

Income, the Earned Income Tax Credit, and Infant Health

ONLINE APPENDIX

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This online appendix contains tables and figures referred to in the main text. We also discuss the construction of our cell level data in more detail.

Appendix Table 1: Difference-in-Difference Estimates of OBRA93 on employment and income components

	Employed	Earnings	AFDC/TANF & Gen.Asst.	SSI	Food Stamps	EITC	After tax income
Panel A: All High Impact Mothers							
<u>Model: PARITY 2+ vs. PARITY 1</u>							
Treatment Effect	0.07 (0.01)	1,401 (298)	-698 (42)	150 (31)	-149 (29)	665 (16)	1,558 (249)
Number of observations	51317	51317	51317	51317	51317	51317	51317
R Squared	0.119	0.151	0.233	0.025	0.253	0.336	0.196
Mean of outcome variable	0.705	12,496	966	350	892	508	14,958
<u>Model: PARITY 3+ vs. PARITY 2</u>							
Treatment Effect	0.08 (0.01)	929 (437)	-555 (86)	122 (49)	-175 (57)	531 (35)	1,081 (379)
Number of observations	22124	22124	22124	22124	22124	22124	22124
R Squared	0.136	0.137	0.207	0.025	0.198	0.149	0.174
Mean of outcome variable	0.657	11,666	2,008	378	1,645	1,111	16,835
Panel B: High Impact White Mothers							
<u>Model: PARITY 2+ vs. PARITY 1</u>							
Treatment Effect	0.075 (0.01)	1,402 (361)	-687 (48)	133 (34)	-120 (29)	652 (17)	1544 (302)
Number of observations	37737	37737	37737	37737	37737	37737	37737
R Squared	0.11	0.158	0.212	0.022	0.206	0.36	0.213
Mean of outcome variable							
<u>Model: PARITY 3+ vs. PARITY 2</u>							
Treatment Effect	0.06 (0.01)	1030 (558)	-338 (106)	120 (56)	-26 (62)	546 (42)	1146 (487)
Number of observations	14786	14786	14786	14786	14786	14786	14786
R Squared	0.141	0.145	0.199	0.022	0.16	0.14	0.184
Mean of outcome variable	0.694	13044	1809	304.8	1254	1146	18417
Panel C: High Impact Black Mothers							
<u>Model: PARITY 2+ vs. PARITY 1</u>							
Treatment Effect	0.05 (0.02)	654 (634)	-656 (99)	97 (78)	-154 (84)	695 (39)	926 (514)
Number of observations	10918	10918	10918	10918	10918	10918	10918
R Squared	0.115	0.113	0.269	0.034	0.237	0.3	0.143
Mean of outcome variable	0.614	10190	1453	502.8	1628	630.1	13231
<u>Model: PARITY 3+ vs. PARITY 2</u>							
Treatment Effect	0.10 (0.02)	592 (785)	-941 (155)	93 (107)	-419 (125)	533 (65)	628 (656)
Number of observations	6295	6295	6295	6295	6295	6295	6295
R Squared	0.13	0.107	0.243	0.043	0.18	0.186	0.124
Mean of outcome variable	0.601	9493	2280	510.1	2309	1058	14215

Notes: Each column is from a separate regression of a different employment or income variable on the OBRA93 expansion. The top panel using the parity 3+ vs. parity 2 design, and the bottom panel shows the parity 3+ vs. parity 2 design. Outcome variable data from March CPS and TAXSIM, for effective tax years 1991-1998. All models include fixed effects for effective tax year, parity, state, demographic group and state-year controls for Medicaid/SCHIP, welfare reform and unemployment rates. Estimates are weighted using the CPS weights and are clustered on state. Standard errors are in parentheses.

