

# Public Policy 290

## Poverty, Inequality and the Social Safety Net

Prof Hilary Hoynes

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- My office 345 in this building
- Office hours 3-5 on Tuesday

# Course requirements

- Scientific Paper summary 10%
- Pro/Con Debate 20%
- 2 Problem Sets 20%
- Policy memo 35%
- Class participation 15%

# The three main layers of the course

1. Facts and measurement (poverty, inequality, mobility, labor markets)
2. “Theory”, conceptual issues around social safety net programs and gaining practice with empirical methods
3. Applications, analyzing policies current and potential reforms

# Required reading

1. Readings on bCourses
2. Course Reader, available at Vick Copy, 1879 Euclid (in preparation)
3. Some additional materials – lectures on the web, This American life

# Course Website: [bCourses.berkeley.edu](https://bCourses.berkeley.edu)

- Readings
- Schedule of readings (which may change as we go along)
- Powerpoint

# Course grade – problem sets

- Two problem sets grading core concepts such as applying microeconomics to the analysis of public policies

# Course grade – scientific paper summary

- At least once during the term, prepare a summary of a paper which we will be discussing in class. These summaries are handed in at the beginning of class. The assignment should include a summary of the paper, its conclusions, and answers to the suggested questions on the syllabus.
- Aim for about 2 page summaries but more or less could be appropriate.

# Course grade – pro/con debate

- Topics will be assigned taking into account your preferences. One side will take the “pro” of the position and the other the “con” (and you will be randomly assigned to pro or con).
- Depending on class size, this may be a group project.
- The last week(s) of the semester will be for these presentations.
- Some debates will be drawn from current policy proposals, some from Paul Ryan’s recent manifesto

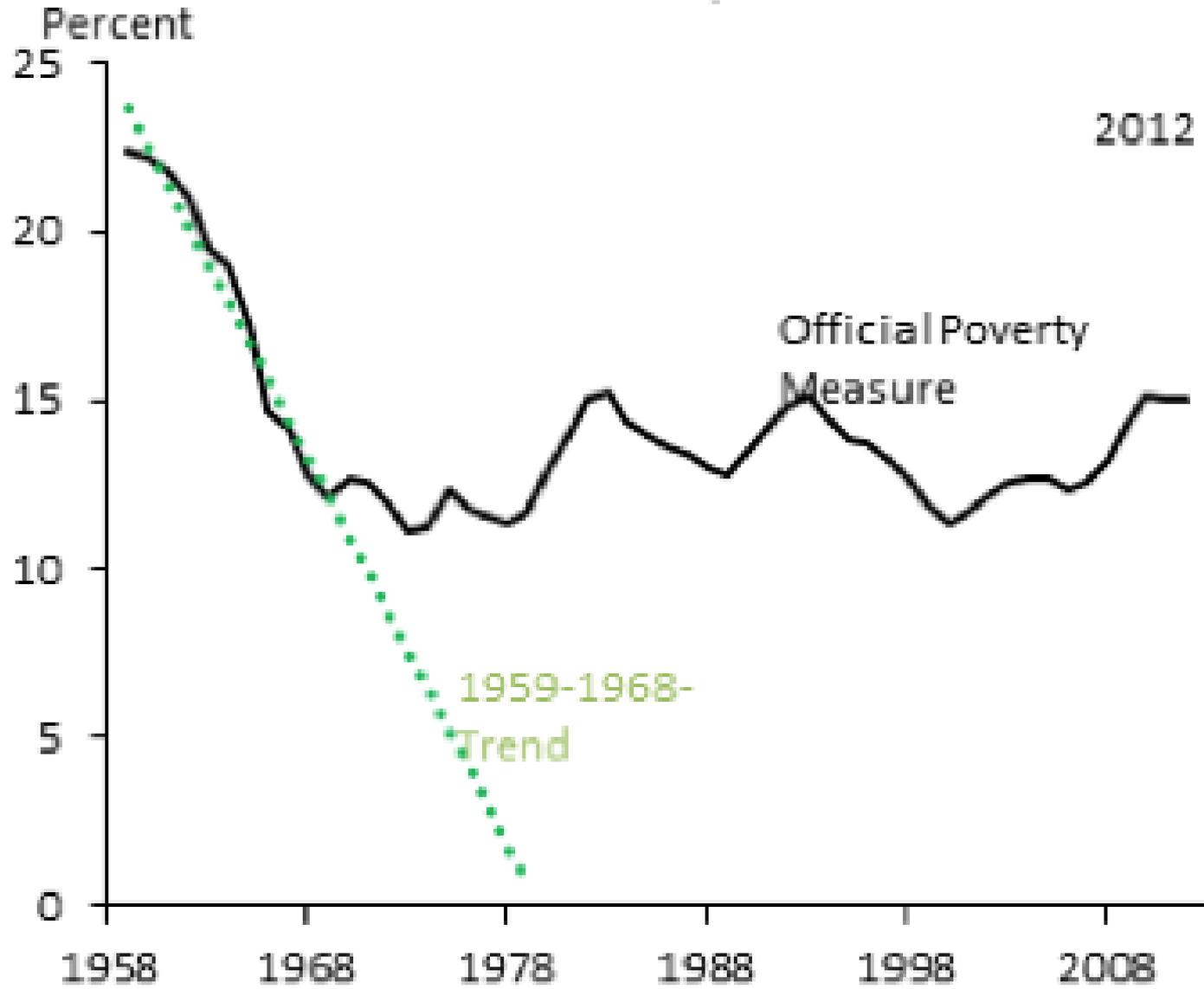
# Course grade – policy memo

- On a topic of your choice related to coursework

Course grade – class participation

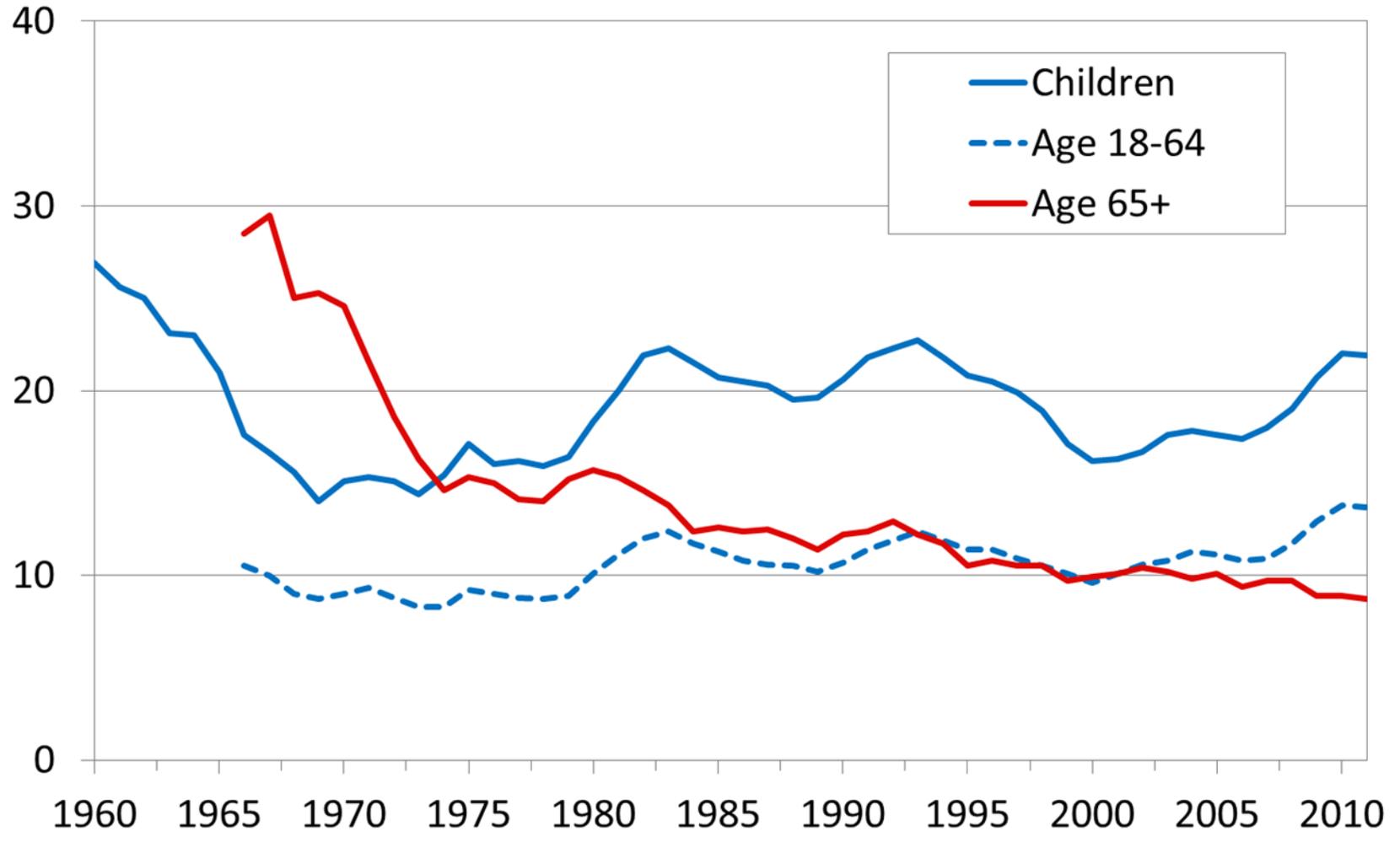
# Overview of the course

# Trends in the Official Poverty Measures, 1959-2012



Source: U.S. Census Bureau and CEA calculations.

## Poverty Rate, By Age

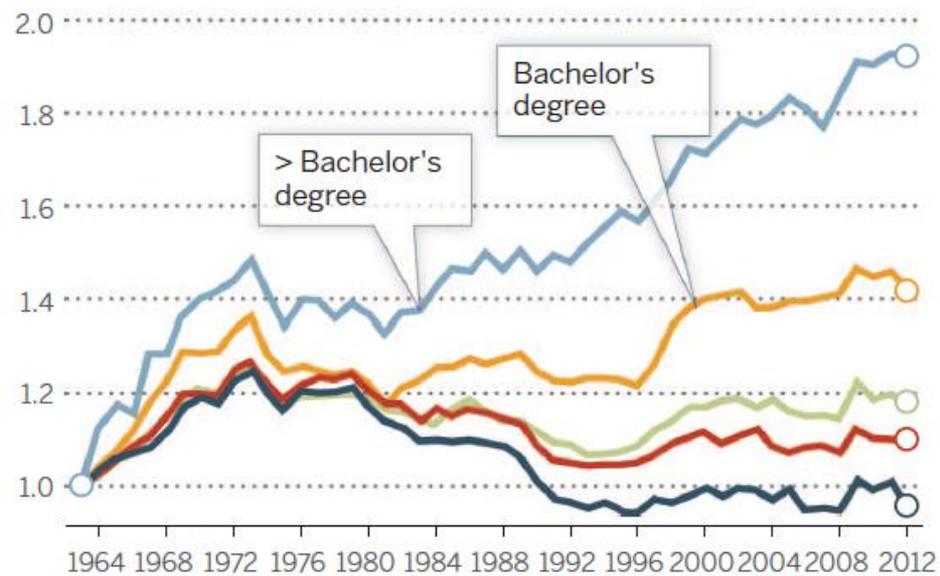


Source: Hoynes, Page and Stevens, Journal of Economic Perspectives

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

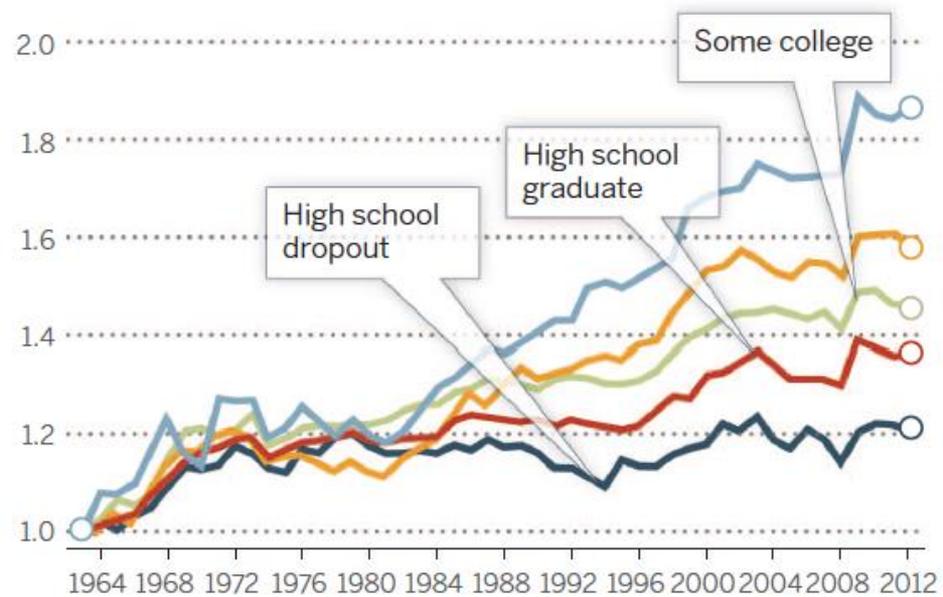
Real weekly earnings relative to 1963 (men)

**A**

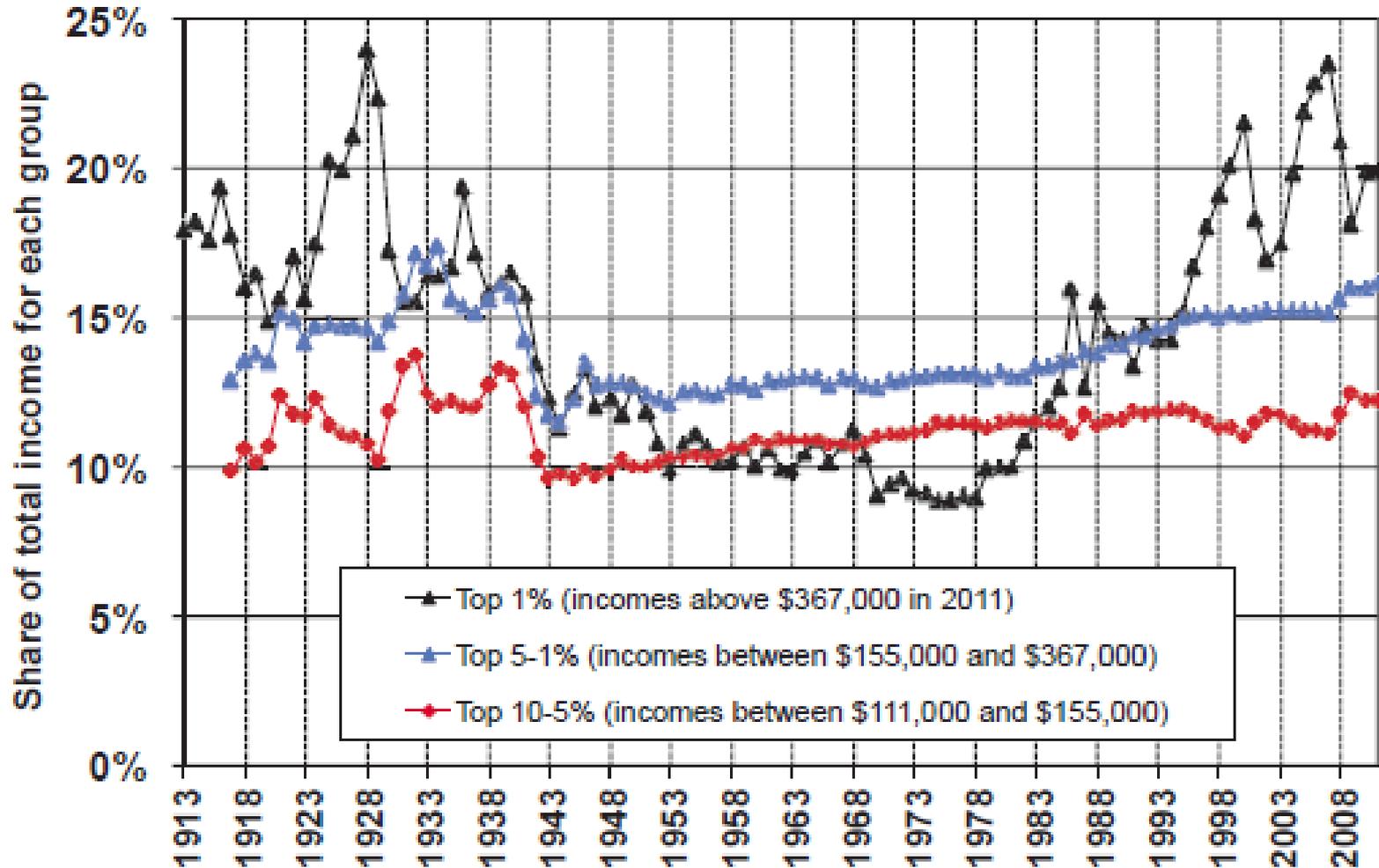


Real weekly earnings relative to 1963 (women)

**B**



## Decomposing Top 10% into 3 Groups, 1913-2011



Source: Piketty and Saez, 2003 updated to 2011. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.

**Figure 2.**

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

(Billions of dollars)

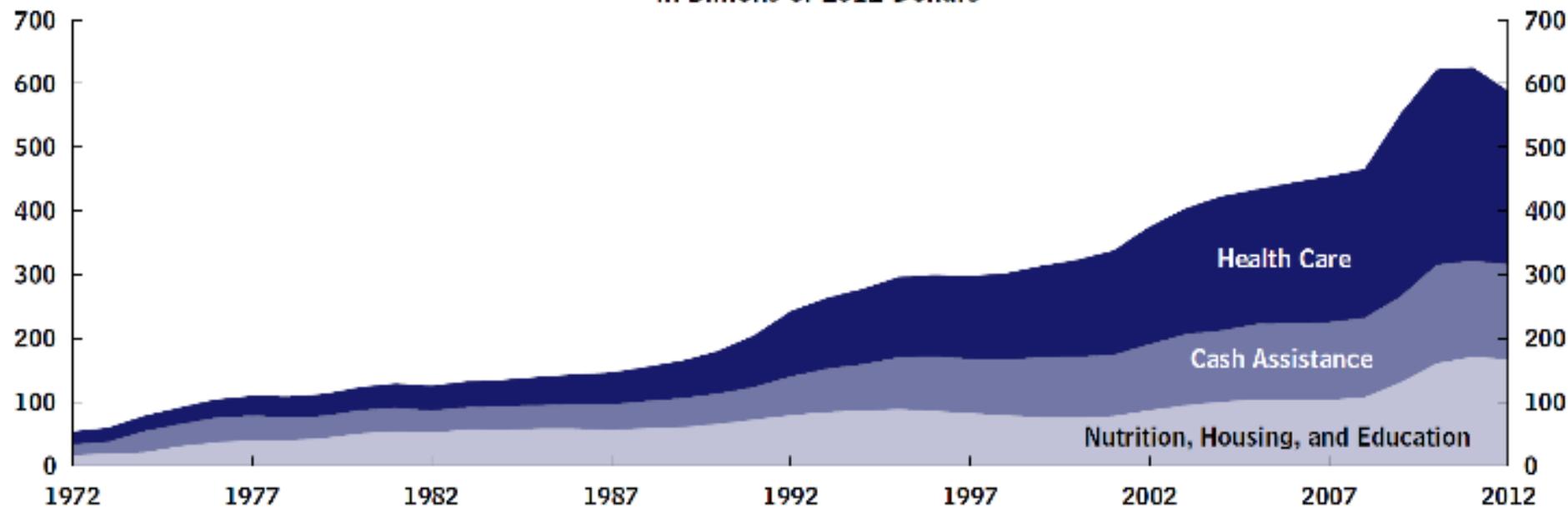


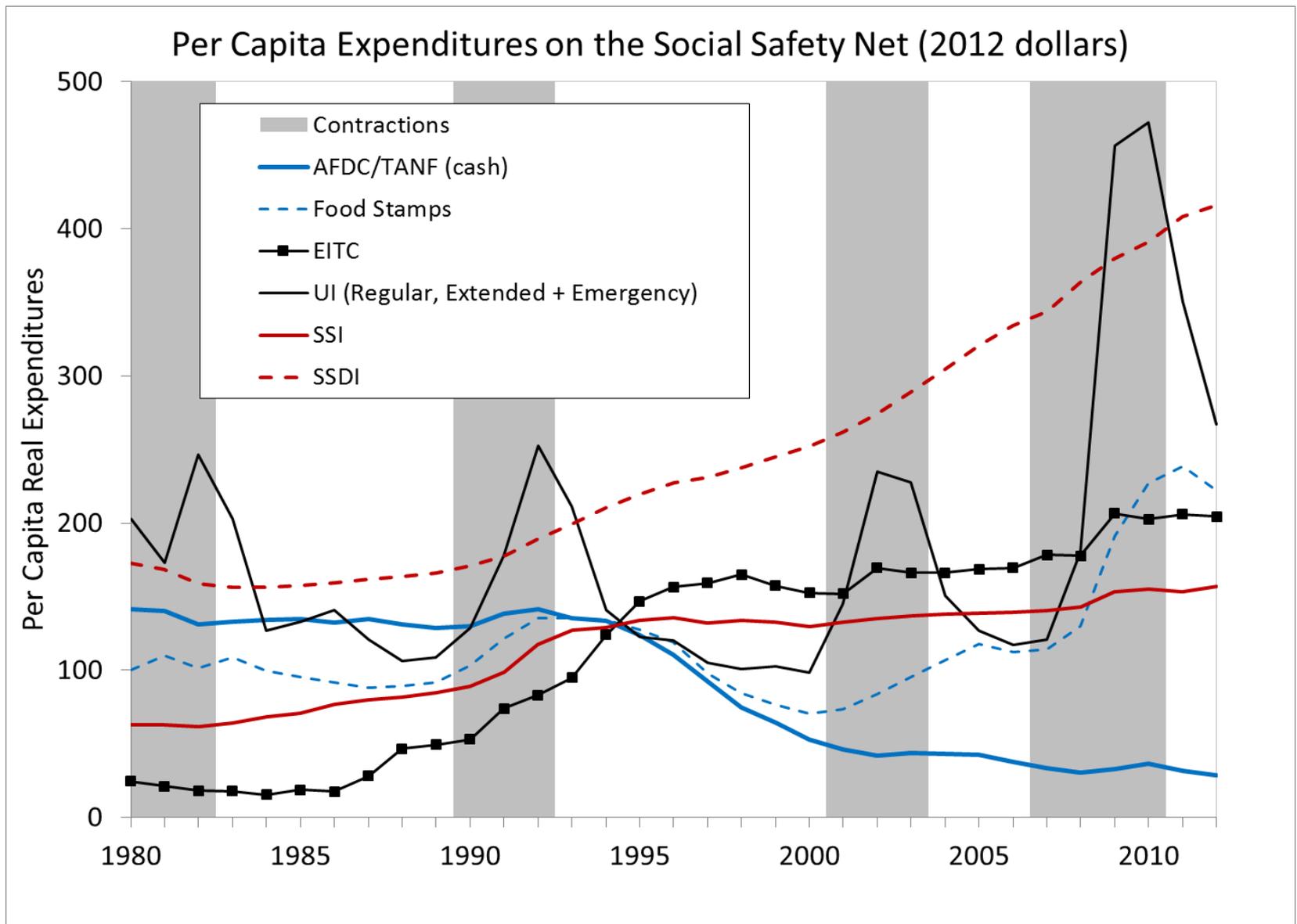
Source: Congressional Budget Office.

Note: The data used for this figure are described in Appendix A.

# Federal Spending on Various Categories of Means-Tested Programs and Tax Credits, 1972 to 2012

In Billions of 2012 Dollars





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

# Ties to current policy debates – taken just from this week!

- OBAMA State of the Union TONIGHT will propose what he is calling “middle class economics”
  - Increase in capital gains tax
  - Making EITC and Child Tax Credits permanent
  - Increasing child care tax credits
  - Secondary earner tax credit

# Ties to current policy debates

## Inclusive Prosperity Commission

### Commissioners

- Lawrence H. Summers**, Commission Co-Chair, former U.S. Secretary of the Treasury
- Ed Balls**, Commission Co-Chair, Shadow Chancellor of the Exchequer in the British Parliament
- E.J. Dionne, Jr.**, Senior Fellow, The Brookings Institution
- Chrystia Freeland**, Canadian MP and Vice Chair, Committee on International Trade
- Jennifer M. Granholm**, former Governor of Michigan
- Mary Kay Henry**, President, Service Employees International Union
- Glenn Hutchins**, Co-Founder, Silver Lake
- Lawrence Katz**, Elisabeth Allison Professor of Economics, Harvard University
- Chris Keates**, General Secretary, NASUWT – The Teachers' Union
- Edward Montgomery**, Dean, McCourt School of Public Policy at Georgetown University
- Pär Nuder**, former Minister of Finance for Sweden
- Steven Rattner**, Chairman, Willett Advisors LLC
- Judith Rodin**, President, The Rockefeller Foundation
- David Sainsbury**, former British Minister of Science and Innovation
- Wayne Swan**, former Deputy Prime Minister and former Treasurer of Australia
- Neera Tanden**, President, Center for American Progress
- John Van Reenen**, Director, Centre of Economic Performance, London School of Economics



## Report of the Commission on Inclusive Prosperity

Co-Chaired by Lawrence H. Summers and Ed Balls

Convened by the Center for American Progress January 2015

# Ties to current policy debates

- Annual DAVOS World Economic Forum has inequality as its theme. Co-chairman of conference is head of Oxfam who has called on governments to implement the following seven point plan:
  1. Reduce tax advantages for corporations and the rich
  2. Invest in universal, free public services such as health and education
  3. Share the tax burden fairly (use consumption taxes)
  4. Introduce minimum wages and move toward living wages
  5. Introduce equal pay and promote policies to give women a fair deal
  6. Ensure adequate safety nets for the poorest; guarantee a minimum income
  7. Agree to a global goal to tackle inequality

Zooming out a bit, how do the programs we will study fit into the overall government activities?

# Things governments do:

- Tax
- Regulate
- Subsidize
- Transfers to families
- Provide a direct service
- Provide information
- Property rights and a legal structure
- Encourage competition

# Things governments do

- Tax **INCOME TAX**
- Regulate **ENVIRONMENTAL STANDARDS**
- Subsidize **AGRICULTURAL SUBSIDIES**
- Redistributing income **FOOD STAMPS**
- Provide a direct service **PUBLIC SCHOOLS, MILITARY**
- Provide information
- Property rights and a legal structure
- Encourage competition **ANTI-TRUST RULES**



# Justifications for government policies

- Correcting a market failure
  - Externalities
  - Public Good (“tragedy of the commons”)
  - Incomplete markets (health insurance)
  - Information failure
- Redistribution

Equity versus Efficiency

Normative and positive economics

Goal: increase wellbeing (welfare) of citizens

# Putting these government activities into practice

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## What Is Driving Growth in Government Spending?

By NATE SILVER JANUARY 16, 2013 1:06 PM [271 Comments](#)

1. Entitlement programs
2. Military spending
3. Interest on the debt
4. Infrastructure and services

# Putting these government activities in practice

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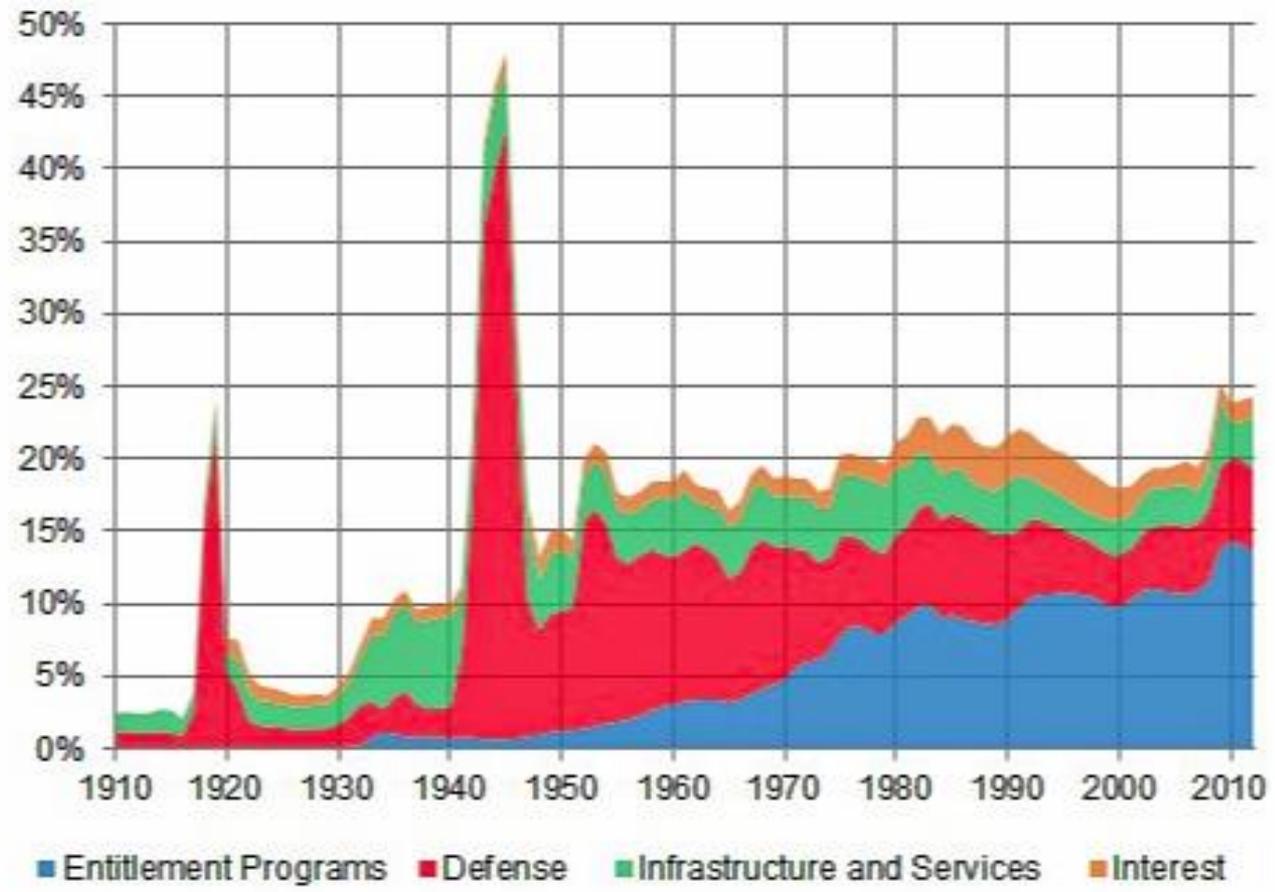


## What Is Driving Growth in Government Spending?

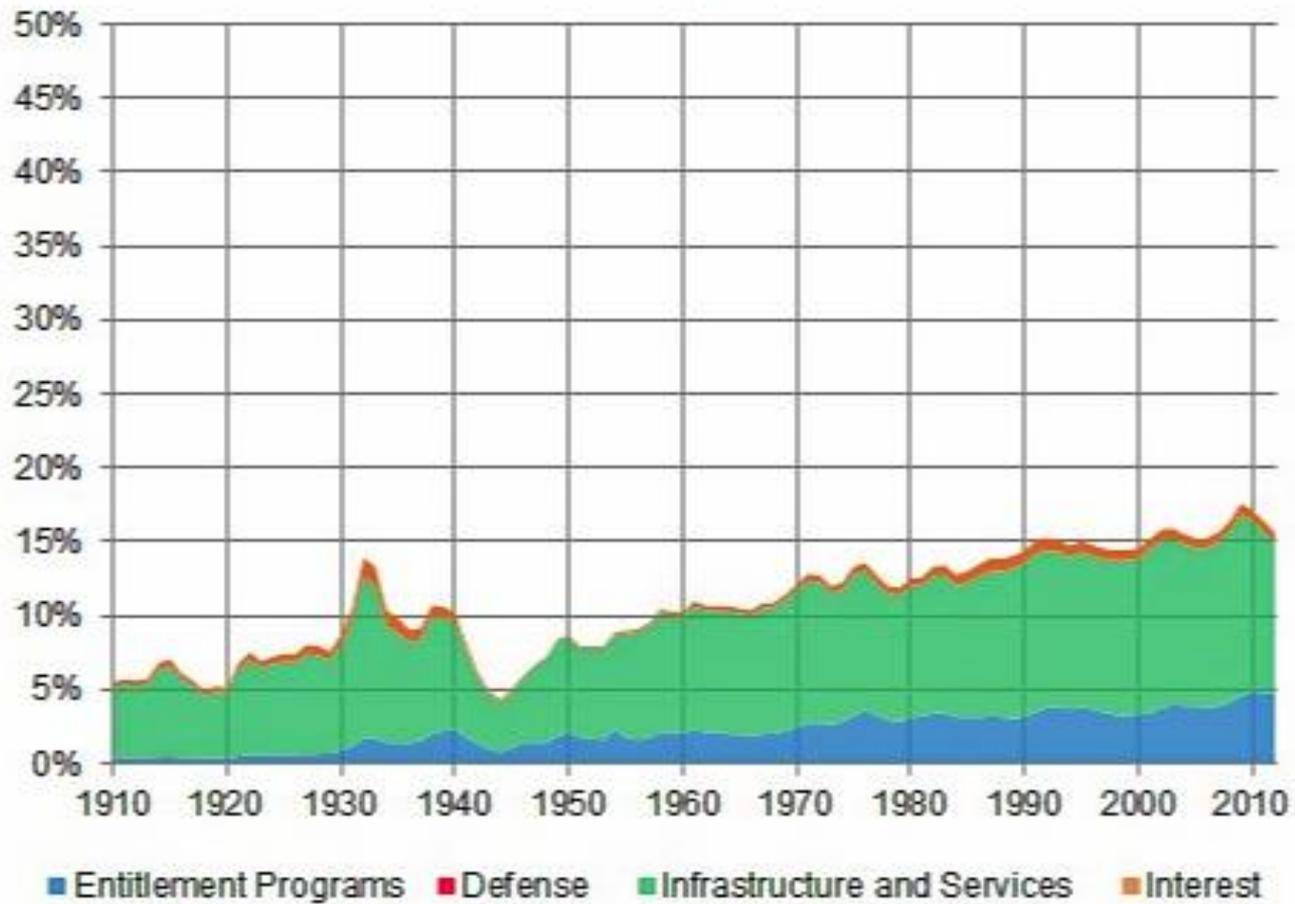
By NATE SILVER JANUARY 16, 2013 1:06 PM [271 Comments](#)

1. Entitlement programs – social security, Medicare, Medicaid, Food stamps, unemployment
2. Military spending
3. Interest on the debt
4. Infrastructure and services – education, criminal justice, science, technology

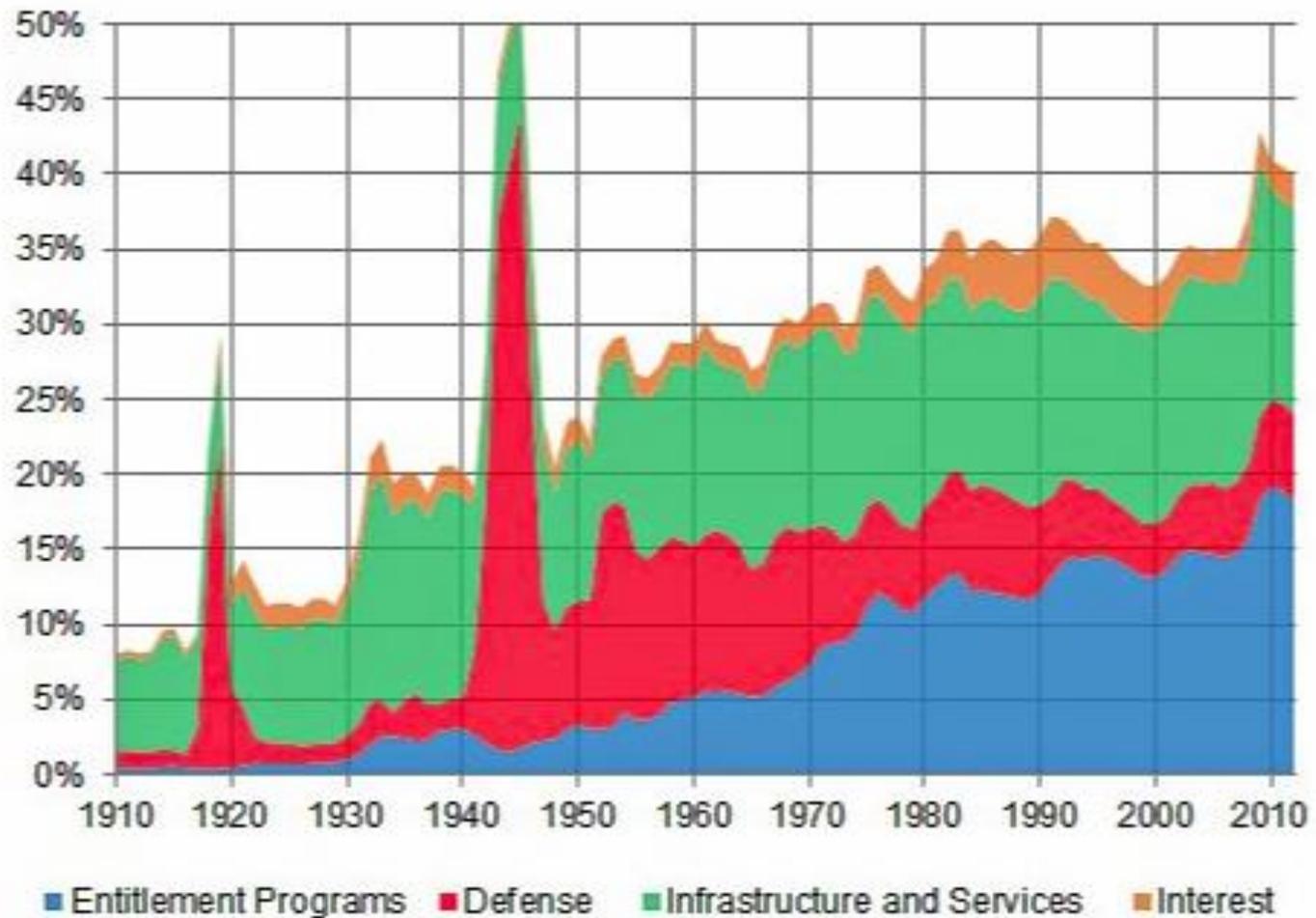
### Federal Government Spending as Share of GDP



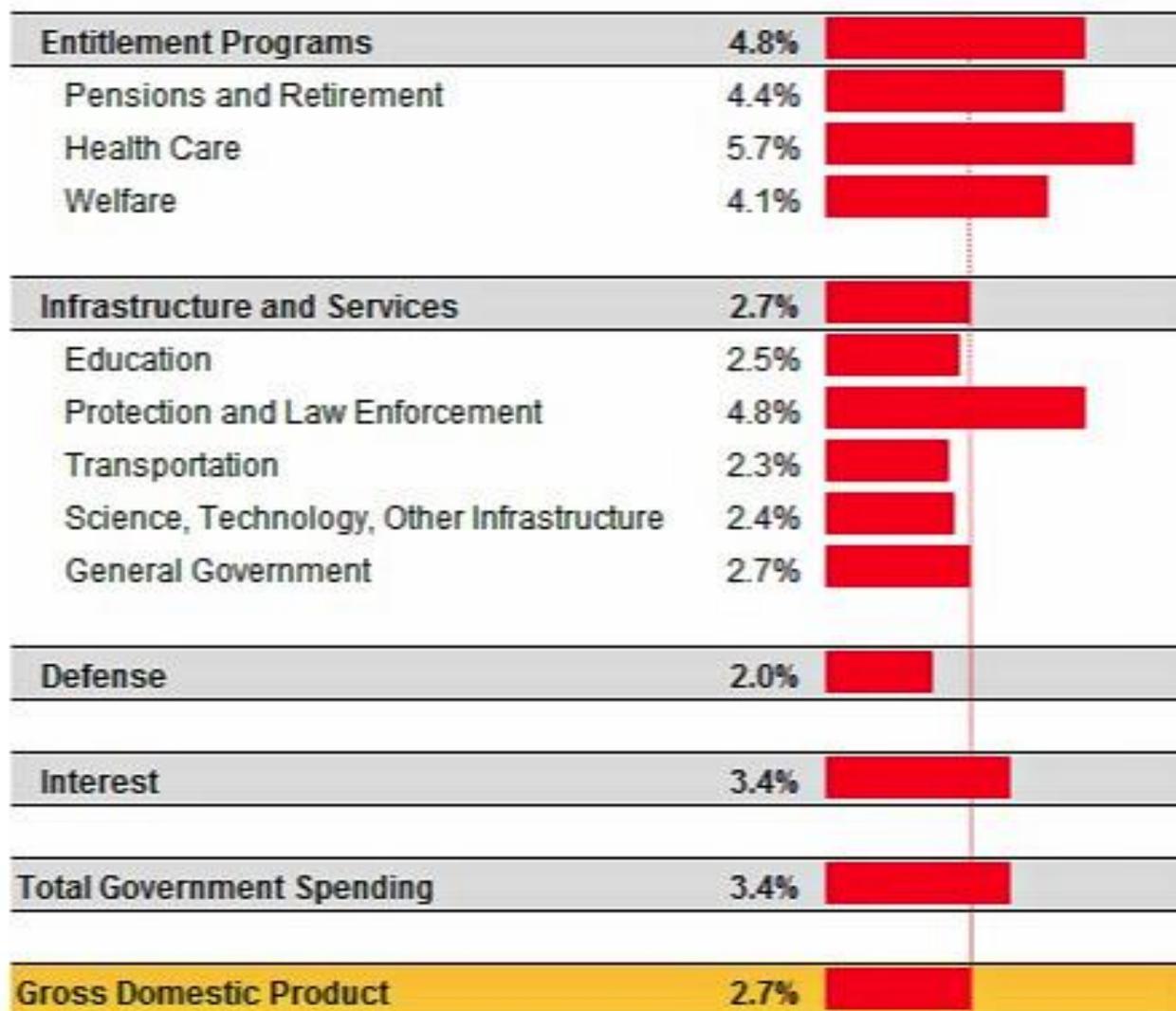
### State & Local Government Spending as Share of GDP



### Total Government Spending as Share of GDP



## Total Government Spending Annualized Growth Rate, 1972-2011



# Empirical Evidence for Policy Analysis

- Economics can give us theoretical predictions which is helpful
- But for more informative policy analysis we need numbers, specifics
  - How does UI affect the length of unemployment?
  - How does SNAP affect nutrition and obesity?
- Empirical policy evaluation: DEF “the use of data and statistical methodologies to measure the impact of government policy on individuals and markets”
- Fundamental challenge: disentangling causality from correlation
  - Correlated: move together
  - Causal: one of the variables causes movement in another

# MEET KALE:



**YOUR NEW FRIEND  
WITH BENEFITS**

[www.farmerspal.com](http://www.farmerspal.com)

Suppose we read that:

Kale eaters have lower  
cholesterol

Kale eaters have a lower risk  
of diabetes

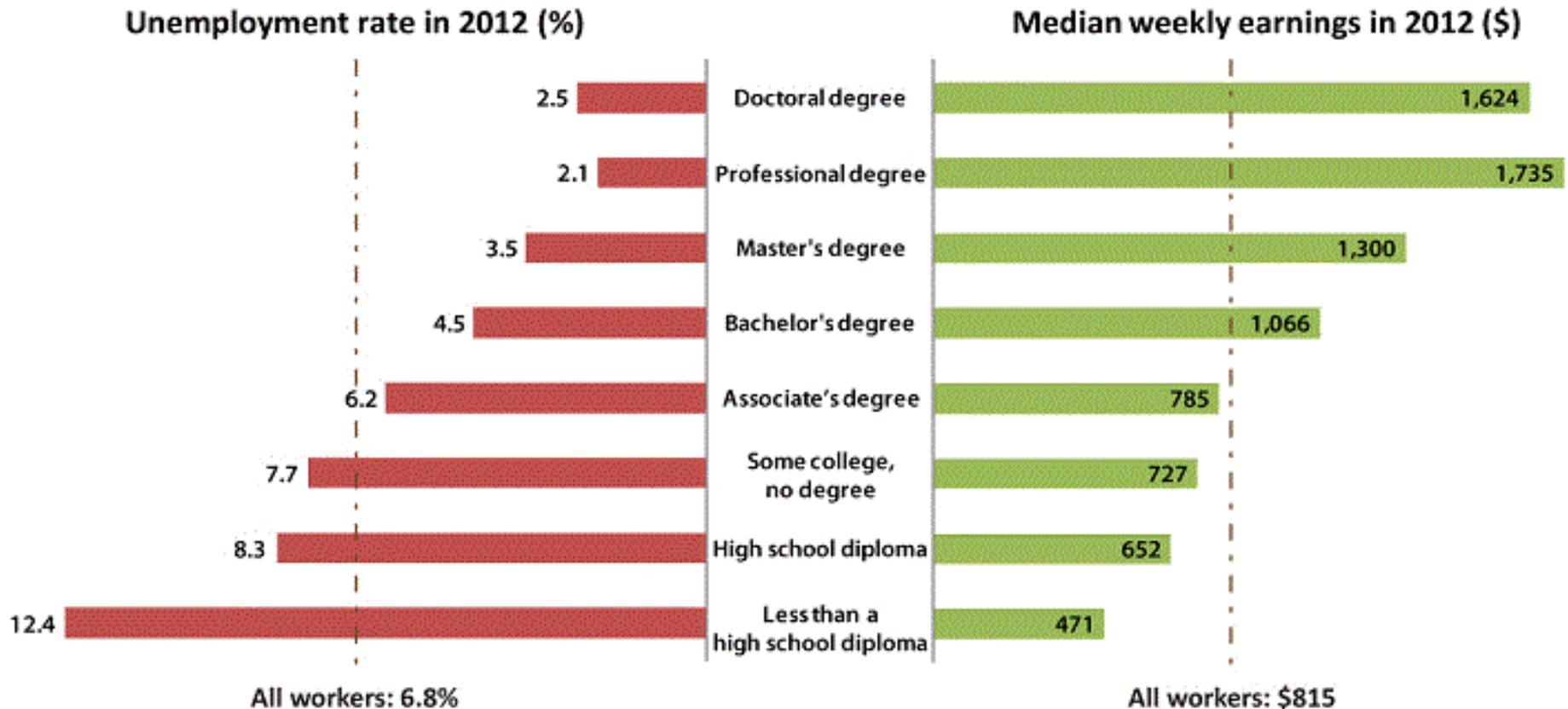
Correlation?

Causation?

How might we test for the  
difference?

# Or, how does schooling affect earnings?

## Earnings and unemployment rates by educational attainment



Source: Bureau of Labor Statistics, Current Population Survey

# Challenges to causal identification in analyzing education and earnings

- “ability bias” – part of the observed relationship between education and earnings may be due to the fact that those who are more able choose higher education levels
- For policy analysis we want to isolate the causal channel – to answer the question if we encouraged higher education levels (Obama’s new policy proposal for making community college free) what would we expect the gains to be?
- Identification problem

- How might we solve this *identification problem*?
- How to obtain the *causal* estimates we want for policy analysis?
- If it is feasible, one might use a randomized control trial RCT
- But we don't always have RCTs to use as evidence
- Observational data. DEF: data from individual behavior observed in the real world (not collected as part of your RCT)
- In addition to RCTs, we need to understand how to get high quality evidence out of observational data

# Motivating example



# Obamacare

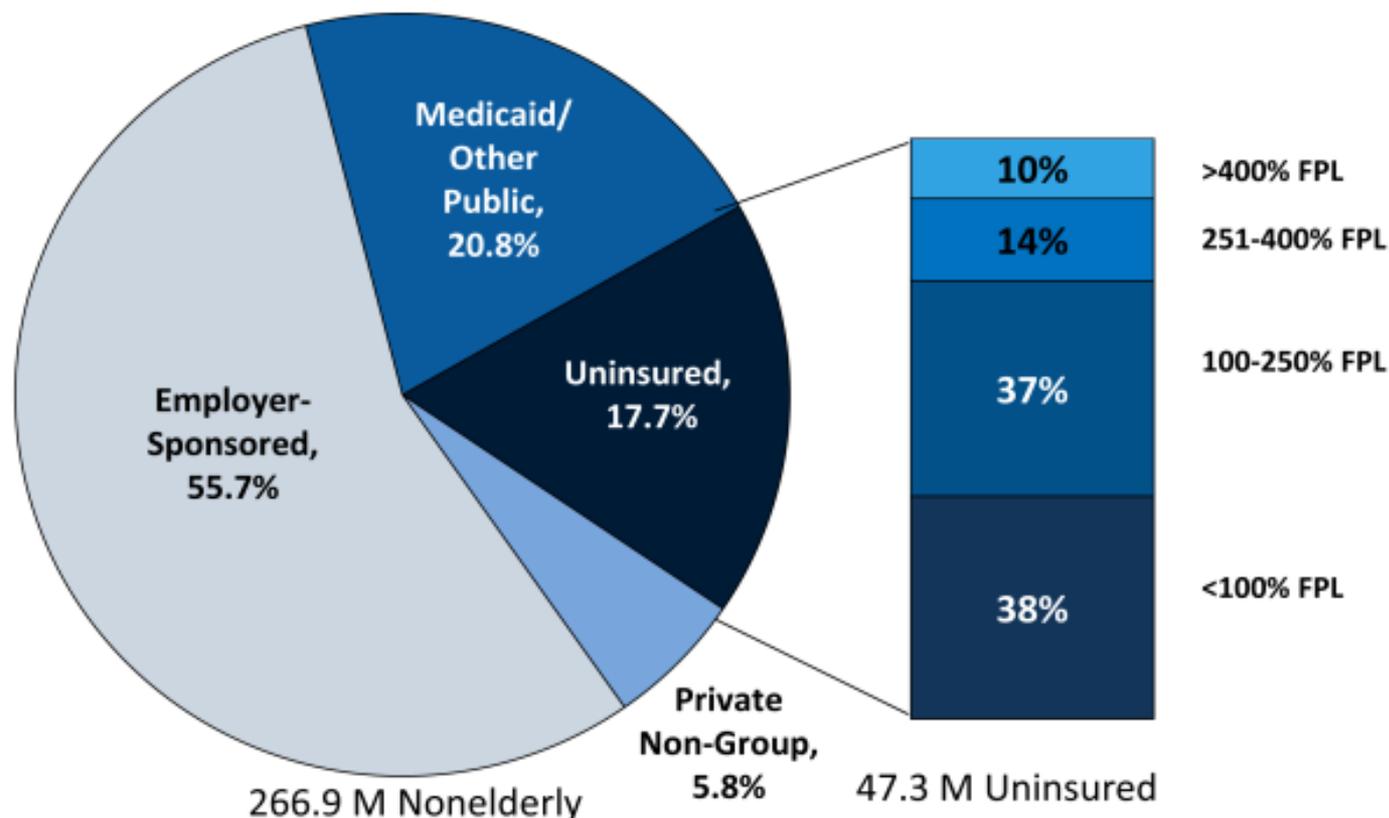
- Or, the Affordable Care Act
- What is the ACA?
  - Personal responsibility: penalties for NOT having health insurance
  - Expanding Medicaid and providing subsidies for private insurance to increase health insurance coverage
  - Requiring private health insurance to cover children through age 26
- Suppose we want to answer the following question:  
how does health insurance affect health outcomes?

## A naïve estimate of the effect of health insurance

- How about we collect data and compare outcomes of people with health insurance to people without health insurance?
- How might that be biased? Why?

Figure 1

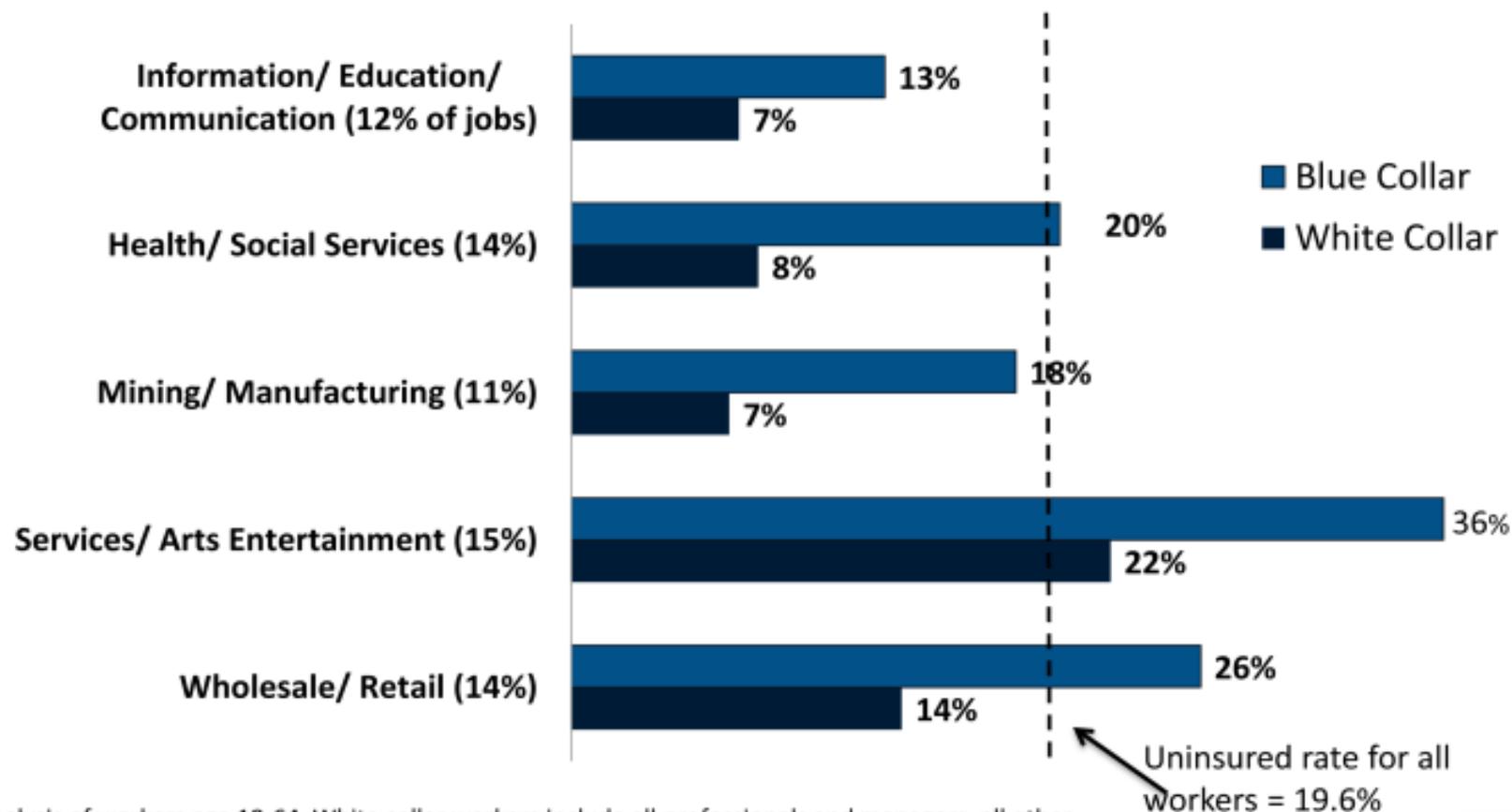
# The Uninsured Population—As a Share of the Nonelderly Population and by Poverty Levels, 2012



Medicaid and other public coverage includes: CHIP, other state programs, Medicare and military related coverage. The federal poverty level for a family of four in 2012 was \$23,050.

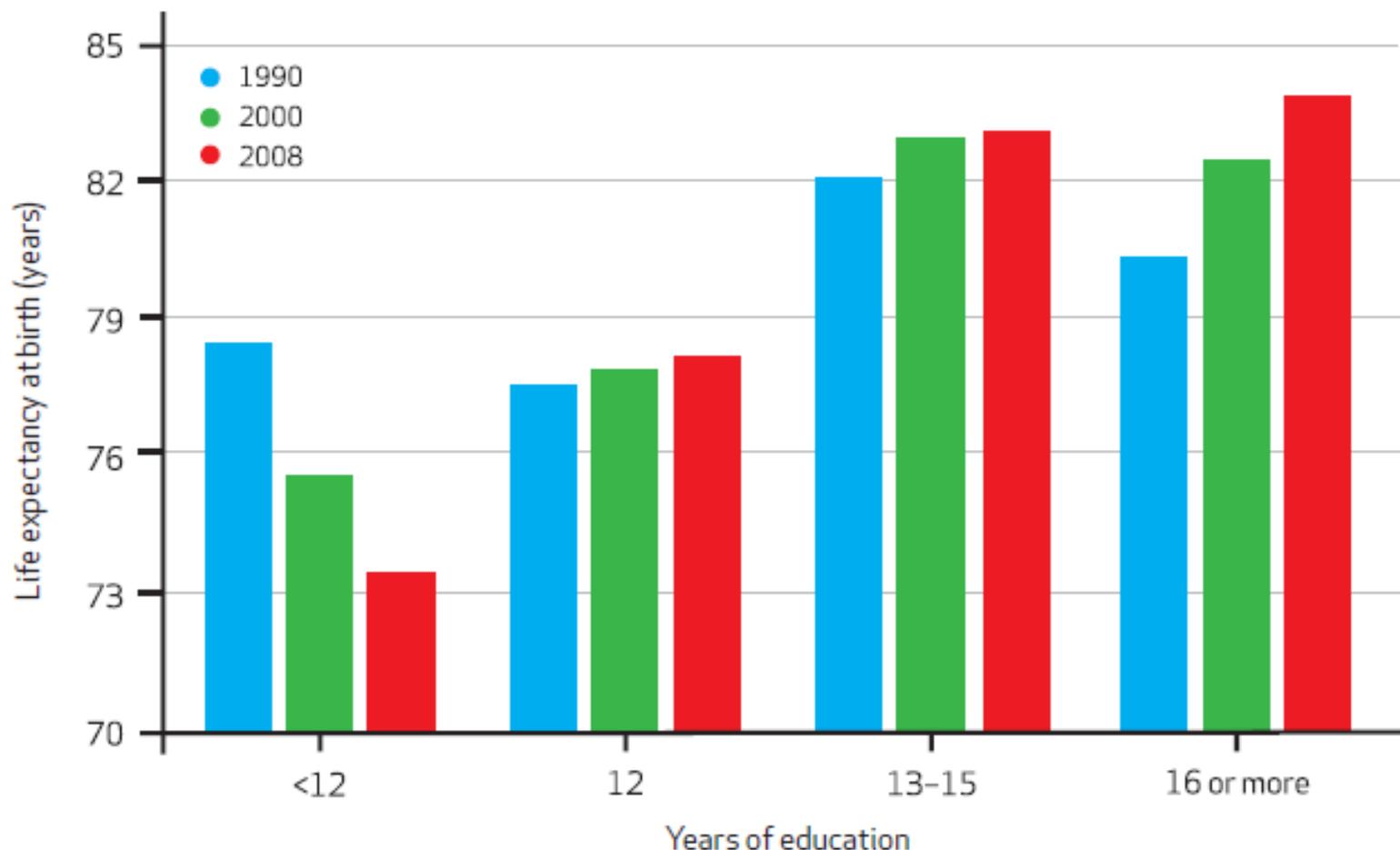
SOURCE: KCMU/Urban Institute analysis of the 2013 ASEC supplement to the CPS.

# Uninsured Rates Among Selected Industry Groups, White vs. Blue Collar Jobs, 2012



Analysis of workers age 18-64. White collar workers include all professionals and managers; all other workers classified as blue collar.

SOURCE: KCMU/Urban Institute analysis of 2013 ASEC Supplement to the CPS.

**EXHIBIT 2****Life Expectancy At Birth, By Years Of Education At Age 25 For White Females, 1990-2008**

**SOURCE** Authors' analysis of data from the National Vital Statistics System and the Census Bureau (Notes 24-26 in text).

## Empirical Approaches to evaluate the effect of health insurance on health outcomes

1. Compare those with health insurance to those without health insurance. *Cross-Sectional*
2. Compare outcomes before and after the introduction of Medicaid (1970s) *Time-Series*
3. Use the recent variation across states in their expansions of Medicaid for children *Difference in difference*
4. Compare those just eligible and not eligible for Medicaid *Regression Discontinuity*
5. Randomized experiment using “lottery design” *RCT*

# The fundamentals of an RCT

- Identify the population of interest, and create your experimental sample drawn from that population
- RANDOMLY select one group to obtain the treatment and the other to not get the treatment
  - Treatment group
  - Control group
- Difference in mean outcomes between treatment and control group =  $\bar{Y}_1 - \bar{Y}_0$  is the experimental effect of the treatment

<b>Treated</b>	$\bar{Y}_1$		
<b>Control</b>	$\bar{Y}_0$		
<b>Difference</b>	$\bar{Y}_1 - \bar{Y}_0$		

## Regression version of RCT

$$y_i = \alpha + \delta T_i + X_i \beta + \varepsilon_i$$

- $\delta$  is the treatment effect
- Adding  $X$ s increases the precision, but if it is a well done experiment, then it should not have much impact on the estimated treatment effect.

# Examples of RCTs in policy analysis

- Lottery designs: used in the evaluation of Charter Schools, Head Start, Moving to Opportunity, Oregon Medicaid Experiment
  - Announce a new program and invite people to sign up. If the signups exceed the total number of slots then you randomly assign one group to get the program, and one group does not
- Experiments on existing groups: used in welfare reform experiments
  - Randomly assign welfare recipients in several counties into a treatment group (who faces new rules) and a control group (who stays on the old rules)
- Village designs: used in many developing country contexts (e.g. Progressa in Mexico)
  - Identify a set of villages for the treatment, then match to a set of “similar” villages who are the controls.

## Empirical Approaches to evaluate the effect of health insurance on health outcomes

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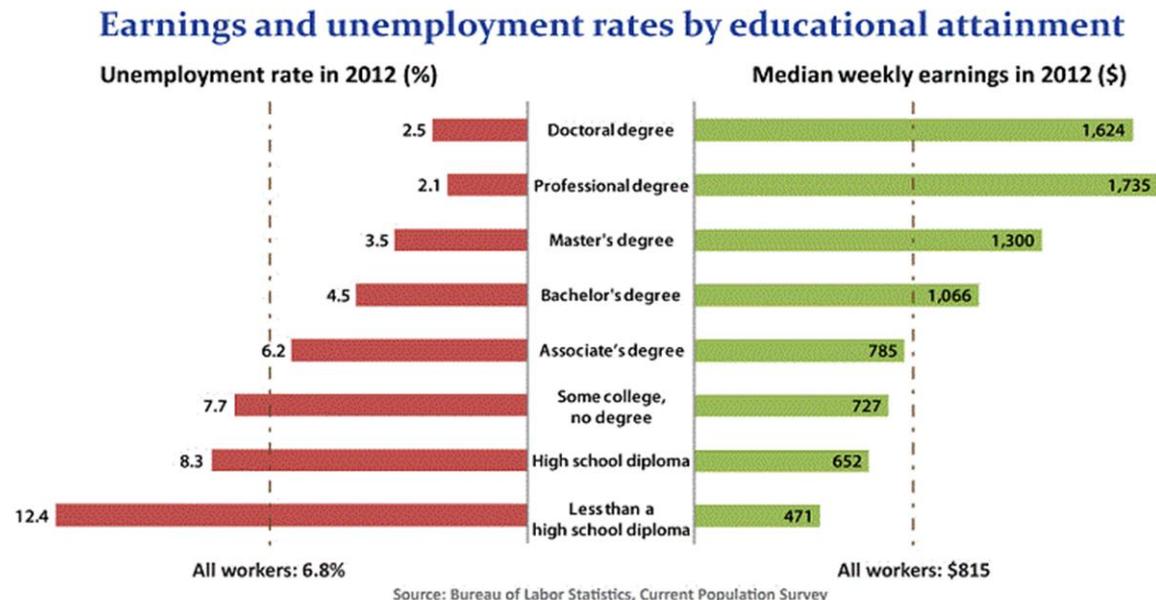
# Cross Sectional Approach

1. Take the most recent data and compare those with health insurance to those without health insurance.
- Using this approach, we would take the difference in health outcomes as the effect of insurance (T here is having health insurance)
  - What might be wrong with this?

$$y_i = \alpha + \delta T_i + X_i \beta + \varepsilon_i$$

# Questions to ask in evaluating the quality of evidence

- Do the “treatment” and “control” groups differ for reasons other than the treatment?
- Bias: any source of difference between the T and C that is correlated with the treatment but is not due to the treatment



# Lesson 1: Concerns about Cross Sectional Analysis

- DEF: comparing across individuals at a point in time
- Compare T and C at a single point in time
- Remember the key question: “Do the “treatment” and “control” groups differ for reasons other than the treatment?”
- There could be a third factor that affects both
- Bias, selection into treatment

# Time-Series Approach

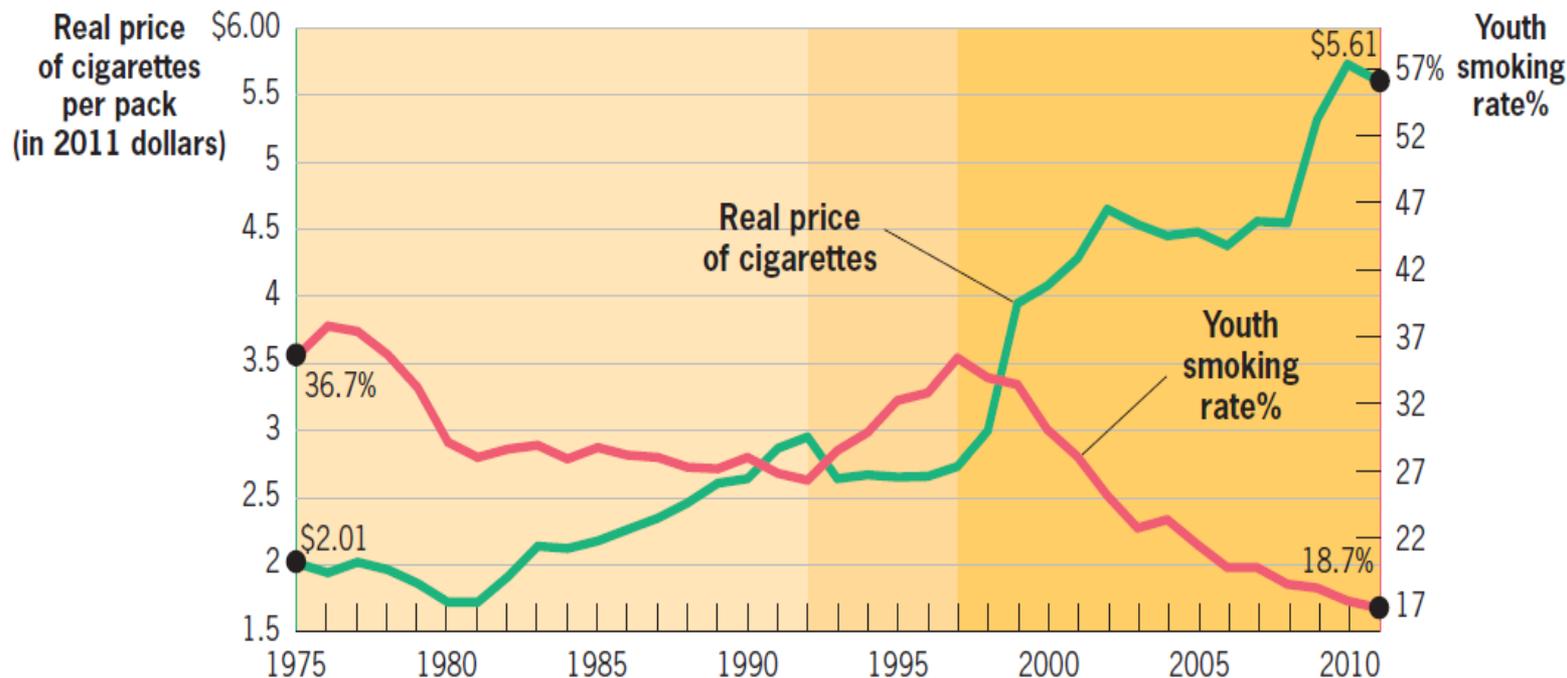
2. Compare outcomes before and after Medicaid is introduced as a new policy (1970s)
  - Using this approach, we would take the difference in health outcomes as the effect of insurance
  - What might be wrong with this?

$$y_t = \alpha + \delta AFTER_t + X_t\beta + \varepsilon_t$$

## Lesson 2: Concerns about Time-Series Analysis

- DEF: comparing across different time periods
- Remember the key question: “Do the “treatment” and “control” groups differ for reasons other than the treatment?”
- Here the analog is treatment= after period and control = before period
- There could be a third factor that affects both? Are there other factors leading to changes over time other than the treatment?
- Sharp time changes tend to generate better evidence

# Example from Gruber reading: When Is Time Series Analysis Useful? Cigarette Prices and Youth Smoking



- Sharp, simultaneous changes in prices and smoking rates in 1993 and 1998–onward
- Known causes: price war, tobacco settlements

3. Use variation across states in their expansions of Medicaid for children

Use “the laboratory of the states”



### 3. Use variation across states in their expansions of Medicaid for children

- We get data at the state level and over time (panel data)
- Relate changes in outcomes across states to the changes in Medicaid and SCHIP that occurred
- What might be wrong here?

## Lesson 3: Quasi-experiments or “natural experiments” can be helpful

- DEF: Changes in the economic environment create nearly identical T and C groups.
- Creates *pseudo RCT* setting (hence “natural” experiment)
- Randomization due to external forces
- Example: policy change in one place but not another. Or policy change for one group and not another.
- Typically compare CHANGES over time in a T compared to changes in the C

# Difference in Difference Estimator

	Before	After	Difference
Treated	$\overline{Y}_{10}$	$\overline{Y}_{11}$	$\overline{Y}_{11} - \overline{Y}_{10}$
Control	$\overline{Y}_{00}$	$\overline{Y}_{01}$	$\overline{Y}_{01} - \overline{Y}_{00}$
Difference-in-difference	$(\overline{Y}_{11} - \overline{Y}_{10}) - (\overline{Y}_{01} - \overline{Y}_{00})$		

- Difference in outcomes for treated area:  $\overline{Y}_{11} - \overline{Y}_{10}$
- Difference in outcomes for control area:  $\overline{Y}_{01} - \overline{Y}_{00}$
- Difference-in-difference =  $(\overline{Y}_{11} - \overline{Y}_{10}) - (\overline{Y}_{01} - \overline{Y}_{00})$
- Better, but only as good as the control is. They are to proxy for what would have happened if there was no treatment.
- Combine ideas in cross-section and time series

$$y_i = \alpha + \delta T_i + X_i \beta + \varepsilon_i$$

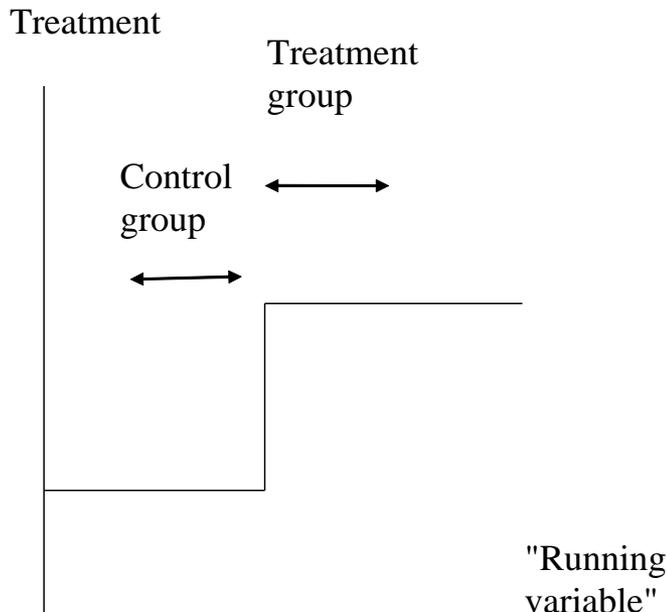
$$y_t = \alpha + \delta AFTER_t + X_t \beta + \varepsilon_t$$

$$y_{it} = \alpha + \gamma AFTER_{it} + \theta T_{it} + \delta AFTER_{it} T_{it} + X_{it} \beta + \varepsilon_{it}$$

- Difference in difference, treatment effect is the interaction

# 5. Regression Discontinuity

- An extreme and sharp application of the difference in difference approach. Here, there is some underlying variable that determines the treatment. There is a sharp discontinuity in the treatment at some point. You then make a T and C groups on either side of the discontinuity.



The appeal in this approach is that the comparison groups are "close" to the treatment.

## Examples:

Head start and economic outcomes  
(poverty status of county)

Medicare (age)

Card et al, Medicare, RD on age 65

They ask how insurance affects health care utilization, health outcomes

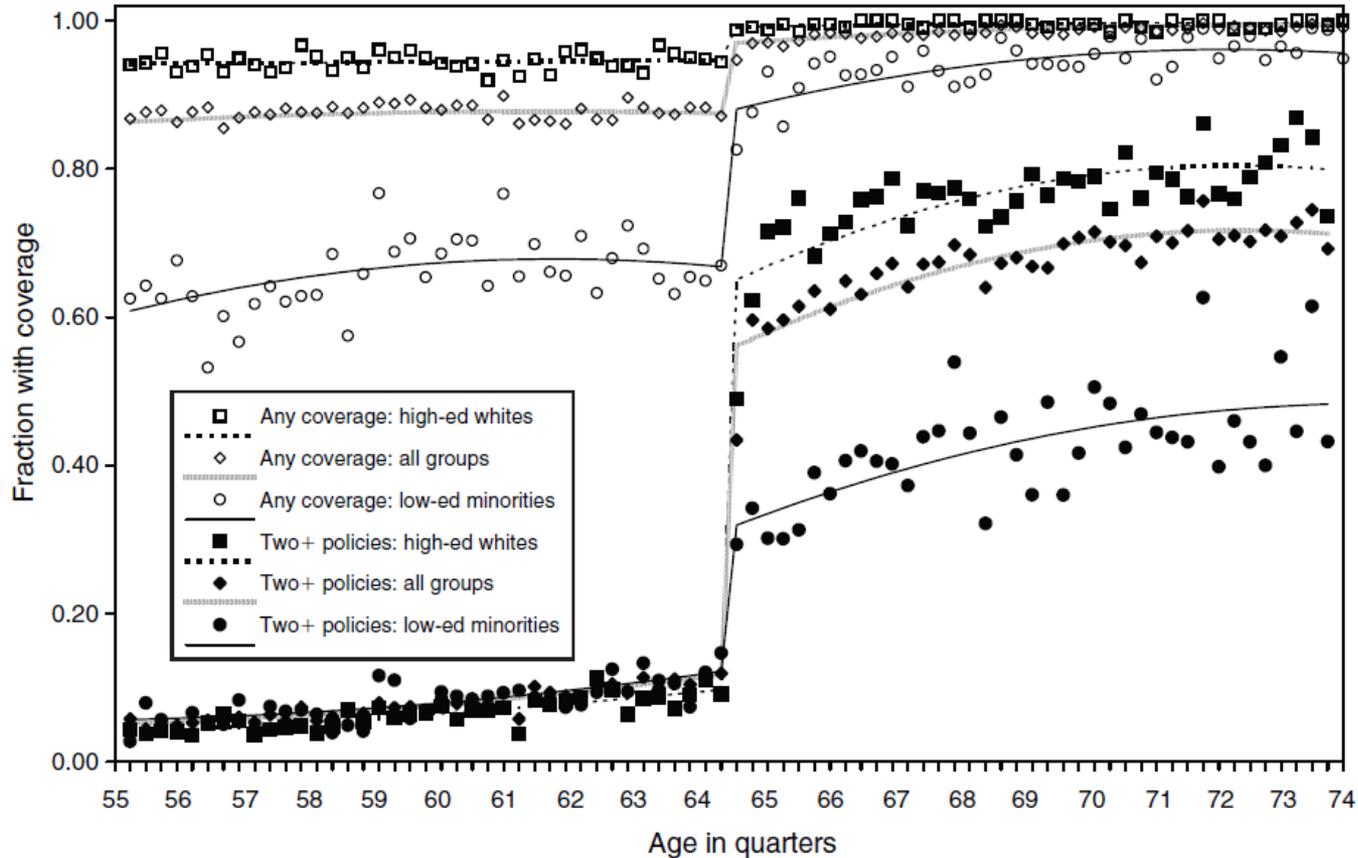


FIGURE 1. COVERAGE BY ANY INSURANCE AND BY TWO OR MORE POLICIES, BY AGE AND DEMOGRAPHIC GROUP

First stage: sharp increase in coverage; more for disadvantaged

- Estimates of  $\delta$  (the treatment effect) come from a regression version of these figures
- Like the cross sectional model but controls for the “running” variable in a flexible way.
- Essentially you are trying to estimate the shift in the curve as you cross over the discontinuity
- You are creating T and C groups that are very similar to one another (e.g. 64 versus 66 years of age)

$$y_i = \alpha + \delta T_i + f(\text{age}_i) + X_i\beta + \varepsilon_i$$

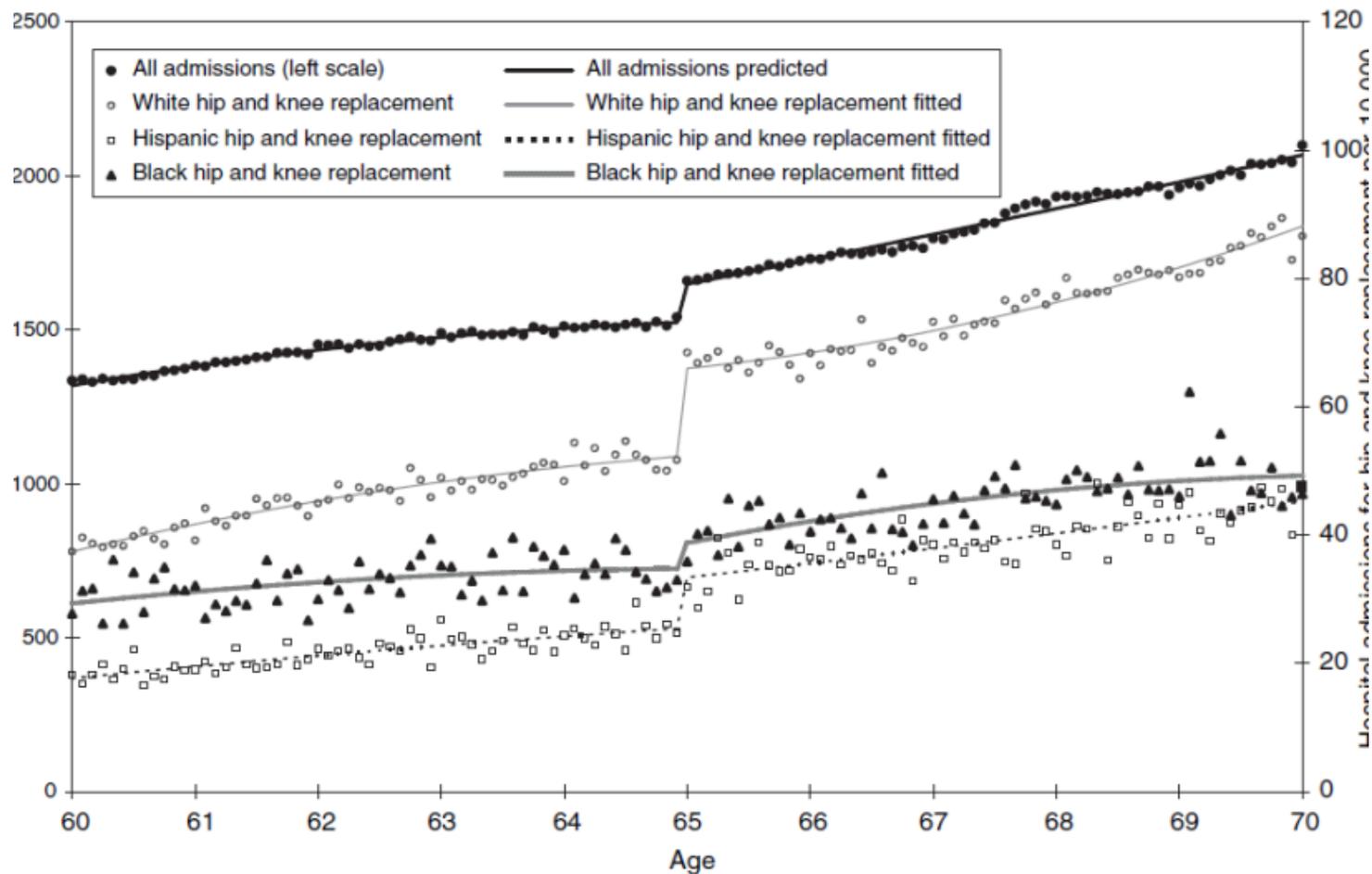


FIGURE 3. HOSPITAL ADMISSION RATES BY RACE/ETHNICITY

Health care utilization increases: Increase is driven by discretionary medical care, diagnostic heart treatments.

They use hospital discharge data and identify admissions that require immediate hospitalization (so it is not affected by the increase in insurance coverage)

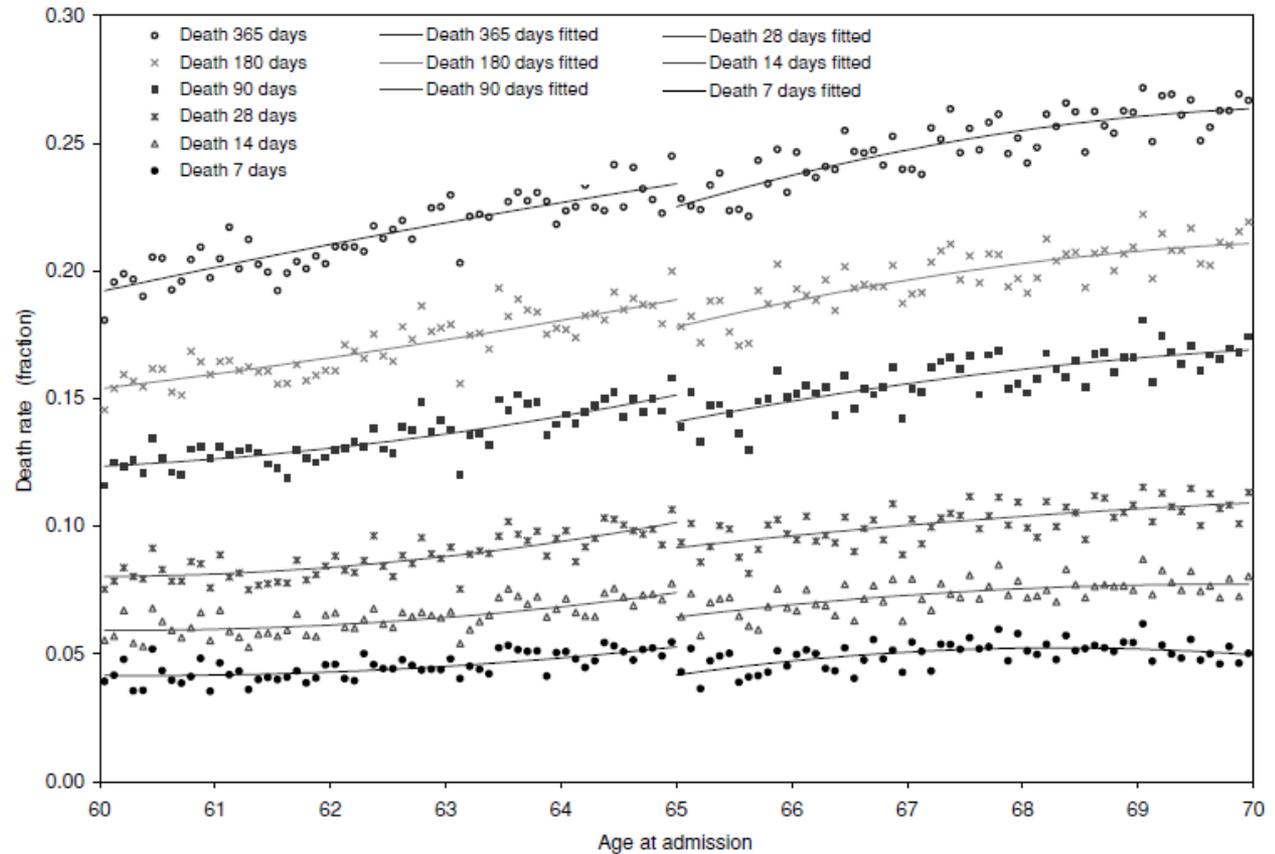


FIGURE VI  
Patient Mortality Rates over Different Follow-Up Intervals

Nontrivial decrease in mortality

## Brief case study: Murnane Ch 2

- What is the setting in which they want empirical evidence?
  - Effect of school resources (class size, teacher qualifications, \$ per pupil) on student outcomes
- What kind of empirical approach does the Coleman Report take? (1968 report by Sociologist James Coleman)
  - Cross sectional
- What were the findings?
  - School outcomes were worse among black children AND school resources explained none of those differences!
- Why might these findings be biased?
- IES: Goal is to fund high quality RCT in education research

# Poverty Measurement

Hilary Hoynes

PP290

## 2 basic elements to poverty measurement

1. Define a threshold
2. Define the resource measure

Then poor if resources  $<$  threshold

# Alternative ways to measure poverty

- Absolute
- Relative, OECD poverty is if below 50% median income
- Consumption
- Material deprivation

# Alternative ways to measure poverty

- Absolute – basic needs standard, in principle this is fixed (if needs are fixed)
- Relative – comparative disadvantage, measured relative to an evolving standard of living (lower tail inequality), social exclusion
- Consumption
- Material deprivation – having lack off access to some things (food, heat, etc)

# Tradeoffs in measures

- Absolute: conceptually easy, but how should the poverty line change as living standards change?
- Relative: OECD “since extreme hardship such as starvation is uncommon in advanced societies, absolute pov has little meaning;” yet by construction relative pov stays the same when the country gets (uniformly) richer? Or in recessions poverty could (mechanically) decrease
- Consumption: better measure of wellbeing? Captures other (non-income) resources? Deals with underreporting of income? Big data requirements

# Poverty measurement in the U.S. – the timeline

- 1962 Michael Harrington, The Other America: Poverty in the U.S. influenced Kennedy's advisors
- Walter Heller, chairman of the CEA wanted to “launch a Kennedy offense against poverty”
- Robert Lampman CEA member wanted to devise a poverty measure that depended less on inequality and more on the amount to achieve a minimum living standard
- Johnson adopted Kennedy's emerging plan as his own. Jan 1964 War on Poverty speech in state of the union address
- Independently, Mollie Orshansky published an article in 1963 and 1965 the social security bulletin” two sets of poverty thresholds “economy level” and “low-cost level”
- OEO adopted the lower of her levels (economy food plan) and 1969 the Bureau of Budget (now OMB) released statistics -- \$3128 for a family of four

# Poverty measurement in the U.S.

- Released by the U.S. annually since 1969
- “those whose basic needs exceed their means to satisfy them”
- Molly Orshansky an economist in the Social Security Administration developed the measure in 1963-64
- She took data from a 1955 USDA survey which measured a “food plan” deemed adequate for “temporary or emergency use when funds are low” (no eating out)
- At that time households spent 1/3 of their income on food
- → Poverty threshold was set at 3 times the dollar cost of the “economy food plan” (adjusted for family size)



# What is the Official Poverty Measure?

- A family is poor if their cash family income is less than the federal poverty threshold
  - Poverty lines vary by family size and are adjusted for changes in prices each year
  - Based on the cost of food in the 1960s (multiplied by 3)
- Poverty is a *family* concept—all persons in the same family have the same poverty status
- Thresholds updated using CPI-U each year
- Other than updating for changes in prices each year, the official poverty definition has not changed since 1964!

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Poverty Thresholds by Family Type, 2013	
1 parent, 1 child	\$16,057
1 parent, 2 children	\$18,769
2 parents, 2 children	\$23,624

By comparison, median family income was \$51,017.

Poverty Thresholds for 2014 by Size of Family and Number of Related Children Under 18 Years

Size of family unit	Related children under 18 years								
	None	One	Two	Three	Four	Five	Six	Seven	Eight or more
One person (unrelated individual).....									
Under 65 years.....	12,316								
65 years and over.....	11,354								
Two people.....									
Householder under 65 years.....	15,853	16,317							
Householder 65 years and over.....	14,309	16,256							
Three people.....	18,518	19,055	19,073						
Four people.....	24,418	24,817	24,008	24,091					
Five people.....	29,447	29,875	28,960	28,252	27,820				
Six people.....	33,869	34,004	33,303	32,631	31,633	31,041			
Seven people.....	38,971	39,214	38,375	37,791	36,701	35,431	34,036		
Eight people.....	43,586	43,970	43,179	42,485	41,501	40,252	38,953	38,622	
Nine people or more.....	52,430	52,685	51,984	51,396	50,430	49,101	47,899	47,601	45,768

Source: U.S. Census Bureau.

# Equivalence scale in SPM thresholds

- one and two adults      scale = (# adults)<sup>0.5</sup>
- Single parents: scale = (adults + 0.8\* first child + 0.5\*other children)<sup>0.7</sup>
- All other families: scale = (adults + 0.5\*children)<sup>0.7</sup>

# Income and Poverty in the United States: 2013

## **Current Population Reports**

By Carmen DeNavas-Walt and Bernadette D. Proctor

Issued September 2014

P60-249

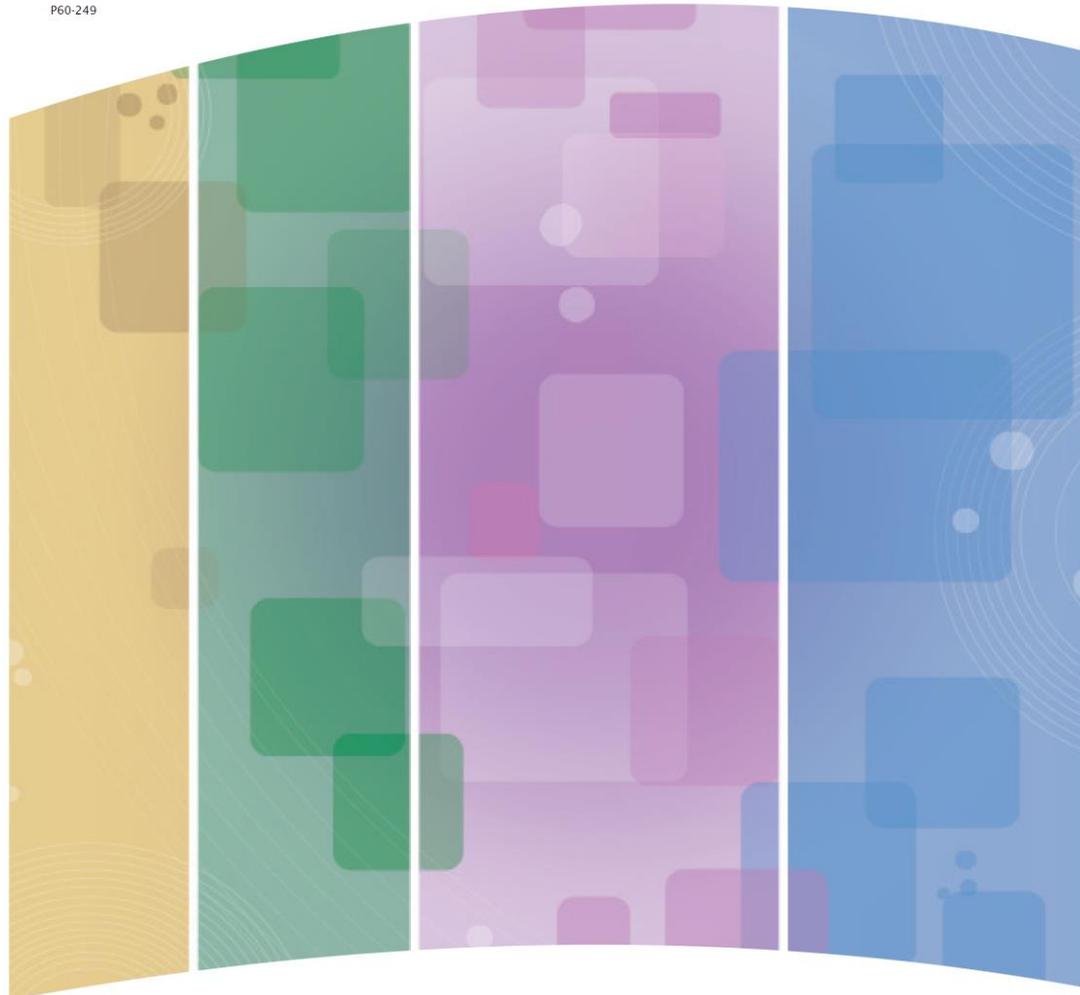
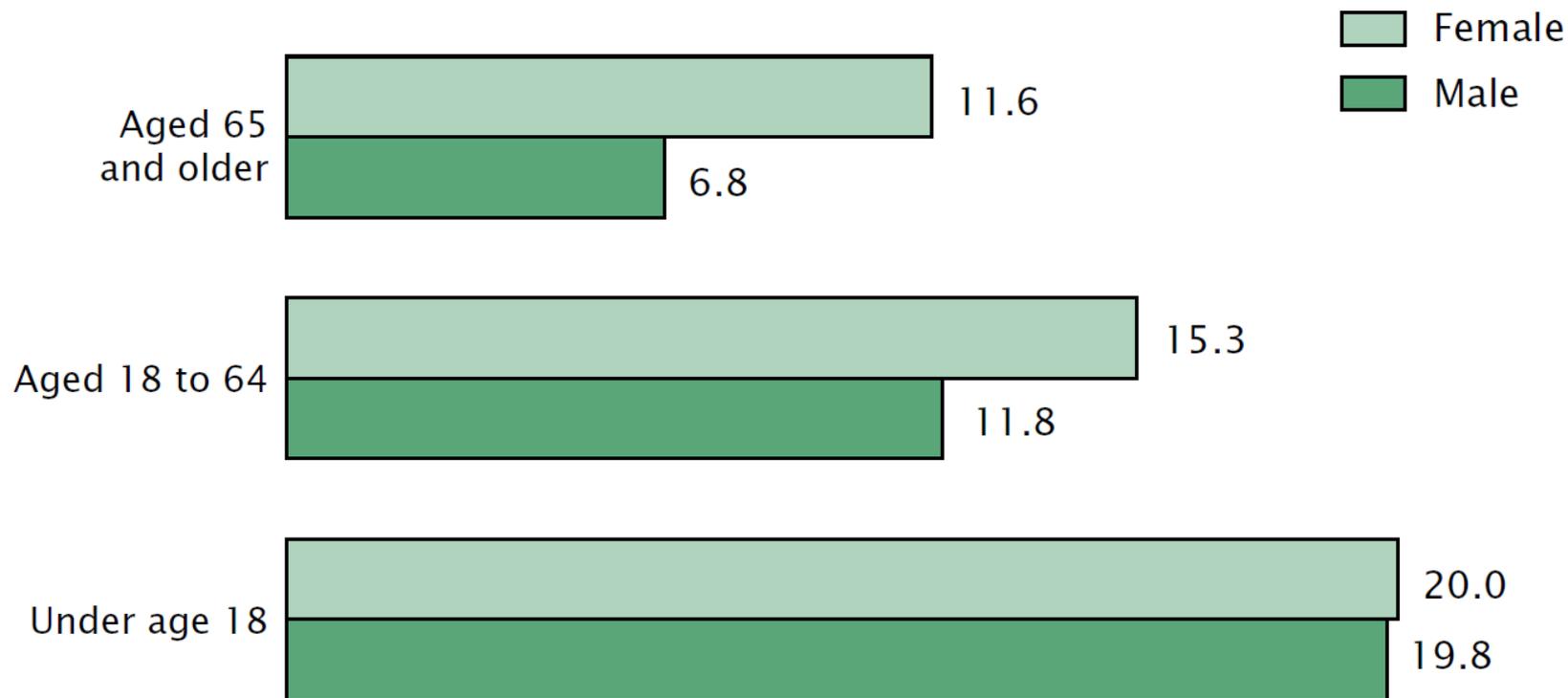


Figure 6.  
**Poverty Rates by Age by Sex: 2013**  
(In percent)



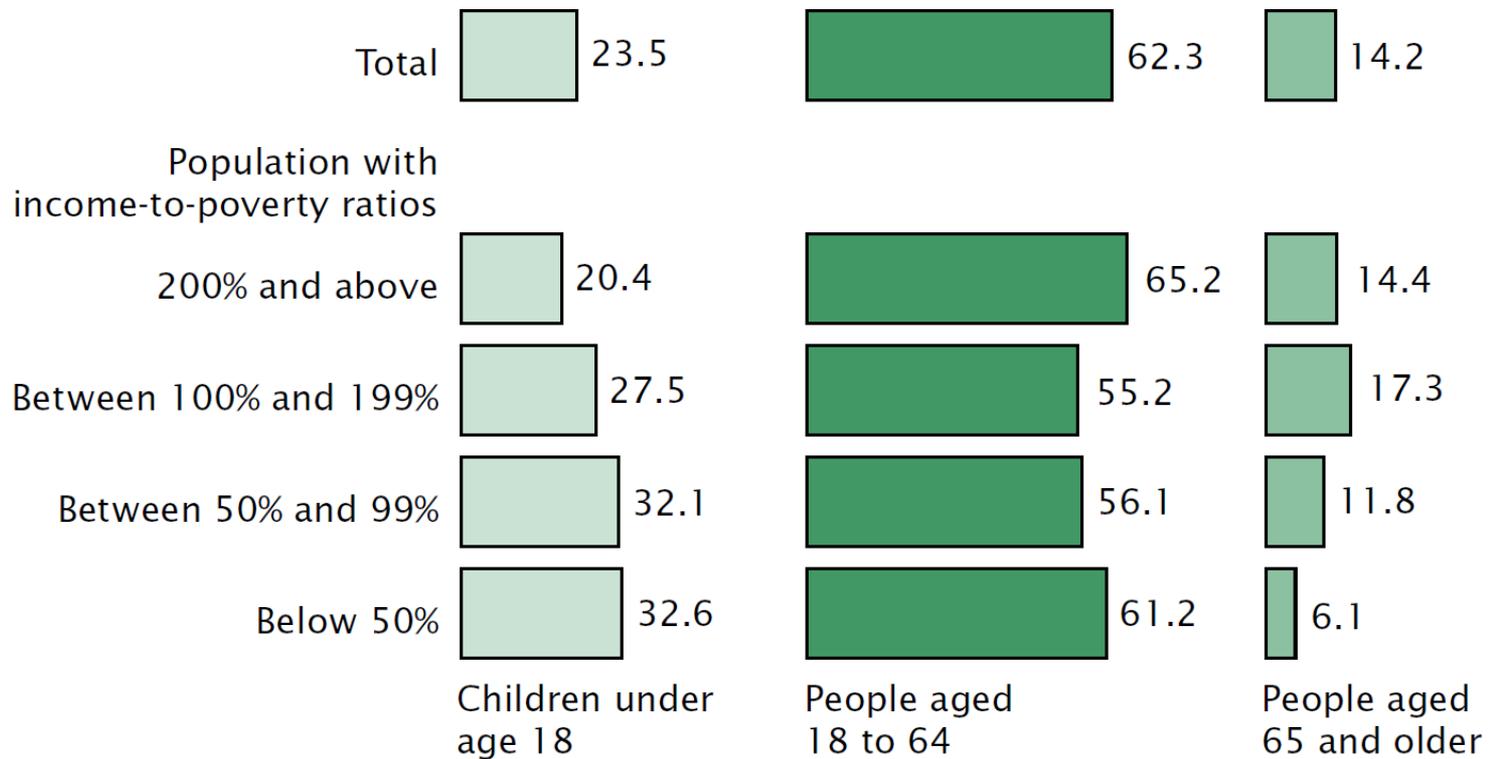
Note: For information on confidentiality protection, sampling error, nonsampling error, and definitions, see <ftp://ftp2.census.gov/programs-surveys/cps/techdocs/cpsmar14.pdf>.

Source: U.S. Census Bureau, Current Population Survey, 2014 Annual Social and Economic Supplement.

Figure 7.

## Demographic Makeup of the Population at Varying Degrees of Poverty: 2013

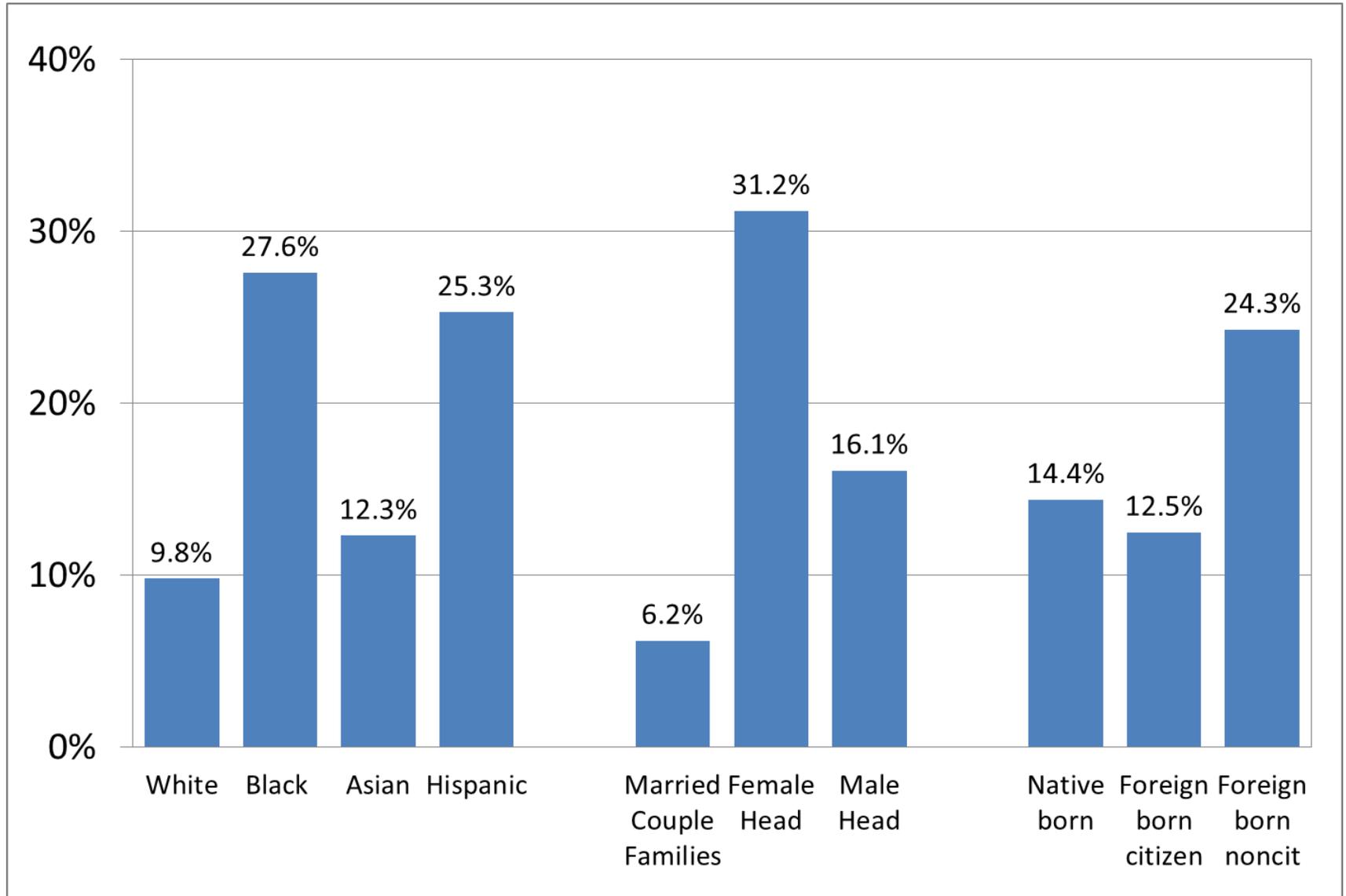
(In percent)



Note: For information on confidentiality protection, sampling error, nonsampling error, and definitions, see <<ftp://ftp2.census.gov/programs-surveys/cps/techdocs/cpsmar14.pdf>>.

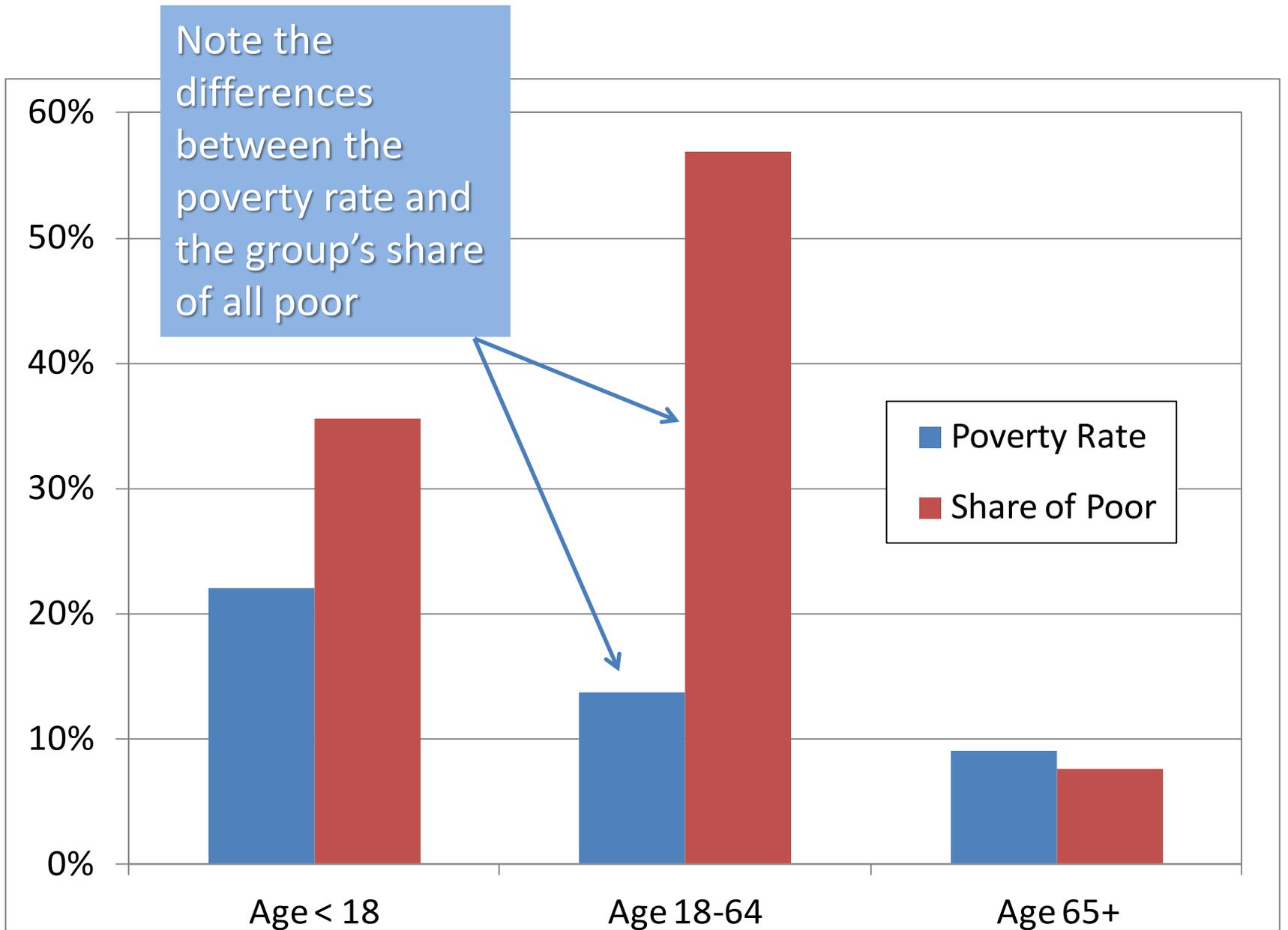
Source: U.S. Census Bureau, Current Population Survey, 2014 Annual Social and Economic Supplement.

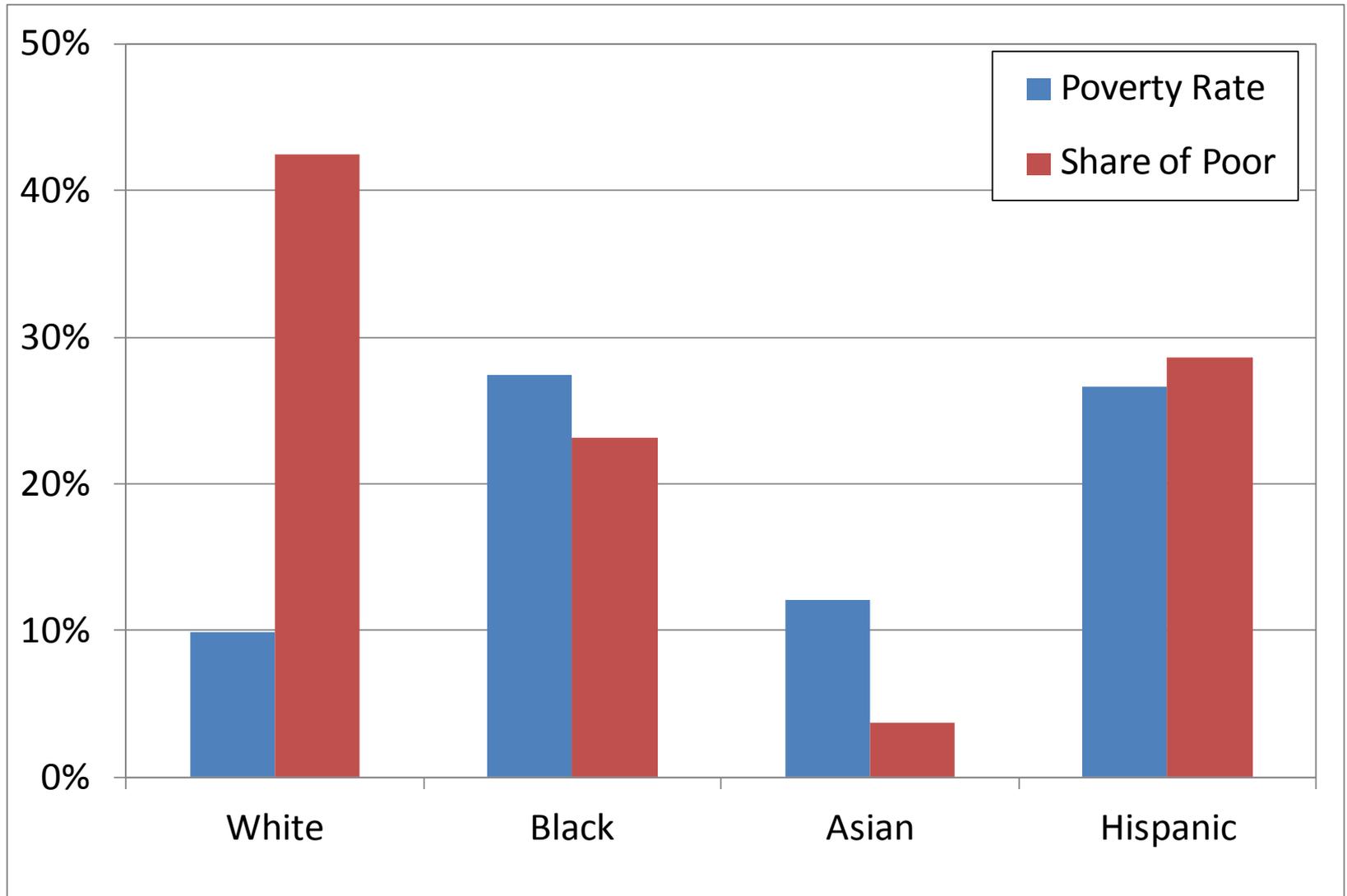
# Other important differences across groups



# Use and abuse of statistics

- What is the difference between:
- The majority of the poor are black
- Blacks have a high poverty rate

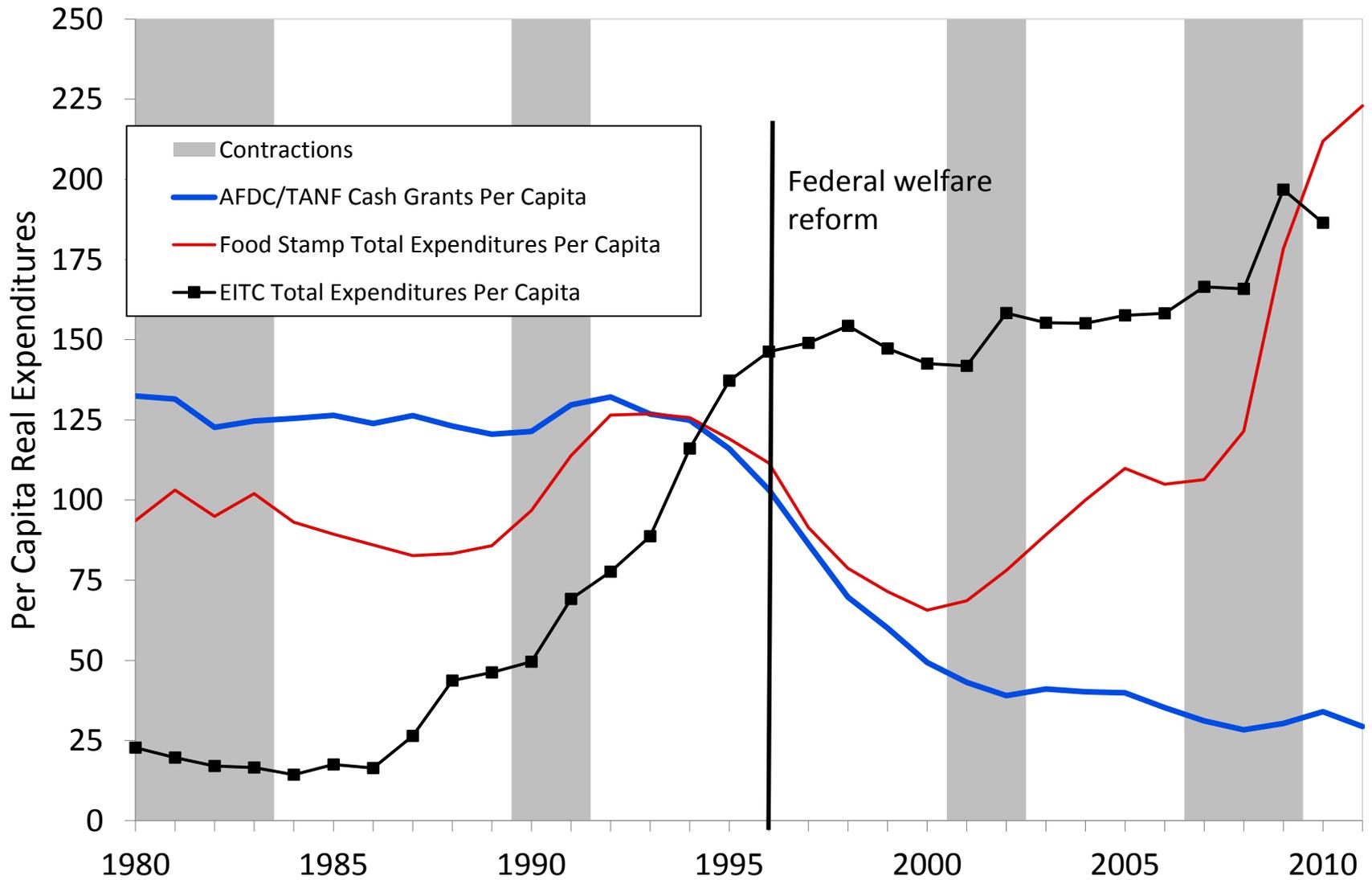




# Concerns about official poverty measure

- Income measure is pre-tax family income; includes only cash income
  - Does not include Food Stamps (SNAP) or Earned Income Tax Credit (the most important government benefits for low income families!)
- Threshold concept has not changed yet spending needs have – modal family has working adult, costs of child care, work expenses; health care costs have soared
- Food budgets are now about 1/8 of spending rather than 1/3 in 1955.
- Not adjusted for regional variation in costs of living (e.g., housing)
- Arbitrary line – poverty gap as an alternative?
- Definition of poverty has not changed since measure developed in early 1960s
- Family concept should incorporate cohabitation

# Per capita real expenditures (2011 \$)



Source: Bitler and Hoynes (2010).

Why hasn't official poverty changed?

# Supplemental Poverty Measure

- In November 2011, the U.S. Census released an alternative measure.
- Based on National Academy of Sciences report in 1995 “Measuring Poverty: A New Approach”
- Uses post-tax family income including in-kind government benefits
- Thresholds accounting for spending on food, clothing, shelter and utilities
- Iceland calls it a “quasi relative” measure since these measures are taken at 30-36% of the median of those expenditure groups (challenging measurement problem)
- Other changes include geographic variation in poverty thresholds, expanding definition of family unit (cohabitators), and accounting for out of pocket medical expenses.

## Poverty Measure Concepts: Official and Supplemental

	Official Poverty Measure	Supplemental Poverty Measure
Measurement Units	Families and unrelated individuals	All related individuals who live at the same address, and any coresident unrelated children who are cared for by the family (such as foster children) and any cohabiters and their relatives
Poverty Threshold	Three times the cost of a minimum food diet in 1963	The mean of the 30th to 36th percentile of expenditures on food, clothing, shelter, and utilities (FCSU) of consumer units with exactly two children multiplied by 1.2
Threshold Adjustments	Vary by family size, composition, and age of householder	Geographic adjustments for differences in housing costs by tenure and a three-parameter equivalence scale for family size and composition
Updating Thresholds	Consumer Price Index: all items	Five-year moving average of expenditures on FCSU
Resource Measure	Gross before-tax cash income	Sum of cash income, plus noncash benefits that families can use to meet their FCSU needs, minus taxes (or plus tax credits), minus work expenses, minus out-of-pocket medical expenses and child support paid to another household

**Resource Estimates**  
**SPM Resources = Money Income From All Sources**

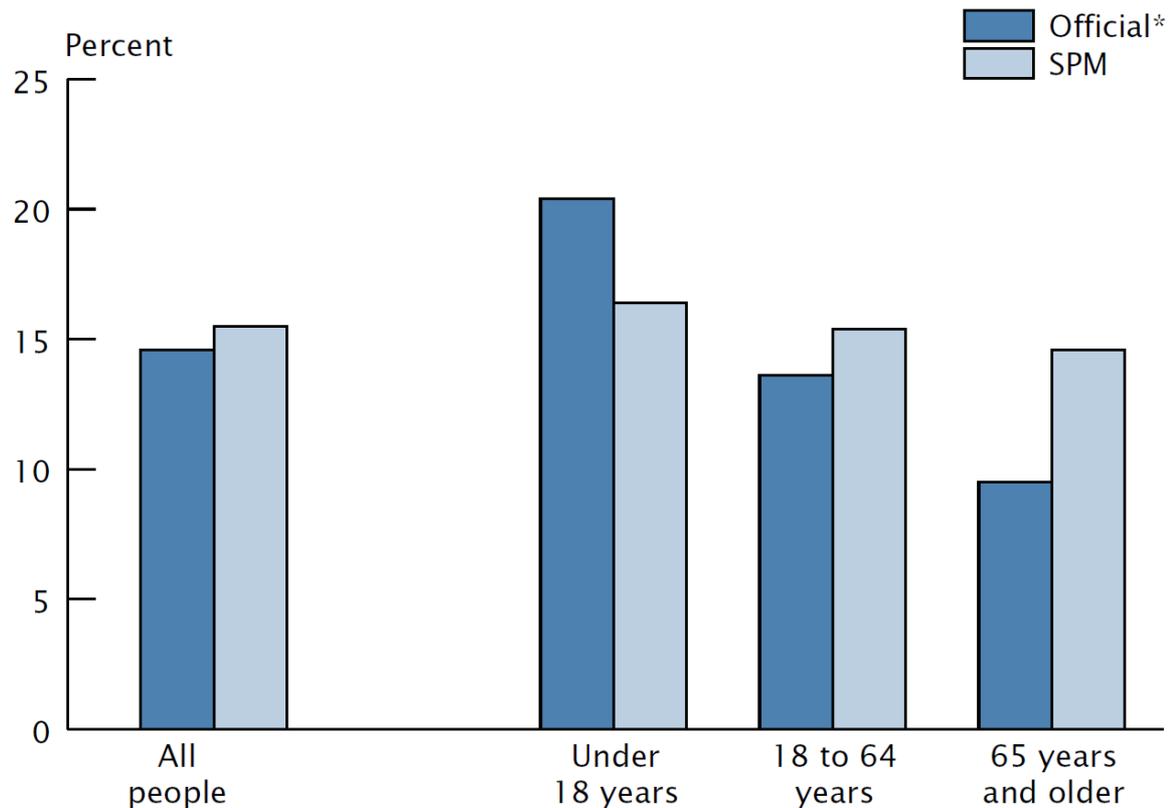
**Plus:**

Supplemental Nutritional Assistance (SNAP)  
National School Lunch Program  
Supplementary Nutrition Program for Women Infants and Children (WIC)  
Housing subsidies  
Low-Income Home Energy Assistance (LIHEAP)

**Minus:**

Taxes (plus credits such as the Earned Income Tax Credit [EITC])  
Expenses Related to Work  
Child Care Expenses  
Medical Out-of-Pocket Expenses (MOOP)  
Child Support Paid

Figure 1.  
**Poverty Rates Using Two Measures for Total Population and by Age Group: 2013**



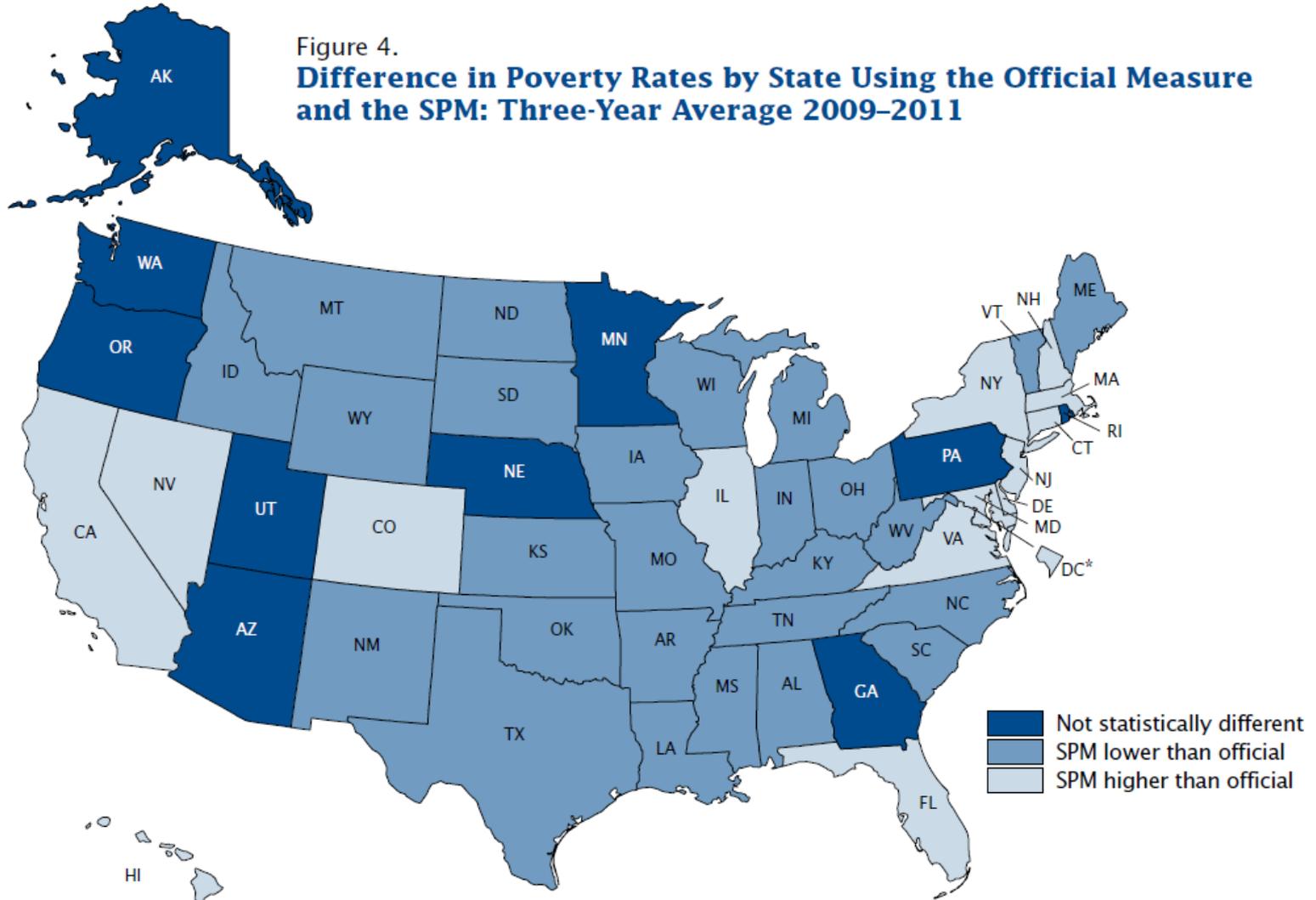
\* Includes unrelated individuals under the age of 15.

Source: U.S. Census Bureau, Current Population Survey, 2014 Annual Social and Economic Supplement.

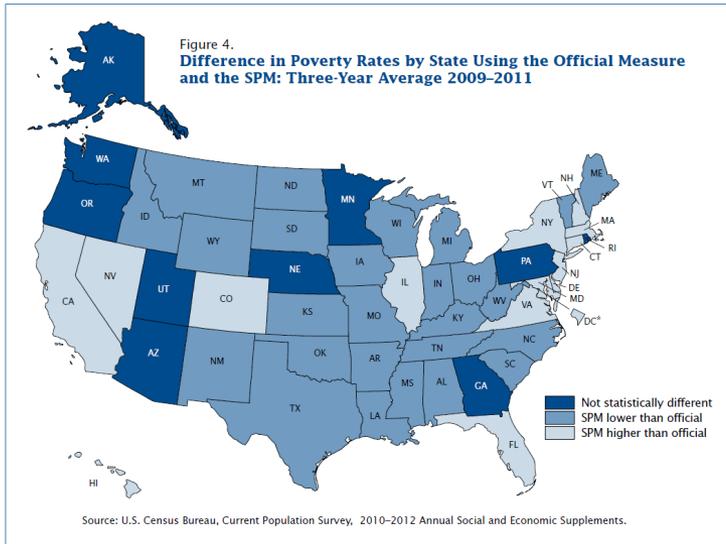
Why differential changes across age groups?

# SPM causes geographic shift in poverty

Figure 4.  
**Difference in Poverty Rates by State Using the Official Measure and the SPM: Three-Year Average 2009–2011**

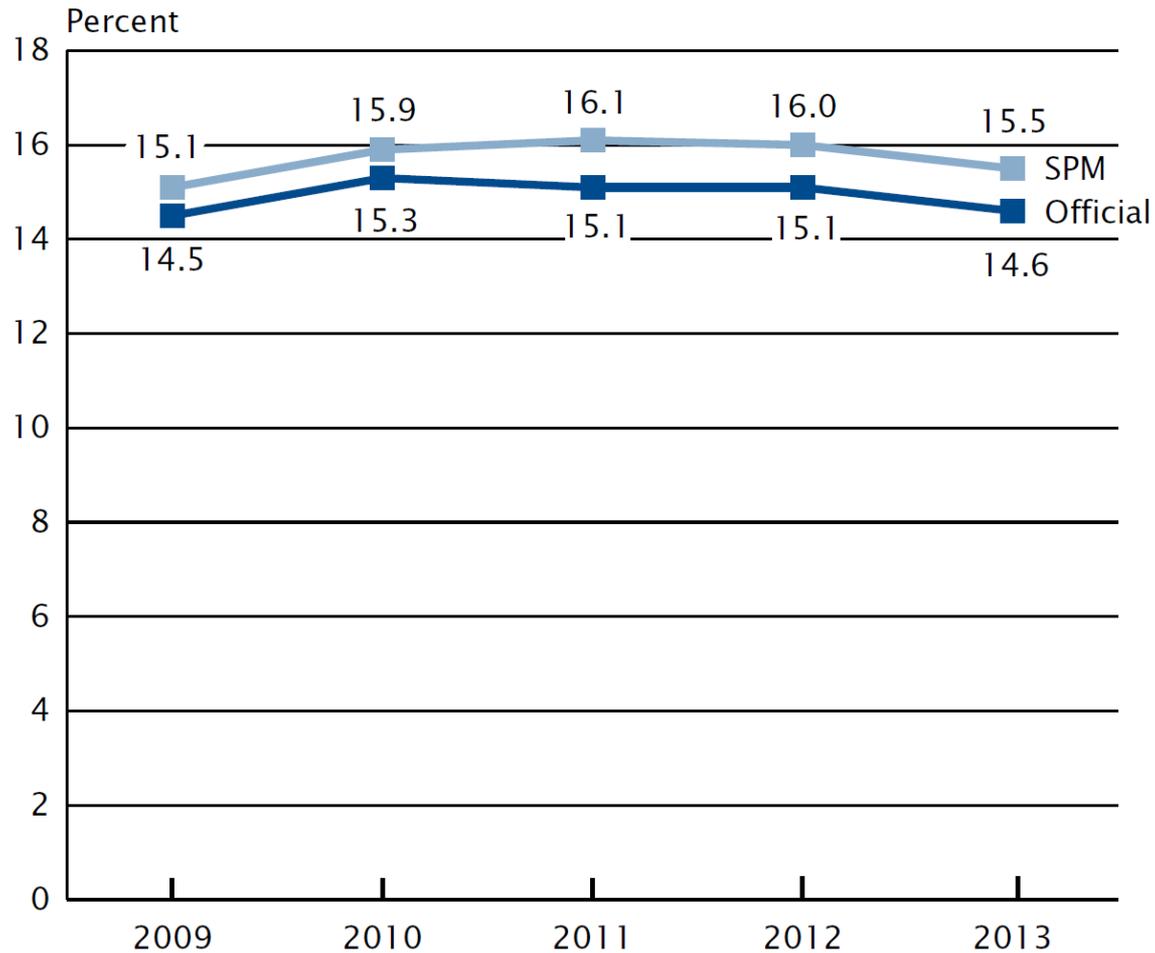


Source: U.S. Census Bureau, Current Population Survey, 2010–2012 Annual Social and Economic Supplements.



Why does California have  
the largest change in  
poverty in moving from  
official to SPM  
+7.4 pp

Figure 5.  
**Poverty Rates Using the Official Measure and  
the SPM: 2009 to 2013**



Source: U.S. Census Bureau, Current Population Survey, 2010 to 2014 Annual Social and Economic Supplements.

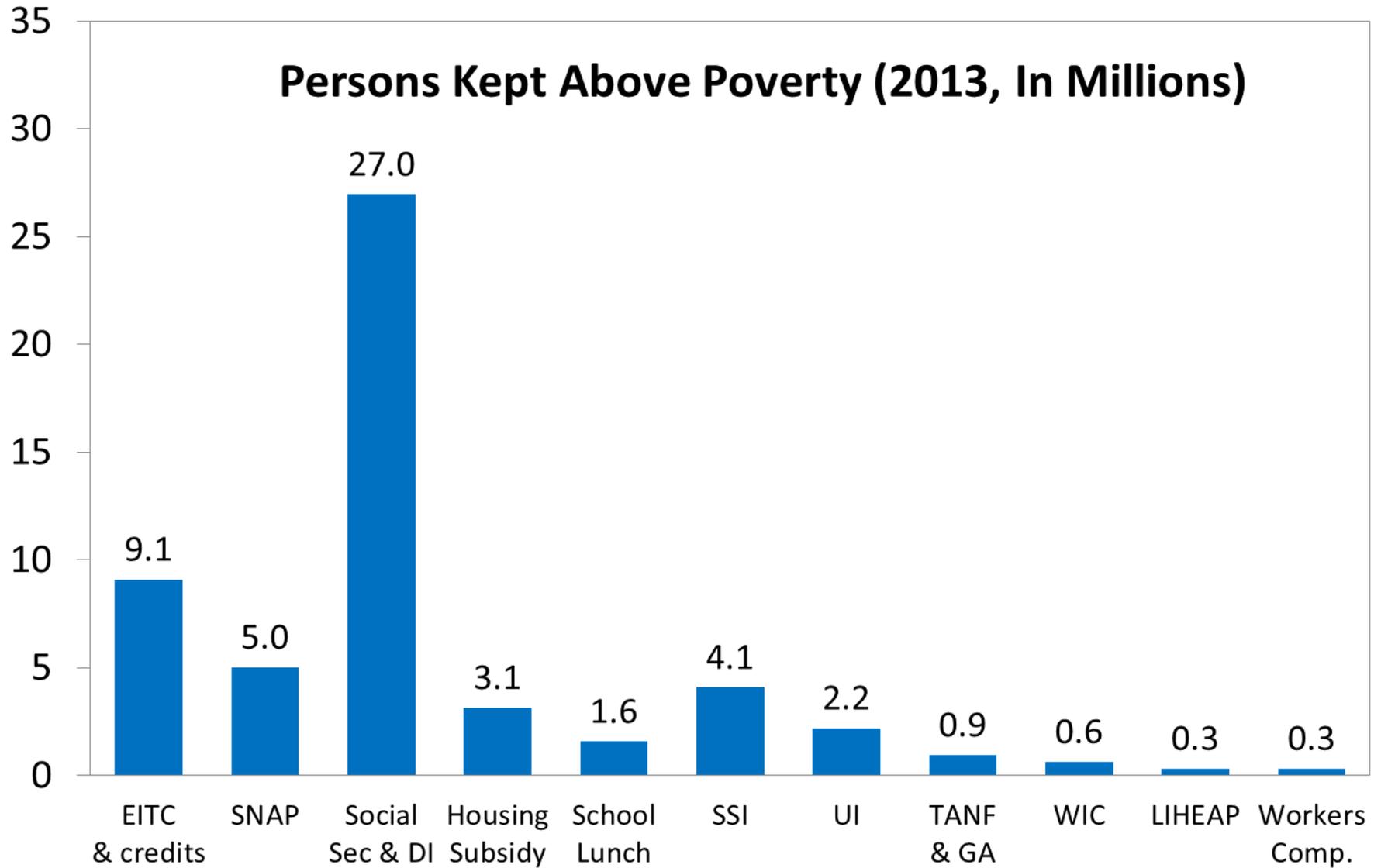
# Concentrated poverty

- <http://www.brookings.edu/research/interactives/2014/concentrated-poverty#/M10420>

# Antipoverty Effects of Govt Programs

- Using the SPM we can calculate by how much poverty would increase if a given program was eliminated
- Source: Short SPM 2014

## Persons Kept Above Poverty (2013, In Millions)



## Children Kept out of Poverty (2013, In Millions)

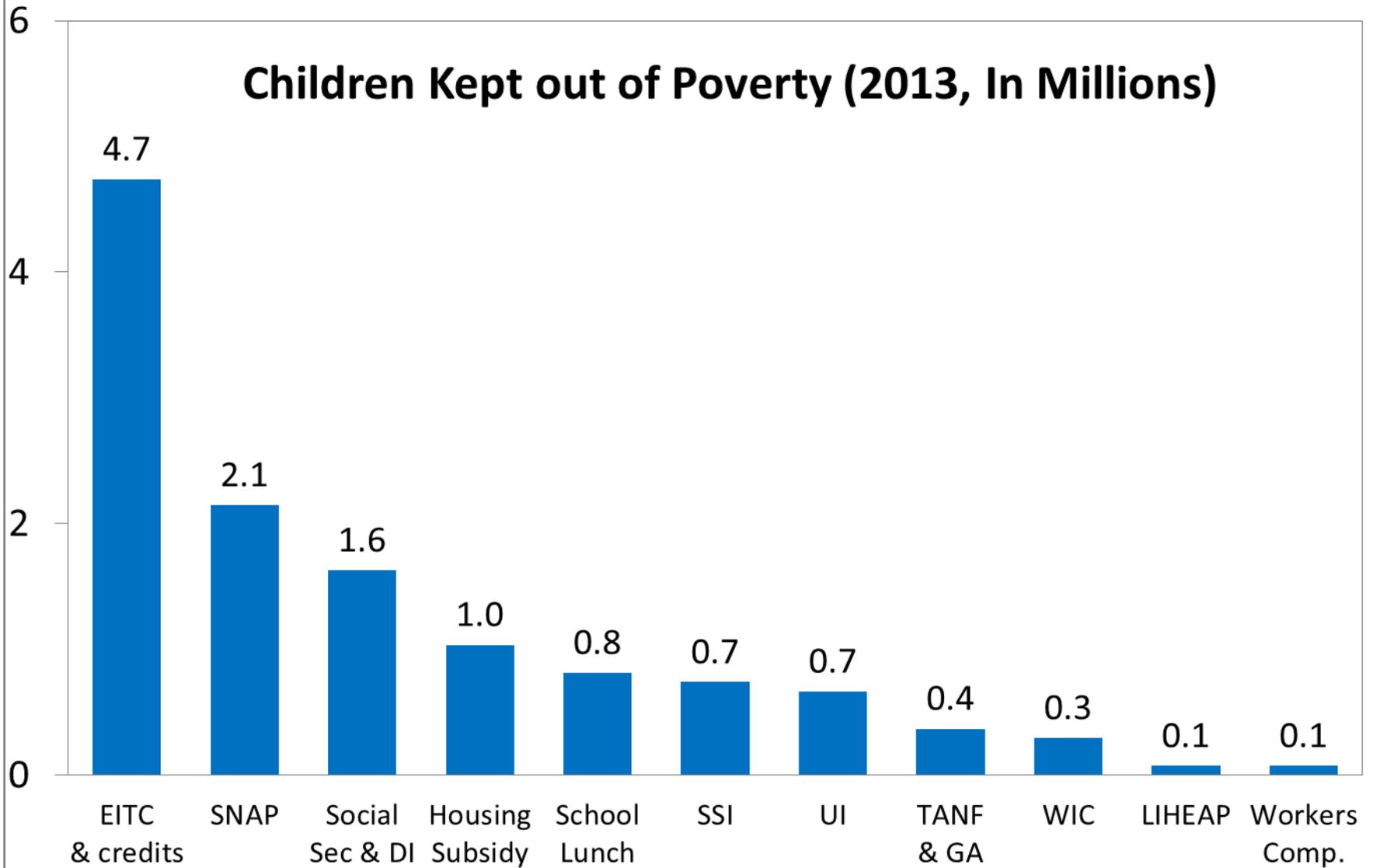
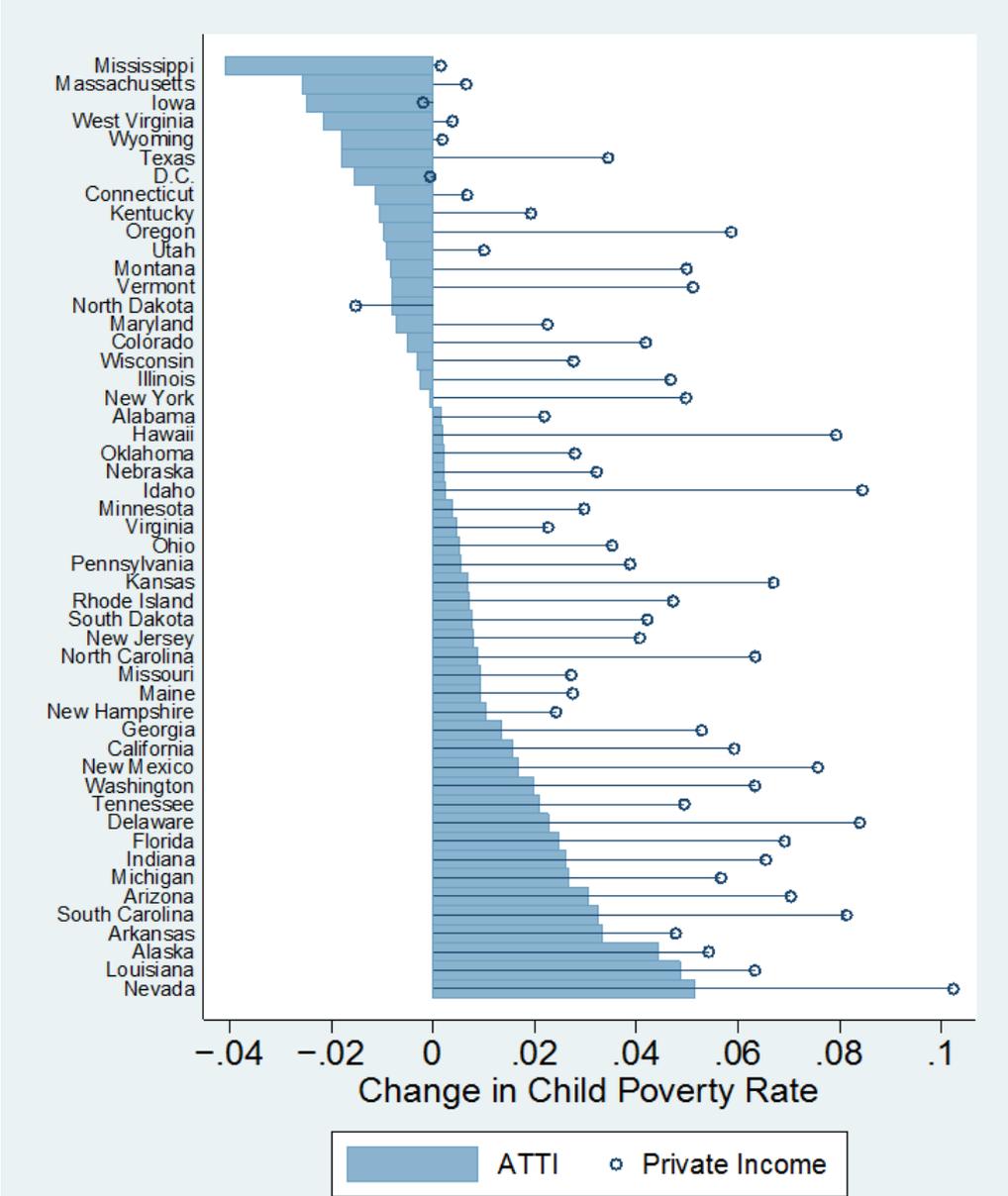
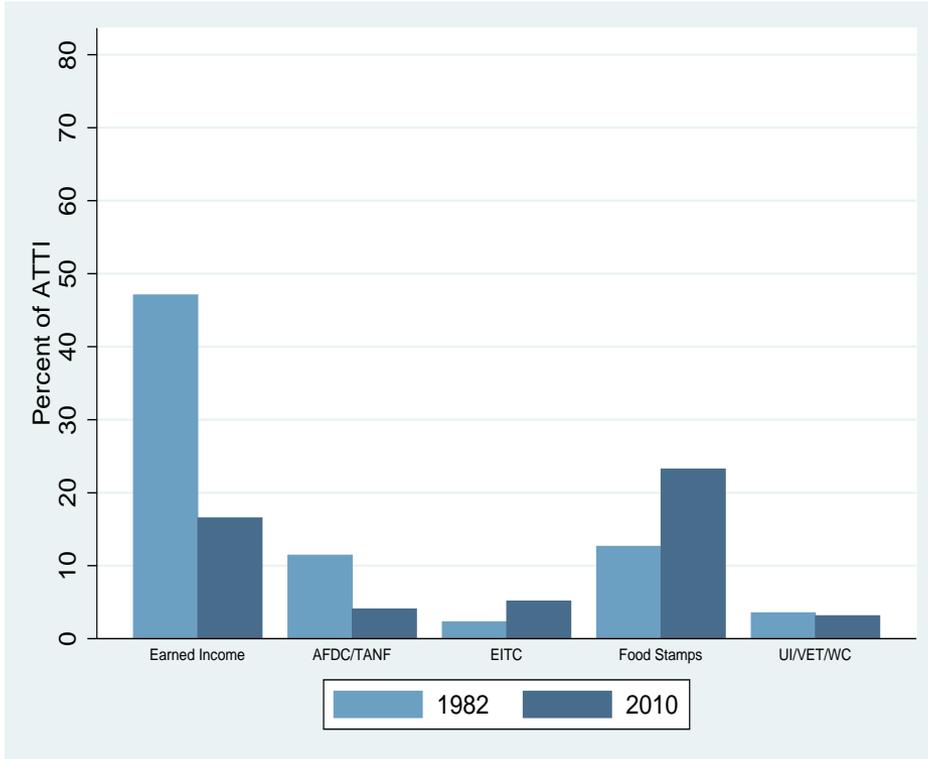


Figure 4: Change in Private Income Child Poverty Measure and After-Tax and Transfer Income Child Poverty Measure during the Great Recession

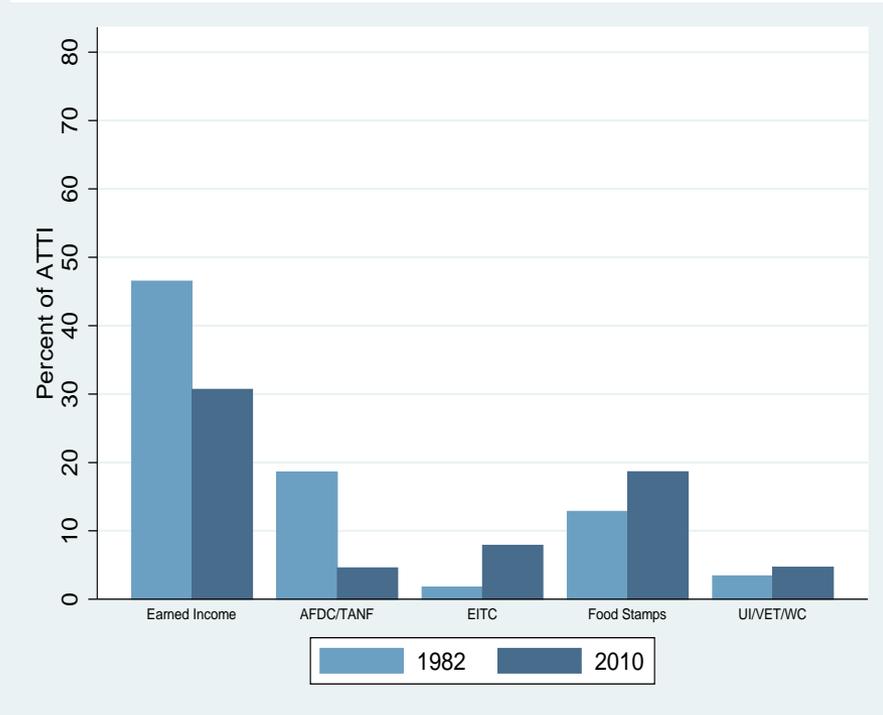


# Figure 7: Composition of After-Tax and Transfer Income by Source for Children

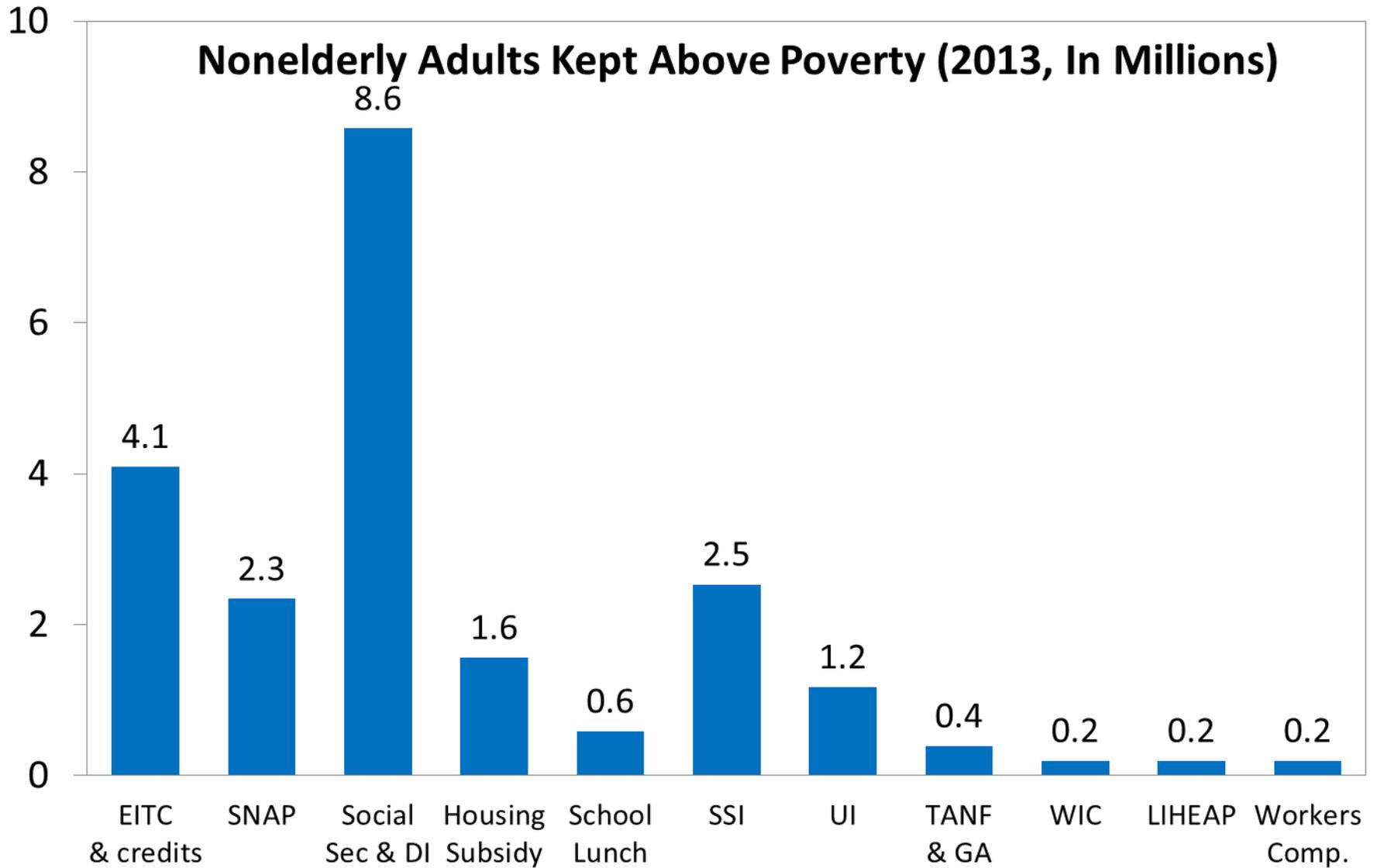
## (a) Below 50% Poverty



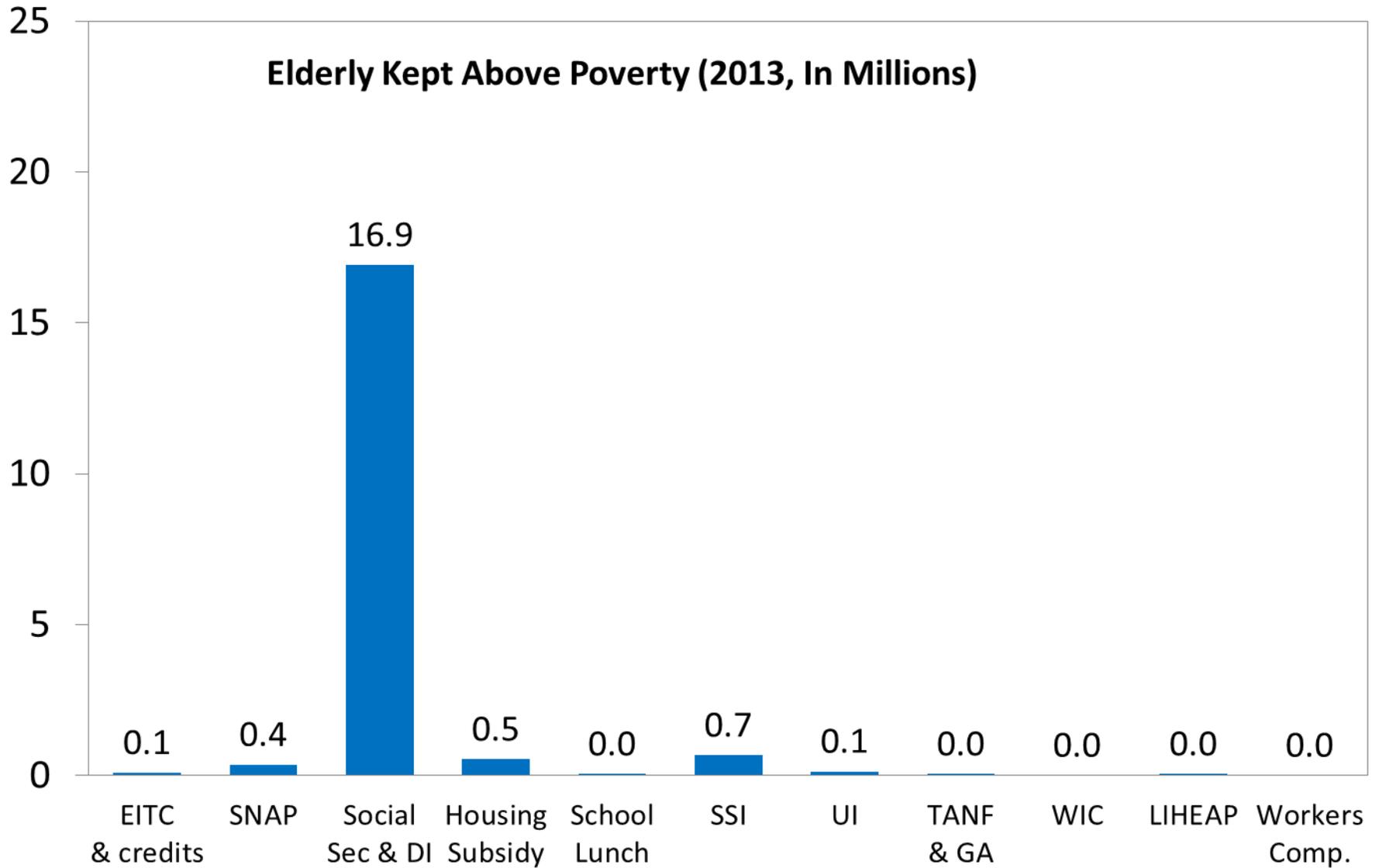
## (b) Below 100% Poverty



## Nonelderly Adults Kept Above Poverty (2013, In Millions)



### Elderly Kept Above Poverty (2013, In Millions)



# Material hardship measures (from Iceland)

**TABLE 2 PERCENTAGE OF PEOPLE REPORTING VARIOUS HARDSHIPS**

	Percent
<b>Food security<sup>a</sup> (2010)</b>	
Food insecurity	14.5
Very low food security	5.4
<b>Health care</b>	
Did not have health insurance (2011)	15.7
Did not see a doctor when needed to (2005)	6.8
<b>Housing and neighborhood conditions (2005)</b>	
Leaking roof	4.9
Problem with pests in house	9.8
Trash or litter on streets	7.3
<b>Meeting basic needs</b>	
Unpaid rent or mortgage (2005)	6.1
Unpaid utility (2005)	9.8
Telephone disconnected (2005)	4.2
Reported not meeting essential expenses at one point during year (2005)	14.4
Children in families affected by a foreclosure (2007–9, annual average)	4.3
People using an emergency shelter during the year (2009)	0.5

<sup>a</sup> Food insecure households had difficulty at some time during the year providing enough food for all

# Consumer goods (from Iceland)

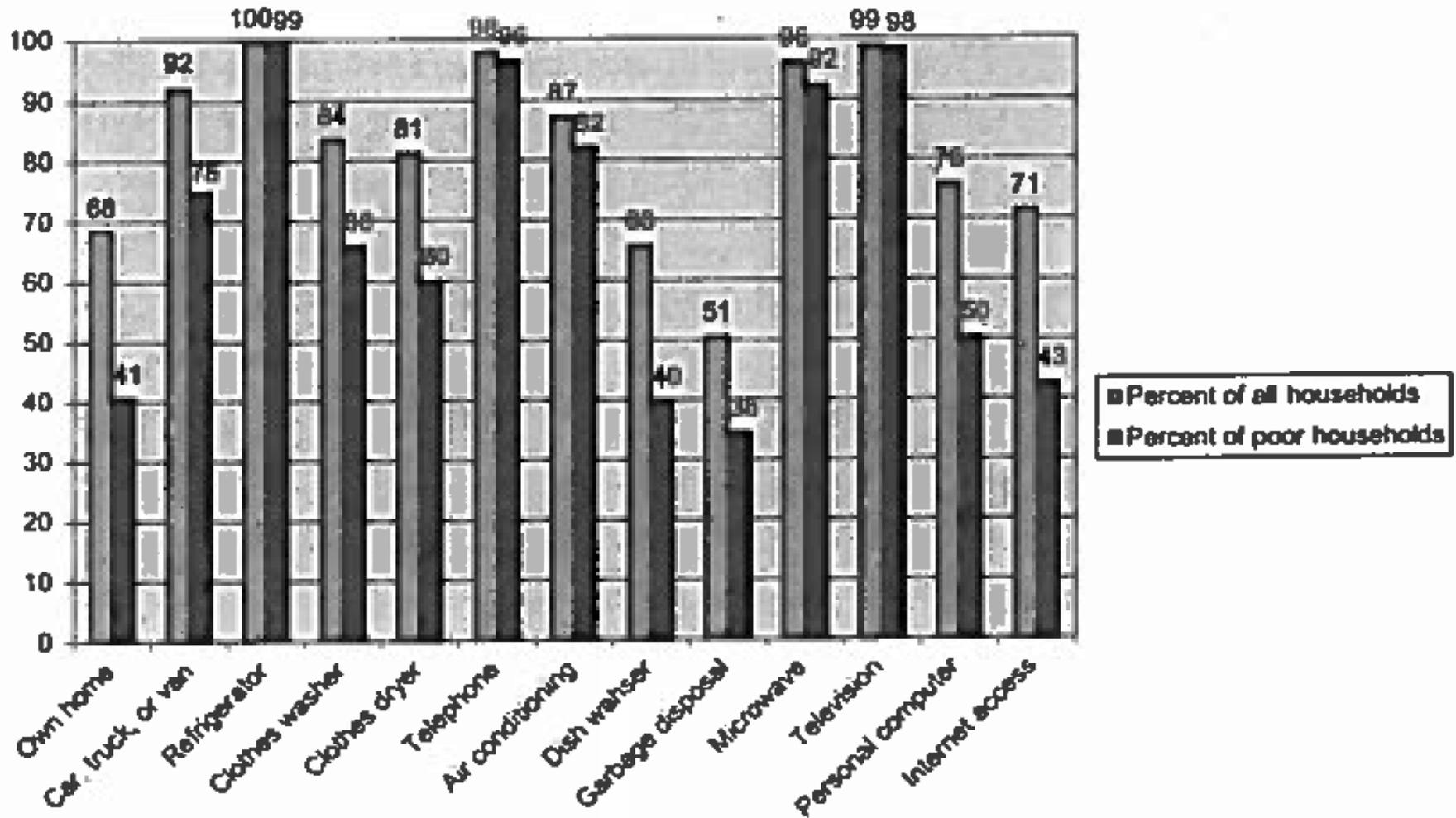


FIGURE 5. Percentage of Households with Various Consumer Goods, 2009. SOURCES:

# An alternative view (Rector reading)

- “In fact, numerous government reports indicate that most "poor" Americans today are better housed, better fed, and own more personal property than average Americans throughout most of this century.”
- “...the initial income thresholds were set artificially high in order to enlarge the apparent numbers of the poor and build public support for Johnson's Welfare policies. “
- Undercounting of income

- <http://thecolbertreport.cc.com/videos/zq2rpw/-poor--in-america>

# Trends in Poverty and Inequality

Hilary Hoynes

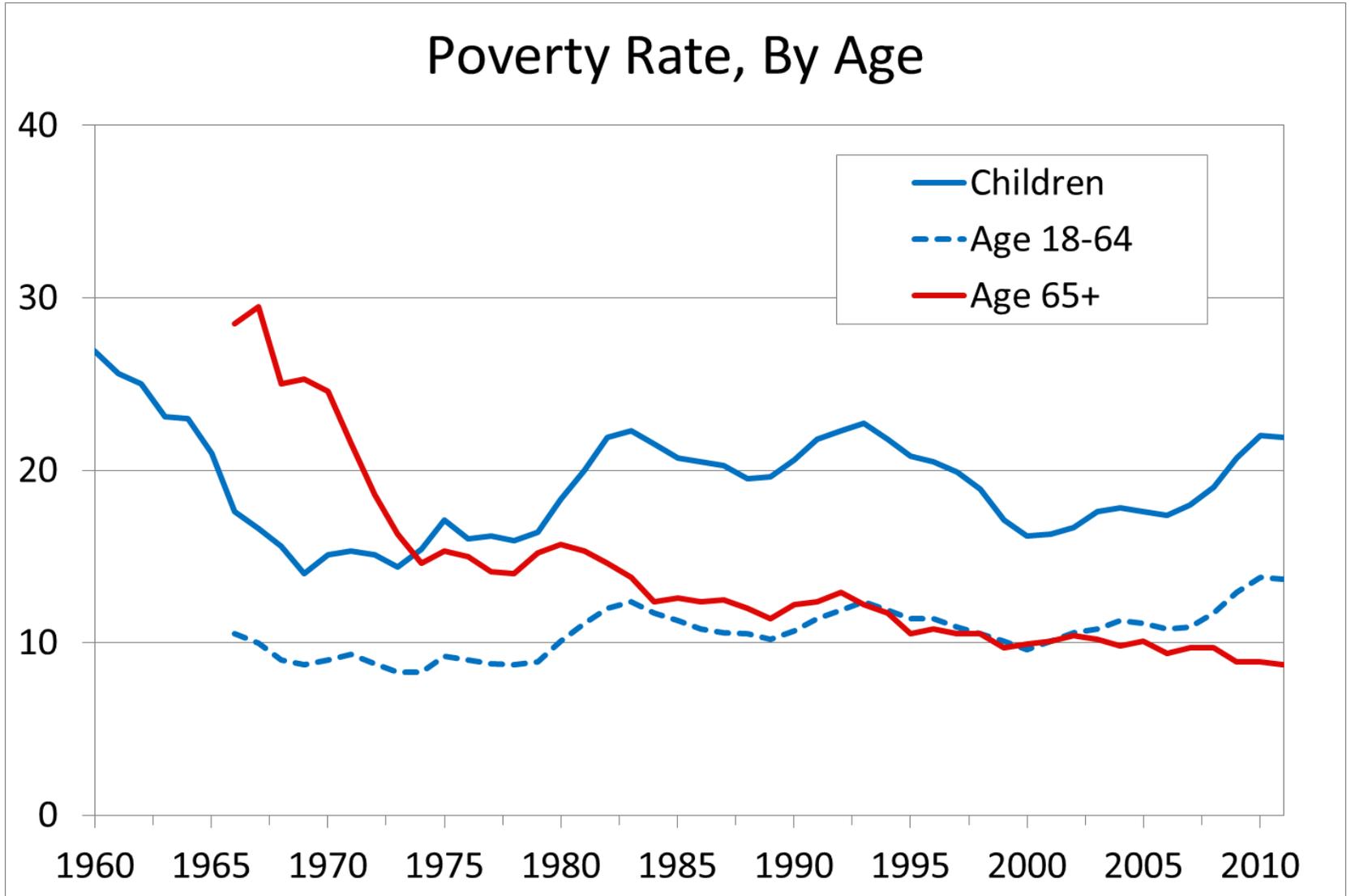
PP290

1. Trends in poverty
2. Trends in inequality (upper tail)
3. Trends in mobility

# Trends in Poverty

- Measuring trends in poverty is important. Captures significant attention not only the level but how is it changing.
- There is significant interest additionally in understanding how policies, the labor market, demographics, and so on have affected these trends.
- So for all of this we need measurement over time.

