Do In-Work Tax Credits Serve as a Safety Net?

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Abstract

The cash and near cash safety net in the U.S. has undergone a dramatic transformation in the past fifteen years. Federal welfare reform has led to the "elimination of welfare as we know it" and several tax reforms have substantially increased the role of "in-work" assistance. In 2010, we spent more than 5 dollars on the Earned Income Tax Credit (EITC) for every dollar spent on Temporary Assistance for Needy Families (TANF), whereas in 1994 on the eve of federal welfare reform these programs were about equal in size. In this paper, we evaluate and test whether the EITC satisfies a defining feature of a safety net program—that it responds to economic need. In particular, we explore how EITC participation and expenditures change with the business cycle. The fact that the EITC requires earned income leads to a theoretical ambiguity in the cyclical responsiveness of the credit. We use the 1996–2007 Statistics of Income (SOI) tax data to empirically examine the relationship between business cycles and the EITC program. Our empirical strategy relies on exploiting differences in the timing and severity of economic cycles across states. The results show that higher unemployment rates lead to higher EITC caseloads and total dollar amounts of credits for married couples. On the other hand, the effect of business cycles on the size of the EITC program is insignificant for single individuals, whether measured by caseloads or expenditures.

We thank Dan Feenberg for help with the NBER SOI data and Myrtis Herrod of IRS for providing us with tabulations of the EITC for the most recent period. We also thank Janet Holtzblatt, Jeff Liebman, Laura Wheaton, and Ed Harris for help with constructing the "at-risk" population to accompany the data from SOI tax filing units.

1 Introduction

The Earned Income Tax Credit provides a refundable transfer to lower income working families through the tax system. As a consequence of legislated expansions in the EITC and the dismantling of welfare through the 1996 welfare reform, the EITC is now the most important cash transfer program for these families (Bitler and Hoynes 2011).

One feature of a safety net program is that it raises incomes at the bottom of the income distribution. Using this definition, the EITC is the most important safety net for low-income families: the release of the new Census Supplemental Poverty measure reveals that the EITC lifted 6 million persons (3 million children) from poverty, more than any program (Short 2011). Additionally, however, a second key feature of a safety net is that protection increases in times of need. This feature of the EITC has not been explored and is the focus of our work.

We use 1996–2007 Statistics of Income (SOI) tax data to empirically examine the relationship between business cycles and use of the EITC. Our empirical strategy relies on exploiting differences in the timing and severity of economic cycles across states. We measure the business cycle using the state unemployment rate in a panel fixed effects model.

A defining feature of the EITC, and a general characteristic of "in-work" assistance programs, is that positive earnings are required for eligibility for the tax credit. The prior literature has established that the EITC has led to sizable increases in the employment rates of single mothers (Eissa and Liebman 1996, Meyer and Rosenbaum 2001), yet has led to modest reductions in the employment of married women (Eissa and Hoynes 2004).

Given the earnings requirement at the center of EITC eligibility, the response of the EITC to cycles (and economic need) is theoretically ambiguous. On the one hand, a downturn may lead to higher EITC participation—if decreases in earnings move taxpayers into the EITC eligibility range for income. On the other hand, a downturn could lead to

lower EITC participation—if a decrease in employment brings earnings to zero.

Our (preliminary) findings suggest that the net effect of these two changes varies across different family structures. We find that higher unemployment rates lead to higher EITC caseloads and total dollar amounts of credits for married couples. This suggests that for married couples, an adverse labor market shock causes them to move to a lower level in the earnings distribution relative to where they would have been absent the shock, leading to more participation in the program. The effect of business cycles on the size of the EITC program is insignificant for single individuals, whether measured by caseloads or the total dollar amount of the credits.

Our results on the cyclicality of EITC caseloads and credit amounts are valuable for several reasons. First, the Great Recession is the first "test" of our safety net in the post-welfare reform era (Bitler and Hoynes 2010). Given the recent decrease in traditional welfare programs that acted as automatic stabilizers [CITE], it is important to understand how this recession will affect the American population and its poverty rate. Secondly, as many OECD countries adopt similar in-work policies (Owens, 2005), understanding the effect of business cycles on such in-work programs is fundamental for policy makers' decision making and budget planning.

The remainder of this paper proceeds as follows. Section 2 outlines the EITC and the recent evolution of the safety net and discusses the theoretical predictions. Section 3 discusses the data and Section 4 presents our empirical model. The results are presented in Section 5 and we conclude in Section 6.

2 The EITC, the Prior Literature, and Theoretical Predictions

The U.S. safety net for low-income families has undergone a dramatic transformation in the past fifteen years. Many aspects of this transformation are illustrated in Figure 1. In this figure, we plot real per capita expenditures from 1980 to 2012 for the three main cash or near-cash programs for low-income families: the Earned Income Tax Credit (EITC), Temporary Assistance for Need Families (TANF), and Food Stamps (now called SNAP or Supplemental Assistance for Needy Families). The shaded regions are contractionary periods, annualized periods based largely on the NBER recession dates.[1]

The expansion of the EITC between 1986 and 1998, coupled with the decline in cash welfare expenditure beginning with the welfare waivers of the early 1990s and continuing through the 1996 federal welfare reform, led to the rise in the importance of the EITC and a fall in the importance of cash welfare (TANF). By 2010, spending on the EITC was more than 5 dollars for every dollar on TANF cash benefits (in 1994, on the eve of federal welfare reform, these programs were about equal in size). This evolution represents a tremendous change in the safety net for low-income families with children—a transformation from out-of-work aid (welfare) to in-work aid (EITC).

