The Effect of Earned Income Tax Credit on Female Labor Supply and Gender Wage Gap

Shreya Bhardwaj

Cornell University
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Any findings or conclusions presented in this thesis are those of the author, and do not necessarily reflect the above-mentioned organizations.

Abstract

Using CPS-MORG data for the years 1990-999, I conduct a two-part study on the effects of the Earned Income Tax Credit (EITC) on women's labor market and earnings. Using a quasi-difference-indifference model, I first study the relationship between the EITC and the female labor supply and then examine the effect of EITC on gender wage gap. I find that a $1000 increase in the maximum EITC credit offered in the female labor market leads to a 6-percentage point increase in the employment rate. For the gender wage gap study, I find no significant results showing that the EITC impacts wage gap in any particular direction.

Introduction

Over the past few decades, women have made phenomenal advancements in social, political, and economic arenas. Higher education achievements, along with the improved ability to control their fertility, have allowed women to establish their economic independence. Despite these strides, women face systemic discrimination and disadvantages in the labor market. Although it is closing, the persistence of the gender wage gap indicates an enduring rigidity in societal norms and attitudes, which in turn influences the labor market. Public policies could be instrumental in identifying and correcting for the wage gap, to illicit equitable economic outcomes.

This paper attempts to study the Earned Income Tax Credit (EITC) policy and its effects on women's labor supply and pay gap. While not explicitly created to help women in the labor market, the structure of the EITC benefits women more than men by supplementing the earned income of parents. Since the gendered expectation of child-care falls on women, they are more likely to be single parents and receive the EITC. Under the Omnibus Reconciliation Act of 1993 (OBRA93), the EITC became substantially more generous to households with children, creating, the incentive to participate in the labor market and generating inequality between workers with children and workers without children. Part I provides a literature review and the conceptual framework of this paper. It describes EITC's history and

structure, the gender wage gap, and how EITC is related to women's labor supply and wage gap. Part II presents the data used in this study and describes some of variables I use in this paper. My analysis on EITC and women's labor supply begins in Part IV with the methodology and results from my study. I then move on to Part V, where I discuss my EITC and wage gap study, including the methodology and results. Finally, in Part VI, I provide conclusions of my findings and recommendations for future work in this area.

Part I: EITC and Gender Wage Gap

History and Structure of EITC

In 1975, President Ford's administration launched the EITC as a temporary refundable tax credit to offset Social Security tax paid by low-income workers with children (National Low Income Housing Coalition 2014). After becoming permanent in 1978, it went through modifications and expansions under both Democratic and Republican leadership (Hotz and Scholz 2001). The key reason for such bipartisan support for this anti-poverty program is that it specifically aims to reward working families with children—a politically important segment of the population. As a result, over the years, the EITC has become one of the largest anti-poverty programs in the U.S. with about $67 billion in credit going to 27 million people in the tax year 2015 (IRS, 2017).

In order to receive the EITC an individual must meet two important criteria. First, a taxpayer must have positive earned income for the tax year. Earned income includes, wages, salaries, tips, and taxable employee pay, along with business and farm self-employment income (IRS, 2016). Second, taxpayer's earned income and adjusted gross income must each be less than an amount set by the IRS, which varies each year. For example, in 1999 (the last year in this study), the maximum income that qualifies a taxpayer for the EITC with two or more children was $30,580.

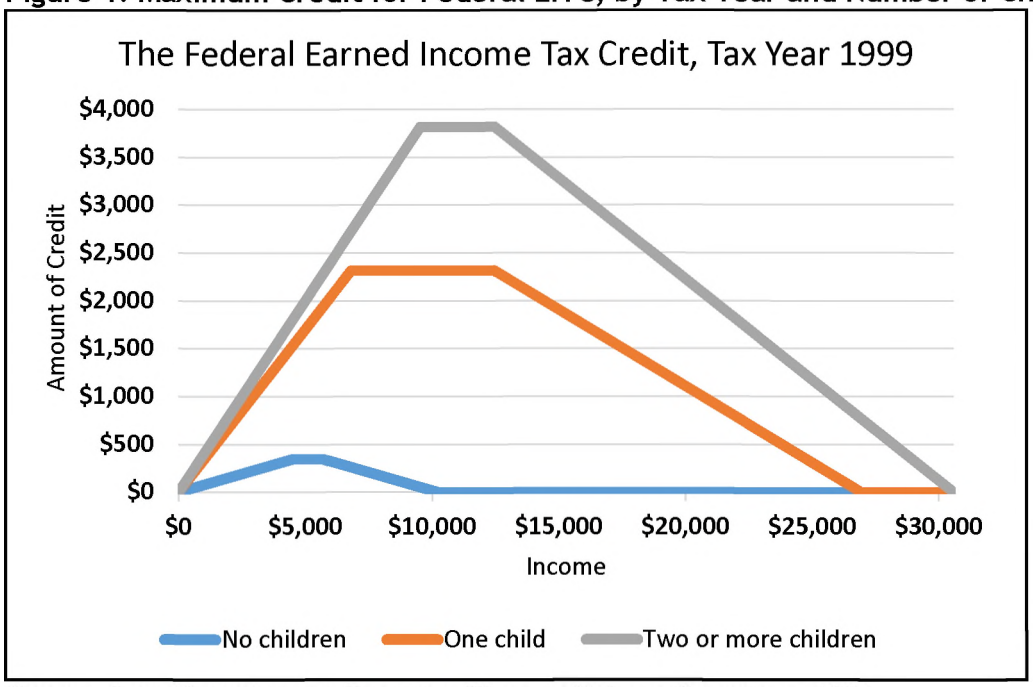
Furthermore, there are some other eligibility conditions that either do not apply to all individuals or have changed in the course of the years studied in this paper. Firstly, in order to receive the EITC prior

to 1994, a taxpayer had to claim a child. A qualifying child must meet three basic tests: relationship, residency, and age (IRS, 2017). A qualifying child could be the biological child, grandchild, stepchild, adopted child, or the foster child of the taxpayer (henceforth, I will refer to qualifying child (children) as simply, child (children) and workers without a qualifying child as childless workers). The child must be living with the taxpayer for more than half of the tax year. The child must also be under the age of 19 (under 24 if full-time student) or permanently and totally disabled. Starting in 1994, a taxpayer could receive a modest amount of EITC even if she does not claim a child. However, the taxpayer must be between the ages of 25 and 65 years to receive the EITC without a child, and must also not be a dependent of another taxpayer (IRS, 2017). Lastly, it is important to note that during the period chosen for this study, 1990-1999, the marital status of the taxpayer did not influence the amount of EITC received. This policy did change in the year 2002, after which married couples filing jointly received a higher amount of credit based on their joint income, as compared to a single person with the same amount of individual income.

After meeting the eligibility criteria, a taxpayer receives her EITC based on the amount of earned income and number of children. EITC has a phase-in, constant, and phase-out income regions. A taxpayer in 1999 with two or more children receives the credit phased in at 40 percent rate over the first $9,540 of the income, leading to a maximum credit of $3,816. Between the incomes of $9,640 and $12,460 the taxpayers receive a constant credit–the maximum credit of $3,816. Starting from the income of $12,460 to $30,580, the credit is phased out at 21.06 percent of the income. After reaching the maximum income of $30,580 (larger of earned income and the aggregate gross income is used to determine this), the taxpayer is not eligible to receive any EITC. Refer to Figure I for the EITC schedule for the year 1999.