# Official Poverty – the starting point



- But for all the reasons we already talked about, this is not an appropriate measure for examining trends in poverty.
- Threshold is out of date; resource measure is incomplete.
- → SPM. Practically speaking, it is difficult to take the SPM definition and apply it to prior decades. Why?

# Why can't we just measure the SPM back in time?

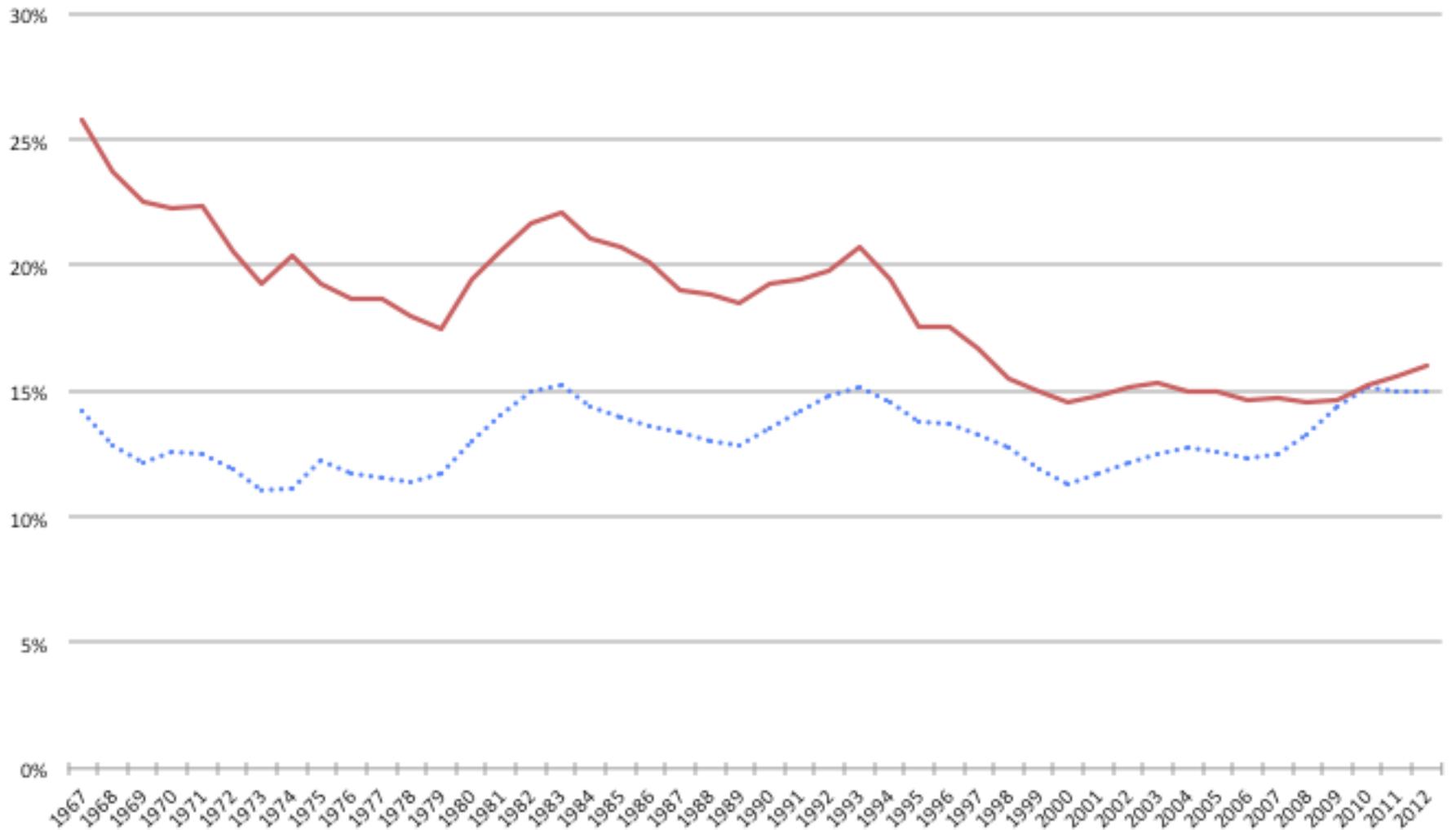
- Data issues
  - Calculating thresholds requires consumption data (CEX) and the data is spotty prior to 1980.
  - The resource measure includes in-kind benefits that are not measured for all years (mostly available post-1980) and includes items that are not available until 2010 (MOOP, child care expenses)
- Conceptually – because the thresholds are relative, we could get changes over time in the SPM because the thresholds change but resources stay the same. That might not be desirable.

# Wimer et al “Trends in Poverty with an Anchored SPM”

- What do they do?
- Thresholds
  - Use current year thresholds and use CPI to take back in time. Turns into absolute standard.
- Data issues
  - Impute missing data (predict models for program receipt, etc)

**Figure 2: Official vs Supplemental Poverty Rates, 1967-2012**

..... OPM      — SPM (Anchored, 2012)



**Figure 3: Child Poverty, OPM and Anchored SPM, 1967-2012**

OPM-Under 18      Anchored SPM - Under 18

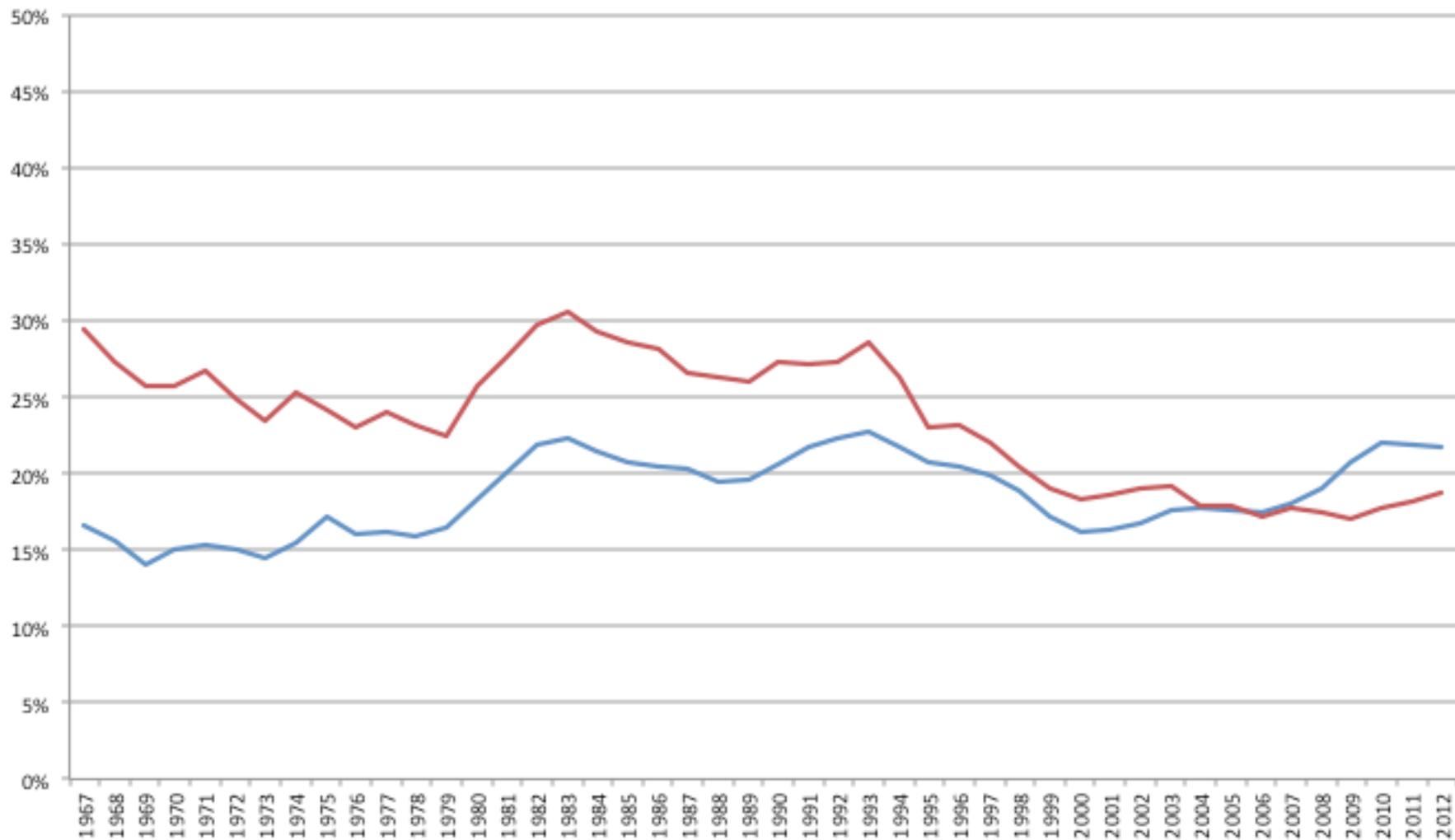
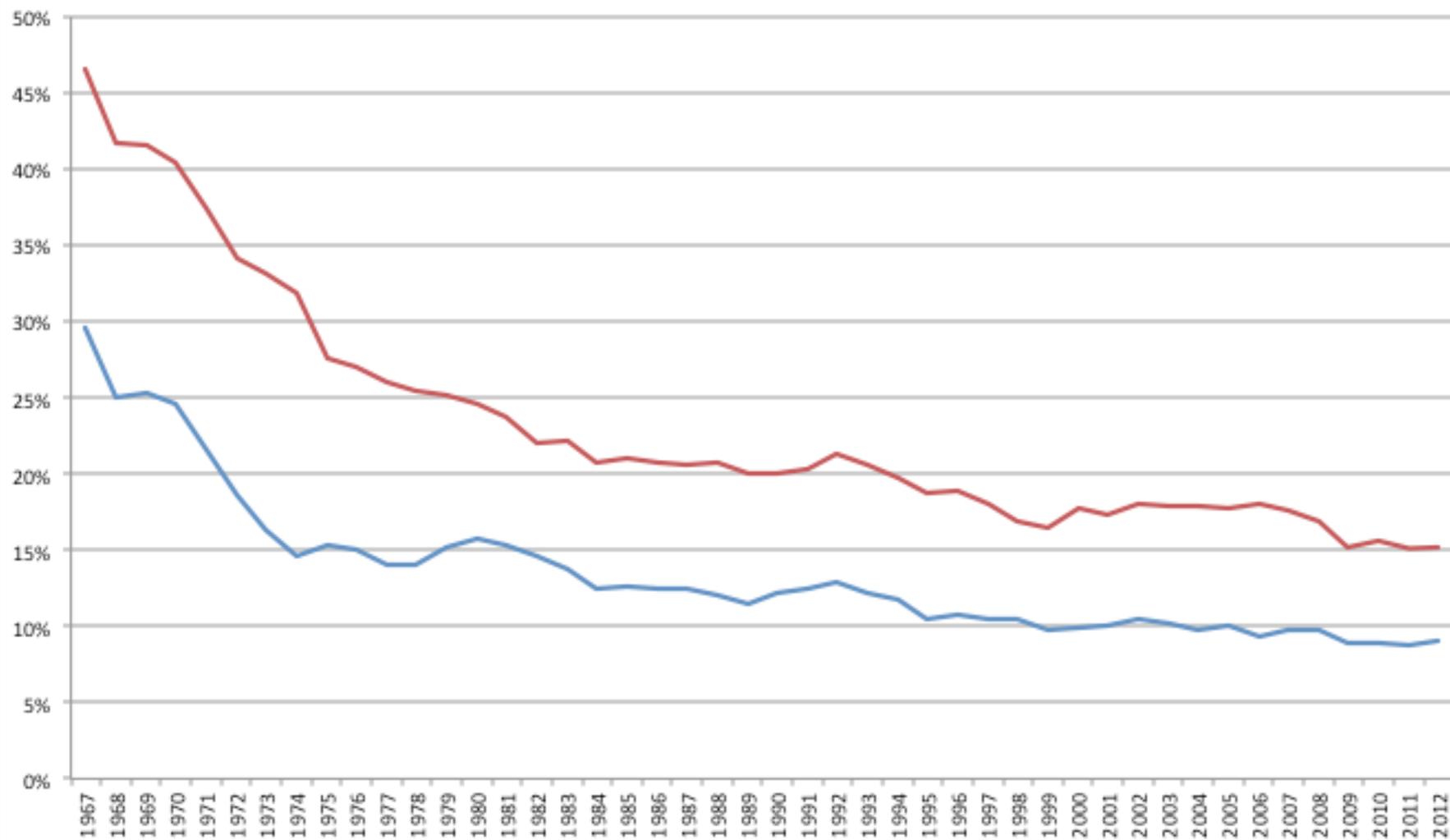
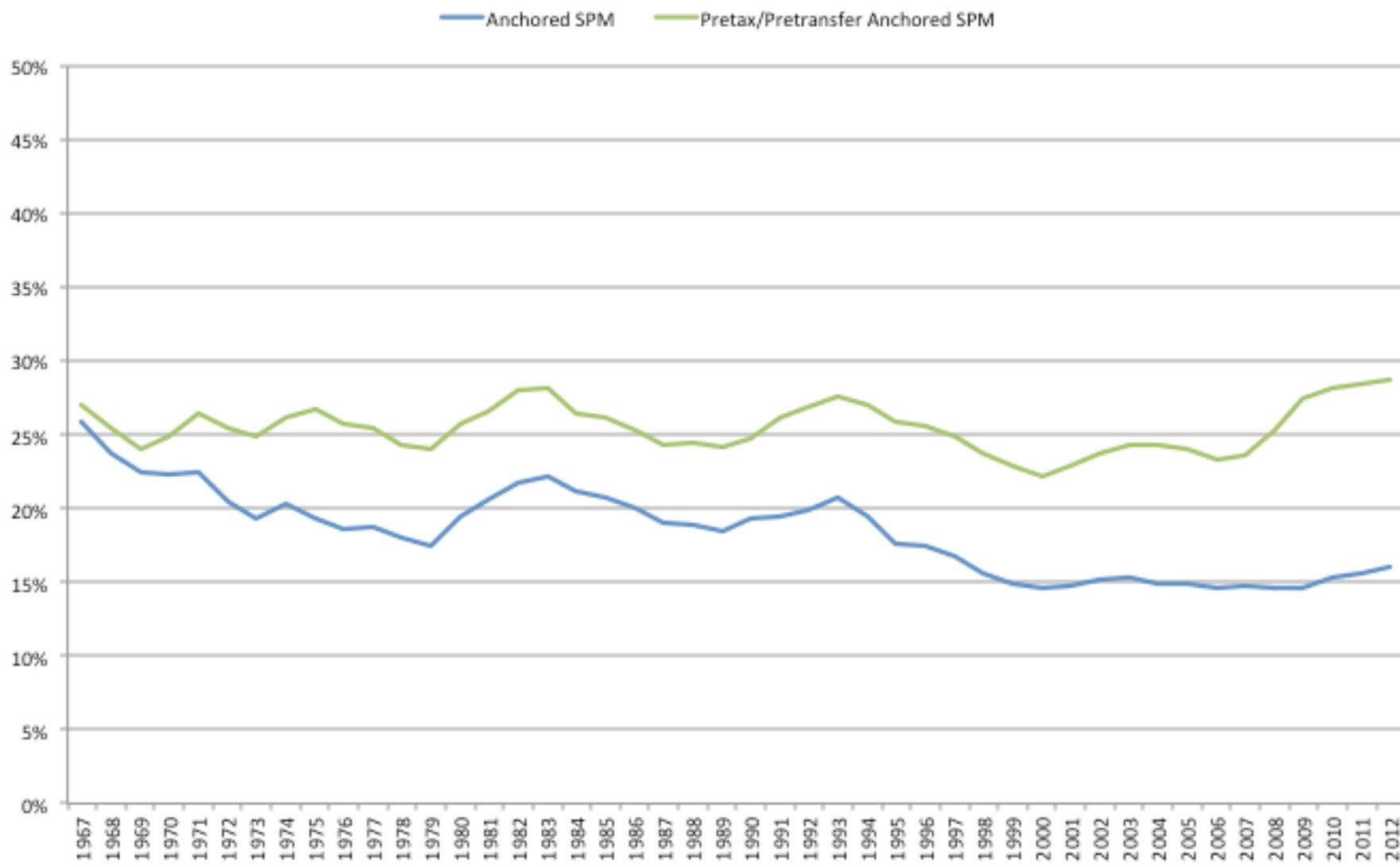


Figure 5: Elderly Poverty, OPM and Anchored SPM, 1967-2012

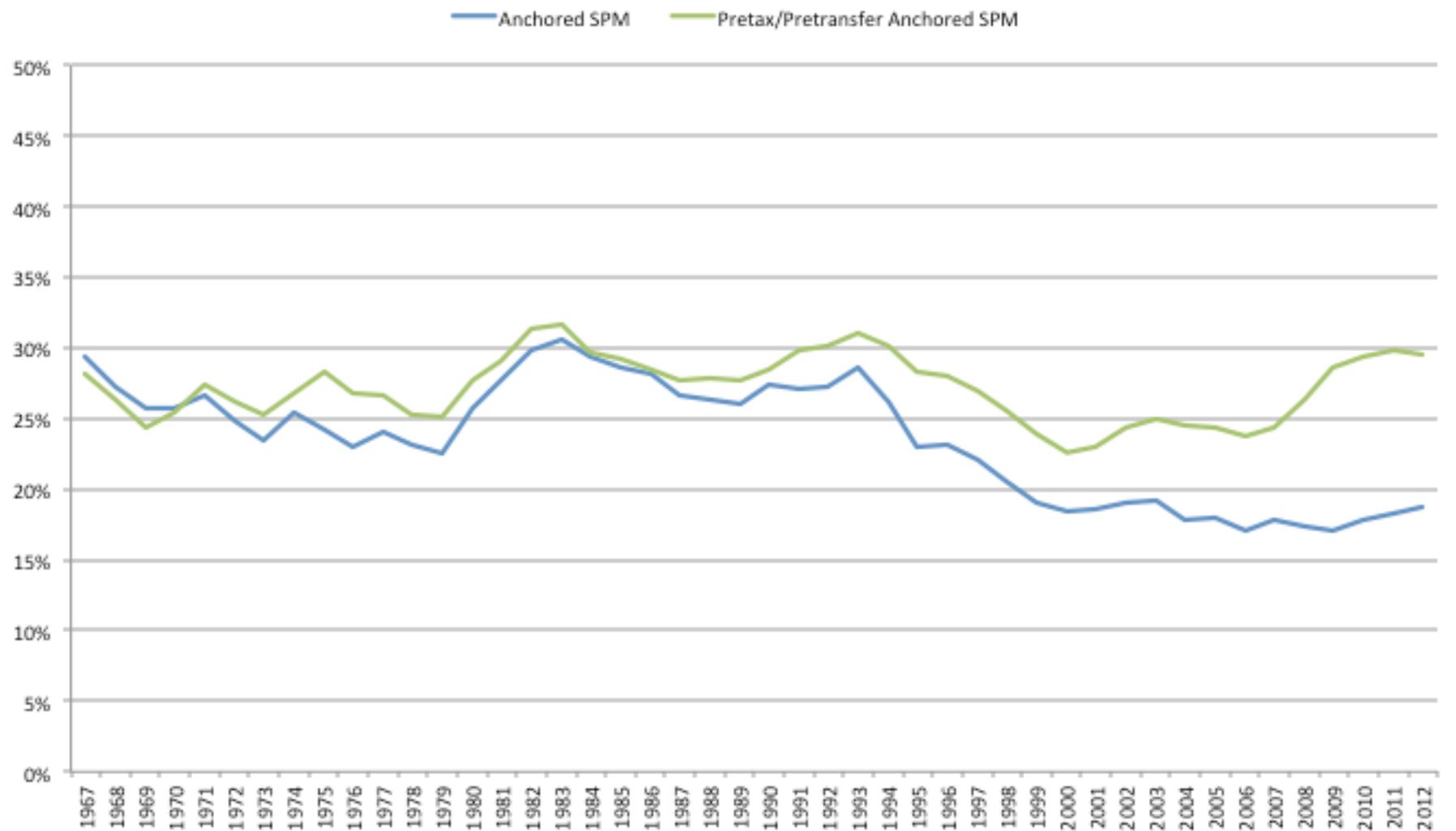
OPM-65+    Anchored SPM - 65+



**Figure 6: Effects of Taxes and Transfers on Poverty Rates, 1967-2012**



**Figure 8: Effects of Taxes and Transfers on Child Poverty Rates, 1967-2012**

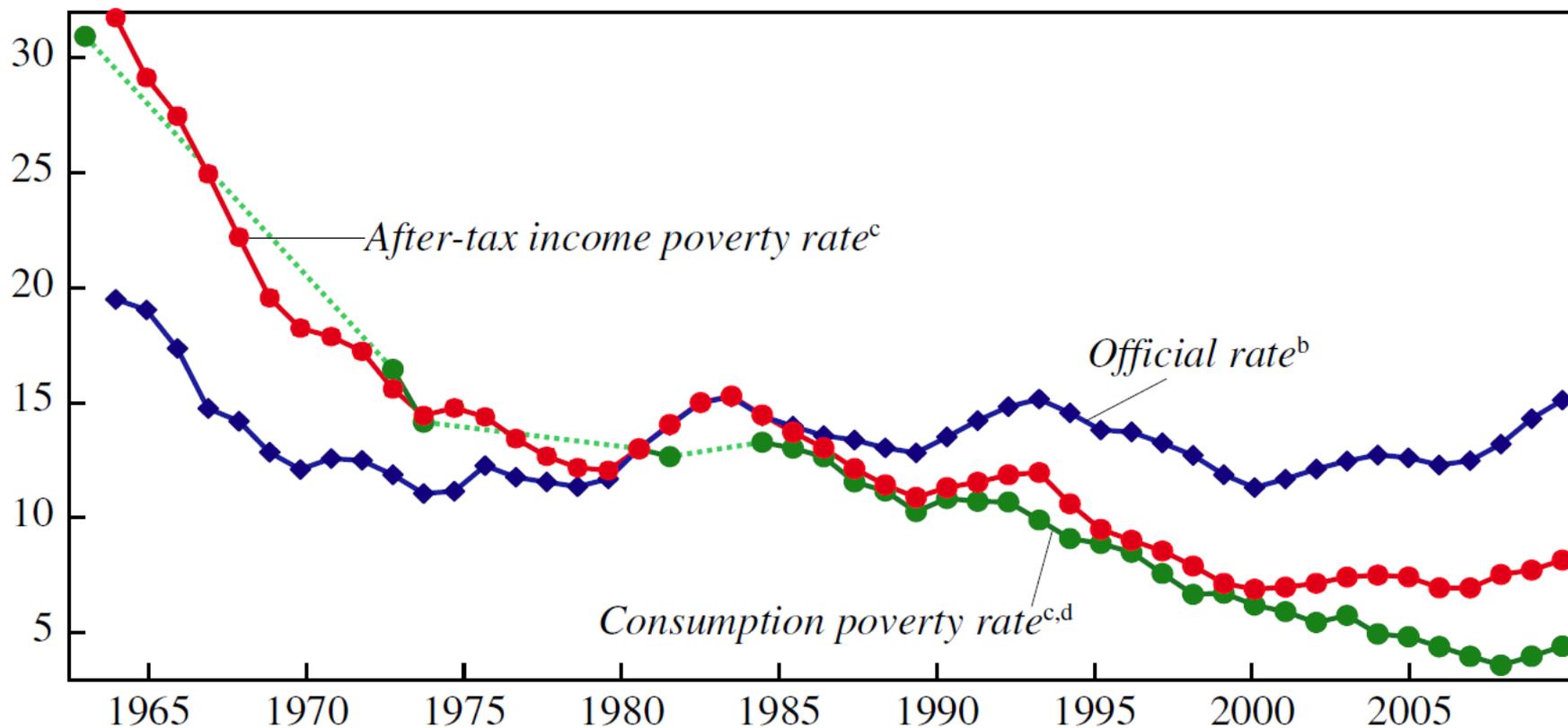


# Critique of Income Based Poverty (especially as it relates to trends)

- Bruce Meyer (Harris School) has documented that surveys (e.g. CPS) undercount government transfers.
  - How would you conclude that?
- Not only do our surveys undercount this but they seem to be getting worse over time.
- Implication – the growth of measured income is below true income growth → the growth of measured poverty is above true poverty growth
- One solution to this problem is using a consumption poverty measure; and that is what they do.

**Figure 2.** Official and Alternative Income Poverty Rates and Consumption Poverty Rate, 1960–2010<sup>a</sup>

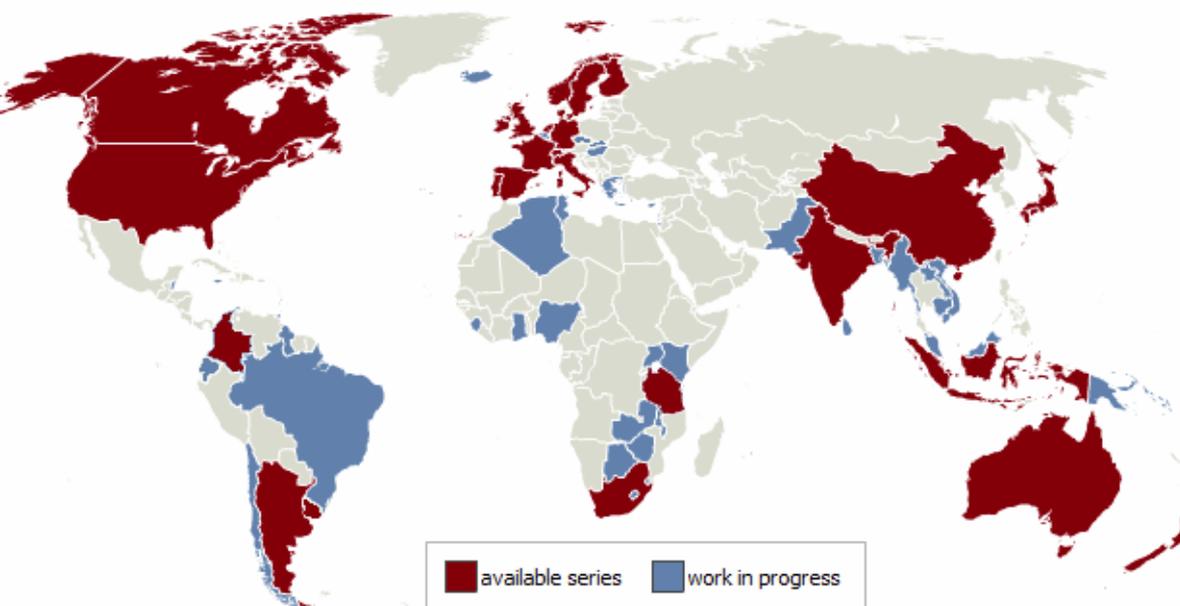
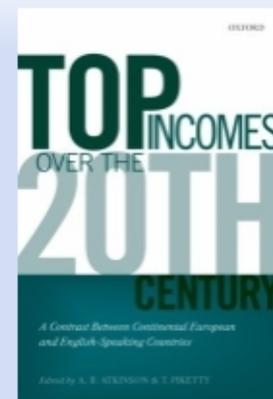
Percent of population



# Trends in Inequality

- Piketty and Saez have developed a world database for measuring inequality
- Getting data to measure the level and trend in incomes at the very top of the distribution is hard. Standard survey data does not have enough observations for these high income earners. And, surveys usually “topcode” income to protect anonymity
- Piketty and Saez came up with the novel idea of using data from income tax returns to estimate trends in top incomes. This is high quality data that is provided by most countries.
- These data are not well suited to measuring incomes at the lower tail of the distribution since many low income folks do not have to file taxes. But it is exceedingly good data for measuring high income.

# THE WORLD TOP INCOMES DATABASE



[Home](#)

[Introduction](#)

[The Database](#)

[Graphics](#)

[Country Information](#)

[Work in Progress](#)

[Acknowledgments](#)



PARIS SCHOOL OF ECONOMICS  
ÉCOLE D'ÉCONOMIE DE PARIS

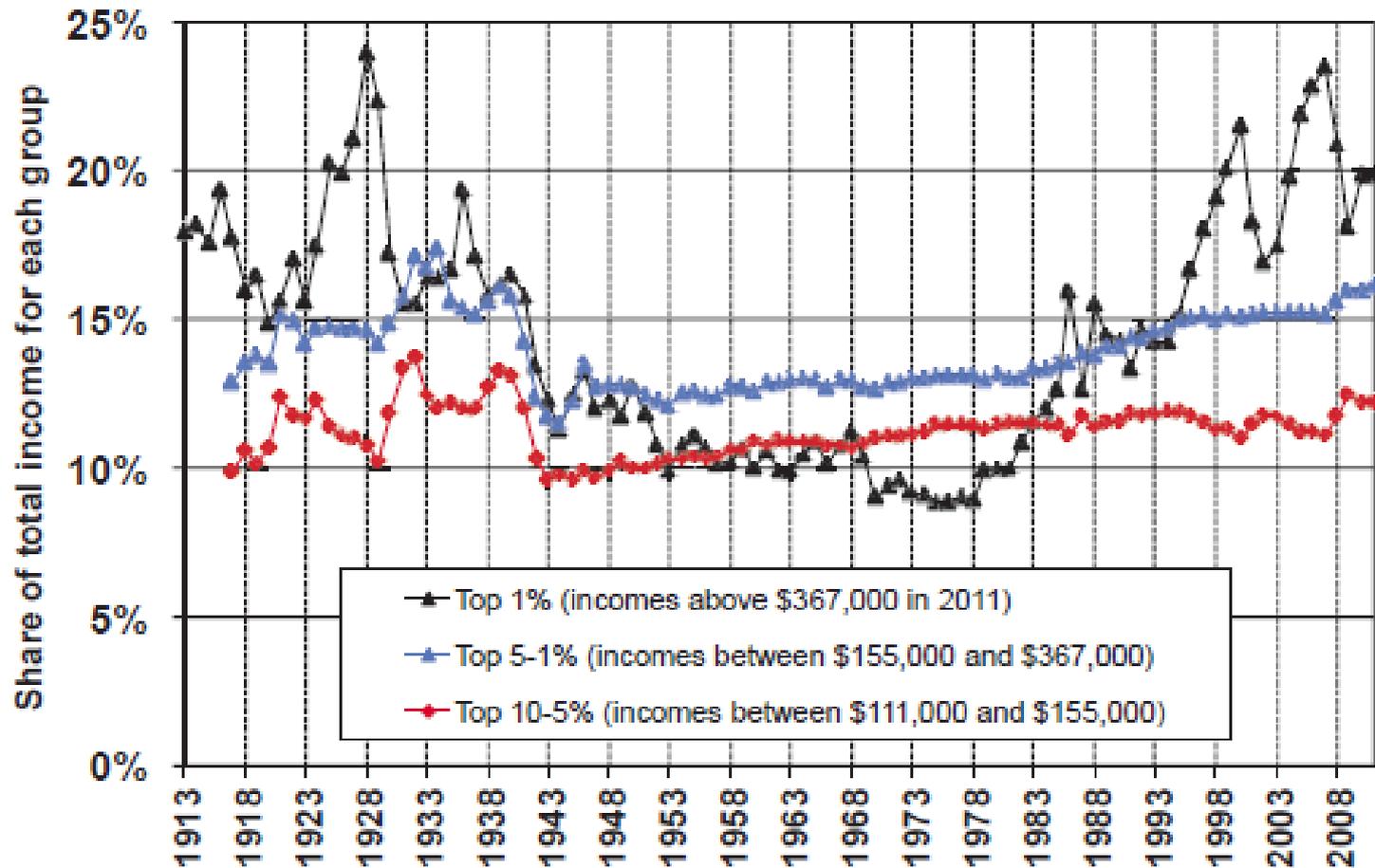


CENTER FOR EQUITABLE GROWTH  
UNIVERSITY OF CALIFORNIA BERKELEY



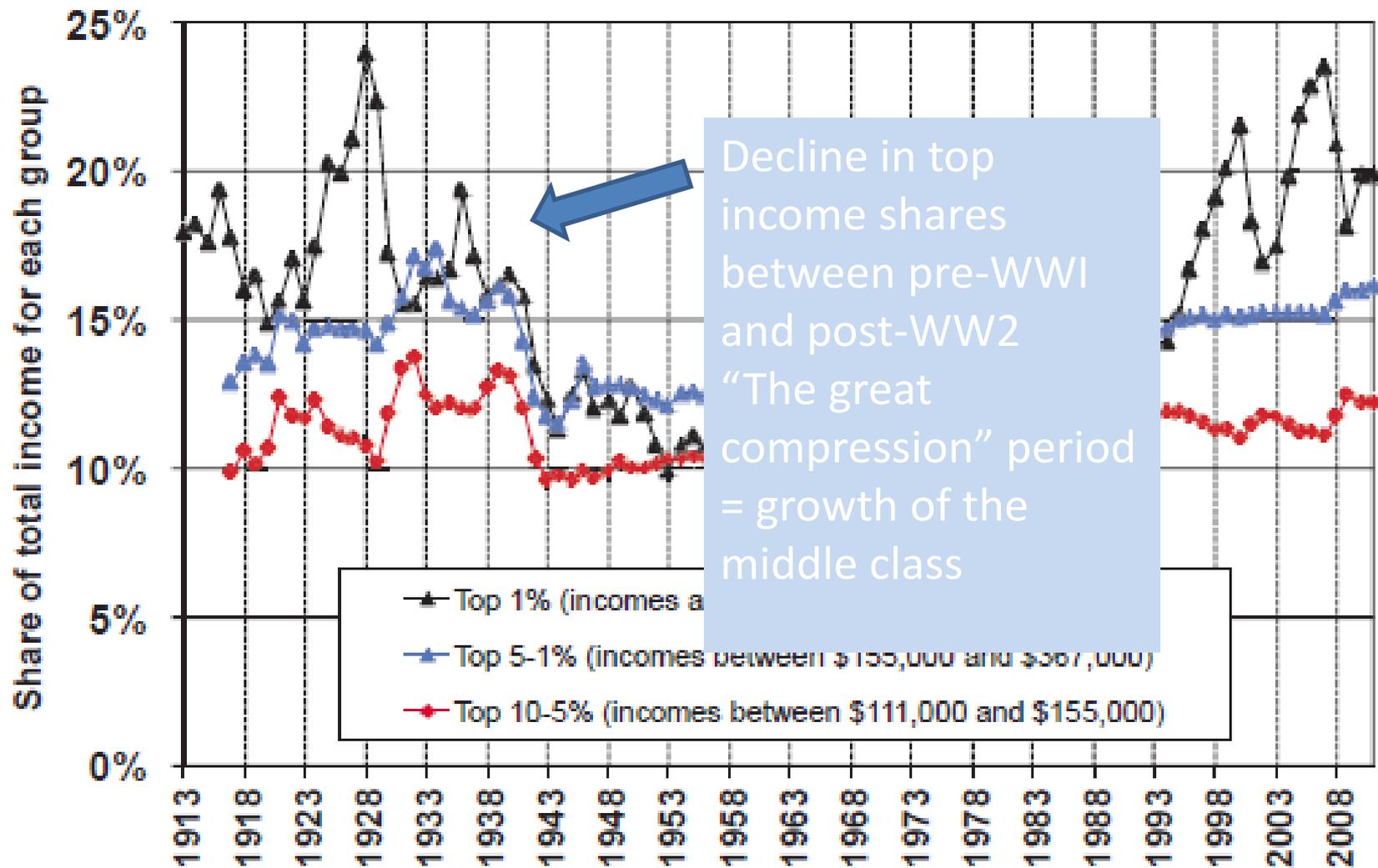
# The facts for the U.S.

## Decomposing Top 10% into 3 Groups, 1913-2011



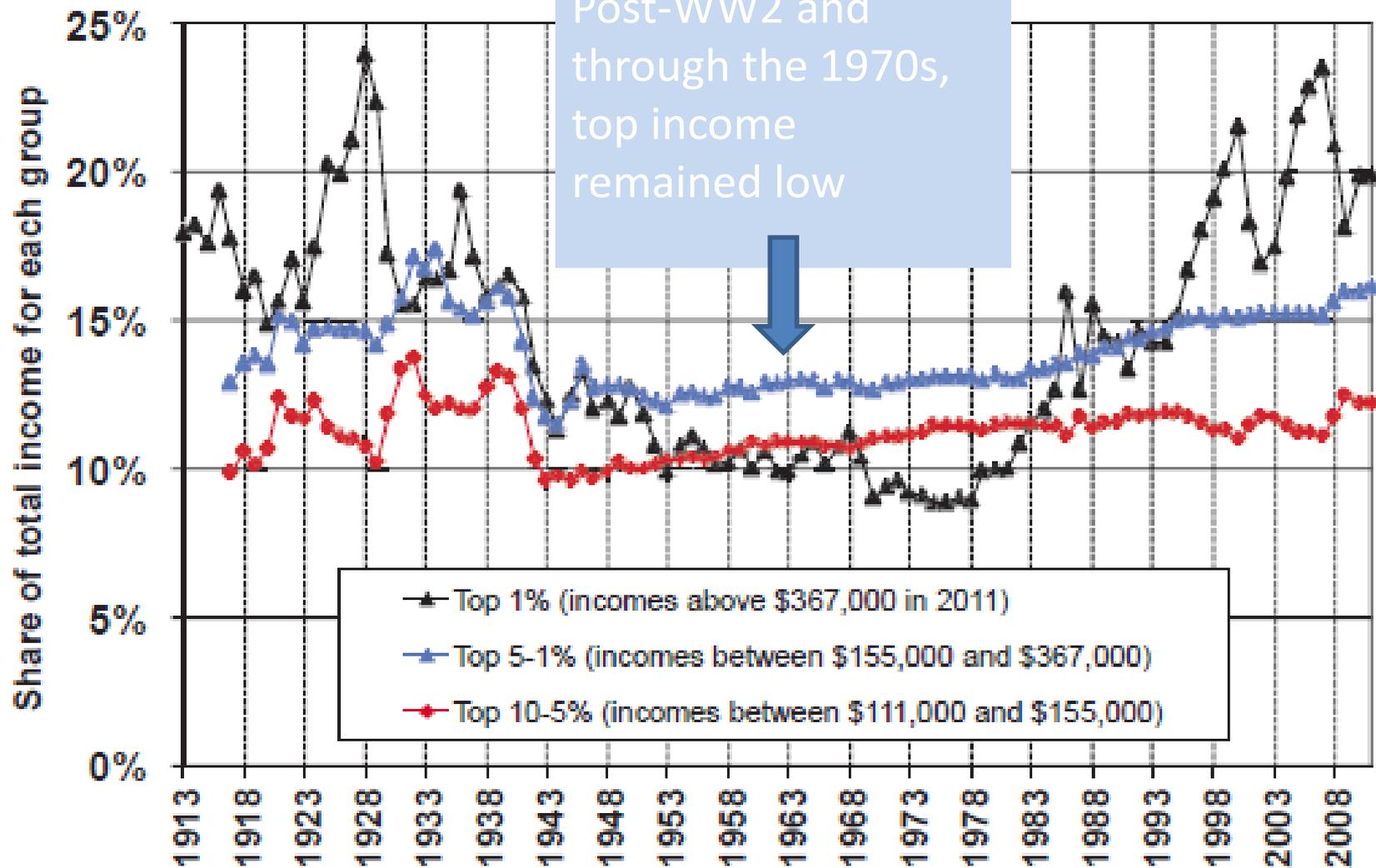
Source: Piketty and Saez, 2003 updated to 2011. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.

## Decomposing Top 10% into 3 Groups, 1913-2011



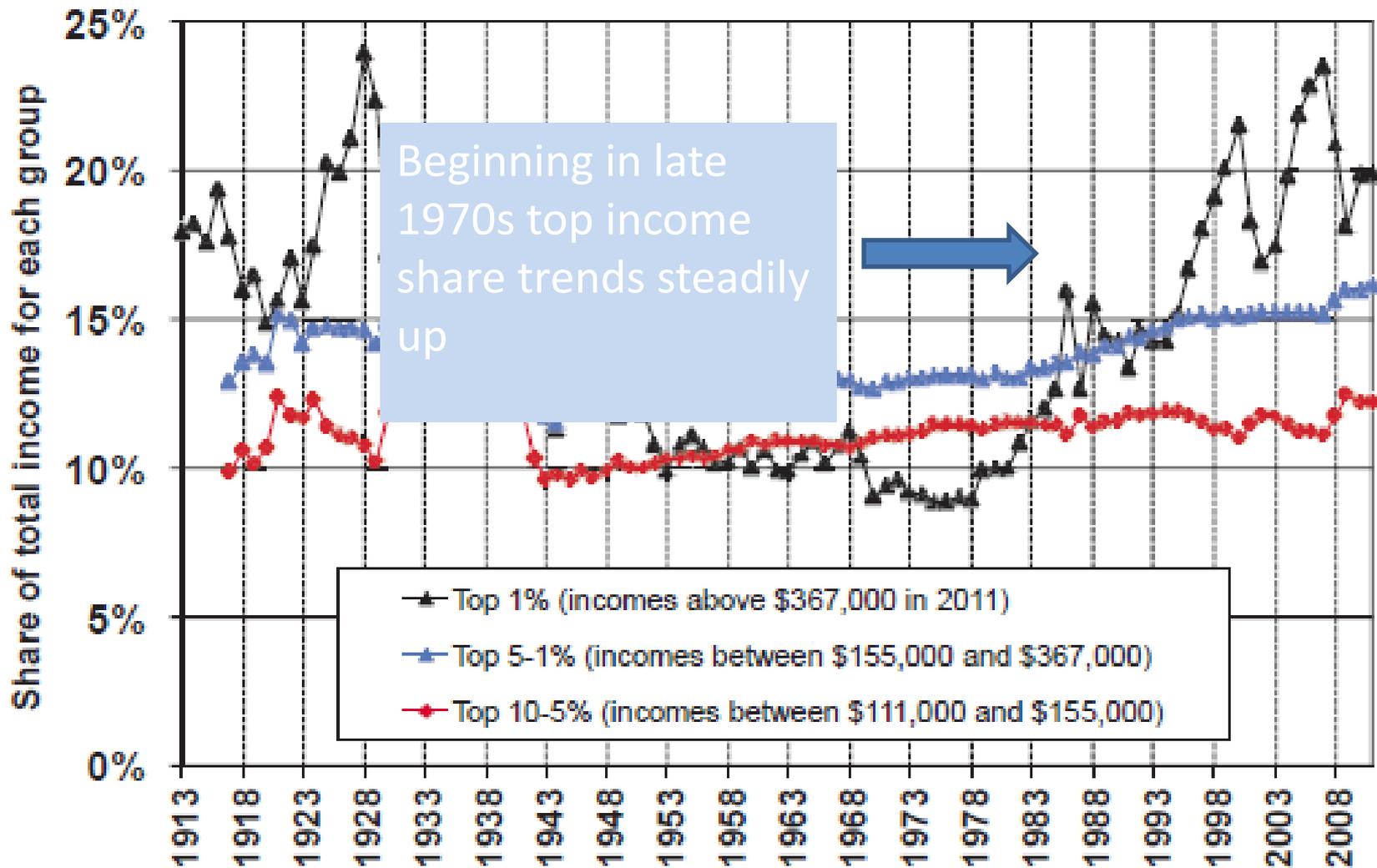
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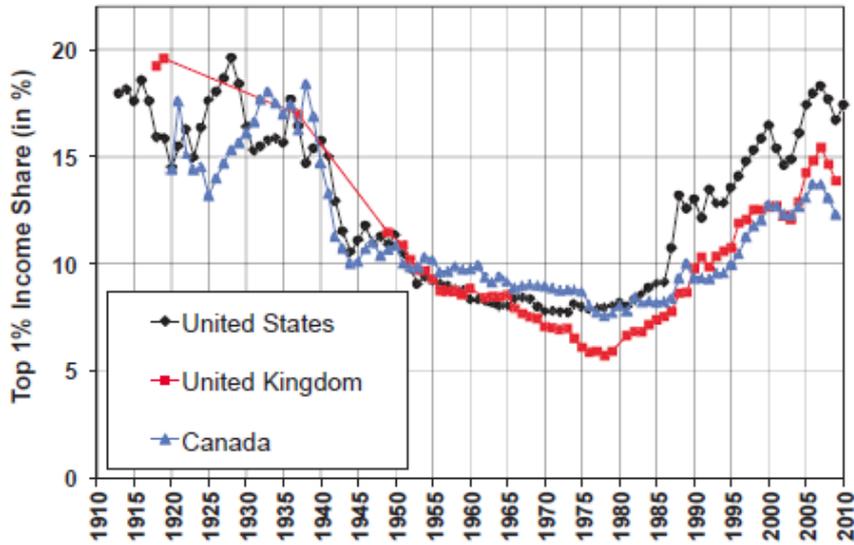
## Decomposing Top 10% into 3 Groups, 1913-2011



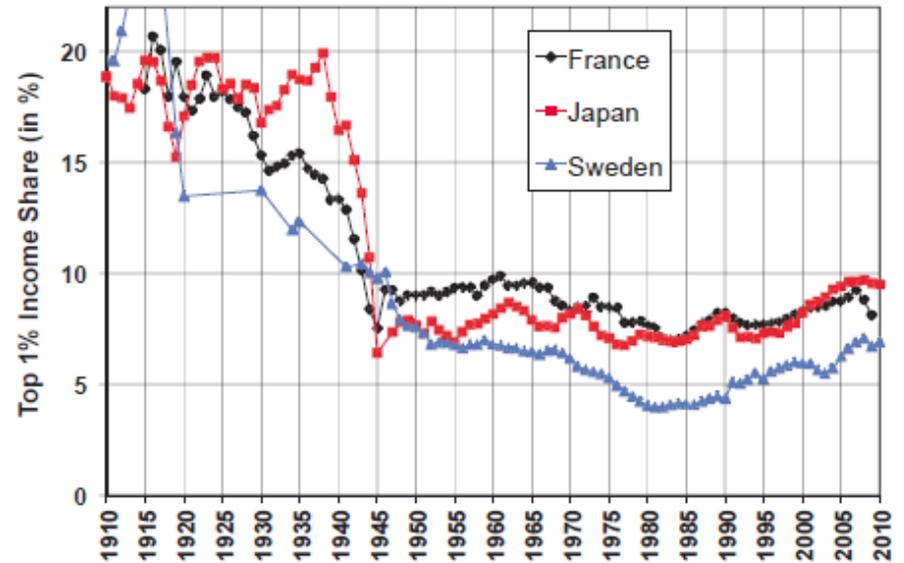
Source: Piketty and Saez, 2003 updated to 2011. Series based on pre-tax cash market income including realized capital gains and excluding government transfers.

- To explore the reasons for the current upward trend in top income shares it is instructive to compare the U.S. to other countries

Top 1% share: English Speaking countries (U-shaped)

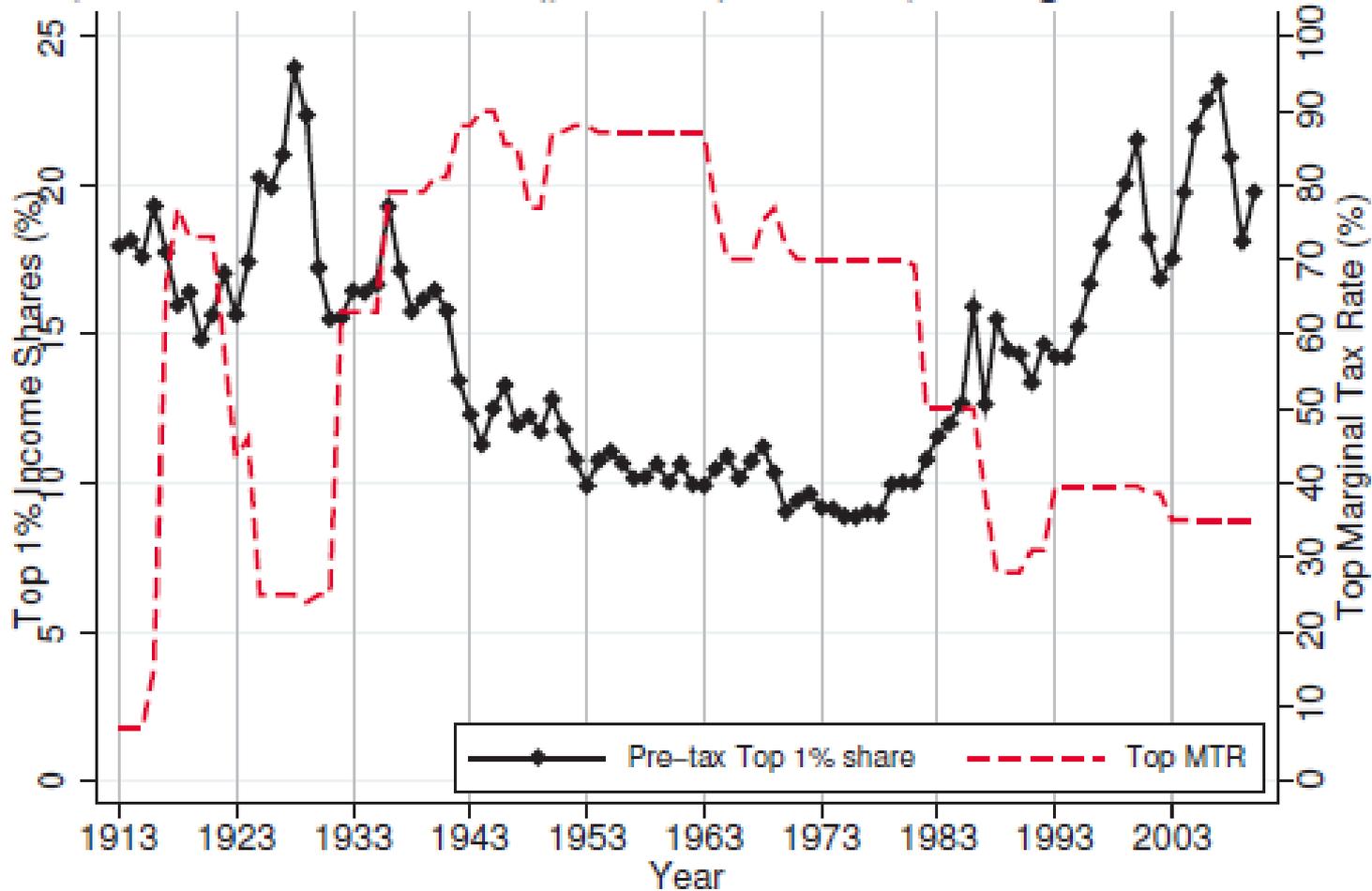


Top 1% share: Continental Europe and Japan (L-shaped)

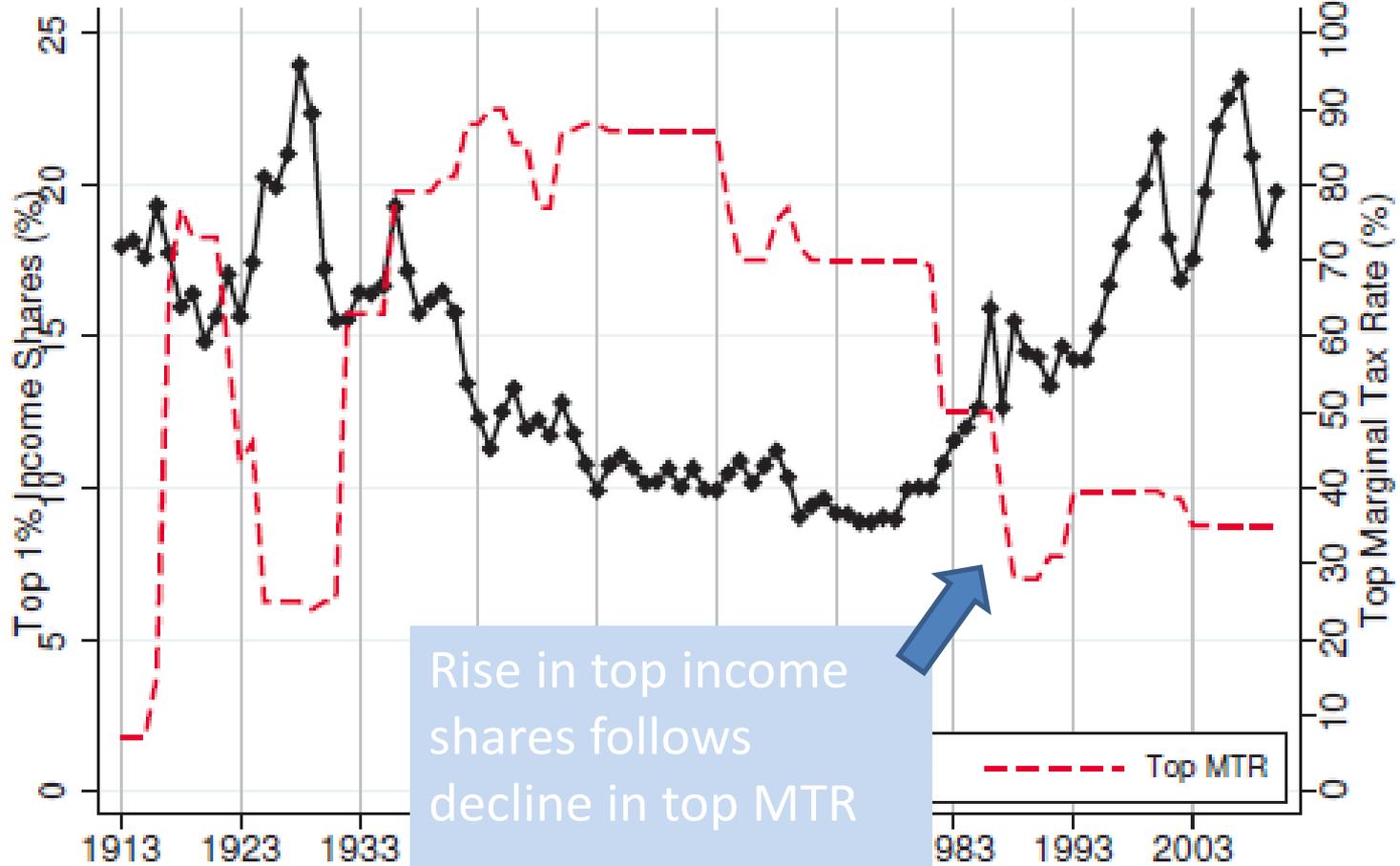


- The period through the 1970s was similar in the U.S. compared to other countries → suggesting that global factors were responsible
- The upward trend beginning in the late 1970s IS NOT experienced by all countries → suggesting that global factors CAN NOT explain the trend

### Top 1% Income Share (pre-tax) and Top Marginal Tax Rate



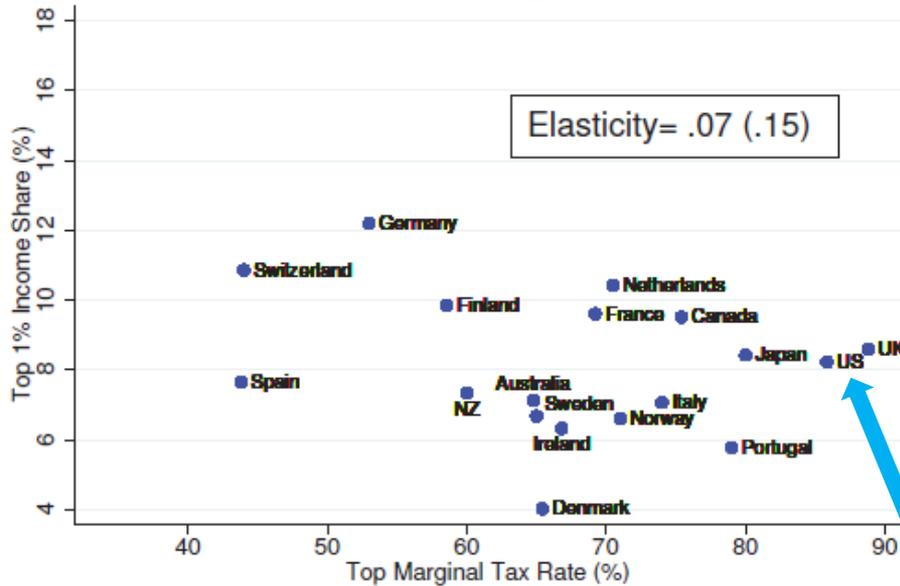
# Top 1% Income Share (pre-tax) and Top Marginal Tax Rate



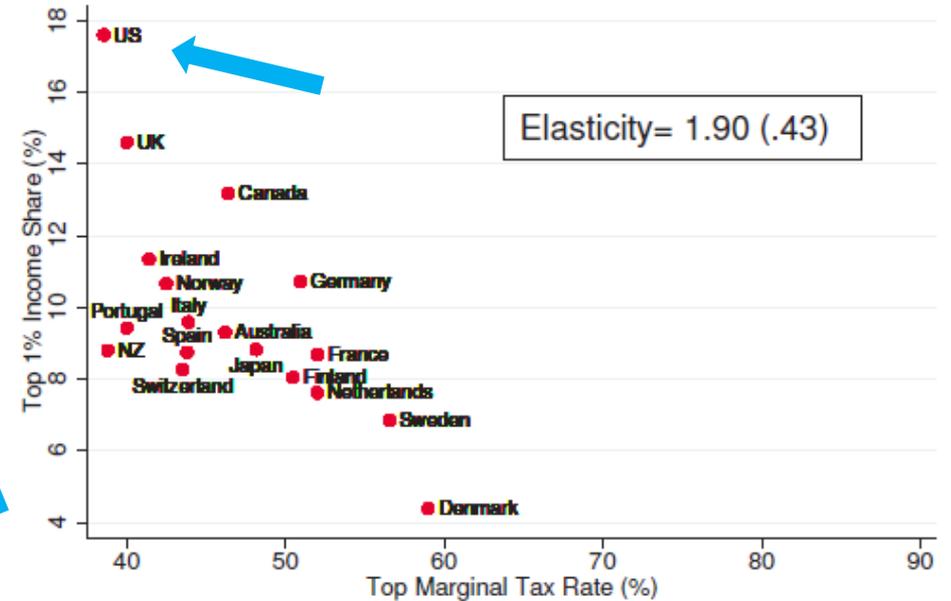
Rise in top income shares follows decline in top MTR

Top MTR

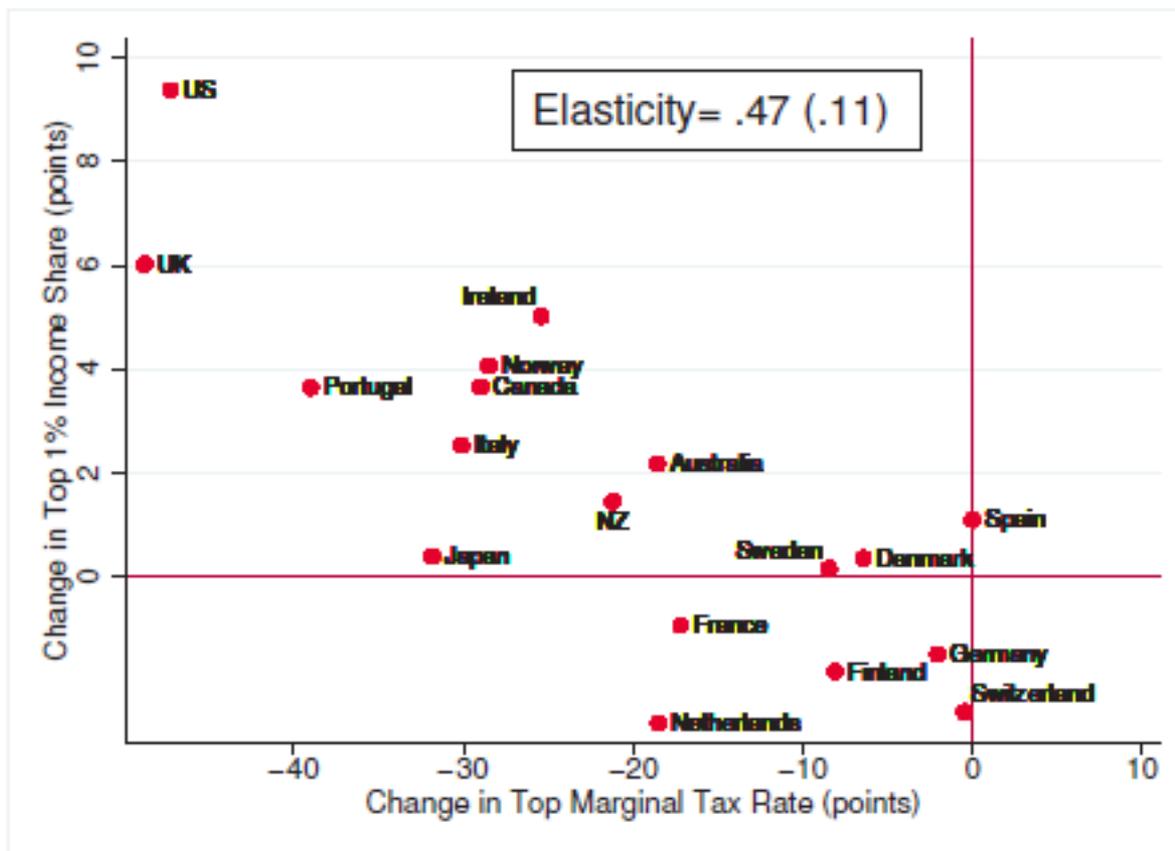
A. Top 1% Share and Top Marginal Tax Rate in 1960–4



B. Top 1% Share and Top Marginal Tax Rate in 2005–9



- Greater progressive taxation (higher top MTR) is associated with LESS inequality
- Amazingly, back in the early 1960s the US was on the HIGH end of progressivity of the income tax (and the middle of the pack in inequality)
- Today we have the highest inequality and very low progressivity



Change in Top Tax Rate and Top 1% Share, 1960-4 to 2005-9

- The difference-in-difference estimates show a very similar pattern
- Best available evidence suggests that the recent trend of increased inequality is driven in part by the lack of progressivity in the U.S. tax code

# Trends in Mobility

- New project on intergenerational mobility (Chetty & Saez and others).
- This is a very old question in economics and there has been a lot of studies of it
- Observe children and parents – link income of the parents to the subsequent income of the children
- They have examined this geographically as well as looking at the trends over time.

# The Data

- Universe of taxfilers; not only 1040 form but any other items that are reported to the IRS.
- This includes, a report from the college/university to the IRS (for the purposes of tax credit verification) – this means we know where the kids go to school
- Tax records cover 1996-present. The child sample includes birth cohorts 1980-1993.
- The youngest cohort is only 19 (so no labor market information, they use college attendance instead)
- The oldest cohort is 32 at the end of the period
- They augment this with a 0.1% sample which allows them to get birth cohorts back to 1971.

# Key variables

- Parent income = average of the years the child is 15-19.
  - Includes W-2 and various benefit income if they do not file a tax return
- Child's income = average at ages 29-30.
  - For the younger cohorts, they instead use college attendance and college quality.

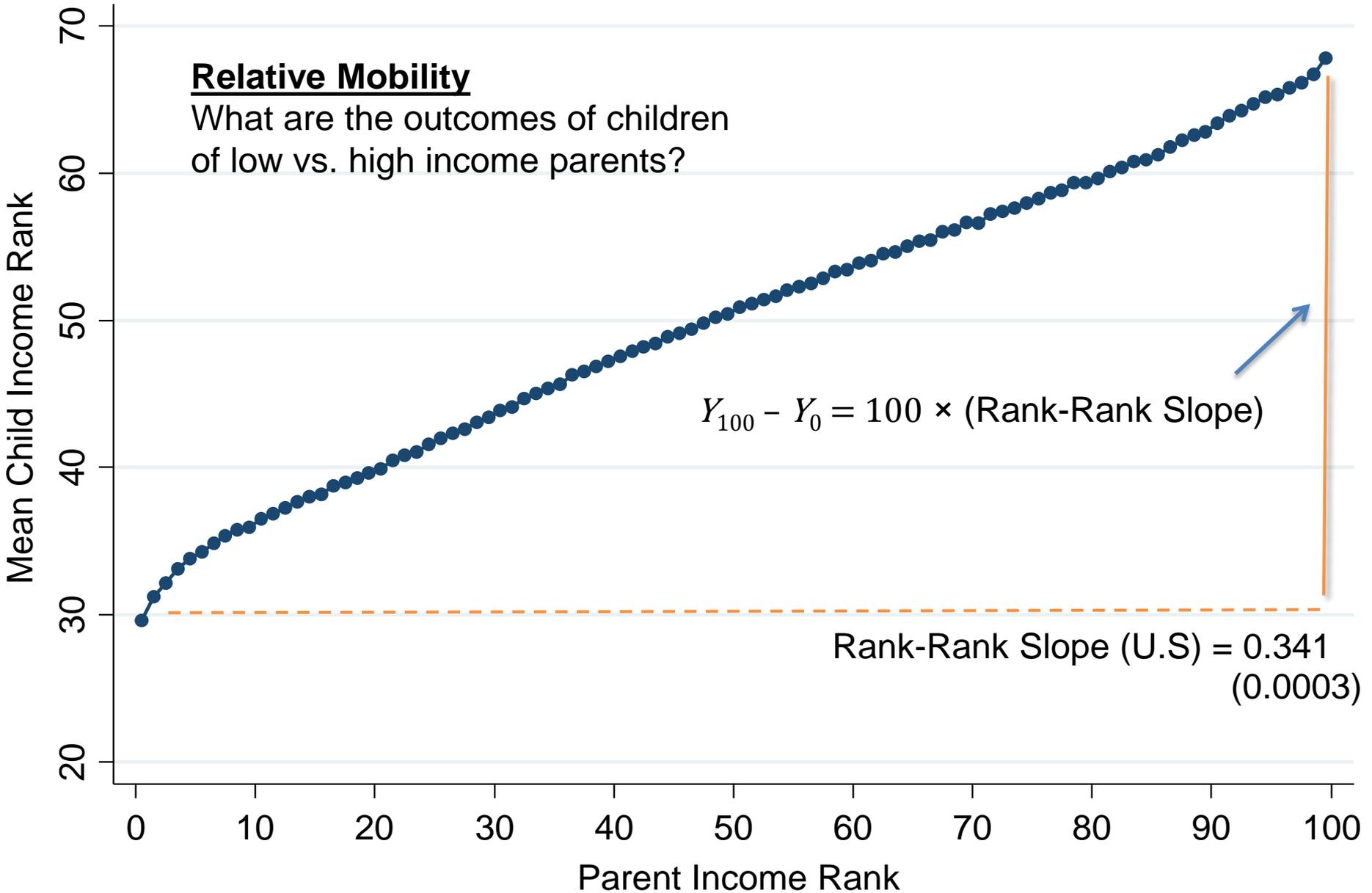
# Statistical Model

- This is a descriptive exercise
- They take the parent's average real income and assign their rank in the national distribution
- They do the same for the child
- They present two main outcomes:
  - Rank-Rank specification: Mean rank of the child for each rank of the parent
  - The share of those in the bottom quintile (as children) that reach the top quintile (as adults)

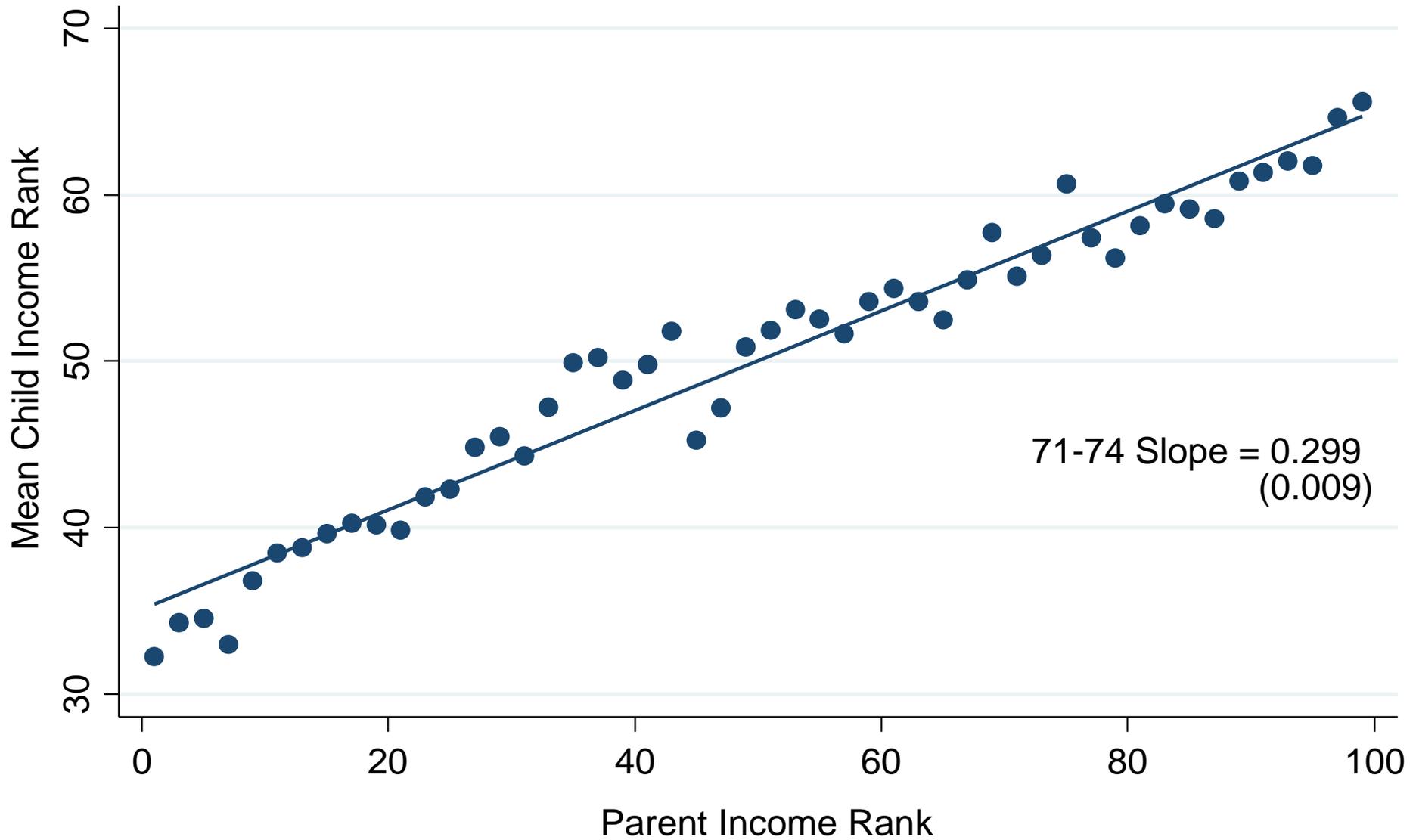
# Mean Child Percentile Rank vs. Parent Percentile Rank

## Relative Mobility

What are the outcomes of children of low vs. high income parents?

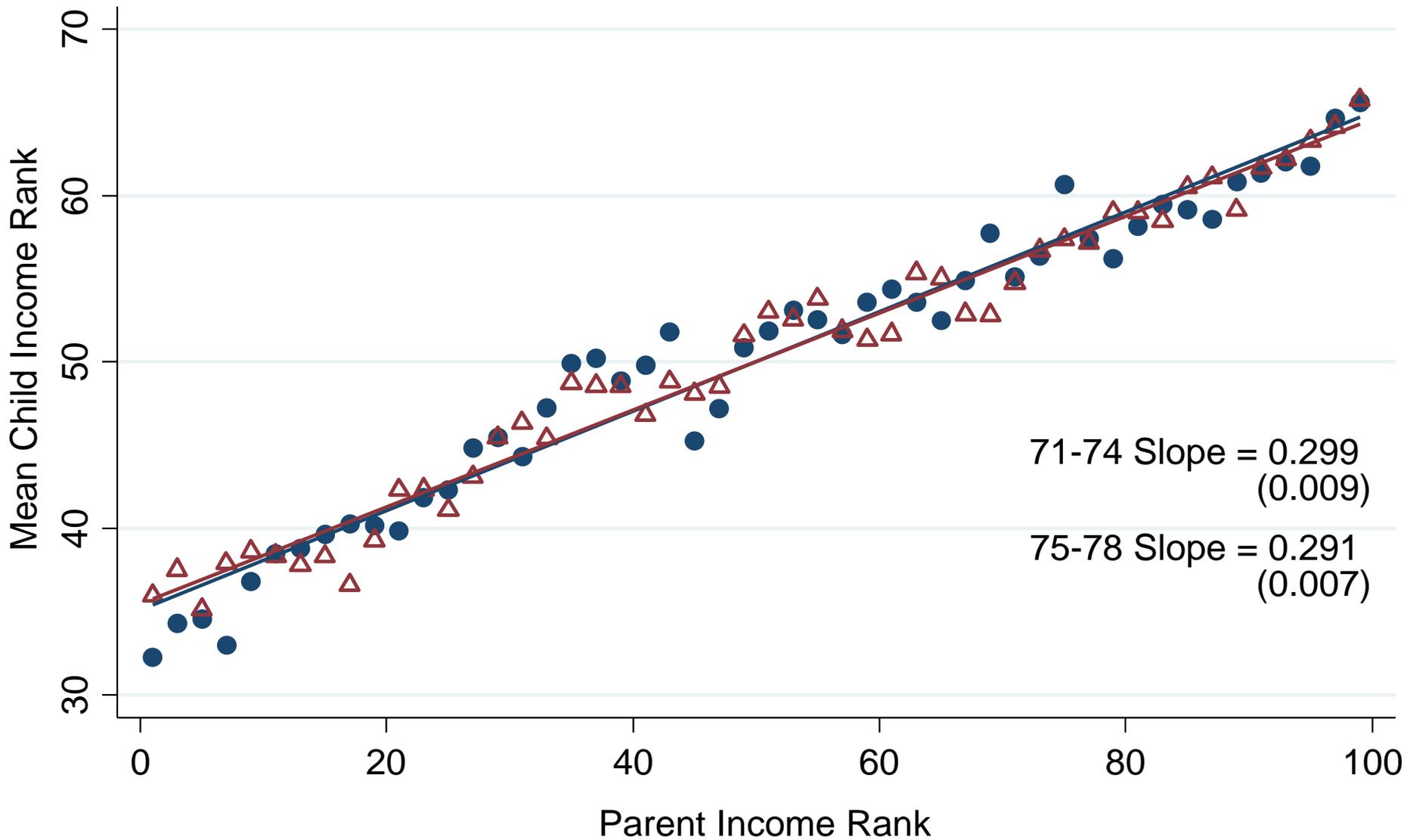


# Child Income Rank vs. Parent Income Rank by Birth Cohort



—●— 1971-74

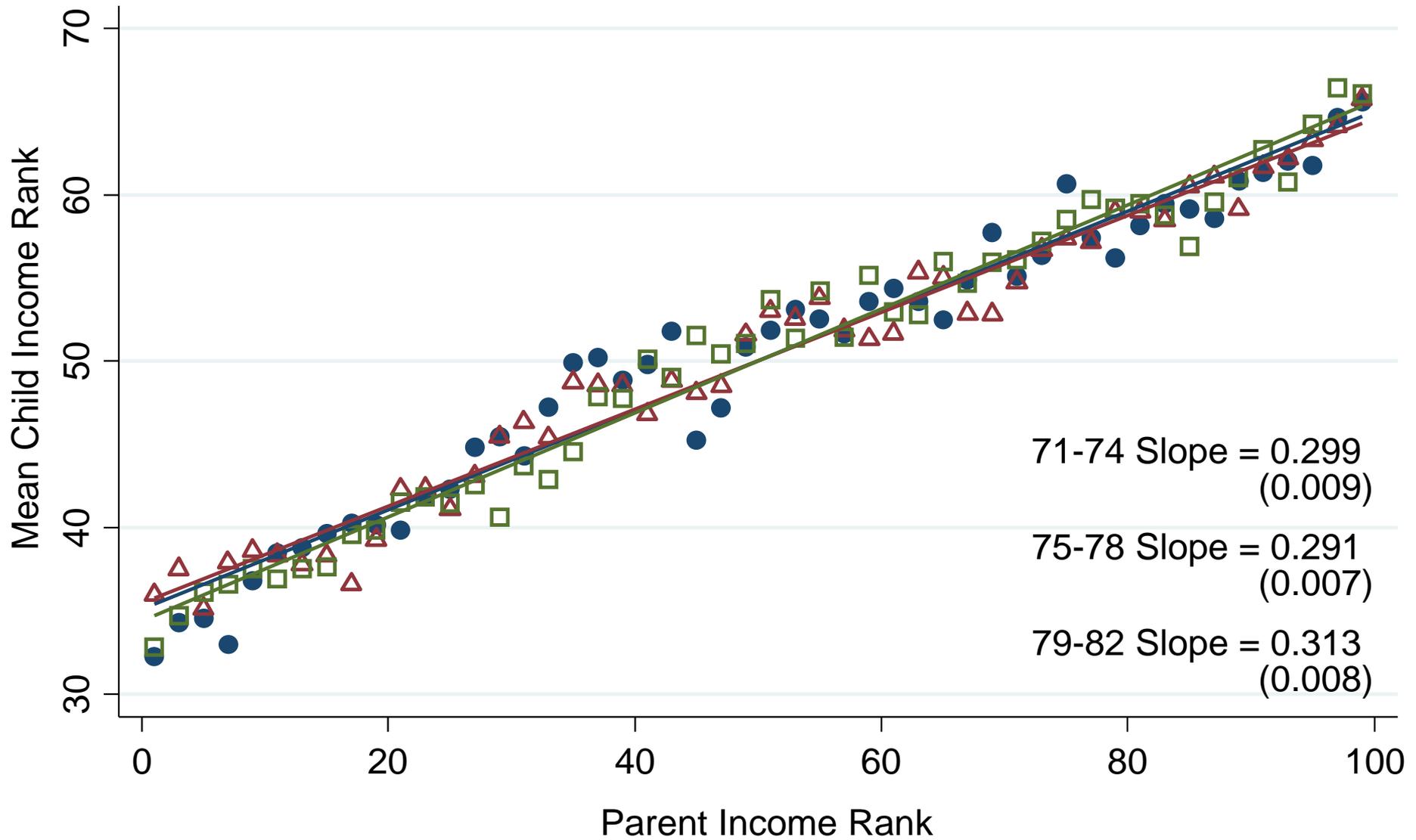
# Child Income Rank vs. Parent Income Rank by Birth Cohort



● 1971-74

▲ 1975-78

# Child Income Rank vs. Parent Income Rank by Birth Cohort

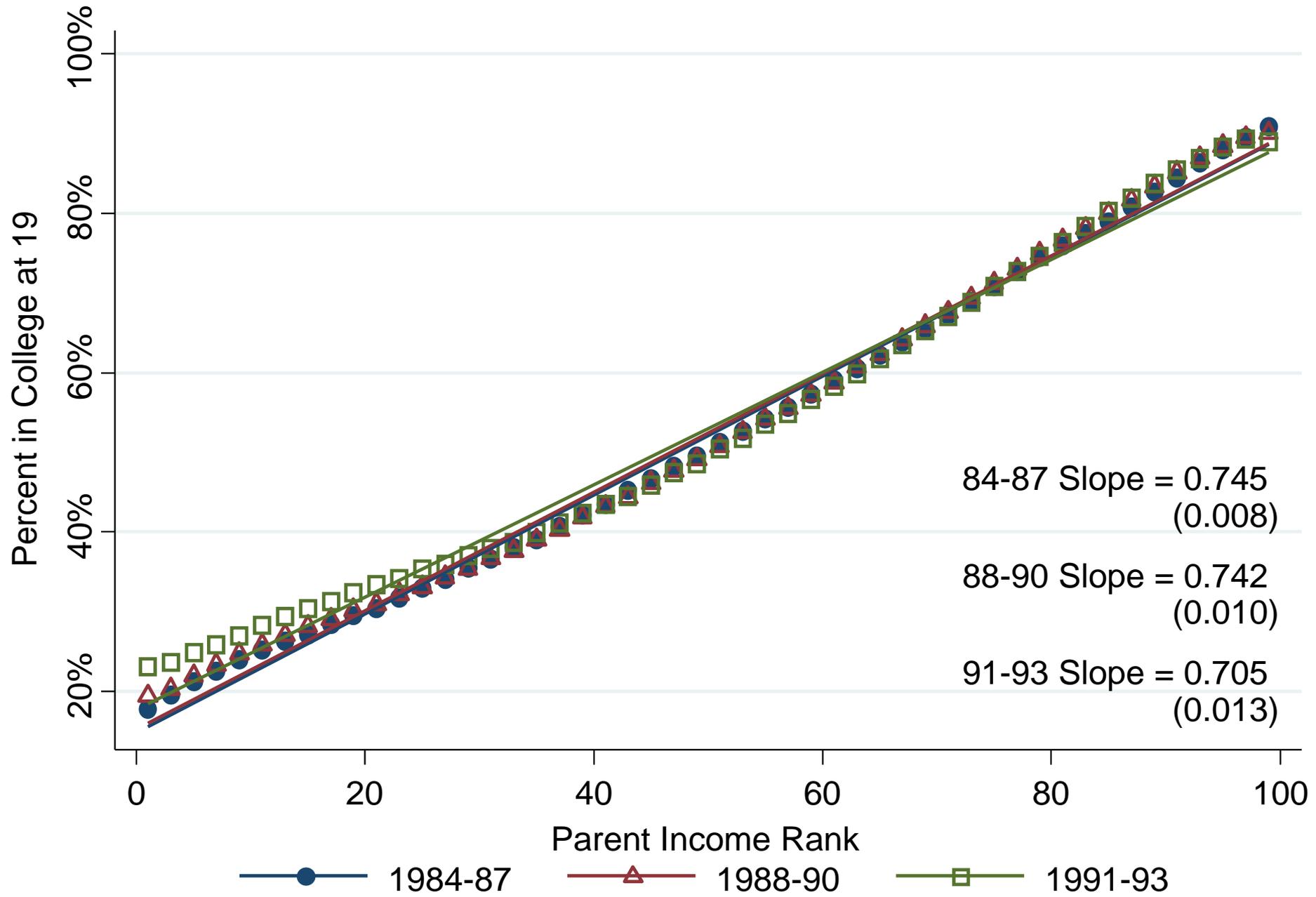


● 1971-74

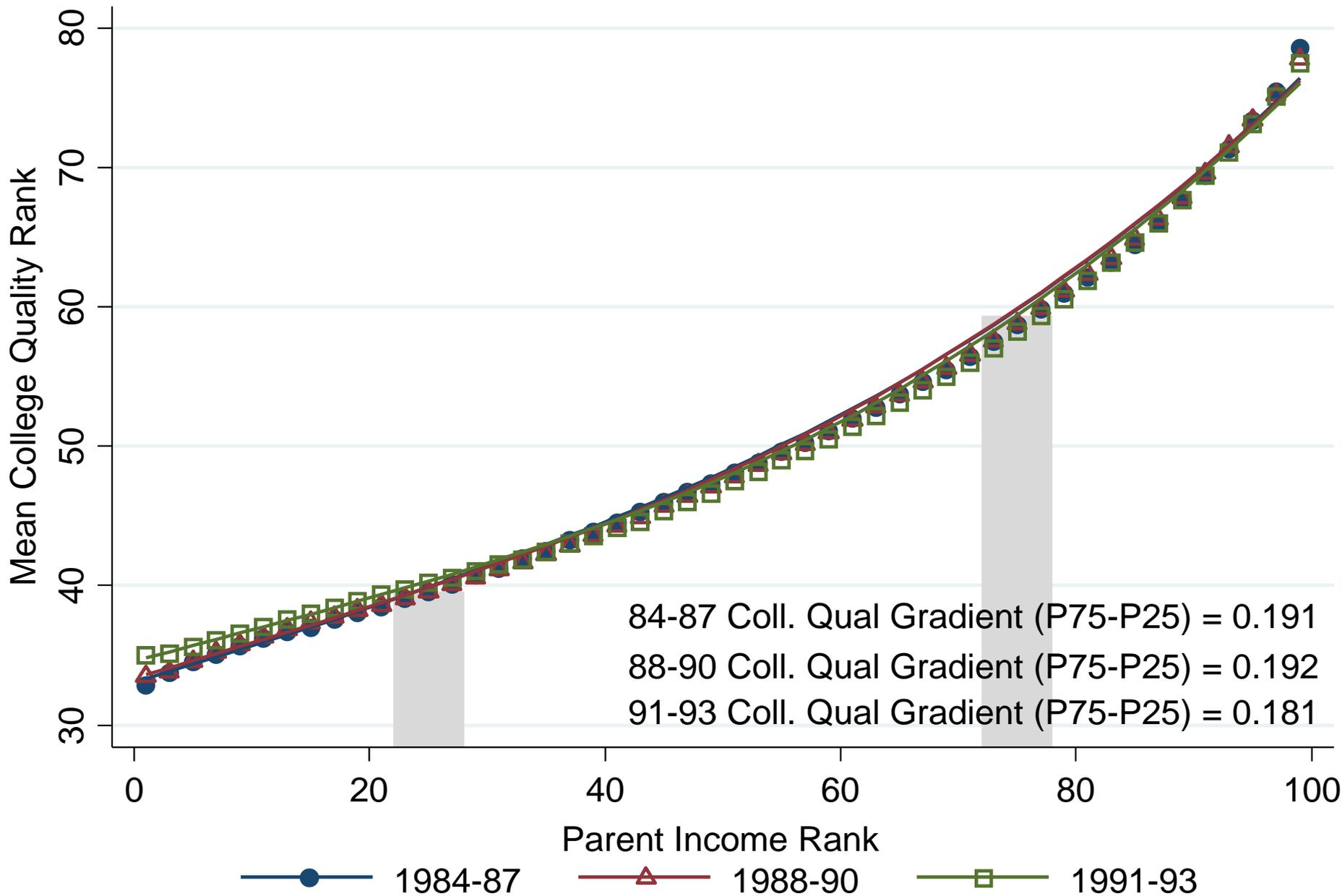
▲ 1975-78

□ 1979-82

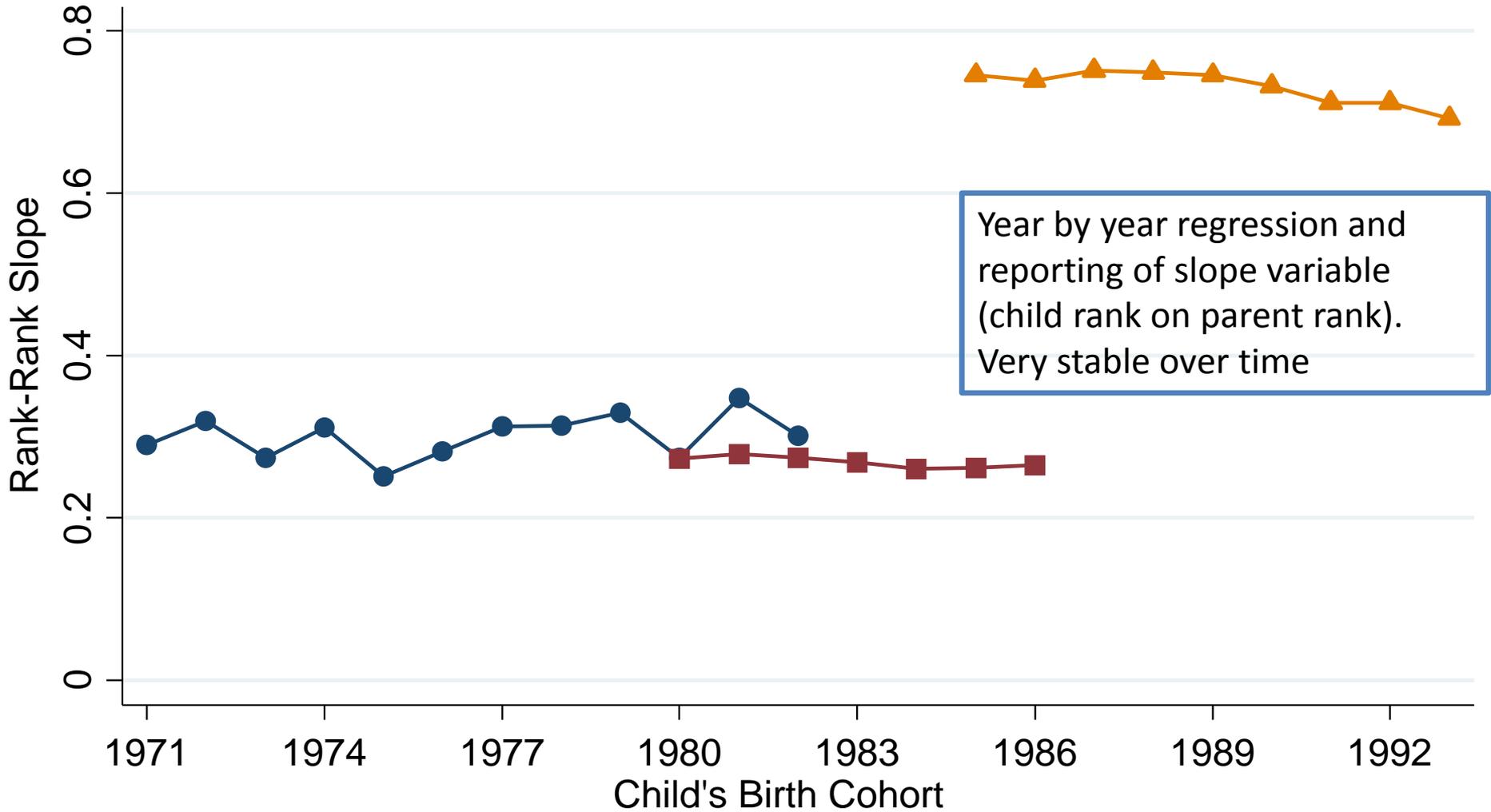
# College Attendance Rates vs. Parent Income Rank by Cohort



# College Quality Rank vs. Parent Income Rank by Cohort



# Intergenerational Mobility Estimates for the 1971-1993 Birth Cohorts



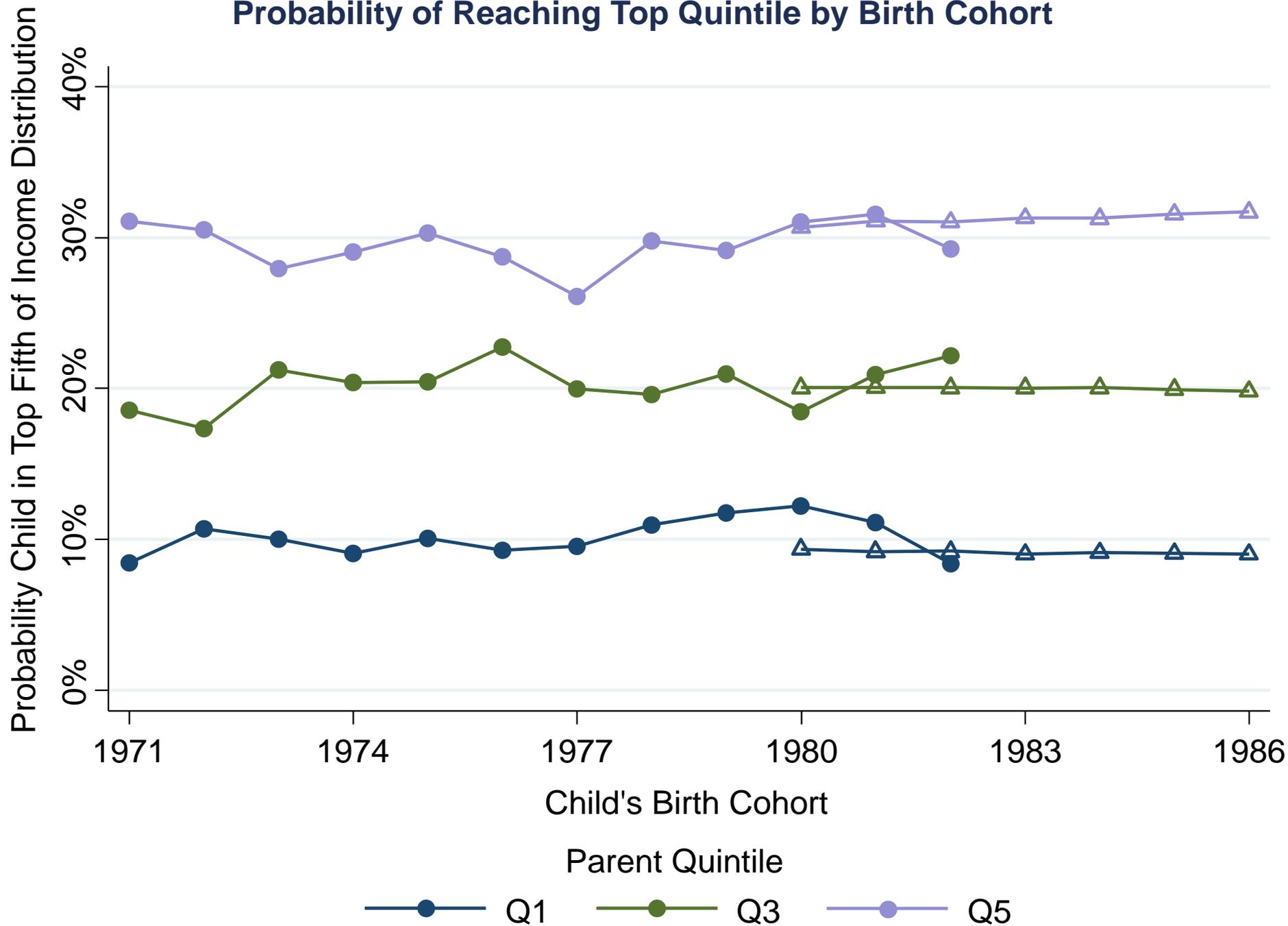
Income Rank-Rank (Child Age 30; SOI Sample)

Income Rank-Rank (Child Age 26; Pop. Sample)

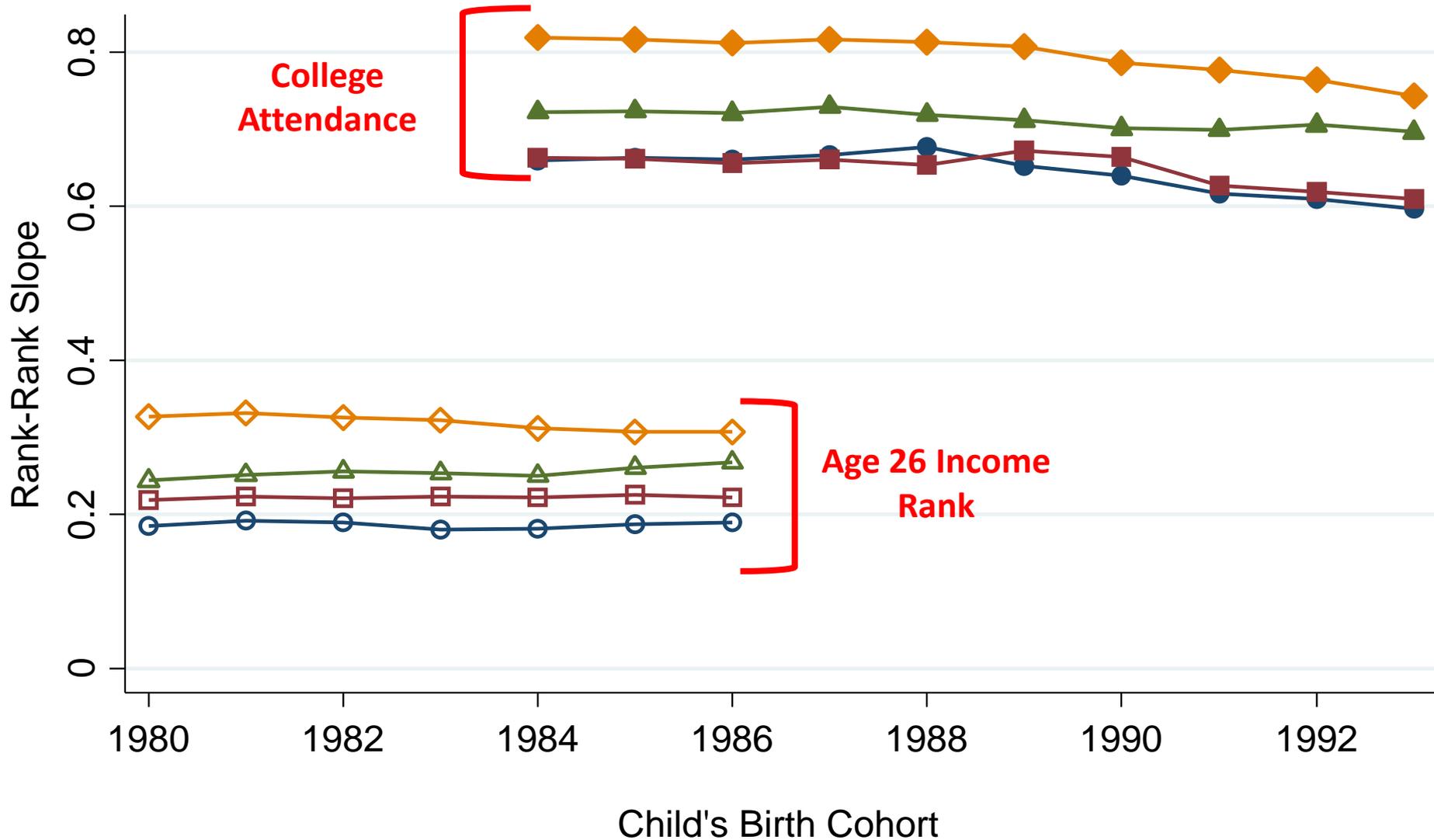
College-Income Gradient (Child Age 19; Pop. Sample)

- Mobility also stable using other statistics
  - Ex: fraction of children who reach the top quintile

# Probability of Reaching Top Quintile by Birth Cohort



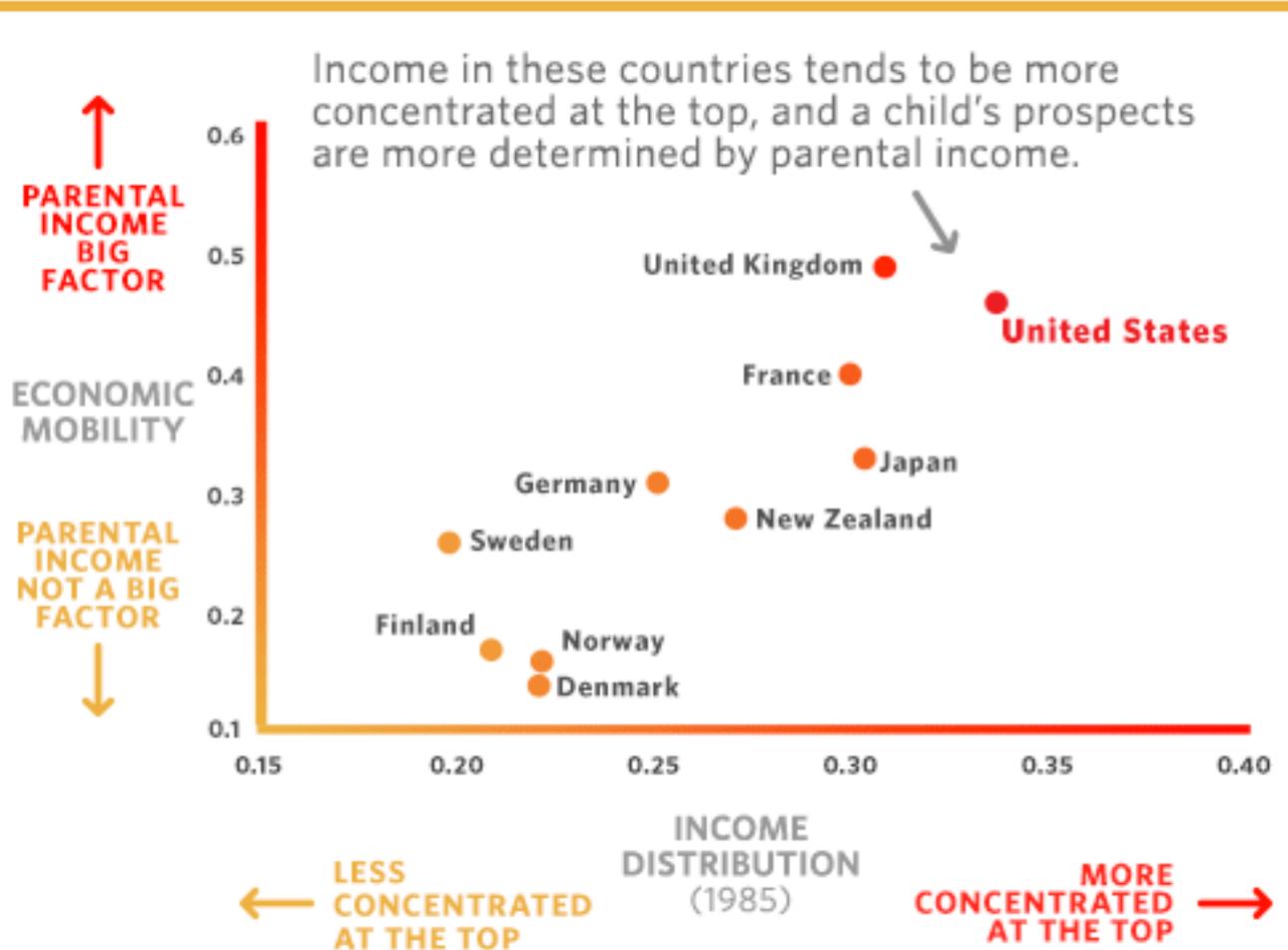
# Intergenerational Mobility Estimates by Parent's Census Division



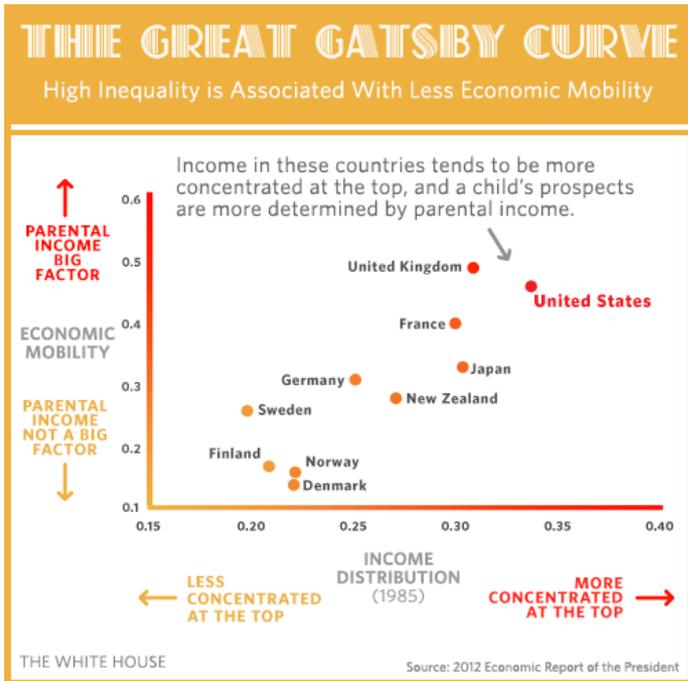
- Pacific
- Mountain
- ▲ New England
- ◆ East South Central

# THE GREAT GATSBY CURVE

High Inequality is Associated With Less Economic Mobility



← Negative correlation between mobility and inequality in cross-section [Corak 2013]



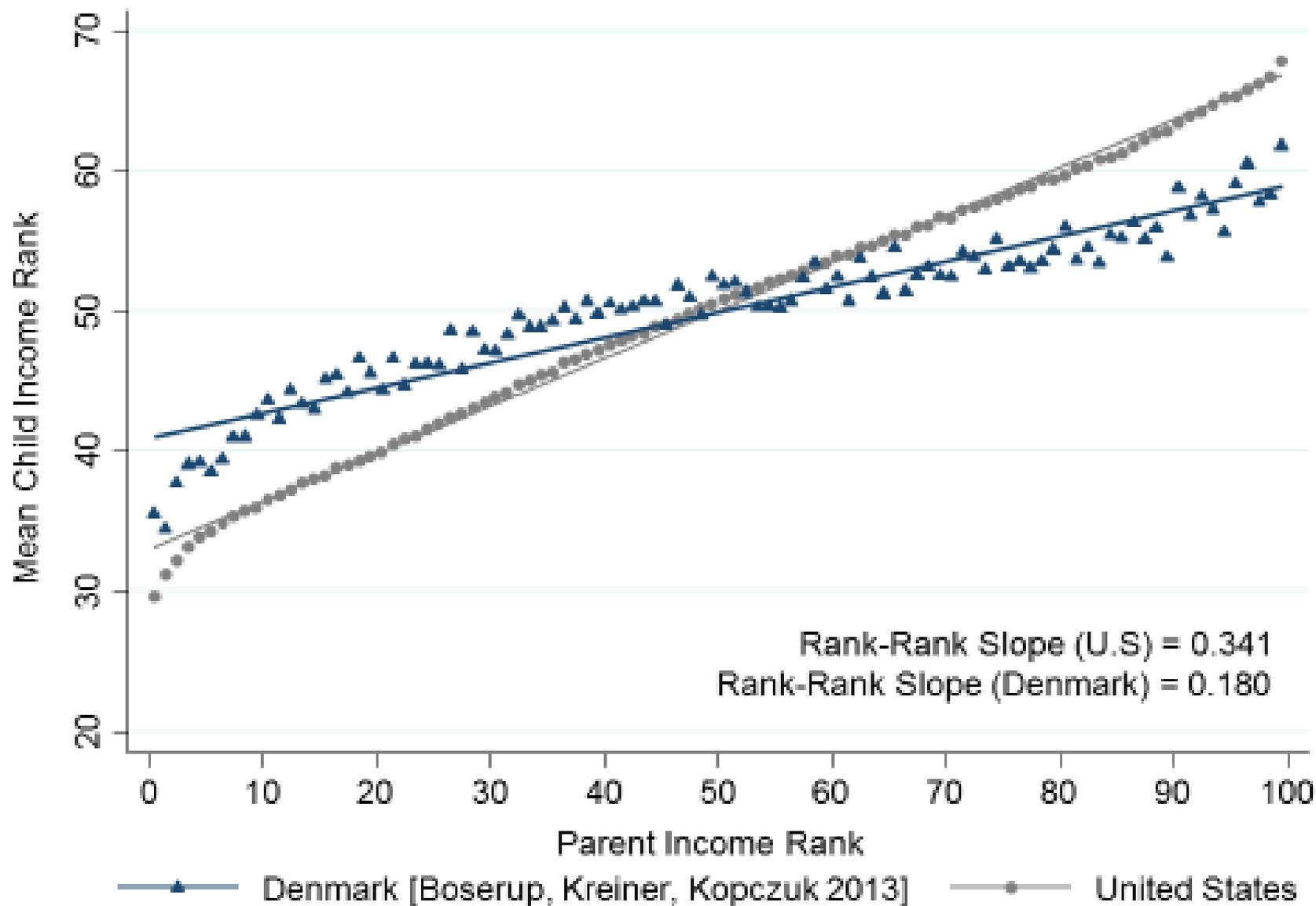
Given the Great Gatsby curve we would think that as the U.S. has become more unequal, economic mobility would have gone down.

But it hasn't.

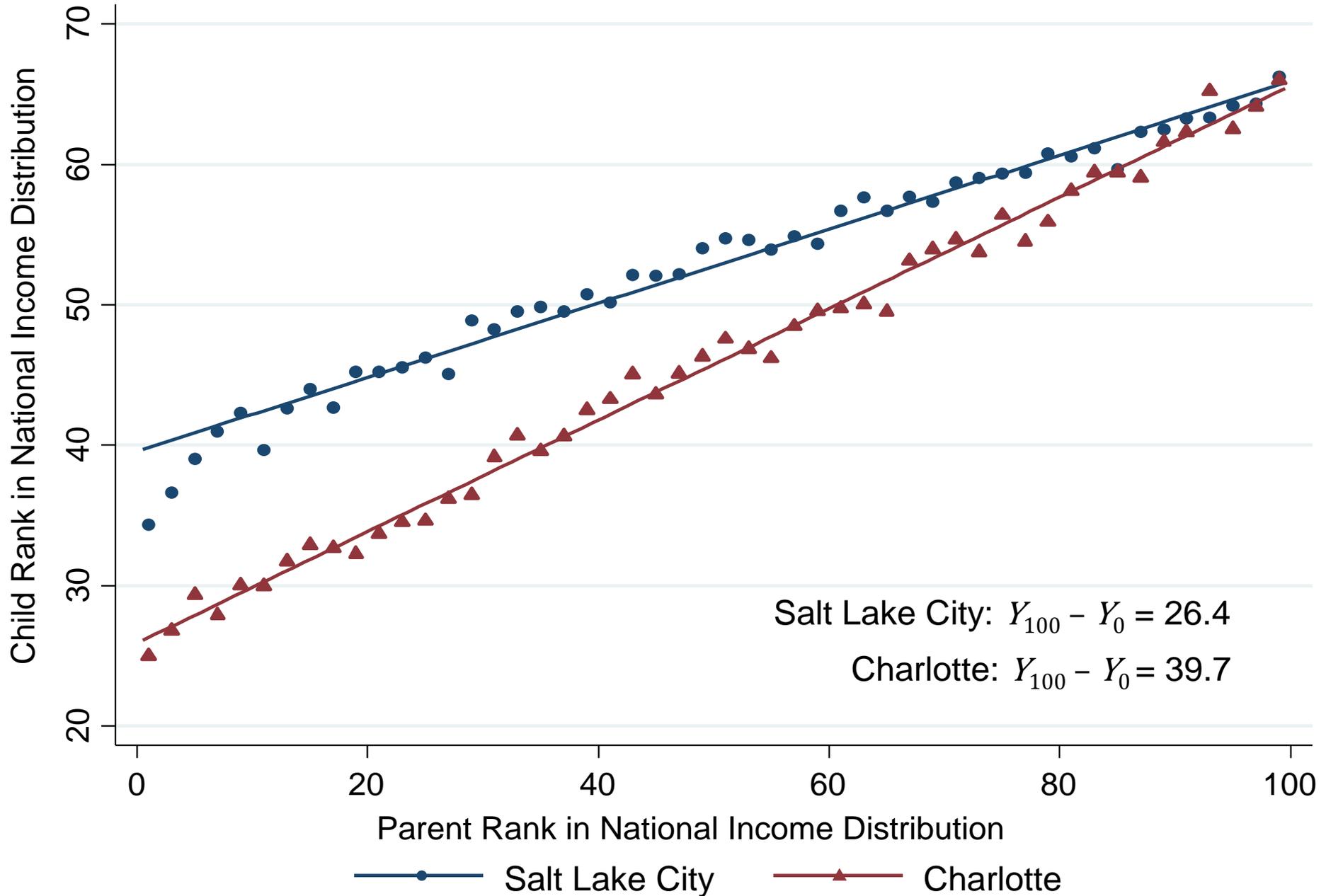
- This may be because the inequality estimates (top 1%) is where all of the action has been but that is less predictive of mobility.
- The ladder metaphor:
  - Although these rank-based measures of mobility have remained stable, income inequality increased over time in our sample, consistent with prior work. Hence, the consequences of the “birth lottery”—the parents to whom a child is born—are larger today than in the past. A useful visual analogy is to envision the income distribution as a ladder, with each percentile representing a different rung. The rungs of the ladder have grown further apart (inequality has increased), but children’s chances of climbing from lower to higher rungs have not changed (rank-based mobility has remained stable).

# Geographic variation

## Intergenerational Mobility in the United States vs. Denmark

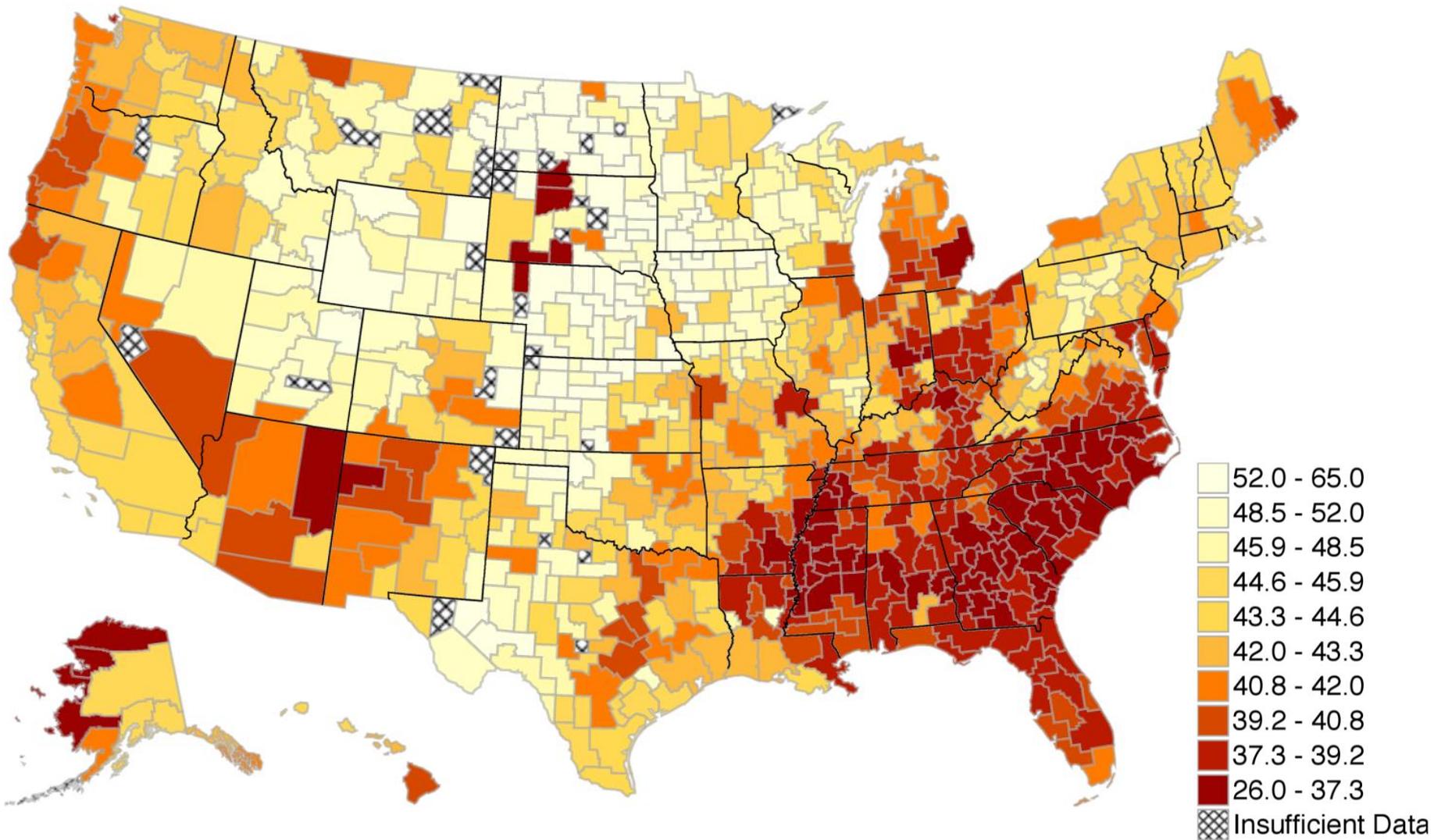


# Intergenerational Mobility in Salt Lake City vs. Charlotte



# The Geography of Upward Mobility in the United States

Mean Child Percentile Rank for Parents at 25<sup>th</sup> Percentile ( $Y_{25}$ )



*Note: Lighter Color = More Absolute Upward Mobility*

## Highest Absolute Mobility In The 50 Largest CZs

Upward Mobility Rank	CZ Name	$Y_{25}$	$Y_{100} - Y_0$	P(Child in Q5  Parent in Q1)
1	Salt Lake City, UT	46.2	0.264	10.83%
2	Pittsburgh, PA	45.2	0.359	9.51%
3	San Jose, CA	44.7	0.235	12.93%
4	Boston, MA	44.6	0.322	10.49%
5	San Francisco, CA	44.4	0.250	12.15%
6	San Diego, CA	44.3	0.237	10.44%
7	Manchester, NH	44.2	0.296	10.02%
8	Minneapolis, MN	44.2	0.338	8.52%
9	Newark, NJ	44.1	0.350	10.24%
10	New York, NY	43.8	0.330	10.50%

## Lowest Absolute Mobility In The 50 Largest CZs

Upward Mobility Rank	CZ Name	$Y_{25}$	$Y_{100} - Y_0$	P(Child in Q5  Parent in Q1)
41	Nashville, TN	38.2	0.357	5.73%
42	New Orleans, LA	38.2	0.397	5.12%
43	Cincinnati, OH	37.9	0.429	5.12%
44	Columbus, OH	37.7	0.406	4.91%
45	Jacksonville, FL	37.5	0.361	4.92%
46	Detroit, MI	37.3	0.358	5.46%
47	Indianapolis, IN	37.2	0.398	4.90%
48	Raleigh, NC	36.9	0.389	5.00%
49	Atlanta, GA	36.0	0.366	4.53%
50	Charlotte, NC	35.8	0.397	4.38%

## Comparison of Alternative Hypotheses

Dep. Var.:	Upward Mobility ( $Y_{25}$ )			
	(1)	(2)	(3)	(4)
Racial Segregation	-0.085 (0.029)	-0.112 (0.020)	-0.165 (0.034)	
Gini Bottom 99%	-0.050 (0.063)	-0.019 (0.039)	-0.313 (0.064)	
High School Dropout Rate	-0.157 (0.061)	-0.142 (0.030)	-0.286 (0.067)	
Social Capital Index	0.284 (0.056)	0.109 (0.053)	0.296 (0.065)	
Fraction Single Mothers	-0.484 (0.070)	-0.438 (0.072)		-0.808 (0.085)
Fraction Black				0.056 (0.073)
<b>State FEs</b>		<b>X</b>		
R-squared	0.705	0.848	0.605	0.584
Observations	709	709	709	709

# Download CZ-Level Data on Social Mobility

[www.equality-of-opportunity.org/data](http://www.equality-of-opportunity.org/data)

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## Downloadable Data on Intergenerational Mobility

Data Description		
Preferred Mobility Measures by Commuting Zone	<a href="#">Stata file</a>	<a href="#">Excel file</a>
Online Data Table 1: National 100 by 100 Transition Matrix	<a href="#">Stata file</a>	<a href="#">Excel file</a>
Online Data Table 2: Marginal Income Distributions by Centile	<a href="#">Stata file</a>	<a href="#">Excel file</a>
Online Data Table 3: Intergenerational Mobility Statistics and Selected Covariates by County	<a href="#">Stata file</a>	<a href="#">Excel file</a>
Online Data Table 4: Intergenerational Mobility Statistics by Metropolitan Statistical Area	<a href="#">Stata file</a>	<a href="#">Excel file</a>
Online Data Table 5: Intergenerational Mobility Statistics by Commuting Zone	<a href="#">Stata file</a>	<a href="#">Excel file</a>
Online Data Table 6: Quintile-Quintile Transition Matrices by Commuting Zone	<a href="#">Stata file</a>	<a href="#">Excel file</a>
Online Data Table 7: Income Distributions by Commuting Zone	<a href="#">Stata file</a>	<a href="#">Excel file</a>
Online Data Table 8: Commuting Zone Characteristics	<a href="#">Stata file</a>	<a href="#">Excel file</a>
Online Data Table 9: Commuting Zone Characteristics Definitions and Data Sources		<a href="#">Excel file</a>
Geographic Crosswalks (Tolbert and Sizer 1996, Autor and Dorn 2009 & 2013)	<a href="#">Zip file</a>	
Replication Stata Code and Datasets	<a href="#">Zip file</a>	
<a href="#">Downloadable Map of Absolute Upward Mobility</a>		

Version 2.0, released January 17, 2014. For Version 1.0 (released on July 22, 2013), click [here](#). Version 2.0 reports statistics using the 1980-82 birth cohorts (rather than 1980-81) and includes new data such as mobility statistics by county and MSA, new CZ-level covariates, and marginal income distributions for parents and children.

For more information on the data, please email [info@equality-of-opportunity.org](mailto:info@equality-of-opportunity.org)

# Causes of Poverty and Inequality: Labor Market Factors

Hilary Hoynes

PP290

# Outline of lecture

1. Facts: trends in earnings and wages
2. Understanding the forces leading to trends in wages and earnings
3. Decomposing trends in poverty (demographics versus other factors)

# 1. Back to trends – facts on the labor market and earnings

- Post WWII → early 1970s:
  - gains in earnings occurred across the distribution; “growing together”
  - Growth in educational attainment
- Mid 1970s → present:
  - widening wage structure
  - Rate of education growth slowed
- The growth of real wages and the distribution among workers is a crucial factor for determining trends in poverty.

## Broadly Shared Prosperity Ended in the Early 1970s, and a Generation of Widening Inequality Began

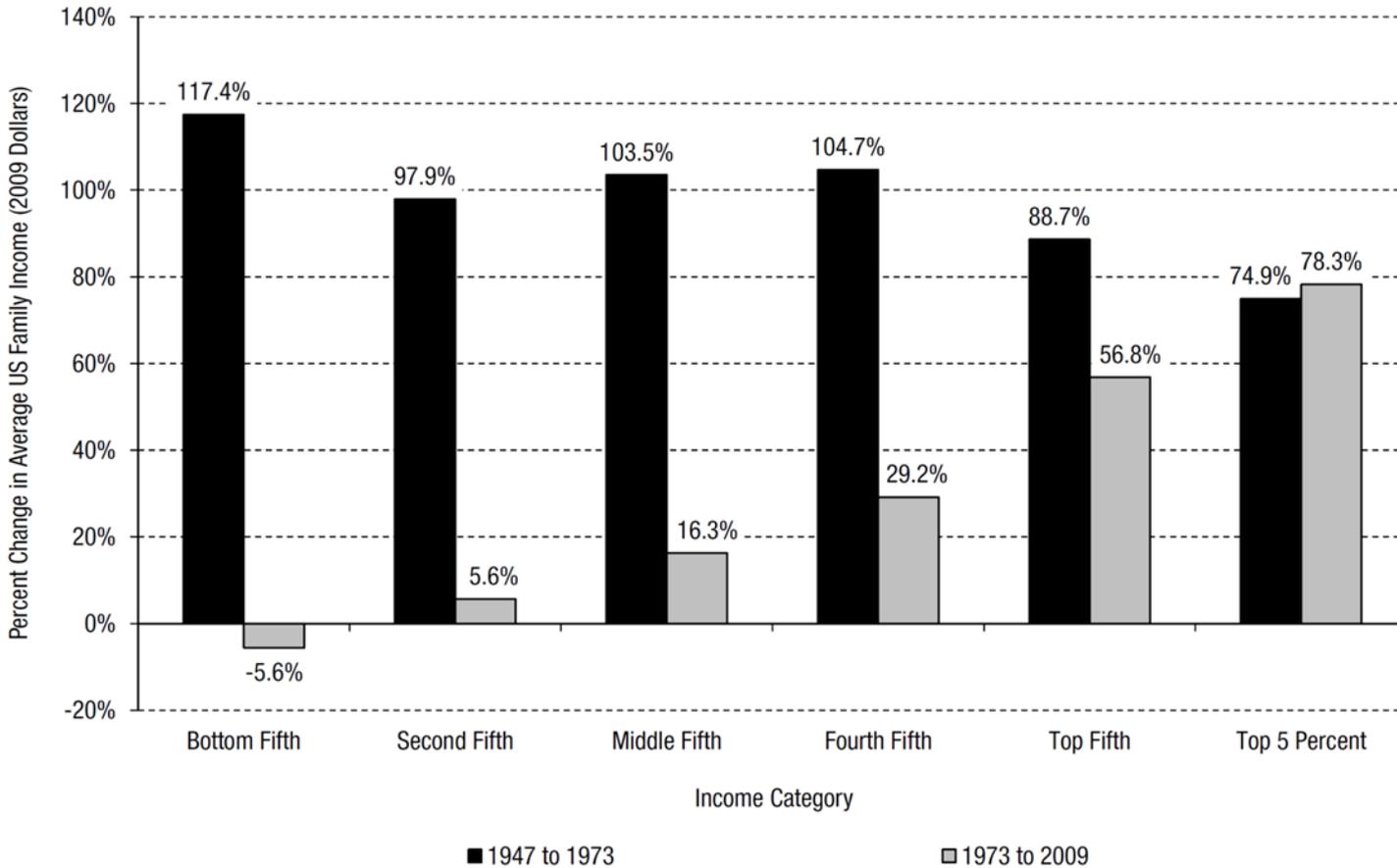
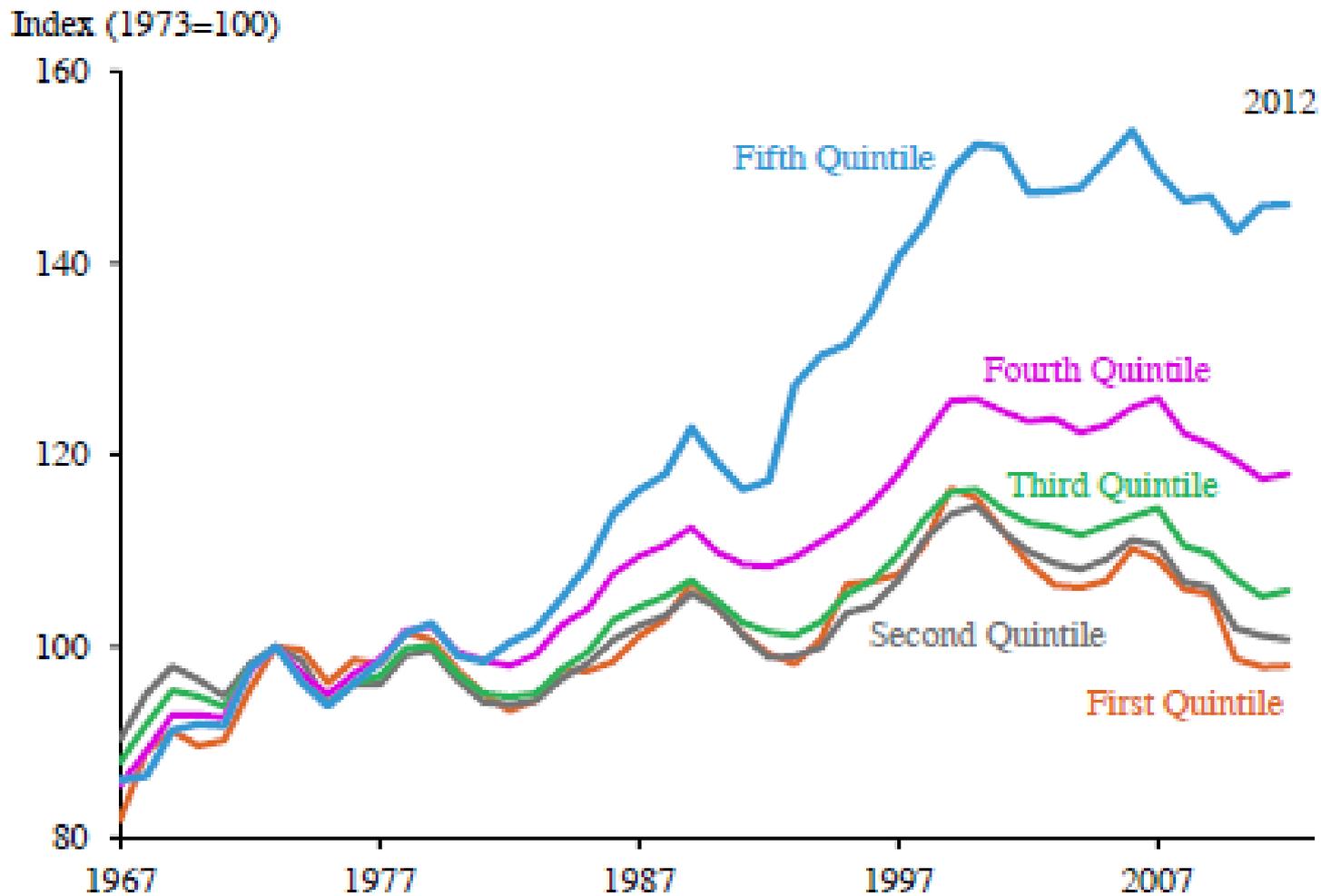
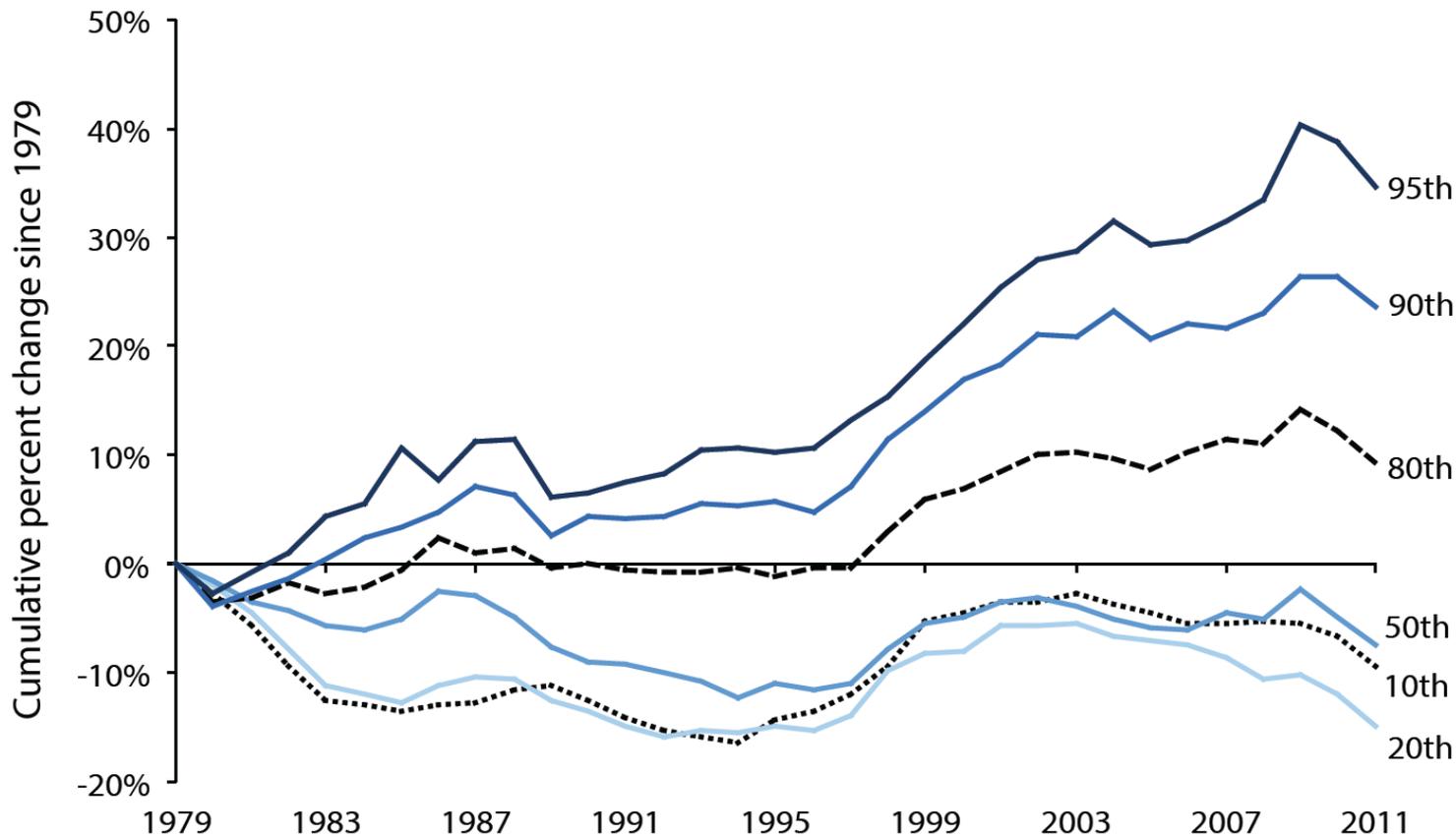


Figure 6-2  
Average Real Household Income by Quintile, 1967–2012

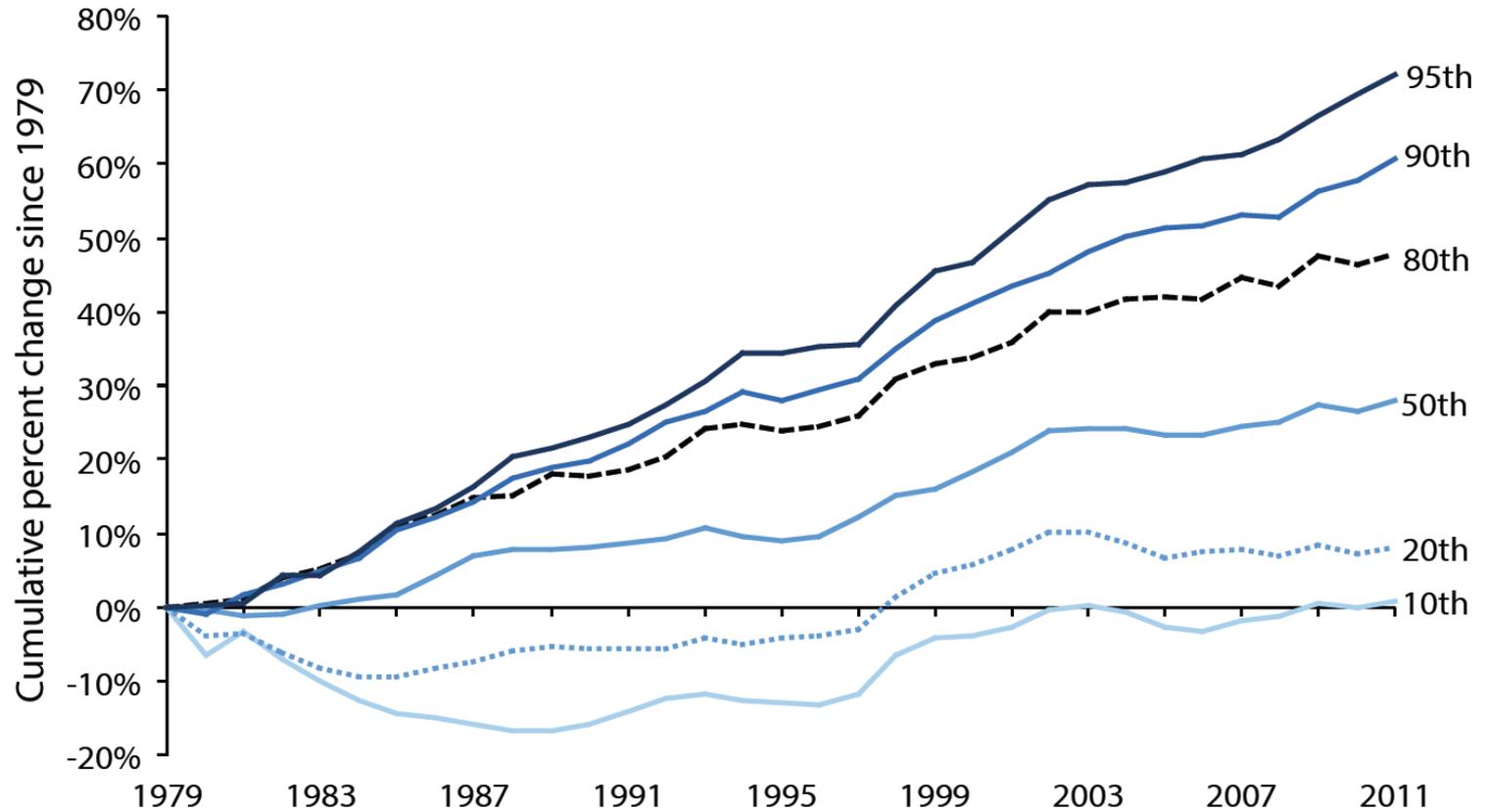


**Figure 4C** Cumulative change in real hourly wages of men, by wage percentile, 1979–2011



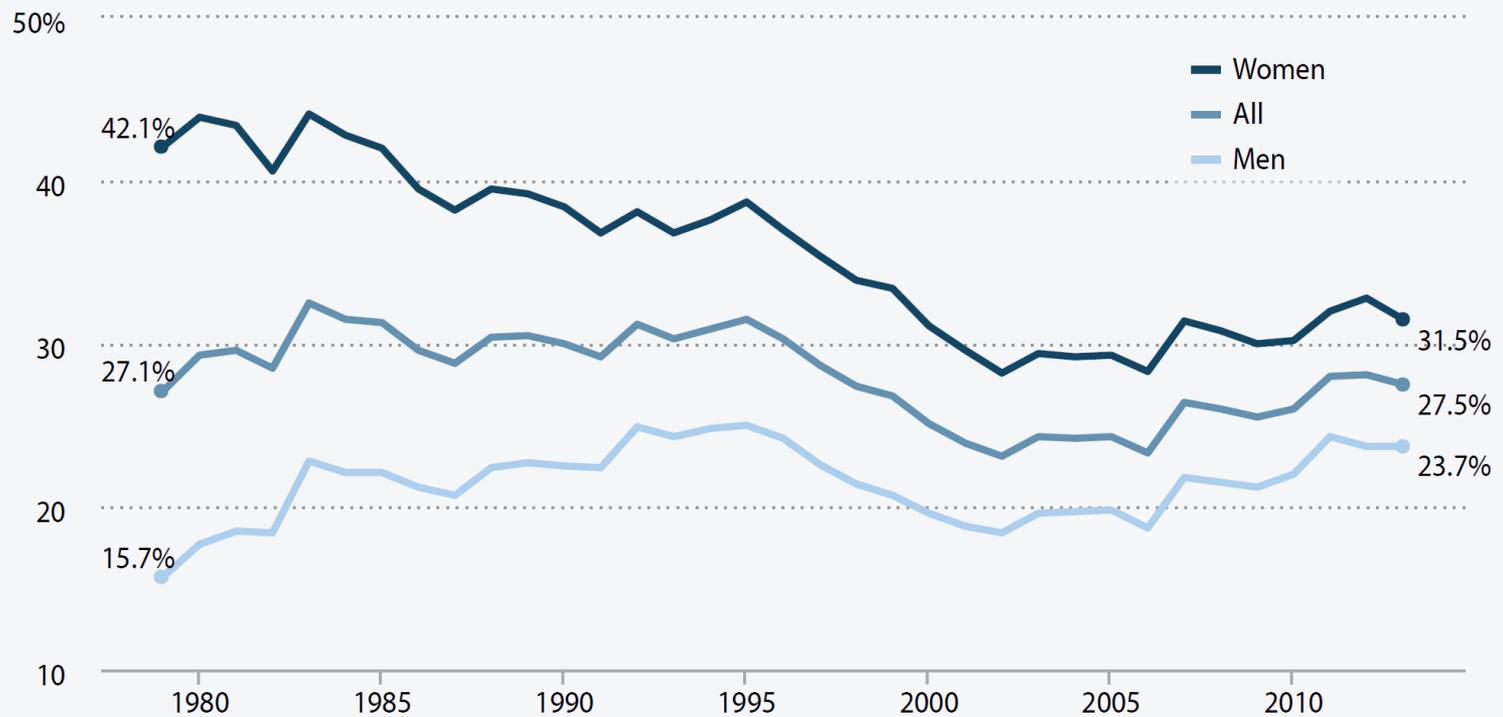
Source: Authors' analysis of Current Population Survey Outgoing Rotation Group microdata

**Figure 4D** Cumulative change in real hourly wages of women, by wage percentile, 1979–2011



Source: Authors' analysis of Current Population Survey Outgoing Rotation Group microdata

## Share of workers earning poverty-level wages, by gender, 1979–2013



**Note:** The poverty-level wage in 2013 was \$11.45.

**Source:** Authors' analysis of Current Population Survey Outgoing Rotation Group microdata

UPDATED FROM: Figure 4E in *The State of Working America, 12th Edition*, an Economic Policy Institute book published by Cornell University Press in 2012

ECONOMIC POLICY INSTITUTE

EPI, State of Working America. Share of workers who earn less than poverty wage (FTFY supporting family of 4)

- In a basic sense, these changes in wage and income distribution contribute fundamentally to trends in poverty
- This factor would be putting upward pressure on poverty rates over time; thus the observed trends should be interpreted against this finding.
- But taking a step back, what do we know about why these labor market trends are occurring?

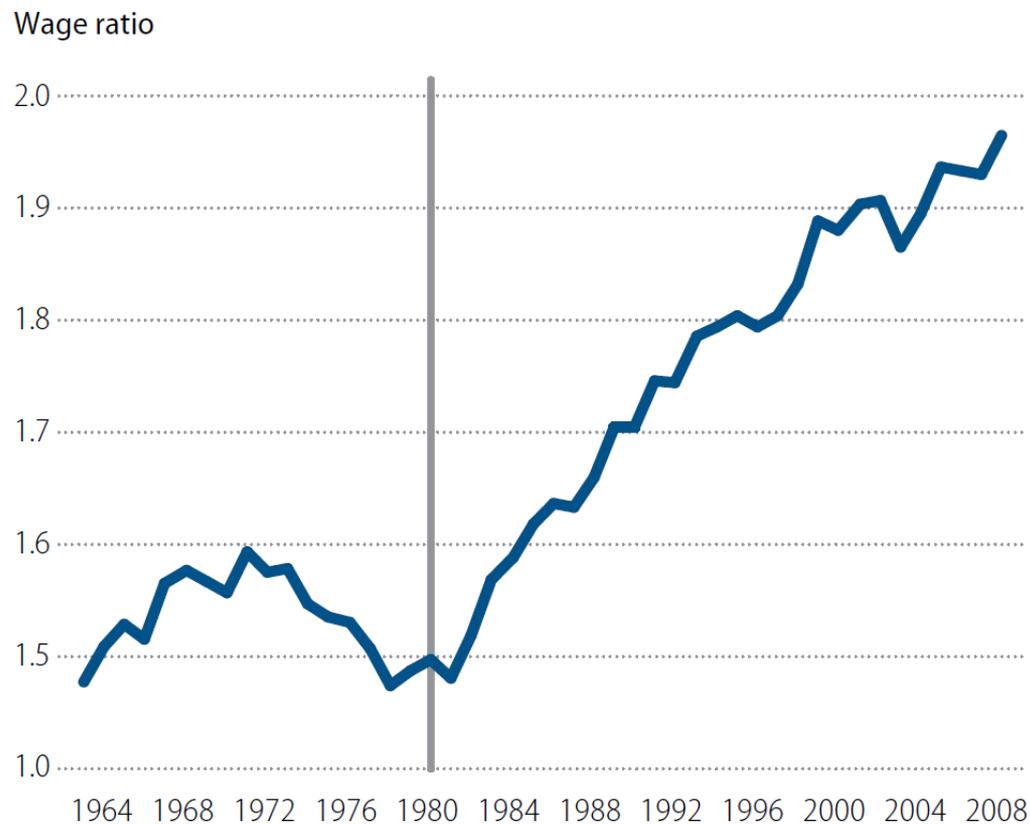
## “Returns to Skill” – earnings gap between college and high school degrees

- Rising steadily; doubled between 1979 and 2012
- Trends also experienced by other countries
- The Piketty and Saez work on the top 1% is important, but understanding the skilled versus unskilled worker dynamics is also very important

# Returns to skill

FIGURE 10

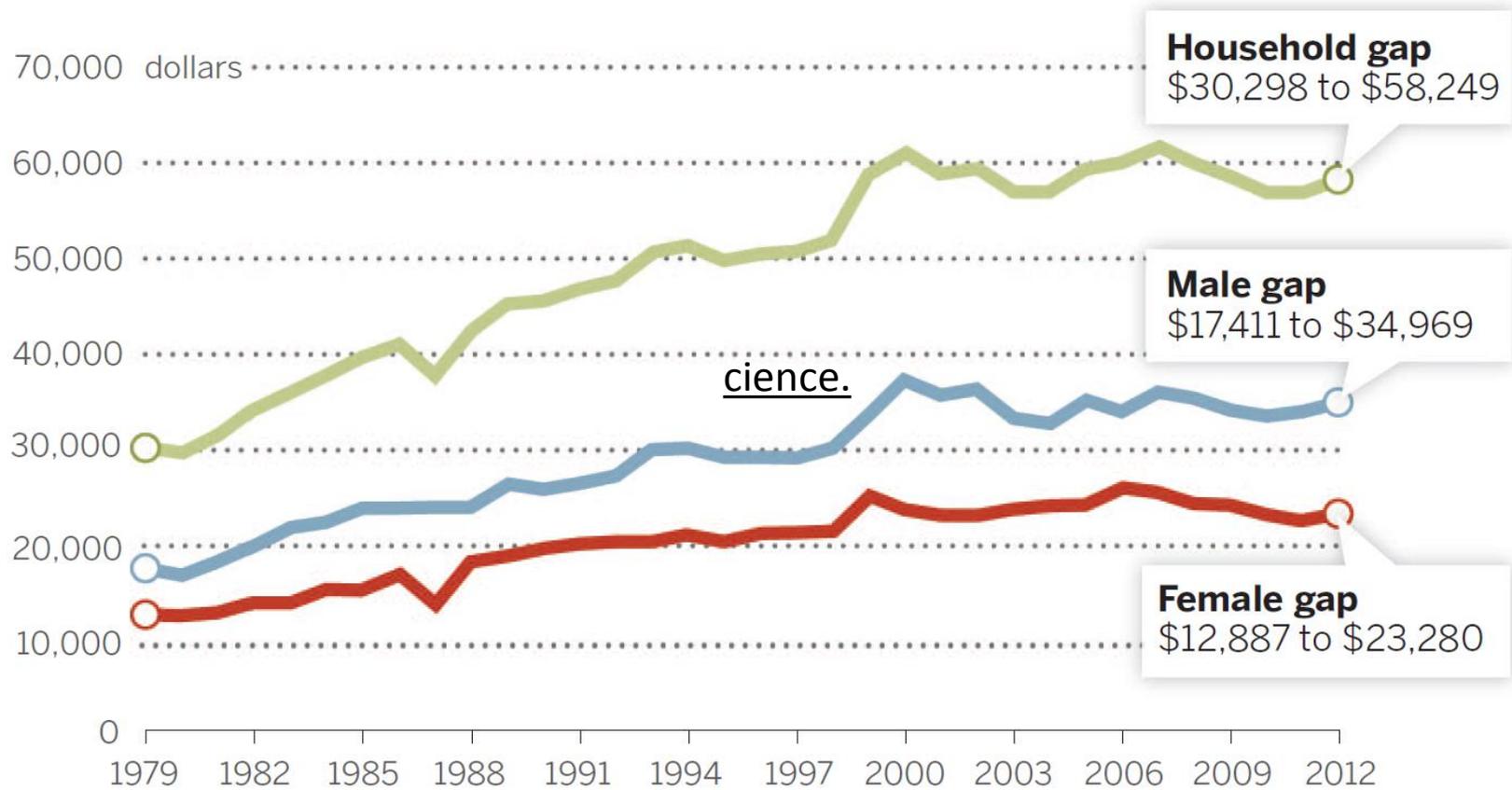
College degree vs. high school diploma weekly wage ratio, 1963–2008



Autor, "The Polarization of Job Opportunities in the U.S. Labor Markets," The Hamilton Project.

# College/high school median annual earnings gap, 1979–2012

In constant 2012 dollars



# Model for understanding “skill premium”

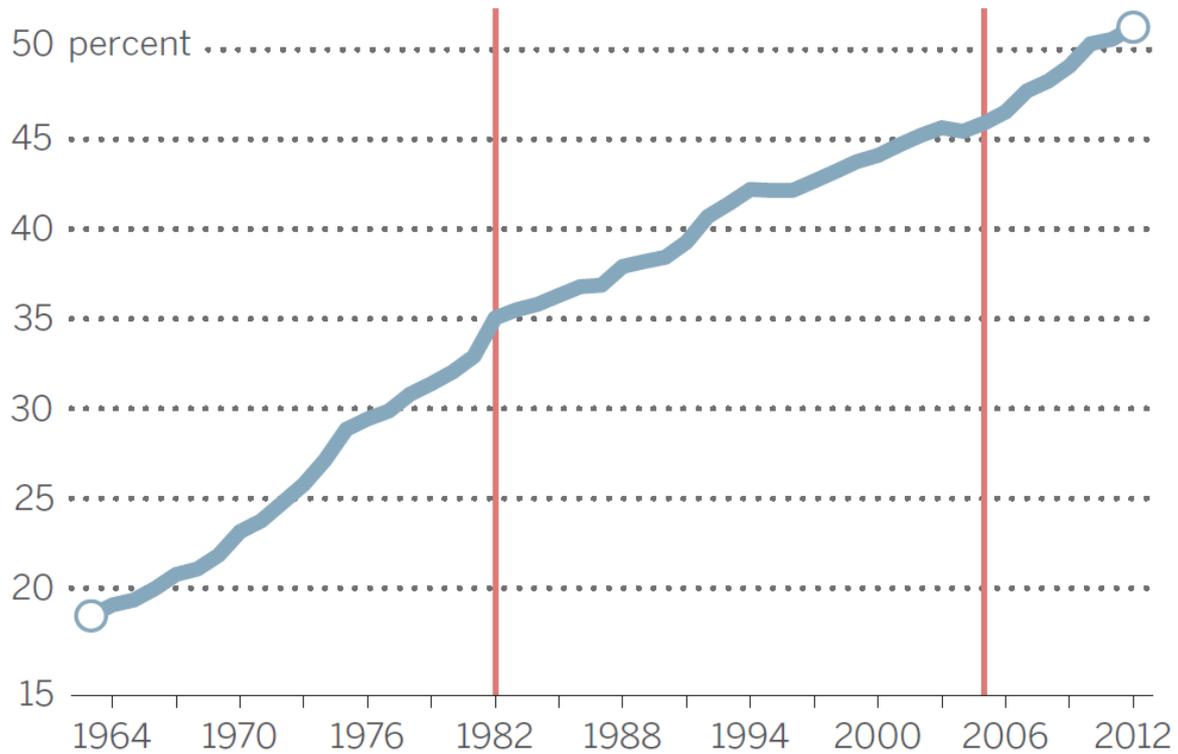
- Suppose there is unskilled and skilled labor → then we can study the determinants of D & S of skilled (relative to unskilled) labor and the price (wage) of skilled relative to unskilled labor
- Market compensation depends on the
  - Skill demand: what employers require
  - Skill supply: what skills workers acquire
- “Skill premium” comes out of these interactions
- As in basic S & D model, if increases in demand outpace increases in supply then wages rise. If increases in supply outpace increases in demand then wages fall
- The same is true for relative wages (and relative D and S)
- Do graph on board

# Factors affecting D and S

- Demand:
  - Over last 100 years innovation has led to reduction in demand for physical labor (technological change)
  - In recent decades the process of machine substitution for routine human tasks has reduced demand for those doing routine tasks (where workers are substitutes) and increased the demand for those who excel in more abstract tasks (where workers are complements)
- Supply:
  - Trends in education; gains slowed in 1980s
- Bottom line: if demand for skilled labor keeps increasing AND the supply of skilled labor does not keep up, then the wages of skilled labor increase.

