Heterogeneous Employment Effects of the EITC

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Abstract

I study the heterogeneous effects of the Earned Income Tax Credit (EITC) on the employment of low-educated unmarried mothers. This work expands upon Schanzenbach and Strain (2021). I use a difference-in-difference strategy using variation in the maximum possible EITC benefits between unmarried women without children and unmarried mothers. I find similar increases in employment for mothers of different races and ages. I find stronger effects for mothers with less than a high school diploma of education, and I only find positive effects of EITC on employment prior to 1993.

1   Introduction

Mainly targeting low-income families with children, the EITC is a refundable tax credit that varies based on income and number of children. The EITC is designed to encourage the unemployed to work through a trapezoidal payment scheme in which the credit increases with income at low levels. Previous studies have found that expansions to the EITC have increased employment of unmarried mothers compared to unmarried women without children (Meyer and Rosenbaum (2001); Bastian (2020)). Recently Schanzenbach and Strain (2021) examined the EITC holistically, examining the five EITC expansions of 1975, 1986, 1990, 1993, and 2009.

I expand upon the work of Schanzenbach and Strain (2021) by looking at the heterogeneous effects of the EITC on employment and including more recent years of data. I examine the effect for women of different races, ages, and education status. Additionally, I study the effect for three different time periods: 1968-1992, 1993-1999, and 2000-2021. Very few papers in the literature have studied the heterogeneous effects of the EITC on employment. Of particular importance is understanding the effect of EITC by race. In the United States, Non-Hispanic Black, Native American, and Hispanic women make up a disproportionate number of single mothers which is the main group targeted by the EITC. Studying whether or not the EITC affects these groups differently may be important in addressing racial inequalities. Single mothers also complete high school at lower rates than single women without children. Understanding how the EITC affects these different groups is crucial to ensuring that it is truly targeting those that need it most.

There are a few reasons that different groups may respond to the EITC differently. First is that there may be differences knowledge about the EITC and how it works. If certain groups, such as mothers that have not completed high school, are unaware of how the EITC works or even that it exists at all, they may not adjust their employment status and could miss out on the credit entirely. Another reason is that different groups may be restricted to lower paying jobs and therefore choose to be unemployed at lower rates until the EITC was introduced. For example if Black mothers face wage discrimination they may choose to work less than White women because they would receive less income. Once the EITC is introduced there may be larger percentage increases in the employment of Black mothers because the EITC may be enough to push the mothers into the labor force that otherwise chose to be unemployed due to discrimination.

To study the effect of EITC on employment I employ the same strategy used by Schanzenbach and Strain (2021) to examine EITC holistically. I use employment and demographic data from ASEC from 1986-2021 for unmarried women with low education. As an identification strategy I use a difference-in-difference approach to compare low-educated

unmarried mothers to low-educated unmarried women without children using variation in the maximum EITC credit as the result of policy changes. I then restrict the regressions to specific subgroups of women to examine heterogeneity. Under the assumption that single women without children and single mothers have similar trends in employment this strategy works because mothers are eligible for much larger amounts of EITC credit than women without children.

I find a similar percentage point increases in employment from increases in maximum EITC credit for mothers of all races. I also find similar percentage point increases for mothers of different ages. The effect of EITC on employment is larger for mothers without a high school diploma than those with one. Specifically I find that a $1,000$ dollar (in 2022 dollars) increase in the maximum federal EITC credit increases the employment of those without a high school diploma by 3.8 percentage points compared to an increase of 2.2 percentage points for those without a diploma. I also find that the effect of the maximum EITC credit only has a positive impact on employment in the pre-1993 period. In the 1993-1999 and post-1999 periods the effect of the maximum EITC credit on employment is negative with a $1,000$ dollar (in 2022 dollars) increase in the maximum federal EITC credit decreasing employment of mothers by about 1%. Part of this may be explained by diminishing returns to the EITC and increases in EITC for childless households.

The rest of the paper proceeds as follows. Section 2 provides a background and previous literature on EITC. Section 3 explains the data and empirical strategy used. Section 4 provides the results. Finally, Section 5 concludes.

