Labor Force Participation Responses to the OBRA93 Expansion of the EITC

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ABSTRACT

This paper compares the effects that the OBRA93 expansion of the EITC had on the labor force participation of single mothers with two or more children to those on single mothers with only one child. The structure of this expansion allows us to treat it as a natural experiment using difference-in-difference techniques. In particular, the difference in the change in labor force participation of single mothers with more than one child relative to those with just one between the years before and during/following the expansion provides an estimate of the effect of EITC on participation. Using March CPS data from the years 1991 – 1998 and controlling for welfare reform and various other demographic and policy variables, we find that the 1993 EITC expansion significantly increased the labor force participation of single mothers with two or more children relative to women with just one child. Specifically, the gap in the likelihood of participation was almost six percentage points smaller in 1998 than before the expansion. Similarly, women with one child increased their probability of participation relative to women with no children by six percentage points over that period.

I. Introduction

Historically, the United States has acted in a paternalistic sense to provide a safety net for low-income families with children. In 1935, Aid to Families with Dependant Children (AFDC) was set up to provide cash welfare payments to needy single-parent families. AFDC benefits were reduced on almost a dollar for dollar basis with additional earnings upon passing some income threshold, a structure that has been widely criticized for providing disincentives to work. In response, the Personal Responsibility and Work Opportunity Reconciliation Act (PWORA), which transferred much of the control over the welfare system to the states while phasing out the entitlement-based AFDC program in favor of the more restrictive Temporary Assistance for Needy Families (TANF), was passed in 1996. Under TANF, stricter eligibility requirements and time limits on benefits were instituted. Although these changes have been accompanied by drastically reduced welfare caseloads, work disincentives still exist.

In recent years, the Earned Income Tax Credit (EITC) has emerged as a popular alternative for transferring money to low-income families with children. The EITC began in 1975 as a modest program aimed at offsetting the social security payroll tax for these families. Since then, it has grown from relative obscurity to become the single largest cash-transfer program for needy families with children, with 19 million recipients and over $25 billion in federal government outlays in 1998. Much of this growth can be attributed to the tax reform act of 1986 and the Omnibus Budget Reconciliation Acts (OBRA) of 1990 and 1993. All three of these acts included EITC expansions that increased the maximum benefit level as well as the phase-in range, in which the credit increases proportionally with earned income up to the maximum level, and the phase-out range, in which the credit falls proportionally with income until benefits reach zero. In addition, the 1990 expansion provided a slight benefit premium to those families with two or more children. The OBRA93 expansion increased this premium dramatically, and also instituted a minimal credit for families with no dependent children.

Table I shows the parameters for the phase-in and phase-out portions of the EITC, as well as the constant range in which benefits are at the maximum level, for each year from 1990 through 1998. Figure 1 graphically represents these parameters for the years 1990, 1993, 1996 and 1998. Both indicate that the maximum credit rose steadily from 1990 to 1993, then increased dramatically in 1994 and climbed steadily each year after. An important aspect of the 1993 expansion that can be gleaned from Table I and Figure 1 is the benefit premium provided to families with two or more children relative to those with just one child. While the expansion of benefits to families with one child was completely phased in by 1995, the increase to families with two or more children was not fully phased in until 1996.

Since only families with positive incomes are eligible, the EITC transfers money to the poor while also creating incentives to work. Also, because the EITC is refundable, any amount of the credit in excess of tax liability is returned in the form of a cash refund. Although most recipients claim the credit annually on their income tax returns, they also have the option to receive prorated portions throughout the year with each paycheck. Therefore, the 1993 EITC expansion would be expected to increase the labor force participation of single mothers relative to that of single women without children, as well as that of single mothers with two or more children relative to that of single mothers of one child.

This paper will examine the differential effects that the 1993 EITC expansion had on the labor market participation of single women with no children, single mothers with one child, and single mothers with two or more children. The structure of this expansion allows us to treat it as a natural experiment using both quasi-experimental and regression-based difference-in-difference techniques. In particular, the differences in the change in the probability of working for single women with varying amounts of children between the period before the expansion and that during/following the expansion provide estimates of the effects of EITC on labor force participation.

Using March CPS data from the years 1991 – 1998 and controlling for welfare reform and various other factors affecting the work decision, we find that the 1993 EITC expansion significantly increased the labor force participation of single mothers with two or more children relative to women with just one child. Specifically, the gap in the likelihood of participation was almost six percentage points smaller in 1998 than before the expansion. Similarly, women with one child increased their probability of participation relative to women with no children by six percentage points over that period.

The remainder of the paper proceeds as follows. The next section reviews the literature examining EITC program changes. Section III outlines the empirical methodology. Section IV presents and discusses the results, and section V provides some concluding remarks.

II. Literature Review

The early literature on government transfer programs focused primarily on AFDC, Food Stamps, Medicaid, and Medicare. The seminal review of this literature is by Moffitt (1992), who found that the vast majority of studies confirm the theoretical predications regarding work disincentives of the AFDC program.

