state population. Sources for caseloads are in the appendix. The EITC data are annual, the other programs are monthly. All regressions include state and year (or year-by-month) fixed effects. The results are weighted by the state population. Standard errors are clustered by state and shown in parentheses. * p<0.10, ** p<0.05,*** p<0.01.

Table 5: Effect of Unemployment Rate on Safety Net Expenditures

	Expenditures / Population, Annual				
	AFDC/TANF	Food Stamps	UI [Reg., Ext.]	UI [Reg., Ext., Emerg.] 1988+	Combined Programs [TANF+SNAP+UI] 1988+
			A. Pooled Estimates		
UR	422.8	611.8***	2113.0***	2823.1***	3868.3***
	(258.1)	(87.1)	(203.4)	(393.0)	(377.2)
% impact	*4.9%*	*5.4%*	*14.2%*	*15.5%*	*10.3%*
			B. By Period (1980s, GR, Rest of Period)		
UR x 1980s	762.2*	456.0***	2484.1***	-	-
	(434.6)	(102.0)	(207.1)		
UR x Rest of period	781.0***	891.8***	1735.2***	-	-
	(226.4)	(146.1)	(316.8)		
UR x GR	-672.8**	717.4*	1602.4***	-	-
	(384.8)	(399.7)	(257.7)		
% Impact, 1980s	*5.8%*	*4.8%*	*16.3%*	-	-
% Impact, rest of period	*9.6%*	*8.7%*	*13.2%*	-	-
% impact, GR	*-20.9%*	*4.1%*	*8.1%*	-	-
			C. By Expansion/Contraction and GR		
UR x Contraction	871.5**	357.4***	3139.5***	3323.9***	4624.4***
	(363.6)	(125.9)	(309.0)	(435.4)	(492.6)
UR x Expansion	713.0**	701.0***	1824.7***	2066.7***	3920.9***
	(293.7)	(120.4)	(235.7)	(327.8)	(487.4)
UR x Contraction x GR	-1578.5***	301.7	-1282.4***	198.5	-873.7
	(535.1)	(407.8)	(414.0)	(648.5)	(638.3)
UR x Expansion x GR	-1283.1**	-25.9	-509.3	876.2	-633.2
	(551.6)	(623.0)	(348.4)	(619.8)	(979.3)
Mean by period					
Mean of Y, pooled	86.7	114.2	149.0	181.7	374.2
Mean of Y, 1980s	131.7	95.7	152.3	-	-
Mean of Y, GR	81.7	103.0	131.7	310.8	519.8
Mean of Y, rest of period	32.1	176.9	196.8	-	-
N	1632	1632	1632	1224	1224

Notes: Data are annual and cover 1980-2011. The dependent variables are safety net expenditures divided by the state population. Sources for expenditures are in the appendix. All regressions include state and year fixed effects. The results are weighted by the state population. Standard errors are clustered by state and shown in parentheses. * p<0.10, ** p<0.05,*** p<0.01.

Table 6: Effect of Unemployment Rate on Alternative Poverty, With and Without Safety Net

		Zero out safety net, recalculate poverty					
	Base	Food Stamps	AFDC-TANF	EITC	UI [Vet, WC]	SSI	SSDI [SS]
				A. 50% Poverty			
UR	0.148	0.269	0.280	0.166	0.210	0.126	0.169
	(0.024)	(0.030)	(0.046)	(0.027)	(0.023)	(0.030)	(0.028)
Mean Y	0.024	0.033	0.034	0.026	0.027	0.029	0.034
% impact	*6.1%*	*8.2%*	*8.2%*	*6.3%*	*7.7%*	*4.3%*	*4.9%*
				B. 100% Poverty			
UR	0.556	0.605	0.608	0.610	0.681	0.534	0.589
	(0.061)	(0.058)	(0.054)	(0.064)	(0.062)	(0.058)	(0.060)
Mean Y	0.085	0.092	0.091	0.093	0.091	0.089	0.099
% impact	6.6%	6.6%	6.7%	6.5%	7.5%	6.0%	5.9%
				C. 150% Poverty			
UR	0.844	0.861	0.874	0.859	1.000	0.834	0.879
	(0.118)	(0.122)	(0.120)	(0.124)	(0.120)	(0.117)	(0.119)
Mean Y	0.171	0.176	0.175	0.180	0.179	0.175	0.188
% impact	4.9%	4.9%	5.0%	4.8%	5.6%	4.8%	4.7%
				D. 200% Poverty			
UR	1.046	1.038	1.055	1.024	1.191	1.030	1.063
	(0.156)	(0.154)	(0.154)	(0.157)	(0.152)	(0.156)	(0.157)
Mean Y	0.278	0.281	0.280	0.284	0.288	0.282	0.297
% impact	3.8%	3.7%	3.8%	3.6%	4.1%	3.7%	3.6%
N	1530	1530	1530	1530	1530	1530	1530

