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DOES A HIGHER MINIMUM WAGE ENHANCE THE EFFECTIVENESS OF THE EARNED INCOME TAX CREDIT? *

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Abstract

We explore how the effects of the Earned Income Tax Credit (EITC) are influenced by the level of the minimum wage. In principle, such interactions can occur if low-skilled individuals who are eligible for the EITC are more productive and have higher reservation wages than other low-skilled individuals. Our results indicate that the EITC boosts employment and earnings for single women with children, and coupling the EITC with a higher minimum wage appears to enhance this positive effect. In contrast, the earnings of less-skilled minority men appear to be more adversely by the EITC when the minimum wage is higher. At the family level, a higher minimum wage appears to increase the poverty-reducing effects of the EITC for families with children; in that sense, a higher minimum wage does appear to enhance the effects of the EITC. But whether or not the policy combination of a high EITC and a high minimum wage is viewed as favorable or unfavorable depends in part on whose incomes policymakers are trying to increase.

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I. Introduction

Enacted in 1975, the Earned Income Tax Credit (EITC) has, over time, become a staple of U.S. antipoverty policy. At the federal level, significant expansions in the generosity of the credit took place in the 1980s and 1990s, boosting the credit rate from 10% in 1984 to 40% (with two children) in 1996, where it has remained since. In addition, some states have introduced their own EITC programs, which typically provide families in the state with a percentage supplement to the federal EITC. The number of states with such an EITC increased from seven states in 1996 to 19 states and the District of Columbia in 2007, raising the percentage of the 16-64 year-old population residing in states supplementing the federal EITC from 14% to nearly 40%.[1]

Previous studies of the EITC typically find that this program is effective at increasing the labor force attachment and earnings of low-income families with children. For example, Eissa and Liebman (1996) show that the EITC increases employment of young, unskilled women,[2] while Liebman (1998) and Scholz (1994) find that a large proportion of EITC payments go to poor families.[3] Similarly, our own previous research indicates that the EITC far outperforms the minimum wage in terms of its beneficial effects on the distribution of family earnings.[4] However, some researchers point out that the labor supply response associated with the EITC may cause the market wage to fall.[5] If so, employers will reap some of the gains associated with the EITC, the benefits to eligible EITC claimants will be reduced, and the incomes of low-skilled workers not eligible for the EITC will be adversely affected.[6]

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[1] This calculation is based on the CPS data described below. The 19 states with EITC supplements in 2007 were Delaware, Illinois, Indiana, Iowa, Kansas, Maine, Maryland, Massachusetts, Minnesota, Nebraska, New Jersey, New Mexico, New York, Oklahoma, Oregon, Rhode Island, Vermont, Virginia, and Wisconsin, and the supplemental EITC in those states ranges from 4 to 43% of the federal credit. In addition, EITC supplements became effective in 2008 in Louisiana, Michigan, and North Carolina.

[2] Recent evidence to the contrary, based on Wisconsin's higher EITC supplement for families with three children, is reported in Cancian and Levinson (2005).

[3] Extensive surveys of previous research on the EITC can be found in Hoffman and Seidman (2003) and Hotz and Scholz (2003).

[4] Indeed, the minimum wage appears to have no beneficial effects and possibly adverse effects on low-income families. See Neumark and Wascher (2001), as well as Burkhauser et al. (1996) and Neumark et al. (2005).

[5] See, for example, Leigh (2007) and Rothstein (2007), who find that an increase in the generosity of the EITC puts downward pressure on the wages of low-skilled workers already in the labor market.

[6] As explained below, there is a very small EITC payment available to those without children, so low-skilled workers (unless they are over age 64) are not "ineligible" but simply unlikely to gain much from the EITC. We use "ineligible" as a short-hand for those not eligible for the much more generous EITC available to those with

In light of the potential adverse effects of the EITC on ineligible low-skilled workers, and perhaps also recognizing the dearth of evidence for direct beneficial effects of the minimum wage on the distribution of family incomes, some minimum wage advocates have recently adopted a different argument for the minimum wage. In particular, these advocates claim that the EITC and the minimum wage may be mutually reinforcing (i.e., complementary), with a higher minimum wage enhancing the effectiveness of the EITC in helping poor and low-income families.[7]

In this paper, we examine potential interactions between the EITC and minimum wages. We begin with a theoretical discussion of how these two policies might interact, noting that some models suggest that the two policies are reinforcing, while others suggest that they are offsetting, at least for some subgroups of the population. These interactions are discussed fully in the next section of the paper. However, to preview that discussion, the explanation we regard as most compelling begins by allowing for heterogeneity of individuals who would earn wages near the minimum if they worked. In that case, either a minimum wage or an EITC can induce some individuals to enter the labor market, perhaps (especially in the case of the minimum wage) displacing others of lower productivity.[8] However, there may be other individuals with higher reservation wages who enter the labor market only when there is both a high minimum wage and a more generous EITC. If these individuals are the ones to whom we would like to try to redistribute income (e.g., if single mothers with children have particularly high reservation wages among roughly comparably skilled workers), then combining the EITC with a higher minimum wage may enhance the beneficial distributional effects of the EITC.

On the other hand, for groups less likely to be eligible for the EITC, such as teenagers and low-skilled adult males, a high minimum wage coupled with an EITC could represent a "double whammy,"

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children. There are currently proposals for increasing the generosity of the EITC for those without children. (See the discussion in Neumark, 2008).

[7] See, e.g., Bernstein (2004), Fiscal Policy Institute (2004), and Levitis and Johnson (2006).

[8] Nothing in the conventional theory implies that employment of particular subgroups will decrease in response to a higher minimum wage; conventional theory only predicts that overall labor demand for less-skilled workers will fall. In particular, individuals for whom the market wage was previously below the reservation wage can, after an increase, find the reverse and be drawn into the labor force. For example, Neumark and Wascher (1996) find that an increase in the minimum wage induces some higher-skilled teenagers to leave school and enter the labor market.

with the minimum wage reducing their employment prospects via the higher wage imposed on employers, and the EITC reducing their employment prospects via the increased supply of women entering the labor market. Thus, the effects of interactions between policies, and how these interactive effects vary across different groups, are potentially quite complex. Widespread interest in the effectiveness of these policies at the federal level, along with the increasing number of states implementing higher minimum wages and state EITCs, makes it important to gather evidence on how they interact, and in the remainder of the paper we present such evidence.

II. Minimum Wage-EITC Interactions

The research comparing the effects of minimum wages and the EITC has not considered the potential for interactions between the two policies, and indeed such interactions could arise. The policies are not mutually exclusive, and, in practice, many individuals are subject to both. Several arguments as to how a higher minimum wage could enhance the effectiveness of the EITC have been put forward: some are clearly invalid, while others are possible but require empirical testing to which they have not yet been subjected.

One argument often made by minimum wage advocates is that a higher minimum wage is needed to prevent or mitigate the reduction in market wages associated with the labor supply response to a more generous EITC. In its simplest form, this argument is theoretically incorrect. Consider a competitive labor market with homogeneous labor. In this context, the EITC induces a labor supply increase among eligible individuals that, in the absence of a minimum wage, would be expected to result in a lower wage and higher employment for low-wage workers. A minimum wage will reduce the extent to which the wage can fall in response to the increase in labor supply, but this will, in turn, reduce the job opportunities available to individuals who are induced to enter the labor market because of the EITC. Indeed, in the extreme case in which all EITC eligible individuals are bound by the minimum wage, the EITC would not result in any change in employment, but only in an increase in unemployment. Thus, in this model, a higher minimum wage does not enhance the effect of the EITC; rather, the higher wage floor leads to lower employment, the same tradeoff that research establishes is *always* presented by the minimum wage.

This is illustrated in Figure 1. In the absence of either a minimum wage or an EITC, equilibrium employment is E_0, determined by the intersection of the labor demand curve (L^D) and the labor supply curve (L^S). A minimum wage of w_{min} reduces employment to E_1, with excess supply of labor ($E_1' - E_1$). If, instead, an EITC is implemented, which we oversimplify by modeling simply as a tax credit,[9] then the labor supply curve shifts out to $L^{S'}$, with equilibrium employment level E_2 (and a lower market wage). But if there is also a minimum wage, the EITC has no effect on the labor market, except to increase the excess of labor supply over the quantity of labor demanded (E_1). That is, the minimum wage inevitably leads to lower employment and a higher wage than would be the case with the EITC; the EITC simply determines the wage and employment level that would otherwise prevail.

This point also undermines the related argument that the minimum wage needs to be raised to keep up with inflation (whether by formal indexation or by more frequent increases). The argument is that because the maximum credit that a family can receive under the minimum wage is indexed to inflation while the minimum wage is not, when the real value of minimum wage declines, a family that receives the EITC and for which earnings partly depend on minimum wage work will tend to face a declining real EITC payment.[10] However, because this argument ultimately rests on the idea that a higher minimum wage—regardless of the generosity of the EITC—will help low-income families, it is really an argument about the distributional effects of the minimum wage rather than an argument that a higher minimum wage increases the effectiveness of a dollar spent on the EITC. And the research literature, in fact, fails to find positive distributional effects of the minimum wage,[11] suggesting, again, that an EITC coupled with a higher minimum wage will likely lead to poor and low-income families being worse off than they would be with just the EITC.

Thus, different arguments are needed to make the case that a higher minimum wage complements the EITC. One route would be to drop the assumption of a competitive labor market. Based on evidence

[9] The discussion ignores variation in the size of the credit with family income and family structure. But the qualitative effect of increasing labor supply is captured in the figure.
[10] See Economic Policy Institute (2004).
[11] For recent studies, see Neumark et al. (2005), Wu et al. (2006), and Sabia (2006).

that fails to detect negative employment effects of minimum wages, and sometimes even finds positive effects, some researchers have suggested that unskilled labor markets may be better characterized by monopsony power stemming from labor market frictions.[12] In such a case, a minimum wage could increase employment and earnings of less-skilled workers, making more of them eligible for EITC payments or raising the payments for which they are eligible. However, our recent exhaustive review of the effects of minimum wages on employment concludes that the body of evidence is largely consistent with the competitive model (Neumark and Wascher, 2007a).

An alternative argument is that a higher minimum wage may reduce the distortionary impact of the EITC on labor supply. In particular, a higher minimum wage enables a family to achieve the same level of income (earnings plus EITC) at the maximum EITC credit with a smaller EITC payment. This, in turn, allows a lower marginal tax rate over the phase-out range of the credit, which could reduce the associated labor supply disincentives (Blank and Schmidt, 2001). This argument, however, is more focused on how the EITC parameters get set. In particular, it does *not* imply that, for a *given* set of EITC parameters, a minimum wage makes the EITC more effective in reducing poverty or helping low-income families. Rather, it suggests that with a higher minimum wage we might observe a different set of EITC parameters that have better distributional effects than the EITC parameters chosen when the minimum wage is lower. As this hypothesis is not explicitly about minimum wage-EITC interactions, testing it is beyond the scope of this paper.

As noted in the Introduction, a more promising avenue for motivating interactions between minimum wages and the EITC in terms of their effect on low-income families is to allow for heterogeneity of individuals who would earn wages near the minimum if they worked. Suppose that there are two types of workers: teenagers in middle-income families (ineligible for the EITC) with a low reservation wage; and poor single mothers who are eligible for the EITC, are slightly more productive than teenagers, and have significantly higher reservation wages.[13] In the absence of a minimum wage and

[12] See, for example, Manning (2003) and Machin and Manning (1994).
[13] The same analysis goes through if they have high fixed costs of working instead.

with no EITC, the difference in reservation wages implies that the teenagers are employed while the single mothers are not.

