

# The Earned Income Tax Credit and Intergenerational Mobility

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## Motivation

- The policy we study is the largest U.S. government program administered through the tax system – the Earned Income Tax Credit (EITC). The program affected more than 22 million households and individuals in 2018, with an average refund of \$3191 for a family with two children
- In the short- to medium-term, the EITC has been credited with lifting families out of poverty; encouraging employment and increasing earnings; reducing stress bio-markers in single mothers, and improving child test scores
- Less is known about children’s long-term outcomes, and in particular children’s labor market performance relative to their parents’
- Until recently, the inter-generational linkages in population-level data necessary to perform this type of investigation were not available
- We construct a new dataset linking all individuals born between 1979 and 1999 to their parents using restricted data from the U.S. Census Bureau and the Internal Revenue Service; similar data have been used by Chetty et al. (2020) to study inter-generational mobility by race

# Motivation

- The main question we are asking is: Did the EITC affect inter-generational income mobility in the U.S. and how?
- Our work is related to the literature on:
  - socio-economic intergenerational mobility
  - family characteristics (and in particular family SES) and children's (long-term) outcomes
  - various public policies and their impact on children's wellbeing
- Also related to existing work on the immediate effects of EITC on adults and children
- We find that generous more EITC receipt improves children's economic standing relative to their parents'
- Effects vary by the age at first exposure, by family type (single vs married households) and by child gender

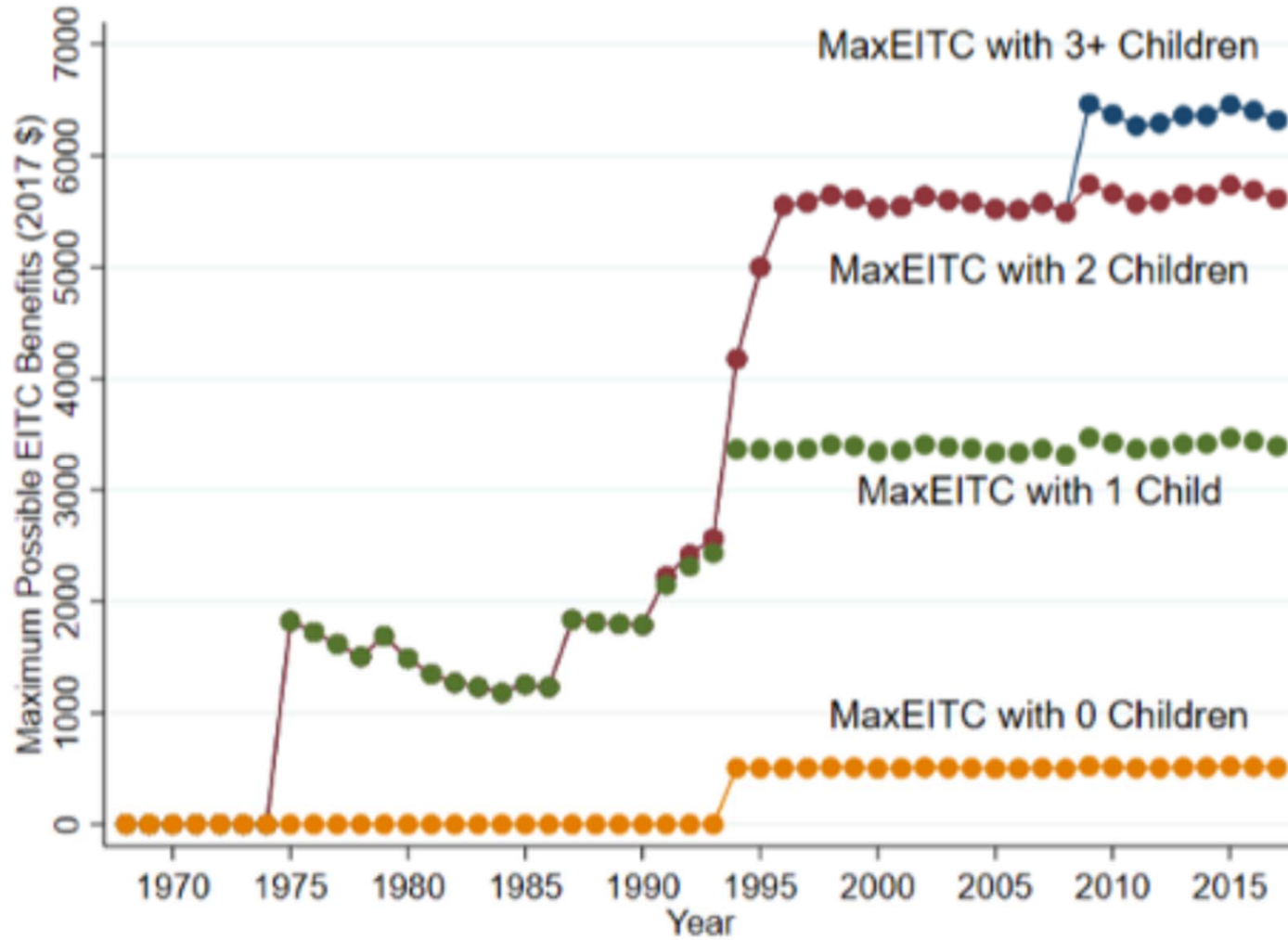
## Road Map

1. Quick overview of EITC, who is affected, how it works, and some prior related literature
2. Data sources and data construction
3. Empirical methodology
4. Results
5. Discussion and conclusions

