

# Long Run Effects of the Social Safety Net

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# Long Run Impacts of Early life “Insults”

- Large literature estimating the effect of early life conditions on later life outcomes
- Intrauterine environment (in particular nutrition) “programs” the fetus for particular metabolic characteristics and future disease risk (Barker, 1990)
- Original work done focusing on FAMINES
- Extended to infectious disease, public health, environment, etc.
- Also demonstrated that later life effects extend to economic well-being: educational attainment, earnings
- Emphasis on *in utero* exposure (“fetal origins” hypothesis)

# Long Run Impacts of Early life “Insults”

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- Original work done focusing on infectious diseases, etc.
- Also demonstrated that early life conditions affect economic well-being: e.g., education, health, etc.
- Emphasis on *in utero* effects

## Ways to extend this literature:

Does it extend to more moderate shocks?

Does it extend beyond *in utero* to childhood circumstances?

Can policies that improve early childhood conditions lead to gains in later life?

# Scope of talk

- A common framework for evaluating human capital, training, and early life stimulation/parenting programs is as an investment: Resources are invested upfront that generate returns over the longer run (education, labor market, health).
- Can we think about redistribution programs and the social safety net within that same lens?
  - More typically we think of social safety net as providing current period remediation (welfare, in-work, public health insurance)
- How does investing when children are young lead to private and public benefits in the longer run? Does age of exposure matter?
- There is a new and growing literature that seeks to quantify the medium and longer term effects of the social safety net.

# Social safety net – in this context

- Programs that provide transfers (cash or otherwise) to families
- In this lecture, I narrow this further:
  1. Cash or in-kind programs targeted at the disadvantaged
  2. Aimed at children (and their families)
  3. Focus on the U.S., developed country programs and policies

# What is needed to do this work

## DATA

- Longitudinal
- Information about childhood circumstances

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- Need a credible research design to evaluate the effect of the program

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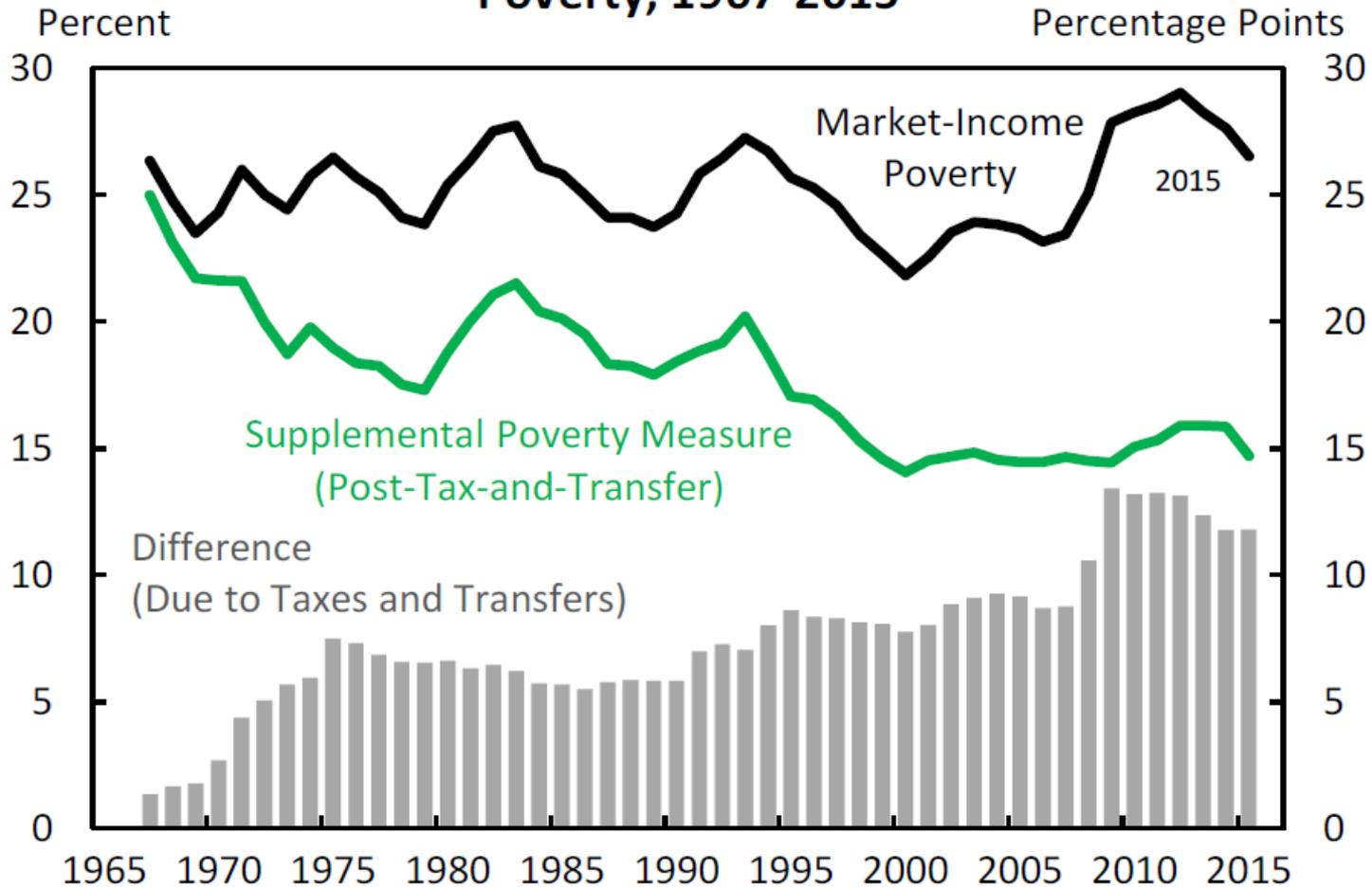
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## TIME

- To measure impacts of childhood experience on adult outcomes (→ challenge if policies need to be proven effective in a short term setting)

Typically research designs are developed initially for short run or first stage analysis

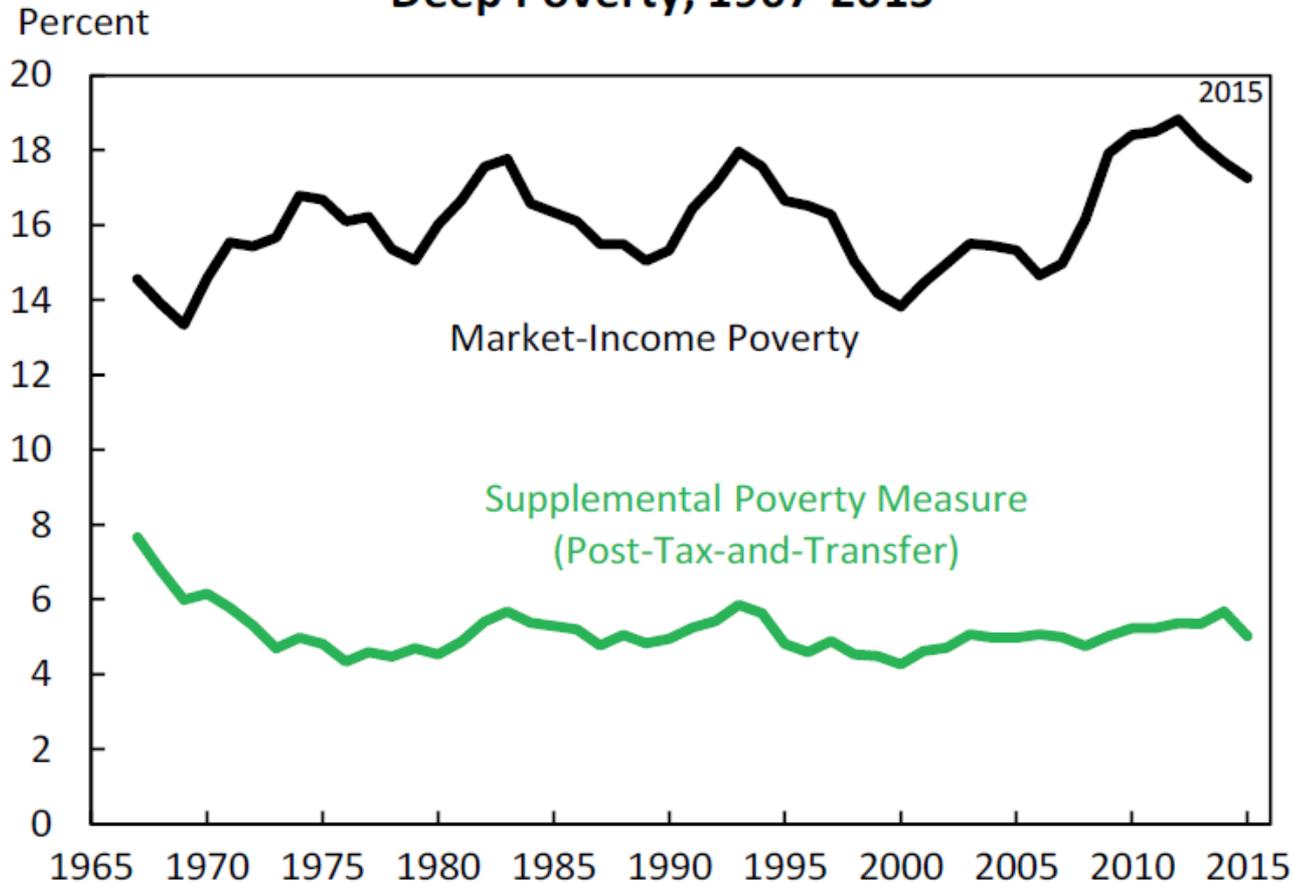
## Trends in Market-Income and Post-Tax-and-Transfer Poverty, 1967-2015



Source: Furman “Reducing Poverty: The Progress We have Made and the Path Forward,” CEA, 1/17/17. From Wimer et al 2015.