Suppose we just raise the minimum wage. For a sufficiently high minimum some teenagers will become non-employed. Demand may shift towards more-skilled single mothers, but the market wage (or the higher minimum) may still fall short of their reservation wage. In this case, the minimum wage delivers no benefit to low-income families (i.e., single mothers). If, instead, we simply raise the EITC (in particular, the phase-in rate), the effective wage may still fall short of the reservation wage, in which case the teenagers will continue to be employed (since their wage has not changed). But a higher EITC coupled with the higher minimum may raise the effective wage by enough to exceed the reservation wage of single mothers, leading to more substitution of single mothers for teenagers, and hence better distributional effects of the EITC.

The case for single mothers (assumed here to face a fixed cost of employment) is depicted in Figure 2. The minimum wage in isolation (which shifts the budget constraint to the dotted and dashed line) is insufficient to induce labor market entry, as is the EITC in isolation (the dotted line); only the combined policy (the dashed line) induces labor market entry. Of course this argument does not imply that a more generous EITC, in isolation, would not have better distributional effects. And there is, of course, a set of EITC parameters in isolation that would yield the same interior solution depicted in Figure 2 for the type of worker depicted there. But there may be constraints on setting EITC parameters in this way because of political concerns or fears over introducing stronger distortions on the phase-out range.[14] As a consequence of the potential for labor supply disincentives with a very high EITC, it is not only possible that a higher minimum wage could enhance the positive distributional effects of the EITC, but

[14] Emphasizing the latter point, note that in Figure 2 we cannot draw an upward-sloping budget constraint for the phase-out range that gets us back to the original budget constraint with no minimum wage (the solid line). Obviously a version of Figure 2 with an upward-sloping budget constraint for the phase-out range can be drawn. But doing so would lead to a very unclear figure, because the alternative budget constraints would have to be much closer together.

also that the distributional effects of a minimum wage and a low EITC are better than those of a high EITC that generates the same effective wage along the phase-in range.[15]

To this point we have focused on how a higher minimum wage could enhance the effectiveness of the EITC. However, it is also possible that a higher minimum wage instead diminishes the effectiveness of the EITC. For example, the argument above was based on the assumption that individuals eligible for the EITC are higher skilled than workers employed at the lower minimum wage. If, instead, the wages of those eligible for the EITC are bound by the original minimum wage, then a higher minimum wage will just reduce their employment relative to the case of an EITC in isolation (taking us back to a case similar to that depicted in Figure 1).

At the same time, it is worth noting that because the combination of an EITC and a minimum wage can lead to substitution effects across low-wage individuals, those individuals *not* eligible for the EITC can take a double hit from a high minimum wage coupled with an EITC, with the minimum wage reducing their employment prospects via the higher wage imposed on employers, and the EITC reducing their employment prospects via the increased supply of EITC eligible individuals. The two policies do not necessarily have an interactive effect, but in the scenario described above they do, as the minimum wage plus EITC combination leads to more labor market entry by the higher-skilled workers—single mothers—and hence more disemployment of the lower-skilled workers—teenagers, in this example, but more generally low-skilled individuals.

The past decade is a propitious period in which to study the effects of policy interactions between the minimum wage and the EITC. Paralleling the rapid proliferation of state minimum wages is a similar expansion in state EITCS, with the number of states with EITC supplements rising to 19 as of 2007. Of course, welfare policies also were changing over this period following the enactment of the Temporary Assistance to Needy Families (TANF) legislation in 1996. However, preliminary analyses indicated that

[15] Estimates of the regression models described below can be used to simulate the distributional effects of alternative policy combinations and parameters—within the range of the data.

the welfare reform variables we used (time limits and work requirements) did not have discernible effects on the dependent variables we study, and so we focused on minimum wage-EITC interactions.[16]

III. Data

We construct a dataset that combines data on wages, employment, and hours of work of individuals, as well as family-level earnings, with state-level information on minimum wages and earned income tax credits for the period 1996 to 2006. The minimum wage data are compiled from annual summaries of federal state labor legislation reported each year in the Department of Labor's *Monthly Labor Review*. Most state minimum wages are specified as equal to or exceeding the federal minimum wage, although there are some states with a minimum wage that is below the federal minimum, often applying to small groups of workers not covered by the federal law. Because we do not have the detailed information on who is covered by state law and because coverage of the federal minimum wage is extensive, we simply use the higher of the state or federal minimum as the effective state minimum.

The information on state EITCs comes from a series of reports published by the Center on Budget and Policy Priorities. State EITCs specify a percentage of the federal EITC that is paid to state taxpayers via the state income tax system, as a "supplement" to the federal EITC. Our state EITC variable is this percentage. In two states, this percentage varies with the level of income and/or with the number of children. In Wisconsin, the supplement varies with number of children; we use the supplement for families with two children (14%). Minnesota's EITC is not specified as a simple percentage of the federal credit, so we use the reported average supplement of 33%.[17] Although the state credit is refundable in most states, a few states have a nonrefundable (or only partially refundable) credit and in a couple of states the recipient has a choice; for these latter states, we use the refundable rate on the presumption that most eligible families would prefer that rate. (A refundable EITC gives money back to the family even if there is no tax liability, whereas a non-refundable EITC only reduces any existing tax

[16] This is not a statement about the overall effects of the change from AFDC to TANF. Our sample period begins in 1997 and covers the post-welfare reform period. As a result, the welfare reform effects we identify are mainly the effects of minor timing differences between the states and variation in the state policies adopted. Some of these earlier results are described in Neumark and Wascher (2007b).

[17] See http://www.stateeitc.com.

liability.) Over the sample period we use, the federal EITC was unchanged with a phase-in tax credit of 40% for families with two or more children, and 34% for families with one child. There is also a very small credit of 7.65% for those without children.[18]

We merge these state-level policy variables with data from CPS Annual Demographic Files (ADF). The ADF files are used to construct individual-level measures of wages, employment, and hours, as well as demographic and human capital indicators (sex, race, ethnicity, education, etc.). In addition, we use the ADF files to construct family-level measures of earnings and poverty status. Finally, we append to each record the state unemployment rate in each year to control for variation in economic conditions at the state-by-year level. The unemployment rate is potentially endogenous, but by using the state-wide unemployment rate (from the Local Area Unemployment Statistics) rather than a rate for groups more strongly affected by the minimum wage, we hope to capture the influence of the changes in aggregate demand.

IV. Methods

We estimate models for different dependent variables—including employment, hours, wages, earnings, and earnings relative to poverty thresholds—for a variety of demographic and skill groups. The earnings estimates are unconditional rather than conditional on employment, so that the estimates reflect changes on both the extensive (employment) and intensive (hours of work if employed) margins of work, as well as changes in wages. All specifications are estimated at the individual level, with standard errors adjusted to account for non-independence among observations within the same state and over time.[19]

We begin by estimating the effects of the EITC. When we study women's employment, hours, and earnings, and whether families' earnings are above or below the poverty line (or other thresholds), we estimate the following baseline model:

[18] In addition to the phase-in rate, the EITC establishes a maximum credit (in 2007, $4,716 for families with two or more children, $2,853 for families with one child, and $428 for those with no children), a "plateau," or an income range over which the maximum benefit remains fixed (in 2007, for families with two or more children, from $11,791-$15,399), and a phase-out rate at which the credit is reduced as income rises (currently 21.06% for families with two or more children).

[19] Specifically, each observation comes from a particular state and year. However, we cluster the data at the state level to compute standard errors robust to heteroscedasticity and arbitrary correlations across individuals in the same state either contemporaneously or over time (Bertrand, et al., 2004).

$$(1) \qquad Y_{ist} = \alpha + \beta_1 EITC_{st} + \beta_2 EITC_{st} \cdot Kids_{ist} + X_{ist}\lambda + G_s\mu + M_t\nu + \varepsilon_{ist},$$

where *Y* is the dependent variable, *EITC* is the state supplement expressed in percentage terms, and *Kids* is a dummy variable indicating the presence of dependent children age 18 or under in the home. A large set of controls (discussed below) is included in *X*. G_s and M_t are vectors of state and year fixed effects, included to control for overall differences across that states that might be correlated with policy differences, and for general changes over time (such as those generated by other policy changes) that might be correlated with the policies we study. Finally, the '*i*,' '*s*,' and '*t*' subscripts denote individuals, states, and years, respectively.

The specification merits some explanation. First, because the EITC is much more generous for families with children, we view β_2 as especially indicative of the effect of the EITC on labor market outcomes. One might interpret β_1 as the effect of the EITC on those without children. However, because the model does not include a full set of state-by-year interactions (in which case β_1 would be unidentified), we cannot be entirely sure whether this parameter reflects overall effects of the EITC or the effects of shocks specific to state and year cells that are correlated with EITC. In that sense, our estimating equation can be thought of as a difference-in-difference-in-differences estimator that identifies the effect of the EITC from the *differential* effect for those with and without children. We also verify that the estimates of β_2 are robust in a more flexible specification that includes a full set of state-by-year interactions (and thereby drops the main effect *EITC* variable).[20]

Second, the vector *X* includes an extensive set of controls. These include: dummy variables for education (high school dropout, high school degree, some college, bachelor's degree or higher); dummy variables for number of children as well as the number of children under age 6 (all possible values); dummy variables for marital status (never married, married spouse present, married spouse absent, and divorced, widowed, or separated); dummy variables for black or Hispanic; age and its square; and the state unemployment rate. In addition, the model includes a full set of interactions between *Kids* and both

[20] As an intermediate step that is more restrictive than a full set of state-by-year interactions, but more flexible than simply state and year fixed effects, we also verify that the estimates of β_2 are robust to the inclusion of state-specific linear time trends.

year dummy variables and state dummy variables, to allow for changes across time in the relationship between presence of children in the home and labor market outcomes, as well as differences across states.[21] For some samples, some of these controls drop out (e.g., some of the marital status controls when we study single women).

When we study the effects of the EITC on low-skilled "ineligible" men (men without children), an interaction with *Kids* is inappropriate. Instead, we identify the effect of the EITC on this group from the difference between those with higher and lower skill. We classify individuals as higher skill if they have at least some college and as lower skill if they have a high school degree or less. We also estimate an alternative specification focusing instead on low-skilled blacks or Hispanics, who are even lower wage and hence more likely to be adversely affected by an outward supply shift induced by the EITC—especially, perhaps, when coupled with a higher minimum wage (in specifications discussed later). Thus, our specification becomes:

$$(2) \qquad Y_{ist} = \alpha + \beta_1 EITC_{st} + \beta_2 EITC_{st} \cdot Lowskill_{ist} + X'_{ist}\,\lambda + G_s\mu + M_t\nu + \varepsilon_{ist},$$

where the vector of controls *X'* is now different because it excludes the variables related to children.[22]

After estimating the effects of the EITC, we move on to specifications that are augmented to allow for interactions between the EITC and the minimum wage. The augmented version of equation (1) is

$$(3) \qquad \begin{aligned} Y_{ist} = {} & \alpha + \beta_1 EITC + \beta_2 EITC_{st} \cdot Kids_{ist} + \gamma_1 MW_{st} + \gamma_2 MW_{st} \cdot Kids_{ist} \\ & + \delta_1 EITC_{st} \cdot MW_{st} + \delta_2 EITC_{st} \cdot MW_{st} \cdot Kids_{ist} + X_{ist}\lambda + G_s\mu + M_t\nu + \varepsilon_{ist}. \end{aligned}$$

In this specification, *MW* is the log of the minimum wage. δ_2 identifies how variation in the minimum wage changes the effect of the EITC on those with children relative to those without. Again, we verify the robustness of the results for the policy variables interacted with *Kids* (the coefficients β_2, γ_2,

[21] When these interactions were excluded, the results were not always robust to how we controlled for the number of children and their ages—whether the highly flexible manner just described or a more restrictive specification. But with these interactions included the results were very stable, suggesting that there are some correlations between policy changes and either state or year variation in the relationship between employment and children in the home.

