

# Why SNAP Matters: Short and Long Run Effects on Health and Wellbeing

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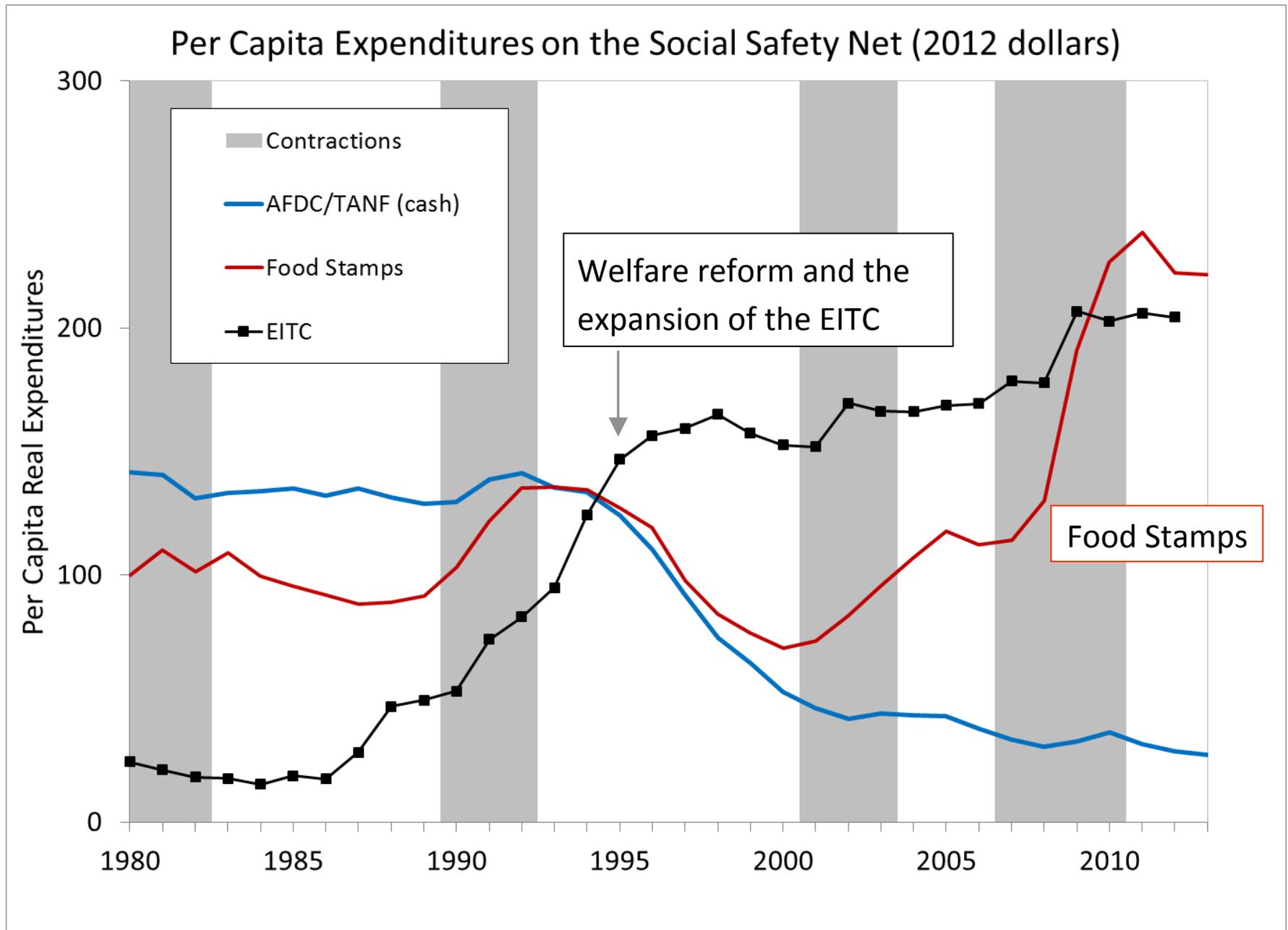
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# Supplemental Nutritional Assistance Program (SNAP), A Snapshot

- Previously known as Food Stamps
- In FY2015, SNAP served 45.8 million people in 23 million households at a cost of \$70 billion dollars
  - Average monthly benefit \$258 per household, About \$4.20 per person per day
- Central element of the U.S. social safety net and main government policy aimed at reducing food insecurity; available nationwide since 1975
- Survived welfare reform in the 1990s intact but many current proposals for reforming the program: converting to a block grant, adding work requirements, etc.



Source: Bitler and Hoynes “The More Things Change, the More They Stay the Same? The Safety Net and Poverty in the Great Recession,” *Journal of Labor Economics*. 2016

Given where we are at, this is a good time to assess *Why SNAP Matters*

- 1. SNAP and the social safety net*
- 2. Why SNAP is a central part of the safety net*
- 3. Short and long run effects of SNAP on health*

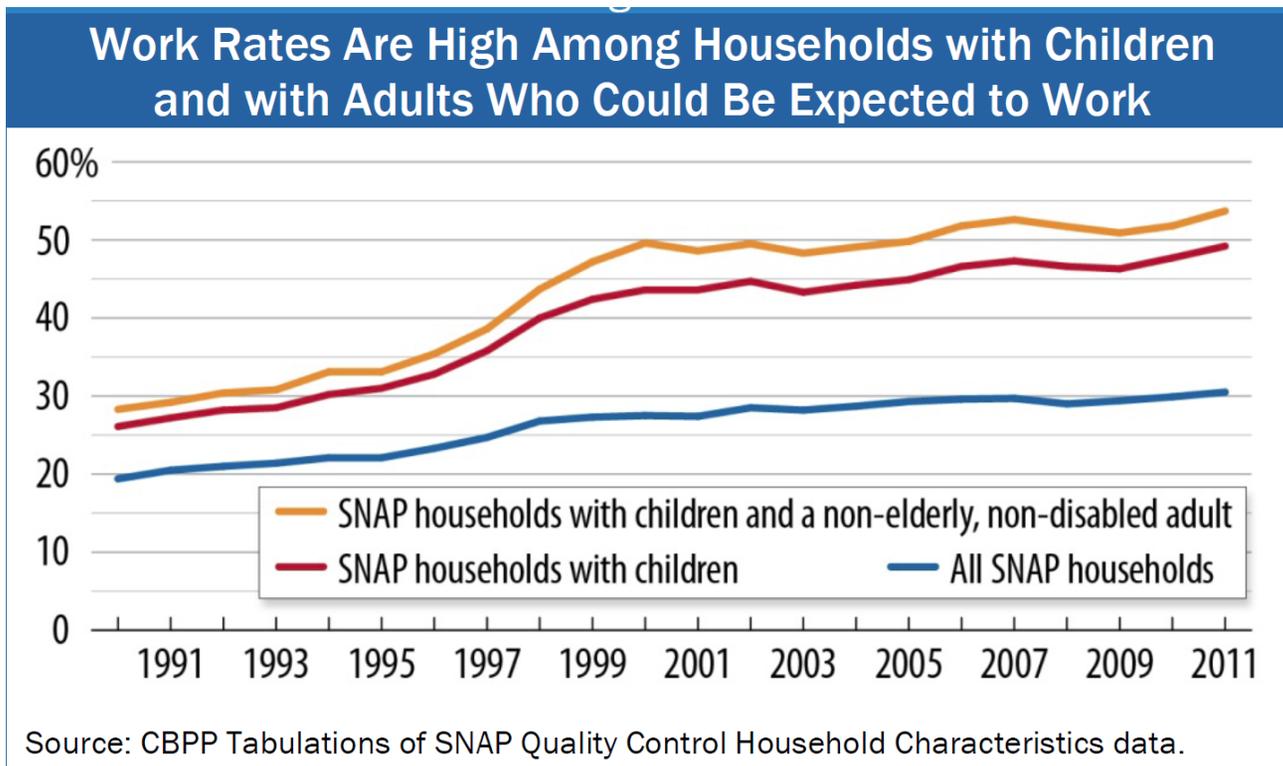
# 1. SNAP and the Social Safety Net

# SNAP Eligibility and Benefits

- Means tested: eligibility requires gross monthly income to be below 130 percent of poverty.
- Benefits phased out as income increases
- Benefits are vouchers that can be used at grocery stores and most households combine cash and SNAP to buy food
- Now distributed through debit cards
- Used to purchase most food items available in stores
  - Exceptions include ready to eat foods, alcohol
- Federal program; no area variation and few reforms over time → *challenge for evaluation*

# Who receives SNAP?

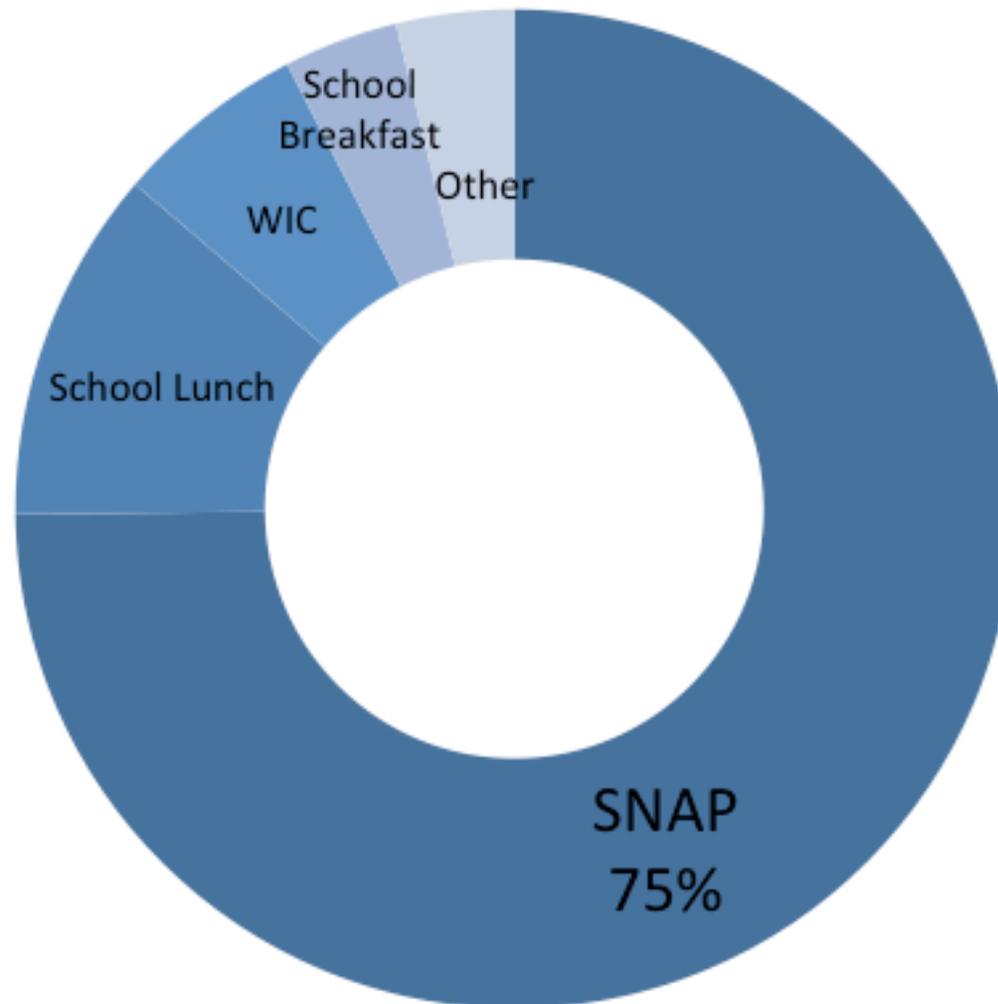
Characteristics of SNAP Recipients	
Share with children	45
Share with elderly members	17
Share elderly, kids, or disabled	75



Source: Hoynes and Schanzenbach (2015) [top] and Rosenbaum “The Relationship between SNAP and Work Among Low Income Households” [bottom]

# SNAP is the biggest USDA program

*Share of spending by program, 2014*



Source: Hoynes and Schanzenbach (2015).