Appendix Table 2: Difference-in-Difference Estimates of OBRA93 on Birth Outcomes, Single Women with a High School Education or Less by Race and Ethnicity

	Average Birthweight				Preterm Birth (<37 weeks)			
	White	Black	Non-Hispanic	Hispanic	White	Black	Non-Hispanic	Hispanic
<u>Model: Parity 2+ vs. 1</u>								
Parity2+ * After	4.358** (2.092)	17.89*** (3.105)	10.76*** (2.169)	2.152 (3.953)	0.172** (0.0831)	-0.557*** (0.140)	-0.288** (0.0925)	0.0896 (0.0896)
Mean of the dep. variable	3272.5	3066.4	3175.8	3291.2	11.96	19.08	15.05	12.21
N	21775	13780	26066	14823	21757	13752	26054	14798
<u>Model: Parity 3+ vs. 2</u>								
Parity3+ * After	-1.474 (1.483)	17.41*** (2.251)	9.487*** (2.326)	-2.268 (2.949)	0.177 (0.118)	-0.475** (0.161)	-0.309** (0.123)	0.171 (0.135)
Mean of the dep. variable	3287.8	3067.1	3162.6	3325.1	12.87	20.53	16.87	12.72
N	16247	10273	19611	10951	16236	10254	19602	10933

	Weight for Age < 10th percentile				Apgar < 8			
	White	Black	Non-Hispanic	Hispanic	White	Black	Non-Hispanic	Hispanic
<u>Model: Parity 2+ vs. 1</u>								
Parity2+ * After	-0.201** (0.0969)	-0.873*** (0.0985)	-0.428*** (0.0867)	-0.137 (0.132)	1.579 (1.103)	-0.454** (0.197)	0.125 (0.315)	4.163* (2.447)
Mean of the dep. variable	13.44	17.23	15.64	11.74	3.102	4.500	3.795	2.580
N	21753	13743	26048	14788	21221	13073	25502	14122
<u>Model: Parity 3+ vs. 2</u>								
Parity3+ * After	0.0783 (0.0677)	-0.517*** (0.135)	-0.194** (0.0750)	-0.0876 (0.0614)	-1.434 (0.877)	-0.267 (0.641)	-0.567* (0.322)	-2.031** (0.772)
Mean of the dep. variable	12.49	16.58	15.24	10.49	2.720	4.277	3.597	2.262
N	16233	10250	19599	10926	15834	9746	19187	10425

Notes: Each column in each panel is from a separate DD regression of birth outcome applied to Natality data for effective tax years 1991-1998. Observations are at the year-state-parity-demographic cell level. All models include fixed effects for effective tax year, parity, state, demographic group and state-year controls for Medicaid/SCHIP, welfare reform and unemployment rates. Estimates are weighted using the number of births in the cell and are clustered on state. Standard errors are in parentheses. Observations differ across the outcomes due to incomplete data on these outcomes for all state-years (and some missing data on gestation).

Appendix Table 3: Magnitudes in OBRA93 Models, Mean Birth Weight

	All	White	Black
PARITY 2+ vs. PARITY 1			
Treatment Effect	9.948	4.358	17.89
Increase in after tax income (2009\$)	\$1,558	\$1,543	\$956
Treatment on Treated per \$1000 (2009\$)	6.39	2.82	18.71
ToTper \$1000 (2009\$), % impact	0.20%	0.09%	0.61%
PARITY 3+ vs. PARITY 2			
Treatment Effect (3+ vs. 2)	6.85	-1.47	17.41
Increase in after tax income (2009\$) (3+ vs 2)	\$1,081	\$1,146	\$628
Treatment on Treated per \$1000 (2009\$)	6.34	-1.28	27.72
ToTper \$1000 (2009\$), % impact	0.20%	-0.04%	0.90%
Mean of the dependent variable	3206	3288	3067

Notes: Each column in each panel provides estimates for a separate DD regression. In each panel, the first row repeats average birth weight parameter estimates from main paper Table 6 or Appendix Table 1. The second row provides the DD estimate on EITC income from the CPS/TAXSIM data. Row 3 is the treatment on the treated estimate of a \$1000 increase in EITC income (row 1 / row 2 * 1000). Row 4 provides the percent TOT impact (row 3 / mean).