[22] For purposes of comparison, we also estimate this specification for married men with children, because the low-skilled among this group may still be adversely affected by the EITC.

and δ_2) to the inclusion of a full set of state-year interactions (or state-specific linear trends). Reflecting earlier findings indicating that the effects of minimum wages take some time to become fully apparent (Baker, et al., 1999; Neumark and Wascher, 1992), we view it as desirable to include both contemporaneous and lagged values of the minimum wage.[23] However, to simplify the specification, we specify the minimum wage variable in these models as the average of the current and lagged (one year) minimum wage. In this specification, we demean the policy variables (*EITC* and *MW*) so that the effects of the EITC *not* interacted with the minimum wage (and the minimum wage effects) that we report are effectively evaluated at the sample means and hence are most comparable to those from specification (1).

Similarly, the augmented version of equation (2) is:

$$Y_{ist} = \alpha + \beta_1 EITC + \beta_2 EITC_{st} \cdot Lowskill_{ist} + \gamma_1 MW_{st} + \gamma_2 MW_{st} \cdot Lowskill_{ist} + \delta_1 EITC_{st} \cdot MW_{st} + \delta_2 EITC_{st} \cdot MW_{st} \cdot Lowskill_{ist} + X_{ist}\lambda + G_s\mu + M_t\nu + \varepsilon_{ist}. \quad (4)$$

In this specification, δ_2 identifies how variation in the minimum wage changes the effect of the EITC on low-skilled relative to high-skilled childless men.

V. Results

Descriptive Statistics

Tables 1A-1C report descriptive statistics of some of the key variables at the individual and family level, including those for the outcomes we study. The tables cover the period 1997-2006 and present statistics for a variety of groups included in our analysis, such as single and married women between the ages of 18 and 45 (Table 1A), single and married men between the ages of 18 and 35 (Table 1B), and families with a head between the ages of 18 and 45 (Table 1C).[24] As indicated in the top panel

[23] One comment on the minimum wage variable is in order. Earlier research on the employment effects of wage floors often used the minimum wage divided by a measure of the average wage, capturing the idea that it is the effect of the minimum wage on the relative price of unskilled labor that is most relevant for the employment of such labor. With a logarithmic specification, the log of the minimum wage and the log of the average wage can be included separately; if the coefficients are equal in absolute value and opposite-signed, then this is equivalent to including the log of the ratio. When we included the log of the minimum wage and the log of the average wage (for males aged 35-54) separately in the employment and hours equations, the null hypothesis that these two variables had coefficients equal in absolute value but opposite in sign was often rejected. Moreover, the estimated coefficient on the minimum wage was not sensitive to excluding the average wage control. Thus, we report results including only the log of the minimum wage.

[24] Also included are unrelated individuals living in others' households or primary individuals in their own

of Table 1A, about 45% of single women (which includes women who have never married as well as those who are divorced, widowed, or separated) have at least one child at home, and 22% have more than one child. These percentages are somewhat higher for less educated or minority single women, although lower than the percentages for higher-educated married women. Single women are also more likely to be black or Hispanic (or both) than higher-educated married women in this age range, while the average age in each category is just under 30. With regards to education, shown in the next panel, single black or Hispanic women are somewhat less likely to have completed high school than single white women (and are labeled high school dropouts, although some of them may complete high school later) and somewhat less likely to have a college degree.[25]

Average economic outcomes for these groups of women are shown in the remaining panels. For the sample of single women as a whole, the average employment rate is 79% and is higher for women without children than for women with children. Overall, these women work an average of 1,296 hours per year with log earnings of 7.94; again these figures are higher for childless women than for women with children. Looking across the columns, less-educated and minority women have lower employment rates, work fewer hours, and have lower earnings than single women overall. Finally, less-educated married women are less likely to be employed than are single women, and work fewer hours with lower average earnings. On the other hand, less-educated married women without children are more likely to be employed and work somewhat more hours and have higher earnings than less-educated or minority single women without children. Meanwhile, single minority women with children have the lowest employment rate, hours of work, and earnings of any group covered in Table 1A.

Table 1B presents some summary statistics for individual men. As indicated in the top panel, single men without children are more likely to be black and less likely to be Hispanic than are married men with children; in addition, single childless men tend to be somewhat younger than their married with

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households.

[25] The education classifications are based on education attained and whether the person reports a high school diploma or GED. We do not distinguish between the latter two cases, although there is evidence suggesting that this distinction is important for employment outcomes (e.g., Cameron and Heckman, 1993). Separate information on diploma and GED holders is first available in the CPS in 1998.

children counterparts. The educational differences between the two groups are not particular striking, although married men with children are slightly more likely to be high school dropouts but also are more likely to have a college degree. In contrast, average economic outcomes are noticeably different across the two groups. Married men with children are significantly more likely to be employed, work more hours over the course of a year, and have a higher wage and higher earnings than single childless men. While these differences are evident for higher-educated individuals, they are particular large for those with a high school education or less, as well as for less-educated minorities.

Table 1C presents summary statistics at the family level. About 46% of families (which includes unrelated individuals) are headed by a woman, while 45% of families consist of married couples. Within the group of families headed by single women, 42% have children at home. About 22% of the sample of single women family heads is black and 13% is Hispanic; the percentage black is noticeably higher than for all families, while the percentage Hispanic is slightly lower. Among single women family heads, 54% have completed at most a high school education, while 13% have not completed high school; these percentages are not much different than for the sample of family heads as a whole. However, the economic outcomes differ noticeably across family types. About 20% of families with heads between the ages of 18 and 45 had earnings below the poverty line, and about 13% had earnings less than ½ the poverty line (sometimes referred to as "extreme poverty"). However, the percentages with low levels of earnings rise sharply for families headed by single women, and even more so for families headed by less-educated or minority women. Moreover, the differences are especially large for female-headed families with children, where the proportion with earnings below the poverty line is 0.55 for less-educated and minority women and the proportion with earnings below ½ the poverty line is more than third for each of those groups.

The policy variables are shown in Figures 3 through 6. As indicated in Figure 3, the prevalence of state minimum wages and state EITC supplements both increased over our sample period. The percentage of families residing in states with an EITC rose from 17% in 1997 to 32% in 2006, while the percentage of families in states with a minimum wage higher than the federal level rose from 18% in 1998

to about 50% in 2006, with especially sharp increases in 2005 and 2006. In addition, both state EITCs and minimum wages have become more generous over time. For example, the average size of the supplement in states with an EITC rose from 8% in 1997 to more than 15% in 2006 (Figure 4),[26] while the level of the minimum wage in states where the minimum was above the federal level moved up from just over $5 per hour in 2007 to about $6.50 per hour in 2006 (Figure 5); in contrast, the federal hourly minimum wage was raised to $5.15 in late 1997 and was held at that level through 2006.

Figure 6 presents a scatter plot of state minimum wages and EITC supplements in 2006. As indicated by the upward sloping regression line, states with a higher minimum wage were also somewhat more likely to have a more generous EITC supplement. However, the dispersion of points around the line is considerable, suggesting that states varied considerably in their use of these policies. Moreover, there are states that implemented high minimum wages but low (or no) EITC supplements, and high EITC supplements but low minimum wages. This variation helps us to identify how the interaction of state minimum wage and state EITC supplements influenced economic outcomes at the individual and family level.

Effects of the EITC on Employment, Hours, and Earnings

We begin our empirical analysis with some basic regression estimates of the effects of the EITC on employment, hours, and earnings. Table 2 reports results for various groups of women expected to be differentially affected by the EITC; these are estimates of equation (1). As noted earlier, the coefficient on the state EITC supplement variable picks up the average effect of these supplements on the women in the sample, as well as other changes not captured in the regression controls that are correlated with state policy changes regarding the EITC. Although there is a very small EITC available for families without children, the credit rate increases markedly for families with children, and so we also include a variable that captures separately the effect of the EITC on the labor market outcomes of families with children, which we regard as providing the most reliable identification of the effect of the EITC. For these women,

[26] Over 80% of the observations on families in states that supplement the EITC were from states with a refundable EITC, and in almost all cases the EITC was fully refundable.

the total EITC effect implied by the estimates is shown in the final row as the sum of the two EITC coefficients.[27]

The first column reports the relevant coefficient estimates for a sample that includes all single women between the ages of 18 and 45. As indicated in the second row in each panel, the coefficient on the EITC variable itself is small, insignificant, and, more often than not, negative, indicating that the EITC has negligible effects on labor market outcomes for single women without children. In contrast, the coefficient on the EITC-kids interaction (the first row) indicates that the EITC has a positive effect on the employment, hours, and earnings of single women with children; for employment and earnings the estimates are significant at the 10% level. The summed EITC effect is positive and statistically significant at the 5% level for employment and earnings, although not for hours. The point estimate for employment (.19) implies that a 10% EITC supplement boosts the probability of employment among single mothers by 1.9 percentage points, while the estimate for earnings (1.70) implies that a 10% supplement raises their earnings by 17%. These results appear generally consistent with previous research on the EITC (e.g., Hoffman and Seidman, 2003) indicating that the EITC boosts the employment and earnings of single mothers.

The next two columns narrow the sample to two groups that are often considered likely to be more strongly influenced by the EITC—less-educated women and minority women. These individuals are likely to reap the most from the EITC because their earnings are low and thus less likely to be in the phase-out range where the EITC can generate incentives to work less rather than more. As before, the main EITC coefficient is small and insignificant in most cases. In contrast, the interaction effect is positive and generally larger than for the broader sample of single women, although the standard errors also become larger; the estimated effect is statistically significant at the 5% or 10% level for employment and earnings for less educated women. The summed coefficients imply that the EITC provides a positive and significant (at the 5% level) boost to the employment and earnings of single black or Hispanic

[27] This summed estimate, of course, requires the assumption that the estimated coefficient of the main EITC effect reflects only the effects of the EITC. When we estimate a more flexible specification including a full set of state-year interactions, only the interaction of the EITC with the dummy variable for children is identified.

mothers, as well as for less-educated mothers, that is larger than observed for the sample as a whole; the hours effects are also positive but estimated less precisely.

Finally, the last column reports results for less-educated married women. For some in this group, family earnings are above the maximum EITC income threshold and so we would not expect the EITC to have an effect on their labor market outcomes. However, there may be others who are in the plateau or phase-out range where the EITC is predicted to reduce hours worked and possibly employment. The results are generally consistent with this expectation, pointing to declines in employment, hours, and earnings for those with children, although none of the estimates are statistically significant. Clearly, the results are substantially different from those for single women, confirming what theory would lead us to expect, and hence bolstering a causal interpretation of the effects for single women.[28]

As we indicated in the previous section, a potential side effect of the EITC is that the positive supply response for eligible mothers may lead to negative consequences for other individuals who compete for jobs with the new labor force entrants. One group who may be adversely affected by the increased labor supply of mothers consists of younger low-skilled men, and Table 3 presents results showing how these individuals are affected by the EITC (estimates of equation (2)). In this specification, we identify the effect of the EITC from an interaction between the EITC supplement and an indicator for skill level, which we define alternatively as individuals with at most a high-school degree and as minorities with at most a high-school degree. To focus in on those individuals more likely to be substitutes in production for women benefiting from the EITC, we limit the sample to men between the ages of 18 and 35.

The first column of the table presents the results for single less-educated men without children at home, with the different panels reporting the effects of the EITC on employment, hours, wages, and earnings. The estimates always indicate negative effects of the EITC on these men, although only the estimated effect on hours is significant at the 10% level. For low-skilled married men with children

[28] The findings parallel those in Eissa and Hoynes (2004), although they sometimes find statistically stronger evidence of the EITC reducing labor market participation of less-educated married women.

(column (2)) the estimates are also negative, although the evidence is weaker statistically. Note that we would not expect to see positive effects of the EITC on employment or earnings for this group because men are more likely to be employed regardless of the EITC and hence more likely to exhibit an hours decline than an employment increase. In addition, if the EITC induces increased labor supply of women (via labor market entry), some men may face more competition for jobs and hence lower wages.