# SNAP in the broader social safety net

## Federal Spending on Selected Means-Tested Programs and Tax Credits, 2012

(Billions of dollars)



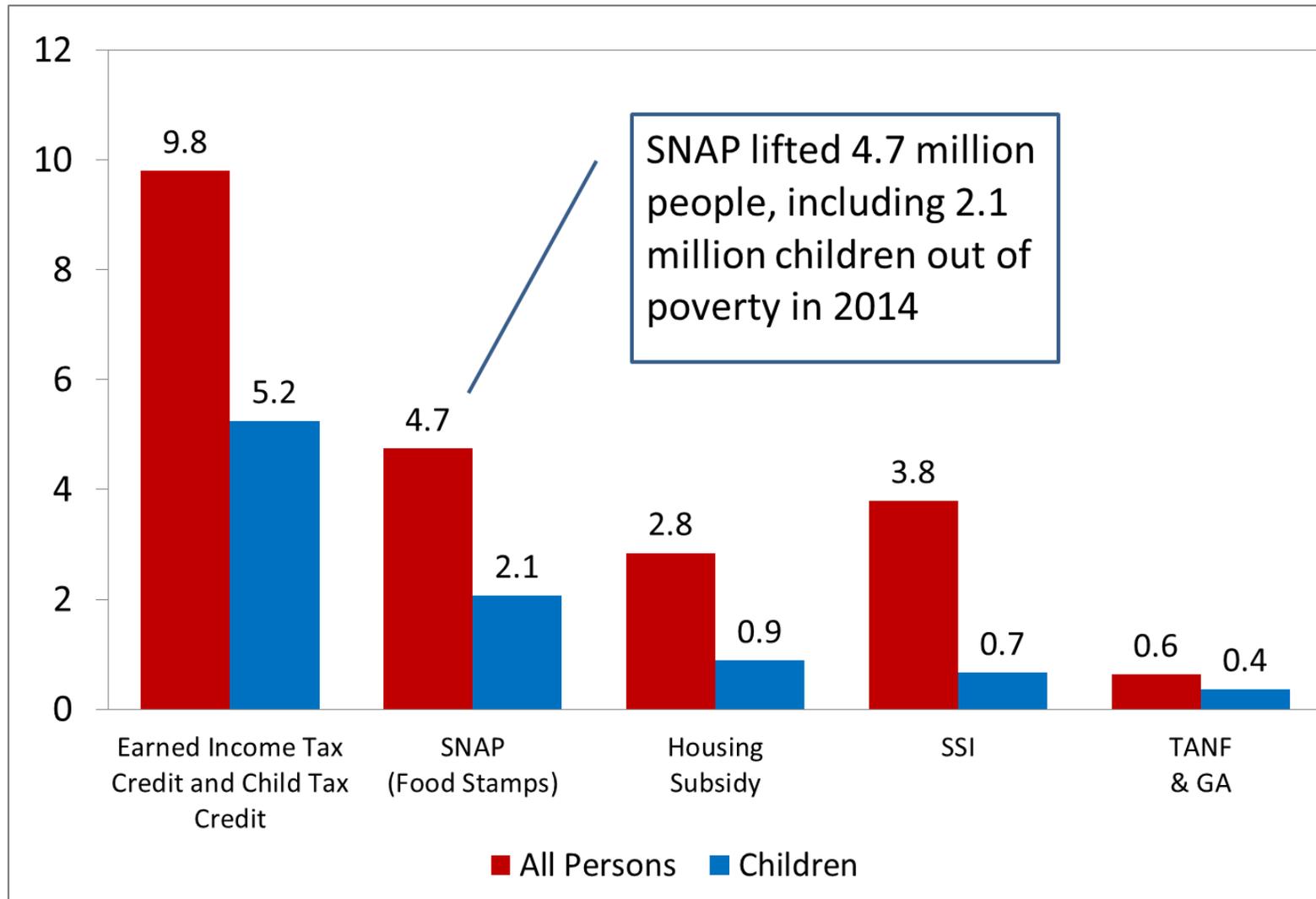
Source: Congressional Budget Office.

2. SNAP is a (the?) central element of the safety net

## 4 Observations about SNAP

- SNAP is one of the largest anti-poverty programs in the U.S.
- It is the closest thing to a “universal safety net”
- It plays an “automatic stabilizer role”; and was important in protecting families in the Great Recession
- SNAP’s importance is rising in part due to stagnant and declining wages for less skilled workers

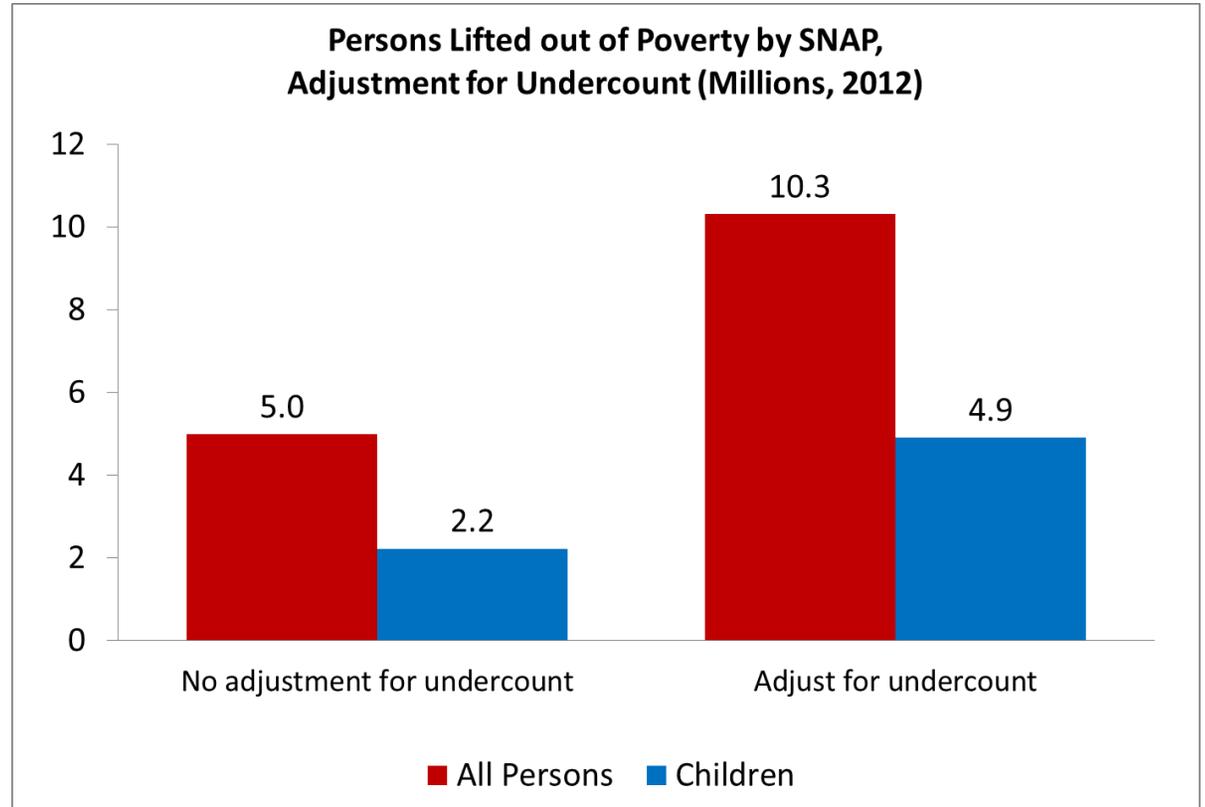
## *After the EITC, SNAP lifts more children out of poverty than any other program*



Source: Calculations based on *Supplemental Poverty Measure, 2015* (Kathleen Short), U.S. Department of Census, Current Population Report P60-254.

These (official) estimates are likely an undercount of the full effect of SNAP

Recent research shows substantial underreporting of SNAP as well as other transfers in household surveys (Meyer, Mok and Sullivan 2015, Meyer and Mittag 2015)



Source: Sherman and Trisi (2015).

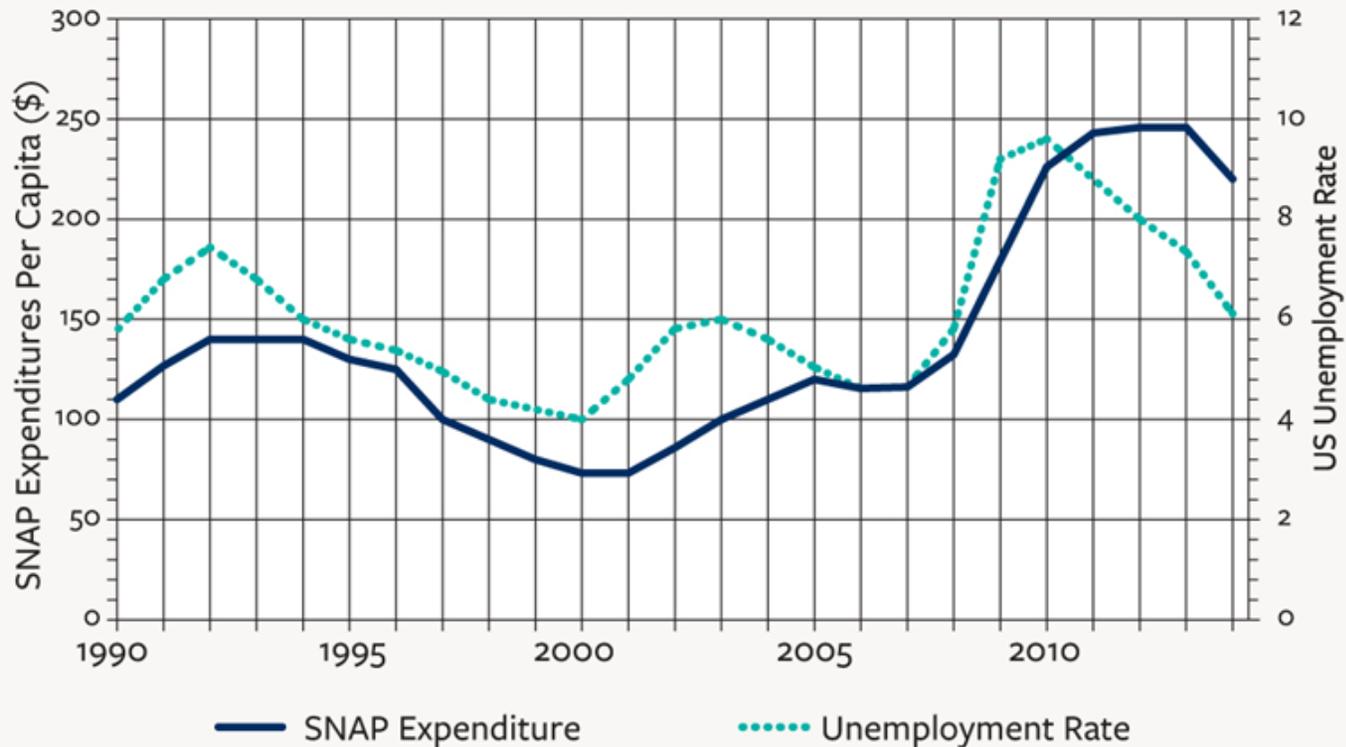
*SNAP is the closest thing the U.S. has to a “universal safety net”*

- Eligibility is virtually universal (some restrictions for able bodied recipients without dependents)
- Eligibility depends on need (income and asset requirement)

## *SNAP played a big role in protecting families in the Great Recession*

- More generally, SNAP is a entitlement, not block granted
- Responds quickly to changes in conditions and need; serves an automatic stabilizer role

## SNAP Expenditures Closely Follow Economic Cycles



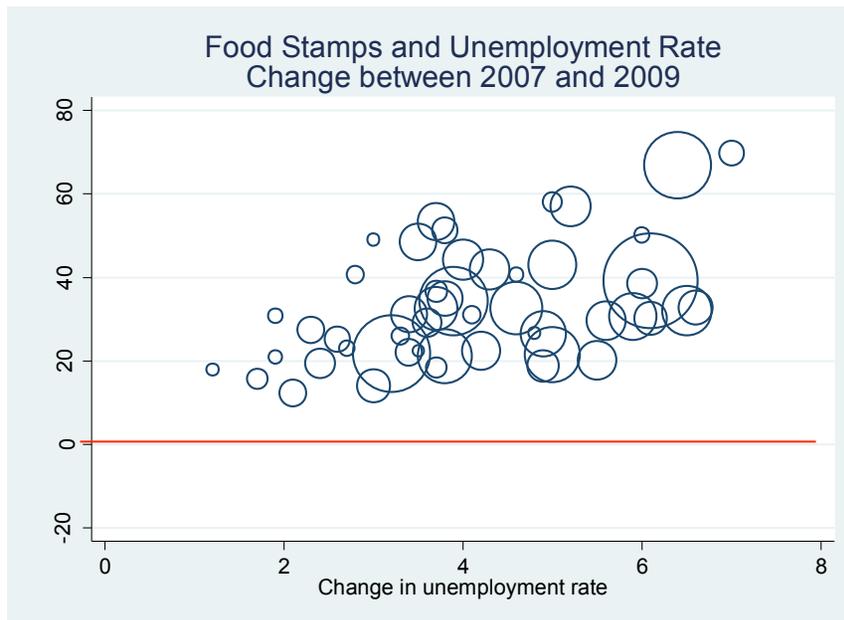
Source: Authors' tabulations of USDA and Census data.