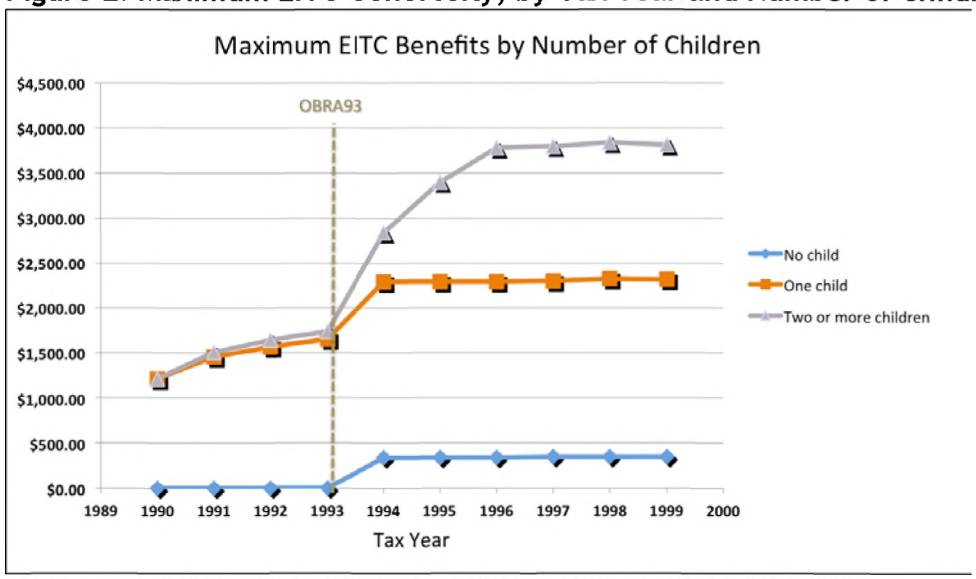
The EITC went through a major expansion in 1993, under the Omnibus Reconciliation Act of 1993 (OBRA93). This expansion not only increased the amount of EITC available to workers with children, but it also introduced EITC for workers without children (Congressional Research Service, 2014). However, as compared to the tax credit received by the workers who have children, those who do

Figure 1: Maximum Credit for Federal EITC, by Tax Year and Number of Children



Source: Joint Committee on Taxation; Ways and Means Committee, 2004

Figure 2: Maximum EITC Generosity, by Tax Year and Number of Children (1999 dollars)



Source: Joint Committee on Taxation; Ways and Means Committee, 2004

not, receive a modest amount. After OBRA93, workers with one child witnessed an increase in maximum EITC by $725 (in 1999 dollars), whereas workers with two or more children experienced an increase of $2,160. Childless workers were able to receive a maximum sum of $347 following the expansions. These varying levels of EITC generosity based on the number of children claimed by the worker forms the basis

of this paper. I use this differential treatment of workers to estimate the effects on female employment rate and gender wage gap. Refer to Figure II for the trend in EITC maximum credit generosity from 1990-1999.

Gender Wage Gap

The gender wage ratio for full-time workers is the proportion of average female wages to average male wages earned during full-time employment. This ratio helps understand the gender based pay gap, which shows the difference in women's and men's wages. In 2014, women who worked full-time year-round earned, on average, received 79% of men's median annual earnings. Over the last 50 years, the ratio of women's earnings has been steadily increasing, reducing this gender wage gap. However, this relatively steep increase in the wage ratio has plateaued somewhat since the 1990s (Blau and Kahn 2006).

Some key factors influencing the gender wage gap

Employment rate: Women's participation in the labor market is significant in explaining the gender wage gap for two reasons. Firstly, a worker receives wages upon being employed; secondly, the longer, more continuous, attachment to the labor market means potentially higher wages for the worker. Over the years, women's employment rate has increased, thanks to increasing female wages, higher education attainment, cultural and attitudinal shifts, and changes in public policy, amongst others (Blau and Kahn 2016; Cotter, Hermsen, and Vanneman 2011; Meyer and Rosenbaum 2001).

I will look at the effect of the EITC, as a public policy, on labor supply of single, head of household, females from 1990-1999 in Part III. An increase in labor supply owing to the EITC may indicate an increase in the female to male earnings ratio.

Education: Although, men tended to receive higher education at a greater rate than women, by 1980 women's college graduation rate was comparable to men's. Eventually, women started earning more bachelor's, associate, master's, and PhD level degrees than men (Blau and Kahn 2016). Women's increased investment in human capital formation has led them to increase their labor force attachment.

Additionally, being highly educated increases their chances of qualifying for higher-paying jobs. From both perspectives, we would expect the wage gap to be influenced by higher gains in education made by women. However, women are still underrepresented in STEM fields, which tends to be associated with higher wages, causing education-based gender gap to persist (Black, Haviland, Sanders and Taylor 2008).

Traditional Gender Roles and Motherhood: The expectation from women to fulfill traditional nonmarket labor influences both their employment rate and labor market attachment. "Motherhood penalty" documented by researchers like Korenman and Neumark (1992) and Waldfogel (1998) shows a negative relationship between women's wages and the number of children.

Being a new mother often pulls women out of the workforce in the absence of strong maternity laws. If she returns to work, she may opt for a lower-paying flexible job, in order to fulfill duties at home. Motherhood may also reduce women's productivity as they balance between work and home, making some reluctant to being promoted to more demanding jobs. Due to this expectation and discriminatory perception, employers may be unwilling to invest training and or even hire women, especially of childbearing age (Blau and Kahn 2016; Correll, Benard, and Paik 2007).

EITC and Female Labor Supply

In the 1990s, the U.S. labor market witnessed an influx of women, mostly single mothers. Blank and Gelbach, 2006 theorizes that in addition to a strong booming economy in the 90's, there are potentially four policy-related reasons for the changes in the female labor supply during this period:

1. Aid to Families with Dependent Children (AFDC) state waivers
2. Introduction of Temporary Assistance for Needy Families (TANF) block grants
3. Increase in the minimum wage and EITC expansions
4. Increase in child care subsidies and access to public health insurance (Medicaid)

Either through stricter work requirements and time-limits (AFDC state waivers and TANF block grants), growth in returns to work (higher minimum wage and EITC expansions), or reduction in gender-

based and other work-related costs (child care subsidies and public health insurance) these policies encouraged more participation from women in the labor market. Specifically, EITC expansions of 1993 have been associated with increasing women's labor supply (Eissa and Liebman 1996; Meyer and Rosenbaum 2001).

EITC adds positive supplemental income for every incremental amount of income received by a worker within the maximum income amount set each year. Ceteris paribus, increasing the amount of income received is related to increasing the labor market participation. Therefore, if a taxpayer has a preference for working before EITC policy was introduced, she will continue to work under the policy. On the other hand, those who did not participate in the labor market are unaffected by EITC policy as they have no income to receive the credit for. However, due to the offer of an additional after-tax income under the EITC, some taxpayers may be encouraged to join the labor force, if they were not previously employed (Eissa and Liebman, 1996). Therefore, I expect EITC to induce labor supply of single women. I will examine this hypothesis in part III.

The three-phase structure of the EITC has varying effects on the intensive margin of labor supply due to income and substitution effects rendered by the schedule. For a worker in the phase-in range of the schedule, the decision to participate in the labor market is unclear since the substitution and income effects are working in opposite directions. Increasing hours of work will lead to additional income through the credit, causing the substitution effect to encourage the worker to substitute work for leisure, but the income effect to encourage reducing working hours. In the constant phase, the substitution effect is zero, as increasing working hours does not lead to additional credit. Therefore, only income effect is at work causing the taxpayer to reduce her working hours. Finally, in the phase-out region, the labor supply is unambiguously reduced as both the substitution and income effects are negative: while the credit earned is declining, it is still adding addition income to the total income earned. In this paper, I will not be studying the effects of EITC on number of hours worked, as I do not have appropriate data for this part.