In columns (3) and (4) we focus on a lower-wage group—less-educated minority men—and the results are sharper. For single childless men (column (3)), the coefficient on the interaction term is again always negative and generally larger than in column (1). Moreover, the estimated coefficient of the EITC-low-skill interaction is statistically significant at the 5 or 10% level for employment, hours, and earnings, suggesting that this group is more adversely affected by the EITC than are white or better-educated men. Low-skilled minority married men with children (column (4)) also see a reduction in their employment, wages, and earnings (relative to white or higher-educated men) in response to the EITC, although the employment and earnings estimates are smaller than for single men.

In Table 4, we turn to the effects of the EITC on the total earnings of families with heads between the ages of 18 and 45,[29] which in a sense provides a way of aggregating across the conflicting positive and negative effects in the previous two tables. Because we are interested in how the EITC influences the lower tail of the earnings distribution, we focus on two metrics that are illustrative of these effects: the probability that a family's earnings are below the level of income associated with the poverty line, and the probability that family earnings are below ½ the poverty line.[30] As indicated in the first column, overall the EITC appears to be associated with reductions in the proportion of families with very low earnings. However, the estimated coefficients of the EITC-kids interactions are relatively small and not statistically significant, although the summed effect for the threshold of ½ the poverty line is significant. The results

[29] Recall that this includes primary and unrelated individuals.

[30] Notice that we focus on earnings and not income. Although it is possible to measure other sources of pre-tax income in the CPS data we use, there is no information on EITC payments received or taxes paid. In addition, we are more interested in how the EITC affects labor market incentives and hence earnings, while recognizing that this means we understate the gains (or overstate the losses) from the effects of the EITC, for the individuals or families involved.

are considerably stronger when the sample is restricted to families head by a single female (column (2)), or restricted further to families headed by less-educated single females (column (3)); in these cases, all of the estimates are negative, and the estimated coefficient of the EITC-kids interaction is significant at the 10% level for the probability that families are below ½ of the poverty line. For families headed by minority single women, the evidence is weaker. Thus, the evidence is for the most part consistent with previous research in finding that the EITC is effective at boosting the earnings of very poor families, although the evidence is not always strong.

Interactions between the EITC and the Minimum Wage

Finally, we turn to our central evidence on the effects of interactions between the EITC and minimum wages. As in Tables 2-4, we focus on the three main groups likely to be affected by the EITC. We therefore begin by estimating specifications for single women that include interactions with a variable indicating the presence of children. As noted earlier, for women who are eligible for the EITC, the disemployment effects of a higher minimum wage could reduce the positive employment effect of the EITC. Alternatively, the interaction for these women could be positive, because a higher minimum wage makes the EITC more valuable for eligible families. In contrast, for groups not likely to be eligible for the EITC, or eligible for only a very small credit, a high minimum wage coupled with an EITC could be a particularly bad combination, with the minimum wage reducing their employment prospects via the higher wage floor imposed on employers, and the EITC further reducing their employment prospects via the increased supply of eligible women entering the labor market. For single women and families, this latter effect pertains to childless women and thus would be captured by the coefficient on the EITC-minimum wage interaction. For single childless men, this latter effect pertains to the triple interaction between the EITC, the minimum wage, and the low-skill indicator.

For the analysis of single women, the results for employment are presented in top panel of Table 5. As shown in the first column, the EITC effect on employment is positive and significant for single women with children. Moreover, the coefficient on the interaction term between the minimum wage, the EITC, and children is positive and significant, indicating that the presence of a higher minimum wage

accentuates the positive labor supply response of the EITC for single mothers. The results are even stronger for minority and less-educated mothers (columns (2) and (3)). In contrast, for single women without children, the coefficient on the EITC-minimum wage interaction is negative, and notably so for minorities and less-educated women, albeit not statistically significant.

The second panel presents the results for total hours. In general, the estimates are of similar sign to those for employment and sometimes fairly large, although usually not significant. The one exception is the coefficient on the MW-EITC-kids interaction term for the sample of minority women, which is significant at the 5% level, indicative of a positive policy interaction.

The effects on earnings are shown in the bottom panel. Reflecting the positive effects on employment and hours, both the EITC variable and the EITC-minimum wage interaction have a positive and significant effect on the earnings of women with children, with larger effects evident for the samples restricted to minorities or less-educated women than for the sample as a whole. This suggests that the combination of an EITC and a higher minimum wage may be especially powerful in raising the earnings of low-skilled single mothers. However, these specifications also suggest that the positive labor supply response of single mothers eligible for the EITC may reduce earnings among other subsets of the population. In particular, the combination of an EITC and a high minimum wage appears to reduce earnings among single women without children, especially for minority women. Below, after presenting the other analyses, we present some calculations that provide a better sense of how to interpret the coefficient magnitudes in Table 5.

Table 6 presents the results for single men without children at home. In principle, a higher minimum wage coupled with an EITC could cut in different ways for this group of individuals. On the one hand, a high minimum wage that leads to more labor market entry among women eligible for the EITC could put additional downward pressure on wages for men earning above the minimum. On the other hand, a higher minimum wage could create a floor below which wages cannot fall despite the increased labor supply of women, in which case a higher minimum wage coupled with a higher EITC might reduce men's employment. As shown in columns (1) and (2), the evidence on employment and

hours is consistent mainly with the latter interactive effect. A higher state EITC reduces employment and hours among low-skilled men, and these negative effects are exacerbated by a high minimum wage, although these estimated coefficients of the policy interaction are not statistically significant. The effects of the EITC on wages (shown in columns (3) and (4) in the upper-right panel) are also negative, but there is little evidence that this adverse effect is compounded by a higher minimum wage. Finally, as indicated in the lower-right panel, the presence of either an EITC or a minimum wage tends to reduce the relative earnings of low-skilled single males, and these effects are heightened when both policies are in effect—significantly (at the 10% level) for less-educated minority men.

Teenagers are another group for which the combination of a high minimum wage and an EITC may produce adverse effects. Some previous researchers have found evidence of substitutability between women and youth (e.g., Grant and Hamermesh, 1981), raising the possibility than an EITC-induced outward supply shift for women with children may depress labor market opportunities for teenagers. As for other groups, this substitutability could present either as downward pressure on wages or reduced employment.

To assess this possibility, we estimate models for 16-19 year-old males and for 16-19 year-old females that, similar to those presented above, allow for interactions between the EITC and minimum wages for 16-19 year-old males and for 16-19 year-old females. Because limiting the sample to teenagers substantially reduces the number of observations in the ADF dataset, we switch to the monthly ORG files for this part of the analysis. This requires some differences in specification from the annual regressions shown in previous tables in that we create a monthly minimum wage variable that captures the exact timing of minimum wage changes,[31] and we include a set of dummy variables for calendar year and month and a set of state-specific time trends. In addition, reflecting the time period covered by the regularly monthly CPS surveys, our analysis is limited to employment, wages, and earnings, all of which refer to a one-week period during the survey month. The sample period for these regressions extends from January 1997 to December 2007.

[31] The EITC supplements refer to an entire tax year, and thus have the same value in every month within the year.

The results for teenage males are presented in Table 7A, while those for females are shown in Table 7B; we show results separately for all races, all non-black, non-Hispanic individuals, and blacks or Hispanics. Because previous analyses of the youth labor market have often focused solely on the effects of minimum wages and because teenagers are not generally eligible for the EITC, the first column in each pair shows the coefficients from a standard regression of employment, wages, or earnings on the minimum wage; the second column in each set then adds in an EITC variable and the EITC-minimum wage interaction.[32] In the standard regression for men (Table 7A), the minimum wage has a negative effect on the employment rate of all teenage males, a positive effect on wages, and a negative effect on weekly earnings, consistent with much earlier research.[33] And, as can be seen in columns (3) and (5), the minimum wage has more adverse effects on blacks and Hispanics than on whites. Adding in variables for the EITC and EITC-minimum wage interaction provides weak evidence that the combination of a high EITC and high minimum wage leads to a larger loss of earnings for male teens, mainly by reducing their employment opportunities. However, most of the key coefficients in this specification are not statistically significant.

Clearer evidence of substitutability between low-skilled adult women and teenagers can be seen in the regressions for female teenagers (Table 7B). For the minimum wage variable alone, the patterns are broadly similar to those seen for male teens, with reductions in employment rates and earnings, but increases in wages for those who remained employed. However, the second specification shows large negative coefficients on the interaction terms in every case, with most of them statistically significant. Evidently, the additional increase in labor supply among adult women in response to the combination of a high minimum wage and generous EITC leads to noticeable reductions in both the employment rates and wages of female teenagers, reducing their earnings sharply. This suggests that the types of jobs taken by low-skilled adult women drawn into the workforce by the EITC are similar to those typically filled by teenage women.

[32] Consistent with our analysis using the ADF dataset, the minimum wage is defined as the average (in logs) of the current minimum wage and the minimum wage lagged one year (i.e. twelve months).
[33] See Neumark and Wascher (2007a).

In Table 8 we bring all this information together to ask how minimum wages influence the effects of the EITC on family earnings relative to the poverty line or ½ the poverty line. Consistent with the results we presented above, we find that the EITC, by itself, tends to reduce the likelihood that families are poor, and even more so below ½ of the poverty line. However, the interaction effects are particularly striking. Most important, the combination of an EITC and a higher minimum wage tends to have a strong beneficial effect on the earnings of families with children, especially for those headed by single women, who, as we have seen, increase their participation in the labor market in response. In contrast, to the extent that we are willing to interpret the "main" EITC-minimum wage interaction as causal, the positive estimated coefficient of this interaction suggest that the added inflow of single mothers from a higher EITC coupled with a higher minimum wage reduces earnings (and hence depresses family earnings) for other low-skilled individuals; note that this latter effect is larger when we focus on less-educated single females, but not when we focus on minority women.

To help interpret the coefficient estimates, Tables 9-11 present implied effects of various policy combinations on a subset of the labor market outcomes we considered in the previous tables; we focus on the groups and outcomes for which we found the strongest evidence of effects of the EITC. For example, in the first column of Table 9, we show the effect of introducing a 10% state EITC supplement on the employment status of single women under three different values of the minimum wage—a wage floor set at the sample mean, a minimum wage set 10% above the sample mean, and a minimum wage set 25% above the sample mean. As indicated in the top panel, introducing a 10% EITC supplement in a state where the minimum wage is set to the sample average increases employment among single women with children but has little effect on the employment of childless women. With a higher minimum wage, however, the effects of the EITC on the employment of single mothers become more strongly positive, while the effects on the employment of single women without children are essentially unchanged. The difference in the responses of women with and without children to the EITC is statistically significant in all cases, as is the change in the relative response of women with children when the minimum wage is raised. Thus, these comparisons clearly indicate that the EITC and the minimum wage interact in a way

that induces a larger absolute and relative labor response among women with children when the minimum wage is high.

The remaining two columns show corresponding effects for low-skilled and minority single women. The results are slightly stronger for these two groups, with a larger positive labor supply response for single women with children, especially among minorities. In addition, the effect of the EITC on less-skilled or minority women without children becomes negative at higher levels of the minimum wage, although these estimates are not significant. In any event, the differences in the interactions between the EITC and the minimum wage for women with and without children are significantly different for all three samples, suggesting that there is some basis for concluding that a higher minimum wage boosts the positive effects of the EITC on the employment of women with children who are relatively likely to be eligible for generous EITC payments.

In Table 9, we present the implied effects of a similar range of policy combinations on the earnings of single childless men. In this case, we differentiate between the effects of policy on the earnings of lower-skilled/minority and higher-skilled men. As indicated in the top panel, the combination of a 10% EITC supplement and a minimum wage set at its sample mean leads to a small loss in earnings among low-skilled men. The difference between the effects on low-skilled vs. high-skilled men indicates a negative and significant effect on the relative earnings of low-skilled minority men; moreover, this relative earnings effect is negative for low-skilled single men at each value of the minimum wage shown in the table, and is statistically significant for low-skilled minorities. In addition, the negative EITC earnings effects for less-skilled men are strengthened when the minimum wage is increased, both absolutely, and relative to higher-skilled men. The evidence for the interaction effect on earnings of low-skilled vs. high-skilled men is statistically significant at the 10% level.