As the EITC expanded, researchers began examining its potential labor supply effects. The earliest studies used estimates of income and wage elasticities from previous empirical studies of the negative income tax to estimate income and substitution effects in various ranges of the EITC structure. The GAO (1993) predicted that in 1994, annual hours worked would be 6.4 percent higher for individuals in the phase-in range, but 4.6 percent lower for individuals in the plateau range and 7.0 percent lower for those in the phase-out range, because of the (pre-OBRA93) EITC. Similarly, Holtzblatt et al. (1994) predict that in response to the two expansions, gross earnings would increase by 1.1 percent for those in the phase-in region, but fall by 1.6 percent for those in the plateau region and by 2.0 percent for those in the phase-out region. Browning (1995) estimated that in response to the 1993 expansion, nearly half of the individuals in the phase-out range would reduce earnings enough to lower their total disposable income. A weakness of these studies is that, as Scholz (1994) notes, since “the negative income tax experiments took place in the early 1970’s…the labor supply estimates are based on behavioral responses that took place more than 20 years ago.”

More recent studies model the various EITC expansions as natural experiments, estimating probit difference-in-difference models in cross-sectional CPS data to study labor supply effects. Eissa and Liebman (1996) found that the 1986 expansion increased the probability of labor force participation for single mothers by 1.9 percentage points relative to single women with no children. Eissa and Hoynes (1998) estimated that the three EITC expansions increased labor force participation slightly for married men but reduced that of married women by over a full percentage point, implying that the EITC subsidizes married mothers to stay at home. Meyer and Rosenbaum (1999) found that a large share of the increase in labor force participation of single mothers relative to that of single women without children is attributable to the three EITC expansions. Meyer and Rosenbaum (2000) estimate that the labor force participation of single mothers with two or more children increased by ten percentage points more than that of single mothers with one child between 1993 and 1996.

This paper attempts to build on these past studies by examining how the OBRA93 expansion affected the labor force participation decisions of single mothers with two children relative to those with just one. The results of Meyer and Rosenbaum (2000) suggest that this hypothesis merits further study in light of the substantial expansion in benefits for families with two or more children compared to those with just one. However, that study uses unadjusted difference-in-difference techniques to estimate labor force participation differences between these two groups, excluding controls for other factors that potentially affect the propensity to work. In addition to demographic, year, and state effects, our study includes three separate variables that control for the welfare reform of 1996. Our analysis also goes beyond previous research by including data from 1997 and 1998. Since the 1993 EITC expansion was not completely phased in until 1996, it is possible that single women did not fully incorporate the program changes into their work decisions until 1997 or thereafter.

III. Empirical Framework

Data for this study comes from the 1992 – 1999 March CPS files, which contain data from tax years 1991 – 1998. Following the previous literature, the sample is restricted to single mothers (never married, divorced or widowed) aged 19-44 who are not in the armed forces, disabled or enrolled in school.[1] Consistent with the tax code, children are defined as any own children aged 18 or younger, or aged 19 to 23 who are full-time students. Single mothers are analyzed because they are the largest group eligible for the EITC, making up approximately 53% of the eligible population in the 1999 CPS. Also, as Eissa and Liebman (1996) note, with single mothers we can more plausibly assume that labor supply decisions are not made jointly with other family members than with married couples.

The differential increase in benefits to families with no, one, and two or more children provided by the 1993 EITC expansion allows us to conduct a natural experiment in which single females are divided into two treatment groups and one control group. The control group consists of women with exactly one child. The primary treatment group is single mothers with two or more children, while the secondary treatment group is women with no children.

Consistent with previous work, labor force participation is defined as working any positive hours during the year. EITC effects are estimated with difference-in-difference techniques that compare the changes in labor force participation of treatment and control groups from before to during/after the expansion. First, unadjusted comparisons are made by calculating the difference in participation rates for each group between the periods before and during/after the expansion, and then calculating the differences across groups in these differences. Since the 1993 expansion provided greater work incentives as the number of children increases from zero to two, we expect these difference-in-differences to be positive for the primary treatment group, reflecting a greater increase in labor force participation for women with two or more children in response to the expansion than for those with one child. Similarly, we expect the difference-in-differences to be negative for the secondary treatment group consisting of single mothers with no kids.

Because the treatment and control groups likely differ in demographic characteristics that affect labor force participation, these unadjusted difference-in-difference estimates may reflect underlying differences between the groups rather than the true "treatment effects" of the OBRA93 expansion. To control for these demographic differences, the following probit equation is estimated:

$$\Pr(\mathrm{w}_{\mathrm{it}} = 1) = \alpha + \beta_1 \mathbf{X}_{\mathrm{it}} + \beta_2 \mathbf{WELFARE}_{\mathrm{it}} + \beta_3 \mathrm{NO\_KIDS}_{\mathrm{i}} + \beta_4 \mathrm{TWO\_KIDS}_{\mathrm{i}} + \beta_5 \mathbf{YEAR}_{\mathrm{t}}$$
$$+ \beta_6 (\mathrm{NO\_KIDS} * \mathbf{YEAR})_{\mathrm{it}} + \beta_7 (\mathrm{TWO\_KIDS} * \mathbf{YEAR})_{\mathrm{it}} + \beta_8 \mathbf{STATE}_{\mathrm{i}} + \boldsymbol{\varepsilon}_{\mathrm{it}} \quad ,$$

The dependent variable 'w' is a dichotomous variable equal to one if a woman reported working at least one hour during the previous year. '**X**' is a vector of demographic characteristics including age and its square, education and its square, number of preschool children, race, unearned income, and state unemployment rates.[2] '**STATE**' and '**YEAR**' represent vectors of state and year dummies, respectively.