However, Eissa and Liebman 1996, show that women already in the labor force do not reduce their hours of work under EITC.

EITC and Gender Wage Gap

The direction of the effect of EITC on gender wage gap is not very intuitive due to the structure and the effect of the policy. Since the amount of EITC received depends on the number of children a worker claims, we would expect that working women are more likely to claim the EITC as women are more likely to be single parents than men. Women are also more likely to be in lower income bracket, making them more eligible for the tax credit. In a way, EITC compensates single women for the motherhood penalty and improves their post-tax wages, potentially reducing the gender wage gap. However, married women, in the period of study, file jointly with spouses and receive the EITC for the filing unit as a whole. If the combined income of the married couple is over the income cutoff for the year, they do not receive the EITC. Therefore, if the married women could file as a single head of household, they would be able to claim the tax credit, improving their post-tax wages (Tax Foundation, 2015). According to Eissa and Hoynes 2002, the marriage penalty caused by the structure of EITC induces a reduction in the total labor supply of married couples and, specifically, women tend to reduce their employment rate in order for the couple to receive the EITC. Therefore, the effects of EITC on the wage gap of married women are ambiguous.

For those women who were not already working, the incentive to work under EITC can lead to a reduction in wages for everyone in the labor market. The large labor supply of women, considering that men and women are not perfect substitutes and women tend to concentrate in particular occupations and industries, will drive down the wages of all women. Rothstein 2008, finds that it is the low skilled women without children who are hurt by the EITC policy as their wages go down, but they are not compensated by the EITC (not until 1994 and very moderately after). Based on his estimated demand elasticities and distribution of EITC-qualifying and not qualifying women across skill groups, a dollar of EITC spending allows single mothers to receive $0.70 of the benefits and the employers of low-skilled labor to capture

$0.72, with $0.42 coming from EITC ineligible workers. Single mothers' after-tax income increases by $1.21 as the incomes of childless women falls by $0.73 as a result of supply shift and changes in wages. Therefore, the overall impact on women's post-tax earnings, compared to men is unclear. In this paper, I will try to shed some light on this ambiguity.

Part II: Data

I use CPS-MORG data from IPUMS-CPS for the years 1990-1999. The CPS data contain monthly information about the labor market and income of households and individuals, in addition to gender, number of children present, education attainment, age, race, and marital status. CPS-MORG includes information on usual hours worked per week and earnings of individuals. For both studies, I use the hourly earnings and the usual hours worked per week as the measure of wage, and employment rate variable as the measure labor supply. Employment rate variable is a binary variable where the value one is assigned to those who indicated being employed in the last week and zero assigned to those who were not employed last week. I calculate the total annual income of the individuals using their hourly wages, usual hours worked per week and an estimated number of weeks worked by all individual[1] (I used 40 weeks as a proxy for usual number of weeks worked since I did not have enough data on this). The individuals in the study may have either positive or zero hours of work and earned income.

In both studies, the sample is restricted to single heads of household (never married or widowed) who were between the ages of 25-65 if they did not have a child or between the ages of 15-65 if they did. I divide the individuals in my sample by education groups (less-than high school, high school, and college and more) and by age group (15-24, 25-40, 41-65). I identify a dependent in a tax-filing unit as "child" if she/he was under the age of 19. I did not have sufficient information to check the six-months residency status of the child or to identify full-time students under 24, therefore any dependent over 19 was not

[1] I lose some variation due to the different number of weeks worked by different individuals but the variation from hourly earnings and usual hours worked per week can provide reasonable estimation.

considered qualifying. Furthermore, I exclude those serving in the military. In total, there are 125,453 men and 155,264 women in the sample.

I created two EITC variables in both studies. First, I created an EITC generosity variable, which is based on the maximum credit allowed to an individual depending on the number of children and year. Second, I created an predicted EITC variable to calculate the approximate EITC individuals would receive based on their income, number of children, and year. I use this variable to estimate total post-EITC earnings by adding it to the total annual income variable. I procured this information from the Congressional Research Service. All the wages, earnings, and tax credit amounts were calculated in 2016 dollars.

Part III: Effect of EITC on Female Labor Supply

Methodology

To study the effect of EITC on the female labor supply, I used the data on women from my original sample. Table I shows the summary statistics of the characteristics for this group. Between women with and without children, there are some considerable differences. Women with children tend to be younger (34.82 vs. 46.57 years), less educated (12.53 vs.13.42 years), and less likely to be employed in the previous week (0.74 vs. 0.77). Moreover, women with children also tend to earn lower hourly wages ($13.47 vs. $16.29) and lower total annual income ($25,145.53 vs. $30,771.59). The number of children does not cause many remarkable differences in characteristics. However, women with one child are more likely to be employed than women with two or more children (0.71 vs. 0.61 for women with high school education). For all women with children, those with more years of education tend to have higher wages and employment rates.

Table II shows the differences in employment rate of childless women and women with children before and after the EITC expansion. It also shows the differences for the subset of women with children who are most likely to be impacted by the expansion: less educated (high school or less), which can

correspond to lower wages due to lower human capital, and non-white women (all other races except white). The first column shows the average employment rate for Pre-OBRA93 years (1990-1993) and the second column shows these averages for Post-OBRA93 years (1994-1999). While participation rates for all women increase post expansion, the jump is more significant for women with children (0.66 pre-OBRA32 vs. 0.70 post-OBRA93). The fact that there was little change in the participation rate of women without children can point to a lack of aggregate effect, since the expansions barely changed the tax credit received by childless workers. Furthermore, for less educated and non-white women with children, the change in participation rate was substantial as well.

Figures 1, 2, and 3 show the trends in employment rate of childless women, women with one child, and women with two or more children. The labor supply of childless women is almost constant, with a slight upward trend. However, for women with children the spike in participation after 1994 is very noticeable.

Table I: Summary statistics for all women in the sample, 1990-1999

	Without Children [91422]	With Children [63,904]						
		All	One Child [22,871]			Two or more children [23,328]		
			Less-than High School [7,040]	High School [7,312]	Bachelor's and beyond [6,636]	Less-than High School [10,327]	High School [7,407]	Bachelor's and beyond [4,624]
Age	44.81 (13.44)	30.36 (10.52)	34.73 (13.34)	33.05 (11.42)	33.34 (9.86)	32.52 (9.82)	33.02 (9.03)	33.91 (8.28)
Years of Education	13.47 (3.25)	12.28 (2.49)	9.87 (2.52)	12 (0)	13.61 (0.95)	9.73 (2.45)	12 (0)	13.54 (0.90)
Employment Rate	0.74 (0.44)	0.68 (0.47)	0.52 (0.50)	0.71 (0.45)	0.80 (0.40)	0.41 (0.49)	0.61 (0.49)	0.70 (0.46)
Share of Non-Whites	20% (0.40)	42% (0.49)	0.44 (0.50)	0.43 (0.50)	0.45 (0.50)	0.57 (0.49)	0.62 (0.49)	0.59 (0.49)
Hourly Wage	16.31 (9.16)	12.13 (6.61)	10.95 (4.57)	12.22 (6.63)	13.97 (6.99)	10.63 (4.95)	11.93 (7.45)	13.71 (6.85)
Total Annual Income	23,432.68 (14139.1)	16,889.96 (9912.1)	15,907.37 (8266.4)	17,697.90 (9298.2)	20,153.79 (11058.5)	15,220.12 (8455.9)	16,669.11 (9318.11)	19,328.91 (10802.7)

Notes: Data are from survey years 1990-1999 of the Current Population Survey-Merged Outgoing Rotation Groups (CPS-MORG). The sample contains unmarried women between the ages of 15 and 65. Employment rate equals one if hours worked last week are positive, zero otherwise. Total annual income is calculated using hourly wages, usual hours worked per week and an approximation for number of weeks worked in a year, 40. All figures are in 2016 dollars. Standard deviations are in parentheses. Number of observations is in square brackets.