# Trends in education

- 1960s/1970s: supply of young college educated increased rapidly relative to high school educated
- Since then educational attainment slowed (still increasing), especially for men.
- Research by Goldin and Katz (2008) and others shows that more than half of the increase in wage inequality is due to the rising premium to skill (and thus the slowdown in educational attainment)



**Fig. 3. The supply of college graduates and the U.S. college/high school premium, 1963–2012. (A)** College share of hours worked in the United

# Trends more compelling when you look at new labor market entrants

FIGURE 9

College degree vs. high school diploma log relative supply, 1963–2008

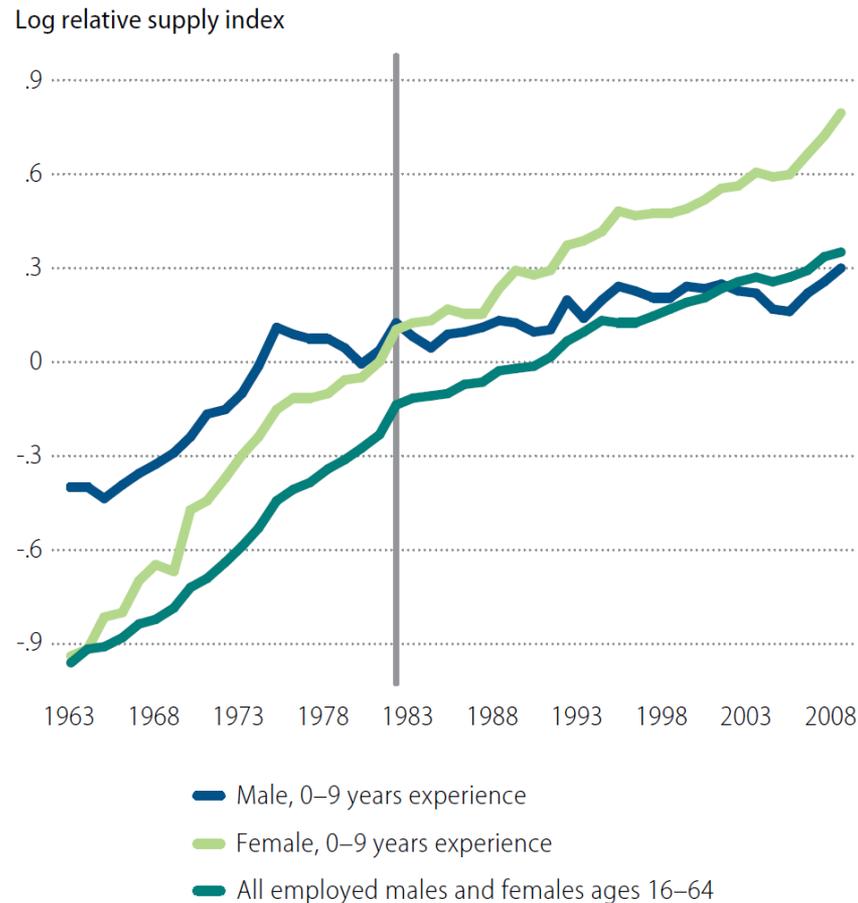
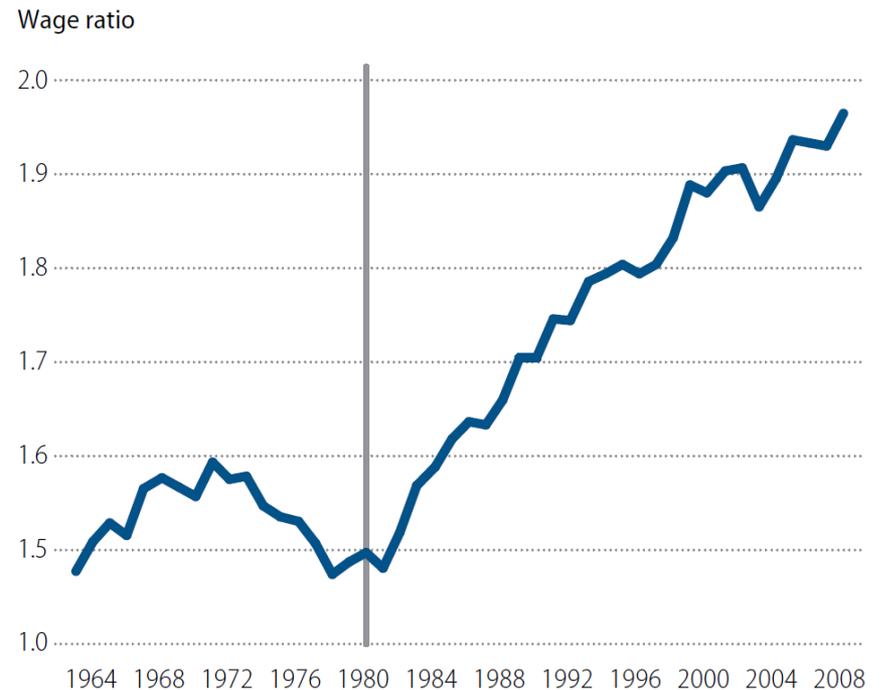


FIGURE 10

College degree vs. high school diploma weekly wage ratio, 1963–2008



Source: March CPS data for earnings years 1963–2008. Log weekly wages for full-time, full-year workers are regressed in each year on four education dummies (high school dropout, some college, college graduate, greater than college), a quartic in experience, interactions of the education dummies and experience quartic, and two race categories (black, nonwhite other). The composition-adjusted mean log wage is the predicted log wage evaluated for whites at the relevant experience level (5, 15, 25, 35, 45 years) and relevant education level (high school dropout, high school graduate, some college, college graduate, greater than college). The mean log wage for college and high school is the weighted average

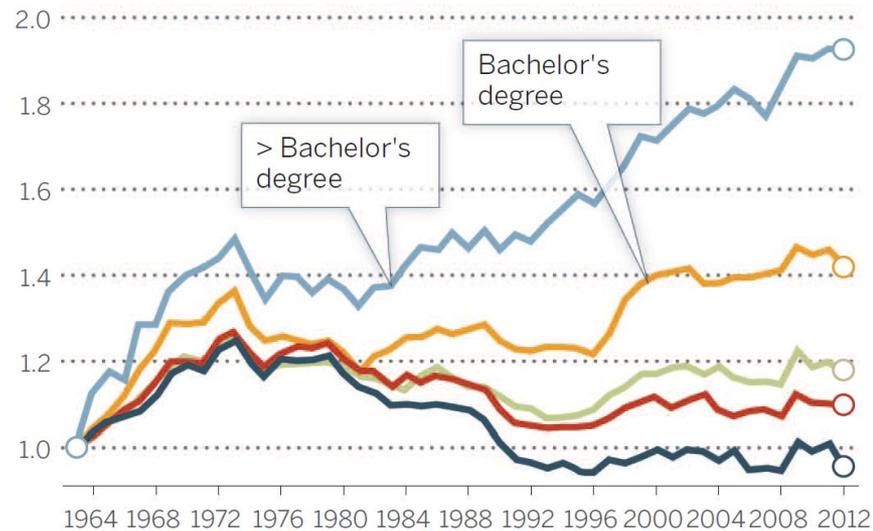
In addition to trends in relative wages, non-college workers are experiencing reductions in real wage levels

- Increases in the skill premium are coming from gains for high skill and fall for low skill
- What is leading to reductions in real wages for less skilled workers?
  - Technological change (as above)
  - Globalization: Chinese manufacturing gains led to reduction in manufacturing in the US and thus declines in wages in those industries
  - Fall of unions
  - Fall in real value of minimum wages

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

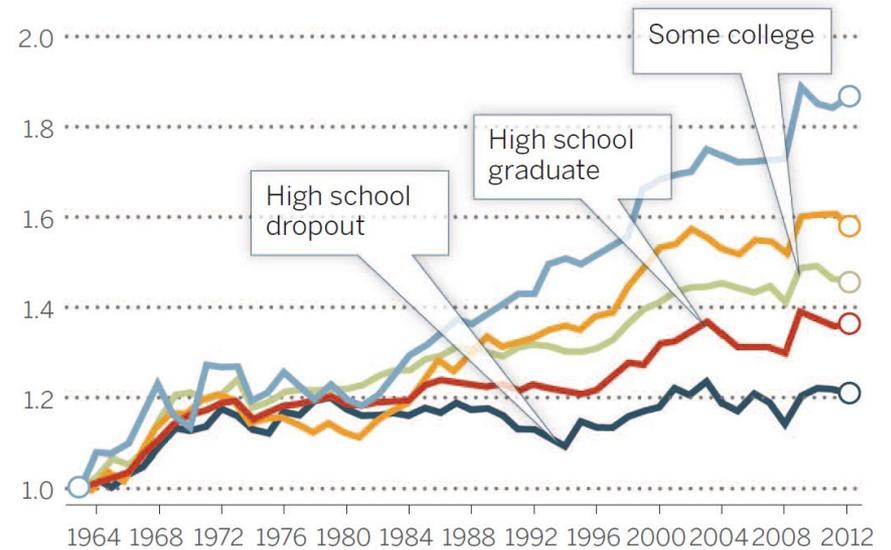
Real weekly earnings relative to 1963 (men)

**A**



Real weekly earnings relative to 1963 (women)

**B**



**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.

# The result

- Employment growth is “polarizing” into relatively high-skill, high-wage jobs and low-skill, low-wage jobs (Autor, THP) [at the expense of middle skill jobs]

FIGURE 1

## Smoothed changes in employment by occupational skill percentile, 1979–2007

Change in employment share

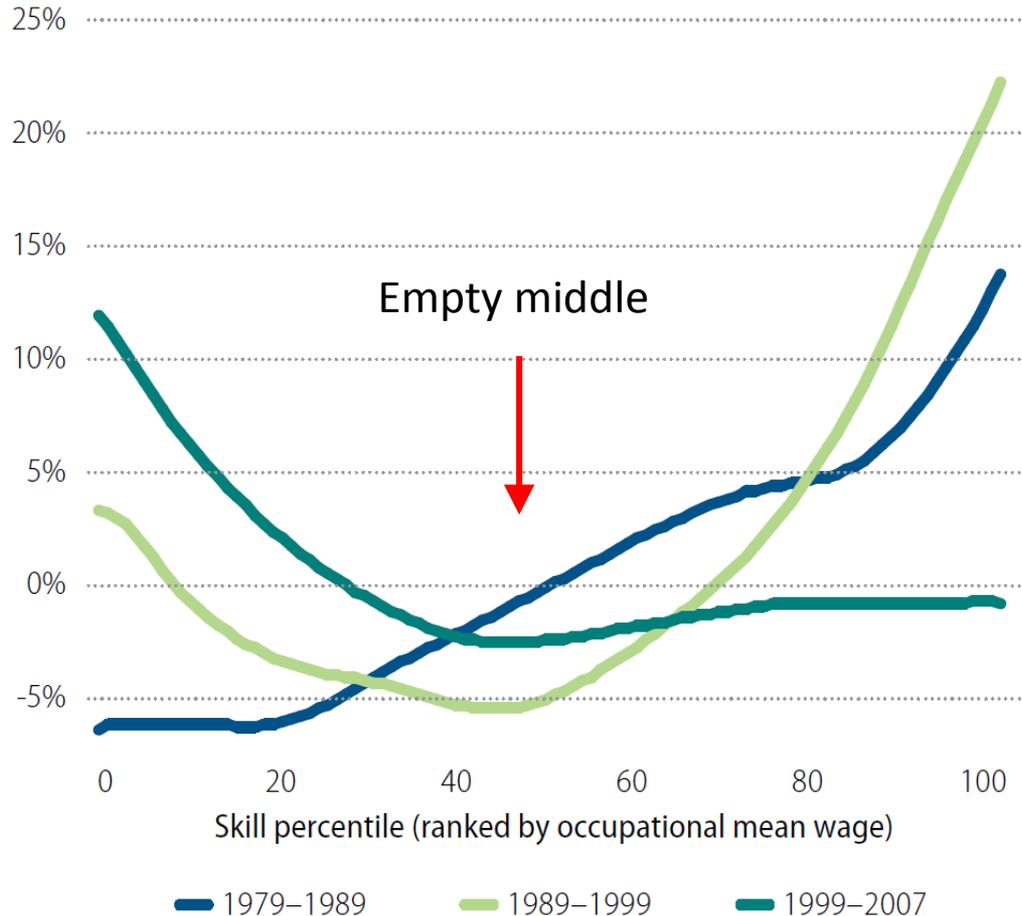
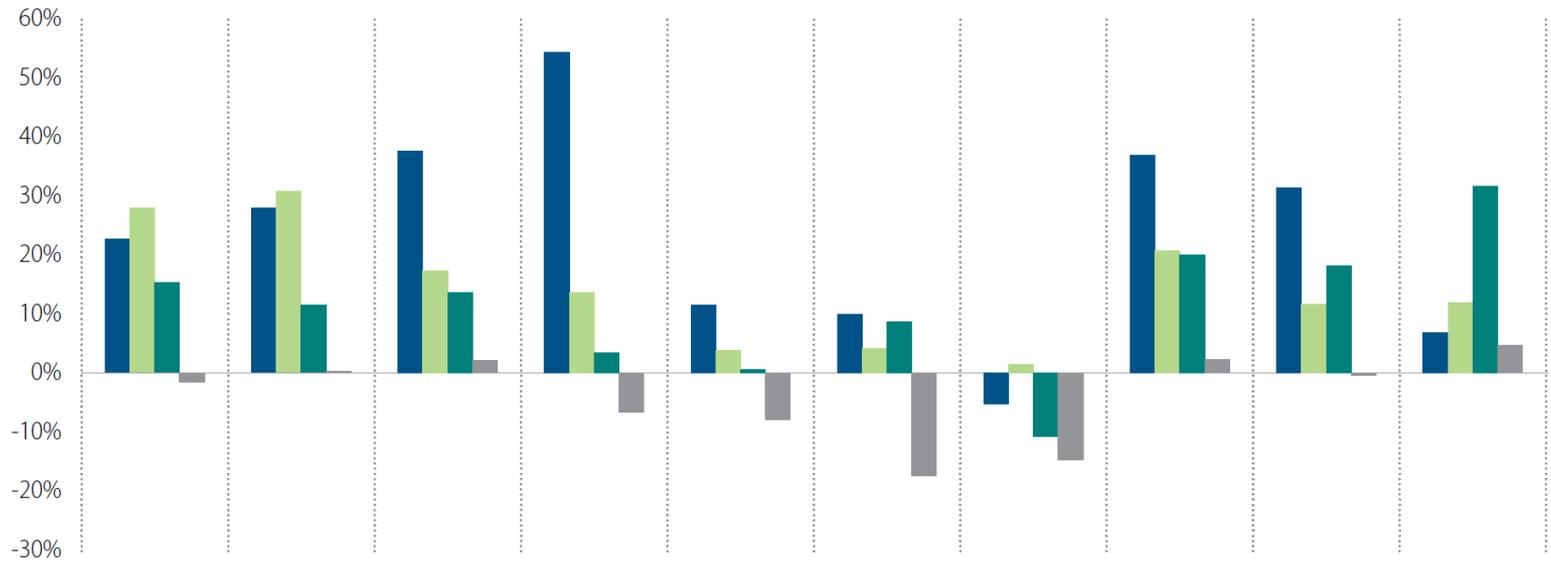


FIGURE 3

## Percentage point change in employment by occupation, 1979–2009

Percentage change in employment

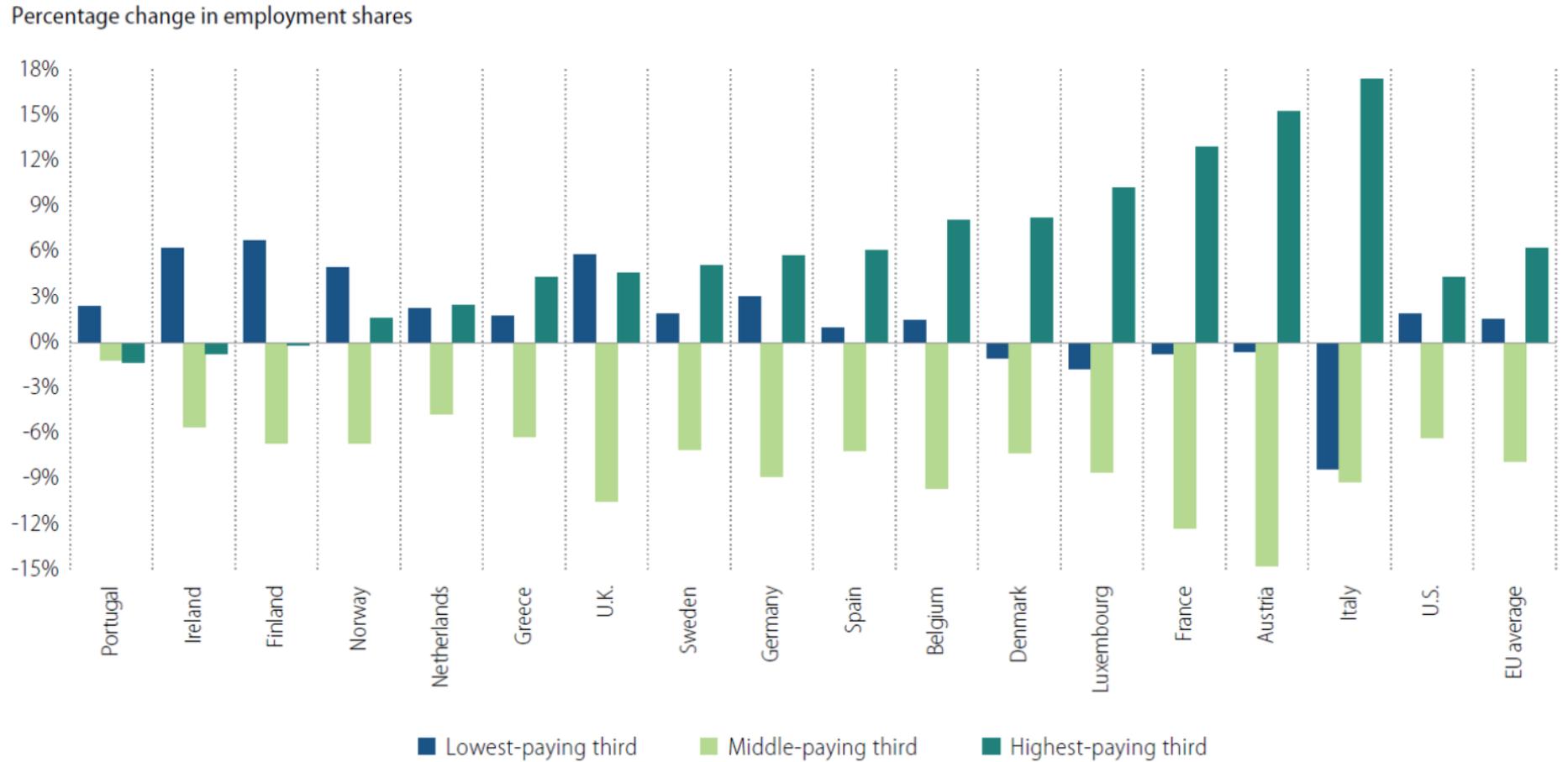


	Managers	Professionals	Technicians	Sales	Office and admin	Production, craft, and repair	Operators, fabricators, and laborers	Protective services	Food prep, building and grounds cleaning	Personal care and personal services
■ 1979–1989	22%	28%	37%	54%	11%	10%	-5%	36%	31%	7%
■ 1989–1999	27%	30%	17%	14%	3%	4%	1%	20%	11%	12%
■ 1999–2007	15%	11%	14%	4%	1%	8%	-11%	20%	18%	31%
■ 2007–2009	-1%	0%	2%	-7%	-8%	-17%	-15%	2%	0%	5%

Growth at high and low skills but not in middle skills. These patterns are worse for men, and not quite as bad for women (Fig 4)

Autor, “The Polarization of Job Opportunities in the U.S. Labor Markets,” The Hamilton Project.

FIGURE 6  
 Change in employment shares by occupation in 16 European countries  
 Occupations grouped by wage tercile: Low, middle, high, 1993–2006



Autor, "The Polarization of Job Opportunities in the U.S. Labor Markets," The Hamilton Project.

# Author THP “Polarization” – Key forces

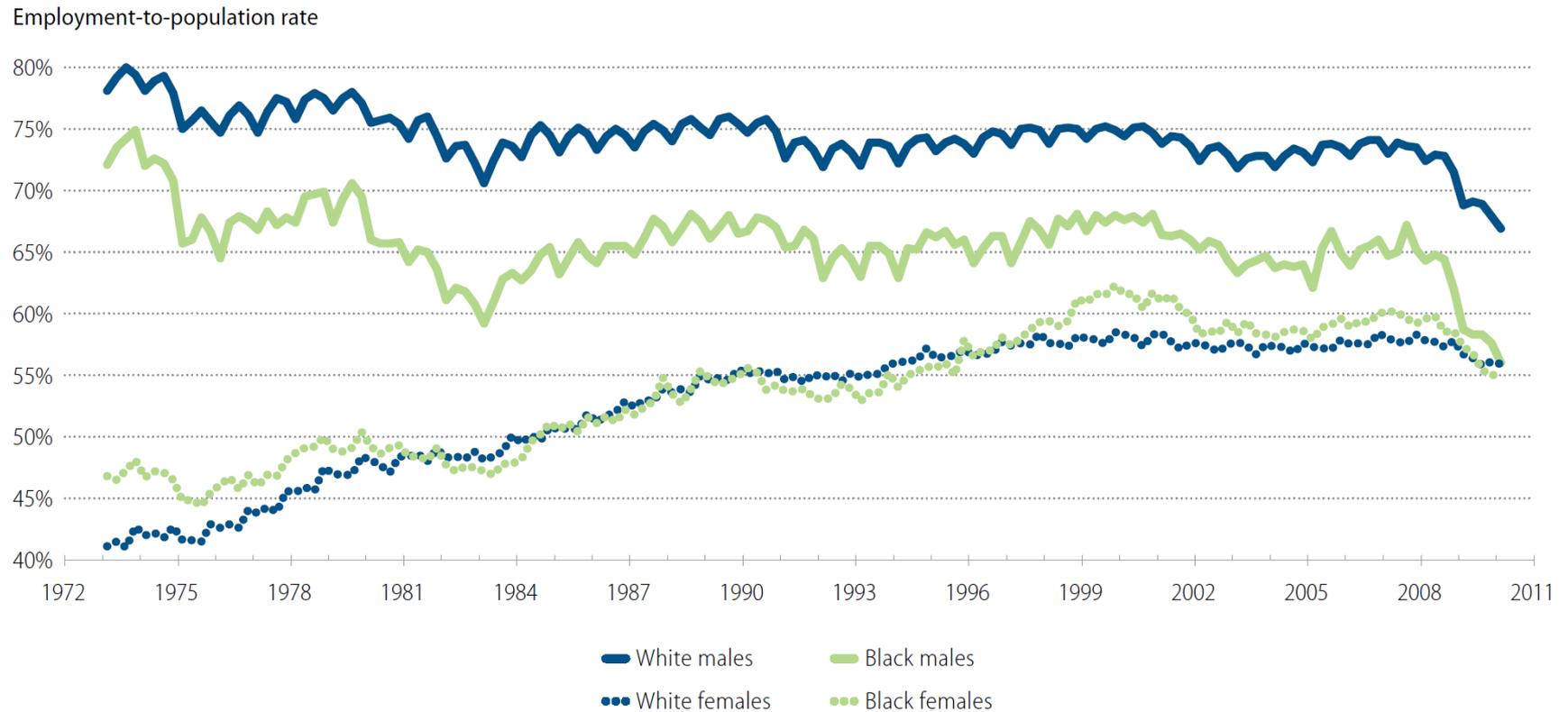
1. The slowing rate of four-year college degree attainment among young adults, particularly males
2. Changes in technology, international trade, and the international offshoring of jobs, which affect job opportunities and skill demands
3. Changes in U.S. labor market institutions affecting wage setting, including labor unions and minimum wage legislation

- Implication (or contributor to?) of these trends is an increase in nonemployment
- Discussed in B. Applebaum NYT piece

# Non-employment rising

FIGURE 7

Employment-to-population rates among black and white males and females, ages 20+, 1973–2010



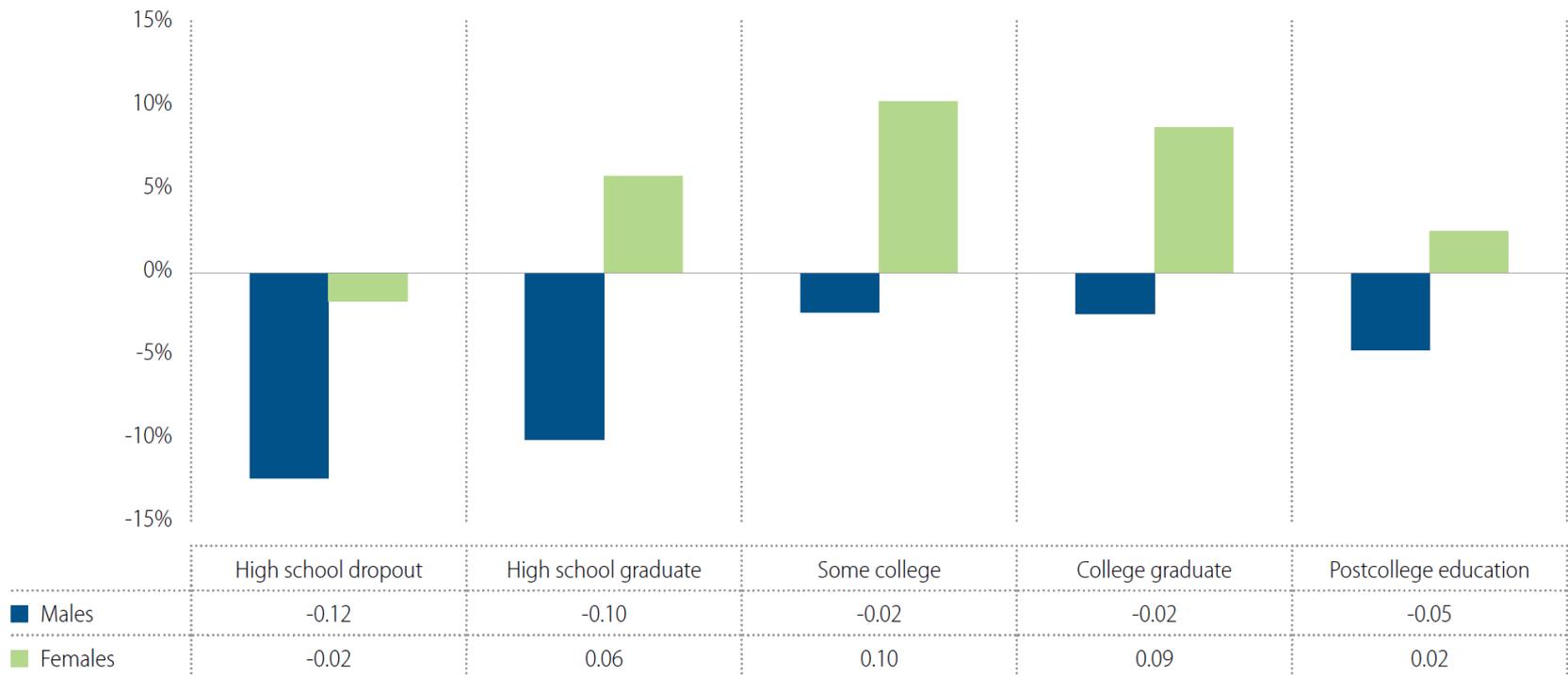
Autor, "The Polarization of Job Opportunities in the U.S. Labor Markets," The Hamilton Project.

# Non-employment

FIGURE 8A

Changes in employment to population rates by education and sex, 1979–2007

Percentage change in employment to population rate



# Appelbaum NYT piece

- Isolation of no work easier with internet?
- Rise of federal disability leave?
- Low pay: “44 percent of men in the survey said there were jobs in their area they could get but were not willing to take”
- But “[Larry] Katz, the Harvard economist, said, however, that some men might choose to describe themselves as unwilling to take low wage jobs when in fact they cannot find any jobs. There are about 10 million prime age men who are not working, but there are only 4.8 million job openings for men and women of all ages, according to the most recent federal data
- <http://www.nytimes.com/interactive/2014/12/12/upshot/where-men-arent-working-map.html?abt=0002&abg=0>

# Policy implications of this argument

- Minimum wages
- Promote unionization
- Promote skills: Pre-K, K-12
- Increase college access
- Funded perhaps with higher MTR

# Causes of Poverty and Inequality: Family Structure

Hilary Hoynes

PP290

# Outline of lecture

1. Facts: trends in marriage
2. Forces shaping marriage and family structure
3. Decomposing trends in poverty  
(demographics versus other factors)

# Facts

- Births to unmarried women has increased for all race / ethnicities in the U.S.
- The SES gap (education) in marriage is widening

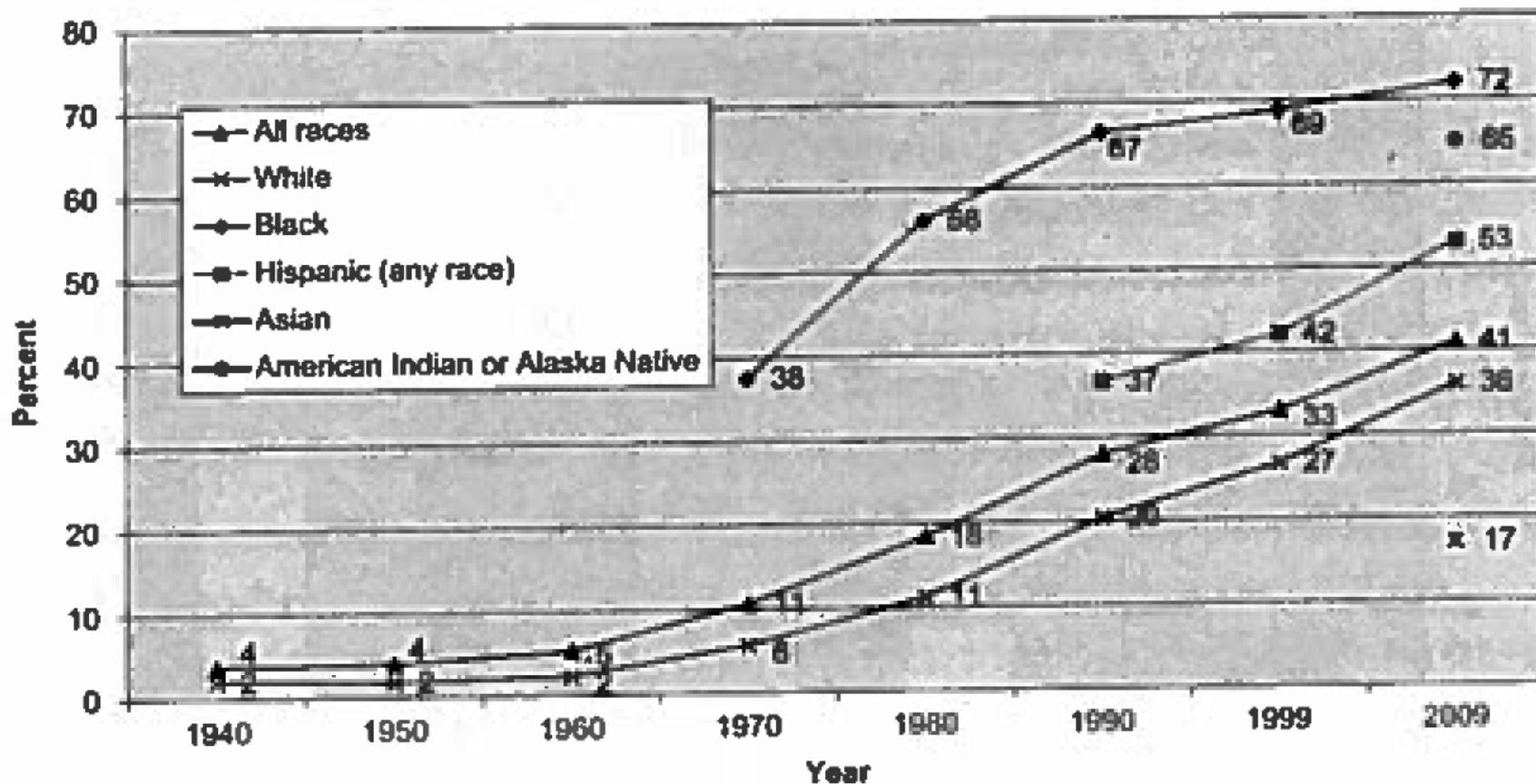
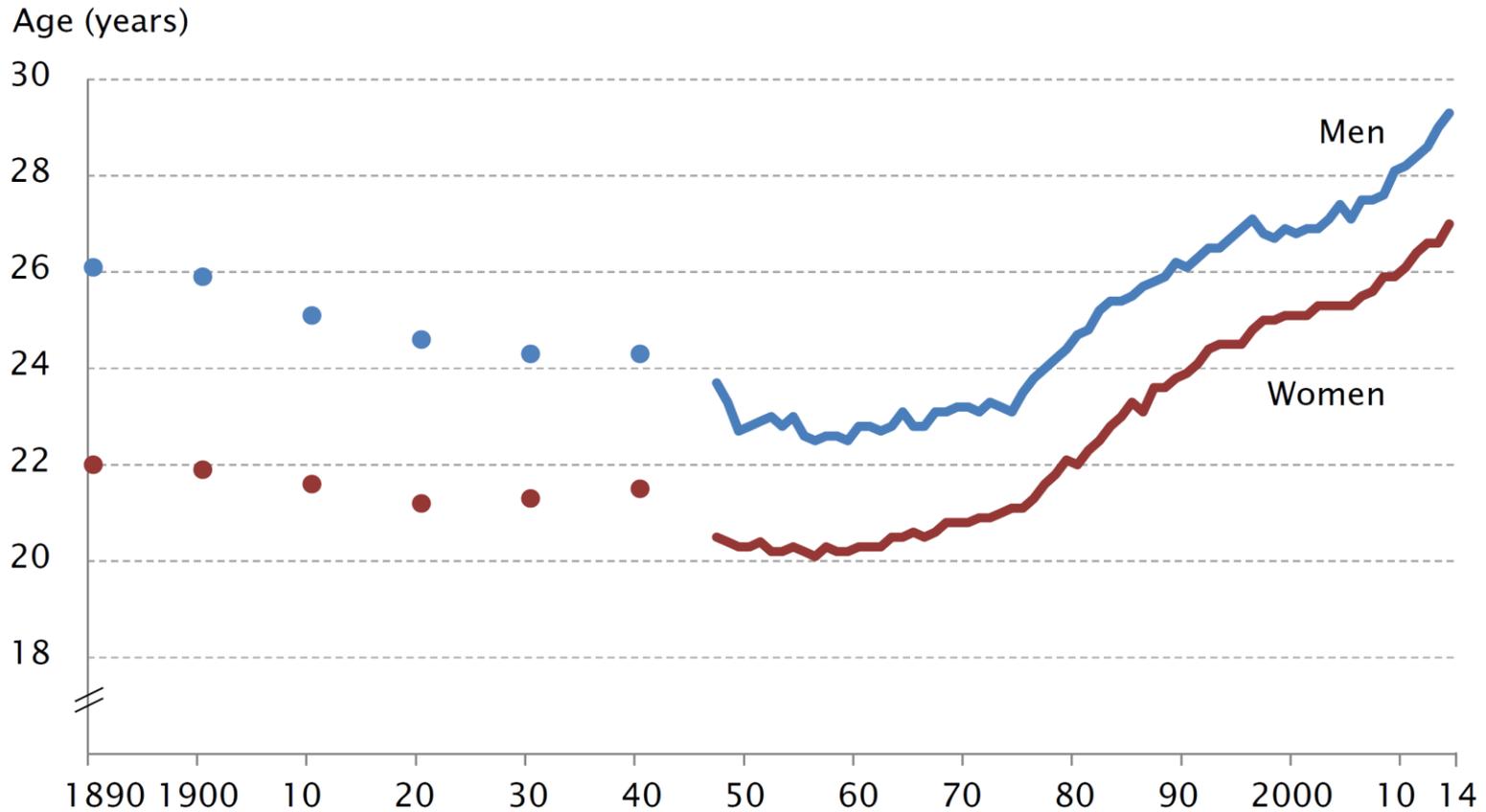


FIGURE 19. Percentage of Births to Unmarried Women by Race and Hispanic Origin, 1940–2009. SOURCE: Ventura and Bachrach 2000; Martin et al. 2011.

# Figure MS-2

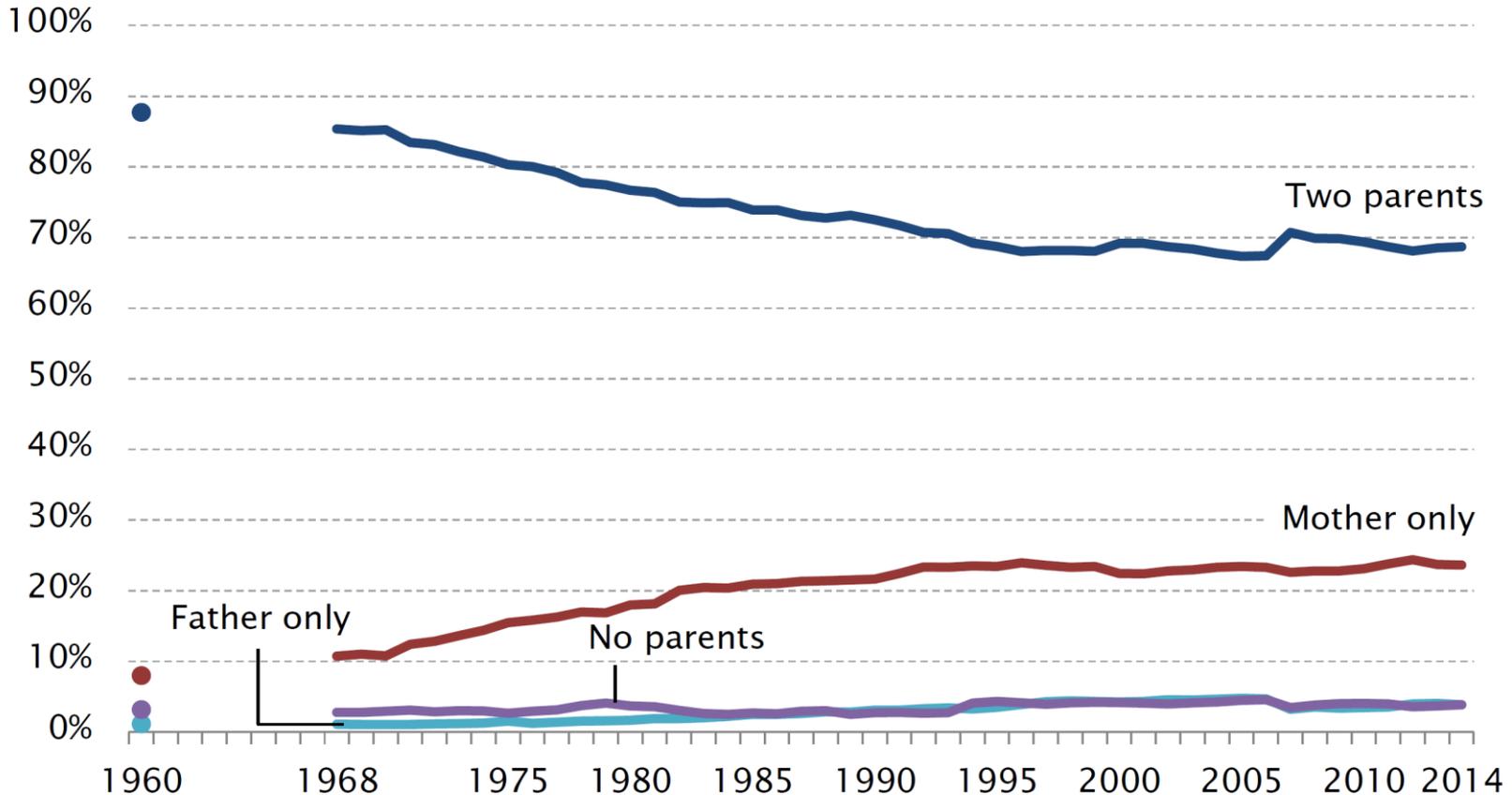
## Median age at first marriage: 1890 to present



Source: U.S. Census Bureau, Decennial Censuses, 1890 to 1940, and Current Population Survey, Annual Social and Economic Supplements, 1947 to 2014.

# Figure CH-1

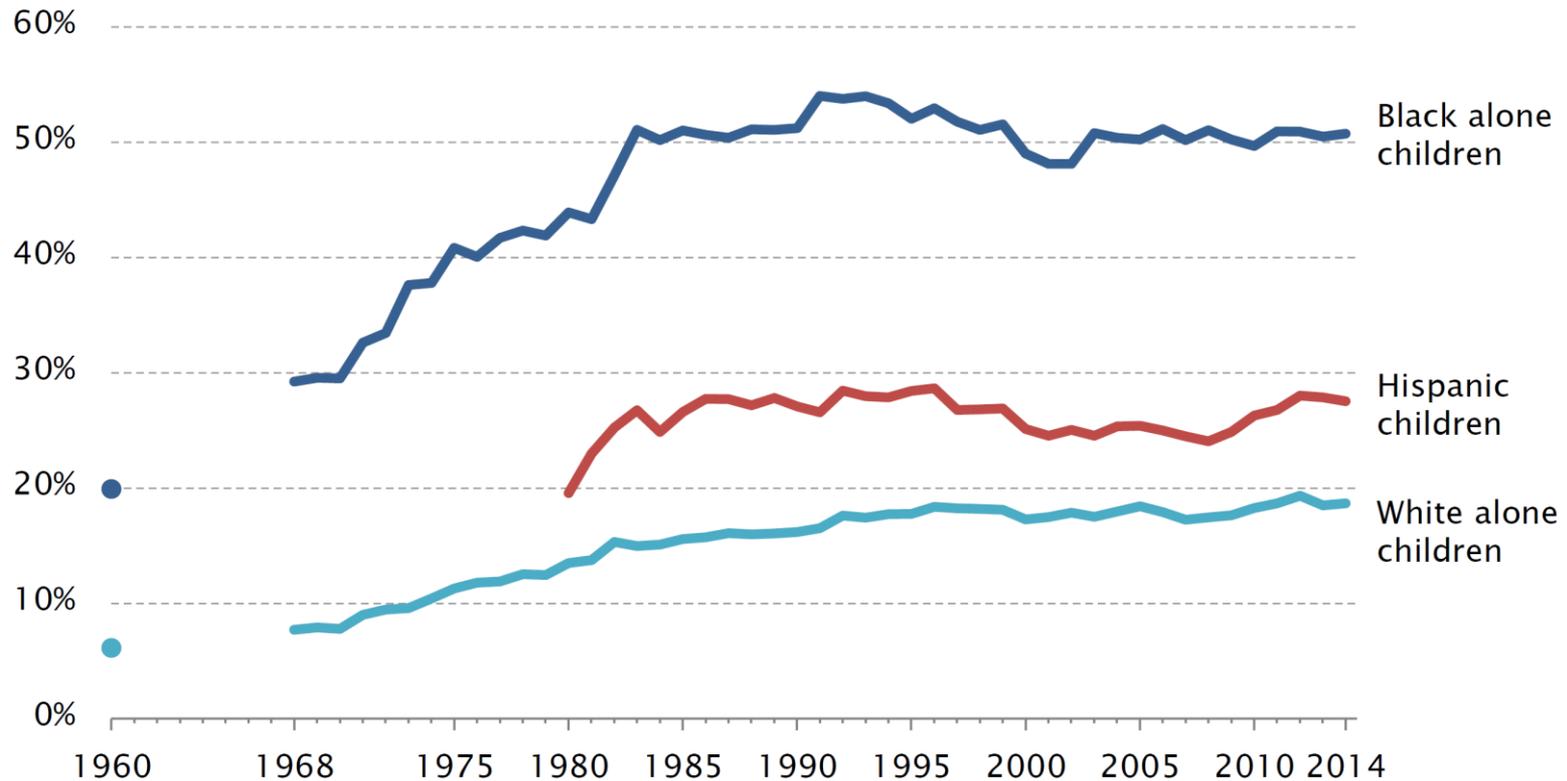
## Living arrangements of children: 1960 to present



Source: U.S. Census Bureau, Decennial Census, 1960, and Current Population Survey, Annual Social and Economic Supplements, 1968 to 2014.

Note: Direct identification of both parents began in 2007, resulting in the ability to identify children living with two unmarried parents.

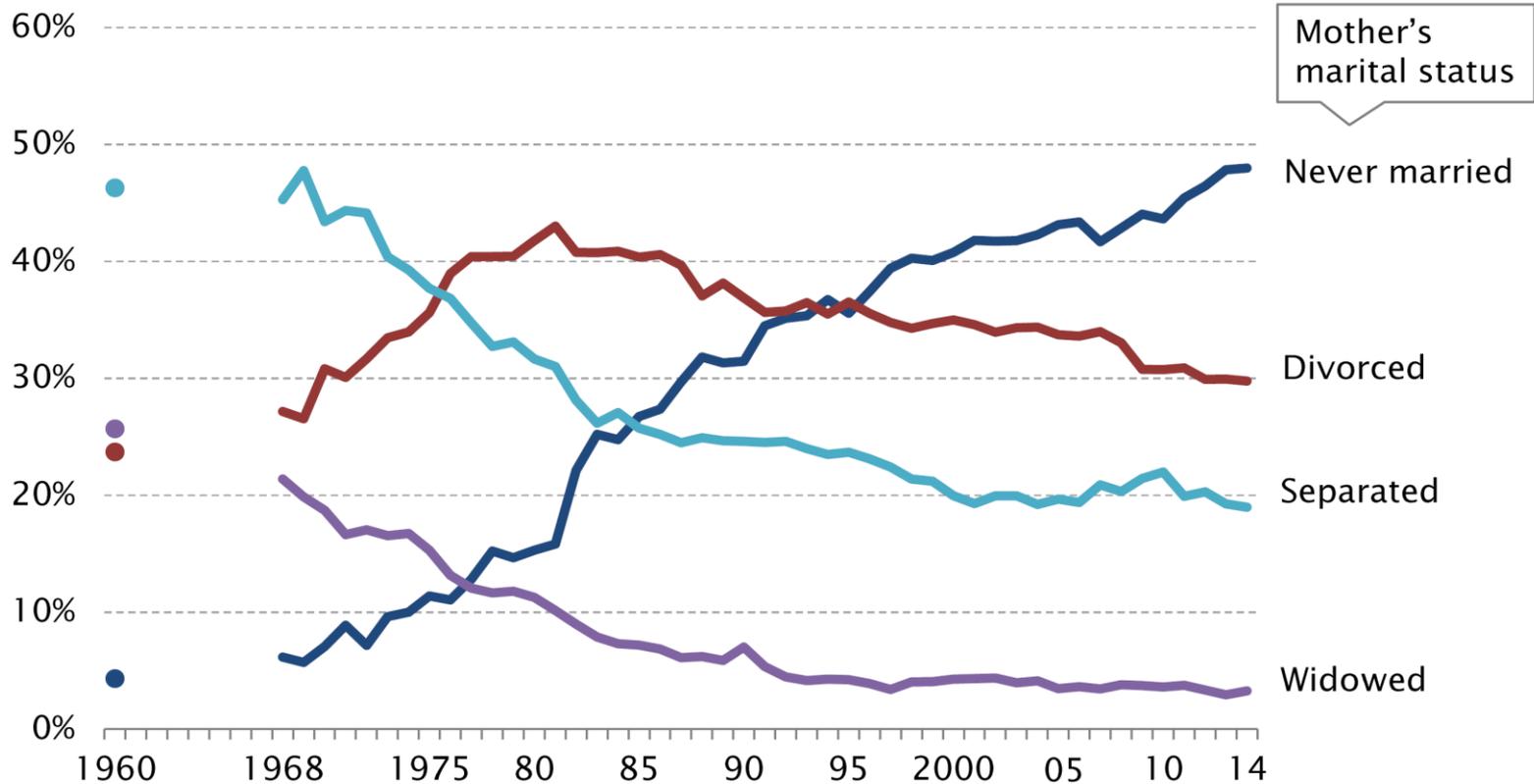
## Figure CH-2.3.4 Children under 18 living with their mother only



*Source:* U.S. Census Bureau, Decennial Census 1960, and Current Population Survey, Annual Social and Economic Supplements 1968 to 2014.

*Notes:* Direct identification of both parents began in 2007, resulting in the ability to identify children living with two unmarried parents. The collection of race and Hispanic origin has changed over time. Before 2003 respondents had to select a single race. People of Hispanic origin may be of any race.

# Figure CH-5 Children under 18 living with their mother only



Source: U.S. Census Bureau, Decennial Census, 1960, and Current Population Survey, Annual Social and Economic Supplements, 1968 to 2014.

Note: Separated includes married spouse absent. Direct identification of both parents began in 2007, resulting in the ability to identify children living with 2 unmarried parents.



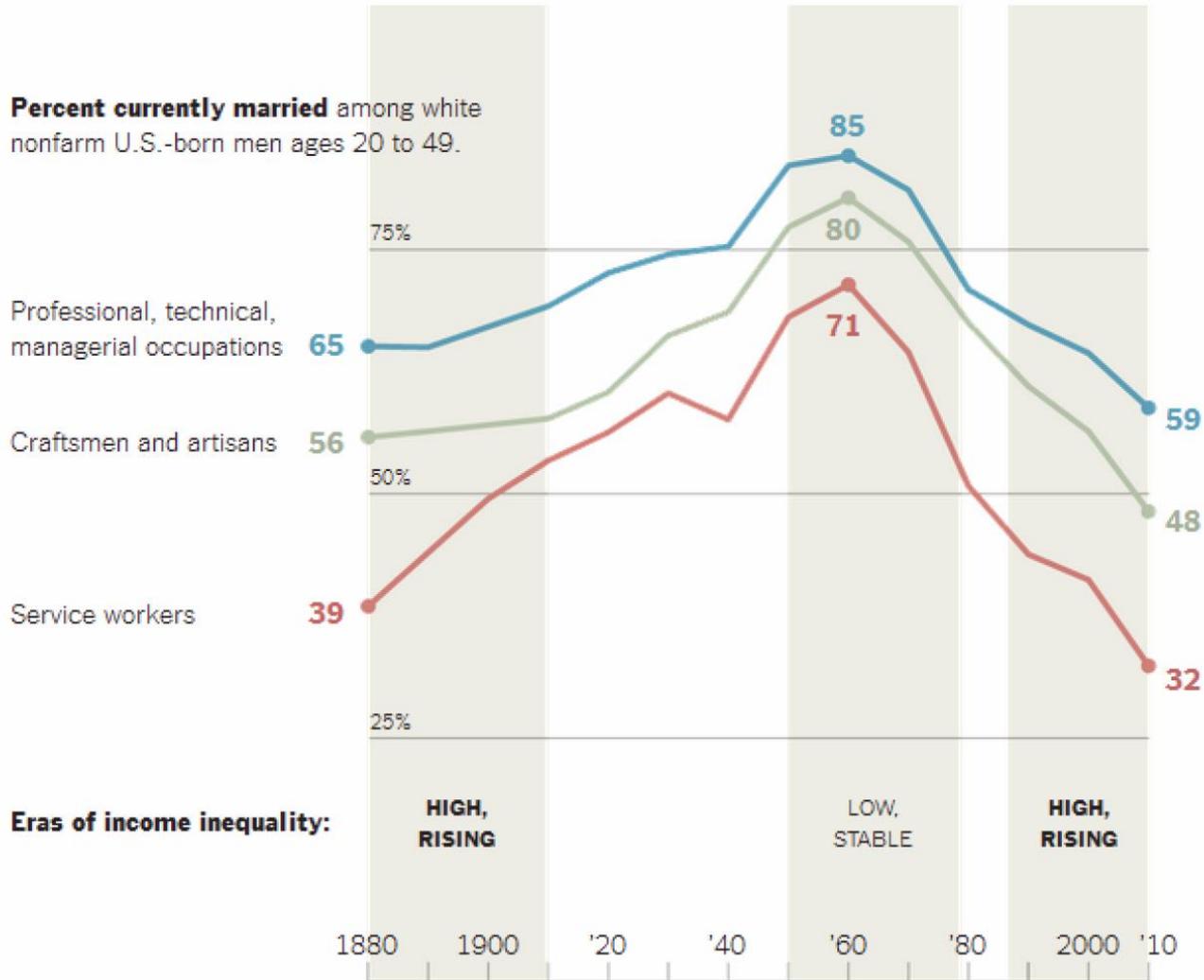
- This is important because poverty rates of single parent families are much higher than for two parent families
- Child outcomes are also worse
- However, this is not necessarily causal and could be due to other factors that are correlated with these choices

- Andrew Cherlin shows that the trends in marriage are related to trends in inequality
- “digging into historical census records shows that social class differences in marriage have been tied to the extent of income inequality among white Americans for at least 130 years.”

## Inequality at the Altar

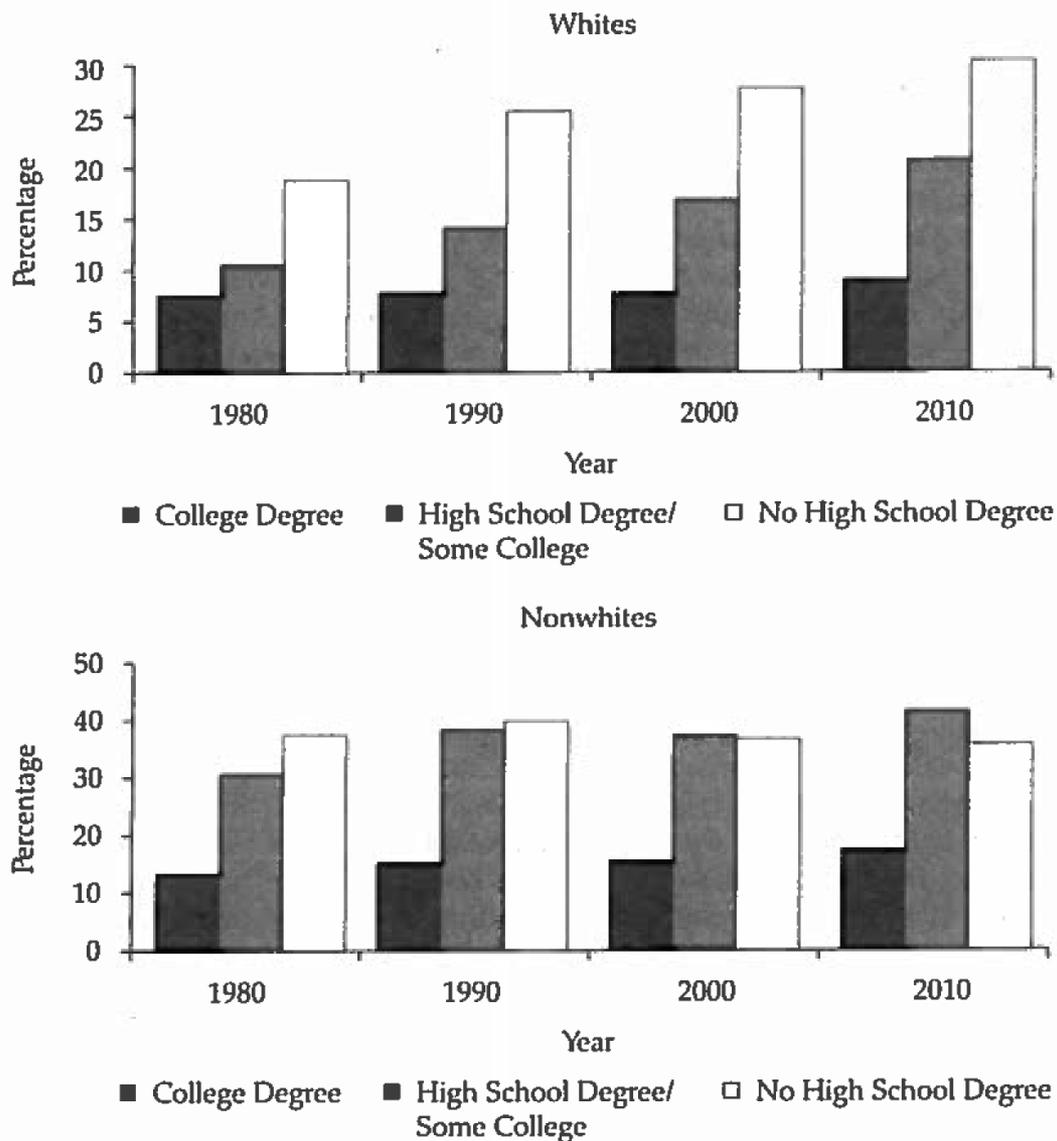
The gap in marriage rates has been widest when income inequality was highest.

**Percent currently married** among white nonfarm U.S.-born men ages 20 to 49.



Source: Integrated Public Use Microdata Series, University of Minnesota

Figure 5.2 Children Living with an Unmarried Mother, by the Mother's Education, 1980–2010



Source: My tabulations, pursuant to Stykes and Williams (2013), from the IPUMS data.

Source: Cherlin  
*Loves Labor Lost*

# Forces shaping marriage

- Unmarried couples with children – obstacles to marriage
  1. Concerns about financial stability
  2. Relationship quality
  3. Fear of divorce

- High SES women are delayed marriage (but delaying childbearing even further)
- Low SES women are delaying marriage (or avoiding it all together) but are not delaying childbearing

# How does this play out among lower income women

- “Relationship churning” (Kathryn Edin)
- Edin found no evidence that marriage held less meaning; but aspirational, luxury, dream to aspire to
- Yet Edin found children to be a necessity and an essential part of a women’s life
- Reluctance to marry shows reverence for it
- Marriage after financial goals have been met (including own career) and with financial security
- With the decline in labor market opportunities for low skill men, the rewards to marriage have declined

### 3. Decomposition

- Last week we saw that poverty rates vary by group with higher rates if: single parent, low education levels, etc
- Given trends over time in these factors, how much of the changes in poverty over time can be attributed (in an accounting sense) to the changes in the population in the U.S.?
- Decomposition or Oaxaca decomposition

# Notes from Handout

- Classic discrimination application
- Then apply to poverty

# Results

- 1959-1979: poverty fell by 10pp
  - On net demographics serve to decrease poverty
  - Leading to reduction: education increases, family size declines
  - Leading to increases: single parent increases
- 1979-2013: poverty rose by 3pp
  - Demographic effects are neutral (educational gains slowed) or contribute to the increase
- However the decomposition shows that a small quantitative share of the changes over time are due to these factors.
- Bivens et al (2014) find that of the 1979-2013 period rise of 3pp, demographic change -0.7pp, economic growth -3.4pp, inequality +7.4pp

## Model for Discrimination

Suppose you observe wages for men  $w_m$  and for women  $w_f$

$\Delta\bar{w}$  is the difference in mean wages

The goal is to decompose the raw wage differential into:

(1) portion due to differences in skills

(2) portion due to discrimination, or difference in wages net of skills

Let the wages be represented by the following model:

$$w_m = \alpha_m + \beta_m s_m$$

$$w_f = \alpha_f + \beta_f s_f$$

where  $s$  = schooling (could be a vector  $X$ )

Given that OLS goes through the mean of X and Y, we can then substitute fitted values of both equations into  $\Delta\bar{w}$

$$\Delta\bar{w} = \bar{w}_m - \bar{w}_f = \hat{\alpha}_m + \hat{\beta}_m\bar{s}_m - (\hat{\alpha}_f + \hat{\beta}_f\bar{s}_f) = (\hat{\alpha}_m - \hat{\alpha}_f) + \hat{\beta}_m\bar{s}_m - \hat{\beta}_f\bar{s}_f$$

If you add and subtract  $\hat{\beta}_m\bar{s}_f$  and rearrange you get

$$\Delta\bar{w} = \bar{w}_m - \bar{w}_f = (\hat{\alpha}_m - \hat{\alpha}_f) + (\hat{\beta}_m - \hat{\beta}_f)\bar{s}_f + \hat{\beta}_m(\bar{s}_m - \bar{s}_f)$$

observed change = due to discrimination + due to diff skills

Different skills = difference in skills ( $\bar{s}_m - \bar{s}_f$ ), valued at the “price” per skills (as per regression model)  $\hat{\beta}$ .

Discrimination = female skills ( $\bar{s}_f$ ), valued at the difference in “price” per skills (between the male and female regression model).

NOTE: This decomposition is not unique. You could value at female regression beta rather than male. Also, can do it as an average across them.

## Applying this decomposition approach to understanding trends in poverty

1959-1979 poverty fell by 10pp

1979-2013 poverty increased by 3pp

Question: what would have happened to the evolution of poverty if the only changes that occurred were in the demographic composition of the population and each group's poverty rate was unchanged (e.g. share female headed household increased, but the poverty rate for single and married stays at a constant value)

Let  $Y$  be poverty and  $X$  be demographic categories (e.g.  $X=1$  if single mother, 0 otherwise):

$$Y_{79} = \alpha_{79} + \beta_{79}X_{79}$$

$$Y_{59} = \alpha_{59} + \beta_{59}X_{59}$$

The decomposition of the change in poverty is:

$$\Delta \bar{Y} = \bar{Y}_{79} - \bar{Y}_{59} = \underbrace{(\hat{\alpha}_{79} - \hat{\alpha}_{59}) + (\hat{\beta}_{79} - \hat{\beta}_{59})\bar{X}_{59}}_{\text{coefficient effect}} + \underbrace{\hat{\beta}_{79}(\bar{X}_{79} - \bar{X}_{59})}_{\text{demographic composition effect}}$$

Observed change = coefficient effect + demographic composition effect

The decomposition of the change in poverty is:

$$\Delta \bar{Y} = \bar{Y}_{79} - \bar{Y}_{59} = \underbrace{(\hat{\alpha}_{79} - \hat{\alpha}_{59}) + (\hat{\beta}_{79} - \hat{\beta}_{59})\bar{X}_{59}}_{\text{coefficient effect}} + \underbrace{\hat{\beta}_{79}(\bar{X}_{79} - \bar{X}_{59})}_{\text{demographic composition effect}}$$

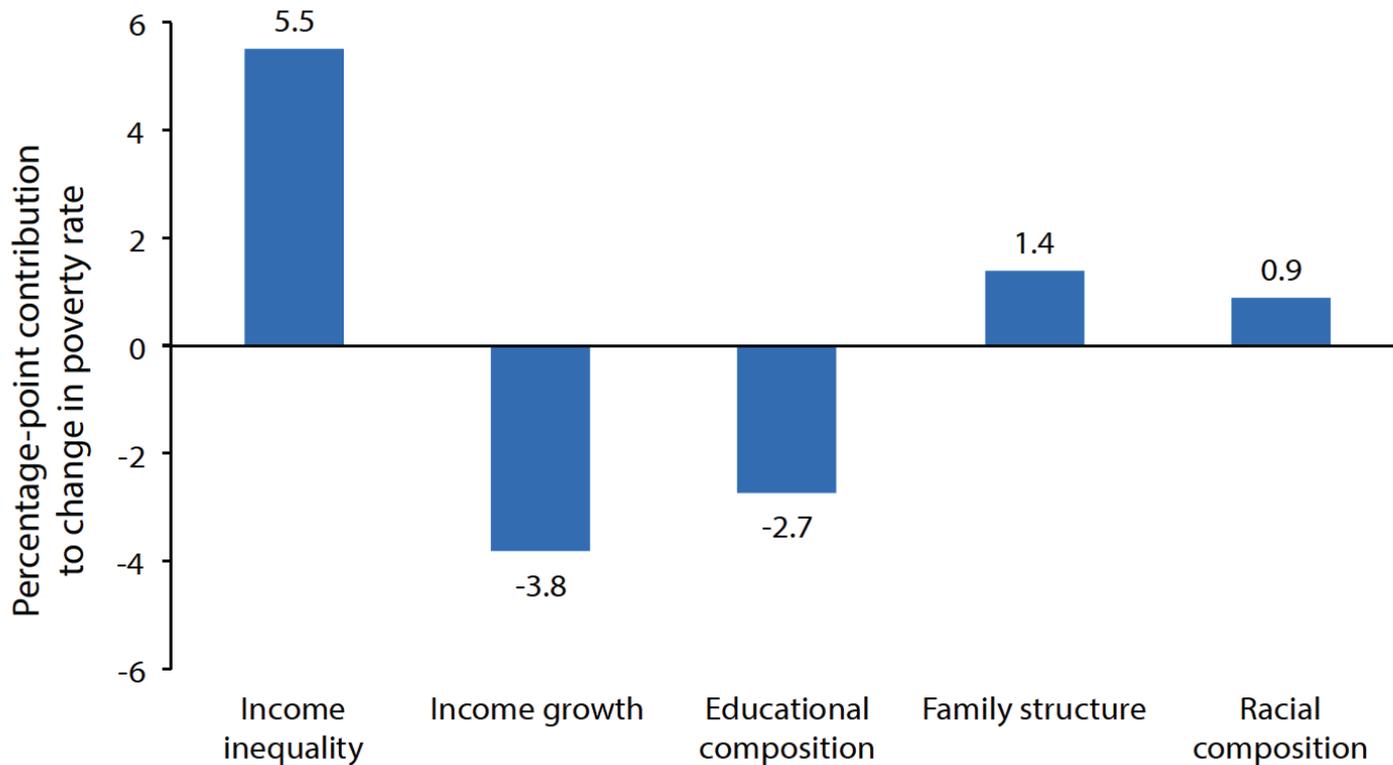
Observed change = coefficient effect + demographic composition effect

Applying this to the change in poverty:

	1959-1979	1979-2013
Actual change	---	++
Education	--	--
Age	⊖	-
Family structure	++	++
Family size	-	⊖
Race/Ethnicity	+	+

Overall, though, these factors explain very little of the changes. Something else is explaining the trends.

**Figure 7Q** Impact of changes in U.S. economic and demographic composition on the poverty rate, 1979–2007



Note: The bars show by how much the poverty rate increased or decreased due to rising income inequality, income growth across the income distribution, and changes in the education levels, family structures, and racial composition of the U.S. population.

Source: Authors' analysis of Current Population Survey Annual Social and Economic Supplement microdata. Analysis based on Danziger and Gottschalk (1995)

# Marriage and Family structure

- “Motherhood before marriage” (Edin and Kefalas)
- Low earning males undesirable marital partners
- Use figures from autor and katz on trends in wages and marriage by group
- Feedback from childhood poverty to lower education and lower adult earnings and employment: particularly strong for boys; boys raised in FHH seem to have more behavior problems; may exacerbate male disadvantage into the next gen

# Consequences of Poverty

Hilary Hoynes

PP290

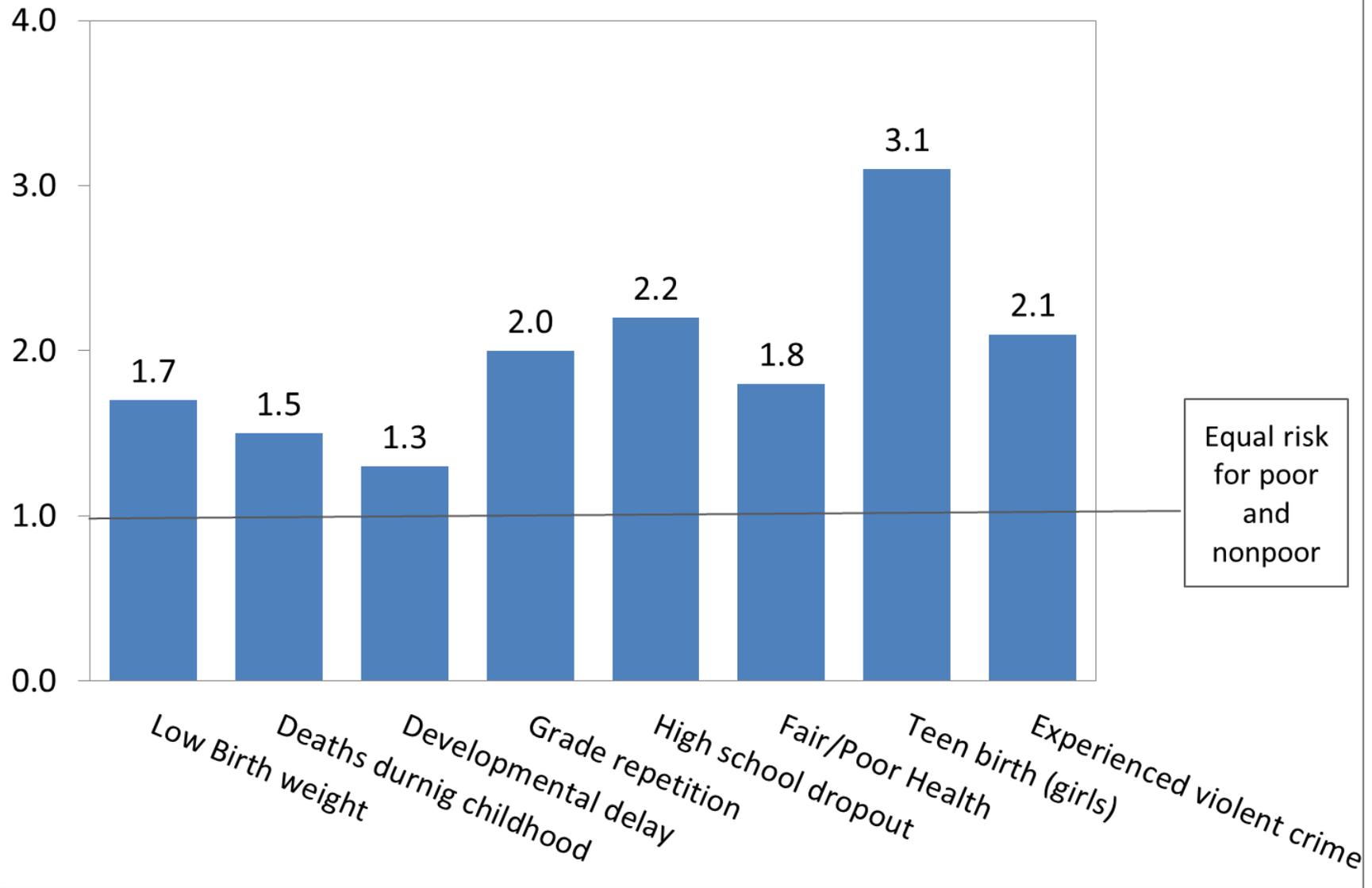
# Outline of lecture

1. Facts
2. Theories
3. Approaches to get causal estimates
4. What we know from the literature

# Children who grow up poor are more likely to

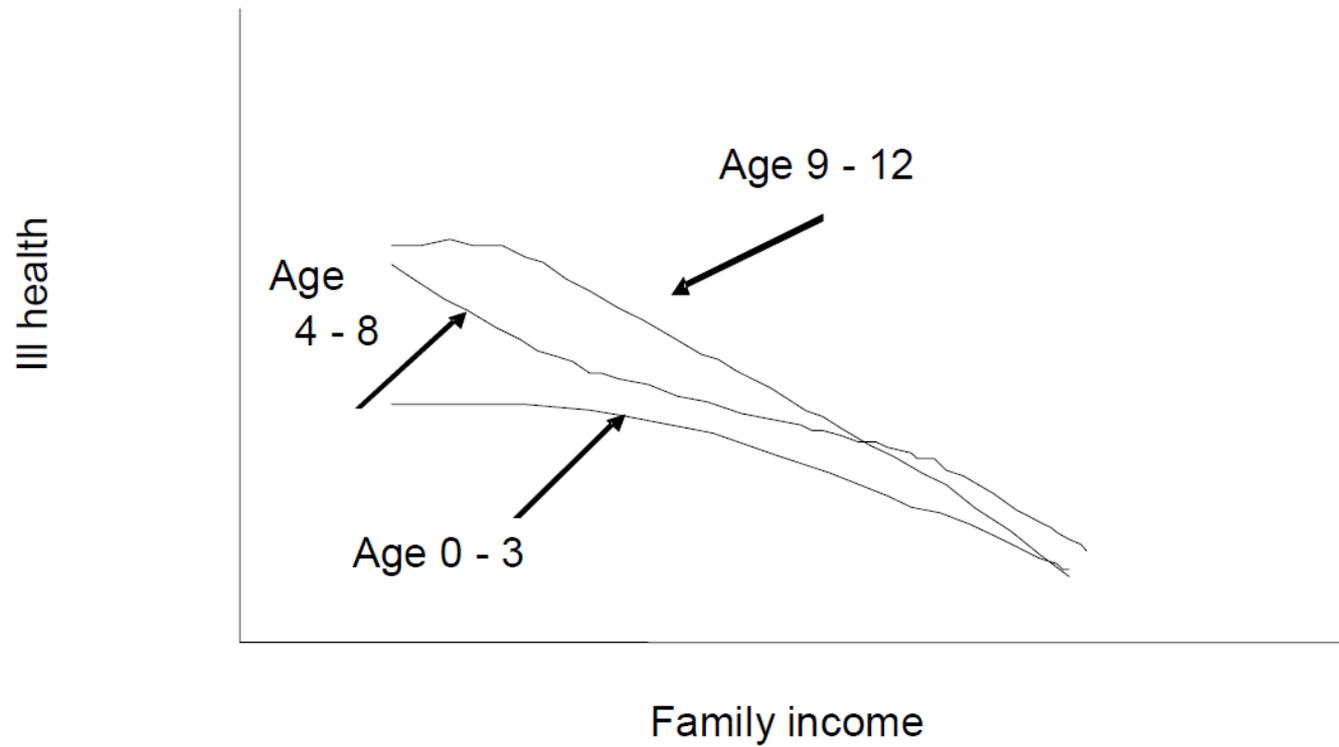
- Not attend preschool
- Perform worse in school
- Drop out of high school, have lower educational attainment
- (Girls) Have a teen birth
- (Boys) Be incarcerated
- Live in poverty as adults
- Receive government assistance as adults
- Have connection to the child welfare system
- Have worse health and shorter life expectancy

# Risk of adverse outcome for poor / nonpoor children



Source: Brooks-Gunn and Duncan "The Effects of Poverty on Children," *The Future of Children*, 1997.

**Figure 1: Ill Health and Family Income, by Age of Child**



*Source:* Case, Lubotsky and Paxon (2002).

FIGURE 6.

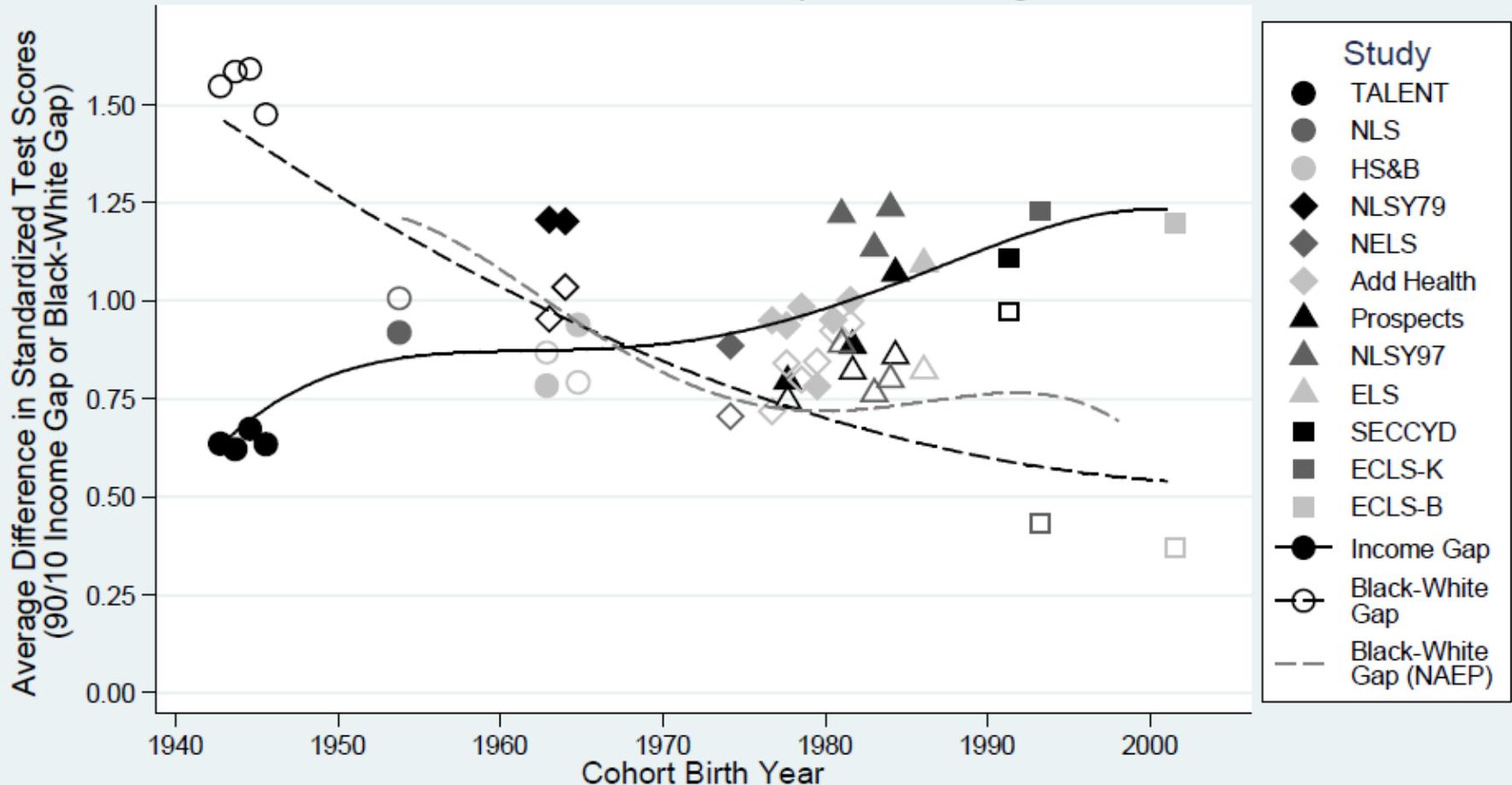
## Child Food Insecurity and Obesity Rates, by Income Relative to the Federal Poverty Level (FPL)

Children in families living below 250 percent of the FPL are much more likely to struggle with food insecurity and obesity than are their higher-income peers.



# Racial inequalities are decreasing while income inequalities are increasing (in education)

Trends in Income and Black-White Gaps in Reading, 1943-2001 Cohorts



Source: Sean Reardon (Stanford) "The Widening Academic Achievement Gap Between the Rich and the Poor: New Evidence and Possible Explanations" 2011

# Family Income, or something else?

- Difficult evaluation problem
- Lower income correlated with worse neighborhoods, schools, environmental inputs (and many other things)
- Most likely the bias is positive (observational model would find “too large” an effect of income)
- The question we want to ask is how would outcomes change if we exogenously gave a family more income

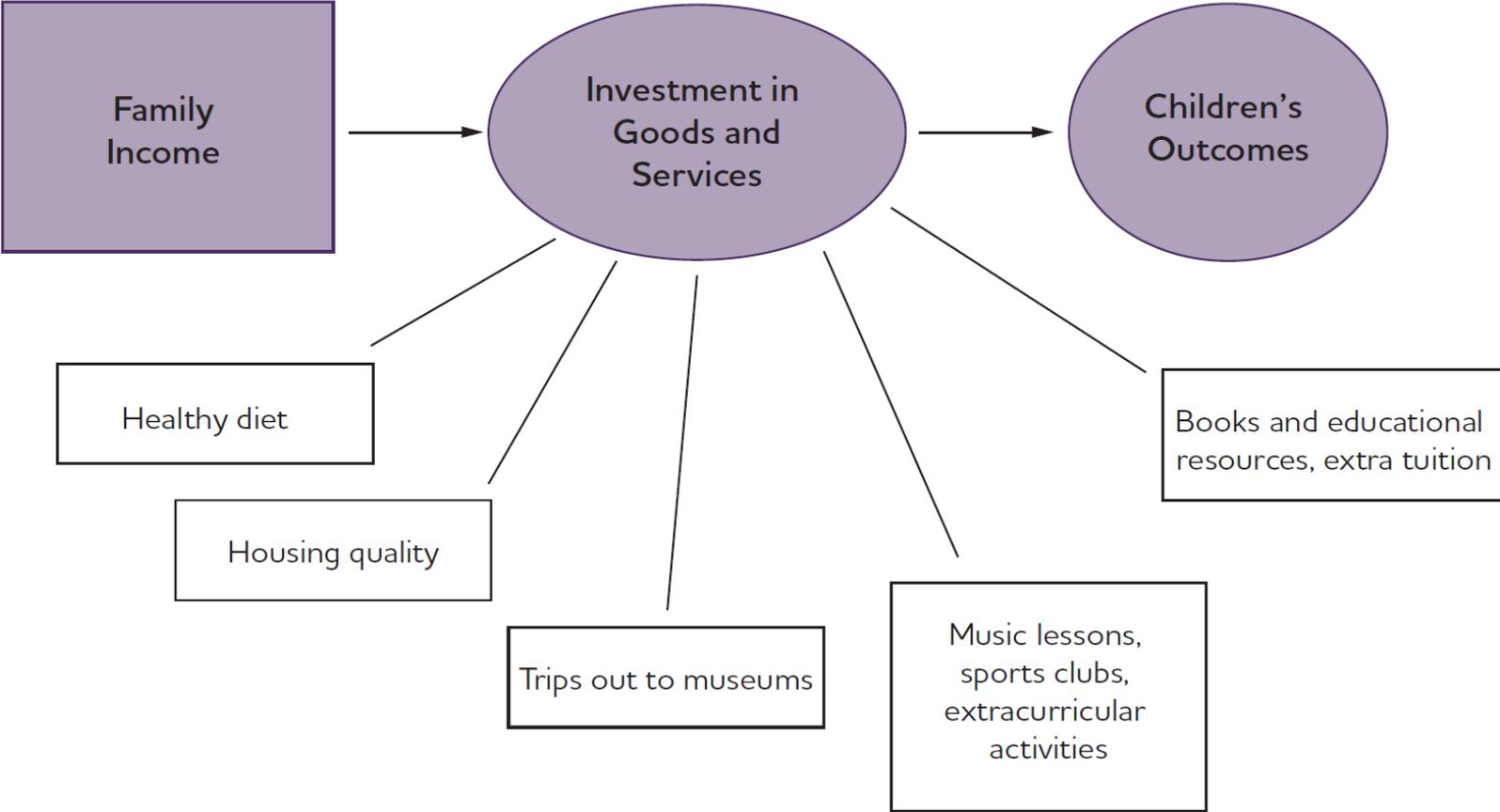
- If these effects are causal, then there are significant benefits (to government) to reducing poverty
- expenditures on poverty reduction can be viewed as public or social investments

# Why might income matter?

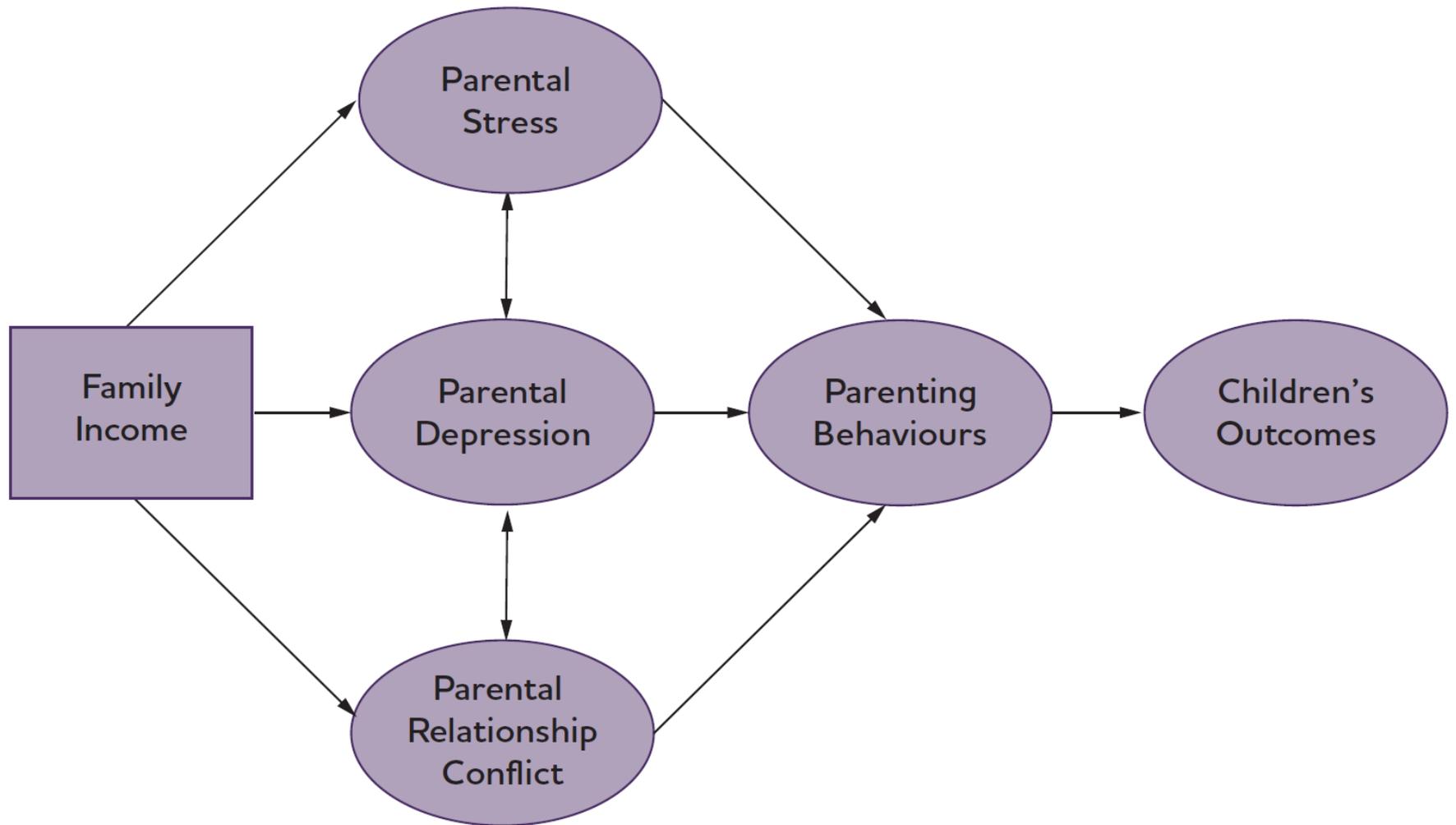
- Family Stress: one relating to the stress and anxiety caused by low income (including decision making abilities)
- Investment: parents' ability to invest in goods and services that further child development
  - Gary Becker “theory of the family”: Child quality is a normal good, so with higher income a family provides more “inputs “ (nutrition, home learning environments, quality childcare, safe neighborhood, university education, etc.)

**Figure 2: The Investment Model and the Family Stress Model**

The Investment Model



## The Family Stress Model



# Dynamics and timing

- Child and adult health, cognitive and economic outcomes are the result of a long process
- Poverty at key development points (even during pre-natal period) can have impacts in adulthood

# What approaches have been used to try to identify causal effect?

1. Longitudinal estimators (child fixed effects, family fixed effects, sibling fixed effects)
  - Potential problem is why were circumstances different for two children? Or for one child at two points in time? Also measurement error a problem due to netting out the permanent income effects
2. Policy experiments that change income
  - EITC, other child tax benefits (Canada, UK, Norway)
  - It is rare to find a policy change that affects only income. EX: The EITC affects income but also work

### 3. Other natural experiments

- Casino development longitudinal study
- Resource dependent areas and cycles in resources prices: coal, oil, fracking, Norway oil discovery

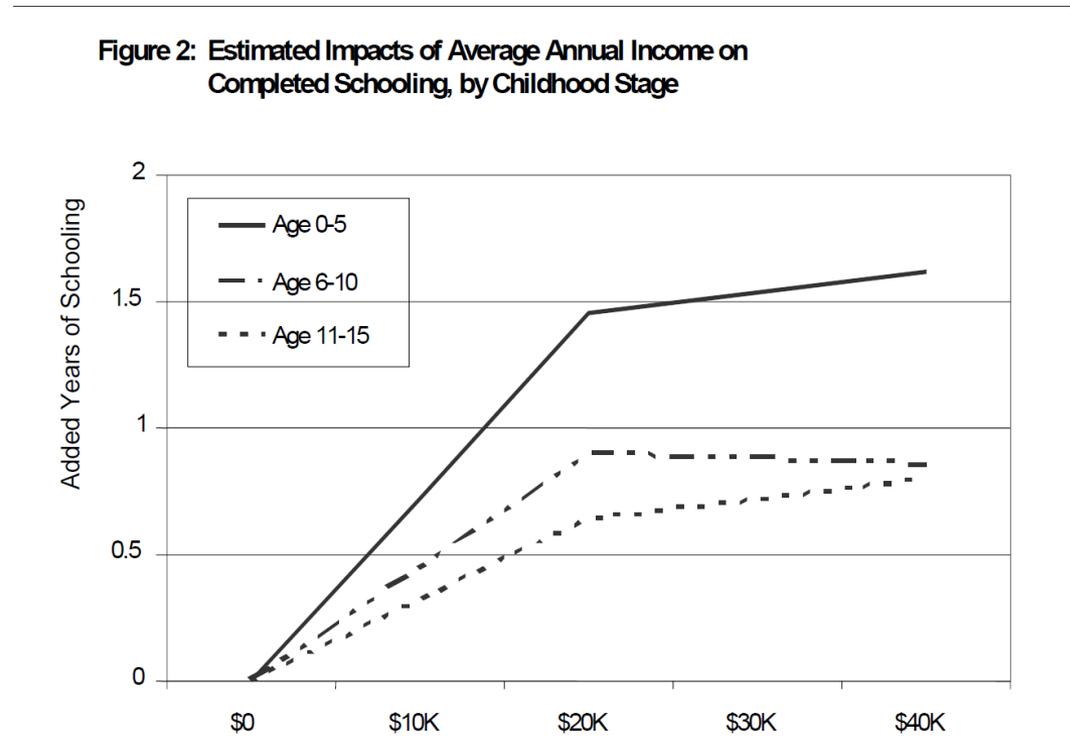
### 4. Randomized experiments

- Welfare reform in the U.S.
- Conditional cash transfers

[again, rare to isolate income change without other changes]

# General findings

- Income improves outcomes, effects are nonlinear and much higher at the bottom of the income distribution



# General findings

- Earlier in life may be more influential? Answer is not so clear. May depend a lot on the type of outcomes looked at
- Might matter who gets the money (mom is best)
- Next pages of slides are from a recent review of studies on this topic (“Does Money Affect Children’s Outcomes? A Systematic Review”, Joseph Roundtree Foundation.)

**Table 1: Study results by country and evidence type**

<b>Studies by country and method</b>	<b>Positive results</b>	<b>Mixed results</b>	<b>No significant results</b>	<b>Total</b>
<i>Canada</i>		<b>1</b>	<b>1</b>	<b>2</b>
– Exogenous variation		1		1
– Fixed effects			1	1
<i>Mexico</i>	<b>1</b>			<b>1</b>
– Randomised controlled trials	1			1
<i>Norway</i>	<b>2</b>	<b>1</b>	<b>1</b>	<b>4</b>
– Natural experiments	1		1	2
– Exogenous variation	1	1		2
<i>US</i>	<b>17</b>	<b>4</b>	<b>1</b>	<b>22</b>
– Randomised controlled trials	3	1		4
– Natural experiments	5		1	6
– Exogenous variation	1	1		2
– Fixed effects	8	2		10
<i>US and Canada</i>	<b>1</b>			<b>1</b>
– Randomised controlled trials	1			1
<i>UK</i>	<b>2</b>		<b>2</b>	<b>4</b>
– Natural experiments	1			1
– Fixed effects	1		2	3
<i>All countries</i>				
– Randomised controlled trials	5	1		6
– Natural experiments	7		2	9
– Exogenous variation	2	3		5
– Fixed effects	9	2	3	14
<b>TOTAL</b>	<b>23</b>	<b>6</b>	<b>5</b>	<b>34</b>

**Table 2: Results by children's outcomes**

<b>Nature of outcomes</b>	<b>Studies including outcome</b>	<b>Positive</b>	<b>No effect</b>
<i>Children's outcomes</i>			
Cognitive development and school achievement	21	16	5
Social, behavioural and emotional development	9	7	2
Physical health	8	5	3
Subjective well-being and social inclusion	0	n/a	n/a
Future earnings	1	1	n/a
<i>Mediating outcomes</i>			
Family expenditure on children's items	2	1	1
Financial stress and material hardship	3	2	1
The home learning environment	4	3	1
Maternal physical health	3	2	1
Maternal mental health	4	4	0
Parenting and parental behaviours	3	2	1
<b>Total studies included*</b>		<b>34</b>	

\*Some studies measured more than one outcome.

**Table 3: Effect sizes for cognitive development and educational achievement (standard deviation change linked to US\$1,000 in 2000 prices)**

	RCTs				Natural experiments		Other exogenous variation (IV)		Fixed effects		
	Gennetian and Miller (2002)	Duncan et al. (2011)	Fernald et al. (2008)	Clark-Kauffman et al. (2003)	Akee et al. (2010)	Dahl and Lochner (2012)	Black et al. (2012)	Milligan and Stabile (2011)	Blau (1999)	Votruba-Drzal (2003)	Votruba-Drzal (2006)
<i>Relevant population</i>	<i>Low income US</i>	<i>Low income US and Canada</i>	<i>Low income Mexico</i>	<i>Low income US</i>	<i>Low income Native American US</i>	<i>Low income US</i>	<i>Low/middle income Norway</i>	<i>Low education (max high school) Canada</i>	<i>All income groups US</i>	<i>All income groups US</i>	<i>All income groups US</i>
Child achievement/ Performance in school	0.12 (0.23 boys)	0.06		0.05			0.18		0.02		
Maths						0.06		0.07 (0.23 boys)	0.01		0.02
Reading						0.05			0.01		0.02
Peabody PPVT			0.21					0.37 (boys)	0.01		
Long-term memory			0.14								
Short-term memory			0.15								
Visual integration			0.10								
Completed schooling (years)					0.10						0.01

Notes: Dahl and Lochner's reading figure is an average of effect size for reading recognition (0.04) and reading comprehension (0.06).

Duncan et al. (1998) do not give standard deviation for completed schooling so result not included. Results from Løken (2012) are in a form difficult to adjust to this format.

**Table 6: Effect sizes for maternal depression and home environment  
(standard deviation change linked to US\$1,000 in 2000 prices)**

	<b>RCTs</b>	<b>Other exogenous variation</b>	<b>Fixed effects</b>			
	Gennetian and Miller (2002)	Milligan and Stabile (2011)	Dearing et <i>al.</i> (2004)	Blau (1999)	Votruba- Drzal (2003)	Dearing and Taylor (2007)
<i>Relevant population</i>	<i>Low income US</i>	<i>All income groups Canada</i>	<i>All income groups US</i>	<i>All income groups US</i>	<i>All income groups US</i>	<i>Low income US</i>
Maternal depression	0.15	0.10 (0.20 low ed only)	0.01 (0.06 for chronically poor)			
Home environment				0.02	0.01 (0.02 lowest income)	
Physical environment						0.05 (low income)
Psychosocial environment						0.06 (low income)
Learning materials						0.20 (low income, low HE)
Responsiveness						0.14 (low income, low HE)
Cognitive stimulation						0.06 (low income, low HE)

# The New Biology of Poverty: SES, Stress and Cortisol

- It has been known for some time that socio-economic status (SES) is correlated with self-reported stress and the stress-hormone cortisol.
- Cortisol is released in response to both psychological and physiological strain. Chronic elevations of cortisol can lead to dysfunction in metabolic and immune systems and this stress may accelerate cell aging

- Exciting new research using strong quasi-experimental designs suggest a causal linkage:
  - Conditional cash transfers (Oportunidades in rural Mexico) led to reduction in cortisol among children 2-6 (Fernald and Gunnar 2009)
  - Negative rainfall shocks lead to higher cortisol in Kenya (Haushofer et al 2012)
  - Expansion of in-work benefits (EITC) lowers risky biomarkers in mothers (Evans and Garthwaite 2011)
  - Prenatal maternal cortisol negatively affects the health, cognition, and education of children (Aizer, Stroud and Buka 2009)
- This suggests that increases in income – through government policy – can reduce cortisol.

# Time scarcity – Mullainathan & Shafir

- Three types of poverty
  - Money poverty
  - Time poverty
  - Bandwidth poverty: attention shortage that is fed by the other two
- “If I’m focused on the immediate deadline, I don’t have the cognitive resources to spend on mundane tasks or later deadlines. If I’m short on money, I can’t stop thinking about today’s expenses — never mind those in the future. In both cases, I end up making decisions that leave me worse off because I lack the ability to focus properly on anything other than what’s staring me in the face right now, at this exact moment.”
- “The poor are under a deadline that never lifts, pressure that can’t be relieved.”
- “If poverty is about time and mental bandwidth as well as money, how does this change how we combat its effects?” Give them programs that don’t use a lot of bandwidth

# The Safety Net

## Economics of Out of Work Benefits

Hilary Hoynes

PP290

# Outline of lecture

1. Overview of the social safety net
  2. Theory of labor supply
  3. Canonical “Out of work benefits” and labor supply
- [next time: what do we know about the effects of AFDC]

# What do we mean by the “social safety net”

- By definition these are “programs” that provide transfers (cash or otherwise) to families
- Social insurance versus public assistance
- Cash versus in kind

# Given our focus on poverty, what should be our working definition of the “social safety net”

- Should it be limited to public assistance programs?
- Here is my working definition:
  1. It raises disposable income (cash or in kind) at the lower end of the income distribution [reduces poverty]
  2. Protection responds in times of need (e.g. job loss, unemployment, shock to income), smooth income (and hence consumption)
- In this definition there may be room for more than “programs for the poor” such as
  - Unemployment insurance
  - Disability income
  - Social security

# Evolution of Antipoverty programs in the U.S.

1930s

Social Security  
AFDC  
Unemployment  
Insurance

Great Society

1960s-1970s

Food Stamps  
Medicare  
Medicaid  
Disability  
Civil Rights  
Act

1990s

Welfare Reform  
Rise of the EITC

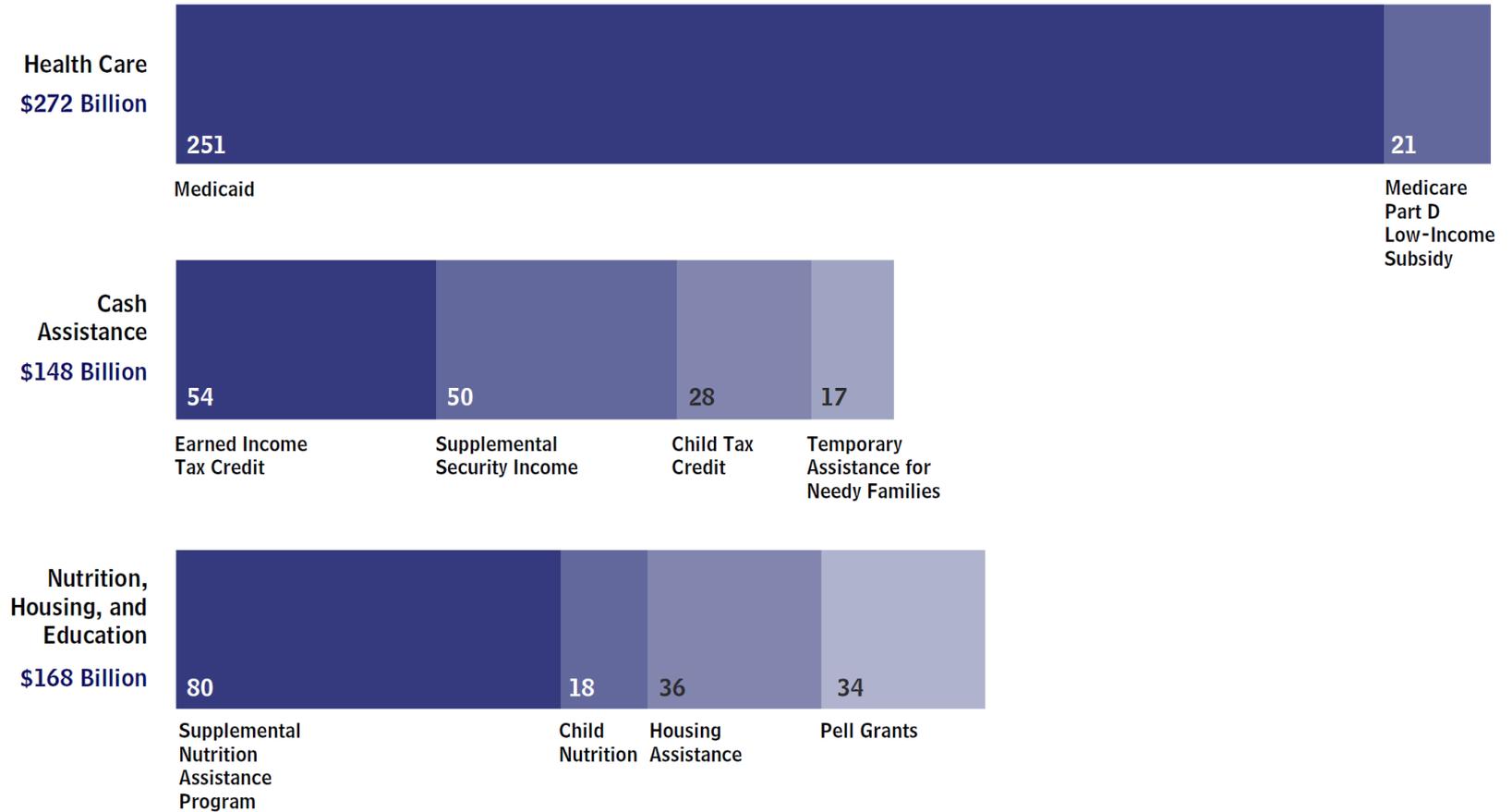
2010

Obamacare

**Figure 2.**

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

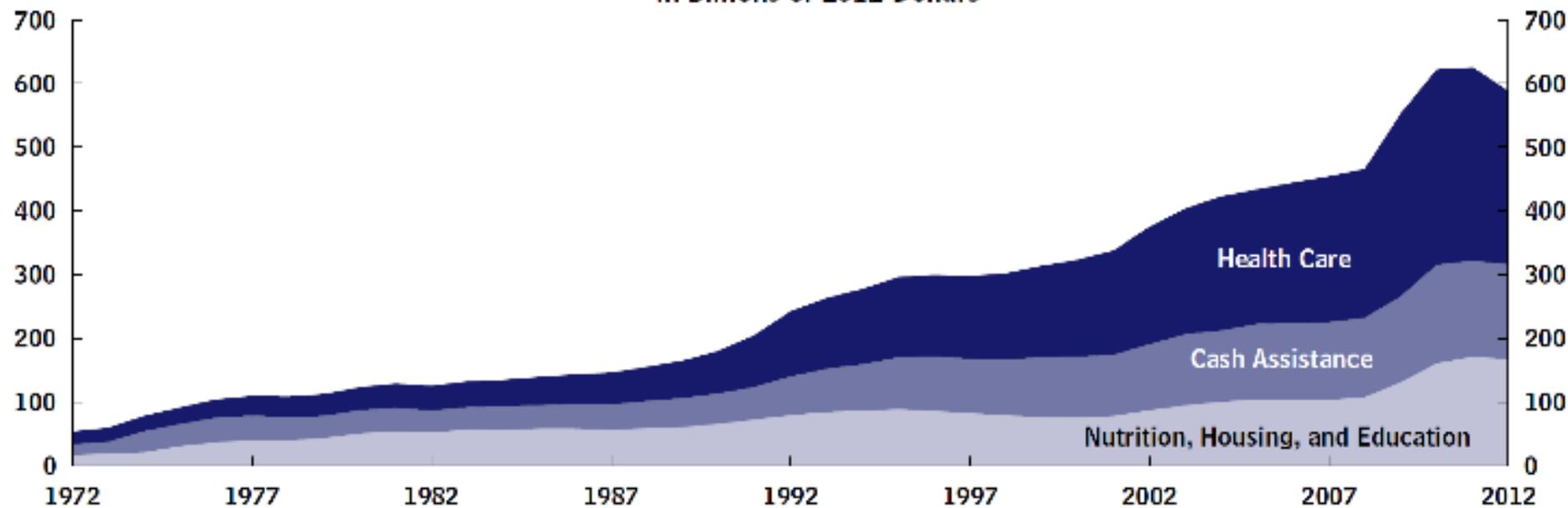
(Billions of dollars)

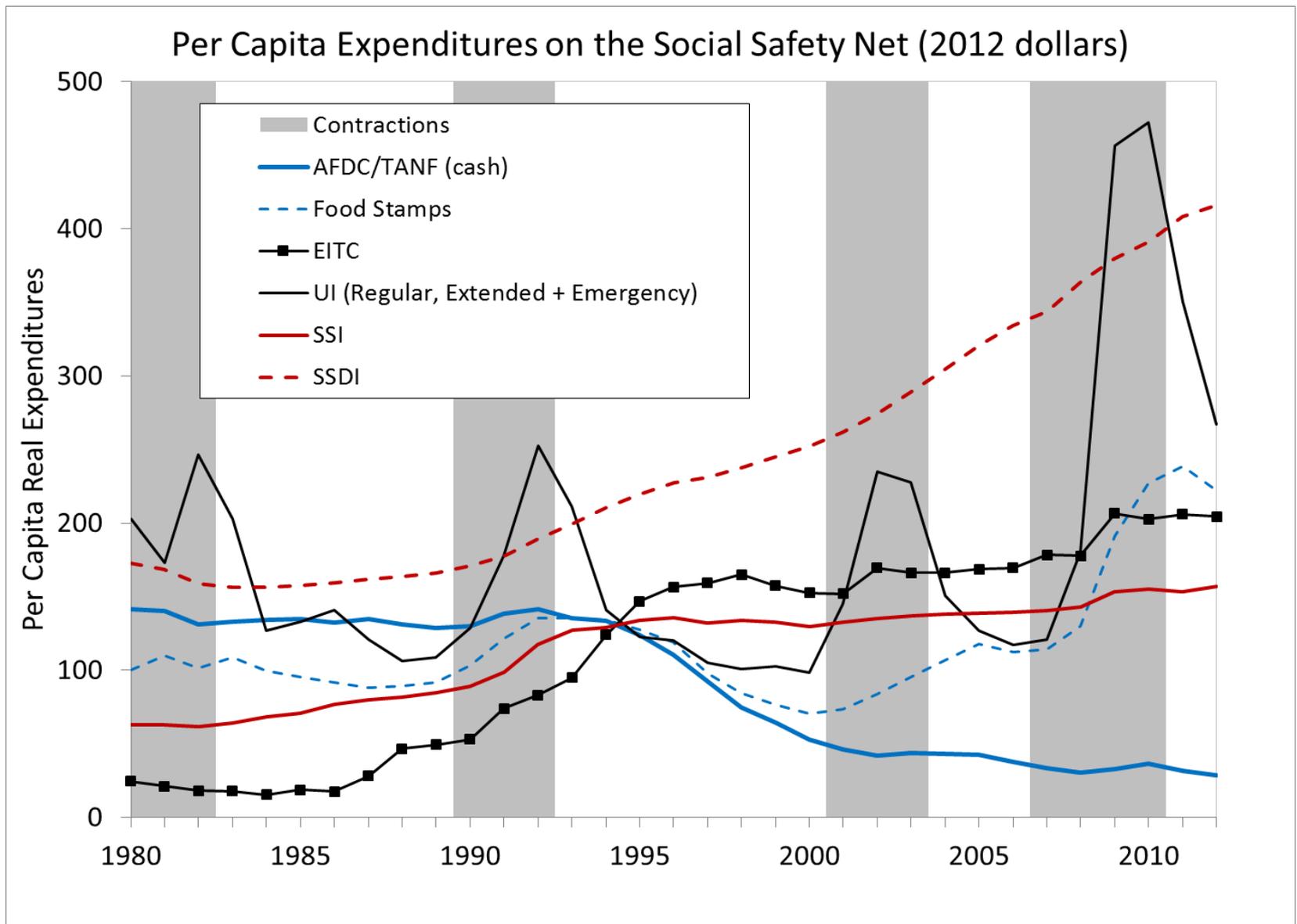


Source: Congressional Budget Office.

# Federal Spending on Various Categories of Means-Tested Programs and Tax Credits, 1972 to 2012

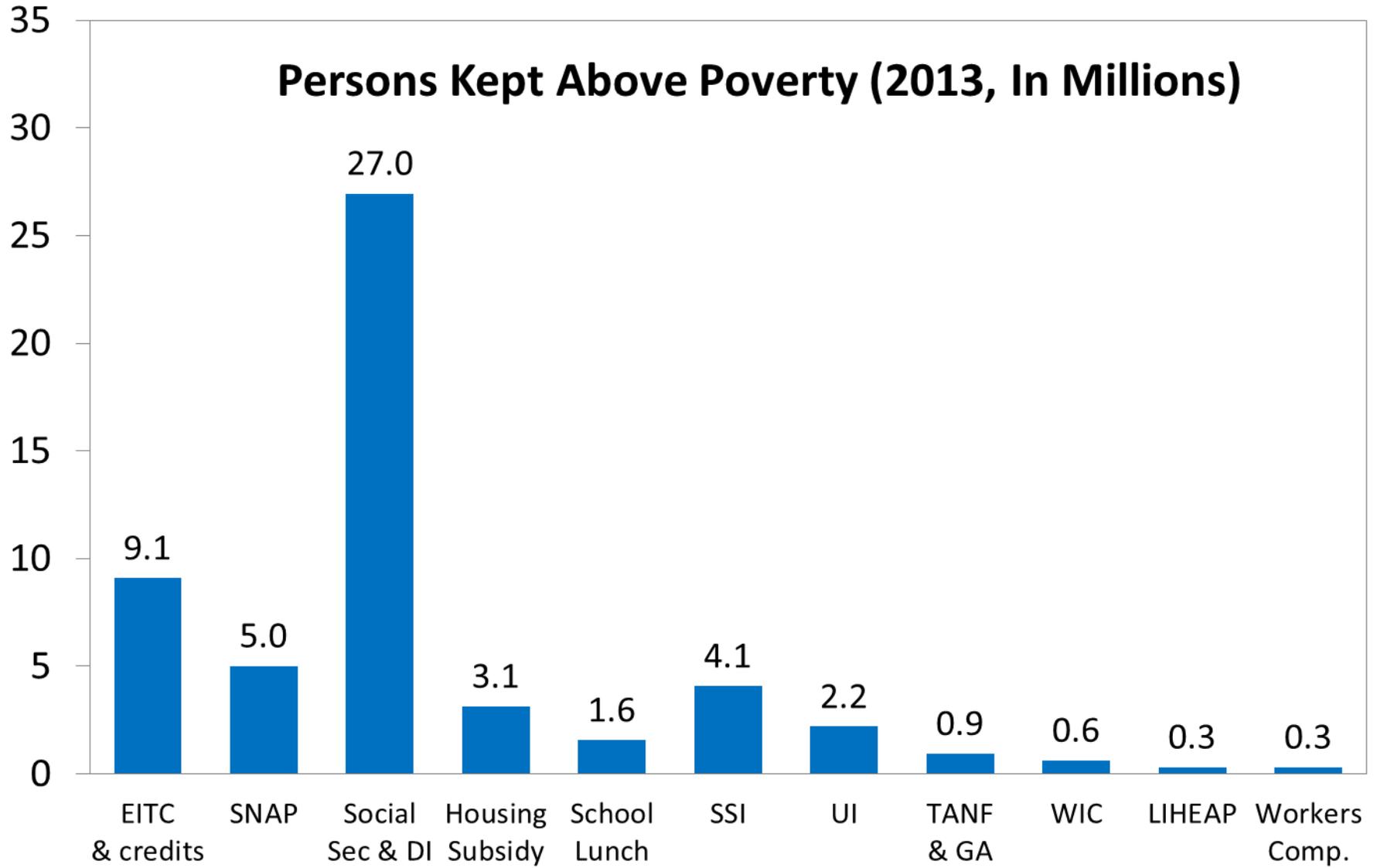
In Billions of 2012 Dollars



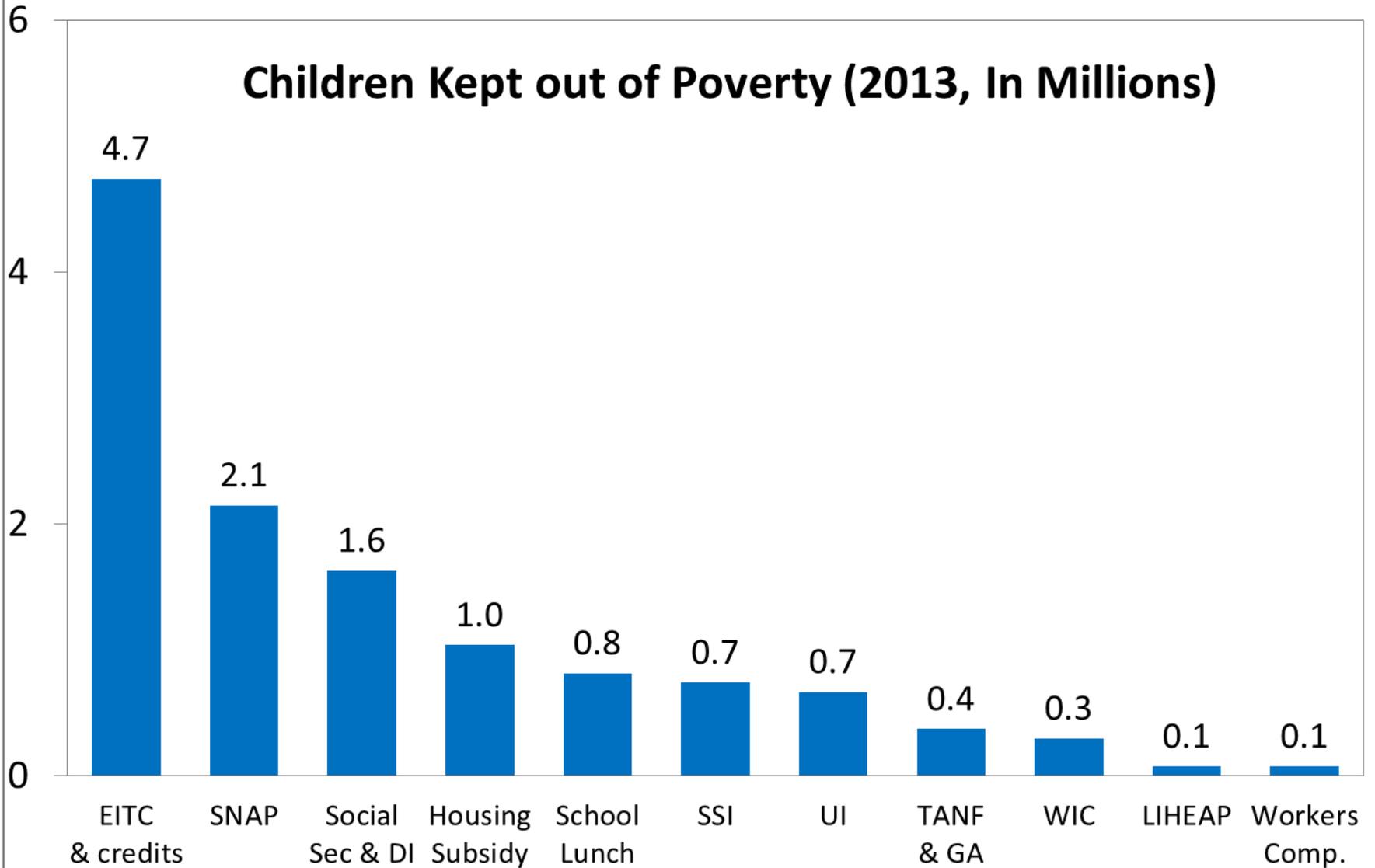


Source: Bitler and Hoynes “The More Things Change, the More They Stay the Same? The Safety Net and Poverty in the Great Recession,” forthcoming, *Journal of Labor Economics*.

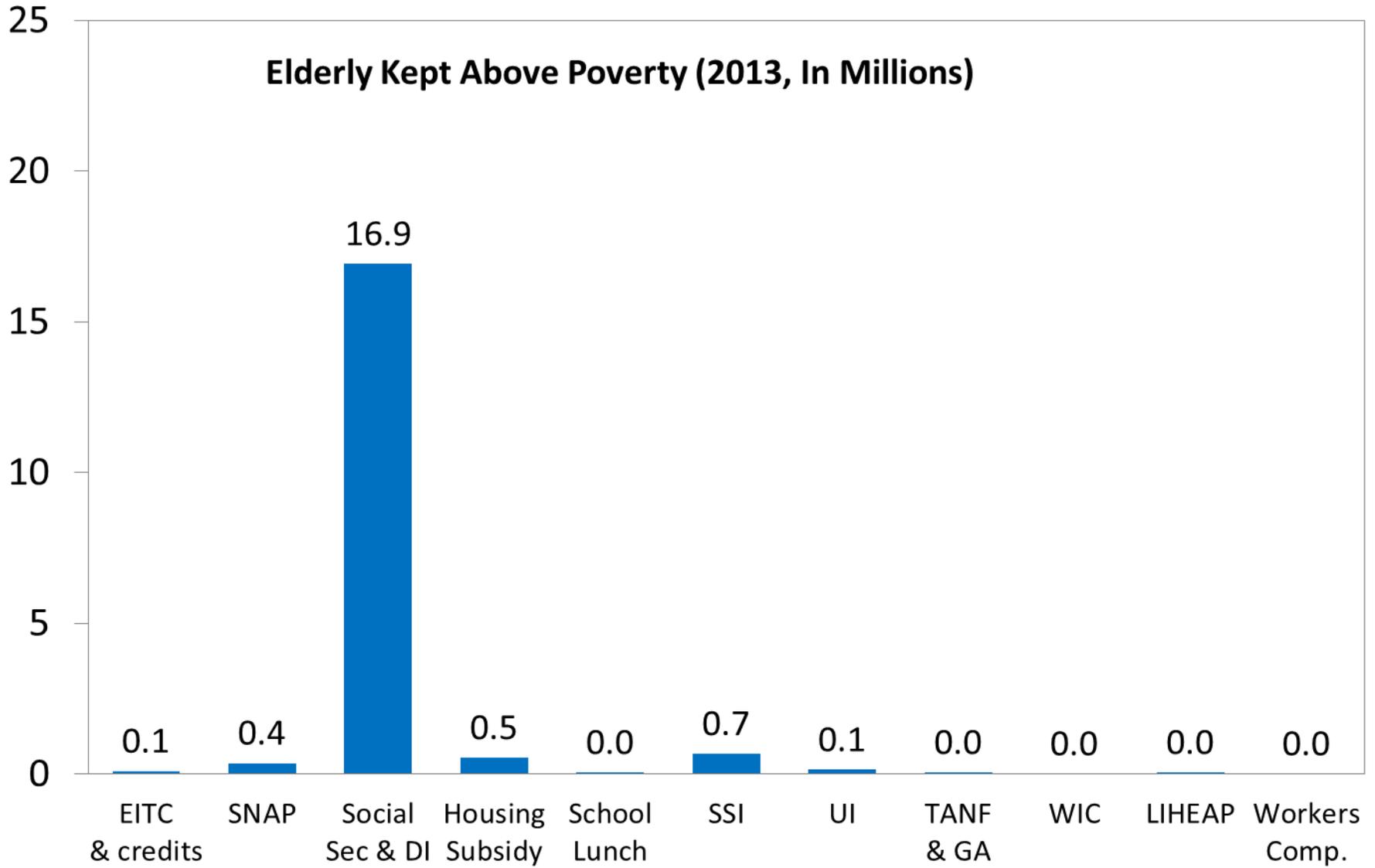
## Persons Kept Above Poverty (2013, In Millions)



## Children Kept out of Poverty (2013, In Millions)



### Elderly Kept Above Poverty (2013, In Millions)



# Canonical out of work benefit program “cash welfare program”

- Goal is to provide some income floor, a basic level of assistance below which income will not fall.
- Must be “phased out” otherwise the benefit must be given to everyone (which would be very expensive)
- Result, a benefit formula:

$$B = G - t(E - D)$$

- Program parameters are G (guaranteed income) and t (tax rate). E is earnings and D is allowable deductions (practically speaking I will ignore D)

Canonical out of work benefit program  
“cash welfare program”

$$B = G - t(E - D)$$

- Where is the “floor”?
- Where is the “phase out”

## Break even point

- Setting actual benefits equal to zero results in the “break-even formula” – the income level where welfare eligibility ends:

$$B = 0 \rightarrow Y_{BE} = \frac{G}{t}$$

- Thus, with a guarantee of \$300 and tax rate of 75%, earnings of \$400 reduces the welfare benefit to zero and removes the person from welfare.

- In principle, setting  $G$  equal to the poverty line (with, say,  $t = 1$ ) would eliminate poverty.
- What we have not yet considered is how the parameters themselves ( $G, t$ ) affect labor supply; the moral hazard effects of such a policy.

## Labor supply – application of consumer theory

- Application of basic consumer theory: Maximize  $U(X_1, X_2)$  subject to a budget constraint  $p_1X_1 + p_2X_2 = Y$
- Optimal interior solution is where slope of the indifference curve is equal to the slope of the budget line:

$$MRS = -\frac{MU_1}{MU_2} = -\frac{P_1}{P_2}$$

- Income effect: leads to increase in both  $X$ s
- Price effect: ambiguous effect, consists of income effect and substitution effect

# Basics of Economics of Labor Supply

- We apply the consumer theory framework to study labor supply
- The two goods in utility maximization problem are leisure and (total) consumption.
- Whatever time is not devoted to leisure is spent working and earning money.  
(leisure=time endowment – hours worked)

## The budget constraint

- The “price” of one hour of leisure is the hourly wage rate.
- Suppose the time endowment is 2000 hours per year and the wage rate is \$10 per hour
- Suppose the price of consumption is \$1 per unit.
- Creates a direct tradeoff between leisure and consumption: each hour of work brings her 10 units of consumption.

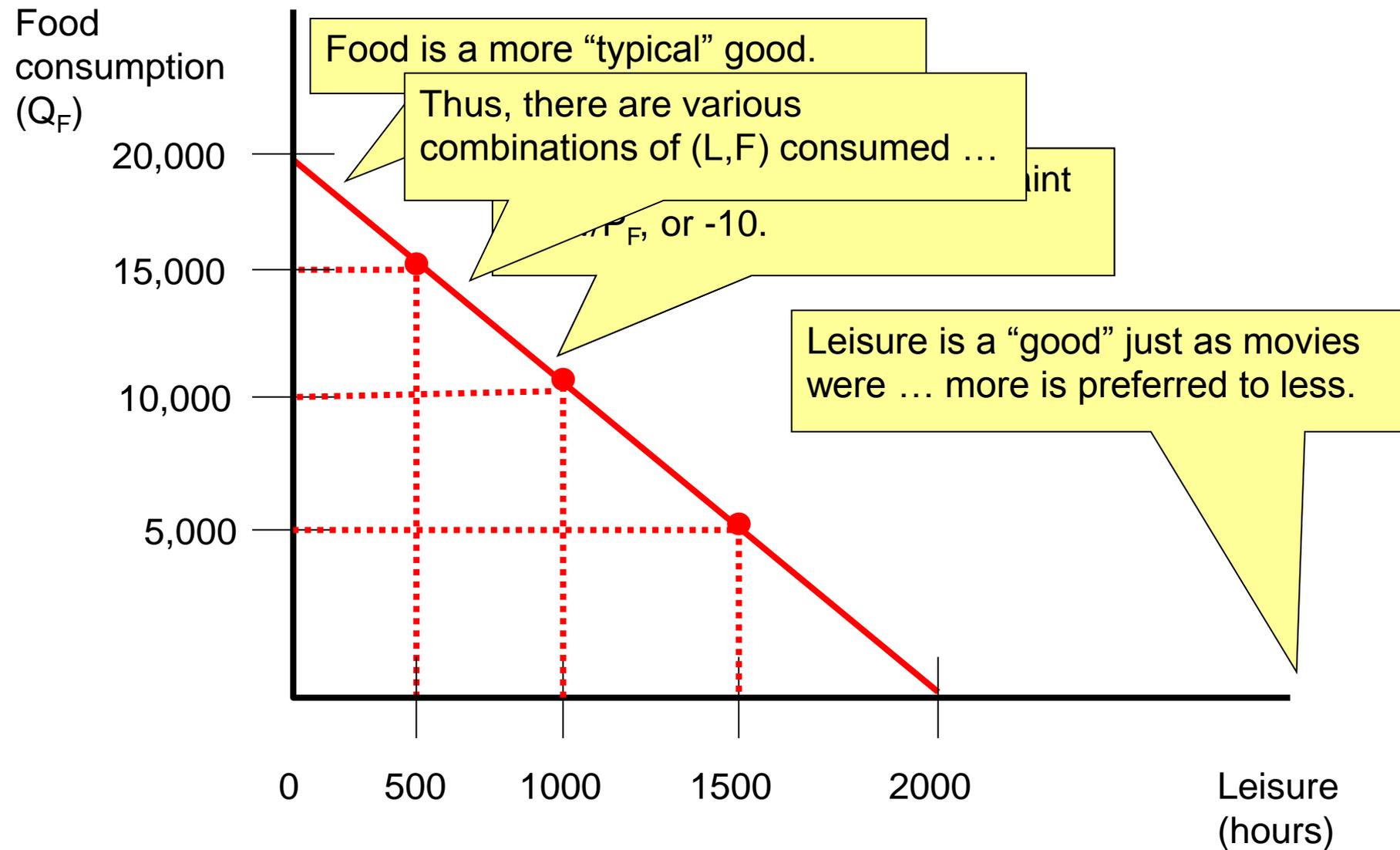


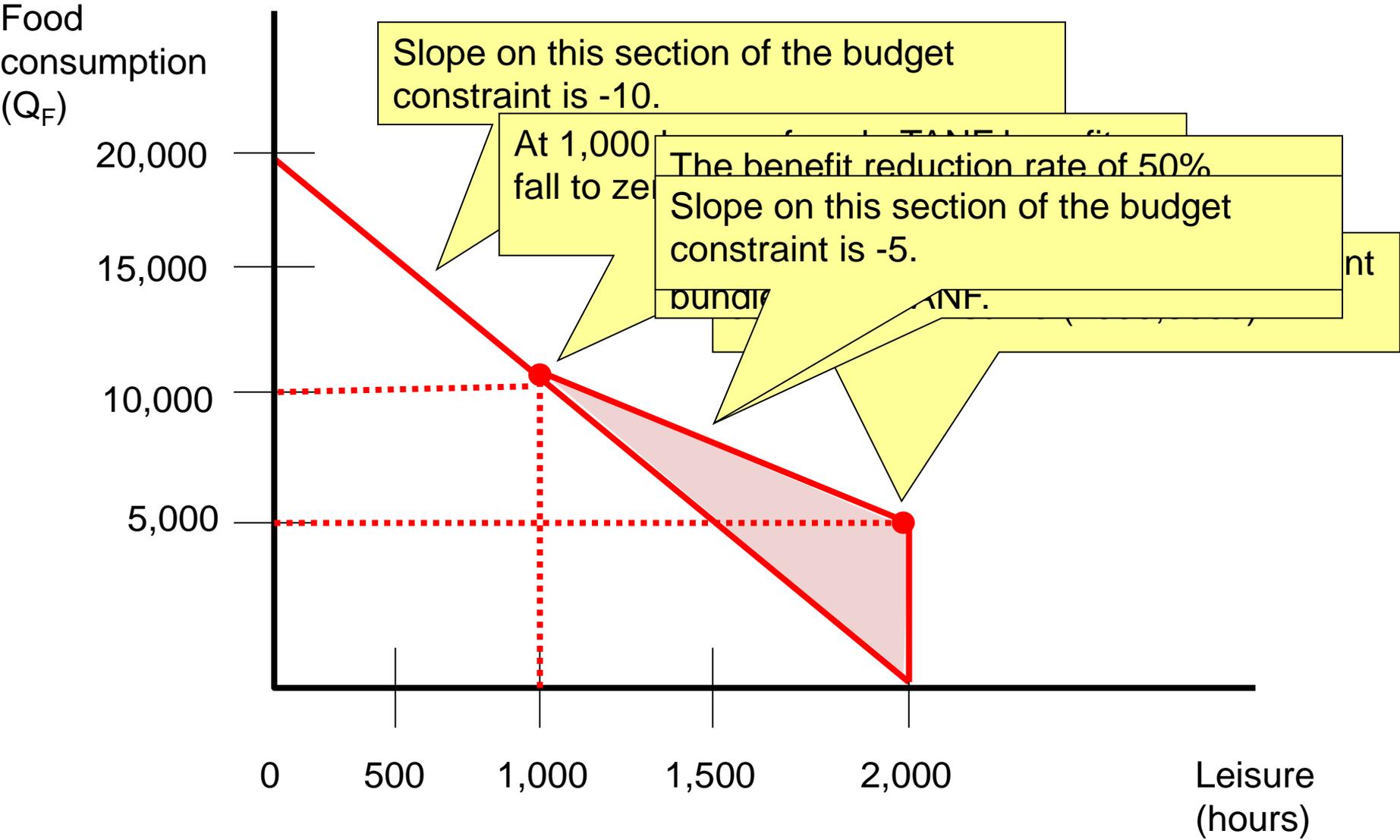
Figure 12

Leisure is a "good" and labor is a "bad."

# The effect of welfare on the budget constraint

- The typical welfare program has two parameters:
  - ***Benefit guarantee,  $G$***  – amount that a recipient with \$0 earnings gets.
  - ***Benefit reduction rate,  $t$***  – rate at which benefit guarantee falls as earnings increases.

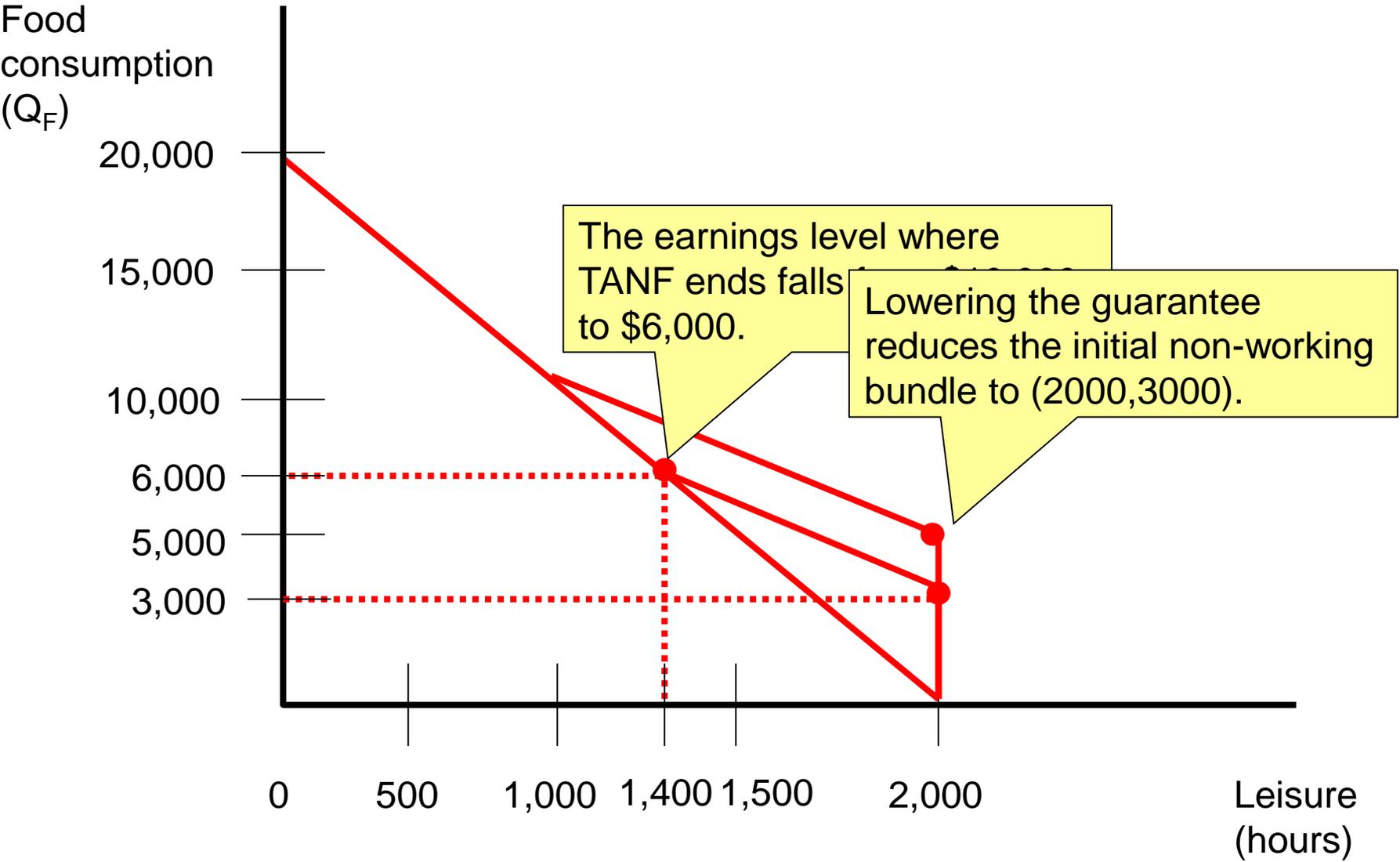
- Assume that benefit guarantee,  $G$ , is \$5,000 per year.
- Assume the benefit reduction rate,  $t$ , is 50%.



**Figure 13** Introduce Temporary Assistance to Needy Families

The effect of changes in the benefit guarantee

- One possible “policy experiment” is reducing the benefit guarantee level  $G$ .
- What happens when  $G$  falls from \$5,000 to \$3,000, holding all other parameters constant?



**Figure 14** Lower the Benefit Guarantee

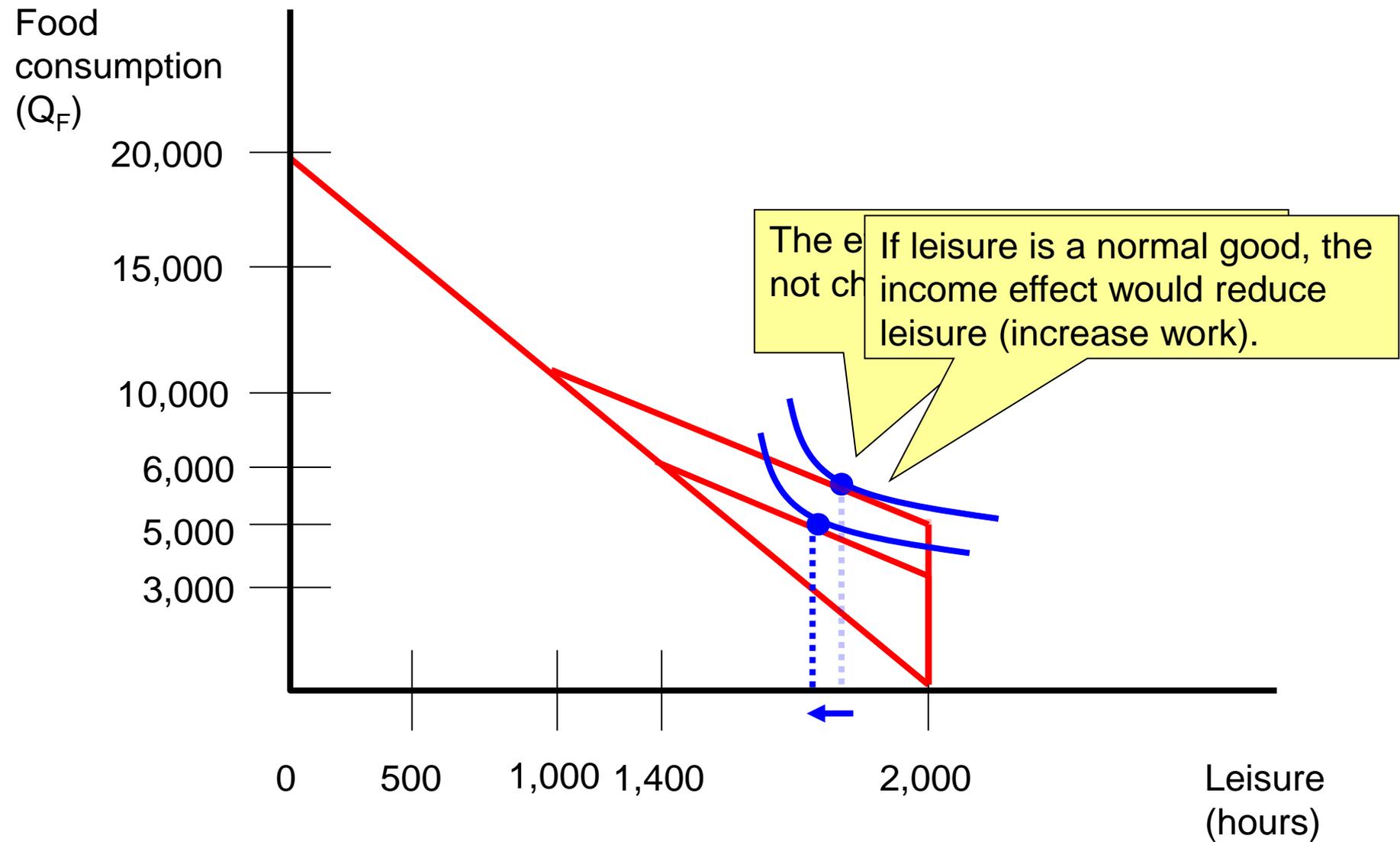


Figure 15

Policy Change Generates Income Effect Only

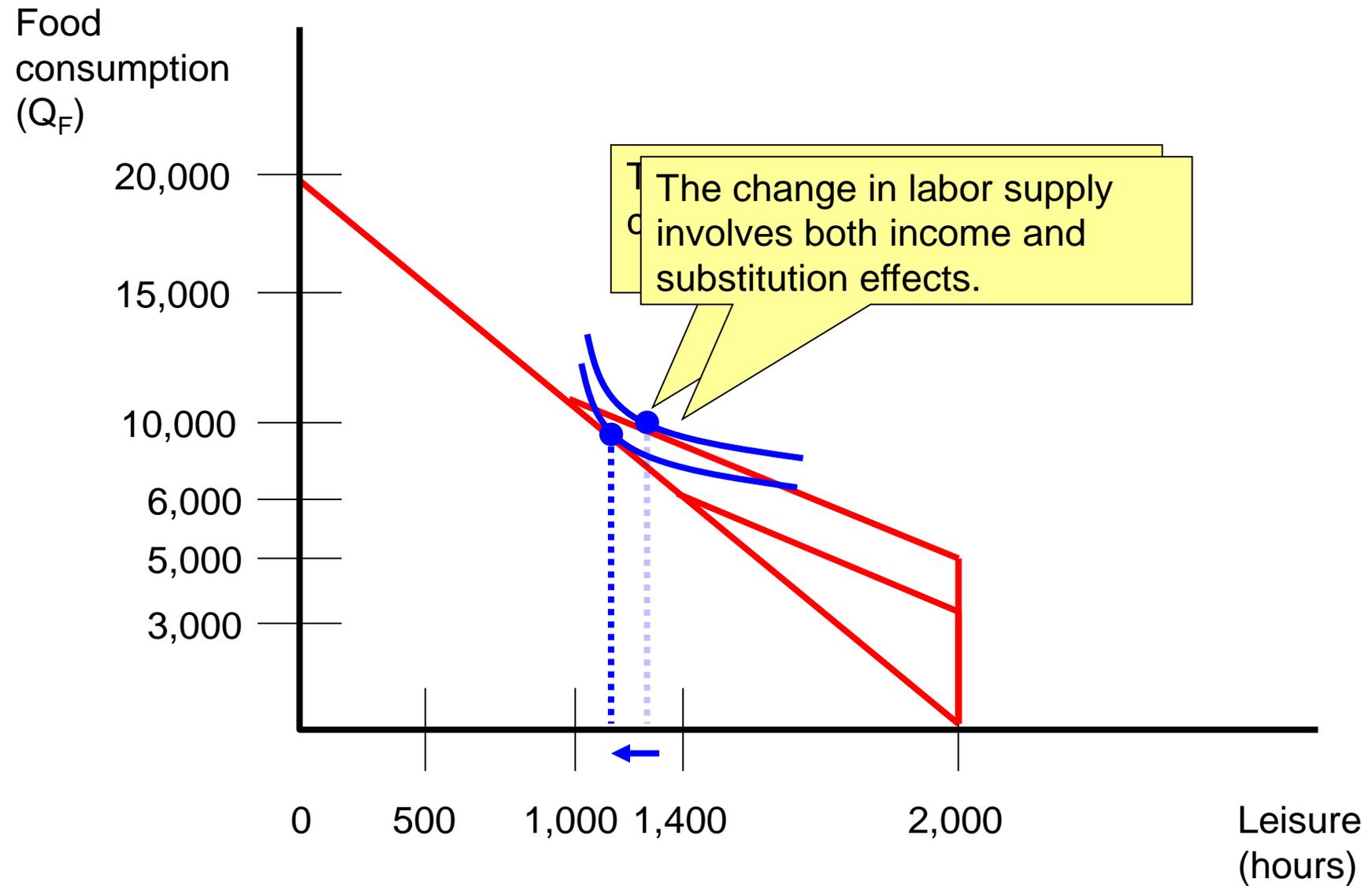


Figure 16

Both Income and Substitution Effects From Policy

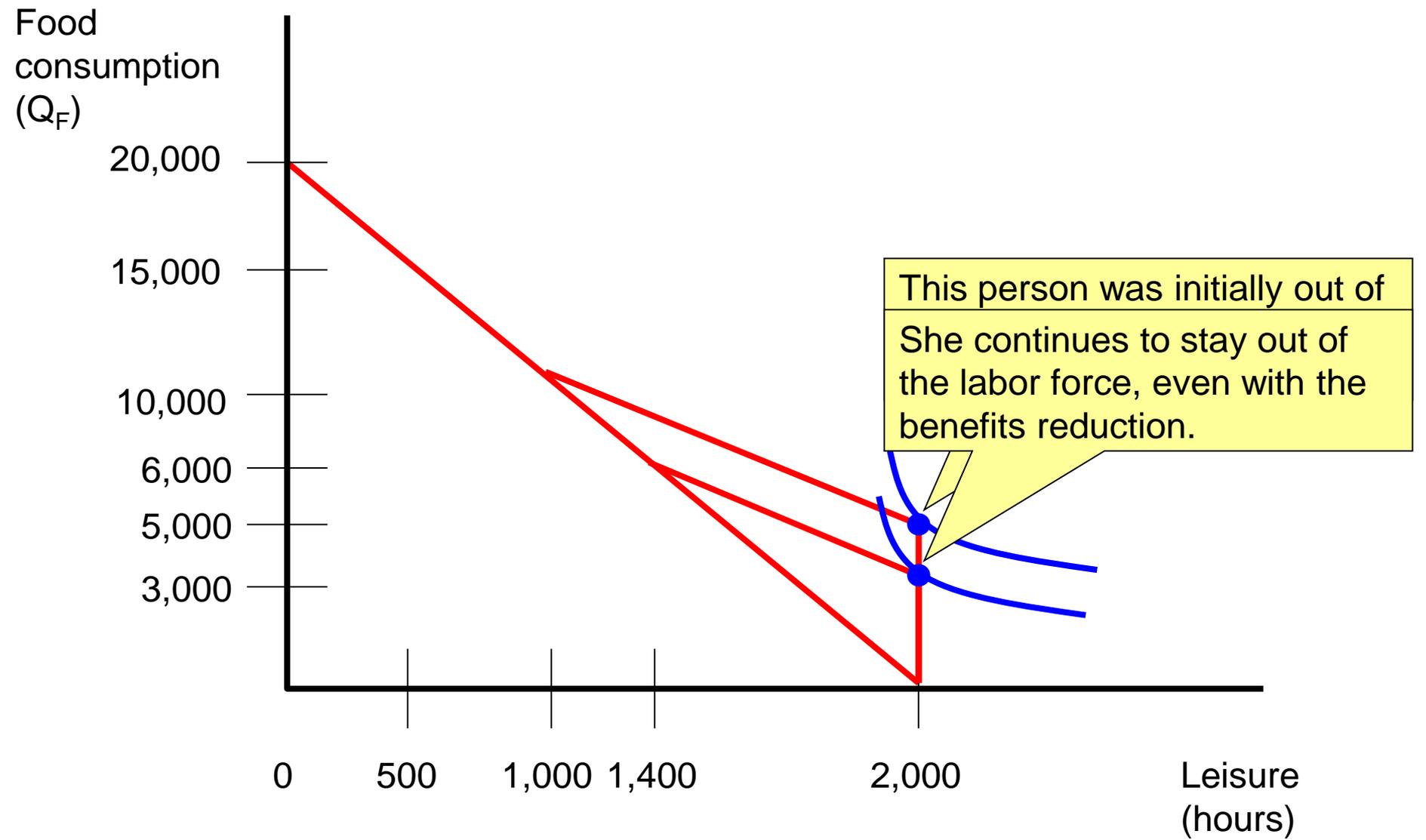
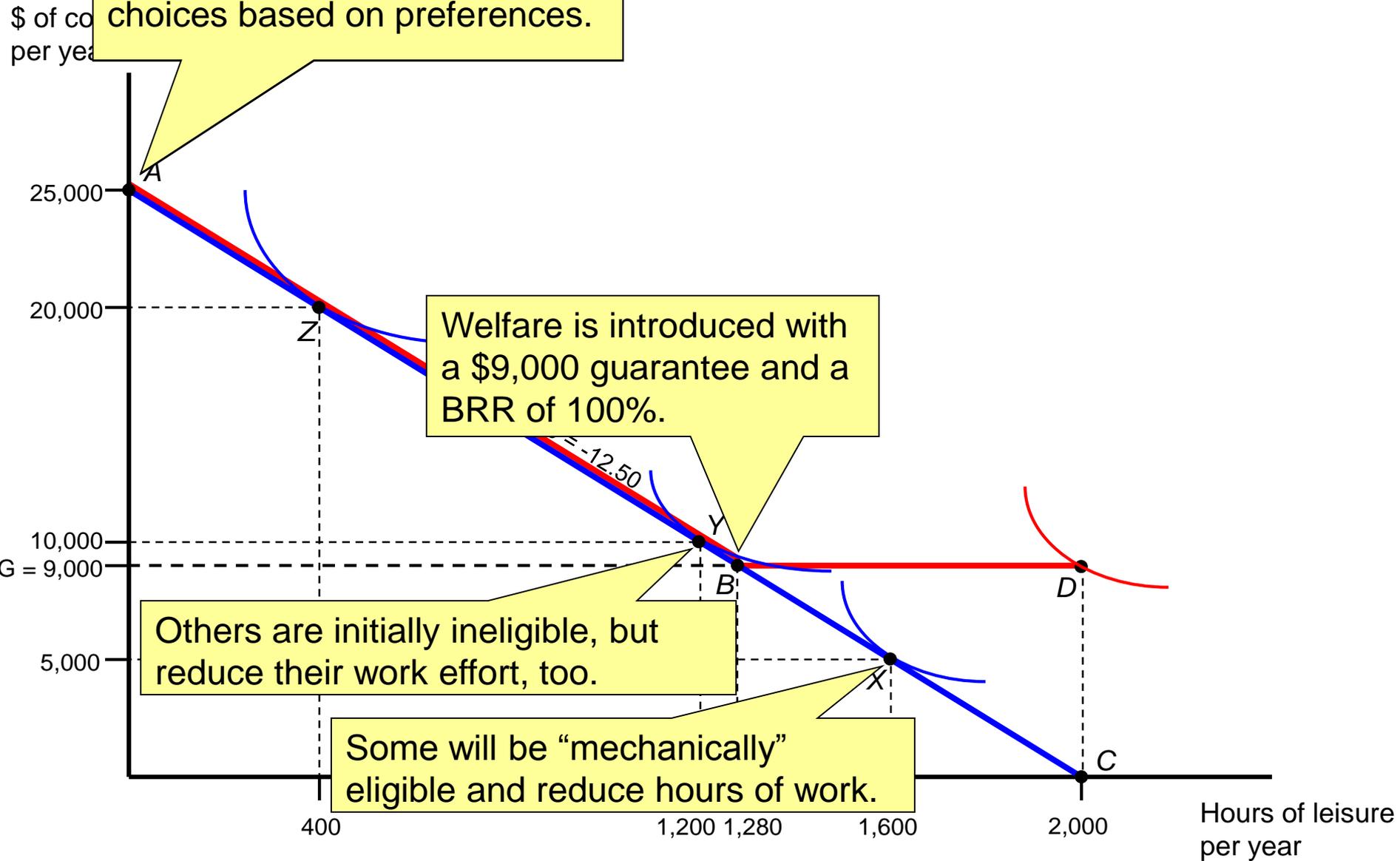


Figure 17

No Labor Supply Response To Policy Change

**Figure 3**

Individuals make different choices based on preferences.