Source: Bitler and Hoynes "The More Things Change, the More They Stay the Same? The Safety Net and Poverty in the Great Recession," *Journal of Labor Economics*. 2016

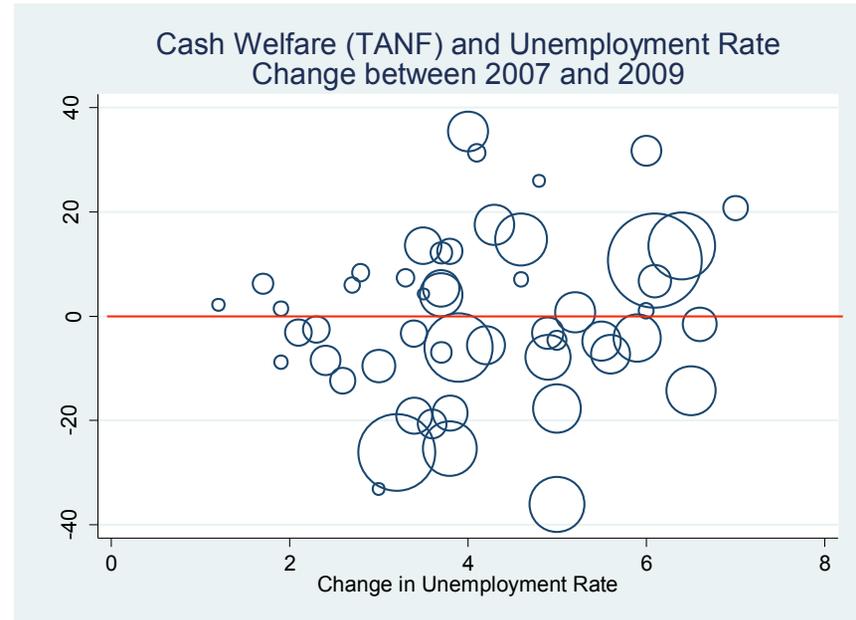
# Safety Net Response to the Great Recession

2007-2009 change in state unemployment rate vs change in safety net

(a) SNAP



(b) TANF



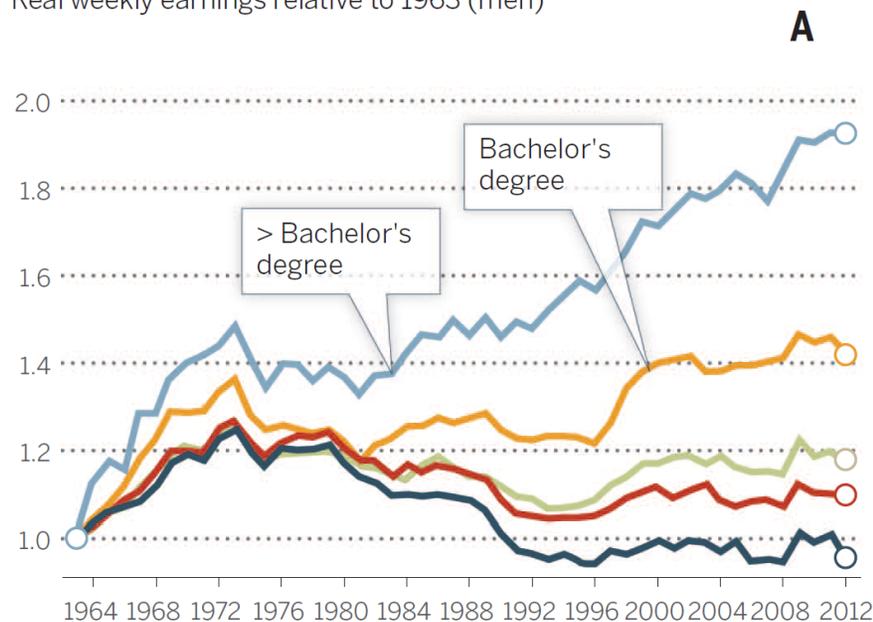
Source: Bitler and Hoynes, *Brookings Papers on Economic Activity* 2010.

*Given wage stagnation/declines for less skilled workers, there is increasing need for the social safety net to supplement earnings to maintain family income levels.*

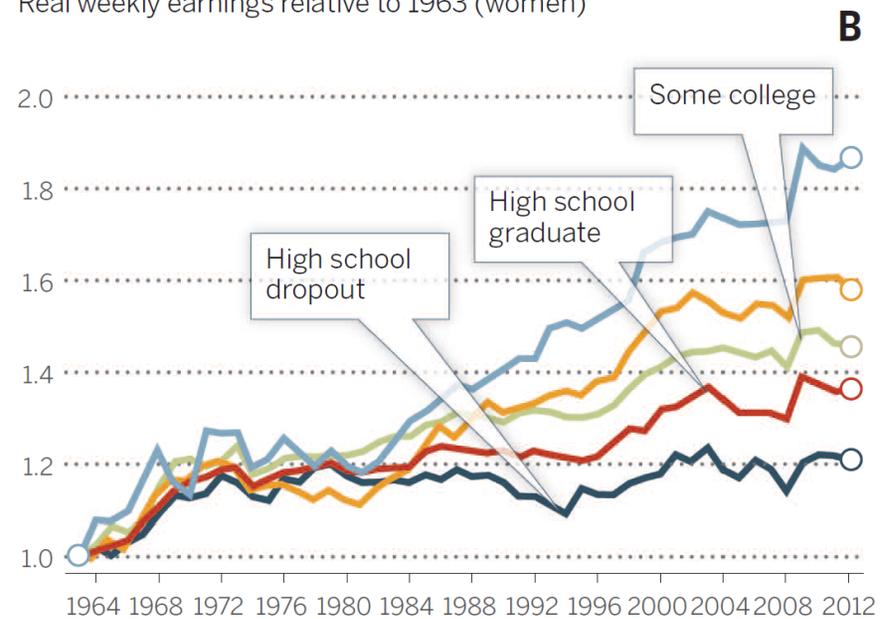
(SNAP and the EITC are central here)

### Changes in real wage levels of full-time U.S. workers by sex and education, 1963–2012

Real weekly earnings relative to 1963 (men)



Real weekly earnings relative to 1963 (women)



**Fig. 6. Change in real wage levels of full-time workers by education, 1963–2012.** (A) Male workers, (B) female workers. Data and sample construction are as in Fig. 3.

David Autor, Science.

### 3. SNAP (and the social safety net) as an investment

- There is a new and growing literature that seeks to quantify the medium and longer term effects of the social safety net
- Particularly the link between access to the safety net in childhood and adult health and economic outcomes
- Here I review what we know about food stamps (and, time permitting, other related research findings)

## Sidebar – why causal identification is difficult with SNAP

- Universal program (no ineligible groups)
- Federal program (little variation across states, localities)
- Little variation over time (few reforms)
- Negative selection: SNAP serves people when they need the program – it is difficult to disentangle the (presumably positive) impact of SNAP from the (presumably negative) impact of the circumstances that made a family eligible for the program.

# Approaches to identification problem

- Comparisons of the same family pre- and post-SNAP takeup (or other family and sibling fixed effects estimators)
- Use available policy variation across states and over time (IV or difference-in-difference)
- Leverage sharp time series temporal variation (e.g. expansion and subsequent reduction in benefits from federal stimulus)
- Program rollout

# Approaches to identification problem

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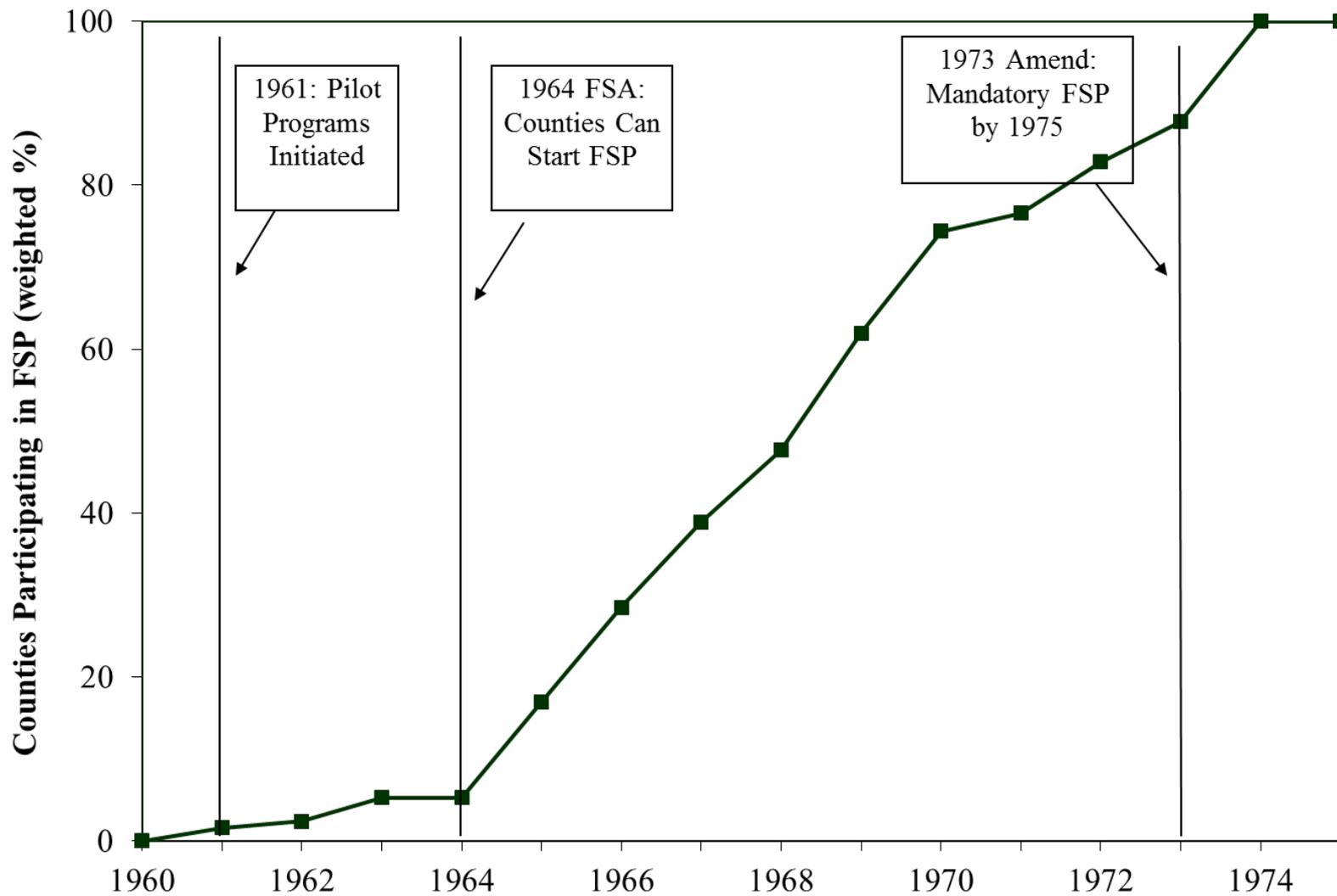
# Leveraging the Historical Rollout of SNAP