# Background

- The EITC is a long-standing feature of the personal income tax system, first established in the mid-70s to compensate low-wage workers (with children) for regressive taxes
- The maximum tax credit individuals could receive in the period 1975-1986 was between \$400 and \$500 (about \$1200 in current \$)
- To receive the tax credit, the household had to have positive earnings and at least one child residing in it
- During the 1990s, the EITC underwent substantial changes, gradually implemented between 1991 and 1996, with the most significant changes coming in 1994
- The total amount of credit available to working families increased dramatically
- The total possible credit for families with 2 or more children increased much more than the credit for families with 1 child
- A separate credit schedule for childless earners was added in 1994

# Background to EITC



## Data

- Merged individual data from Census 2000, Census 2010 individual short forms; American Community Survey 2005-2017; IRS 1040 form returns from 1994 and 1998-2017; and IRS W-2 forms from 2005-2017
- Data and sample construction very similar to Chetty et al., 2020
- The different data sources are linked using a unique Protected Identification Key (PIK), which the Census creates from personally identifiable information such as SSN, name, address, and date of birth

## Data

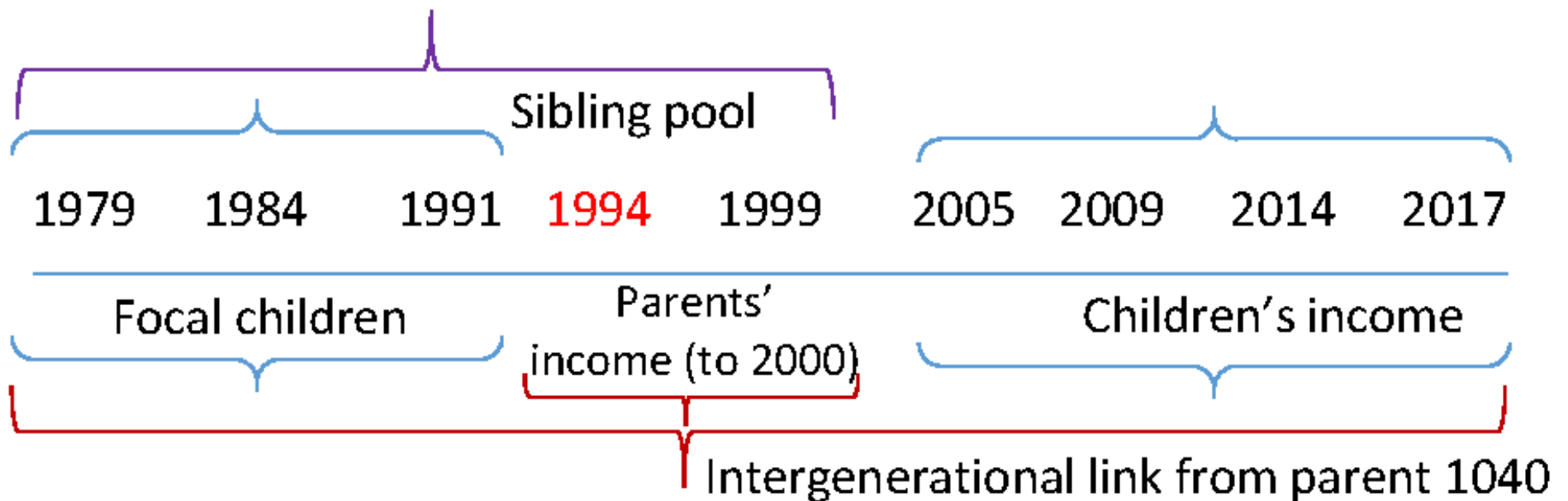
- The target sample are all children born in the period 1979-1991 who were born in the U.S. or legally entered the country during childhood
- Children are linked to households (parents) through the IRS 1040 form, if they were claimed as dependents at any point between 1994 and 2017
- The person who first claims the child on a 1040 is assigned as the “parent”. However, we restrict parents to adults who appear in the 2016 Numident and who were between the ages of 15 and 50 when the child was born. This captures about 93% of all children in the Numident 2016 from the target cohorts.
- In assigning siblings, we link all children who can be linked to the same claiming parent, regardless of whether the claimer’s filing status changed between siblings
- Race is defined as the child race reported on the decennial census or the ACS; gender defined via the Numident