Table II: Difference in key characteristics of women with and without children, before and after EITC expansions

Pre-OBRA93				
Variable	Without Children	With Children		
		All	High School and Less	Non-white
Employment Rate	0.73 (0.44)	0.66 (0.47)	0.56 (0.50)	0.58 (0.49)
Post-OBRA93				
Variable	Without Children	With Children		
		All	High School and Less	Non-white
Employment Rate	0.75 (0.43)	0.70 (0.46)	0.61 (0.49)	0.64 (0.48)

Notes: Data are from survey years 1990-1999 of the Current Population Survey-Merged Outgoing Rotation Groups (CPS-MORG). Pre-OBRA93 years are 1990-1993 and Post-OBRA93 years are 1994-1999. Employment rate equals one if number of hours worked last week is positive, zero otherwise. Total annual income is calculated using hourly wages, usual hours worked per week and an approximation for number of weeks worked in a year, 40. All figures are in 2016 dollars. Standard deviations are in parentheses.

Figure 3: Employment Rate for Childless Workers

Figure 4: Employment Rate for Workers with One Child

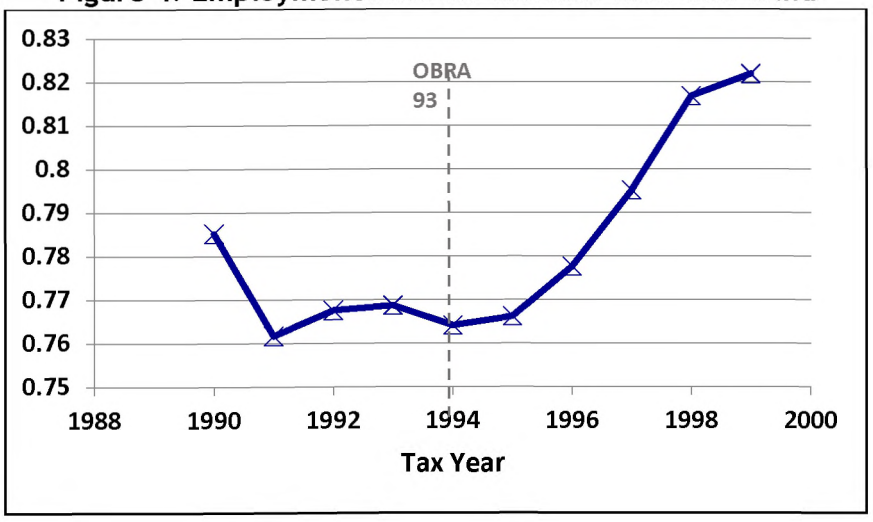
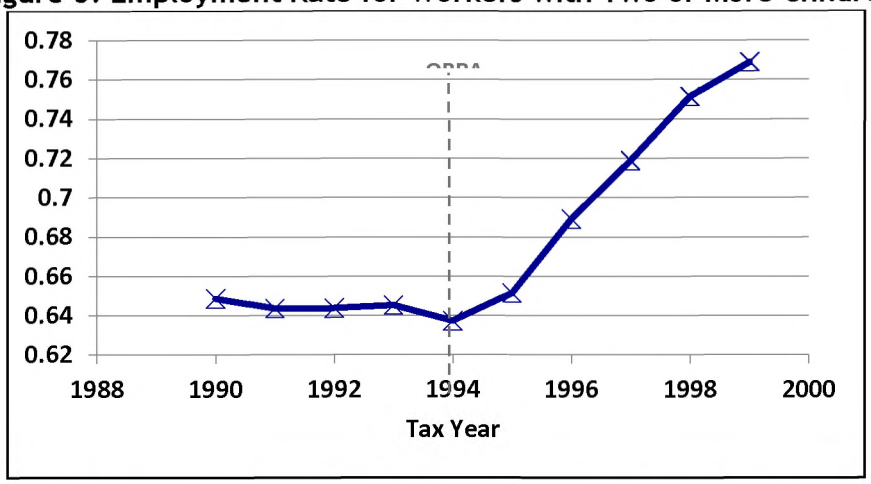


Figure 5: Employment Rate for Workers with Two or More Children



Notes: Each figure plots the mean employment rate variable for each year (1990-1999) based on the number of children for single women heads of household. Employment rate equals one if number of hours worked last week is positive, zero otherwise.

Regression Results

To estimate the effect of a $1000 increase in EITC generosity on female labor supply, I use the model:

$$LFP_{it} = \rho + \theta \max\_EITC/1000 + \psi \boldsymbol{Z} + kids_i + \lambda_t + \varepsilon_{it}$$

Where, LFP_{it} is the employment rate for individual i and tax year t. $\max\_EITC/1000$ is the maximum EITC credit an individual is eligible for, based on the number of children she has. I used an increase in $1000 for maximum EITC for the ease of interpretation of the results. $\boldsymbol{Z}$ is demographic vector that includes the age, its square and cube, race dummy (non-white women are assigned value one and white women are assigned a value of zero), and years of education. $kids_i$ is the number of children a woman has; this could take values between zero and two. Families with more than two children receive the same amount of EITC as families with two children during the period of the study. Finally, λ_t is time fixed effects.

I run three sub-groups for this specification: for the entire sample, for high school and less-than high school educated women, and for non-white women. Table III shows the regression results for all women in the sample. Table IV shows the regression results for high school or less educated and non-white women. This is a quasi-difference-in-difference model as the years pre and post-OBRA93 are captured in the year fixed effects and having children is the treatment. The maximum EITC credit

available to individuals based on their number of children can be considered an interaction term between number of children and years, since maximum EITC available for workers with children post OBRA93 was significantly more than the maximum EITC available to childless workers.

The first column only includes the EITC generosity variable, *EITC/1000*, while second through fourth columns include other covariates including race, years of education, and, age and its square and cube. The EITC generosity variable is significant in each specification. For model two—all women in the sample and additional covariates— a $1000 increase in EITC generosity increases the employment rate by about 6 percentage points. For less educated women and non-white women, the employment increases by 6.2 and 5.6 percentage points respectively when the maximum credit increases by a $1000. I also found other covariates of race, education, and age to be significant—as compared to white women, non-white women tend to participate less in the labor force; women with more years of education tend to participate more in the labor market, and; women continue to participate in the labor market as they age till a certain point after which they reduce their labor supply. My estimates are close to what the literature shows. Eissa and Liebman 1996, found a 2.8 percentage point increase in the employment rate of all single women in their sample for the years of 1984-1986 and 1988-1990.Their study looks at the effects of the Tax Reform Act of 1986, which also included an expansion of the EITC. Similarly, Meyer and Rosenbaum 2001, studied factors contributing to the increase in the labor supply of single mothers and estimate that the EITC and other tax policy changes increased their weekly employment by 4.4 percentage points over their study period covering 1984-1996 period, where most of the increase was found to be during the 1992-1996 period. My slightly higher estimates for the employment rate can be explained by my chosen period of study (1990-1999), during which, according to Meyer and Rosenbaum, the labor supply increased the most.