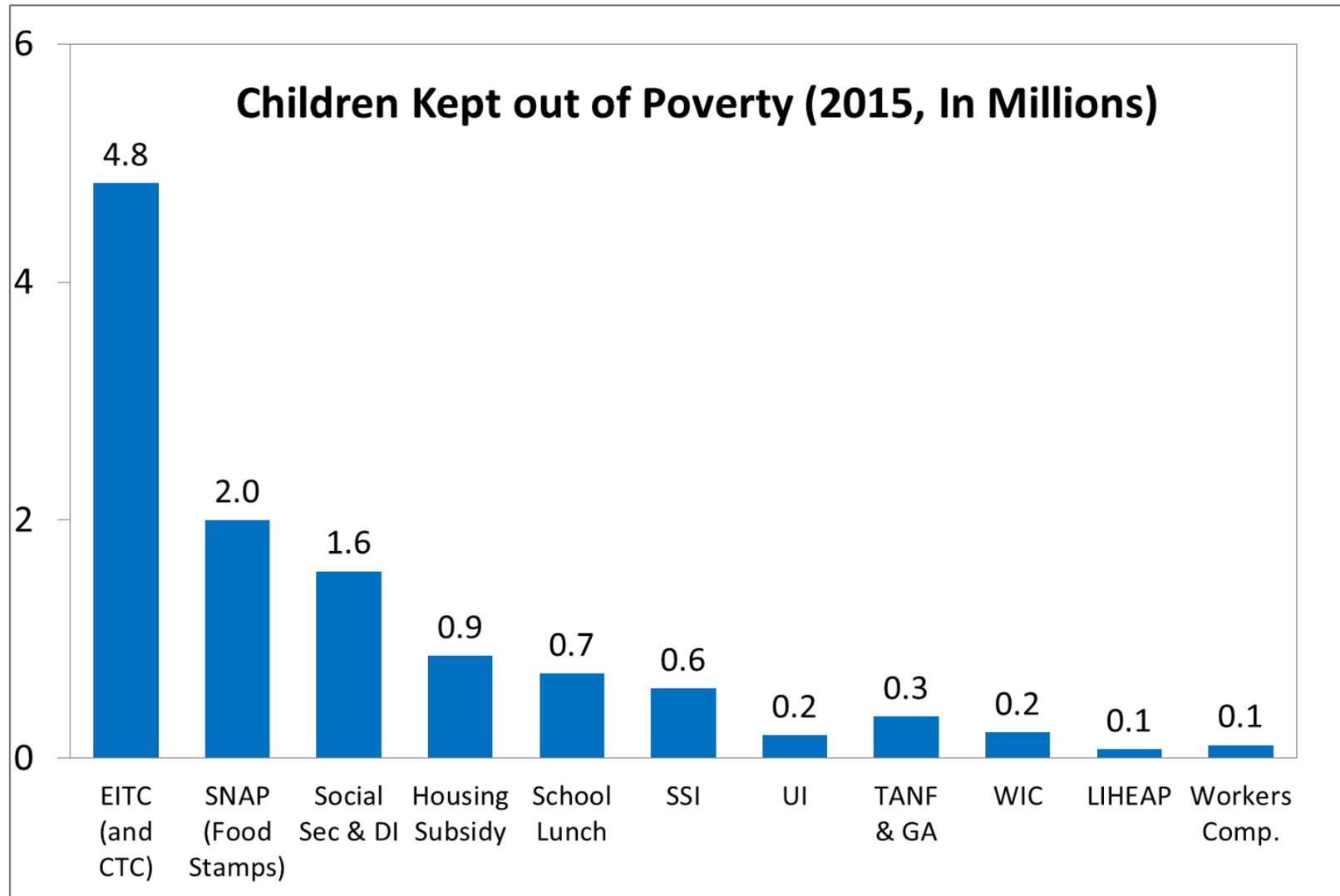
# Much less improvement in deep poverty (<50% poverty threshold)

**Figure 9**  
**Trends in Market-Income and Post-Tax-and-Transfer**  
**Deep Poverty, 1967-2015**



Source: Furman “Reducing Poverty: The Progress We have Made and the Path Forward,”  
CEA, 1/17/17. From Wimer et al 2015.

# Decomposing the anti-poverty effects by safety net program



Source: Calculations based on *Supplemental Poverty Measure, 2015* (Renwick & Fox), U.S. Department of Census, Current Population Report P60-258.

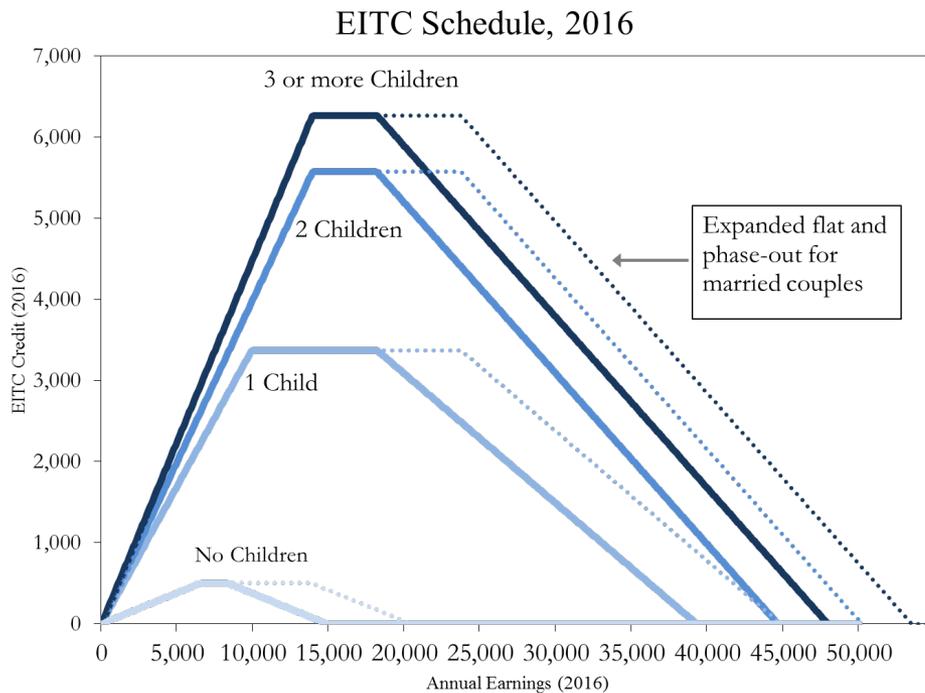
# Summarizing this work: the plan

- I. Cash assistance (through welfare or tax system)
- II. Food Stamps
- III. Public health insurance

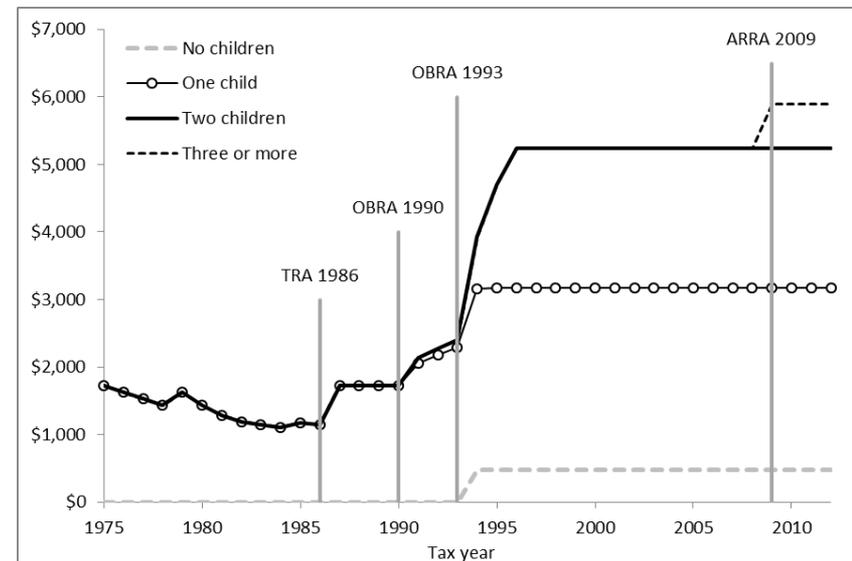
# I. CASH ASSISTANCE

# In-Work Assistance: Earned Income Tax Credit

- Largest anti-poverty program for children in the U.S.
- In 2015, almost 20 percent of all tax filers and 44 percent of filers with children receive the credit.
- In-work assistance growing – in 15 OECD countries (OECD (2011)) – though vary in generosity and targeting.