## Data

- Parents' filing status – single or married – is defined as the filing status on the first 1040 form available in the sample
- Parental income rank is defined as the average rank within child birth cohort based on parental income in the period 1994-2000
- We are using household income, not personal income, for both children and parents
- We restrict the analysis to children born in households with income below the 35th percentile of the parental income distribution, which ensures that, on average, parents were in the eligible income range for EITC
- Child income rank is defined as her income rank at ages 25/26 within her own birth cohort – age range determined by data availability, with the latest available income data from 2017

## Sample construction



## Treatment variables

- Childhood eligible EITC
  - The dollar value a child is eligible for until the age of 18, expressed in \$10,000s
  - Varies by cohort due to policy changes in EITC generosity
  - Varies by family structure due to family size, the timing of sibling births, and the “aging out” of siblings
- Age at exposure
  - For children of 2+ family size, the age at which the 1994 expansion applied
  - Varies with the arrival of siblings relative to 1994

Examples: Two children born in 1990, one had a sibling born in 1994, her age at first exposure is 4; if the other child had a sibling born in 1995, her age at first exposure is 5; if both had siblings born before 1994, or had older siblings, their age at first exposure is the same at 4 years old.

If both had older siblings in 1994, then their age at first exposure would be the same at 4 years old, but depending on the older siblings' birth cohorts, they would be exposed to different total amounts of EITC dollars as their older sibling ages out of EITC eligibility.

## Summary statistics

	All families	Single moms	Married families
Childhood eligible EITC, in 10,000s	5.86	5.73	5.97
Average child income rank at ages 25-26	0.41	0.39	0.45
Average EITC claimed at ages 25-26	84.71	93.52	70.85
Probability child claims EITC at ages 25-26	0.04	0.04	0.03
Child works at ages 25-26	0.8	0.82	0.82
Child married at 25-26	0.21	0.17	0.28
Child cohort	1985	1985	1985
Number of siblings	2.39	2.13	2.7
Years between closest sibling	2.44	2.43	2.55
Order of siblings	1.52	1.44	1.63
First child	0.62	0.66	0.56
Male	0.51	0.5	0.51
White	0.43	0.36	0.56
Black	0.26	0.38	0.09
Asian	0.04	0.02	0.07
Hispanic	0.23	0.2	0.23
AIAN	0.01	0.01	0.01
Other	0.03	0.03	0.03
Parent income rank	0.17	0.16	0.2
Single mother	0.43	1	0
Married family	0.38	0	1

# Empirical Methodology

First, we explore differences in age at first exposure to increased EITC generosity. Second, we study the effect of increasing EITC controlling for age at first exposure. The assumption is that the timing of EITC expansion is uncorrelated with individual families' composition and that new births could not be planned to maximize EITC generosity.

The main estimating equation is:

$$Y_i = \alpha + \beta * parent_{rank_i} + \gamma * LifetimeEITC_i + \sum_{j=4}^{17} Age\_exposure_{ij} + gender_i + race_i + \vartheta_i + \theta_i + \mu_i + \tau_i + \varepsilon_i$$

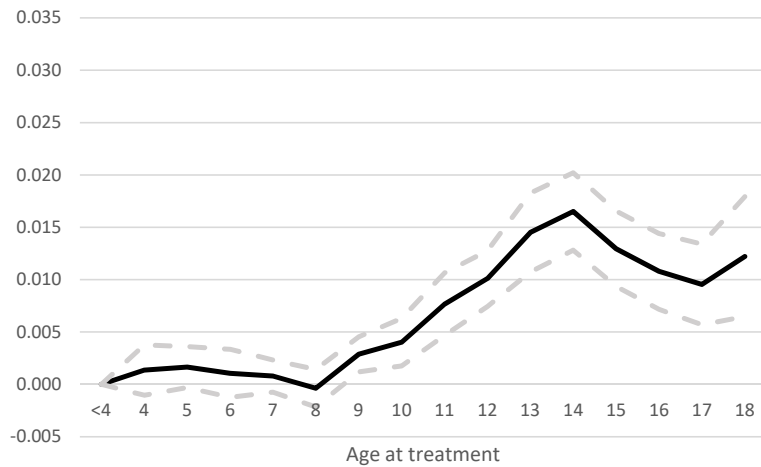
Where  $i$  indexes the individual,  $j$  is the age at first exposure to increased EITC generosity. Age\_exposure are age-specific dummies =1 if the child was first treated at the respective age.

Included in the main specification are index variables for birth order  $\vartheta_i$ ; the total number of children ever claimed by the households  $\theta_i$ ; state fixed effects  $\mu_i$ ; birth cohort fixed effects  $\tau_i$ ; we include a dummy for single mother filing status, though we present estimates by family type as well.