2 Background on EITC

The EITC is a refundable tax credit with the dual goal of providing money to low income workers while also promoting work. The calculation of the credit depends upon a household's earnings, marital status, and number of eligible children. For 2023, the maximum

federal credit for households with children ranges from $3,995 for those with one child up to $7,430 for those with three or more children. For households with no children the maximum credit is $560. According to the IRS, in 2022 31 million EITC claims were processed which payed out $64 billion. The average amount of EITC received nationwide was about $2,043.

The payment schedule for the EITC is structured like a trapezoid, with three phases of payment as shown in Figure 1. In the initial "Phase-in region" the credit increases with every additional dollar of earnings. This means that an additional hour of work will result increase total earnings by more than the hourly wage. Next there is a maximum credit region at which the maximum EITC credit is reached. In this region any additional income will not decrease the credit earned. Finally there is a phase-out region in which any additional income will decrease the amount of credit earned until a maximum income in which the household no longer qualifies for the credit. The goal of this payment scheme is to push those who are currently unemployed to start working to maximize their credit. Since the credit is phased-in at the beginning, those who are unemployed and do not have an income do not receive any EITC credit. Therefore to maximize the credit earned one must have some income. For a single parent with one child in 2023 the maximum credit available is $3,995. The phase in regions extends to $11,750 at a 34% credit rate, the maximum credit region runs extends to $21,560, and finally the phase-out region ends at $46,560 with a 15.98% phase-out rate.

The group that is most likely to be affected by the EITC is unmarried mothers with low education as they have children and are more likely to have low income. Economic theory predicts that with increasing EITC will increase employment of these unmarried mothers with low education as there is a greater payoff to working.

The maximum EITC credits are adjusted annually to account for inflation, but there have also been numerous EITC expansions as the result of policy changes. The EITC began with the Tax Reduction Act of 1975 and only provided a credit for filers with children and did not vary by the number of children. In 1986 there was a small expansion to the EITC

Figure 1: Income with and without EITC
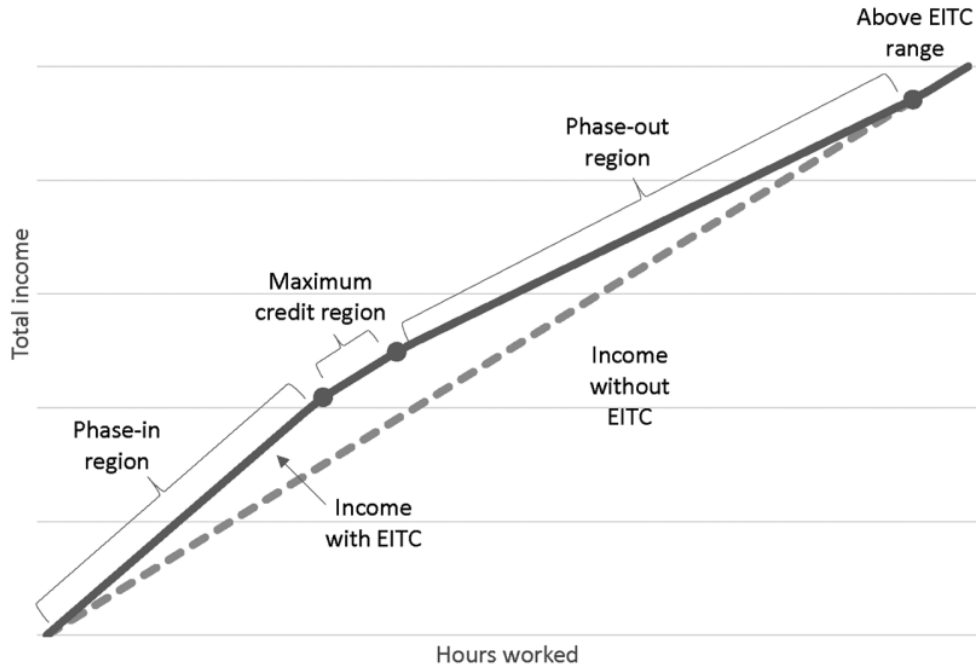
Notes: Income with EITC based on 2020 parameters for unmarried filer with two children. Taken from Schanzenbach and Strain (2021).