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[1] The lower age bound of 19 is chosen to avoid counting EITC children as mothers, while the upper bound of 44 is chosen to avoid counting former single mothers as non-mothers (Rosenbaum, personal communication, June 30, 2000).

[2] All dollar-valued variables were converted to 1999 constant dollars using the CPI for all urban consumers.

‘**WELFARE**’ is a vector that contains three separate controls for the welfare system, two related to welfare reforms that accompanied the PWORA of 1996. Prior to the enactment of PWORA, many states were granted waivers to set up their own welfare systems. These waivers allowed states to enact stricter eligibility requirements and time limits on benefits, which could have encouraged single females to enter the labor force. The variable ‘WAIVER’, equal to one for a given state once a waiver was enacted there, is thus included to control for these potential effects. For waivers that were enacted mid-year, the variable equals the fraction of the year that it was in effect. Once TANF was in place in a state, the waiver variable is set equal to zero and ‘TANF’ is set equal to one for that state. As with the waiver variable, when TANF was implemented mid-year in a state, the TANF variable is equal to the fraction of the year it was in effect.[3] The third welfare control, Maximum AFDC (TANF) Benefit, is the maximum monthly AFDC or TANF benefit for a family of three in the state of residence of the respondent.

The variable ‘TWO_KIDS’ and ‘NO KIDS’ are dummy indicators that the respondent has two or more children and no children, respectively. The omitted number of children dummy represents single mothers with one child, which is the control group. We therefore expect the estimated β_4 to be negative and β_3 to be positive if the likelihood of labor force participation falls as the number of children rises.

The parameter estimates on ‘TWO_KIDS * **YEAR**’, β_7 , are the treatment effects of interest in this paper. If this parameter is greater than zero in a given year, women in the treatment group increased their likelihood of working in that year relative to those in the control group. Also included is a set of ‘NO KIDS * **YEAR**’ interactions. We expect

[3] Exact dates for the enactment of ‘WAIVER’ and ‘TANF’ are listed in Appendix II. ‘TANF’ is turned on

the coefficients on these, β_6, to be negative if single mothers with one child increased their labor force participation relative to single women with no children. Note that in each of the two sets of interactions (but not in the individual **YEAR** vector), the years 1991 – 1993 are omitted so that the baseline for comparison over time for each treatment group is the average participation probability for all years before OBRA93 went into effect.

Both unconditional and probit difference-in-difference estimates are obtained for the full sample of single women as well as two mutually-exclusive sub-samples based on educational attainment, those with 12 or fewer years of education and those with more than 12 years of education. In the 1999 CPS, 84 percent of single women with twelve or fewer years of education qualify for EITC benefits, while only 38 percent of those with more than twelve years of education qualify. Thus we expect to see a larger effect of the expansion on the lower educated sub-sample.

IV. Results

5.1 Descriptive Statistics

Table II shows descriptive statistics for our full sample of single mothers as well as the two sub-samples divided by education level. The first column, representing the full sample, indicates that the mean age for women in our full sample is 30, with close to 77% being white and over 57% having no EITC eligible children. In addition, twenty-two percent have one EITC- eligible child while 20% have two or more. Eighty-three percent reported working at least one hour in the previous year.

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when states *actually* implement TANF, not when TANF was approved.

The second and third columns show descriptive statistics for women with twelve years or less of education and more than twelve years of education, respectively. These groups are similar in age, but less-educated women have more children and are less likely to be white and to work. Since they have far less income on average, less-educated women are more likely to make labor force participation decisions based on the EITC.

5.2 Unconditional Difference-in-Difference models

Unconditional difference-in-difference results are given in Table III. Years were grouped into pre- (1991-1993), during (1994-1996), and post-OBRA93 (1997-1998) to facilitate interpretation. Panel A shows the results for the full sample. The percentage of single mothers with two or more children who worked increased relative to that of single mothers with just one child by four percentage points from the pre- to during OBRA93 periods. The analogous increase for the pre- to post-OBRA93 periods is ten percentage points. Individuals with one child also increased their participation relative to those with no children both during and after OBRA93, but by a smaller amount in each case.

Panels B and C shows the results of these same calculations for single women with twelve years or less and more than twelve years of education, respectively. As hypothesized, the difference-in-difference estimates in Panel B are larger than those in Panel C since the lower education group contains a much larger percentage of EITC-eligible females than does the higher education group. Lesser-educated single mothers with two or more children increased their participation by almost five percentage points more than did those with one child from the pre- to during OBRA periods, and over eleven percentage points from pre- to post-OBRA. Meanwhile, more educated single mothers with two or more children did not increase their participation significantly more than did those with one child from the pre- to during OBRA periods, and did so by only half as much as lesser-educated mothers from pre- to post-OBRA. As with the full sample, single mothers with one child increased their participation relative to those with no children, but not to the same extent. This difference-in-difference estimate was again greater for the lesser-educated group than the more educated group for the pre- to post-OBRA comparison.

5.3 Probit Difference-in-Difference Results

Table IV contains marginal effects for probit difference-in-difference estimates. Since years 1991-1993 are omitted in the treatment interactions, each difference-in-difference estimate is relative to the pre-OBRA mean participation rate.