As is clear from Figure 1, the EITC is now one of the largest cash or near-cash safety net programs for low-income families with children. In 2010, the most recent year for which data are available, the EITC was received by 26 million families, at a cost of almost $60 billion. This amounts to an average credit of about $2240 (IRS 2011).

[Add statistics on the percent of taxpayers receiving the EITC and the share eligible.]

The EITC is distributed through the federal tax system, and the goal is to increase

[1]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) for more information on the annual dating.

after-tax incomes of lower earning taxpayers, primarily those with children, while incentivizing work. The EITC schedule has three regions. In the first, called the phase-in region, the credit is phased in at a constant rate: for each dollar earned, the taxpayers currently receive 34–40 cents in the credit. In the second region, the flat region, the taxpayers receive the maximum amount of EITC benefit. Lastly, in the phase-out region, the credit is phased out at a constant rate: taxpayers loose 16-20 cents for each extra dollar earned. The exact amount of the credit received depends on the taxpayers' income and the number of qualifying children in each household. Individuals without children are eligible for a very small credit.[2]

Enacted in 1975, the EITC has been expanded by tax legislation several times in the subsequent years (1986, 1990, 1993, 2001, and 2009). Although the basic shape of the EITC schedule has remained the same, these various expansions led to changes in the credit's rates in both the phase-in and phase-out regions as well as changes in the maximum EITC benefit. Figure 2 illustrates the changes to the EITC over time. In particular, we plot the real maximum credit by year and number of children for each year between 1983 and 2012. The 1993 expansion is the most significant, introducing the relatively small credit for childless taxpayers and a second higher benefit schedule for those with two or more children compared to those with one child. The 2009 expansion, a temporary feature as part of the federal stimulus, introduced a separate even higher schedule for those with three or more children.

These expansions of the program have allowed researchers to credibly evaluate the effects of the program on labor supply and other family outcomes. The prior literature has established that the EITC has led to sizable increases in the employment rates of single mothers (Eissa and Liebman 1996, Meyer and Rosenbaum 2001), yet has led to modest reductions in the employment of married women (Eissa and Hoynes 2004). Results on the effect of the program on hours worked, however, are mixed, with some researchers

[2]For more information on the EITC program, see Eissa and Hoynes (1996) and Hotz and Scholz (2003).

finding no effects on hours worked (Eissa and Liebman 1996), while others find significant effects on total income declared on individual's taxes (Chetty et al., 2012, Eissa and Hoynes 2006). Other researchers have studied the effect of the EITC on fertility and family formation (Baughman and Dickert-Conlin 2009, Dickert-Conlin 2002, Ellwood 2000, Herbst 2011), expenditures (Patel 2011, Barrow and McGranahan 2000), maternal and infant health (Hoynes et al. 2012, Evans and Garthwaite 2010, Baker 2008) and children's cognitive achievement (Dahl and Lochner 2012).

We contribute to the literature by evaluating and testing whether the EITC satisfies a defining feature of a safety net program—that its use responds to economic need. In particular, we explore how EITC participation and expenditures change with the business cycle. This focus links our paper to the empirical literature on the cyclicality of safety net programs such as food stamps (e.g., Ziliak et al. 2003, Bitler and Hoynes 2010), AFDC/TANF (Blank 2001, Ziliak et al. 2000, Bitler and Hoynes 2010) and other food and nutrition programs (Corsetto 2012).

Unlike predictions about how the AFDC/TANF, unemployment compensation, and food stamps respond to economic downturns, theoretical predictions about the effect of cycles on the EITC are ambiguous. Eligibility for the EITC requires positive earnings, and earnings must fall below the cutoff threshold for the "phase-out" range. In particular, in 2012, single taxpayers remain eligible if their earnings are below $36,920, $41,952, or $45,060 if they have one, two, or three or more children (respectively). On the one hand, a downturn may lead to higher EITC participation—if decreases in earnings move taxpayers down into the EITC eligibility range. On the other hand, a downturn could lead to lower EITC participation—if a decrease in employment brings earnings to zero. Our prior is that the net effect of these two changes will vary by family structure. In the event of an adverse labor market shock, single-earner families, because of their relatively low levels of earnings, would be expected to be at high risk of losing their jobs and and thus losing their eligibility for the EITC. On the other hand, given the general higher level of earnings

among married couples combined with the presence of two potential earners, an adverse labor market shock may increase the number of married families with earnings in the EITC-eligible range. On net, therefore, we expect married-couple EITC caseloads to be more counter-cyclical than single-parent EITC caseloads (which may even be pro-cyclical).

[TO ADD: Insert figures illustrating the distribution of earnings for the different family types, to show that couples on average earn more than singles (making them initially ineligible for the credit), suggesting that many married couples may become eligible for the EITC if a member loses his/her job.]

3 Data and Summary Statistics

To empirically analyze the effect of business cycles on the size of the EITC, we utilize data from a variety of sources. Our primary data on the EITC program are derived from annual cross sections from the Statistics of Income (SOI), a nationally representative sample of actual federal income tax returns. These data (when appropriately weighted to reflect sampling proportions) are representative of all individuals who filed for the EITC. The SOI data contain sample weights, derived by dividing the population count of returns in a sample stratum by the number of sample returns for that stratum, that allow us to infer results about the US population of tax filers as a whole.