Table III: Coefficients of models predicting the employment rates of all women, 1990-1999

	Subgroups			
Coefficient Estimates	**All women (1)**	**All women (2)**	**High school or less-than high school educated (3)**	**Non-whites (4)**
	Without Covariates	With Covariates	With Covariates	With Covariates
EITC/1000	0.042***	0.060***	0.062***	0.057***
	(0.00258)	(0.0023)	(0.0032)	(0.0039)
Non-White	—	-0.044 ***	-0.062***	—
		(0.0025)	(0.0040)	
Years of Education	—	0.032 ***	0.035***	0.041***
		(0.00039)	(0.00079)	(0.0008)
Age	—	0.013***	0.026***	0.033***
		(0.0031)	(0.0044)	(0.0059)
Age Squared	—	0.00021**	-0.00007	-0.00033*
		(0.000076)	(0.000109)	(0.00015)
Age Cubed	—	-0.000007***	-0.0000048***	-0.000002*
		(0.00000059)	(0.000000085)	(0.0000012)
N	137,527	137,572	71,223	41,881
R^2	0.03	0.23	0.16	0.18

Notes: Data are from survey years 1990-1999 of the Current Population Survey-Merged Outgoing Rotation Groups (CPS-MORG). The dependent variable is employment rate. It equals one if number of hours worked last week is positive, zero otherwise. *EITC/1000* is the maximum EITC benefits individuals can receive, based on the number of children, divided by 1000 for the ease of interpretation. *Non-white* equals one if the woman is of a race other than white, zero otherwise. Columns (2) through (4) include variables for race, years of education, and age. All figures are in 2016 dollars. Standard errors are in parentheses. "*p<0.05 **p<0.01 ***p<0.001"

Moreover, I calculated the impact of a $1000 increase in the EITC on various other key variables: total annual income, post-EITC earnings, predicted EITC, usual hours worked per week and log of hourly wages. Table A in the appendix shows the complete results of these regressions. The EITC generosity variable is significant for all specifications except for the log of hourly wages. A $1000 increase in the EITC increases the total annual income by $302.40 for all women and increases the predicted EITC for all women by $906.93. The post-EITC earnings increase by $1,198 for all women as the maximum EITC increases by a $1000. Furthermore, the usual hours worked per week increase by 0.77 as the EITC maximum is increased by $1000. My calculations show the hourly wages of all women in the sample decreases by 1.6% as the maximum EITC increases by a $1000, for the model without any other covariates.

Part IV: Effect of EITC on Gender Wage Gap

Methodology

To study the relationship between the EITC and gender wage gap, I use the CPS-MORG sample from 1990-1999 of all single (never married or widowed) heads of households. Table V shows the summary statistics of various characteristics for men and women based on their parental status (having children or not having children). As expected, women are more likely to be single parents (46,179 vs. 8, 406). Additionally, women with children have a higher percentage of non-white individuals (51% vs. 27%), have a lower employment rate (1.69 vs. 1.74), and tend to receive lower hourly wages ($12.64 vs. $15.96) as compared to men in their parental status group. Women without children fare similarly compared to men in their group.

In order to study specific labor markets to estimate the wage gap, I created the models based on education and age on aggregate levels. I created nine education-age markets based on three education levels (less-than high school, high school, and bachelor's degree and beyond) and three age groups (15-24, 25-40, and 41-65). Tables VI and VII show summary statistics of employment rates, hourly wages, and post-EITC earnings in each education-age markets for men and women. Post-EITC earnings are calculated by summing total annual income and the predicted EITC received by individuals based on their income, number of children, and year. The difference in employment rates between men and women is the starkest in low-education levels. For example, in the less-than high school education level and age group 2, the participation rate is 0.87 for men vs. 0.56 for women, as opposed to the 0.95 rate for both men and women in the same age group, but bachelor's degree and beyond education level. For hourly wages and post-EITC earnings, women lag behind men in every education-age market.

I computed average EITC received by individuals per state, to see state-based wage and EITC variation. States with lower hourly wages like Mississippi and Alabama have higher average EITC allocated to individuals, whereas states like New York, California, and Massachusetts have lower average

EITC, since EITC targets low-income individuals. I use these data to create a binary variable, *High EITC State*, showing a "high" EITC level defined by an average predicted EITC of more than $330 ($330 was the average EITC received across the states). States with more than $330 of average predicted EITC are assigned a value of one, and zero otherwise. To check this classification, I ran two specifications: employment ratio and predicted EITC stratifying by high and low EITC states. Refer to Table B in the appendix. The high EITC states have a greater response to a $1000 increase in the maximum EITC than the low EITC states. This is expected as the labor markets within states with higher levels of predicted EITC are more impacted as a result of the policy. Next, for high EITC states, a $1000 increase in the maximum EITC increases the predicted EITC by a much higher amount ($733) than for low EITC states. We can expect that EITC added $733 to women's post-EITC earnings in states with high EITC. I found the average post-EITC earnings across all individuals to be $23,175, and so I expect the EITC to shrink the earnings gap by about 3% ($733/$23,175).

Table V: Summary statistics for all heads of household in the sample, 1990-1999

Variable	With Children [54,225]		Without Children [226,492]	
	Male [8,406]	Female [46,179]	Male [117,407]	Female [109,085]
Age	33.73 (10.62)	33.71 (10.54)	34.82 (11.69)	41.05 (15.00)
Share of Non-Whites	27% (0.45)	51% (0.50)	17% (0.38)	20% (0.40)
Years Of Education	11.96 (2.73)	11.84 (2.52)	13.52 (2.94)	13.47 (3.08)
Employment rate	0.89 (0.31)	0.62 (0.49)	0.86 (0.35)	0.76 (0.43)
Hourly Wage	15.96 (7.73)	12.64 (6.93)	16.52 (9.52)	15.06 (8.75)
Total Annual Income	25,481.12 (13219.49)	17,948.32 (10,287.73)	25,305.34 (15097.75)	21,300.62 (13,510.98)

Notes: Data are from survey years 1990-1999 of the Current Population Survey-Merged Outgoing Rotation Groups (CPS-MORG). The sample contains single men and women between the ages of 15 and 65. I exclude people who are divorced. Employment rate equals one if hours worked last week are positive, zero otherwise. Total annual income is calculated using hourly wages, usual hours worked per week and an approximation for number of weeks worked in a year, 40. Standard deviations are in parentheses. All figures are in 2016 dollars. Number of observations is in square brackets.

Table VI: Summary statistics for all males in the sample, 1990-1999

Variables	Less-than High School [24,340]			High School [67,956]			Bachelor's Degree and Beyond [33,157]		
	Age Group 1 [5,320]	Age Group 2 [10,506]	Age Group 3 [8,514]	Age Group 1 [15,468]	Age Group 2 [37,151]	Age Group 3 [15,337]	Age Group 1 [2,956]	Age Group 2 [21,176]	Age Group 3 [9,025]
Employment rate	0.87 (0.34)	0.87 (0.33)	0.55 (0.50)	0.86 (0.34)	0.92 (0.27)	0.74 (0.44)	0.88 (0.33)	0.95 (0.22)	0.86 (0.34)
Hourly Wage	11.85 (5.70)	14.97 (7.32)	15.98 (8.06)	12.26 (5.52)	17.22 (8.87)	19.19 (9.49)	14.72 (7.04)	21.96 (13.75)	24.30 (14.64)
Post-EITC earnings	19,033.24 (9191.3)	24,580.79 (11968.5)	25,323.89 (13685)	18,269.35 (10060)	27,550.63 (14190.1)	30,146.37 (15883.7)	21,197.62 (13012.7)	32,645.13 (21699.6)	35,151.12 (22281.9)

Notes: Data are from survey years 1990-1999 of the Current Population Survey-Merged Outgoing Rotation Groups (CPS-MORG). The sample contains single men between the ages of 15 and 65. Age is divided into age groups 1 (15-24), 2 (25-40), and 3 (41-65). Employment rate equals one if hours worked last week are positive, zero otherwise. Post-EITC earnings variable is calculated by summing up total annual income and EITC received. Total annual income is calculated using hourly wages, usual hours worked per week and an approximation for number of weeks worked in a year, 40. Approximate amount of EITC claimed by individuals is computed by their income and number of children for each year, using the EITC parameters from Joint Committee on Taxation; Ways and Means Committee, 2004. All figures are in 2016 dollars. Standard deviations are in parentheses. Number of observations is in square brackets.