Maximum benefits by number of children



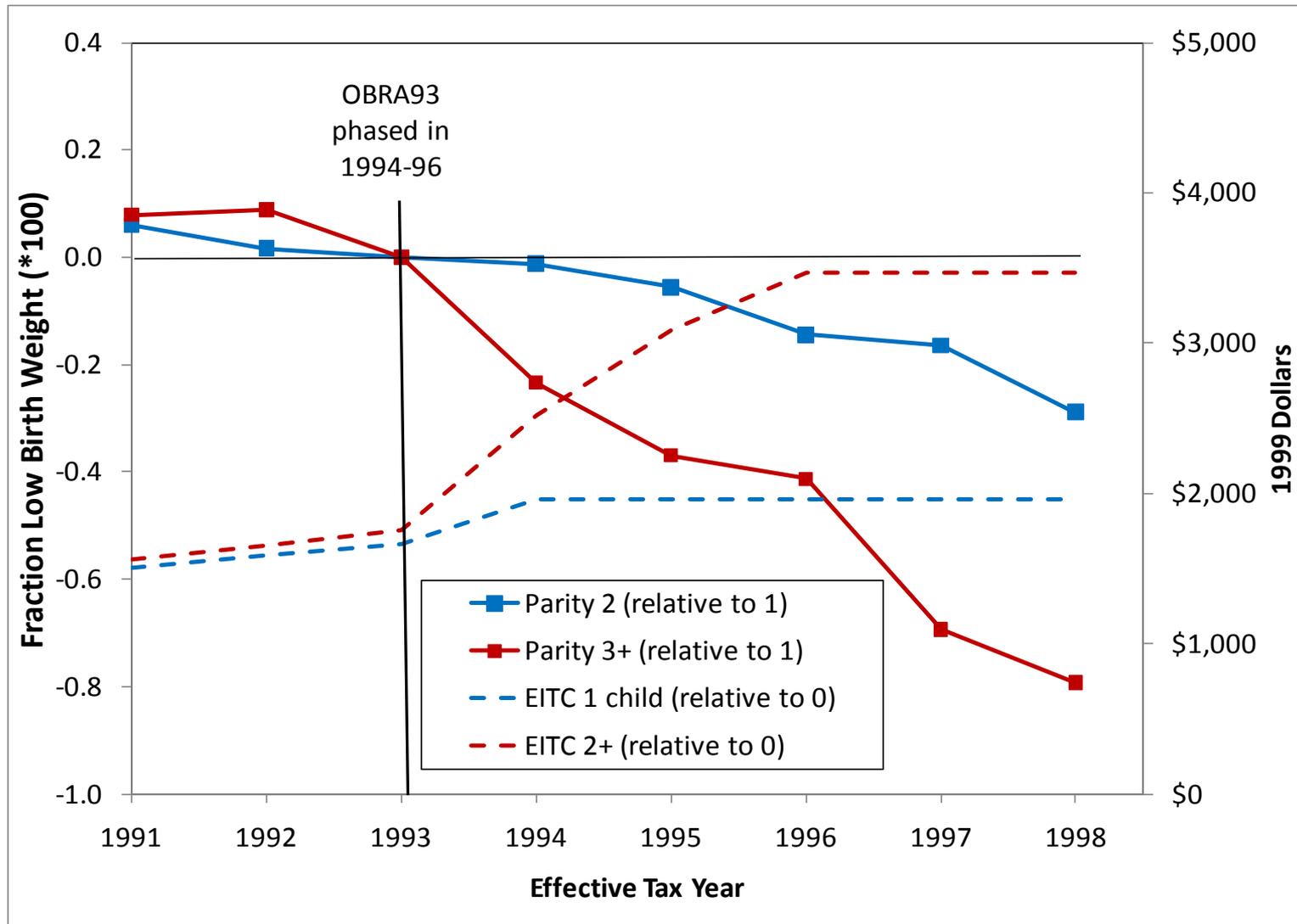
# Upstream Findings of EITC

- Robust evidence that EITC leads to increases in employment for single parents (who account for 75% of cost of program) (Eissa and Liebman QJE 1996, Meyer and Rosenbaum QJE 2001, Grogger RESTAT 2003)
- Little evidence of intensive margin response in the phase-out (21% phase-out rate)
- Efficient transfer – gains in after tax income due to credit effect and induced earnings: induced earnings accounts for half of the total anti-poverty effects (Hoynes and Patel 2016)
- These studies leverage tax reform induced changes in EITC by family size
- Establishes first stage effect of income (and mom's employment)

# Effects of the EITC on health

- Expansion of the EITC is associated with a reduction in risky biomarkers in mothers (Evans and Garthwaite 2014).
  - This suggests that increases in income can reduce cortisol.
  - Chronic elevations of cortisol can lead to dysfunction in metabolic and immune systems
- Hoynes, Miller and Simon (2015) find that EITC expansions lead to reductions in low birth weight births
  - Some evidence that this may operate through reductions in smoking and increases in prenatal care
- Strully et al 2010 use rollout of supplemental state EITCs and find positive effects on average birthweight.
- These are not long term outcomes *per se*, but serve as important markers of possible long run effects.

# Effect of 1993 EITC expansion on low birth weight



Source: Hoynes, Miller and Simon (2015) *American Economic Journal: Economic Policy*, 2015. Estimates are for single mothers with a high school degree or less.

# Effects of the EITC on human capital and education

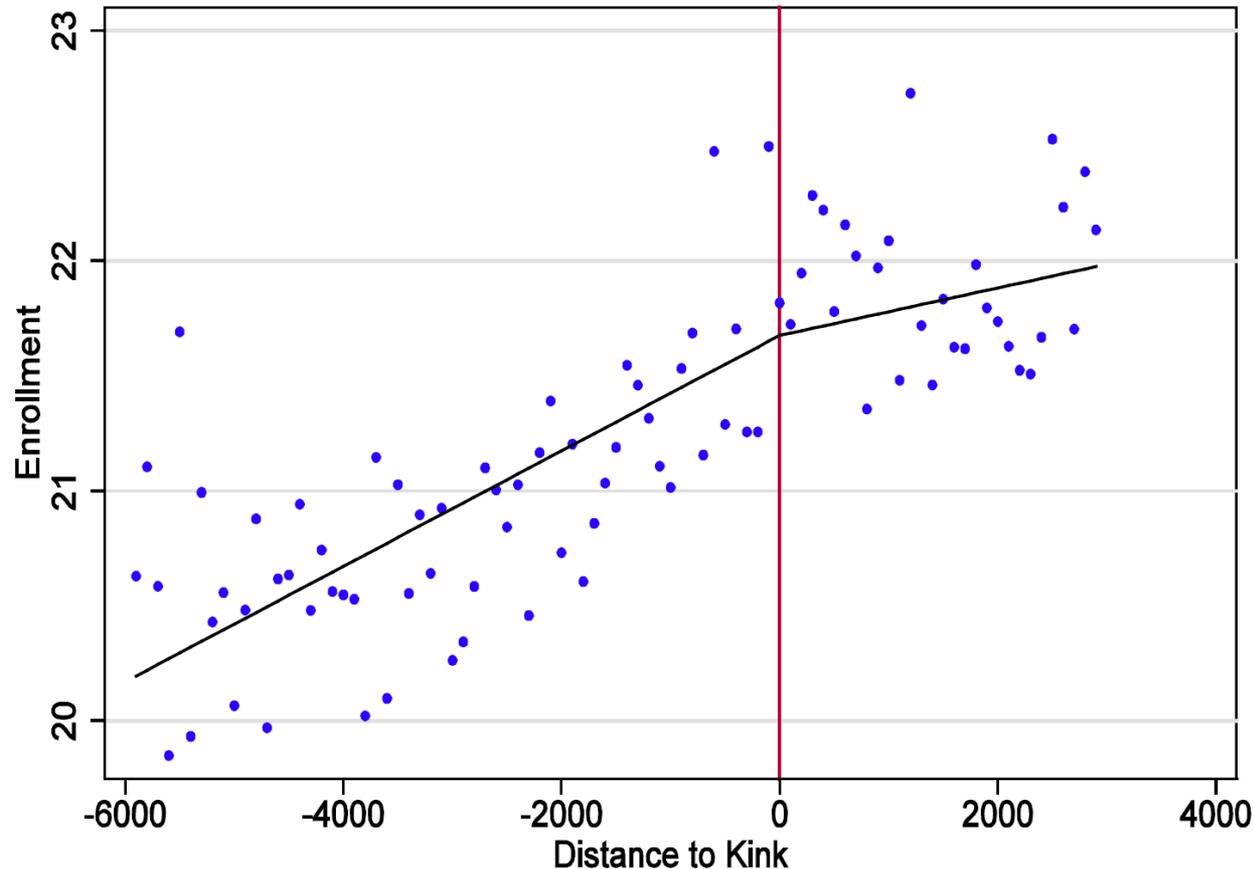
- Dahl and Lochner (2012) find that the EITC leads to an increase in children's reading and math test scores. A \$1,000 increase in family income due to EITC expansions raises combined math and reading test scores by about 0.06 standard deviations.
- Chetty, Friedman, and Rockoff (2011) use the nonlinearity of the EITC to identify the effect of EITC receipt on New York City schoolchildren's test scores. They find that \$1,000 in EITC income raises test scores by 0.06–0.09 standard deviations.
- Bastian and Micheltore (2015), Maxfield (2013) and Manoli and Turner (2014) find that the EITC leads to increases in educational attainment and college going.