Our research design, discussed below, leverages variation in the timing and severity of business cycles across states. Thus, unlike much of the EITC literature, we do not leverage variation in the generosity of the EITC. In fact, we want to analyze a period with minimal changes to the EITC. Thus, we use data for the tax years 1996 to 2007, to avoid the major confounding EITC expansions that occurred in the early 1990s. Figure 2, presented above, shows the relative stability of the EITC over this period.[3] All credit

[3]During the period we analyze, some minor expansions of the EITC still occurred. For example, in 2001 and 2002 there was an increase in the threshold for the phaseout region for married couples. ADD DISCUSSION OF CHANGES IN TREATMENT OF TAXABLE INCOME. In our analysis, time

amounts are in real 2007 dollars.

We end our sample period in 2007 because that is the last year for which the SOI micro data is available. This is unfortunate given that we miss the significant variation in the business cycle due to the Great Recession. We were able to obtain summary data on state-level EITC expenditures for 2008–2010 which allow us to estimate more aggregated models using data through 2010. We discuss this below.

Our sample is created as follows. First, we exclude all high-income individuals, whose state identifiers are not reported in the SOI data because of issues of confidentiality. This sample exclusion is not problematic because high-income earners do not qualify for the EITC. Second, we exclude individuals from Puerto Rico, Virgin Islands, Guam or U.S. citizens living abroad, as well as military personnel stationed abroad. In the data, these filers all have the same geographic identifier in the SOI data, making it impossible for us to assign them to the labor market conditions that they face. Moreover, we drop late filers, who are individuals filing tax returns not for the current tax year but for some previous tax year. By dropping late filers, we exclude 27,312 observations, which represent around 2.7% of the weighted sample. In a robustness check, we analyze whether our results are sensitive to this sample restriction. Finally, we exclude married individuals filing separately, since these filers are not eligible for the EITC.

After these sample restrictions, and for the majority of our empirical analysis, we collapse the data to cells based on year, state, marital status (married or single) and number of children (zero, one, or two or more).[4] After this collapse of the data, we have a total of 4,751 cells. For each cell, we calculate the total number of filers, total number of filers claiming the EITC, and the total amount of EITC received, as the weighted sums of these variables for each return in the cell, using the sample weights provided in the SOI

dummies will absorb the overall effects of expansions.

[4]The tax data identify filing status as married filing jointly, head of household, or single. We assign taxpayers to be married if they file married and filing jointly, and single if the filer declared he/she was single or a head of household. The variable for the number of children takes the values 0, 1 or 2, according to how many children the filers declare for EITC purposes.

data.

To this dataset, we add state unemployment rates, the main explanatory variable in our regressions; they are obtained from the Bureau of Labor Statistics. Lastly, to control for potential confounders from state safety-net programs, we include data on state Medicaid/SCHIP income eligibility thresholds as well as dummies for the presence of state EITC programs or other state welfare reforms.[5]

Figure 3 plots the aggregate EITC caseload and total expenditures for our sample years. This shows that overall caseloads and expenditures were relatively flat until 2001, increased somewhat in 2002, and then have gone up slightly since. Table 1 summarizes the data for tax year 2007, the last year in our data. The table shows total caseloads (Panel A), total expenditures (Panel B), and average credits per return which claimed the EITC (Panel C). Results in columns 1–3 show the values by the number of EITC children and column 4 shows the totals. Single families with children represent the largest group of EITC recipients, with around 14 million filers in 2007 compared to 4.5 million for married couples with children. In addition, the table shows that, despite the large number of single childless individuals that receive the EITC, their average credit received is much smaller than the credit received by individuals with children. In 2007, the average credit per filer was \$1,982 and \$3,138 for single parents with one child and two or more children respectively, \$1,773 and \$2,732 for married couples with one child and two or more children respectively, and \$243 for childless individuals. These statistics are consistent with the goal of the EITC to provide income support primarily for low-income families with children.

We also use March Current Population Survey to create population estimates for each state-year-marital status-number of children cell. These will allow us to estimate models of caseload/population and expenditures/population. [Insert discussion of CPS when we finalize this.]

[5]These data come from Bitler, Gelbach and Hoynes (2006) and Hoynes and Luttmer (2011).

4 Empirical Strategy

Our empirical strategy exploits variation in the timing and severity of cycles across states to estimate the causal effect of labor market conditions on use of the EITC. Specifically, we measure the business cycle using the state unemployment rate. We start with the following pooled model:

$$y_{mcst} = \alpha + \text{UR}_{st} \cdot \beta + X_{mc} \cdot \delta + \lambda_s + \gamma_t + Z_{st} \cdot \pi + \epsilon_{mcst}, \tag{1}$$

where m, c, s and t index marital status, number of children, state, and year, respectively. We consider several different dependent variables (y) including the log of the EITC caseload, the log of EITC expenditures, the caseload per capita, and expenditures per capita.[6] UR is the state unemployment rate, and X is the vector of fixed effects for demographic characteristics (marital status and number of children). We cluster standard errors at the state level, and the regressions are weighted by the number of filers in each cell.

Equation (1) also contains controls for state and year fixed effects, represented by λ and γ, respectively. By adding year fixed effects we absorb changes in the size of the EITC that are due to national business cycles. This approach is necessary because it allows us to differentiate between changes in EITC due to labor market conditions and changes due to EITC expansions, program take-up rates, and other national level confounders. Our main coefficient of interest is β, which represents the effect of the state unemployment rate on the size of the EITC program. If the estimate of β is negative, it will imply that the EITC is procyclical, while a positive estimate would imply that during recession, the EITC acts as an automatic stabilizer in the economy.

[6] In the current draft, we only present estimates for the variables in log form. We will update this to include the caseload per capita and expenditures per capita using the March CPS population figures in the next draft. At that time, we will also use the population in the denominators as the weights for each cell.