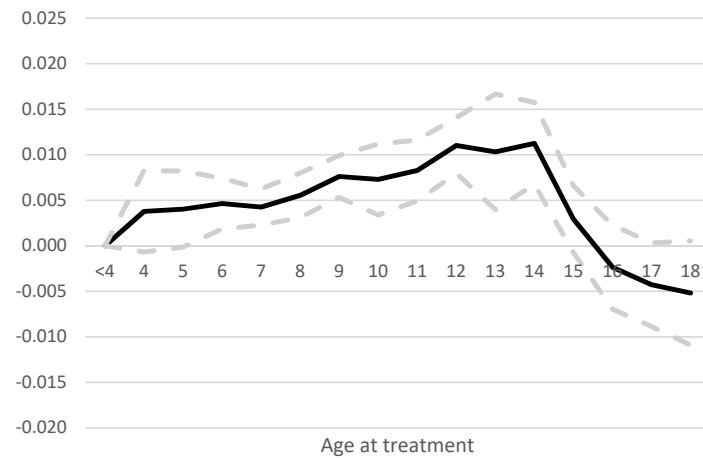
The main outcomes of interest are the child's rank in the income distribution at ages 25/26; and whether the child worked in the formal sector at ages 25/26. We also consider a number of additional outcomes, where available.

# Results – Effects of Exposure to EITC by Age

Child income rank; controlling for parental income rank and duration of EITC 2-child treatment; age at first treatment dummy coefficients plot; Full sample



Child income rank; controlling for parental income rank and duration of EITC treatment; age at first treatment dummy coefficients plot; Single mothers



## Results – Increasing lifetime EITC generosity

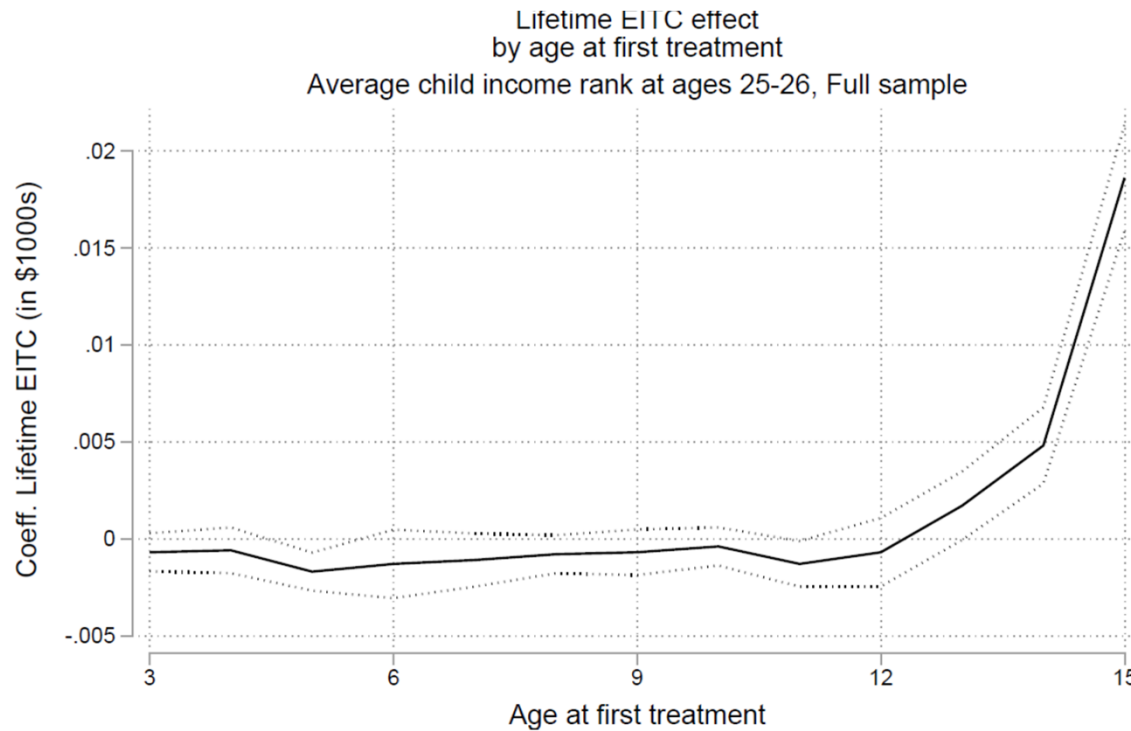
	Full sample				
	Child rank	EITC claiming	Claiming probability	Child works	Child married
Parent income rank	0.27 (0.01)	-76.97 (2.81)	-0.02 (0.00)	0.26 (0.01)	0.10 (0.01)
Childhood eligible EITC, in 10,000s	<b>0.003</b> (0.0004)	0.948 (0.31)	0.00 (0.00)	<b>0.003</b> (0.00)	0.000 (0.00)
Mean dep var	0.41	85.00	0.04	0.80	0.21
N		17,700,000			
	Single mother families				
Parent income rank	0.29 (0.010)	-83.8 (2.64)	-0.02 (0.00)	0.29 (0.01)	0.09 (0.01)
Childhood eligible EITC, in 10,000s	<b>0.002</b> (0.0003)	1.876 (0.44)	0.00 (0.00)	<b>0.003</b> (0.00)	<b>0.002</b> (0.0005)
Mean dep var	0.39	93.50	0.04	0.92	0.17
N		7,568,000			
	Married families				
Parent income rank	0.23 (0.0100)	-65.53 (5.04)	-0.02 (0.00)	0.23 (0.01)	0.07 (0.02)
Childhood eligible EITC, in 10,000s	<b>0.006</b> (0.0004)	1.595 (0.65)	0 (0.0003)	<b>0.008</b> (0.001)	<b>0.004</b> (0.0006)
Mean dep var	0.45	71.00	0.0300	0.820	0.28000
N		6,786,000			