Joint Research with Doug Almond and Diane Schanzenbach

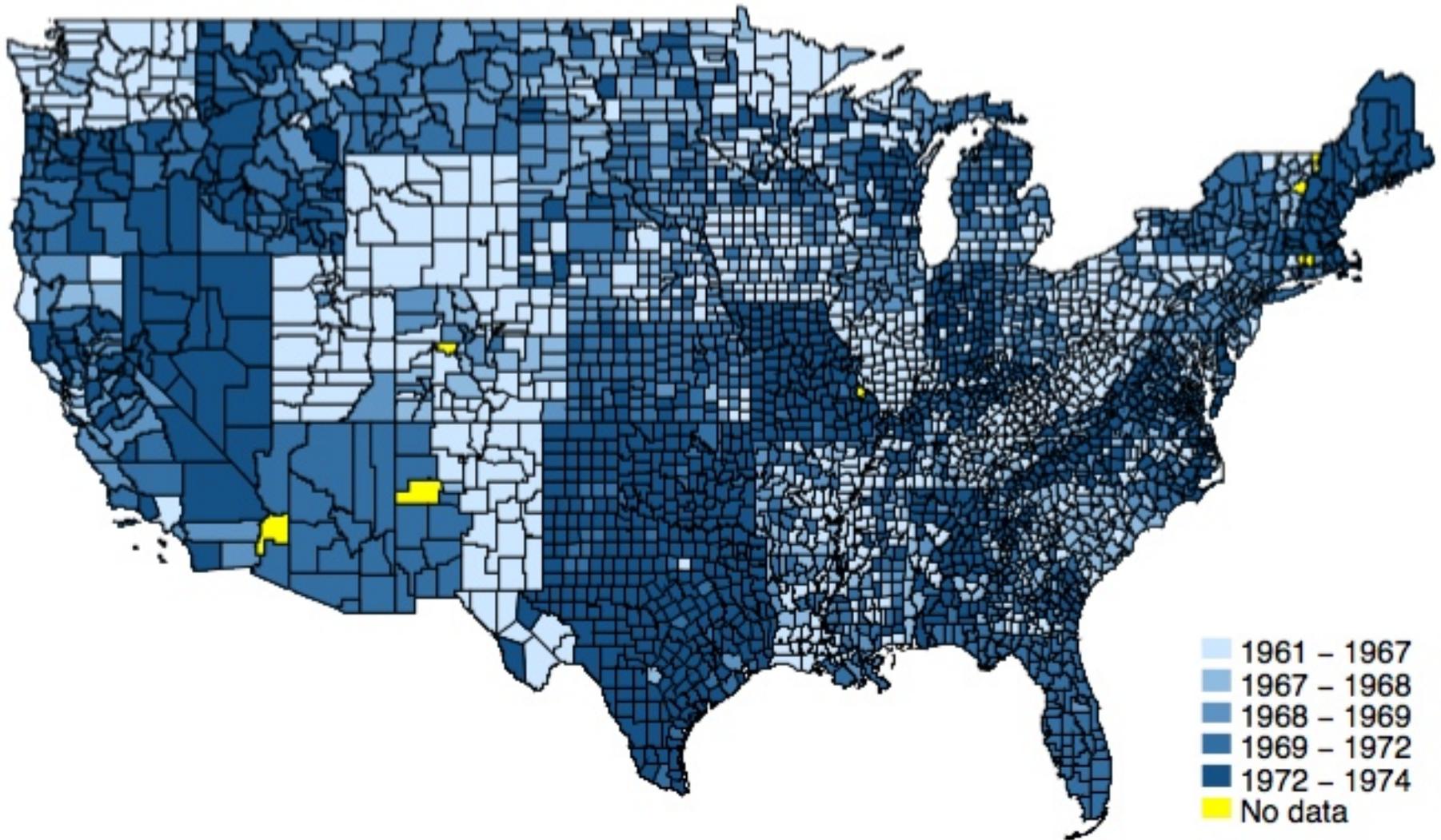
# Leveraging the Historical Rollout of SNAP

- Use initial rollout of the Food Stamps, which took place across the approx. 3,200 U.S. counties over 1961-1975

# Key legislative markers and population rollout of Food Stamps



# Geographic Rollout by County



Source: Hoynes and Schanzenbach, *American Economic Journal: Applied Economics* 2009..

# Research Design: Rollout of Food Stamps

- 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)

**Short Run Effects on Health:  
Food Stamps and Infant Health**  
Almond, Hoynes and Schanzenbach (RESTAT 2011)

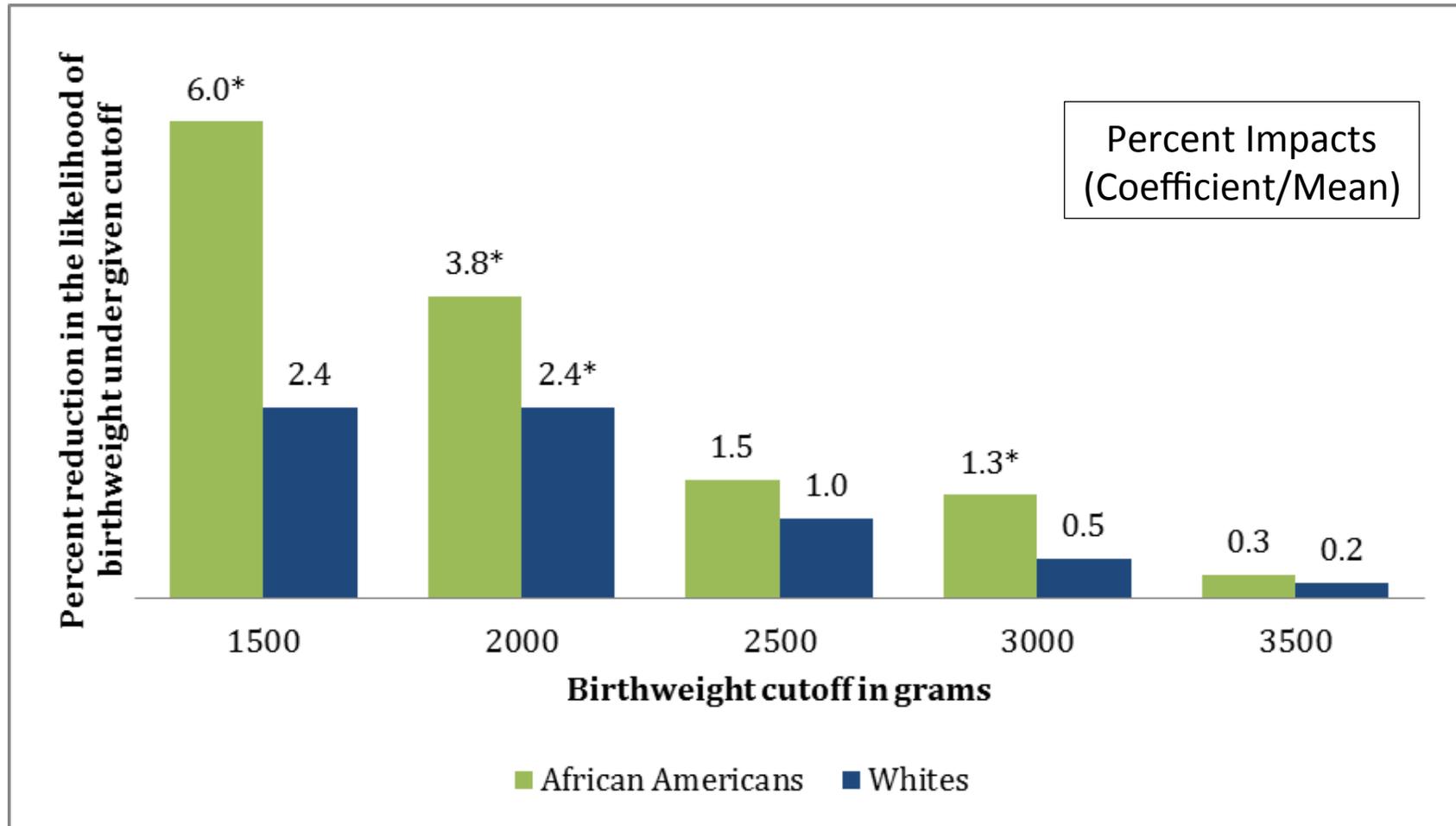
## Short Run Effects on Health: Food Stamps and Infant Health

- 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

# Short Run Effects on Health: Food Stamps and Infant Health

- *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)
- 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

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

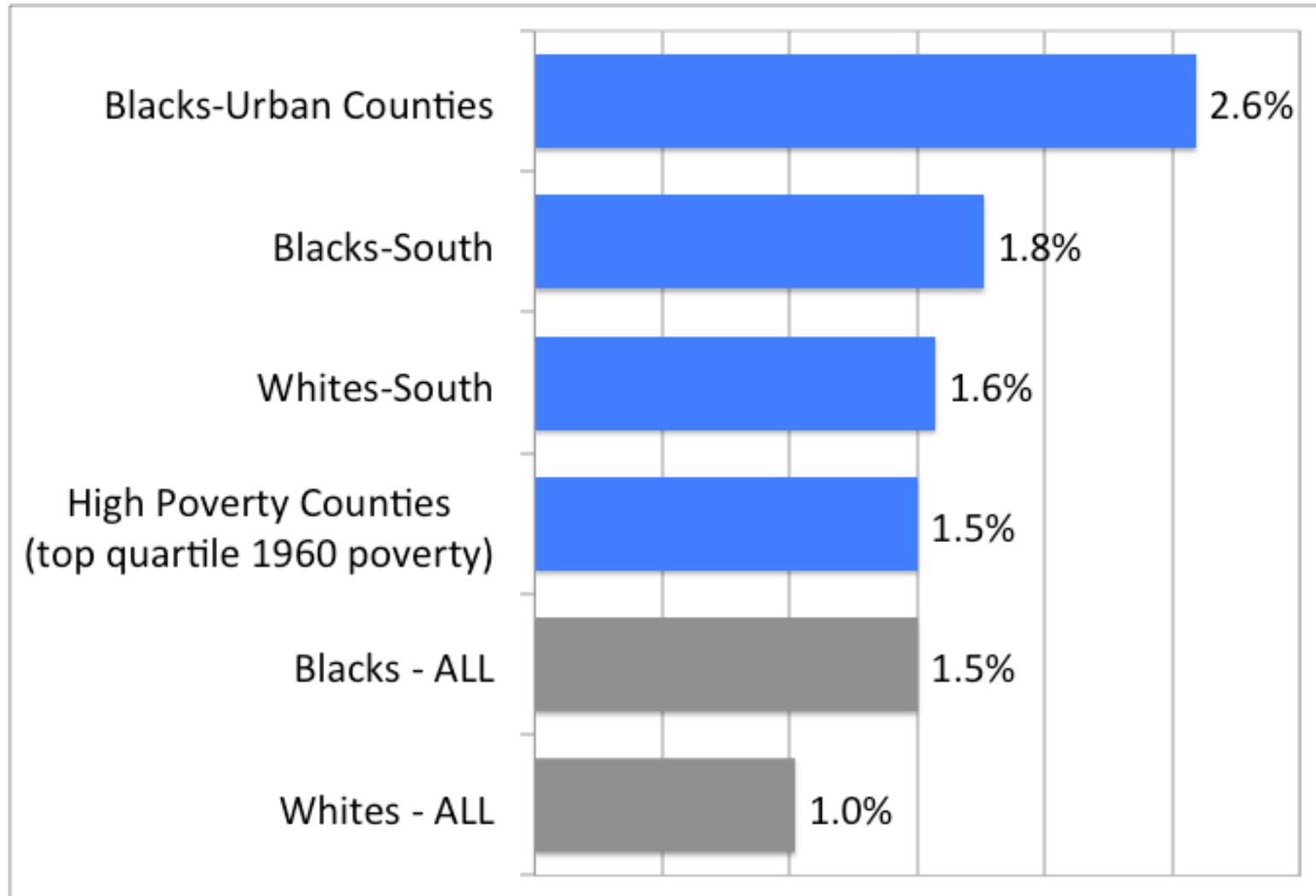


Source; Almond, Hoynes and Schanzenbach, *Review of Economics and Statistics* 2011.