To explore our different theoretical predictions by group, we also present estimates that stratify by demographic group (e.g., marital status and presence of children). For example, while single individuals may lose their jobs during recessions, thus losing EITC eligibility, married couples may switch from being two-earner families to single-earner families, and may now qualify for the credit. To test these predictions, we separately estimate equation (1) for our main three groups of interest: childless individuals, single parents, and married parents. In addition, to learn which demographic groups are driving our findings, we also estimate equation (1) after stratifying by both marital status and the number of children.

In order to control for possible confounders at the state-year level, in some specifications, we include various state-level measures of the safety net and the state-level EITC. The vector Z_{st} includes measures of state welfare reforms, indicators for the presence of state EITC programs, and state Medicaid/SCHIP income eligibility thresholds. Additionally, we also explore the sensitivity of the findings to controlling for state-specific linear time trends.

5 Results and Sensitivity Checks

5.1 Main Results

To begin, Figure 4 summarizes the time series variation in the key variables in our analysis. In particular, we plot from 1996–2010 the annual unemployment rate and per capita EITC caseload. (We use a dashed line for the EITC for 2008-2010 to indidate the alternative data source for these years.) This figure shows a mild positive correlation between the EITC and the unemployment rate. Of course, there are many other factors that may be simultaneously moving with unemployment and the EITC. We move on to present our state panel fixed effects estimates which use variation in the timing and severity of cycles

across states to identify the impact of cycles on use of the EITC.

Table 2 presents our main results. Column 1 presents the pooled estimates for all filers. Panel A presents estimates for the log of the caseload and Panel B presents estimates for the log of real EITC expenditures. All regressions include controls for demographic characteristics, as well as state and year fixed effects. The results for the pooled sample show that a one percentage point increase in the state unemployment rate leads to a 3.9 percent increase in caseloads. This coefficient, however, is statistically significant just at the 10 percent level. The effect on total EITC dollars is also positive, although statistically insignificant. These results suggest that, overall, the EITC program is weakly countercyclical.

The remaining columns of Table 2 present results for our three main subsamples: childless individuals, single parents, and married parents.[7] Column 4 shows that the EITC program is strongly countercyclical for married parents, both if measured by caseloads and if measured by total dollar amounts. A one percentage point increase in the state unemployment rate leads to a 5.9 percent increase in caseloads and a 4.6 percent increase in total credit received. These coefficients are both statistically significant at the 5 percent level. In addition, EITC caseloads are estimated to be countercyclical also for childless individuals (Column 2). The estimated effect for childless individuals, however, is statistically insignificant. Interestingly, the largest group of EITC participants, single parents, yields very small, positive, but statistically insignificant coefficients. These results are consistent with our theoretical predictions of the effect of local market conditions on the EITC program by family type. [MORE]

These differential patterns by marital status are illustrated in another way in Figure 5. We present three scatterplots of state data in which each state's population is represented by the size of the circle centered on the data point for that state. The horizontal axis in

[7]In the Appendix, we show results when we stratify by marital status and number of children, in Tables (A.1) and (A.2) respectively.

each panel denotes the change in state annual unemployment rates (in percentage points) over the largest contraction in our period between 2000–2003, and the vertical axis the change in state EITC caseloads (in percent) over the same period. The first panel presents data for the pooled sample, the second panel for single-parent families, and the third for married couples with children. The figure reveals considerable variation in the depth of the recessions across states, where state changes in the unemployment rate ranged from no change to a change of about 3.5 percentage points. Consistent with the regressions, the figure shows a positive relationship between the severity of a recession and the increase in the EITC for married couples with a weaker relationship for the full sample or single parents. [More here.]

In order to further analyze the differential effect of business cycles for the different demographic groups, we stratify our analysis by both marital status and number of children. These results are shown in Table 3. Panel A contains results when the dependent variable is the log of the EITC caseloads, while Panel B shows results with the log of real EITC dollars as the dependent variable. A few observations are pertinent when looking at these results. First, the results confirm the findings in the previous tables. EITC caseloads and dollars are not correlated with business cycles for single parents with children. For married parents, the state unemployment rate is positively correlated, although not always statistically significantly so.

Secondly, this positive relationship between business cycles and the size of the EITC is stronger for parents with two or more children compared to those with one children; and is statistically significant at the 1 percent level. [EXPLORE THIS WITH ANALYSIS OF THE DISTRIBUTION OF EARNINGS ACROSS GROUPS.] Lastly, it appears that the unemployment rate has a differential effect for married and single childless individuals. For single individuals with no children, a 1 percentage increase in state unemployment rate is correlated with a statistically significant 4.8 percent increase in EITC caseloads. This relationship is much smaller and the coefficient statistically insignificant for childless

couples. The results for EITC dollars follow similar patterns, although the coefficient is not statistically significant.

[COMPARE MAGNITUDES TO RESULTS FOR OTHER PROGRAMS FROM THE LITERATURE.]

Table 4 shows the results obtained when we analyze the baseline demographic groups—childless individuals, single parents, and married parents, and additionally control for various state welfare programs. Controlling for these programs could be important if they are correlated with both state unemployment rates and the size of the EITC. In column 1, we repeat our baseline results from Table 2. In the remaining columns, we add controls for the presence of state EITC programs (Column 2), state welfare reform (Column 3), state Medicaid/SCHIP income eligibility thresholds (Column 4), all three controls from the previous columns (Column 5). Column 6 omits the state-level controls but adds state-specific linear time trends. The results in Columns 2–6 show that our results are robust to the inclusion of these state policy variables.