Model A includes all of the relevant treatment interactions and dummies as well as year effects, but no demographic, welfare, or state indicator variables. The table indicates that the primary treatment effects, the coefficients on the (**TWO KIDS * YEAR**) variables, are insignificant for 1994 but positive and significant, as expected, for the remaining years. Not surprisingly, since we do not include controls for other factors, these results closely mirror our unconditional estimates. Single women with two or more children increased their participation relative to those women with just one child steadily over the sample years, with the increase in 1998 reaching six percentage points. Results are also as expected, negative and significant, for the secondary treatment effects – the coefficients on (**NO KIDS * YEAR**) – except for years 1995 and 1996. The 1998 estimate of over seven percentage points is over three times as large as the estimates from the preceding years.

Model B incorporates demographic effects. Three important results stand out. First, the effects of NO KIDS and TWO KIDS decrease dramatically. This is because one of the demographic control variables is the number of children aged 6 or younger, which for obvious reasons absorbs some of the effects of these variables. Second, results for the treatment effects change only slightly. The secondary treatment effects are now all significant, with almost identical magnitudes in 1994-97 before doubling in 1998. The lack of a primary treatment effect in 1994 might be the result of a delayed reaction because of lack of knowledge of the new EITC premium for a second child, while the jump in 1997 could take place because this premium was not fully phased in until 1996. Third, the effects in 1998 for both treatment groups are much larger than those in previous years.

To control for the possibility that these effects, particularly those in 1998, are in reality picking up effects of welfare reform, Model C incorporates the vector of welfare controls. Each welfare variable acts in the expected direction, and those besides 'TANF' are statistically significant. More importantly, the inclusion of these welfare variables does not diminish the treatment effect estimates. Thus the significant increase in the participation of single women with two or more children relative to those with just one, and those with one child relative to those with none, cannot be explained away by welfare reform.

Finally, Model D incorporates state-specific effects into the model. These state effects render the maximum benefit variable insignificant and change the sign of the waiver variable. Clearly, welfare reform strategies in a state are correlated with fixed state-specific participation patterns. However, these state effects have little impact on the estimated treatment effects. Thus, even after controlling for all relevant variables our treatment effects reflect a significant narrowing of the participation gap between women with varying numbers of children as a result of the 1993 EITC expansion.

4.4 Segmentation by Education

Table V shows the results of our full model specification (Model D) when the sample is segmented by education level. Since the percentage of single women with twelve years or less of education who qualify for the EITC is over twice as large as that for single women with more than twelve years of education, we expect to see stronger effects of EITC for women in the lower education group. As the second and third columns indicate, this is indeed the case. The primary treatment effects for the high school or less segment increase monotonically as and after OBRA93 is phased in. Conversely, the primary treatment effects are insignificant during phase-in and much smaller in magnitude after phase-in for the segment with more than twelve years of education. The secondary treatment effects are insignificant for both segments, but for the lower education group this appears to be because of the increased standard error resulting from the reduction in sample size.

V. Conclusion

The growth of EITC over the last decade has led to a significant increase in the labor market participation of single mothers. Our analysis shows that in response to the

OBRA93 expansion of the EITC program, single mothers with two or more children increased their participation by almost six percentage points relative to single mothers with only one child by 1998. Similarly, by 1998 single mothers with one child increased their participation relative to single women with no children by six percentage points.

Restricting the sample to single women with twelve years of education or less allows us to more closely focus on the population likely to adjust its behavior in response to EITC program changes. We find that single mothers with two or more children in this sub-sample increased their labor force participation over ten percentage points relative to those women with one child by 1998. The participation effect was much smaller in the sub-sample of single women with more than twelve years of education.

These results have several important policy implications. The main implication is that the program is accomplishing its goal of providing aid to single women with children while simultaneously increasing work incentives. Furthermore, it is possible to increase labor force participation in specific groups by increasing benefits to those groups.

A drawback of this analysis is that, like previous studies, we were unable to detect an effect of the 1993 EITC expansion on hours worked (results not shown here). The ambiguous income and substitution effects found in the different portions of the EITC structure make cross-sectional data less than ideal for analyzing effects of EITC changes on hours worked. One possible avenue for further study is to use longitudinal data to study how individuals in each segment of the EITC structure altered their hours worked in response to the various EITC expansions.

A second implication in our analysis that warrants further investigation is the finding that welfare reform had little if any effect on labor force participation. Council of

Economic Advisors (1999) shows that the PWORA of 1996 played a significant role in the recent decline in welfare caseloads. Our analysis offers preliminary evidence that these individuals are not entering the labor force once they stop receiving welfare. A potential next step in this line of study, therefore, is to examine the effect of the 1993 EITC expansion on public assistance receipt.

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Table I - Earned Income Tax Credit Parameters, 1990 - 1998.