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

- Access to food stamps improves infant health, reducing low birth weight
- Effects concentrated at the bottom of the birth weight distribution
- Magnitude: \$1000 (2009\$) in additional food stamp income (treatment-on-the-treated) reduces incidence of low birth weight 4% for whites and 2% for blacks
- Statistically insignificant effects on infant mortality (though signs show improvement)

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



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

# Long Term Effect of Food Stamps: Childhood Exposure and Adult Health and Economic Well-Being

Hoynes, Schanzenbach and Almond (AER, 2016)

# Food Stamps and Adult Health and Economic Well-Being

- Use initial rollout of the Food Stamps (1961-1975) to estimate the effects of access to food stamps in utero and during childhood on adult outcomes
- Because food stamps was introduced 50 years ago, the individuals who were children when the program was introduced are now adults → we can 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)

## Fetal Origins Hypothesis; Nutrition

- Events in *early life* “program” body for the type of environment likely to face
- Example: Limited nutrition pre/post natal → expect future to be nutrition-deprived → body invokes (irreversible) biological mechanisms to adapt to predicted poor postnatal environment
- If future world is *not* nutrient-deficient, it is maladapted to environment
- Adverse effects for “metabolic syndrome”: Obesity, cardiovascular disease, high blood pressure, type 2 diabetes
- Negative consequences latent, show up later in life
- Unclear when “critical” period ends (post-natal exposure may matter too)

# What we do

- Use Panel Study of Income Dynamics
  - Data on economic outcomes, health conditions, general health status, and disability. Allows for measurement of metabolic syndrome.
  - Restricted use data allows for measurement of county of birth and month and year of birth for cohorts affected by introduction of FSP.
  - Sample includes those heads and wives born between 1956–1981, measured at ages 18–53 (24–53 for economic outcomes)
- Caveat: these folks are still pretty young (early 50s); we may be capturing a delay in onset

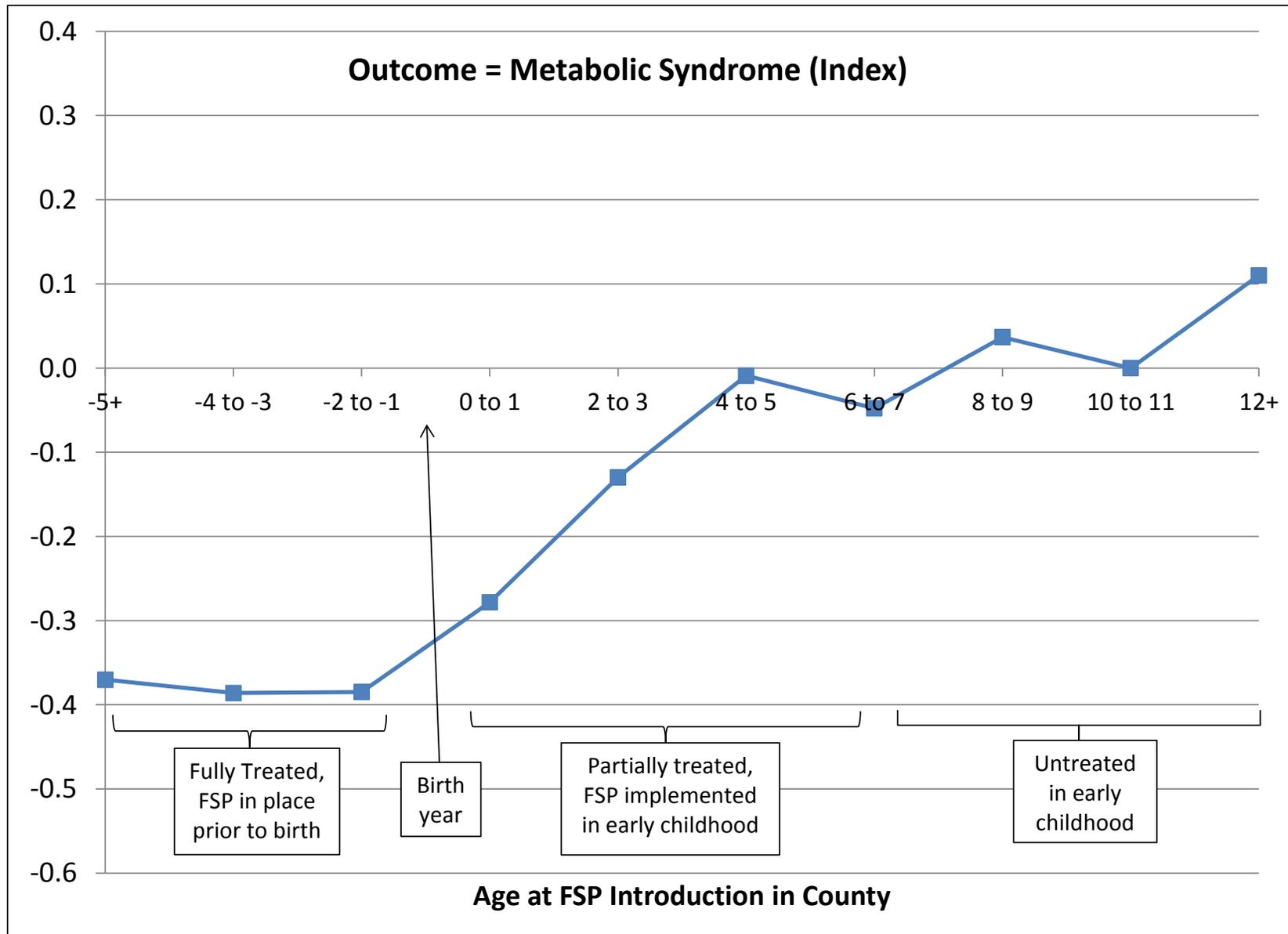
Metabolic  
Syndrome

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

Economic self-  
sufficiency

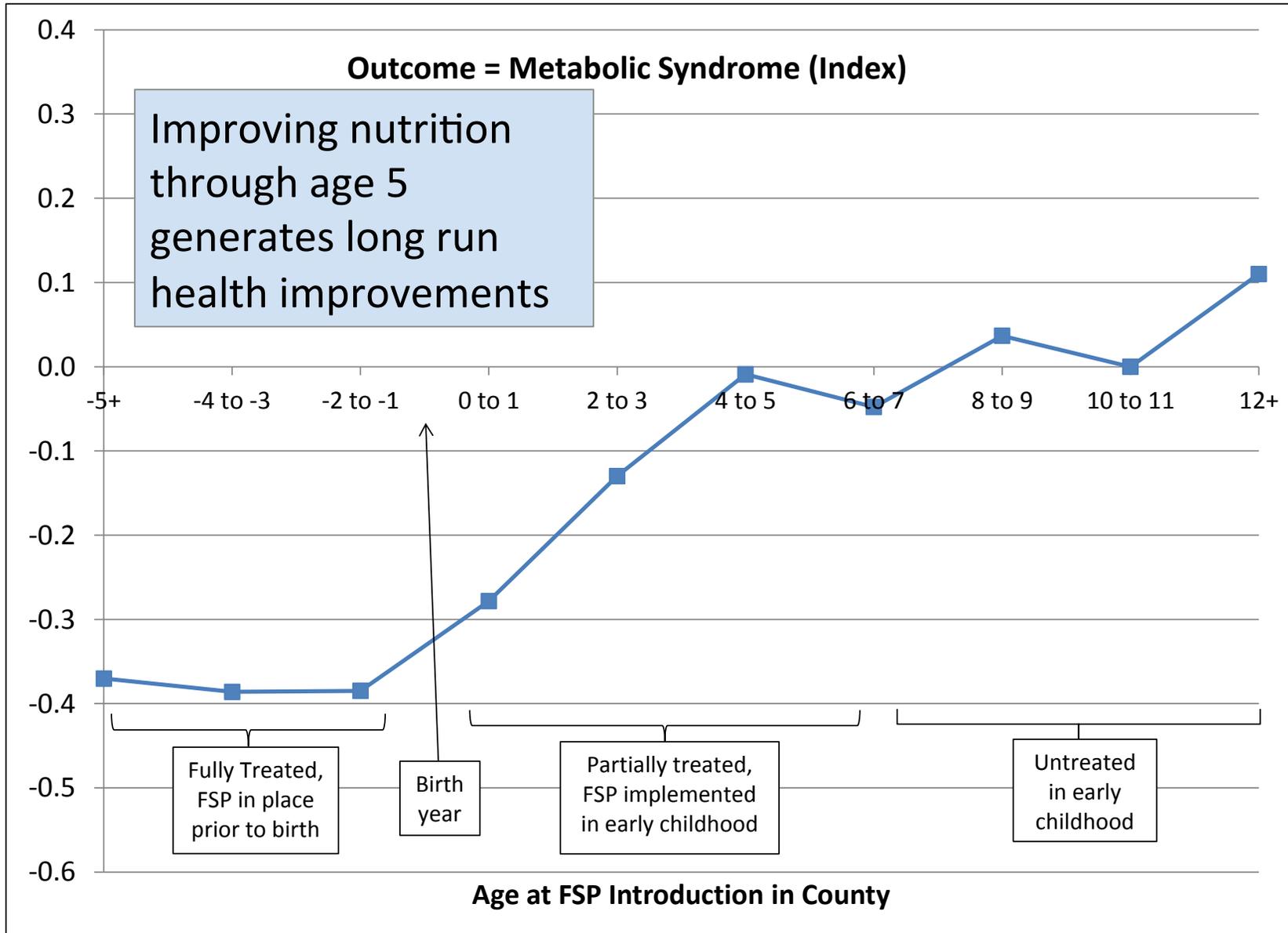
- High school graduate (=1)
- Employed (=1)
- Not poor (=1)
- Not on TANF (=1)
- Not on food stamps (=1)
- Earnings
- Family income