Appendix Table 4: Difference in Difference Estimates of OBRA93 on Pregnancy Behaviors, Robustness to Trimester of Exposure

	Prenatal care began before 3rd tri	Prenatal care, number visits	Any prenatal care	Kessner Index, Inadequate care	Kessner Index, Good or better	Any Smoking	Any Drinking
<u>Model: Parity 2+ vs. 1</u>							
Exposure in 1st tri.	0.995*** (0.216)	16.81*** (2.374)	0.876*** (0.146)	-1.476*** (0.236)	0.431** (0.200)	-2.239*** (0.223)	-1.582*** (0.207)
Exposure in 2nd tri.	0.707*** (0.186)	13.65*** (2.452)	0.625*** (0.110)	-1.202*** (0.210)	0.179 (0.224)	-2.123*** (0.163)	-1.165*** (0.140)
Exposure in 3rd tri.	0.634*** (0.175)	12.28*** (2.257)	0.570*** (0.105)	-1.105*** (0.198)	0.135 (0.205)	-1.930*** (0.152)	-1.060*** (0.128)
N	47,246	47,110	47,110	46,957	46,957	45,554	46,128
Mean, dep. Var	91.45	10.27	96.92	12.06	58.21	25.74	2.603
<u>Model: Parity 3+ vs. 2</u>							
Exposure in 1st tri.	0.780*** (0.178)	11.76*** (1.780)	0.706*** (0.125)	-1.040*** (0.185)	0.406** (0.132)	-1.353*** (0.205)	-1.237*** (0.179)
Exposure in 2nd tri.	0.737*** (0.182)	11.13*** (1.724)	0.682*** (0.125)	-0.990*** (0.182)	0.387** (0.126)	-1.311*** (0.212)	-1.197*** (0.175)
Exposure in 3rd tri.	0.652*** (0.175)	9.842*** (1.605)	0.616*** (0.119)	-0.880*** (0.168)	0.347** (0.119)	-1.163*** (0.205)	-1.086*** (0.161)
N	35,141	35,040	35,040	34,922	34,922	33,885	34,312
Mean dep var.	89.42	9.797	95.92	15.13	53.40	28.69	3.320

Notes: Each cell is from a separate DD regression applied to Natality data for effective tax years 1991-1998. Observations are at the year-state-parity-demographic cell level. All models include fixed effects for effective tax year, parity, state, demographic group and state-year controls for Medicaid/SCHIP, welfare reform and unemployment rates. Estimates are weighted using the number of births in the cell and are clustered on state. Standard errors are in parentheses. Observations differ across the outcomes due to incomplete data on these outcomes for all state-years.

Appendix Table 5: Robustness Checks for Difference-in-Difference Estimates of OBRA93 on Low Birth Weight, Single Women with a High school education or less

	Drop Mexican born mothers	Assign timing using gestation	Drop parity 4+ births	Drop obs with weight inconsistent with gestation	Balance on education reporting states	Balance on non-imputed marital status states
<u>Model: parity 2+ vs. 1</u>						
2+ kids * after	-0.389*** (0.0886)	-0.388*** (0.0747)	-0.262** (0.0769)	-0.357*** (0.073)	-0.387*** (0.085)	-0.320** (0.0955)
Mean Dep Var	10.68	10.17	9.558	10.22	10.92	10.80
N	47184	47722	36136	47,506	42,258	41424
<u>Model: parity 3+ vs. 2</u>						
3+kids * after	-0.385*** (0.0824)	-0.376*** (0.0716)	-0.223*** (0.0621)	-0.323*** (0.068)	-0.332** (0.099)	-0.320*** (0.0898)
Mean Dep Var	11.37	10.69	9.696	10.74	11.66	11.50
N	35145	35488	23916	35,326	31,438	30778