## Results – Increasing EITC generosity by family type and gender

	Single mother families				
	Girls				
	Child rank	EITC claiming	P(claiming)	Child works	Child married
Parent income rank	0.29 (0.0100)	-126.1 (4.45)	-0.03 (0.00)	0.25 (0.010)	0.09 (0.01)
Childhood eligible EITC, in 10,000s	<b>0.004</b> (0.0006)	2.648 (0.94)	<b>0.001</b> (0.0003)	<b>0.004</b> (0.001)	<b>0.003</b> (0.0008)
	Boys				
Parent income rank	0.3 (0.0100)	-39.97 (1.85)	-0.01 0.00	0.32 (0.010)	0.08 (0.01)
Childhood eligible EITC, in 10,000s	0.001 (0.0005)	1.672 (0.52)	<b>0.00</b> (0.0002)	<b>0.003</b> (0.001)	<b>0.002</b> (0.0005)
	Married families				
	Girls				
Parent income rank	0.21 (0.0100)	-85.31 (5.45)	-0.02 (0.00)	0.21 (0.010)	0.07 (0.020)
Childhood eligible EITC, in 10,000s	<b>0.006</b> (0.0006)	1.899 (0.86)	0.00 (0.0003)	<b>0.007</b> (0.001)	<b>0.005</b> (0.0009)
	Boys				
Parent income rank	0.24 (0.0200)	-46.2 (5.40)	-0.01 (0.00)	0.25 (0.010)	0.07 (0.020)
Childhood eligible EITC, in 10,000s	<b>0.007</b> (0.0006)	1.354 (0.61)	0.00 (0.0003)	<b>0.008</b> (0.001)	<b>0.002</b> (0.0006)

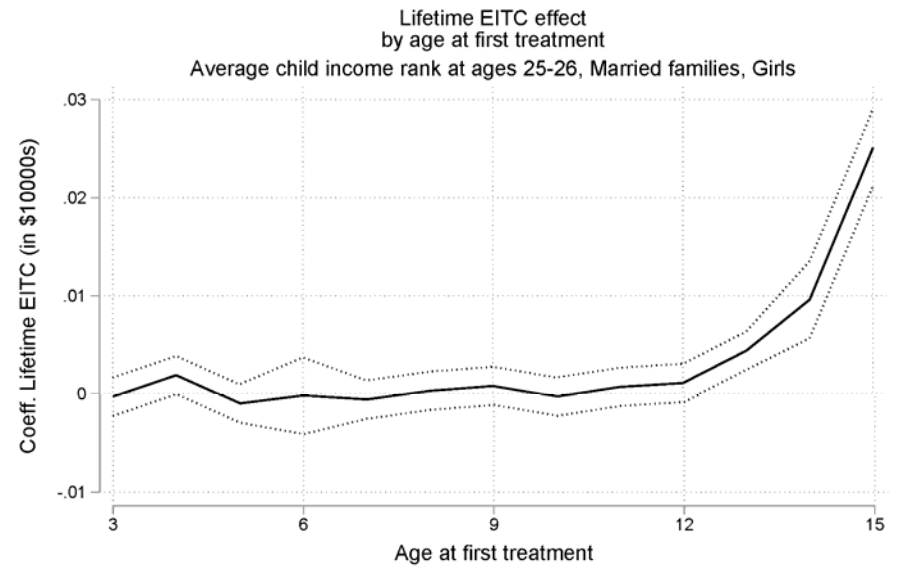
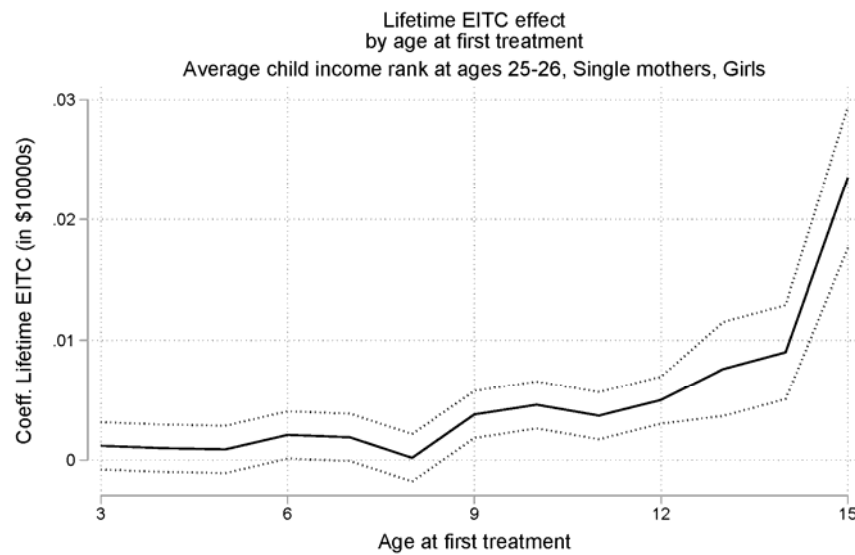