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



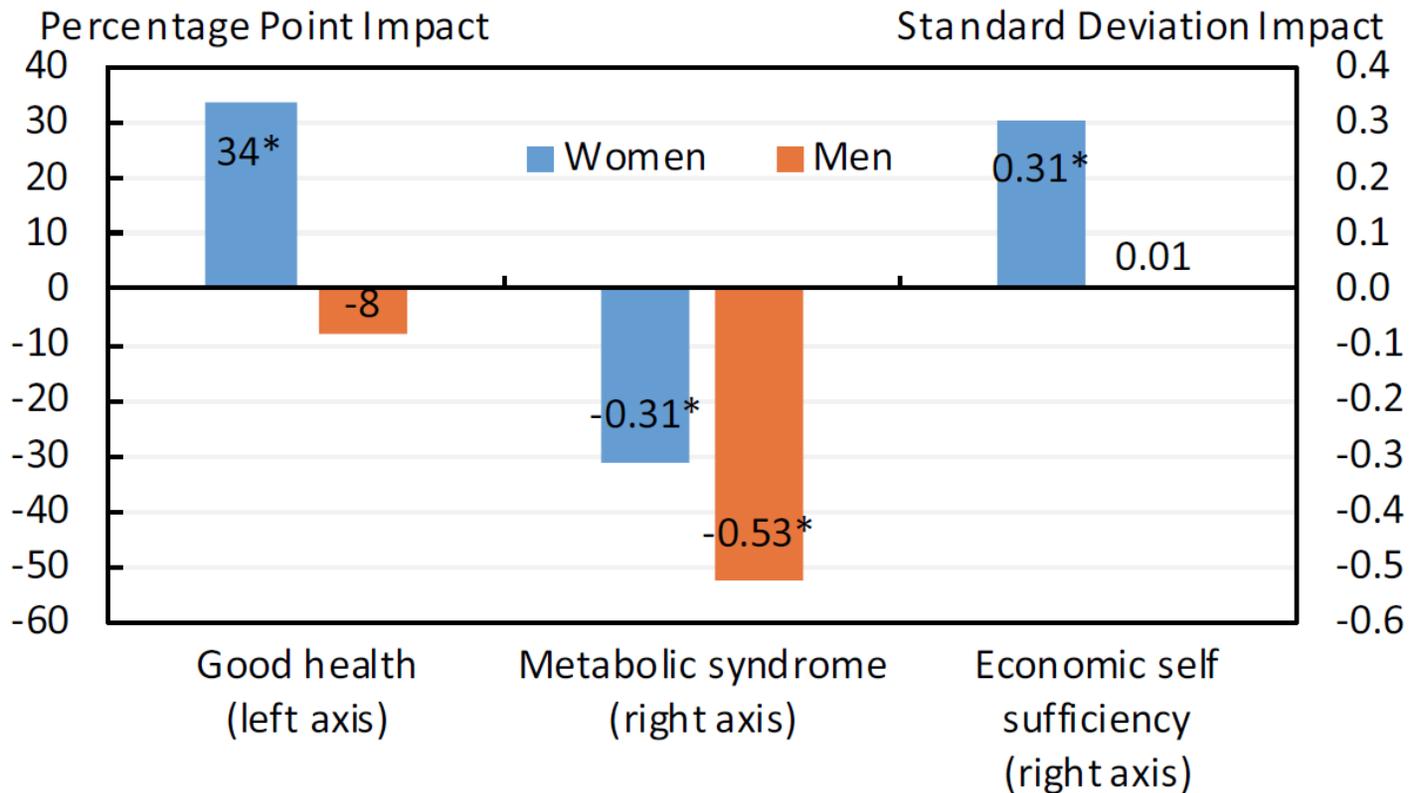
Source: Hoynes, Schanzenbach and Almond, *American Economic Review* 2016.

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



Source: Hoynes, Schanzenbach and Almond, *American Economic Review* 2016.

**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)

Other examples of research designs  
to examine effects of SNAP on health and  
wellbeing

# 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.

# SNAP and Food Insecurity

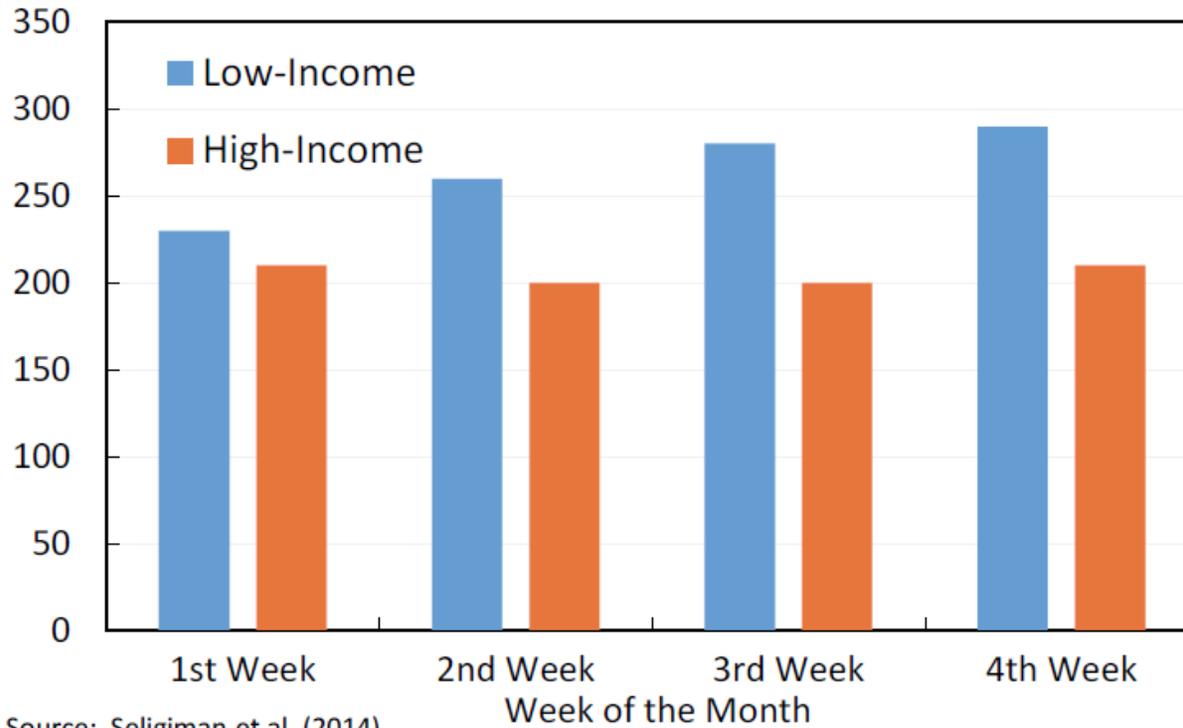
- Fairly consistent evidence that SNAP reduces food insecurity
- Comparisons of the same family pre- and post-SNAP take-up (Mabli et al 2013, Mabli and Ohls 2015)
- Variation in state implementation policies that generates differences in take-up across states over time (Mykerezi & Mills 2010; Ratcliffe et al. 2011 Shaefer & Gutierrez 2013; Yen et al. 2008)
- Expansions in benefits from federal stimulus (Nord and Prell 2011)

# The SNAP Benefit “Cycle”

- Despite documented benefits of SNAP, there is growing evidence that the benefits of the program fall over the monthly *food stamp cycle*
- Most benefits redeemed early in the month (Hastings and Washington 2010, Castner and Henke 2011, Smith et al 2015)
- Calorie intake declines by 10–25% over the month (Shapiro 2005)
- Admissions for hypoglycemia increase over the month (Seligman et al 2014)
- School disciplinary actions grow over the month (Gennetian et al 2015)

**Figure 9: Hospital Admissions for Hypoglycemia Rise at the End of the Month Among Low-income Patients**

Hospitalizations per million admissions



Source: Seligman et al. (2014)

# Zooming out: Other studies on the safety net as an investment

- As with our work, these studies examine the effect of childhood exposure to the social safety net on adult health and economic outcomes
- Does more “protection” while young yield returns in the long run?
- Much of this work is facilitated by quality administrative data and credible quasi-experimental research designs leveraging policy changes over prior decades

# What is needed to do this work

## DATA

- Longitudinal
- Information about childhood circumstances

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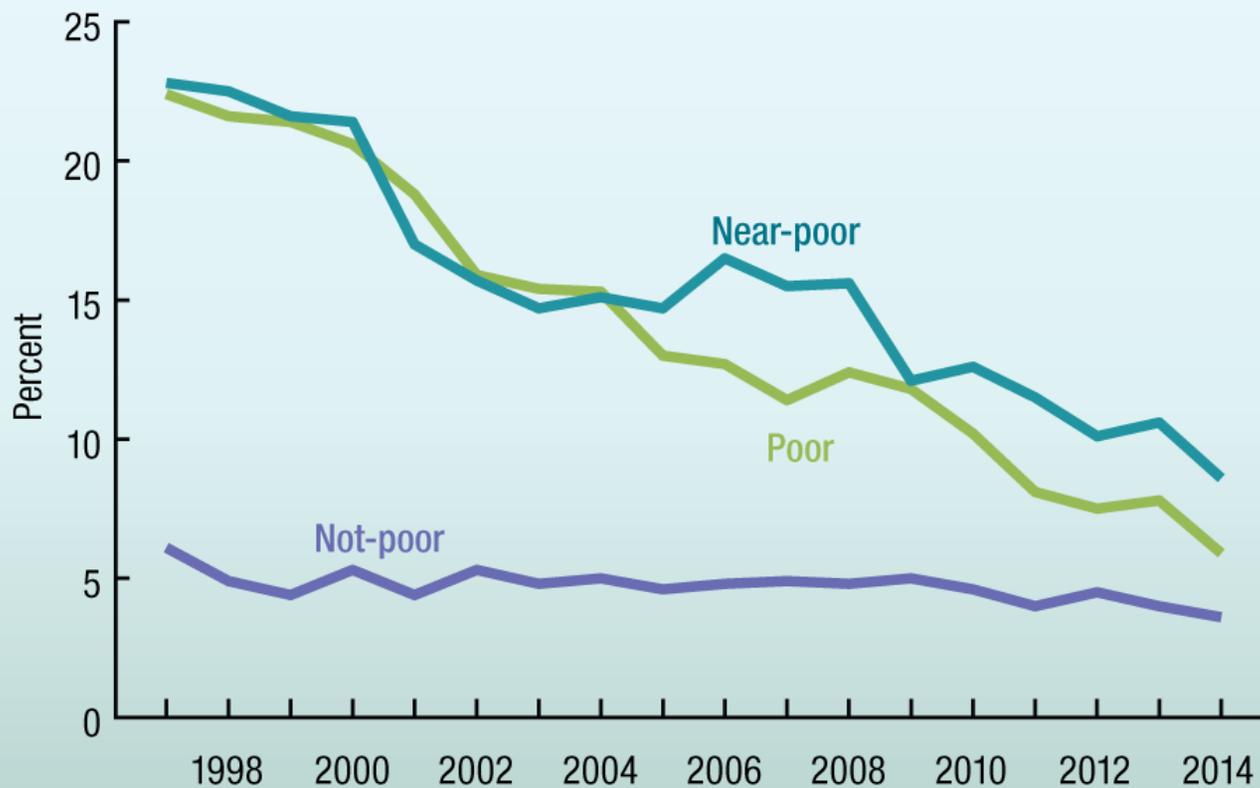
## TIME

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

# Medicaid

- 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

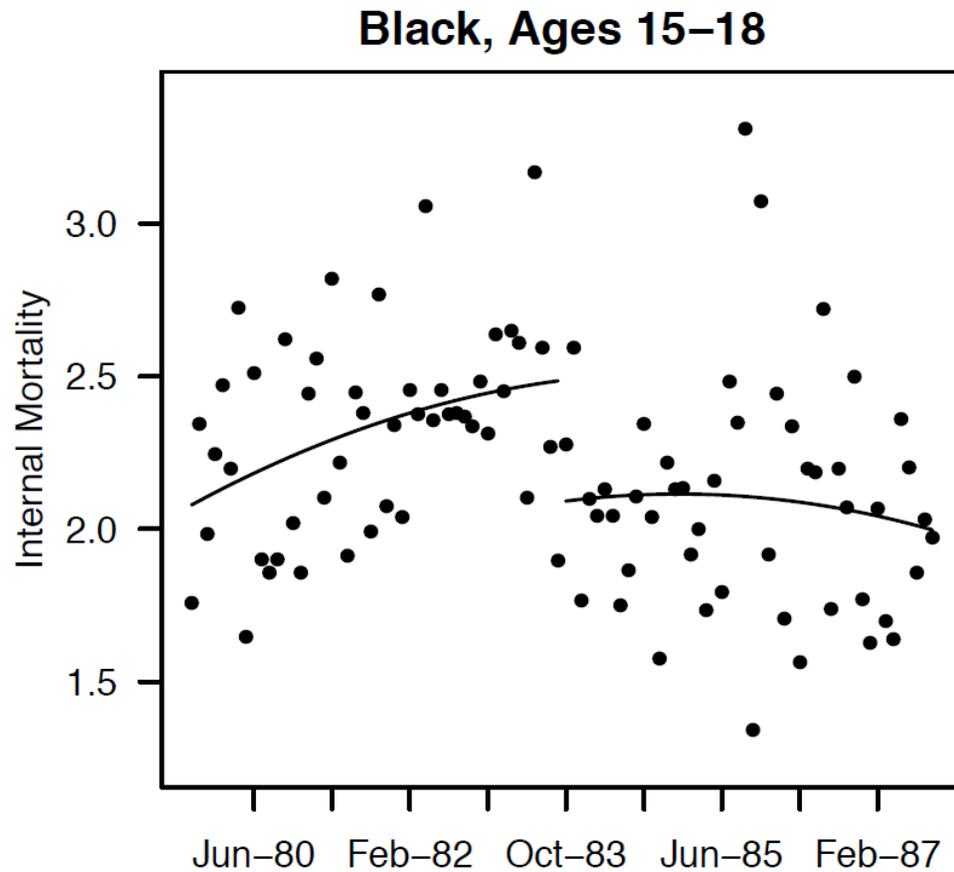


SOURCE: CDC/NCHS, National Health Interview Survey, 1997–2014.