Notes: Data are from the CPS ASEC calendar years 1980-2011 and are collapsed to the state by year level (weighted). All regressions include controls for state and year fixed effects. The results are weighted by the number of sum of the CPS weights for the individuals in each cell. Standard errors are clustered by state and shown in parentheses. * p<0.10, ** p<0.05, ***p<0.01.

Table 7: Effect of Unemployment Rate on Alternative Poverty, With and Without Safety Net

		Zero out safety net, recalculate poverty					
	Base	Food Stamps	AFDC-TANF	EITC	UI [Vet, WC]	SSI	SSDI [SS]
				A. 50% Poverty			
UR x 1980s	0.102	0.239	0.324	0.109	0.161	0.062	0.101
	(0.033)	(0.034)	(0.079)	(0.033)	(0.031)	(0.038)	(0.039)
UR x Rest of period	0.208	0.340	0.341	0.246	0.248	0.210	0.256
	(0.057)	(0.070)	(0.096)	(0.064)	(0.059)	(0.057)	(0.056)
UR x GR	0.193	0.270	0.131	0.218	0.283	0.188	0.238
	(0.034)	(0.028)	(0.045)	(0.039)	(0.040)	(0.039)	(0.046)
				B. 100% Poverty			
UR x 1980s	0.513	0.543	0.600	0.521	0.646	0.494	0.521
	(0.062)	(0.067)	(0.078)	(0.061)	(0.065)	(0.066)	(0.068)
UR x Rest of period	0.732	0.798	0.794	0.831	0.834	0.701	0.787
	(0.136)	(0.130)	(0.138)	(0.133)	(0.141)	(0.131)	(0.137)
UR x GR	0.496	0.568	0.462	0.606	0.621	0.473	0.561
	(0.055)	(0.055)	(0.072)	(0.059)	(0.052)	(0.055)	(0.053)
				C. 150% Poverty			
UR x 1980s	0.697	0.698	0.730	0.688	0.852	0.688	0.720
	(0.146)	(0.146)	(0.139)	(0.137)	(0.144)	(0.148)	(0.155)
UR x Rest of period	1.132	1.183	1.203	1.191	1.292	1.144	1.173
	(0.189)	(0.202)	(0.223)	(0.200)	(0.203)	(0.193)	(0.187)
UR x GR	0.907	0.929	0.895	0.933	1.061	0.875	0.960
	(0.084)	(0.084)	(0.084)	(0.095)	(0.087)	(0.083)	(0.080)
				D. 200% Poverty			
UR x 1980s	0.817	0.807	0.828	0.792	0.978	0.788	0.814
	(0.160)	(0.161)	(0.160)	(0.161)	(0.158)	(0.162)	(0.172)
UR x Rest of period	1.316	1.321	1.339	1.296	1.415	1.329	1.317
	(0.274)	(0.274)	(0.278)	(0.278)	(0.270)	(0.272)	(0.264)
UR x GR	1.302	1.288	1.291	1.283	1.452	1.289	1.374
	(0.159)	(0.156)	(0.156)	(0.165)	(0.163)	(0.156)	(0.155)
N	1530	1530	1530	1530	1530	1530	1530

Notes: Data are from the CPS ASEC calendar years 1980-2011 and are collapsed to the state by year level (weighted). All regressions include controls for state and year fixed effects. The results are weighted by the number of sum of the CPS weights for the individuals in each cell. Standard errors are clustered by state and shown in parentheses. * p<0.10, ** p<0.05, ***p<0.01.

Appendix Table 1: Dating of Contractions and Expansions

	Annual Data		Monthly Data	
	Contraction	Expansion	Contraction	Expansion
1980s Cycle	1979 – 1982	1983 – 1989	– 11/1982	12/1982 – 3/1989
	1979 – 1989		– 3/1989	
Rest of Period	1990 – 1992	1993 – 2000	4/1989 – 6/1992	7/1992 – 4/2000
	2001 – 2003	2004 – 2006	5/2000 – 6/2003	7/2003 – 10/2006
	1990-2006		4/1989 – 10/2006	
Great Recession	2007 – 2010	2011+	11/2006 – 10/2009	11/2009 +
	2007+		11/2006 +	

Notes: See text and data appendix.