which increased the size of credit. It wasn't until the expansion in 1990 that the EITC began to vary by family size, although at this point it was just a small difference between households with one child and households with two or more children. The 1993 expansion provided childless households with a small credit and phased in large increases in the credit to families with two or more children over a period of three years. The expansion of 2009 expanded the credit for families with three or more children. Most recently there was a temporary expansion of the EITC to childless households as part of the American Rescue Plan Act of 2021. It should be noted that Child Tax Credits were introduced at this time to provide additional income to households with children. This may have decreased employment of mothers compared to women without children. Additionally, thirty-one states plus the District of Columbia and Puerto Rico have their own supplemental EITC. Almost all of these supplemental EITC programs are calculated as a percentage of the federal EITC. The differences in the amount of credit and when the credit was introduced provide additional

variation in EITC. I study the effects of both the federal EITC and combined federal and state EITC on the employment of single mothers.

Figure 2: Annual Employment of Unmarried Women with Low Education
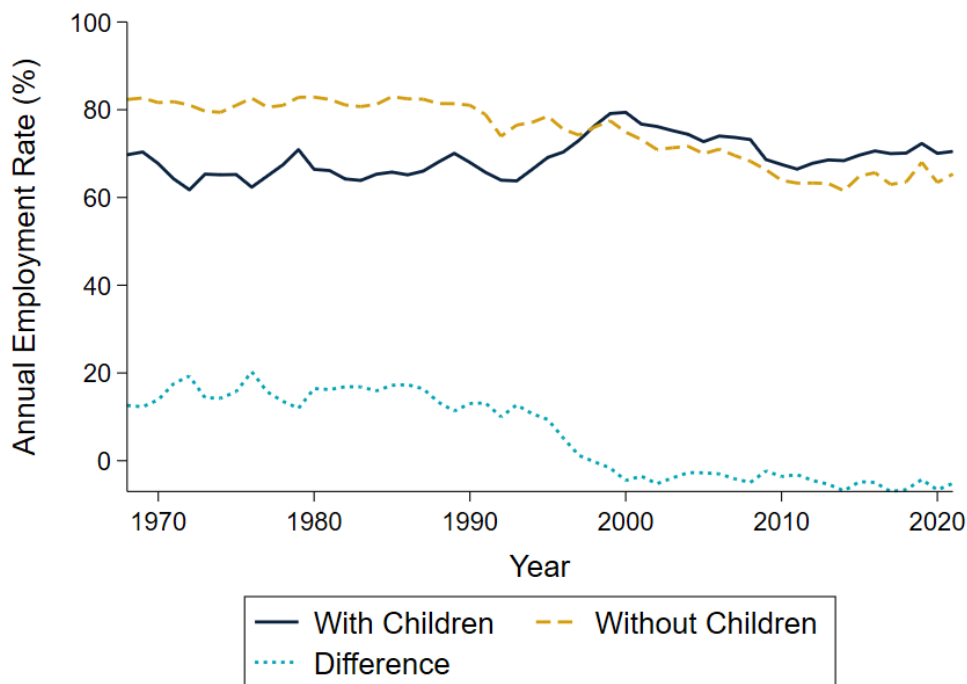
Notes: Annual employment among unmarried women ages 24-50 with a high school diploma or less education, by presence of children. Calculation of annual employment rates from ASEC 1968–2021 data. Figure inspired by Schanzenbach and Strain (2021).

There is a large literature on studying the EITC. There are papers that provide overviews of the EITC literature (Hoynes and Rothstein, 2016). Many studies that examine the effect of the EITC on employment use variation from policy changes in the EITC to compare outcomes among low-educated unmarried mothers to low-educated unmarried women without children. As shown in Figure 2 the employment time trends for low-educated unmarried mothers have been similar to those without children except during the 90's when the employment rates of mothers surpassed those without children, although some of this change can be explained by the EITC expansion of 1993. Meyer and Rosenbaum (2001) use this strategy to examine the 1986, 1990, and 1993 EITC expansions and find increased the employment of unmarried mothers by 7.2 percentage points. Similarly, Bastian (2020) studied the introduction of