5.2 Robustness Checks

Because individuals can file federal tax returns for previous years, each tax-year cross-section of the SOI data contains not only returns for that tax year, but also for previous years. For example, in calendar year 2006, most individuals will file for federal returns for income earned in 2005 and taxes due for 2005. However, a few individuals may file for taxes due in 2004, 2003, etc. We refer to these individuals late filers. In our data, we have information on the year when the return was physically filed, as well as the tax year for which the return is filed. Hence we are able to identify late filers, who represent around 2.7 percent of our weighted sample.

Because in our empirical analysis we are estimating the contemporaneous effect of local labor market conditions on the size of the EITC, keeping late filers in our sample

could well lead to biased or attenuated results. While the ideal specification would require us to re-classify the year variable so that it refers to the year for which the federal returns were filed, and not the tax year in which they were filed, this re-classification cannot be done appropriately for the entire time period. In fact, our sample would mechanically be smaller for the last few tax years, for example for 2006 and 2007, since late filers would file these returns in the years after 2007, for which we have no data. This would lead to a sample selection that could bias our results. For these reasons, in our main specification, we exclude from the sample all individuals classified as late filers. In this section of our paper, we show how sensitive are our results to the sample restriction described above.

In order to avoid the mechanical sample selection due to the lack of data for the tax years 2007 and after, we restrict the analysis to the years 1996–2003. With this sample period, almost all late filings for tax year 2003 and earlier are in the data and we have similar sample compositions for all years under analysis. Table 5 presents the results obtained for various decision rules about treating the late-filers. In the first three columns we present results when the dependent variable is the log of EITC caseloads, while in the last three columns the dependent variable is the log of real EITC expenditures.

In Panel A, we retain the late filers and do not alter the tax year variable (the late filers then appear in the counts for the year when they filed the returns). In Panel B, we re-classify late filers to the tax year for which the federal returns were filed. In Panel C, instead, we exclude all the late filers from the sample (our baseline specification but for 1996–2003). The results show that our results are not very sensitive to the way we select the sample. The estimated effect of the state unemployment rate on the size of the EITC does not vary significantly in the three panels, and it is especially similar in Panels B and C, our preferred methods.

[MORE]

6 Conclusion

[Conclusion goes here.]

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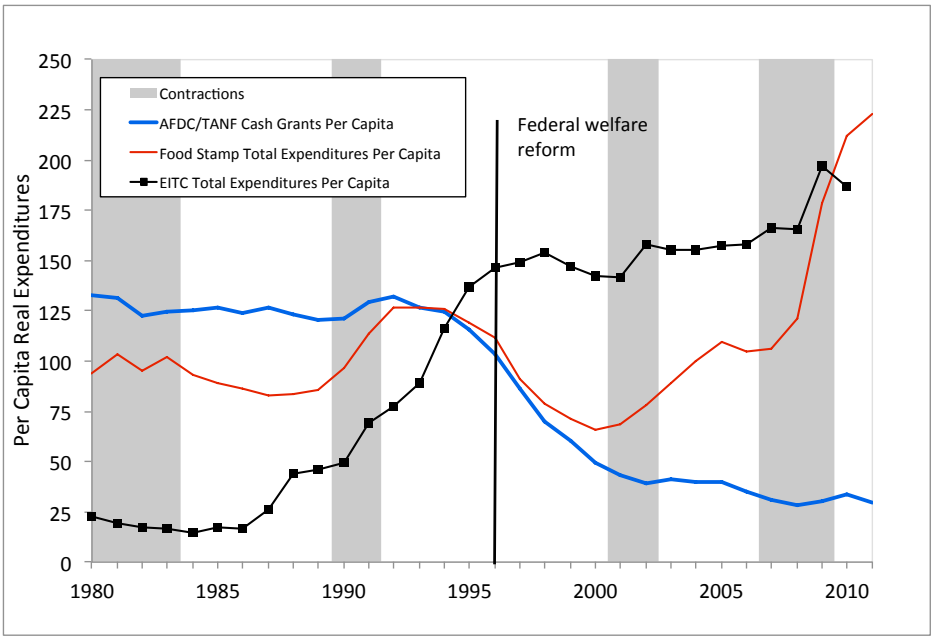
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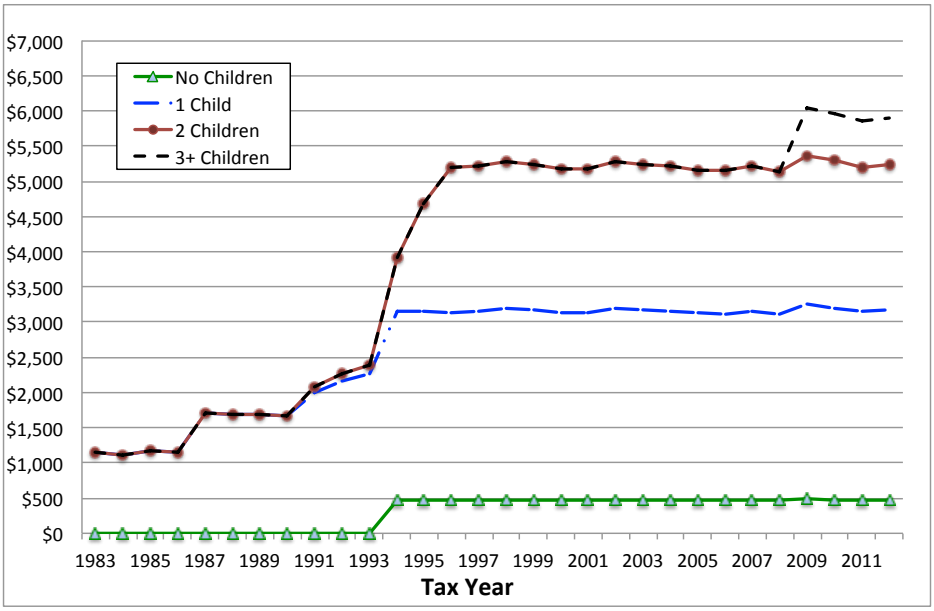
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Figure 1: Per Capita Expenditures on Cash and Near Cash Transfer Programs for Families (2009$)