## AFDC, cash welfare programs and what we know

- Aid to Families with Dependent Children
- Eligibility depends on income test, asset test, as well as “categorical eligibility” (being a single mother)
- Federal government requires program, sets t. States full ability to choose G
- “Matching grant”: cost sharing between federal and state, federal contribution inversely related to state mean income (same formula used for Medicaid)

- Low benefits: maximum benefits averaged about 39% of the poverty guideline
- Huge variation in G across states (in 1995, for a family of 3).
  - AL \$164, ARK \$204, GA \$280
  - MD \$373, CO \$350, OH \$341
  - CA \$607, MA \$579, WI \$517
- Tax rate:
  - pre-1967 100%
  - 1967 67%
  - 1981 100%

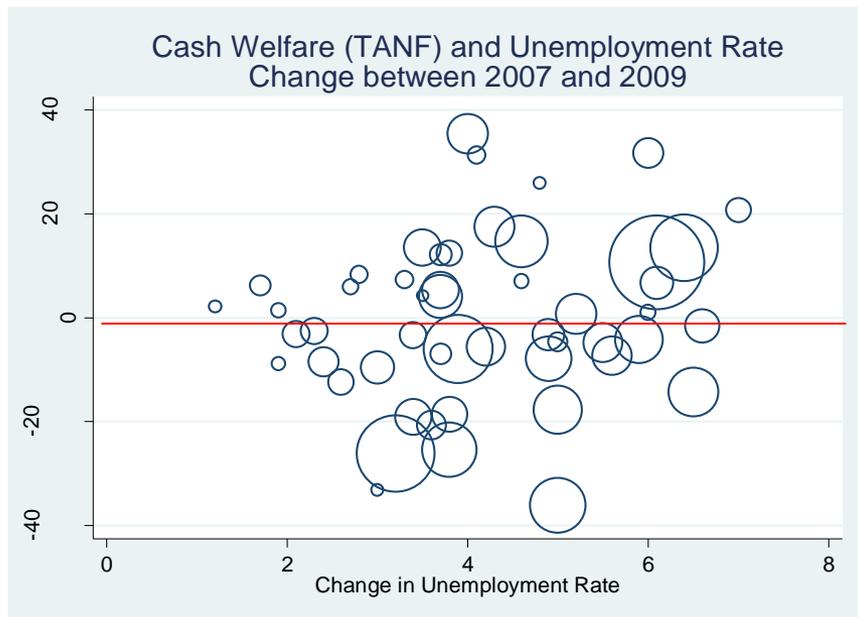
# What do we know about how AFDC affected outcomes

- Very high benefit reduction rates. Consistent evidence that AFDC reduced employment and earnings
  - Strong incentive to earn under the table; work by Kathryn Edin suggests this might be important (though hard to measure)
- Significant concerns that AFDC was a big part of the large and growing rate of female headed households
  - Basic economics of this (discuss)
  - Evidence – does not explain much
- Even though it is funded at a low rate, prior to welfare reform AFDC provided important protection against extreme poverty (a low floor)

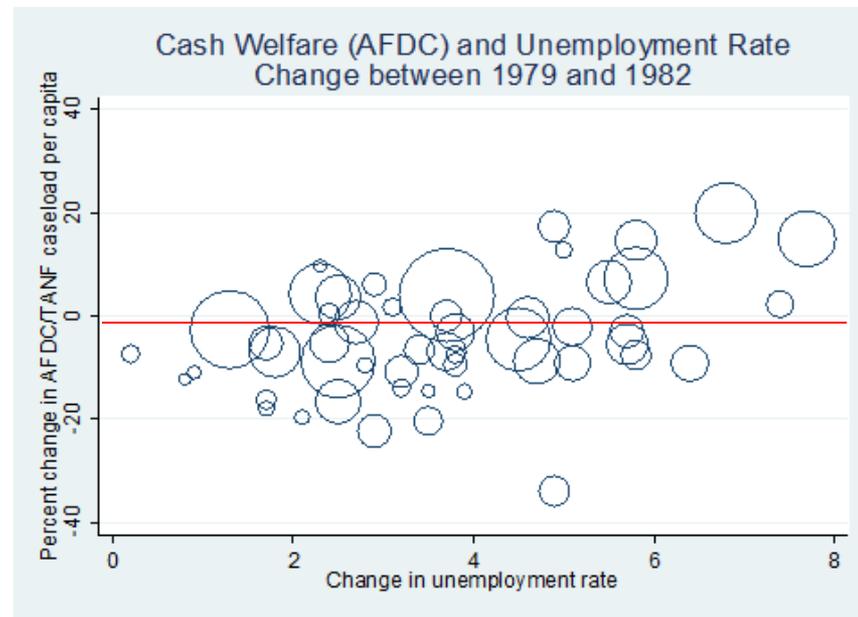
# Comparison of response in 1980s recession & GR

## State Scatterplot of $\Delta UR$ against $\% \Delta \text{caseload/pop}$

### TANF in GR



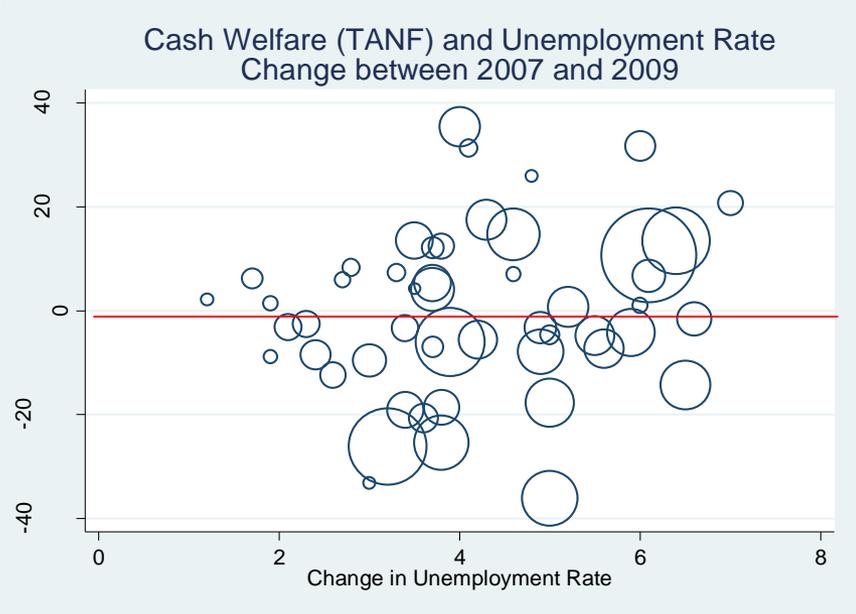
### AFDC in 1980s Recession



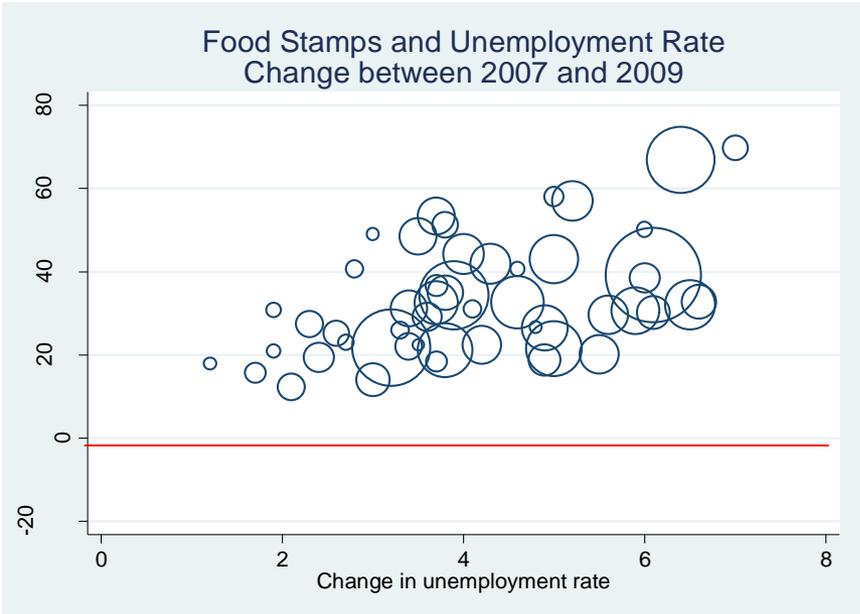
# Comparison of Food Stamps and TANF in GR

## State Scatterplot of $\Delta UR$ against $\% \Delta \text{caseload/pop}$

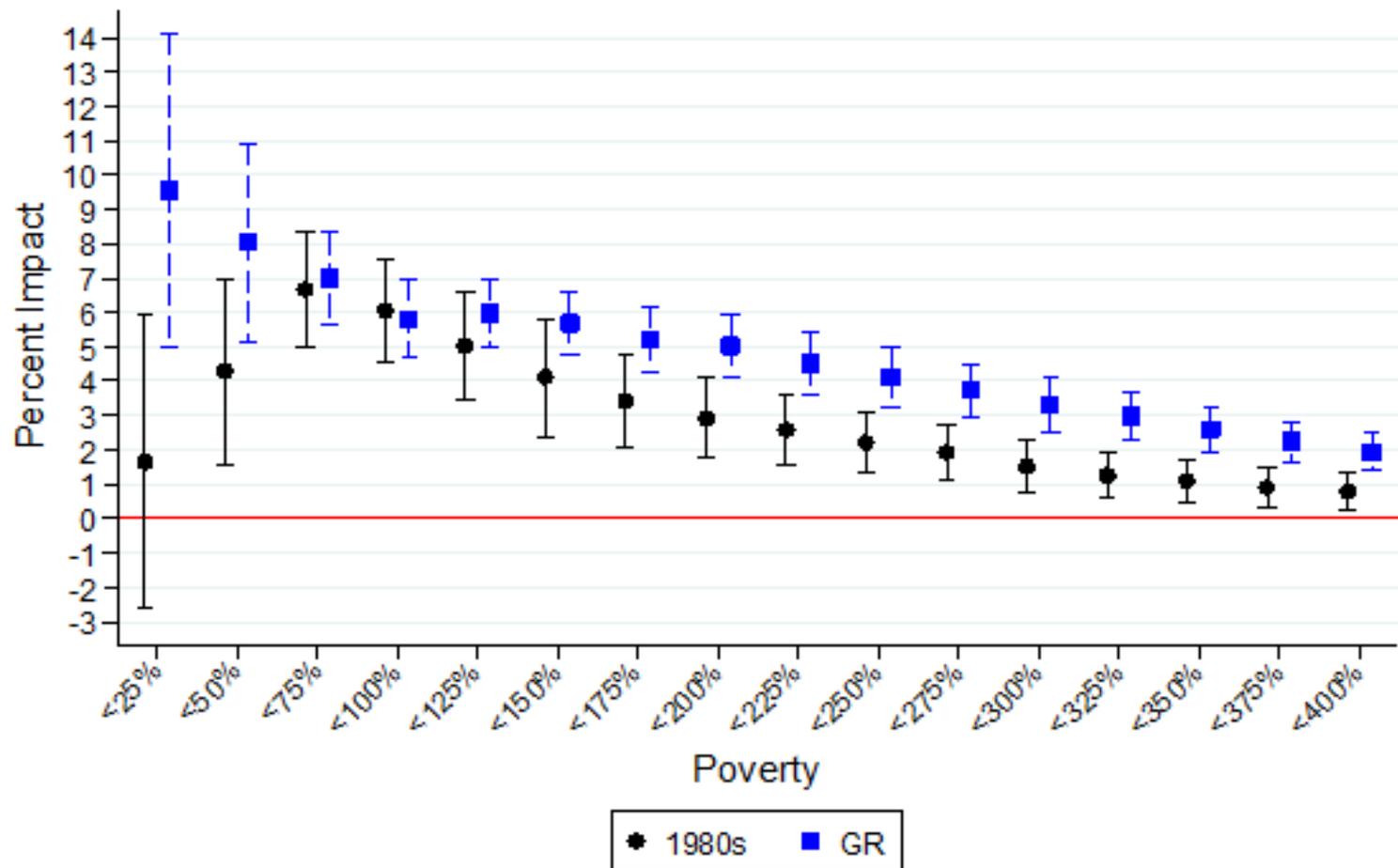
### TANF



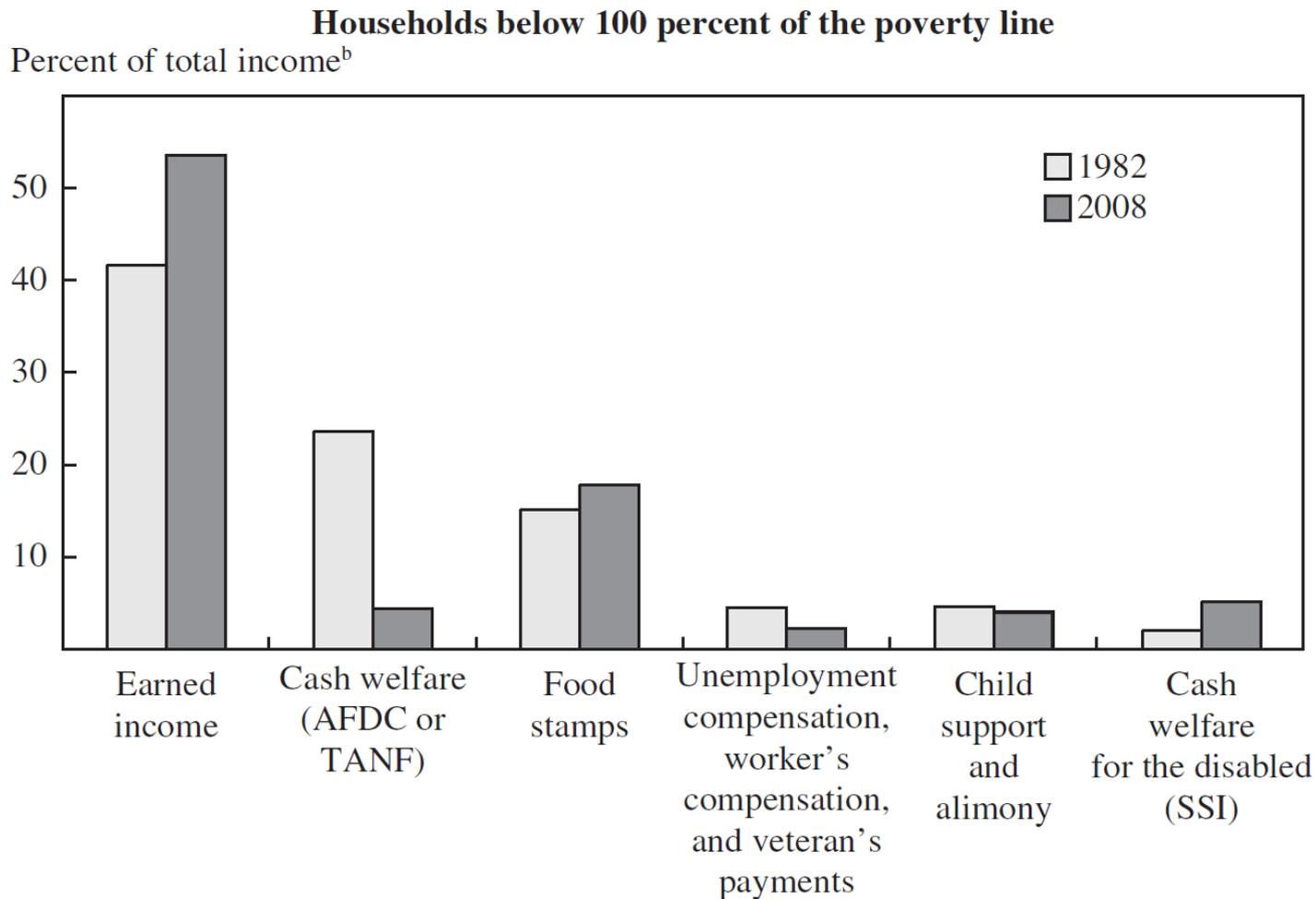
### Food Stamps



### Percent Impact of Unemployment Rate on ATTI Poverty 1980s vs. Great Recession



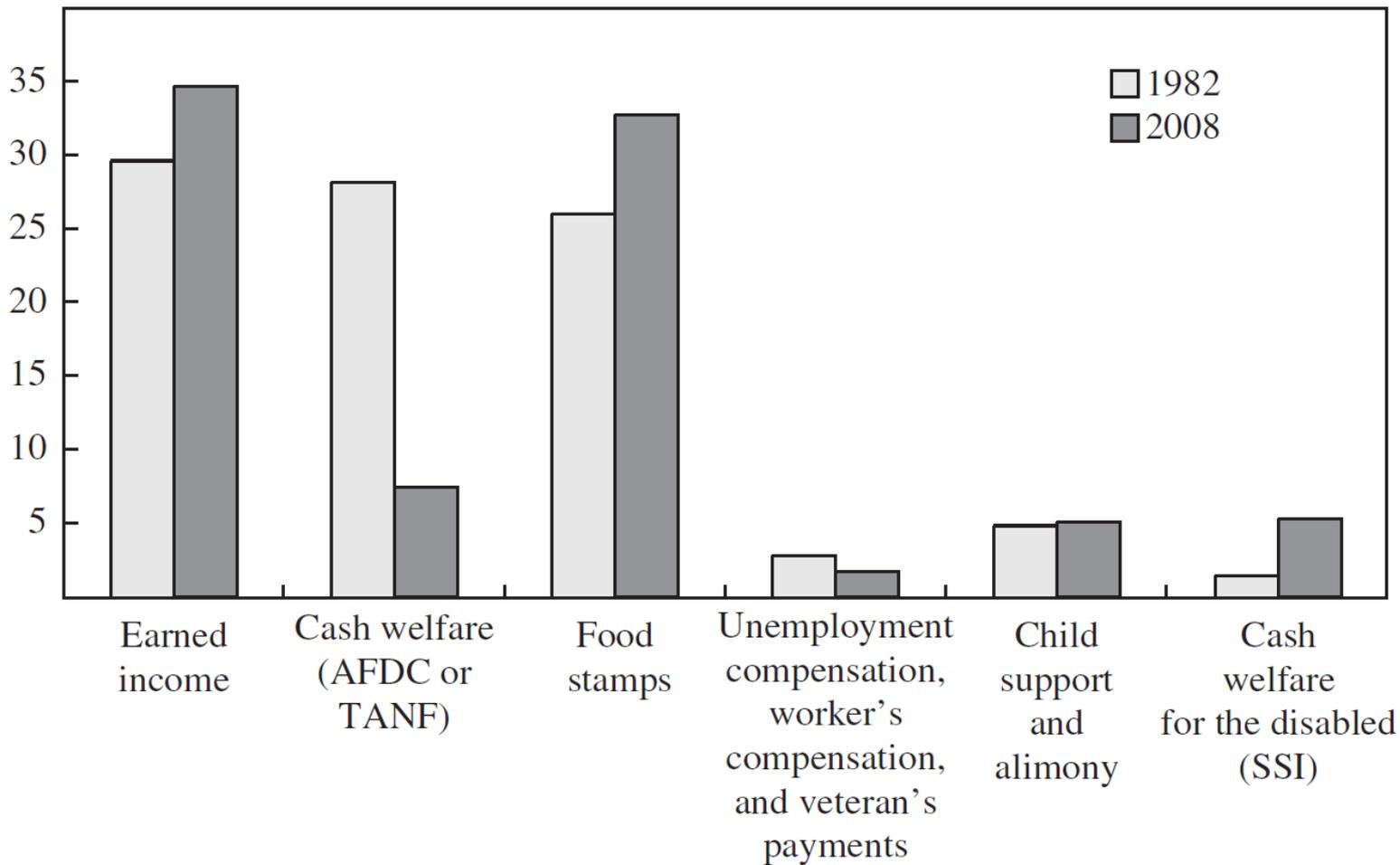
**Figure 4. Composition of Income by Source for Households below the Official Poverty Line, 1982 and 2008<sup>a</sup>**



payments

### Households below 50 percent of the poverty line

Percent of total income<sup>b</sup>



# General lessons for traditional welfare programs

- Basic structure discourages work
- A high phaseout can generate large moral hazard, work disincentives
- Efforts to encourage work (reducing  $t$ ) can have unintended effects on new entrants and increasing the cost and size of the program
- State safety net programs generate massive inequities across states

# **Handout: Experimental Methods, the Evaluation Problem and Quantile Treatment Effects**

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PP290

## **A QUICK PRIMER ON EXPERIMENTAL METHODS AND THE EVALUATION PROBLEM**

- Evaluation research seeks to estimate the impact of a policy or treatment on an outcome.
- Treatment is dichotomous: received training, faced different welfare program, etc.
- The task of evaluation research, therefore, is to devise methods to reliably estimate their effects on outcomes, so that informed decisions about program expansion and termination can be made.

## Potential Outcomes Model and Notation:

$Y_{i1}$  = outcome for  $i$  in counterfactual state of receiving treatment

$Y_{i0}$  = outcome for  $i$  in counterfactual state of not being treated

$D_i$  = Treatment indicator [=1 if treated, =0 if not]

Treatment effect on  $i$                        $\Delta_i = Y_{i1} - Y_{i0}$

It is the goal of evaluation research to learn about  $\Delta_i$

- The “fundamental evaluation problem” is that the pair  $(Y_{i1}, Y_{i0})$  is never observed. This is true for non-experimental and experimental settings.
- The evaluation problem, therefore, can be considered a missing data problem.
- Most approaches accept the impossibility of constructing  $\Delta_i$  and instead seek to estimate the population mean.

## MEASURES USED IN EVALUATION LITERATURE

**Effect of the treatment on the treated (TOT)**  $E(\Delta|D=1)$

DEF: Average gain in the outcome for persons in the program— either the group that ‘selects’ into the program, or the group that is (randomly) assigned to the program.

**Average treatment effect (ATE)**  $= E(\Delta)$

DEF: Average gain in the outcome for all persons who are eligible, rather than those who (voluntarily choose to) participate.

**Local average treatment effect (LATE)**

Generated from some marginal change in the program and/or participants  
Measures the mean impact of the program on those persons whose participation status changes due to the change in the policy instrument.

**(Common effects means that ATE=TOT=LATE)**

## EXPERIMENTAL SOLUTIONS TO EVALUATION PROBLEM

- Randomization of program status provides a solution to the problem
- Up to sampling variation, the treatment and control groups have the same distribution of observed and unobserved characteristics
- How can we examine the validity of the random assignment assumption? (check pre RA variables and test for differences btw T and C groups.)

Given random assignment, the average effect of treatment on the treated can be estimated by comparing means in the treatment and control groups:

$$\bar{\Delta} = E[Y | D = 1] - E[Y | D = 0]$$

How is this estimator compared to the DD estimator? Why is this a single difference estimator?

You can also estimate this in a regression framework; and can add covariates to improve efficiency.

$$y_i = \alpha + \gamma D_i + X_i \beta + \varepsilon_i$$

**“What Mean Impacts Miss: Distributional Impacts of Welfare Reform Experiments” AER 2006**  
**Bitler, Gelbach and Hoynes**

Purpose of our paper:

- explore heterogeneity in the impact of this treatment
- what can be estimated in experimental context without any further assumptions, maintaining nonparametric appeal of the experimental estimators
- in our application, the theory predicts negative impacts on labor supply for some and positive impacts on labor supply for others.
- Can we reveal these predictions using a nonparametric distributional estimator?

We estimate Quantile Treatment Effects (QTEs)

- No other assumptions are required beyond random assignment
- QTE estimates the impact of the treatment on the *distribution of outcomes*.
- The QTE is analogous to the assumption-free mean impact

## Quantile Treatment Effect (QTE)

$$\Delta_q = y_q(1) - y_q(0)$$

$y_q(t)$  =  $q$ th quantile of the marginal distributions (of T and C groups)

- QTE for  $q$ th quantile is simple difference in quantiles of treatment and control group.
- For example, the QTE at percentile 50 is the difference in medians of the T and C distribution.
- *Interpretation: change in expected value of the outcome at the  $q$ th quantile when we take a randomly chosen, previously untreated person and give them the treatment.*
- given random assignment: the impact of the treatment on the distribution can be estimated without any further assumptions (non-parametric estimator; simple treatment control comparisons)

Estimators that require more assumptions beyond random assignment:

### Distribution of Treatment Effects (DTE)

$$Pr(\Delta_i \leq \delta) \equiv G(\delta)$$

DTE gives us measures such as the fraction of losers,  $Pr(\Delta_i < 0) = G(0)$ , or quantiles of treatment effect.

But, since we do not observe  $\Delta$ , we can not make statements about the distribution of  $\Delta$  without further assumptions.

Under some conditions, the QTE tell us about the DTE:

- Constant treatment effects
- Under *rank preservation*, QTEs give actual distribution of treatment effects.
- If top(bottom) quartile has – (+) QTE, then treatment effect is too.

## Argument for usefulness of QTE estimator

The estimation of QTEs is sufficient for policy evaluation

- Social welfare functions typically rely on marginal distributions (e.g. how does a given policy change the distribution of income?)

## **Why we use distributional methods in this application**

- labor supply theory predicts reduction in labor supply for some and increase for others. Does mean impact estimator reveal these patterns? Can miss the negatives for some and positives for others.
- allows a better “test” of the theory.

## **WHY USE EXPERIMENTAL DATA?**

- Want to use an empirical framework where the identification is clear and incontrovertible
- Identification of impacts of welfare reform using nonexperimental methods is less clear; especially for TANF

## **WHY CONNECTICUT JOBS FIRST PROGRAM?**

- Most TANF-like of all programs evaluated using experimental design
- The heterogeneous labor supply predictions we predict are not new—but no previous study has identified this type of behavior
- JF has most dramatic change to work incentives that I know of

Validity of the experiment: Things to check (always):

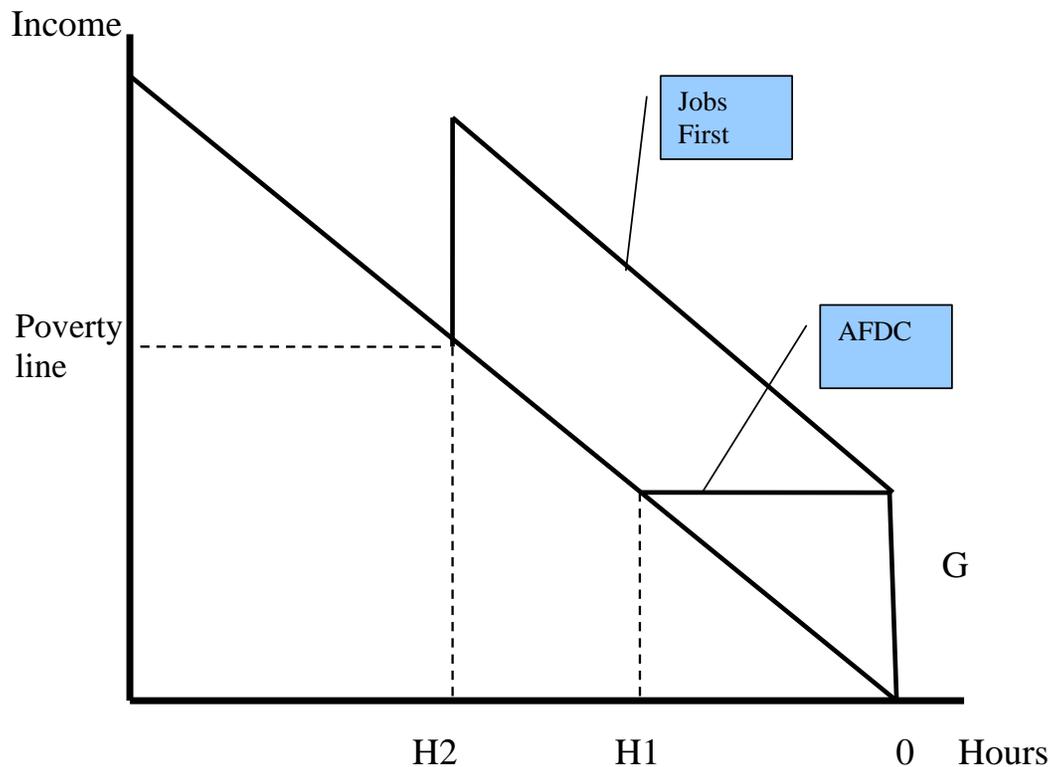
1. Is the treatment assigned randomly: test for differences between observables at random assignment.
2. Is there differential attrition from the experiment between the treatment and control group?

## Key features in Connecticut reform

Time limit 21 months (shortest in US)

Earnings disregard (tax rate reduced from 100% to 0%). Recipients can keep entire welfare benefit until earnings reach the poverty line.

Figure 1: Stylized Budget Constraint for AFDC and Jobs First



### Labor supply predictions:

- Participation (emp) increases
- Incentive to increase hours at the bottom of the distribution ( $H=H1$ )
- Incentive to decrease hours higher up the distribution ( $H>H1$ )

### Bottom line:

- ❖ Predicted effects of JF are heterogeneous
- ❖ Mean effects may mask positive and negative effects
- ❖ We also derive predictions for effects on labor supply AFTER time limits and on transfer income and total income.

- The labor supply prediction:
  - Extensive margin: increases in employment
  - Intensive margin: increase in hours at the bottom and declines in hours at the topis an inescapable feature of income support programs.
- All income conditioned programs have some “phase-out” range. The phase-out may be at a low rate (EITC), at a high rate (traditional welfare programs) or with a cliff (Jobs First).
- Thus, these results are relevant for the broader literature on income support programs.

This paper is part of our larger research program concerned with identification of extensive and intensive margin labor supply effects.

## **EXPERIMENT AND DATA:**

- Statewide waiver program
- Random assignment 1/96-2/97; 4 year followup
- Evaluation in New Haven & Manchester
- Public use data (MDRC): 4,803 single parent cases
- Administrative data on earnings (from UI) and transfer payments (AFDC/JF and Food stamps)
- Demographic data from pre-RA interview

Is treatment assigned randomly?

Experimental analysis—always start by checking balance of pre-RA observables between T and C groups.

Demographics	Levels		Difference	Joint test for equality p=0.16 Can not reject that assignment was random.
	Jobs First	AFDC		
White	0.363	0.349	0.014	
Black	0.366	0.369	-0.002	
Hispanic	0.208	0.217	-0.009	
HS Dropout	0.331	0.313	0.018	
HS Grad	0.550	0.565	-0.015	
More than HS	0.063	0.059	0.004	
>2 children	0.227	0.206	0.021*	
>=2 children	0.484	0.470	0.014	
Youngest Child <=5	0.536	0.525	0.011	
Never Married	0.625	0.630	-0.005	
Mom<25	0.290	0.296	-0.006	
Mom 25-34	0.411	0.416	-0.005	
Mom>34	0.299	0.287	0.011	
Recipient (stock) Sample	0.622	0.591	0.032**	

But, there are statistically significant differences between T and control groups' pre-RA earnings and welfare use.

T group is more disadvantaged (less earnings, more welfare pre-RA)

	Levels		Difference
	Jobs First	AFDC	
Average pre-treatment quarterly earnings	678	789	-111***
Average pre-treatment quarterly welfare	888	832	56**
Fraction of pre-treatment quarters with earnings	0.322	0.351	-0.030**
Fraction of pre-treatment quarters with welfare	0.571	0.542	0.029**

How we deal with the imbalance:

We use inverse propensity score weights when calculating the QTEs (Firpo 2003).

We use bootstrap techniques to calculate confidence intervals for each QTE.

Note: In this application, adjusting for Xs turns out to affect the estimated MEAN impacts, but does not affect the QTE.

Before showing the QTE results, what do the ATE (mean impacts) show?

TABLE 4—MEAN OUTCOMES AND IMPACTS

	All quarters			Quarters 1–7			Quarters 8–16		
	Jobs First	AFDC	Adjusted difference	Jobs First	AFDC	Adjusted difference	Jobs First	AFDC	Adjusted difference
<i>Average quarterly level</i>									
Income	2,745 (35)	2,609 (57)	136** (64)	2,744 (31)	2,450 (48)	294*** (53)	2,748 (44)	2,733 (67)	14 (78)
Earnings	1,658 (35)	1,561 (58)	97 (64)	1,195 (29)	1,113 (49)	82 (52)	2,020 (45)	1,908 (68)	112 (78)
Transfers	1,088 (15)	1,048 (16)	40** (20)	1,550 (17)	1,337 (17)	212*** (22)	728 (17)	825 (18)	–98*** (23)
<i>Fraction of quarters with</i>									
Any income	0.852 (0.005)	0.857 (0.005)	–0.005 (0.007)	0.908 (0.005)	0.906 (0.005)	0.002 (0.006)	0.809 (0.007)	0.820 (0.006)	–0.010 (0.009)
Any earnings	0.561 (0.007)	0.490 (0.007)	0.071*** (0.009)	0.519 (0.007)	0.442 (0.007)	0.077*** (0.009)	0.593 (0.008)	0.527 (0.008)	0.066*** (0.011)
Any transfers	0.626 (0.007)	0.622 (0.007)	0.004 (0.009)	0.794 (0.006)	0.756 (0.007)	0.038*** (0.009)	0.496 (0.008)	0.519 (0.009)	–0.023** (0.011)
N	2,381	2,392	4,773	2,396	2,407	4,803	2,381	2,392	4,773

No significant effects on earnings; significant (positive) effect on extensive margin.

Table 1: Mean differences in earnings by subgroups

Subgroup	Mean difference	95% CI	Control group mean	$N_C$ /share	$N_T$ /share
All	34	[-58, 126 ]	1139	16,849	16,772
<i>By education of case head:</i>					
No HS degree/GED	105	[-16, 225 ]	662	0.31	0.33
At least HS/GED	42	[-77, 161 ]	1350	0.62	0.61
F-statistic [ $p$ -value]	0.52	[0.47]			
<i>By whether youngest child is <math>\leq 5</math>:</i>					
Youngest child $\leq 5$	48	[-59, 156 ]	1073	0.63	0.62
Youngest child $\geq 6$	88	[-69, 244]	1183	0.33	0.35
F-statistic [ $p$ -value]	0.17	[0.68]			
<i>By number of children in case:</i>					
2 or more	101	[-25, 228]	1071	0.47	0.48
1 or pregnant	30	[-95, 154]	1148	0.49	0.48
F-statistic [ $p$ -value]	0.63	[0.43]			
<i>By marital status of case head:</i>					
Never married	36	[-65, 137]	1064	0.63	0.62
Ever married	88	[-86, 262]	1224	0.32	0.33
F-statistic [ $p$ -value]	0.26	[0.61]			

By share of quarters with any earnings before RA:

Zero	212	[122, 302]	450	0.40	0.44
Low	103	[-36 , 242]	1090	0.32	0.32
High	-137	[-367, 93 ]	2180	0.28	0.25
F-statistic [ <i>p</i> -value]	4.13	[0.02]			

By level of earnings  $\gamma^{\text{th}}$  quarter before RA:

Zero	157	[70, 243]	762	0.67	0.70
Low	35	[-157 , 227]	1332	0.16	0.15
High	-361	[-711, -12]	2524	0.16	0.15
F-statistic [ <i>p</i> -value]	4.37	[0.01]			

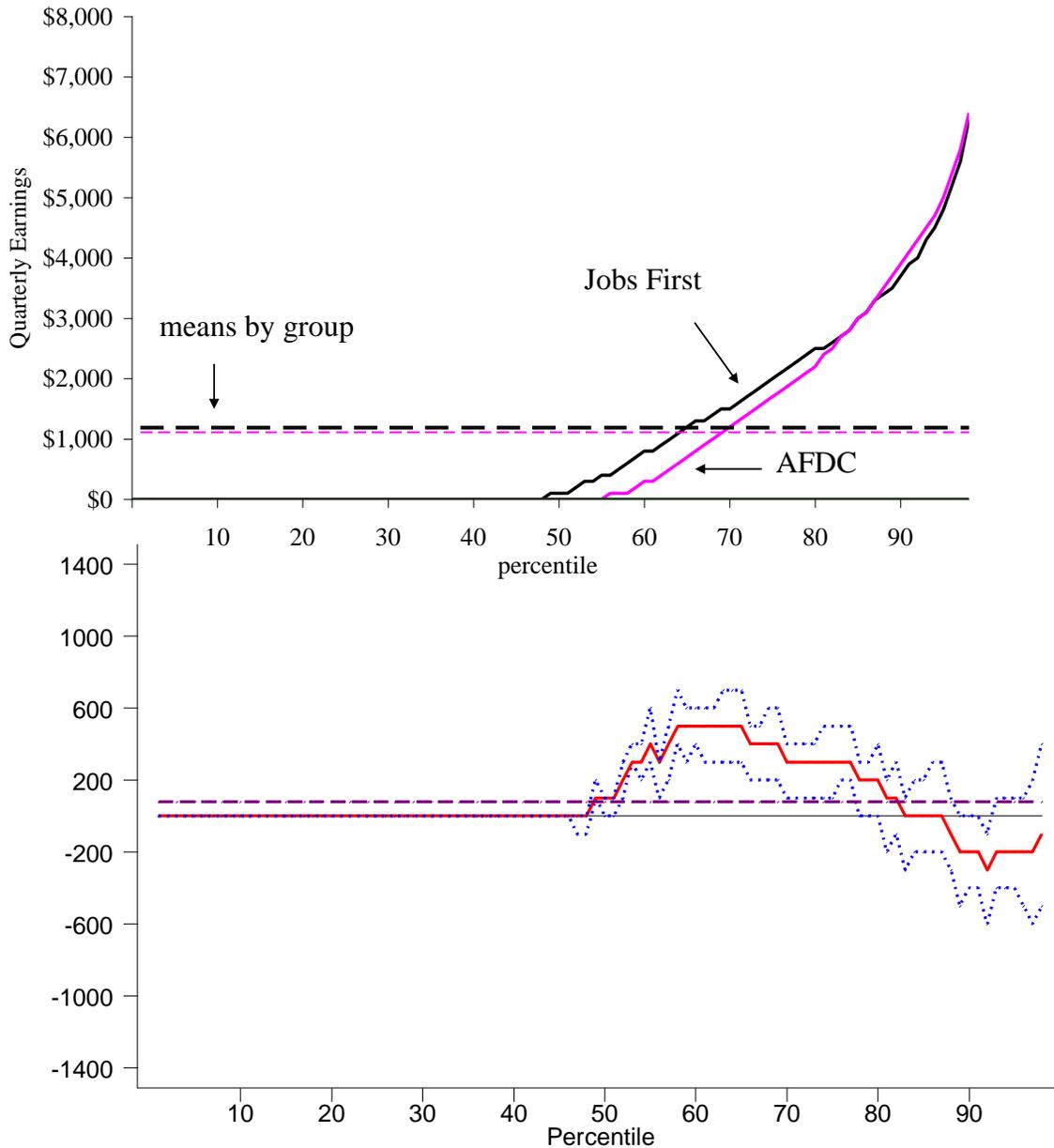
By whether on AFDC  $\gamma^{\text{th}}$  quarter before RA:

Yes	83	[-33, 200]	968	0.53	0.55
No	-9	[-154, 136 ]	1330	0.47	0.45
F-statistic [ <i>p</i> -value]	0.95	[0.33]			

---

Numbers in first column are treatment-control differences in earnings, second column counts in during the first seven quarters

Only evidence of effects consistent with theoretical predictions is to use earnings history. This is suggestive of the patterns predicted by theory.



Illustrating how to calculate the QTE.

Here are the main results for labor supply (earnings) prior to time limits.

Consistent with theoretical predictions.

Very different from mean impacts.

## DETAILS: ESTIMATING THE QTE

### 1. Estimate inverse propensity scores

- Estimate logit with dependent variable equal to treatment dummy  $Pr[T_i=1]$  as a function of pre-random assignment variables
- Predict probability for each observation,  $\hat{p}_i$
- Form inverse propensity score weight:  $\hat{w}_i = \frac{T_i}{\hat{p}_i} + \frac{1-T_i}{1-\hat{p}_i}$

### 1. Construct quantiles of JF and AFDC distribution for quantiles 1, 2, .. 99.

- Construct  $F(y) \equiv \Pr[Y \leq y]$  accounting for weights  $\hat{F}(y) \equiv \sum_i v_i 1(Y_i \leq y)$

where  $v$  is the normalized weight.

- Construct quantiles using this empirical weighted distribution–  $q$ th quantile of  $F$  is the smallest value  $y_q$  such that  $\hat{F}(y_q) = q$ .
- $QTE = y_q(JF) - y_q(AFDC)$

## DETAILS: BOOTSTRAPPING THE STANDARD ERRORS

For each replication:

- I. Resample from sample persons and use the full profile of data for the woman (“block bootstrapping”). This accounts for within-person dependence.
- II. Draw 2,381 times from JF distribution and 2,392 times from AFDC distribution (sample size)
- III. Calculate QTE in replication sample (using estimated propensity score from real sample)

Repeat 1000 times.

- IV. For each QTE (quantiles 1-99), calculate standard errors using empirical standard deviation of the bootstrap sample.
- V. Calculate confidence intervals using standard normal distribution.

# **LECTURE: WELFARE REFORM**

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PP290

## STATEMENT OF GOALS OF PRWORA

The Temporary Assistance for Needy Families (TANF) program was established with the passage of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA).

TANF has four main goals:

1. to provide assistance to needy families so that children may be cared for in their own homes or in the homes of relatives;
2. to end the dependency of needy parents on government benefits by promoting job preparation, work, and marriage;
3. to prevent and reduce the incidence of out-of-wedlock pregnancies and establish annual numerical goals for preventing and reducing the incidence of these pregnancies; and
4. to encourage the formation and maintenance of two-parent families.

## **WELFARE REFORM IN 1990S**

Reforms in the 1990s addressed long-standing criticisms that AFDC discourages work and marriage, and causes long term dependence.

Two periods of “reform”

### **(1) State waivers**

- States request HHS to waive specific eligibility and benefit requirements.
- Between 1992 and 1996, 28 states were granted major waivers.
- Rich variation in timing and nature of waivers

### **(2) FEDERAL REFORM, PRWORA 1996**

- Replaces AFDC with TANF (Temporary Assistance for Needy Families)
- TANF features:
  - More state control for program design
  - Time limit (lifetime limit of 5 years– states can make shorter)
  - Strengthen work requirements
  - Financial sanctions
  - Convert federal funding from matching program to block grant (entitlement aspect of AFDC gone)
- Less variation in TANF implementation dates; still variation in nature of state TANF reforms.

## BLOCK GRANTS VERSUS MATCHING FORMULAS

Since 1965 (and as part of Title XIX of the Social Security Act in 1965 which created the Medicaid and Medicare programs) AFDC financing was based on a matching formula based on the Federal Medical Assistance Percentage (FMAP) used in determining a state's financial liability for its Medicaid program. Specifically, the federal share of a state's AFDC benefit payments was determined by the matching formula

$$FMAP = 1 - 0.45 * \left( \frac{\text{State per capita income}}{\text{National per capita income}} \right)^2 ,$$

So an average per capita income state has 55% paid by federal government (and 45% for state). Federal share has a floor of 50%, the average was 60% and the max was 78% (Mississippi).

Result was a federal open-ended obligation to states under AFDC that implicitly rose and fell with the health of the state's macroeconomy.

Subsidized entitlement program.

The entitlement was severed with the creation of the TANF program:

PRWORA allocated an annual block grant to states of \$16.5 billion (what each state spent in year prior to bill passage), and because the appropriation is fixed in nominal terms, the real value has declined by over 25 percent since its inception (and does not grown with demand, population, or other factors)

There was a contingency fund or emergency fund that states can tap into. Not funded at a very high level.

TANF legislation mandated that states continue to provide financial support for low-income families as a condition for receipt of the basic block, known as the maintenance-of-effort (MOE) requirement. States can count any state, local, or “third party” spending (e.g. spending by food banks or domestic violence shelters) directed towards needy families as long as it is tied to at least one of the four goals of TANF. For example, many states meet MOE is with state EITCs.

## EFFECTS ON IMMIGRANTS

PRWORA did more than just reform AFDC to TANF

It put restrictions on participation in social safety net programs for immigrants (SNAP, Medicaid). These policies are complicated, have changed over time, and have been “filled in” by states.

From “Liberal Lessons from Welfare Reform” Sandy Jencks

When this legislation was adopted, its opponents made four predictions:

Many mothers would not be able to find jobs when they hit their TANF time limit;

Even mothers who found jobs would seldom earn enough to support their family;

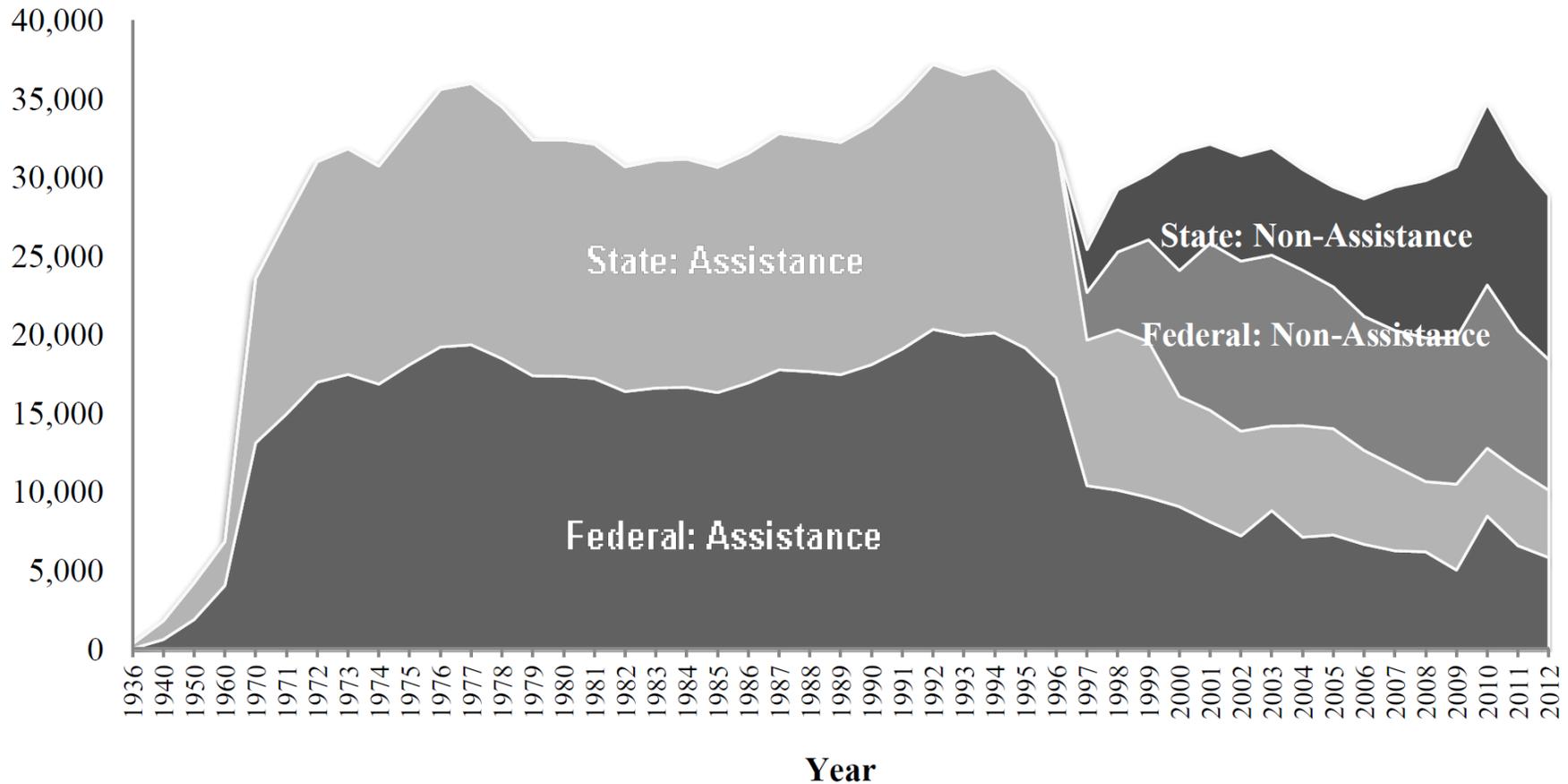
Forcing unmarried mothers to work would not reduce unwed motherhood or discourage divorce; and

There would not be enough good child care, so more children would be neglected.

With block grants, there would be a “race to the bottom” for states and their programs.

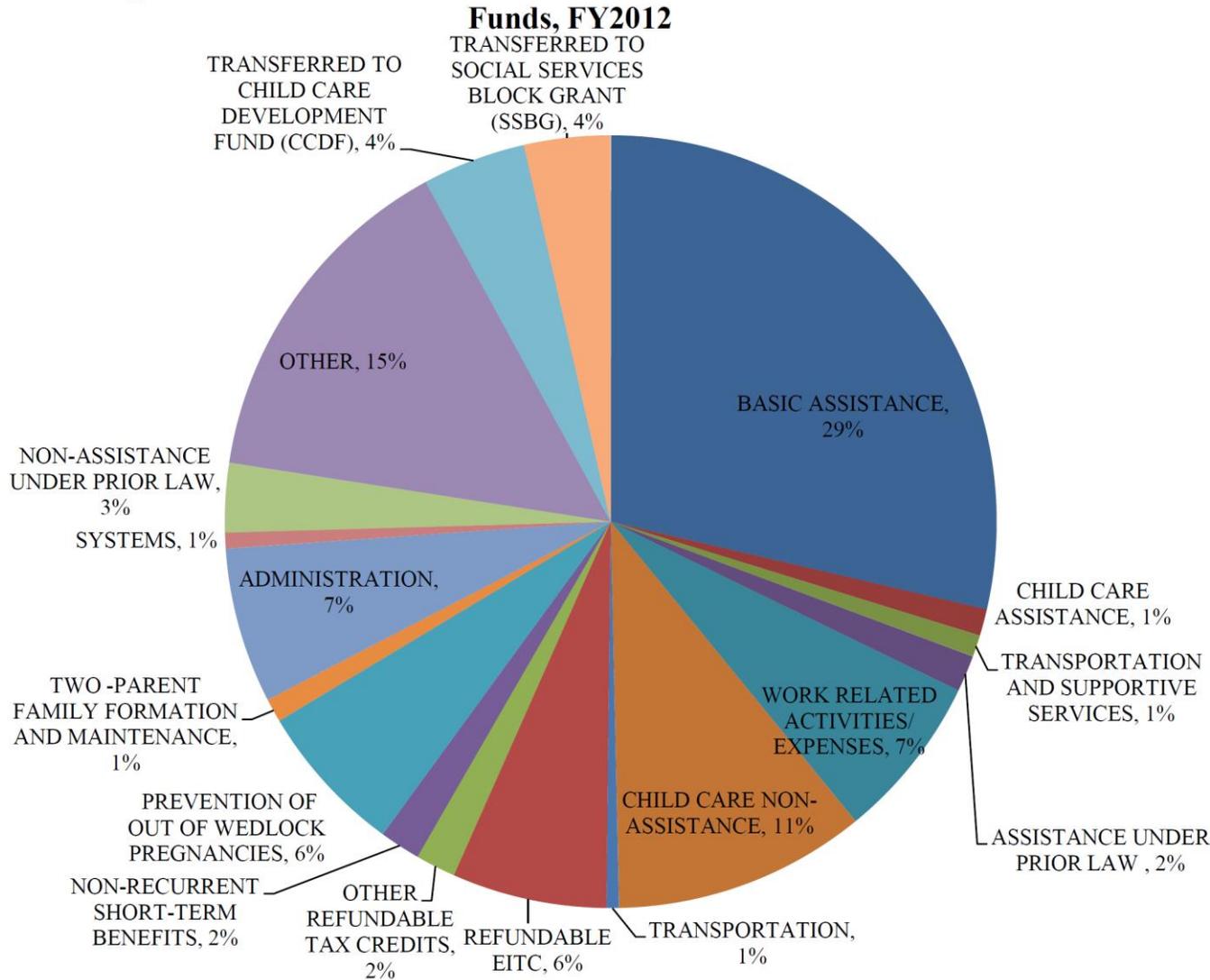
# WHAT HAPPENED? SHIFT FROM CASH TO NON CASH ASSISTANCE

**Figure 2. AFDC/TANF Expenditures by Level and Category, FY 1936-2012 (in millions of 2012 dollars)**



Source: Ziliak, MTTT2.

**Figure 3. Allocation of Federal TANF and State Maintenance of Effort**

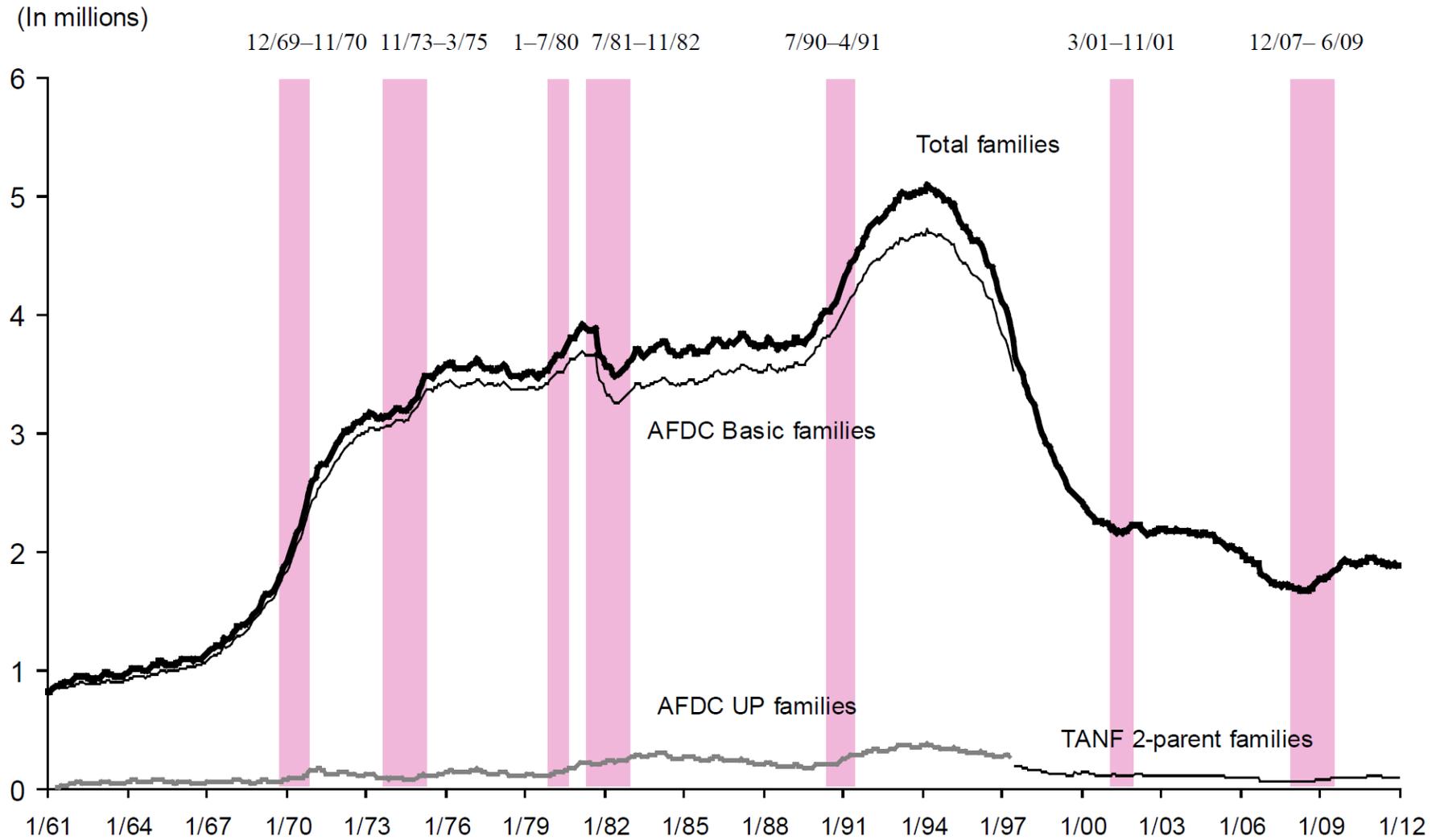


Source: Ziliak MTTT2

The CCDF and SSBG can cover families up to 200% FPL.

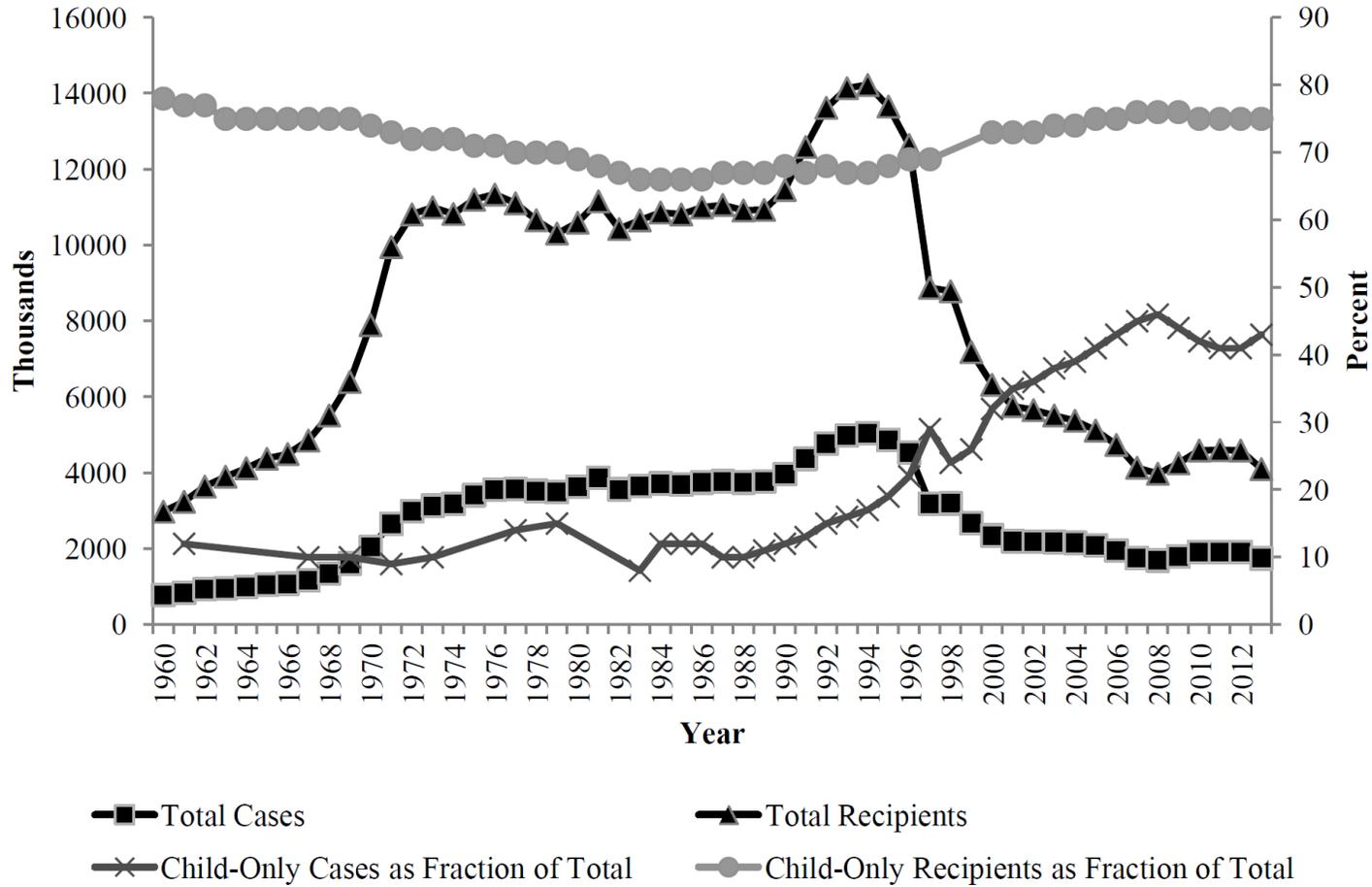
# WHAT HAPPENED? CASELOADS DECLINED

**Figure TANF 1. AFDC/TANF Families Receiving Income Assistance**



Source: Indicators of Welfare Dependence 2014

**Figure 4. Trends in AFDC/TANF Caseloads and Recipients, 1960-2013**



Source: Ziliak MTTT2

## WHAT HAPPENED? TIME LIMITS

**Table 6. State Time Limits, July 2012**

States	Time Limits
34: AK <sup>1</sup> , AL, CO, HI, IA <sup>6</sup> , IL <sup>1</sup> , KY, LA, MD, ME, MN, MO, MS, MT, NC <sup>8</sup> , ND, NE, NH, NJ, NM, NV, OH <sup>9</sup> , OK, OR <sup>10*</sup> , PA, SC, SD, TN, TX, VA, WA <sup>12</sup> , WI, WV, WY	60 months
6: CA <sup>2*</sup> , FL, GA, KS, MI, RI	48 months
2: DE <sup>4</sup> , UT	36 months
4: AR, AZ, ID, IN*	24 months
1: MA	24 months of assistance per 60-month period
1: CT <sup>3</sup>	21 months
2: NY <sup>7</sup> , VT <sup>11</sup>	Unlimited; state-sponsored after 60 months
1: DC <sup>5</sup>	After 60 months, eligibility is determined at a reduced level where benefits are paid at 80 percent of payment level for unit size.

Source: Welfare Rules Databook: State TANF Policies as of July 2012, OPRE Report 2013-27, published November 2013 (Urban Institute), Table IV.C.1 State Lifetime Time Limit Policies, July 2012.

Source: Ziliak MTTT2

# WHAT HAPPENED: OTHER POLICIES

**Table 5. State Policy Choices in the TANF Program as of 2012**

State	Max benefit guarantee, 3-person case <sup>A</sup>	Change in max benefit since 1996 <sup>A</sup>	Family cap <sup>B</sup>	Liquid asset limit <sup>C</sup>	Vehicle asset test <sup>C</sup>	Diversion payment amount <sup>D</sup>
Alabama	215	51	No	None	All	None
Alaska	923	0	No	2000/3000 <sup>1</sup>	All <sup>2</sup>	3 months
Arizona	278	-69	Yes	2000	All	3 months
Arkansas	204	0	Yes	3000	One	3 months
California	—	—	Yes	2000/3000 <sup>1</sup>	4650 <sup>F</sup> /driver <sup>3</sup>	Varies
<i>Nonexempt</i>	638	42	—			
<i>Exempt</i>	714	118	—			
Colorado	462	106	No	None	All	Varies
Connecticut	576	33	Yes	3000	9500 <sup>4E</sup>	3 months
Delaware	338	0	Yes	10000	All	\$1500
D.C.	428	13	No	2000/3000 <sup>1</sup>	All	3 months
Florida	303	0	Yes	2000	8500 <sup>E</sup>	Varies
Georgia	280	0	Yes	1000	1500/4650 <sup>5E</sup>	None
Hawaii	610	-102	No	5000	All	None
Idaho	309	-8	No	5000	One	3 months
Illinois	432	55	No	2000/3000/+50 <sup>6</sup>	One <sup>7</sup>	None*
Indiana	288	0	Yes	1000/1500 <sup>R</sup>	5000 <sup>E</sup>	None
Iowa	426	0	No	2000/5000 <sup>R</sup>	One <sup>8</sup>	None
Kansas	429	0	No	2000	All	\$1000
Kentucky	262	0	No	2000 <sup>9</sup>	All	\$1300
Louisiana	240	50	No	None	All	None
Maine	485	67	No	2000	One	3 months
Maryland	574	201	No	None	All	3 months

Source: Ziliak MTTT2

## DICHOTOMY OF WELFARE REFORM

	<b>Welfare Tightening</b>	<b>Welfare Loosening</b>
<b>General Reforms</b>	<ul style="list-style-type: none"> <li>• Work requirements</li> <li>• Financial sanctions</li> <li>• Time limits</li> </ul>	<ul style="list-style-type: none"> <li>• Liberalize earnings disregards</li> <li>• Liberalized asset test</li> </ul>
<b>Family Structure Specific Reforms</b>	<ul style="list-style-type: none"> <li>• Family Cap</li> <li>• Residency Requirement for Unmarried Teens</li> </ul>	<ul style="list-style-type: none"> <li>• Expand eligibility for two-parent families</li> </ul>

## **THEORETICAL PREDICTIONS ABOUT WELFARE REFORM**

### Expected Outcomes:

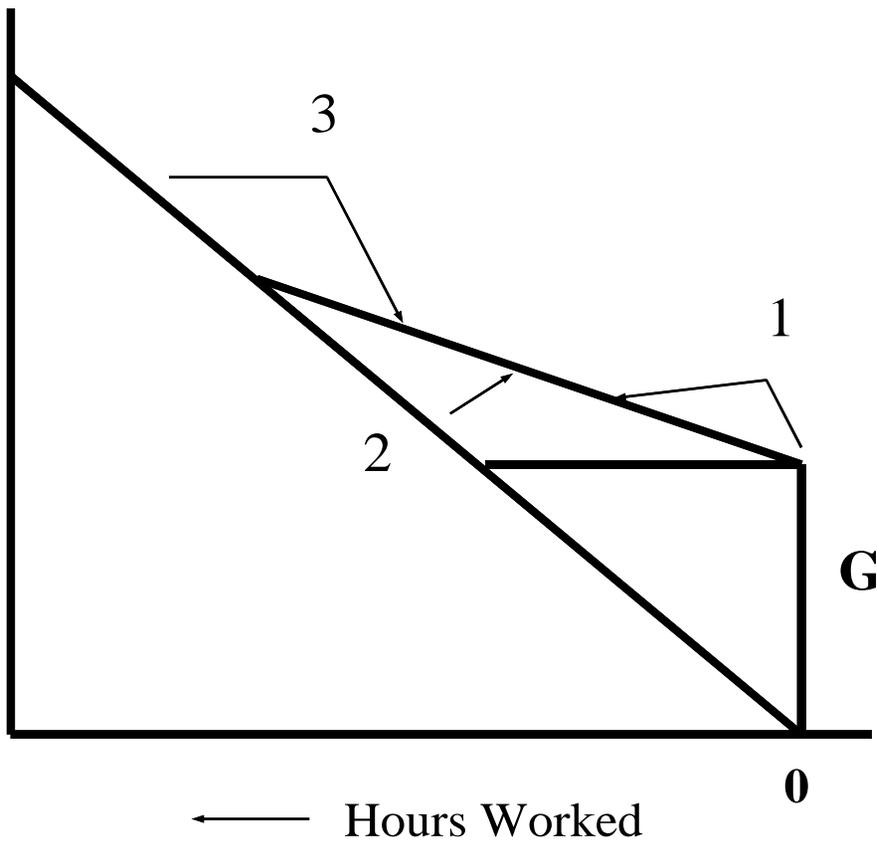
General expected outcomes are:

- reduction in welfare caseloads
- extensive margin labor supply increase; intensive margin ?
- poverty? Could increase or decrease
- family structure is unclear

# IMPACT OF REFORM ON LABOR SUPPLY

Increase in Earnings Disregard (reduction in  $t$ )

Income



Non-working welfare recipients (e.g. 1 above)

- + employment, hours and earnings
- transfer income
- + income

Working welfare recipients

- + (likely) hours, earnings, and transfers
- + income

Newly eligible at prior labor supply (e.g. 2 above)

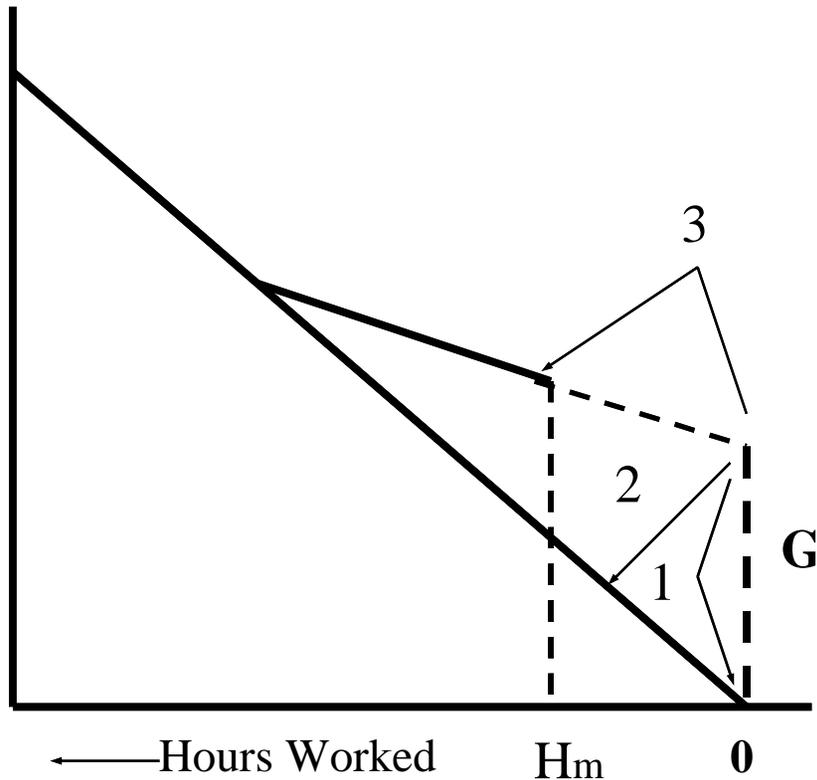
- + welfare (mechanical response)
- hours, earnings
- + income

Ineligible at prior labor supply (e.g. 3 above)

- + welfare (behavioral response)
- hours, earnings
- income

## (2) Mandatory Work Requirement (minimum hours restriction)

Income



↑ hours, employment rate

↑ earnings

↓ welfare

By TANF Legislation, adults must participate in work activities, and at least half of the caseload must be engaged in 30 hours of work-related activity (20 hours if there is a single parent or caretaker relative of a child under age 6). These activities include: unsubsidized employment, subsidized private or public sector employment, on-the-job training, job search and job readiness assistance (for a maximum of 6 weeks), community service programs, vocational educational training (12 months maximum), and education directly related to employment for recipients without a high school diploma or equivalent.

### (3) Time Limits

- Mechanical effect is to eliminate welfare when recipient reaches the time limit leading to an increase in labor supply.
- Anticipatory response is to bank welfare and exit prior to time limits.

↑ hours worked, labor force participation

↑ earnings

↓welfare

### (4) Financial Sanctions: impose new costs on recipients

↑ hours worked, labor force participation

↑ earnings

↓welfare

## EMPIRICAL MODELS FOR ESTIMATING IMPACTS OF WELFARE REFORM

### Standard difference-in-difference of implementation:

$$y_{ist} = X_{ist} \delta + L_{st} \alpha + R_{st} \beta + \gamma_s + v_t + \varepsilon_{ist}$$

$y_{ist}$  = outcome variable for individual or group  $i$

$X_{ist}$  = individual or group level controls (e.g. age, education, race/ethnicity, central city)

$L_{st}$  = state level controls: labor market opportunities and other state programs (AFDC benefit level, UP program, Medicaid generosity)

$v_t$  = year fixed effects

$\gamma_s$  = state fixed effects

$R_{st}$  = welfare reform variables

$WAIVER_{st} = 1$  if state  $s$  has implemented waiver in  $t$

$TANF_{st} = 1$  if state  $s$  has implemented TANF in  $t$

## SHOW THIS IN DIFFERENCE IN DIFFERENCE TABLE FORM

In this model, effects of welfare reform come from variation across states in timing and presence of state reforms.

Valid source of identification for waivers (rich variation on presence and timing of waivers)

## Challenges to identifying impacts of TANF (e.g. Blank 2002):

TANF reform (1997+) occurs at the same time the economy is booming, and federal and state policies are being expanded for the poor (EITC, minimum wages, Medicaid)

Variation across states in TANF is limited: All states implement TANF in 16 month period between Sept 96 and Jan 98.

## How to solve the identification problem?

1. Estimate typical model and use available variation in TANF
2. Add control groups (not affected by welfare)
3. Use detailed characteristics of state TANF programs (detailed policies implemented in states, etc)
4. Some papers replace reform variable with measure of caseloads (to capture direct effects of reform)
5. Use experimental methods

## RESEARCH ON WELFARE REFORM

There are a lot of studies using non-experimental and experimental approaches. The outcomes examined include:

### Caseloads:

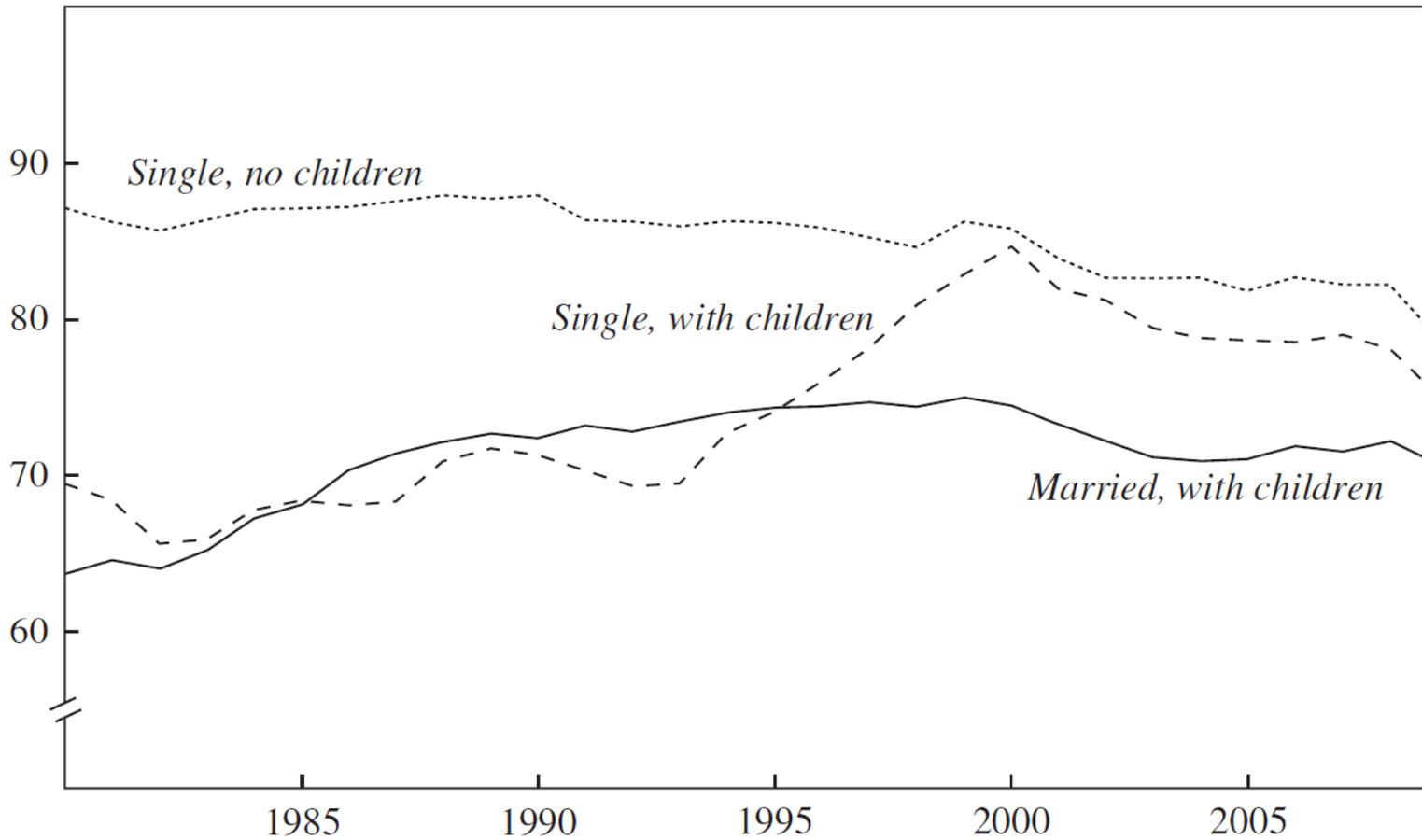
- significant declines attributed to welfare reform and waivers;
- decline in caseload comes from reductions in entry into welfare as well as increases in exits from welfare
- Some evidence that part of the decline is people anticipating limits and “banking their time limits” – but unclear if this is really what is going on

### Employment, earnings

- Employment increases, hard to differentiate between economy, TANF and EITC. But clearly TANF is part of this (and debate on the magnitudes)

**Figure 6.** Female Employment Rate by Marital Status and Presence of Children, 1980–2009<sup>a</sup>

Percent



Source: Authors' calculations from 1981–2010 March CPS data.

a. Employment is measured annually and defined as having worked any weeks during the calendar year before the survey year. The sample includes women aged 20–58.

## Income

- Does “work pay” would we expect income to increase? Returning to basic budget set, expect not (unless there is a strong job ladder whereby wages increase with tenure which there isn't)
- For low skilled and hard to employ, the loss in transfer income offsets the gain in earnings
- Increase in mysterious “disconnected women” [not working, with no visible means of support]
- However this is challenged by poor measurement of income in survey data, that is getting worse over time
- Work focusing on consumption data shows evidence that WR has led to increases in consumption, though moderate in size.

## Health

- Health insurance decreases, at least for women (no Medicaid)
- Some evidence that health of women declines, but hard to know for sure

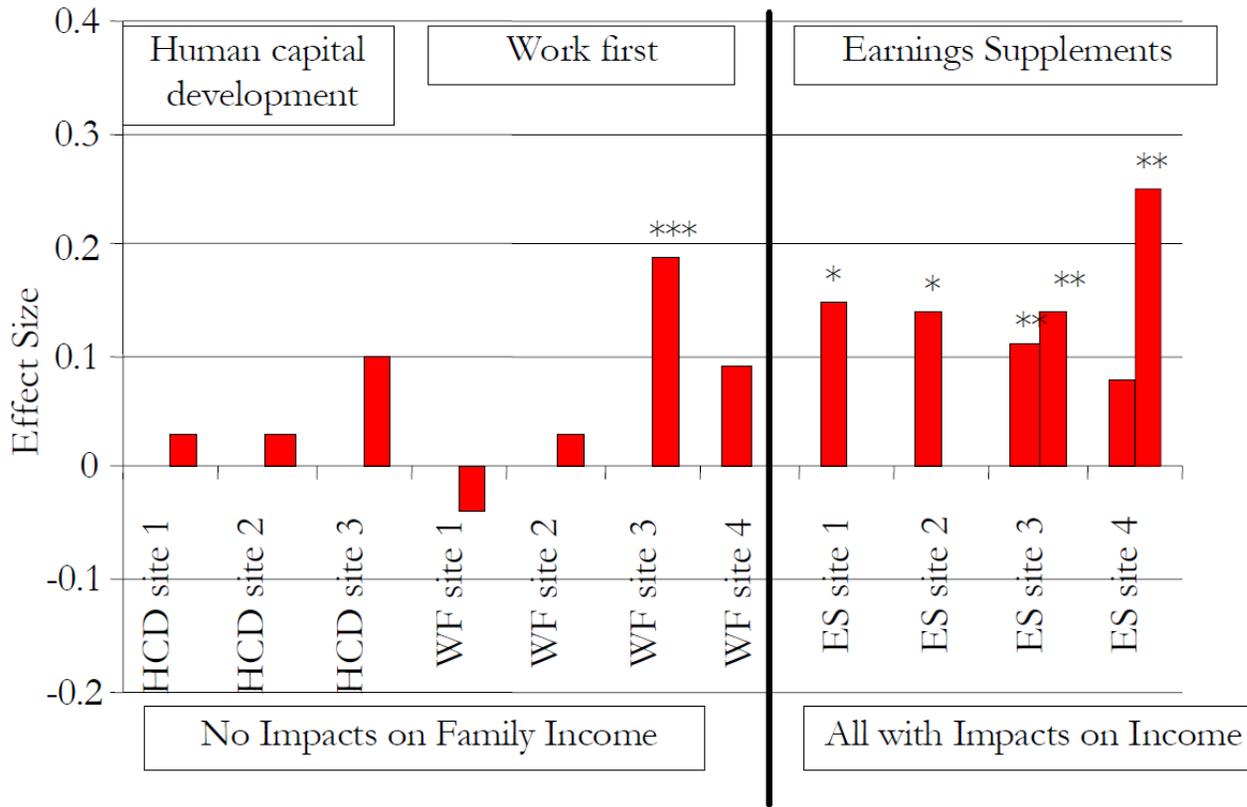
## Family structure – marriage, fertility, living arrangements

- Very small changes, not all consistent with goals of reform
- Mixed evidence though; overall just not very important determinant of these decisions
- Generally hard for social policy to affect outcomes such as teen births. Paper on MTV's "16 and Pregnant"

## Child outcomes – mostly from experimental evidence

- Some evidence that younger children are doing better (or at least not worse) yet adolescent children are doing worse (no monitoring?)
- Maybe reductions in high school drop out rates?

**Figure 4: Impacts of Welfare Programs on Young Children’s Achievement**



Source: Based on data from Morris *et al.* (2001).

“HCD” (Human Capital Development) were designed to provide basic and job-related skills to participants.

“WF” (Work First) emphasized the importance of getting a job.

“ES” (Earnings Supplement) provided incentives for work in the form of earnings supplements

Suggestive that effects on children are larger with income enhancements as part of reform

## WHAT CAN WE LEARN FROM THE GREAT RECESSION?

As we will see in a couple of weeks, we have learned a lot about the reform of the social safety net as seen through the lens of the Great Recession.

Stay tuned.

FROM Jenks Article:

On balance, welfare reform has turned out far better than most liberals expected. Most Americans now see it as one of the great successes of the 1990s. Instead of remaining wedded to the idea that PRWORA was a bad idea because it was supported by the lunatic right, liberals need to rethink. My own conclusions are three:

Telling prospective parents that they would have to take primary responsibility for supporting themselves and their children was a good idea, because 60 years of experience showed that no other approach to reducing family poverty could win broad political support in America.

Shifting government largesse toward those who work was a good idea, because it helped erase the stigma of single motherhood and made more resources available to single mothers and their children.

Turning welfare over to the states was a really good idea, because most states currently take a less ideological view of single mothers' problems than does Congress.

Someday, of course, Congress may also show renewed interest in problem solving. At the moment, however, most states' approach to helping poor families is more pragmatic than Washington's, and the new emphasis on helping low-wage workers has created a significantly better system than we had in 1996.

# USING QUANTILE TREATMENT EFFECTS TO ESTIMATE THE EFFECTS OF A POLICY REFORM ON SOMETHING OTHER THAN THE MEAN

## APPLICATION TO WELFARE REFORM

### **“What Mean Impacts Miss: Distributional Impacts of Welfare Reform Experiments” AER 2006, Bitler, Gelbach and Hoynes**

Purpose of our paper:

- explore heterogeneity in the impact of this treatment
- what can be estimated in experimental context without any further assumptions, maintaining nonparametric appeal of the experimental estimators
- in our application, the theory predicts negative impacts on labor supply for some and positive impacts on labor supply for others.

### Quantile Treatment Effects (QTEs)

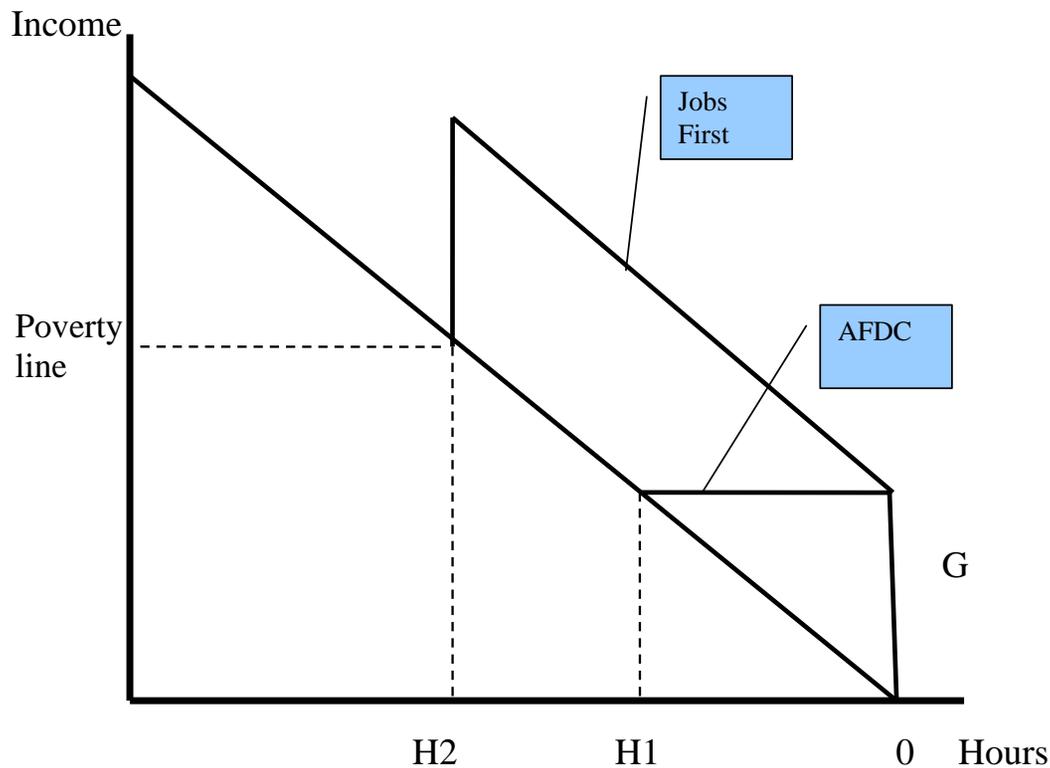
- No other assumptions are required beyond random assignment
- QTE estimates the impact of the treatment on the *distribution of outcomes*.
- The QTE is analogous to the assumption-free mean impact

We use a randomized experimental based on Connecticut's welfare waiver

Time limit 21 months (shortest in US)

Earnings disregard (tax rate reduced from 100% to 0%). Recipients can keep entire welfare benefit until earnings reach the poverty line.

Figure 1: Stylized Budget Constraint for AFDC and Jobs First



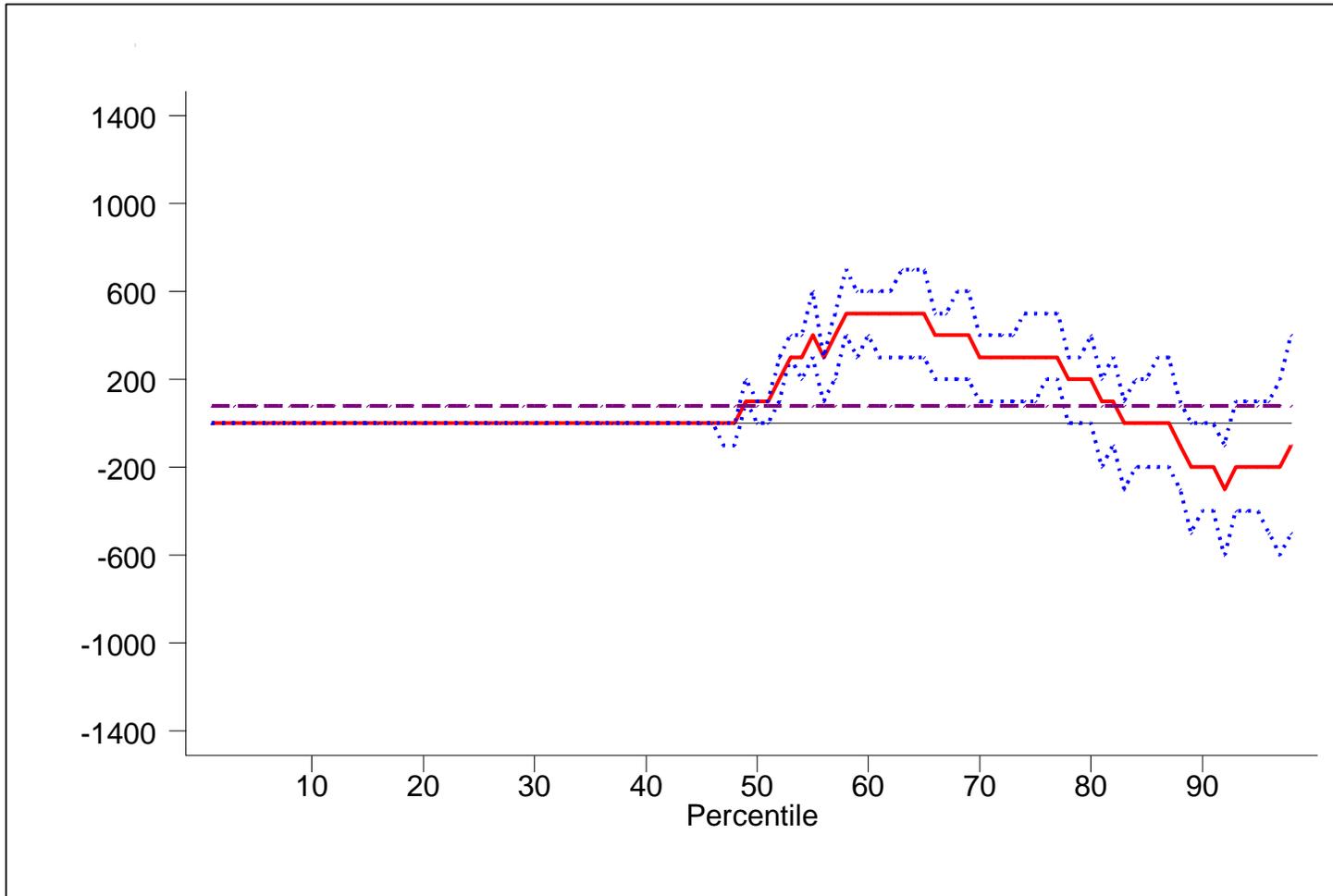
Labor supply predictions:

- Participation (emp) increases
- Incentive to increase hours at the bottom of the distribution ( $H=H1$ )
- Incentive to decrease hours higher up the distribution ( $H>H1$ )

Bottom line:

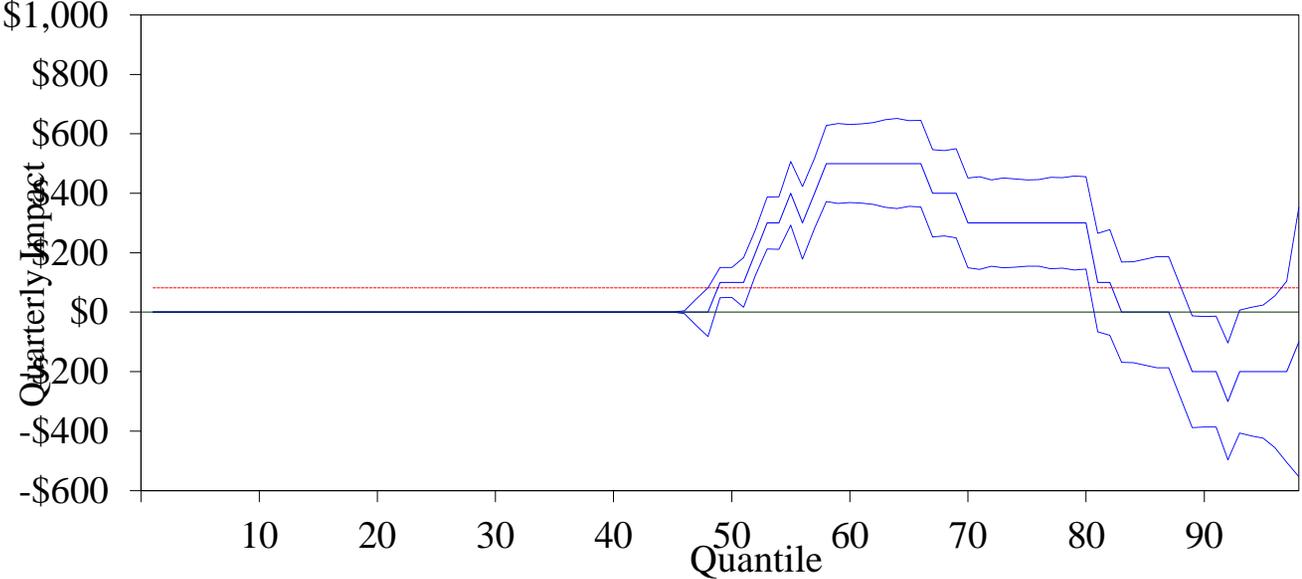
- ❖ Predicted effects of JF are heterogeneous
- ❖ Mean effects may mask positive and negative effects
- ❖ We also derive predictions for effects on labor supply AFTER time limits and on transfer income and total income.

- The labor supply prediction:
  - Extensive margin: increases in employment
  - Intensive margin: increase in hours at the bottom and declines in hours at the topis an inescapable feature of income support programs.
- All income conditioned programs have some “phase-out” range. The phase-out may be at a low rate (EITC), at a high rate (traditional welfare programs) or with a cliff (Jobs First).
- Thus, these results are relevant for the broader literature on income support programs.



Here are the main results for labor supply (earnings) prior to time limits.  
Consistent with theoretical predictions.  
Very different from mean impacts.

Figure 3: Quantile Treatment Effects on Distribution of Earnings, Quarters 1-7



QTE for earnings before and after time limits.

Figure 4: Quantile Treatment Effects on Distribution of Earnings, Quarters 8-16

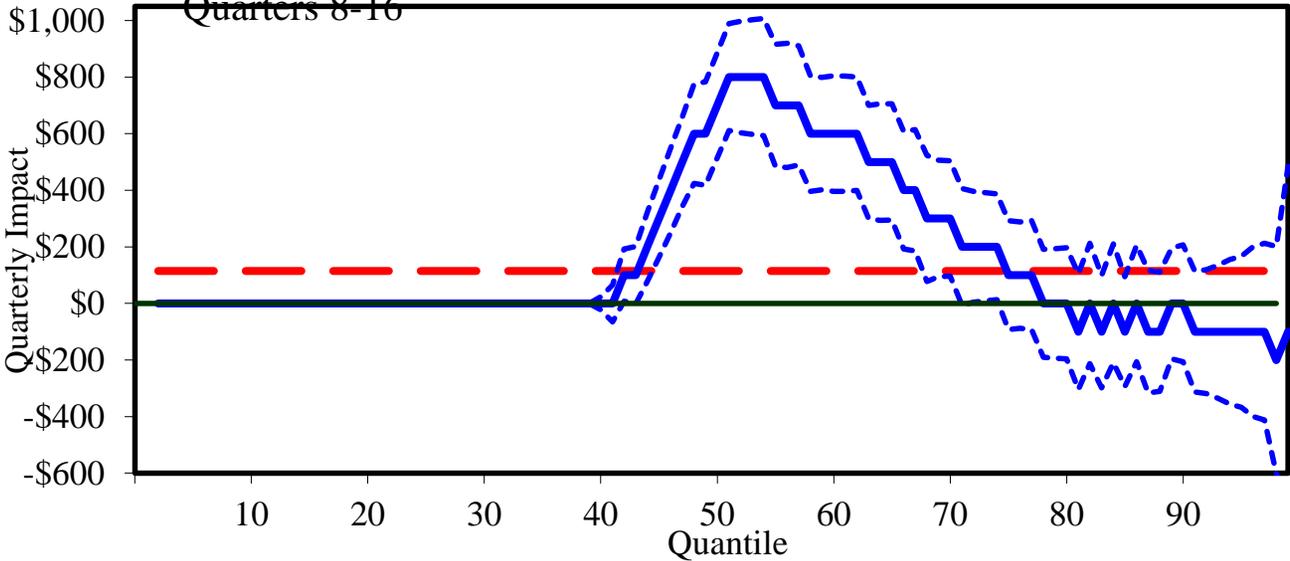
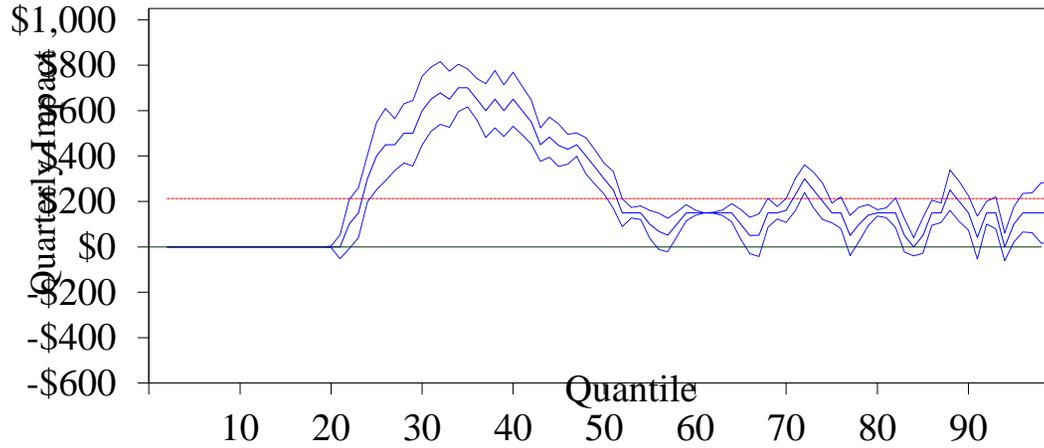


Figure 5: Quantile Treatment Effects on Distribution of Transfers, Quarters 1-7



Transfers before and after time limits.

Figure 6: Quantile Treatment Effects on Distribution of Transfers, Quarters 8-16

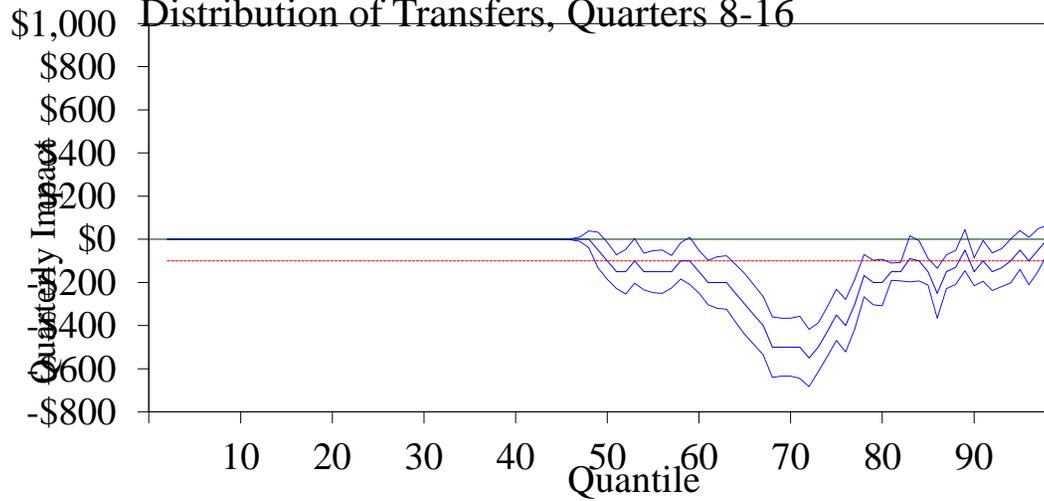
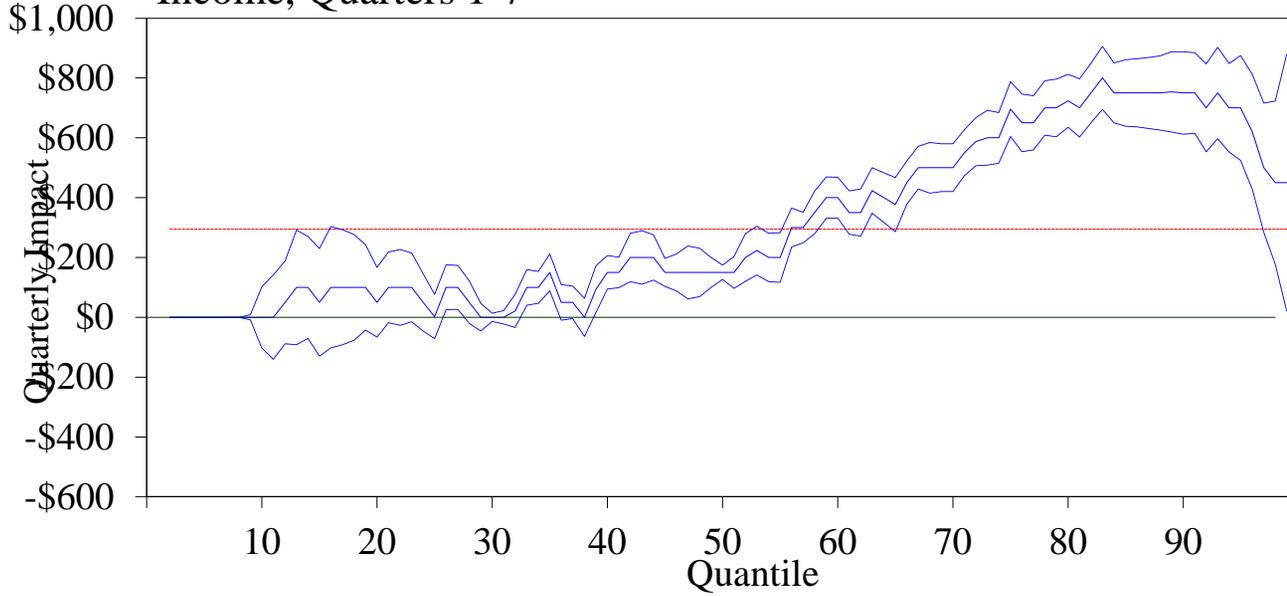
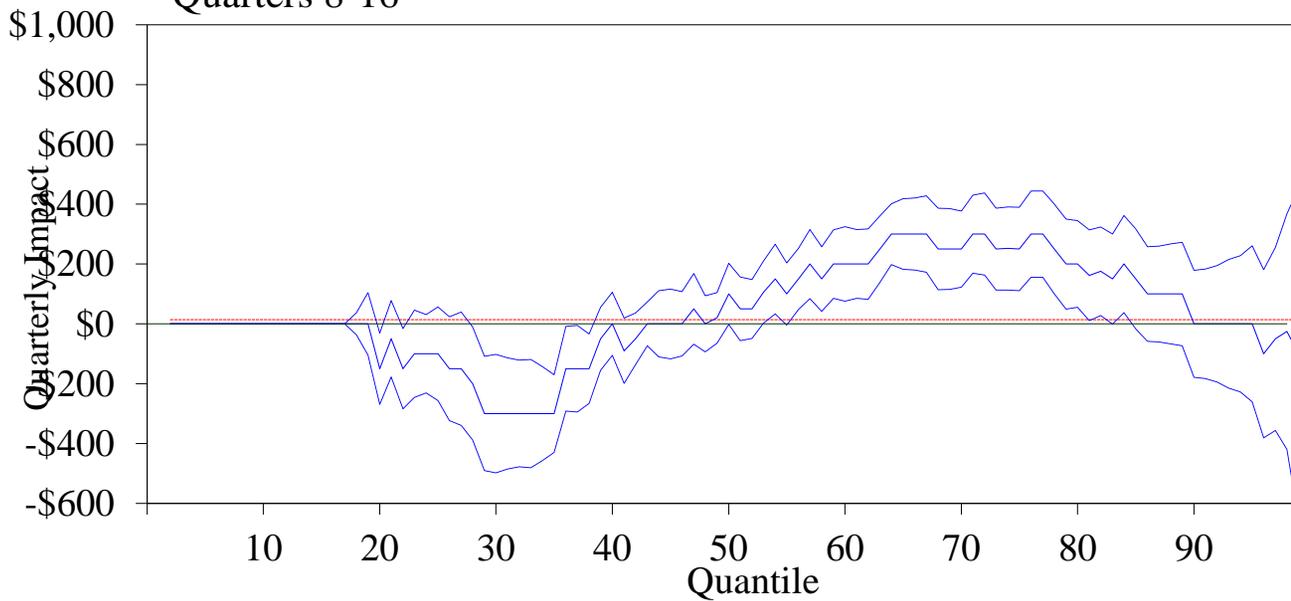


Figure 7: Quantile Treatment Effects on Distribution of Income, Quarters 1-7



Transfers before and after time limits.

Figure 8: Quantile Treatment Effects on Distribution of Income, Quarters 8-16



# The Earned Income Tax Credit

## PP290

Hilary Hoynes

# The EITC

- In-work, tax based assistance
- Refundable tax credit for low income families
- EITC has been expanded through tax acts in 1986, 1990, and 1993 (and smaller expansions in 2001, 2009)
- Must have earned income to be eligible
- Credit varies by number of children (small credit for childless), earnings (and AGI)
- About 60% of EITC filers are single with children, 20% married with children, and 20% childless [but only 2% of \$ go to childless]

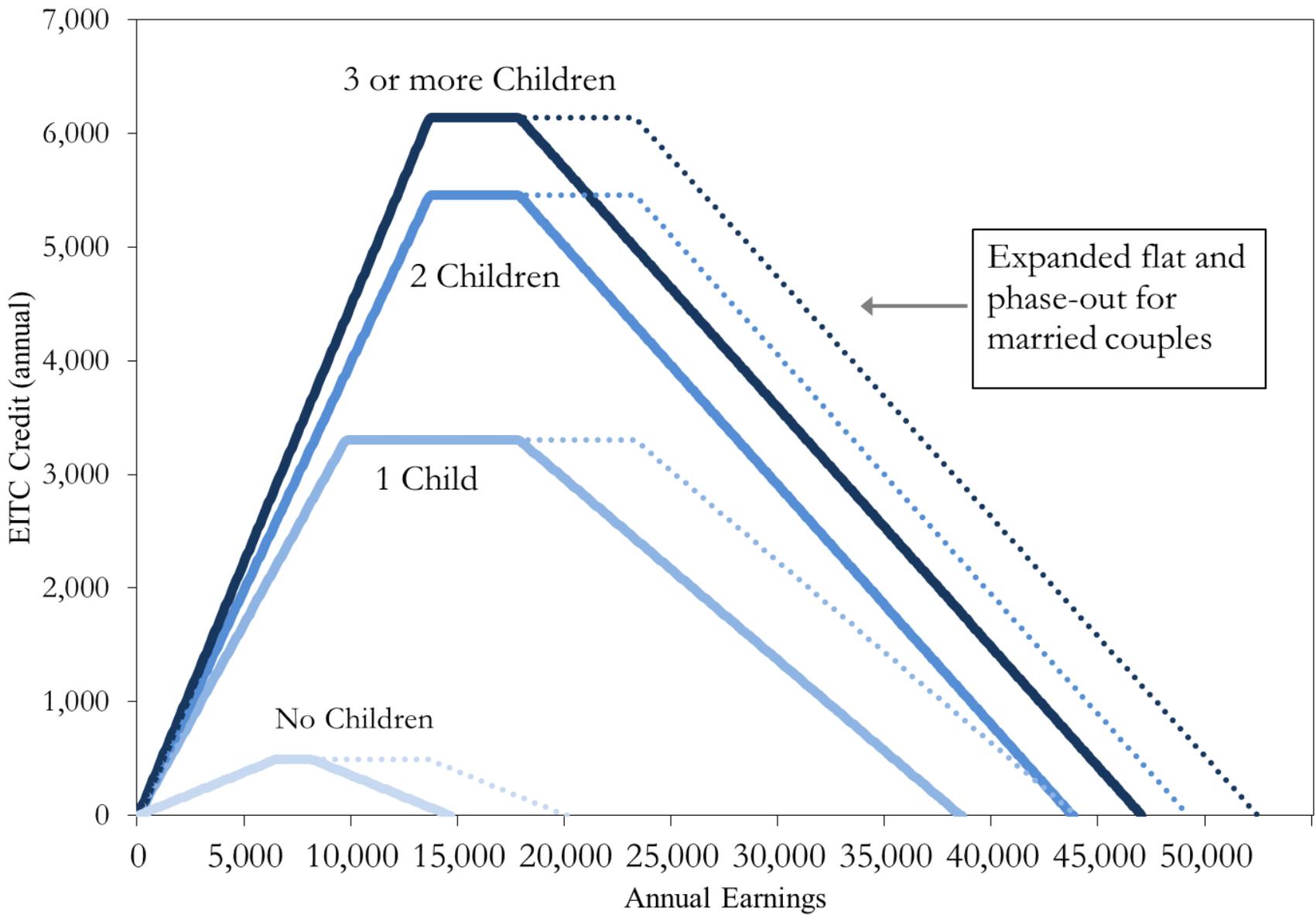
# EITC Eligibility and Benefits

- EITC Eligibility
  - All family types are eligible
  - Primarily provides benefits for those with children
  - Must have earned income; based on family income
- EITC Benefits
  - Phase-in (constant subsidy rate on earnings)
  - Flat
  - Phase-out (constant benefit reduction rate)
- The phase-out rate is relatively low (21%) compared to social assistance benefit reduction rates
- The phase-in rate can get quite high (> 40%)

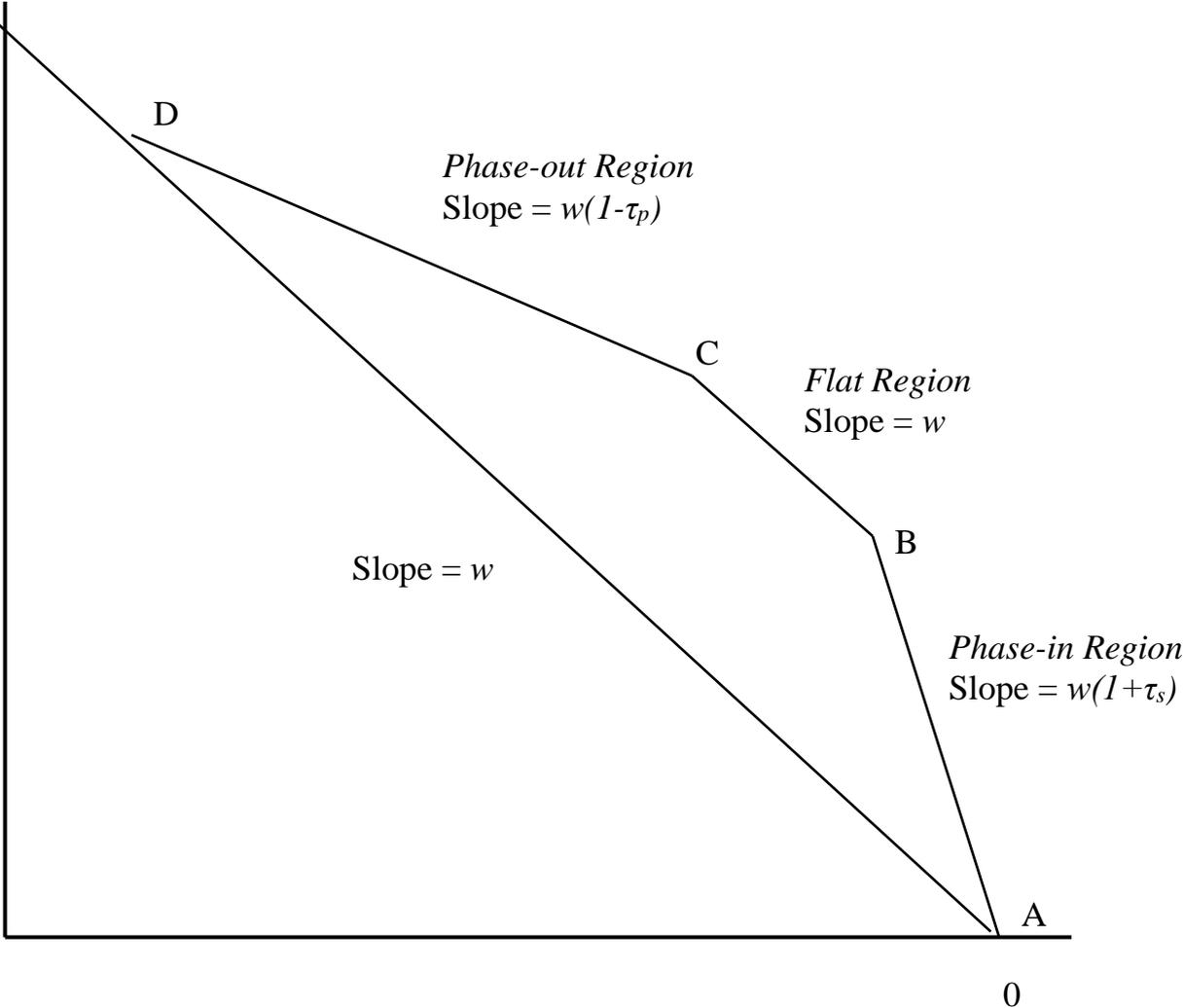
# The EITC eligibility and benefits

- Phase in,  $C = \tau_s * E$  for  $0 < E < E_s$
- Flat,  $C = C_{max}$  for  $E_s < E < E_f$
- Phaseout,  $C = C_{max} - \tau_p * (E - E_f)$
  
- $C$  = credit amount
- $C_{max}$  = maximum credit
- $\tau_s$  = subsidy rate
- $\tau_p$  = phase out rate
- $E_s$  = end of subsidy range
- $E_f$  = end of flat range

# EITC Schedule 2014



After Tax and  
Transfer  
Income



# Labor Supply Effects of the EITC

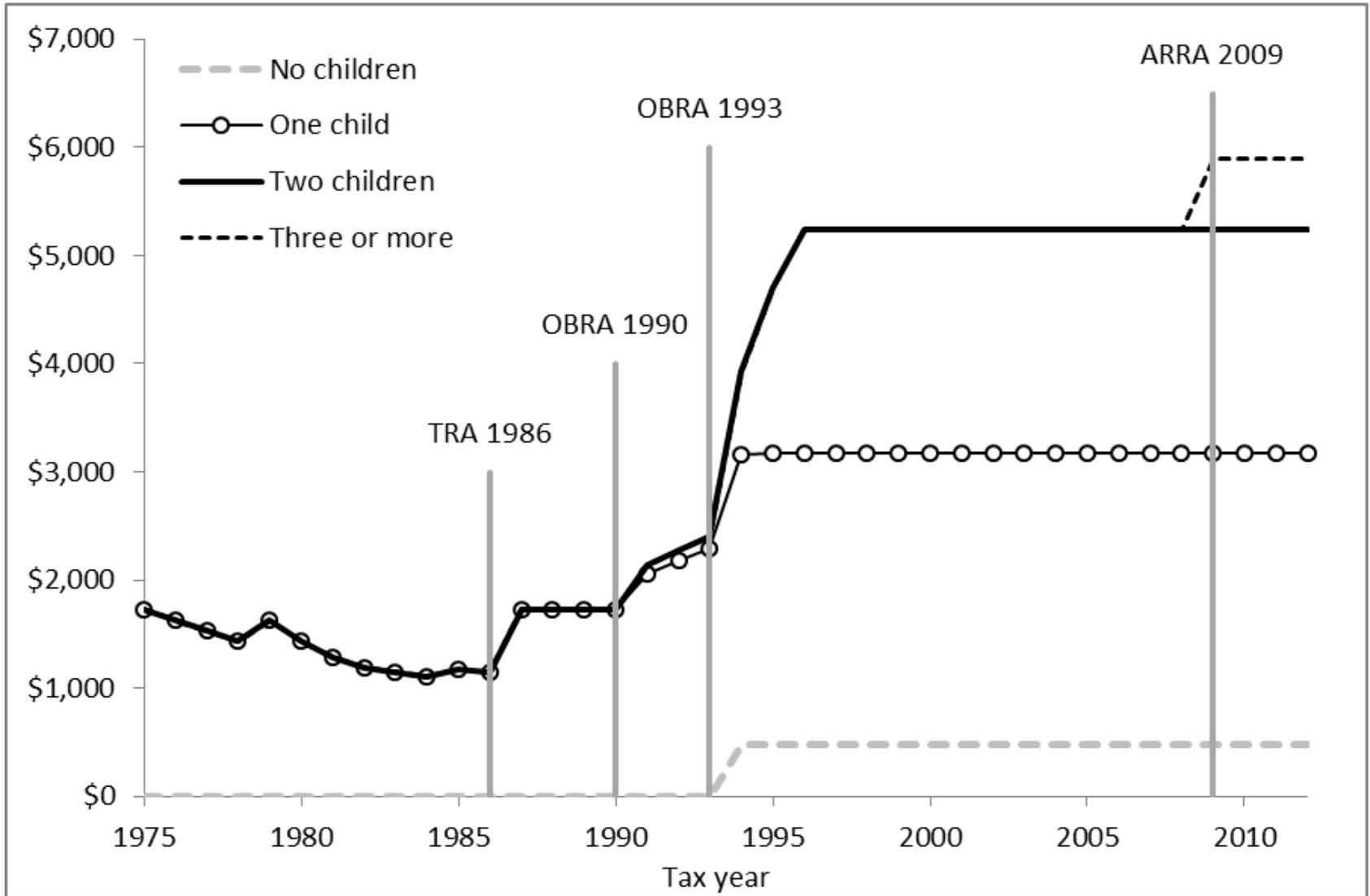
- Extensive margin
- Intensive margin (break down into)
  - Phase-In
  - Flat
  - Phase-out
  - Above Phase-out

# Labor supply incentives

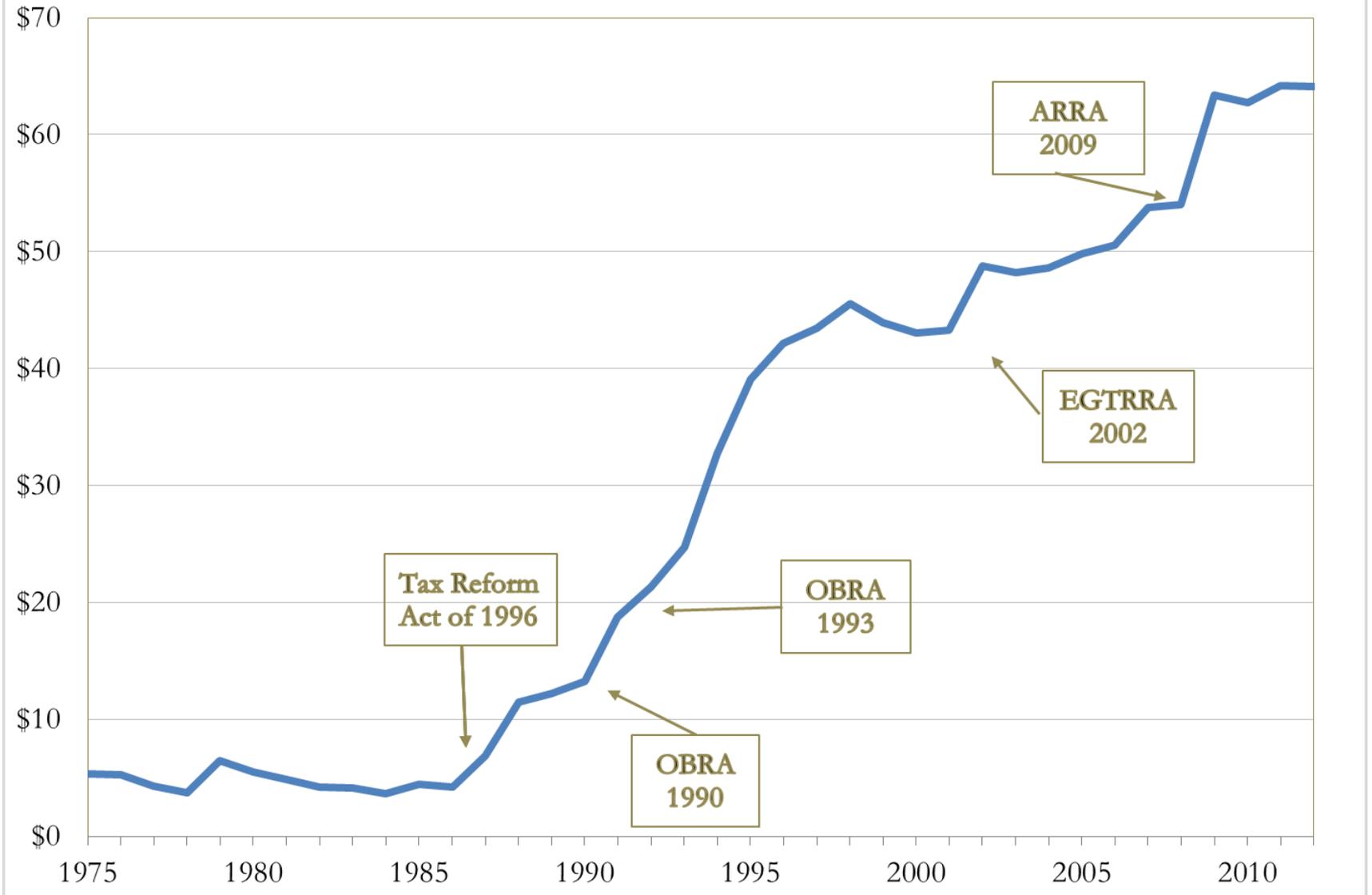
- Due to the conditioning on earnings, employment increases with the EITC
- Earnings conditional on work is ambiguous but on net would be expected to decrease (negative in flat and phase-out, opposing income and substitution effects in phase-in)
  - The intensive margin labor supply incentives are muted due to the (relatively) low phase-out tax rate
- Labor supply predictions are more complicated for married couples; secondary earners may reduce labor supply due to new income transfer to primary earner (both income and substitution effects)
- After tax incomes can increase due to increases in earned income as well as the credit.

# Policy changes in the EITC

# Maximum benefits by number of children (2012 \$)



# EITC, Billions of 2012 Dollars



Source: U.S. Department of Health and Human Services *Indicators of Welfare Dependence*.  
2013

**Table 1:** Summary Statistics, EITC Recipients and Expenditures, 2008

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Total EITC Recipients (Millions)	24.4
Total EITC Expenditures (Billions 2008\$)	\$50.5
<i><u>Percent Distribution of Recipients, by Demographic Group</u></i>	
No Children	21.9%
Single with Children	58.7%
Married with Children	19.4%
<i><u>Percent Distribution of Expenditures, by Demographic Group</u></i>	
No Children	2.7%
Single with Children	74.1%
Married with Children	23.2%
<i><u>Average Credit Amount (2008\$), by Demographic Group</u></i>	
No Children	\$253
Single with Children	\$2,613
Married with Children	\$2,471

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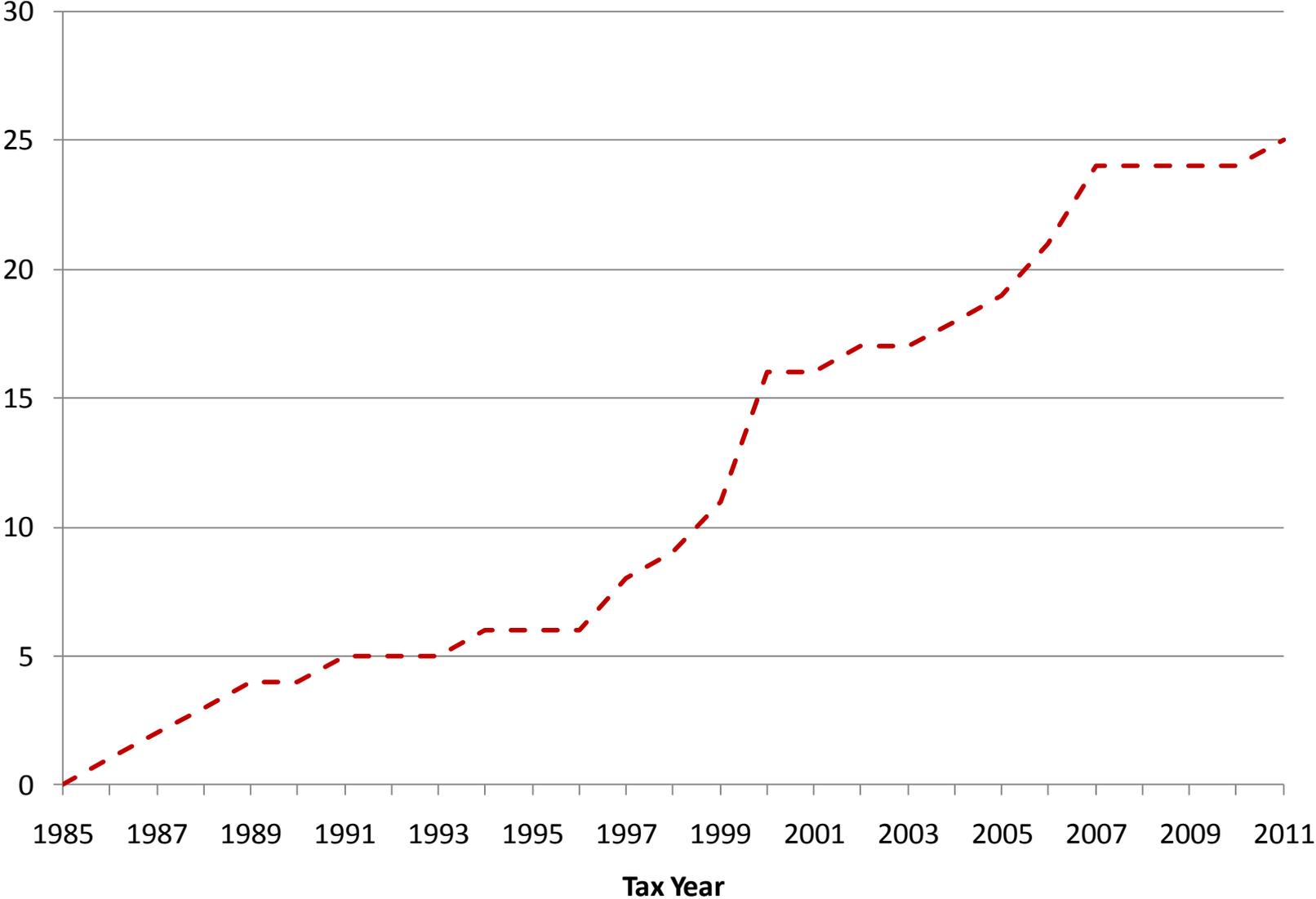
Notes: Data are from the 2008 Statistics of Income, which contains information on tax returns for tax year 2008 (income earned during calendar year 2008). The sample excludes high-income earners, individuals living abroad, late filers and married couples filing separately. Statistics are weighted to represent the population of tax filers.

## *In-work* benefits are prominent in other settings

- More than half of U.S. states offer “add on” EITCs
- A total of 17 OECD countries have in-work credits
  - Early adopters: UK (1971), US (1975), Ireland (1984)
  - Past 15 years has seen many countries adopting these policies
  - Particularly relevant in the European context is the interest in counteracting the work disincentives in social assistance and unemployment benefit programs



# Number of States with Add-on EITC



# New evidence on the effects of EITC

(Hoynes and Patel 2014)

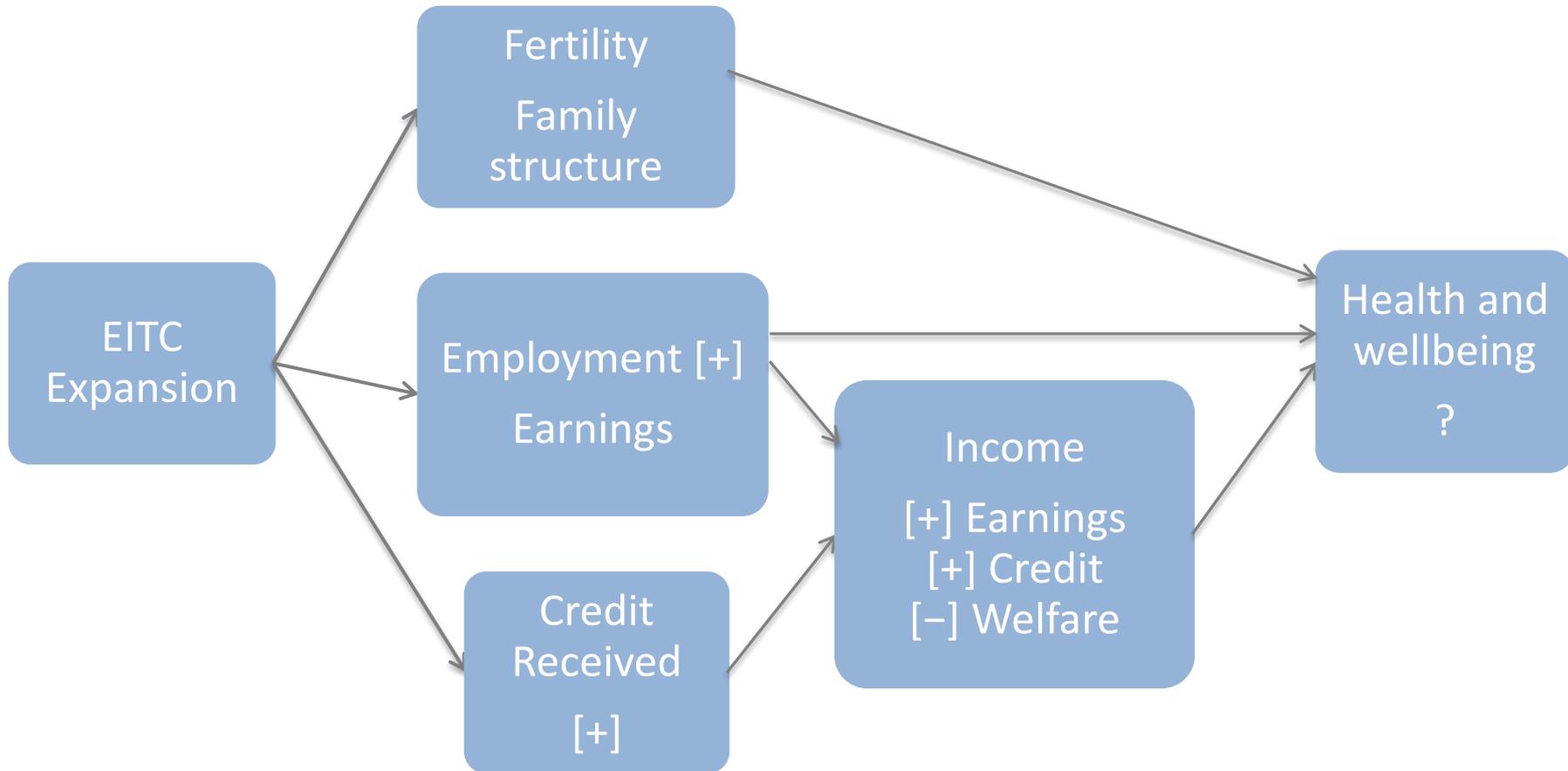
- We update the literature on labor supply, using event study models
- We extend the literature to examine effects on the distribution of income
- In our work we focus on single mothers because they account for the vast majority of the costs of the program.

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	% Dist. of Recipients	% Dist. of Expenditure
Single, with children	58.7%	74.1%
Married, with children	19.4%	23.2%
No Children	21.9%	2.7%

---

# EITC, Employment, Income and Well-being



# New evidence on the effects of EITC (cont)

- We present two related estimation strategies in the paper:
  - Difference-in-difference and event study of OBRA93, the largest EITC expansion (analyzes years 1991-1998)
  - Generalized DD leveraging expansions throughout the period 1984-2012 (uses simulated EITC to parameterize generosity)
  - For both approaches, identification comes from differences in the generosity of the credit across family size (number of children) and year (tax reform)
- Here I show the results for the OBRA93 expansion
- We use the Current Population Survey, and examine annual employment rates as well as after-tax and transfer-income.
  - Our main estimation sample includes single women, ages 24-48, with some college or less

# Difference in difference setting EITC

- T = single women with children
- C = single women w/o children
- Before and after OBRA93
  - Largest expansion
  - Can look at 1+ vs 0, 2+ vs 1
- Basic model for estimating this
- $y_{it} = \alpha + \beta(\text{post} \times \text{treat}) + \eta_t + \gamma_c + \Phi X_{it} + \varepsilon_{it}$ ,
- Identifying assumption: no contemporaneous trend for T

Table 3: Difference-in-Difference Estimates of OBRA93 on Employment

Model:	0 vs. 1+ Children		1 vs. 2+ Children	
(Year > 1993) * (1+ children)	0.061***	0.046***		
	(0.01)	(0.01)		
(Year > 1993) * (2+ children)			0.062***	0.025
			(0.01)	(0.01)
Per \$1000 of federal EITC	0.074	0.075	0.080	0.059
% impact	8.7%	8.9%	10.0%	7.5%
Extensive margin elasticity	0.37	0.38	0.45	0.34
Observations	50,508	50,508	25,101	25,101
Mean of the dependent variable	0.844	0.844	0.796	0.796
Controls				
Demographics	X	X	X	X
# of children indicators	X	X	X	X
Year indicators	X	X	X	X
State indicators	X	X	X	X
State * year indicators	X	X	X	X
Simulated tax & transfer benefits		X		X
Any AFDC waiver * 1+ children		X		
Any AFDC waiver * 2+ children				X
Unemp rate * 1+ children		X		
Unemp rate * 2+ children				X

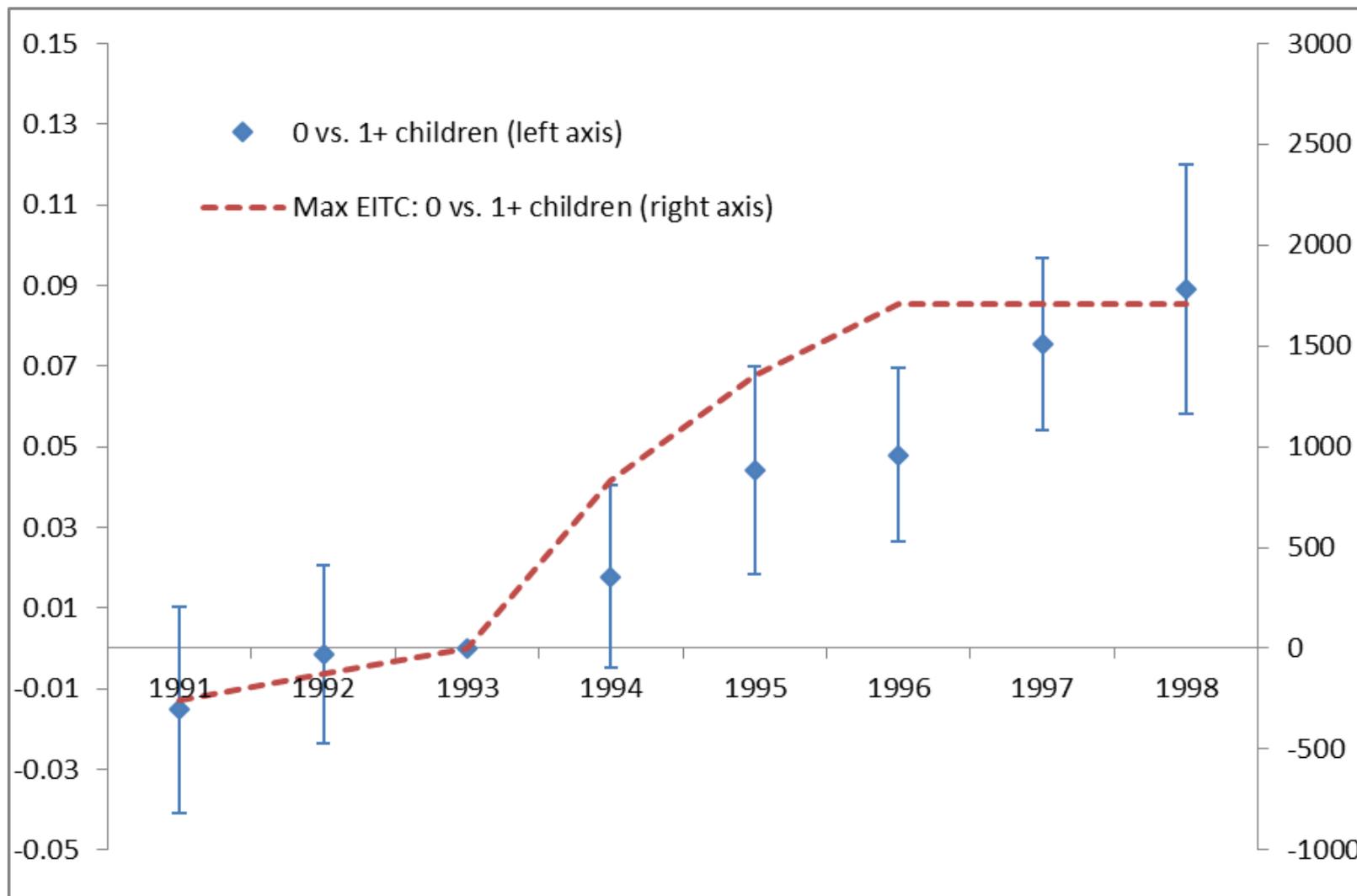
Notes: The sample includes single women, ages 24 through 48 with some college education from the 1992 through 1999 Current Population Survey (March). See text and data appendix for details. Standard errors clustered on state. Significance levels: \*10%, \*\*5%, \*\*\*1%.

# Event Study Specification

$$y_{it} = \alpha + \sum_{j=t^0}^T \beta_j [I(t = j) \times \text{treat}] + \eta_t + \gamma_c + \Phi X_{it} + \gamma Z_{st} + \varepsilon_{it},$$

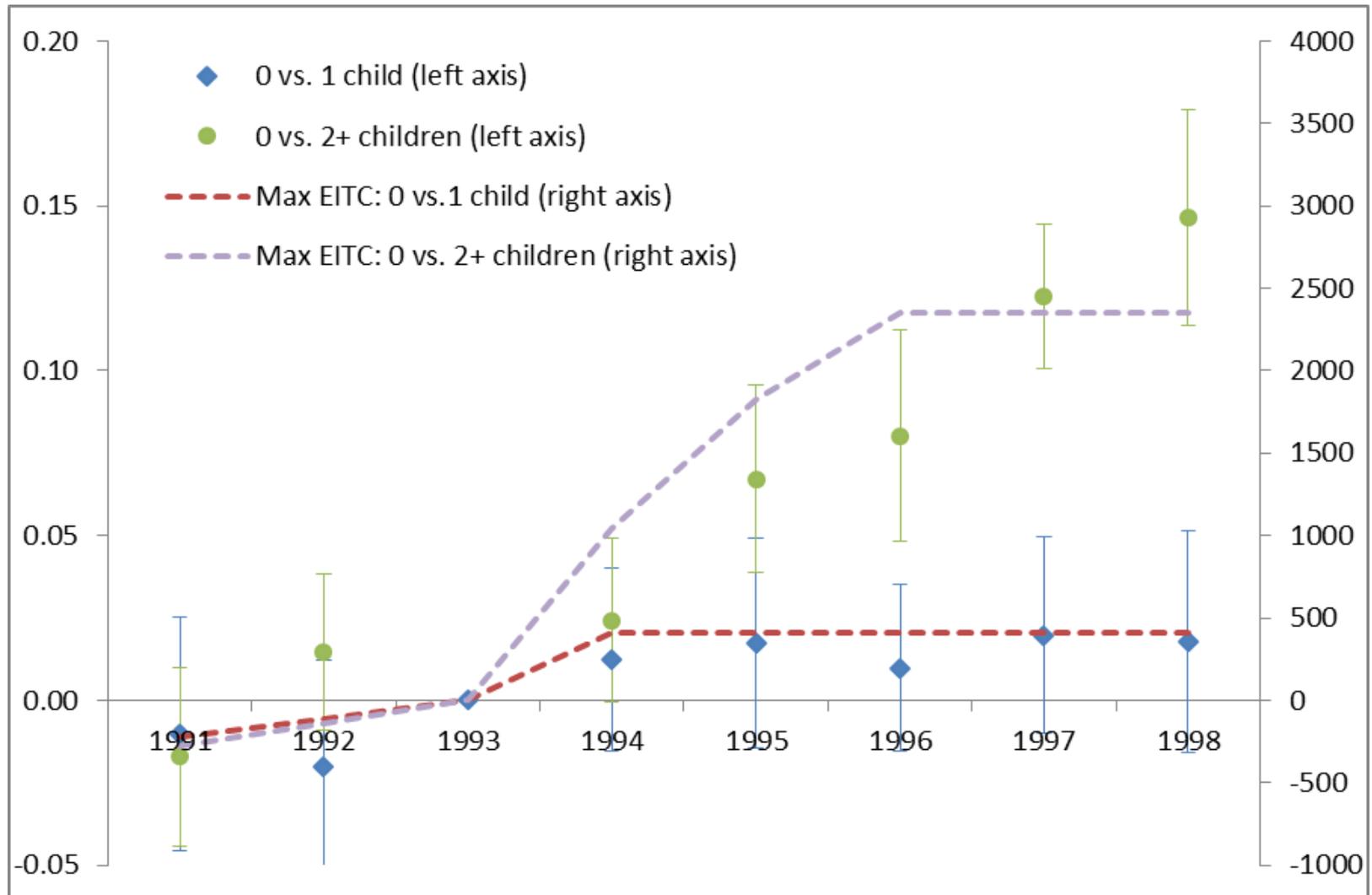
- Basic idea is to “unpack” the pre and post periods into year by year estimates
- Here: a full set of year effects, plus another set for the treated
- The  $\beta$ s then tell about the T-C differences year by year
- This can help us with two things:
  - Look at the “pre-trends”: are the two groups trending similarly before the treatment?
  - What is the time path of effects post-treatment?

# Event Study Estimates of the Effects of OBRA1993



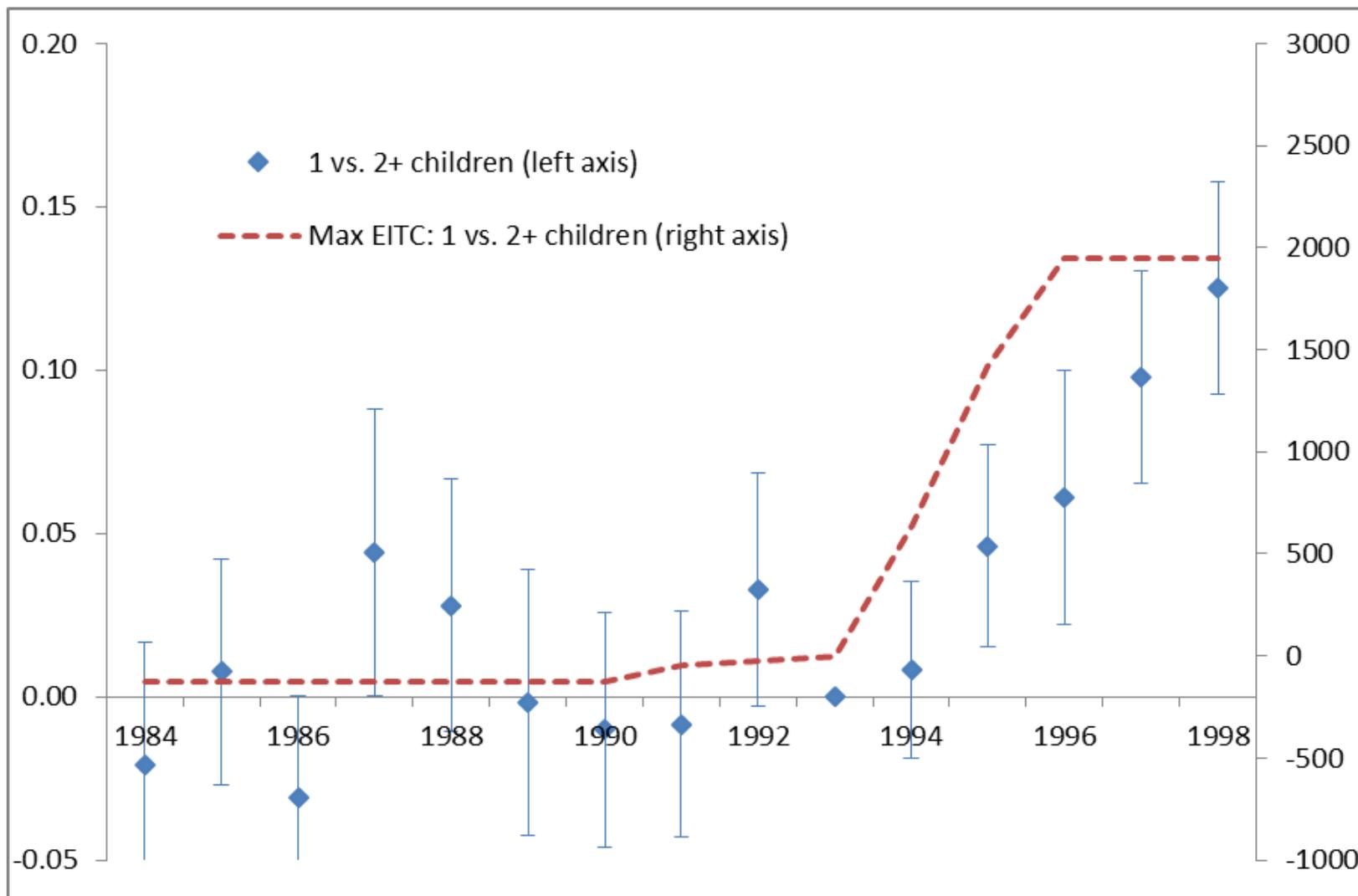
Source: Hoynes and Patel “The Earned Income Tax Credit and the Distribution of Income”

# Event Study Estimates of the Effects of OBRA1993



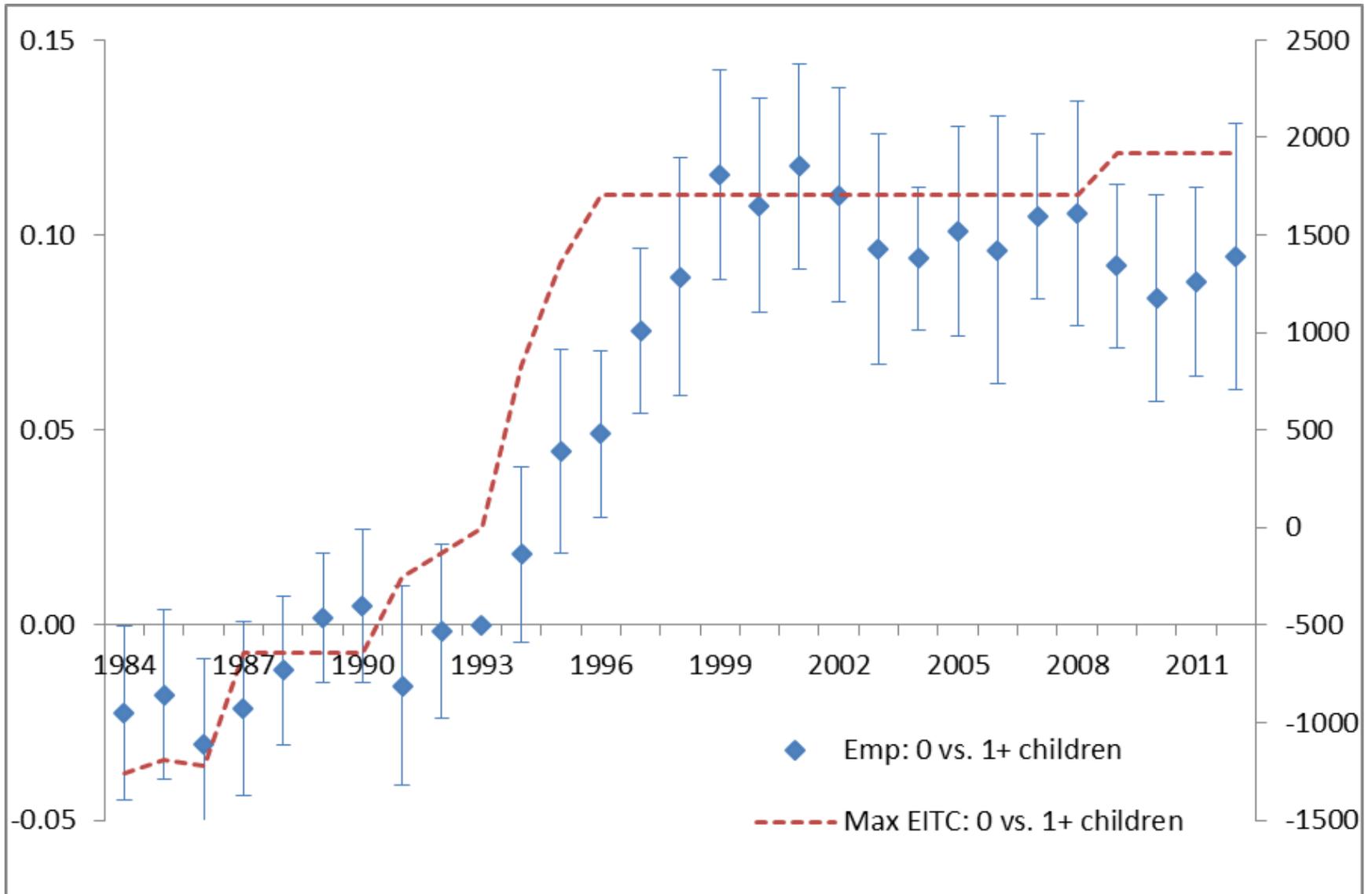
Source: Hoynes and Patel "The Earned Income Tax Credit and the Distribution of Income"

# Event Study Estimates of the Effects of OBRA1993



Source: Hoynes and Patel "The Earned Income Tax Credit and the Distribution of Income"

# Event Study Estimates of the Effects, full period



Source: Hoynes and Patel "The Earned Income Tax Credit and the Distribution of Income"

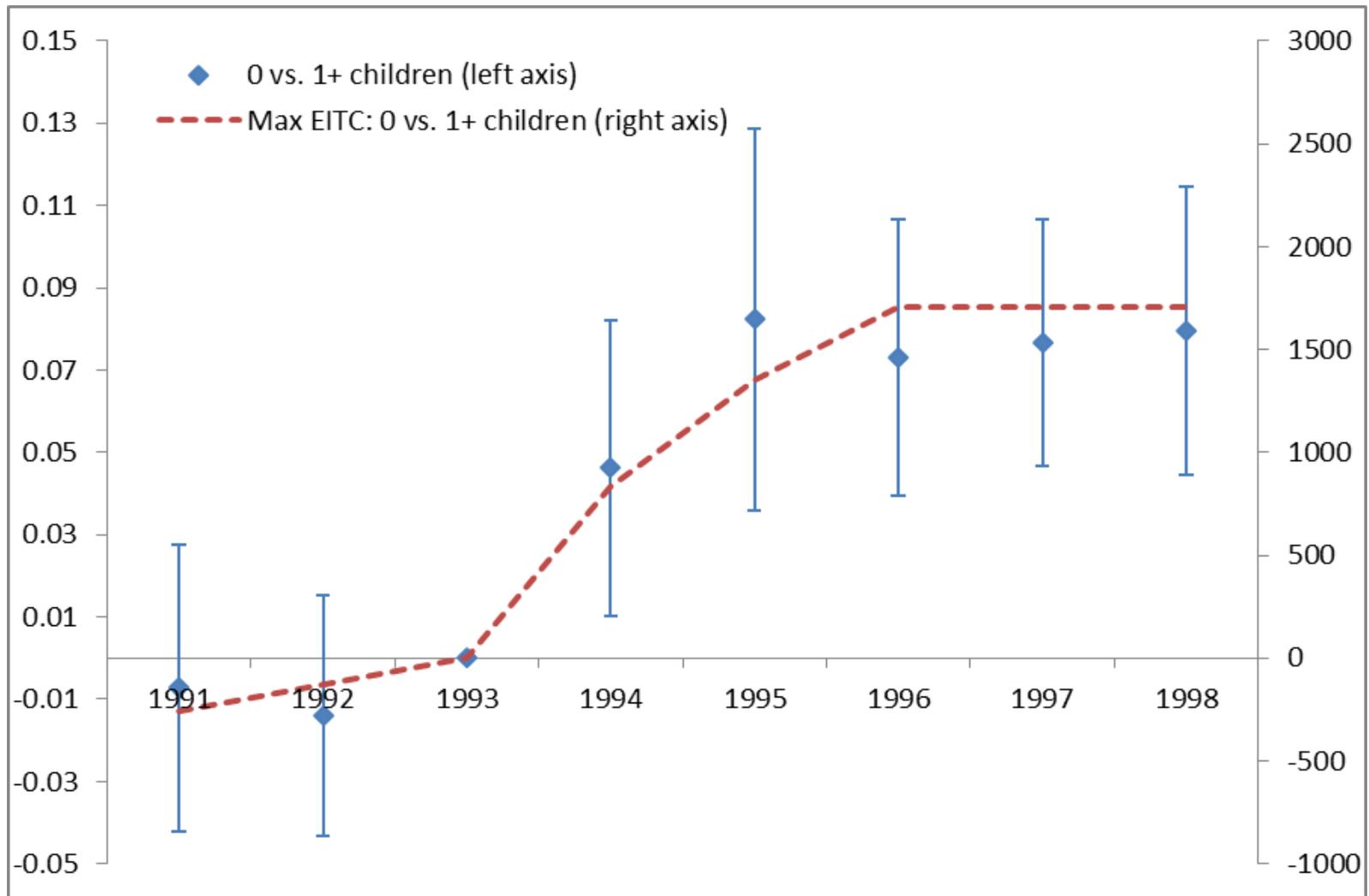
# Magnitudes for labor supply effects

- Our results show that a \$1000 increase in (potential) Earned Income Tax Credit leads to a 7.5-8.5 percentage point increase in employment for single mothers
- Extensive margin elasticities range from 0.35-0.45
- These estimates are in line with the older literature and make a contribution by evaluating the validity of the design (e.g., event study models) and in showing that the effects operate through the 1990s and 2000s.