EITC in 1975 and found that it increased by employment of mothers by 6 percentage points and played a part in narrowing the employment gap between mothers and women with no children. Other studies have found little effect of the ETIC on the hours worked of single mothers suggesting that the main effect of the EITC is on the extensive margin of labor supply Meyer (2002); Eissa and Hoynes (2006). Other studies have no effect on employment for married fathers and either no effect or small negative effects for married women (Eissa and Hoynes, 2004). Schanzenbach and Strain (2021) studied the EITC expansions of 1975, 1986, 1990, 1993, and 2009 individually and holistically and found that the EITC increased employment of unmarried mothers. They find stronger employment effects for mothers with a high school degree or less of education.

Very few papers have studied the heterogeneous employment effects of EITC. One exception is Hardy et al. (2022) which used an event-study model developed in Schanzenbach and Strain (2021) to find that the 1993 EITC expansion lead to larger increases in employment for Blacks than Whites. Understanding if the EITC affects different groups differently may be important to understand for future expansions of the EITC and may help policy makers use the EITC to address issues of inequality. I add to this literature by expanding upon the holistic analysis of EITC in Schanzenbach and Strain (2021) to examine the effect of EITC on employment by race, age, education levels, and time period.

3 Data and Empirical Strategy

3.1 Data

Following Schanzenbach and Strain (2021) I use data from the Current Population Survey Annual Social and Economic Supplement (ASEC) and I extend their analysis by including the years 1968-2022. ASEC includes demographic information such as marital status and presence of children that are required to determine EITC eligibility as well as

demographic information such as race, ethnicity, age, and education. The ASEC asks about whether a respondent worked in the prior year, so data on employment in year t comes from the ASEC survey in year $t + 1$; this means that I study employment from 1968-2021. The primary sample of analysis includes unmarried women ages 24-50 with a high school diploma or less education. I also drop the small number of women who live with EITC-ineligible children.[1]

Data on federal EITC parameters come from the Tax Policy Center. I also include information on state EITC parameters over time, taken from the Tax Policy Center and the National Bureau of Economic Research. Unemployment rates by state and year are calculated from the CPS.

Descriptive statistics are included in Table 3.1. As shown in the table childless women have a much lower maximum EITC credit available to them. Some other key differences between mothers and women without children include that mothers are less likely to have a high school diploma and to have another adult in the household. Also of importance is the fact that there are a disproportionate number of Black and Hispanic mothers. Since White women make up a majority of the total sample it is possible that the total aggregate effect of the EITC on employment does not reflect the effect for minority women. Additionally since a majority of mothers have a high school diploma, the aggregate effect of EITC may be different than the effect for mothers without one.

3.2   Empirical Strategy

Following Schanzenbach and Strain (2021), I examine at the holistic effect of all EITC expansions using continuous variation in the size of maximum Federal EITC credit to estimate the credit's employment elasticity. I also use maximum Federal and State EITC which

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[1]Children eligible for the EITC include own children in the household under age 19, or under 24 and a full-time student.

Table 3.1: Descriptive Statistics

	Full Sample	Childless	Mothers
Employed (%)	71.24	73.68	69.32
	(45.26)	(44.04)	(46.12)
Max Federal EITC (Thousands)	2.20	0.37	3.64
	(2.35)	(0.34)	(2.25)
Max Fed + State EITC (Thousands)	2.33	0.39	3.85
	(2.56)	(0.38)	(2.51)
State Unemployment (%)	6.59	6.53	6.64
	(2.20)	(2.18)	(2.21)
Age	35.36	35.78	35.02
	(7.85)	(8.63)	(7.17)
Other Adult in Household (%)	58.12	67.02	51.10
	(49.34)	(47.01)	(49.99)
High School Diploma (%)	69.63	74.98	65.41
	(45.98)	(43.31)	(47.56)
White, Non-Hispanic (%)	51.50	60.16	44.67
	(49.98)	(48.96)	(49.72)
Black, Non-Hispanic (%)	25.52	19.70	30.12
	(43.60)	(39.78)	(45.88)
Hispanic (%)	19.43	15.94	22.18
	(39.57)	(36.61)	(41.55)
AAPI (%)	1.64	2.18	1.21
	(12.68)	(14.59)	(10.92)
Native American (%)	0.87	0.88	0.87
	(9.30)	(9.33)	(9.27)
Other Race (%)	1.04	1.14	0.96
	(10.13)	(10.62)	(9.73)
Observations	259,381	107,342	152,039