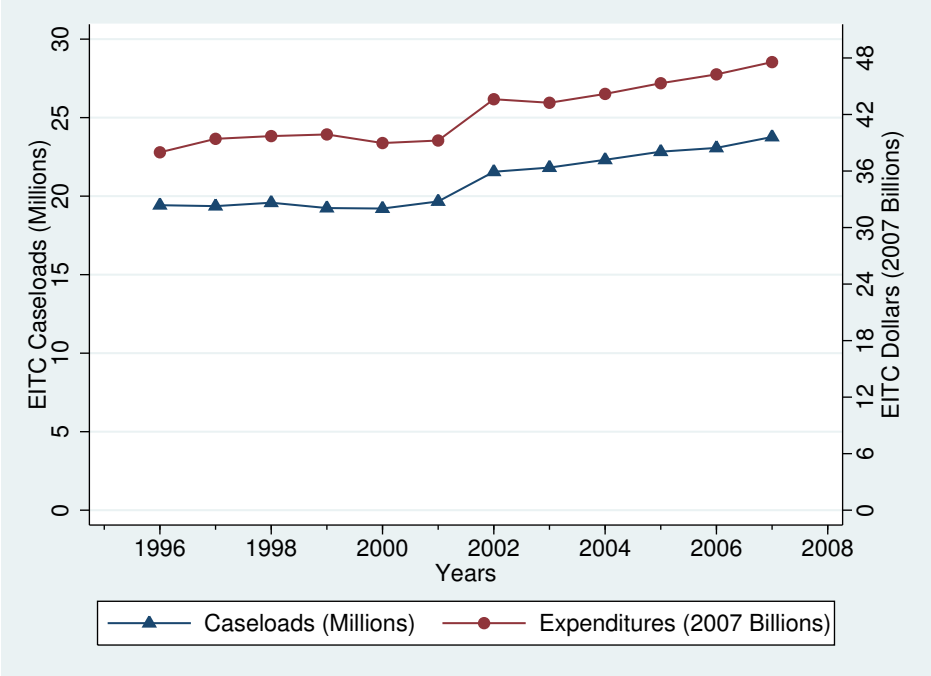
Sources: Bitler and Hoynes (2010) and updated data.

Figure 2: EITC Maximum Benefits By Number of Children (2012$)



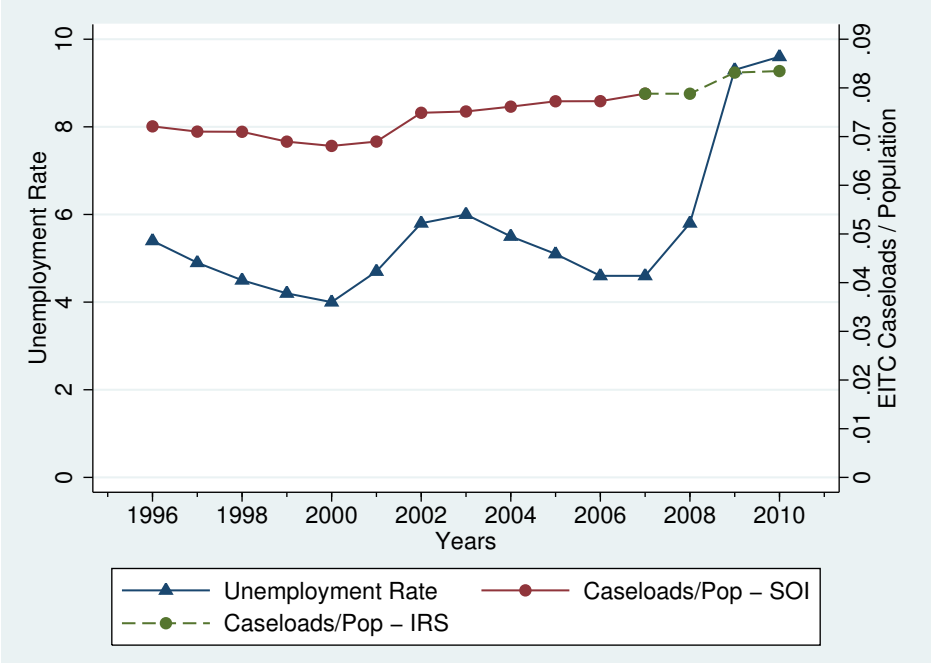
Sources: Data on nominal EITC benefits are from Tax Policy Center. Data on CPI are from the BLS.