Finally, Table 11 shows the effects of these various policy combinations on family earnings relative to the two poverty thresholds we considered. As suggested by the results in Table 8, a 10% EITC implemented at the average value of the minimum wage tends to reduce the incidence of poverty among families with children (and relative to childless families). These beneficial effects are especially

pronounced for families headed by a single female, and the difference between the effects for single mothers and single women without children is statistically significant when we look at earnings less than ½ the poverty line (column 4). Moreover, at higher levels of the minimum wage, these beneficial effects become noticeably larger. As indicated in column (4), for example, a 10% EITC supplement reduces the proportion of single mothers with earnings below ½ the poverty line by 0.031 at an average level of the minimum wage, and by 0.049 with a minimum wage 25% above the average. The difference in these effects (−0.018) is statistically significant. In contrast, the estimates suggest that a combination of a higher minimum wage and a generous EITC supplement tends to increase the proportion of childless families with earnings below the poverty line. Our strongest conclusion from the estimates in Table 11, however, is that a higher minimum wage does appear to increase the likelihood that the EITC lifts families out of extreme poverty.

We assessed the robustness of our conclusions on EITC-minimum wage interactions in other two ways not described in the tables. First, to check whether the estimated interactions were simply picking up omitted nonlinearities in the main policy effects, we re-estimated the specifications adding quadratic terms in all of the policy variables except for the EITC-minimum wage interactions (including, in equation (3), for example, the main policy effects as well as their interaction with the dummy variable for children in the home). The estimated EITC-minimum wage interactions were very similar, and the evidence was in some cases statistically stronger. Second, to check whether our identification was coming from the linear restrictions for both main and interactive effects, we created four indicators for each policy, with the first covering no policy in effect or up to a trivial policy (in the case of the minimum wage) and the latter three covering low, medium, and high versions of the policy (roughly the eighth, ninth, and tenth deciles). We then estimated models with the full set of indicators and interactions corresponding to equations (3) and (4). In all cases, we still found evidence that higher minimum wages enhanced the effects of the EITC, although sometimes this evidence only emerged over particular ranges of the EITC (e.g., the minimum wage enhanced the effect of a “medium” EITC relative to no EITC).

VI. Conclusions

The expansion of the EITC and the implementation EITC supplements and higher minimum wages at the state level have noticeably changed the low-wage labor market over the past 15 years. In this paper, we study how this combination of policies has influenced work incentives and labor market outcomes for various groups of low-skilled individuals, and examine the concomitant effects on the economic well-being of families. We first develop a simple theoretical model that illustrates the ways in which minimum wages and the EITC could interact,[34] and show that such interactions could differentially affect various groups. In particular, we show that a higher minimum wage could enhance the effect of the EITC for women by inducing particular subgroups to increase their employment rates to a greater extent than would be caused by the EITC alone. But it is also possible for a high EITC coupled with a high minimum wage to have adverse effects, especially for men or teenagers who may have to compete with the women induced to enter employment by a higher EITC. We then estimate models that allow for interactions between minimum wages and the EITC to assess the relevance of these possibilities.

Our results confirm earlier research indicating that the EITC is an effective means of encouraging work among less-skilled single mothers. We also find that the EITC interacts with the minimum wage in a way that amplifies the labor supply response and increase in earnings among single women, suggesting that the combination of an EITC and minimum wage can provide an additional boost to the incomes of such families. However, we also find that the EITC and minimum wage have adverse effects on the employment and earnings of less-skilled and minority men (especially those without children in the home), suggesting that the benefits afforded to single women come at a cost, with minimum wages exacerbating the potentially adverse effects of the EITC on this group.

Thus, whether or not the policy combination of a high EITC and a high minimum wage is viewed as favorable or unfavorable ultimately depends on whose earnings or incomes policymakers are targeting. The distributional goals of public policy typically focus more on family income than on individual

[34] We interpret this in terms of how variation in the minimum wage strengthens the effects of the EITC, since this is how the policy argument has been couched. Of course an interaction between the two policies in a regression model can just as well be interpreted as how a higher EITC influences the effects of the minimum wage.

income. Moreover, it seems fair to say that policymakers have been most concerned with increasing resources for families with children, via the EITC, welfare, etc. However, recent policy debate has refocused attention on those without children in the home, and in particular on the low-skilled men who, according to our estimates, are hit especially hard by a combination of a high EITC and a high minimum wage. For example, Berlin (2007), in arguing for expanding the EITC for those without children, argues that policies that increase income from labor market participation for less-skilled men might make them more attractive marriage partners and thus help to reverse the declines in marriage and increases in out-of-wedlock childbearing and childrearing that have occurred in recent decades, and reduce the relative attractiveness of illicit sources of income. And Gitterman et al. (2007) point out that in light of high out-of-wedlock childbearing and divorce rates, many men are non-custodial parents but have responsibility for children. These arguments suggest that we should not focus solely on how policies affect earnings of families with children and low-skilled or female heads.

At the same time, there are two qualifications that should be kept in mind in drawing implications of our estimates for low-skilled, childless men. First, we have estimated the effects of minimum wages and the EITC on earnings rather than total (post-tax plus EITC) income. By ignoring EITC payments, we likely overstate the costs of the EITC (and its interaction with the minimum wage) for these low-skilled men. Second, the arguments about paying more attention to low-skilled men are made in conjunction with proposals to significantly boost the EITC for these men (or, more generally, those without children). Our estimates do not speak to this alternative type of EITC. At the same time, the evidence of adverse effects of the present EITC on low-skilled men without children also suggests that a substantially more generous EITC available for childless men does not come without cost, and could pose negative tradeoffs with respect to women whose employment and earnings are boosted by the EITC as it is currently constructed.

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Figure 1: Minimum Wages and the EITC in a Competitive Labor Market

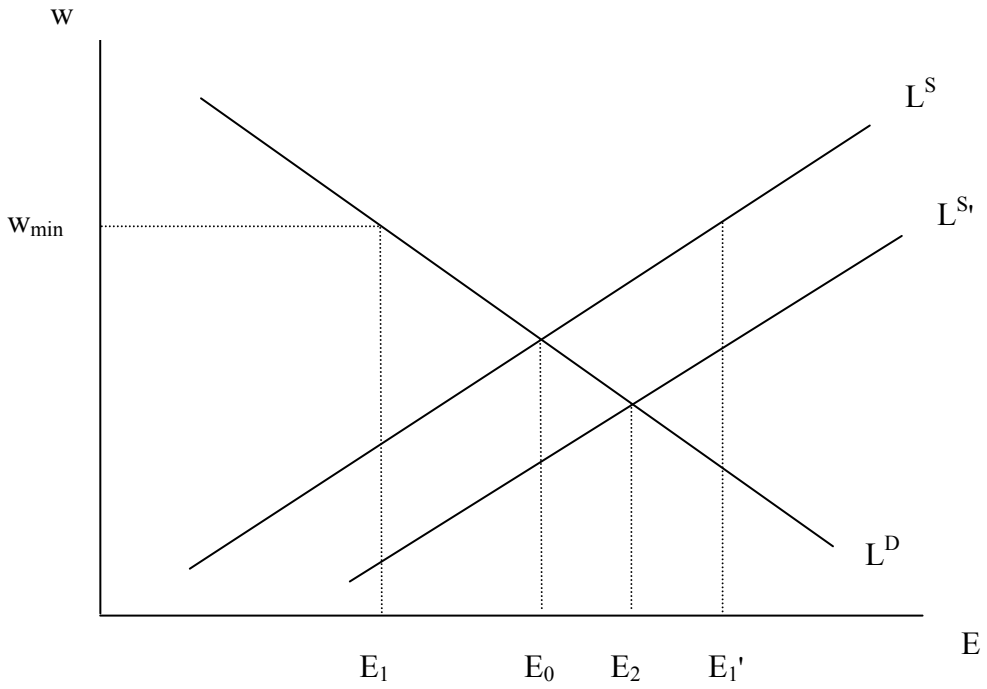


Figure 2: Minimum Wage-EITC Interactions

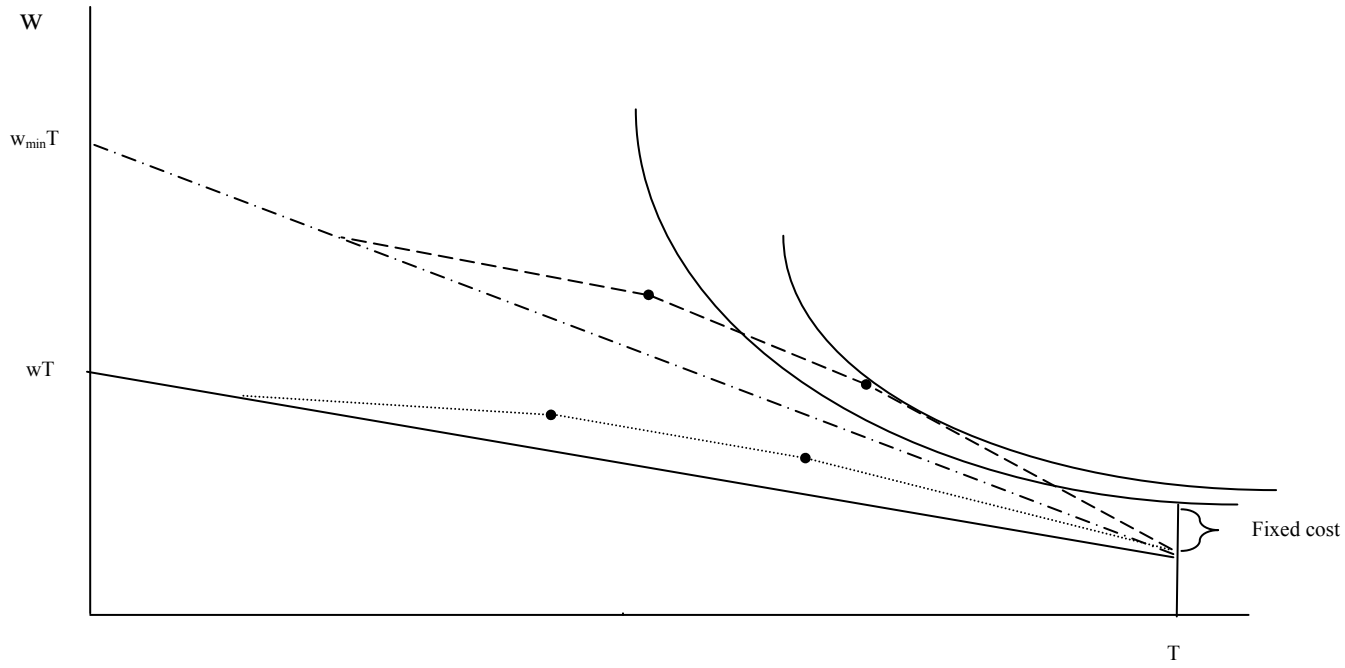


Figure 3: Changes in Shares of Families Covered by Higher State Minimum Wage or State EITC