Table VII: Summary statistics for all females in the sample, 1990-1999

Variables	Less-than High School [39,511]			High School [81,520]			Bachelor's Degree and Beyond [34,233]		
	Age Group 1 [6,786]	Age Group 2 [12,220]	Age Group 3 [20,505]	Age Group 1 [17,014]	Age Group 2 [34,280]	Age Group 3 [30,226]	Age Group 1 [3,612]	Age Group 2 [19,077]	Age Group 3 [11,544]
Employment rate	0.52 (0.50)	0.56 (0.50)	0.43 (0.49)	0.79 (0.41)	0.83 (0.38)	0.65 (0.48)	0.89 (0.32)	0.95 (0.23)	0.83 (0.38)
Hourly Wage	9.71 (4.07)	11.77 (5.36)	11.96 (5.27)	10.72 (5.40)	14.62 (7.89)	15.39 (7.70)	14.63 (7.03)	20.74 (11.37)	23.76 (12.95)
Post-EITC earnings	14,616.70 (6965.6)	19,255.25 (9277.6)	17,672.80 (9465.6)	14,961.06 (8159.7)	23,015.44 (11532.9)	22,673.05 (12657.8)	20,503.03 (11458.6)	29,865.09 (17321.9)	32,493.03 (19790.7)

Notes: Data are from survey years 1990-1999 of the Current Population Survey-Merged Outgoing Rotation Groups (CPS-MORG). The sample contains single women between the ages of 15 and 65. Age is divided into age groups 1 (15-24), 2 (25-40), and 3 (41-65). Employment rate equals one if hours worked last week are positive, zero otherwise. Post-EITC earnings variable is calculated by summing up total annual income and EITC received. Total annual income is calculated using hourly wages, usual hours worked per week and an approximation for number of weeks worked in a year, 40. Approximate amount of EITC claimed by individuals is computed by their income and number of children for each year, using the EITC parameters from Joint Committee on Taxation; Ways and Means Committee, 2004. All figures are in 2016 dollars. Standard deviations are in parentheses. Number of observations is in square brackets.

In order to consider the effect of EITC expansions under OBRA93, I created a *post93* dummy variable with a value of one referring to years after 1993 and a value of zero indicating years before 1994. Finally, to analyze the earnings gap, I study three kinds of earnings: total annual income, post-EITC

earnings, and hourly wages. I calculate the women to men earnings ratio for all three types of earnings. For this, I collapsed mean post-EITC earnings, total annual income, and hourly wages of men and women to cells defined by state, year, age group, and education groups in the sample. For every age-education group, I derived the ratios for three earnings types.

Regression Results

I use the following model to estimate the effects of Post-OBRA93 EITC expansion on post-EITC earnings ratio for each education-age group market

$$Y_{aest} = \alpha + \beta Post93 + \gamma High\_EITC + \delta Post93_t X High\_EITC_s + \phi_s + \omega_t + \varepsilon_{aest}$$

Where Y_{aest} is the earnings ratio (female/male post-EITC earnings) for age-group a, education level e, in state s, and tax year t. I include fixed effects for state ϕ_s and year ω_t. Education levels are less-than high school, high school, and college, which includes bachelor's degree or more. The age is divided into three groups: age group 1, 15-24; age group 2, 25-40; and age group 3, 41-65. States include all 50 states, plus District of Columbia. The range of years included are 1990-1999. All wages and earnings are calculated in 2016 dollars. Table VIII, IX, and X present the regression coefficients of three sets of regressions I ran based on education levels and age groups—log hourly wage gap, total annual income gap, and post-EITC earnings gap. Table VIII, IX, and X show the regression results for less-than high school high school, and bachelor's degree and beyond education levels, respectively. These are robust standard errors, weighted regressions by the number of observations of men and women per each age-education group, by state and year.

While less than high school educated individuals in age group 3 witnessed a 12% increase in the female to male hourly wage ratio post-OBRA, for high school graduates in the age group 1 and 2, post-1993 years lead to a 9% and 10% decrease respectively in the hourly wages ratios compared to years before 1994. States with high levels of EITC allocated in the less-than high school-age group 1 and high school level-age group 2 markets are associated with higher annual income ratio than the states with

Table VIII: Coefficients of models predicting the log of hourly wage gap by education levels and age groups, 1990-1999

	Less than high school education level			High school education level			Bachelor's degree+ education level		
	Age Group 1	Age Group 2	Age Group 3	Age Group 1	Age Group 2	Age Group 3	Age Group 1	Age Group 2	Age Group 3
Post93	0.02	-0.03	0.12**	-0.09*	-0.10***	0.01	0.14	-0.15	-0.01
	(0.03)	(0.03)	(0.04)	(0.04)	(0.02)	(0.04)	(0.19)	(0.12)	(0.13)
High EITC State	0.12	0.06	-0.15	0.07	0.09	-0.04	-0.30	0.08	-0.40*
	(0.06)	(0.07)	(0.16)	(0.08)	(0.06)	(0.07)	(0.32)	(0.18)	(0.20)
Post93 x High EITC State	0.04	0.03	0.02	-0.0002	0.01	-0.01	0.12	-0.05	-0.02
	(0.04)	(0.03)	(0.04)	(0.03)	(0.02)	(0.03)	(0.19)	(0.07)	(0.12)
N	431	448	426	510	510	501	294	479	366
R^2	0.22	0.20	0.19	0.15	0.29	0.18	0.17	0.12	0.18

Table IX: Coefficients of models predicting the total annual income gap by education levels and age groups, 1990-1999

	Less than high school education level			High school education level			Bachelor's degree+ education level		
	Age Group 1	Age Group 2	Age Group 3	Age Group 1	Age Group 2	Age Group 3	Age Group 1	Age Group 2	Age Group 3
Post93	0.04	-0.04	0.08	-0.09	-0.11***	-0.06	0.76	-0.19	-0.04
	(0.12)	(0.04)	(0.10)	(0.05)	(0.02)	(0.07)	(0.43)	(0.13)	(0.30)
High EITC State	0.22*	0.11	-0.24	0.15	0.13*	0.04	-0.43	0.23	-0.93*
	(0.11)	(0.07)	(0.21)	(0.08)	(0.06)	(0.12)	(0.66)	(0.22)	(0.39)
Post93 x High EITC State	0.06	-0.0001	0.19	-0.01	0.03	-0.03	0.16	-0.10	-0.19
	(0.08)	(0.04)	(0.18)	(0.03)	(0.02)	(0.04)	(0.28)	(0.08)	(0.24)
N	401	427	403	510	510	500	258	469	319
R^2	0.10	0.20	0.13	0.19	0.31	0.14	0.22	0.13	0.10

Table X: Coefficients of models predicting the post-EITC earnings gap by education levels and age groups, 1990-1999