# Similar findings for Canadian Child Benefits

- Milligan and Stabile (2011) use variation in the Canada Child Tax Benefit (introduced in 1993) and the National Child Benefit Supplement (introduced in 1998) using data from 1990–2005
- Unlike the EITC, these benefits are more universal; available in work and out of work
- They find that higher child benefits improve child and maternal mental health and some measures of child physical well-being. For boys, higher child benefits improve test scores and educational outcomes.
- Similar magnitudes to Dahl and Lochner (2012)

# EITC and college enrollment 1 and 2 years after HS

## Foundation for *Regression Kink Design*



Source: Manoli and Turner (2015) “Cash-on-Hand and College Enrollment: Evidence from Population Tax Data and the Earned Income Tax Credit.”

# Long Term Effects of Early US Cash Welfare Program

Aizer, Eli, Ferrie and Lleras-Muney AER 2016

- Mothers' Pension program (1911–1935) -- first U.S. welfare program for poor mothers with dependent children
- Research design: compare rejected to accepted applicants
- Data: Digitized records in several states
- Data/outcomes: mortality, [WWII enlistment] underweight, educational attainment and income in early adulthood
- Findings: Receiving the pension as a child leads to:
  - Increased longevity (1.5 years of life expectancy)
  - reduced the probability of being underweight by half
  - increased educational attainment by 0.4 years
  - increased income in early adulthood by 14%
- Larger (though not statistically significantly) for those exposed at younger ages

# Casino Profits for American Indians

(Akee et al, 2010)

- Introduction of casinos led to new cash transfers for (disadvantaged) American Indians; here they use detailed data for a population in rural North Carolina.
- Comparison across cohorts and between eligible and ineligible (not American Indians) families, pre and post Casino opening
- Findings: Cash transfer as a child leads to increase in education and reduction in criminality in young adulthood
- Suggested mechanism: improvement in parental behavior (not parental time)

## II. Food Stamps (SNAP)

# Food Stamps (SNAP)

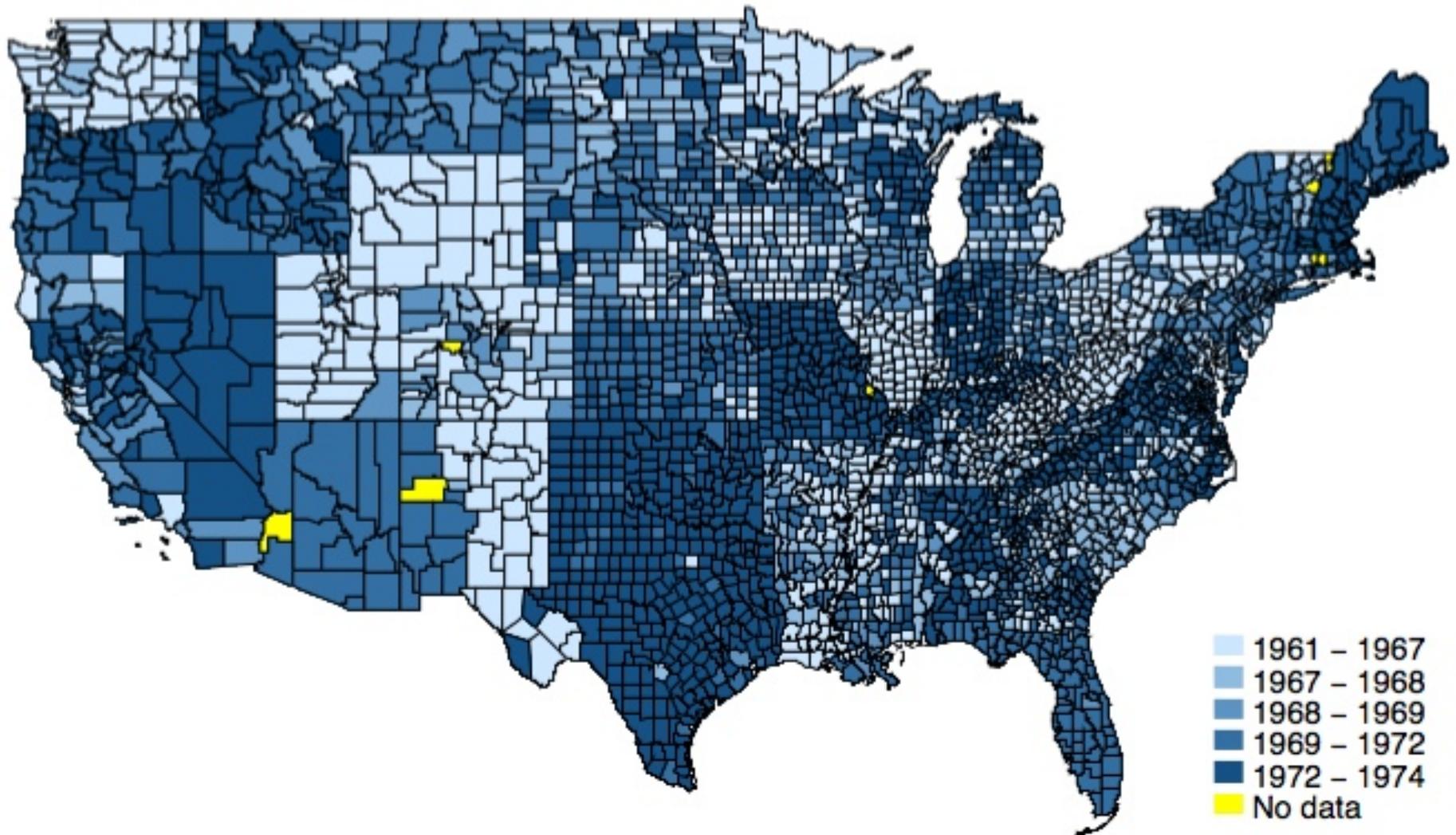
- In 2015, SNAP served 46 million people at a cost of \$70 billion (average benefit \$4.20 per person per day)
- Only universal social safety net in the U.S.
- Means tested, benefit phased out with additional income
- Benefits are vouchers though now distributed through debit cards (can use to purchase most food items in grocery stores)
- Survived welfare reform in the 1990s intact but many current proposals for reforming the program: converting to a block grant and adding work requirements
- Federal program; no area variation and few reforms over time → *challenge for evaluation*

# Leveraging the Historical Rollout of SNAP

Joint Research with Doug Almond and Diane Schanzenbach

- Use initial rollout of the Food Stamps, which took place across the approx. 3,200 U.S. counties over 1961-1975
- We leverage variation over the rollout and estimate a quasi-experimental research design; event study model and difference-in-difference
- Comparison across counties and over time while controlling for county, year, and a host of other potentially confounding effects (Hoynes and Schanzenbach 2009 document the validity of this approach)