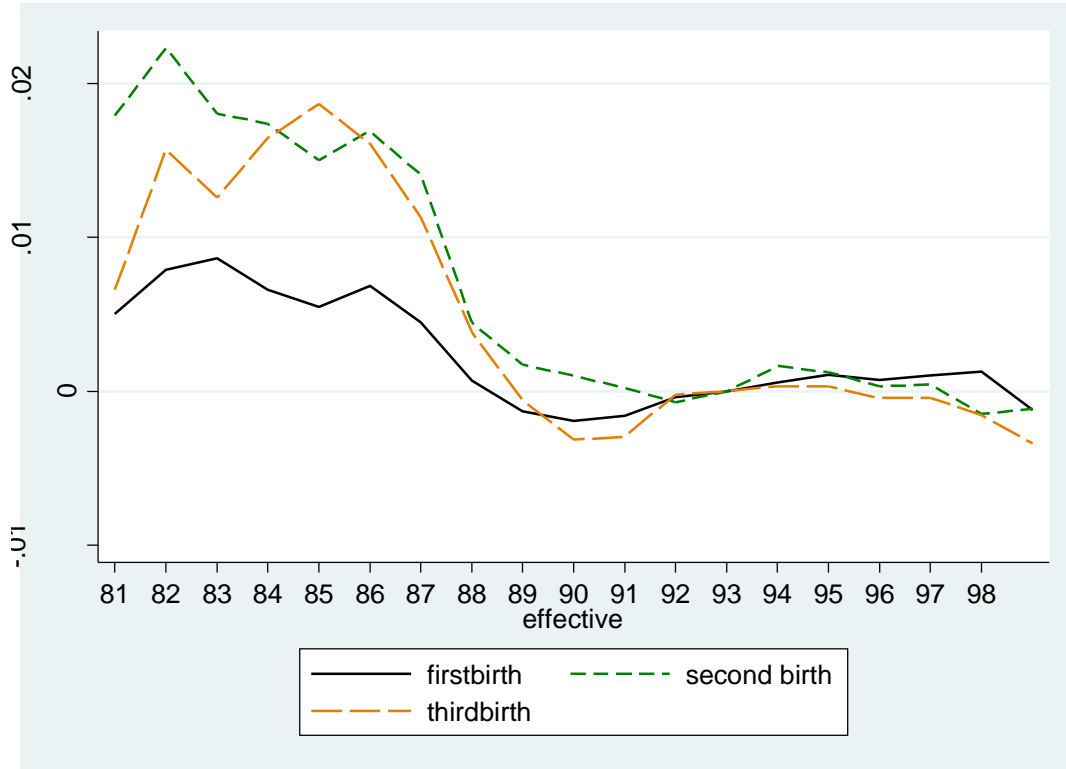
Notes: Each column in each panel is from a separate DD regression of low birth weight applied to Natality data for effective tax years 1991-1998. Observations are at the year-state-parity-demographic cell level. All models include fixed effects for effective tax year, parity, state, demographic group and state-year controls for Medicaid/SCHIP, welfare reform and unemployment rates. Estimates are weighted using the number of births in the cell and are clustered on state. Standard errors are in parentheses.

Appendix Table 6: Pairwise Parity Estimates of OBRA93 on Low Birth Weight, Single Women with a High school education or less