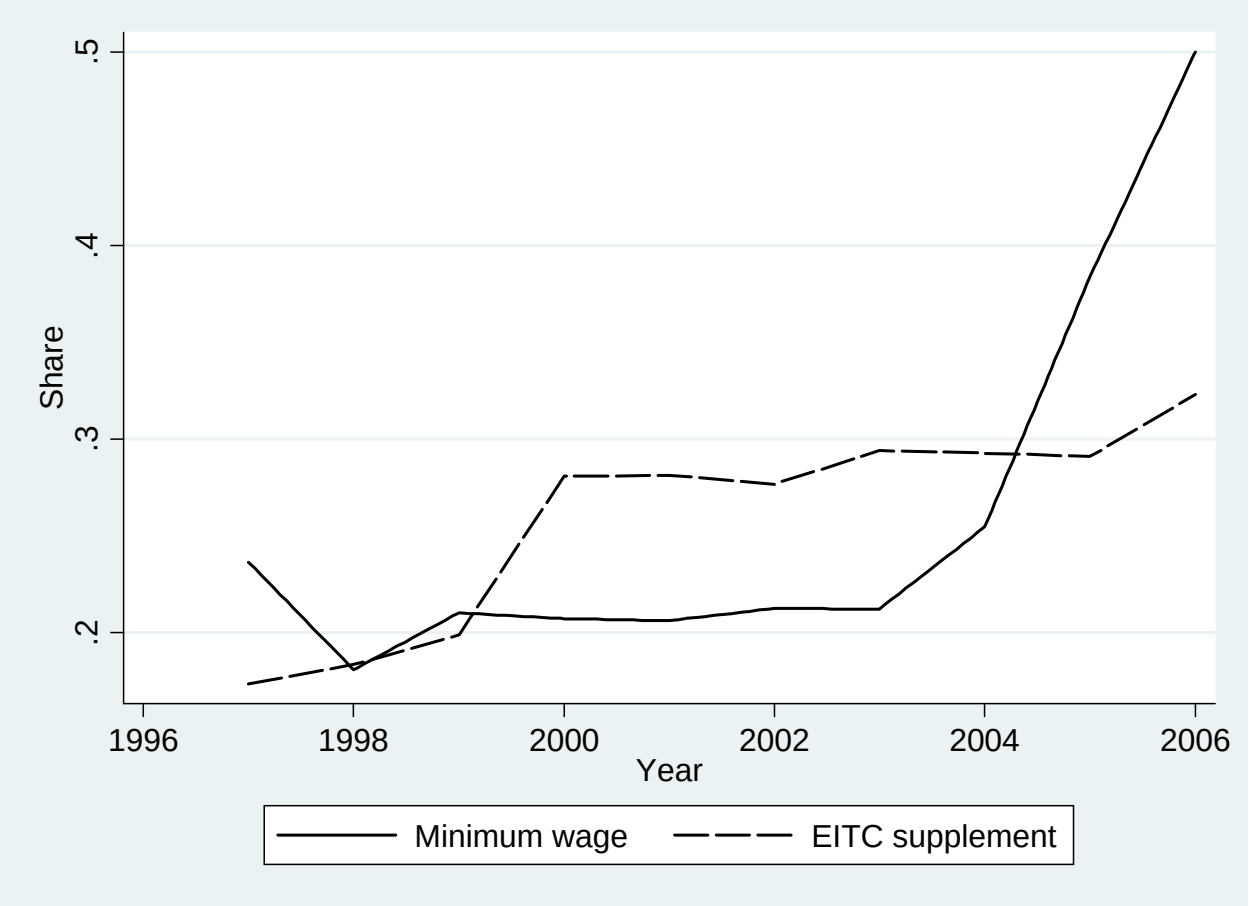


Figure 4: Average EITC Supplements Across States

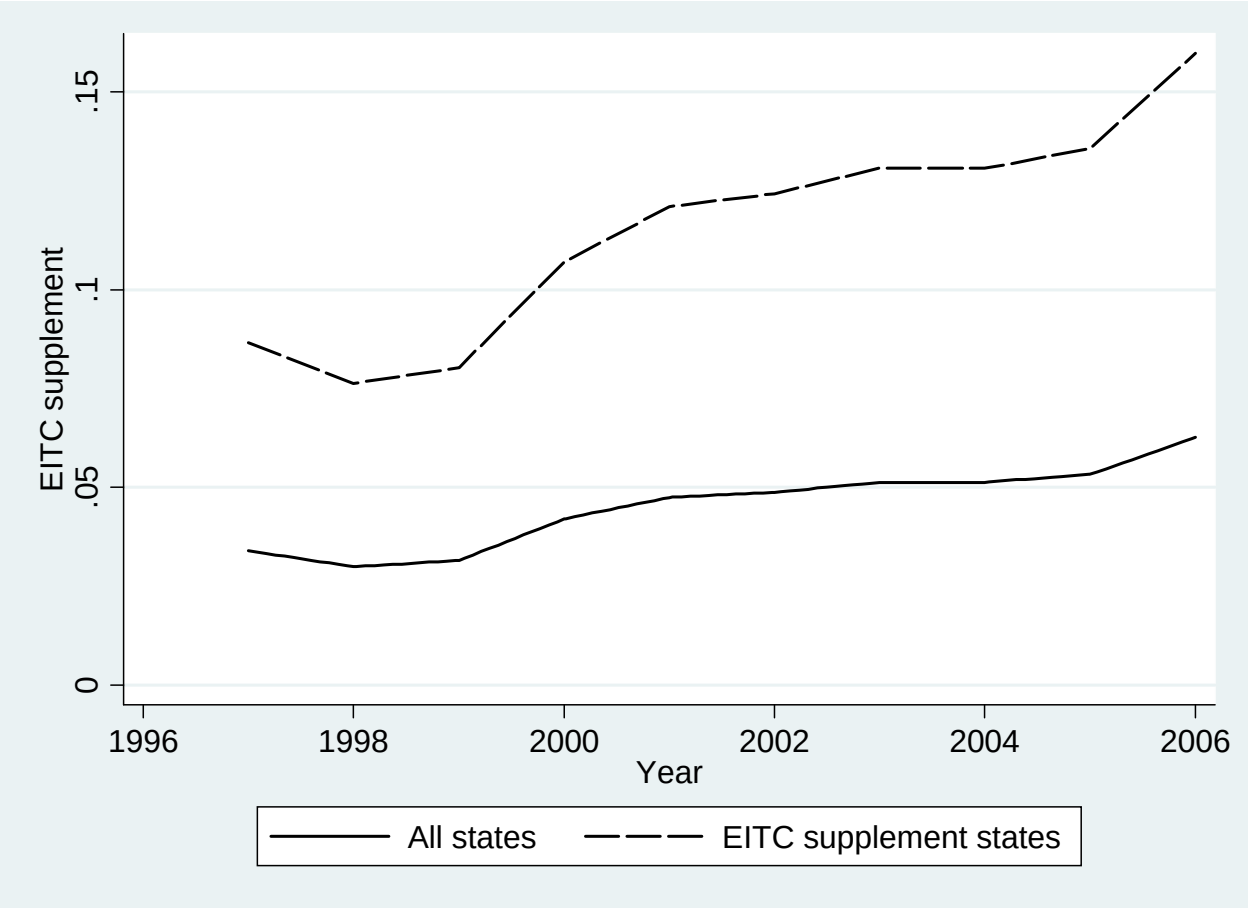
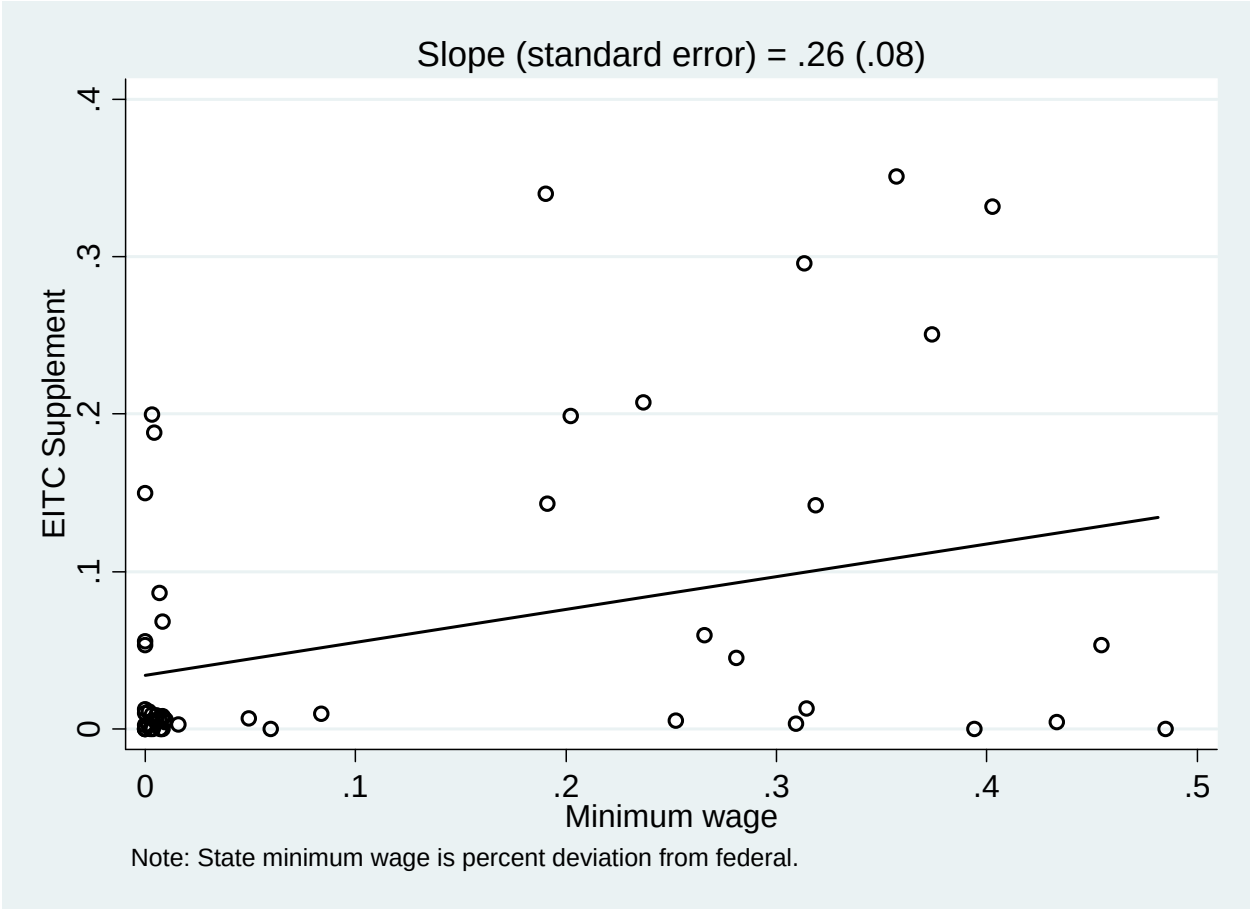


Figure 5: Average State Minimum Wages Across States

Figure 6: State Minimum Wages and State EITC Supplements, 2006



Note: State minimum wage is percent deviation from federal.

Table 1A: Descriptive Statistics for Individual Women, 1997-2006

	Single women, 18-45	Single women, 18-45, high school degree at most	Single women, 18-45, black or Hispanic	Married women, 18-45, high school degree or most
	(1)	(2)	(3)	(4)
1 child	.23	.26	.26	.26
2+ children	.22	.26	.31	.54
Black	.21	.23	.61	.09
Hispanic	.14	.16	.51	.26
Age	28.4	27.4	29.0	28.1
Highest education				
High school dropout	.16	.22	.24	.20
High school degree	.57	.79	.58	.80
Some college	.07	0	.07	0
Bachelor's or higher	.18	0	.11	0
Economic outcomes				
Employed	.79	.74	.72	.66
Annual hours	1,296	1,132	1,206	1,065
Log annual earnings	7.53	6.90	6.89	6.30
Economic outcomes, no children				
Employed	.81	.76	.74	.79
Annual hours	1,420	1,217	1,301	1,401
Log annual earnings	7.94	7.16	7.22	7.63
Economic outcomes, with children				
Employed	.75	.72	.70	.63
Annual hours	1,149	1,057	1,137	978
Log annual earnings	7.03	6.68	6.65	5.96
N	163,320	121,967	54,681	52,703

"Childless" and "with children" refers to the presence of children 18 or under in the household. "Single" means divorced, widowed, or separated. "Married" means married, spouse present. For log earnings, $1 is substituted for zero earnings prior to taking logs. All estimates are weighted.