## Results – EITC generosity effects by age – child income rank at 25/26



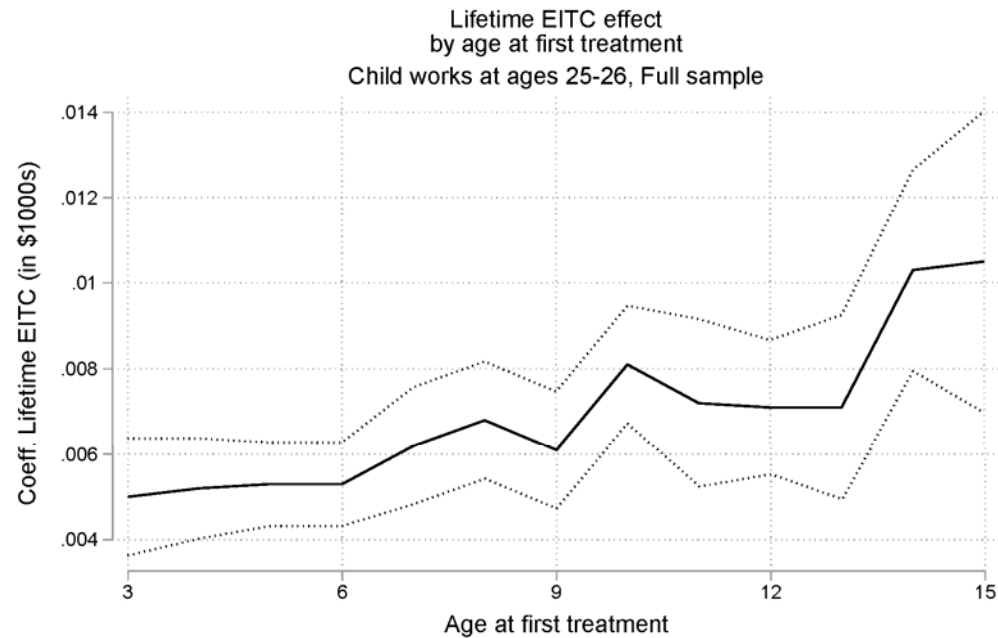
*The figure illustrates the estimated effects of increasing lifetime EITC receipt by \$10000 on the outcome of interest conditional on age of first treatment; coefficients from separate regressions by age at first treatment*

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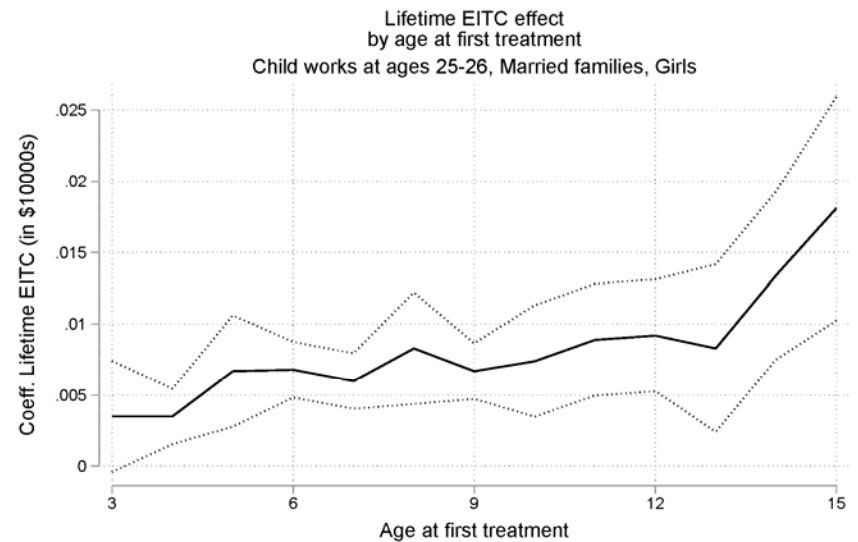
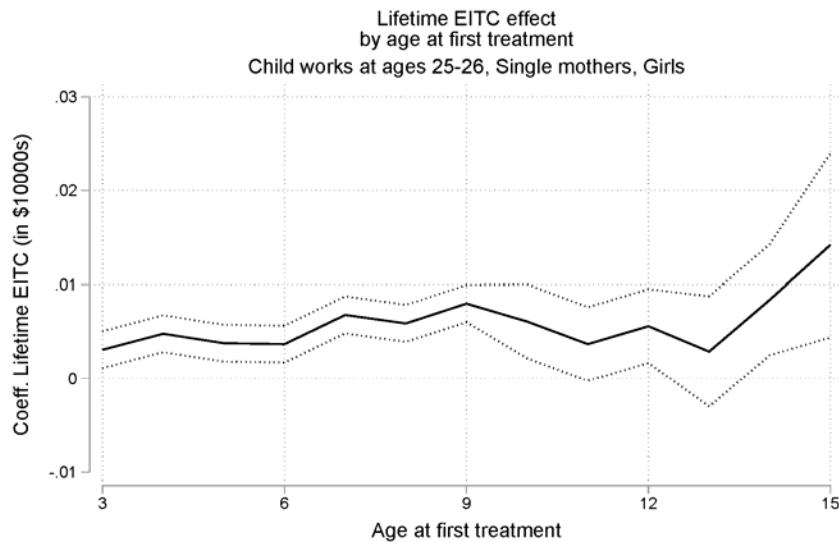
*The figure illustrates the estimated effects of increasing lifetime EITC receipt by \$10000 on the outcome of interest conditional on age of first treatment; Differences across single and married families for girls; coefficients from separate regressions by age at first treatment*