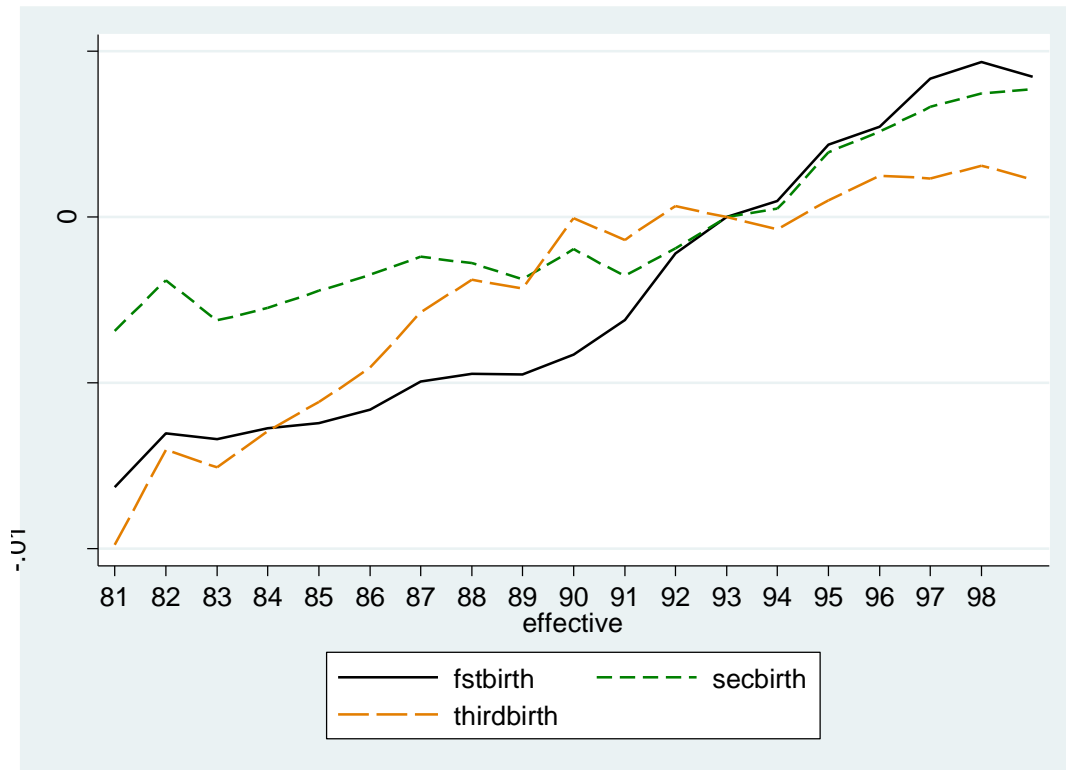
	Pairwise Parity Comparisons				
	2 vs. 1	3 vs. 2	4 vs. 3	5 vs. 4	6+ vs. 5
parity 2 * after	-0.175** (0.0713)				
parity 3 * after		-0.223*** (0.0621)			
parity 4 * after			-0.238** (0.0901)		
parity 5 * after				-0.184 (0.174)	
parity 6 * after					0.238 (0.179)
N	24,450	23,916	22,021	19,074	16,654
R-sq	0.6104	0.5798	0.5189	0.4356	0.3869
mean, low birthweight	9.336	9.696	11.09	13.02	15.59
EITC DD treatment	384***	571***	-87	-73	1
After tax income DD treatment	990***	1230***	-388	-824	1235