# Effects of the EITC on the distribution of income (Hoynes and Patel 2014)

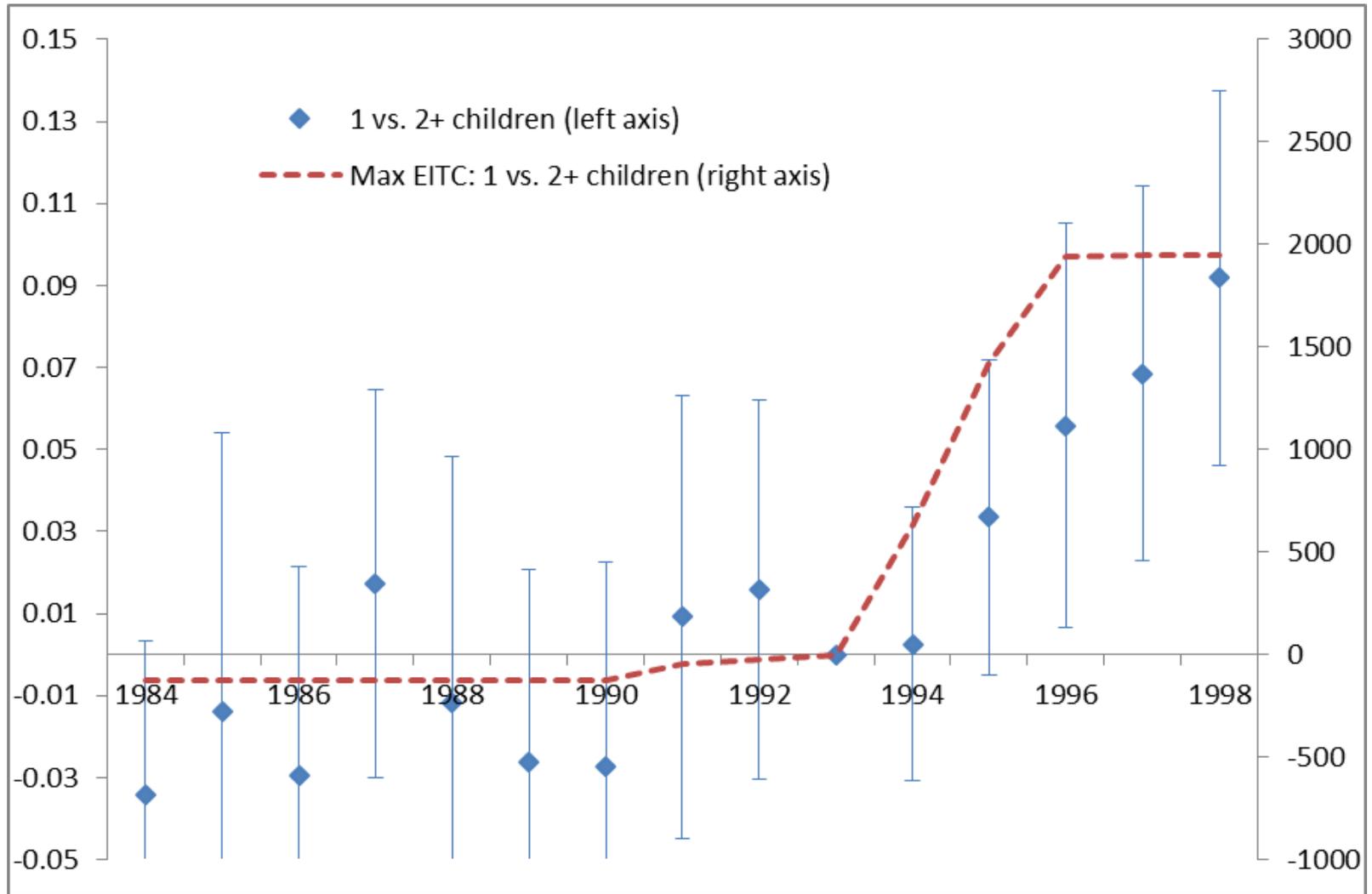
- We estimate similar event study and difference-in-difference models to estimate how the EITC affects after-tax and transfer income (ATTI)
- We are particularly interested where in the income distribution the credit has its effects
- We construct a series of dichotomous outcome variables,  $= 1$  if  $ATTI \geq x\%$  of the federal poverty threshold

# Event Study Estimates of EITC on income > 100% poverty, OBRA93



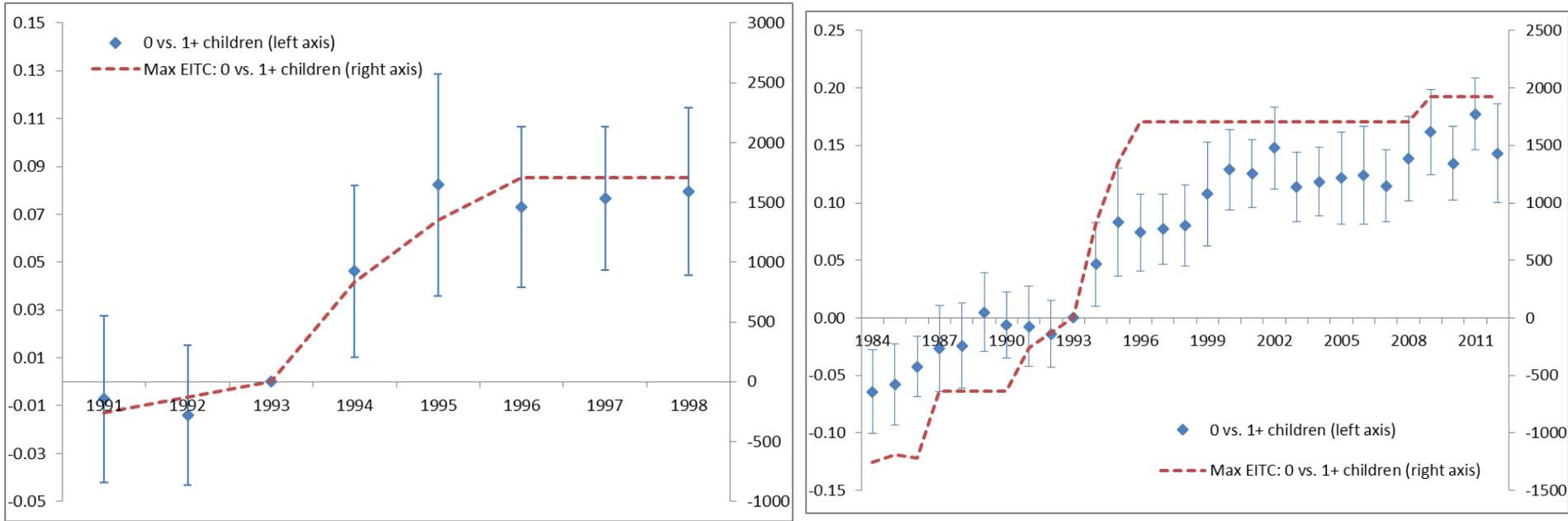
Source: Hoynes and Patel “The Earned Income Tax Credit and the Distribution of Income”

# Event Study Estimates of EITC on 100% poverty, OBRA93



Source: Hoynes and Patel “The Earned Income Tax Credit and the Distribution of Income”

# Event Study Estimates of EITC on 100% poverty, OBRA93

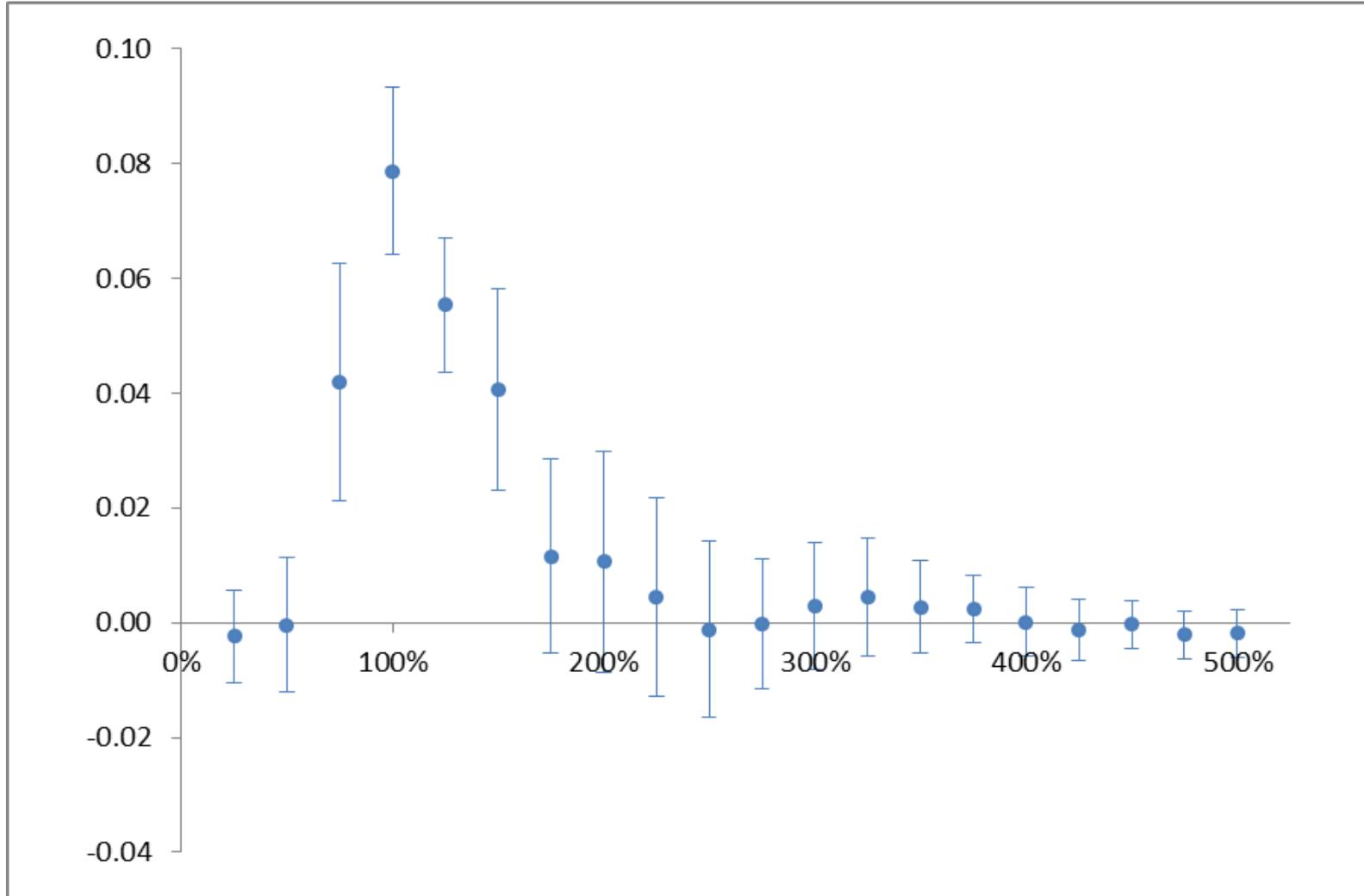


Source: Hoynes and Patel “The Earned Income Tax Credit and the Distribution of Income”

# Magnitudes for 100% poverty effects

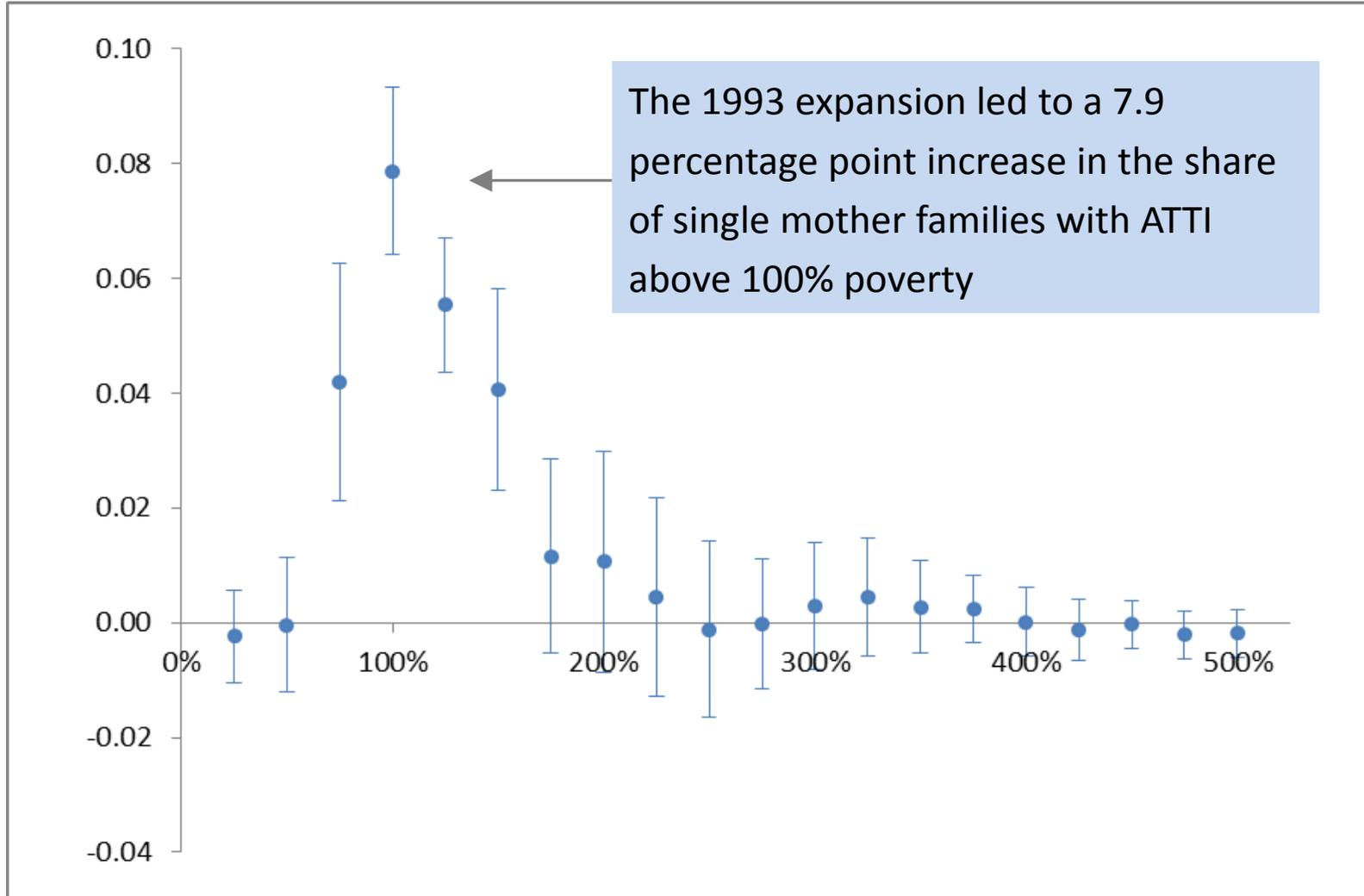
- The 1993 expansion led to a 7.9 percentage point increase in the share of single mother families with ATTI above poverty
- Over the full period, a \$1000 increase in (potential) Earned Income Tax Credit leads to a 8.1-8.6 percentage point increase in the share of single mother families with ATTI above poverty
- We can extend this to look at other cuts of the distribution of income to poverty

# Difference-in-Difference Estimates of EITC on income to poverty, OBRA93

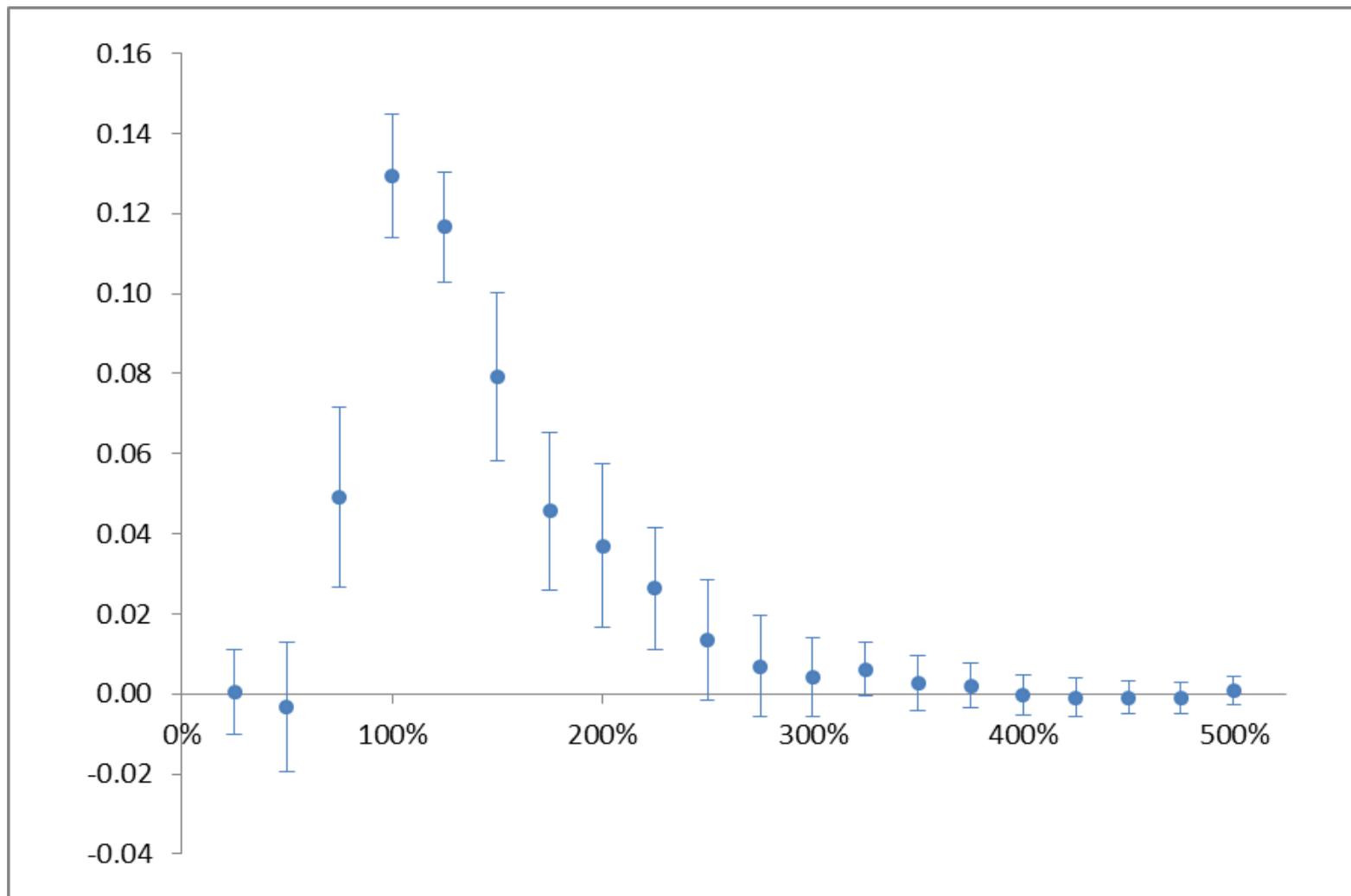


Source: Hoynes and Patel “The Earned Income Tax Credit and the Distribution of Income”

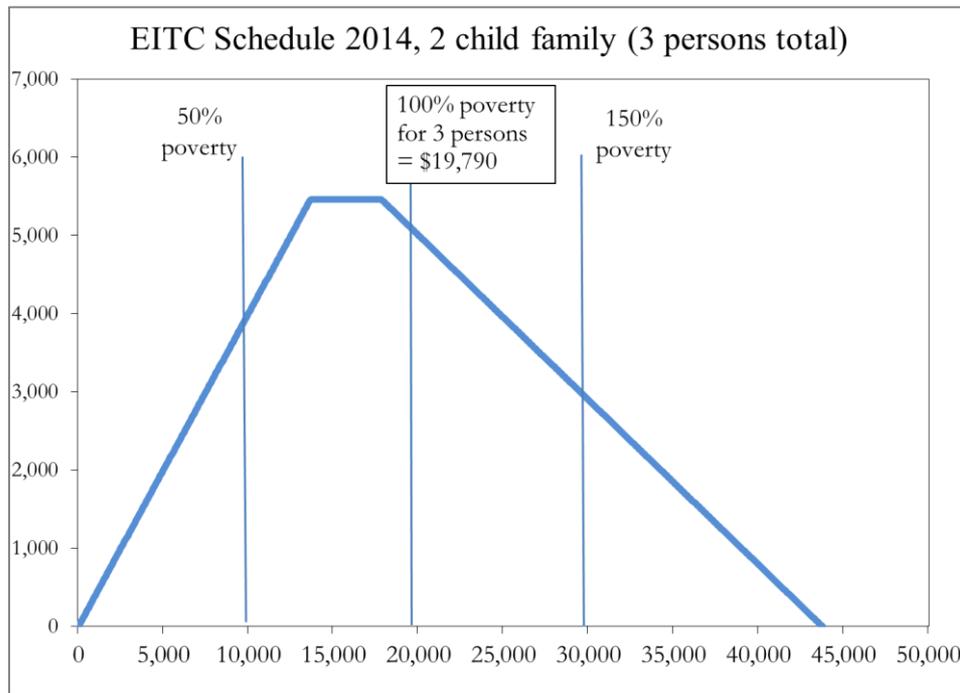
# Difference-in-Difference Estimates of EITC on income to poverty, OBRA93



# Effects of a \$1000 increase in simulated EITC benefits on income to poverty (uses variation across number of children, 1984-1998)



Source: Hoynes and Patel "The Earned Income Tax Credit and the Distribution of Income"

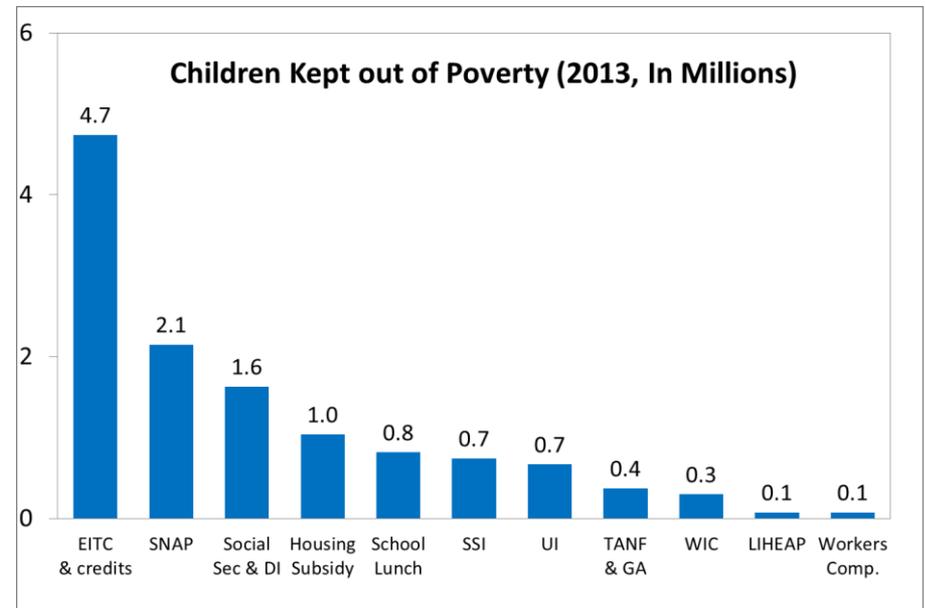


EITC claimants by bins of income to poverty threshold (IRS Admin Data)

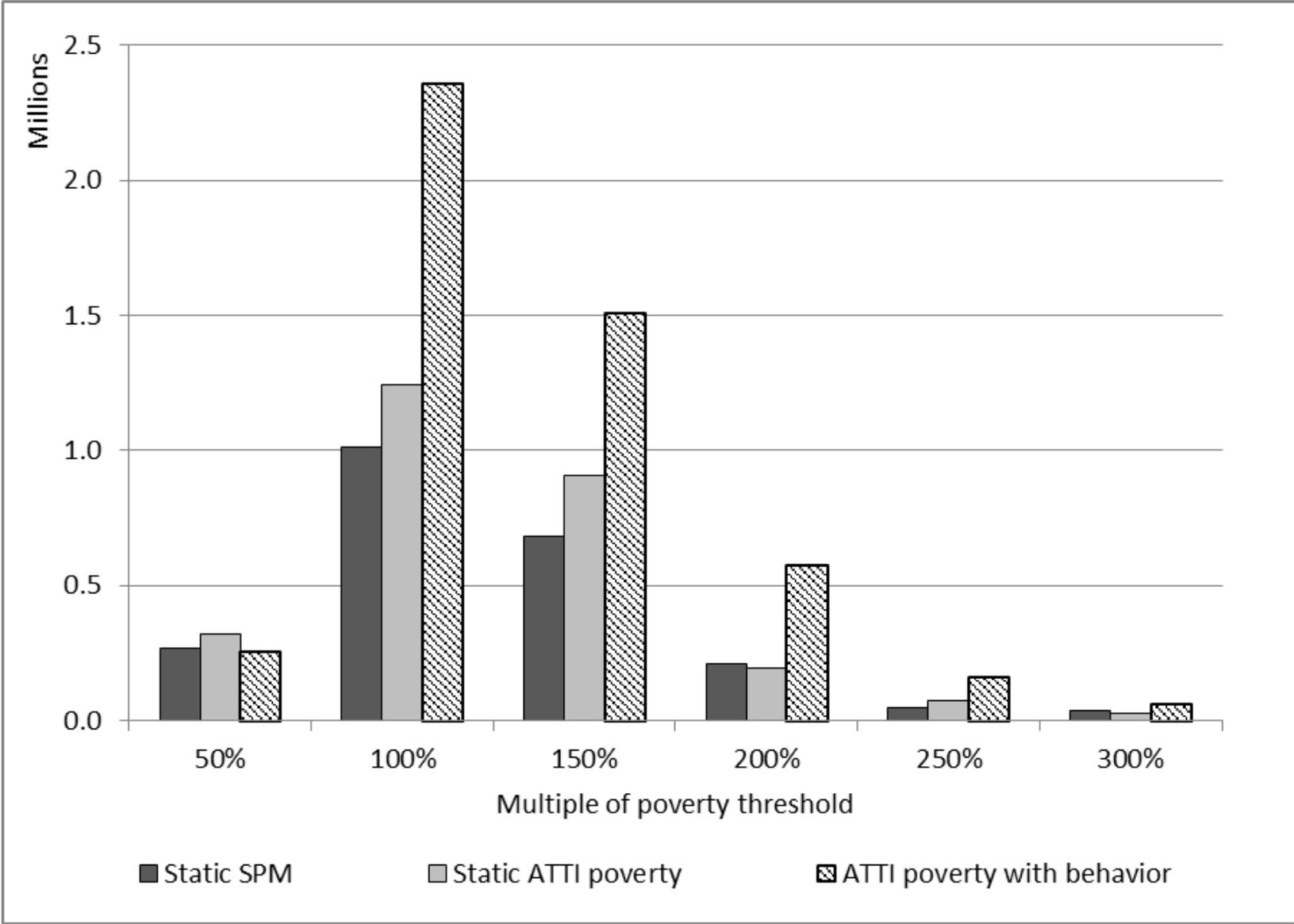
	Less than .5 times FPT	Between .5 and 1 of FPT	Between 1 and 1.5 of FPT	Between 1.5 and 2 of FPT	More than 2 times FPT
<b>Singles</b>					
With 1 child	0.12	0.40	0.29	0.15	0.04
With 2 or more children	0.10	0.24	0.43	0.19	0.03
<b>Married filing joint</b>					
With 1 child	0.07	0.27	0.33	0.27	0.06
With 2 or more children	0.06	0.26	0.39	0.25	0.04

# Implications for anti-poverty effects of the EITC

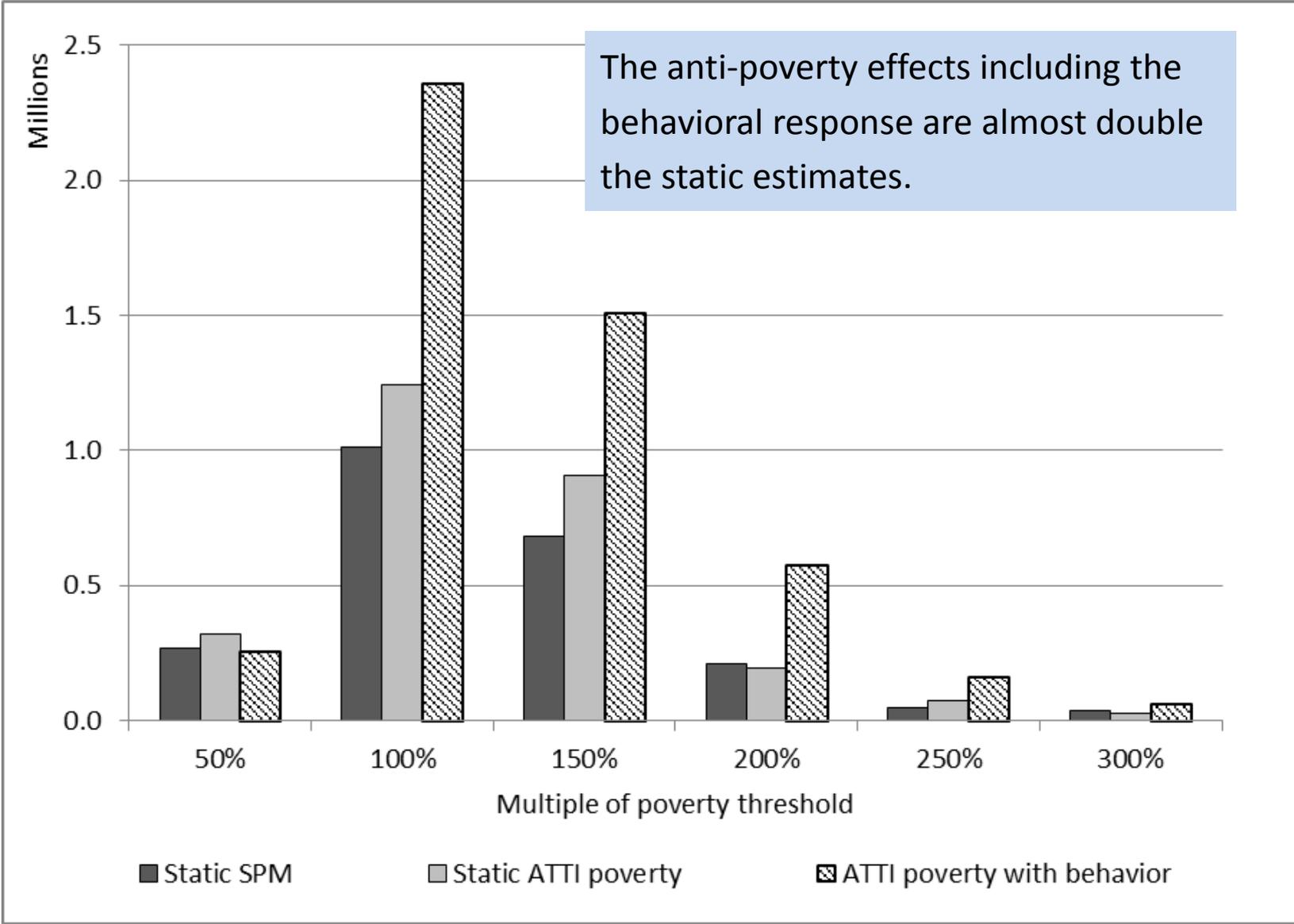
- The figure showed earlier (below) provides a static calculation of the effects of the EITC. Calculated by zeroing out EITC amount and assuming no change in behavior.
- We can use our estimates to simulate the effect of the EITC. We do this for the 2012 EITC



# Number of Children Removed from Poverty Due to the EITC, by Poverty Measure



# Number of Children Removed from Poverty Due to the EITC, by Poverty Measure



- One caveat of this work is that we focus on single mothers.
- The employment (and likely earnings) incentive effects for this group are positive.
- It is this group where the static calculations should be very underestimated
- For married couples, the labor supply effects are zero or small and negative. So for this group the static antipoverty effects may provide a good estimate of the total effects

# What do we know about the EITC

1. Labor supply and earnings
2. “Bunching at the kinks”
3. Challenges of redistributing within the tax system
4. Effects of the EITC on health and well being
5. What other countries are doing
6. CA options

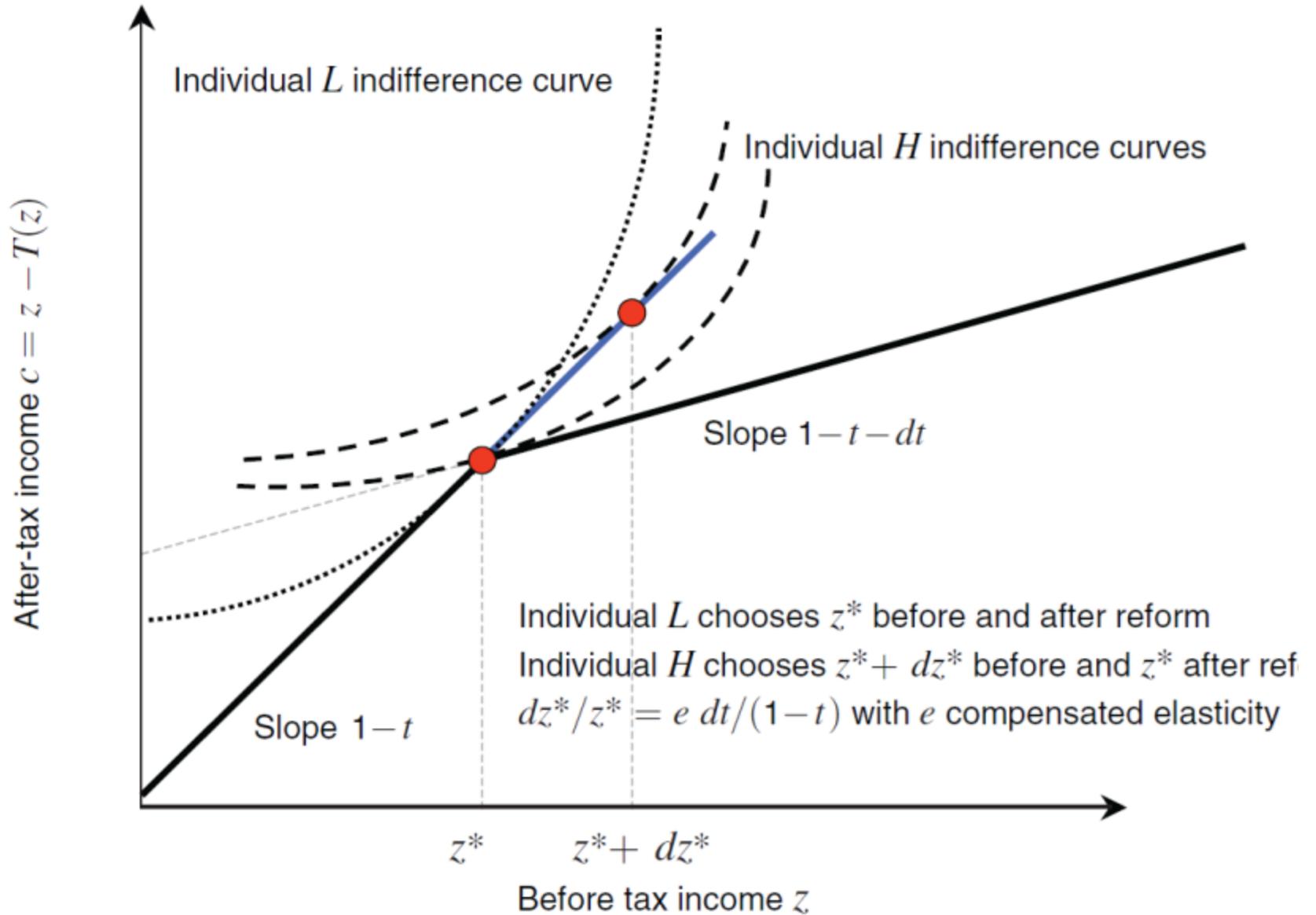
# 1. Effects of the EITC on labor supply and earnings

- For single mothers, consistent evidence that an expansion in the EITC leads to increased employment (Eissa and Liebman QJE 1996, Meyer and Rosenbaum QJE 2001, Grogger RESTAT)
- For married couples, there is little effect on men but women reduce labor supply modestly (Eissa and Hoynes 2004)
- Little evidence of a reduction in earnings for those in the labor market (intensive margin response).
  - This may reflect in part lack of knowledge about marginal incentives
- Those with self-employment income bunch at the first EITC kink; unclear if this is a reporting response or intensive margin response in real economic activity (Saez 2010, Chetty and Saez 2013, Chetty, Friedman and Saez 2013)

## 2. “Bunching at the kinks”

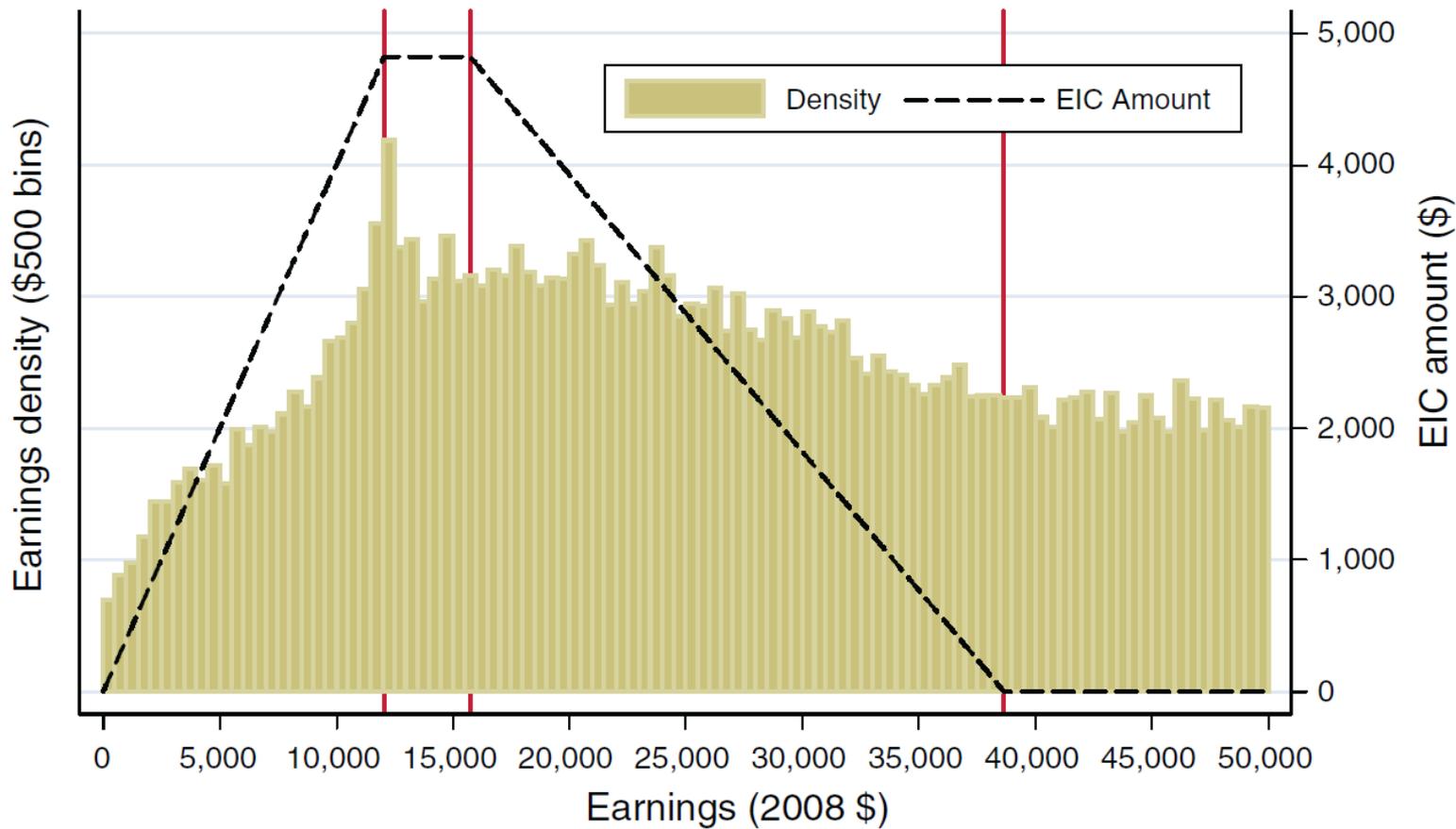
- Saez (2010) – the first to point out how these kinks in the budget set may (a) represent an opportunity to estimate elasticities and (b) in the EITC, it may lead “overclaiming”

# I A. Indifference curves and bunching



Saez (2010), illustrates indiff curves that lead to bunching at convex kink.

### B. Two children or more



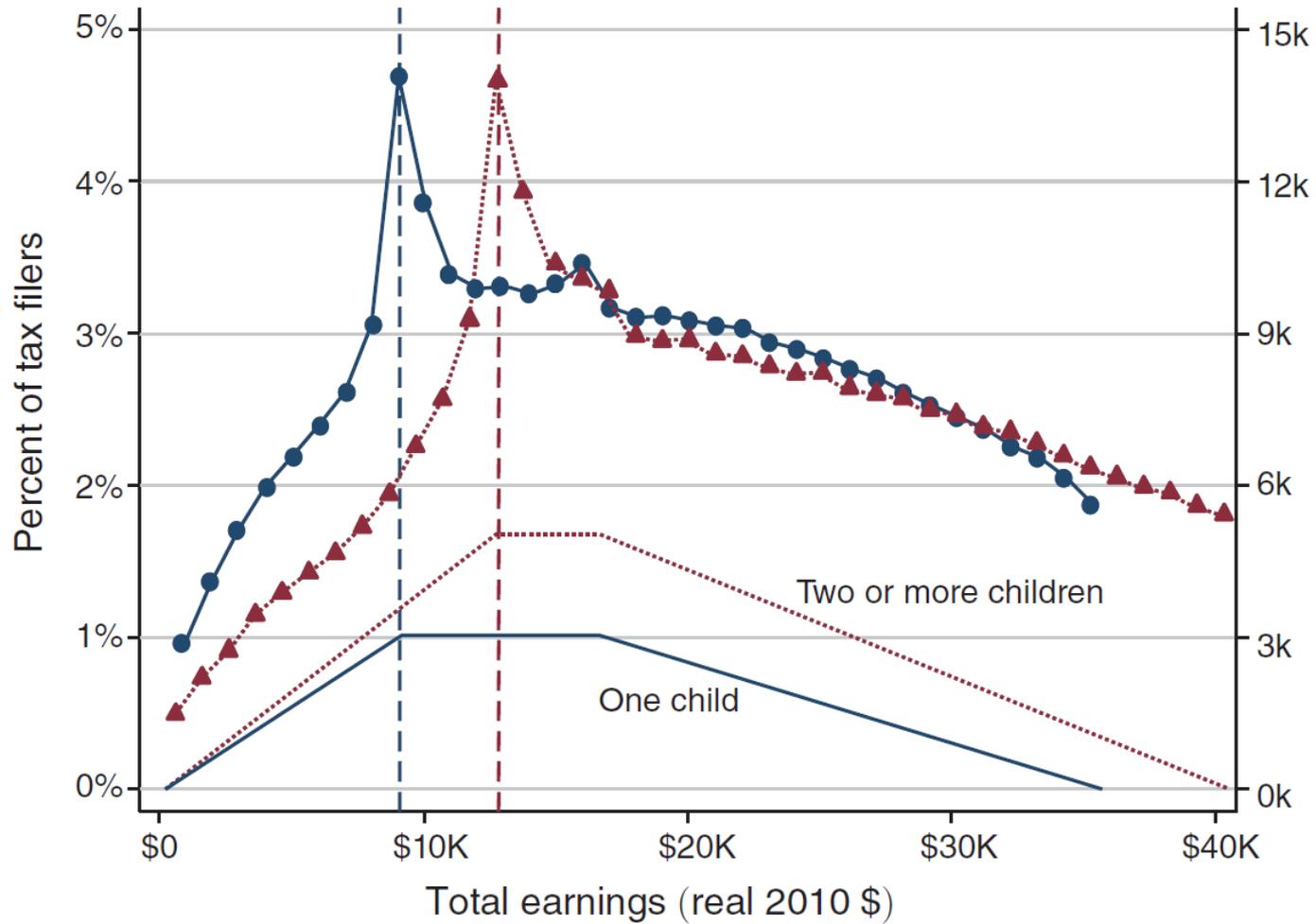
Panel B. Two or more children



FIGURE 4. EARNINGS DENSITY AND THE EITC: WAGE EARNERS VERSUS SELF-EMPLOYED

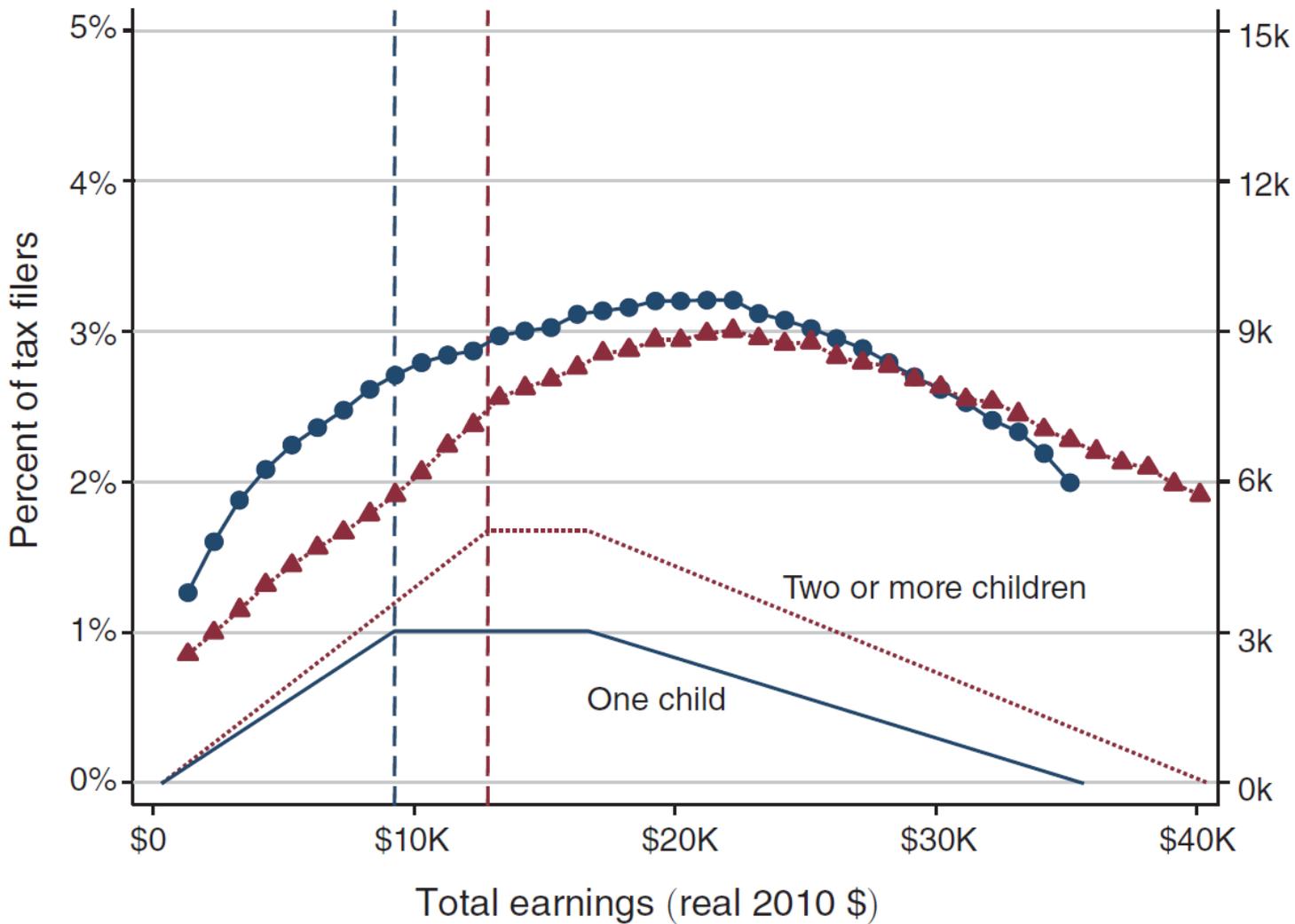
- Chetty et al (2013) using the universe of U.S. tax filers find evidence of clustering at the first EITC kink
  - This occurs only for those with self employment income, which is self-reported and easy to manipulate (and may not reflect real economic activity)
  - They use extensive spatial variation in the clustering at kink as a proxy for local knowledge about marginal incentives and find that behavior adjusts with moves across areas

Panel A. All households with children in 2008



Source: Chetty et al, "Knowledge and Impacts of the EITC on Earnings" AER 2013.

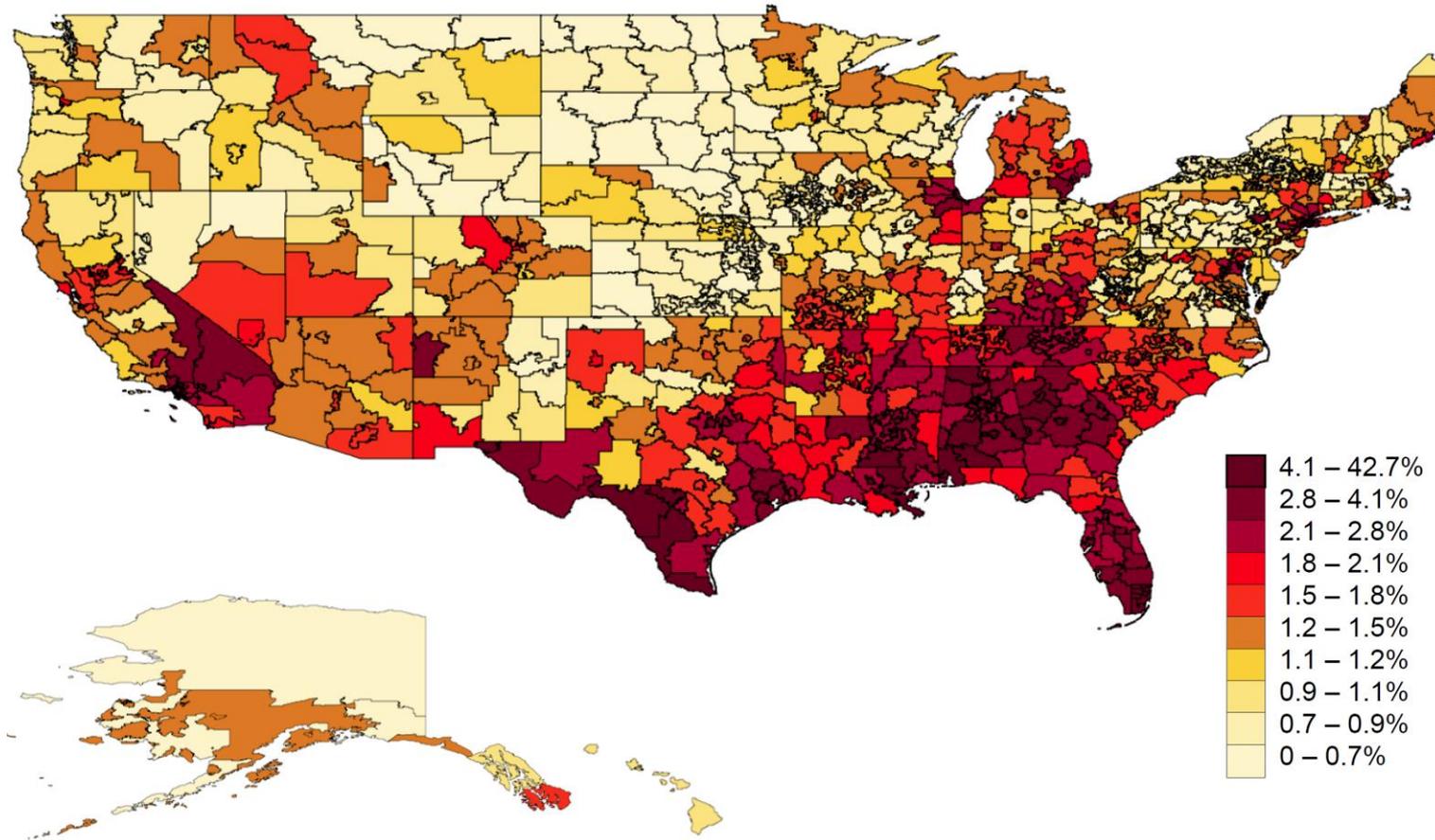
Panel B. Wage earners with children in 2008



Source: Chetty et al, "Knowledge and Impacts of the EITC on Earnings" AER 2013.

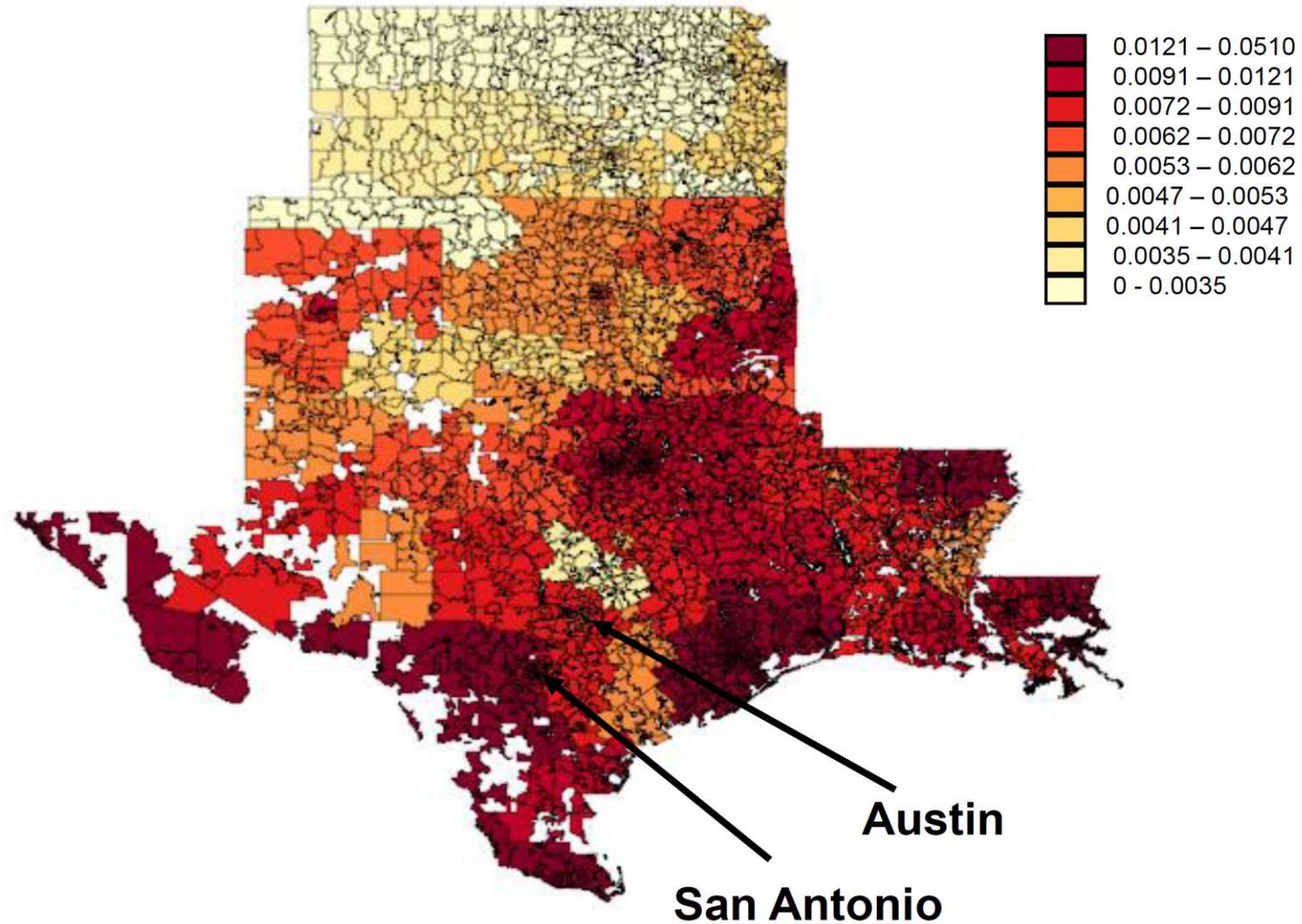
# SPATIAL VARIATION IN CLUSTERING 3-digit zipcode level

## Fraction of Tax Filers Who Report SE Income that Maximizes EITC Refund in 2008

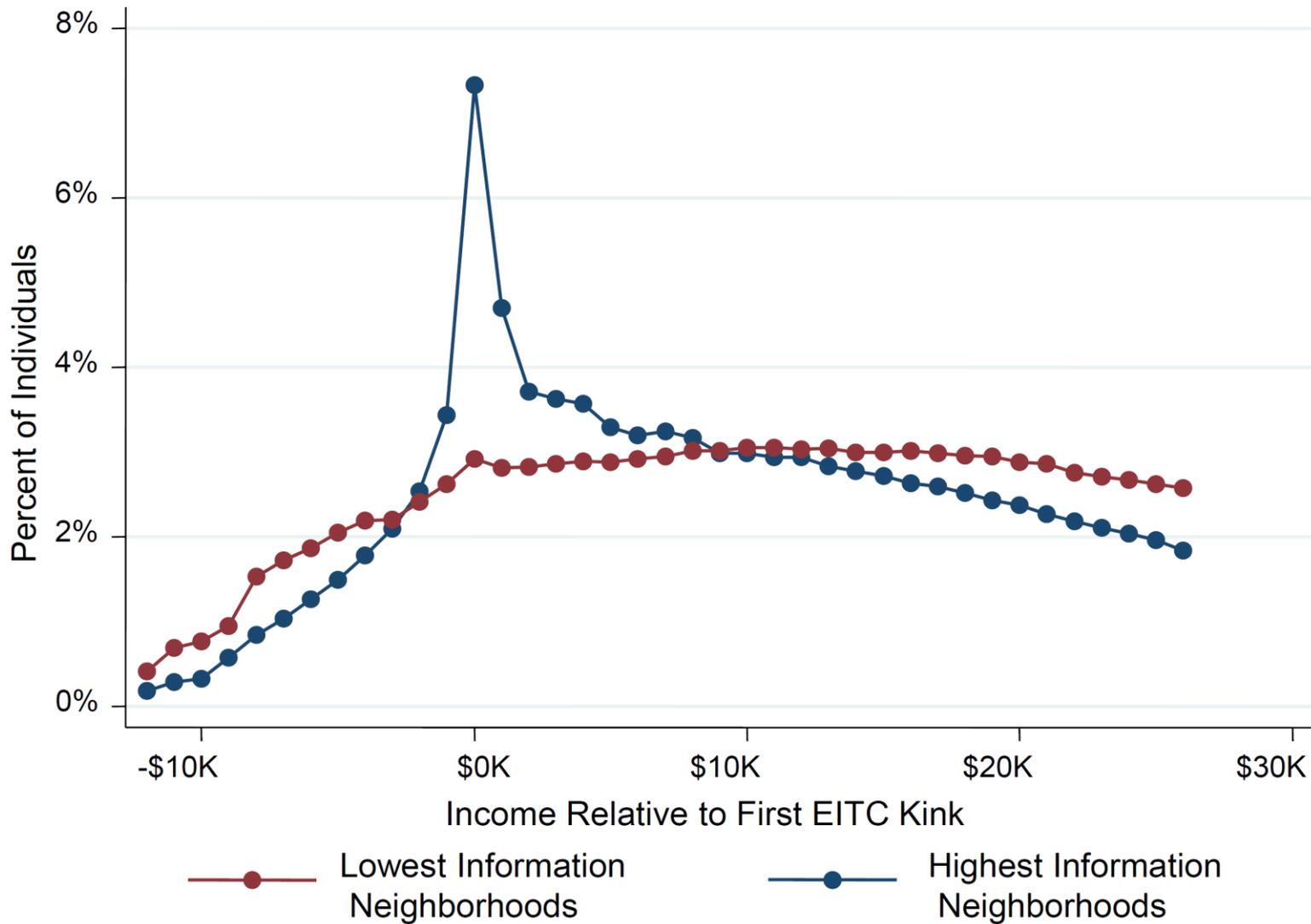


Source: Chetty et al, “Knowledge and Impacts of the EITC on Earnings” AER 2013.

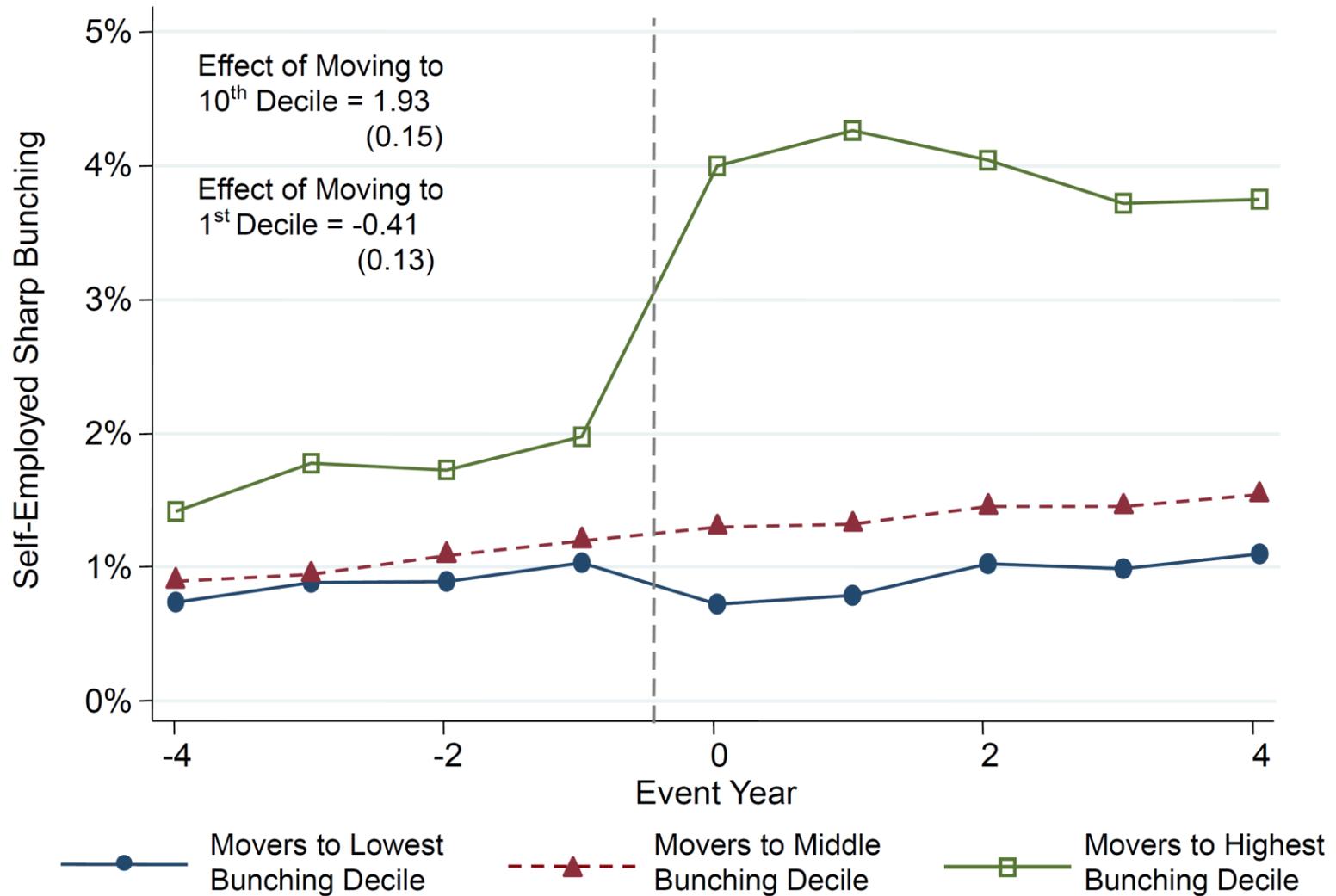
# Self-Employed Sharp Bunching in 2008 by 3-Digit Zip Code in Kansas, Louisiana, Oklahoma, and Texas



## Income Distributions in Lowest vs. Highest Decile Neighborhoods



## Event Study of Sharp Bunching Around Moves



Source: Chetty et al, “Knowledge and Impacts of the EITC on Earnings” AER 2013.

### 3. Challenges of redistributing within the tax system

- PLUS: low administrative costs (compared to a welfare system)
- NEG: Eligibility criteria that are not tracked (e.g. children, SE income) lead to the possibility of fraud. Higher than with welfare system (more monitoring)
- CA LAO report discusses this
- 50% have overclaiming
- \$7 billion to \$10 billion of improper claims were due to misreporting the number of qualifying dependents
- \$3 billion to \$4 billion from misreporting self-employment income,
- \$1 billion from misreporting wage income.

## 4. Effects of the EITC on other family outcomes

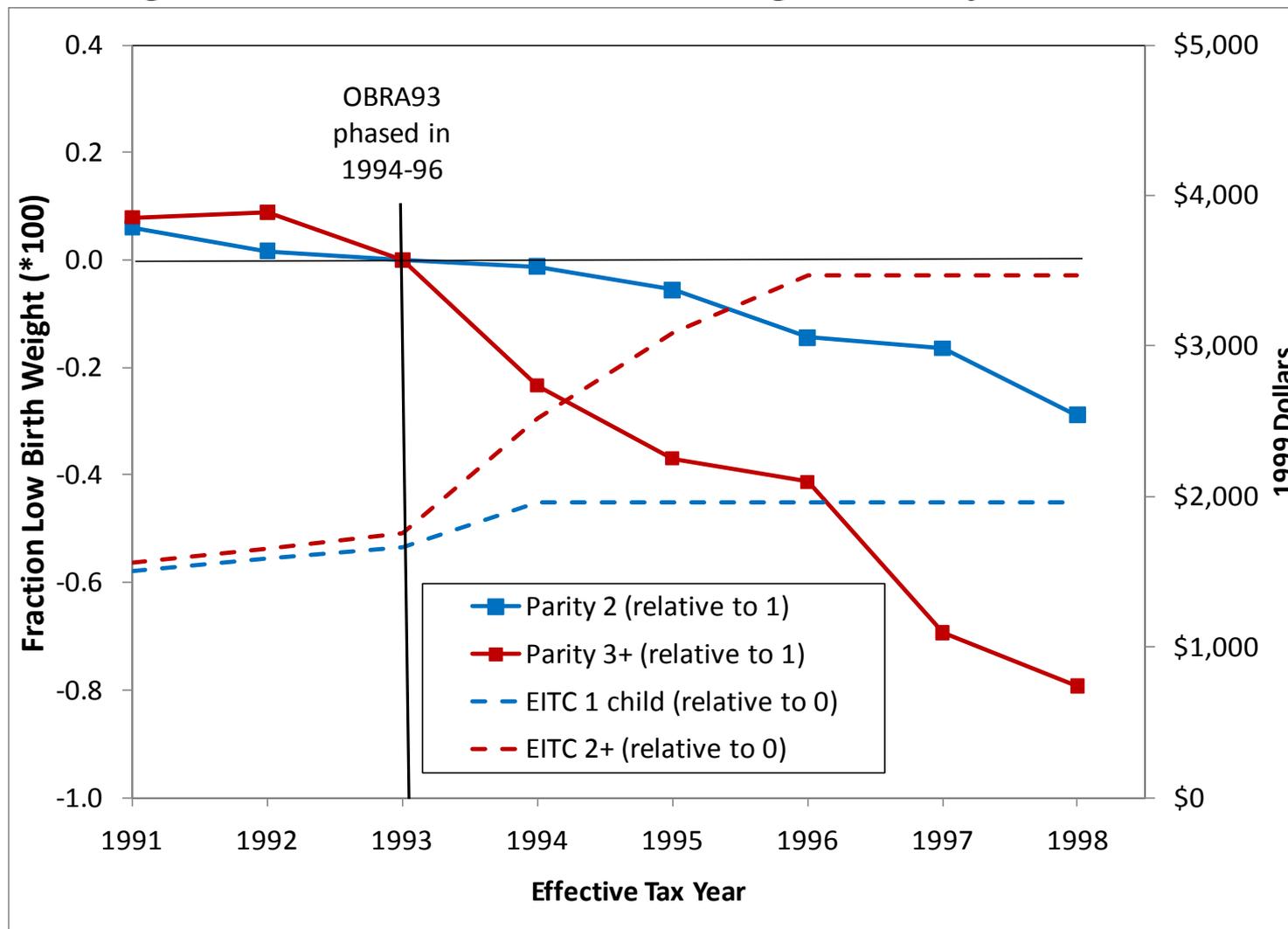
- We know that the EITC leads to increases in employment and net income
- Does this package of income and employment effects show benefits in other domains?
- A relatively recent literature seeks to quantify effects of safety net programs beyond labor supply and income
- In this setting (the EITC), it is difficult to identify the particular channel for the effects (e.g. income versus work)
- Yet quantifying these effects is important for estimating the full benefits of this program (and of redistribution more generally)

# Recent studies and their effects

- EITC leads to an increase in test scores (Dahl and Lochner, 2012)
- Hoynes, Miller and Simon (2014) 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)
- Expansion of the EITC is associated with a reduction in risky biomarkers in mothers (Evans and Garthwaite 2011).
  - This suggests that increases in income can reduce cortisol.
  - Chronic elevations of cortisol can lead to dysfunction in metabolic and immune systems

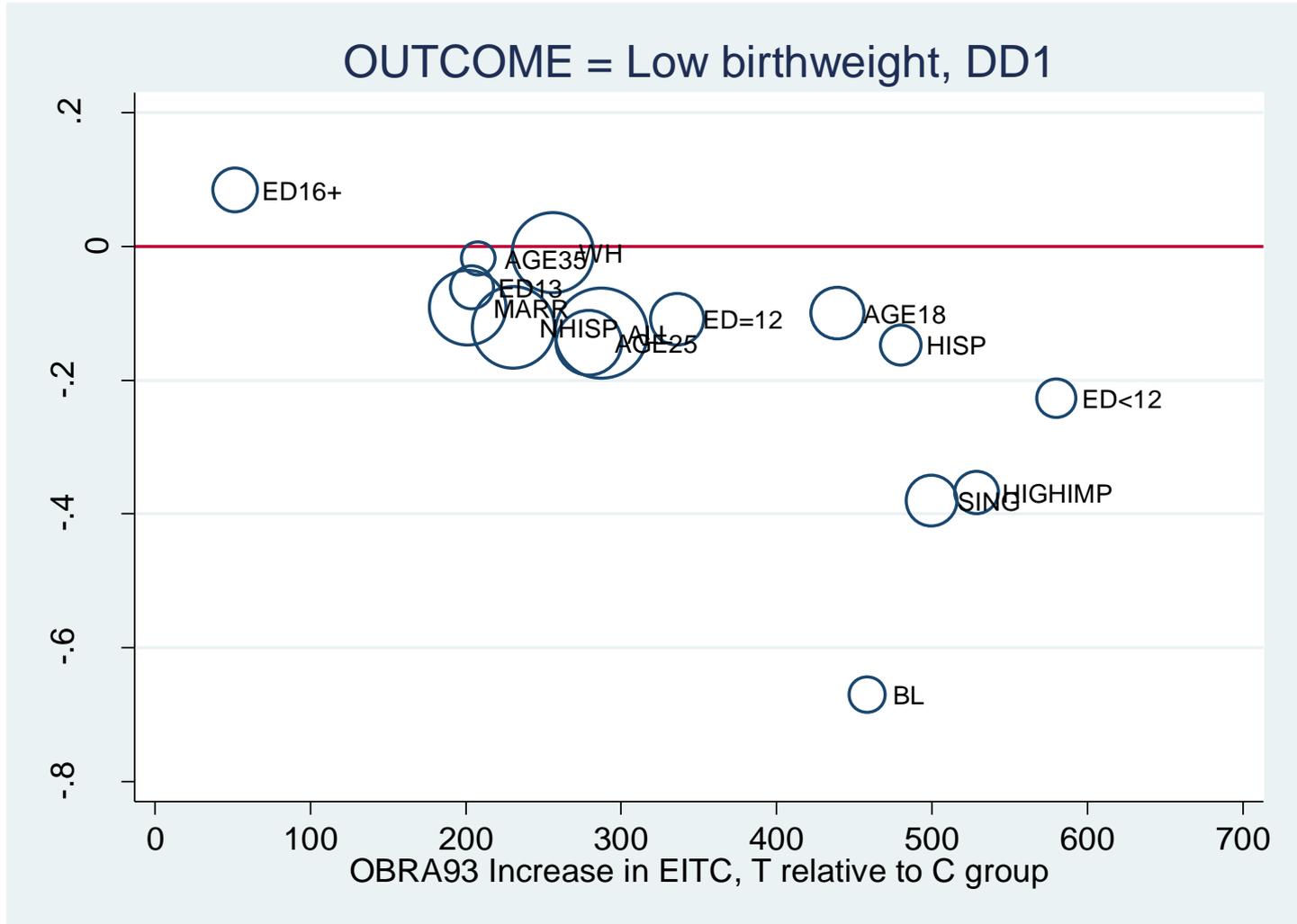
# Effect of OBRA93 on low birth weight

## *Single women with $\leq 12$ years of education*



Source: Hoynes, Miller and Simon “Income, the Earned Income Tax Credit, and Infant Health”, forthcoming AEJ Policy

# Magnitude of birth weight improvement lines up with predicted treatment



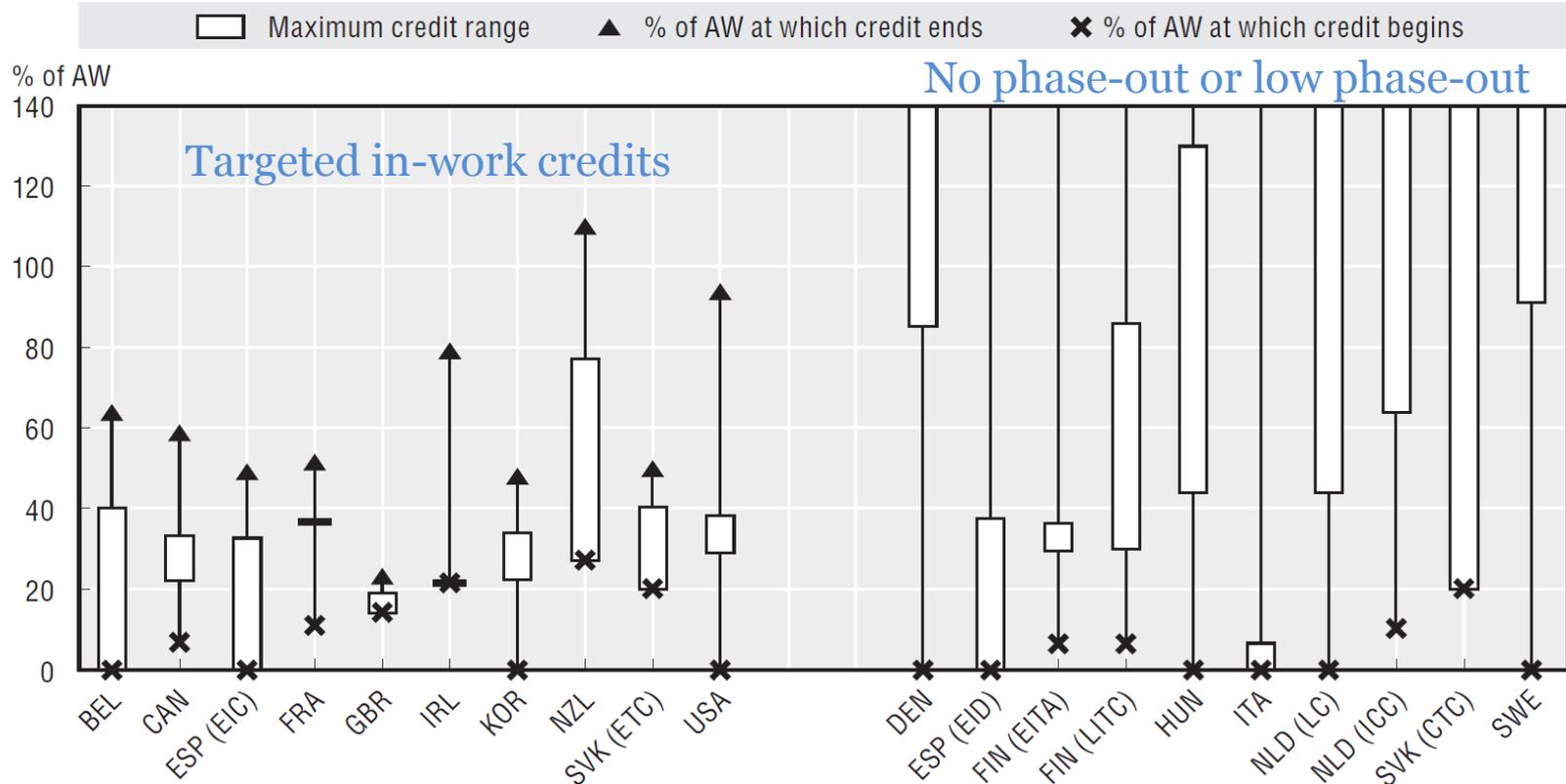
Source: Hoynes, Miller and Simon “Income, the Earned Income Tax Credit, and Infant Health”, forthcoming AEJ Policy

## 5. EITC in the broader OECD policy context

- The design of an in-work credit will reflect a country's value on the tradeoffs between poverty alleviation and work incentives
- The US credit is one of several with large credits that are more targeted (high withdrawal, high credit) [IRL, UK, BEL, NZ]
- Low withdrawal, low credit [CAN, FR, ESP]
- Low withdrawal, higher credit [DEN, SWE, NLD]

- The design of an in-work credit will reflect a country's value on the tradeoffs between poverty alleviation and work incentives
  - High withdrawal, high credit) [IRL, UK, BEL, NZ] → focus on employment
  - Low withdrawal, low credit [CAN, FR, ESP] → focus on lowering marginal tax rates
  - Low withdrawal, higher credit [DEN, SWE, NLD] → focus on poverty alleviation

Figure 2.7. Targeting of in-work credits in OECD countries (for single parent with two children), 2010<sup>1</sup>



1. EIC: Earned Income Credit; ETC: Employee Tax Credit; EID: Earned Income Deduction; EITA: Earned Income Tax Allowance; LITC: Labour Income Tax Credit; LC: Labour Credit; ICC: Income Dependent Combination Credit; CTC: Child Tax Credit.

Source: OECD (2011), *Taxation and Employment*, OECD Tax Policy Studies, No. 21,

Figure 2.8. **Maximum credit size of in-work tax credit schemes  
(for single parent with two children), 2010<sup>1</sup>**

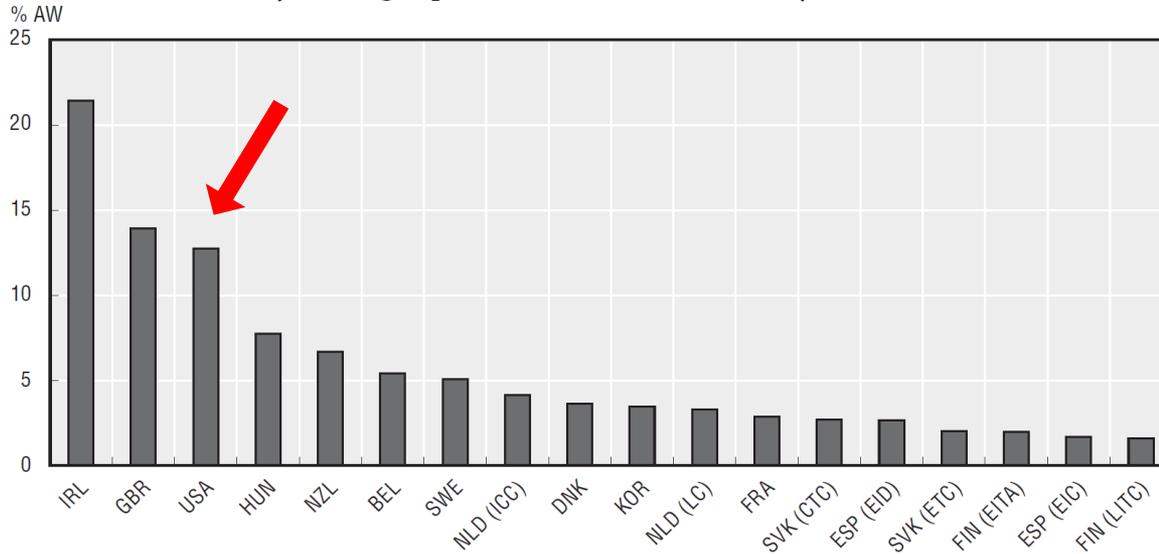
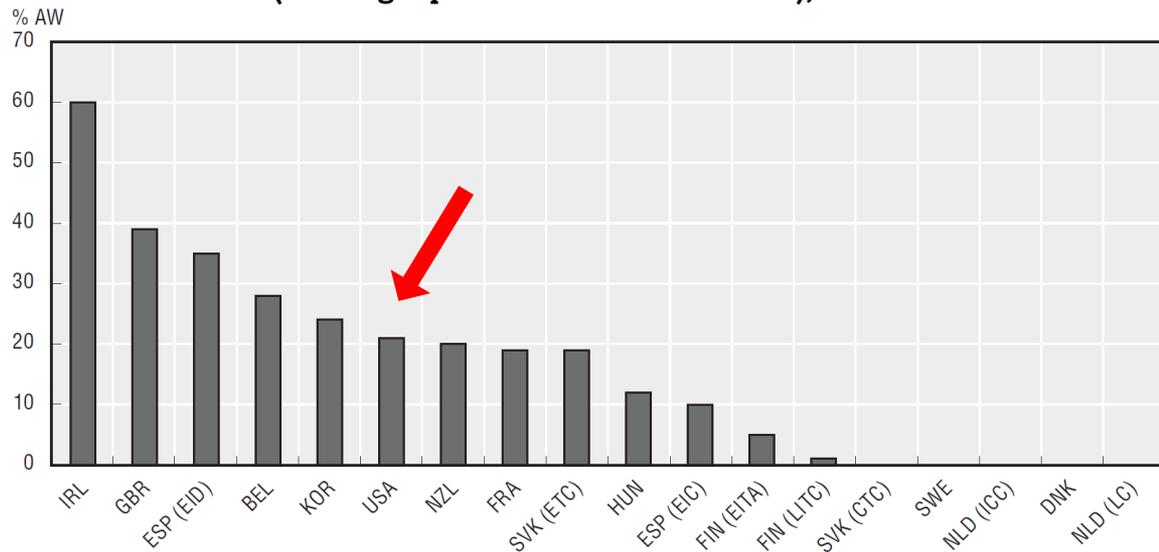


Figure 2.9. **Primary phase-out rates of in-work tax credit schemes  
(for single parent with two children), 2010<sup>1</sup>**



## 6. Options for a state EITC in CA

- Most states have refundable tax credits, simple % of federal credit

Figure 6

### State EITCs in 2014

State	State EITC as Percent of Federal EITC	Refundable?
District of Columbia	40.00%	Yes
Vermont	32.00	Yes
New York	30.00	Yes
Connecticut	30.00	Yes
Maryland	25.00	Yes <sup>a</sup>
Delaware	20.00	No
New Jersey	20.00	Yes
Virginia	20.00	No
Kansas	17.00	Yes
Massachusetts	15.00	Yes
Iowa	14.00	Yes
Illinois	10.00	Yes
Nebraska	10.00	Yes
New Mexico	10.00	Yes
Ohio	10.00	No
Indiana	9.00	Yes
Oregon	8.00	Yes
Michigan	6.00	Yes
Maine	5.00	No
Oklahoma	5.00	Yes
Rhode Island	3.75	Yes <sup>b</sup>
Louisiana	3.50	Yes

## Possible policy goals

- Encourage work
- Supplement Resources of Working Families at Specific Income Levels
- Fill In Perceived Gaps in the Federal EITC (e.g. childless adults)

## Criteria

- Administrative burden
- Revenue loss

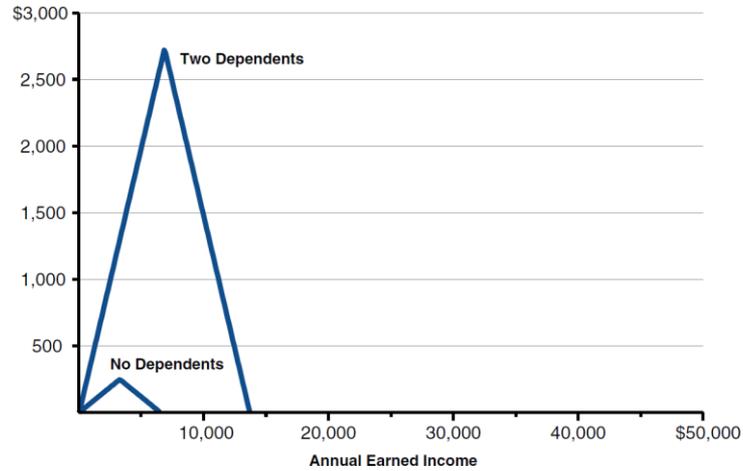
# Options

1. Piggyback on federal credit: 15% refundable
2. Focus on Working Families With Lowest Incomes (more targeted / big phase in and big phaseout)
3. Supplement Federal Credit for Childless Adults

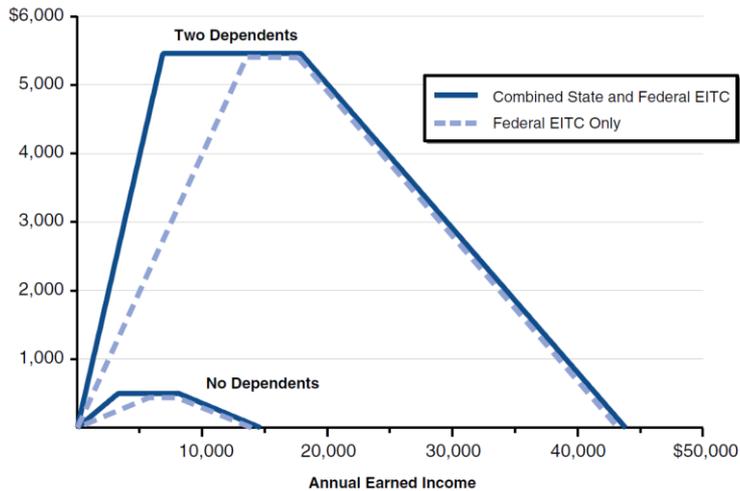
Figure 11

**Option 2: Focus on Working Families With Lowest Incomes**

*State Credit Amount for Single Filers, 2014 Tax Year*



*Combined State and Federal Credit Amount for Single Filers, 2014 Tax Year*



# Food and Nutrition Programs

PP290

Hilary Hoynes

# Outline for lectures

- Overview of main programs
  - SNAP, WIC, School Lunch, School Breakfast
- Economics of cash vs. inkind programs
  - Use different food and nutrition programs as examples
- Hunger and food insecurity (data, trends)
- What we know about what food and nutrition programs do
  - Difficult in evaluation
  - Summary of the research
- On the policy frontier: restrictions and incentives
  - Massachusetts HIP
  - Schanzenbach Hamilton Project Proposal
- Bill Moyers special

# 1. Overview of programs and rules

SNAP	WIC	Lunch	Breakfast
1961: pilot 1975: permanent	1972: pilot 1974: permanent	1946	1966: pilot 1975: permanent
\$74.1B (2014)	\$6.2B	\$11.3B	\$3.7B
Low-income households (universal)	Low-income pregnant, postpartum women, infants <1, children <5	Low-income school children	Low-income school children
46.5 M individuals/month (2014)	8.26 M individuals	19.1M free 2.5M reduced-price	10.4M free 1.0M reduced-price
Monthly benefit via EBT	Voucher for specific goods & quantities; Nutrition educ, screening	Lunches conforming to latest <i>Dietary Guidelines</i> standards	Breakfasts conform. to latest <i>Dietary Guidelines</i> standards
Household benefits	Individual benefits	Individual benefits	Individual benefits

SNAP	WIC	Lunch	Breakfast
Max = \$511/month (3-person family), Avg = \$133/pers./month \$275/HH/month	Food package varies by need (infant formula)	Reimbursement rate (avg): \$3.06/free; \$2.66 reduced	Reimbursement rate (avg): \$1.93 free; \$1.63 reduced
Gross inc <1.3*FPL; Net inc < 1.0*FPL assets <\$2250; universal w/restrictions on able-bodied adults	Gross income <1.85*FPL; At “nutritional risk”	Subsidies: Free: Inc.<1.3*FPL RP: Inc.<1.85*FPL (categorical for SNAP recipients)	(same as lunch)
BRR: 0.3*net income	None: eligible for all or nothing	Discontinuity at 1.3 & 1.85*FPL	Discontinuity at 1.3 & 1.85*FPL
Least in-kind: Voucher for dollar value	Voucher for quantity (price insensitive)	Most in-kind: Meal	Most in-kind: Meal
	Elig. if on SNAP	Elig. if on SNAP	Elig. if on SNAP

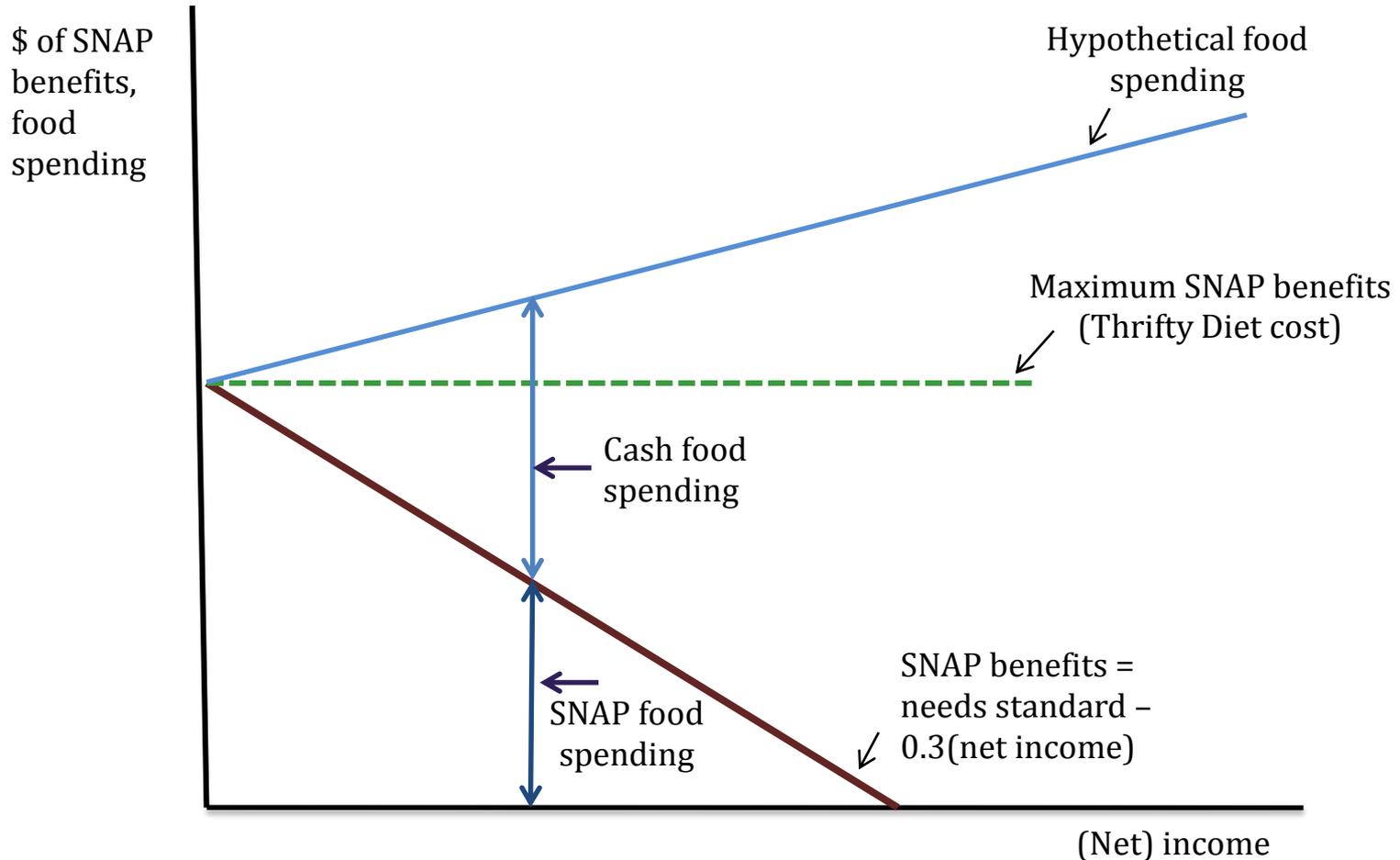
# SNAP: important details

- Closest thing to universal safety net in the U.S.
- Federal program with little variation across states
- Most grocery store foods
  - no hot foods for immediate consumption
- (Most, inframarginal) Consumers are price sensitive
- Time limited benefits for able-bodied adults ABAWDs
- No market failure, just income support
  - Market part of rhetoric when displaced CDP
- Relaxed gross income requirement (BBCE), increases eligibility for those with high deductions



First printing of SNAP (food stamps), Washington D.C., April 20, 1939

# SNAP Benefits Formula + Spending



- $B_F = G - 0.3 * (\text{Net Income})$
- Net income = pre-tax cash income – standard deduction, 20% earnings, excess shelter deduction, medical & child care deduction

# WIC: important details

- Specific basket of goods (for pregnant, nursing, infants, children)
- Fixed bundle; all income eligible get the full bundle (no phase-out)
- Categorical eligibility is individual (e.g. infant, child, etc.)
- Quantity voucher
  - Interesting pricing incentives for firms, depending on % customers on WIC and fraud detection (Meckel 2014)
- Recent changes in bundle: added fruits/veg; expanded dairy options; added whole grains
  - 2007: interim
  - 2014: permanent

**Table 1.2 WIC Food Packages - Maximum Monthly Allowances**

Food Package	Recipient	Food
I	Infants, fully formula fed (0-5 months)	WIC formula: 823 fl oz reconstituted liquid concentrate (0-3 months) WIC formula: 896 fl oz reconstituted liquid concentrate (4-5 months)
	Infants, partially breastfed (0-5 months)	WIC formula: 104 fl oz reconstituted powder (0-1 month) WIC formula: 388 fl oz reconstituted liquid concentrate (1-3 months) WIC formula: 460 fl oz reconstituted liquid concentrate (4-5 months)
II	Infants, fully formula fed (6-11 months)	WIC formula: 630 fl oz reconstituted liquid concentrate Infant cereal: 24 oz Baby food fruits & vegetables: 128 oz
	Infants, partially breastfed (6-11 months)	WIC formula: 315 fl oz reconstituted liquid concentrate Infant cereal: 24 oz Baby food fruits & vegetables: 128 oz
	Infants, fully breastfed (6-11 months)	Infant cereal: 24 oz Baby food fruits & vegetables: 256 oz Baby food meat: 77.5 oz

**Table 1.2** (continued)

Food Package	Recipient	Food
IV	Children: 1 - 4 years old	Juice, single strength: 128 fl oz Milk: 16 qt* Breakfast cereal: 36 oz Eggs: 1 dozen Fruits & vegetables: \$8.00 in cash value voucher Whole wheat bread: 2 lb** Legumes, 1 lb dry or 64 oz canned OR peanut butter, 18 oz
V	Pregnant and partially breastfeeding women (up to 1 year postpartum)	Juice, single strength: 144 fl oz Milk: 22 qt* Breakfast cereal: 36 oz Eggs: 1 dozen Fruits & vegetables: \$10.00 in cash value voucher Whole wheat bread: 1 lb**  Legumes, 1 lb dry or 64 oz canned AND peanut butter, 18 oz

# NSLP & SBP: important details

- Recent changes in payment structures
  - Encouraging universal free meals
    - Function of participation in SNAP, multi-year eligibility
    - Free participation dramatically increased
  - Expansion of breakfast programs
- Feds regulate nutrition
  - Schools set menus
    - Profit maximizing subject to regulations
  - Students decide whether to participate based on price, food quality
- 2010 Healthy Hunger-Free Kids Act: major changes to nutritional standards for school breakfasts and lunches

# 2010 Healthy, Hunger-Free Kids Act

**Table 1.5**

**Previous and Current School Meal Caloric Standards**

Previous (pre HHFKA)	Current (post HHFKA)
<i>Lunch</i>	
grades K-3 Min: 633 Max: none	grades K-5 Min: 550 Max: 650
grades 4-12 Min: 785 Max: none	grades 6-8 Min: 600 Max: 700
grades 7-12 (optional) Min: 825 Max: none	grades 9-12 Min: 750 Max: 850
<i>Breakfast</i>	
grades K-12 Min: 554 Max: none	grades K-5 Min: 350 Max: 500
	grades 6-8 Min: 400 Max: 550
	grades 9-12 Min: 450 Max: 600

Also restrictions on 10% calories from saturated fats  
Minimum daily fruit & veg, meats grains, milk

## 2. Program Statistics and Recipient Characteristics

# FNP Overview: Caseload as % of targeted pop

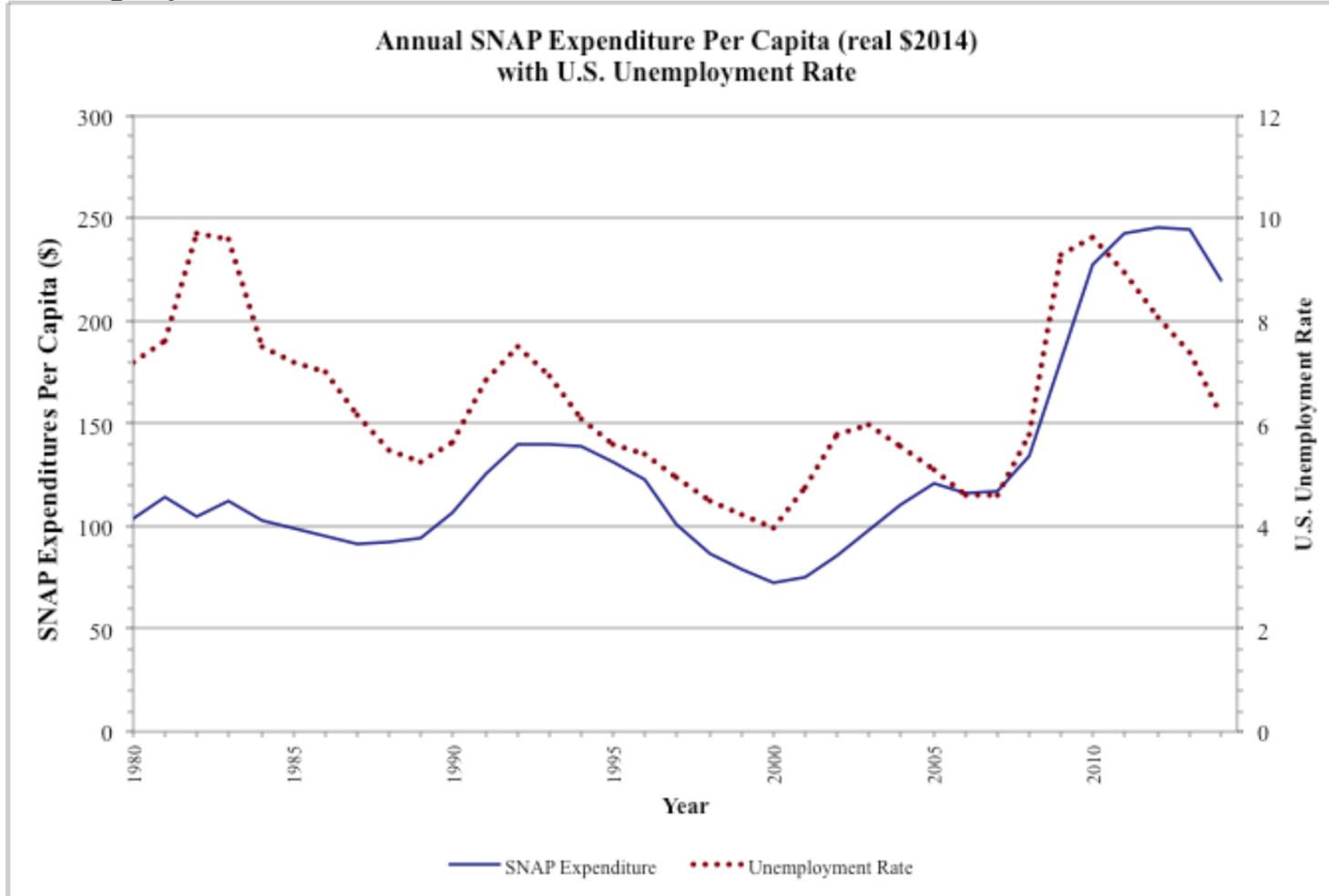
	<i>Caseload (as % Relevant Population)</i>							
SNAP	8.1	10.1	6.2	8.7	13.2	15.0	15.2	14.8
WIC								
Women (as % of all women aged 18-44)	1.9	2.9	3.1	3.6	3.9	3.7	3.6	3.5
Children 1-4	13.5	21.7	23.0	24.6	28.3	29.6	28.5	26.9
Infants < 1	35.3	46.5	48.5	50.5	52.9	53.4	53.8	51.9
NSLP (as % of children aged 5-17)								
Free and reduced price meals	25.0	28.0	29.1	32.6	38.4	39.5	39.7	39.8
Free meals	21.4	24.4	24.5	22.7	32.8	34.5	35.0	35.2
All meals	52.5	50.2	51.5	55.3	59.2	58.3	56.6	55.9
SBP (as % of children aged 5-17)								
Free and reduced price meals	7.6	10.7	12.0	14.3	18.1	19.9	20.6	21.1
Free meals	7.2	10.0	10.8	12.7	16.2	18.0	18.8	19.3
All meals	8.8	12.4	14.3	17.4	21.7	23.7	24.4	24.9

---

**Table 2.2 Characteristics of SNAP Recipients**

	1996	2000	2005	2010	2012
<u>All Food Stamp Households</u>					
Share with children	60	54	54	49	45
Share female heads with children	39	35	32	26	24
Share with elderly members	16	21	17	16	17
Share of individuals <18	47	47	47	44	43
Share of individuals >=65	9	10	7	5	6
Share no elderly, no kids, no disabled	15	11	16	24	25
Share with gross monthly income below poverty	91	89	88	85	82
Share with no cash income	10	8	14	20	20
Share with any earnings	23	27	29	30	31
Share with no net income	25	20	30	38	38
<u>Multiple program participation; share with income from:</u>					
AFDC/TANF	37	26	15	8	7
General Assistance	6	5	6	4	3
SSI	24	32	26	21	20
Social Security	19	25	23	21	23
Unemployment Insurance	2	2	2	7	5
Veterans Benefits	1	1	1	1	1

Figure 2.1 Real per capita expenditures for SNAP, 1980-2014 (Real 2014 dollars), with U.S. Unemployment Rate



Source: USDA SNAP Program Data, <http://www.fns.usda.gov/pd/supplemental-nutrition-assistance-program-snap>. Unemployment rates from <http://data.bls.gov/pdq/SurveyOutputServlet>. For definitions of recessionary periods see Bitler and Hoynes 2014.

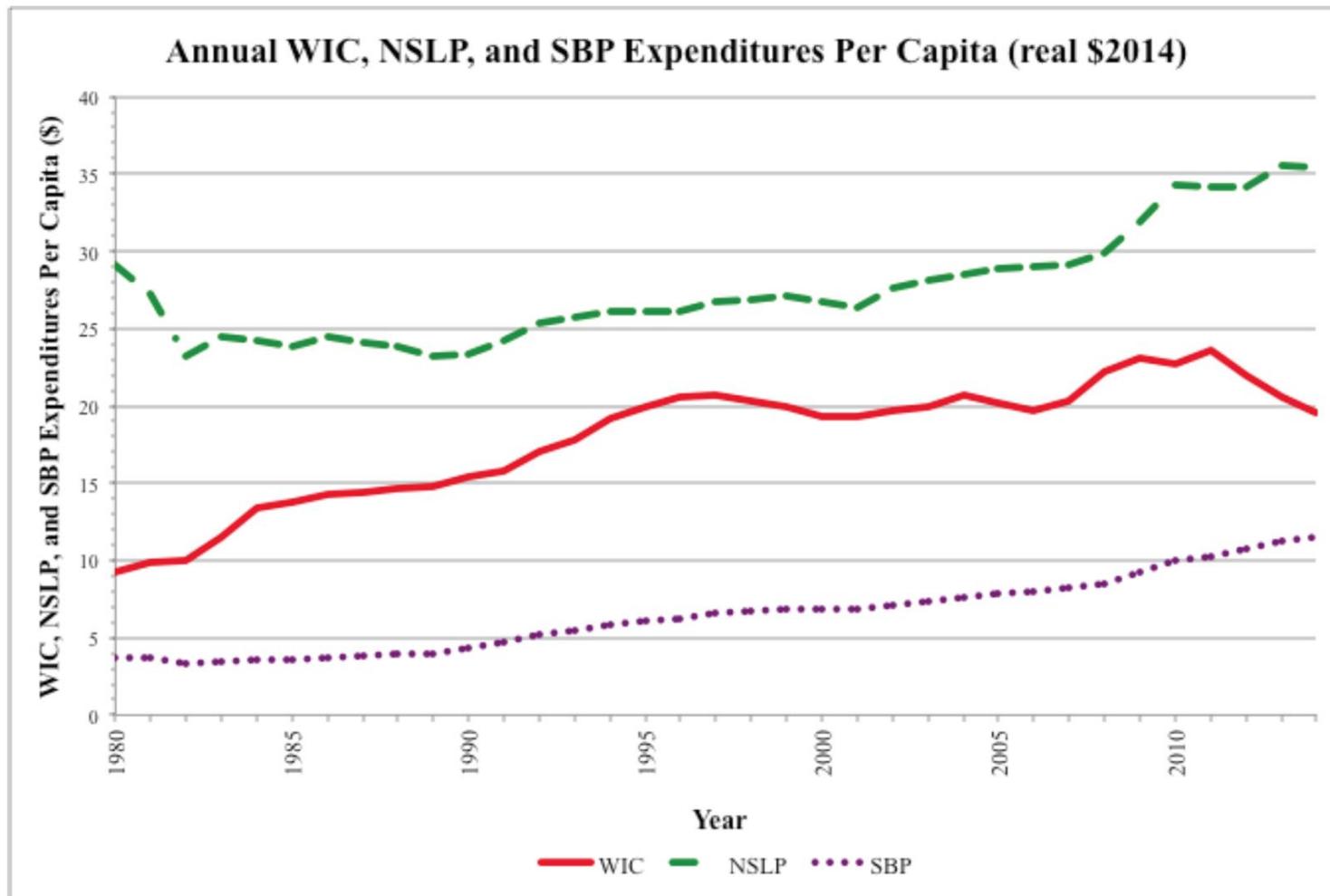
**Table 2.4 Characteristics of WIC Recipients**

	1994	2012
Income below 50% FPL	42	37
Income below 100% FPL	74	73
Income below 150% FPL	91	92
<u>Percent of women participants who are</u>		
Pregnant	52	43
Breastfeeding	17	29
Postpartum	<u>31</u>	<u>28</u>
	100	100
<u>Multiple program participation; percent with income from:</u>		
TANF	29	9
SNAP	40	37
Medicaid	58	72
SNAP and Medicaid	35	33
No TANF/SNAP or Medicaid	36	24

*Annual Participation (millions persons)*

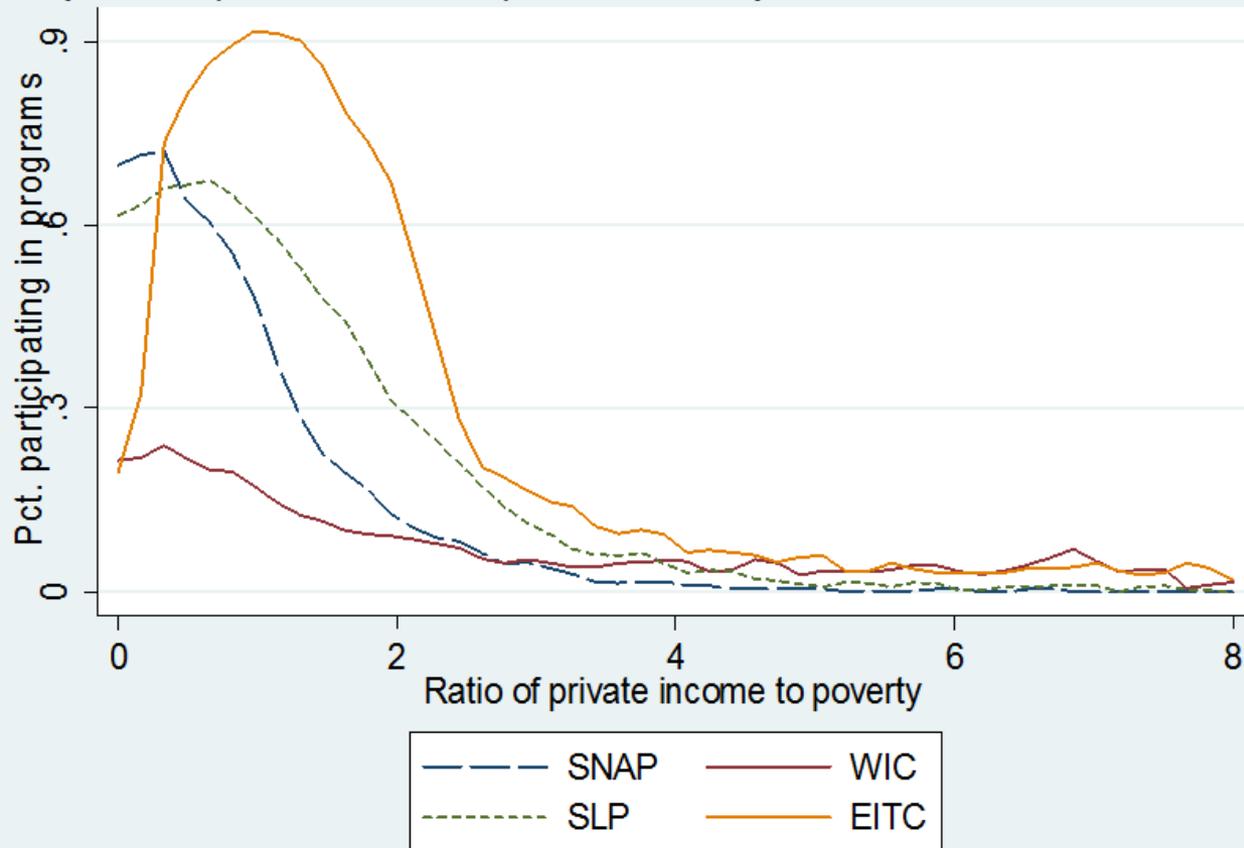
WIC (total)	4.5	6.9	7.2	8.0	9.2	8.9	8.7	8.3
Women	1.0	1.6	1.7	2.0	2.1	2.1	2.0	2.0
Infants	1.4	1.8	1.9	2.0	2.2	2.1	2.0	2.0
Children	2.1	3.5	3.6	4.0	4.9	4.7	4.6	4.3

Figure 2.2 Real per capita expenditures for WIC, NSLP and SBP, 1980-2014 (real 2014 dollars)

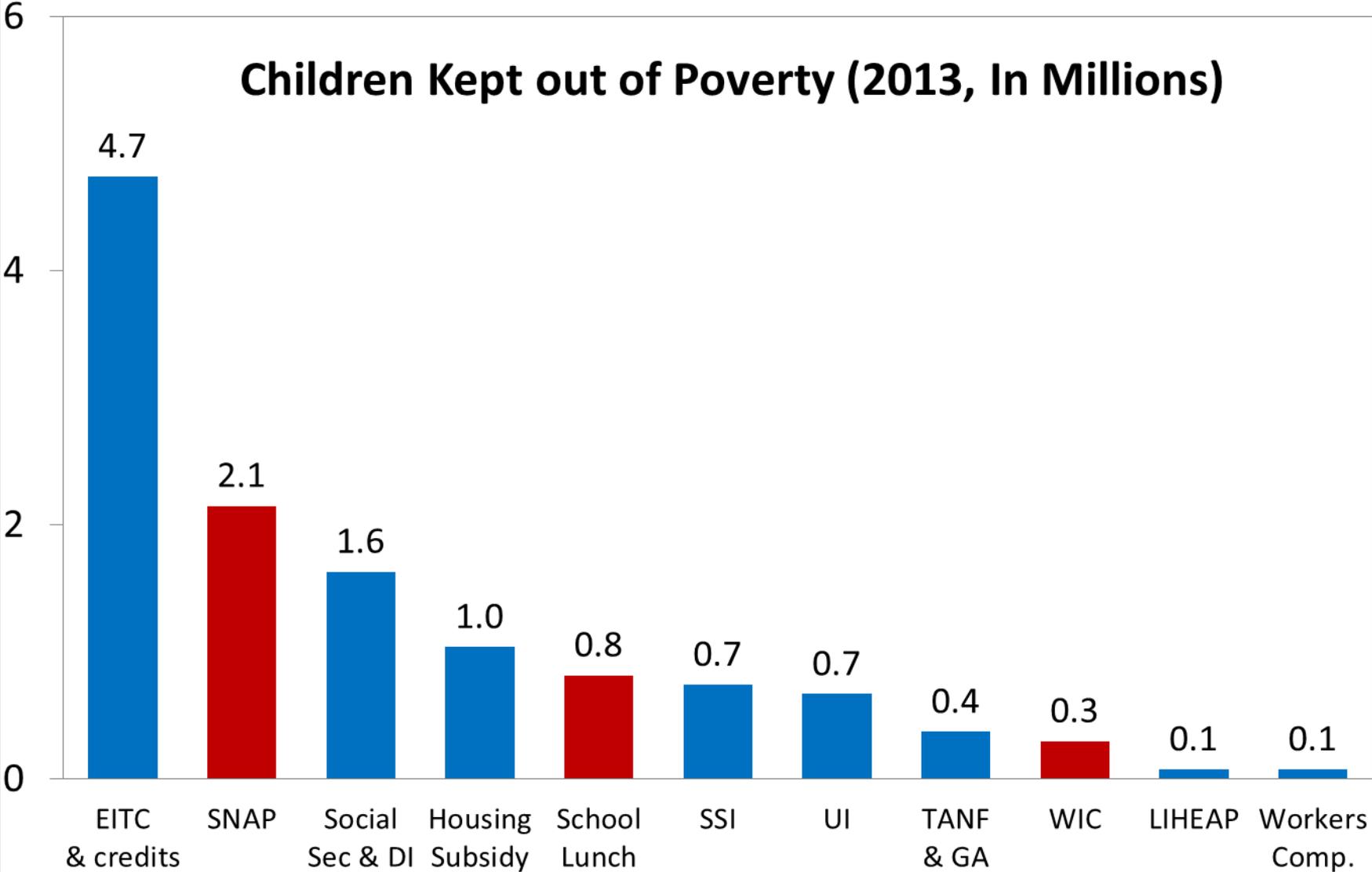


Source: USDA WIC, NSLP, and SBP program data, <http://www.fns.usda.gov/pd/wic-program>, <http://www.fns.usda.gov/pd/child-nutrition-tables>

Kernel Density Plot of HH program participation,  
by ratio of private income to pov., non-elderly hh heads in hhs with kids, 2013



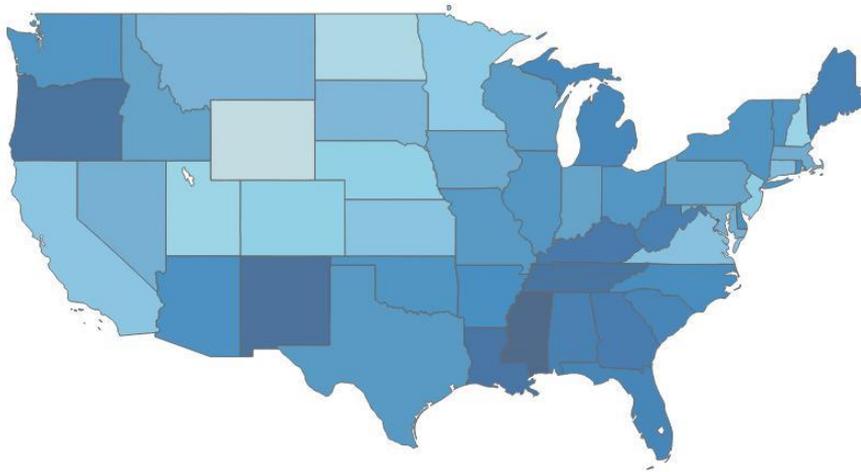
# Children Kept out of Poverty (2013, In Millions)



# Participation Rates by State

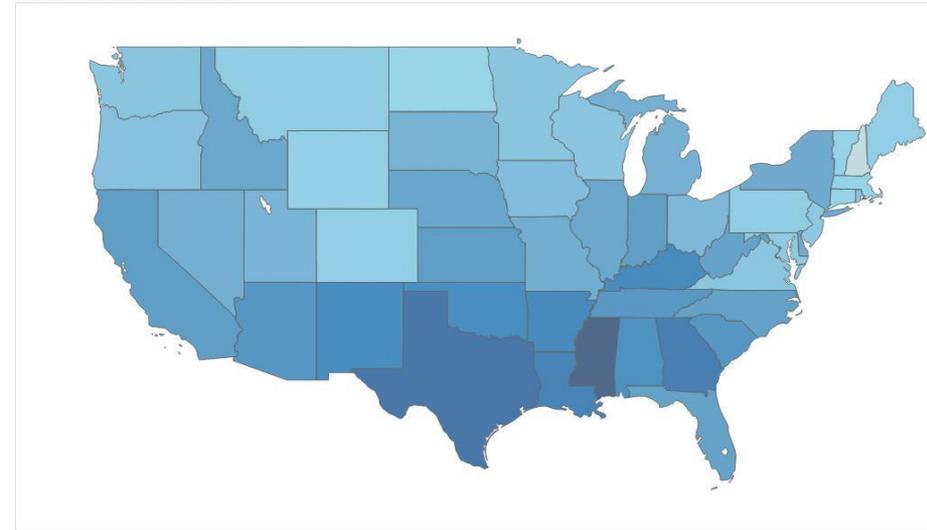
## SNAP

SNAP Recipients/Population



## Lunch

2013 NSLP Recipients/Population



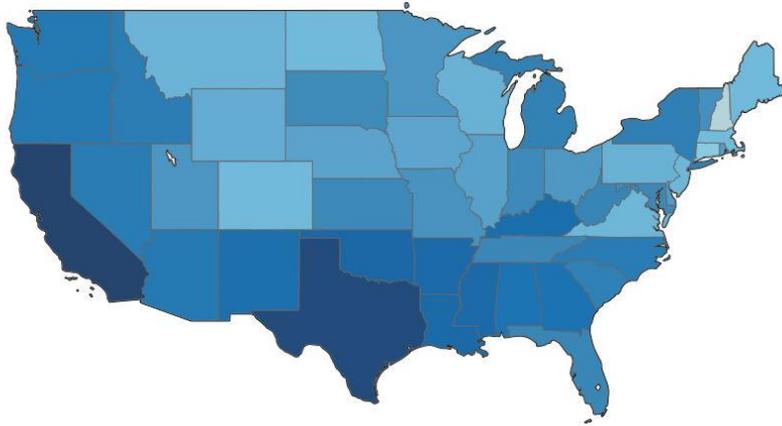
Map based on Longitude (generated) and Latitude (generated). Color shows sum of Recipients/Population. Details are shown for Region.

Map based on Longitude (generated) and Latitude (generated). Color shows sum of Recipients/Population. Details are shown for Region.

# Participation Rates by State

## WIC

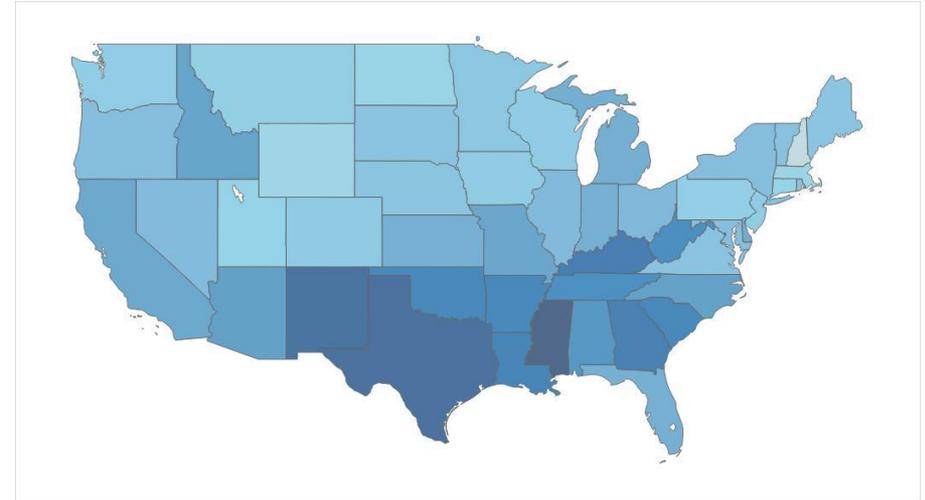
2013 WIC Recipients/Population



Map based on Longitude (generated) and Latitude (generated). Color shows sum of Recipients/Population. Details are shown for Region.

## Breakfast

2013 SBP Recipients/Population



Map based on Longitude (generated) and Latitude (generated). Color shows sum of Recipients/Population. Details are shown for Region.

# MPR: cool data visualizations

- [http://www.mathematica-mpr.com/our-focus-areas/nutrition/data-visualizations/SNAP?utm\\_source=SilverpopMailing&utm\\_medium=email&utm\\_campaign=New%20and%20Noteworthy%2002%2018%2015%20\(1\)%20remainder&utm\\_content=&spMailingID=10690854&spUserID=NjI1MzYxNDYxNjYS1&spJobID=481487866&spReportId=NDgxNDg3ODY2S0](http://www.mathematica-mpr.com/our-focus-areas/nutrition/data-visualizations/SNAP?utm_source=SilverpopMailing&utm_medium=email&utm_campaign=New%20and%20Noteworthy%2002%2018%2015%20(1)%20remainder&utm_content=&spMailingID=10690854&spUserID=NjI1MzYxNDYxNjYS1&spJobID=481487866&spReportId=NDgxNDg3ODY2S0)

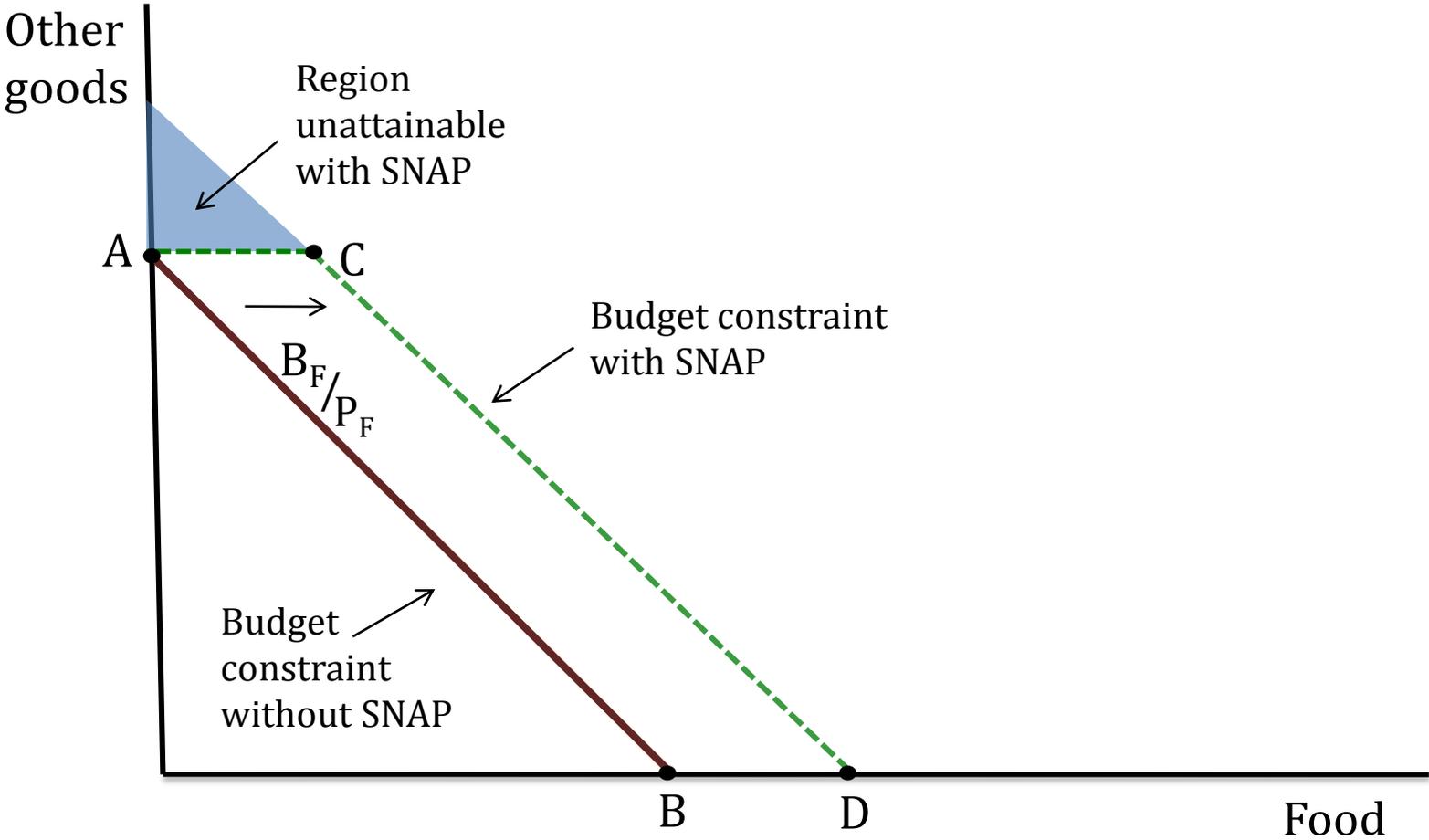
### 3. Review of issues surrounding the programs

# Main framing of the issues

1. Range of “in-kindness” in the programs
  - Cash > SNAP > WIC > School feeding
2. Programs should balance protection vs distortion
  - Protections: food insecurity/malnutrition particularly during critical periods, consumption smoothing
  - Distortions: reduce labor supply, DWL
3. Program design and effects on takeup

# Expected effects on consumption

# SNAP (unrestricted food voucher)

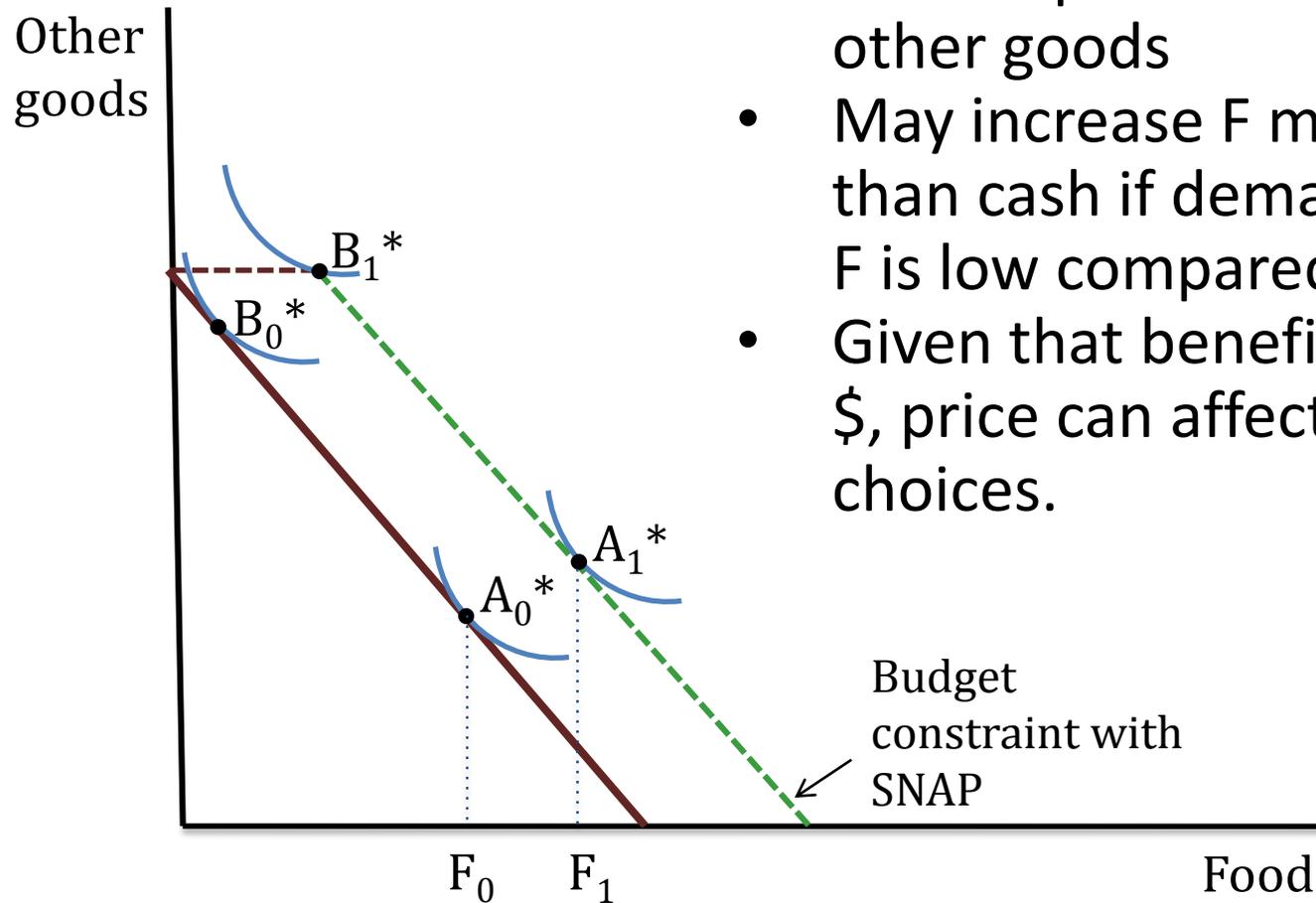


# Deriving the budget constraint

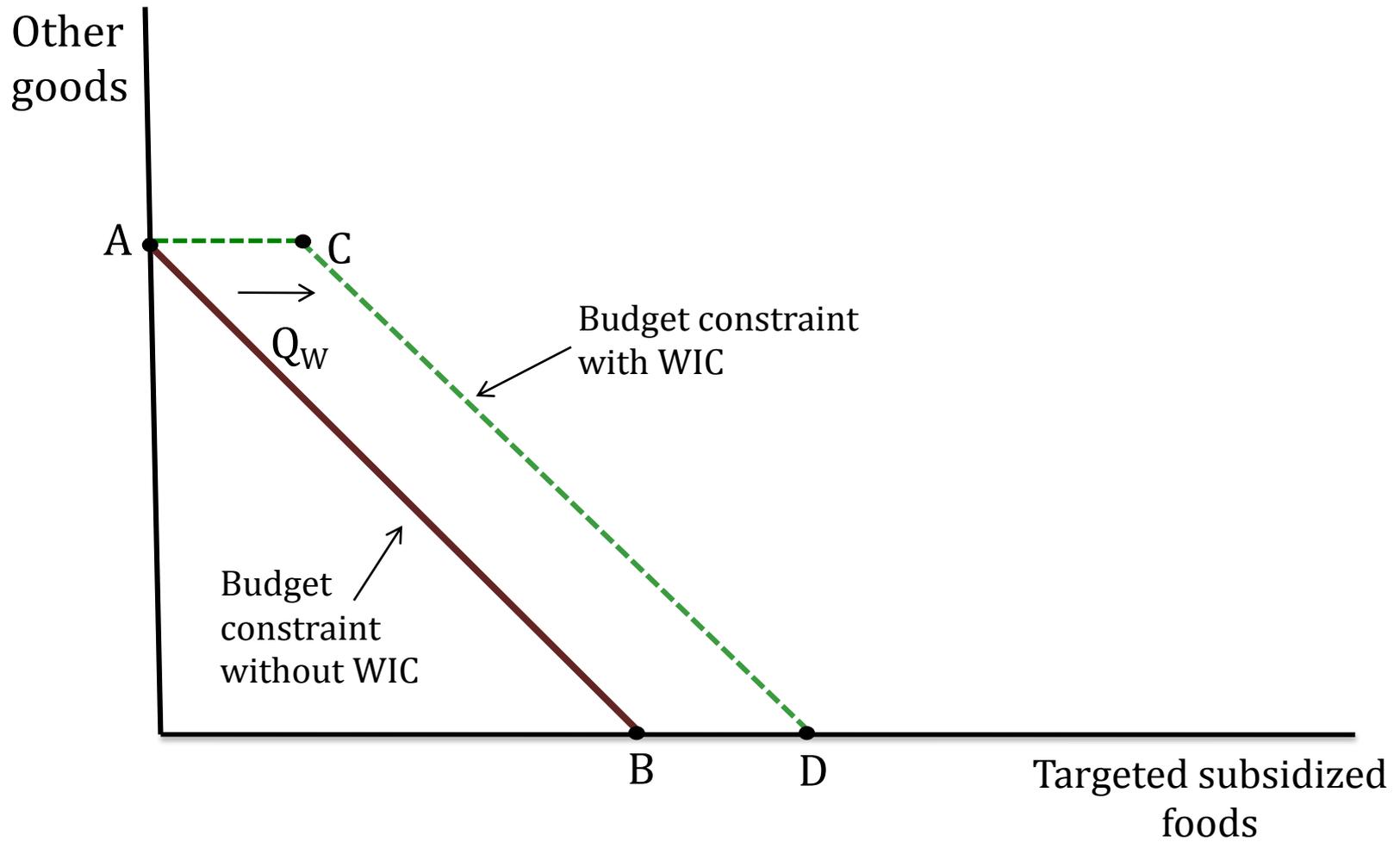
- $P_F F + P_O O = Y$
- Slope of the budget set is the ratio of the prices  $\frac{P_O}{P_F}$
- Food stamps represents an increase in  $Y$
- $P_F F + P_O O = Y + B_F$ , shifts out  $F$  by  $\frac{B_F}{P_F}$
- Individuals internalize the price of food that they purchase  $\rightarrow$  lower cost food represents larger potential shift out of the budget constraint

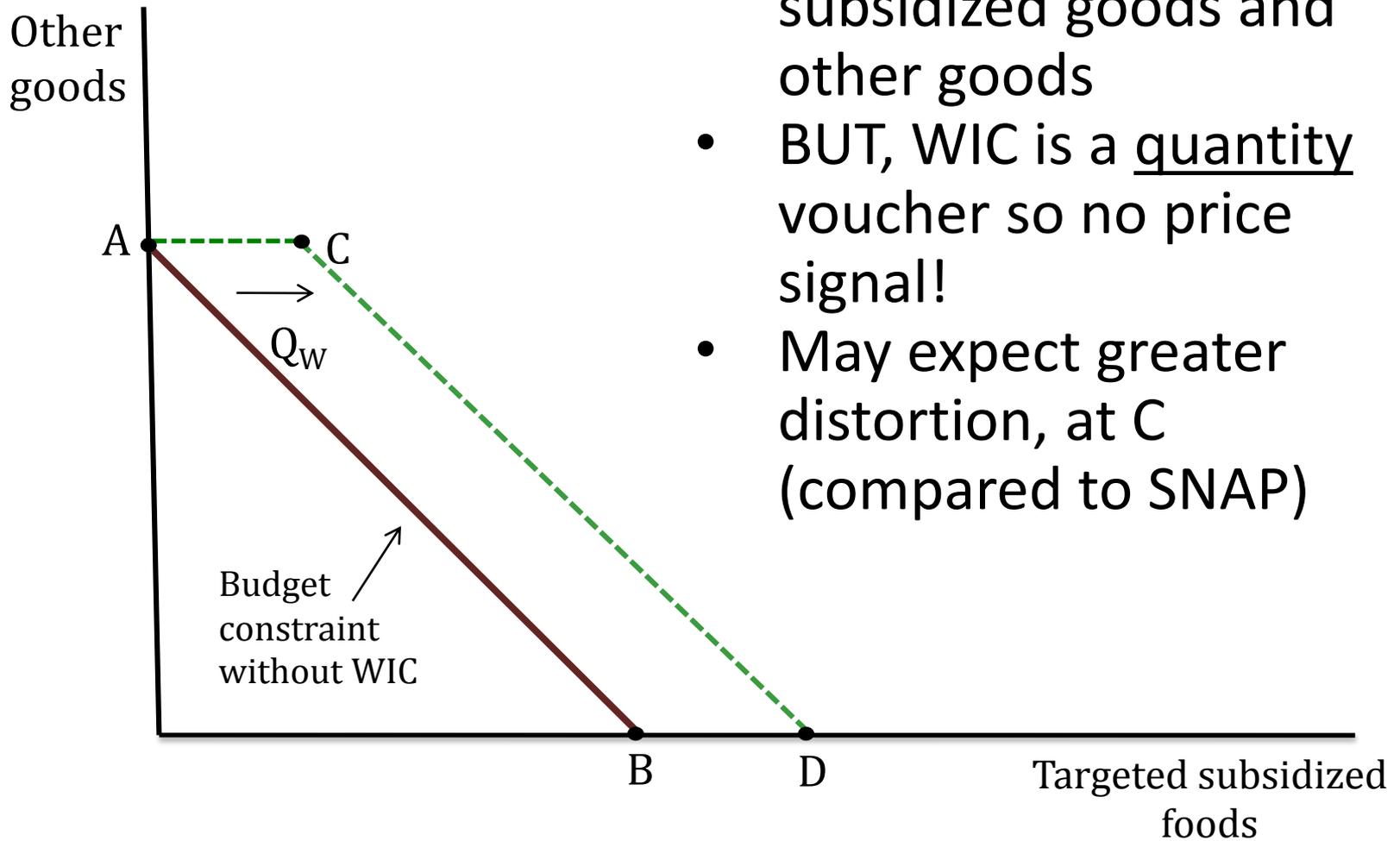
## Standard results:

- SNAP increases consumption of F and other goods
- May increase F more than cash if demand for F is low compared to B
- Given that benefit is in \$, price can affect choices.



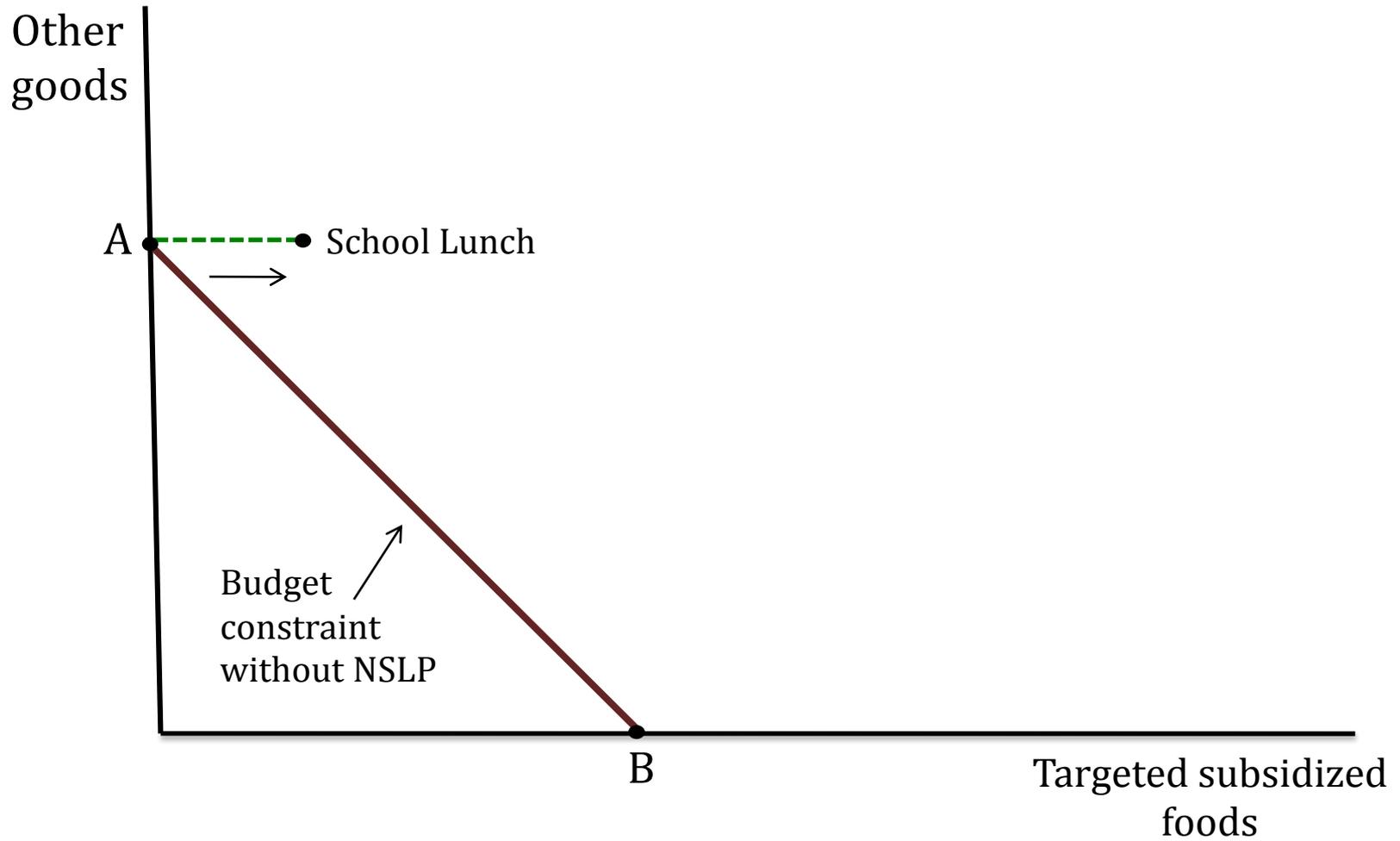
# WIC (fixed bundle of Q)

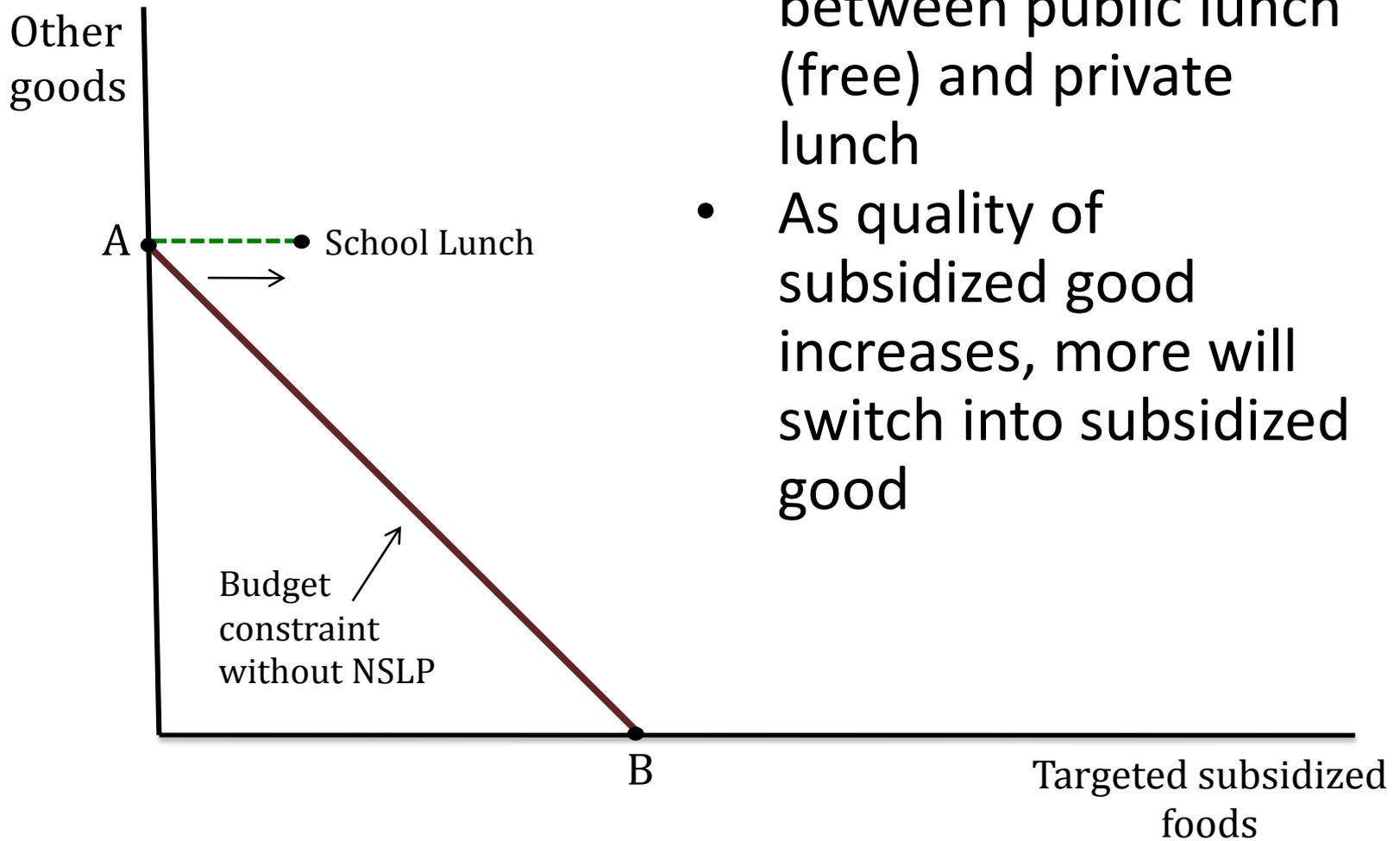




- As with SNAP, WIC should increase subsidized goods and other goods
- BUT, WIC is a quantity voucher so no price signal!
- May expect greater distortion, at C (compared to SNAP)

# NSLP and SBP (fixed Q)



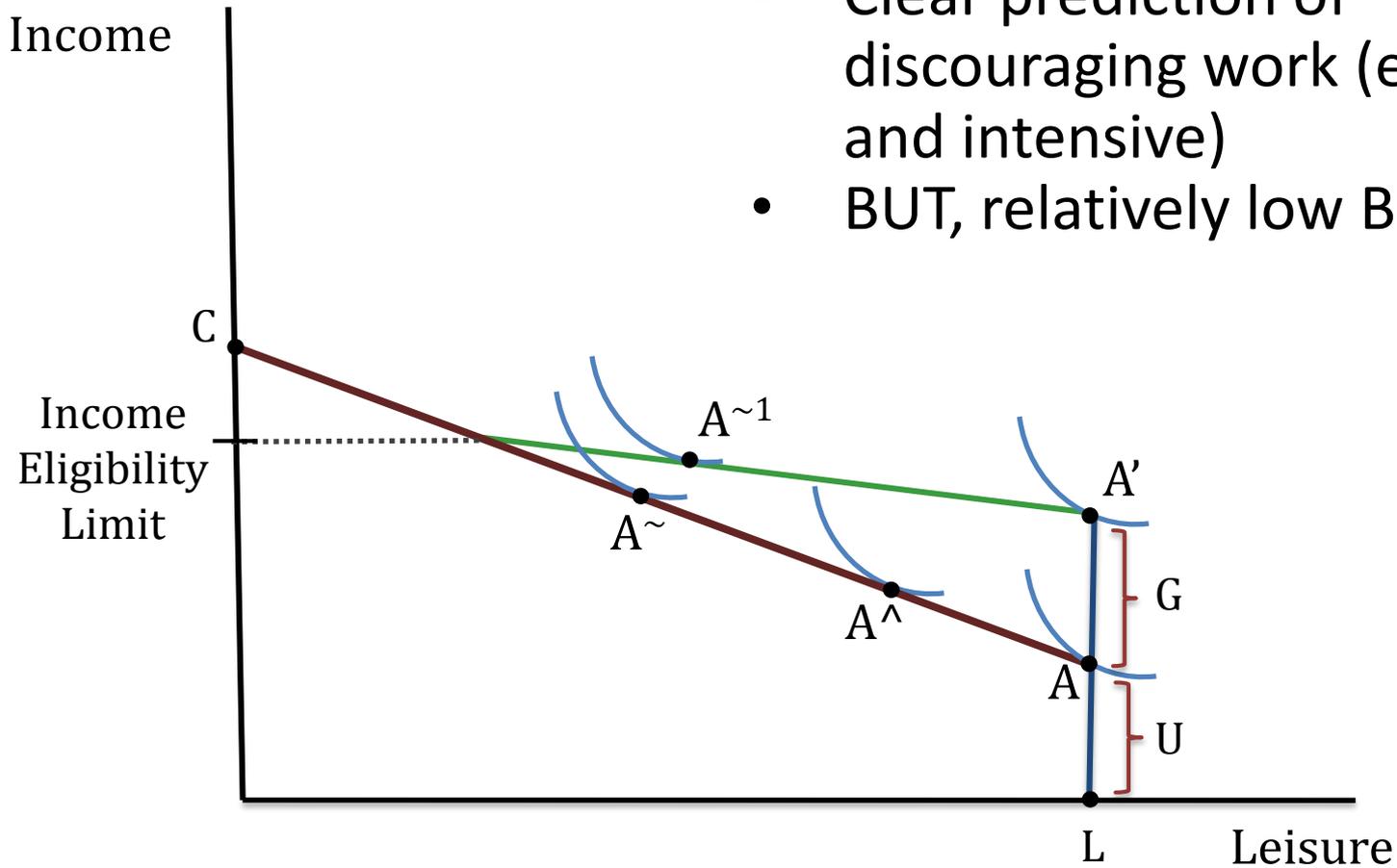


- Benefits are “take it or leave it” -- choice between public lunch (free) and private lunch
- As quality of subsidized good increases, more will switch into subsidized good

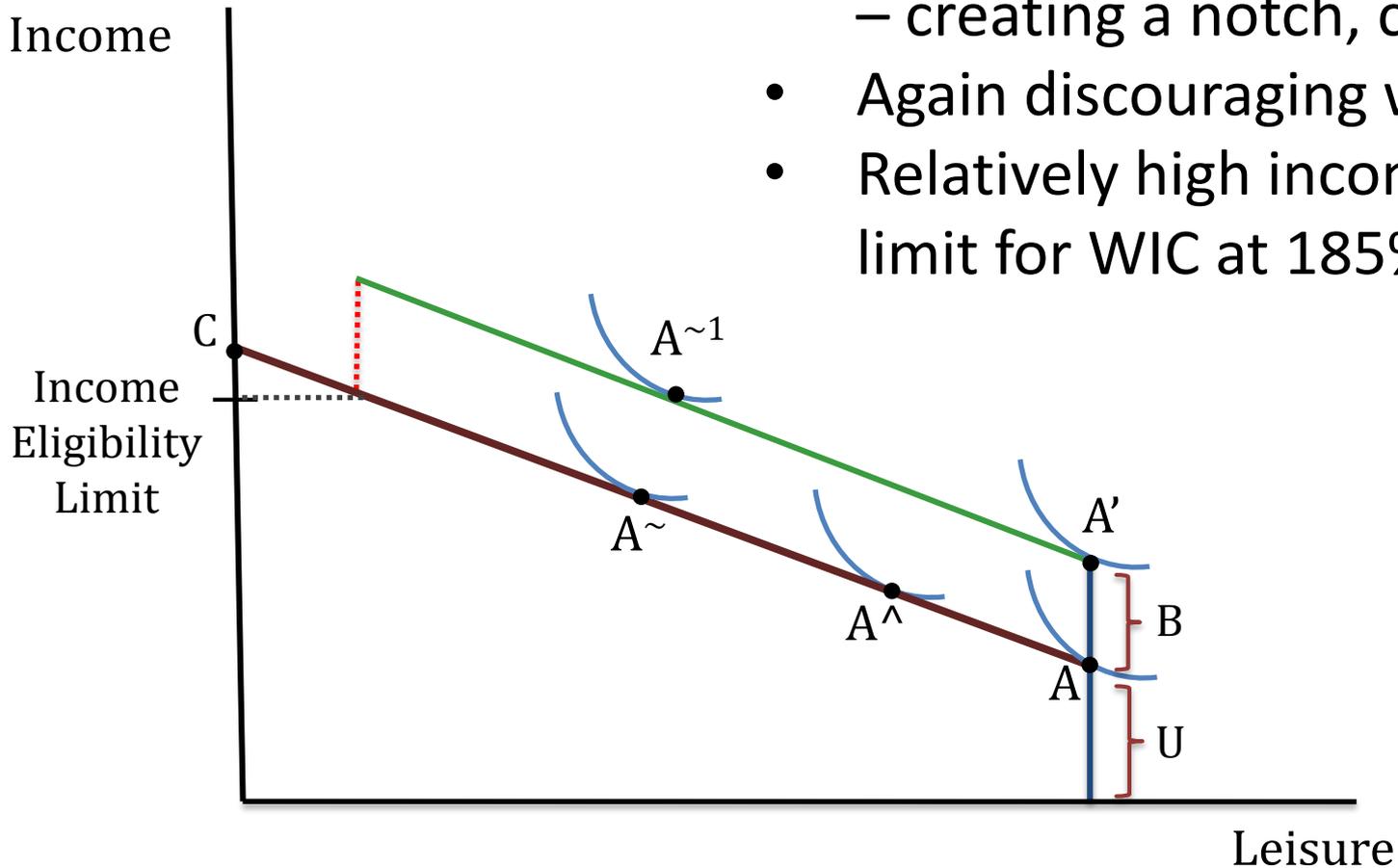
# Expected effects on labor supply

- Unearned income transfer -> unambiguously predicted to decrease labor supply

- SNAP is “classic” income support with  $G$  and tax rate
- Clear prediction of discouraging work (extensive and intensive)
- BUT, relatively low  $BRR = 0.3$



- WIC and School feeding programs are “all or nothing” – creating a notch, cliff
- Again discouraging work
- Relatively high income elig. limit for WIC at 185% FPL



# What do we conclude?

- The more unrestricted the transfer (SNAP) the smaller the distortions
- Do policy makers / voters care about distortions?
  - Paternalism
    - In practice, this is likely small in SNAP
    - Very few consumers at flat/kinked part of budget
  - Information

# Other issues to consider

- Intra-family considerations
  - Who does the shopping may have more control
  - How might offering meals at school affect allocation of food at home
  - There may be spillover effects of the targeted programs (WIC, NSLP, SBP) on nontargeted members of the family
- The firm side
  - As a quantity voucher, WIC recipients are price insensitive. Firms (formula manufacturers, retail shops) have incentive to increase prices.
  - School meal providers maximize profit, takeup

# Expected effects on food insecurity and health

- Food insecurity predicted to decrease
- Health more complicated
  - How does change in nutrition impact health?
  - More calories? Higher-quality calories?

What do we know about effects of food and  
nutrition programs

# Challenge to causal identification

- Federal programs with little variation across space or over time (reform)
- Approaches taken in the literature:
  - Program rollout: SNAP, WIC, breakfast
  - Use available policy variation across states/time (reduced form or IV): seen more in the SNAP literature
  - Sibling and family FE: problematic if it is driven by unobs determinants of participation or if spillovers are large
  - Regression discontinuity: seen more in school meals literature
  - RCTs: Food Stamp “cashout” experiments in 1980s, universal breakfast program

# Results: SNAP Consumption, Labor Supply

- **Increases food consumption, similar to cash income** (Hoynes & Schanzenbach 2009)
- **Reduces food insecurity** (Depolt et al. 2009; Mykerezzi & Mills 2010; Ratcliffe et al. 2011; Schmidt et al. 2013; Shaefer & Gutierrez 2013; Yen et al. 2008)
- **Reduces LFP and hours among single mothers** (Hoynes & Schanzenbach 2012)

# Results: SNAP and Health

- **Child health: birth weight improved** (Almond et al. 2011); **obesity may decline** (Kreider et al. 2012; Schmeiser 2012)
- **Adult health: obesity results mixed** (Vartanian & Houser 2012; Fan 2010; Gibson 2003; Hoynes et al. 2013; Kaushal 2007)

# Results: WIC

- Participation:
  - Negative selection into program (Bitler & Currie 2005)
  - No real cyclical component (Bitler et al. 2003; Corsetto 2012)
- Birth outcomes:
  - ↓ low birth weight (Bitler & Currie 2005; Figlio et al. 2009; Hoynes et al. 2012; Joyce et al. 2005)
  - Some evidence of ↑ average birth weight (Currie & Ranjani 2014; Hoynes et al. 2012; Joyce et al. 2005; Rossin-Slater 2013)
  - Some evidence of ↑ gestation length (Joyce et al. 2005)
- Little evidence for effects on children of WIC

# Results: Lunch

- **Dietary quality: ambiguous on number, quality of calories** (Gleason & Suitor 2003)
  - Appears to reduce food insecurity (Nord & Romig 2006)
- **Obesity before HHFKA mixed** (reduces: Gundersen et al. 2012; no impact: Mirtcheva & Powell 2013; increases: Schanzenbach 2009; Millimet et al. 2010)
- **Academic outcomes mixed** (no impact: Dunifon & Kowaleski-Jones 2003; improves: Hinrichs 2010)

# Results: Breakfast

- Dietary quality:
  - Improves nutritional quality intake (Bhattacharya et al. 2006; Crepinsek et al. 2006; Frisvold 2012)
  - Substantial crowd out, eating 2 breakfasts (Schanzenbach & Zaki 2014)
- Achievement:
  - May increase achievement (Dotter 2012; Frisvold 2012; Imberman & Kugler 2014) or not (Schanzenbach & Zaki 2014)

# Other developments/Future directions

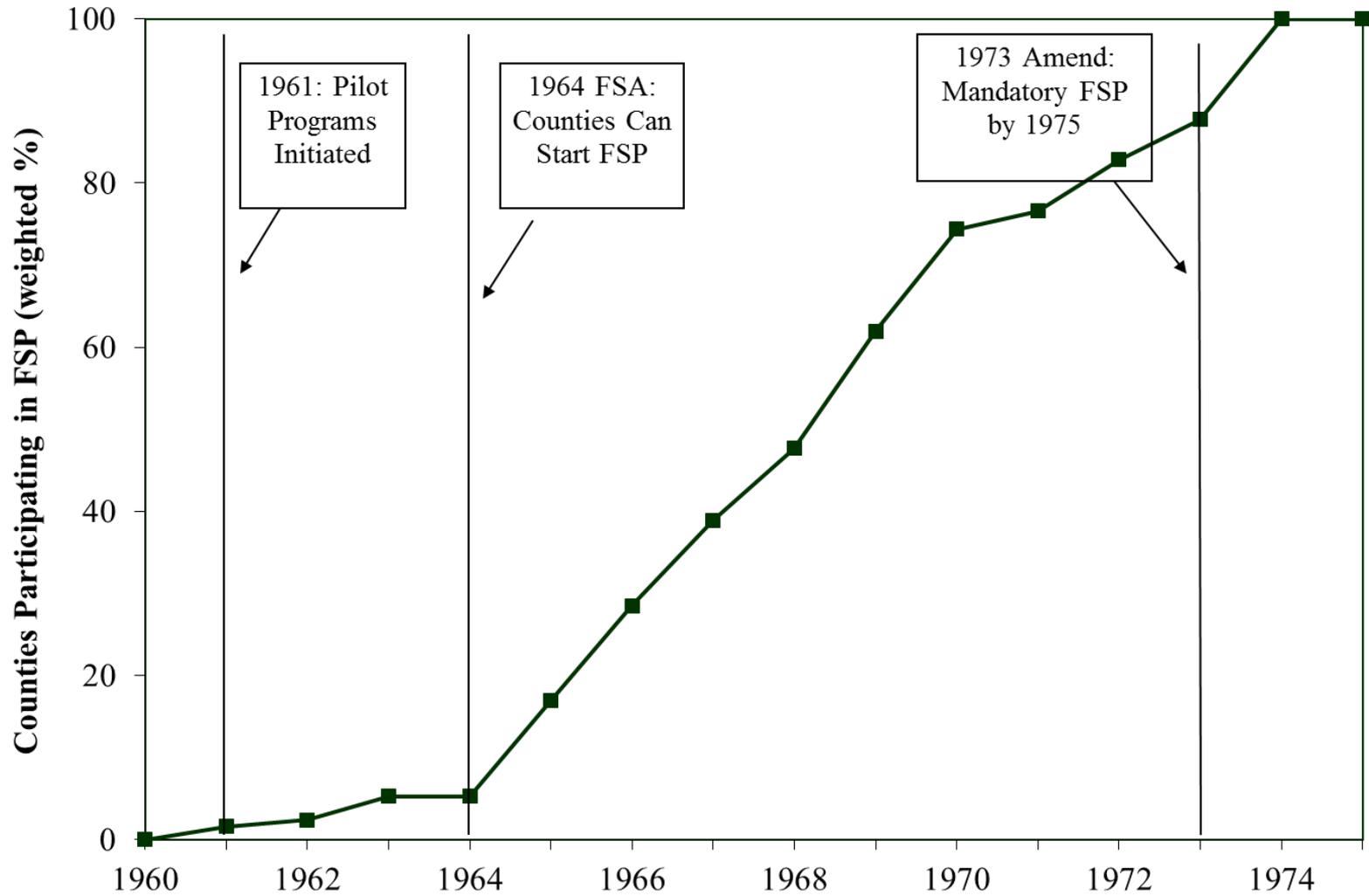
- **Food stamp/paycheck cycle** (Shapiro 2005; Hastings and Washington 2010; Zaki 2014)
- **Improving food consumption choices**
  - Broader food consumption literature
  - Ban soda purchase (unlikely to alter consumption bundle, see Schanzenbach THP piece)
  - Subsidize healthy foods (Massachusetts Healthy Incentives Pilot)

Almond, Hoynes & Schanzenbach  
Research on the effects of SNAP using the  
program rollout

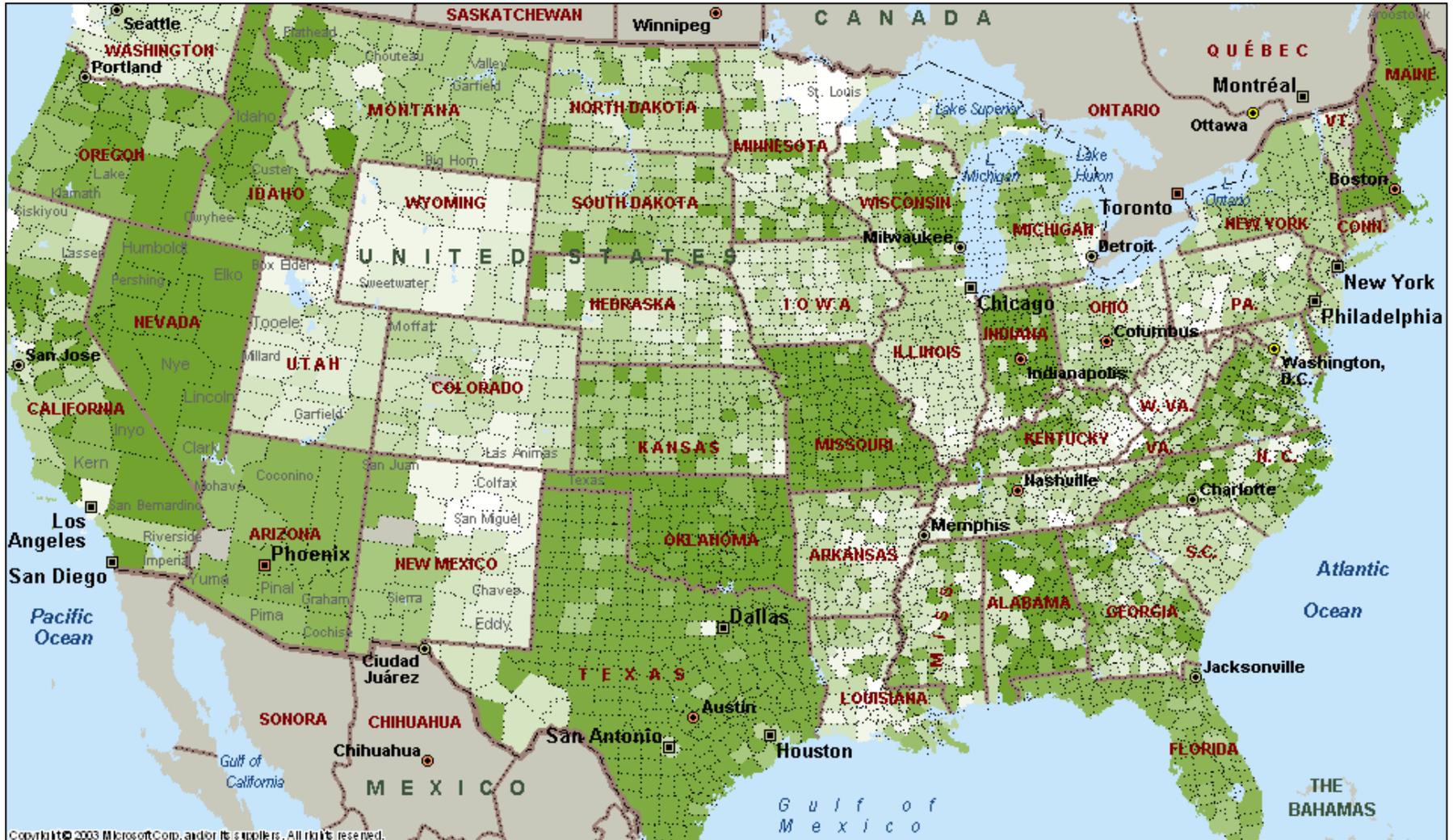
# A Short History of the (modern) Food Stamp Program

- 1961 Pres. Kennedy executive order; established 8 county-level pilot programs; 1962-1963 expanded to 43 counties
- Food Stamp Act of 1964:
  - Gave local areas the authority to start up FSP in their county
  - Federally funded
  - Voluntary adoption by counties
- Steady increases in county adoption; constrained somewhat by budgetary limits
- 1973 amendments to Food stamp act: mandated that all counties offer FSP by 1975
- Result: rollout over 3,000 counties over 1961-1975.

# Percent of US population covered by FSP



# FSP Start Date, by County (darker = later)



# Empirical approach

- In our work, we take advantage of this variation in the timing of adoption across counties over this 15 year period
- Estimate difference in difference and event study models using county of residence (or county of birth)

# War on Poverty: Other papers using “rollout” design

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- Head Start (Ludwig and Miller 2007)
- Medicare (Finkelstein and McKnight 2008)
- WIC (Hoynes, Page and Stevens 2012)
- Family planning programs (Bailey 2012)
- Civil rights (Almond, Chay and Greenstone)
- Title I (Cascio, Gordon and Reber)
- Community health centers (Bailey and Goodman-Bacon 2012)
- Food Stamps (Currie and Moretti)

# Effects of Food Stamps on Health

- The goal of safety net programs is to increase incomes at the bottom of the distribution and to smooth over shocks
- We need to balance the potential gains from these policies against the costs due to moral hazard
- Our work focuses on quantifying other benefits to the safety net; in particular health benefits
  - Contemporaneous health effects – health at birth
  - Longer term benefits – adult health and economic outcomes

“Inside the War on Poverty:  
The Impact of Food Stamps on Birth Outcomes,”  
Douglas Almond, Hilary Hoynes and Diane Schanzenbach  
*Review of Economics and Statistics* 2011

- Use initial rollout of the FSP (1961-1975) to examine effects on infant health
- Main outcome = low birth weight births (<2,500 gms)
  - Infant health is important measure of the pregnancy environment and marker of longer run health
- Mother is “treated” during pregnancy with varying FSP depending on county and month-year of birth
- Vital statistics data on full census of births
- Event study model (difference-in-difference)

## How might food stamps affect health?

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- Our earlier work (Hoynes and Schanzenbach *AEJ Applied* 2009) shows that 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
- Given this, we argue that our results provide an estimate of the impact of an exogenous increase in income on health. Few studies provide any convincing evidence on this issue.
- 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

## Research Design (program rollout)

- Use variation across counties in difference-in-difference model:

$$y_{ct} = \alpha + \delta FSP_{ct} + \eta_c + \lambda_t + \phi_{st} + \gamma_1 Z_{c60} * t + \gamma_2 TP_{ct} + \varepsilon_{ct}$$

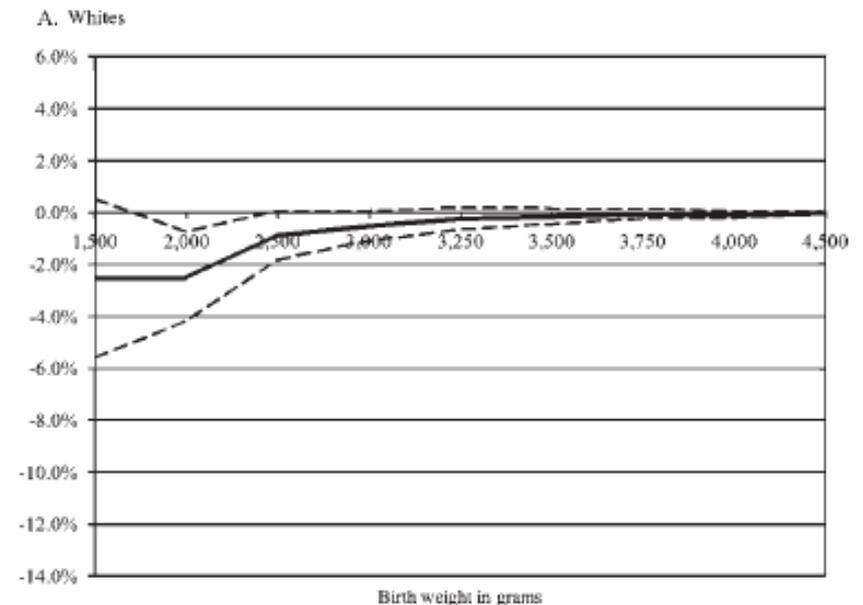
- Observations are at the county (c), time (t) level
- Identification comes from variation across counties over time in adoption of FSP ( $FSP_{ct}$ )
- Fixed effects for county, time and state\*year (or county\*linear time)
- We also control for possible confounders:
  - 1960 county characteristics interacted with linear time ( $Z_{c60}$ )
  - Per capita annual county expenditures on other government transfer programs ( $TP_{ct}$ )
- Standard errors clustered on county

# Results: Food Stamps and Infant Health

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- Availability of food stamps in the county leads to an increase in birth weight and a reduction in the incidence of low birth weight
- Magnitude: \$1000 (2009\$) in additional FSP income (treatment-on-the-treated) reduces incidence of LBW by 4% for whites and 2% for blacks
- *Effects concentrated at the bottom of the birth weight distribution*

FIGURE 3.—EFFECTS OF FSP IMPLEMENTATION ON DISTRIBUTION OF BIRTH WEIGHT, PERCENTAGE IMPACTS (COEFFICIENT/MEAN)



# Results: Food Stamps and Infant Health

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- *Effects concentrated in highest poverty counties*

	Low Poverty Counties (lowest quartile)	High Poverty Counties (highest quartile)
	LBW	LBW
FSP (0/1)	-0.001	-0.0012*
	(0.001)	(0.0006)

## How do the magnitudes compare to other safety net programs?

- Percent impacts on low birth weight, treatment-on-the-treated per \$1000 in 2009\$:
- Food stamps: 4% for whites, 2% for blacks [*Almond, Hoynes and Schanzenbach RESTAT 2011*]
- EITC: 2%-3% for single low education women [*Hoynes, Miller and Simon 2012*]
- WIC: 10-20% [*Hoynes, Page and Stevens JPUBE 2011, and others*]

# FSP Exposure in Childhood and Impacts in Adulthood

“Long Run Impacts of Childhood Access to the Safety Net”

Hilary Hoynes, Diane Schanzenbach and Douglas Almond

- Our current work shifts the focus to the long run: Does access to the safety net *in early life* lead to changes in adult outcomes?
- We examine effects on health and economic outcomes
- County rollout of FSP leads to variation in timing and extent of exposure to the program during childhood
- Event study model (difference-in-difference)
- The design allows us to explore *when treatment matters*

## How may FSP affect adult outcomes?

- The earlier discussion is relevant here too: 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.