## Results – EITC generosity by age – child works at 25/26



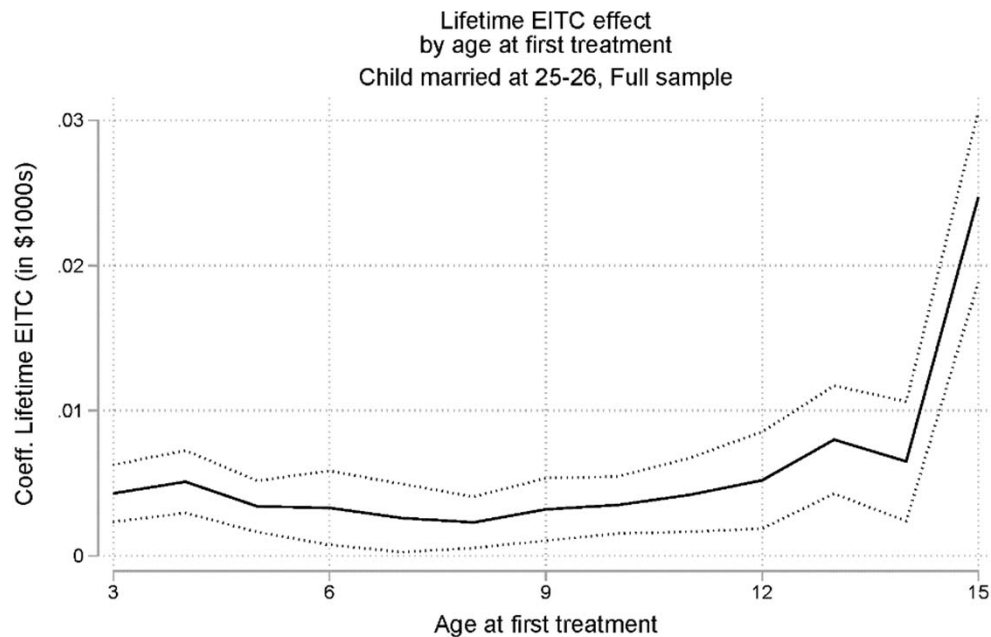
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# Results – EITC generosity by age – child works at 25/26