Table 1B: Descriptive Statistics for Individual Men, 1997-2006

	Single childless men, 18-35	Married men with children, 18-35, high school degree at most and black or Hispanic
	(1)	(2)
Black	.15	.09
Hispanic	.16	.23
Age	25.4	29.7
Highest education		
High school dropout	.15	.17
High school degree	.59	.53
Some college	.06	.09
Bachelor's or higher	.19	.22
Economic outcomes		
Employed	.84	.96
Annual hours	1,516	2,117
Log wage	2.37	2.67
Log annual earnings	8.22	9.96
Economic outcomes, high school degree at most		
Employed	.81	.96
Annual hours	1,414	2,061
Log wage	2.25	2.52
Log annual earnings	7.84	9.73
Economic outcomes, high school degree at most and black or Hispanic		
Employed	.77	.95
Annual hours	1,368	1,974
Log wage	2.19	2.39
Log annual earnings	7.41	9.52
Economic outcomes, some college or higher		
Employed	.91	.98
Annual hours	1,813	2,245
Log wage	2.69	3.00
Log annual earnings	9.31	10.48
N	81,077	50,073
N (log wage)	69,028	51,773

See notes to Table 1A.

Table 1C: Descriptive Statistics for Families, 1997-2006

	18-45	Single women, 18-45	Single women, 18-45, high school degree at most	Single women, 18-45, black or Hispanic
Family head or individual	(1)	(2)	(3)	(4)
Female	.46	1	1	1
1 child	.17	.19	.21	.23
2+ children	.31	.23	.28	.34
Black	.14	.22	.26	.65
Hispanic	.15	.13	.16	.37
Age	32.8	31.2	30.6	31.4
Married, spouse present	.43	0	0	0
Married, spouse absent	.02	0	0	0
Divorced, widowed, or separated	.17	.35	.38	.31
Highest education				
High school dropout	.13	.13	.20	.23
High school degree	.51	.54	.80	.56
Some college	.09	.09	0	.07
Bachelor's or higher	.28	.24	0	.13
Economic outcomes				
Earnings < poverty	.20	.37	.47	.46
Earnings < .5·poverty	.13	.25	.33	.32
Economic outcomes, no children				
Earnings < poverty	.21	.30	.40	.35
Earnings < .5·poverty	.15	.21	.29	.26
Economic outcomes, with children				
Earnings < poverty	.20	.49	.55	.55
Earnings < .5·poverty	.11	.32	.36	.37
N	376,793	105,383	72,730	36,495

See notes to Table 1A. "Families" include primary or unrelated individuals.

Table 2: Estimated EITC Effects on Women

	Single, 18-45	Single, 18-45, high school degree at most	Single, 18-45, black or Hispanic	Married, 18-45, high school degree at most
Employment	(1)	(3)	(4)	(5)
EITC × kids	.18 (.10)	.25 (.13)	.29 (.22)	-.14 (.24)
EITC	.01 (.04)	-.03 (.06)	.01 (.10)	.10 (.18)
Summed EITC effects	.19 (.09)	.22 (.11)	.30 (.14)	-.03 (.10)
Hours				
EITC × kids	306.0 (231.4)	410.2 (309.5)	153.3 (524.5)	-459.1 (573.5)
EITC	-51.1 (81.5)	-133.6 (158.4)	92.4 (287.1)	453.3 (371.4)
Summed EITC effects	254.9 (182.6)	276.6 (212.0)	245.7 (301.5)	-5.80 (243.8)
Log earnings				
EITC × kids	1.80 (1.00)	2.58 (1.28)	2.25 (2.18)	-1.90 (2.52)
EITC	-.09 (.37)	-.54 (.63)	.19 (.12)	1.32 (1.77)
Summed EITC effects	1.70 (.78)	2.04 (.92)	2.44 (1.23)	-.59 (.98)
N	163,320	121,967	54,681	52,703

In the log earnings specification, $1 is substituted for zero earnings prior to taking logs. The estimated coefficients of the EITC-kids interactions are robust to including state-specific linear trends, or state-year interactions (in which case the main EITC effect drops out). All estimates are weighted.

Table 3: Estimated EITC Effects on Men

	Single, 18-35, childless, low-skill = high school degree at most	Married, 18-35, with children, low-skill = high school degree at most	Single, 18-35, childless, low-skill = high school degree at most and black or Hispanic	Married, 18-35, with children, low-skill = high school degree at most and black or Hispanic
Employment	(1)	(2)	(3)	(4)
EITC × low-skill	-.07	-.05	-.17	-.07
	(.06)	(.04)	(.05)	(.03)
EITC	.03	-.00	.07	.04
	(.06)	(.05)	(.06)	(.06)
Summed EITC effects	-.04	-.05	-.10	-.03
	(.07)	(.05)	(.09)	(.07)
N	81,077	51,773	41,682	28,578
Hours				
EITC × low-skill	-207.9	-100.1	-258.2	-19.3
	(118.4)	(122.9)	(134.6)	(123.0)
EITC	213.4	-123.8	307.0	-75.3
	(159.0)	(178.9)	(144.3)	(256.5)
Summed EITC effects	-5.5	-223.9	48.8	-94.6
	(175.5)	(226.9)	(188.1)	(216.3)
N	81,077	51,773	41,682	28,578
Log wages				
EITC × low-skill	-.14	-.09	-.11	-.20
	(.09)	(.13)	(.10)	(.12)
EITC	.18	.11	.18	.06
	(.10)	(.16)	(.13)	(.22)
Summed EITC effects	.05	.03	.07	-.14
	(.08)	(.14)	(.16)	(.25)
N	69,028	50,073	35,528	27,720
Log earnings				
EITC × low-skill	-.80	-.54	-1.76	-.76
	(.58)	(.54)	(.54)	(.44)
EITC	.68	.11	1.42	.34
	(.63)	(.54)	(.66)	(.73)
Summed EITC effects	-.12	-.42	-.34	-.41
	(.76)	(.64)	(.93)	(.89)
N	81,077	51,773	41,682	28,578

In the log earnings specification, $1 is substituted for zero earnings prior to taking logs. The log wage regressions condition on positive earnings and hours of work in the previous year. "Childless" indicates no children living at home. For the results shown, the sample includes all those with at least some college, and the low-skilled group as defined in the column heading. The estimated of the EITC-low-skill interactions are robust to including state-specific linear trends, or state-year interactions; in the latter specification the main EITC effect drops out. All estimates are weighted.

Table 4: Estimated EITC Effects on Family Earnings Relative to Poverty

	Family head or individual, 18-45	Single female family head or individual, 18-45	Single female family head or individual, 18-45, high school degree at most	Single female family head or individual, 18-45, black or Hispanic
P(Earnings<Poverty)	(1)	(2)	(3)	(4)
EITC × kids	-.03 (.08)	-.16 (.16)	-.23 (.17)	.08 (.24)
EITC	-.02 (.05)	-.05 (.08)	-.01 (.10)	-.13 (.15)
Summed EITC effects	-.04 (.04)	-.21 (.10)	-.24 (.09)	-.05 (.13)
P(Earnings< .5·Poverty)				
EITC × kids	-.07 (.06)	-.30 (.18)	-.36 (.22)	-.06 (.25)
EITC	.00 (.04)	-.01 (.07)	.03 (.09)	-.19 (.14)
Summed EITC effects	-.07 (.03)	-.31 (.13)	-.33 (.15)	-.25 (.16)
N	376,793	105,383	72,730	36,495

In the log earnings specification, $1 is substituted for zero earnings prior to taking logs. In all columns except the last, the sample is restricted to heads of families, primary individuals, or unrelated individuals. The estimated coefficients of the EITC-kids interactions are robust to including state-specific linear trends, or state-year interactions; in the latter specification the main EITC effect drops out. All estimates are weighted.

Table 5: Estimated Effects of EITC-Minimum Wage Interactions on Women

	Single, 18-45	Single, 18-45, high school degree at most	Single, 18-45, black or Hispanic
Employment	(1)	(2)	(3)
EITC × kids	.18 (.09)	.25 (.10)	.28 (.16)
EITC	.01 (.04)	-.03 (.06)	.01 (.08)
MW × kids	.03 (.05)	.02 (.06)	.06 (.12)
MW	.03 (.04)	.05 (.05)	-.01 (.09)
MW × EITC	-.03 (.24)	-.22 (.39)	-.43 (.34)
MW × EITC × kids	.47 (.21)	.64 (.32)	1.17 (.45)
Hours			
EITC × kids	311.5 (205.0)	426.1 (263.1)	157.8 (388.5)
EITC	-50.8 (81.4)	-143.7 (139.7)	80.2 (234.1)
MW × kids	192.2 (98.0)	227.2 (118.9)	326.8 (289.5)
MW	-20.5 (64.5)	-68.4 (77.3)	-177.7 (221.5)
MW × EITC	26.7 (439.8)	-665.1 (565.1)	-1313.2 (790.2)
MW × EITC × kids	521.3 (482.2)	933.4 (612.4)	2668.7 (1039.2)
Log earnings			
EITC × kids	1.76 (.81)	2.56 (1.00)	2.21 (1.59)
EITC	-.06 (.34)	-.54 (.55)	.18 (.89)
MW × kids	.40 (.42)	.30 (.47)	.95 (1.34)
MW	.23 (.33)	.27 (.38)	-.35 (1.00)
MW × EITC	-.96 (2.17)	-2.67 (3.15)	-5.17 (3.83)
MW × EITC × kids	5.33 (1.95)	6.57 (2.59)	12.9 (4.8)
N	163,320	121,967	54,681

The minimum wage variable (MW) is the log of the average of the contemporaneous and lagged minimum. In the minimum wage-EITC interactions, the minimum wage variable is demeaned, so the EITC coefficients have the same interpretation (at the means) as in Table 2. In the log earnings specification, $1 is substituted for zero earnings prior to taking logs. The estimated coefficients of the EITC-kids, MW-kids, and EITC-MW-kids interactions are robust to including state-specific linear trends, or state-year interactions; in the latter specification the main effects drop out. Sample sizes are as in Table 2. All estimates are weighted.

Table 6: Estimated Effects of EITC-Minimum Wage Interactions on Men

	Single, 18-35, childless, low-skill = high school degree at most	Single, 18-35, childless, low-skill = high school degree at most and black or Hispanic		Single, 18-35, childless, low-skill = high school degree at most	Single, 18-35, childless, low-skill = high school degree at most and black or Hispanic
Employment	(1)	(2)	***Log wages***	(3)	(4)
EITC × low-skill	-.07 (.06)	-.18 (.05)	EITC × low-skill	-.14 (.08)	-.14 (.09)
EITC	.03 (.04)	.09 (.04)	EITC	.20 (.08)	.19 (.13)
MW × low-skill	-.10 (.02)	-.03 (.04)	MW × low-skill	-.08 (.06)	-.12 (.10)
MW	.15 (.03)	.13 (.04)	MW	.23 (.07)	.16 (.10)
MW × EITC	-.35 (.22)	-.38 (.23)	MW × EITC	-.41 (.41)	-.32 (.47)
MW × EITC × low-skill	-.23 (.25)	-.45 (.30)	MW × EITC × low-skill	.07 (.58)	-.15 (.96)
Hours			***Log earnings***		
EITC × low-skill	-211.8 (109.9)	-264.5 (131.8)	EITC × low-skill	-.81 (.55)	-1.82 (.51)
EITC	219.5 (100.4)	341.6 (117.9)	EITC	.74 (.37)	1.60 (.38)
MW × low-skill	-155.6 (78.3)	79.0 (70.1)	MW × low-skill	-.91 (.31)	-.12 (.34)
MW	214.8 (142.8)	182.6 (137.3)	MW	1.63 (.38)	1.38 (.41)
MW × EITC	-948.7 (584.2)	-674.0 (551.3)	MW × EITC	-3.22 (2.30)	-3.09 (2.50)
MW × EITC × low-skill	-739.5 (649.9)	-734.7 (793.0)	MW × EITC × low-skill	-3.12 (2.67)	-6.30 (3.33)

In the log earnings specification, $1 is substituted for zero earnings prior to taking logs. The log wage regressions condition on positive earnings and hours of work in the previous year. For the results shown, the sample includes those with at least some college, and the low-skilled group as defined in the column heading. In the minimum wage-EITC interactions, the minimum wage variable is demeaned, so the EITC coefficients have the same interpretation (at the means) as in Table 3. The estimated coefficients of the EITC-kids, MW-kids, and EITC-MW-kids interactions are robust to including state-specific linear trends, or state-year interactions; in the latter specification the main effects drop out. Sample sizes are as in Table 3. All estimates are weighted.