Notes: This table reports means and standard deviations (in parentheses). Full sample includes unmarried women ages 24-50 with a high school degree or less education, from the ASEC with and without EITC-eligible children, 1968-2021. The max EITC data comes from the Tax Policy Center and NBER and is measured in thousands of inflation-adjusted 2022 dollars using PCEPI. The first column includes the whole sample. The second column restricts to unmarried childless mothers. The third column restricts to unmarried mothers.

adds another source of variation. I estimate the following regression:

$$E_{ist} = \beta \text{Max\_EITC}_{ist} + \gamma \text{kids}_i + X_i \phi + \eta u_{st} + \theta(u_{st} \cdot \text{kids}_i) + \alpha_s + \alpha_t + \varepsilon_{ist}$$

where the outcome E_{ist} is if individual i in state s was employed in year t. The Max_EITC$_{ist}$ variable is the maximum combined State and Federal EITC credit that individual i in state s and year t is eligible for. I additionally look at Max_Federal_EITC$_{it}$ which is the maxmimum federal EITC that individual i in year t is eligible for. The coefficient of interest is β which gives the effect of Maximum EITC credit on employment. The

kids$_i$ variable is an indicator for if individual i has EITC eligible children living at home. The X_i is a vector of individual characteristics including age (broken into 5-year age groups, plus 24-29 and 45-50), age of youngest child (0-1, 2-3, 4-6, 7-9, 10-13, 14-17, 18-23), race, and a dummy for if there is another adult in the household. I will note that Schanzenbach and Strain (2021) do not include controls for race or presence of another adult in the household in their regression specification. The α_s and α_t are state and year fixed effects, respectively. I also add the average state unemployment rate of state s in year t, u_{st}, and also the state unemployment rate interacted with the presence of children, $u_{st} \cdot$ kids$_i$, to account for potential business cycle differences of those with and without children.

I then run this same regression for women of different subgroups to do a heterogeneity analysis. I examine women of different races, different ages, different education levels, and finally different time periods. When I am running a regression for a specific subgroup I do not include controls for the group; for example, if I am running the regression for Black women I do not include controls for race. Under the assumption that unmarried childless women and unmarried mothers would have the same employment trends were it not for EITC this regressions gives the holistic effect of an increase in EITC on employment for unmarried women with children.

4   Results

This section presents the results from the results. The regression results of maximum EITC credit on employment by race can be found in Table 4.1. Column one shows the effect of EITC on the full sample of women and finds that a $1,000$ dollar increase in the inflation adjusted (2022 dollars) maximum federal EITC benefit increases annual employment of unmarried mothers with low education by 2.8 percentage points which is similar to the 3 percentage point increase that Schanzenbach and Strain (2021) found. Columns 2-5 present the heterogeneous effects of EITC for different races. The effect of EITC on employment

is positive and significant at the 1% level for each group with the effects ranging from a 2 percentage point increase in for Hispanic mothers to a 2.7 percentage point increase for Black mothers for a $1,000 increase in the maximum EITC benefit. There are similar results when examining the combined federal and state EITC in Panel B.

Table 4.1: Max EITC on Annual Employment of Unmarried Mothers by Race

	Total (1)	White (2)	Black (3)	Hispanic (4)	Other (5)
Panel A: Federal EITC					
Max Federal EITC (Thousands)	0.028***	0.024***	0.027***	0.020***	0.026***
	(0.003)	(0.002)	(0.003)	(0.005)	(0.003)
Observations	259,381	130,429	57,789	59,314	66,129
Panel B: Federal and State EITC					
Max Fed + State EITC (Thousands)	0.026***	0.022***	0.025***	0.019***	0.023***
	(0.003)	(0.002)	(0.002)	(0.006)	(0.002)
Observations	259,381	130,429	57,789	59,314	66,129

Notes: *** p<0.01, ** p<0.05, * p<0.10. Max EITC is measured in inflation-adjusted 2022 dollars using PCEPI. Sample includes unmarried women ages 24–50 with high school diploma or less education, from the ASEC from 1968–2021. The total column includes all women in the sample and includes all demographic controls, state, year and controls for state annual unemployment rates, and state unemployment rates interacted with presence of EITC-eligible children. The White, Black, Hispanic, and Other columns restrict to observations of that given race and include all controls except for controls for race. The Other column also includes AAPI and Native Americans. Standard errors are clustered at the State level.