# Long Run Effects of Medicaid

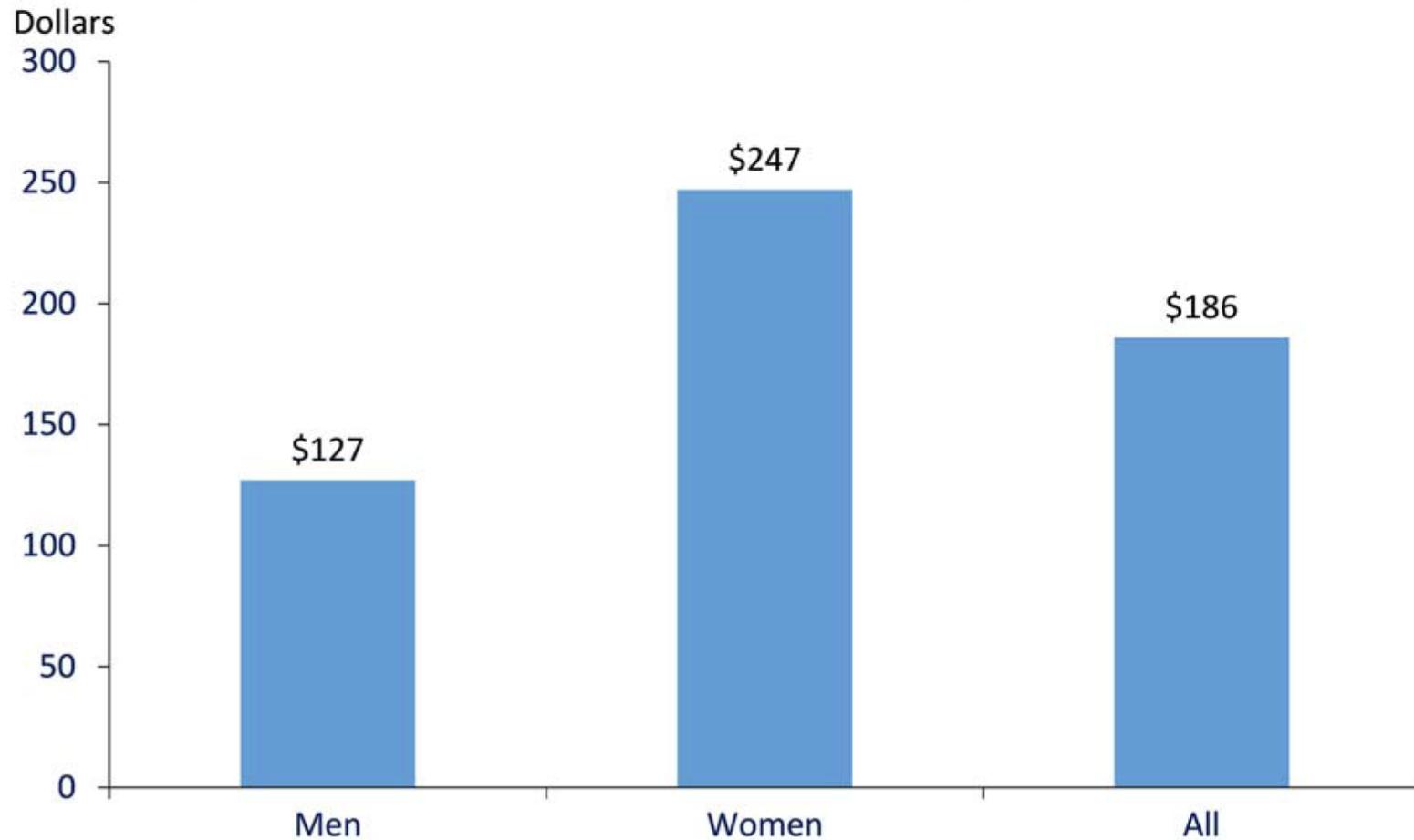
- New research using the 1980s–1990s expansions shows that increases in *cumulative childhood eligibility* leads to:
  - TEEN HEALTH: Improvements in obesity (Cohodes et al 2014), reductions in mortality, particularly for blacks (Wherry and Meyer 2015)
  - EARLY ADULT HEALTH: Reductions in mortality (Brown et al 2014), reductions in hospital admissions for chronic conditions (Wherry et al 2015)
  - EARLY ADULT HUMAN CAPITAL: Increases in educational attainment (Cohodes et al 2014), earnings, and tax payments (Brown et al 2014)
- Initial state Medicaid rollout (late 1960s) shows that additional childhood exposure reduces adult mortality, disability and increases adult employment (Goodman–Bacon 2016)

# Adolescent Mortality from Internal Causes



Those born after Oct 1983 triggered large Medicaid coverage gains through the policy expansions in the 1980s and 1990s.

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

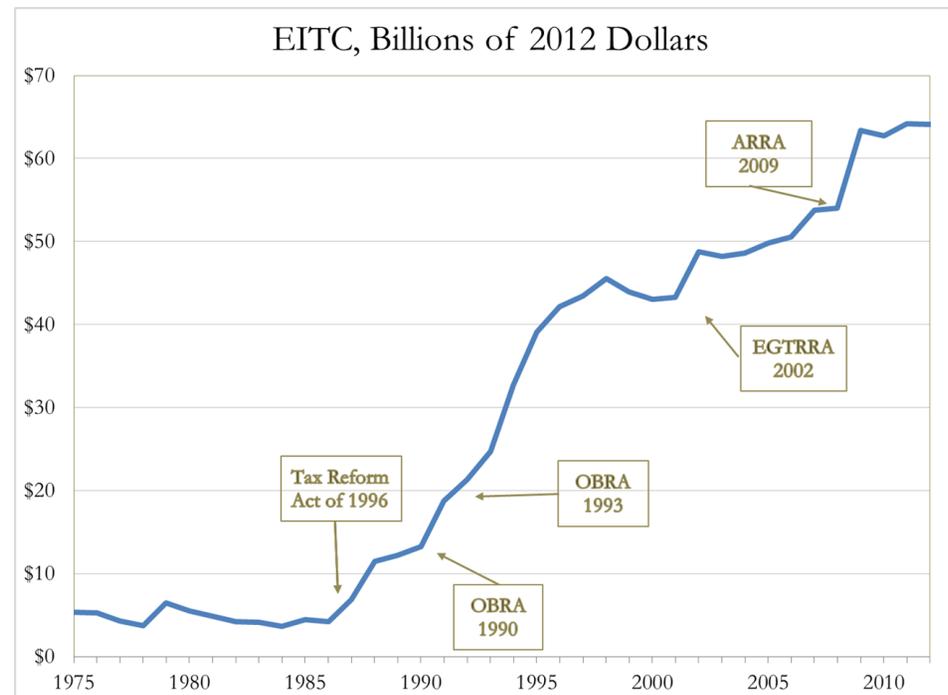


Source: Brown, Kowalski, and Lurie (2015).

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

# Earned Income Tax Credit

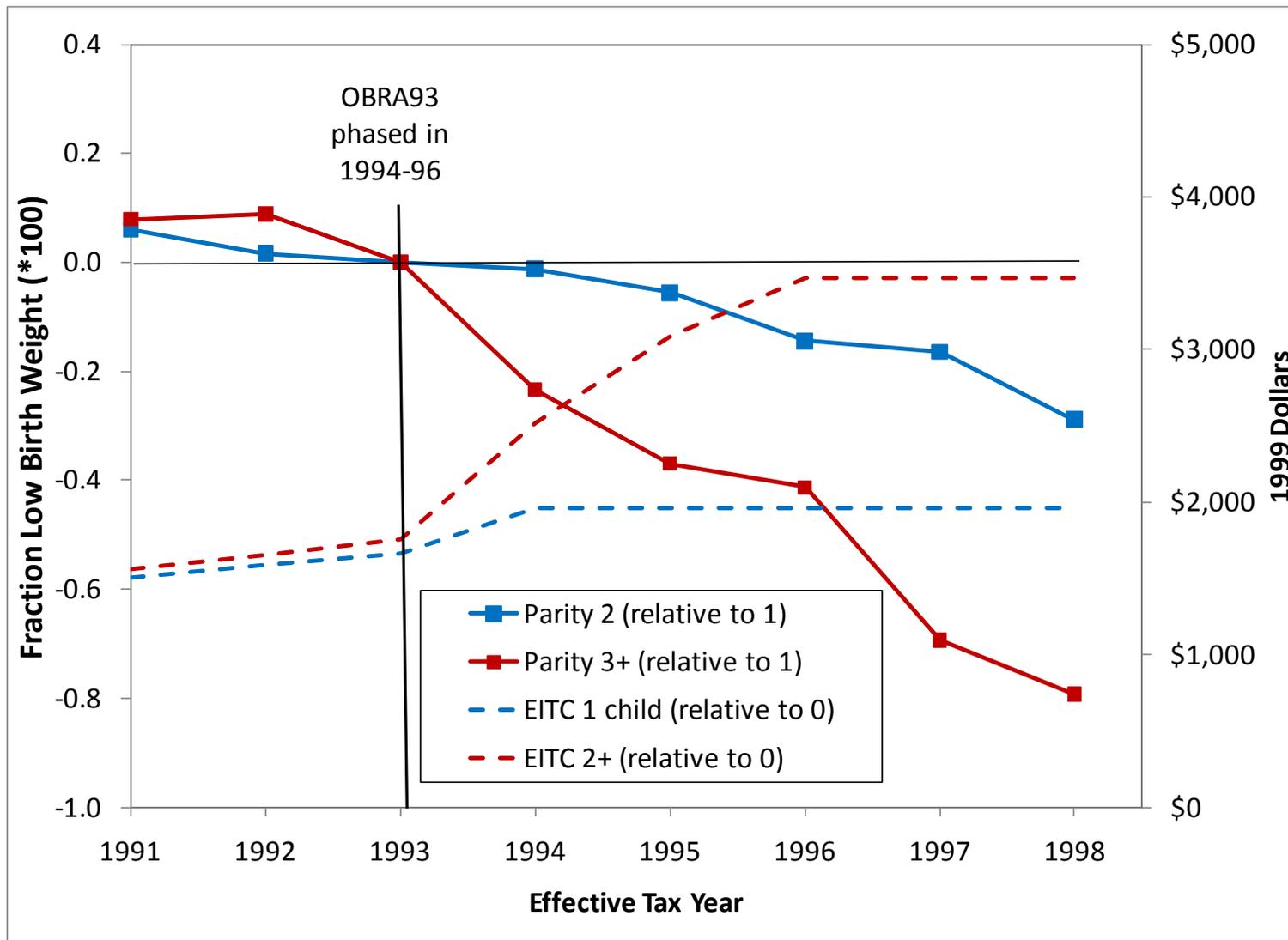
- Largest anti-poverty program for children in the U.S.
- In 2014, almost 20 percent of all tax filers and 44 percent of filers with children receive the credit.
- Average credit amount is \$2300