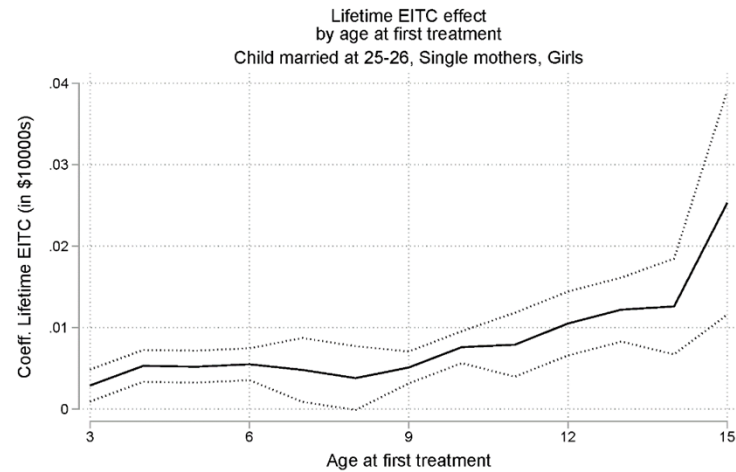
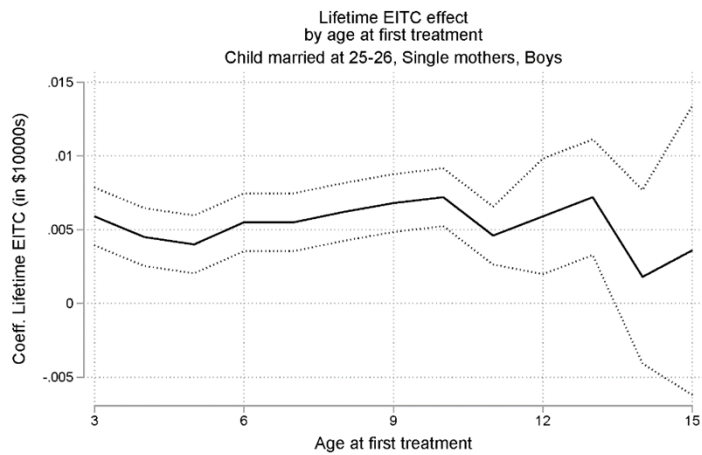
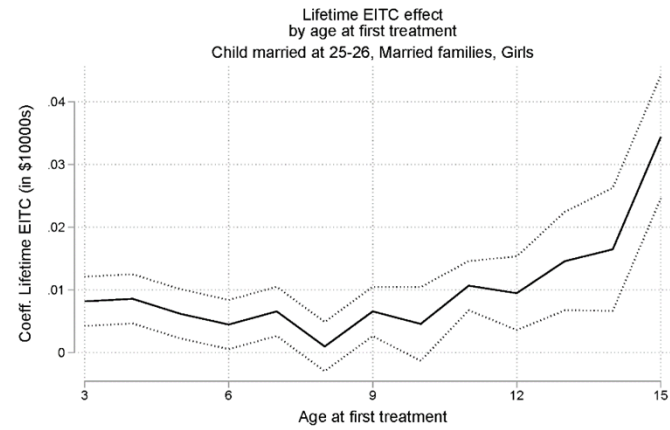
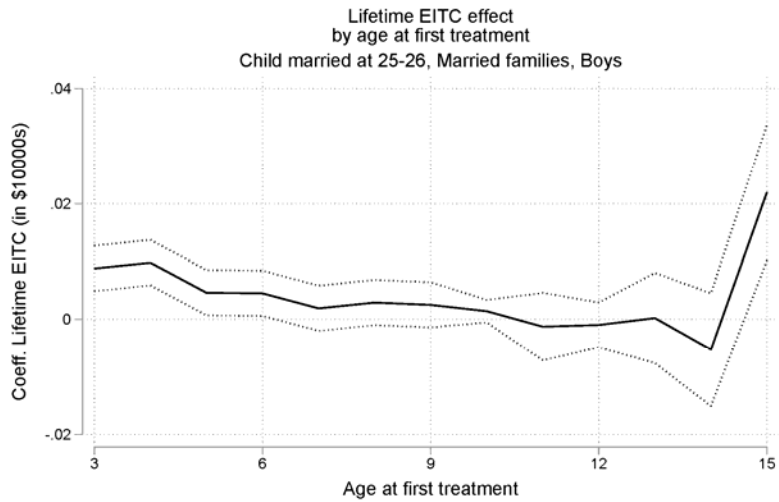
*The figure illustrates the estimated effects of increasing lifetime EITC receipt by \$10000 on the outcome of interest conditional on age of first treatment; Differences across single and married families for girls*

## Results – EITC generosity by age – child married at 25/26



*The figure illustrates the estimated effects of increasing lifetime EITC receipt by \$1000 on the outcome of interest conditional on age of first treatment; coefficients from separate regressions by age at first treatment*

# Results – EITC generosity by age – child married at 25/26



## Discussion and Conclusions

- This study analyzes the effects of EITC and change in EITC generosity on the intergenerational transmission of socio-economic status
- We use a number of restricted micro-data sources to link parents to children, and to income and demographic data for both generations
- The EITC had positive effects on the socio-economic standing and employment prospects of the children's generation
- We find strong evidence of intergenerational transmission of income rank in the U.S. – the correlation coefficients hover around 0.27
- EITC eligibility had different effects depending on the age at first exposure to the two-child credit, with children first treated at ages older than 8 accruing larger benefits than those first affected at ages younger than 4
- Controlling for age at first exposure to the two-child credit, increasing EITC generosity impacted later-life incomes of young teens the most, though the effects are driven by children from married families. Children raised in single-mother households benefit from increased EITC generosity earlier
- Children of all ages experienced positive effects of EITC generosity on the probability of being employed in their mid-20s; the effects are stronger for girls
- Girls are also more likely to be married by their mid-20s, and these effects are stronger for those raised in married families