Overall the effects are not statistically different from each other in terms of percentage point increases in employment; however, there are differences in terms of percent increases from mean employment due to different base levels in employment. The mean employment percentage for White mothers in the sample is 74.8% which means the 2.4 percentage point increase in employment from a $1,000 increase in maximum federal EITC credit can be interpreted as a 3.2% increase in employment from the mean. For Black mothers the mean employment is 64.5% and so the increase from federal EITC is a 4.2% increase in employment from the mean. We can similarly find a 3.1% increase in employment for Hispanic mothers

and a 3.9% increase for mothers of other races. This provides some evidence that the EITC is particularly helpful in increasing the employment of Black mothers.

The effect of EITC by age can be found in Table 4.2. The effect of a $1,000$ increase in maximum EITC on employment are all between 2.2 and 3 percentage point increases for a $1,000$ dollar increase in maximum EITC for each age group. This indicates that different age groups are affected similarly in terms of percentage points. However, since the mean employment differs by different age groups there are differences in increases in the percentage of employment compared to the mean. For the 24-29 age group the mean employment of mothers is 65.1% and so a $1,000$ increase in federal EITC is a 3 percentage point increase in employment and a 4.61% increase in employment. The percentage increases in employment from the mean is a 3.94% for the 30-34 age group, 3.2% for the 35-39 age group, 3.99% for the 40-44 age group, and 3.94% for the 45-50 age group.

Table 4.2: Max EITC on Annual Employment of Unmarried Mothers by Age

| | Total | 24-29 | 30-34 | 35-39 | 40-44 | 45-50 |
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Federal EITC						
Max Federal EITC (Thousands)	0.028***	0.030***	0.027***	0.023***	0.029***	0.028***
	(0.003)	(0.004)	(0.005)	(0.003)	(0.003)	(0.004)
Observations	259,381	75,593	50,825	46,484	41,854	44,625
Panel B: Federal and State EITC						
Max Fed + State EITC (Thousands)	0.026***	0.027***	0.025***	0.022***	0.026***	0.025***
	(0.003)	(0.003)	(0.004)	(0.002)	(0.003)	(0.003)
Observations	259,381	75,593	50,825	46,484	41,854	44,625

Notes: *** $p<0.01$, ** $p<0.05$, * $p<0.10$. Max EITC is measured inflation-adjusted 2022 dollars using PCEPI. Sample includes unmarried women ages 24–50 with high school diploma or less education, from the ASEC from 1968–2021. The total column includes all women in the sample and includes all demographic controls, state, year and controls for state annual unemployment rates, and state unemployment rates interacted with presence of EITC-eligible children. The other columns restrict to observations of a given age group and include all controls except for controls for age. Standard errors are clustered at the State level.

The effect of EITC by educational group can be found in Table 4.3. Since the overall sample is only comparing women with a high school diploma or less education, I break up the sample into those who have a high school diploma and those who don't. The effect of a $1,000$ dollar increase in Federal EITC increases employment of married women without a high school diploma by 3.8 percentage points and women with a high school diploma by 2.2 percentage points. I then examine the difference between these two groups by running another regression including HS_Diploma_i, the interaction of $\text{HS\_Diploma}_i \cdot \text{kids}_i$, and the interaction of $\text{HS\_Diploma}_i \cdot \text{Max\_EITC}_{ist}$ where HS_Diploma_i is a dummy variable for if person i has a high school diploma. I report the interaction of having a high school diploma with the Maximum EITC credit in column 4 of the table. This coefficient should provide the differential effect of having a high school diploma on the EITC's effect on employment.