# Earned Income Tax Credit

- Recent studies show that the additional income due to the EITC leads to:
  - Increases in infant health (Hoynes et al 2015, Strully et al 2010) and maternal health (Evans and Garthwaite 2014)
  - Improves children's cognitive outcomes (Dahl and Lochner 2012, Chetty et al 2011)
  - Increases in educational attainment (Michelfiore 2013, Manoli and Turner 2014)

# 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.

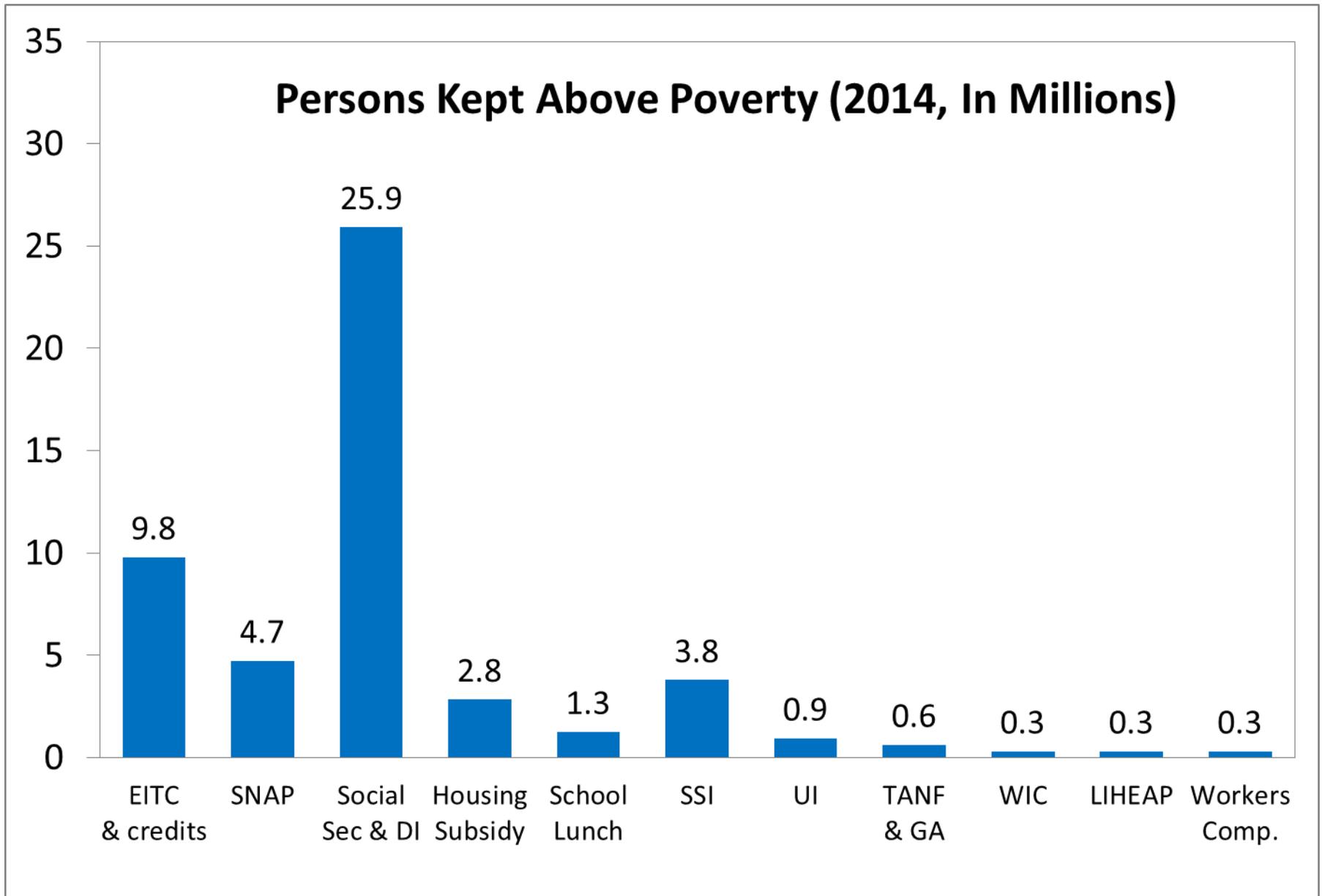
# Conclusions

- Food stamps is a central element of the safety net
- Typically, evaluations on the efficacy of the safety net begin by analyzing labor supply and poverty
- Yet increasing incomes at bottom of the distribution may generate substantial benefits to children and families that, to date, have not been explored
- The work summarized here shows that there are economically important improvements in health, both contemporaneous and in the longer term
- It implies that benefits of safety net are broader than previously thought. Positive external benefits to taxpayers.
- This work is still in its infancy, and there is much more to learn

## Other projects we are working on

- *Bailey, Hoynes, Rossin-Slater, Walker*: Census 20% sample merged with SSA data on place of birth. Estimating effects of childhood exposure to food stamps to adult human capital and labor market outcomes
- *Figlio, Hoynes, Karbownik and Simon*: Administrative Florida K-12 school data, linked to birth certificate data. Estimating the contemporaneous and cumulative effect of the EITC on child development and behavioral outcomes.

# EXTRA SLIDES



Source: Calculations based on *Supplemental Poverty Measure, 2014* (Kathleen Short), U.S. Department of Census, Current Population Report P60-254.

## SNAP and food consumption

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- Hoynes and Schanzenbach *AEJ Applied* 2009 shows that SNAP is close to cash, households are infra-marginal
  - Because most recipients receive a Food Stamp benefit below their normal food expenditures, the program is similar to an income transfer
- Implications to evaluating the benefits of SNAP:
  - First stage → increase in income
  - Nonetheless, because recipients were by definition poor, a large portion of FS is spent on food. Thus we expect that one channel for health gains would operate through improvement in nutrition

## Labor supply

- Means tested programs by definition have to be phased out.
- Balance protection versus distortion
- Phase-out rate is modest compared to cash welfare (30%)
- Hoynes and Schanzenbach JPUBE 2012: Food stamp rollout and contemporaneous effects on labor supply. Find negative, modest effects on female heads extensive margin

# Food Stamp policies going forward

## # 1: *Reduce the price of healthy foods*

- Massachusetts Healthy Incentive Pilot: A 30% bonus for purchasing fruits and vegetables led to a 25% increase in consumption of healthy foods
- Bonus incentives at farmer's markets

## # 2: *Restrict the food bundle*

- Could jeopardize the core income support features of the program

## # 3: *Increase the price of unhealthy foods?*

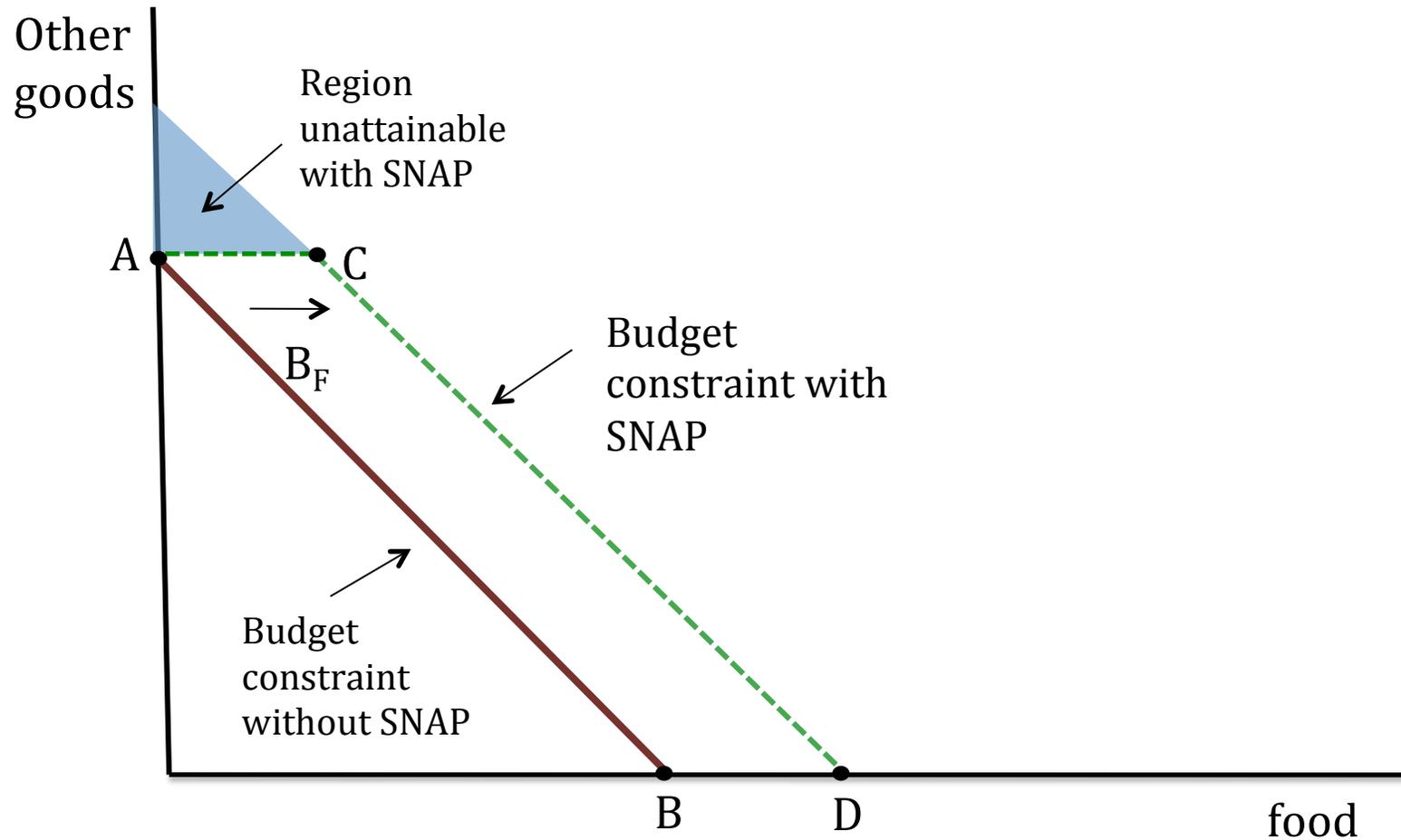
- Soda Taxes? Berkeley Measure D (!!)

# Stress as alternative pathway

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- Chronic stress leads to adverse health outcomes
- Recent work using credible designs shows that the SES/cortisol correlations may be causal and manipulated by policy
  - Expansion of the EITC lowered risky biomarkers for mothers (Evans and Garthwaite 2011)
  - Conditional cash transfers (Oportunidades) lead to reduction in cortisol among children 2–6 (Fernald and Gunnar 2009)
  - Negative shocks to rainfall lead to higher cortisol in Kenya (Haushofer et al 2012)
  - Prenatal maternal cortisol negatively affects health, cognition, and education of children (Aizer, Stroud and Buka 2009)

# SNAP shifts out budget constraint



## Methodology (cont)

- Because of our many outcome variables, we follow Kling, Liebman and Katz (2007) and Anderson (2008) and estimate standardized indices that aggregate information over multiple outcomes.
- Aggregating multiple measures in a given area can improve statistical power
- We use two indices: *metabolic syndrome* and *economic self sufficiency*
- Each are an equal weighted average of the z-score of each component
$$y_i = \frac{1}{J} \sum_j \frac{y_{ij} - \mu_j}{\sigma_j}$$
- We use the mean and SD of “untreated cohorts” (born before 1962) in constructing the z-scores