# Geographic Rollout by County

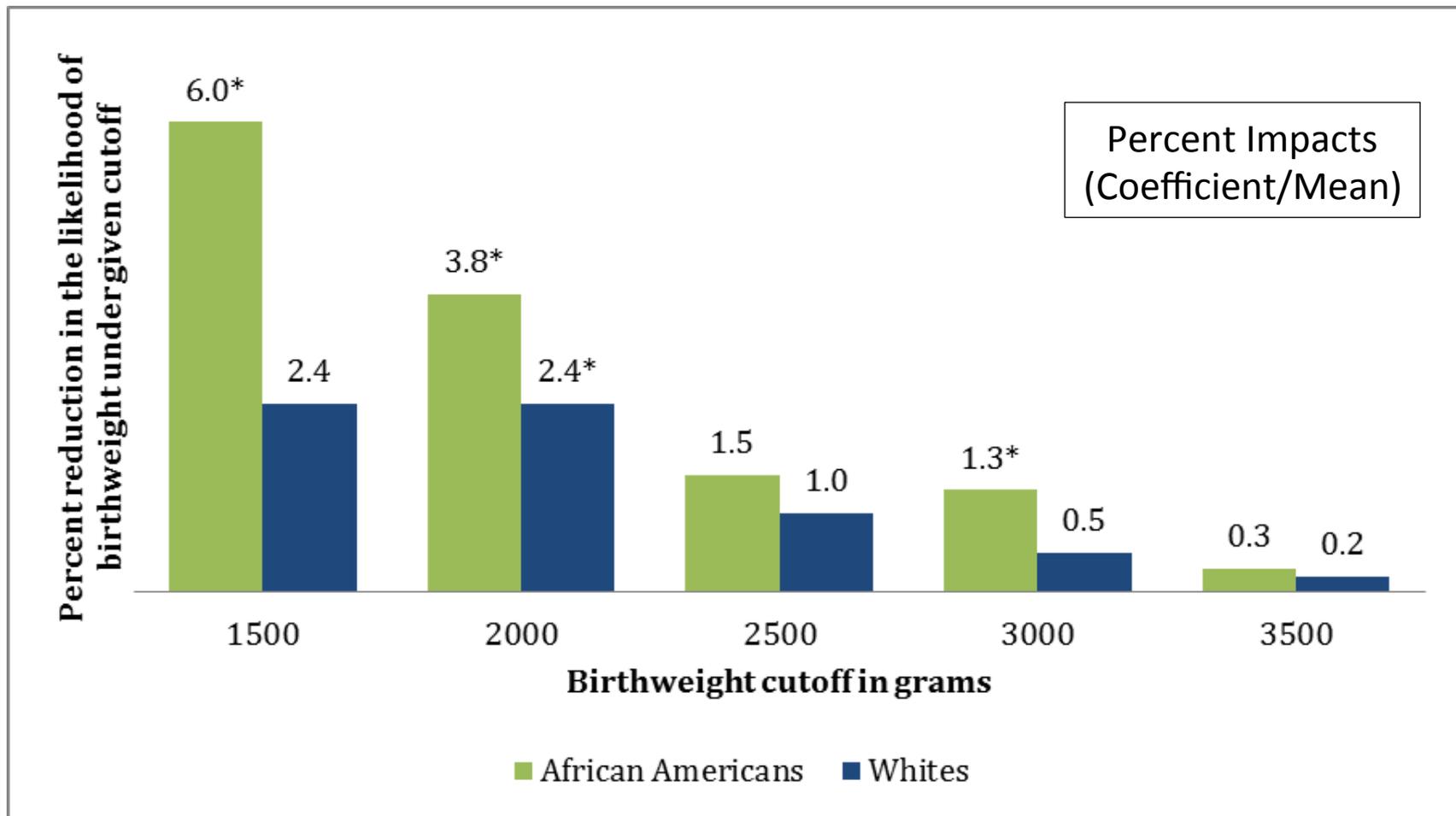


# Short Run Effects of Food Stamps on Infant Health

Almond, Hoynes and Schanzenbach (RESTAT 2011)

- *Why infant health?* Health at birth is an important predictor of later life economic and health outcomes (Black et al 2007, Oreopoulos et al 2008, Figlio et al 2014)
- Use initial rollout of the Food Stamps (1961-1975) to estimate the effects of the food stamps on infant health
  - OUTCOMES: birth weight, incidence of low birth weight, infant mortality
- Administrative micro data on census of births (vital statistics) available from 1968+.
  - Use *county of birth* to assign food stamps treatment
- Mother is “treated” during pregnancy with varying access to food stamps depending on county and month-year of birth

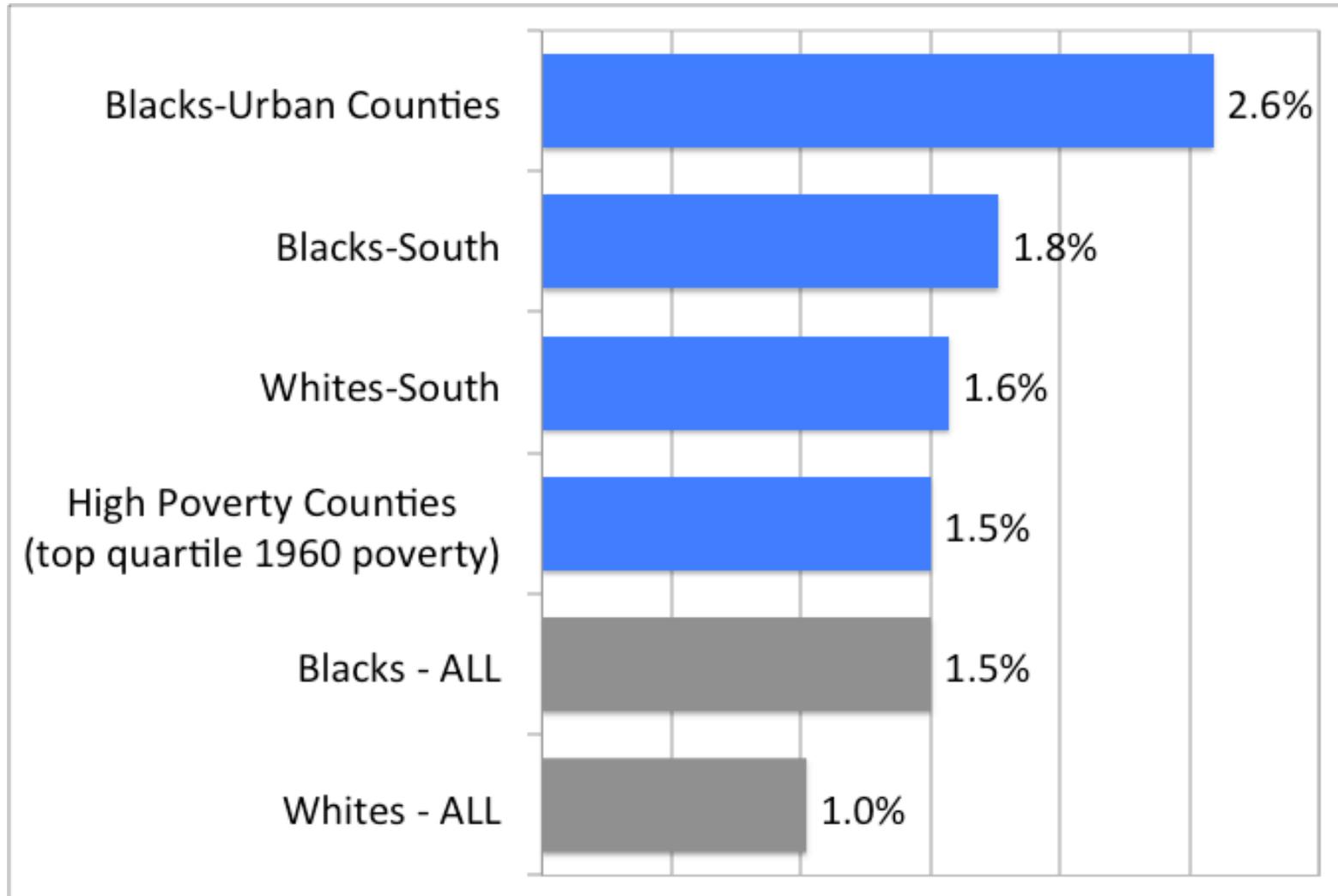
# In Utero exposure to Food Stamps: Reduction in likelihood of birth weight below selected cutoffs



Source; Almond, Hoynes and Schanzenbach, *Review of Economics and Statistics* 2011.

\* denotes the estimate is statistically significantly different from 0 at the 5% level.

# Food Stamp reduction in low birth weight (<2500gms) *High Impact Subgroups*



Source; Almond, Hoynes and Schanzenbach, *Review of Economics and Statistics* 2011.

## Reflection – why might food stamps matter?

- Hoynes and Schanzenbach (2009) shows that food stamps increase family resources, and that households react similarly to food stamps as they do to cash transfers
- So we may be capturing effects of income, but also conclude that one important channel is increases in food and nutrition

# Effects of Childhood Exposure to Food Stamps on Adult Health and Economic Well-Being

Hoynes, Schanzenbach and Almond (AER, 2016)

- Because food stamps was introduced 50 years ago, the individuals who were children when the program was introduced are now adults → we can use the food stamps rollout to estimate the effect of childhood exposure to food stamps on completed education, earnings, and detailed health outcomes.
- Again, we use event study and difference-in-difference models, comparing trends using county and year of birth
- Our design allows us to explore *when treatment matters*

## How may FSP affect adult outcomes?

- FSP leads to increases in income and nutrition. Additionally, we build on the extensive literature linking early life influences to later life economic and health outcomes
- ECONOMIC OUTCOMES: Heckman and others argue that investment in early childhood leads to higher returns to human capital than investments later in life
- HEALTH OUTCOMES: “Fetal origins” hypothesis, from developmental biology and Barker (1990) argues that there is a connection between fetal development and early “critical” periods (nutrition in particular) and chronic conditions in adulthood.
- Reductions in stress may be an alternative pathway. Recent work shows that the SES/cortisol correlations may be causal and manipulated by policy (Aizer et al 2015, Evans and Garthwaite 2014, Fernald and Gunnar 2009, Haushofer et al 2012)

# Data and Outcomes

- Panel Study of Income Dynamics, longitudinal data links across multiple generations
- Two indices: economic self sufficiency, metabolic health
- Use county and year-month of birth and family of origin characteristics (e.g. parent's education)
- Sample includes those born between 1956–1981; outcomes measured at ages 24–53
- Caveat: these folks are still pretty young; we may be capturing a delay in onset