Table 4.3: Max EITC on Annual Employment of Unmarried Mothers by High School Completion

	Total (1)	No HS Diploma (2)	HS Diploma (3)	Difference (4)
Panel A: Federal EITC				
Max Federal EITC (Thousands)	0.028***	0.038***	0.022***	-0.017***
	(0.003)	(0.005)	(0.002)	(0.003)
Observations	259,381	81,786	177,595	259,381
Panel B: Federal and State EITC				
Max Fed + State EITC (Thousands)	0.026***	0.035***	0.020***	-0.015***
	(0.003)	(0.005)	(0.002)	(0.003)
Observations	259,381	81,786	177,595	259,381

Notes: *** p<0.01, ** p<0.05, * p<0.10. Max EITC is measured in inflation-adjusted 2022 dollars using PCEPI. Sample includes unmarried women ages 24–50 with high school diploma or less education, from the ASEC from 1968–2021. The total column includes all women in the sample and includes all demographic controls, state, year and controls for state annual unemployment rates, and state unemployment rates interacted with presence of EITC-eligible children. The second and third columns restrict to observations of a given educational status and include all controls. The fourth column reports the interaction term of a dummy variable of whether or not an individual has a diploma with the max EITC variable. The difference column examines the slope difference between the two groups. Standard errors are clustered at the State level.

The results in column 4 indicate that increasing EITC by $1,000$ increases employment of those without high school diplomas by about $1.5 - 1.7$ percentage points more than those with diplomas. Furthermore the interpretation of these results as a percentage increase from mean employment also reveals large increases in employment to those without high school degrees. The mean employment of mothers without a high school degree is 55.3% and so a $1,000$ dollar increase in maximum federal EITC credit is a 6.87% increase in employment from the mean. For mothers with a high school diploma the increase is a 2.87% increase in employment from the mean. This provides some evidence that the EITC is particularly effective at incentivizing married mothers without a high school diploma to work. This may be explained by mothers without high school diplomas only being able to get access to lower paying jobs than mothers with high school diplomas. The increased total income from the EITC may make it worth it for many mothers without high school diplomas even with low wage jobs.

The effect of EITC by different time periods can be found in Table 4.4. I examine three different time periods: pre-1993, 1993-1999, and post-1999. In 1993 was the introduction of a large expansion to the EITC that phased in large increases to maximum EITC credit to households with two or more children over a period of three years. The results indicate that the EITC increased employment for mothers pre-1993, but interestingly the effect of increases in EITC in the 1993-1999 and post-1999 periods are negative. In particular a $1,000$ increase in maximum federal EITC credit increased employment of mothers by 2.8 percentage points in the 1968-1992 period, decreased employment by 1.1 percentage points in the 1993-1999 period, and decreased employment by 0.8 percentage points in the 2000-2021 period. Although these negative effects on employment are only about one-third of the increase of the pre-1993 period it still is counter productive to the EITC's goal of increasing employment. If the overall result over all time periods is driven solely by the earlier time period then the holistic estimate of a $1,000$ increase in EITC increasing employment by 2.8 may overstate the effect of EITC for later time periods.

Table 4.4: Max EITC on Annual Employment of Unmarried Mothers by Year

	Total (1)	Pre-1993 (2)	1993-1999 (3)	Post-1999 (4)
Panel A: Federal EITC				
Max Federal EITC (Thousands)	0.028***	0.028***	-0.011**	-0.008***
	(0.003)	(0.006)	(0.005)	(0.002)
Observations	259,381	109,732	30,343	119,306
Panel B: Federal and State EITC				
Max Fed + State EITC (Thousands)	0.026***	0.027***	-0.012**	-0.006***
	(0.003)	(0.006)	(0.005)	(0.001)
Observations	259,381	109,732	30,343	119,306

Notes: *** $p<0.01$, ** $p<0.05$, * $p<0.10$. Max EITC is measured in inflation-adjusted 2022 dollars using PCEPI. Sample includes unmarried women ages 24–50 with high school diploma or less education, from the ASEC from 1968–2021. The total column includes all women in the sample and includes all demographic controls, state, year and controls for state annual unemployment rates, and state unemployment rates interacted with presence of EITC-eligible children. The other columns restrict to observations of a given time period and include all controls. Standard errors are clustered at the State level.