Appendix Table 2: Effects of EPOP Rate on Official Cash Poverty and Alternative Poverty

	Official poverty *(cash pre-tax)*				Alternative poverty *(post-tax, all transfers)*			
	<50%	<100%	<150%	<200%	<50%	<100%	<150%	<200%
				A. Pooled Estimates				
EPOP	-0.385***	-0.772***	-1.074***	-1.280***	-0.165***	-0.546***	-0.886***	-1.310***
	(0.052)	(0.073)	(0.112)	(0.137)	(0.026)	(0.062)	(0.109)	(0.145)
% impact	*-8.2%*	*-6.4%*	*-5.2%*	*-4.3%*	*-6.9%*	*-6.5%*	*-5.2%*	*-4.7%*
				B. By Period (1980s, GR, Rest of Period)				
EPOP x 1980s	-0.430***	-0.853***	-1.168***	-1.350***	-0.135***	-0.603***	-1.027***	-1.369***
	(0.055)	(0.079)	(0.123)	(0.145)	(0.029)	(0.063)	(0.120)	(0.150)
EPOP x Rest of period	-0.390***	-0.781***	-1.094***	-1.326***	-0.183***	-0.553***	-0.884***	-1.339***
	(0.059)	(0.085)	(0.124)	(0.144)	(0.028)	(0.074)	(0.115)	(0.153)
EPOP x GR	-0.304***	-0.627***	-0.889***	-1.088***	-0.179***	-0.449***	-0.678***	-1.171***
	(0.061)	(0.076)	(0.112)	(0.156)	(0.037)	(0.068)	(0.124)	(0.176)
% Impact, 1980s	*-8.8%*	*-6.7%*	*-5.4%*	*-4.3%*	*-5.6%*	*-6.5%*	*-5.2%*	*-4.4%*
% Impact, rest of period	*-8.7%*	*-6.7%*	*-5.5%*	*-4.6%*	*-8.0%*	*-6.8%*	*-5.4%*	*-5.0%*
% impact, GR	*-6.1%*	*-5.0%*	*-4.2%*	*-3.6%*	*-6.5%*	*-5.4%*	*-4.3%*	*-4.6%*
				C. By Expansion/Contraction and GR				
EPOP x Contraction	-0.380***	-0.805***	-1.124***	-1.337***	-0.144***	-0.549***	-0.945***	-1.321***
	(0.057)	(0.082)	(0.125)	(0.150)	(0.031)	(0.065)	(0.122)	(0.158)
EPOP x Expansion	-0.417***	-0.815***	-1.128***	-1.336***	-0.168***	-0.583***	-0.947***	-1.362***
	(0.048)	(0.075)	(0.114)	(0.133)	(0.023)	(0.064)	(0.104)	(0.137)
EPOP x Contraction x GR	0.076	0.175***	0.224***	0.248**	-0.024	0.090*	0.252***	0.148
	(0.049)	(0.058)	(0.081)	(0.101)	(0.027)	(0.046)	(0.085)	(0.097)
EPOP x Expansion x GR	0.104**	0.170**	0.247*	0.241*	-0.023	0.154**	0.257**	0.191
	(0.049)	(0.084)	(0.127)	(0.134)	(0.037)	(0.067)	(0.112)	(0.156)
Means by period								
Pooled: 1980-2011	0.047	0.121	0.206	0.296	0.024	0.085	0.171	0.278
1980s: 1980-1989	0.049	0.126	0.214	0.306	0.026	0.087	0.173	0.282
GR: 2007-2011	0.045	0.117	0.200	0.288	0.023	0.082	0.169	0.275
Rest of period: 1990-2006	0.051	0.130	0.217	0.306	0.028	0.084	0.158	0.259
N	1632	1632	1632	1632	1530	1530	1530	1530

Notes: Data are from the CPS ASEC calendar years 1980-2011 and are collapsed to the state by year level (weighted). All regressions include controls for state and year fixed effects. The results are weighted by the sum of the CPS weights in the cell. Standard errors are clustered by state and shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01.