# 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 does this theory predict for FSP introduction?

- Health: FSP leads to better nutrition in childhood → lower metabolic syndrome in adulthood
  - Expect lower incidence of obesity, cardiovascular disease, high blood pressure, type 2 diabetes
  - Both pre- and post-natal nutrition may matter
- Economic outcomes: increase in human capital (education, earnings)

# 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)

# Prior evidence and our contribution

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- Early work is in public health and is *largely correlational*. There is also evidence from rat experiments that shows both *pre-* and *post-*natal exposure matter.
- Interest in economics pioneered by Currie and Almond. These high quality quasi-experimental studies often evaluate effects of *extreme, negative* shocks.
- Our study is the first to look at the long term effects of *positive* and *policy-driven* changes in resources.
- Addresses how generalizable the extreme findings are
- We can explore when treatment matters (our policy affects resources *in utero* and through childhood)

# What we do

- Use variation in childhood exposure to FSP based on county and year of birth during the FSP rollout period
  - Note that our treatment never “turns off” once it starts
- 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 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)
- Explore when in childhood the intervention is most beneficial.
- Caveat: these folks are still pretty young (early 50s); we may be capturing a delay in onset

# Methodology

- Use variation across counties in difference-in-difference model:

$$y_{icbt} = \alpha + \delta FSP_{cb} + X_{icbt} \beta + \eta_c + \lambda_b + \gamma_t + \theta_s * b + \varphi CB60_c * b + \varepsilon_{icbt}$$

- Identification comes from variation across counties  $c$  and birth cohorts  $b$  in adoption of FSP
- Baseline models measure FSP treatment as the *percent of time between conception and age 5* that FSP was available in county of birth
- Control include fixed effects for county, birth cohort and interview year state specific linear time trends
  - $X_{icb}$  = *individual controls* (gender, marital status, race, age) and *family background* (female head, education of head, income to needs – all in first 5 years of life)
- *SE clustered by county* and use PSID weights

## 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

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

- Our main estimates are for a high impact sample.
- Those raised in families where the *head is low education* (less than high school).
- [Note not own education, but parent's education using family background in PSID]

# Metabolic Syndrome for High Impact Sample

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	Metabolic syndrome (index)
FS share IU-5	-0.294*** (0.107)
Mean of dep va	0.01
Observations	8,246
R-squared	0.26

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Change from no exposure to full exposure (in utero to age 5) reduces metabolic syndrome by 0.3 standard deviations; significant at 1%

# Metabolic Syndrome for High Impact Sample

	Metabolic syndrome (index)	Components of metabolic syndrome index				
		Diabetes	High blood pressure	Obesity	Heart disease	Heart attack
FS share IU-5	-0.294*** (0.107)	-0.032 (0.048)	-0.13 (0.086)	-0.159* (0.086)	-0.053 (0.027)	-0.031 (0.019)
Mean of dep va	0.01	0.05	0.19	0.33	0.03	0.01
Observations	8,246	8,431	8,430	9,217	8,430	8,432
R-squared	0.26	0.19	0.22	0.26	0.13	0.08

While only obesity reaches statistical significance, all the individual components indicate an improvement in adult health. (Component regressions use 0/1 not z-scores.)

# Magnitudes

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- These are intent-to-treat estimates
- Even in the high impact sample, not everyone is participating
- Need to scale up the estimates by the FSP participation rate
- Since our treatment variable is share of years exposed to FSP, we construct a “ever participate” in FSP among families with children
- High impact sample, participation rate = 0.24.

# Economic Self Sufficiency Index, High Impact Sample

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	Economic self sufficiency (index)
FS share IU-5	0.182 (0.124)
Y-mean	-0.25
Observations	20,115
R-squared	0.38

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Access to food stamps leads to an insignificant 0.2 standard deviation increase in economic self-sufficiency.

# Economic Self Sufficiency Index, High Impact Sample

	Components of economic self sufficiency index							
	Economic self sufficiency (index)	High school plus	Poor	Food stamp receipt	TANF receipt	Employed	Earnings	log(family income)
FS share IU-5	0.182 (0.124)	0.184* (0.108)	-0.052 (0.067)	-0.032 (0.052)	-0.023 (0.026)	-0.008 (0.056)	3610 (5,064)	0.247 (0.165)
Y-mean	-0.25	0.80	0.30	0.14	0.05	0.76	24495	10.52
Observations	20,115	21,197	21,209	20,115	21,347	21,348	20,529	21,160
R-squared	0.38	0.29	0.30	0.38	0.16	0.18	0.34	0.37

Each component (except employment) shows an improvement with food stamp access. [Note in the self-sufficiency index each component is converted to a “positive” outcome.] Little statistical significance.

## Main Results for High Impact Sample, by Gender

	Women			Men		
	Metabolic syndrome (index)	Good Health	Economic self sufficiency (index)	Metabolic syndrome (index)	Good Health	Economic self sufficiency (index)
FS Share IU-5	-0.312** (0.130)	0.336*** (0.100)	0.306* (0.164)	-0.526** (0.251)	-0.077 (0.112)	0.005 (0.168)
Mean of Dependent \	0.03	0.53	-0.37	-0.01	0.66	-0.11
Observations	5,062	15,702	12,208	3,184	10,036	7,907
R-squared	0.37	0.22	0.43	0.32	0.18	0.46

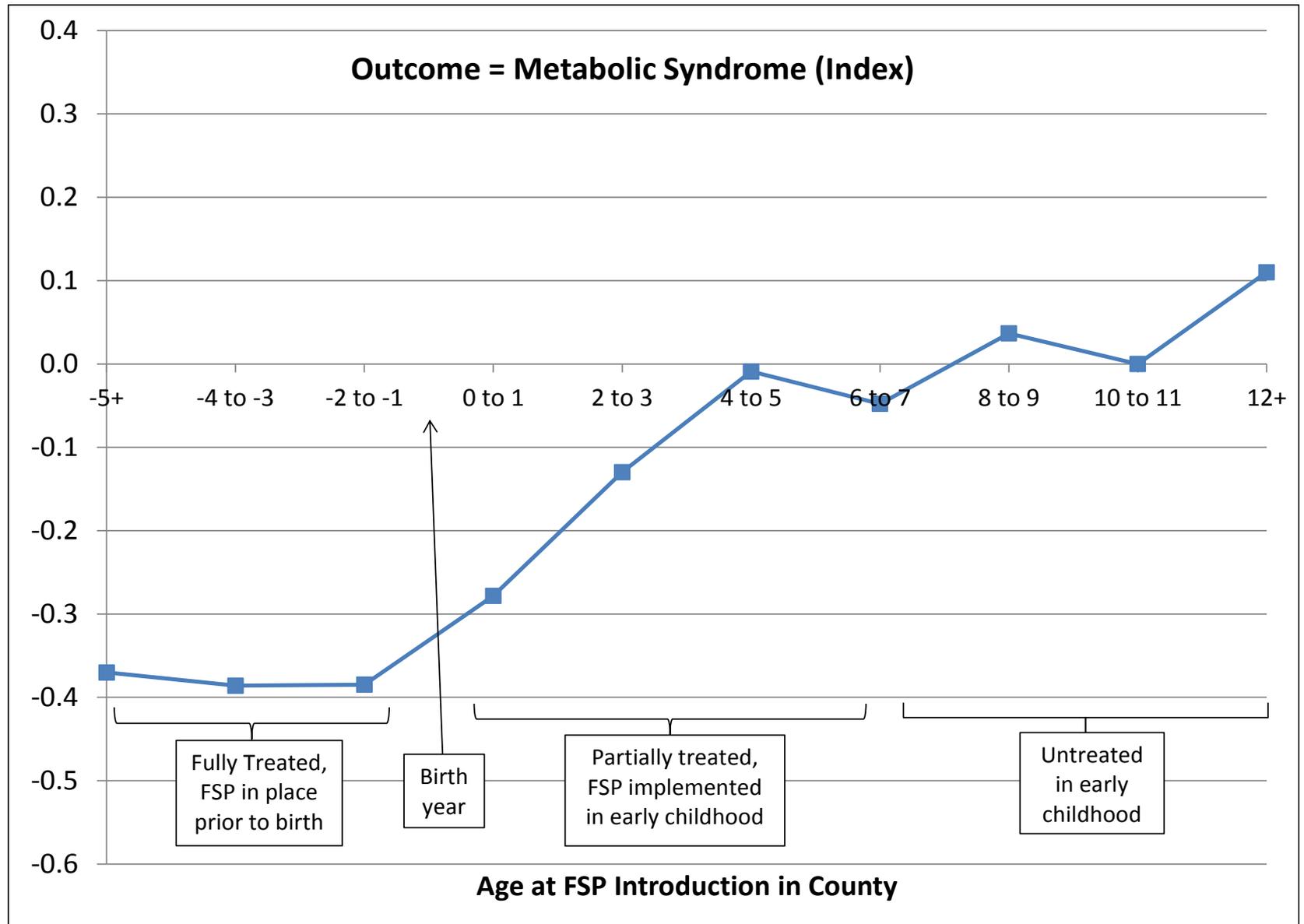
Economic impacts strong for women, nonexistent for men. Consistent with other studies finding stronger impacts for girls (Anderson 2008, Bleakley 2007, Dahl/Lochner 201, Milligan/Stabile 2009, MTO; less evidence from fetal origins/nutritional studies)

# Exploring the timing of treatment

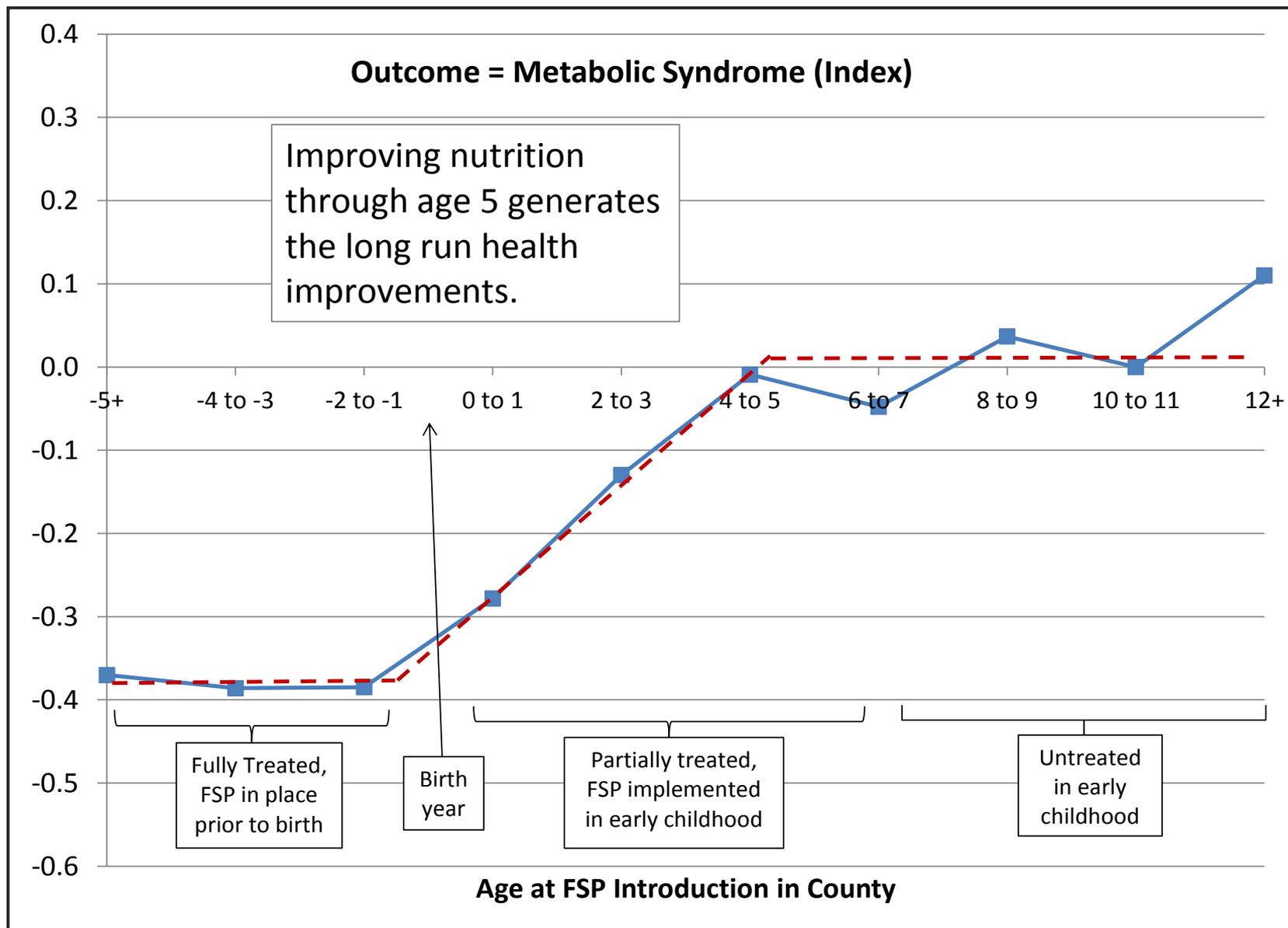
80

- Event study approach
- Traces out the treatment effect for years prior to and after the treatment
- Advantages: (1) can test for absence of pre-treatment trends, and (2) can examine impacts of treatment over time, and (3) can explore when in childhood the treatment matters
- The tricky thing about our treatment is that:
  - We do not have a strong prior about *when* treatment matters (and hence when to assign someone as treated)
  - Treatment turns on, and then never turns off
- Solution: make event time = age when food stamps introduced in your county

# Event study: by age when FSP introduced, high impact group



# Event Study: by age when FSP introduced, high impact group



# Disability Income Programs

PP290

Hilary Hoynes

# 1. Overview of programs and rules, basic data on programs

Social Security Disability Income	SSI
1956	1973
\$130.6B (2012) (plus \$70+B for Medicare)	\$54B (2013) (plus \$133B for Medicaid)
Social insurance, eligible workers through Social Security	Means tested program Low income elderly, disabled, including children
10.1 M individuals/month (2012)	8.4 M individuals/month (2013)
Cash income Also qualify for Medicare	Cash income Also quality for Medicaid
Individual benefits	Household
Federal program	Federal program, with state add-ons
Benefits depend on work history (need 10 years) and earnings, higher replacement rate for lower earnings (indexed as social security is; convert to retirement benefits at 65) Ave benefit \$1100 (2012)	Max benefits = \$710 (2013) (indexed)

Social Security Disability Income	SSI
Financed by payroll tax (1.8% of earnings up to SS cap)	Financed by general funds

# SSDI benefits (like SS)

- Calculate AIME, average indexed monthly earnings
  - Inflates each year of earnings by the average wage in the economy from year earned up to current year T (actually T-2).
- Calculate PIA: Same formula as for social security; progressive function of wage. [“bend points” in formula also adjusted for changes in average wage growth]
- Worker receives PIA, adjusted for changes in cost of living each year using CPI.
- Work requirement (Same as SS): have to work 20 quarters in the last 40 quarters.

$$PIA = \begin{cases} 0.9 * AIME & \text{if } AIME \in [0, b_1] \\ 0.9 * b_1 + 0.32 * (AIME - b_1) & \text{if } AIME \in [b_1, b_2], \\ 0.9 * b_1 + 0.32 * (b_2 - b_1) + 0.15 * (AIME - b_2) & \text{if } AIME > b_2 \end{cases}$$

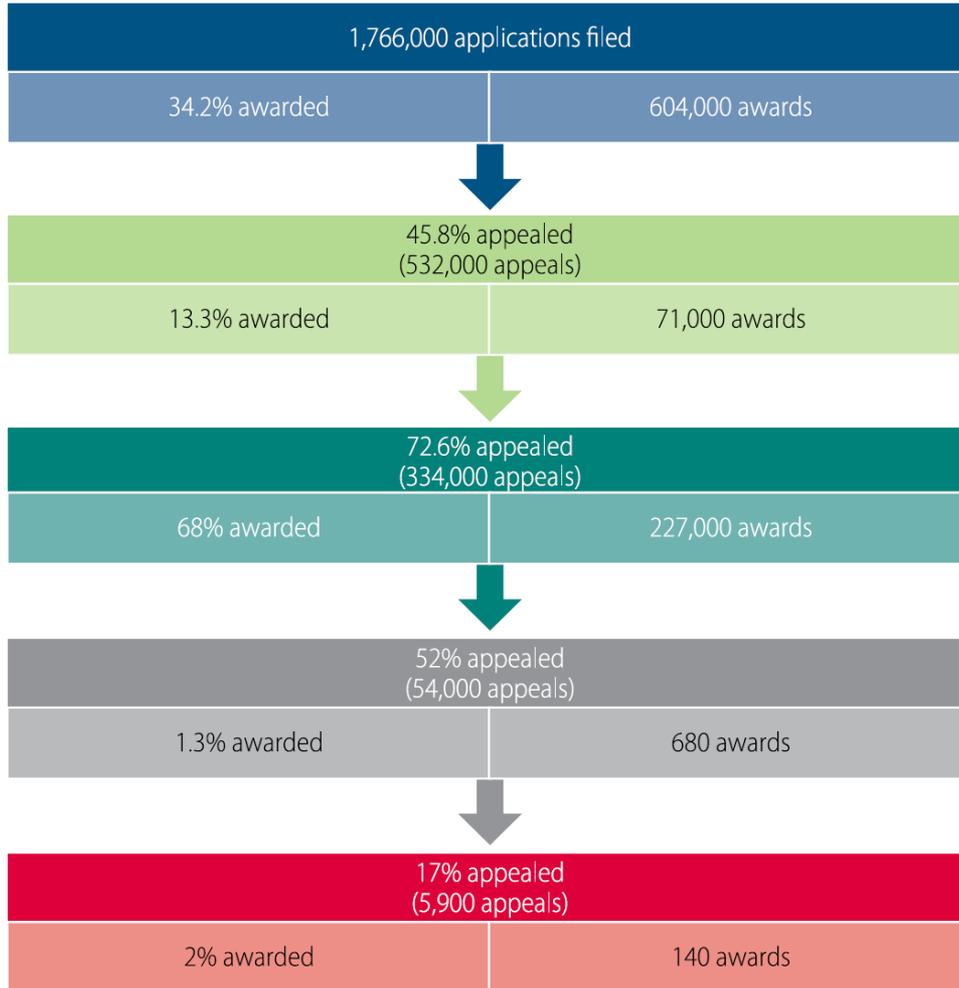
# Demonstrated Disability

- Medical eligibility criteria same for SSDI and SSI (except child SSI, see more on this below)
- Medically determined physical or mental disability that limits the ability to engage in “substantial gainful activity” (SGA) and further demonstrate that this disability will last at least 12 months or result in death
- In practice substantial variation in award rates, across offices and Administrative Law Judges (part of the process is judicial review).
- Appeals are possible, and common (1 in 3 of SSI awards are made on appeal)

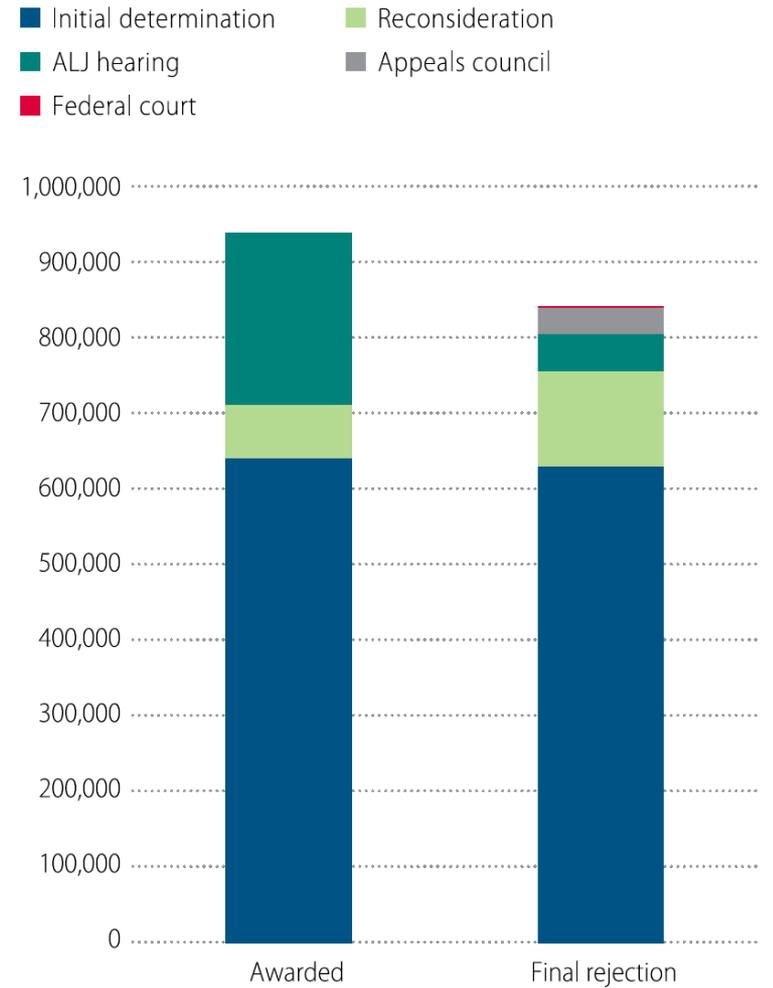
FIGURE 8B

# SSDI benefit allowance and appeals process, 2005

## A. Applications, appeals, and awards by determination stage



## B. Final disposition of applications by determination stage



# SSI Children

- Changes over time, rise of child caseload. Result of 1990 *Zebley decision* that expanded the medical eligibility criteria
- Zebley: Statutorily discriminated against children since child applicants did not have the option of demonstrating a disability using a vocational assessment, as could adults
- Overlap with TANF (transitions from AFDC/TANF to SSI with welfare reform). State incentives to move onto SSI since SSI is federal
- 1996 Welfare reform included change in SSI children disability determination: “a medically determined physical or mental impairment which results in marked and severe functional limitations, which can be expected to lead to death or which has been or can be expected to last for a continuous period of not less than 12 months”

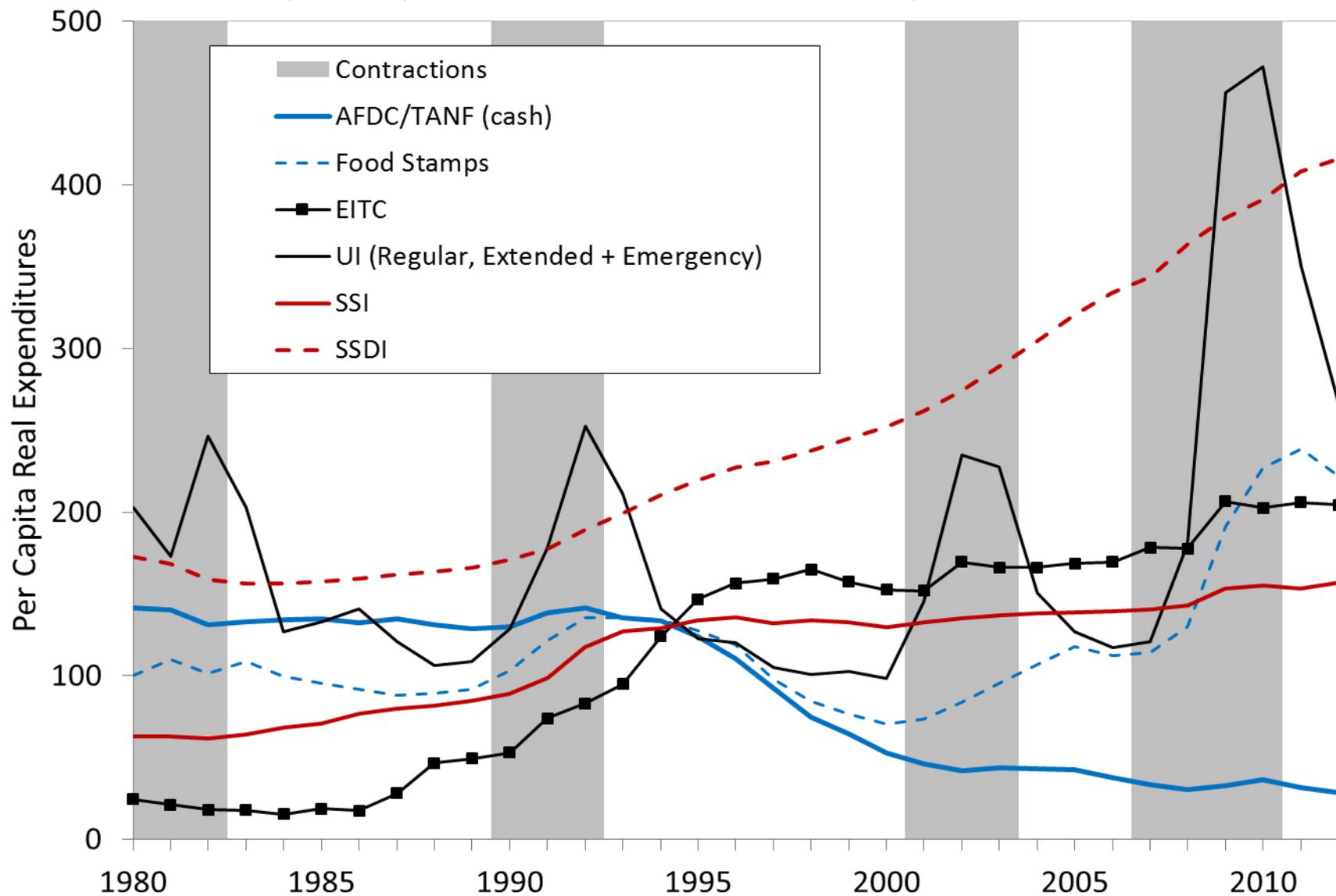
# De facto Welfare for low skilled workers

- Permanent benefits: (aside from children) receive income until age 65 or death
- No program elements to support ongoing employment and economic self-sufficiency for workers with disabilities; nothing to improve or accommodate the disability
- Basic tradeoff between low wage work (and harder to find jobs) and benefits

# “Disability Industrial Complex” (This American Life)

- Role of attorneys, massive advertising
- KEY: Payments are only on receipt of claim (so no money necessary to be paid by client). Paid by SSA directly
- There is NO attorney representing the government
- Consulting firms work for state welfare offices to identify and aid people in getting from TANF to SSI

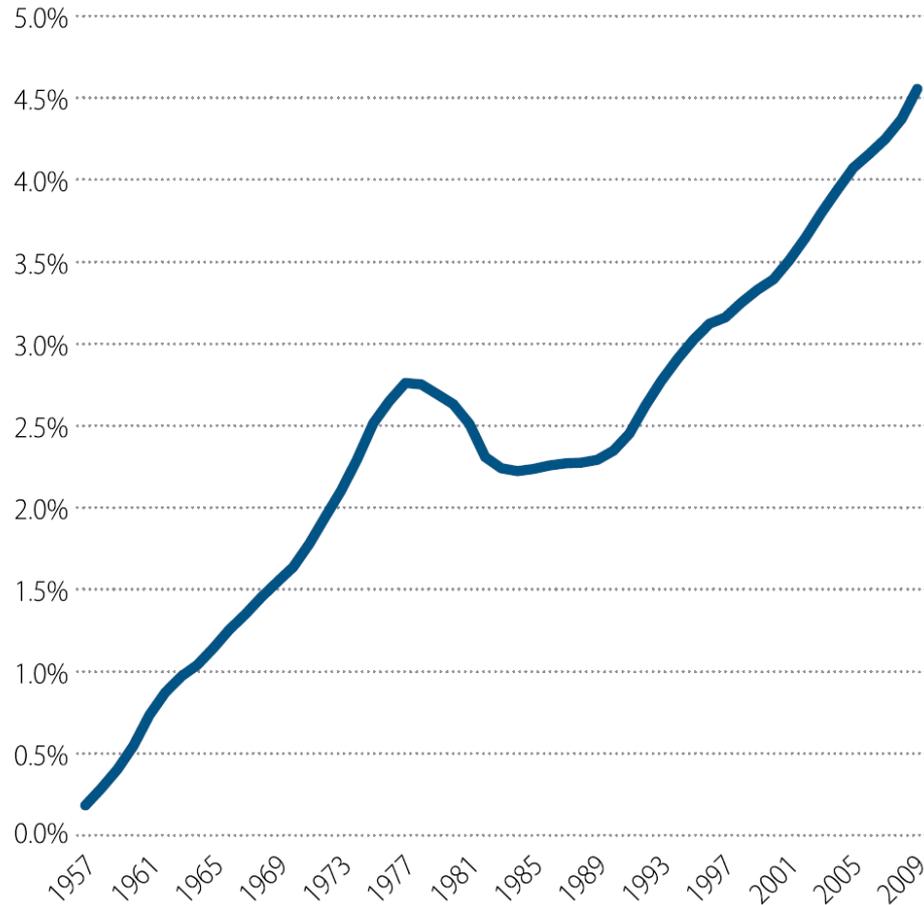
# Per Capita Expenditures on the Social Safety Net (2012 dollars)



# SSDI trends

FIGURE 1

## Percentage of individuals receiving SSDI disabled worker benefits, ages 25-64, 1957-2009



Source: Social Security Administration (SSA), Table 5d3, available at <http://www.ssa.gov/policy/docs/statcomps/supplement/2010/5d.html>; Bureau of the Census, Census Population Estimates, available at <http://www.census.gov/popest/estimates.html>

Main policies affecting this trend:

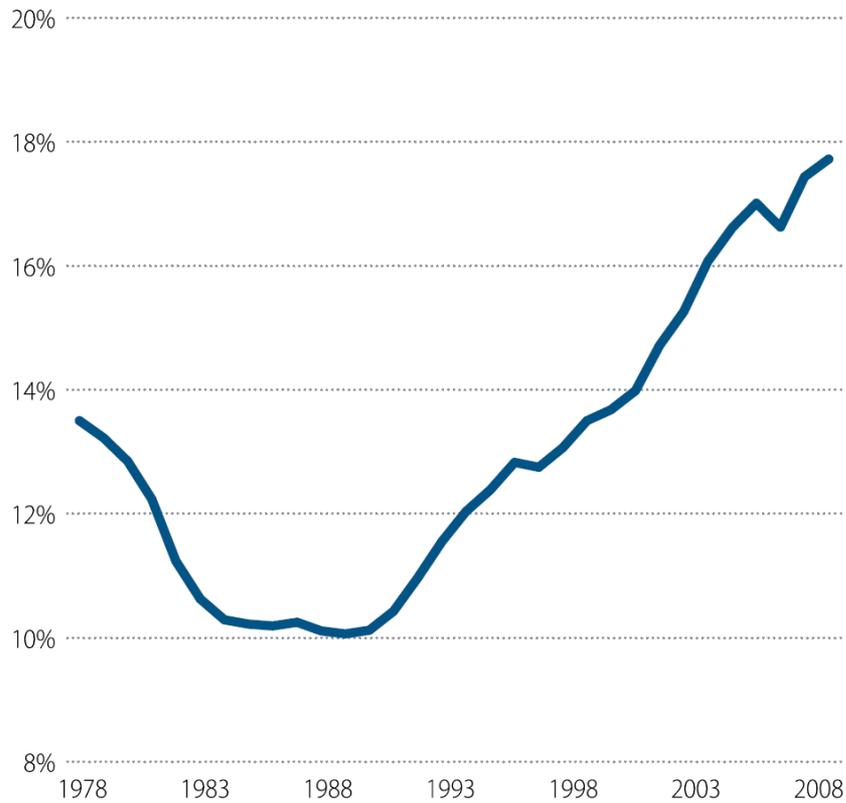
1970s: tightened medical eligibility

1980: further tightening  
[Public backlash during 1980s recession]

1984: reversing and liberalizing 1980 changes

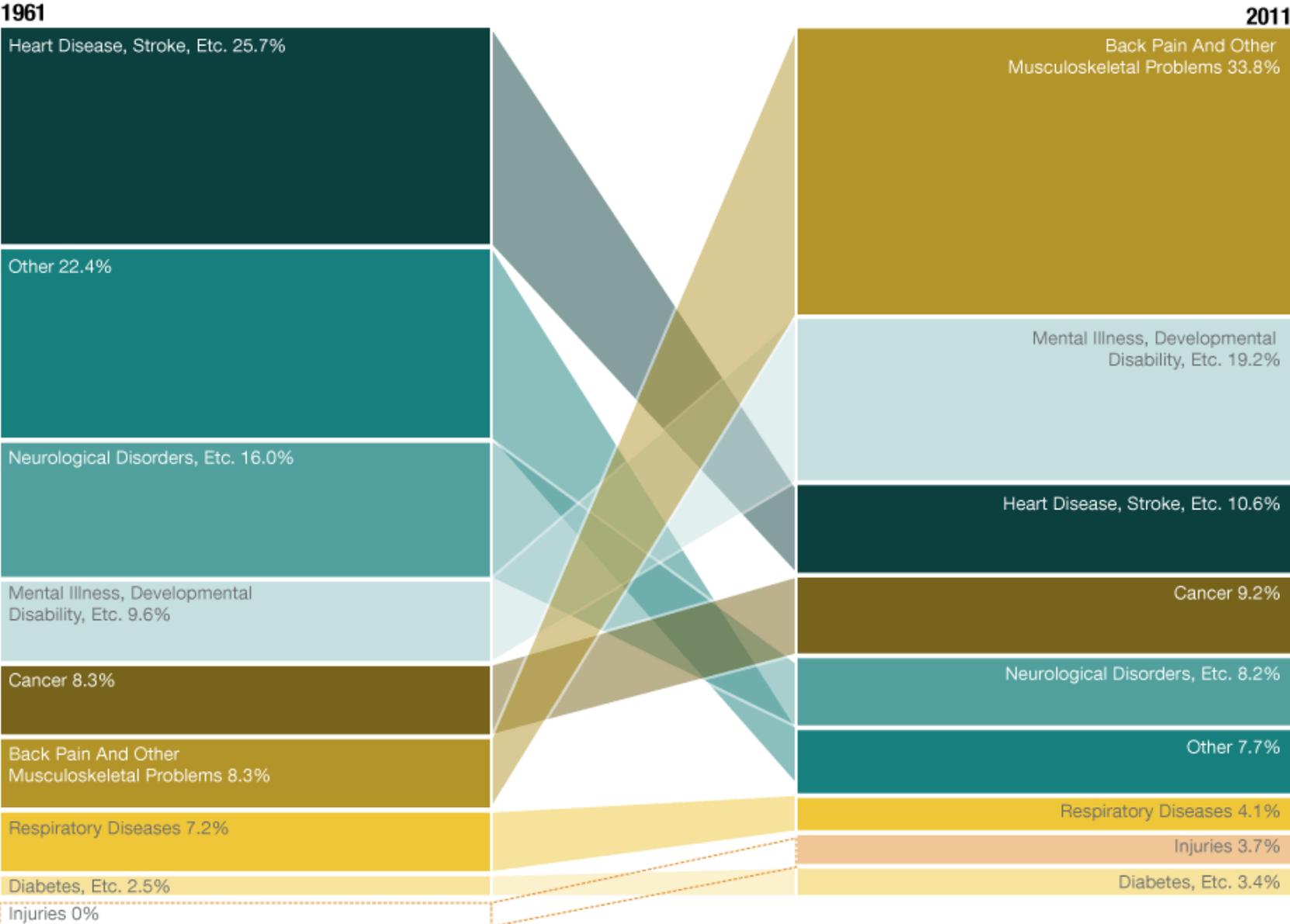
FIGURE 3

SSDI expenditures as a share of total OASDI expenditures, 1979-2009



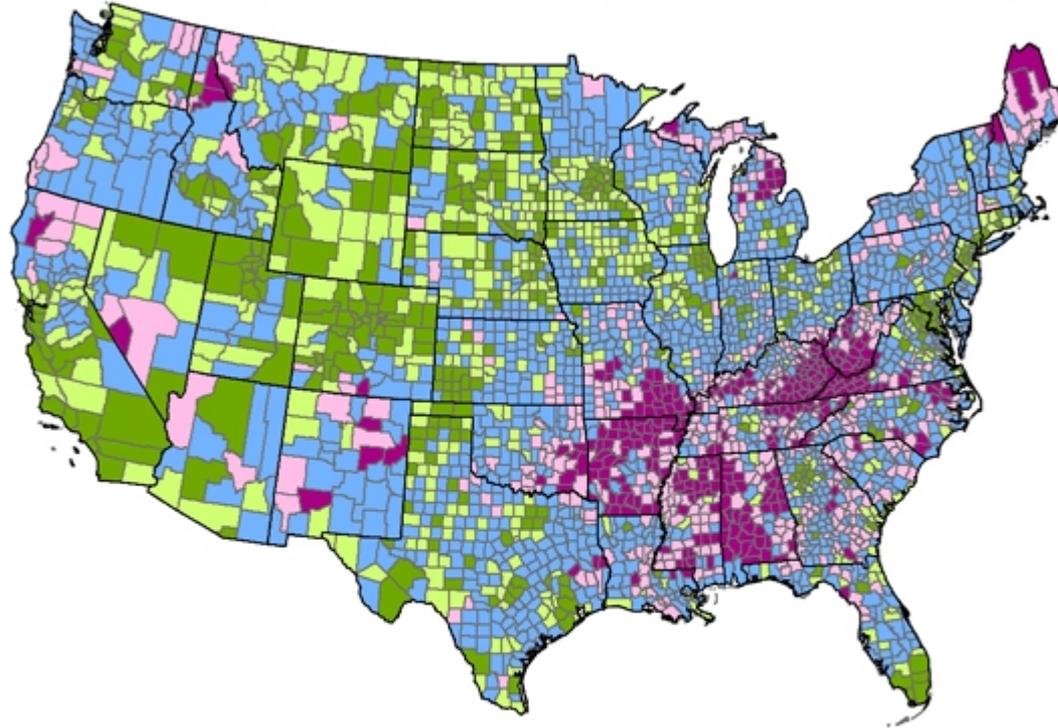
Source: SSA, Office of the Actuary, available at <http://www.ssa.gov/OACT/ProgData/funds.html>

# Share Of Newly Disabled Workers, By Diagnosis

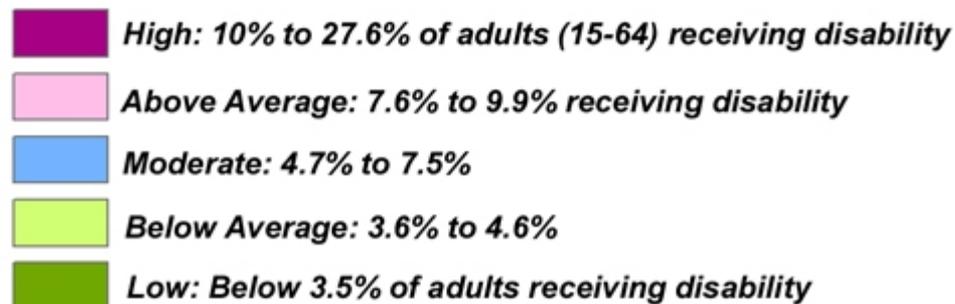


# Americans Receiving Disability

The percentage of people 15-64 receiving Social Security disability payments varies widely from county to county



In U.S., 4.6% of those 15 to 64 qualify for Social Security disability payments

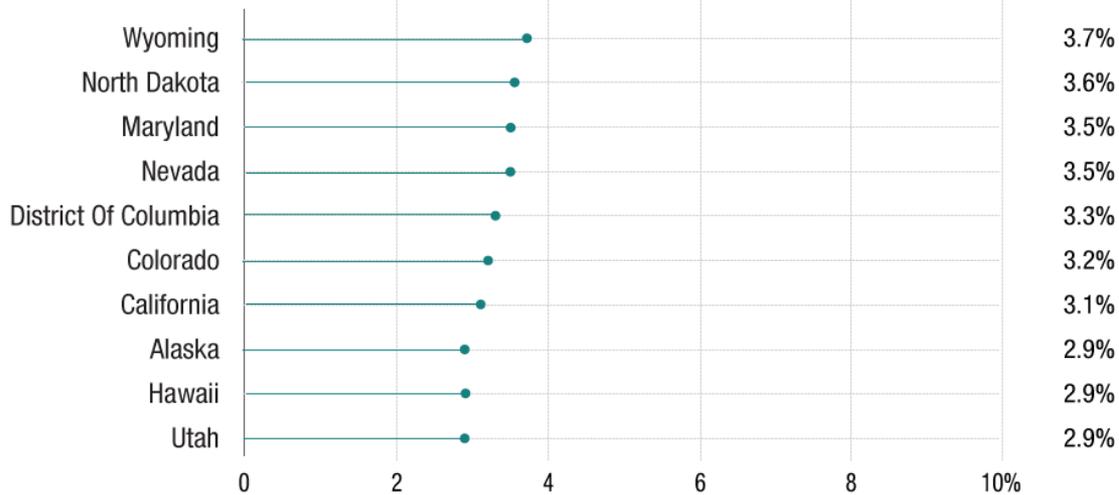


## Percentage Of Population Age 18-64 On Workers' Disability (2011)

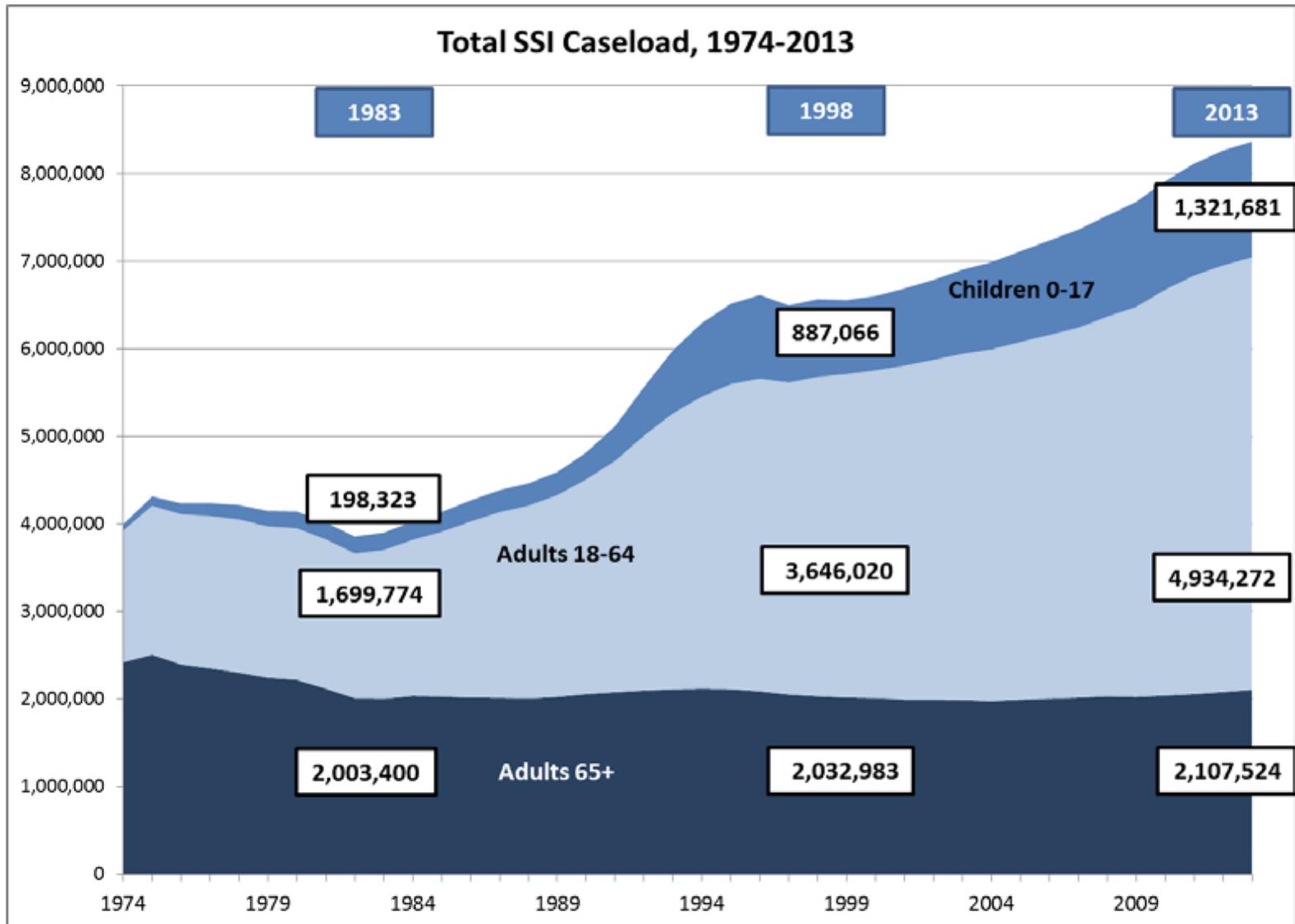
*States Where The Percentage Is The Highest*



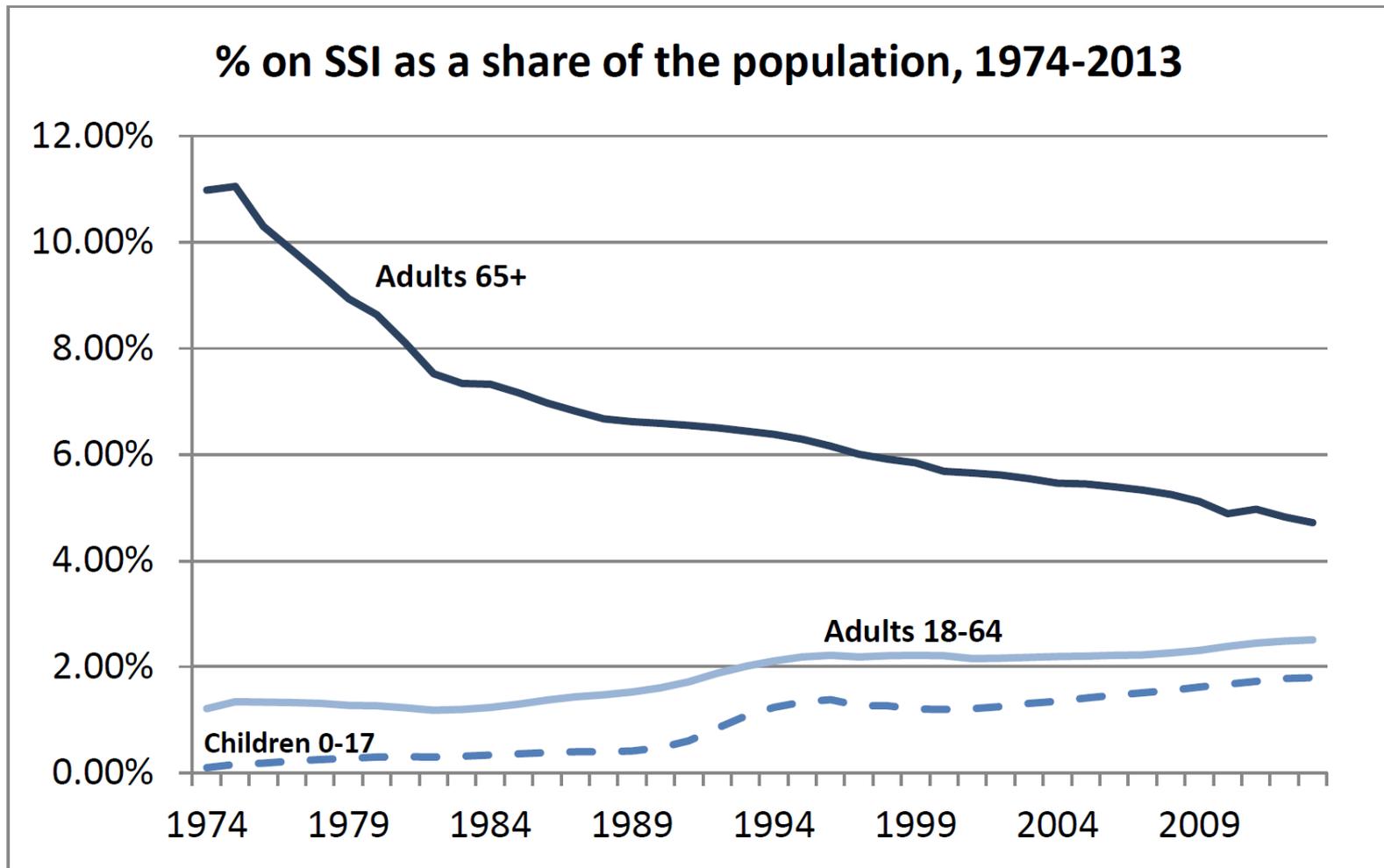
*States Where The Percentage Is The Lowest*



# SSI trends

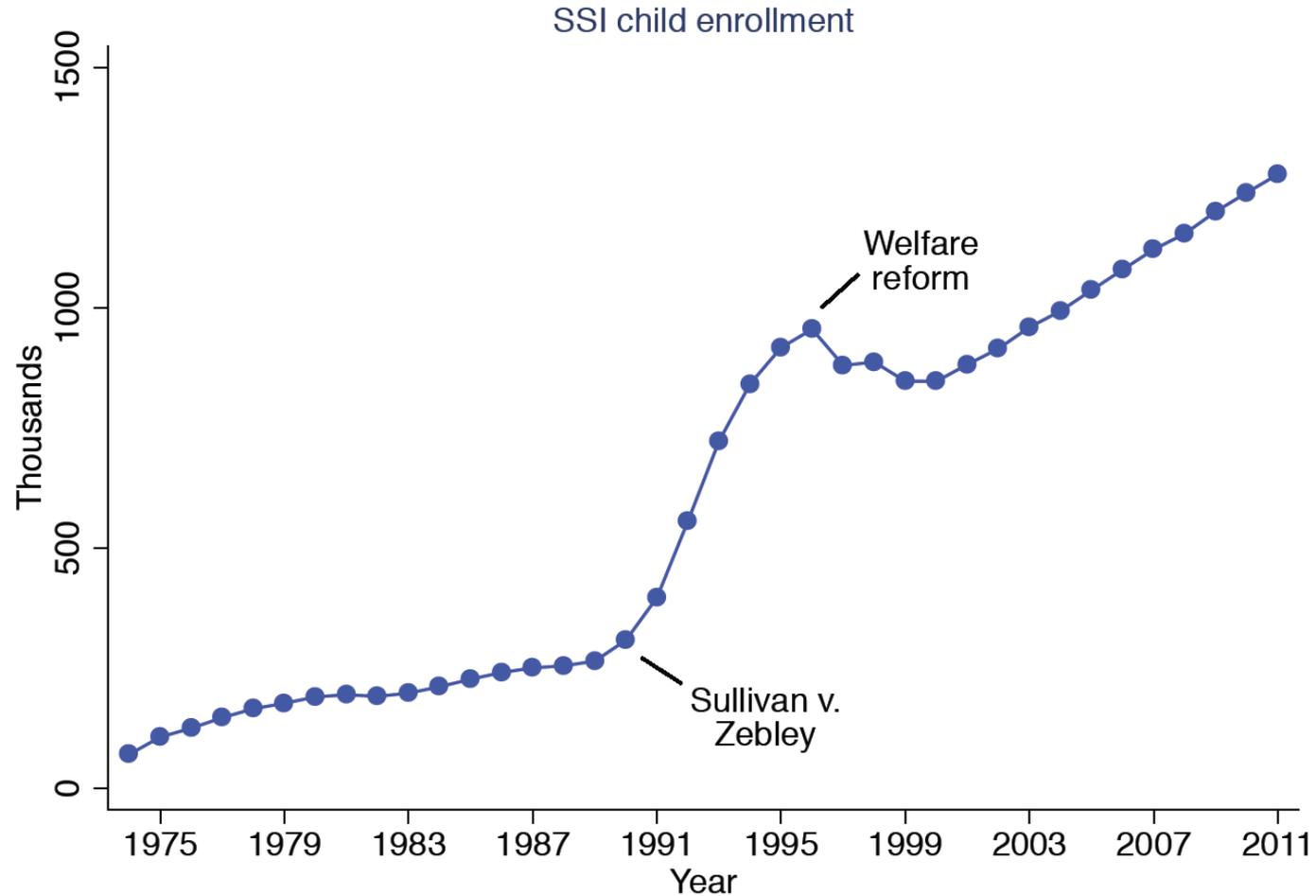


es: Data from SSI Statistical Supplement, 2013. SSA Publication No. 13-11700.



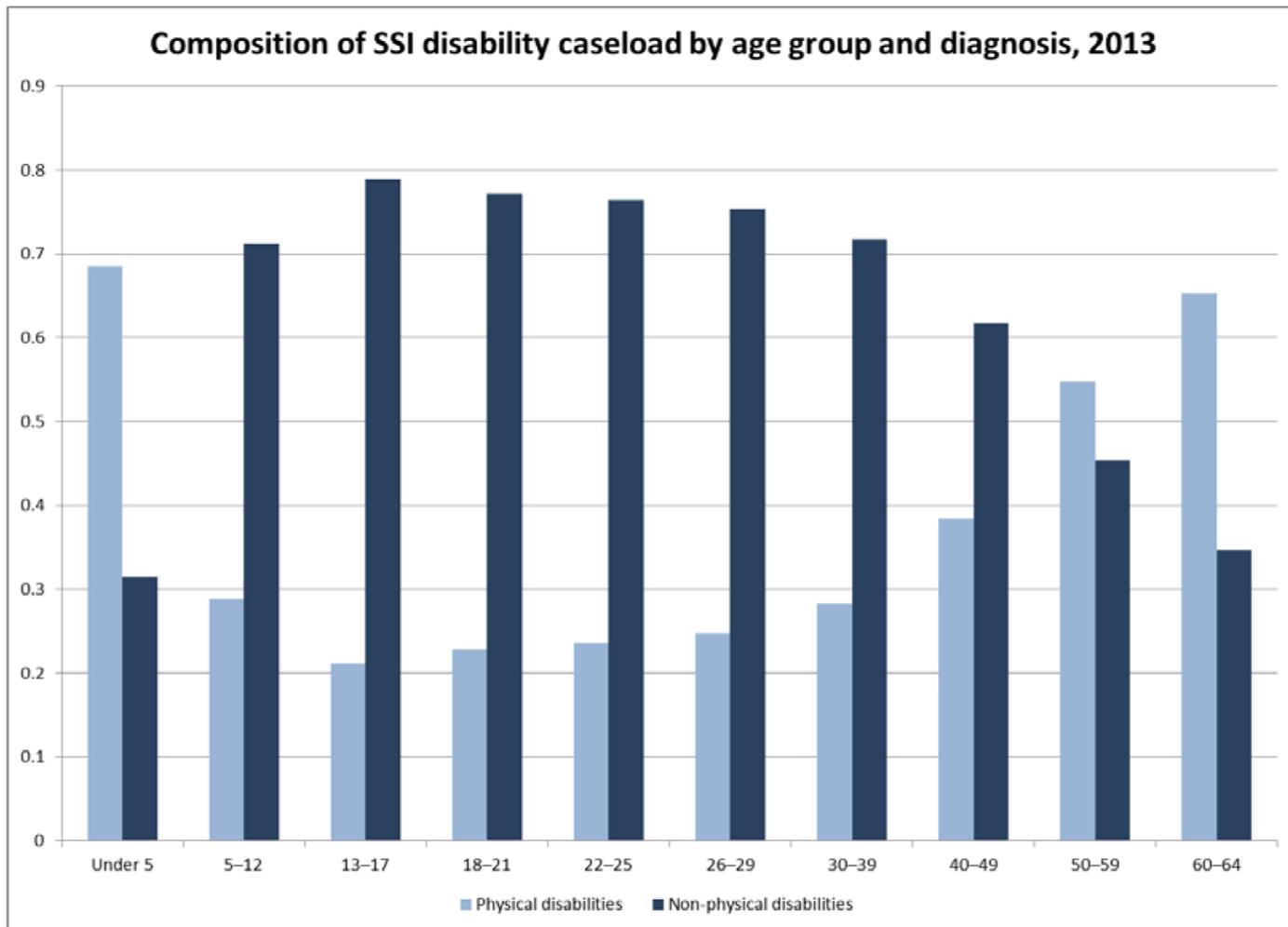
Notes: Data from SSI Statistical Supplement, 2013. SSA Publication No. 13-11700. Population totals calculated from United States Census Bureau historical population estimates available at <http://www.census.gov/popest/index.html>.

Figure 1: Enrollment in the SSI Children's Program, 1974-2011



Source: SSI Annual Statistical Reports, 2002-2011.

Primary Diagnosis	% Age 0-17 on SSI	% Age 18-64 on SSI
Congenital anomalies	5.5%	0.8%
Endocrine, nutritional, and metabolic diseases	0.7%	2.6%
Infectious and parasitic diseases	0.1%	1.3%
Injuries	0.5%	2.6%
Mental disorders		
Autistic disorders	10.2%	1.8%
Developmental disorders	21.2%	0.7%
Childhood and adolescent disorders NEC	19.5%	1.0%
Intellectual disability	9.1%	18.9%
Mood disorders	3.2%	16.4%
Organic mental disorders	2.2%	3.9%
Schizophrenic and other psychotic disorders	0.3%	8.9%
Other mental disorders	2.6%	5.7%
Neoplasms	1.2%	1.3%
Diseases of the—		
Blood and blood-forming organs	1.1%	0.4%
Circulatory system	0.5%	4.3%
Digestive system	1.3%	1.0%
Genitourinary system	0.3%	1.0%
Musculoskeletal system and connective tissue	0.8%	13.2%
Nervous system and sense organs	7.8%	7.7%
Respiratory system	2.8%	2.1%
Skin and subcutaneous tissue	0.2%	0.2%
Other	7.2%	0.3%
Unknown	1.9%	3.6%



Notes: Data from SSI Annual Statistical Report, 2013. SSA Publication No. 13-11827. The bar for non-physical disabilities includes mental and intellectual disabilities.

Figure 4: Adult SSI population as percent of state adult population, 2013

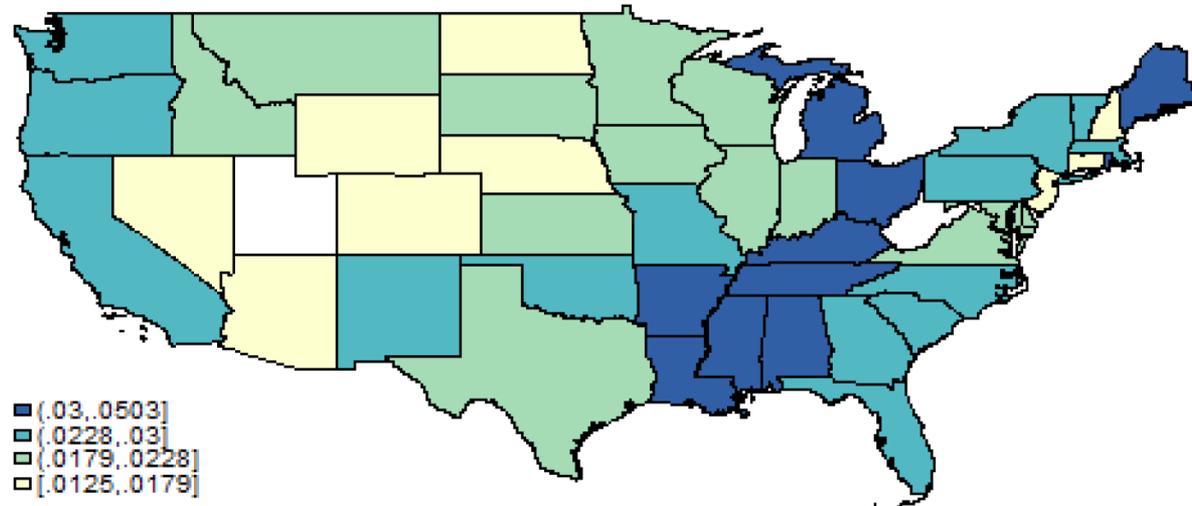
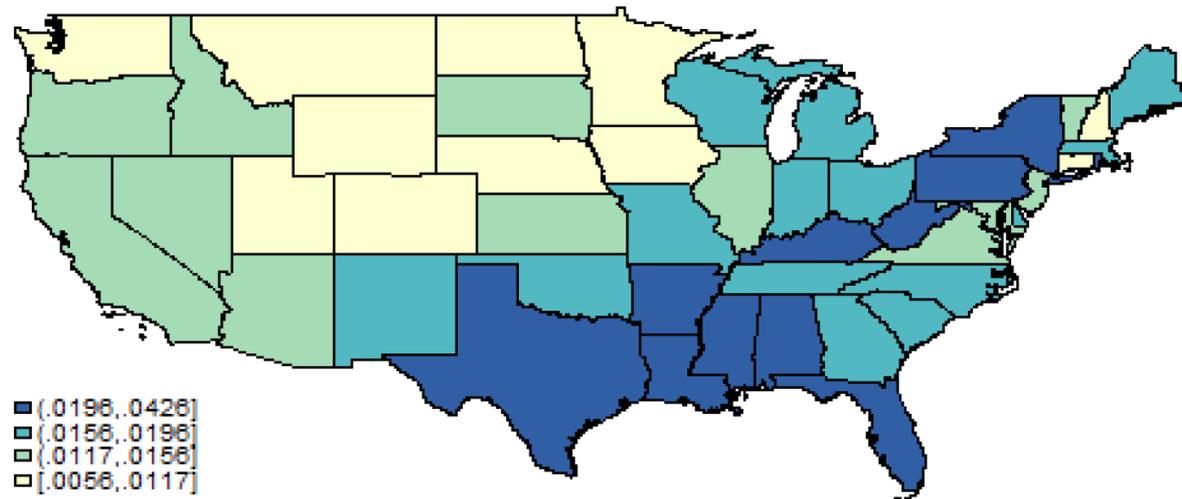


Figure 5: Child SSI population as percent of state child population, 2013



## 2. Economic Issues and Research Findings

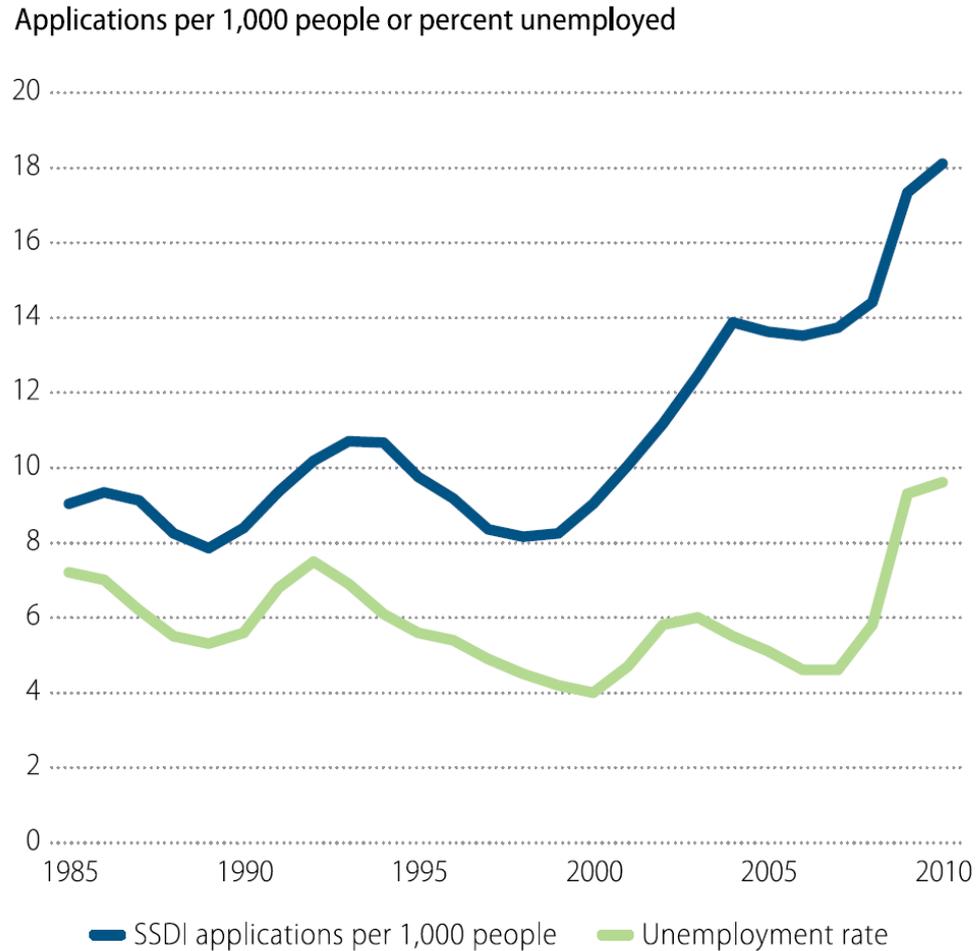
- Protection versus distortion
- Once on disability, very large work disincentives (if income > SGA then lose benefit)
- Individual decision about application: benefit cost calculation; as wage & employment declines → opportunity cost declines → greater incentive to apply
- Child disability – does this affect where they are placed in school (mental/intellectual issues)

# Explanations for falling LFPR & Rising SSDI

- [From Autor and Duggan THP]
- NOT due to falling underlying health of working-age population (though I wonder if they underplay this – all of their estimates are about average health; what if we focus on health of lower skilled workers)
- MODEST share due to aging /demographics / baby boom
- MODEST share for women due to their increased labor force attachment (and therefore rising eligibility)
- Deterioration of labor market prospects (wages, employment) is a major explanatory factor
- Workers are most likely to apply for SSDI following a job loss
  - The statutory definition of a disability—“the inability to engage in a substantial gainful activity in the U.S. economy”—depends explicitly on an applicant’s job opportunities
- Just waiting for process to play out means being out of the labor force for a long time (additional work disincentives)

FIGURE 7

## SSDI applications per 1,000 adults and U.S. unemployment rate, ages 25-64, 1985-2010

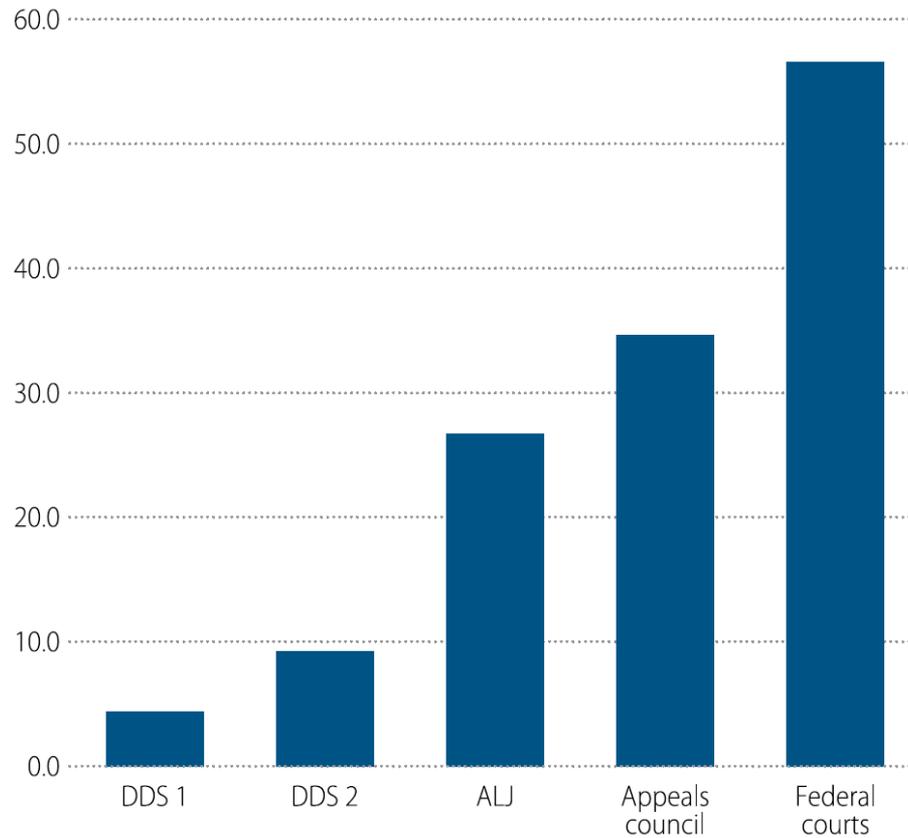


Source: SSA Annual Statistical Supplement, various years; 2010 data from SSA Office of the Actuary; BLS

FIGURE 8A

Cumulative average processing time in 2006 by stage of the application process for SSDI and SSI disability applications

Number of months



Source: SSA Office of the Inspector General, "Audit Report: Disability Claims Overall Processing Times," (December 2008).

# What we know

- Role of labor market opportunities is large, especially for DI
- Welfare reform accounts for some of the increase in SSI (which is much more expensive, much more permanent compared to TANF)
- Using variation in judges (that generates random variation in the likelihood getting on DI), there are large work disincentives due to SSDI

### 3. Diving into RD analysis (Deshpande 2014)

# Deshpande's research

- Focus on child SSI participation
- Examines distortions of two sorts:
  - Effects of SSI on the child's labor supply (when they reach 18)
  - Effects of SSI on the parent's labor supply (when the child reaches 18)
- Takes advantage of a policy change due to 1996 Welfare Reform act (response to rising rolls post-Zebley)
  - Child turning 18 before 8/22/96: easier to convert to “adult” SSI on reaching 18
  - Child turning 18 after 8/22/96: harder to convert to “adult” SSI on reaching 18
  - This creates a sharp change in policy, triggered by whether you turn 18 before or after a single date → RD
- To do this work, she had to work at SSA to get administrative data to analyze these behaviors

# Regression discontinuity

- Sharp change in policy, usually NOT over time, but instead across some characteristic (e.g. birthdate, age)
- Running variable – the characteristic under which there is the sharp change
- Need to confirm that there is no confounding factors also changing at the discontinuity. Usually check by showing other “Xs” are smooth through the discontinuity
- Need to confirm that there is no manipulation of running variable (e.g. income, might adjust to be eligible). Usually check as density test smooth through discontinuity
- Empirical Model: Pre/Post design (dummy for > discontinuity) but in addition a flexible function of the running variable, allowing for differences on both sides of the discontinuity

$$Y_i = \alpha + \beta \text{Post}_i + \gamma \text{DOB}_i^n + \kappa (\text{Post}_i \times \text{DOB}_i^n) + \epsilon_i$$

Figure 3: First Stage Effect on SSI Enrollment

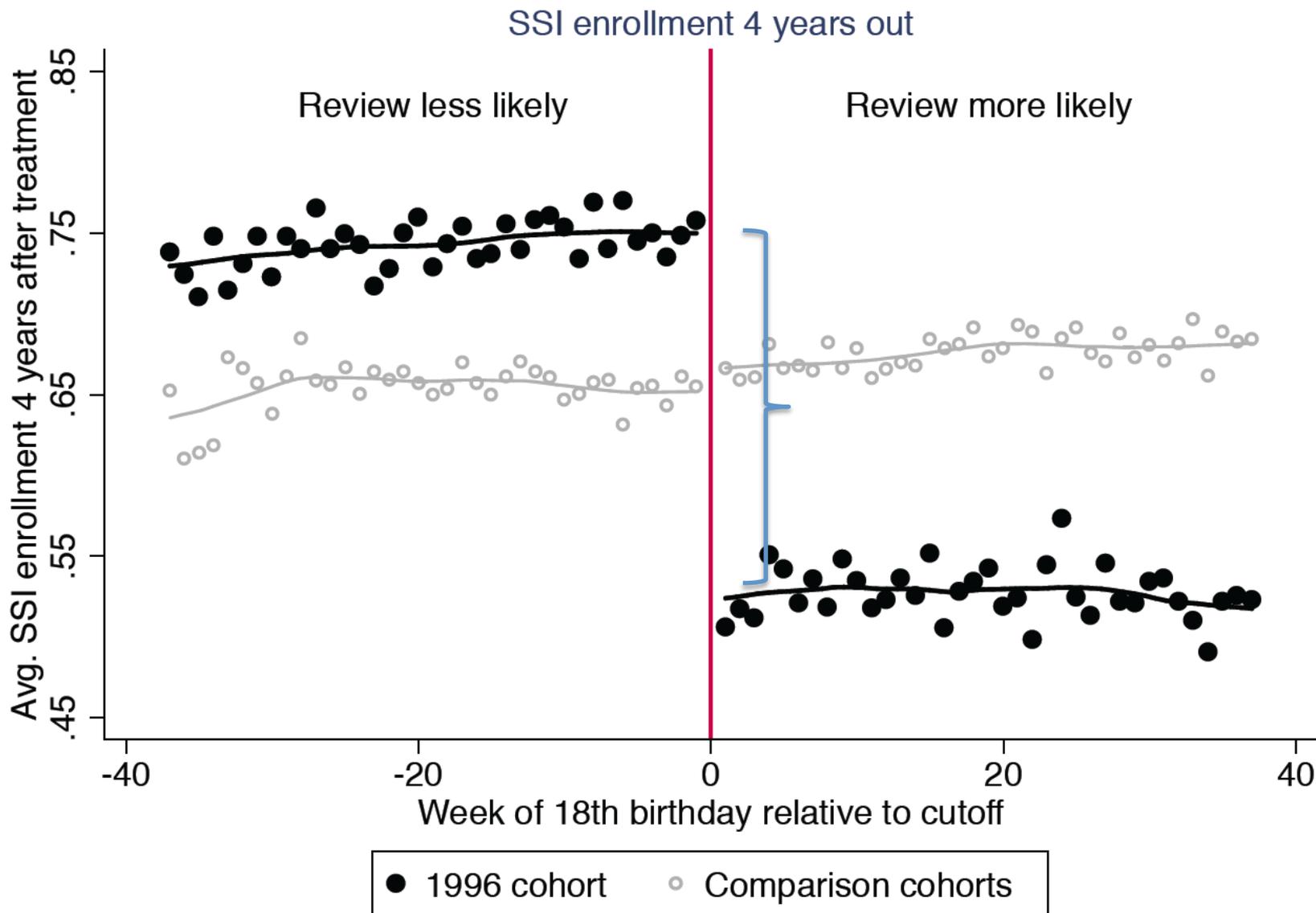


Figure 4: Change in First Stage for SSI Enrollment Over Time

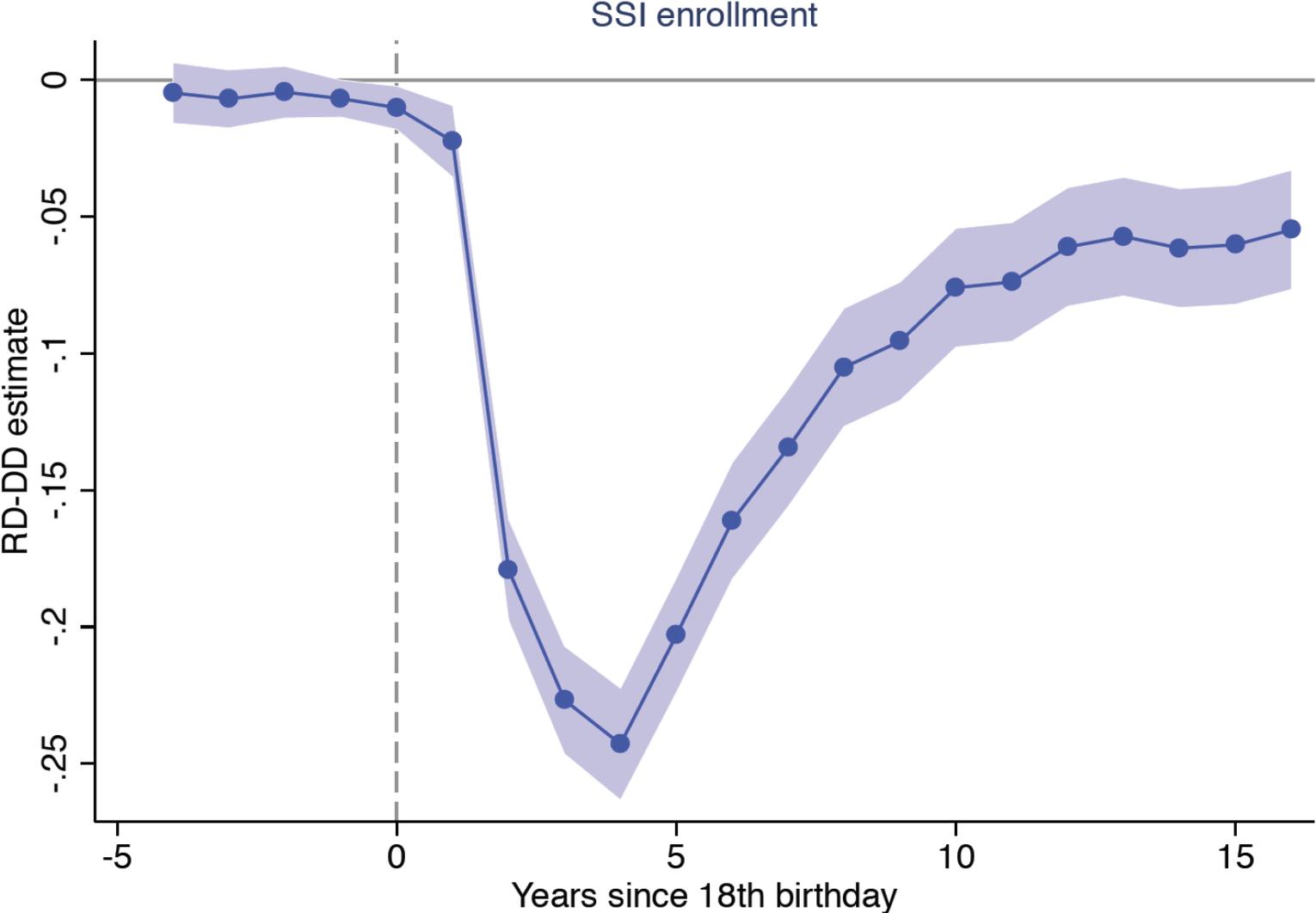
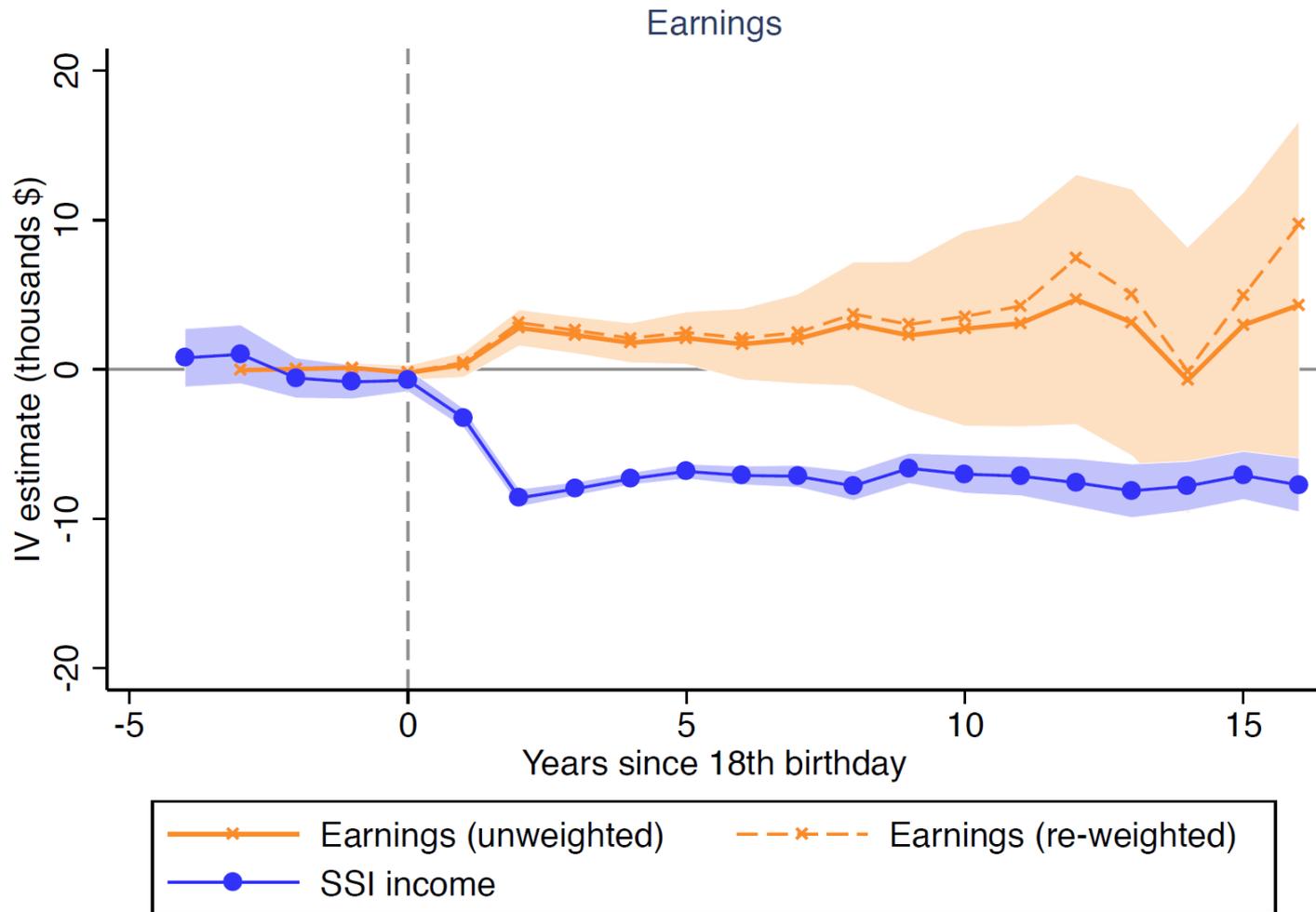


Figure 5: IV Estimates of the Effect of SSI Removal on Earnings



Notes: Figure plots the parametric IV RD-DD estimate of the effect of being off SSI on SSI income (circles) and earned income (X's) in each year, using a polynomial order of 2 with covariates. The solid earnings line represents unweighted IV estimates; the dashed line represents IV estimates re-weighted by the year 2 complier population (see Section 4.2 for details). Shaded region is 95% confidence interval. Sample is SSI children with an 18th birthday within 37 weeks of the August 22 cutoff in 1996 and in 1994, 1995, and 1997. Standard errors clustered at individual level.

- “IV RD DD”
- IV = first stage is SSI participation, instrument is when you turn 18 (sample includes those with an 18<sup>th</sup> birthday within 37 weeks of 8/22/96 cutoff)
- RD = the instrument is in an RD setting (Fig 3)
- DD = there is a seasonality in births (within the year), so she differences out the seasonality (diff between the group to the left and right of the cutoff) in an adjacent year (unaffected in any case)
- Then for these comparisons she follows the two groups (on either side of the RD) for 15 years following turning age 18.

# Results

- Large disincentive measured for parents: earnings increase to make up SSI payment decline almost one for one
- SSI youth who are removed earn \$4,000 per year, an increase of \$2,600 relative to the earnings of those who remain on the program; not enough to make up for the \$7,700 lost in SSI (small disincentive)
- Does not answer the question of how the length of time in SSI (pre-age 18) affects the outcomes

## Autor and Duggan's policy proposal

- Modernizing SSDI to better support individuals with disabilities in the workplace
- Add a “front end” to SSDI:
  - workplace accommodations, rehabilitation services, partial income support, and other services to workers who suffer work limitations, with the goal of enabling them to remain in employment;
  - financial incentives to employers to accommodate workers who become disabled and minimize movements of workers from their payrolls onto the SSDI system

# Poverty, the Social Safety Net and the Great Recession

Hilary Hoynes

PP290

# Overview

- The Great Recession led to massive increases in unemployment, and the recovery has been slow and weak
- The social safety net responded with Unemployment Benefit extensions to 99 weeks and 1 in 7 receiving Food Stamps
- Here I examine the performance of the social safety net in protecting the disadvantaged population in the Great Recession
- I use this “stress test” identify the *holes* in the safety net moving forward

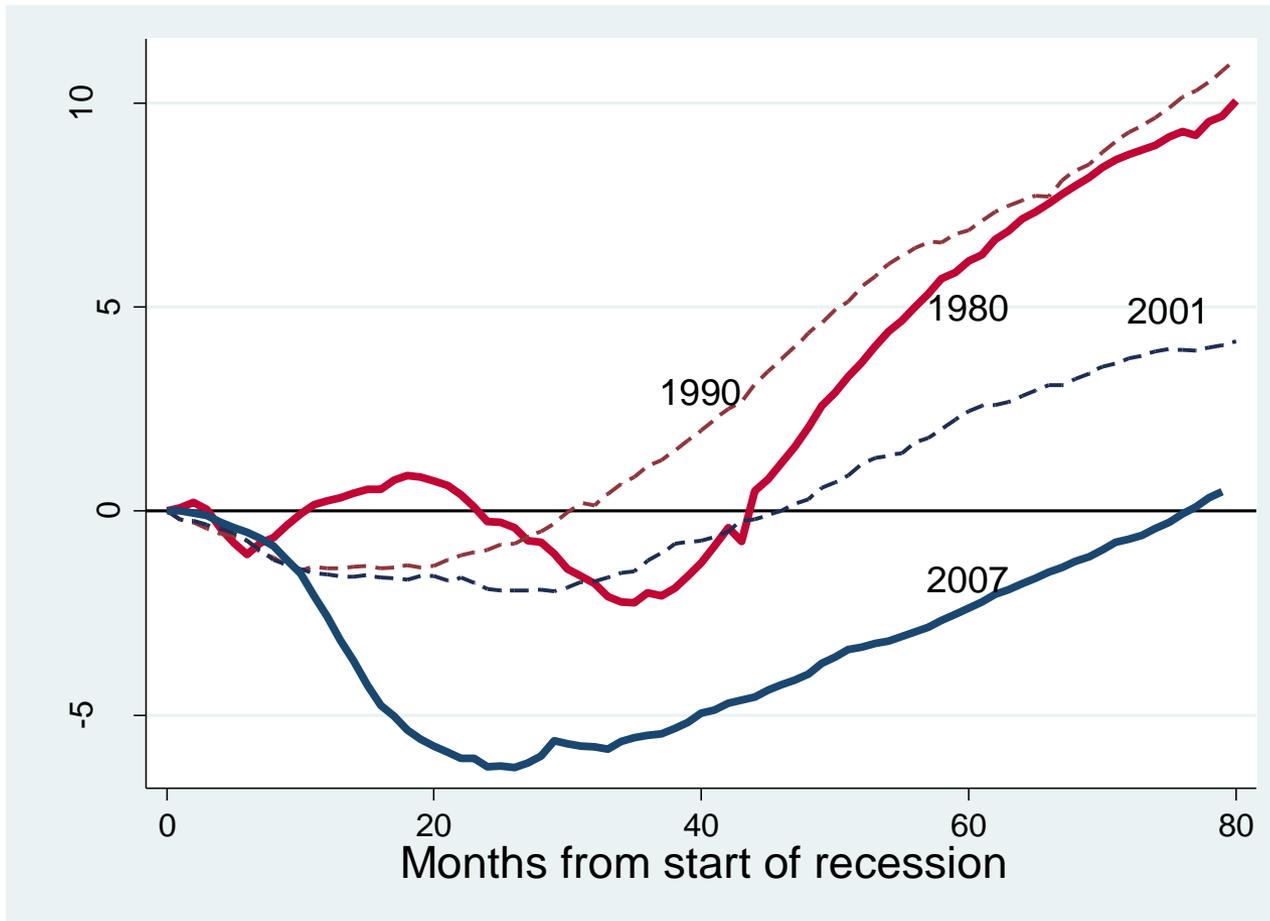
# Roadmap

1. The Great Recession in the U.S.
2. U.S. safety net programs and the stimulus
3. How did the safety net respond?
4. Effects of the GR on poverty and the most vulnerable
5. Lessons moving forward given the “stress test” of the Great Recession
6. Conclusion

# Roadmap

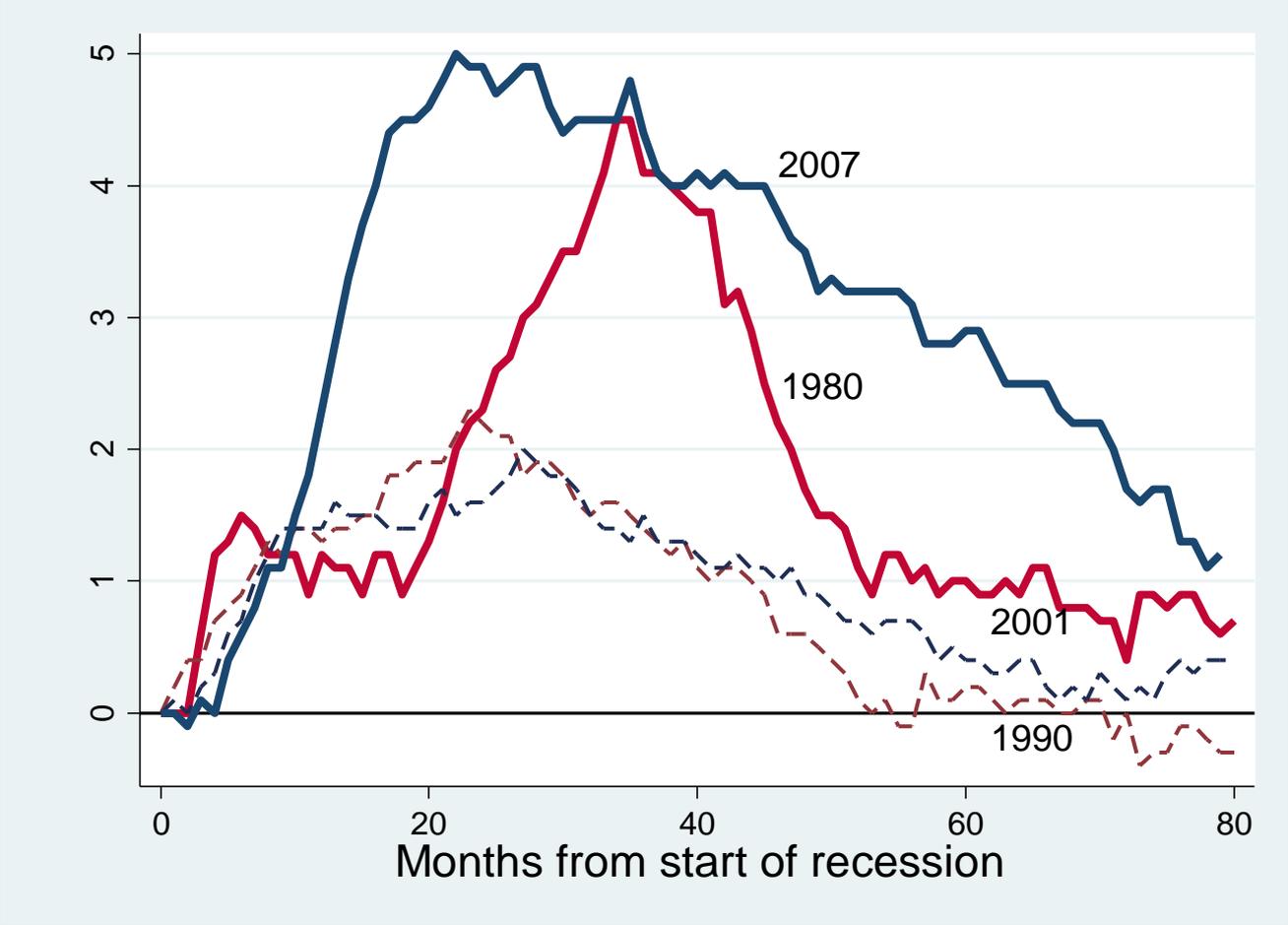
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# Employment (seasonally adjusted) since peak



Source: Hoynes, Miller and Schaller “Who Suffers in Recessions”, *Journal of Economic Perspectives* 2012 (updated with data through 2013)

# Unemployment (seasonally adjusted) since peak



Source: Hoynes, Miller and Schaller “Who Suffers in Recessions”, *Journal of Economic Perspectives* 2012 (updated with data through 2013)

# Who was impacted by the Great Recession

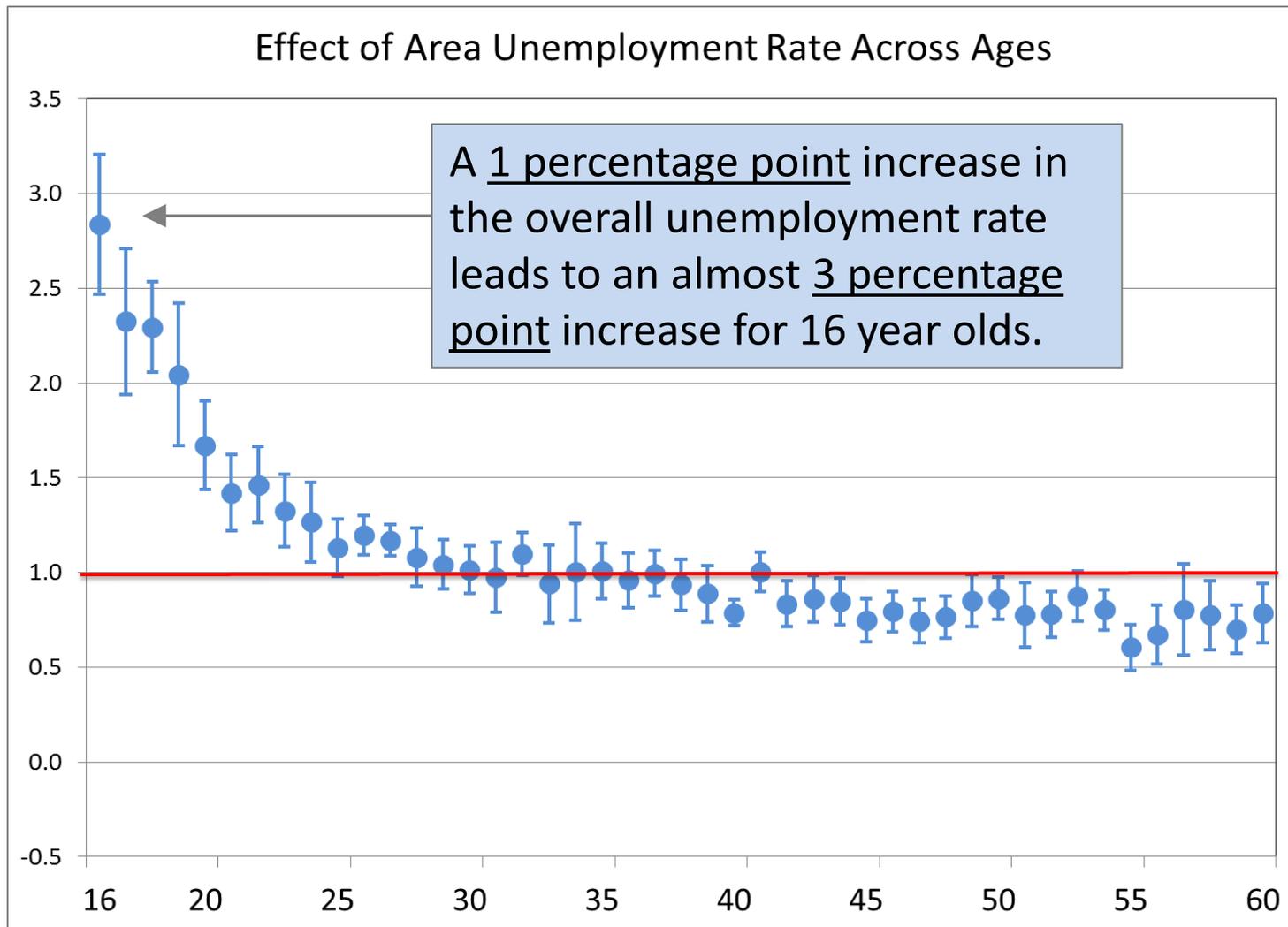
- Examining labor market fluctuations between 1980-2013, we find that recessions are more likely to impact:
  - Young persons
  - Men
  - Racial and ethnic minorities
  - Those with lower education levels
- While the Great Recession led to larger overall job losses (compared to earlier recessions), the pattern across groups was little changed

# Empirical Methods: State panel data model

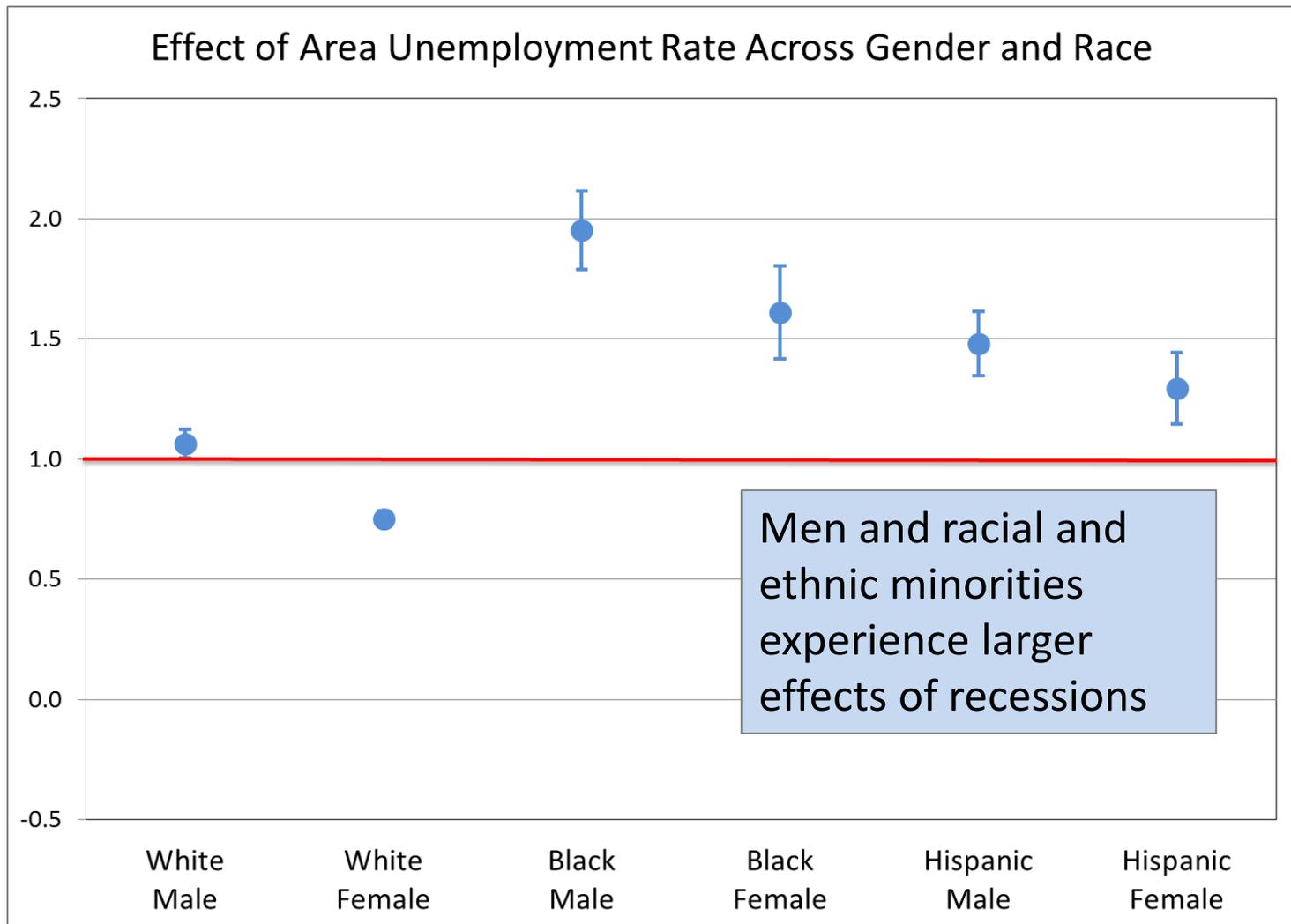
- Collapse the data to: state  $s$  by year-month  $t$  by demographic group  $g$
- Measure of the cycle: state seasonally adjusted unemployment rate.

$$y_{gst} = \beta_g UN_{st} + \lambda_g + \alpha_s + \delta_t + \varepsilon_{gst}$$

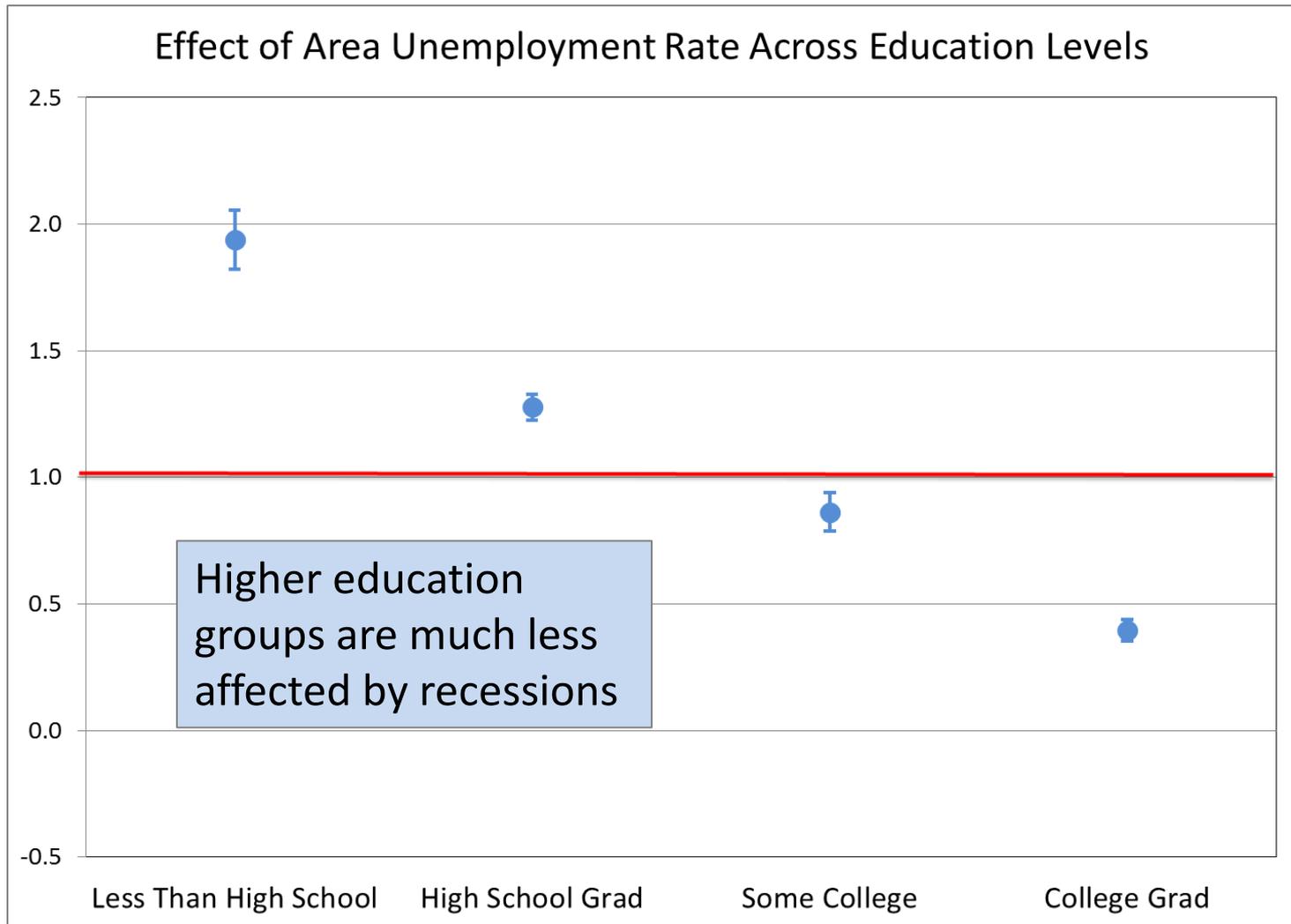
- Additional controls for demographic group, year-month, state
- All estimates clustered by state, weighted by cell weights



Source: Hoynes, Miller and Schaller “Who Suffers in Recessions”, *Journal of Economic Perspectives* 2012 (updated with data through 2013)



Source: Hoynes, Miller and Schaller “Who Suffers in Recessions”, *Journal of Economic Perspectives* 2012 (updated with data through 2013)



Source: Hoynes, Miller and Schaller “Who Suffers in Recessions”, *Journal of Economic Perspectives* 2012 (updated with data through 2013)

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# Evolution of Antipoverty programs in the U.S.

1930s

Social Security  
AFDC  
Unemployment  
Insurance

Great Society

1960s-1970s

Food Stamps  
Medicare  
Medicaid  
Disability  
Civil Rights  
Act

1990s

Welfare Reform  
Rise of the EITC

2010

Obamacare

# The safety net for nonelderly families

- Cash welfare AFDC/TANF [means tested]
- Food Stamps [means tested]
- The EITC [means tested, requires employment]
- Unemployment Compensation [social insurance]
- Disability benefits: DI [social insurance], SSI [means tested]

We identify these programs as the “safety net” – in that they may provide some protection in response to reductions in income/earnings.

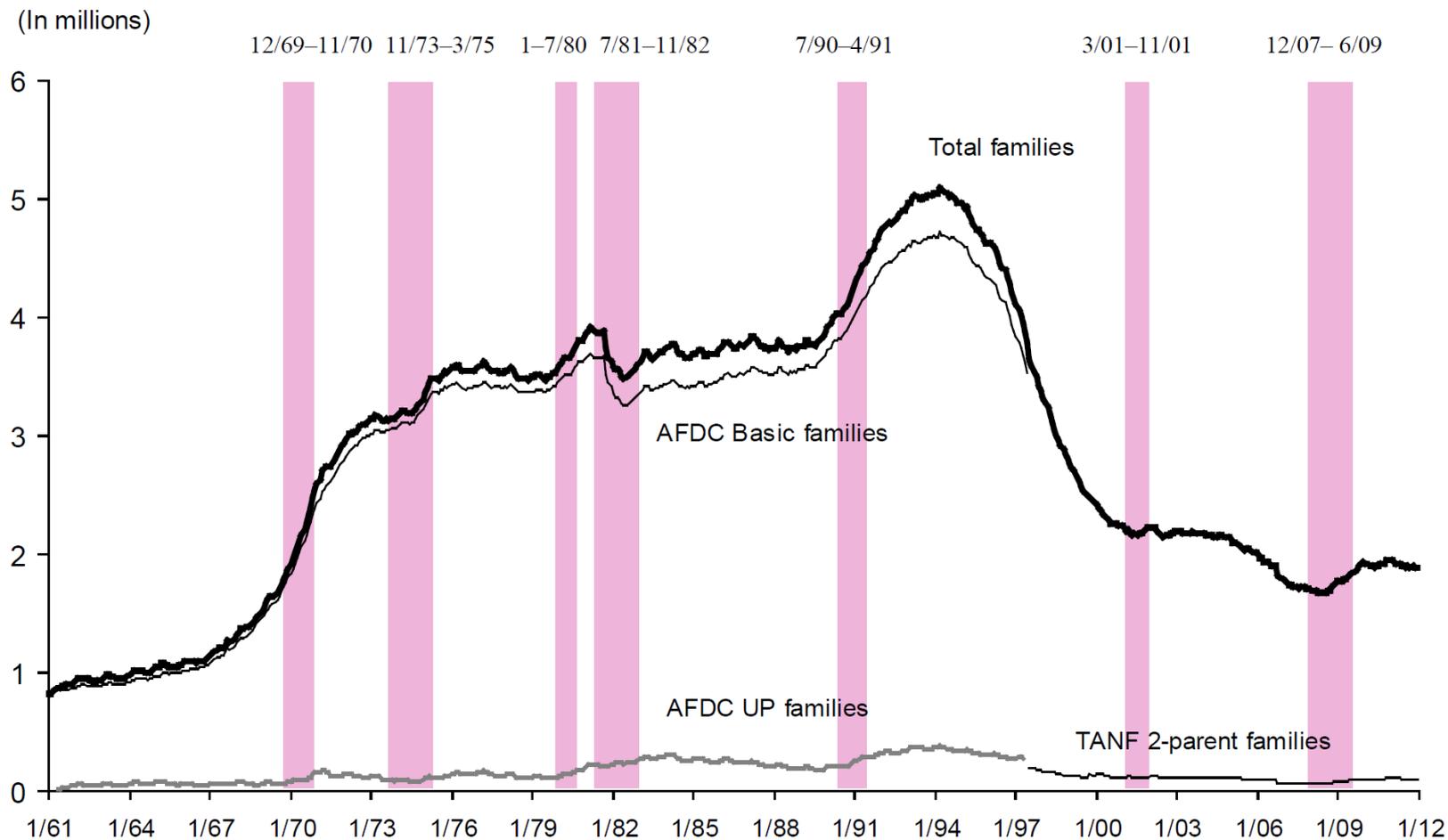
*Ignores public health insurance programs*

# Reforms in the safety net, prior to Great Recession

- *The decline of welfare*
  - Up until the early 1990s the U.S. relied primarily on traditional cash welfare, Aid to Families with Dependent Children
  - AFDC had a guaranteed income (never very high) and a high benefit reduction rate (~100%). Eligibility was limited to single mothers.
  - This led to a (longstanding) concern that AFDC discourages work and marriage, and causes long term dependence.
  - Welfare reform in 1996 → time limits, work requirements, lower tax rates → caseloads at historic low [Now TANF]
- *The rise of the EITC*
  - Transition from *out-of-work* assistance to *in-work* assistance
  - Refundable tax credit for low income families
  - Benefits focused on families with children
  - Requires earnings: strong incentives for employment

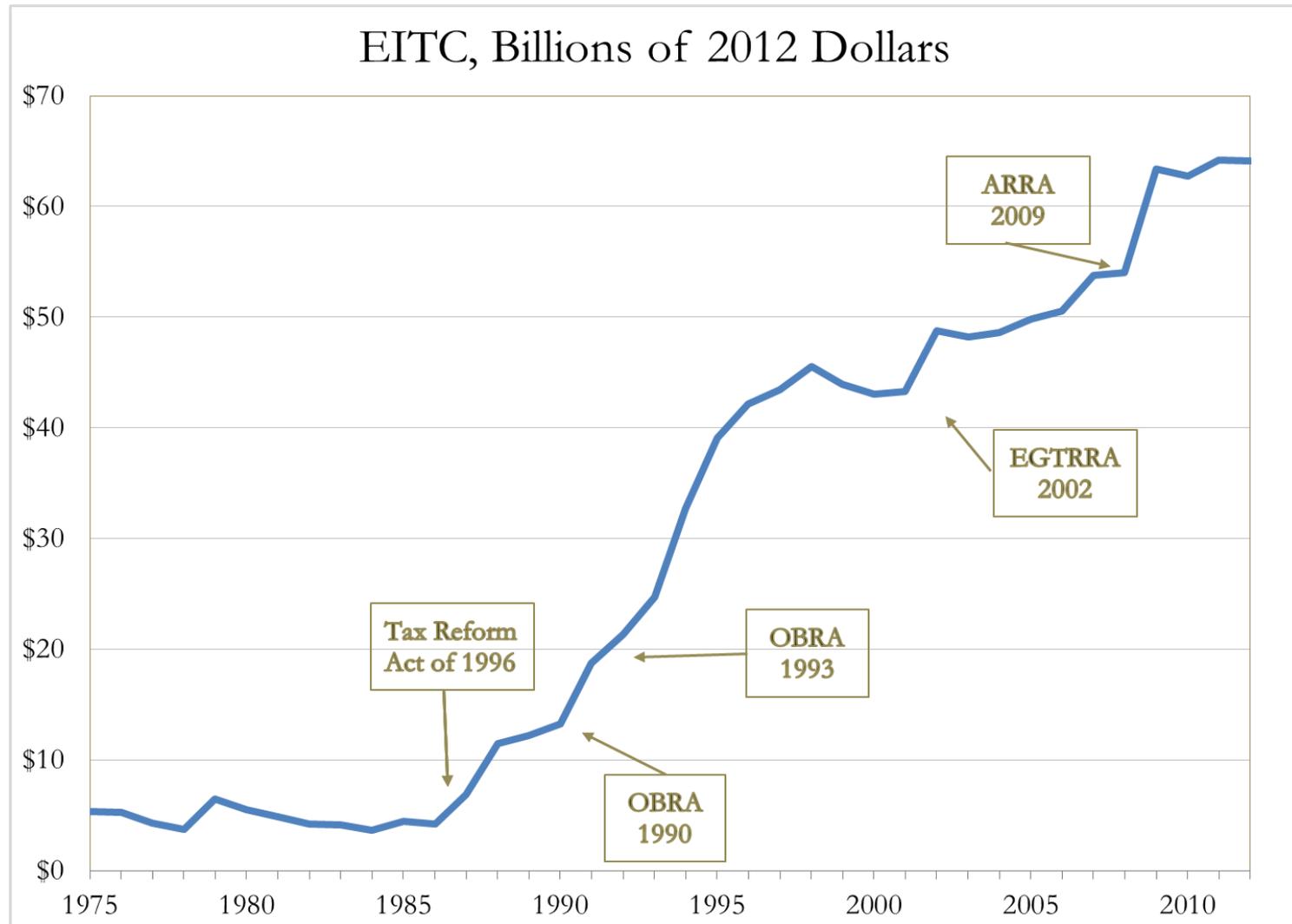
# The decline of welfare...

Figure TANF 1. AFDC/TANF Families Receiving Income Assistance

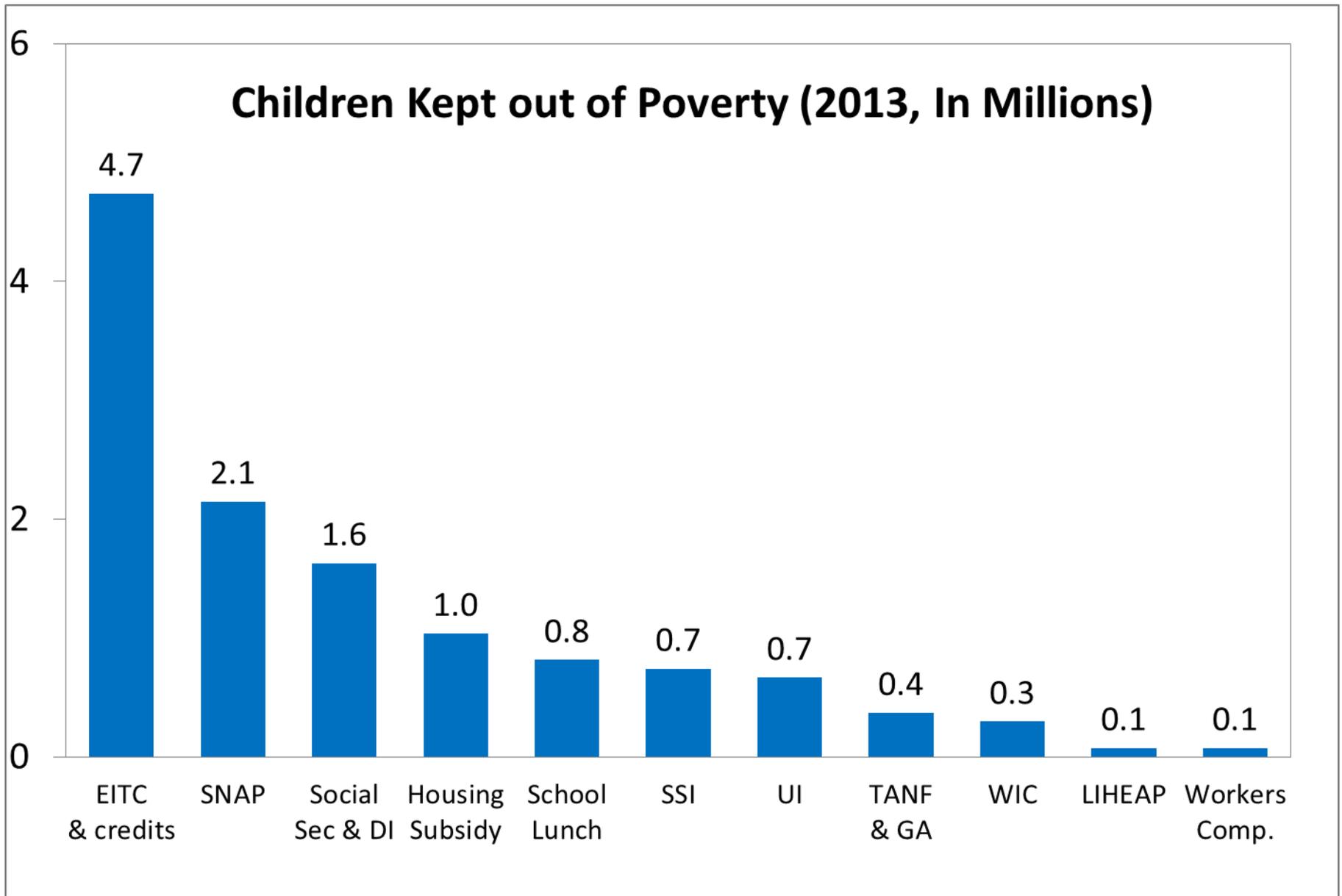


Source: U.S. Department of Health and Human Services *Indicators of Welfare Dependence*.  
2013

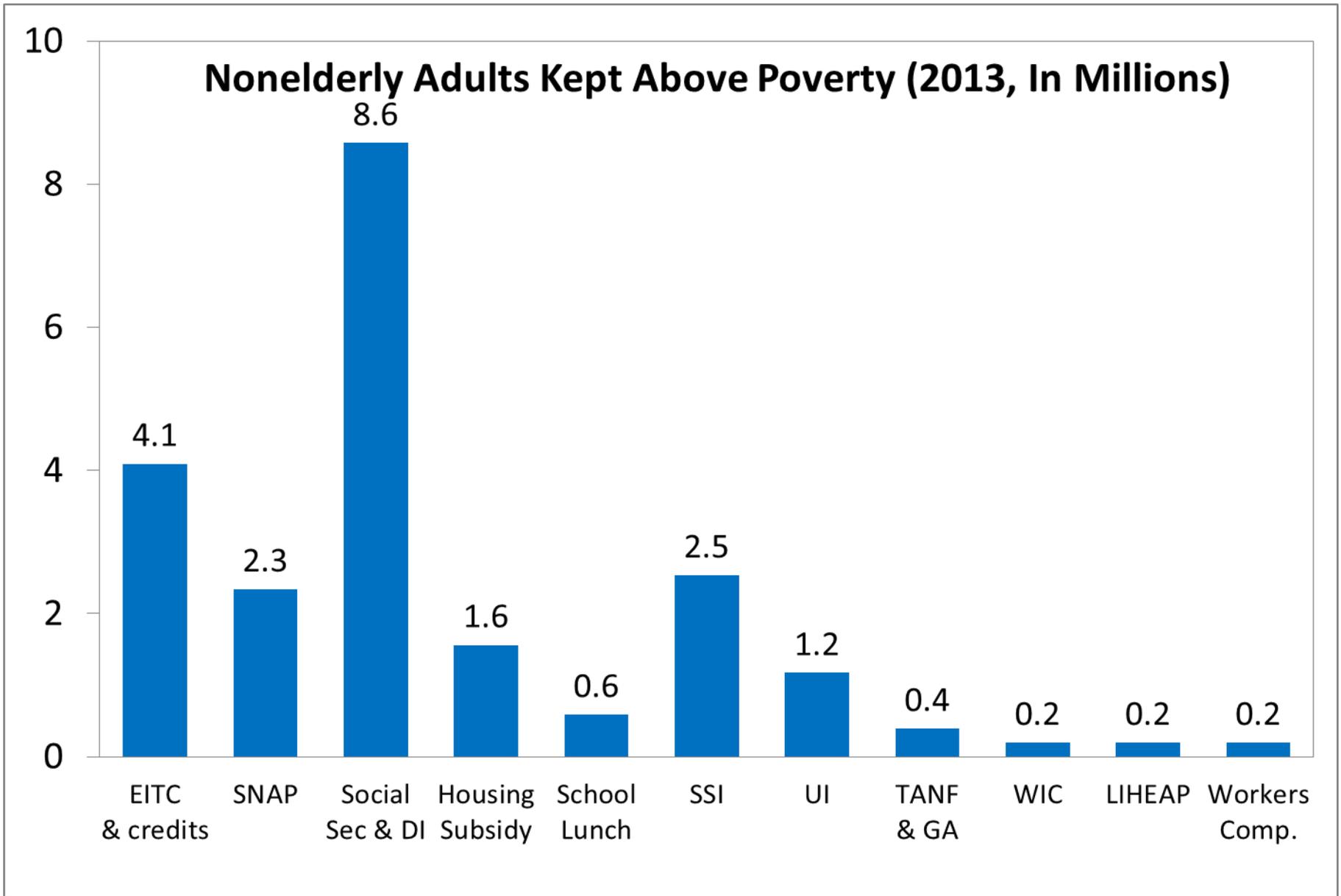
# *The rise of the EITC...*



Source: Tax Policy Center.



Source: Calculations based on *Supplemental Poverty Measure, 2013* (Kathleen Short), U.S. Department of Census, Current Population Report P60-251.

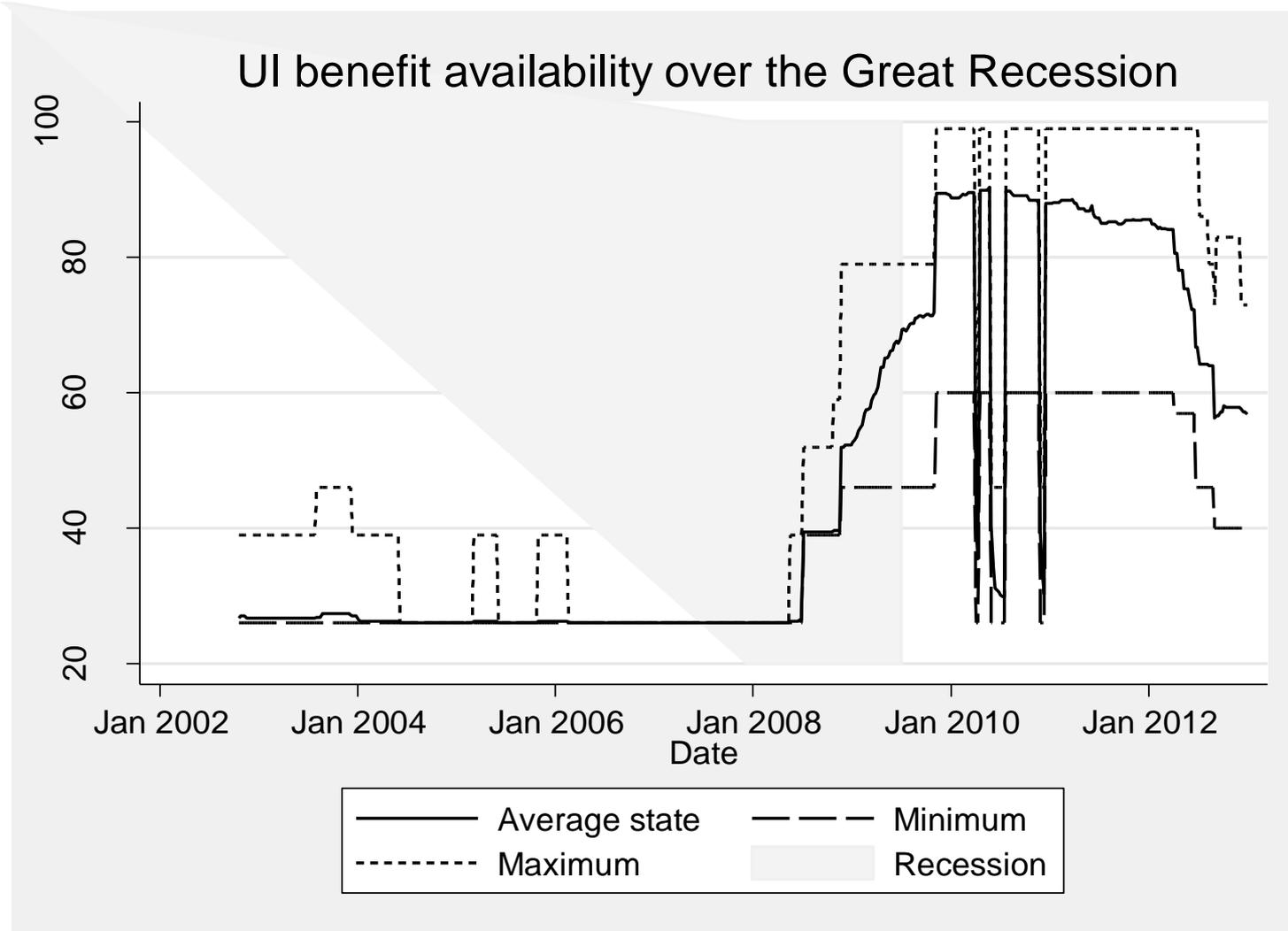


Source: Calculations based on *Supplemental Poverty Measure, 2013* (Kathleen Short), U.S. Department of Census, Current Population Report P60-251.

# The response to the Great Recession: The Stimulus and the Safety Net

- Unemployment Benefits: Emergency program raised UI benefit durations to as long as 99 weeks (usual maximum is 26 weeks); shifts costs from states to federal government
- Increase in unemployment benefits (\$25/week)
- Increase in Food Stamp benefits (13.6%, e.g. \$80/month for family of 4)
- Increase in EITC (for families with 3+ children)
- New tax credit (*Making Work Pay*), up to \$400 per worker/yr

# UI Benefits extended for 99 weeks



Source: Mueller, Rothstein and von Wachter “Unemployment Insurance and Disability Insurance in the Great Recession,” Forthcoming *Journal of Labor Economics*.



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[ARRA](#) > [Where is The Money Going?](#) > [Overview of Funding](#) > [Breakdown of Funding](#)

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## Breakdown Of Funding By Category

Total Funds Allocated:

**\$840 BILLION**

Estimated American Recovery and Reinvestment Act tax, entitlement, and contract, grant, and loan expenditures have been increased from \$787B to \$840B to be consistent with the President's 2012 budget and with scoring changes made by the Congressional Budget Office since the enactment of the Recovery Act in February 2009.

Tax Benefits



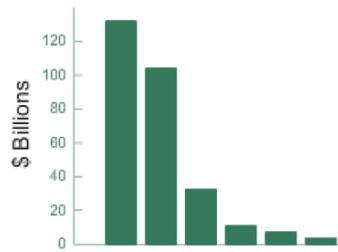
Contracts, Grants and Loans



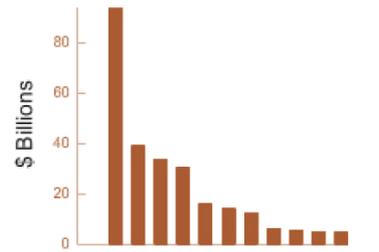
Entitlements



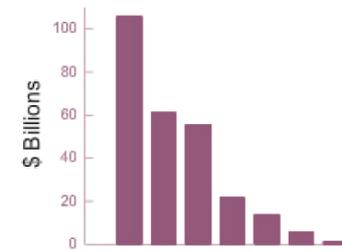
## Breakdown Of Funds Paid Out By Category



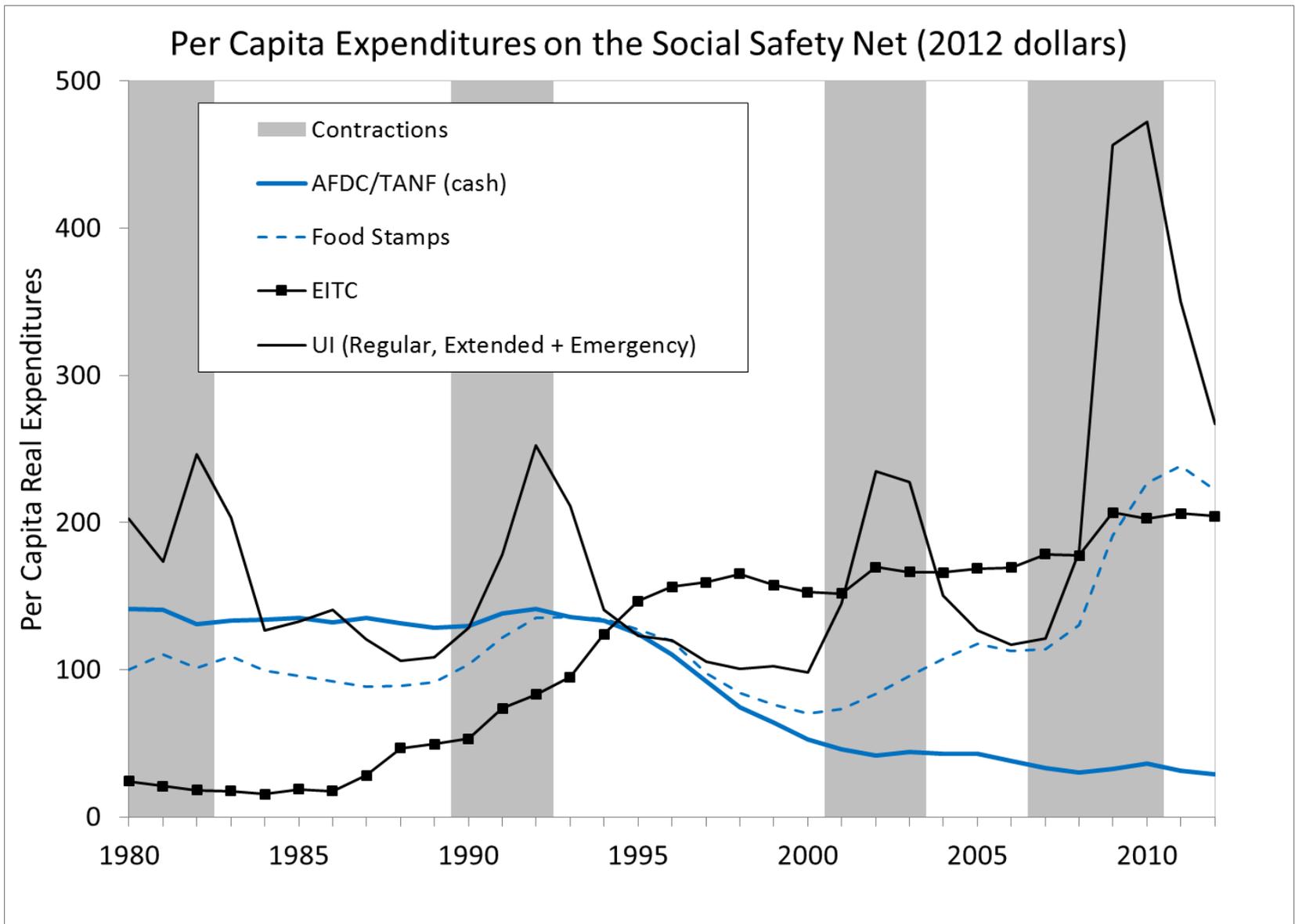
Total Tax Benefits\*



Total Contracts, Grants & Loans



Total Entitlements



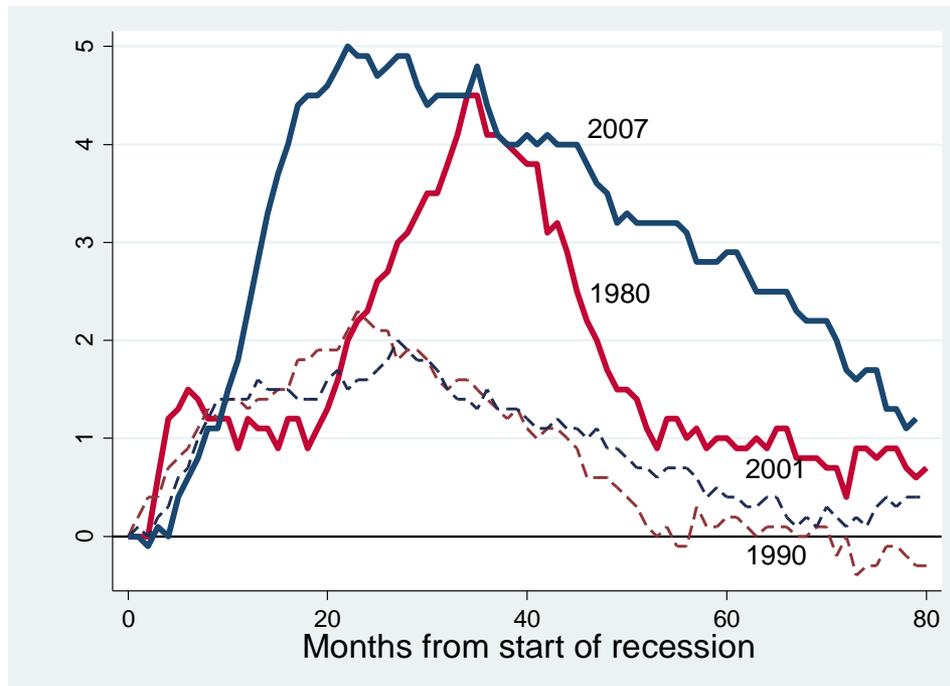
Source: Bitler and Hoynes “The More Things Change, the More They Stay the Same? The Safety Net and Poverty in the Great Recession,” forthcoming, *Journal of Labor Economics*.

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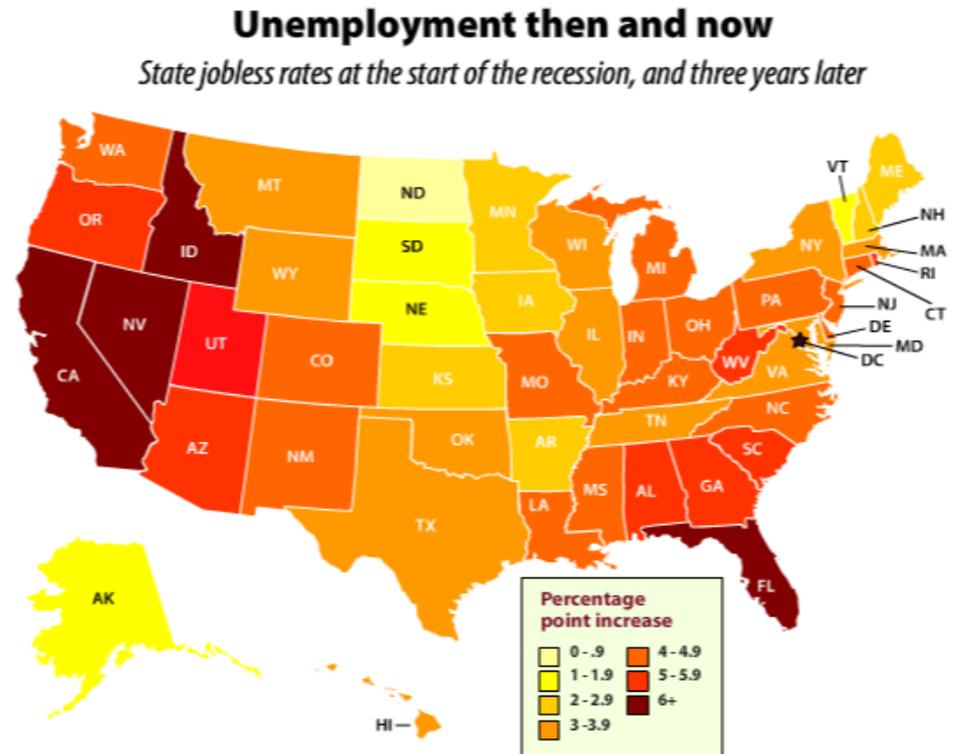
# How did the safety net respond to the Great Recession?

- *Compared to what?* We take a historical perspective
- We compare the experience in the Great Recession to the experience in earlier recessions (in particular the early 1980s recession)
- Test if the response of the safety net is different in the GR



# The safety net and the Great Recession: *Modeling approach*

- We take advantage of the variation across U.S. states in the timing and severity of cycles
- Estimate a state-year panel data model with the state safety net (caseload/pop) as a function of the unemployment rate, allowing for different effects in the 1980s and the GR.



Source: Employment Policy Institute

[http://www.epi.org/publication/interactive\\_map\\_unemployment\\_then\\_and\\_now/](http://www.epi.org/publication/interactive_map_unemployment_then_and_now/)

# What do we expect given policy landscape?

- Decline of welfare and rise of EITC → major transformation of safety net from *out-of-work* aid to *in-work* aid → less protection in GR
- Long UI benefit durations → more protection in GR
- Food stamp benefits expanded leading up to and during the GR → more protection in GR

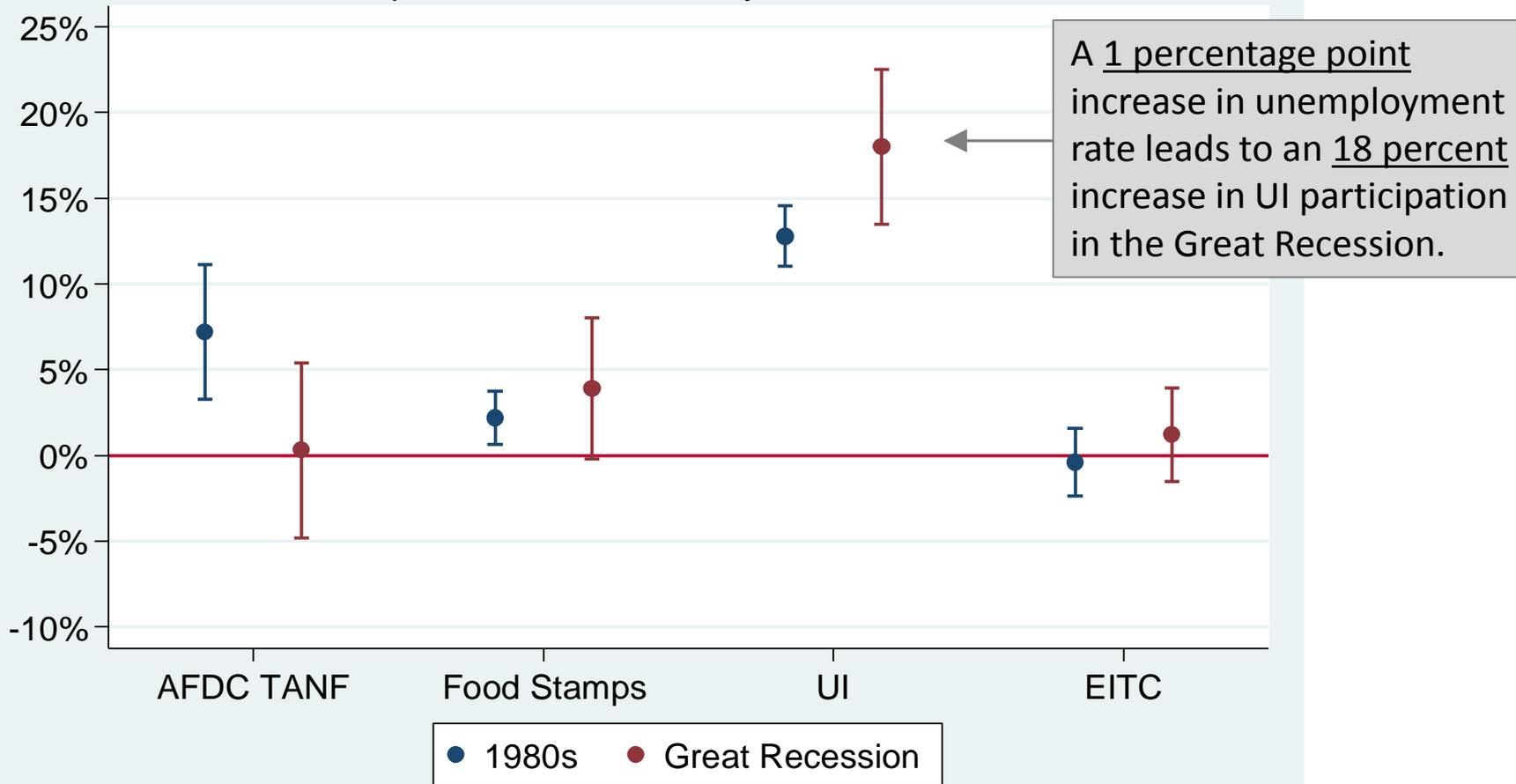
We investigate this by estimating the effect of state-year unemployment rates on state-year safety net participants (per capita).

# Empirical model

- State panel fixed effects model
- Cycle measured by state-year unemployment rate
- Standard errors clustered on state, weighted using denominator
- Test 1: Is GR different from 1980s cycle?

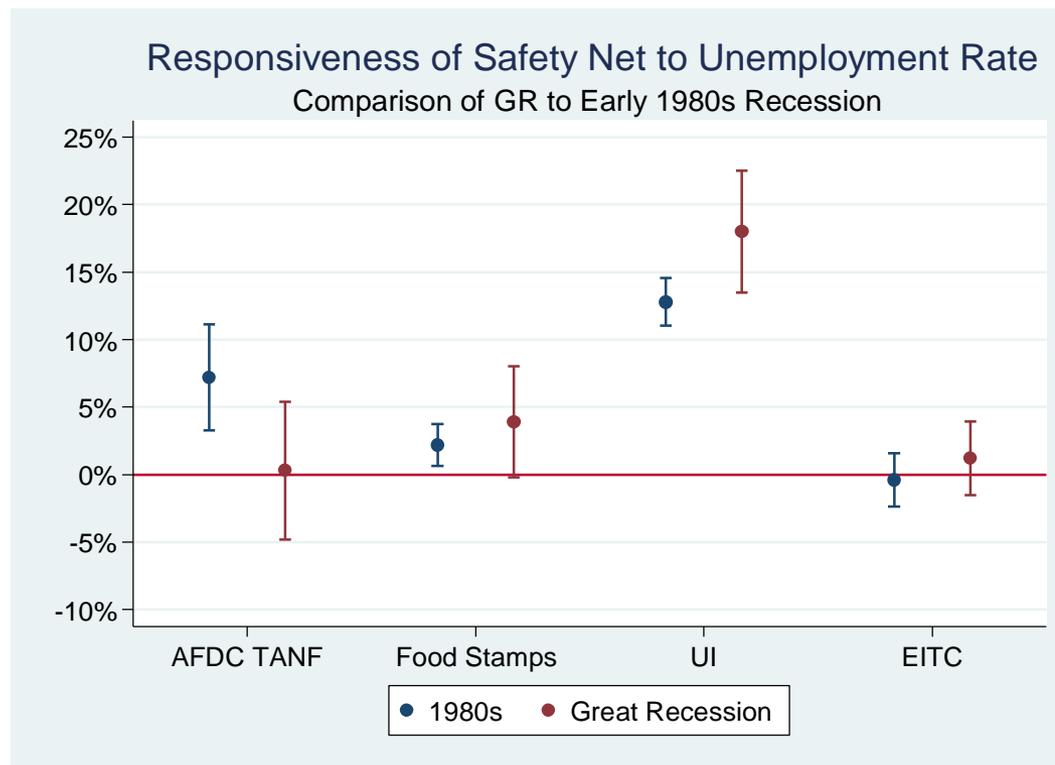
$$y_{st} = \beta_{80} D_{80} UR_{st} + \beta_{GR} D_{GR} UR_{st} + \beta_O D_O UR_{st} + \alpha_s + \delta_t + \varepsilon_{st}$$

## Responsiveness of Safety Net to Unemployment Rate Comparison of GR to Early 1980s Recession



Source: Bitler and Hoynes “The More Things Change, the More They Stay the Same? The Safety Net and Poverty in the Great Recession,”

*Note coefficient on “rest of period” omitted here.*



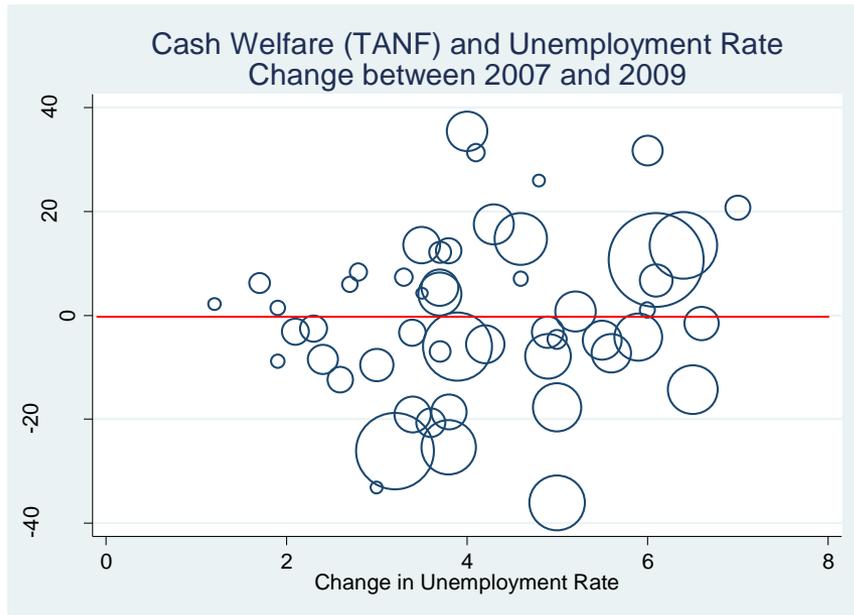
## Findings:

- Less protection in GR for cash welfare (TANF)
- More protection in GR for UI and (not significantly) food stamps
- UI is the most cyclical; EITC not responsive to cycles (more on this below)

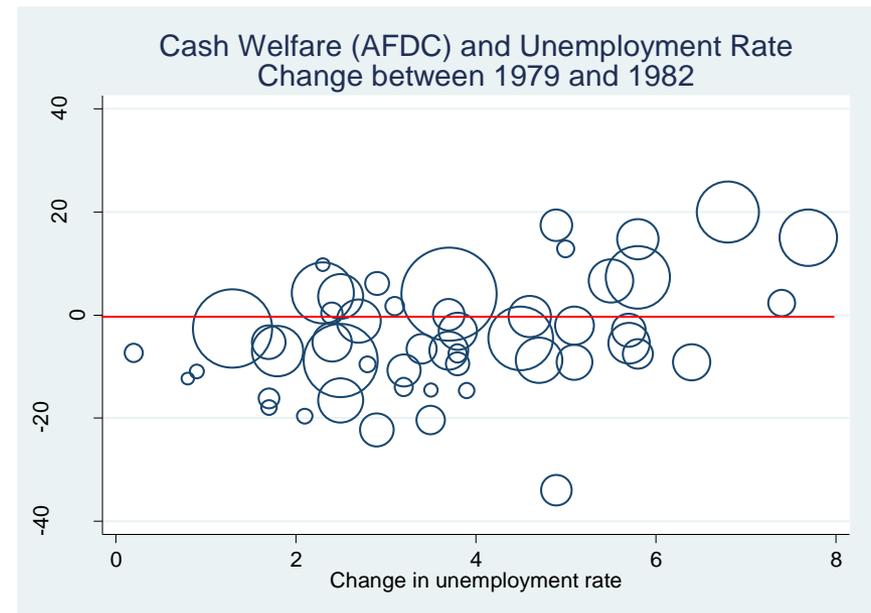
# Illustration of these results for TANF

## State Scatterplot of $\Delta UR$ against $\% \Delta \text{TANF caseload/pop}$

2007-2009



1979-1982

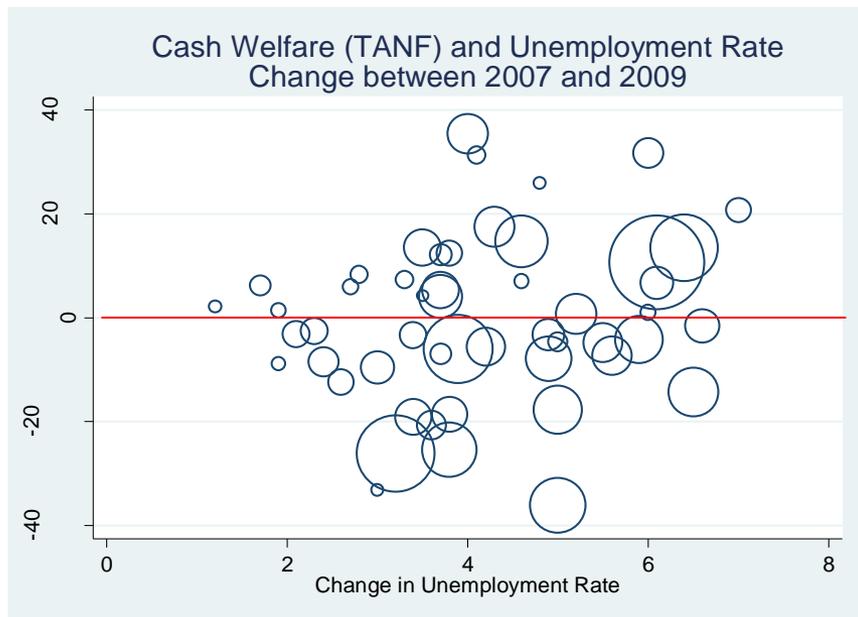


Little relationship between changes in state labor market conditions and TANF in GR

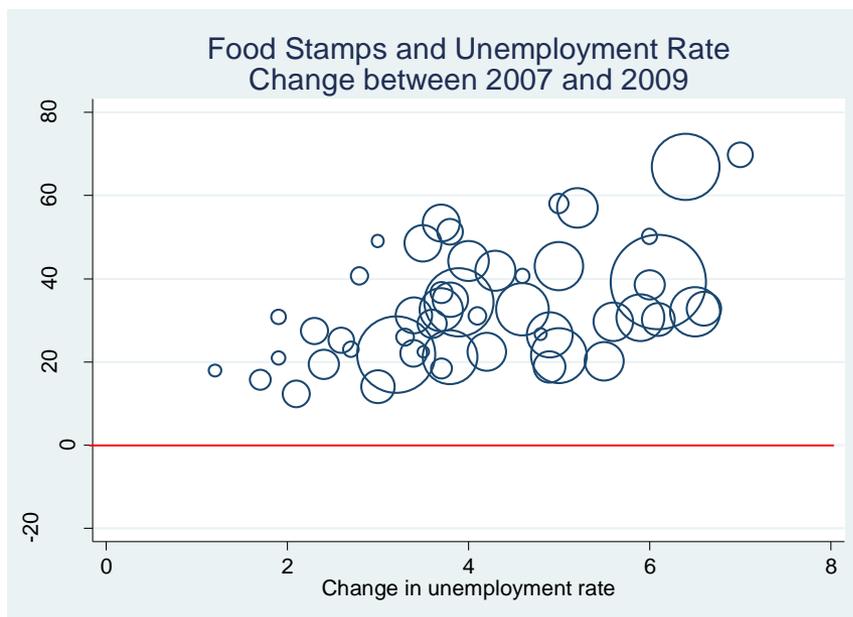
# Comparison of Food Stamps and TANF in GR

## State Scatterplot of $\Delta UR$ against $\% \Delta \text{caseload/pop}$

### 2007-2009 TANF

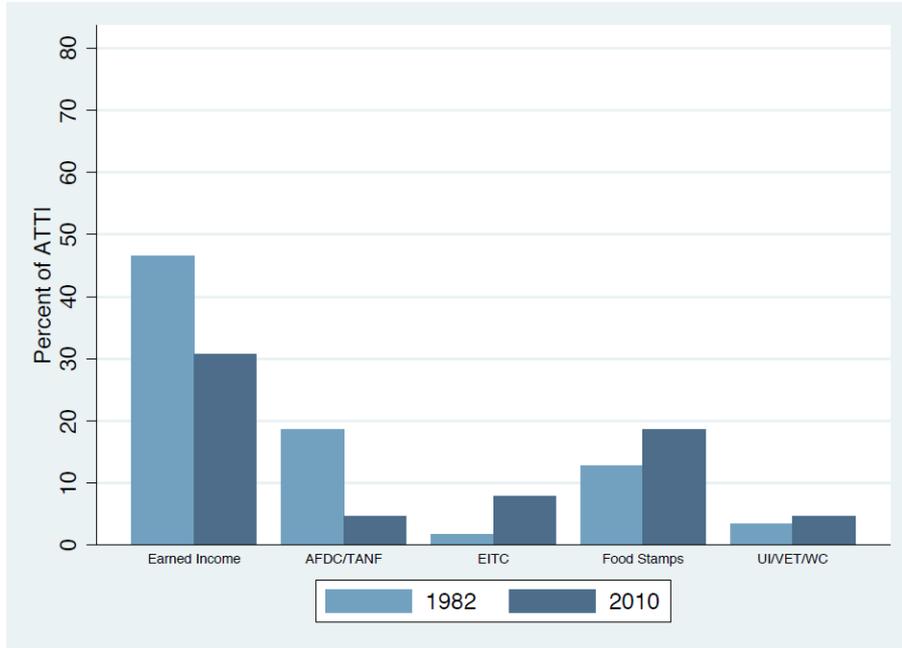


### 2007-2009 Food Stamps

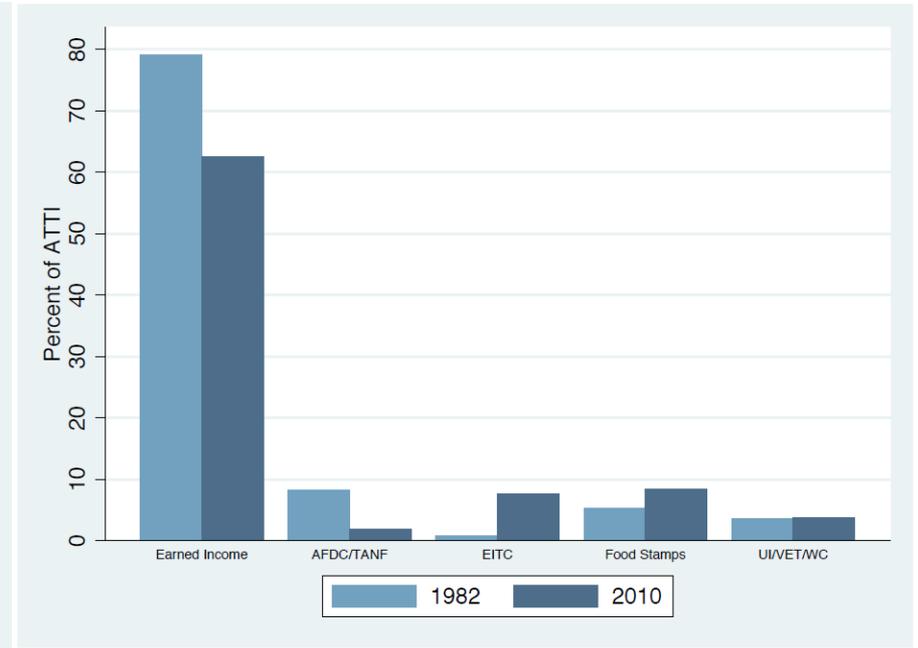


# Composition of After-Tax and Transfer Income by Source (by trough years of 1980 recession and Great Recession)

(b) Below 100% Poverty



(d) Below 200% Poverty



Source: Bitler, Hoynes and Kuka “Child Poverty and the Great Recession”

REPLACE WITH NEW GRAPH ON % WITH ANY INCOME FROM THIS SOURCE?

# Safety nets and the Great Recession: Bottom Line

- Cash welfare (TANF) provided no protection in the Great Recession
- Unemployment Insurance and Food Stamps provided more protection in the Great Recession (compared to a similar shock to UR in earlier recessions)
- But how does this translate to family wellbeing?

We can use similar models to explore the effects of the Great Recession on poverty.