There are a couple of reasons that may explain why the effect of EITC is negative in these more recent periods. The first explanation is that prior to 1993 women without children were not eligible for any EITC credit. Following the EITC expansion in 1993 women without children became eligible for EITC, albeit the max credit for households without children is only about 15% of the max credit available to households with one child. Still if this credit were to increase employment of women without children then the increases in employment for mothers would be underestimated in the difference-in-difference model. Additionally it should be noted that in 2021 there was a temporary increase in the maximum EITC credit to households without children and in combination of the child tax credit could explain at least a portion of the negative effect of EITC credit on the employment of mothers during the post-1999 period.

Another possible explanation is that the EITC has diminishing returns to employment, so by the expansions of 1993 the effect of increasing the maximum EITC credit is not as

effective. There may be a point at which the EITC has induced all the mothers that could work to work already. Some mothers may not choose to work unless they were to receive a considerable larger sum of money from EITC. I explore this by including a quadratic term of maximum federal EITC credit in the regression and running the regression with all controls over the full time period. For this regression the coefficient for maximum federal EITC credit is 0.075 and is statistically significant at the 1% level. The coefficient for the quadratic maximum federal EITC credit term is −0.005 and is also statistically significant at the 1% level. Since this term is negative and significant this suggests that the EITC does not increase employment linearly and that there may be diminishing returns to the EITC. The median federal EITC for mothers during the 1993-2021 periods is $5,968 and so using the quadratic model the marginal effect of EITC on employment for a mother at the median federal EITC is 0.012. This means that a $1,000 dollar increase in the maximum federal EITC credit at this point would increase employment by only about 1.2%.

A third possible explanation is that mothers and women with no children are not comparable groups, or that the comparison broke down post-1993. In the 1990s welfare reform was introduced in the form of PRWORA in 1996 which may have affected employment trends of mothers and women without children differently. Perhaps also there were changes in cultural values that affected labor trends. It may also be explained by the fact that the percentage of people getting married in the United States has been declining over time. It has become common place to live with and have children with a partner that one is not married to. Additionally it has become more culturally accepted for women to be single and pursue a career rather than get married and have children. Changes in these trends over time may play a role in increasing the employment of women with no children compared to mothers.

5 Conclusion

The effect of EITC on employment has been the the focus of many previous papers, yet

very few have included heterogeneity analysis. I supplement this by extending Schanzenbach and Strain (2021) holistic analysis of all EITC expansions to look at the effect of EITC by race, age, education level, and different time periods. I use variation in maximum EITC credit due to policy changes to compare the employment of low-educated unmarried women with children to those without children.

I find that increases in EITC resulted in similar percentage point increases in employment for mothers of all races. It is however important to note that Black and Hispanic mothers have lower employment rates than White mothers so even a similar percentage point increase in employment can suggest larger percentage increases in employment from the mean for minority mothers. I also find that the increases to employment are not statistically different for mothers of different ages. Once again younger mothers have lower employment so similar percentage point increases in employment can result in larger percentage increases. I do find that the employment increases are larger for women without a high school diploma than those with a high school diploma, suggesting that the employment effect of the EITC is strongest for those with the least amount of education. Finally I find that the overall effect of increases in the maximum EITC credit on employment are driven by the the increases in the pre-1993 period. I actually find that the effect of increasing maximum EITC credit in the 1993-1999 and 2000-2021 periods is negative. These negative effects may be the result of the introduction of the EITC credit to households with no children or potentially diminishing returns to the maximum EITC credit.

Overall these results suggest that there are important heterogeneous effects of the EITC on employment. These results suggest that the EITC has its largest employment effects for groups at the highest risk of poverty and so the EITC does appear to be meeting its goals of incentivizing work and providing benefits to low-income households. The one concern is the negative effects I find when restricting to the 1993-1999 and 2000-2021. These results suggest that the holistic analysis the effect of EITC over all expansions may overstate the increase in employment for more recent time periods. This should be considered for any

proposed expansions to the EITC in the future.

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