Table 7A: Estimated Effects of EITC-Minimum Wage Interactions on Teenage Males

	All		Non-black, non-Hispanic		Black or Hispanic	
Employment	(1)	(2)	(3)	(4)	(5)	(6)
MW	-.065 (.036)	-.032 (.037)	-.052 (.047)	-.007 (.051)	-.103 (.052)	-.088 (.066)
EITC		-.042 (.073)		-.050 (.090)		.001 (.183)
MW × EITC		-.348 (.215)		-.471 (.250)		-.132 (.480)
Log wages						
MW	.236 (.065)	.245 (.069)	.351 (.072)	.382 (.075)	-.158 (.075)	-.207 (.095)
EITC		.143 (.120)		.076 (.123)		.410 (.180)
MW × EITC		.037 (.591)		-.250 (.609)		1.03 (.78)
Log earnings						
MW	-.318 (.199)	-.258 (.235)	-.123 (.239)	-.105 (.291)	-.789 (.195)	-.647 (.232)
EITC		-.396 (.373)		-.465 (.479)		-.123 (.839)
MW × EITC		-.903 (1.26)		-.571 (1.34)		-1.416 (1.72)
N	105,724		78,407		27,317	

The sample consists of individuals between the ages of 16 to 19 who are included in the monthly ORG files from the Current Population Survey between January 1997 and December 2007. Standard errors are clustered on state. All specifications include controls for the share of the population in the group studies, the statewide unemployment rate, education (16 categories), black, Hispanic, marital status (7 CPS categories), state, calendar year and month, and state-specific time trends. The minimum wage variable is the average of the log of the current month's state-specific minimum wage and the log of the minimum wage lagged one year. In the interactive specifications, the interaction is between the minimum wage variable minus its mean and the state EITC supplement. Earnings are the product of wages and weekly hours, and are set to zero if hours are zero; observations with nominal wages less than $1 are dropped. N refers to the size of the samples used in the employment and earnings regressions. The sample size for the wage regressions is smaller because individuals with zero hours are excluded. All estimates are weighted.

Table 7B: Estimated Effects of EITC-Minimum Wage Interactions on Teenage Females

	All		Non-black, non-Hispanic		Black or Hispanic	
Employment	(1)	(2)	(3)	(4)	(5)	(6)
MW	-.080 (.057)	.003 (.051)	-.122 (.068)	-.046 (.071)	.017 (.068)	.115 (.065)
EITC		-.096 (.073)		-.038 (.101)		-.252 (.099)
MW × EITC		-.865 (.297)		-.746 (.412)		-1.14 (.32)
Log wages						
MW	.224 (.092)	.348 (.079)	.214 (.092)	.341 (.093)	.197 (.126)	.278 (.098)
EITC		-.006 (.131)		.006 (.143)		-.032 (.198)
MW × EITC		-1.33 (.34)		-1.30 (.43)		-1.04 (.67)
Log earnings						
MW	-.271 (.260)	.103 (.277)	-.407 (.304)	-.057 (.372)	-.017 (.345)	.411 (.274)
EITC		-.343 (.408)		-.012 (.549)		-1.28 (.60)
MW × EITC		-3.85 (1.44)		-3.35 (1.69)		-5.14 (1.68)
N	104,807		77,616		27,191	

See notes to Table 7A.

Table 8: Estimated Effects of EITC-Minimum Wage Interactions on Family Earnings Relative to Poverty

	Family head or individual, 18-45	Single female family head or individual, 18-45	Single female family head or individual, 18-45, high school degree at most	Single female family head or individual, 18-45, black or Hispanic
P(Earnings<Poverty)	(1)	(2)	(3)	(4)
EITC × kids	-.03 (.06)	-.16 (.12)	-.24 (.13)	.08 (.21)
EITC	-.02 (.03)	-.05 (.06)	-.01 (.07)	-.14 (.13)
MW × kids	.04 (.03)	-.07 (.07)	-.05 (.08)	-.10 (.13)
MW	-.08 (.03)	-.04 (.06)	-.07 (.06)	-.05 (.09)
MW × EITC	.41 (.23)	.47 (.34)	.64 (.52)	.23 (.63)
MW × EITC × kids	-.49 (.28)	-.85 (.57)	-.72 (.90)	-.67 (1.01)
P(Earnings< .5·Poverty)				
EITC × kids	-.06 (.04)	-.29 (.12)	-.35 (.15)	-.05 (.21)
EITC	-.01 (.03)	-.02 (.06)	.02 (.08)	-.19 (.13)
MW × kids	.04 (.03)	-.04 (.08)	-.00 (.09)	-.14 (.15)
MW	-.08 (.03)	-.10 (.06)	-.15 (.08)	-.01 (.11)
MW × EITC	.27 (.23)	.36 (.45)	.59 (.72)	.30 (.87)
MW × EITC × kids	-.47 (.29)	-1.09 (.65)	-1.42 (.98)	-.95 (1.14)

The sample is restricted to heads of families, primary individuals, or unrelated individuals. In the log earnings specification, $1 is substituted for zero earnings prior to taking logs. In the minimum wage-EITC interactions, the minimum wage variable is demeaned, so the EITC coefficients have the same interpretation (at the means) as in Table 4. The estimated coefficients of the EITC-kids, MW-kids, and EITC-MW-kids interactions are robust to including state-specific linear trends, or state-year interactions; in the latter specification the main effects drop out. Sample sizes are as in Table 4. All estimates are weighted.

Table 9: Implied Effect on Employment of 10% State EITC Supplement on Women, at Different Minimum Wage Levels, Based on Table 5 Estimates

	Single female, 18-45	Single female, 18-45, high school degree at most	Single female, 18-45, black or Hispanic
	(1)	(2)	(3)
At sample mean of minimum wage			
With children	.019 (.008)	.022 (.009)	.029 (.011)
Childless	.001 (.004)	-.002 (.006)	.001 (.008)
Difference	.018 (.008)	.025 (.010)	.028 (.016)
Minimum wage 10% higher			
With children	.023 (.009)	.026 (.010)	.036 (.011)
Childless	.001 (.005)	-.005 (.008)	-.003 (.008)
Difference	.023 (.009)	.031 (.010)	.040 (.016)
Difference relative to effect at mean minimum wage			
With children	.004 (.002)	.004 (.002)	.007 (.002)
Childless	-.000 (.002)	-.002 (.004)	-.004 (.003)
Difference	.005 (.002)	.006 (.003)	.012 (.004)
Minimum wage 25% higher			
With children	.030 (.011)	.033 (.013)	.047 (.013)
Childless	.000 (.008)	-.008 (.013)	-.010 (.010)
Difference	.030 (.010)	.041 (.012)	.057 (.017)
Difference relative to effect at mean minimum wage			
With children	.011 (.005)	.011 (.005)	.018 (.005)
Childless	-.001 (.006)	-.005 (.010)	-.011 (.008)
Difference	.012 (.005)	.016 (.008)	.029 (.011)

t-statistics are the same by construction for the calculation of differences relative to the mean minimum wage using the minimum wage 10% or 25% above the sample mean. The estimated differences are robust to including state-year interactions; in these specifications only the differences are identified.

Table 10: Implied Effect on Log Earnings of 10% State EITC Supplement on Men, at Different Minimum Wage Levels, Based on Table 6 Estimates

	Single, 18-35, childless, low-skill = high school degree at most	Single, 18-35, childless, low-skill = high school degree at most and black or Hispanic
At sample mean of minimum wage	(1)	(2)
Low-skill	-.007 (.050)	-.022 (.054)
High-skill	.074 (.037)	.160 (.038)
Difference	-.080 (.055)	-.182 (.051)
Minimum wage 10% higher		
Low-skill	-.070 (.048)	-.116 (.058)
High-skill	.042 (.046)	.129 (.046)
Difference	-.112 (.062)	-.245 (.057)
Difference relative to effect at mean minimum wage		
Low-skill	-.063 (.011)	-.094 (.025)
High-skill	-.032 (.023)	-.031 (.025)
Difference	-.031 (.027)	-.063 (.033)
Minimum wage 25% higher		
Low-skill	-.166 (.050)	-.257 (.079)
High-skill	-.007 (.072)	.082 (.074)
Difference	-.158 (.089)	-.339 (.091)
Difference relative to effect at mean minimum wage		
Low-skill	-.158 (.028)	-.234 (.062)
High-skill	-.080 (.057)	-.077 (.062)
Difference	-.078 (.067)	-.157 (.083)

t-statistics are the same by construction for the calculation of differences relative to the mean minimum wage using the minimum wage 10% or 25% above the sample mean. High-skill refers to with at least some college; low-skill is defined in the column heading. The estimated differences are robust to including state-year interactions; in these specifications only the differences are identified.

Table 11: Implied Effect on Family Earnings of 10% State EITC Supplement on Family Earnings Relative to Poverty, at Different Minimum Wage Levels, Based on Table 8 Estimates

	Family head or individual, 18-45	Family head or individual, 18-45	Single female family head or individual, 18-45	Single female family head or individual, 18-45
	P(earnings < poverty)	P(earnings < .5·poverty)	P(earnings < poverty)	P(earnings < .5·poverty)
At sample mean of minimum wage	(1)	(2)	(3)	(4)
With children	-.0047	-.0070	-.0212	-.0309
	(.0034)	(.0026)	(.0090)	(.0100)
Childless	-.0021	-.0006	-.0054	-.0015
	(.0034)	(.0035)	(.0064)	(.0058)
Difference	-.0026	-.0064	-.0158	-.0294
	(.0056)	(.0040)	(.0121)	(.0120)
Minimum wage 10% higher				
With children	-.0055	-.0089	-.0250	-.0382
	(.0033)	(.0025)	(.0072)	(.0087)
Childless	.0019	.0021	-.0007	.0021
	(.0044)	(.0049)	(.0064)	(.0079)
Difference	-.0075	-.0111	-.0243	-.0403
	(.0057)	(.0051)	(.0099)	(.0111)
Difference relative to effect at mean minimum wage				
With children	-.0008	-.0020	-.0039	-.0073
	(.0009)	(.0010)	(.0029)	(.0029)
Childless	.0041	.0027	.0047	.0036
	(.0023)	(.0023)	(.0034)	(.0045)
Difference	-.0049	-.0047	-.0085	-.0109
	(.0028)	(.0029)	(.0057)	(.0065)
Minimum wage 25% higher				
With children	-.0068	-.0118	-.0308	-.0491
	(.0038)	(.0031)	(.0064)	(.0076)
Childless	.0080	.0062	.0063	.0076
	(.0071)	(.0079)	(.0092)	(.0134)
Difference	-.0148	-.0180	-.0371	-.0568
	(.0080)	(.0085)	(.0121)	(.0158)
Difference relative to effect at mean minimum wage				
With children	-.0021	-.0049	-.0097	-.0182
	(.0023)	(.0025)	(.0074)	(.0073)
Childless	.0102	.0068	.0117	.0091
	(.0058)	(.0058)	(.0085)	(.0113)
Difference	-.0123	-.0116	-.0213	-.0273
	(.0070)	(.0073)	(.0143)	(.0163)

t-statistics are the same by construction for the calculation of differences relative to the mean minimum wage using the minimum wage 10% or 25% above the sample mean. The estimated differences are robust to including state-year interactions; in these specifications only the differences are identified.