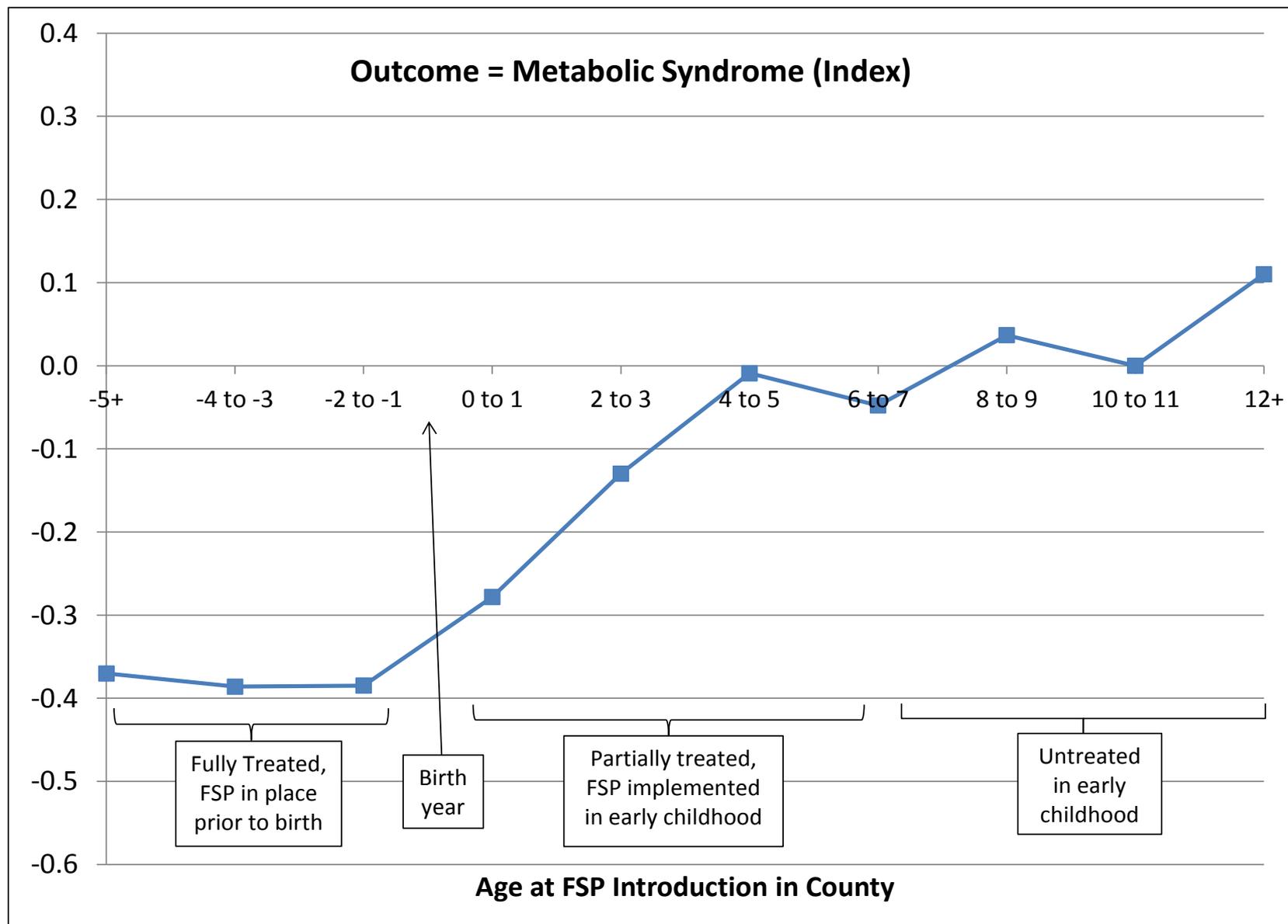
Metabolic Syndrome

Obese (=1)  
High blood pressure (=1)  
Diabetes (=1)  
Heart disease (=1)  
Heart attack (=1)

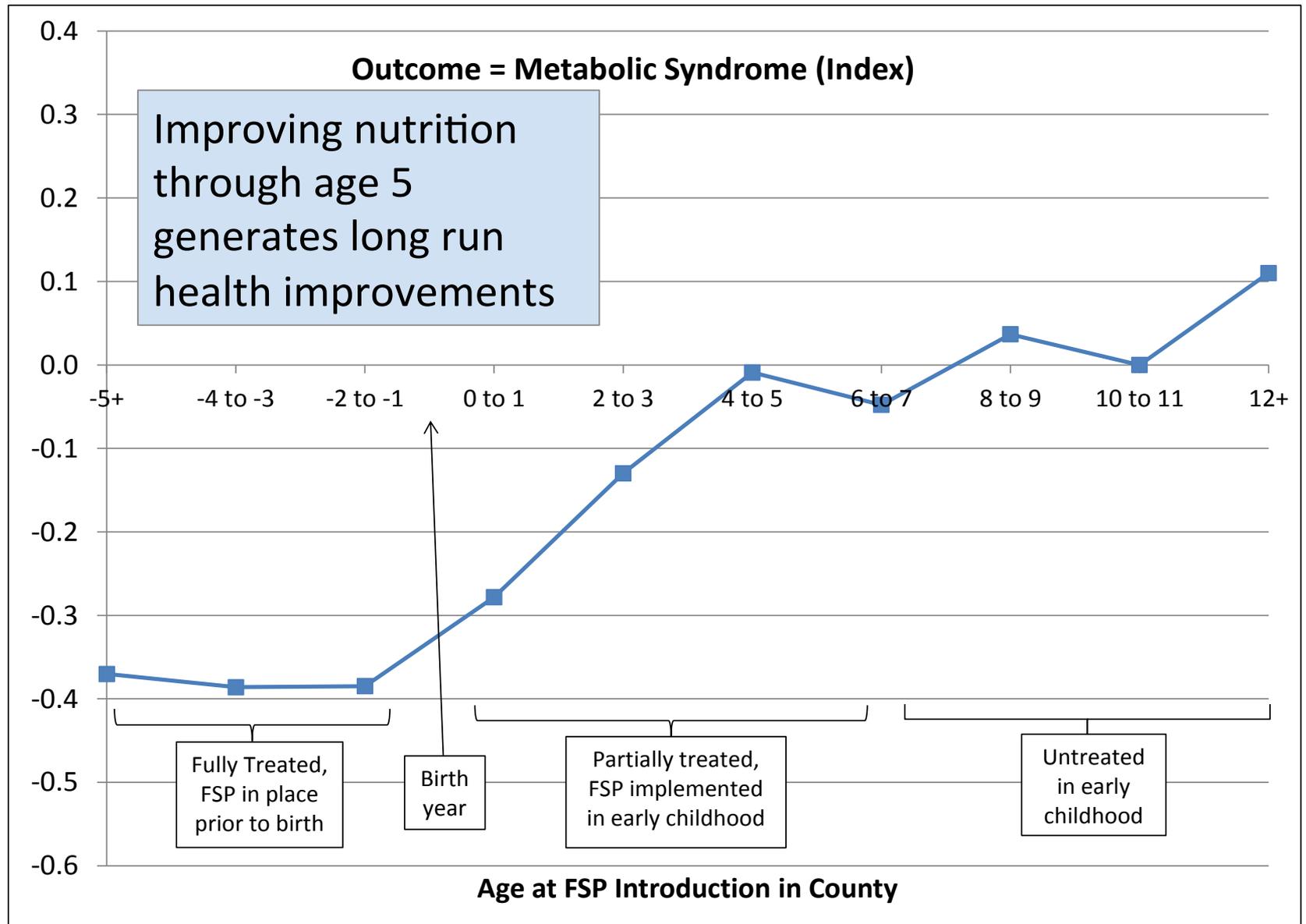
Economic self-sufficiency

High school graduate (=1)  
Employed (=1)  
Not poor (=1)  
Not on TANF (=1)  
Not on food stamps (=1)  
Earnings  
Family income