Year	Phase-In Rate	Phase-In Range	Maximum Credit	Phase-Out Rate	Phase-Out Range
1990	14.00%	$0 - $6,810	$953	10.00%	$10,730 - $20,264
1991:					
One Child	16.70%	$0 - $7,140	$1,192	11.93%	$11,250 - $21,250
Two Children	17.30%		$1,253	12.36%	
1992:					
One Child	17.60%	$0-7,520	$1,324	12.57%	$11,840-$22,370
Two Children	18.40%		$1,384	13.14%	
1993:					
One Child	18.50%	$0 - $7,750	$1,434	13.21%	$12,200 - $23,050
Two Children	19.50%		$1,511	13.93%	
1994:					
One Child	26.30%	$0 - $7,750	$2,038	15.98%	$11,000 - $23,755
Two Children	30.00%	$0 - $8,425	$2,528	17.68%	$11,000 - $25,296
1995:					
One Child	34.00%	$0 - $6,160	$2,094	15.98%	$11,290 - $24,396
Two Children	36.00%	$0 - $8,640	$3,110	20.22%	$11,290 - $26,673
1996:					
One Child	34.00%	$0 - $6,330	$2,152	15.98%	$11,650 - $25,078
Two Children	40.00%	$0 - $8,890	$3,556	21.06%	$11,650 - $28,495
1997:					
One Child	34.00%	$0 - $6,500	$2,210	15.98%	$11,930 - $25,760
Two Children	40.00%	$0 - $9,140	$3,656	21.06%	$11,930 - $29,290
1998:					
One Child	34.00%	$0 - $6,680	$2,271	15.98%	$12,250 - $26,460
Two Children	40.00%	$0 - $9,390	$3,756	21.06%	$12,250 - $30,080

Source: 1990-1996 - The Green Book, various years.

Table II - Descriptive Statistics * (n = 75,293)

Variable Name	Full Sample Mean (Std. Dev)	HS or Less Mean (Std. Dev)	More Than HS Mean (Std. Dev)
Labor Force Participation	0.829	0.743	0.918
	(.376)	(.437)	(.274)
Age	30.4	29.7	30.8
	(7.278)	(7.555)	(7.027)
No Kids Dummy	0.577	0.467	0.682
	(.494)	(.499)	(.466)
One Kid Dummy	0.215	0.256	0.181
	(.411)	(.437)	(.385)
Two Plus Kids Dummy	0.207	0.276	0.137
	(.405)	(.447)	(.344)
White	0.765	0.689	0.775
	(.424)	(.463)	(.417)
Education (in years)	13.0	11.3	14.7
	(2.563)	(1.713)	(1.822)
No. Children <= 6	0.241	0.359	0.137
	(.569)	(.689)	(.416)
No. Kids	0.739	0.980	0.506
	(1.071)	(1.198)	(.871)
Number of persons in household	2.414	2.681	2.129
	(1.541)	(1.602)	(1.375)
Central City	0.094	0.099	0.101
	(.292)	(.298)	(.302)
Total Income	20015	13646	26265
	(19527)	(14407)	(22649)
Unearned Income	1948	1442	2395
	(5453)	(3847)	(6580)

Source: CPS March Files, 1992-1999.
*Notes: * Weighted using March CPS final weights.*

Table III - Unconditional Difference-in-Differences for Labor Force Participation.

PANEL A: Full Sample w/Original Restrictions (n=75,293)

	Pre-OBRA	During-OBRA	Difference	Difference - in - Difference
No Kids	0.886	0.897	0.011	-0.028
(n=43,471)	(.003)	(.003)	(.004)	(.009)
One Kid	0.789	0.828	0.039	
(n=16,224)	(.006)	(.005)	(.008)	
Two or More Kids	0.634	0.713	0.079	0.040
(n=15,598)	(.007)	(.007)	(.01)	(.013)

	Pre-OBRA	Post-OBRA	Difference	Difference - in - Difference
No Kids	0.886	0.885	-0.001	-0.052
(n=43,471)	(.003)	(.004)	(.004)	(0.010)
One Kid	0.789	0.840	0.051	
(n=16,224)	(.006)	(.006)	(.009)	
Two or More Kids	0.634	0.786	0.152	0.101
(n=15,598)	(.007)	(.008)	(0.010)	(.014)

PANEL B: High School Education or Less (n=35,783)

	Pre-OBRA	During-OBRA	Difference	Difference - in - Difference
No Kids	0.802	0.825	0.023	-0.020
(n=16,603)	(.005)	(.006)	(.008)	(.014)
One Kid	0.723	0.766	0.043	
(n=9,100)	(.008)	(.008)	(.012)	
Two or More Kids	0.54	0.631	0.091	0.048
(n=10,080)	(.009)	(.009)	(.013)	(.017)

	Pre-OBRA	Post-OBRA	Difference	Difference - in - Difference
No Kids	0.802	0.804	0.002	-0.063
(n=16,603)	(.005)	(.007)	(.009)	(.016)
One Kid	0.723	0.788	0.065	
(n=9,100)	(.008)	(.010)	(.013)	
Two or More Kids	0.540	0.72	0.18	0.115
(n=10,080)	(.009)	(.011)	(.014)	(.019)

PANEL C: More Than High School Education (n=39,510)

	Pre-OBRA	During-OBRA	Difference	Difference - in - Difference
No Kids	0.941	0.939	-0.002	-0.022
(n=26,868)	(.003)	(.003)	(.004)	(.010)
One Kid	0.881	0.901	0.02	
(n=7,124)	(.007)	(.006)	(.009)	
Two or More Kids	0.82	0.856	0.036	0.016
(n=5,518)	(.009)	(.009)	(.013)	(.016)

	Pre-OBRA	Post-OBRA	Difference	Difference - in - Difference
No Kids	0.941	0.934	-0.007	-0.026
(n=26,868)	(.003)	(.004)	(.004)	(.011)
One Kid	0.881	0.9	0.019	
(n=7,124)	(.007)	(.008)	(.011)	
Two or More Kids	0.82	0.894	0.074	0.055
(n=5,518)	(.009)	(.010)	(.013)	(.017)

Source: CPS March Files, 1992-1999.
Notes: Standard Errors in parenthesis.