Notes: Each column is from a separate DD regression of low birth weight applied to Natality data for effective tax years 1991-1998. Observations are at the year-state-parity-demographic cell level. All models include fixed effects for effective tax year, parity, state, demographic group and state-year controls for Medicaid/SCHIP, welfare reform and unemployment rates. Estimates are weighted using the number of births in the cell and are clustered on state. Standard errors are in parentheses.

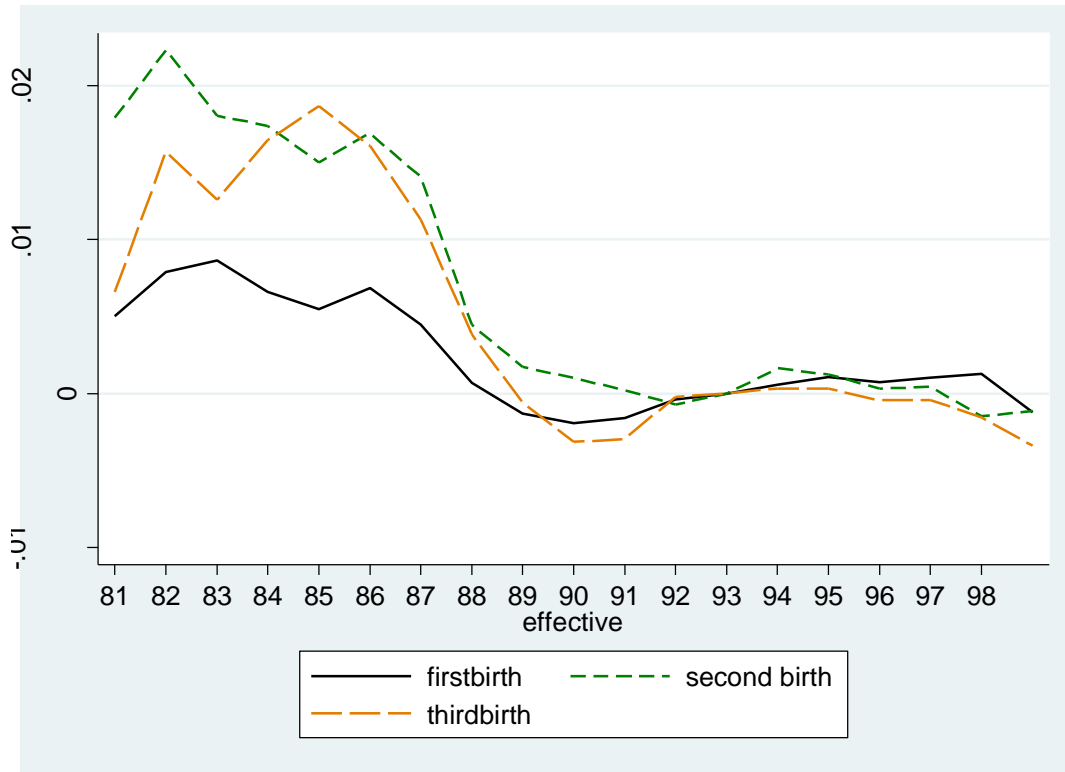
Appendix Figure 1: Trends in Low Birth Weight rates by parity
 (a) Single Women with a High School Education or Less