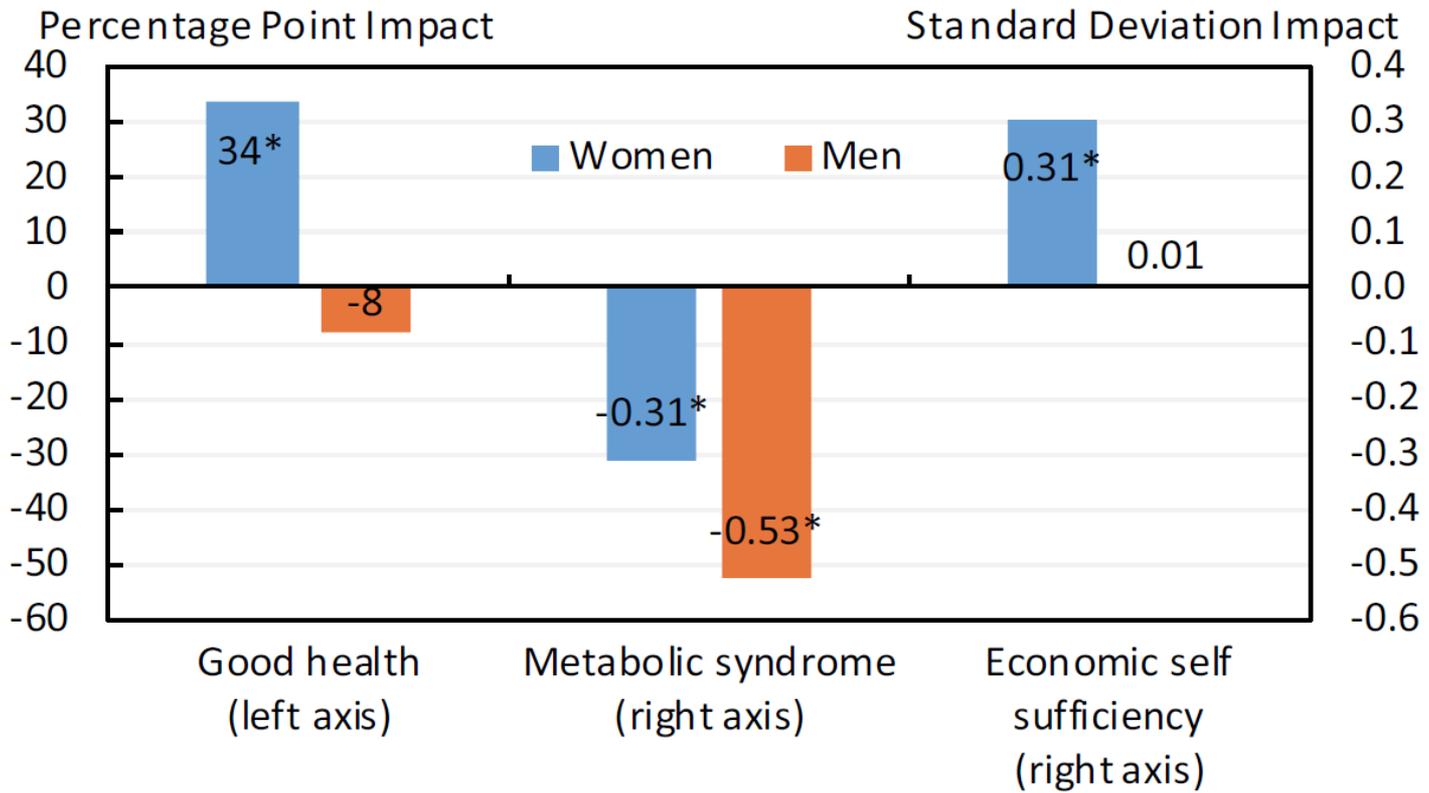
# Key result: Food Stamps in childhood reduce adult metabolic syndrome



# Key result: Food Stamps in childhood and adult metabolic syndrome



## Figure 12: Long-Term Impacts of Exposure to Food Stamps as a Child



Note: \* denotes statistically significant result; estimates are for a high-impact sample where the head of household had less than a high school education

Source: Hoynes, Schanzenbach, and Almond (forthcoming)

# Work in Progress

Joint with Martha Bailey, Maya Rossin-Slater and Reed Walker

- Led by Martha Bailey, we now have 20% Census 2000 sample (43 million obs) linked to the Social Security Administration *NUMIDENT* file, which records detailed place of birth (from birth certificates)
- Estimating effects of childhood exposure to food stamps to adult human capital and labor market outcomes
  - Human capital, economic self sufficiency, living conditions, disability, mortality, incarceration

# Medium term effects on children

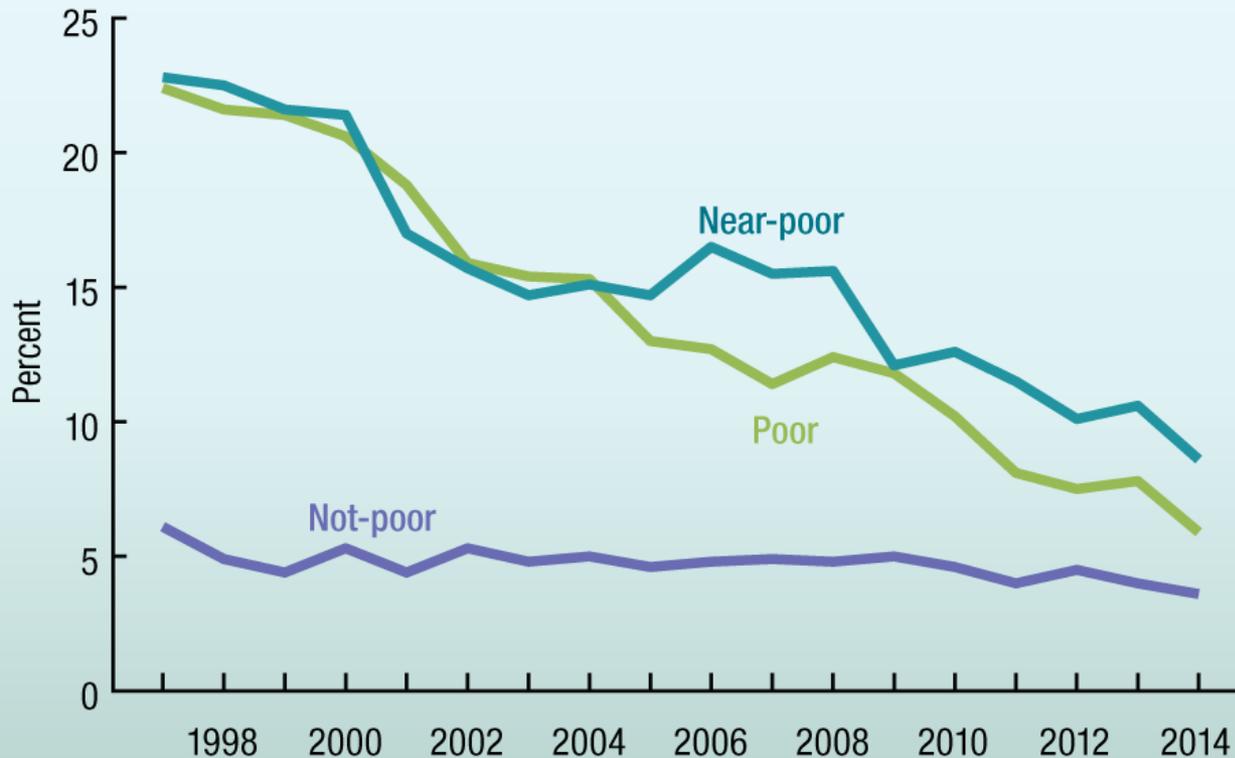
- East (2015) uses variation in immigrant access to food stamps as a result of welfare reform and finds that additional childhood exposure to food stamps (between ages 0–5) leads to a reduction in poor health and school absences in later childhood.

# III. Public health insurance (Medicaid)

# Public health insurance for children

- Major increase in health insurance among children, through expansions to Medicaid and CHIP in the 1980s and 1990s.

Children who were uninsured at the time of interview, by poverty status: United States, 1997–2014



SOURCE: CDC/NCHS, National Health Interview Survey, 1997–2014.

# Medicaid – Three Research Designs

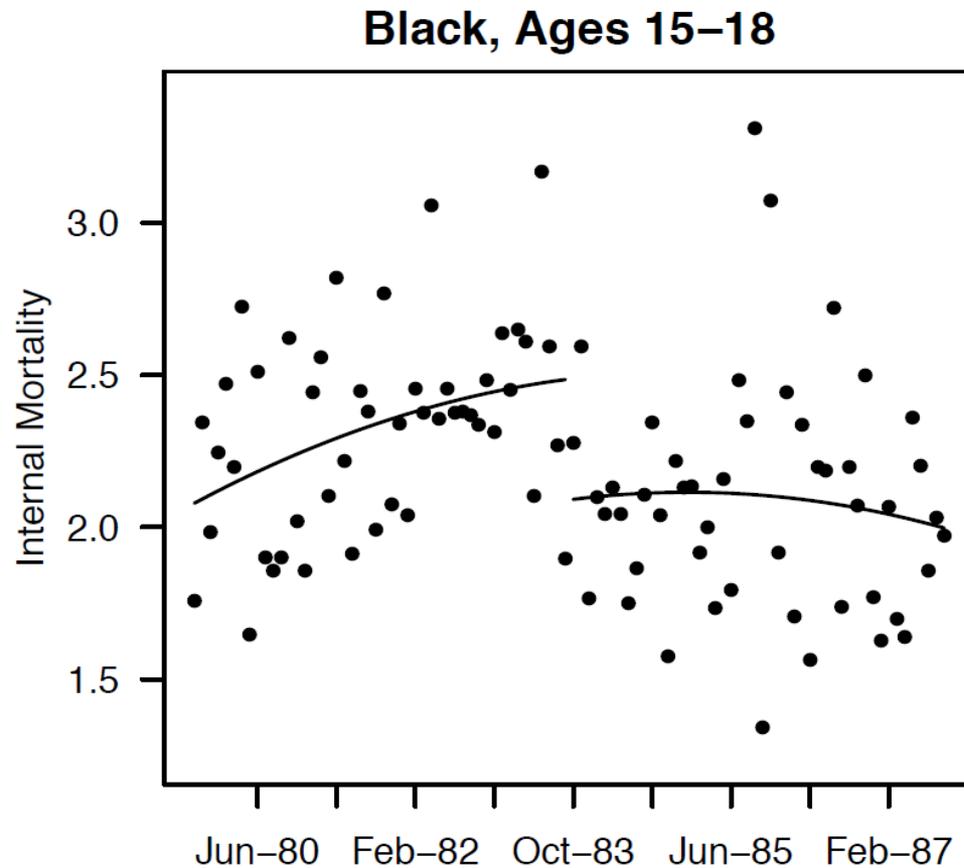
- Initial Medicaid rollout (1966–1970)
- Sharp change in eligibility at beginning of Medicaid expansions (children born after 9/30/83)
- Variation in expansions by state, year of birth (and family income)