Table IV - Probit Difference-in-Difference Results for Labor Force Participation

Variable Name	MODEL A Marginal Effect ++ (Std. Err.)	MODEL B Marginal Effect (Std. Err.)	MODEL C Marginal Effect (Std. Err.)	MODEL D Marginal Effect (Std. Err.)
No Kids Dummy	0.099 **	0.029 **	0.029 **	0.028 **
	(.006)	(.006)	(.006)	(.006)
Two Plus Kids Dummy	-0.124 **	-0.055 **	-0.055 **	-0.053 **
	(.008)	(.007)	(.007)	(.007)
No Kids * 1994	-0.028 *	-0.026 *	-0.026 *	-0.024 *
	(.013)	(.012)	(.012)	(.012)
No Kids * 1995	-0.020	-0.026 *	-0.027 *	-0.026 *
	(.013)	(.013)	(.013)	(.013)
No Kids * 1996	-0.018	-0.028 *	-0.029 *	-0.030 *
	(.013)	(.013)	(.013)	(.013)
No Kids * 1997	-0.026 *	-0.030 *	-0.029 *	-0.027 *
	(.014)	(.013)	(.013)	(.013)
No Kids * 1998	-0.074 **	-0.060 **	-0.060 *	-0.060 **
	(.015)	(.014)	(.014)	(.014)
Two Kids * 1994	-0.004	0.000	0.000	0.000
	(.014)	(.012)	(.012)	(.012)
Two Kids * 1995	0.023 ^	0.023 ^	0.023 ^	0.022 ^
	(.013)	(.011)	(.011)	(.011)
Two Kids * 1996	0.03 *	0.020 ^	0.020 ^	0.019
	(.012)	(.011)	(.011)	(.012)
Two Kids * 1997	0.047 **	0.0422 **	0.043 **	0.042 **
	(.011)	(.010)	(.010)	(.010)
Two Kids * 1998	0.060 **	0.057 **	0.057 **	0.057 **
	(.010)	(.009)	(.009)	(.009)
Maximum AFDC (TANF) Benefit / 1,000			-0.040 **	0.001
			(.010)	(.020)
Waiver in Effect			0.015 **	-0.010 ^
			(.005)	(.006)
TANF Enacted			0.008	-0.007
			(.012)	(.012)
DEMOGRAPHIC CONTROLS	NO	YES	YES	YES
YEAR EFFECTS	YES	YES	YES	YES
STATE EFFECTS	NO	NO	NO	YES
Log Likelihood	-32030.385	-28287.077	-28271.687	-28108.322

Source: CPS March Files, 1992-1999.

Notes: ^ Significant at a 10% level or better.

**Significant at a 5% level or better*

***Significant at a 1% level or better*

++ Marginal effects are for a discrete change in the dummy variable from 0 to 1.

Table V - Probit Model Permutations +, by Education Level.

Variable Name	ORIG. MODEL Marginal Effect ++ (Std. Err.)	Less or Equal HS Marginal Effect (Std. Err.)	More Than HS Marginal Effect (Std. Err.)
No Kids Dummy	0.028 **	0.028 **	0.023 **
	(.006)	(.010)	(.006)
Two Plus Kids Dummy	-0.053 **	-0.083 **	-0.018 *
	(.007)	(.012)	(.008)
No Kids * 1994	-0.024 *	-0.016	-0.025 *
	(.012)	(.022)	(.014)
No Kids * 1995	-0.026 *	-0.035	-0.013
	(.013)	(.024)	(.013)
No Kids * 1996	-0.030 *	-0.033	-0.022 ^
	(.013)	(.023)	(.014)
No Kids * 1997	-0.027 *	-0.034	-0.014
	(.013)	(.025)	(.013)
No Kids * 1998	-0.060 **	-0.089 **	-0.032 *
	(.014)	(.024)	(.015)
Two Kids * 1994	0.000	0.008	-0.009
	(.012)	(.022)	(.015)
Two Kids * 1995	0.022 ^	0.036 ^	0.010
	(.011)	(.021)	(.013)
Two Kids * 1996	0.019	0.045 *	-0.002
	(.011)	(.021)	(.015)
Two Kids * 1997	0.042 **	0.067 **	0.026 *
	(.010)	(.020)	(.010)
Two Kids * 1998	0.057 **	0.102 **	0.025 *
	(.009)	(.017)	(.011)
Maximum AFDC (TANF) Benefit / 1000	0.001	0.002	-0.001
	(.020)	(.050)	(.020)
Waiver in Effect	-0.010 ^	-0.015	-0.006
	(.006)	(.012)	(.006)
TANF Enacted	-0.007	0.031	-0.032 **
	(.012)	(.025)	(.012)
Log Likelihood	-28108.322	-17545.488	-10227.506

Source: CPS March Files, 1992-1999.

Notes: ^ Significant at a 10% level or better.