# Roadmap

1. The Great Recession in the U.S.
2. U.S. safety net programs and the stimulus
3. How did the safety net respond?
4. Effects of the GR on poverty and the most vulnerable
5. Lessons moving forward given the “stress test” of the Great Recession
6. Conclusion

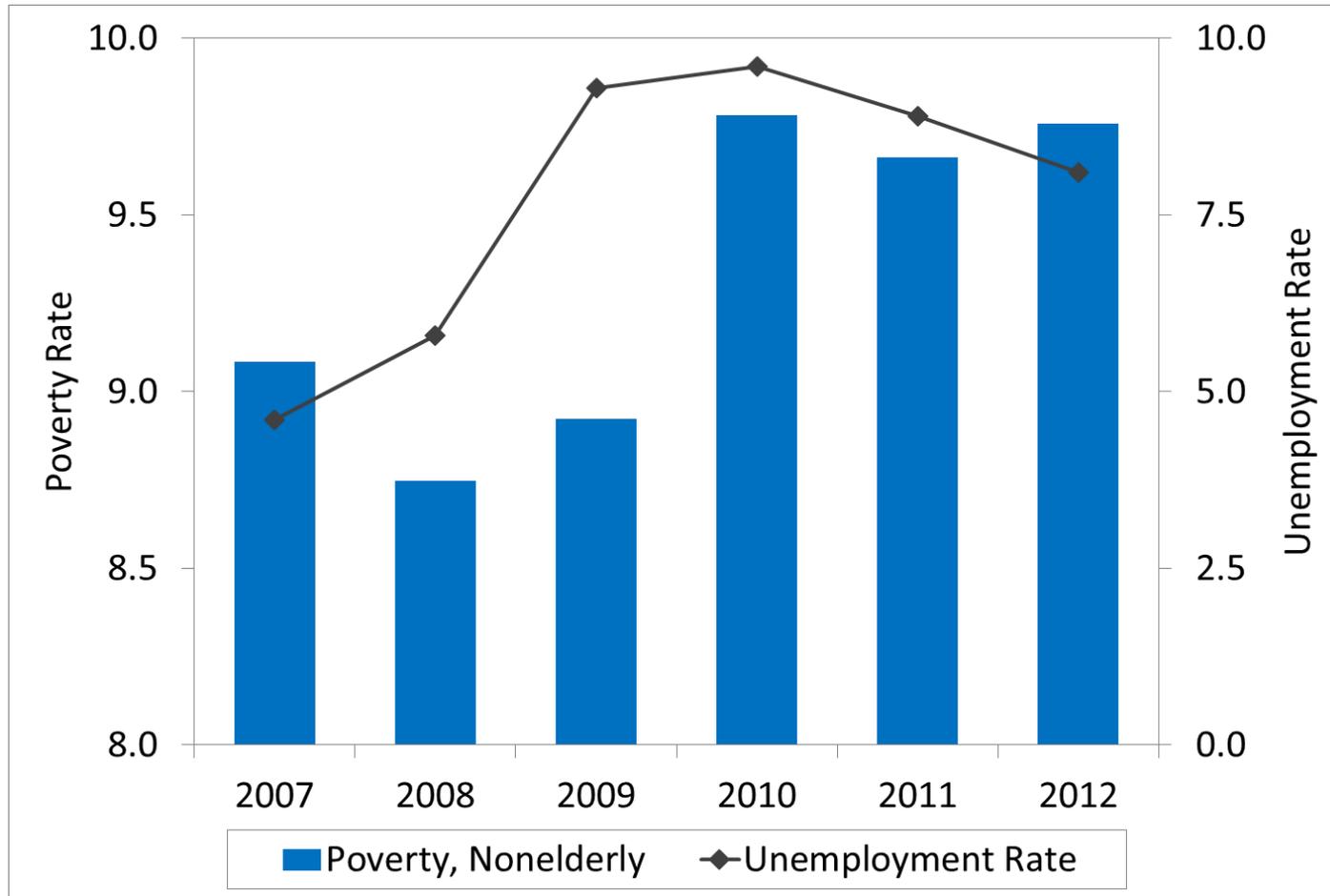
# Poverty measurement in the U.S.

- U.S. defines poverty as an absolute measure
- A family is poor if their resources are less than the federal poverty threshold
  - Poverty lines vary by family size and are adjusted for changes in prices each year
- We measure family resources comprehensively as after tax and transfer income, including the value of in-kind transfers (e.g. food stamps, housing benefits) and the EITC [*U.S. official poverty uses only cash resources.*]

Poverty Thresholds by Family Type, 2013	
1 parent, 1 child	\$16,057
1 parent, 2 children	\$18,769
2 parents, 2 children	\$23,624

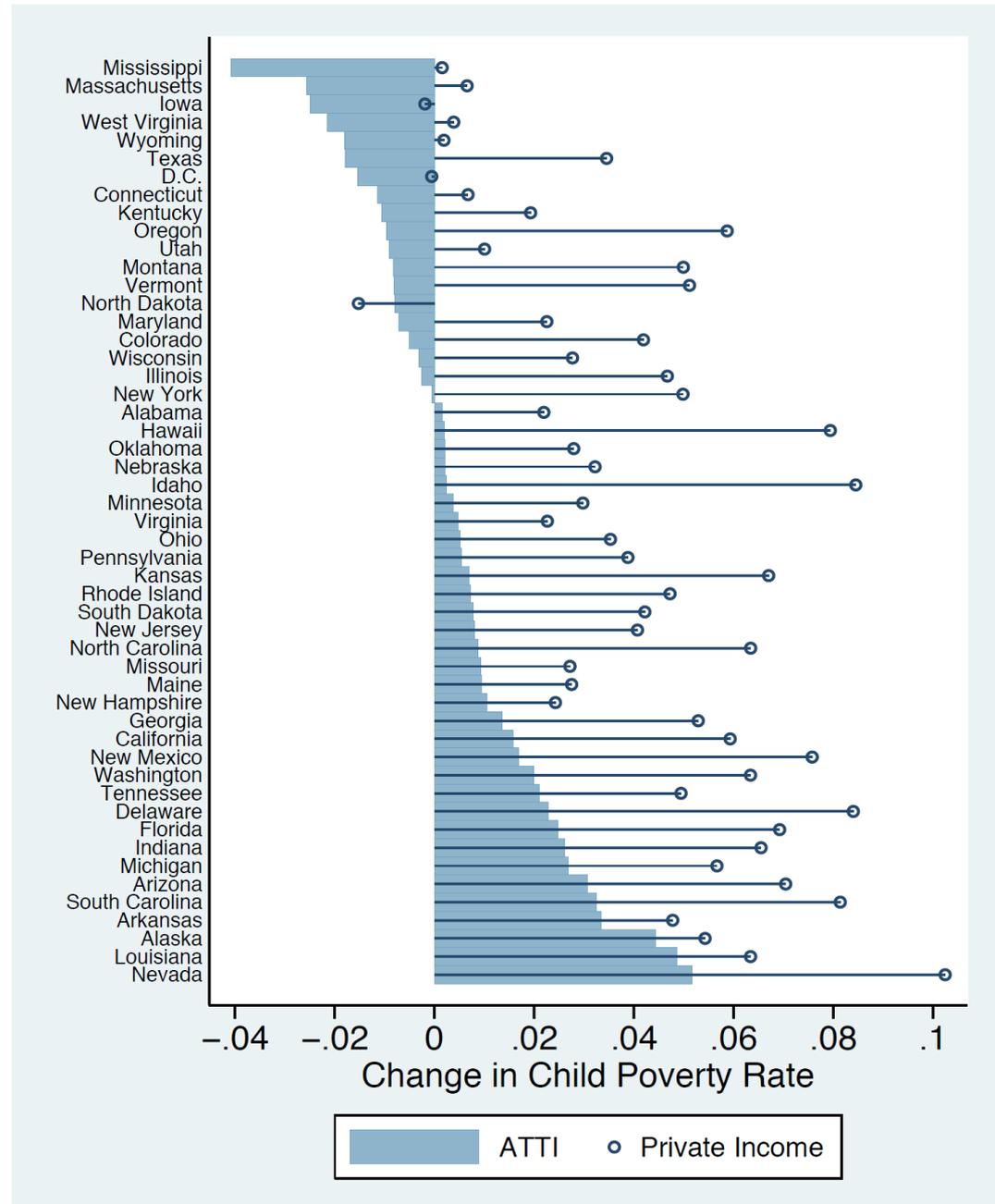
By comparison, median family income in 2013 was \$51,017.

# Poverty rates rose with unemployment ...



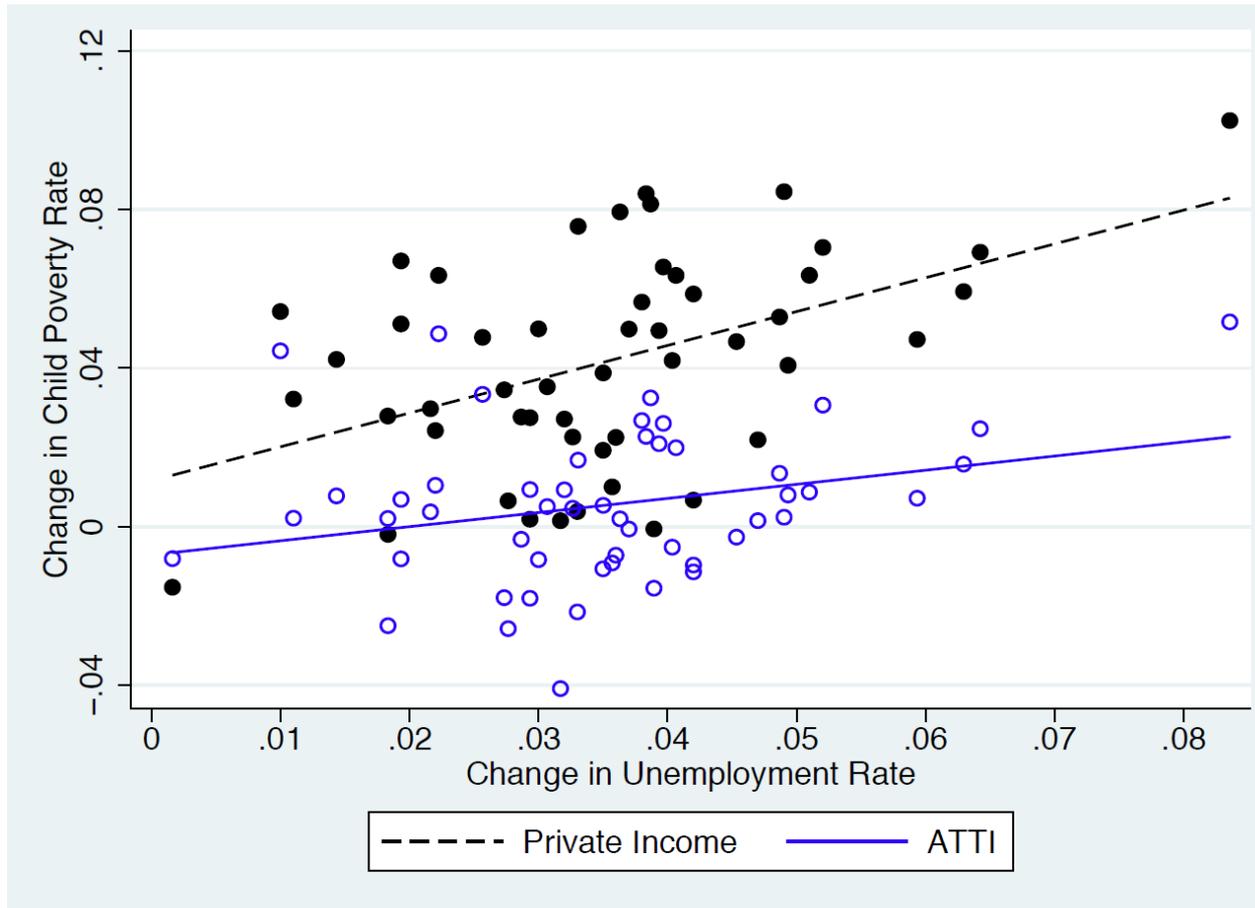
Source: Bitler and Hoynes “The More Things Change, the More They Stay the Same? The Safety Net and Poverty in the Great Recession,” forthcoming, *Journal of Labor Economics*.

... but the social safety net provided tremendous protection



Source: Bitler, Hoynes and Kuka “Child Poverty in the Great Recession.”

# State Scatterplot of Change in UR against Change in Child Poverty, 2005-2007 to 2010-2012

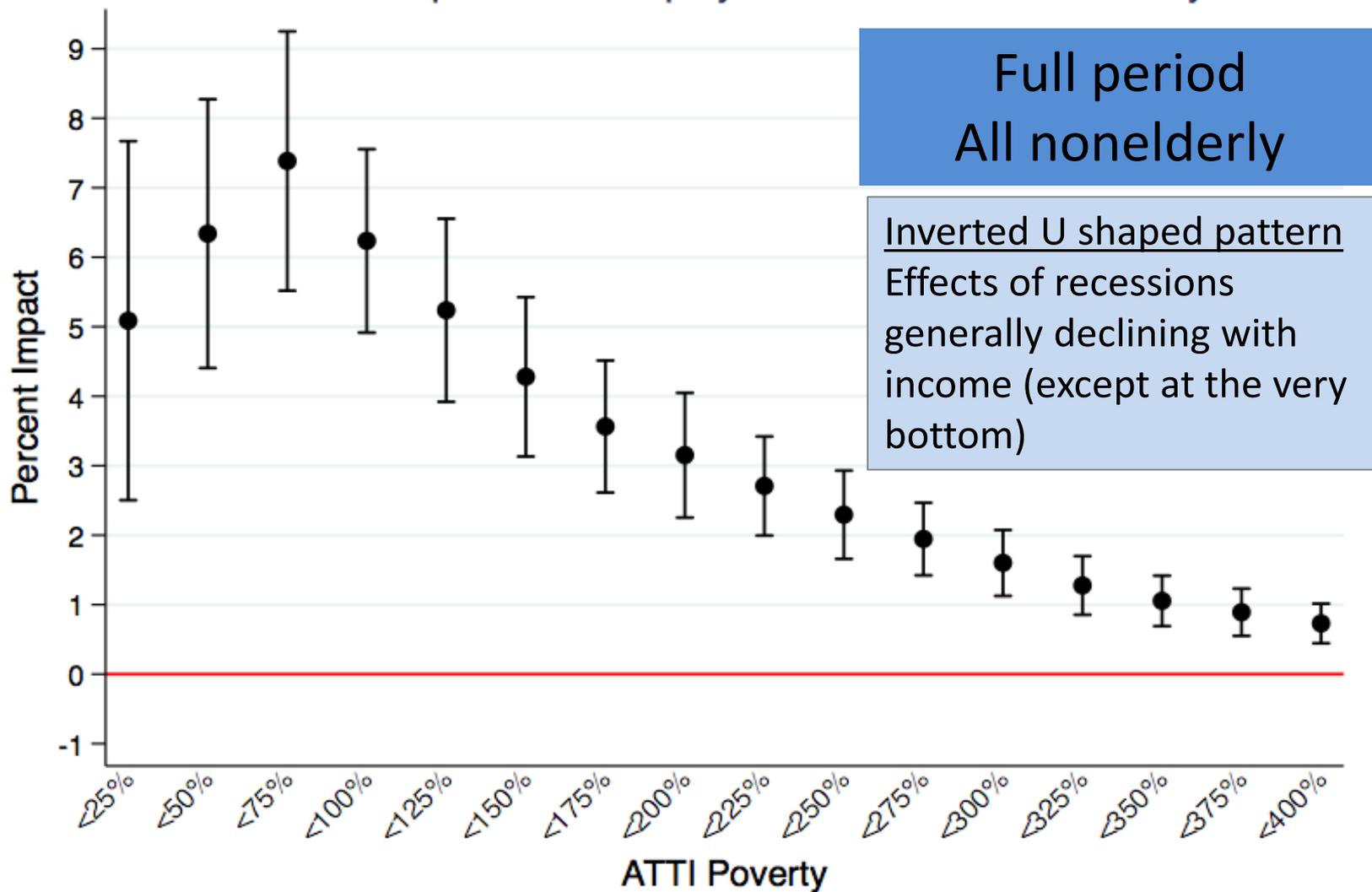


Source: Bitler, Hoynes and Kuka “Child Poverty in the Great Recession.”

# But how do we gauge the degree to which the most vulnerable were protected in the Great Recession?

- *Again, we take a historical perspective*
- We compare the experience of poverty in the Great Recession to the experience in earlier recessions (in particular the early 1980s recession)
- Test if the response of the safety net is different in the GR
- As before, we do this by estimating a state panel data model, using variation in the timing and severity of cycles across states.

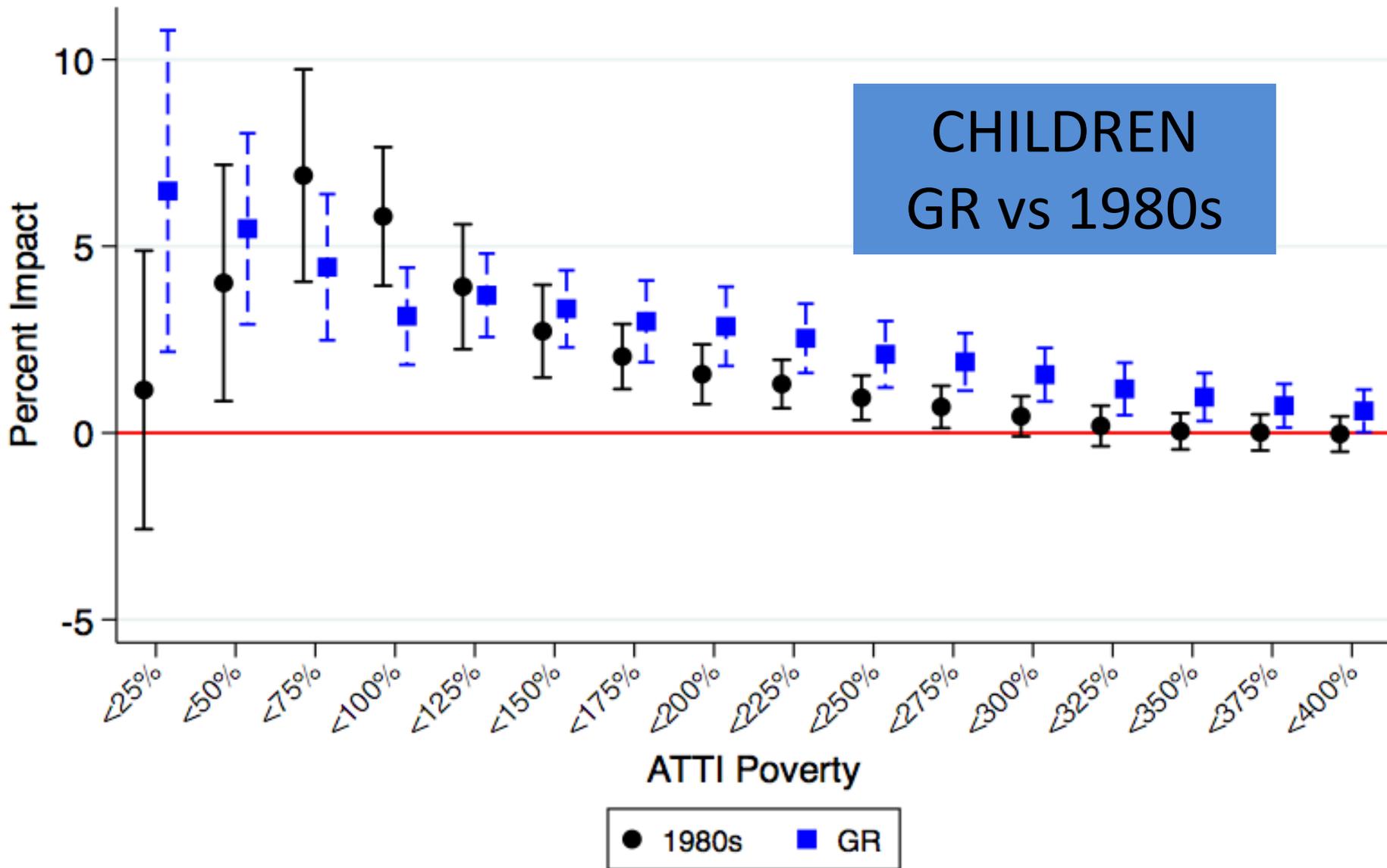
## Percent Impact of Unemployment Rate on ATTI Poverty



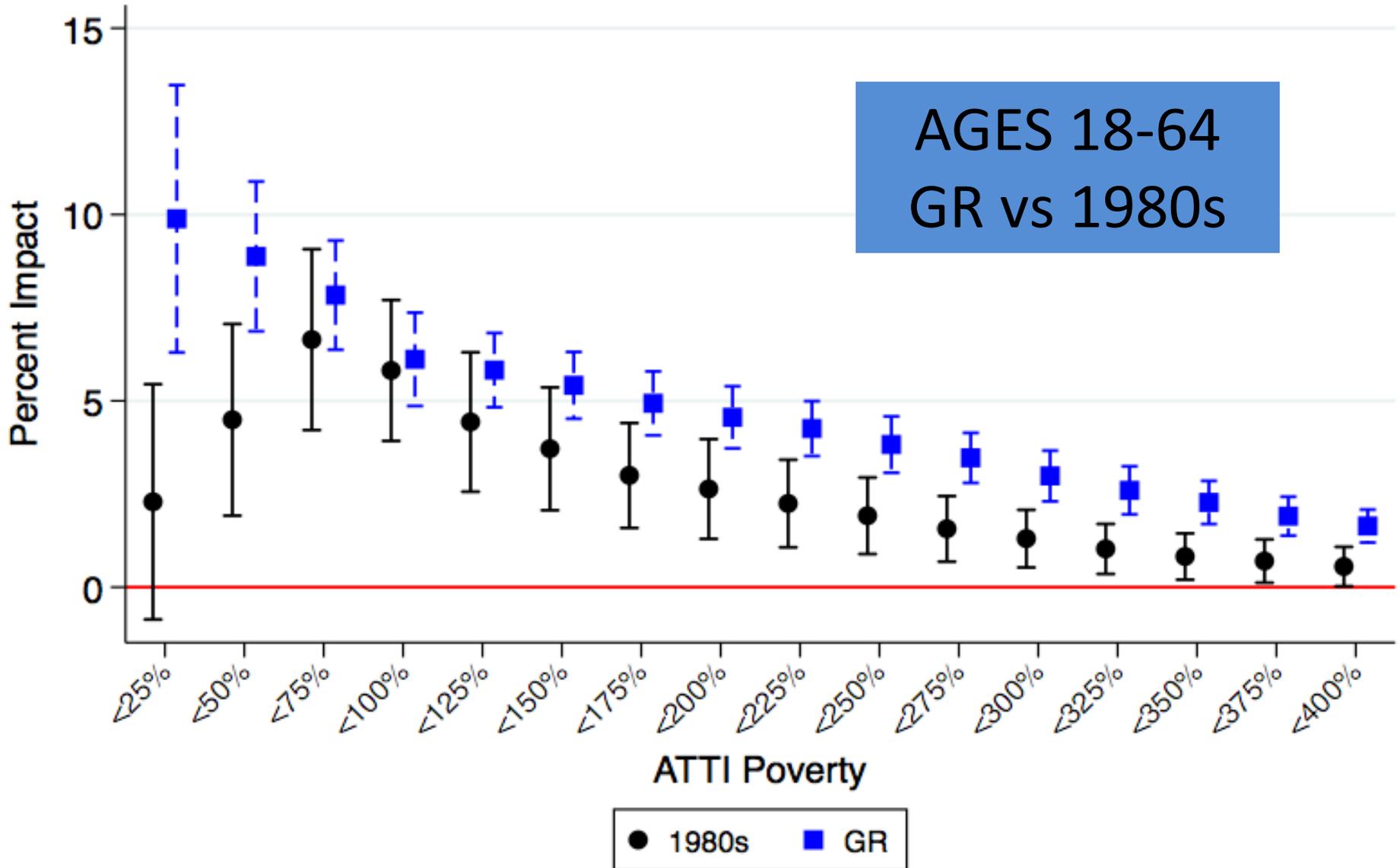
Source: Bitler and Hoynes “Heterogeneity in the Impact of Economic Cycles and the Great Recession: Effects Within and Across the Income Distribution”

25% of households have income above 400%

# Percent Impact of Unemployment Rate on ATTI Poverty <18 Years Old, 1980s vs. Great Recession



# Percent Impact of Unemployment Rate on ATTI Poverty 18-64 Years Old, 1980s vs. Great Recession



## THE BAD NEWS

- The share of nonelderly falling below 50% poverty (*extreme poverty*) is more affected than we would have expected from prior cycles (inverted U shape is GONE)
  - This seems directly related to welfare reform

## THE GOOD NEWS

- Slightly higher up the income distribution, around 100% poverty, is less affected than we would have expected from prior cycles
  - This may be tied to food stamps

# Poverty and the Great Recession: Bottom Line

- More families fell into extreme poverty than we would have expected from historical experience; this is directly tied to the dismantling of cash welfare
- Fewer families fell below (100%) poverty than we would have expected from historical experience; this is linked to the success of the food stamp program

# Roadmap

1. The Great Recession in the U.S.
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6. Conclusion

# Lesson #1:

## U.S. lacks a safety net for extreme poverty

- Welfare reform has removed the protection for the most vulnerable
- For some, disability benefits have filled this hole

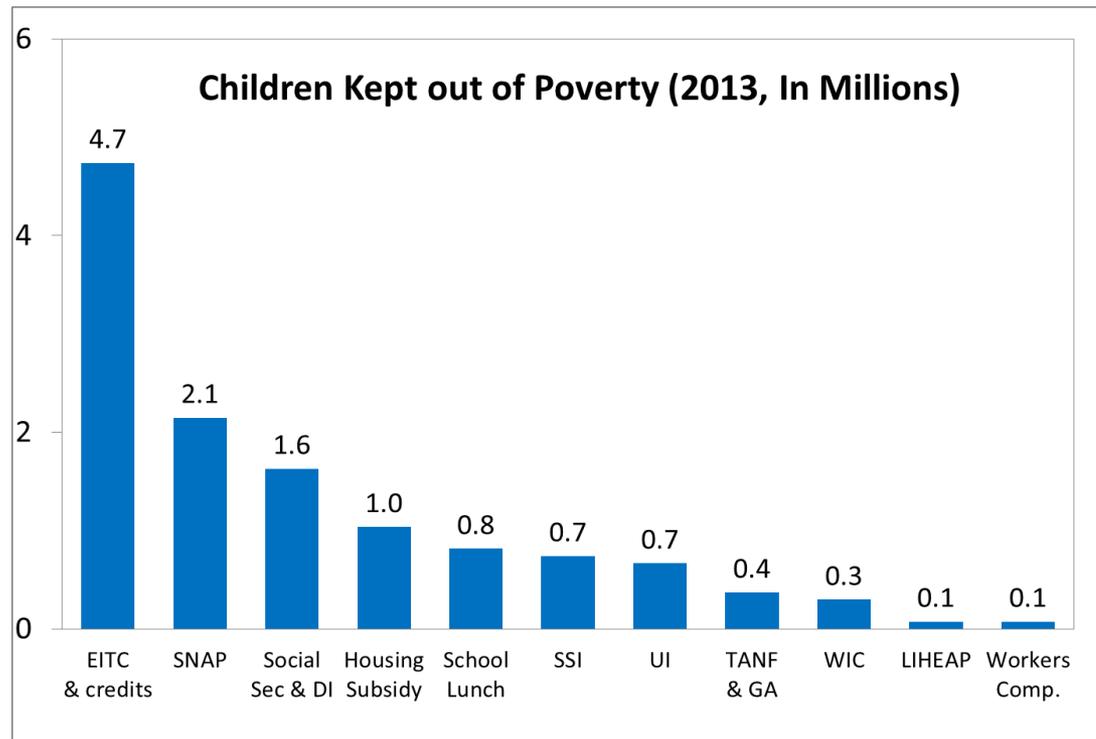
## Lesson #2:

# A large and targeted stimulus can make a difference

- Extensions to unemployment benefits and accessibility of food stamps

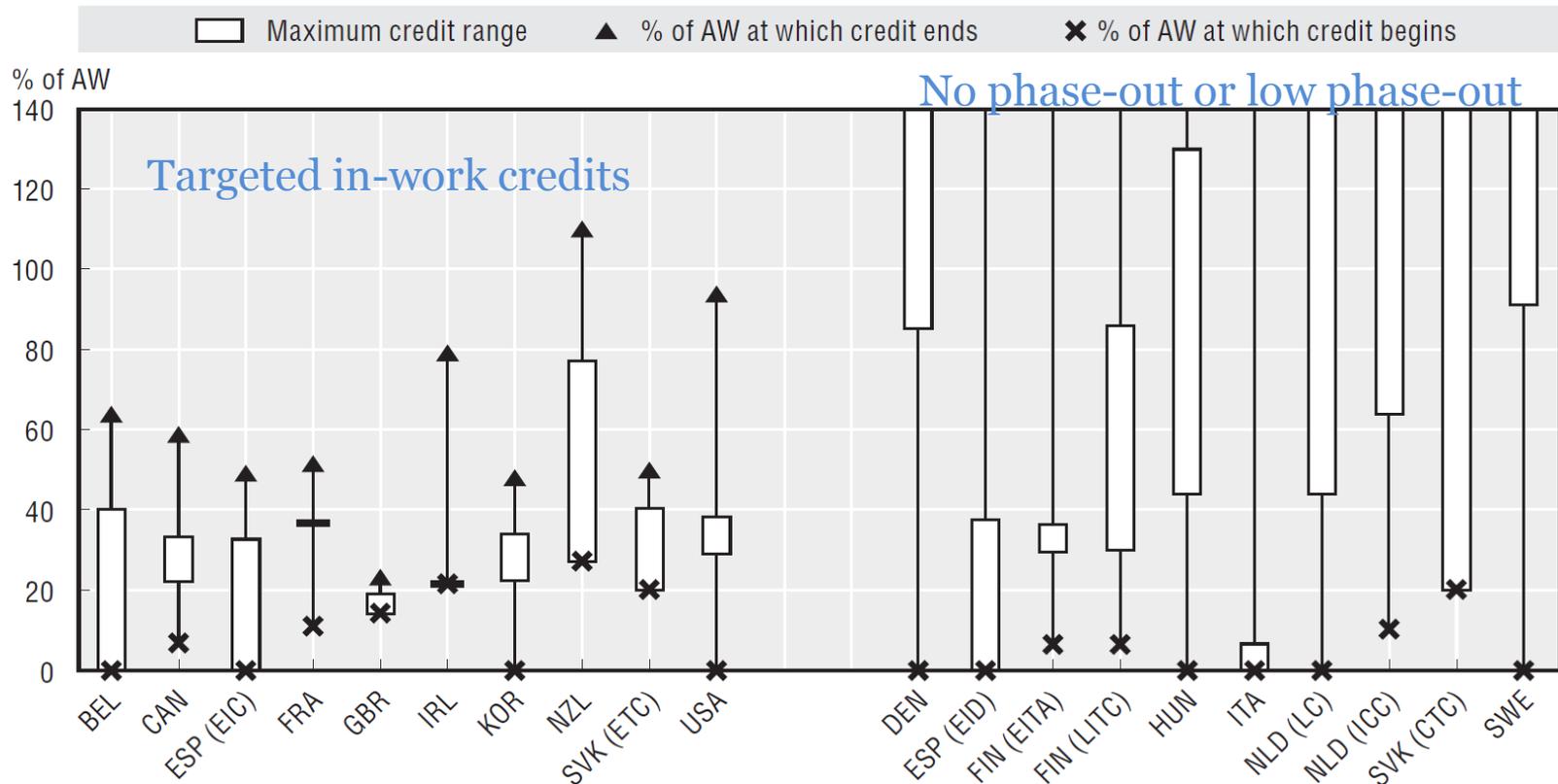
# Lesson #3: In-work benefits are not well suited to providing protection against job loss

- The Earned Income Tax Credit is the most important antipoverty program for families in the U.S.



# In-work credits are being adopted across the OECD

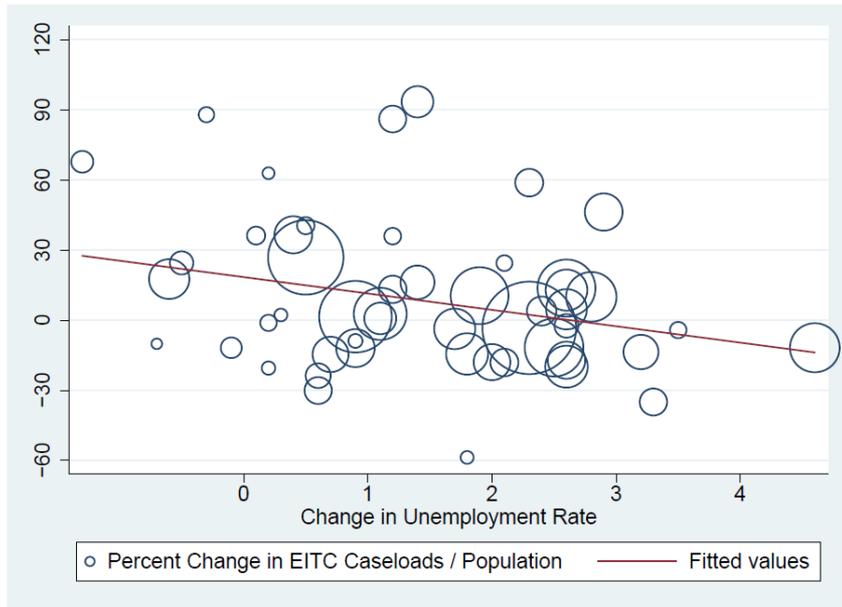
Figure 2.7. Targeting of in-work credits in OECD countries (for single parent with two children), 2010<sup>1</sup>



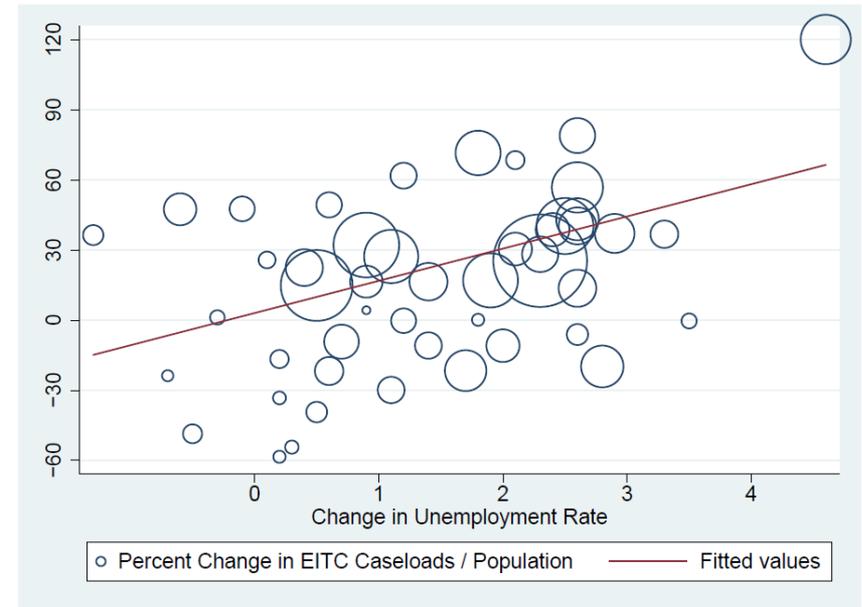
1. EIC: Earned Income Credit; ETC: Employee Tax Credit; EID: Earned Income Deduction; EITA: Earned Income Tax Allowance; LITC: Labour Income Tax Credit; LC: Labour Credit; ICC: Income Dependent Combination Credit; CTC: Child Tax Credit.

- The Earned Income Tax Credit is the most important antipoverty program for families in the U.S.
- Research shows that the EITC leads to large increases in employment, as well as improving health and child cognitive outcomes
- But, because it requires earned income, it does not work well in times of high unemployment. It is not designed to provide insurance against income losses.

(c) Single with Children



(d) Married with Children

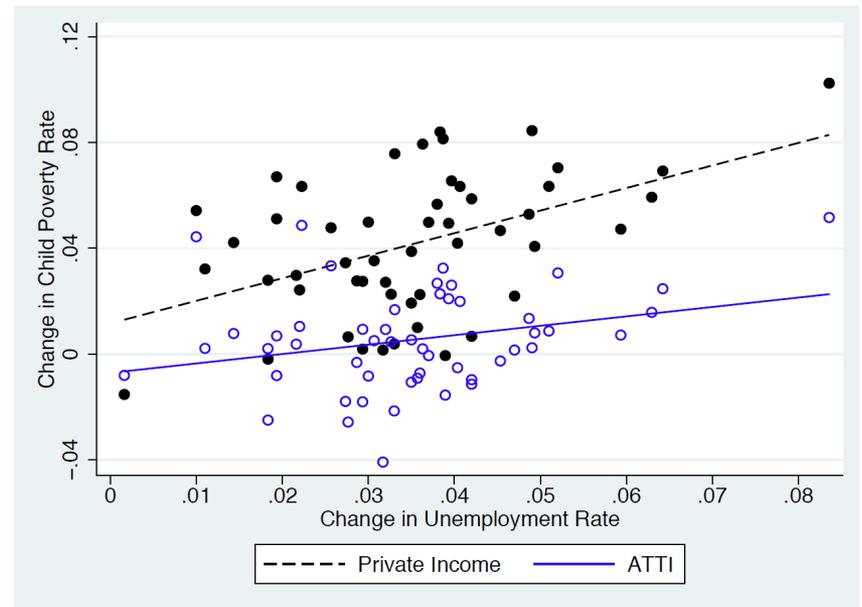
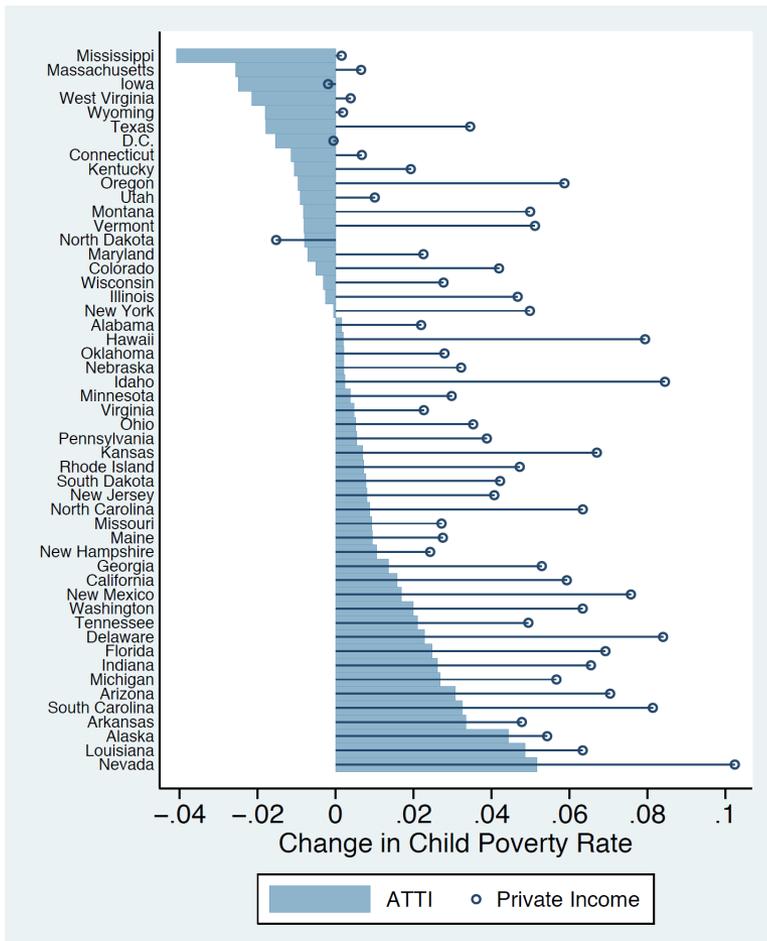


- For single parent families, the EITC is weakly pro-cyclical; it provides no additional assistance in times of “need”
- For married couples, the EITC has some countercyclical response, reflecting possibility that a earnings shock will move people in to eligibility range

Source: Bitler, Hoynes and Kuka “Do In-Work Tax Credits Serve as a Safety Net?”

- With the decline of *out-of-work* assistance (e.g., welfare reform) accompanying the increase in *in-work* assistance, the net effect is less protection against job and income losses

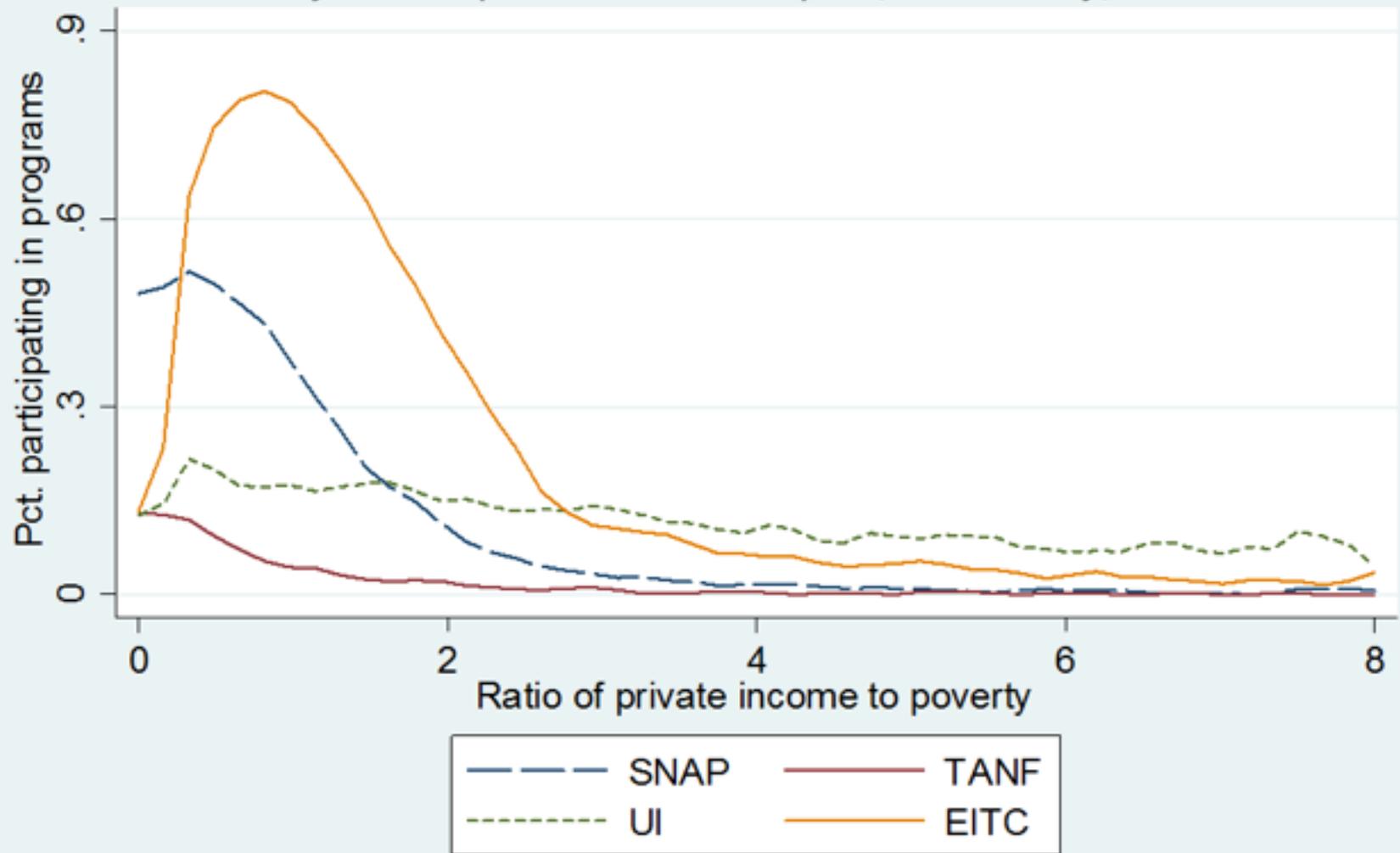
# Lesson #4: The social safety net is essential to reducing the effect of economic shocks



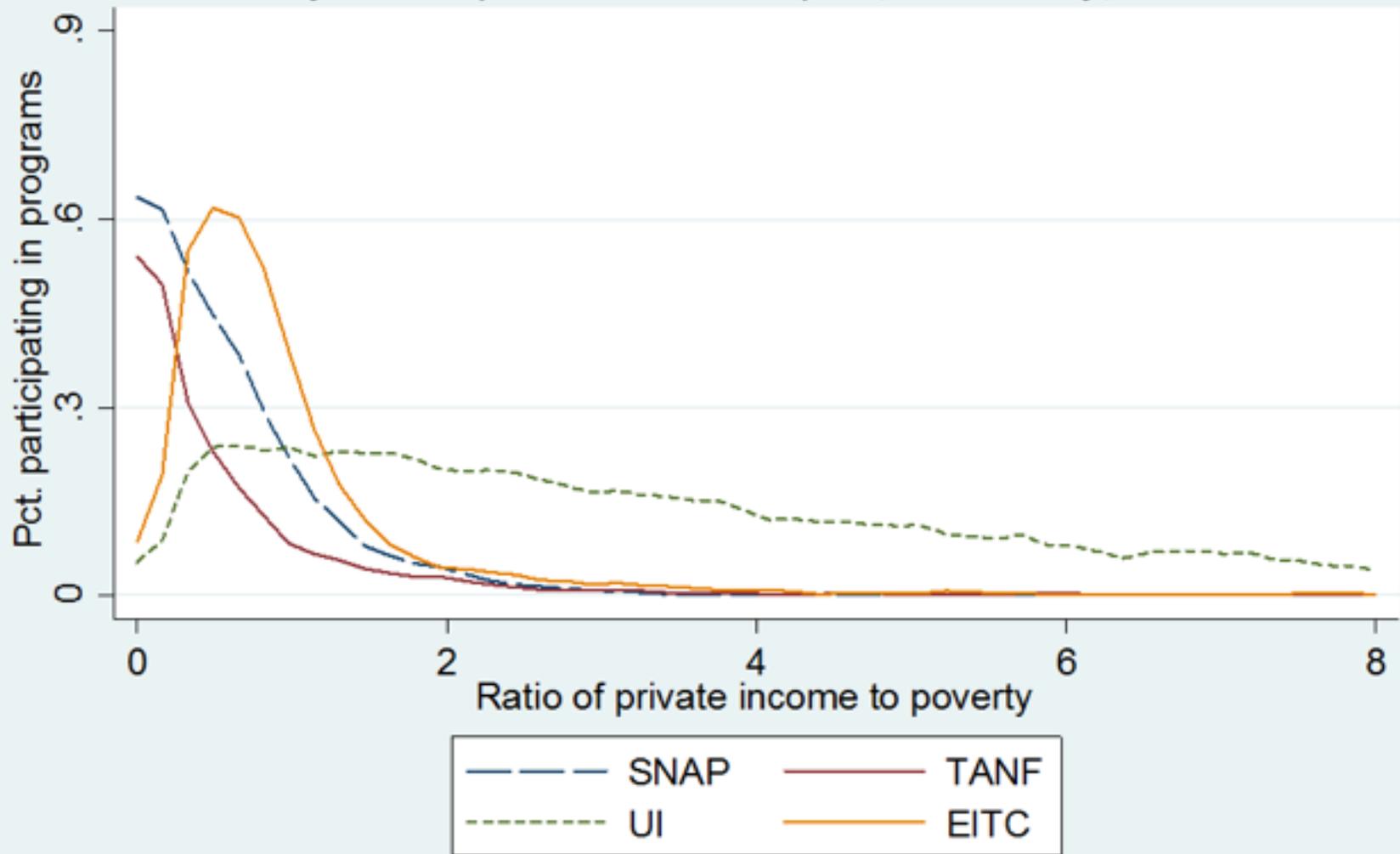
# Conclusions

- The Great Recession led to the largest increase in unemployment in the post-war period
- One of the important roles for government is to design programs to effectively insure against losses to income; provide protection in times of need
- The evidence from the Great Recession, in terms of the response of the social safety net and the incidence of poverty, is of great importance for learning about what is working and what is not

## Kernel Density Plot of HH program participation, by ratio of private income to pov., non-elderly, 2010



## Kernel Density Plot of HH program participation, by ratio of private income to pov., non-elderly, 1982



Housing Programs

PP290

Hilary Hoynes

# Housing Programs for Low Income Households

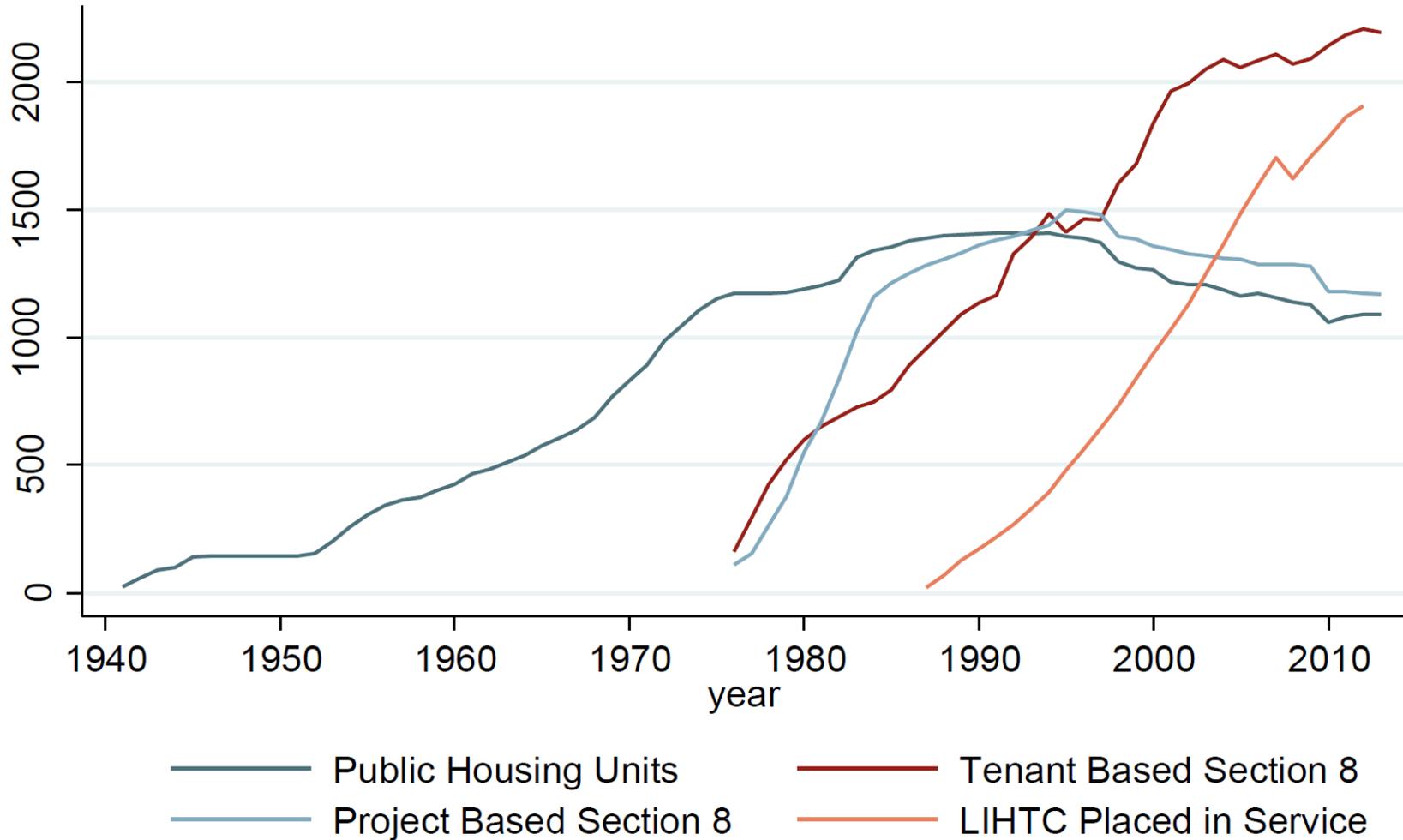
1. public housing
2. privately-owned, subsidized housing
  - reduced rents for a specified number of years in return for a below market interest rate loan
  - Section 8 New Construction and Substantial Rehabilitation programs provided a direct rental subsidy to tenants
  - Low Income Housing Tax Credit (LIHTC); started in 1986 the largest subsidy for the production of rental housing
3. Tenant based vouchers
  - Section 8 Existing Housing Program awards vouchers to low-income households to rent apartments on the private market.

- Means tested; NOT an entitlement (waiting lists)
- Tenant pays 30% of their income in rent, federal government covers the difference
- Cost \$40B/year

# Public housing demolition

- Between 1993 and 2007, HOPE VI supported the demolition of more than 150,000 units of public housing, or equal to 11% of the nation's total public housing stock at its height. These demolished units have been fairly geographically concentrated; 60% of them are located in just 33 cities.
- General decline in public housing and increase in private. In part due to concerns about concentration of poverty (in high rise public housing buildings)

Figure 1: Assisted Housing Units and Households  
1940-2012



**Table 3: Characteristics of HUD-Subsidized Households 2013**

Variables	ALL HUD Programs	Housing Choice Vouchers	Public Housing	Project Based Section 8	Other Multifami ly Programs
Subsidized Units Available (000s)	5,256	2,386	1,151	841	656
Subsidized People (000s)	10,077	5,360	2,335	1,247	946
% Occupied	94	92	94	96	95
Subsidized HHs Reported (000s)	4,553	2,113	1,071	785	493
Average Rent/Month, Inc. Utilities	304	346	275	274	255
Average Household Income/Year	12890	13138	13724	12172	11135
Average People/Household	2.1	2.4	2.2	1.5	1.8
Income as Percent of Area Median	0.23	0.22	0.25	0.24	0.21
Neighborhood Poverty Rate	0.25	0.22	0.32	0.23	0.27
%62+, Head or Spouse	0.33	0.22	0.31	0.56	0.44
% LT62 w/Disability, Head or Spouse	0.34	0.36	0.31	0.44	0.26
% Single Parent	0.35	0.43	0.35	0.18	0.3
% 2+ adults with children	0.04	0.05	0.05	0.03	0.04
% With Children Under 18	0.39	0.48	0.4	0.21	0.34
% LT 50% Area Median Income	0.95	0.96	0.91	0.96	0.98
% LT 30% Area Median Income	0.75	0.76	0.72	0.73	0.78
% Minority total	0.64	0.67	0.71	0.45	0.63
% Black	0.44	0.48	0.48	0.29	0.45
% Hispanic	0.17	0.15	0.23	0.14	0.16
Minority as % of Neighborhood	0.56	0.57	0.62	0.45	0.58

Source: HUD, A Picture of Subsidized Housing 2013

- Why should government should help poor families meet their housing needs by providing in-kind housing assistance rather than simply cash transfers?
  - Paternalism
  - “internalities”: participants may not fully understand beneficial effects (say on ability to keep a job
  - Externalities: improved health or schooling.
  - Implicit here is the idea that inkind housing programs generate higher levels of housing consumption than would similarly costly cash transfers
  - reduce the disparities in neighborhood conditions

Jacob et al, “The Impact of Housing Assistance on  
Child Outcomes: Evidence from a Randomized  
Housing Lottery”

# The Chicago Voucher Lottery

- July 1997, voucher waiting list opened up for first time in 12 years
  - 82,607 applications (a large share 300,000 poor households in Chicago at the time)
  - Randomly assigned to waiting list
  - Notified top 35,000 and told they would be offered a spot within 3 years.
  - Year 1: 4625 offered vouchers
  - By 2003, 18,110 offered vouchers
- Treatment = 18,110 offered vouchers
- Control = waiting list number above 35,000
- [Those with waiting list number between 18,110 and 35,000 had an ambiguous status since they may have anticipated getting the voucher]

- What are the effects on poor children from expanding the housing voucher program and reducing the share of low-income families who consume housing without a government subsidy?
- Measure outcomes for children up to 14 years after the voucher lottery
  - standardized test scores, high school graduation
  - Arrests
  - Earnings, social welfare receipt
  - health outcomes from Medicaid claims data
- Large subsidy: housing voucher is over \$12,000, equal to roughly two-thirds the average baseline income (\$19,000).

# Data

- Applications– which include address
- Track locations with various administrative data bases and the 2000 Census.
- Administrative data to check if resident of Chicago Public Housing
- Labor force participation from Illinois state administrative data (UI)
- Welfare participation (AFDC/TANF, Food Stamps, Medicaid) from administrative data
- Criminal behavior using data from the Illinois State Police (ISP) that capture arrests

# Validity

- Check balance between T and C group (Table 1)
  - Baseline Xs
  - 2 of 26 pairwise differences are statistically significant at 5% level
- Half of those offered the treatment used a voucher
  - Compliers are those who took up conditional on being offered
  - Noncompliers did not take up
  - This status is endogenous.

# Empirical approach

- Reduced form: impact of T on outcome (separate dummy for before and after T is offered the voucher)

$$(1) \quad y_{it} = \alpha + \beta_1(PostOffer_{it}) + \beta_2(PreOffer_{it}) + \mathbf{X}\Gamma + \gamma_t + \varepsilon_{it}.$$

- IV: Use T as instrument for leasing section 8 voucher

$$(2) \quad Leased_{it} = \alpha + \theta_1 PostOffer_{it} + \theta_2 PreOffer_{it} + \mathbf{X}\Gamma + \gamma_t + \varepsilon_{it}$$

$$(3) \quad y_{it} = \eta + \pi_1 Leased_{it} + \mathbf{X}\Pi + \mu_t + v_{it}.$$

- Event study

$$y_{it} = \alpha + \sum_k D_{it}^k \delta_k + \mathbf{X}\Gamma + \gamma_t + \varepsilon_{it},$$

# Results

- Table 2: first stage (large and very sig)
- Very small and not statistically significant impacts on the children

**Table III: Housing Voucher Effects on Education, Criminal Behavior, and Health**

<b>Baseline</b>		<b>Children/ Obs.</b>	<b>CM</b>	<b>ITT</b>	<b>IV</b>
<b>Age</b>	<b>Outcome</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>
<i>Male</i>					
0-6	Test score	8,659 [51,339]	-0.3339	0.0369* (0.0190)	0.0634* (0.0325)
6-18	Test score	14,348 [68,787]	-0.3248	0.0068 (0.0152)	0.0126 (0.0273)
6-18	High school graduation	13,183 [13,183]	0.3940	0.0150 (0.0094)	0.0286 (0.0178)
All	Soc. costs, most conservative	33,400 [283,091]	3,084	-161 (98)	-344* (206)
0-6	Inpatient or emergency claim	9,538 [52,378]	0.2449	-0.0012 (0.0063)	-0.0014 (0.0114)
6-18	Inpatient or emergency claim	12,526 [56,480]	0.2471	-0.0059 (0.0060)	-0.0105 (0.0112)
<i>Female</i>					
0-6	Test score	8,488 [52,107]	-0.1446	0.0019 (0.0183)	0.0029 (0.0316)
6-18	Test score	14,855 [73,389]	-0.1479	0.0168 (0.0143)	0.0300 (0.0273)
6-18	High school graduation	13,792 [13,792]	0.5766	0.0101 (0.0094)	0.0190 (0.0176)
All	Soc. costs, most conservative	33,210 [284,057]	574	61** (30)	121* (63)
0-6	Inpatient or emergency claim	9,379 [50,549]	0.2119	0.0018 (0.0062)	0.0032 (0.0113)
6-18	Inpatient or emergency claim	16,050 [75,526]	0.3702	0.0025 (0.0056)	0.0047 (0.0108)

# Why do they find no result on children?

- Receipt of a housing voucher does not seem to improve neighborhood or school inputs (Table IV)
- The same lottery shows that housing vouchers reduce parental labor supply (Jacob and Ludwig 2012).

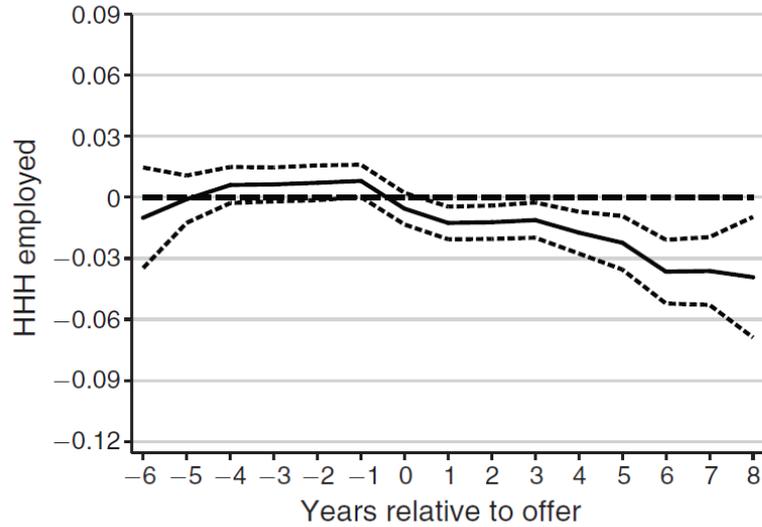
**Table IV: Housing Voucher Effect on Geographic Outcomes (10% Sample)**

	1997-2005 Addresses		
	CM	ITT	IV
	(1)	(2)	(3)
Has address on file	0.897	0.0067 (0.0082)	0.0141 (0.0173)
Miles from baseline address			
Living in IL	0.956	0.0041 (0.0072)	0.0085 (0.0151)
Fraction of quarters outside IL	0.0471	-0.0064 (0.0071)	-0.0132 (0.0146)
Living in Cook County, IL			
Poverty rate > 20% <sup>2,3</sup>	0.655	-0.0088 (0.0176)	-0.0184 (0.0362)
Poverty rate <sup>2,3</sup>	0.273	0.0039 (0.0055)	0.0075 (0.0112)
Fraction black <sup>2,3</sup>	0.794	0.0012 (0.0084)	0.0023 (0.0172)
Social capital <sup>2,4</sup>	3.495	-0.0056 (0.0057)	-0.0109 (0.0114)
Collective efficacy <sup>2,4</sup>	3.761	-0.0158** (0.0078)	-0.0312** (0.0155)
Violent crime rate (per 1,000) <sup>5</sup>	17.633	-0.0896 (0.3026)	-0.1920 (0.5998)
Property crime rate (per 1,000) <sup>5</sup>	75.479	-3.1948*** (0.9911)	-6.2988*** (1.9753)

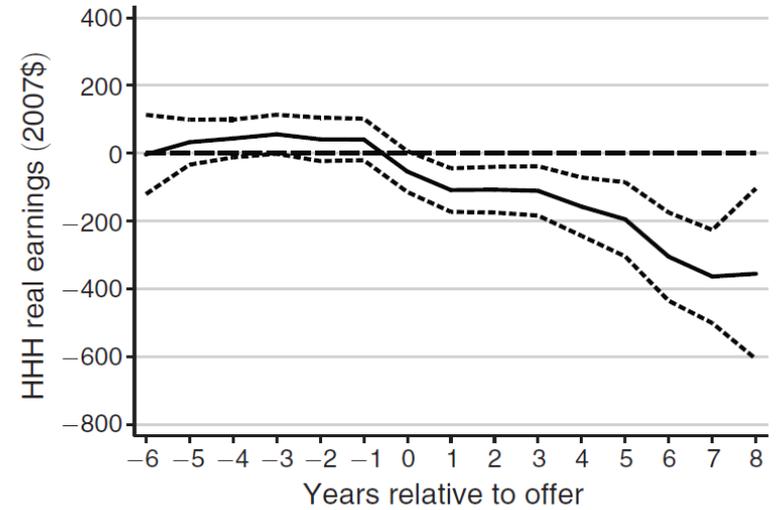
**Table V: Housing Voucher Effects on Child's School Characteristics and Moving**

Outcome	Children/ Obs.	CM	ITT	IV	(4)
	(1)	(2)	(3)	(4)	
<i>Males age 0-6 at baseline</i>					
Fraction minority	10,341 [90,561]	0.9668	0.0014 (0.0018)	0.0025 (0.0031)	0
Fraction with subsidized lunch	10,341 [90,561]	0.8698	0.0009 (0.0018)	0.0016 (0.0031)	0
Average test score	10,341 [90,561]	-0.1981	0.0035 (0.0058)	0.0062 (0.0100)	-0.0002
School moves	9,888 [80,983]	0.26	0.0074 (0.0045)	0.0132* (0.0078)	
Miles from baseline address to school	9,730 [86,748]	2.91	0.2053** (0.0827)	0.3609** (0.1437)	
<i>Females age 0-6 at baseline</i>					
Fraction minority	10,053 [88,883]	0.9662	0.0025 (0.0018)	0.0044 (0.0032)	0
Fraction with subsidized lunch	10,053 [88,883]	0.8677	0.0006 (0.0019)	0.0010 (0.0034)	0
Average test score	10,053 [88,883]	-0.1800	-0.0000 (0.0061)	-0.0002 (0.0108)	-0.0002
School moves	9,575 [79,257]	0.25	0.0108** (0.0045)	0.0196** (0.0079)	
Miles from baseline address to school	9,472 [85,273]	2.86	0.2469*** (0.0789)	0.4419*** (0.1380)	

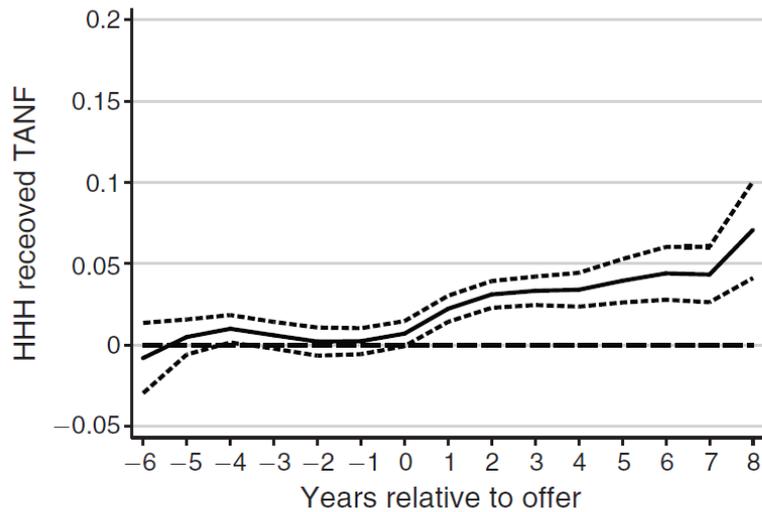
Panel A. HHH employed



Panel B. HHH real earnings (2007 dollars)



Panel C. HHH receiving any public assistance



Panel D. HHH conditional earnings

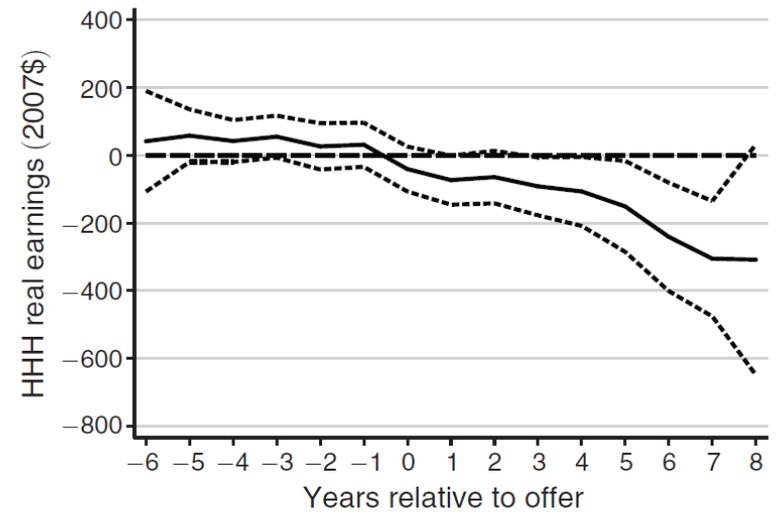


FIGURE 2. ITT EFFECT OF VOUCHERS OVER TIME ON EMPLOYMENT AND RECEIPT OF PUBLIC ASSISTANCE

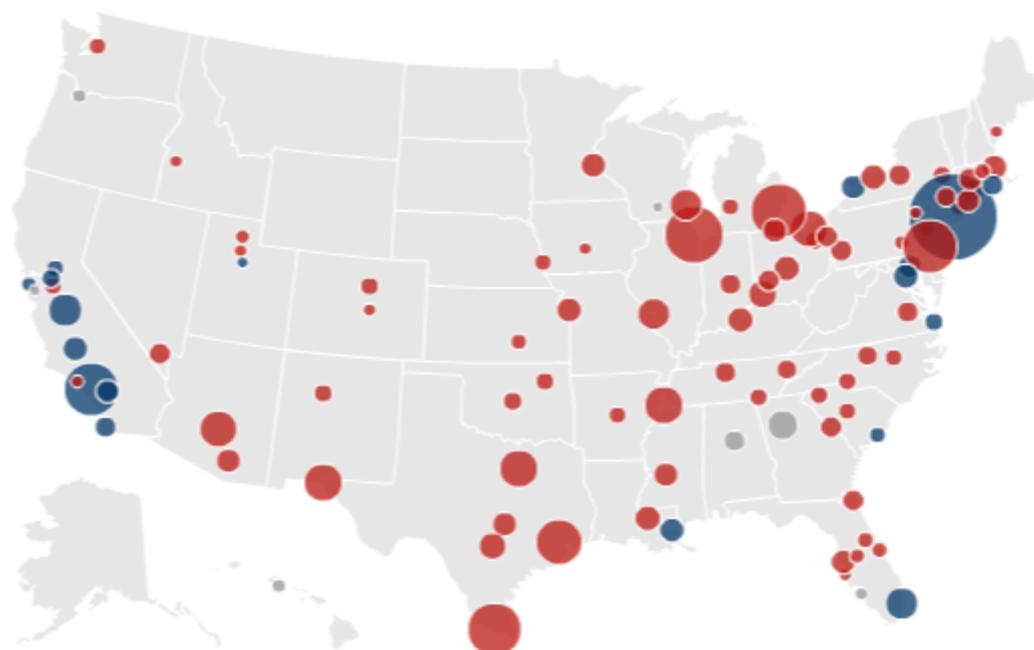
# Moving to Opportunity

- If the families do not end up in measurably different neighborhoods and schools, this leads to the next policy.
- What if we tie the voucher to moving to a “better” neighborhood?
- → MTO
- Speaks to literature on:
  - Neighborhood effects
  - Impacts of public housing
- Limits to interpretation: Moving is bundled with moving to a better place

After declining in the 1990s, the population in extreme-poverty neighborhoods—where at least 40 percent of individuals live below the poverty line—rose by one-third from 2000 to 2005–09. By the end of the period, 10.5 percent of poor people nationwide lived in such neighborhoods, up from 9.1 percent in 2000, but still well below the 14.1 percent rate in 1990.

## People Living in Extreme-Poverty Tracts, 2005-09

Click a metro area to view a detailed profile of concentrated poverty



Circles are sized according to the number of people living in extreme-poverty tracts in 2005-09, and colored according to whether the number of people living in extreme-poverty tracts increased or declined between 2000 and 2005-09.



- Increase
- No significant change
- Decrease

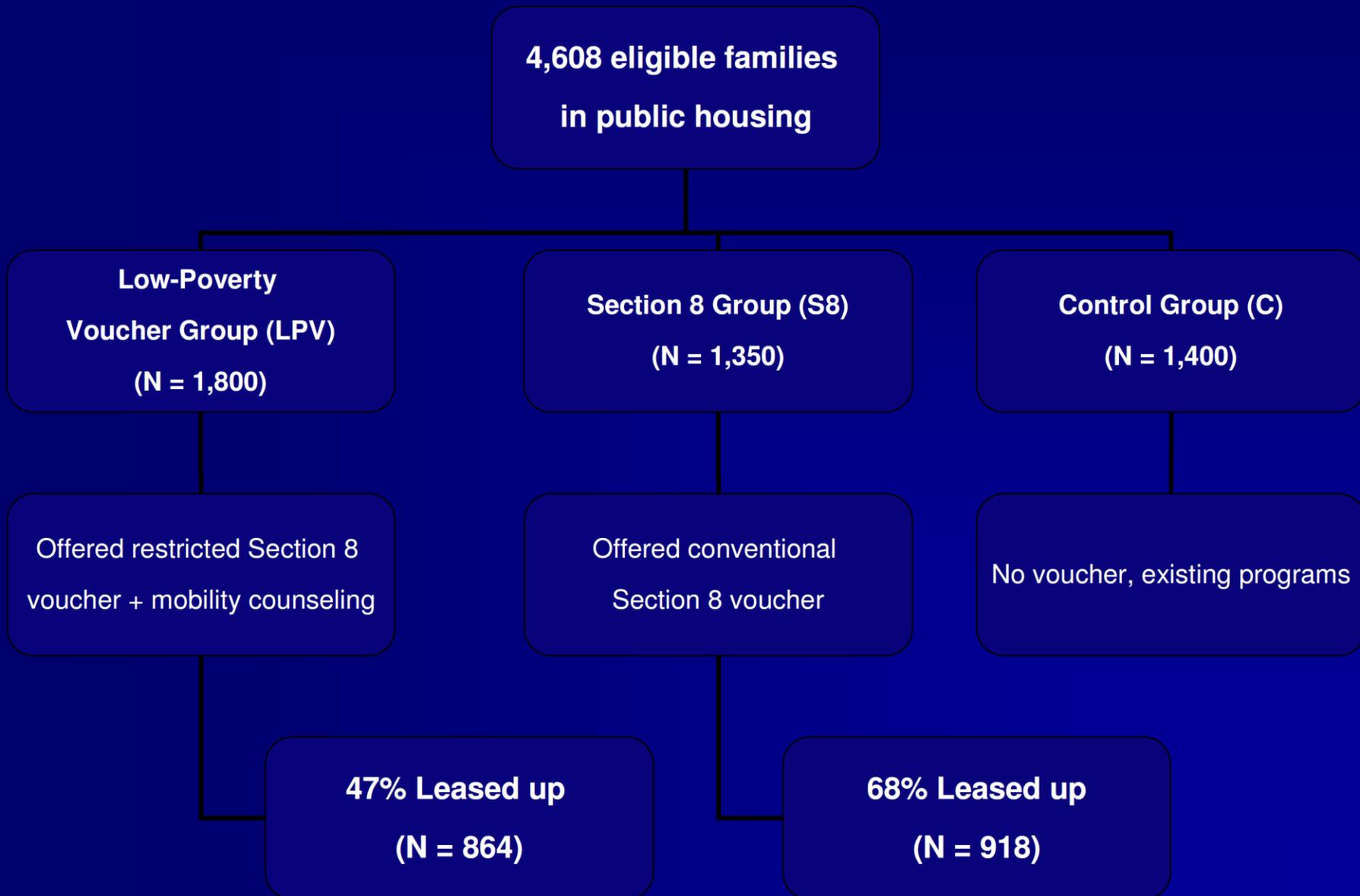
Source: Brookings Institution analysis of Census 2000 and 2005-09 American Community Survey five-year estimates

BROOKINGS

## Moving to Opportunity

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- Timeline:
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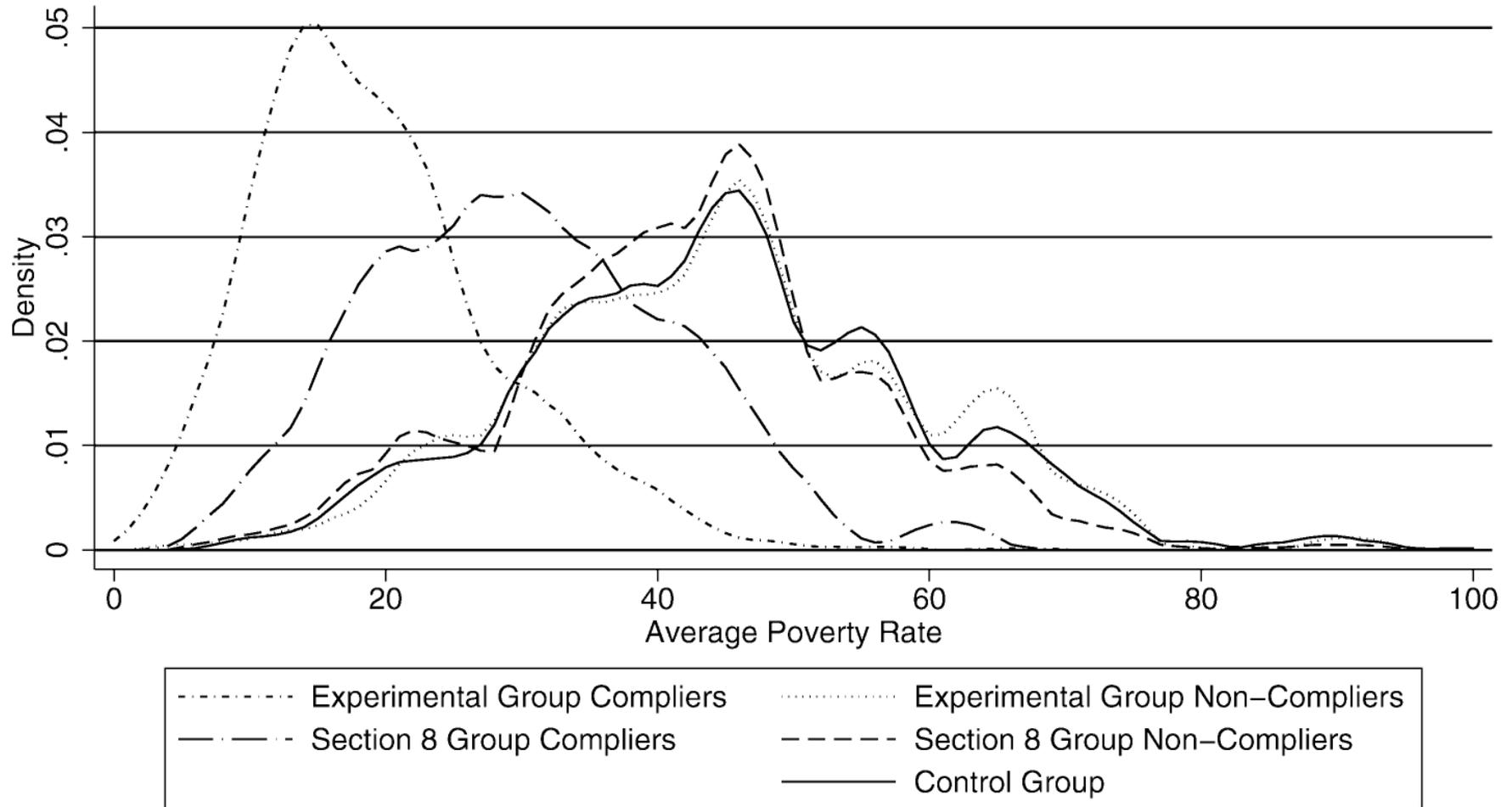


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## Exhibit 1

### Youth Neighborhood Safety and Social Networks

Outcome	Control Mean	Experimental vs. Control		Section 8 vs. Control		Respondents (N)
		ITT	TOT	ITT	TOT	
<b>Neighborhood safety [SR]</b>						
Feels safe or very safe during the day	0.801	0.018 (0.016)	0.037 (0.033)	- 0.012 (0.018)	- 0.018 (0.026)	4,863
Feels safe or very safe at night	0.540	0.035~ (0.021)	0.074~ (0.043)	0.019 (0.022)	0.028 (0.033)	4,862
Saw drugs being sold or used in the neighborhood in the past 30 days	0.388	- 0.056* (0.020)	- 0.116* (0.040)	- 0.041* (0.021)	- 0.062* (0.031)	4,879
Any household member was a crime victim in the past 6 months (ages 13 to 20)	0.246	- 0.027 (0.018)	- 0.056 (0.038)	- 0.020 (0.020)	- 0.030 (0.029)	4,618
<b>Social networks [SR]</b>						
Visits with baseline friends at least a few times a week	0.280	- 0.035* (0.017)	- 0.073* (0.036)	- 0.038* (0.018)	- 0.057* (0.027)	5,001

ITT = intention to treat. SR = self-reported. TOT = treatment on the treated.

\* =  $p < .05$ . ~ =  $p < .10$ .

## RESULTS

- Improvement in female mental health
- few detectable effects on achievement, education, employment, and a range of health and risky behavior outcomes among either youth or grown children.
- Earlier interim studies showed more positive effects for girls, negative effects for boys, moms happier but no better economic outcomes.

## Exhibit 5

### Youth Physical and Mental Health (2 of 2)

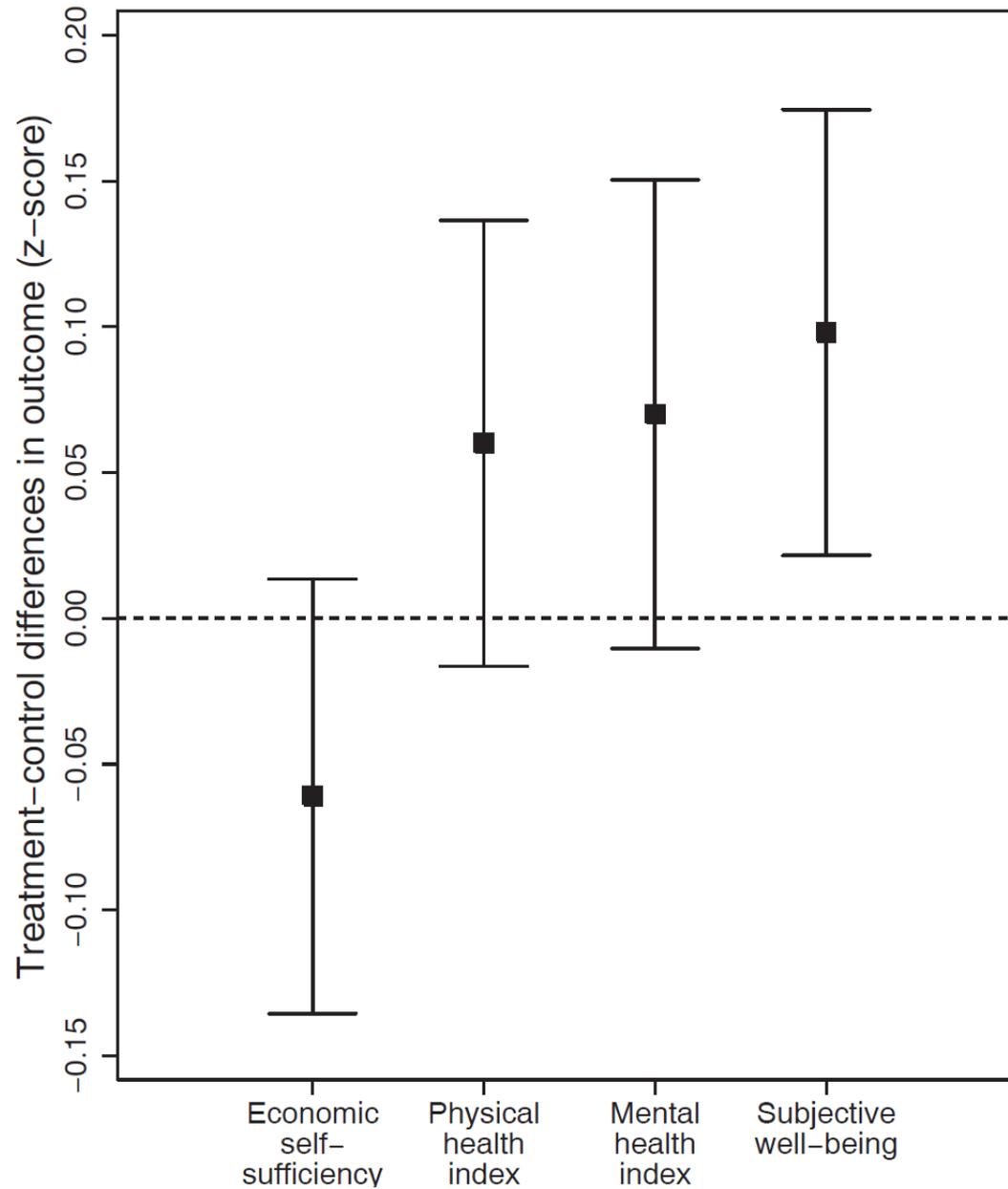
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		ITT	TOT	ITT	TOT	
<b>Mental health (ages 13 to 20)</b>						
<b>Psychological distress index (K6) z-score, past month (higher score indicates greater distress)</b>						
<b>[SR]</b>						
All	0.000	- 0.038 (0.041)	- 0.079 (0.086)	0.038 (0.047)	0.056 (0.070)	4,644
Female	0.000	- 0.116* (0.056)	- 0.234* (0.113)	- 0.013 (0.065)	- 0.020 (0.101)	2,371
Male	0.000	0.041 (0.056)	0.088 (0.120)	0.087 (0.063)	0.124 (0.089)	2,273
<b>Serious behavioral or emotional problems [SR]</b>						
All	0.103	- 0.022~ (0.011)	- 0.046~ (0.024)	0.019 (0.014)	0.029 (0.021)	4,644
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# Adults, Science

	Control mean	MTO treatment (voucher) groups versus control			<i>n</i>
		ITT		SE	
Census tract characteristics					
Share poor at different points in time					
1 year after random assignment	0.499	-0.160	***	(0.007)	3224
5 years after random assignment	0.399	-0.089	***	(0.007)	3208
10 to 15 years after random assignment (May 2008)	0.311	-0.034	***	(0.007)	3206
Share poor for all addresses since random assignment (duration-weighted)					
Share poor	0.396	-0.082	***	(0.005)	3270
Share poor, z score using U.S. tract poverty distribution	2.082	-0.666	***	(0.041)	3270
Share poor, z score using MTO control group tract poverty distribution	0.000	-0.653	***	(0.040)	3270
Duration-weighted poverty rate is...					
Less than 20%	0.054	0.196	***	(0.013)	3270
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Less than 40%	0.512	0.206	***	(0.018)	3270
Share minority					
10 to 15 years after random assignment (May 2008)	0.844	-0.024	**	(0.009)	3206
All addresses since random assignment (duration-weighted)	0.880	-0.046	***	(0.006)	3270
Residential mobility					
Number of moves after random assignment	2.165	0.584	***	(0.068)	3273
Self-reports on long-term (10- to 15-year) follow-up surveys about neighborhood and housing conditions					
Feel unsafe during day	0.196	-0.039	**	(0.015)	3262
Number of housing problems (0 to 7)	2.051	-0.380	***	(0.076)	3267
Likely or very likely to report kids spraying graffiti (collective efficacy)	0.589	0.064	***	(0.020)	3255
One or more friends with college degree	0.532	0.049	**	(0.020)	3203

**Fig. 1.** Impact on each outcome of assignment to the MTO treatment (voucher) groups for adults interviewed in a long-term survey. The squares represent the ITT estimate for the effect of being assigned to MTO treatment (pooling low-poverty and traditional voucher groups), rather than control, for the outcomes listed on the x axis: economic self-sufficiency, physical health, mental health, and SWB (Table 2 and supplementary materials, sections 1, 4, and 5). The box whiskers represent the 95th percent confidence interval around the estimates.



How to learn about impacts of neighborhood:

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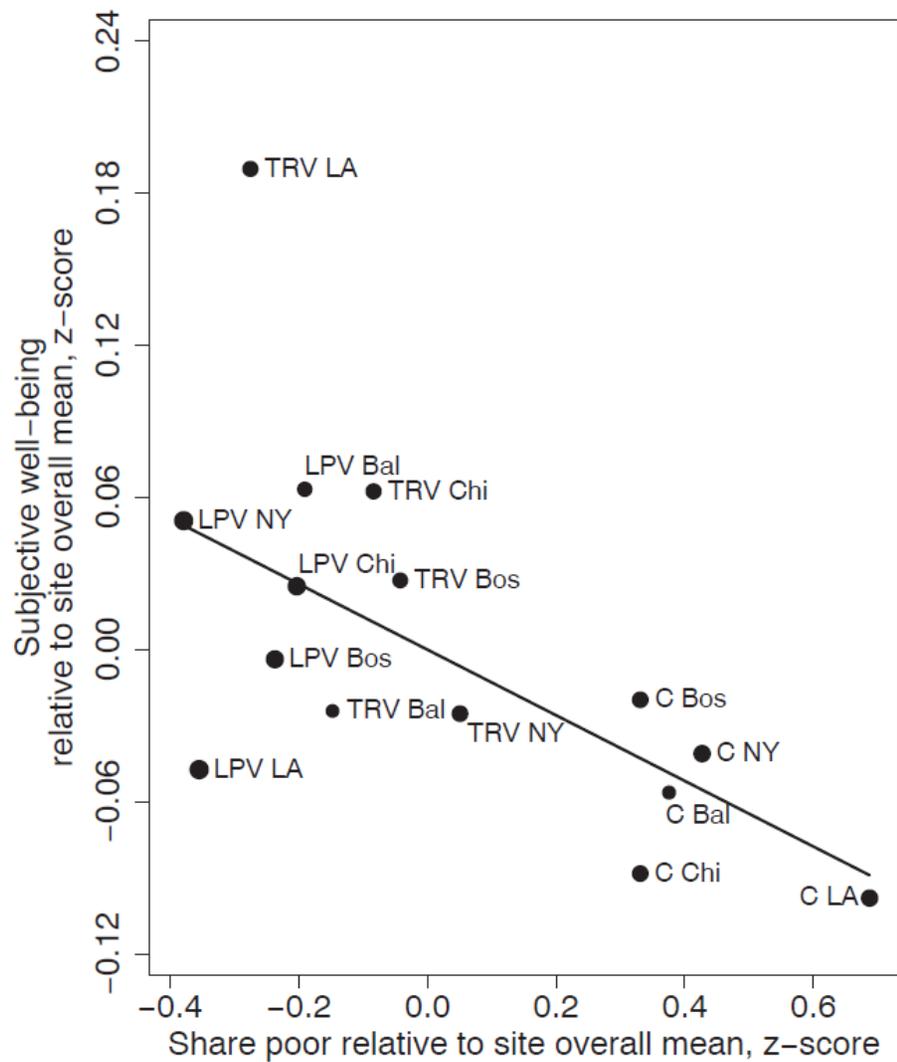
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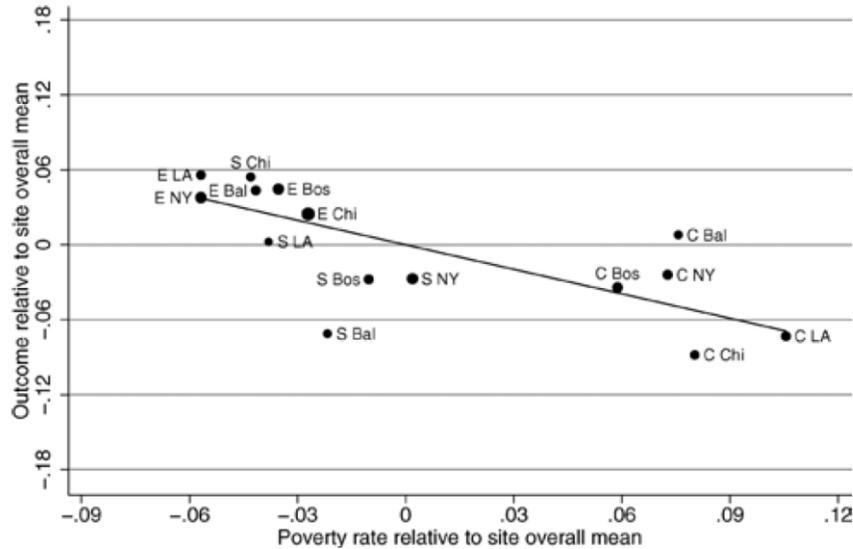
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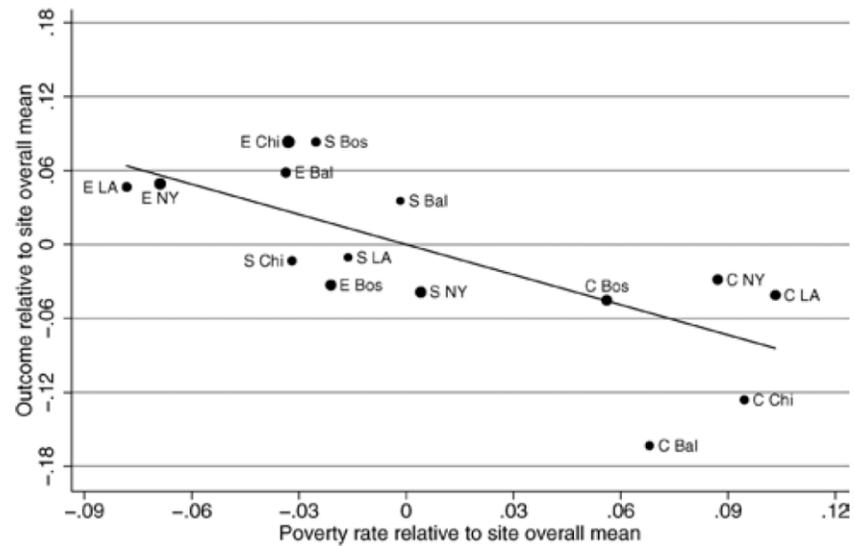
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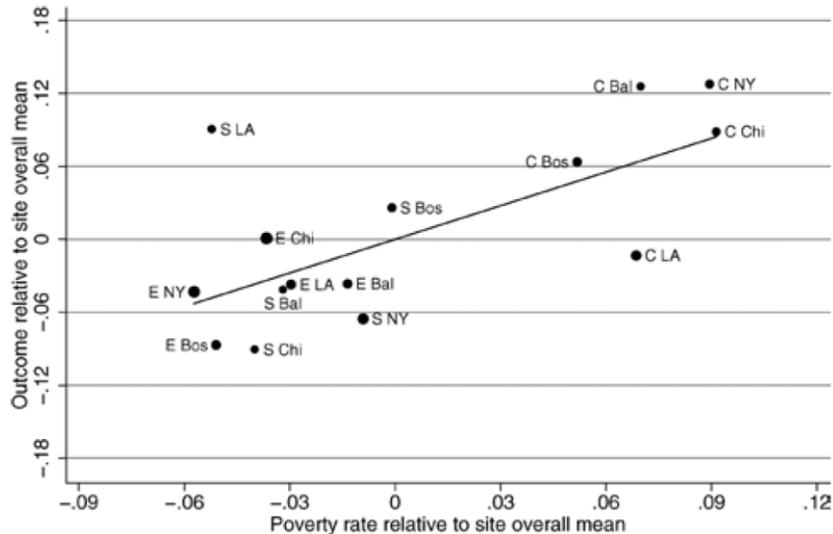
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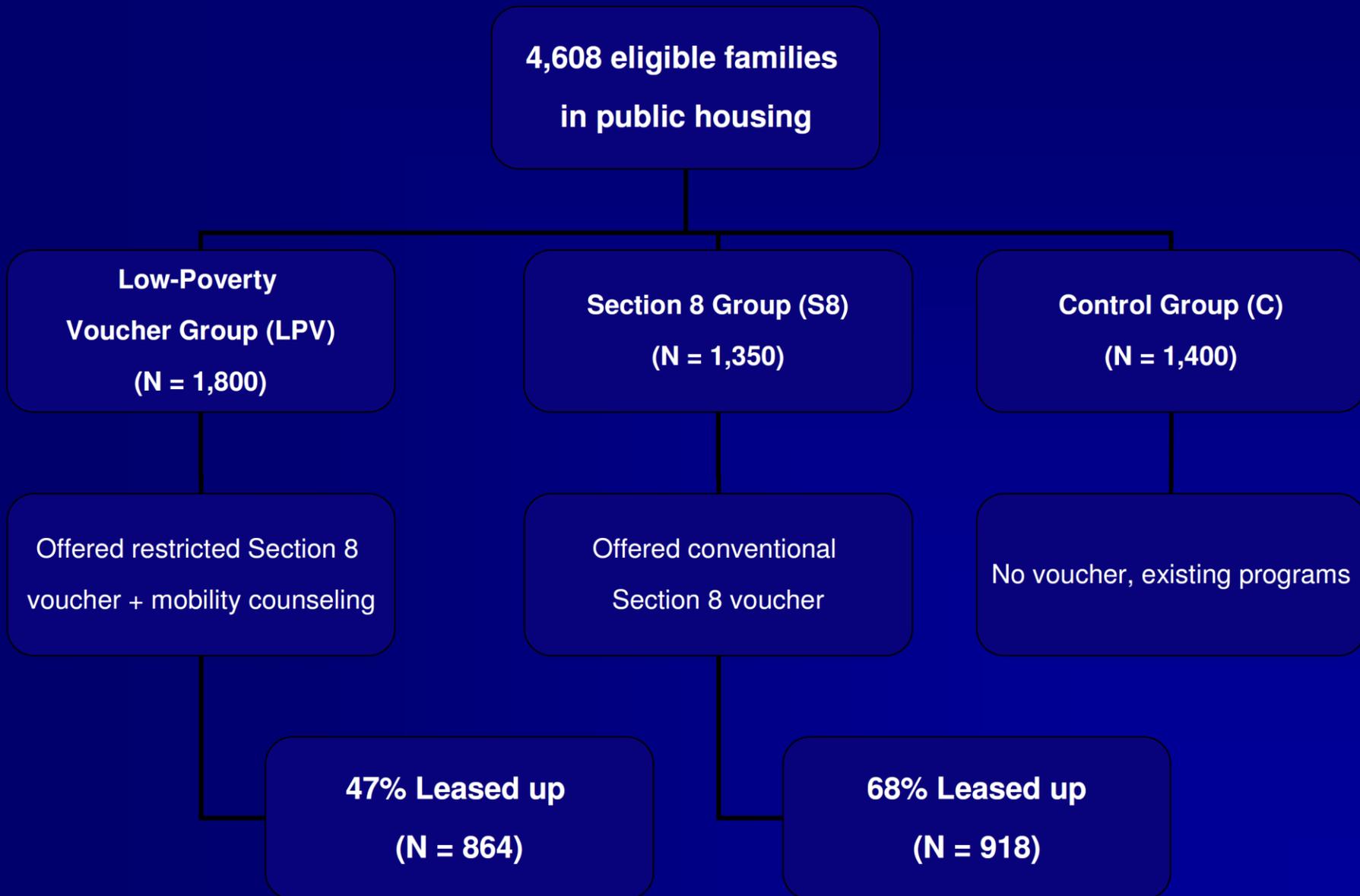
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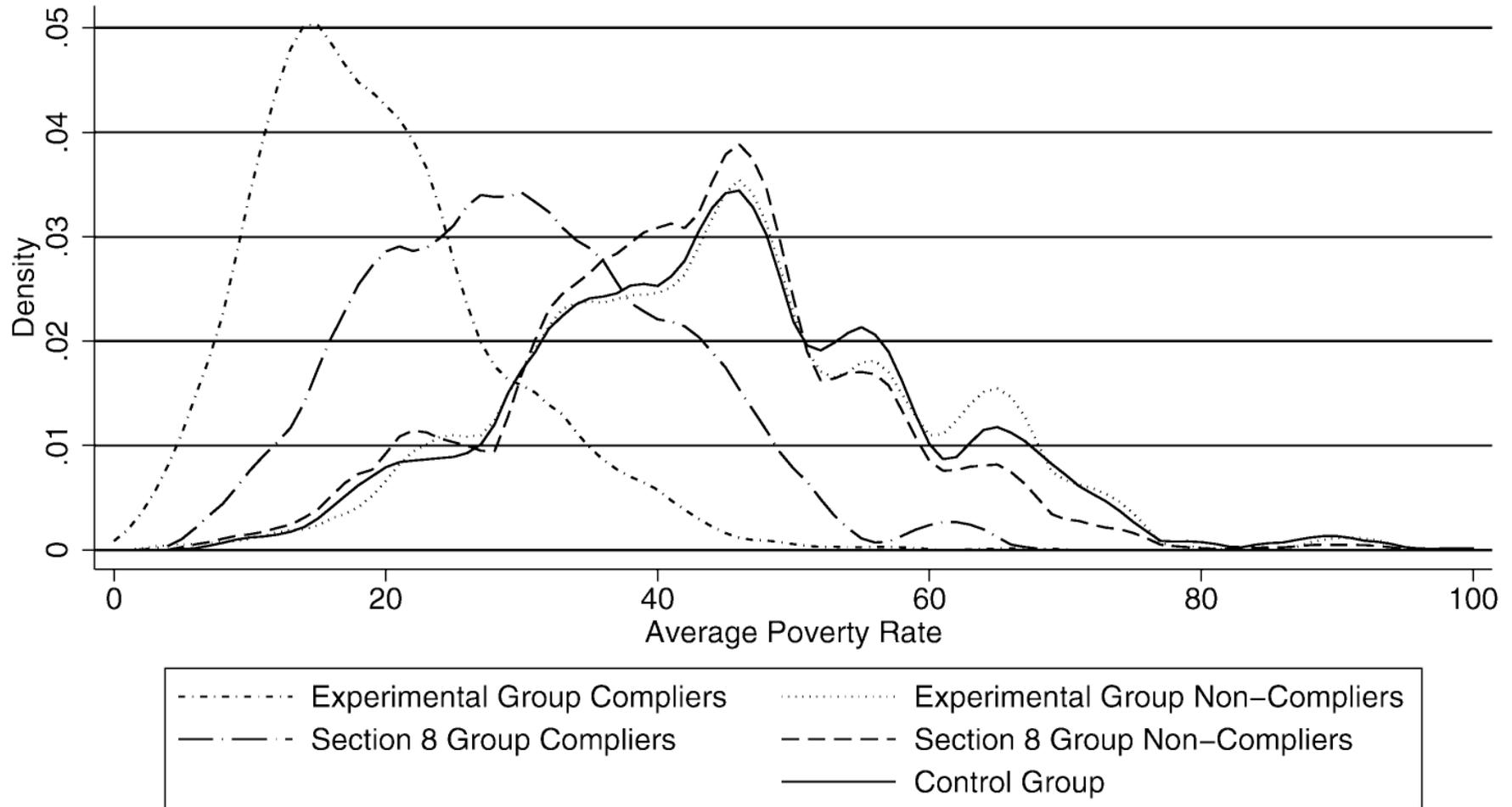


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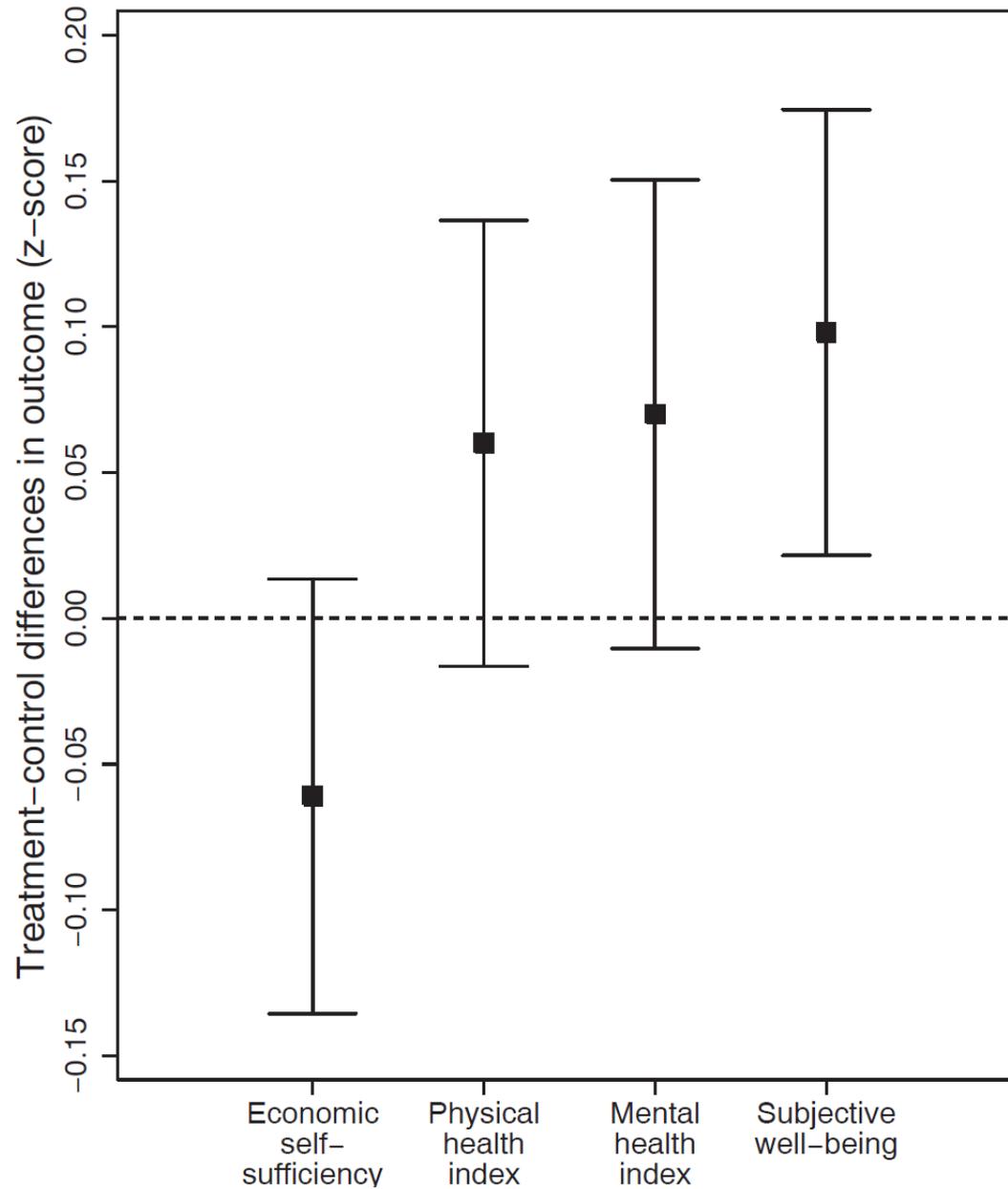
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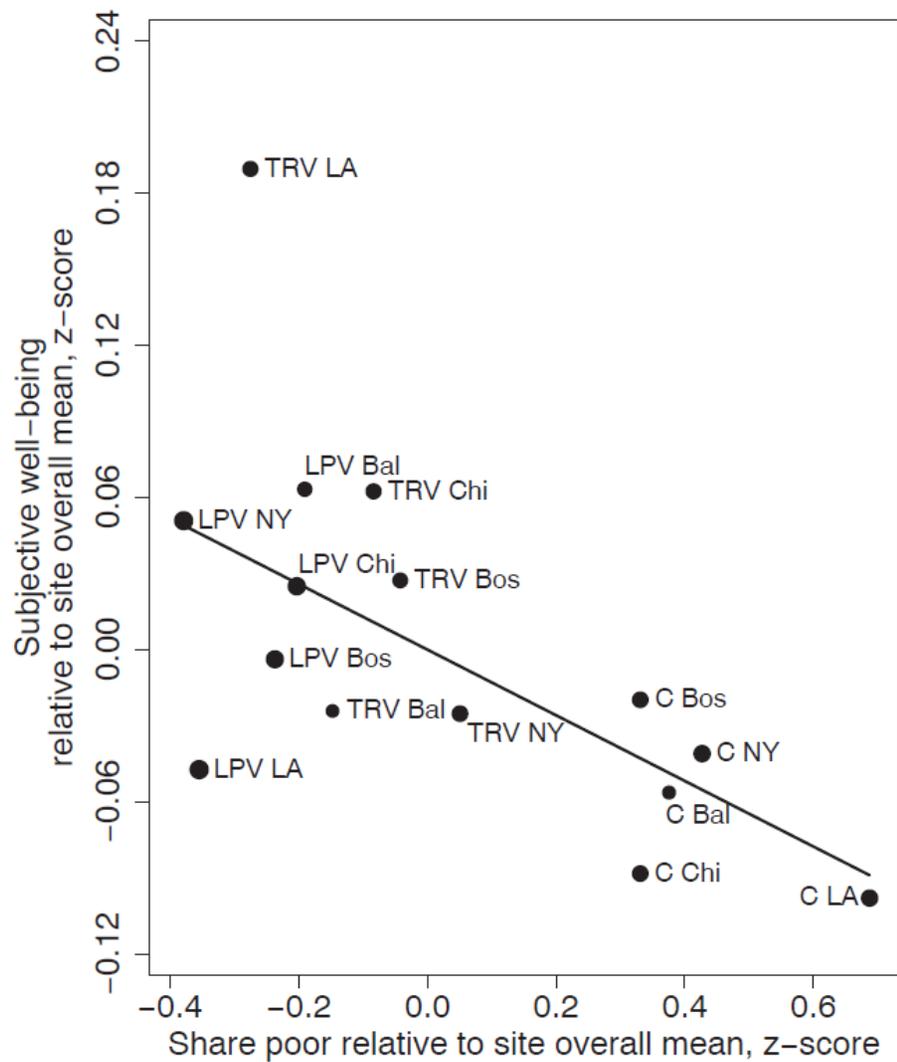
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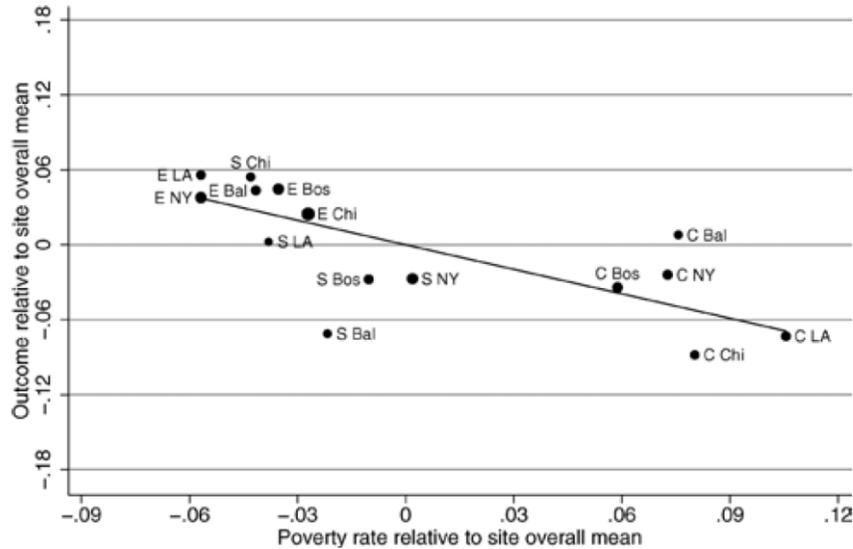
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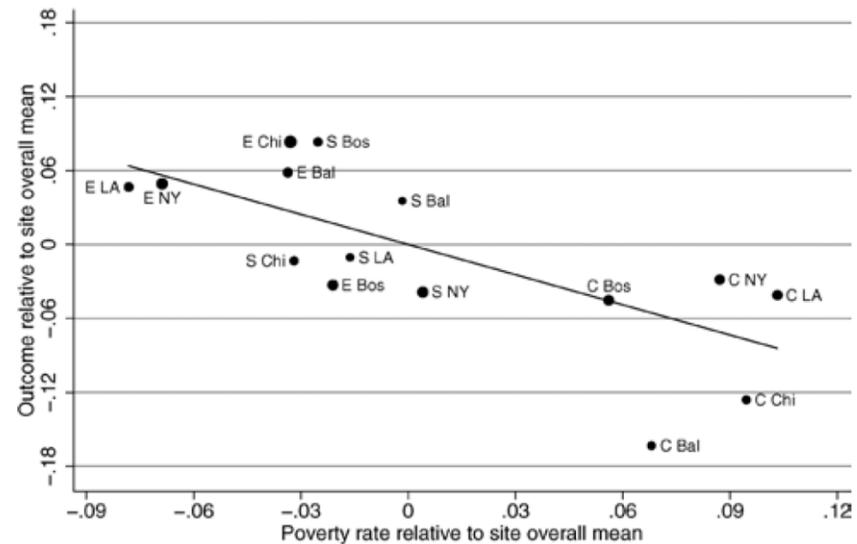
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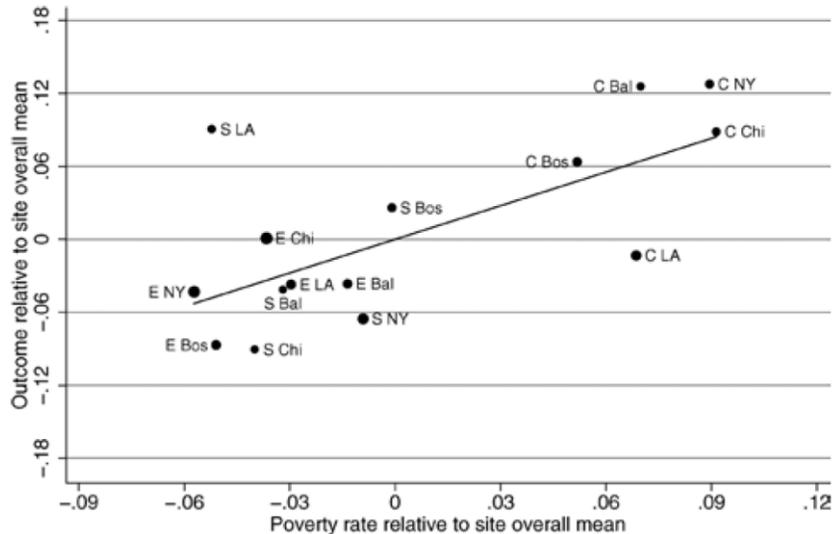
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Minimum Wages

PP290

Hilary Hoynes

# Outline of Lecture

1. Background + facts
2. MW and employment, theory
3. Empirical Evidence on the MW
  - Card and Krueger, Dube on employment
  - Poverty and income inequality
4. Why might we not find a reduction in employment?
5. Tradeoffs in policy (MW, EITC, welfare)

# Fight Over Minimum Wage Illustrates Web of Industry Ties

By ERIC LIPTON FEB. 9, 2014

**POLITICO**

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## State of the Union 2014: Obama to raise minimum wage for federal workers

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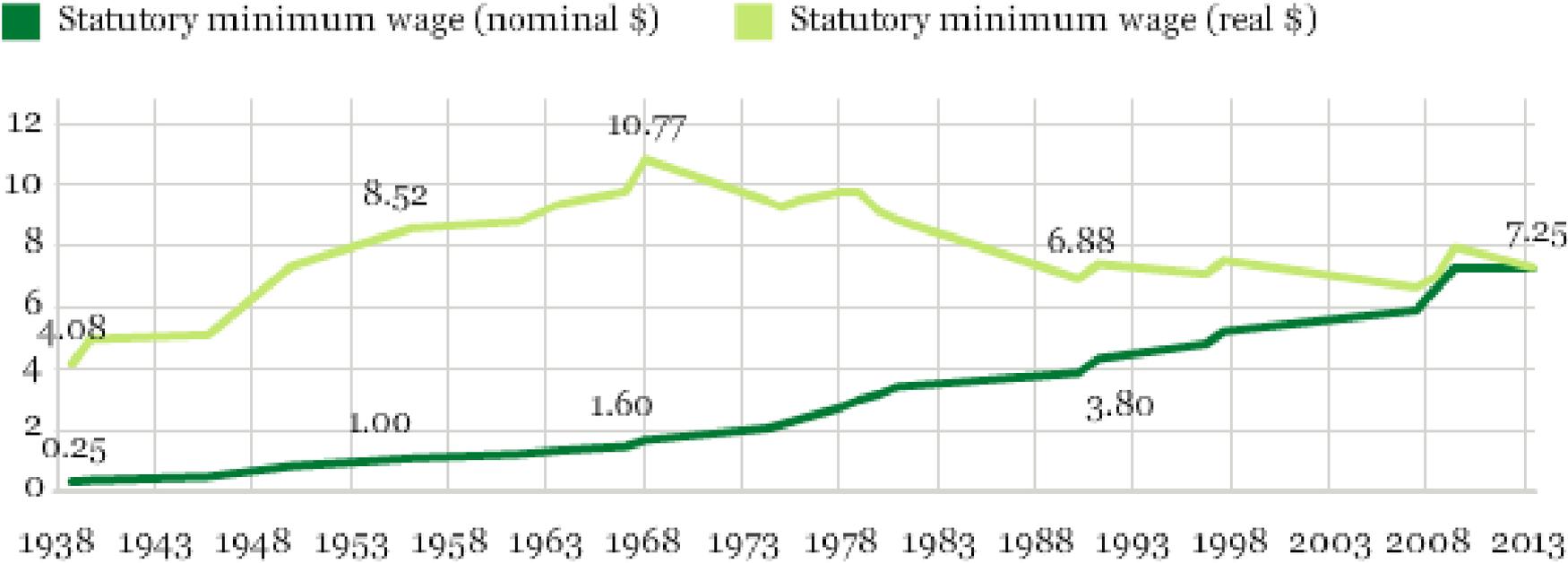
METRO LITTLE ROCK ALLIANCE

Calif



Ballot measure raising minimum wage to \$12 an hour is proposed

### Minimum Wage -- Real and Nominal Value, 1938-2013

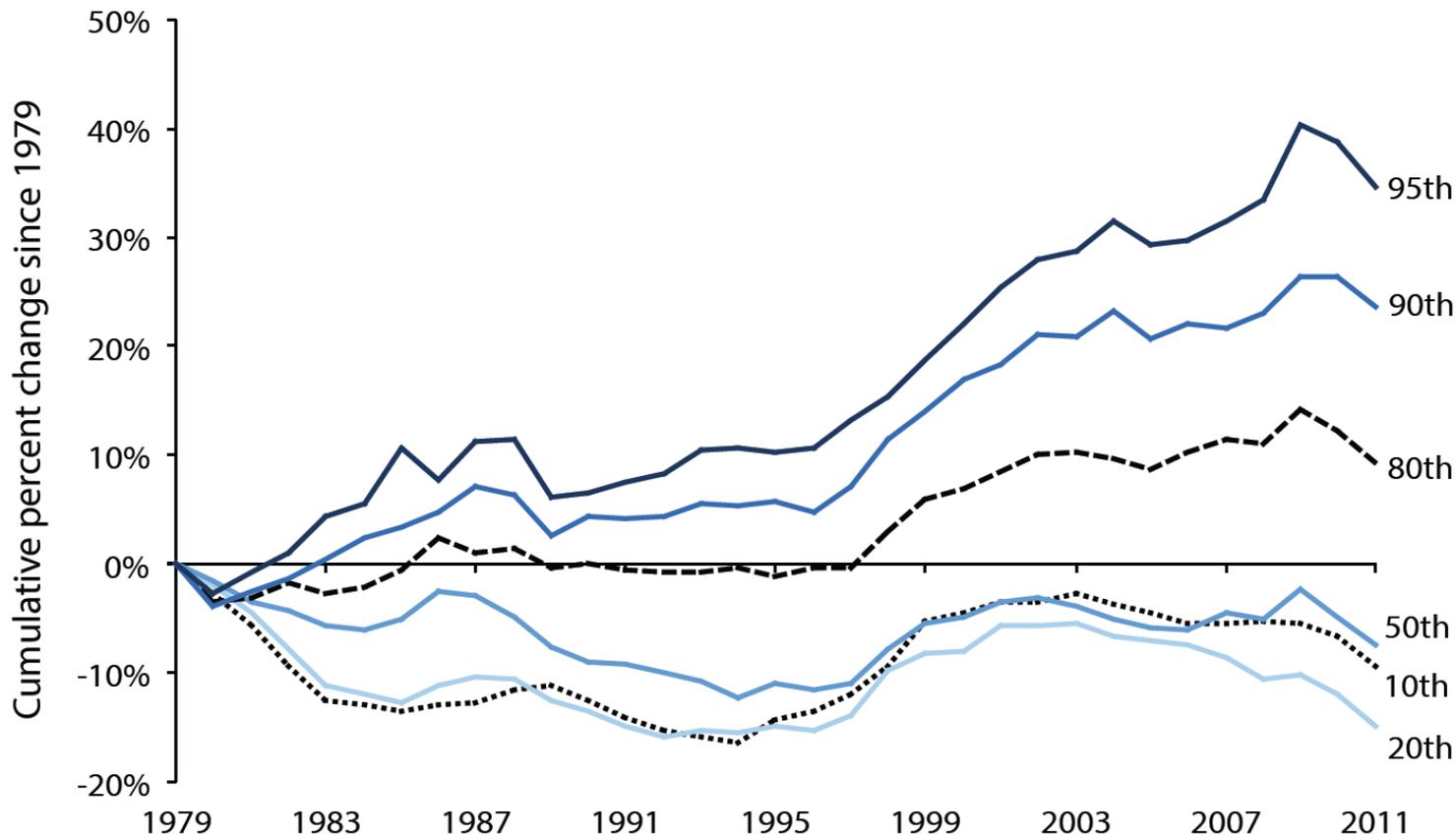


Source: Congressional Research Service, U.S. Department of Labor

GALLUP

Source: EPI "Raising the federal minimum wage..."

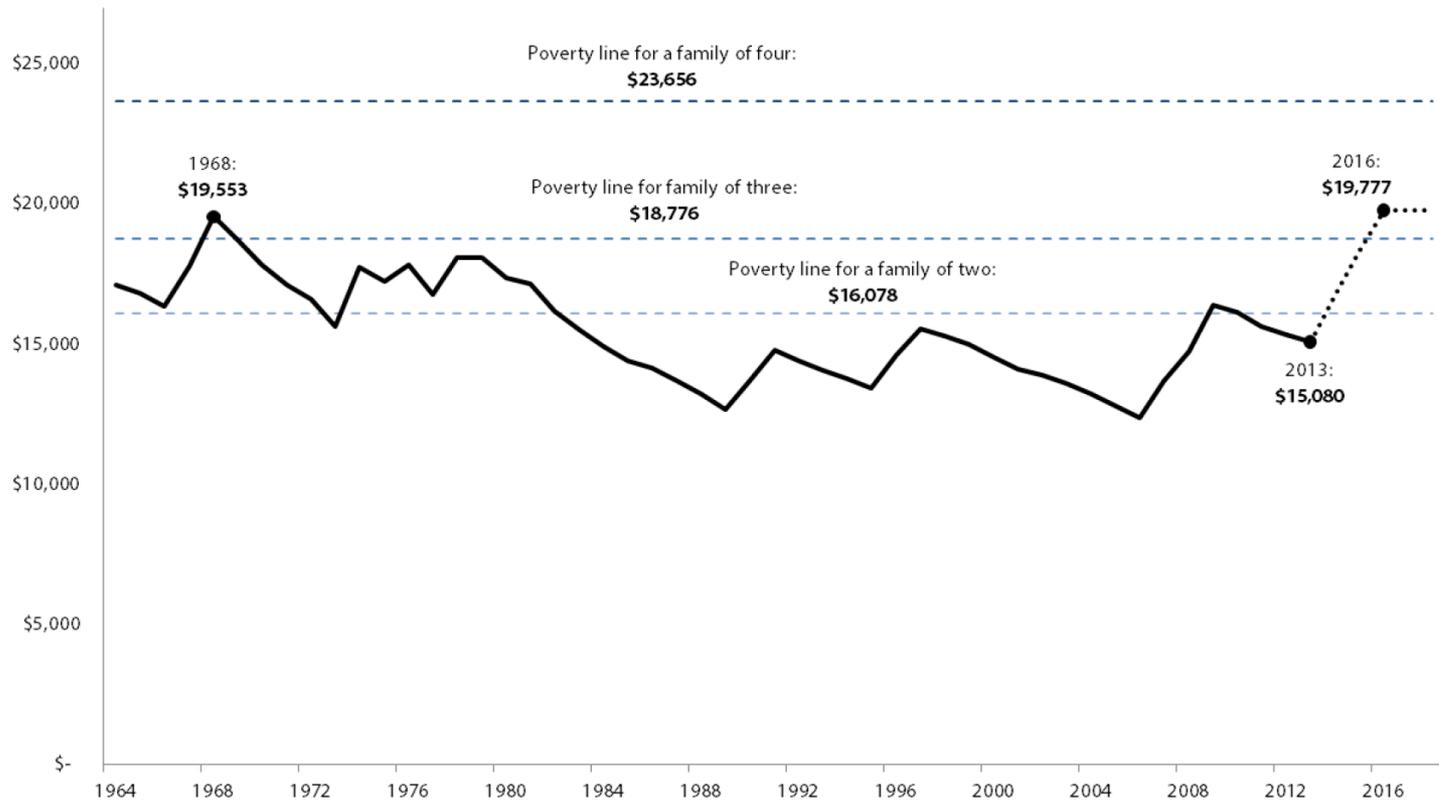
**Figure 4C** Cumulative change in real hourly wages of men, by wage percentile, 1979–2011



Source: Authors' analysis of Current Population Survey Outgoing Rotation Group microdata

FIGURE A

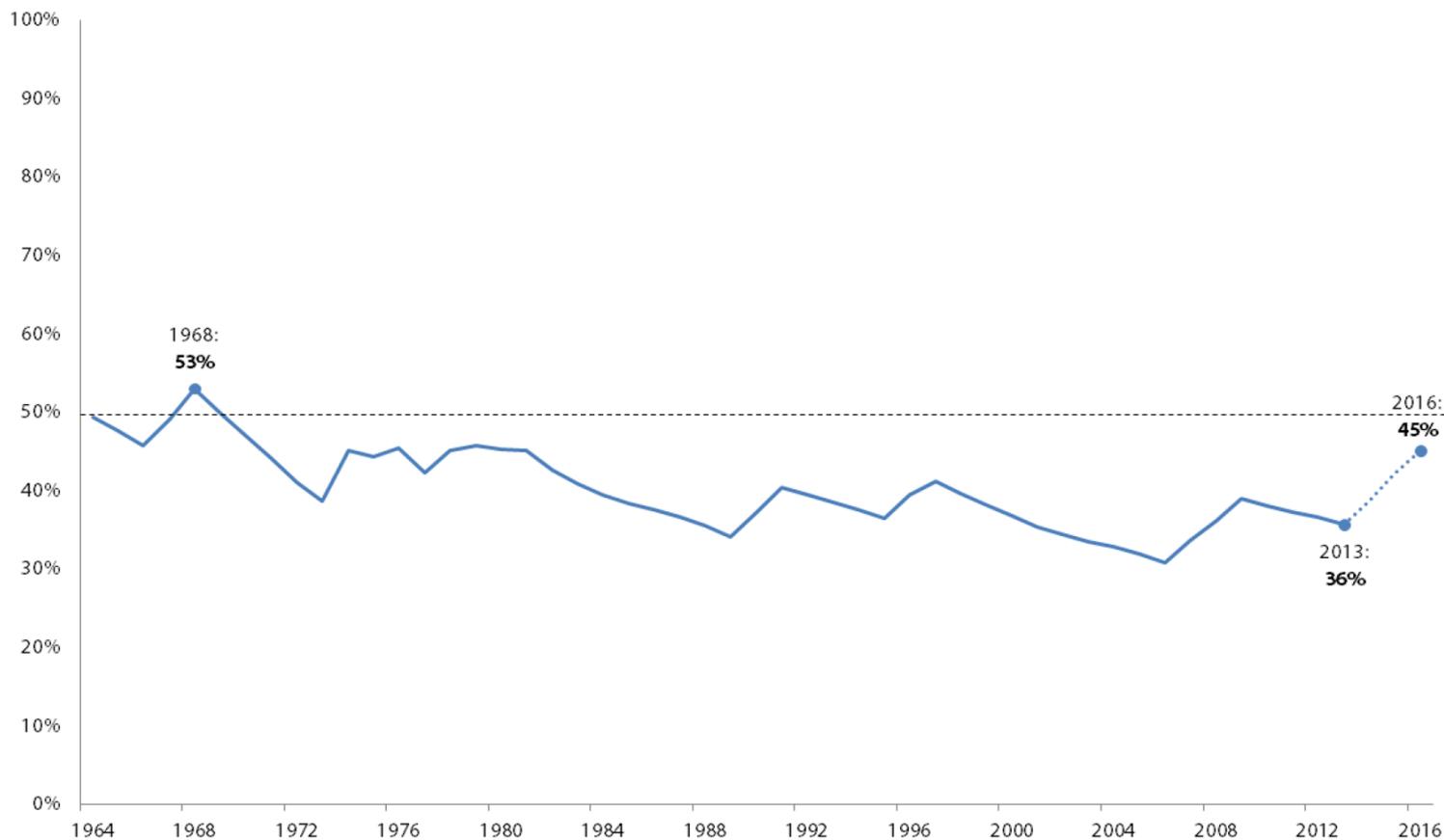
Annual minimum-wage earnings and poverty line for families of two to four, 1964–2013 and projected for 2013–2016 under proposal to raise the federal minimum wage to \$10.10 by 2016 (2013 dollars)



Source: EPI “Raising the federal minimum wage...”

FIGURE B

Federal minimum wage as a percentage of the average U.S. wage of production/nonsupervisory workers, 1964–2013 and projected for 2013–2016 under proposal to raise the federal minimum wage to \$10.10 by July 2016



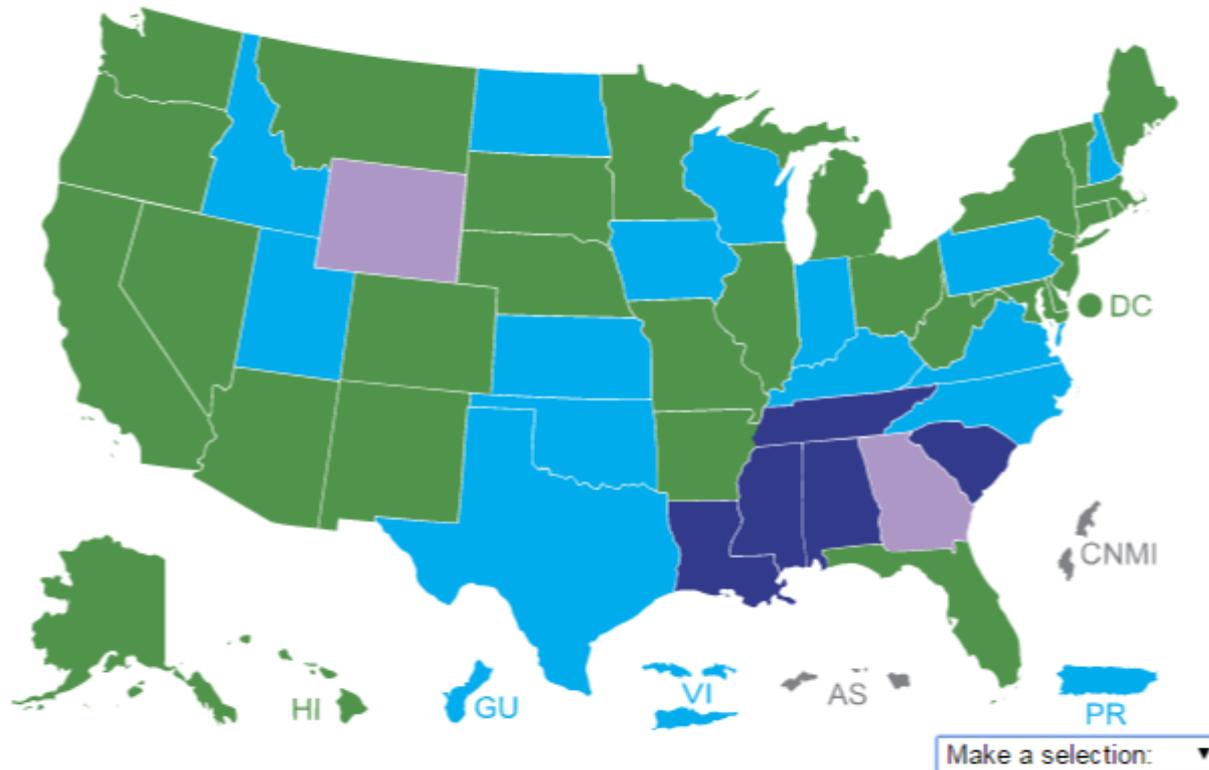
**Source:** Author's analysis of Harkin-Miller proposal, Current Population Survey Outgoing Rotation Group microdata, and U.S. Department of Labor Wage and Hour Division (2013)

# Minimum Wage Laws in the States - January 1, 2015 [\(en español\)](#)

[Historical Table](#)

Click on any state or jurisdiction to find out about applicable minimum wage laws.

Note: Where federal and state law have different minimum wage rates, the higher standard applies.



- |  |   |
|--|---|
|  States with minimum wage rates higher than the federal |  States with no minimum wage law (federal minimum wage rate applies)                       |
|  States with minimum wage rates the same as the federal |  States with minimum wage rates lower than the federal (federal minimum wage rate applies) |

Source: US DOL, <http://www.dol.gov/whd/minwage/america.htm>

Federal \$7.25

California \$9.00

### The City Movement

San Francisco \$10.74 (to \$15 by 7/1/18)

Berkeley \$12.53 by 10/2016

Oakland \$12.25 by 3/2/15

Seattle \$15 by 2017

Chicago \$13.00 by 2019

Washington DC \$11.50 by 2016

Also San Diego, San Jose, ...

# Who gets the minimum wage?

- Women more than men
- By age – this is changing a lot over time:
  - “ a shrinking share of low-wage workers is comprised of teenagers. ... among those earning no more than the federal minimum wage of \$7.25 in 2011, fewer than a quarter were teenagers. Among those earning less than \$10 an hour, only 12 percent were teenagers, as compared to 26 percent in 1979.”

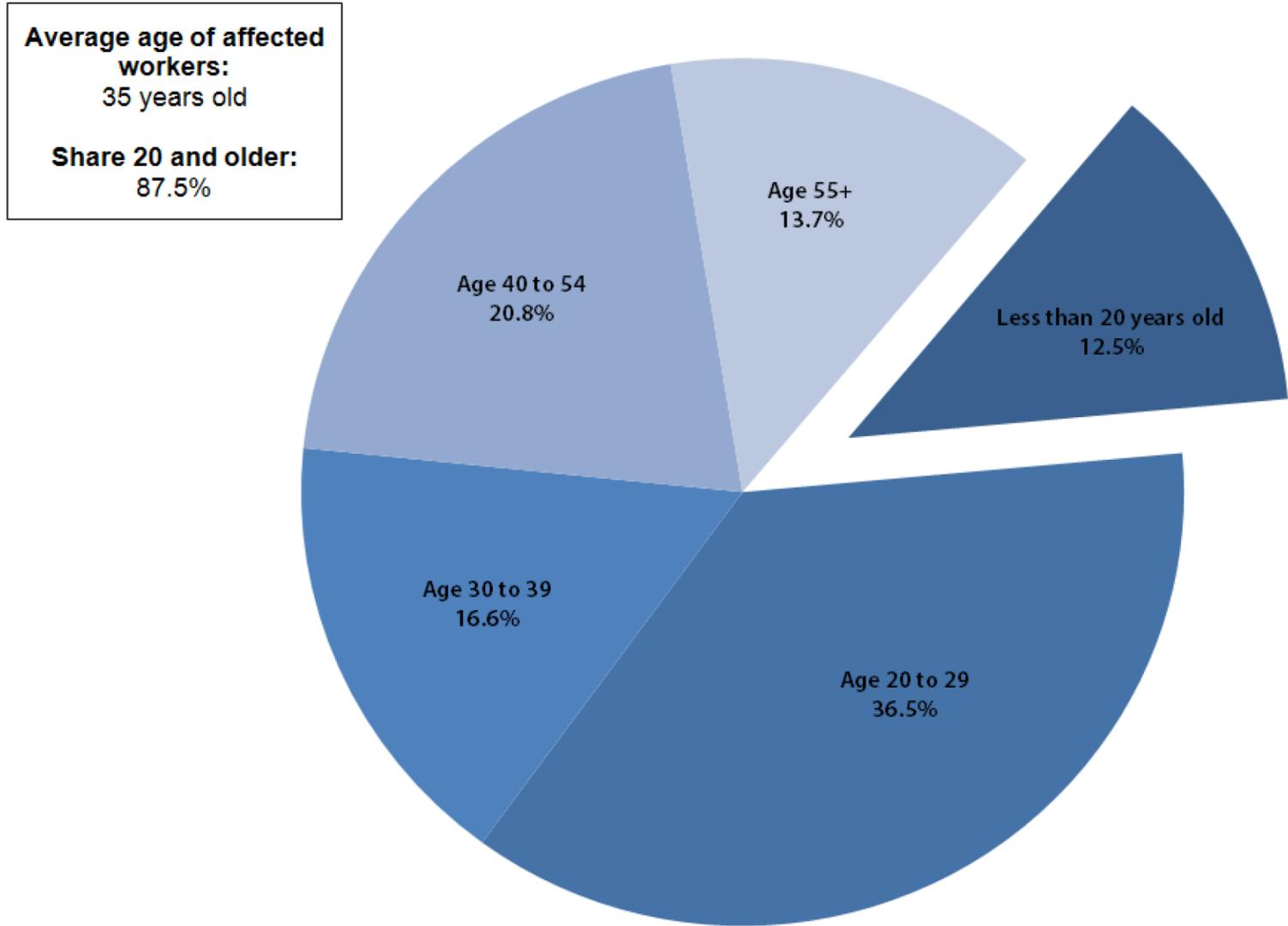
FIGURE E

Gender distribution of workers affected by raising the federal minimum wage to \$10.10 by July 2016, and of total employment



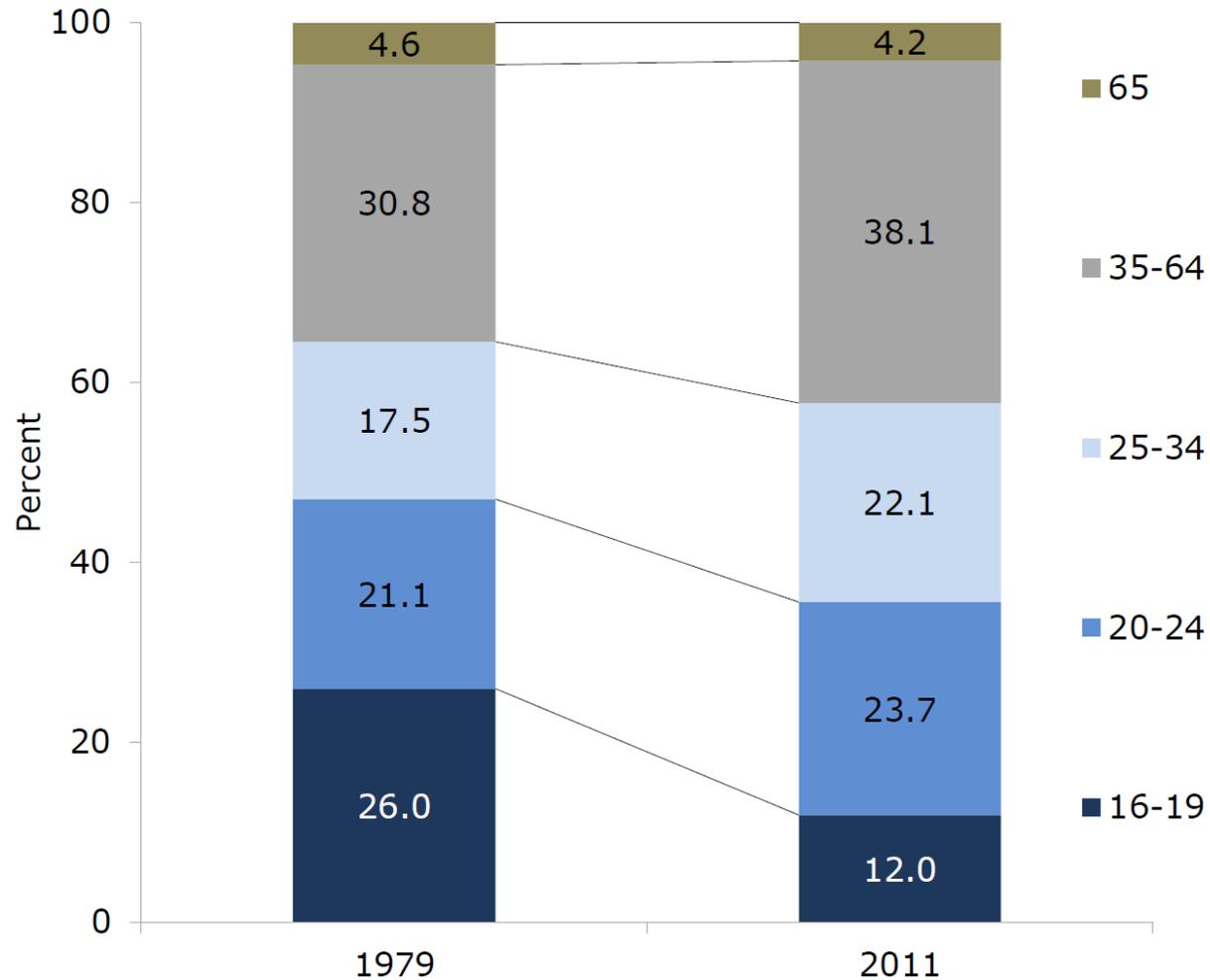
FIGURE F

### Age of workers affected by raising the federal minimum wage to \$10.10 by July 2016



**Source:** Author's analysis of Harkin-Miller proposal using Current Population Survey Outgoing Rotation Group microdata

**FIGURE 1**  
**Low-wage Workers, By Age Group, 1979 and 2011**

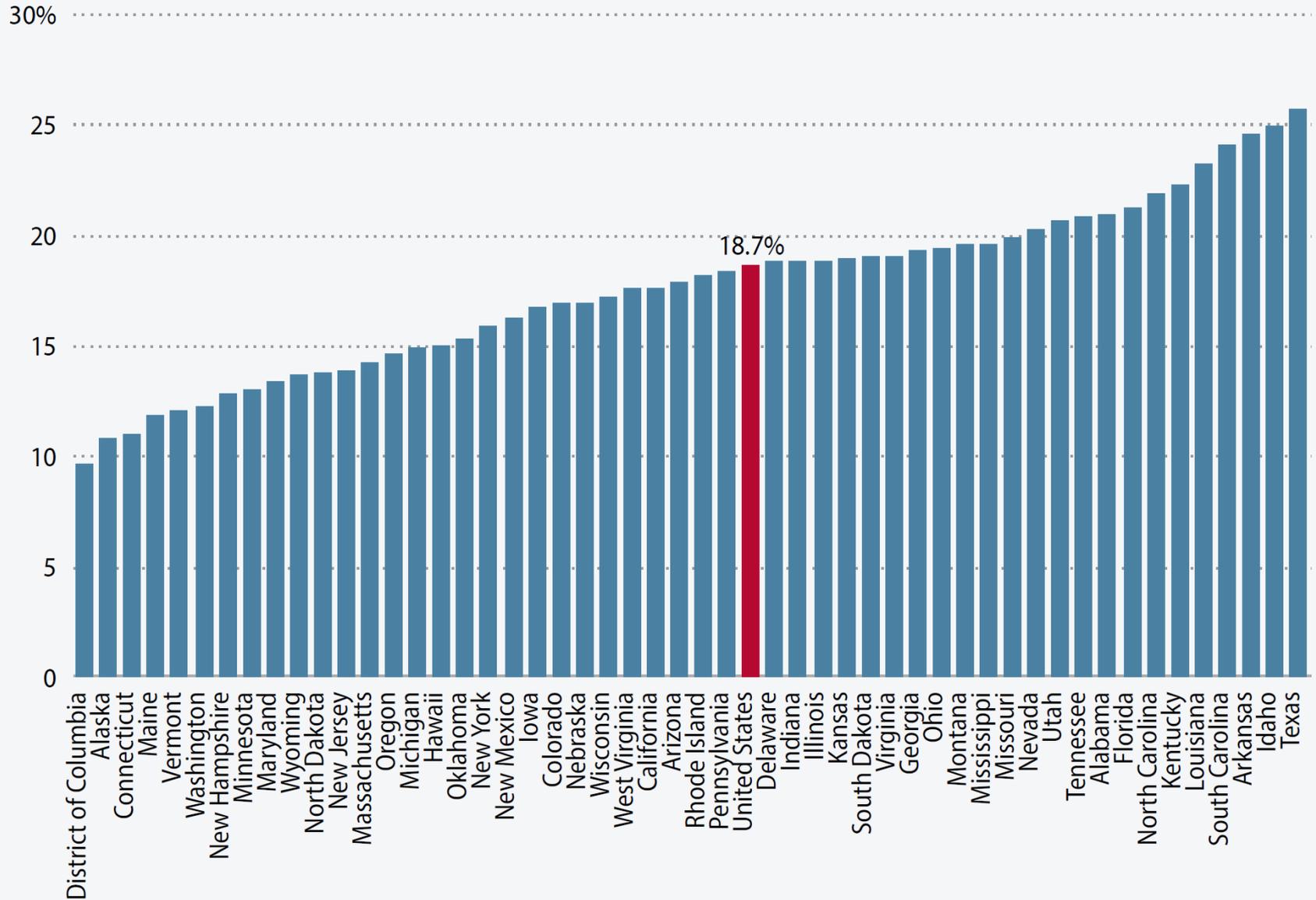


Source: CEPR “Low Wage Workers are Older and Better Educated than Ever”

FIGURE J

[VIEW INTERACTIVE on epi.org](#)

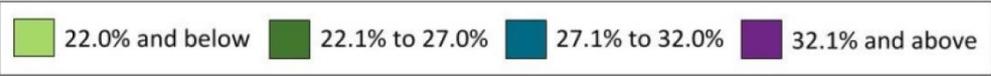
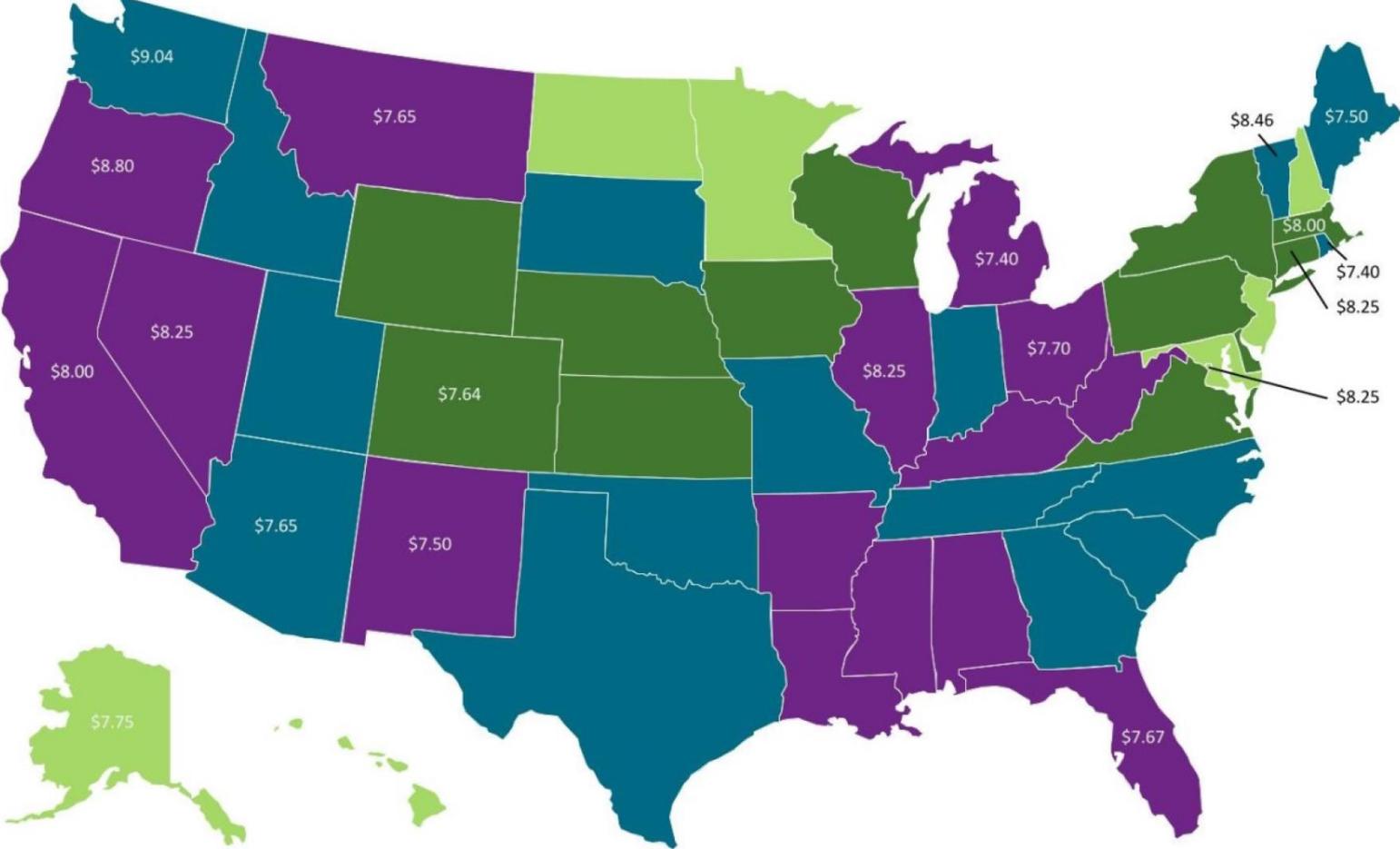
## Share of children with at least one parent affected by raising the federal minimum wage to \$10.10 by July 2016, by state



**Figure 1.**

**Percent of Workers Earning At or Below 150 Percent of the Minimum Wage by State in 2012**

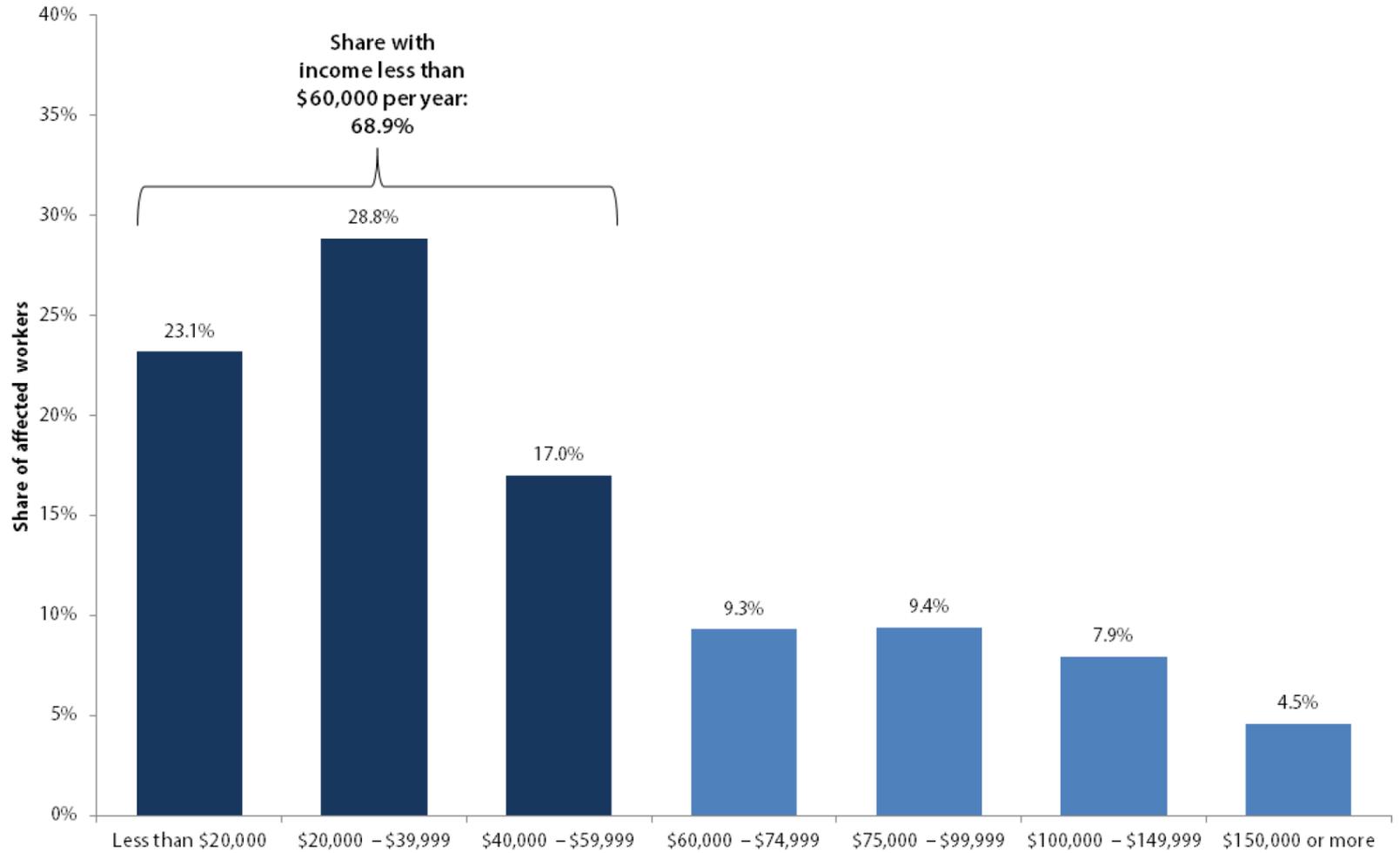
States without an indicated minimum wage were subject to the federal minimum wage of \$7.25.



Source: U.S. Department of Labor 2011; Current Population Survey 2012, Merged Outgoing Rotation Group; authors' calculations.

FIGURE H

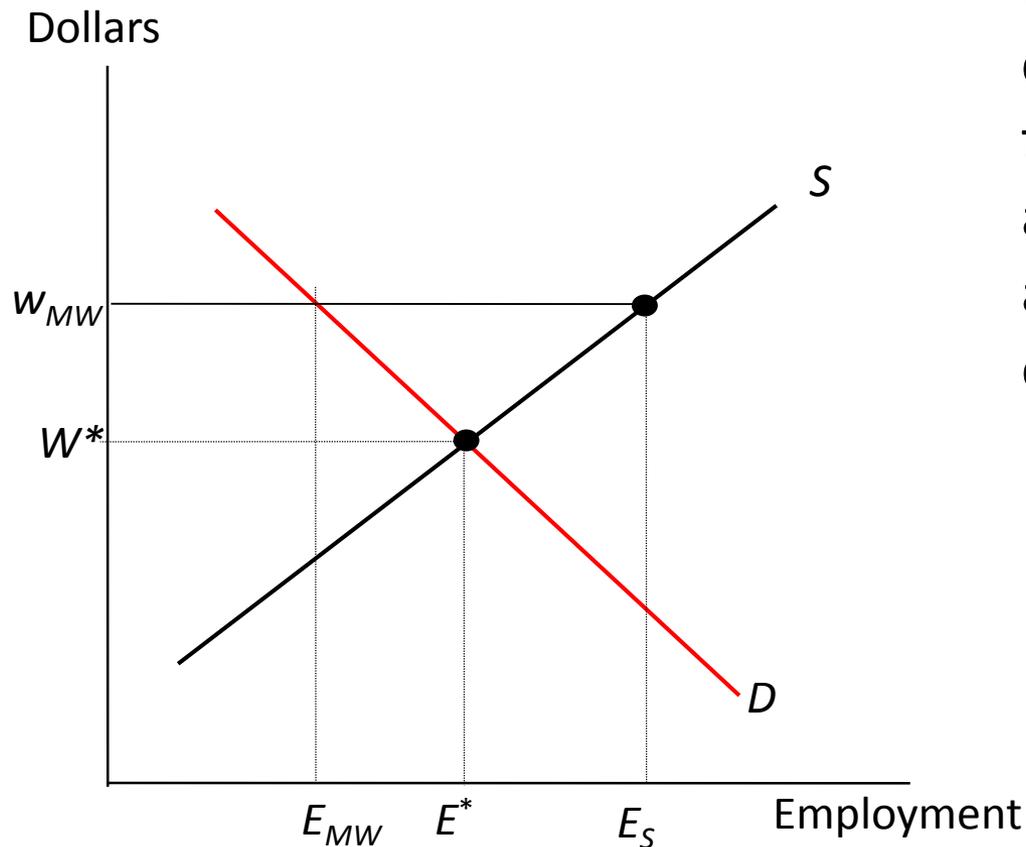
### Family income of workers affected by raising the federal minimum wage to \$10.10 by July 2016



**Source:** Author's analysis of Harkin-Miller proposal using Current Population Survey Outgoing Rotation Group microdata

# Minimum wage and employment

# The Impact of the Minimum Wage on Employment



A minimum wage set at  $w_{MW}$  forces employers to cut employment (from  $E^*$  to  $E_{MW}$ ). The higher wage also encourages ( $E_S - E^*$ ) additional workers to enter the market.

## Summary: Impacts of binding price floor

- Equilibrium price (wage) increases
- Equilibrium quantity (employment) decreases
- Surplus of labor (unemployment)
- Some sellers are helped by price floor (some workers get higher wage)
- Other sellers are hurt by the price floor (since they can not sell at market price, unemployment)
- Inefficient outcome (economy wide surplus declines)
- Black market?

### 3. Empirical Evidence on the minimum wage

- Not much evidence that the minimum wage leads to a reduction in employment
  - Replicated in many studies

# Card and Krueger's PA/NJ Study

- NJ increased its MW
- Nearby PA did not
- Difference-in-difference analysis uses PA to help identify the “counterfactual” (control state)
- They surveyed 400 restaurants in NJ Eastern PA
- A breakthrough study at its time.