Figure 3: EITC Trends



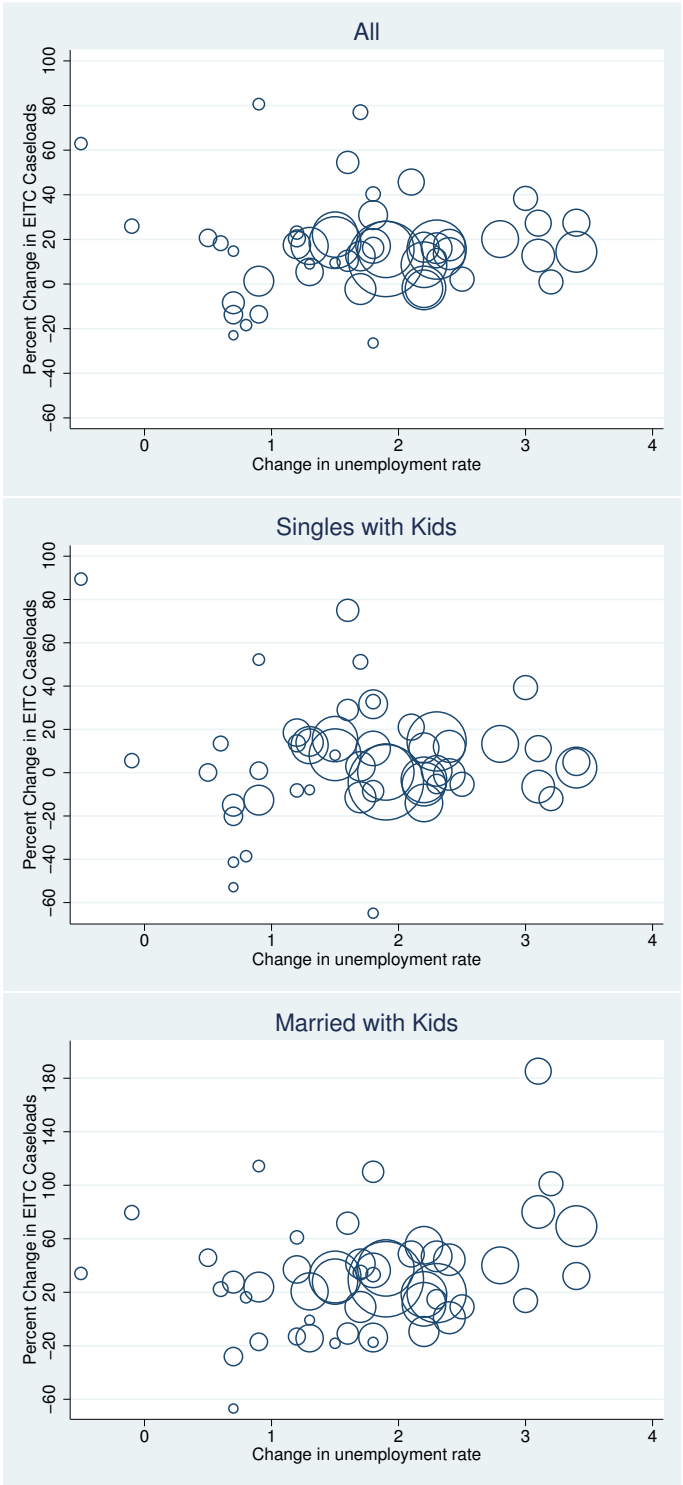
Notes: EITC data are from the 1996–2007 Statistics of Income. The sample excludes high-income earners, individuals living abroad, and married couples filing separately. Statistics are weighted.

Figure 4: EITC Participation per Capita and Unemployment Rates



Notes: EITC data are from the 1996–2007 Statistics of Income and 2008-2010 IRS tabulations. The sample excludes high-income earners, individuals living abroad, and married couples filing separately. Unemployment rates are from the BLS. Statistics are weighted.

Figure 5: EITC Caseloads and Unemployment Rates (2000–2003 Changes)



Notes: EITC data are from the 2000 and 2003 Statistics of Income. The sample excludes high-income earners, individuals living abroad, and married couples filing separately. Unemployment rates are from the BLS. Circle sizes are proportional to state populations, also from the BLS.

Table 1: Total EITC Caseloads and Expenditures, 2007 Tax Year

	Number of Children			
	Zero	One	Two +	All
A: Caseloads (millions)				
Single	4.665	7.241	6.736	18.643
Married	0.615	1.605	2.905	5.126
All	5.281	8.846	9.642	23.769
B: Expenditures ($2007 billions)				
Single	1.128	14.354	21.140	36.623
Married	0.155	2.846	7.936	10.937
All	1.283	17.201	29.076	47.560
C: Average credit per filed return				
Single	242	1,982	3,138	1,964
Married	252	1,773	2,732	2,134
All	243	1,944	3,016	2,001

Notes: Data are from the 2007 Statistics of Income. The sample excludes high-income earners, individuals living abroad, and married couples filing separately. Statistics are weighted.

Table 2: Effects of the Unemployment Rate on EITC Caseloads and Expenditures, by Marital Status and Presence of Children

	(1) All	(2) No Kids	(3) Kids - Singles	(4) Kids - Married
A: Caseloads (millions)				
State Unemployment Rate	0.039*	0.041	0.006	0.059***
	(0.021)	(0.034)	(0.016)	(0.020)
B: Expenditures (2007 billions)				
State Unemployment Rate	0.025	0.023	0.003	0.046**
	(0.028)	(0.043)	(0.020)	(0.019)
Observations	3559	1150	1219	1190

Notes: Data are from the 1996–2007 Statistics of Income. The sample excludes high-income earners, individuals living abroad and married couples filing separately. The dependent variables are the logarithms of total EITC caseloads and real EITC expenditures ($2007). All regressions include controls for demographic characteristics, as well as state and year fixed effects. The results are weighted by the number of tax filers in each cell. Standard errors are clustered by state and shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01

Table 3: Effects of the Unemployment Rate on EITC Caseloads and Expenditures, by Marital Status and Number of Children

	Single			Married		
	(1)	(2)	(3)	(4)	(5)	(6)
	Zero	One	Two	Zero	One	Two
A: Caseloads (millions)						
State Unemployment Rate	0.048**	-0.002	0.017	0.010	0.059*	0.061**
	(0.023)	(0.019)	(0.015)	(0.078)	(0.034)	(0.023)
B: Expenditures (2007 billions)						
State Unemployment Rate	0.027	-0.010	0.022	-0.002	0.028	0.058**
	(0.028)	(0.024)	(0.017)	(0.101)	(0.036)	(0.024)
Observations	612	611	608	538	584	606