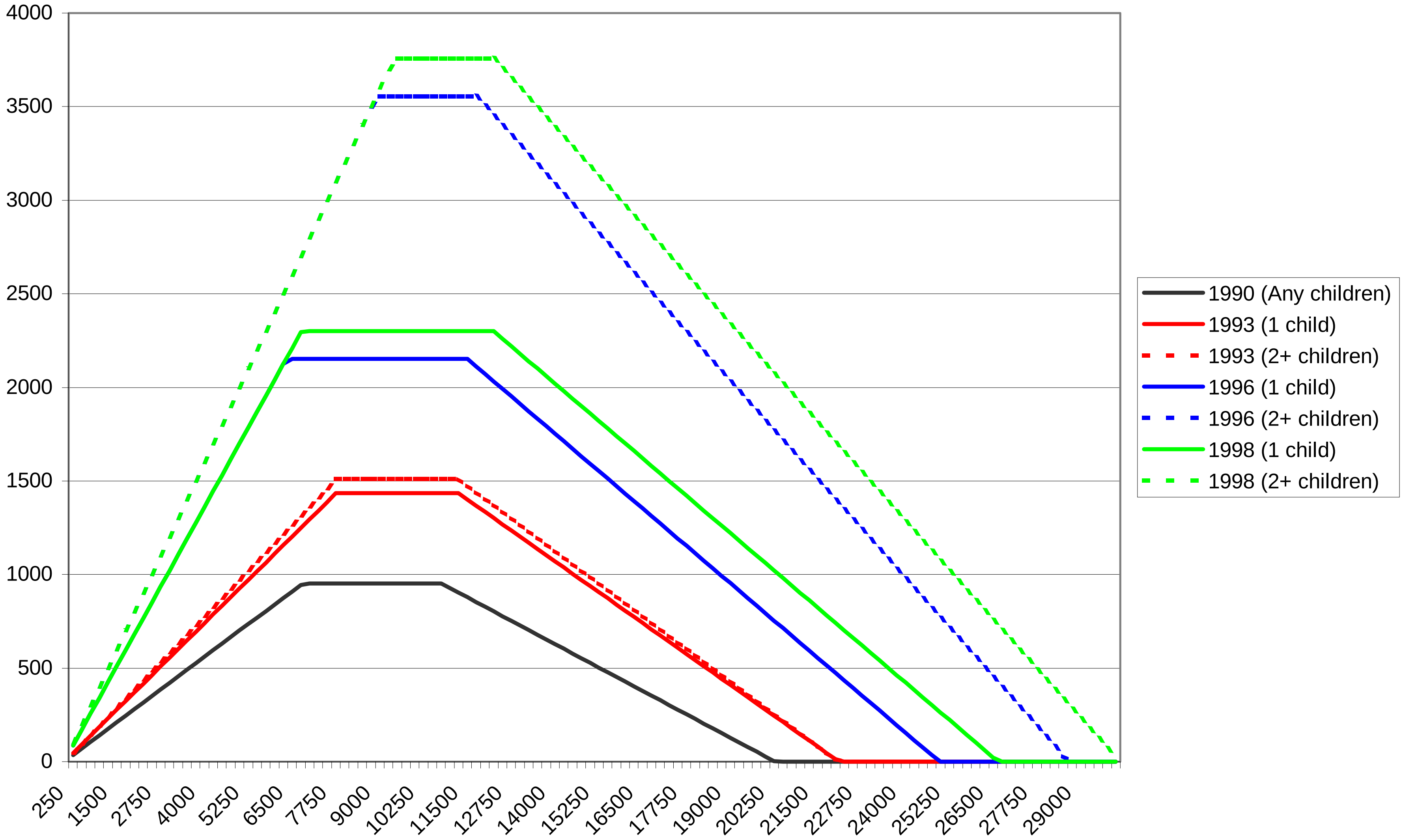
**Significant at a 5% level or better*

***Significant at a 1% level or better*

+ *Models include full paramaterization (Model D) - full specification can be found in Appendix I.*

++ *Marginal effects are for a discrete change in the dummy variable from 0 to 1.*