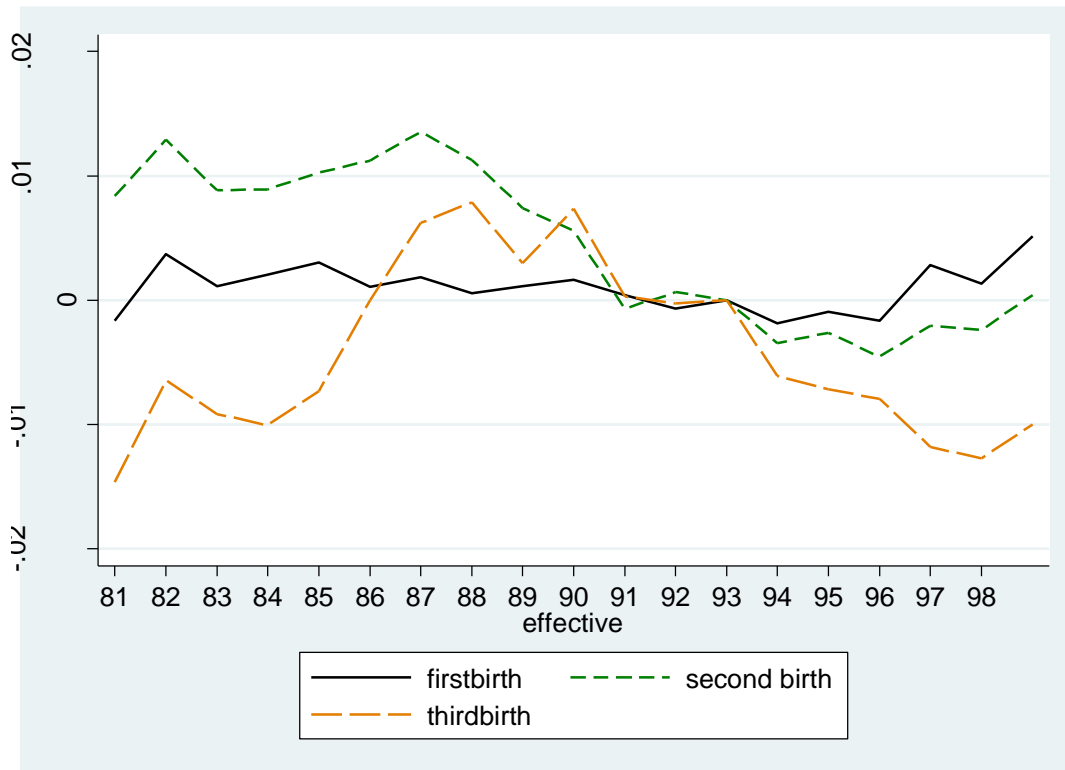
(b) All Births



(c) Single Women with a High School Education or Less, White Mothers



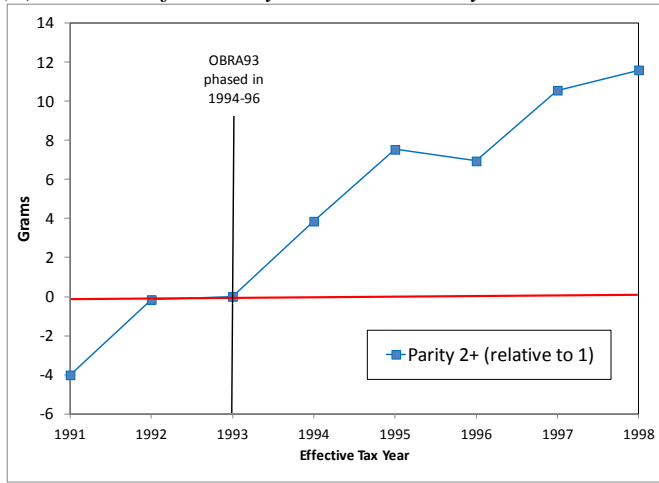
(d) Single Women with a High School Education or Less, Black Mothers



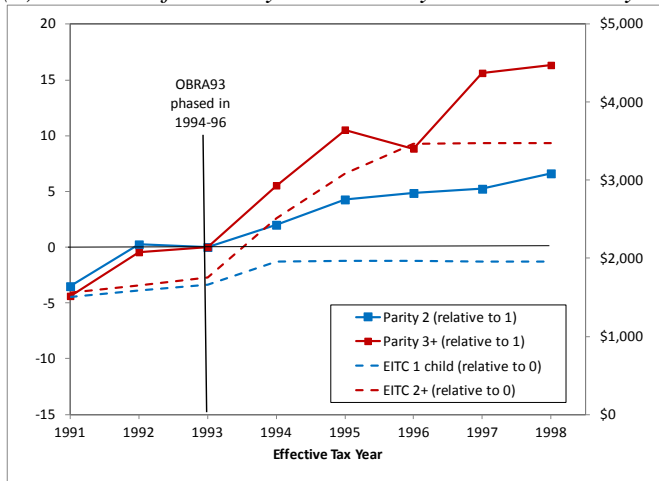
Notes: Each figure plots trends, by parity, in probability of a low birth weight birth. All graphs normalized relative to 1993 level.

Appendix Figure 2: Event Time Estimates of OBRA93 on Mean Birth Weight, Single Women with a High School Education or Less

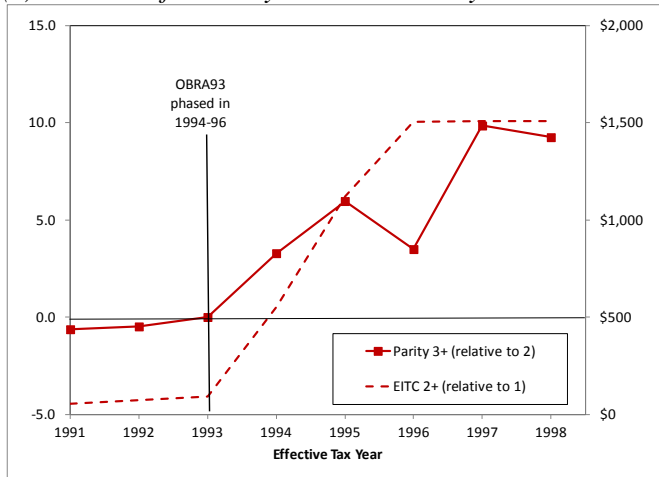
(a) Estimates for Parity 2+ versus Parity 1