	Less than high school education level			High school education level			Bachelor's degree+ education level		
	Age Group 1	Age Group 2	Age Group 3	Age Group 1	Age Group 2	Age Group 3	Age Group 1	Age Group 2	Age Group 3
Post93	0.14	0.06	0.11	-0.05	-0.07**	-0.04	0.78	-0.19	-0.05
	(0.15)	(0.04)	(0.10)	(0.05)	(0.02)	(0.07)	(0.43)	(0.13)	(0.30)
High EITC State	0.19	0.12	-0.24	0.15	0.14*	0.05	-0.43	0.22	-0.92*
	(0.10)	(0.07)	(0.21)	(0.08)	(0.06)	(0.12)	(0.66)	(0.22)	(0.38)
Post93 x High EITC State	0.05	0.01	0.19	-0.004	0.04	-0.02	0.15	-0.10	-0.19
	(0.09)	(0.04)	(0.17)	(0.03)	(0.02)	(0.04)	(0.28)	(0.08)	(0.23)
N	401	427	403	510	510	500	258	469	319
R^2	0.10	0.22	0.14	0.18	0.26	0.14	0.22	0.13	0.10

Notes: Data are from survey years 1990-1999 of the Current Population Survey-Merged Outgoing Rotation Groups (CPS-MORG). The dependent variables are female to male, log of hourly wage ratio, total annual income ratio, and post-EITC earnings ratio for each education-age group market. I derive the mean female and male log of hourly wage, total annual income, and post-EITC earnings for each education-age group by collapsing the data by state and year. Each column is a separate weighted regression with robust standard errors for each education-age market. *Post93* is a dummy variable where years after 1993 are assigned a value of one and zero otherwise. *High EITC State* is a dummy variable, where a state with an average EITC value of over $330 is assigned a value of one, and zero otherwise. *Post93 x High EITC* is an interaction term between *Post93* and *High EITC State*. All columns include state and year fixed effects. All figures are in 2016 dollars. Standard errors are in parentheses. "*p<0.05 **p<0.01 ***p<0.001"

lower amounts of EITC (22% and 13%). However, in the bachelor's degree and beyond education and age group 3 market, the states with higher EITC are associated with reducing the annual income ratio by 93% than states with lower EITC.

Finally, the post-EITC earnings ratio decreases by 7% post-OBRA as compared to years prior to 1994. The post-EITC earnings ratio increases by 14% for high school educated and age group 2 affiliated individuals in states with higher levels of EITC than in states with lower levels of EITC. Again as with the total annual income, in the bachelor's degree and beyond educated and age group 3 market, the states with higher EITC are associated with reducing the post-EITC earnings ratio by 92% than states with lower EITC. Being in a state with higher EITC, after OBRA93 does not significantly lead to a change in the earnings ratio. Only high school level and age group 2 market shows an increase in the earnings ratio of about 4% at a 10% significance level, as compared to the pre EITC expansions years in low EITC states. Therefore, in this sample, the EITC expansions did not significantly affect the gender earnings gap. However, for the expected shrinkage in the earnings gap I estimated in the methodology part of this section (about 3%), the confidence intervals for the post-EITC regressions do include this amount.

Part V: Conclusion and Remarks

While the EITC focuses on working families, it is the single women with children who tend to benefit considerably from the policy as they are more likely to be in the low-income range covered by the EITC and are more likely to be single parents than men. The EITC expansion of 1993 supplemented the earnings of EITC eligible households and increased the employment rate of women by 6 percentage points. Among women with high school and less than high school education, the impact was even greater – 6.2 percentage points– whereas for non-white women the impact was also significant, albeit less than that for all women in the sample (5.7 percentage points). The substantial increase in the maximum EITC awarded to eligible households, along with the more generous modified structure of the phase-in and

phase-out range, incentivized women with children to join the labor force. This stimulus to work, along with other factors discussed earlier, encouraged an influx of women in the labor market.

Even though I expected a change in the earnings gap between men and women due to the expansion in EITC, the results do not reflect a significant adjustment. The fact that in the high school educated-age group 2 market, the gap widened after the expansions, shows that there may be other factors influencing this movement. If, for this labor market, men increased their post-EITC earnings at a greater rate than women after the expansions, it could mean that their wages grew more rapidly than women's. The growth in men's wages, more than made up for the increase in post-EITC earnings for women due to the expansion. Furthermore, while states with higher mean EITC are associated with reducing the earnings gap for lower education levels and younger age groups, as compared to states with lower mean EITC, it could be due to the overall economy and policies of those states. States with higher average EITC tend to be the states with lower average wages. If the average wages for everyone is low, then an increase in the federal EITC, mostly received by women, could be increasing the earnings ratio. On the other hand, for the oldest age group and highest level of education–a market associated with the highest levels of wages and considerably high levels of employment rates–states with high average EITC are associated with remarkably high earnings gap of about 105%. In these states, the high wages push many individuals out of the EITC income eligibility and thus the EITC is not able to reduce the gap.

Rothstein's paper illuminates the unintended consequences of EITC, where childless women are hurt by nature of the policy. The decrease in wages, without a sizeable EITC compensation, faced by the childless women could be nullifying the effect of the increase in post-EITC earnings of women with children. Since men are less sensitive to EITC changes, the resulting earnings gap remains the same.

Future research on this topic can include a longer period of study, covering the effects of some pre-and-post-OBRA93 EITC expansions. Moreover, a better estimate of weeks worked in a year and of the actual post-tax earnings, including a more sophisticated system of calculating a more accurate EITC, can improve the findings.

Citations

Black, Dan A., Amelia M. Haviland, Seth G. Sanders and Lowell J. Taylor. 2008. "Gender Wage Disparities among the Highly Educated." Journal of Human Resources 13 (3): 630-659.

Blank, Rebecca, and Jonah Gelbach. "Are less-educated women crowding less-educated men out of the labor market." In Black Men Left Behind. Urban Institute Press. Rowman & Littlefield , 2006.

Blau, Francine, and Lawrence Kahn. "The Gender Wage Gap: Extent, Trends, and Explanations." NBER WORKING PAPER SERIES, January 2016.

Committee on Ways and Means, U. S. House of Representatives, (Green Book) Washington, DC: Government Printing Office, 2004.

Correll, Shelley J., Stephen Benard, and In Paik. 2007. "Getting a Job: Is There a Motherhood Penalty?" American Journal of Sociology 112 (5): 1297–1338.

Cotter, David, Joan M. Hermsen, and Reeve Vanneman. "The End of the Gender Revolution? Gender Role Attitudes from 1977 to 2008." American Journal of Sociology 117, no. 1 (2011): 259-89.

Eissa, Nada, and Hilary Williamson Hoynes. "Taxes and the labor market participation of married couples: the earned income tax credit." Journal of Public Economics 88, no. 9-10 (2004): 1931-958. doi:10.1016/j.jpubeco.2003.09.005.

Eissa, Nada, and Jeffrey Liebman. "Labor Supply Response to the Earned Income Tax Credit." The Quarterly Journal of Economics 111, no. 2 (May 1996): 605-37. doi:10.3386/w5158.

Falk , Gene. "The Earned Income Tax Credit (EITC): An Overview ." Congressional Research Service, October 22, 2014. https://fas.org/sgp/crs/misc/RL31768.pdf.

Hotz, V., and John Scholz. "The Earned Income Tax Credit." NBER Working Papers H31, no. I38 (January 2001).

Korenman, Sanders and David Neumark. 1992. ''Marriage, Motherhood, and Wages.'' Journal of HumanResources 27(2): 233 – 55.

Meyer, Bruce D. and Dan T. Rosenbaum. 2001. "Welfare, the Earned Income Tax Credit, and the Labor Supply of Single Mothers." Quarterly Journal of Economics 116 (3): 1063–1114.