Growing body of evidence on the effect of childhood public health insurance on later life (young adulthood) health and economic well being

# Modern day expansions (1980s-1990s)

- TEEN HEALTH: Improvement in self reported health (Currie et al 2008); reduction in mortality, particularly for blacks (Wherry and Meyer 2015),
- EARLY ADULT HEALTH: Reductions in mortality (Brown et al 2014), reductions in hospital admissions for chronic conditions (Wherry et al 2015), lower obesity and hospitalization (Miller and Wherry 2016)
- EARLY ADULT HUMAN CAPITAL: Increases in educational attainment (Cohodes et al, 2016), earnings, and tax payments (Brown et al, 2014)

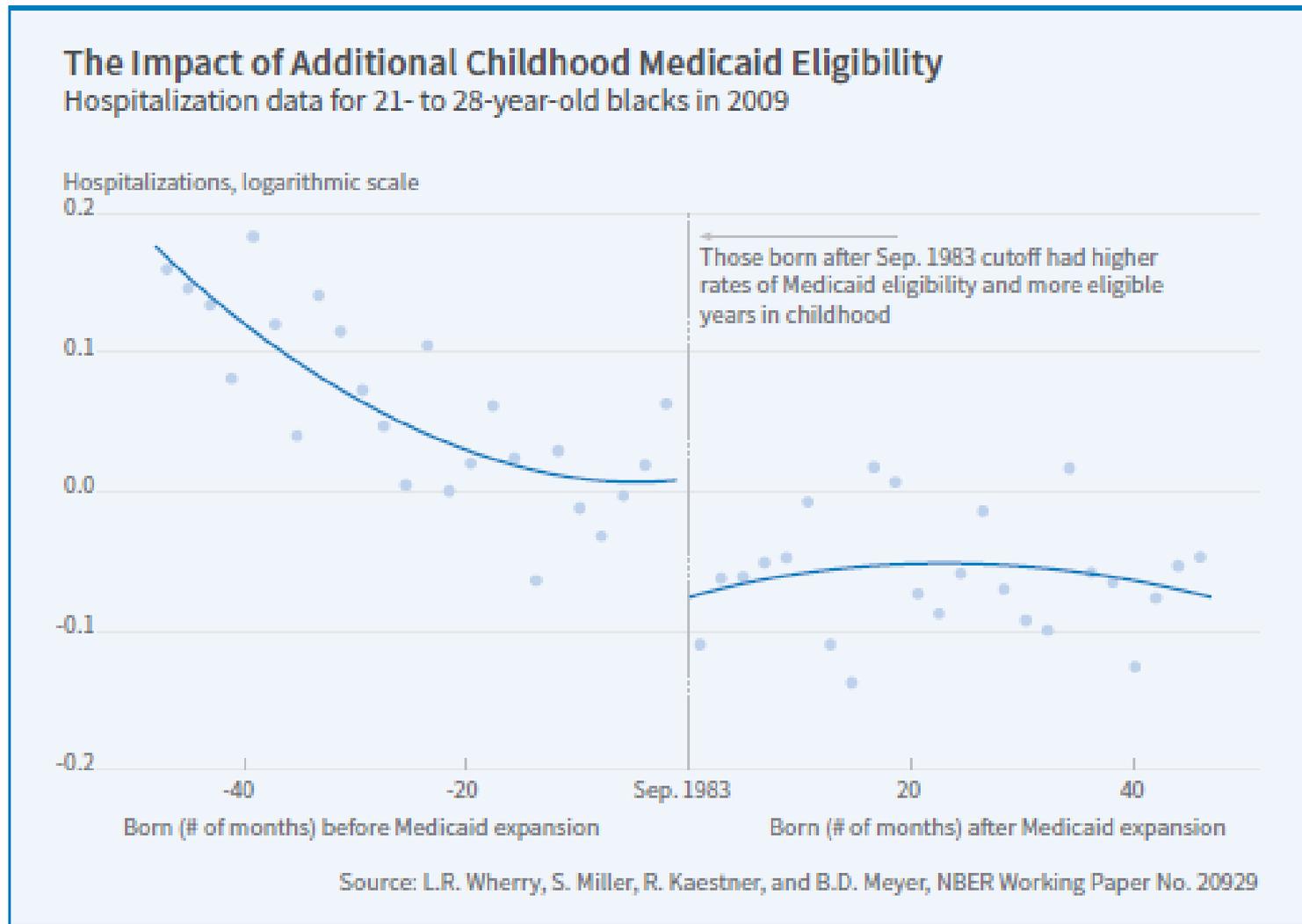
# Reduced Adolescent Mortality from Internal Causes for Blacks



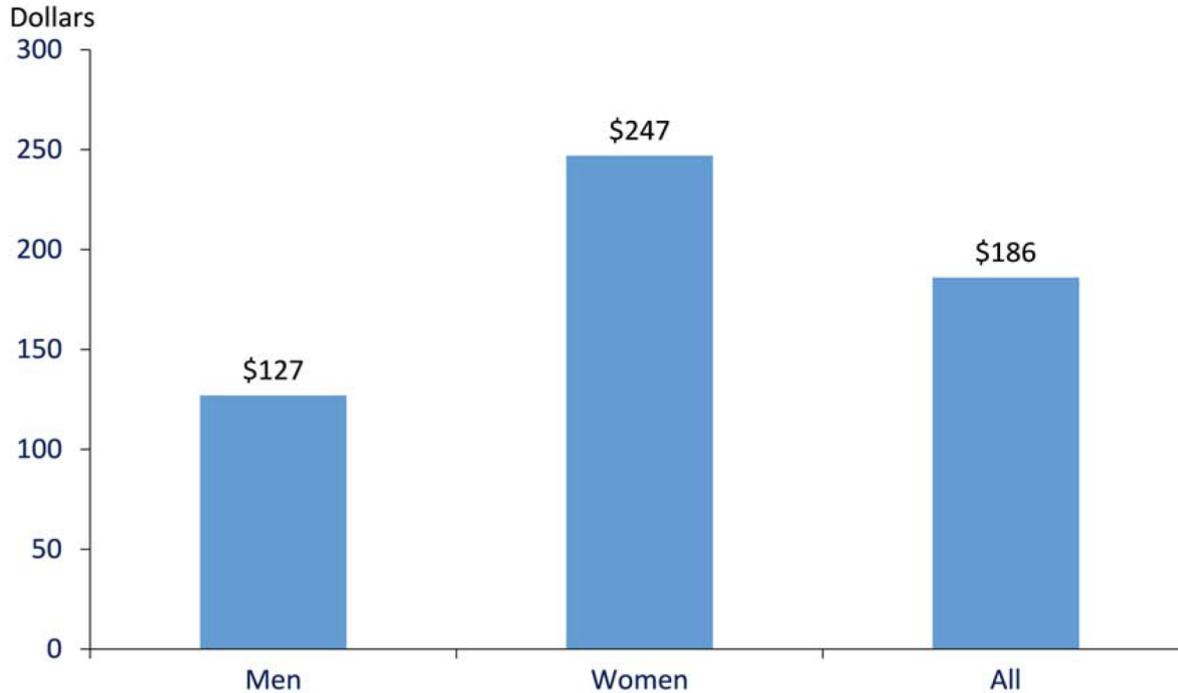
Those born after Oct 1983 triggered large Medicaid coverage gains through the 1990 policy expansion → Lower mortality in late adolescence

Internal deaths  
External = accidents, homicide, suicide

# And, reduced hospitalizations at ages 21-28



## Increase in Income and Payroll Taxes Paid Through Age 28 from an Additional Year of Medicaid Eligibility in Childhood



Source: Brown, Kowalski, and Lurie (2015).

Note: Cumulative tax payments based on earnings through age 28.

Using variation across states and over time in Medicaid expansions, greater insurance in childhood → Higher earnings and human capital in young adulthood

# Medicaid rollout (1966-1970)

- Increases in Medicaid exposure between ages 0–5 leads to reductions in chronic conditions (particularly high blood pressure) in adulthood (Bourdreaux et al 2016)
- Additional childhood exposure reduces adult mortality, disability and increases adult employment (Goodman–Bacon 2016)

(quick bonus) Housing Vouchers

# More mixed effects of housing vouchers

- Jacob et al (2015) use a lottery design in Chicago and find little effect of housing vouchers on children up to 14 years after voucher lottery (examine effects on test scores, education, criminal justice, earnings)
- Chetty et al (2016) finds positive effects of housing vouchers on education and earnings but only for children who move when young
- Consistent insight: it matters where (and when) the child moves, with less (no) gain if they don't improve neighborhoods

# Concluding thoughts and next steps

- Increasing income and resources at bottom of the distribution may generate substantial benefits in the longer run, both private and public, that have only recently been quantified
- It implies that benefits of safety net are broader than previously thought. Positive external benefits to taxpayers.
- In the research going forward, we need to learn more about:
  - Mechanisms
  - Magnitudes (cost benefit analysis?)
  - Comparisons across cash, near cash, and in kind benefits
  - When and for whom are the benefits the greatest
- This work is still in its infancy, and there is much more to learn

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