<u>Figure I</u> - EITC Parameters by Year and Children



<u>Appendix I</u> - Full Model Specification

	Full Model	Less or Equal HS	More Than HS
Variable Name	Marginal Effect + (Std. Err.)	Marginal Effect (Std. Err.)	Marginal Effect (Std. Err.)
No Kids Dummy	0.028 **	0.028 **	0.023 **
	(.006)	(.010)	(.006)
Two Plus Kids Dummy	-0.053 **	-0.083 **	-0.018 *
	(.007)	(.012)	(.008)
No Kids * 1994	-0.024 *	-0.016	-0.025 *
	(.012)	(.022)	(.014)
No Kids * 1995	-0.026 *	-0.035	-0.013
	(.013)	(.024)	(.013)
No Kids * 1996	-0.030 *	-0.033	-0.022 ^
	(.013)	(.023)	(.014)
No Kids * 1997	-0.027 *	-0.034	-0.014
	(.013)	(.025)	(.013)
No Kids * 1998	-0.060 **	-0.089 **	-0.032 *
	(.014)	(.024)	(.015)
Two Kids * 1994	0.000	0.008	-0.009
	(.012)	(.022)	(.015)
Two Kids * 1995	0.022 ^	0.036 ^	0.010
	(.011)	(.021)	(.013)
Two Kids * 1996	0.019	0.045 *	-0.002
	(.011)	(.021)	(.015)
Two Kids * 1997	0.042 **	0.067 **	0.026 *
	(.010)	(.02)	(.010)
Two Kids * 1998	0.057 **	0.102 **	0.025 *
	(.009)	(.017)	(.011)
Age	0.002	0.002	0.023 **
	(.002)	(.003)	(.002)
Age Squared	0.000	0.000	0.000
	(.000)	(.000)	(.000)
Education	0.018 **	-0.090 **	0.048 **
	(.003)	(.007)	(.011)
Education Squared	0.001 **	0.008 **	-0.001 **
	(.000)	(.000)	(.000)
No. Kids Six Years or Younger	-0.064 **	-0.091 **	-0.037 **
	(.003)	(.005)	(.003)
State Unemployment Rate	-0.006 *	-0.006	-0.005 *
	(.002)	(.004)	(.002)
Unearned Income / 1000	-0.005 **	-0.010 **	-0.003 **
	(.000)	(.000)	(.000)
Widow	-0.041 **	-0.008	-0.066 **
	(.011)	(.018)	(.016)
Divorced	0.039 **	0.080 **	0.006
	(.004)	(.007)	(.004)
White	0.070 **	0.104 **	0.045 **
	(.005)	(.007)	(.004)
City	-0.023 **	-0.047 **	-0.001
	(.005)	(.010)	(.005)
Maximum AFDC (TANF) Benefit / 1000	0.001	0.002	-0.001
	(.020)	(.050)	(.020)
Waiver in Effect	-0.010 ^	-0.015	-0.006
	(.006)	(.012)	(.006)
TANF Enacted	-0.007	0.031	-0.032 **
	(.012)	(.025)	(.012)
1992	-0.014 **	-0.032 **	-0.005
	(.006)	(.011)	(.006)
1993	0.000	0.010	-0.010 ^
	(.005)	(.010)	(.006)
1994	0.016 ^	0.023	0.008
	(.009)	(.017)	(.010)
1995	0.021 *	0.040 *	0.004
	(.010)	(.018)	(.011)
1996	0.020 ^	0.029	0.009
	(.01)	(.019)	(.011)
1997	0.022	0.015	0.019
	(.014)	(.029)	(.013)
1998	0.023	0.005	0.028 ^
	(.015)	(.032)	(.013)
Log Likelihood	-28108.322	-17545.49	-10227.505

Source: CPS March Files, 1992-1999.
Notes: ^ Significant at a 10% level or better.
**Significant at a 5% level or better*
***Significant at a 1% level or better*
+ Marginal effects are for a discrete change in the dummy variable from 0 to 1.

Appendix II - **Dates of First Major Waivers and TANF Implementation**

	Date of First Major Waiver		TANF Implementation	
	Approval	***Implementation***	***Official***	***Actual, if Different From Official***
Alabama			Nov-96	
Alaska			Jul-97	
Arizona	May-95	Nov-95	Oct-96	
Arkansas	Apr-94	Jul-94	Jul-97	
California	Oct-92	Dec-92	Nov-96	Jan-98
Colorado			Jul-97	
Connecticut	Aug-94	Jan-96	Oct-96	
Delaware	May-95	Oct-95	Mar-97	
D.C.			Mar-97	
Florida	Jun-94		Oct-96	
Georgia	Nov-93	Jan-94	Jan-97	
Hawaii	Jun-94	Feb-97	Jul-97	
Idaho	Aug-96		Jul-97	
Illinois	Nov-93	Nov-93	Jul-97	
Indiana	Dec-94	May-95	Oct-96	
Iowa	Aug-93	Oct-93	Jan-97	
Kansas			Oct-96	
Kentucky			Oct-96	
Louisiana			Jan-97	
Maine	Jun-96		Nov-96	
Maryland	Aug-95	Mar-96	Dec-96	
Massachusetts	Aug-95	Nov-95	Sep-96	
Michigan	Aug-92	Oct-92	Sep-96	
Minnesota			Jul-97	
Mississippi	Sep-95	Oct-95	Oct-96	Jul-97
Missouri	Apr-95	Jun-95	Dec-96	
Montana	Apr-95	Feb-96	Feb-97	
Nebraska	Feb-95	Oct-95	Dec-96	
Nevada			Dec-96	
New Hampshire	Jun-96		Oct-96	
New Jersey	Jul-92	Oct-92	Feb-97	Jul-97
New Mexico			Jul-97	
New York			Dec-96	Nov-97
North Carolina	Feb-96	Jul-96	Jan-97	
North Dakota			Jul-97	
Ohio	Mar-96	Jul-96	Oct-96	
Oklahoma			Oct-96	
Oregon	Jul-92	Feb-93	Oct-96	
Pennsylvania			Mar-97	
Rhode Island			May-97	
South Carolina	May-96		Oct-96	
South Dakota	Mar-94	Jun-94	Dec-96	
Tennessee	Jul-96	Sep-96	Oct-96	
Texas	Mar-96	Jun-96	Nov-96	
Utah	Oct-92	Jan-93	Oct-96	
Vermont	Apr-93	Jul-94	Sep-96	
Virginia	Jul-95	Jul-95	Feb-97	
Washington	Sep-95	Jan-96	Jan-97	
West Virginia			Jan-97	
Wisconsin	Jun-94	Jan-96	Sep-96	Sep-97
Wyoming			Jan-97	

Source: Council of Economic Advisors (1999)
Notes: Variables activated on actual implementation.