(b) Estimates for Parity 2 and Parity 3+ versus Parity 1



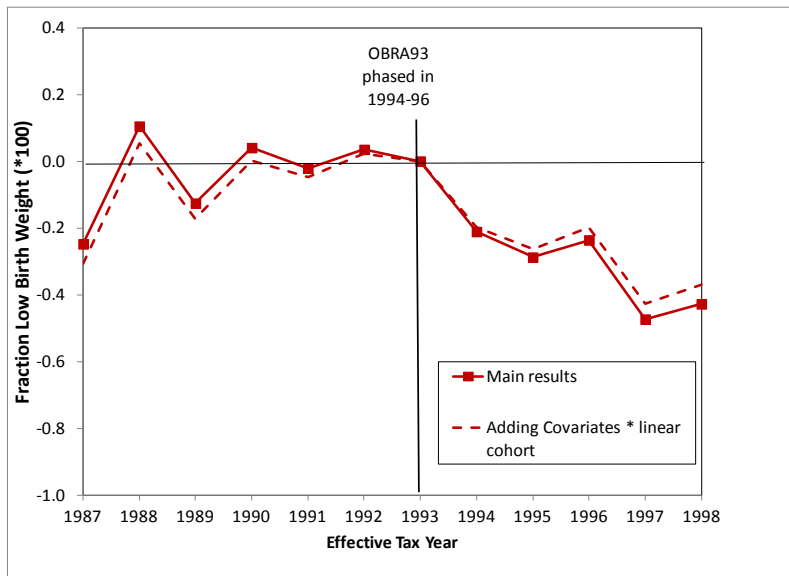
(c) Estimates for Parity 3+ versus Parity 2



Notes: Each figure plots coefficients from an event-study analysis where the coefficients are year dummies interacted with the treatment indicator (e.g. higher order parity relative to lower order parity). The specification includes fixed effects for year, state, parity, demographic group and state-year controls for Medicaid/SCHIP, welfare reform and unemployment rates. In panels (b) and (c) the figure provides DD estimates for low birth weight and predicted EITC income. Estimates for EITC income and based on the March CPS and the EITC is calculated using TAXSIM. See text for details.

Appendix Figure 3: Event Time Estimates of OBRA93 on Low Birth Weight, Sensitivity to adding controls for covariates times linear trends, Single Women with a High School Education or Less

Estimates for Parity 2+ versus Parity 1



Notes: The figure plots coefficients from an event-study analysis where the coefficients are year dummies interacted with the treatment indicator (e.g. higher order parity relative to lower order parity). The model includes fixed effects for year, state, parity, demographic group and state-year controls for Medicaid/SCHIP, welfare reform and unemployment rates. The model represented by the dashed line also includes controls for demographic group times linear birth cohort.

Appendix B: Explanation of Number of Cells.

As discussed in section 4 of the text, we collapse the data to cells defined by state, year, parity of birth (1st, 2nd, 3rd, 4th or greater birth to a mother), education of mother (<12, 12, 13-15, >16, missing), race of the mother (white, black, other¹), ethnicity of the mother (Hispanic, non-Hispanic, missing), marital status (married, not married, missing) and age of mother (18-24, 25-35, 35+). After performing this collapse there are a large number of “empty” cells, especially given the low incidence of missing demographic data. For example if there are no Hispanic, low educated, 35+ mothers in Alaska in 1993 than the cells associated with these groups will have no observations. After the collapse STATA immediately drops empty cells. Below we calculate the maximum number of cells, non-empty cells for the full data and various subgroups.

Maximum number of cells: $51 \times 8 \times 4 \times 5 \times 3 \times 3 \times 3 \times 3 = 660,960$

Non empty cells: 213,739

Maximum number of cells for high impact (single, <=12 yrs of ed) subgroup: $51 \times 8 \times 4 \times 2 \times 3 \times 3 \times 3 = 88,128$

Non empty cells for high impact sample: 47,687 (matches “All” category in regression results).

Empty Cells = 40,441

Maximum number of cells when limiting to one racial group in the high impact sample = $51 \times 8 \times 4 \times 2 \times 3 \times 3 = 29,376$

Max Cells when limiting to one ethnicity group (hispanic or not hispanic) = $51 \times 8 \times 4 \times 2 \times 3 \times 3 = 29,376$

Non empty cells when only looking at “white” = 21775 (matches “White” subgroup obs numbers in regression results).

Non empty cells when only looking at “black” = 13,780 (matches “Black” subgroup obs numbers in regression results).

[Other race = 12,132 cells]

Non empty cells when only look at “hispanic” = 26,066 (matches)

Non empty cell when only looking at “non hispanic” = 14,823 (matches)

[missing ethnicity = 6,798 cells]”

¹ The other race category includes Asians, Native Americans, and other non-White / non-Black races.