Notes: Data are from the 1996–2007 Statistics of Income. The sample excludes high-income earners, individuals living abroad and married couples filing separately. The dependent variables are the logarithms of total EITC caseloads and real EITC expenditures ($2007). All regressions include controls for state and year fixed effects. The results are weighted by the number of tax filers in each cell. Standard errors are clustered by state and shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01

Table 4: Effect of the Unemployment Rate on EITC Caseloads: Controlling for Possibly Confounding State Policies

	EITC Caseloads					
	(1)	(2)	(3)	(4)	(5)	(6)
A: Caseload, no children						
State Unemployment Rate	0.035	0.033	0.035	0.035	0.034	0.010
	(0.035)	(0.034)	(0.035)	(0.034)	(0.034)	(0.027)
Observations	1150	1150	1150	1150	1150	1150
B: Caseload, single filers with children						
State Unemployment Rate	0.006	0.007	0.007	0.006	0.007	-0.021
	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.014)
Observations	1219	1219	1219	1219	1219	1219
C: Caseload, married filers with children						
State Unemployment Rate	0.059***	0.061***	0.059***	0.060***	0.061***	0.063***
	(0.020)	(0.019)	(0.020)	(0.018)	(0.017)	(0.023)
Observations	1190	1190	1190	1190	1190	1190
Controls for:						
State EITC		Yes			Yes	
State Welfare Reform			Yes		Yes	
State Medicaid/SCHIP				Yes	Yes	
State Time Trend						Yes

Notes: Data are from the 1996–2007 Statistics of Income. The sample excludes high-income earners, individuals living abroad and married couples filing separately. The dependent variables are the logarithms of total EITC caseloads and real EITC expenditures ($2007). All regressions include demographic controls, as well as state and year fixed effects. The results are weighted by the number of tax filers in each cell. Standard errors are clustered by state and shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01

Table 5: Effects of the Unemployment Rate on EITC Caseloads: Sensitivity to Treatment of Late Filers

	EITC Caseloads		
	No Children	Single With Children	Married With Children
A: By filing year, late filers included			
State Unemployment Rate	0.067*	-0.018	0.055**
	(0.037)	(0.019)	(0.026)
Observations	763	814	793
B: By tax year, late filers included			
State Unemployment Rate	0.080**	-0.016	0.049*
	(0.035)	(0.018)	(0.026)
Observations	764	814	793
C: By tax year, late filers excluded			
State Unemployment Rate	0.075**	-0.019	0.054**
	(0.036)	(0.018)	(0.026)
Observations	762	814	791

Notes: Data are from the 1996–2003 Statistics of Income. The sample excludes high-income earners, individuals living abroad and married couples filing separately. The dependent variable is the logarithm of total EITC caseloads. All regressions include demographic controls, as well as state and year fixed effects. The results are weighted by the number of tax filers in each cell. Standard errors are clustered by state and shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01

Table 6: Effects of the Unemployment Rate on EITC Caseloads: Differences by Filing Status

	1996–2007 Data			1996–2010 Data		
	(1) Single	(2) Married	(3) Head of Household	(4) Single	(5) Married	(6) Head of Household
State Unemployment Rate	0.010	0.056***	0.020	0.001	0.046***	0.003
	(0.022)	(0.017)	(0.017)	(0.012)	(0.011)	(0.011)
Observations	612	611	612	714	713	714

Notes: Data are from the 1996–2007 Statistics of Income and 2008-2010 IRS tabulations. The sample excludes high-income earners, individuals living abroad and married couples filing separately. The dependent variable is the logarithm of total EITC caseloads. All regressions include controls for state and year fixed effects. The results are weighted by the number of tax filers in each cell. Standard errors are clustered by state and shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01

A Appendix: Further Results

Table Appendix 1: Effects of the Unemployment Rate on EITC Caseloads and Expenditures: By Marital Status

	Caseloads		Expenditures	
	(1) Single	(2) Married	(3) Single	(4) Married
State Unemployment Rate	0.039**	0.041	0.022	0.029
	(0.018)	(0.032)	(0.023)	(0.044)
Observations	1831	1728	1831	1728

Notes: Data are from the 1996–2007 Statistics of Income. The sample excludes high-income earners, individuals living abroad and married couples filing separately. The dependent variables are the logarithms of total EITC caseloads and real EITC expenditures ($2007). All regressions include controls for state and year fixed effects. The results are weighted by the number of tax filers in each cell. Standard errors are clustered by state and shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01

Table Appendix 2: Effects of the Unemployment Rate on EITC Caseloads and Expenditures: By Number of Children

	Caseloads			Expenditures		
	(1) Zero	(2) One	(3) Two	(4) Zero	(5) One	(6) Two
State Unemployment Rate	0.041	0.026	0.050***	0.023	0.007	0.050***
	(0.034)	(0.019)	(0.014)	(0.043)	(0.022)	(0.015)
Observations	1150	1195	1214	1150	1195	1214

Notes: Data are from the 1996–2007 Statistics of Income. The sample excludes high-income earners, individuals living abroad and married couples filing separately. The dependent variables are the logarithms of total EITC caseloads and real EITC expenditures ($2007). All regressions include controls for state and year fixed effects. The results are weighted by the number of tax filers in each cell. Standard errors are clustered by state and shown in parentheses. * p<0.10, ** p<0.05, *** p<0.01