Pomerleau, Kyle . Understanding the Marriage Penalty and Marriage Bonus. Issue brief no. 464. Tax Foundation. 2015. https://files.taxfoundation.org/legacy/docs/TaxFoundation_FF464.pdf.

Rothstein, Jesse . "The Unintended Consequences of Encouraging Work: Tax Incidence and the EITC ." CEPS Working Paper , 165th ser. (May 2008).

Waldfogel, Jane. 1998. "Understanding the 'Family Gap' in Pay for Women with Children." Journal of Economic Perspectives 12 (1): 157–70.

"40 Years Ago: The Earned Income Tax Credit." National Low Income Housing Coalition. November 10, 2014.

"About EITC." EITC & Other Refundable Credits. April 11, 2017. https://www.eitc.irs.gov/EITC-Central/abouteitc.

"EITC Help." What is Earned Income? December 16, 2016. https://www.irs.gov/credits-deductions/individuals/earned-income-tax-credit/earned-income.

"Understanding Who is a Qualifying Child." EITC & Other Refundable Credits. April 17, 2017. https://www.eitc.irs.gov/Other-Refundable-Credits/qc.

"Basic Qualifications." EITC & Other Refundable Credits. April 14, 2017. https://www.eitc.irs.gov/EITC-Central/abouteitc/basic-qualifications.

Table A: Coefficients of models predicting some other key variables of all single women, 1990-1999

	Total annual income			Post-EITC earnings			Predicted EITC		
Coefficient Estimates	All women	High school or less educated	Non-white	All women	High school or less educated	Non-white	All women	High school or less educated	Non-white
EITC/1000	302.40**	130.03	144.12	1198.28***	1030.37***	1029.26***	906.93***	906.36***	897.61***
	(110.16)	(117.07)	(162.91)	(108.43)	(116.23)	(160.23)	(9.37)	(10.52)	(12.58)
Non-White	-306.16*	-347.23*	—	-285.29*	-327.19*	—	9.16	13.19	—
	(141.81)	(153.35)		(140.15)	(151.61)		(5.31)	(7.08)	
Years of	1503.20***	754.15***	1496.01***	1479.73***	741.00***	1466.08***	-9.17***	-6.00***	-13.48***
Education	(29.19)	(30.99)	(56.25)	(28.93)	(30.88)	(55.36)	(0.59)	(0.96)	(1.54)
Age	1071.22***	761.64***	735.05**	1001.22***	738.03***	717.51**	-81.19***	-38.51***	-56.25***
	(152.95)	(153.52)	(265.59)	(152.50)	(153.86)	(263.61)	(7.64)	(10.12)	(15.30)
Age Squared	-6.78	-4.13	-2.09	-5.54	-3.87	-2.22	1.64***	0.69**	0.93**
	(3.87)	(3.89)	(6.91)	(3.86)	(3.89)	(6.85)	(0.17)	(0.23)	(0.36)
Age Cubed	-0.09**	-0.07*	-0.09	-0.09**	-0.07*	-0.09	-0.011***	-0.004*	-0.005
	(0.03)	(0.03)	(0.06)	(0.03)	(0.03)	(0.06)	(0.001)	(0.002)	(0.003)
N	40,265	22,165	12,844	40,265	22,165	12,844	67,394	34,505	17,966
R^2	0.21	0.13	0.21	0.21	0.11	0.10	0.86	0.88	0.84

	Usual hours worked per week			Log hourly wages			
Coefficient Estimates	All women	High school or less educated	Non-white	All women (no covariates)	All women	High school or less educated	Non-white
EITC/1000	0.77***	0.27*	0.09	-0.016***	-0.001	-0.0011	0.003
	(0.09)	(0.11)	(0.12)		(0.004)	(0.004)	(0.005)
Non-White	0.06	-0.25	—	—	-0.020***	-0.01	—
	(0.09)	(0.13)			(0.005)	(0.006)	
Years of	0.35***	0.32	0.39***	—	0.067***	0.04***	0.062***
Education	(0.02)	(0.03)	(0.03)		(0.001)	(0.001)	(0.002)
Age	-0.20	-0.27	0.66**	—	0.058***	0.05***	0.040***
	(0.13)	(0.17)	(0.24)		(0.005)	(0.006)	(0.009)
Age	0.0155***	0.02***	-0.01	—	-0.001***	-0.0006***	0.000
Squared	(0.0033)	(0.004)	(0.01)		(0.0001)	(0.0001)	(0.0002)
Age Cubed	-0.0002***	-0.0002***	-0.00001	—	-0.001	0.000002	0.003
	(0.00003)	(0.00003)	(0.00005)		(0.000001)	(0.000001)	(0.0000019)
N	55,973	26,156	15,764	48,884	48,884	25,936	15,680
R^2	0.10	0.08	0.06	0.06	0.25	0.15	0.26

Notes: Data are from survey years 1990-1999 of the Current Population Survey-Merged Outgoing Rotation Groups (CPS-MORG). The dependent variables are total annual income, post-EITC earnings, predicted EITC, usual hours worked per week, and log of hourly wages. Total annual income is calculated using total hourly wages, usual hours worked per week and 40 for approximate number of weeks worked in a year. Predicted EITC is calculated using the total annual income, number of children and the tax year. Post-EITC earnings is the sum of total annual income and predicted EITC. *EITC/1000* is the maximum EITC benefits individuals can receive, based on the number of children, divided by 1000 for the ease of interpretation. *Non-white* equals one if the woman is of a race other than white, zero otherwise. Each variable is calculated for three subgroups: all women in the sample, only high school and less than high school educated women, and only non-white women. All figures are in 2016 dollars. Standard errors are in parentheses. "*p<0.05 **p<0.01 ***p<0.001"

Table B: Coefficients of models predicting the employment rate and the predicted EITC for all single heads of households by high EITC and low EITC states, 1990-1999

Variables	Employment Rate		Predicted EITC	
	High EITC states	Low EITC states	High EITC states	Low EITC states
EITC/1000	0.06***	-0.07***	733.50***	-20.12***
	(0.004)	(0.003)	(13.21)	(2.56)
Non-white	-0.09***	-0.06***	73.70***	0.89***
	(0.003)	(0.002)	(13.60)	(0.25)
Education years	0.03***	0.02***	-29.27***	-0.44***
	(0.0004)	(0.0004)	(2.45)	(0.04)
age	0.06***	-0.03***	-33.86*	4.32***
	(0.003)	(0.002)	(15.39)	(0.21)
Age squared	-0.001***	0.001***	0.53	-0.10***
	(0.0001)	(0.0001)	(0.40)	(0.01)
Age cubed	0.000002**	-0.00001***	-0.003	0.0008***
	(0.000001)	(0.0000005)	(0.003)	(0.00005)
N	147436	133281	19276	133281
R^2	0.209	0.2785	0.6946	0.0783

Notes: Data are from survey years 1990-1999 of the Current Population Survey-Merged Outgoing Rotation Groups (CPS-MORG). Sample includes all single male and female, heads of household. The dependent variables are employment rate and predicted EITC. Employment rate equals one if hours worked last week are positive, zero otherwise. Predicted EITC is calculated using the total annual income, number of children and the tax year. EITC/1000 is the maximum EITC benefits individuals can receive, based on the number of children, divided by 1000 for the ease of interpretation. *High EITC State* is a dummy variable, where a state with an average EITC value of over $330 is assigned a value of one, and zero otherwise. All figures are in 2016 dollars. Standard errors are in parentheses. "*p<0.05 **p<0.01 ***p<0.001"