- Similar studies in Texas, California ...
- Little evidence that employment declines
- Congressional Budget Office: Increasing federal minimum to \$10.10 would lead to a reduction in 500,000 workers –this is about 1.5 percent of the 33 million workers who could be impacted

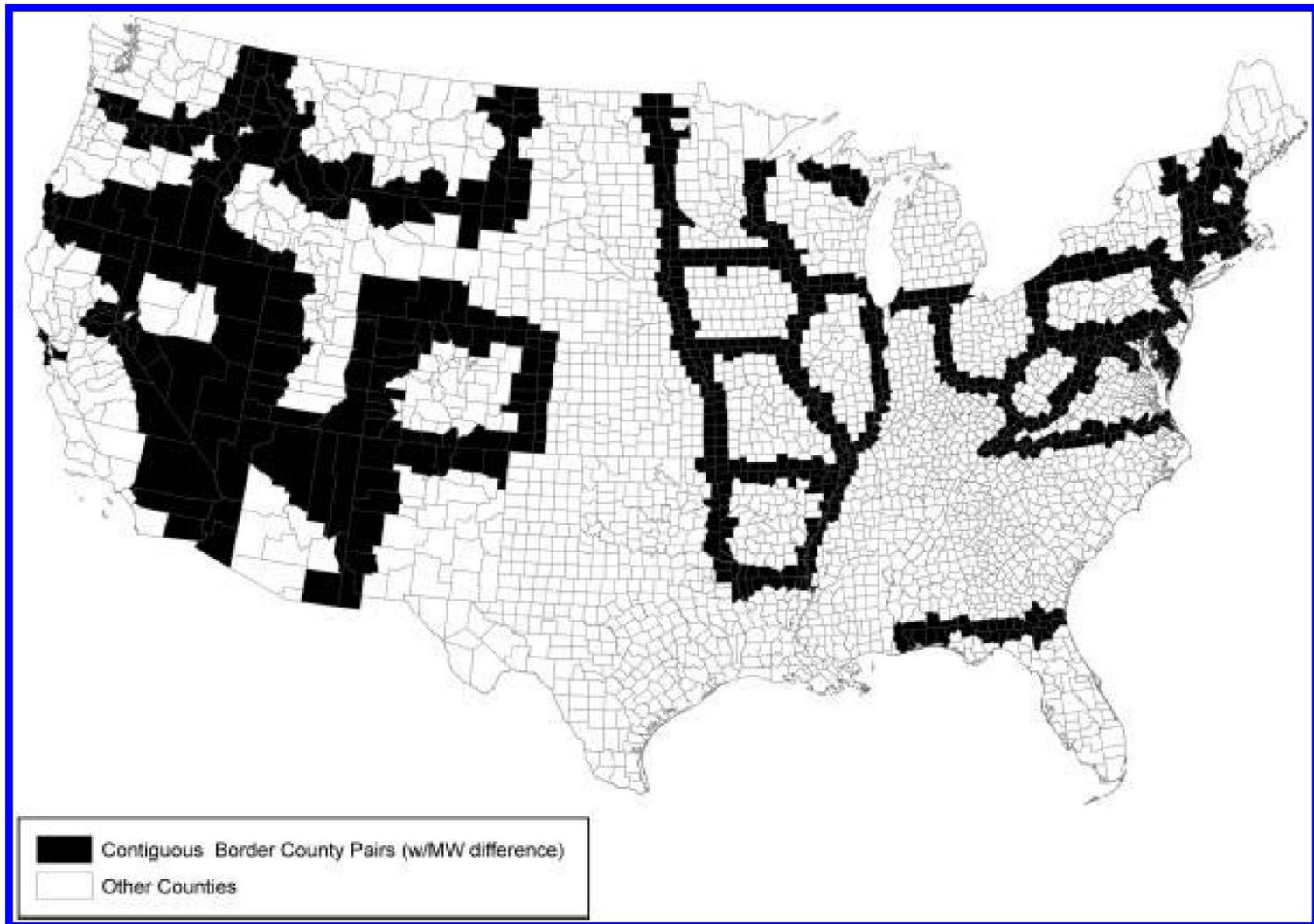
Dube et al “Minimum wage effects across state borders: Estimates using contiguous counties”

- Policy discontinuities at state borders to identify the effect of minimum wages.
- Create the set of county-pairs that are located on opposite sides of a state border
- Advantage – control group with similar labor market but different policies
- Generalization of Card and Kreuger

# Data

- County-level data on earnings and employment from the Quarterly Census of Employment and Wages (QCEW) between 1990 and 2006
- Main results are for restaurants (intensive users of minimum wage workers)
- Also examine other low wage industries

FIGURE 2.—CONTIGUOUS BORDER COUNTY-PAIRS IN THE UNITED STATES WITH A MINIMUM WAGE DIFFERENTIAL, 1990–2006Q2



337 counties and 288 county pairs had a minimum wage differential at some point in the sample period.

## Model (Contiguous Border County-Pair Sample)

$$\ln y_{ipt} = \alpha + \eta \ln(MW_{it}) + \delta \ln(y_{it}^{TOT}) + \gamma \ln(pop_{it}) + \phi_i + \tau_t + \varepsilon_{ipt}. \quad (5)$$

Finally, for our preferred specification, we allow for pair-specific time effects ( $\tau_{pt}$ ), which use only variation in minimum wages within each contiguous border county-pair:

$$\ln y_{ipt} = \alpha + \eta \ln(w_{it}^M) + \delta \ln(y_{it}^{TOT}) + \gamma \ln(pop_{it}) + \phi_i + \tau_{pt} + \varepsilon_{ipt}. \quad (6)$$

- County  $i$  in pair  $p$  in year  $t$
- $y^{TOT}$  is total employment
- Fixed effects for county, and time (or pair-time)

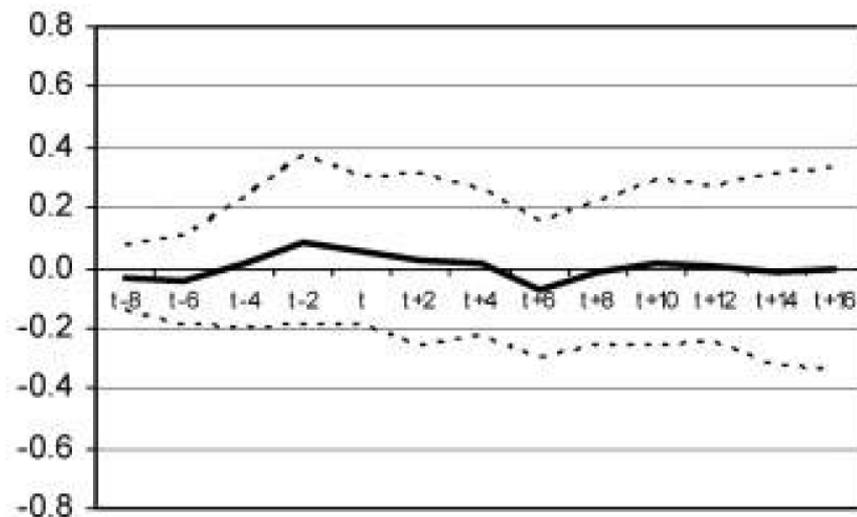
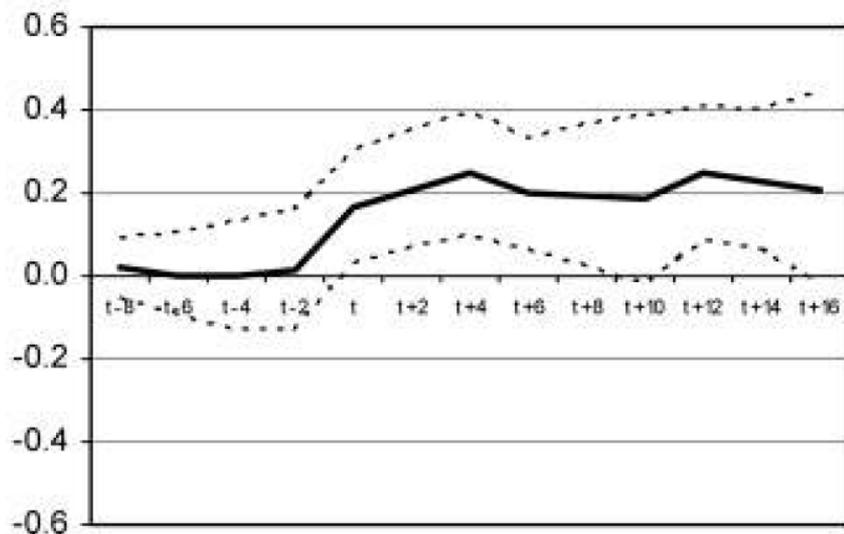
TABLE 4.—TESTS OF CROSS-BORDER SPILLOVER EFFECTS FROM MINIMUM WAGE CHANGES

	(1)	(2)	(3)	(4)
	Border Counties	Border Counties	Interior Counties	Spillover = (Border – Interior)
			<b><i>In Earnings</i></b>	
$\ln MW_t$	0.188*** (0.060)	0.165*** (0.056)	0.164 (0.113)	-0.008 (0.112)
			<b><i>In Employment</i></b>	
$\ln MW_t$	0.016 (0.098)	0.011 (0.109)	0.042 (0.107)	-0.058 (0.139)
Sample	Baseline CBCP	Spillover	Spillover	Spillover
N	70,620	69,130	69,130	69,130
<b><i>Controls</i></b>				
County-pair × period dummies	Y	Y	Y	Y
Total private sector	Y	Y	Y	Y

Estimates are elasticities

Results: significant increase in average earnings no  
significant change in employment

## 6. Contiguous Border County-Pair Sample, County-Pair Specific Period Effects



Earnings on the left, employment on the right

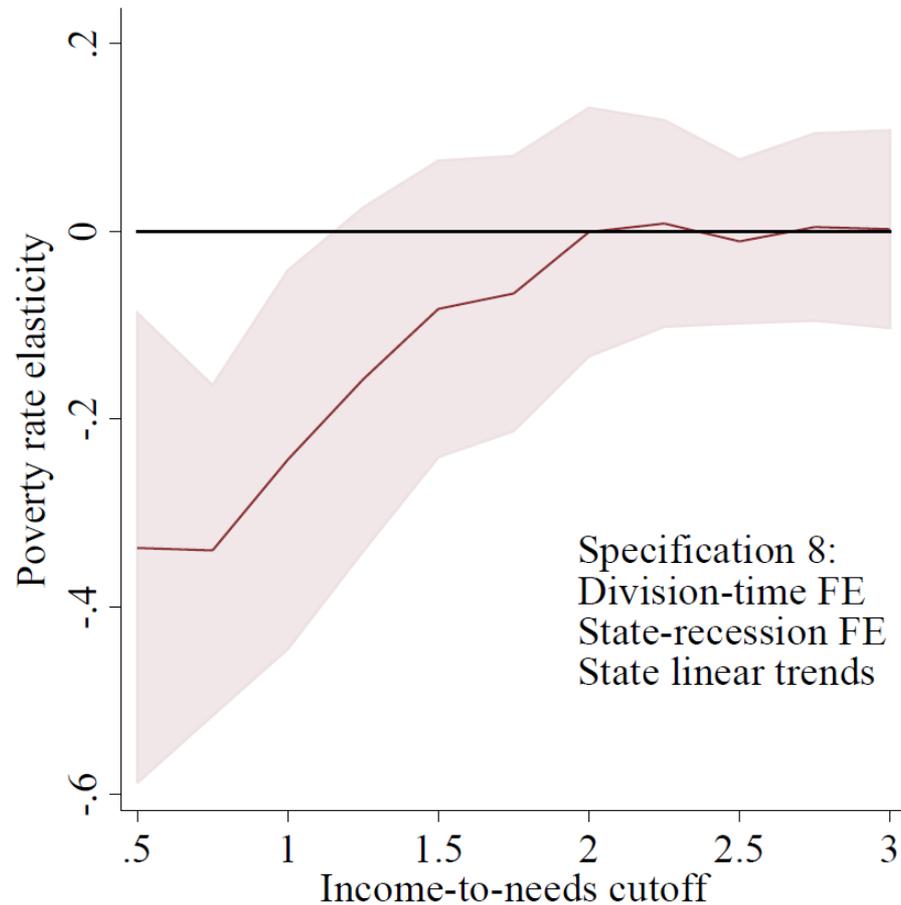
Event time version of the model

Tracing through the MW wage change.

Clear and immediate increase in average earnings no

change in employment

# Related paper by Dube explores effects on family income to poverty



# Is our model wrong? Why no (measurable) fall in employment?

- Prediction of neoclassical model is that employers can hire all the labor they want at the prevailing wage (price takers)
- Higher wages may lead to
  - Quicker pace of hiring workers
  - Higher productivity
  - Lower turnover
- Generally, a monopsony model (one where workers have some market power) comes from the reality of the issues above and “search theory” whereby there are costs of moving from one job to another.
- Could also be due to low values of minimum wages. We will learn much soon about the effects of the new city minimum wage policies

- Thoughts about tradeoffs and arguments for
  - EITC
  - Welfare
  - Minimum wages
- How do they work together?

Early Childhood Education

PP290

Hilary Hoynes

# Outline of 2 lectures

1. Background + facts: US programs and policies, policies elsewhere
2. Schematic of pre-K policies (Cascio & Schanzenbach THP)
3. What are the effects of state Pre-K programs?
4. [next time] short and long run effects of head start

# Schematic: where we are

- We are studying three distinct types of policies aimed at reducing poverty:
  1. Tax and transfer (“safety net”) programs that redistribute income and other resources after the market system has allocated income.
  2. Institutional features of the market system (e.g., collective bargaining systems, the minimum wage) that affect how much income economic actors receive.
  3. Interventions that affect people’s income-earning potential (e.g., education, healthcare, job training, substance abuse treatment).

# Why is early childhood education a good investment?

- Neurodevelopmental plasticity before age 5
- Importance of early life conditions, experiences, developments
- “What happens during the first months and years of life matters a lot, not because this period of development provides an indelible blueprint for adult well-being, but because it sets either a sturdy or fragile stage for what follows.” (From Neurons to Neighborhoods, NAS)
- Potential complementarity between investments early and late (“skill begets skill”)

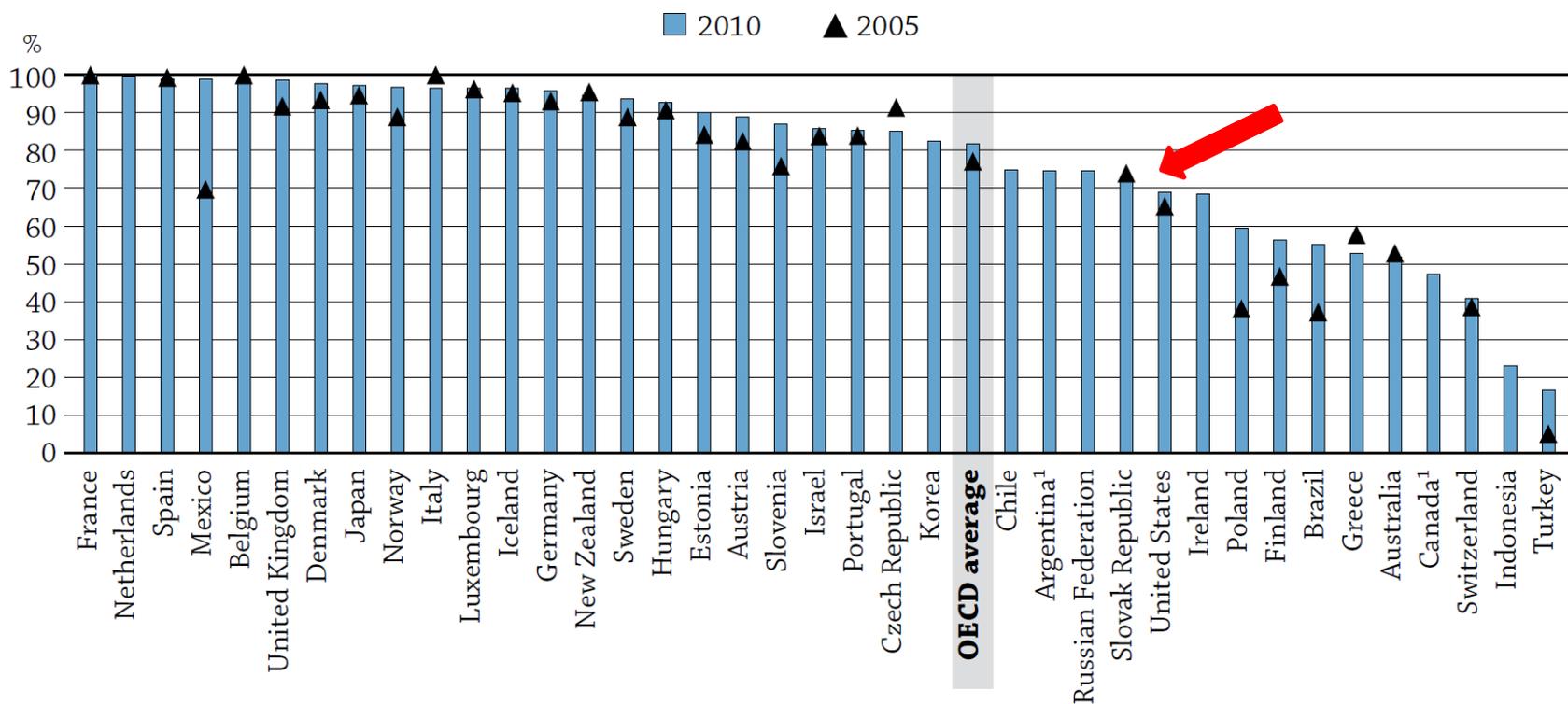
# Economic Rationales

- Achieve socially optimal human capital investment
  - Social returns  $>$  private returns (positive externalities)
  - $\downarrow$  Crime, use of public assistance
  - Perry Preschool: Schweinhart et al. (2005), Heckman et al. (various years)
  - Head Start: Garces, Currie, and Thomas (2002), Ludwig and Miller (2007), Deming (2009)
- Promote efficiency in the labor market
  - Cost of childcare + credit constraints  $\rightarrow$  suboptimal levels of labor force participation among primary caregivers
  - $\uparrow$  Maternal labor supply
  - Kindergarten: Gelbach (2002), Cascio (2009)

# US in OECD Context

## Chart C2.1. Enrolment rates in early childhood and primary education at age 4 (2005 and 2010)

*Full-time and part-time pupils in public and private institutions*



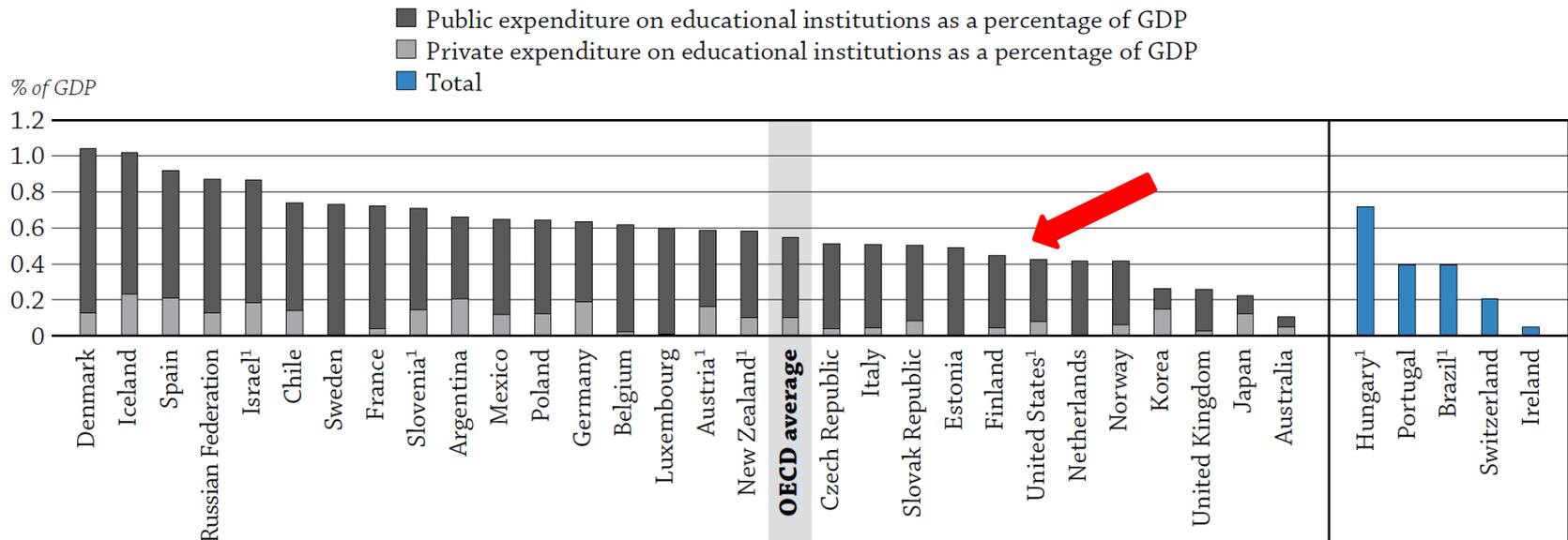
1. Year of reference 2009.

Countries are ranked in descending order of the enrolment rates of 4-year-olds in 2010.

**Source:** OECD. Argentina and Indonesia: UNESCO Institute for Statistics (World Education Indicators programme). Table C2.1. See Annex 3 for notes ([www.oecd.org/edu/eag2012](http://www.oecd.org/edu/eag2012)).

**StatLink**  <http://dx.doi.org/10.1787/888932663055>

**Chart C2.2. Expenditure on early childhood educational institutions as a percentage of GDP (2009)**  
By funding source



1. Includes some expenditure on child care.

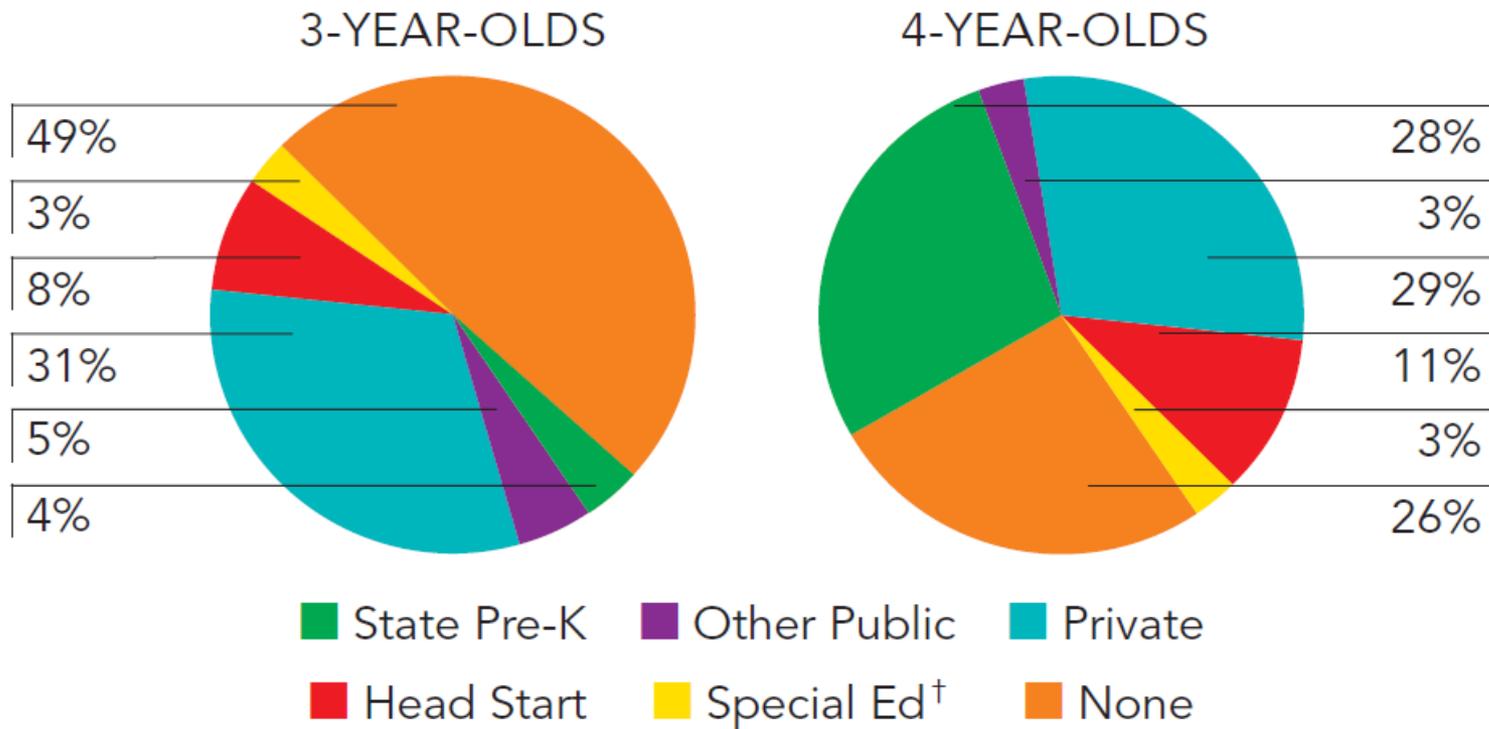
Countries are ranked in descending order of public and private expenditure on educational institutions.

**Source:** OECD. Argentina: UNESCO Institute for Statistics (World Education Indicators programme). Table C2.2. See Annex 3 for notes ([www.oecd.org/edu/eag2012](http://www.oecd.org/edu/eag2012)).

StatLink  <http://dx.doi.org/10.1787/888932663074>

U.S. context and background

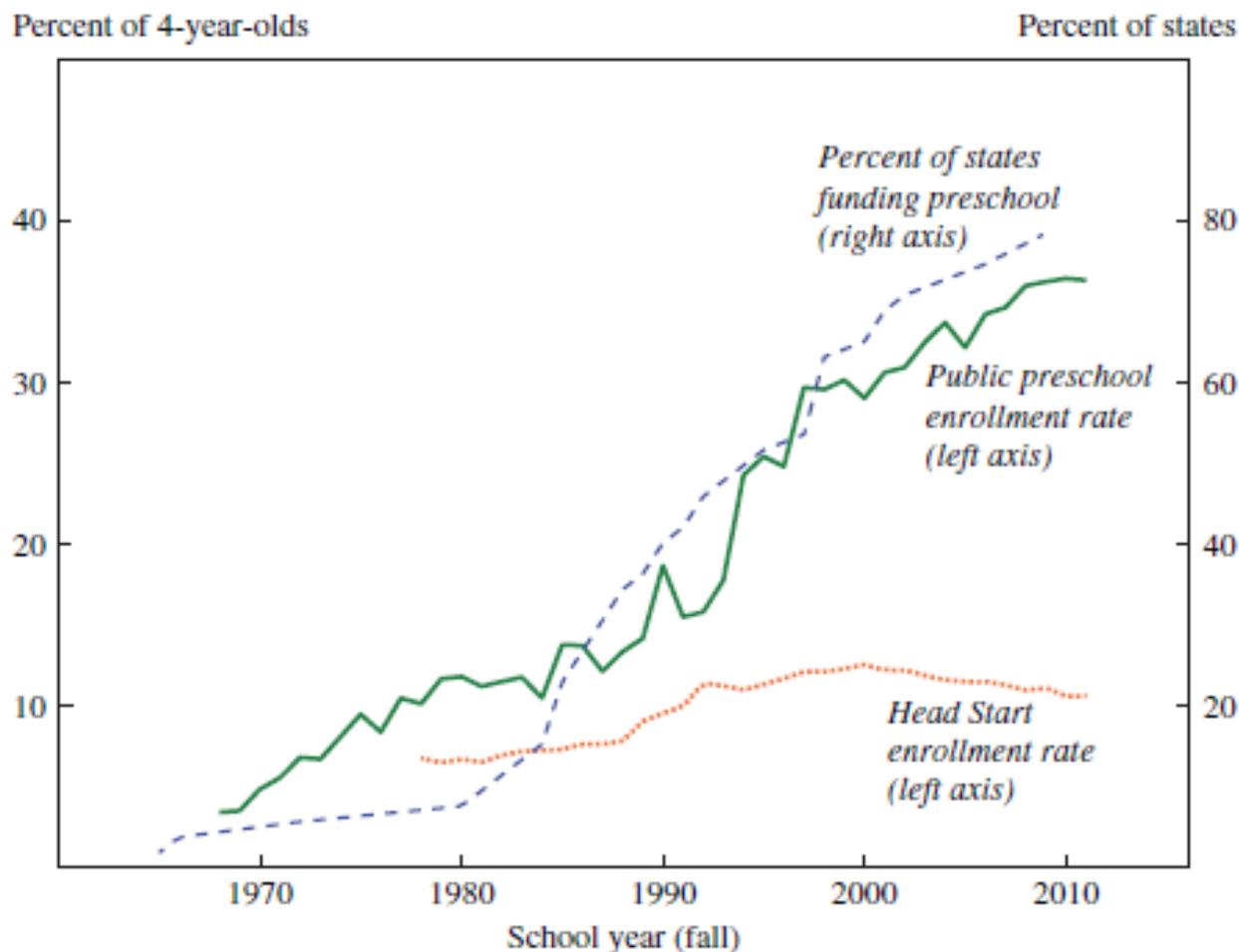
## STATE PRE-K AND HEAD START ENROLLMENT AS PERCENTAGE OF TOTAL POPULATION



State pre-K programs are growing in importance especially for 4 year olds. [2011 data]

Source: National Institute for Early Education Research.

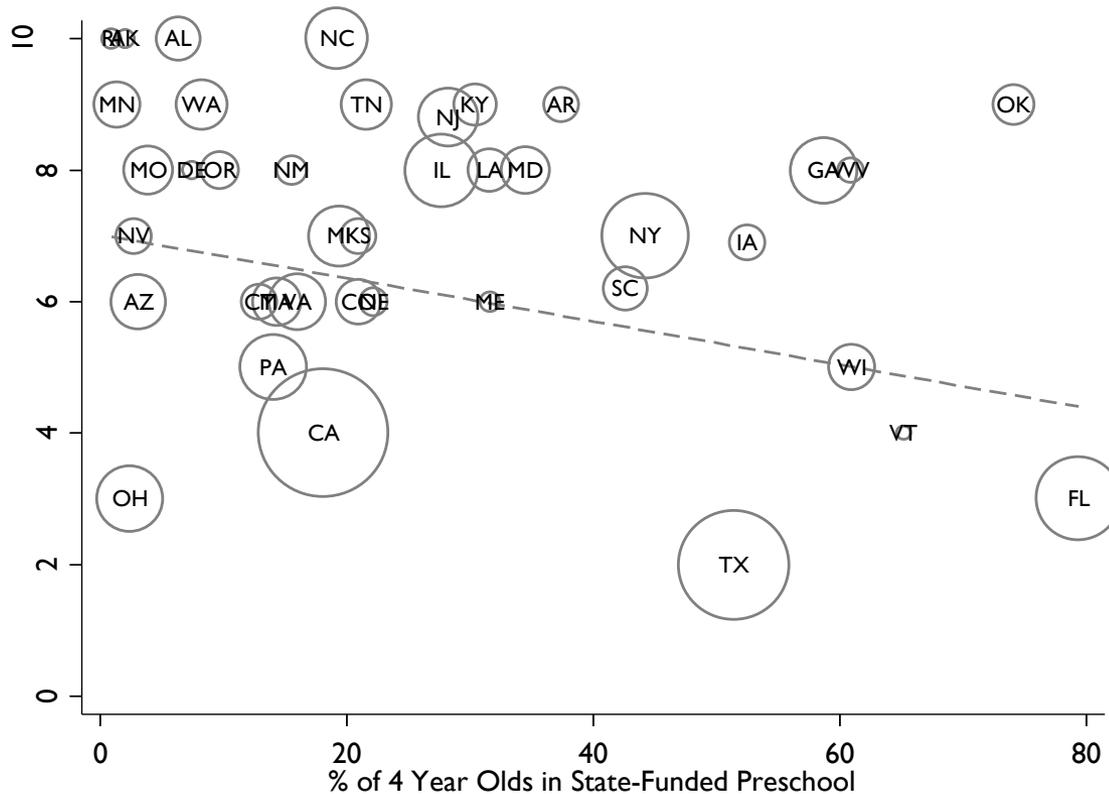
**Figure 1.** Percent of 4-Year-Olds Enrolled in Public Preschool Programs and Percent of States Funding Preschool Programs, 1965–2011



Sources: October CPS (public preschool enrollment rate), Head Start Bureau (numerator of Head Start enrollment rate), Vital Statistics (denominator of Head Start enrollment rate), and National Institute for Early Education Research (state funding dates).

# Substantial variation among state programs

Access & Quality in State-Funded Preschools, 2011-2012



▶ Quality “checklist”  
(from NIEER) based on  
inputs

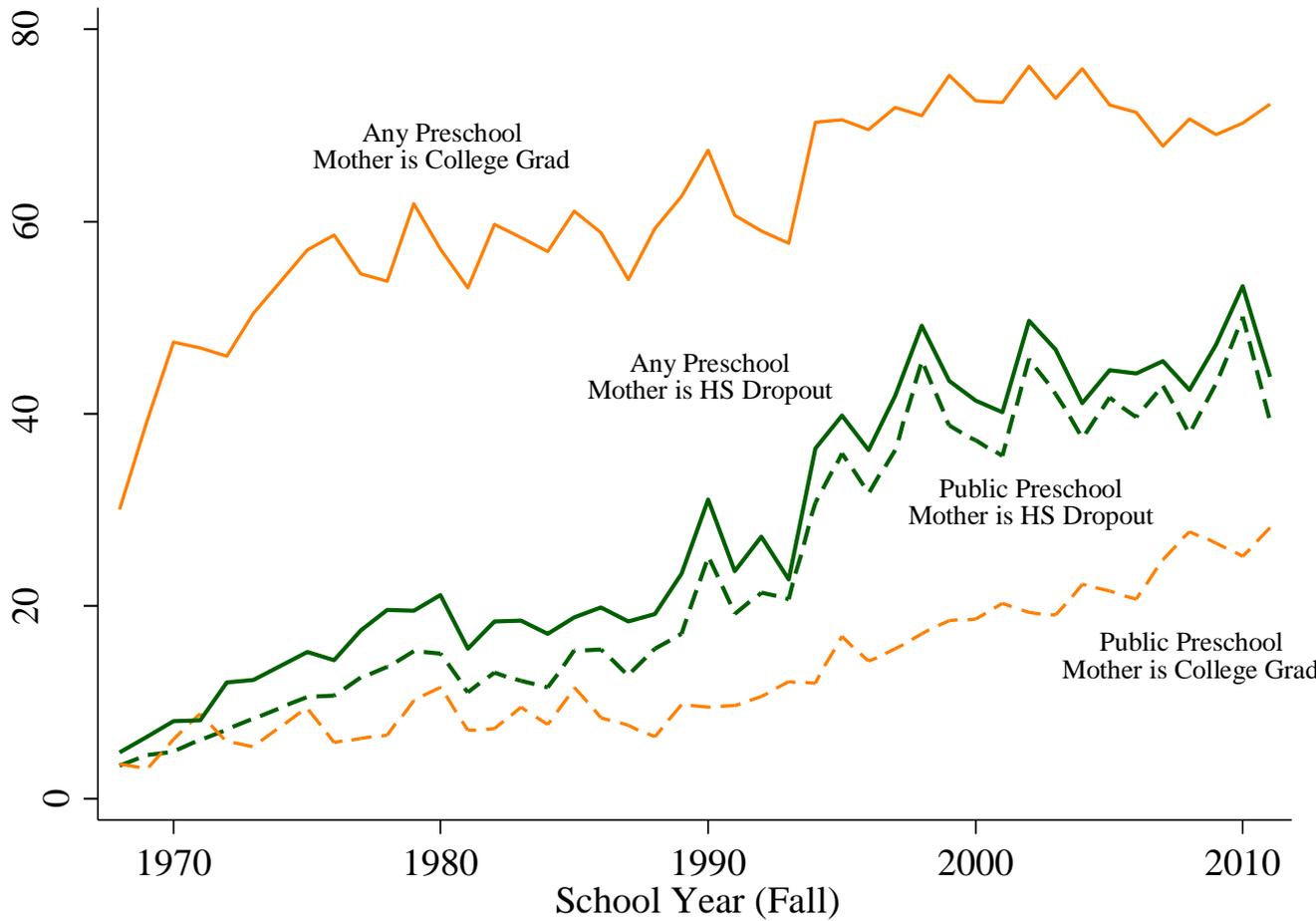
- ▶ Teacher training
- ▶ Class size
- ▶ Support services

## Head Start is an important preschool program for low-income children

	All Kids	Income in Bottom 20%	Income in Top 20%
<i>3-year olds</i>			
Head Start	8	20	1
Special Education	4	1	10
Private	36	22	68
Other Public	3	3	3
Any Preschool	51	45	82
<i>4-year olds</i>			
Head Start	13	29	0
Special Education	6	2	4
Private	42	22	75
Other Public	13	11	12
Any Preschool	74	64	90

Source: Haskins and Barnett (2010), from 2005 NHES.

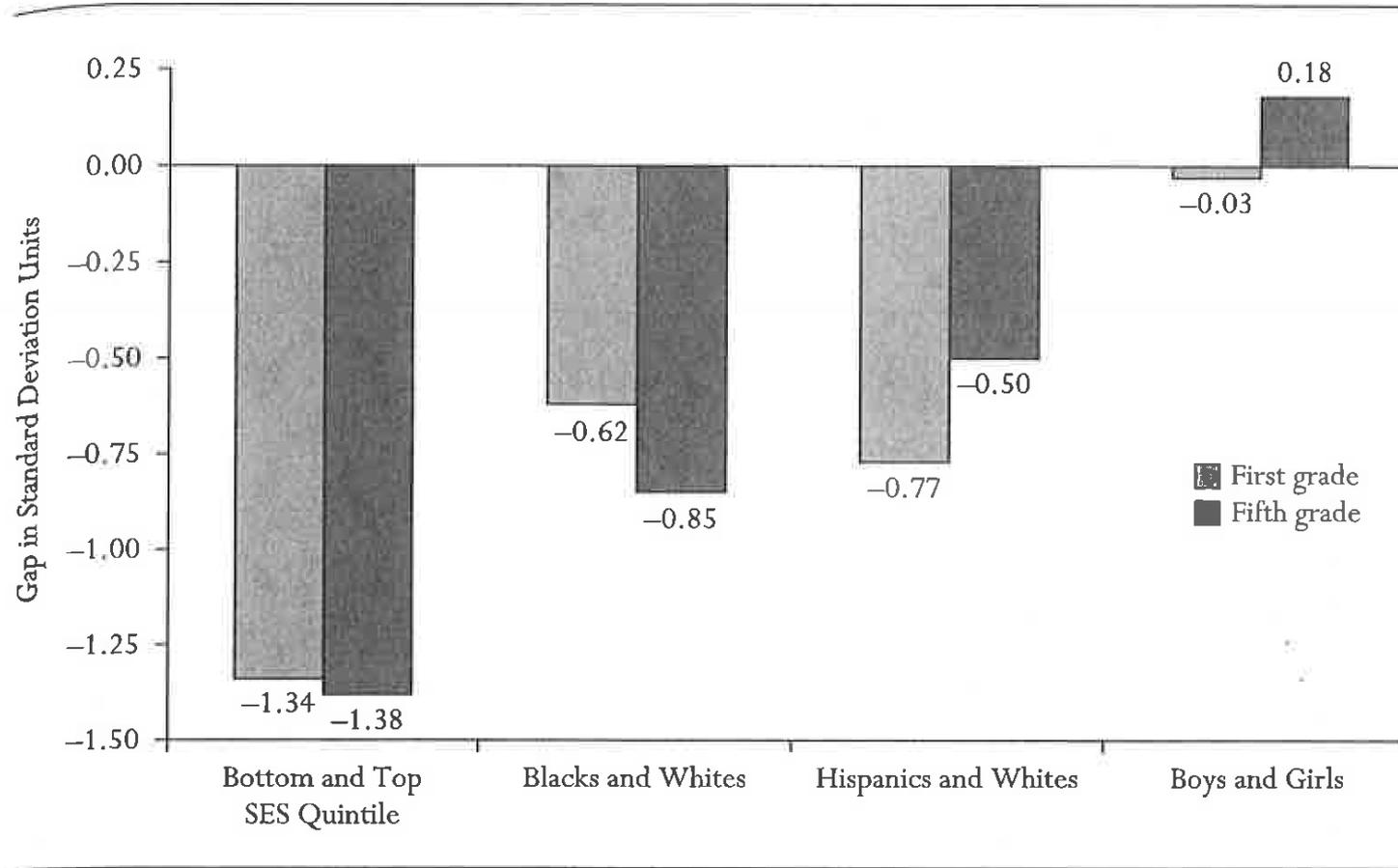
# Disparities in Access



- Most high-SES children attend preschool
  - Overwhelmingly private preschool
- Low-SES attendance grown
  - Almost all public programs
  - State-funded programs
  - Head Start ~10%
- Attendance gap mirrors achievement gap

# SES disparities are large

FIGURE 3.2 *Math Gaps in Kindergarten and Fifth Grade*

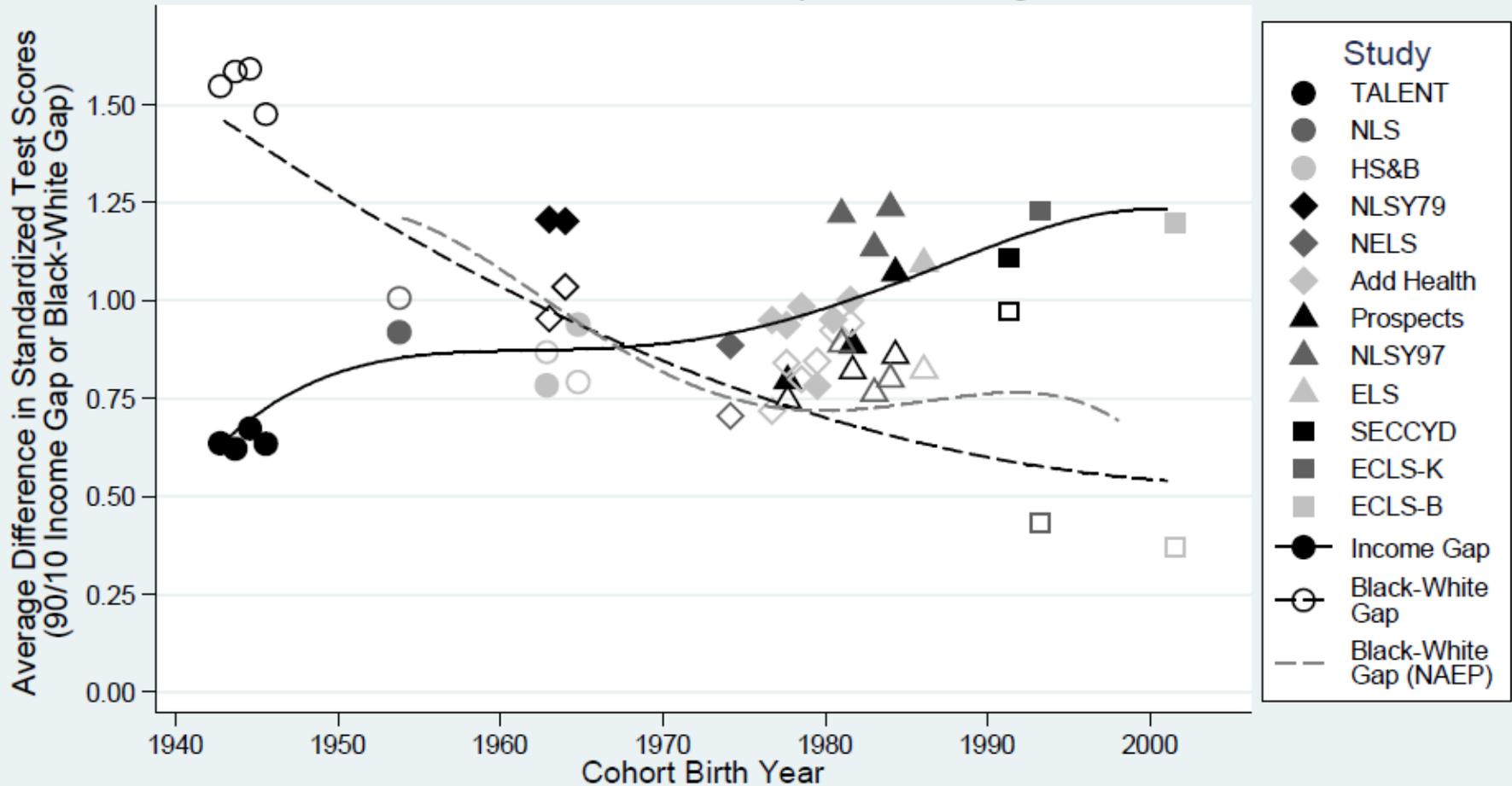


Source: Authors' calculations based on Early Childhood Longitudinal Study, Kindergarten Cohort (National Center for Education Statistics n.d.).

Source: Greg Duncan and Katherine Magnuson "The Nature and Impact of Early Achievement Skills, Attention and Behavior Problems," in *Whither Opportunity*, Duncan and Murnane, 2011.

# Income inequalities are increasing (while racial inequalities are decreasing)

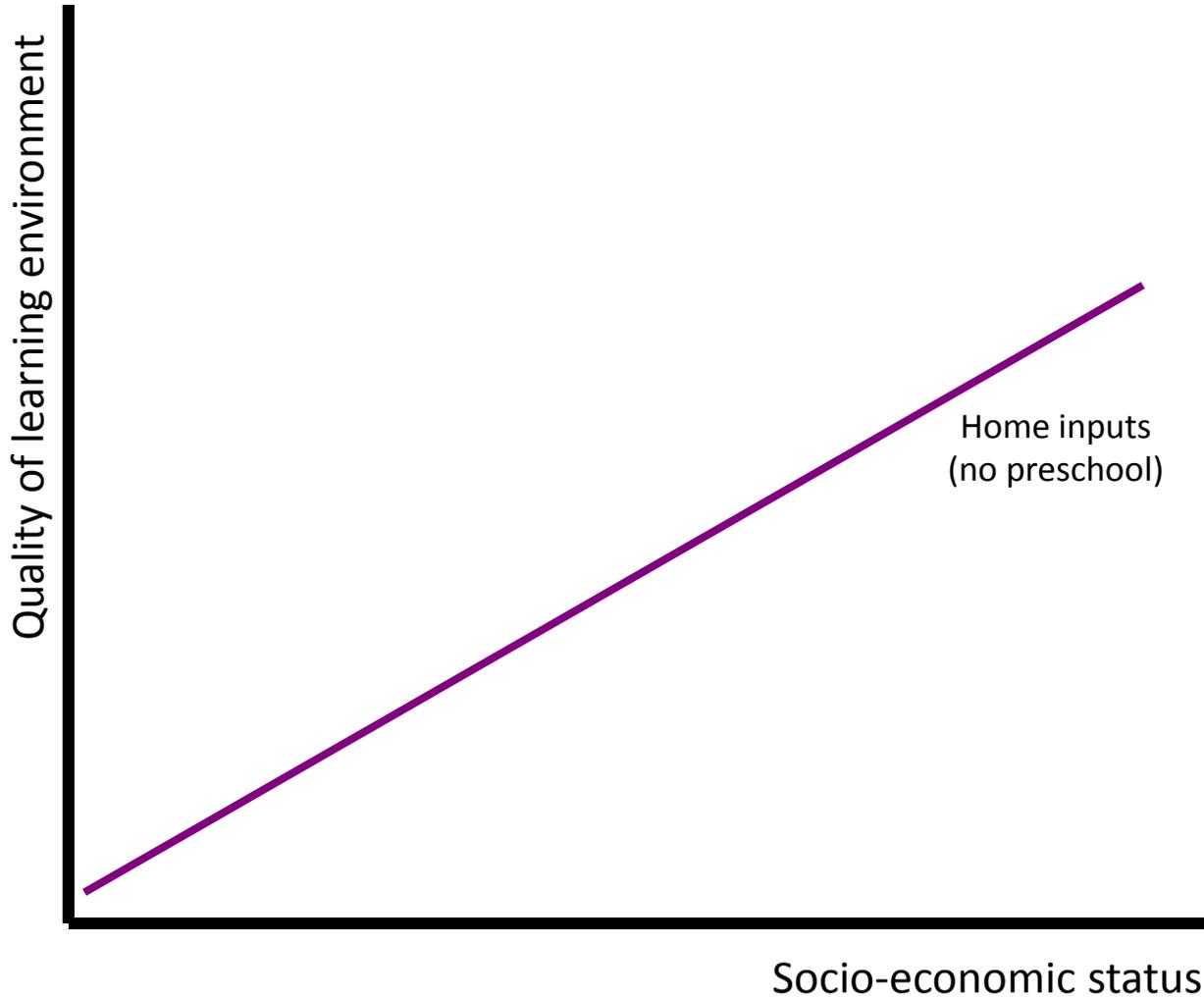
## Trends in Income and Black-White Gaps in Reading, 1943-2001 Cohorts



Source: Sean Reardon "The Widening Academic Achievement Gap Between the Rich and the Poor: New Evidence and Possible Explanations," in *Whither Opportunity*, Duncan and Murnane, 2011

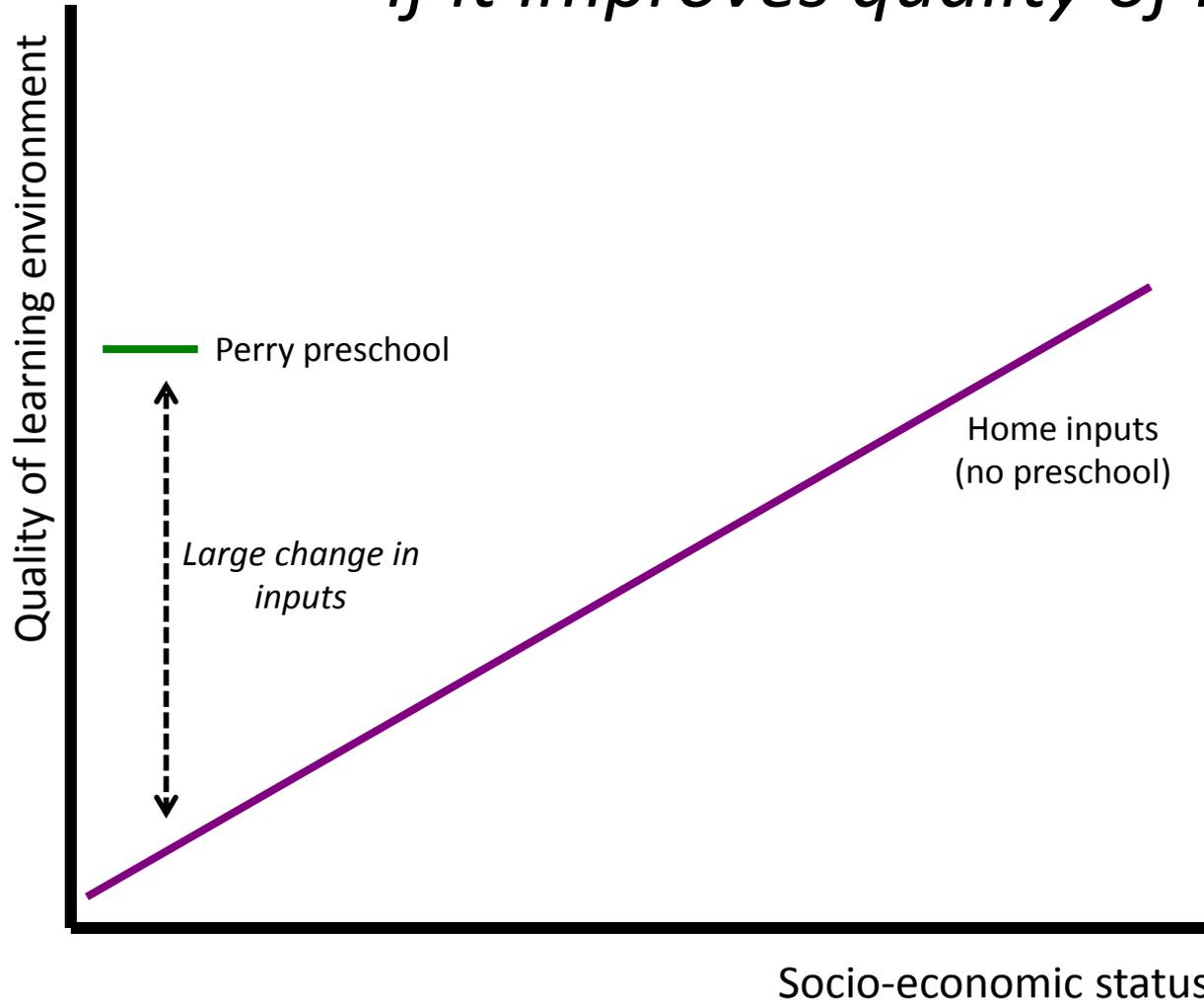
Options for state pre-K programs  
(Cascio and Schanzenbach The Hamilton  
Project)

# Basic setup



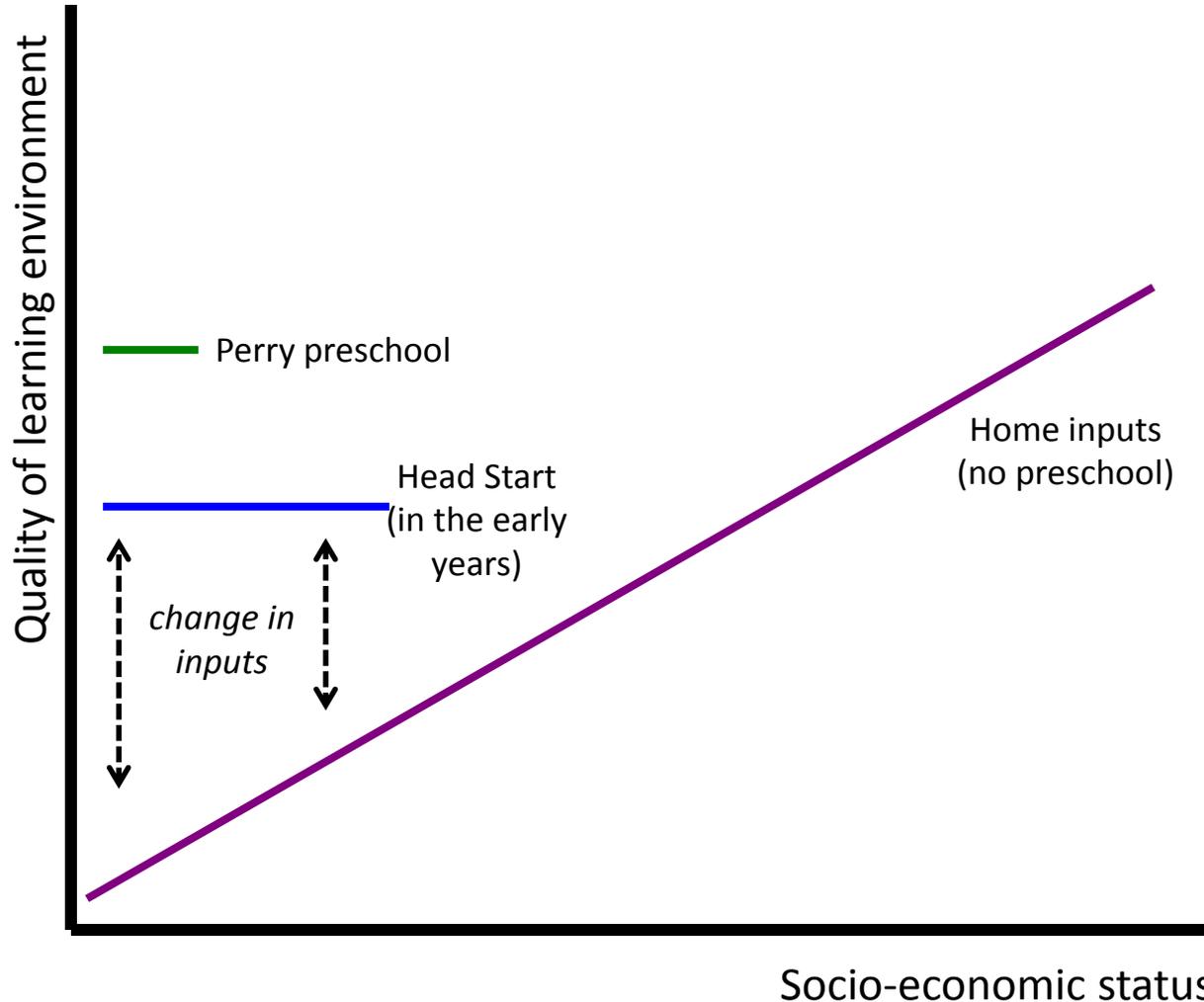
- ▶ X axis = SES
- ▶ Y axis = potential human capital
- ▶ Without any program, those with more resources have a greater ability to generate higher human capital outcomes
- ▶ Use this framework to think about possible policies:
  - ▶ Targeted versus universal
  - ▶ High versus low quality
  - ▶ Substitution out of private market is possible (“crowdout”)

# Preschool can increase learning *if it improves quality of inputs*



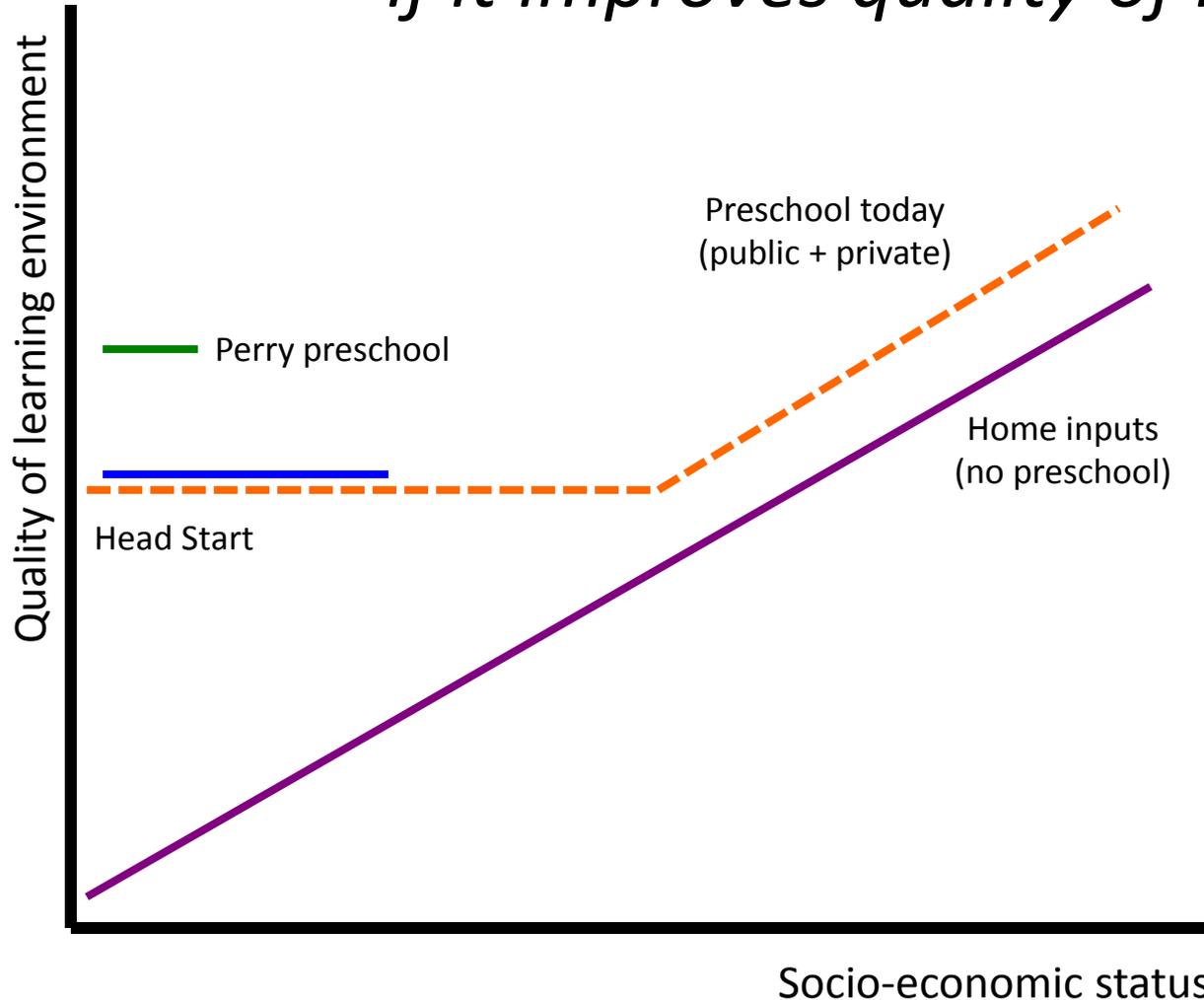
- ▶ Perry preschool
  - ▶ Narrowly targeted
  - ▶ Intensive intervention
  - ▶ Large change in learning environment
- ▶ Strong lifetime impacts
  - ▶ \$8 return for every \$1 spent (Heckman)

# Preschool can increase learning *if it improves quality of inputs*



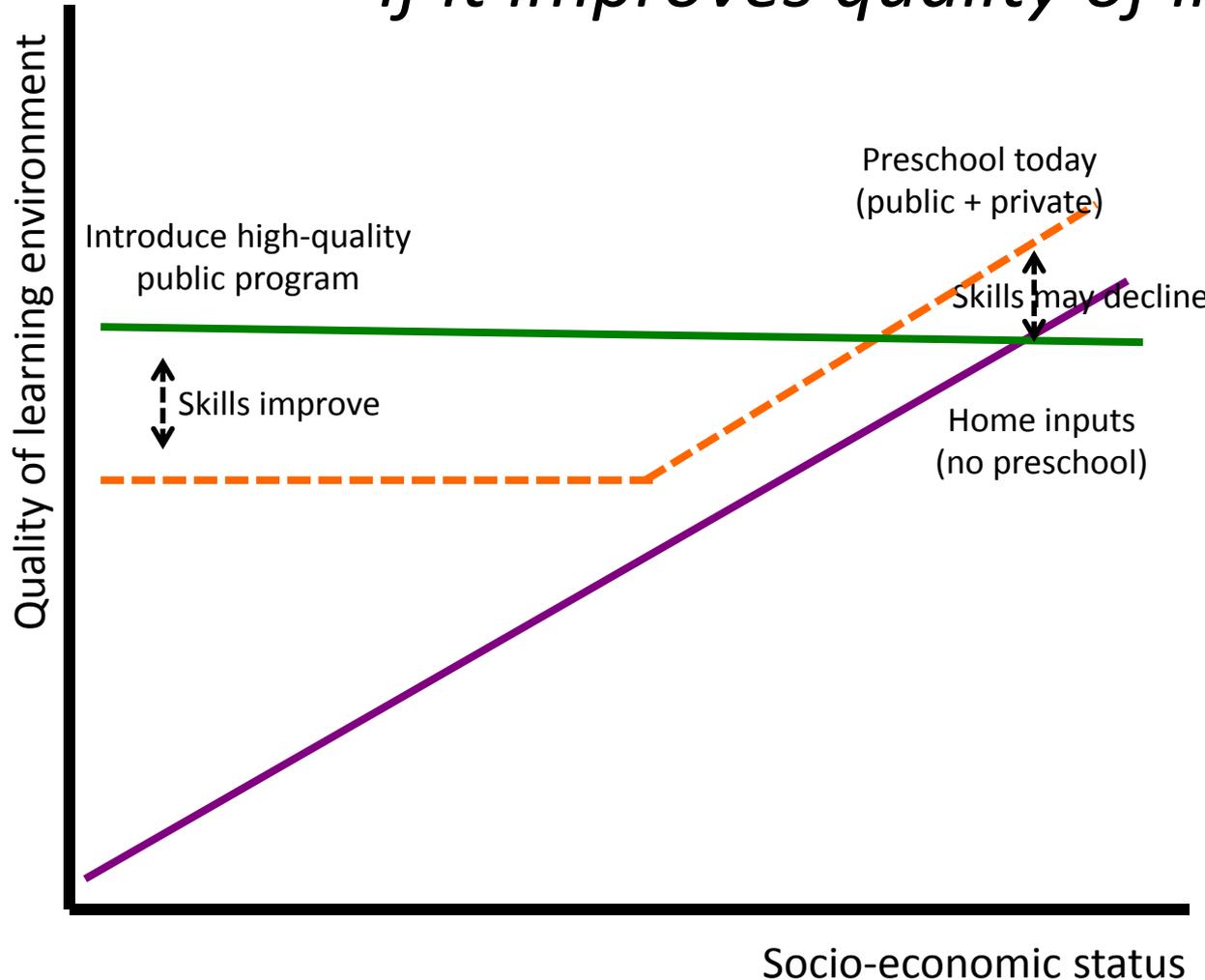
- ▶ Head Start
  - ▶ (less) Narrowly targeted
  - ▶ Less intensive intervention
  - ▶ Substantial (but smaller) change in learning environment
- ▶ Positive lifetime impacts
  - ▶ Smaller than Perry
  - ▶ Currie, Deming

# Preschool can increase learning *if it improves quality of inputs*



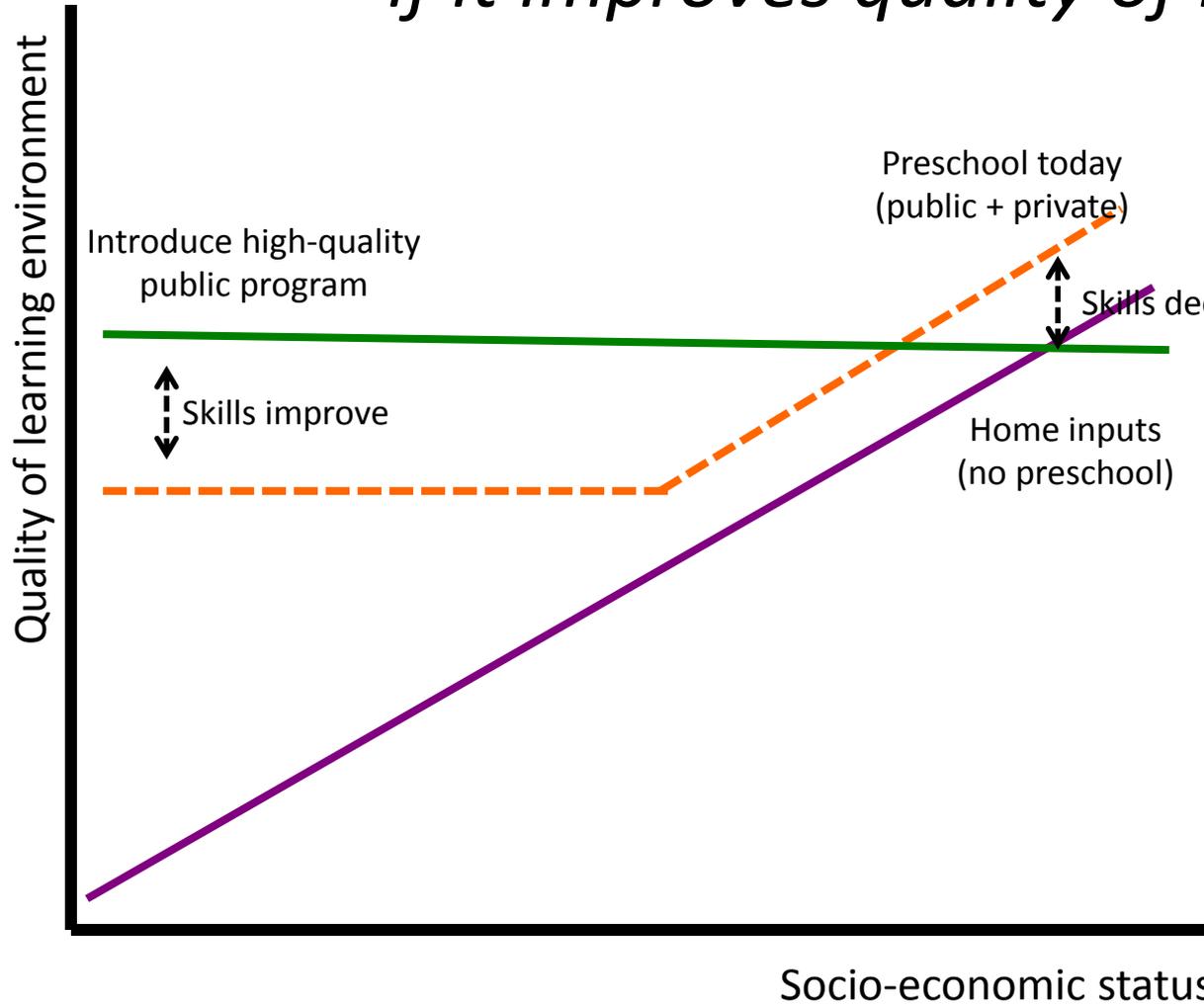
- ▶ Preschool today
  - ▶ More children attend overall
  - ▶ Low-SES attend public programs, varied quality
  - ▶ High-SES attend private, high quality programs
  - ▶ Head Start less likely to represent improvement *relative to counterfactual* (HSIS)

# Preschool can increase learning *if it improves quality of inputs*



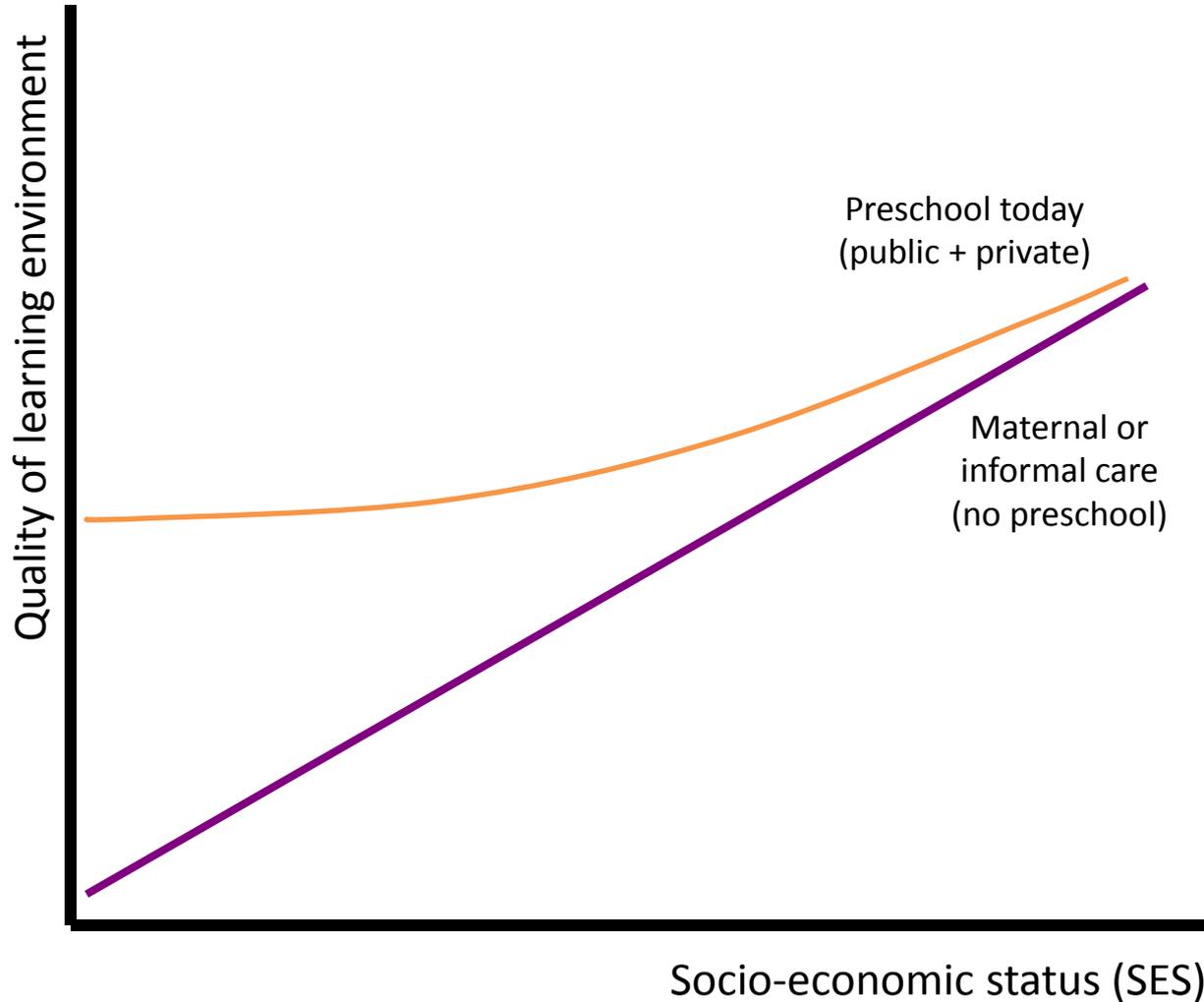
- ▶ High-quality public program: low SES
  - ▶ Improves skills
  - ▶ Smaller improvement than literature b/c counterfactual higher
- ▶ High-quality public program: high-SES
  - ▶ Substitution from private to public
  - ▶ May reduce skills
  - ▶ Families better off, less out of pocket spending

# Preschool can increase learning *if it improves quality of inputs*



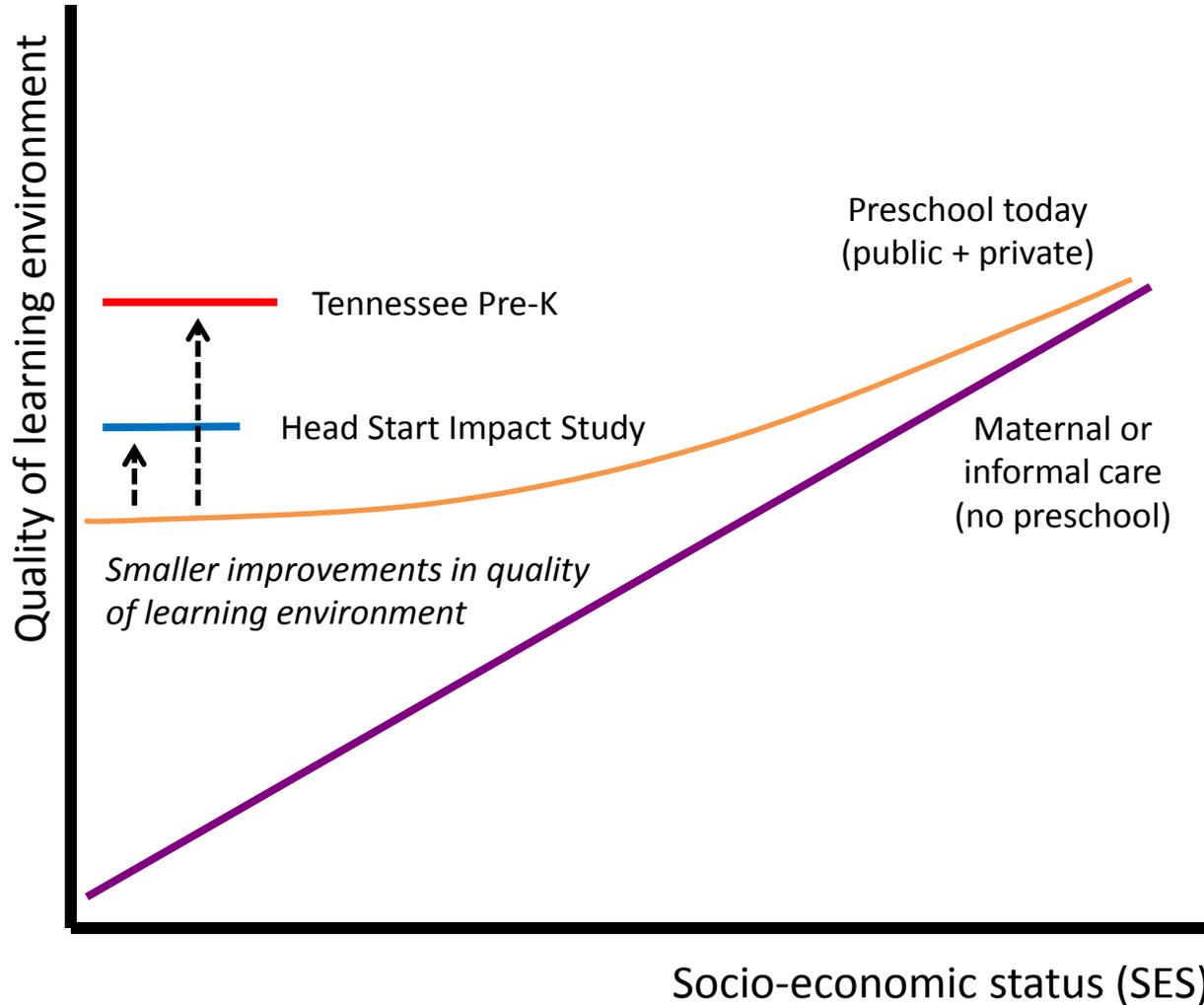
- ▶ Impact depends on
  - ▶ Quality of the counterfactual
  - ▶ Level of quality of new public program
  - ▶ Extent of substitution from private to public (this also impacts cost)

# Important to understand the counterfactual



- Public programs have “shored up” learning environments of low-SES children
- Thus expect modern early intervention to have smaller impacts than model programs

# Understand the Counterfactual



- Public programs have “shored up” learning environments of low-SES children
- Thus expect modern early intervention to have smaller impacts than model programs

# Cascio/Schanzenbach Approach: Context-specific preschool expansion

- No program?
  - Start a high-quality, targeted program
- Existing lower-quality program?
  - Improve quality
- Existing higher-quality program?
  - Expand access
- Caveat:
  - Quality measure probably represents a necessary but not sufficient condition for high-quality program (lessons from K-12)

What do we know about what current  
State pre-K programs do?

(Cascio and Schanzenbach Brookings  
paper)

# Work based on Compelling Research Design

- **Experiments**

- Perry Preschool (1960s), Carolina Abecedarian (1970s)
- Head Start Impact Study (2002)
- Tennessee Voluntary Pre-K Evaluation (2009)

← Programs operating at scale

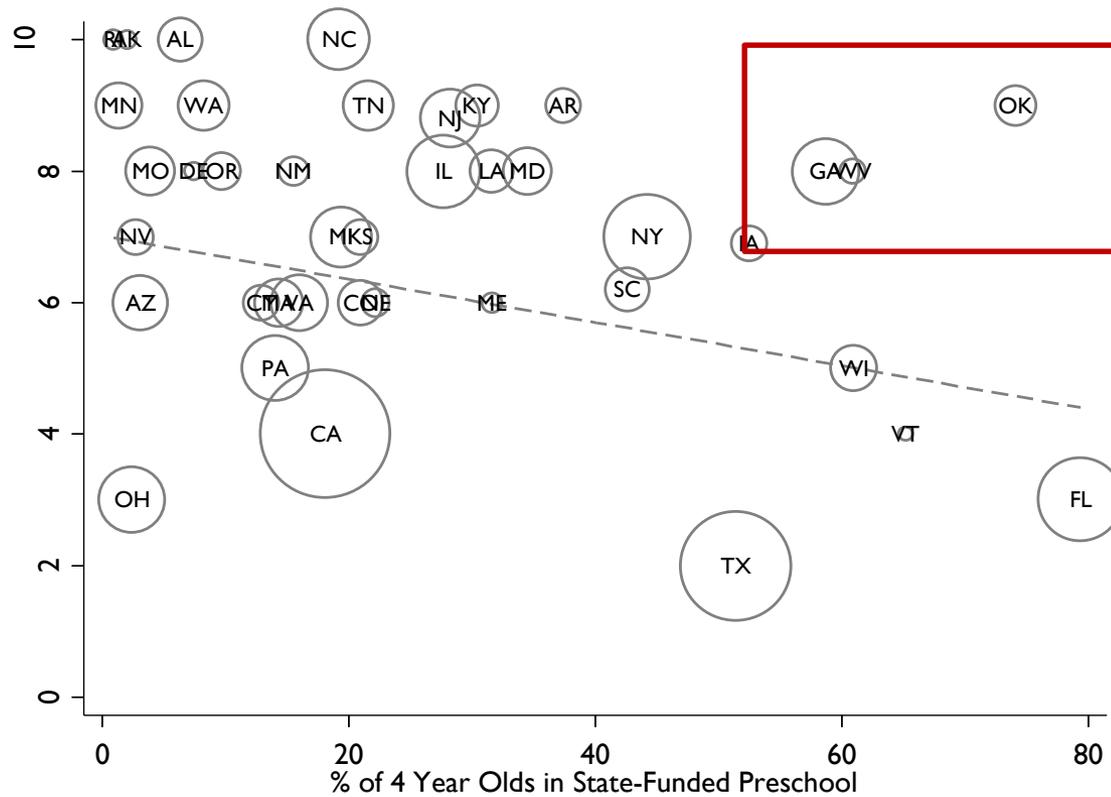
- **Quasi-experiments**

- Sibling comparisons (Head Start)
- “Regression-discontinuity” models (state pre-K programs), based on income eligibility RD or age of child RD
- “Difference-in-differences” models (K and pre-K in the US, public preschool and childcare programs worldwide)

# Cascio & Schanzenbach: The GA and OK Programs

- GA started fall 1995, OK started fall 1998
  - WV and DC much more recent
- Similar quality according to NIEER index, but some differences:
  - GA: ~\$3500/student, state sources only, private centers + public schools
  - OK: ~\$7500/student, shared state & local/fed sources, public schools only
- Existing findings on GA and OK programs limited, mixed
  - ↑ Preschool test scores in OK (Gormley and Gayer 2005; Wong et al. 2008)
  - ↑ 4<sup>th</sup> grade scores, grade progression rates in GA (Fitzpatrick 2008)
  - No impact on maternal labor supply in GA, OK (Fitzpatrick 2010)

## Access & Quality in State-Funded Preschools, 2011-2012



# The scope of their project

- What have been the impacts of the GA and OK programs on a broad range of child and family outcomes? Short and medium term
- The outcomes:
  - Preschool enrollment
  - Maternal labor supply
  - Childcare spending
  - Maternal time investments
  - 4<sup>th</sup> & 8<sup>th</sup> grade test performance

# Data sources

- Preschool enrollment, maternal labor supply
  - October Current Population Survey (CPS), 1977-2011
- Childcare spending
  - Consumer Expenditure Survey (CEX), 1998-2011
- Maternal time investments
  - American Time Use Survey (ATUS), 2003-2011
- 4<sup>th</sup> and 8<sup>th</sup> grade test performance
  - National Assessment of Educational Progress (NAEP)

# Empirical Strategy

- Difference-in-differences (DD)
  - Compare affected cohorts to unaffected cohorts in GA and OK v. rest of US

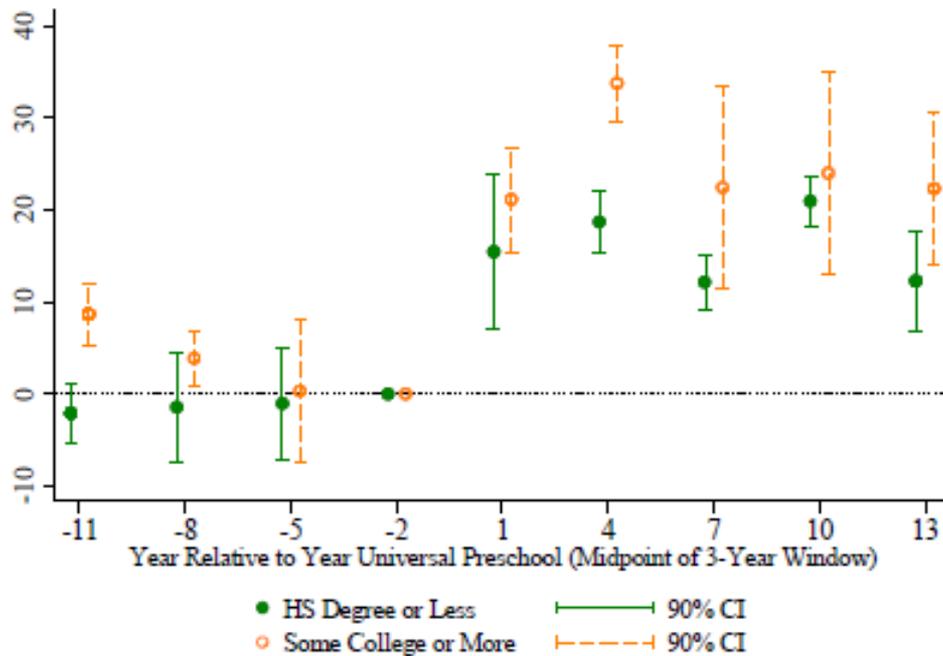
$$y_{st} = \theta post_{st} + \gamma_s + \delta_t + \varepsilon_{st}$$

↑                    ↑                    ↑                    ↑                    \_\_\_\_\_                    State and year fixed effects

Preschool enrollment rate in year  $t$   
or average test score for cohort  $t$  in  
state  $s$

=1 if high-quality universal  
preschool in state  $s$  in year  $t$  or for  
cohort  $t$ , 0 otherwise

# Public Preschool Enrollment



Mom has HS  
degree or less:

Basic DD w/ controls: 16.99\*\*\*  
(1.34)

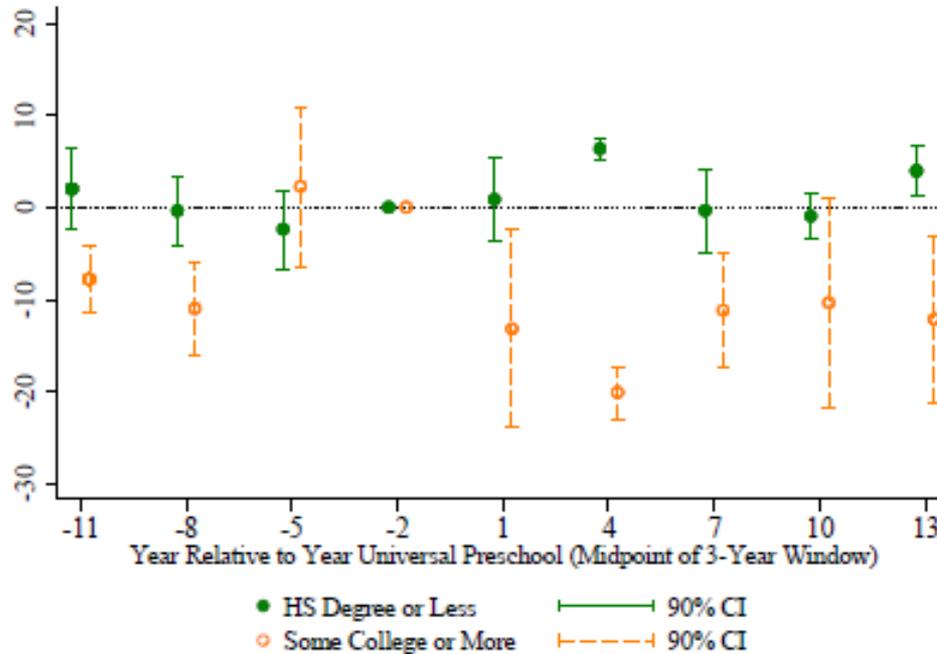
Add state trends: 17.13\*\*\*  
(1.14)

Mom has some  
college or more:

Basic DD w/ controls: 19.72\*\*\*  
(3.54)

Add state trends: 28.66\*\*\*  
(2.77)

# Private Preschool Enrollment



Mom has HS  
degree or less:

Basic DD w/ controls: 1.82 (1.97)

Add state trends: 3.04\*\*\* (0.85)

Mom has some  
college or more:

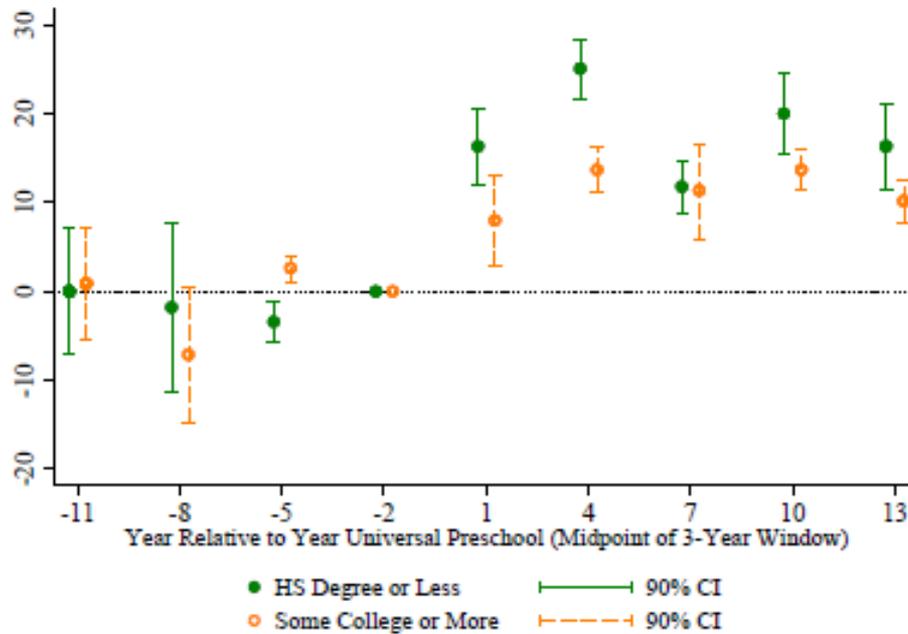
Basic DD w/ controls: -8.04 (6.11)

Add state trends: -14.9\*\*\* (3.24)

4 or 5 out of every 10 higher-SES enrollees  
would have been in private preschool  
CROWDOUT



# Any Preschool Enrollment



Mom has HS  
degree or less:

Basic DD w/  
controls: 18.81\*\*\*  
(2.43)

Add state  
trends: 20.17\*\*\*  
(1.44)

Mom has some  
college or more:

Basic DD w/  
controls: 11.67\*\*\*  
(2.76)

Add state  
trends: 13.77\*\*\*  
(1.13)

Universal preschool programs have larger impacts on preschool enrollment for lower-SES children



# Impacts on child care spending

**Table 3.** Differences-in-Differences Estimates of the Impact of High-Quality Universal Preschool on Monthly Spending on Child Care, by Maternal Education<sup>a</sup>

<i>Coefficient on:</i>	<i>Baseline DD</i> 3-1	<i>Topcode Spending</i> 3-2	<i>Use Median Spending</i> 3-3
<i>a. Mother Has High School Degree or Less (N=920)</i>			
Age4 x GA or OK	35.48*** (9.428)	34.94*** (9.415)	-1.723 (4.145)
Age 4	7.747 (5.716)	8.414 (5.703)	0.0475 (3.582)
GA or OK	-31.34*** (5.595)	-30.36*** (5.445)	-9.438 (6.495)
<i>b. Mother Has Some College or More (N=1008)</i>			
Age4 x GA or OK	-65.86*** (21.66)	-49.69** (19.45)	-56.17*** (14.12)
Age 4	70.37*** (14.25)	63.29*** (12.40)	54.39*** (11.57)
GA or OK	-32.30** (12.87)	-31.47*** (10.94)	4.046 (13.90)
Additional Controls:			
Year Fixed Effects	Y	Y	Y

\$3300-\$5600 income transfer to families that switch from private preschool



# Impacts on maternal time use

**Table 5.** Differences-in-Differences Estimates of the Impact of High-Quality Universal Preschool on Mothers' Time Use, by Maternal Education<sup>a</sup>

<i>Coefficient on:</i>	<i>Time spent with child present 5-1</i>	<i>Time spent caring for and/or helping child 5-2</i>
<i>a. Mother Has High School Degree or Less (N=96)</i>		
Age4 x GA or OK	-46.18*	24.96**
Age 4	(24.65)	(11.59)
GA or OK	52.74***	16.34***
	(11.80)	(6.693)
	27.95	-15.65
	(41.25)	(10.95)
Constant	477.3***	101.6***
	(12.12)	(5.787)
<i>b. Mother Has Some College or More (N=102)</i>		
Age4 x GA or OK	2.702	-7.703
Age 4	(44.41)	(7.352)
	13.29	13.31***
	(10.50)	(4.867)
	-1.274	-7.849
	(34.52)	(6.122)
Constant	461.8***	121.5***
	(7.781)	(3.408)

significant ↓ in  
childcare time  
for moms



significant ↑ in  
"quality time"



# Childcare Spending, Maternal Time

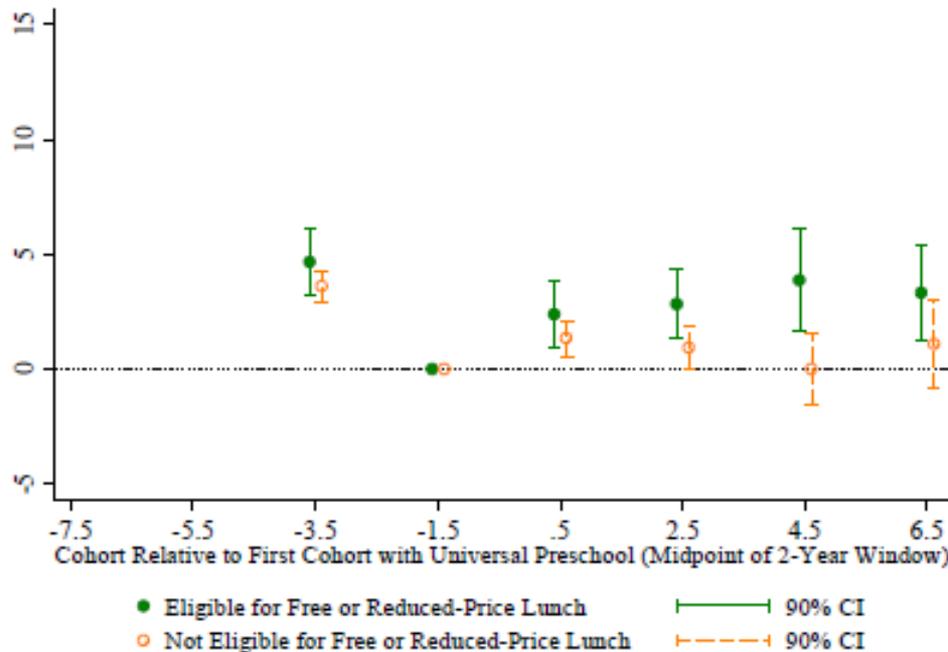
- Estimates align with enrollment findings:
  - Higher-SES families: significant ↓ in childcare spending
    - \$3300-\$5600 income transfer to families that switch from private preschool
  - Lower-SES families: significant ↓ in childcare time for moms
    - Consistent with length of preschool day
- But interesting add'l finding: significant ↑ in “quality time” between mothers & children in lower-SES families
  - Spent reading, playing, talking
- No impact on maternal labor supply

# Test score impacts

- Test score “fade-out” problem
  - Well-known in early childhood literature
  - Consistent across Perry, Head Start, TN-STAR kindergarten
  - Impacts diminish, but not usually to zero
- Suggests this may be an under-statement of long-term impacts

# 4<sup>th</sup> Grade Math Scores

## a. Grade 4 Mathematics



Children in low-income families:

Basic DD: 1.77  
(1.79)

+ controls: 3.14\*  
(1.21)

Children in higher-income families:

Basic DD: -0.26  
(1.13)

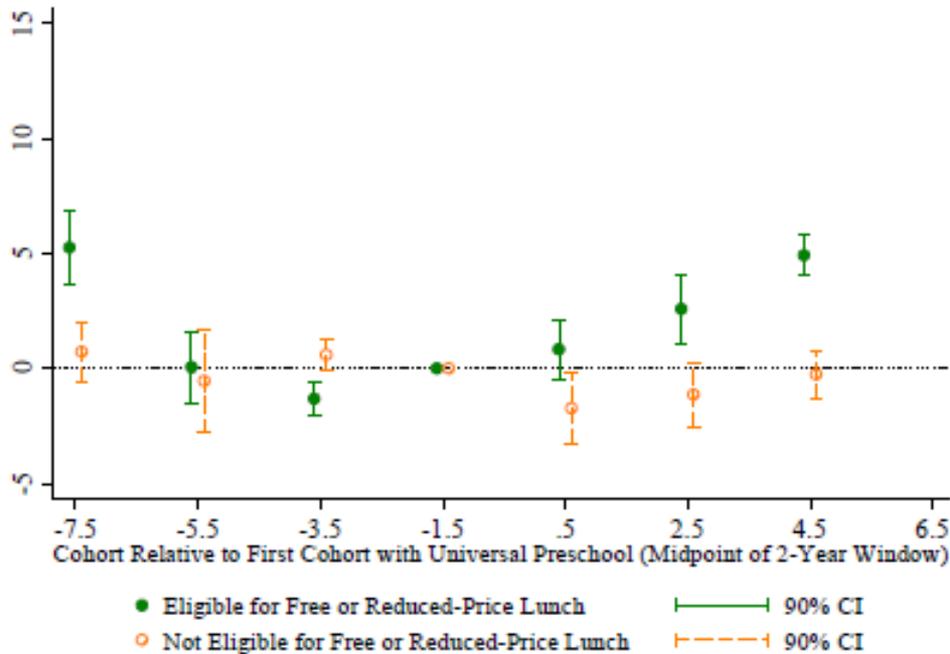
+ controls: 0.86  
(0.72)

Modest impact of universal preschool programs on 4<sup>th</sup> grade math scores of low-income children (0.06-0.07 $\sigma$ ).



# 8<sup>th</sup> Grade Math Scores

## c. Grade 8 Mathematics



Children in low-income families:

Basic DD: 2.15  
(1.94)  
+ controls: 2.15\*  
(1.12)

Children in higher-income families:

Basic DD: -1.12  
(1.03)  
+ controls: -1.29  
(0.84)

Modest impact of universal preschool programs on 8<sup>th</sup> grade math scores of low-income children



# Conclusions

- Effects of the GA and OK programs have varied across the income distribution
  - Lower-SES families: ↑'s in preschool enrollment, “quality time” with mom, 8<sup>th</sup> grade math scores
  - Higher-SES families: less ↑ in preschool enrollment, but income transfer (from crowd-out), no sig.  $\Delta$  in 8<sup>th</sup> grade scores
- Would more targeting be more efficient?
  - ↓ costs
  - But are higher-SES kids in preschool classrooms the key benefit?
- Degree of cost-sharing a challenging issue for state policymakers if “Preschool for All” implemented

# Remaining questions

- When do 3 year-olds (or earlier) become a better investment than preschool expansion?
- What is gain from expanding from half- to full-day program?
- Besides academic achievement, what else impacted by preschool?
  - Fade-out of academic impacts
  - Mechanisms may be through non-cognitive, “personality” skills

Early Childhood Education –  
Short and Long Run Effects of  
Head Start

PP290

Hilary Hoynes

# Background on Head Start and early child education in the U.S. context

# Background on Head Start

- Goal: improve outcomes for low-income pre-school children and their parents
- Promotes school readiness for low-income children, primarily ages 3 and 4.
- Started as part of War on Poverty in 1965
- Primarily funded federally, but locally administered.
- Currently serving around 900,000 children at \$7 billion

# Head Start Appropriations, \$2009



# Background on Head Start (cont.)

- Eligibility – family must have income below poverty line (or receive public assistance TANF/SSI).
- (10 percent of slots must go to disabled)
- Services: education and cognitive development, health care, nutrition & social services
- Run by 1,600 local agencies (non-profits, government, church, school systems)
- Local programs have considerable discretion in the design and operation of programs → much variation in programs, quality
- Obama Administration recently implemented new HS evaluation programs: requiring re-competition for centers not performing above standard

## **HS is a large share of Federal early childhood \$**

Program	Federal \$2010, billions
Head Start (no Early HS)	6.70
Early Head Start	1.00
Child care subsidies	5.70
Child Care Food Program	1.40
Child Care Tax Credits	2.20
DoD child care	0.75
Title 1 preschool	0.50
Preschool special education	0.57
Infant/toddler disability interventions	0.63
Home visits	0.10

Source: Haskins and Barnett (2010).

Demonstrates that HS is the most important piece of federal \$\$ in this area.

# Non-experimental evidence on the effects of Head Start

Including the assigned Deming paper

# Summary of non-experimental evidence on Head Start

- Effects on cognitive skills: Several studies use sibling / family fixed effects design and find positive effects on test scores but they fade out (Currie and Thomas 1995, Garces, Currie & Thomas 2002)
- Longer term outcomes: Consistent evidence using different quasi experimental designs that despite the fadeout in test scores, there are positive effects on longer term health, education and labor market outcomes
  - Deming (2009), Garces et al (2002) sibling / family fixed effects
  - Miller & Ludwig (2007) RD on program rollout
  - Carneiro & Ginja (2014) RD on income eligibility rules

# Sibling, Family Fixed Effect Estimators

$$Y_{ij} = \alpha + \beta_1 HS_{ij} + \beta_2 PRE_{ij} + \delta \mathbf{X}_{ij} + \gamma_j + \varepsilon_i,$$

- $i$  = individual,  $j$  = family
- $HS$  is “treatment” indicator,  $\beta_1$  is the parameter of interest ( $PRE$  is other preschool dummy, omitted group is no preschool)
- $\gamma_j$  is a dummy for family  $j$  (family fixed effect)
- $X$  are pre-treatment characteristics (such as maternal education)

# Sibling, Family Fixed Effect Estimators

- Need to have different choices for the siblings to contribute to the identification of the HS treatment effect (one in HS one not)
- Identifying assumption: whatever causes different treatment across children, it is not related to determinants of the outcome variable
- Family FE absorb what is constant across kids, which is great. But what is different that one is at HS and the other is not? More able or less able?

# Deming's paper and findings: Data

- National Longitudinal Mother-Child Supplement (CNLSY), which surveyed the mothers of the NLSY 1979 every two years from 1986 until 2004
- Birth cohorts for children: enrolled in Head Start between 1984 and 1990
- Sample restricted to those who were 4 by 1990 (so could observe long run outcomes; all were age 19+ by 2004) and those in families with at least two age-eligible children (for sibling difference model)
- 3,698 children

# Outcomes

- School age outcomes:
  - Cognitive scores (Peabody Picture Vocabulary Test PPVT, the Peabody Individual Achievement Test PIAT) for ages 5-14
  - grade retention and the diagnosis of a learning disability
- Young adult outcomes:
  - High school graduation, college attendance, “idleness,” crime, teen parenthood, and health status.

# Standardized indices

- Idea is to aggregate information over multiple outcomes
  - Improve statistical power
  - Deals with “multiple inference” problem
  - Reduces measurement error
- Normalize each outcome to have mean zero and standard deviation 1 (z-score). Turn all outcomes so positive means good.
- Summary measure is average of the z-score of each component (simple average, equal weighted) [j is the outcome, i is individual]

$$y_i = \frac{1}{J} \sum_j \frac{y_{ij} - \mu_j}{\sigma_j}$$

TABLE 3—THE EFFECT OF HEAD START ON COGNITIVE TEST SCORES

	(1)	(2)	(3)	(4)	(5)
Head Start					
Ages 5–6	–0.025 (0.091)	0.081 (0.083)	0.093 (0.079)	0.131 (0.087)	0.145* (0.085)
Ages 7–10	–0.116 (0.072)	0.040 (0.065)	0.067 (0.061)	0.116* (0.060)	0.133** (0.060)
Ages 11–14	–0.201*** (0.070)	–0.053 (0.065)	–0.017 (0.061)	0.029 (0.061)	0.055 (0.062)
Other preschools					
Ages 5–6	0.167** (0.083)	0.022 (0.082)	–0.019 (0.078)	–0.102 (0.084)	–0.079 (0.085)
Ages 7–10	0.230*** (0.070)	0.111* (0.064)	0.087 (0.061)	0.031 (0.061)	0.048 (0.065)
Ages 11–14	0.182** (0.072)	0.076 (0.068)	0.037 (0.065)	–0.040 (0.066)	–0.022 (0.069)
Permanent income (standardized) mean (0), SD (1)			0.112* (0.064)		
Maternal AFQT (standardized) mean (0), SD (1)			0.353*** (0.057)		
Mom high school			0.141** (0.071)		
Mom some college			0.280*** (0.080)		
<i>p</i> (all age effects equal—Head Start)	0.074	0.096	0.161	0.092	0.151
Pre-treatment covariates	N	Y	Y	N	Y
Sibling fixed effects	N	N	N	Y	Y
Total number of tests	4,687	4,687	4,687	4,687	4,687
<i>R</i> <sup>2</sup>	0.028	0.194	0.268	0.608	0.619
Sample size	1,251	1,251	1,251	1,251	1,251

OLS,  
selection  
into HS vs  
PRE



Notes: The outcome variable is a summary index of test scores that includes the child's standardized PPVT and

TABLE 4—THE EFFECT OF HEAD START OVERALL AND BY SUBGROUP

	Test scores				Nontest score	Long term
	5–6 (1)	7–10 (2)	11–14 (3)	5–14 (4)	7–14 (5)	19+ (6)
<i>Panel A: Overall</i>						
Head Start	0.145* (0.085)	0.133** (0.060)	0.055 (0.062)	0.101 (0.057)	0.265*** (0.082)	0.228*** (0.072)
Other preschools	-0.079 (0.085)	0.048 (0.065)	-0.022 (0.069)	-0.012 (0.062)	0.172* (0.088)	0.069 (0.072)
<i>p</i> (HS = preschool)	0.021	0.254	0.315	0.118	0.372	0.080
<i>Panel B: By race</i>						
Head Start (black)	0.287*** (0.095)	0.127* (0.075)	0.031 (0.076)	0.107 (0.072)	0.351*** (0.120)	0.237** (0.103)
Head Start (white/Hispanic)	-0.057 (0.120)	0.111 (0.092)	0.156 (0.095)	0.110 (0.090)	0.177 (0.111)	0.224** (0.102)
<i>p</i> (black = nonblack)	0.024	0.895	0.308	0.982	0.282	0.924
<i>Panel C: By gender</i>						
Head Start (male)	0.154 (0.107)	0.181** (0.079)	0.141** (0.081)	0.159** (0.076)	0.390*** (0.123)	0.182* (0.103)
Head Start (female)	0.128 (0.106)	0.059 (0.083)	0.033 (0.085)	0.055 (0.081)	0.146 (0.108)	0.272** (0.106)
<i>p</i> (male = female)	0.862	0.287	0.357	0.346	0.135	0.553
<i>Panel D: By maternal AFQT score</i>						
Head Start (AFQT ≤ -1) ( <i>n</i> = 361)	0.171 (0.129)	0.016 (0.095)	-0.023 (0.102)	0.015 (0.094)	0.529*** (0.156)	0.279** (0.114)
Head Start (AFQT > -1) ( <i>n</i> = 890)	0.133 (0.094)	0.172** (0.073)	0.144* (0.074)	0.154** (0.071)	0.124 (0.091)	0.202** (0.091)
<i>p</i> (low = high AFQT)	0.809	0.198	0.192	0.245	0.024	0.595

TABLE 5—POINT ESTIMATES FOR INDIVIDUAL OUTCOMES

	All	Black	Nonblack	Male	Female	Low AFQT	High AFQT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Grade repetition	-0.069* (0.040)	-0.107* (0.056)	-0.027 (0.059)	-0.204*** (0.058)	0.055 (0.057)	-0.140** (0.069)	-0.031 (0.050)
Learning disability	-0.059*** (0.021)	-0.071** (0.028)	-0.046 (0.030)	-0.047 (0.030)	-0.070*** (0.026)	-0.109*** (0.042)	-0.032 (0.021)
High school graduation	0.086*** (0.031)	0.111*** (0.041)	0.055 (0.048)	0.114** (0.048)	0.058 (0.044)	0.167*** (0.056)	0.042 (0.036)
not including GED	0.063* (0.034)	0.067 (0.044)	0.058 (0.051)	0.108** (0.052)	0.021 (0.047)	0.126** (0.063)	0.027 (0.038)
At least one year of college attempted	0.057 (0.036)	0.136*** (0.049)	-0.034 (0.050)	0.022 (0.045)	0.091* (0.054)	0.012 (0.051)	0.082* (0.047)
Idle	-0.071* (0.038)	-0.030 (0.053)	-0.123** (0.055)	-0.100** (0.049)	-0.043 (0.052)	-0.070 (0.070)	-0.072 (0.045)
Crime	0.019 (0.040)	0.051 (0.050)	-0.020 (0.062)	0.036 (0.058)	0.002 (0.057)	0.038 (0.072)	0.008 (0.047)
Teen parenthood	-0.019 (0.036)	-0.040 (0.052)	-0.001 (0.053)	0.011 (0.052)	-0.047 (0.056)	-0.038 (0.065)	-0.008 (0.043)
Poor health	-0.070*** (0.026)	-0.047 (0.035)	-0.094** (0.043)	-0.036 (0.037)	-0.102** (0.042)	-0.090* (0.047)	-0.060* (0.033)

Experimental evidence on Head Start  
The Head Start Impact Study

# Head Start Impact Study

- Mandated by Congress in 1998 (as part of reauthorization); goal to assess effects on school readiness and parental outcomes.
- First randomized experimental evaluation of HS
- Randomly assigned 3- and 4-year old children at oversubscribed programs to either an offer of placement in a HS program or no offer → “lottery design”
- Treatment is offer for slot for one year
- All students are first time applicants
- Sample: 2,449 in 3-year cohort, 1,993 in 4-year cohort
- 84 HS regional programs; randomization at 353 centers

# Head Start Impact Study (cont)

- Timeline:
  - Spring 2002: Applications, lottery
  - Fall 2002: Head Start (treatment) year begins, [baseline testing and survey]
  - Spring 2003: Head Start (treatment) year ends
  - Followed through 3<sup>rd</sup> grade (spring 2008 for 3-year cohort and spring 2007 for 4-year cohort)
  - 3-year cohort potentially has 2<sup>nd</sup> HS year (not explicit component of HSIS)

*Data available for outcomes through 1<sup>st</sup> grade*

# Studies using the HSIS

- Using the HSIS, Gelber and Isen (2011) find improvements in parental involvement (some human capital enhancing) that persist.
- Kline and Walters (2014) and Feller et al (2014) explore heterogeneity in impacts due to the counterfactual care setting.
- Walters (2014) finds some evidence of larger treatment effects in centers with full-day programs and more significant home visiting programs

# Bitler, Hoynes and Domina “Distributional Effects of Head Start”

- We use quantile treatment effects to explore the effects of Head Start on the distribution of cognitive outcomes
- We also examine how the impacts of the program vary across subgroups: race, ethnicity, English language learners
- This allows us to test: do the gains accrue disproportionately to the higher or lower end of the skill distribution?
- This sheds light on alternative theories about effects of early education: compensatory role vs. skills-beget-skills

# Expectations: What should we expect in terms of heterogeneous effects of Head Start?

- *Compensatory role*: Largest effects of an education intervention accrue to those with the lowest skills. This has been found for early childhood education in observational studies (e.g. Magnuson 2004, Duncan and Magnuson 2013)
  - Head Start performance standards explicitly focus attention on basic skills and the program's mission is to serve at risk children → this may be relevant here
- *Skill begets skill / dynamic complementarities*: Skills students bring into early child education correlate with gains → gains to higher achieving students (Cunha & Heckman 2010)

# Our analysis sample: 3-year old cohort

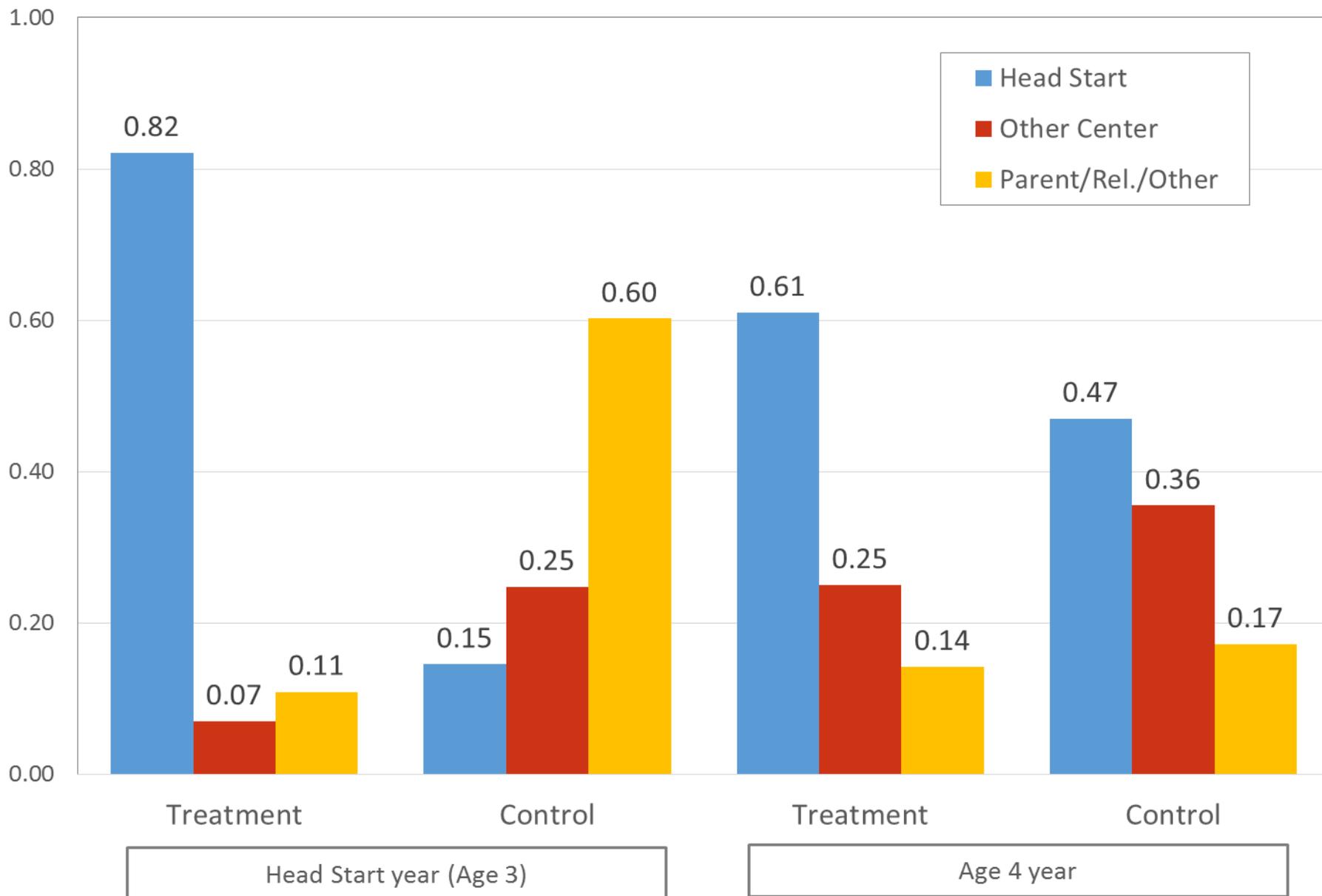
- Eligibility for HSIS required children to be first time HS applicants
  - Not binding for 3-year olds, more so for 4-year olds; result is that 4 year olds look more disadvantaged
- Given current policy setting (e.g., the growth of public pre-K programs) 4-year olds have more options other than HS. There are fewer options for 3-year olds.
  - Cascio and Schanzenbach (2013) review and analyze public pre-K programs. 40 states had programs by 2011 (although only a few are universal).

*Our sample consists of 2,449 3-year olds, 1464 in treatment and 985 in control*

# HSIS treatment and counterfactual

- As is common for this type of intervention, the offer of treatment does not translate one-for-one into Head Start participation
- There were “no-shows”: about 16 percent of treatment children did not end up at a HS center
- There were “crossovers”: about 15 percent of control children ended up in HS (presumably a different center than application)
- Given this, we show intent-to-treat (the impact of being offered a slot) but focus on treatment-on-treated (effect of HS using offer as instrument)
  - ITT: basic comparison of T and C
  - TOT: ITT scaled by takeup (also as IV, with lottery as instrument for HS attendance)

Child Care Settings by Treatment and Control, Head Start year and Age 4 year



# First Stage

	Treatment Mean	Control Mean	Difference T-C
<u><i>Head Start in HS Year</i></u>			
Head Start (Administrative report)	0.857	0.153	0.705***
<u><i>Parent Report, Spring 2003</i></u>			
Head Start	0.823	0.146	0.677***
Other Center	0.068	0.252	-0.183***
Family day care	0.014	0.064	-0.050***
Parent/relative	0.094	0.536	-0.442***
Not reported	0.001	0.002	-0.001
<u><i>Parent Report, Spring 2004</i></u>			
Head Start	0.608	0.473	0.135***
Other Center	0.250	0.355	-0.105***
Family day care	0.018	0.015	0.003
Parent/relative	0.077	0.103	-0.025
Kindergarten	0.016	0.021	-0.005
Not reported	0.031	0.033	-0.002

# Outcomes measured in HSIS

## Cognitive Skills

1. PPVT: measures vocabulary and verbal ability
  2. Woodcock Johnson III Pre-academic Skills (Applied problems, Letter/Word, Spelling): more “achievement” oriented
- We focus on these tests because they are available for each year. Also, PPVT and early math assessments (WJIII Applied Problems) are known to be predictive of later life achievement (Duncan et al 2007)

# Outcomes measured in HSIS

## Non-cognitive skills

1. Adjustment Scales for Preschool Intervention (ASPI):  
emotional, behavioral adjustments
  - 144 items; collapsed to 5 behavioral dimensions and 3 situational dimensions. We also collapse further to 3 standardized indices
2. PIANTA scale: measures closeness, conflict and positive-ness of relationship

Limitation: Teacher reports not available until Kindergarten (come from parent reports).

# Mean impacts of HSIS on PPVT

	Inverse P-Score Weights			Baseline Child Weights	
	Control mean [SD]	Reduced form (SE)	2SLS (SE)	Control mean [SD]	Reduced form (SE)
<i>PPVT scores</i>					
Baseline PPVT, fall 2002	231 [38]	-0.003 (1.84)		231 [39]	-0.88 (2.25)
PPVT, spring 2003	251 [38]	7.20*** (1.64)	10.20*** (2.40)	252 [37]	6.56*** (2.04)
PPVT, spring 2004	298 [40]	2.89 (1.81)	4.15 (2.60)	299 [41]	2.49 (2.31)
PPVT, spring 2005	339 [29]	0.21 (1.29)	0.30 (1.84)	340 [29]	0.76 (1.49)
PPVT, spring 2006	358 [30]	2.00 (1.42)	2.90 (2.07)	358 [30]	3.05 (1.94)

- No significant difference at baseline (good)
- Gains in preschool year [ITT: 0.2 SD, IV: 0.3 SD or 40% incr.]
- Mean impacts not much affected by inverse propensity score weighting
- Fade-out (positive, not significant) in elementary school

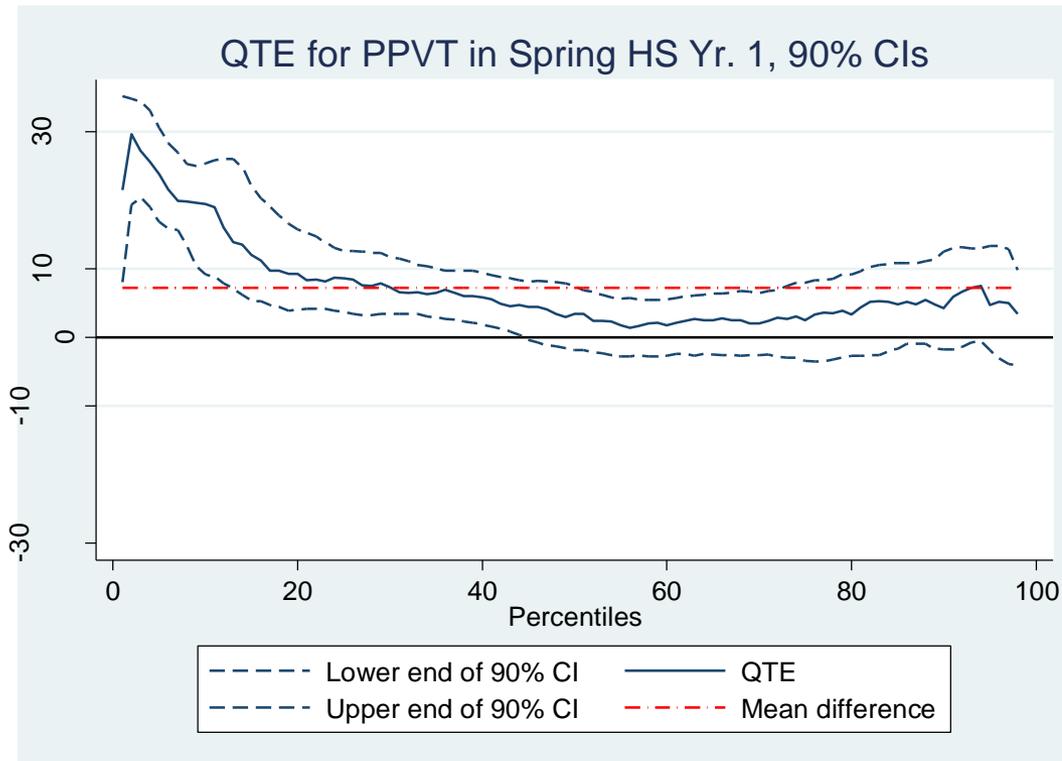
## RESULT 1:

Effect of HSIS on cognitive scores during the Head Start year for the full 3-year old sample

# Quantile treatment effect

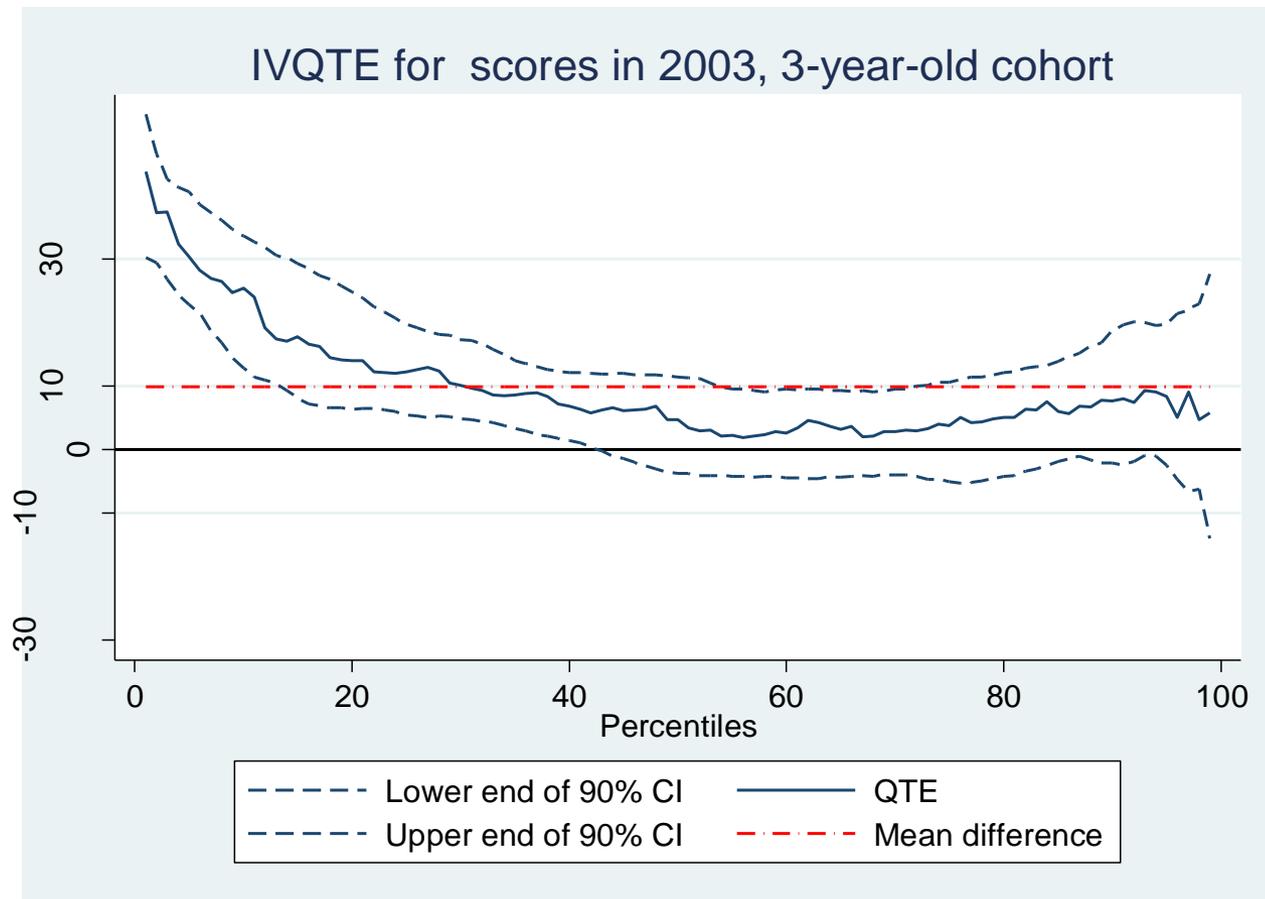
$$\Delta_q = y_q(1) - y_q(0)$$

- $y_q(t)$  =  $q$ th quantile of the marginal distributions (of T and C)
- QTE is the difference between quantiles of the T and C distribution
- For example, the QTE at percentile 50 is the difference in medians of the T and C distribution.
- *Interpretation: change in expected value of the outcome at the  $q$ th quantile when the offer is made to the control distribution.*
- Given random assignment: the impact of the treatment on the distribution can be estimated without any further assumptions (non-parametric estimator; simple treatment-control comparisons)
- We implement this using inverse propensity score weights



## (Reduced Form ITT) QTE for PPVT in end of HS Year

1. Positive cognitive effects across the distribution
2. Gains much larger at the bottom of the distribution
3. Large effects relative to PPVT SD = 38



## Moving on to IV-QTE:

- Similar to QTE but scaled up
- Large effects: in the bottom quintile from 0.32 to 1 SD
- Clear evidence in favor of the compensatory theory

## RESULT 2:

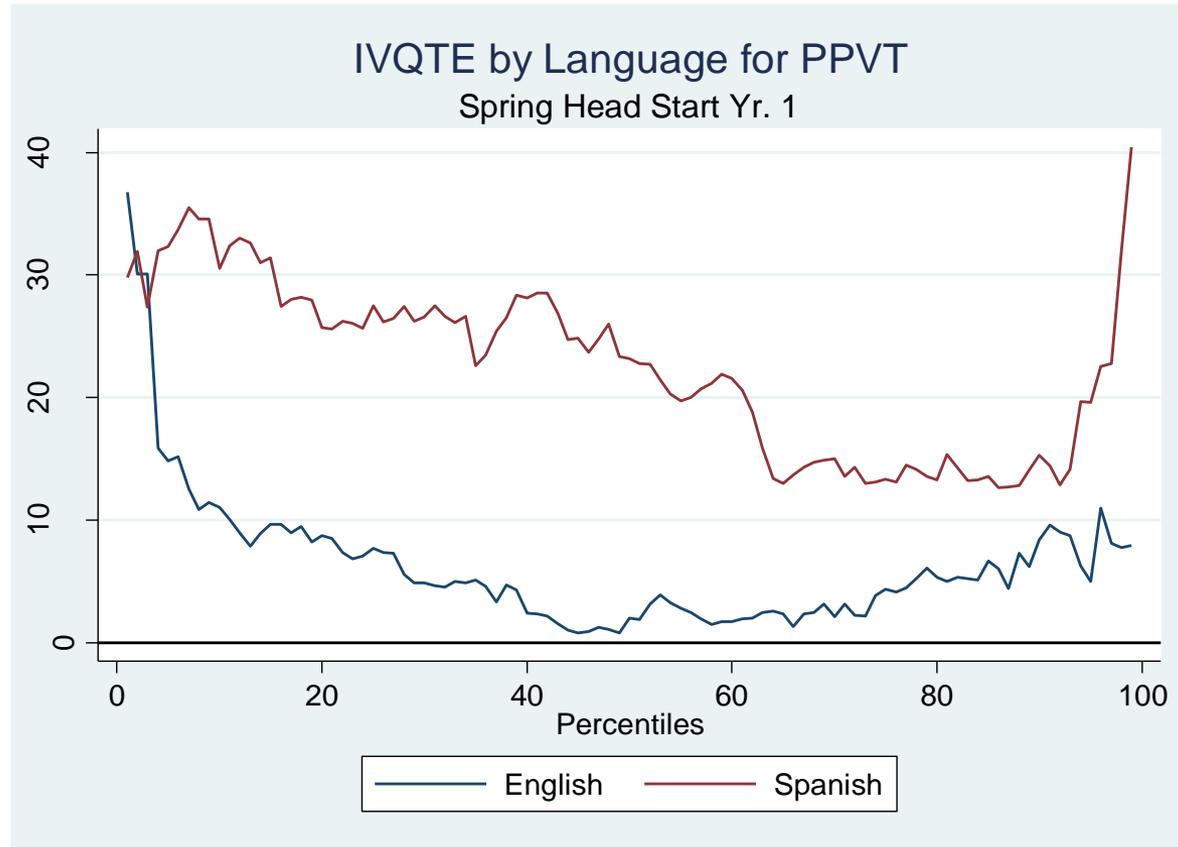
Effect of HSIS on cognitive scores during the  
Head Start year for subgroups

- Another dimension of heterogeneity is to examine effects across groups
- We concentrate here on: race, ethnicity, language and terciles of the baseline score

	Control mean [SD]	Reduced form (SE)	First stage (SE)	Two-stage least (SE)
<i>Race/ethnicity subgroups</i>				
Hispanic	234 [39]	11.54*** (3.06)	0.673*** (0.060)	17.13*** (4.94)
Non-Hispanic Black	250 [32]	5.19** (2.58)	0.694*** (0.046)	7.48* (3.83)
Non-Hispanic White	268 [34]	6.49** (3.14)	0.749*** (0.033)	8.66** (4.23)
<i>Language subgroups</i>				
Spanish speaker at home	223 [32]	15.0*** (3.30)	0.672*** (0.057)	22.37*** (5.65)
English speaker at home	261 [34]	4.93*** (1.86)	0.717*** (0.029)	6.87*** (2.62)
<i>Baseline PPVT score tercile subgroups</i>				
Bottom tercile, baseline PPVT	229 [33]	11.2*** (2.77)	0.787*** (0.035)	14.2*** (3.73)
Middle tercile, baseline PPVT	251 [30]	2.21 (2.45)	0.641*** (0.047)	3.44 (3.84)
Top tercile, baseline PPVT	274 [36]	7.50** (3.16)	0.674*** (0.041)	11.13** (4.78)

- Significant differences in effect of HS participation across groups
- Additional evidence for compensatory role in Head Start

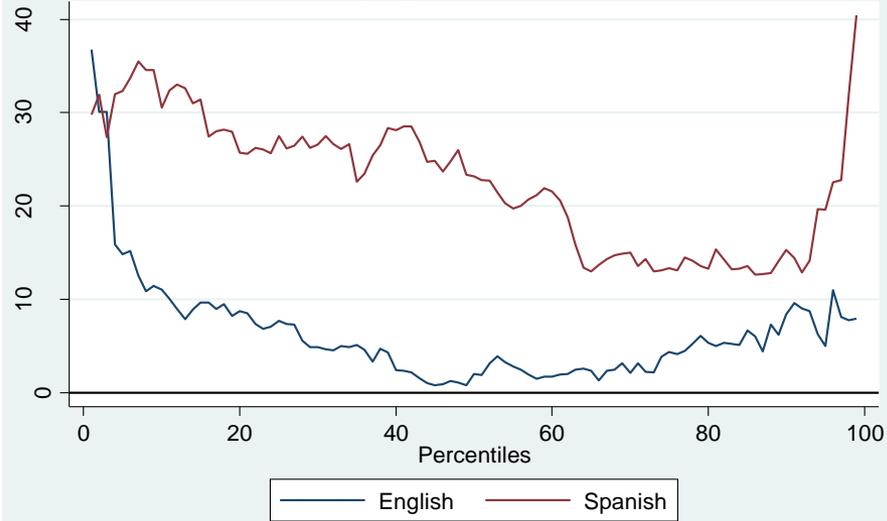
# IV-QTE by language



- Dramatic differences across groups: much larger effects for Spanish speakers and further up the distribution → more than 0.3 SD through the 60th percentile

# IV-QTE by language

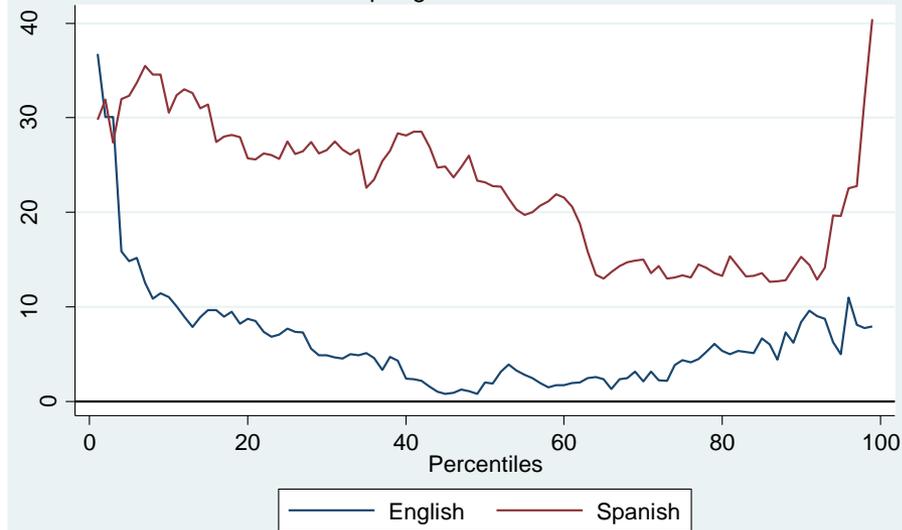
IVQTE by Language for PPVT  
Spring Head Start Yr. 1



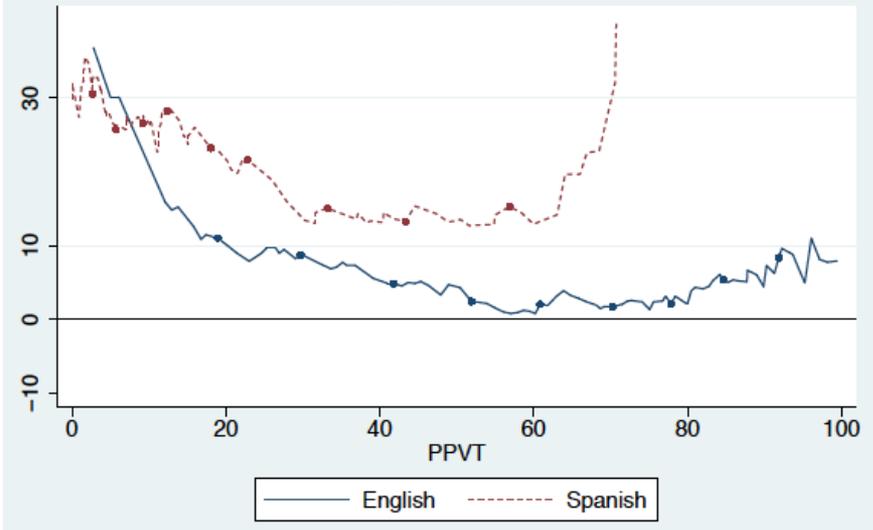
- Examining conditional QTEs is useful
- But one has to be cautious in looking across groups because each is plotted on their own percentile scale
- We also create “translated” QTE where we convert them both to the same absolute scale

# IV-QTE by language

IVQTE by Language for PPVT  
Spring Head Start Yr. 1



Translated IVQTE by Language for PPVT  
Spring Head Start Yr. 1



- Translated QTE: same absolute scale is percentiles of the full sample control group
- Translated show same magnitudes in the bottom decile. Larger gains for Spanish speakers up through the distribution.

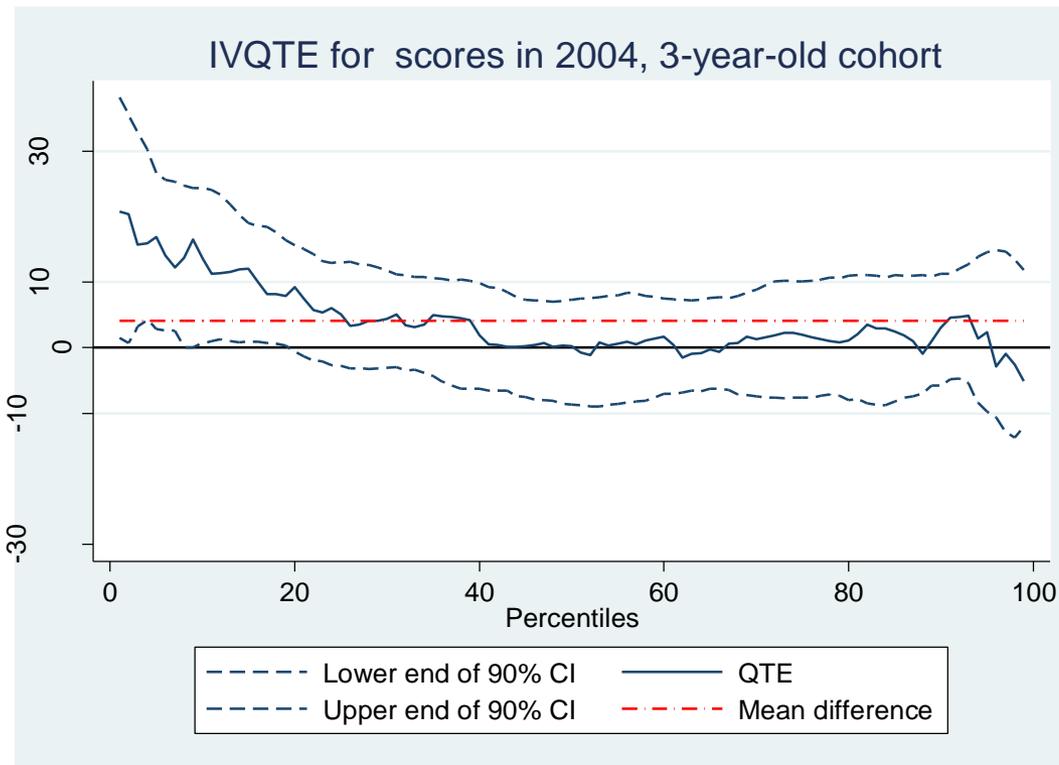
# Summary of effects for cognitive outcomes in Head Start year

- HS leads to increases in cognitive skills
- Compelling evidence of heterogeneous effects of HS
- Analysis across groups and across the distribution, we find evidence in favor of compensatory hypothesis
- Gains largest at the bottom of the skill distribution
- Differences in counterfactual care setting do not appear to explain across group treatment effects

## RESULT 3:

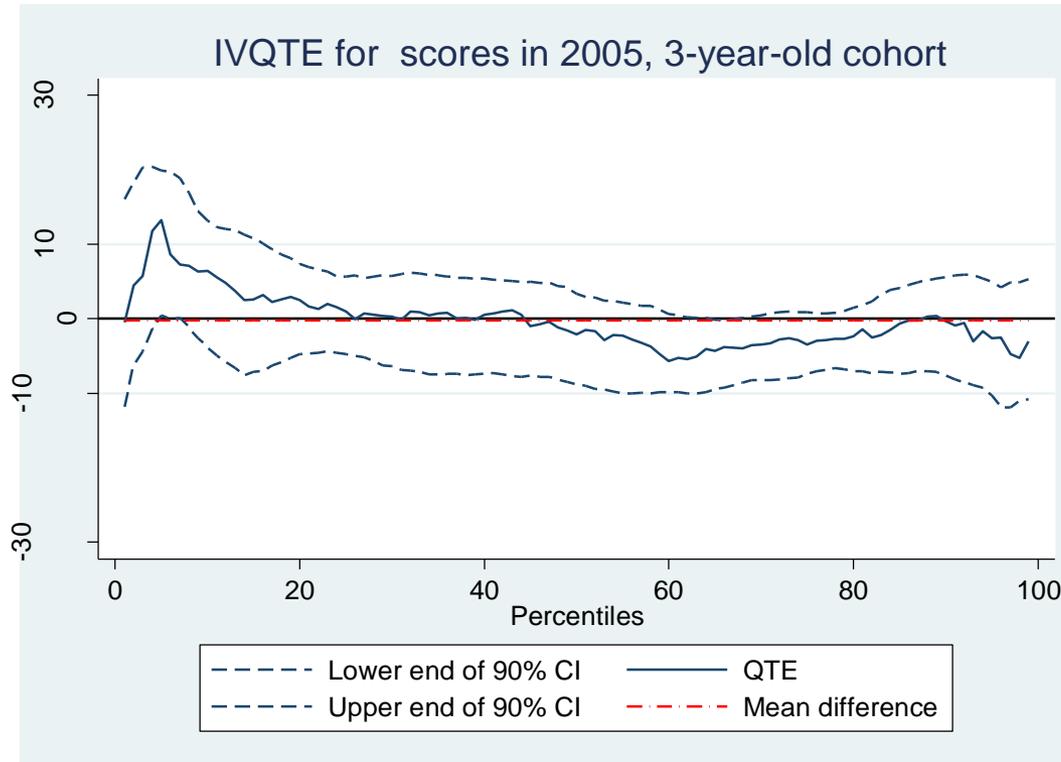
Effect of HSIS on cognitive scores beyond the  
Head Start year

# 3-year old cohort, Preschool Age 4, PPVT

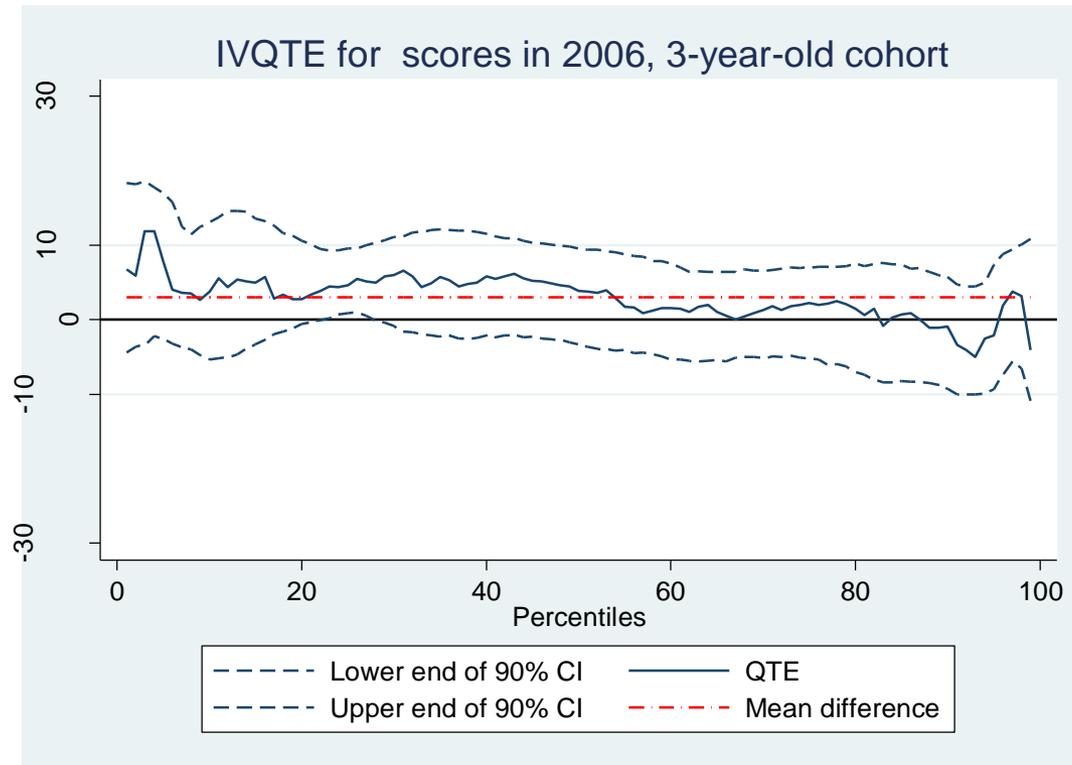


- Positive effects at the bottom persist through the end of preschool years
- [Remember that the first stage here and for all outcomes is HS participation in the 1<sup>st</sup> year]

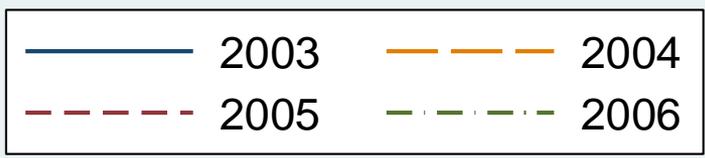
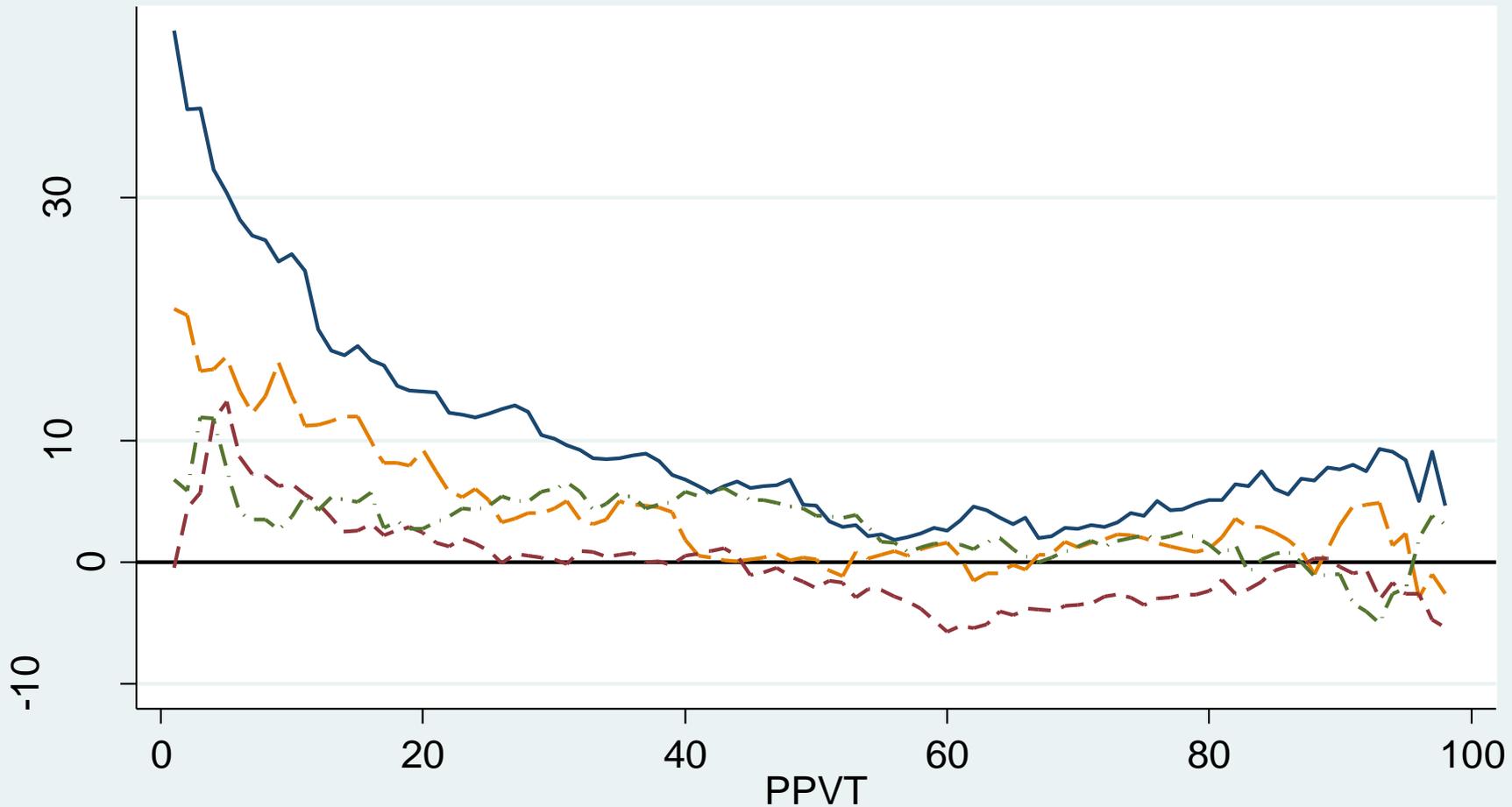
# 3-year old cohort, Kindergarten, PPVT



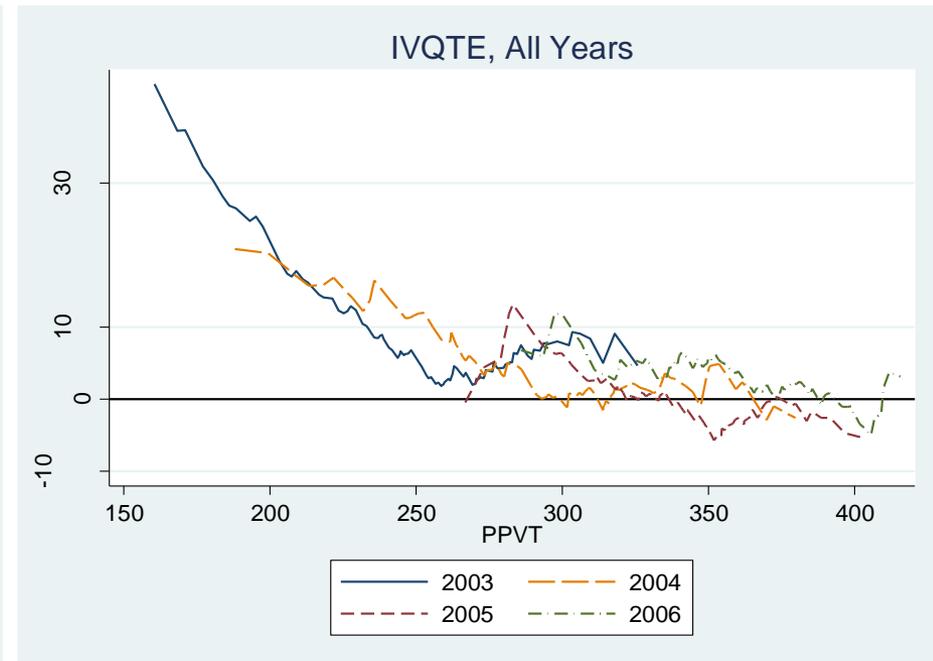
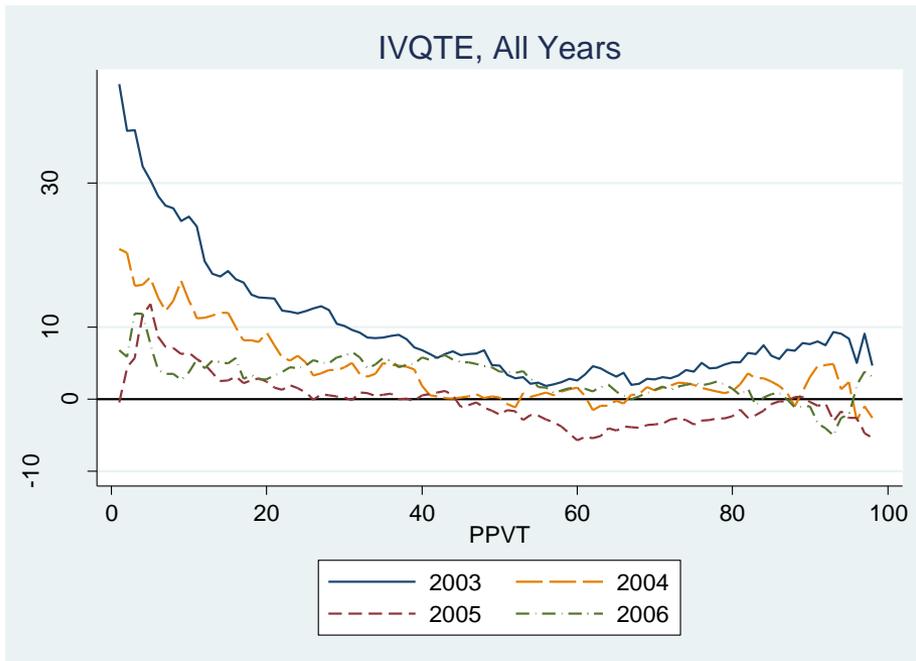
# 3-year old cohort, 1<sup>st</sup> grade, PPVT



# IVQTE, All Years

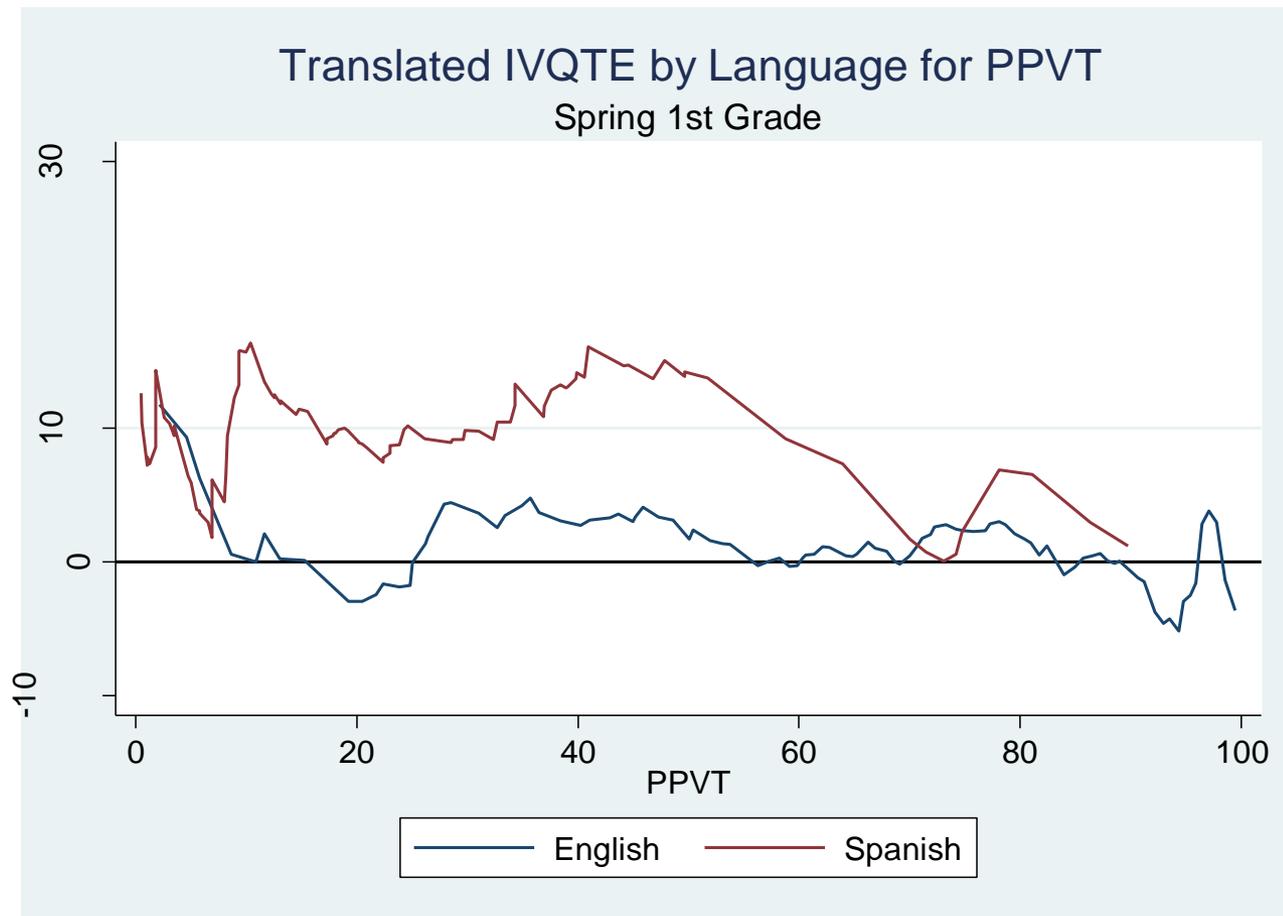


# Translated IV-QTE for all years



- Translated graph shows more alignment across years
- The results suggest that HS brings children up to some level but once they are achieving at that level there is no additional gain

## Translated IV-QTE by language – 1<sup>st</sup> Grade



- However, we do find evidence that there is more persistent effects for those with low baseline English language skills (Spanish speakers)

# Relating findings to Perry

- Perry found large effects on IQ (0.8 effect size); these are similar to what we found at the bottom of the distribution
  - Notably, Perry targeted very disadvantaged population, IQ 1-2 SD below population mean (Schweinhart & Weikart 1981)
  - Suggest large Perry effects derive from its study population
- Little evidence that the (relatively large) Perry results are due to the difference in the counterfactual care environment.

# What might explain these findings

- Gains from preschool might not persist if the elementary school environment is not of high quality
- OR elementary school teachers are teaching to the lower end of the distribution (and the HS kids are above that point)
- HS teachers may be teaching to some proficiency standard (e.g., knowing ABC, 123) and the quality of the settings are insufficient to achieve gains beyond that point. Cascio and Schanzenbach reference NIEER scores of 5 (on 10 point scale) for HS compared to higher ratings for state funded preschool programs
- Walters (2014) finds some evidence of larger treatment effects in centers with full-day programs and more significant home visiting programs

## Result 4: Non-cognitive skills

- Many have speculated that the long run effects may operate through non-cognitive skills, something we can test using HSIS

## 2SLS estimates (parent reports)

Table 7: Two-stage least squares estimates of the effect of attending Head Start on socio-emotional outcomes for spring 2003 and 2006

	<u>Head Start year</u> <u>(Spring 2003)</u>	<u>Grade 1 year</u> <u>(Spring 2006)</u>
<i>Parent reports</i>		
Aggressive (ASPI)	-0.115* (0.068)	-0.084 (0.078)
Hyperactive (ASPI)	-0.274*** (0.074)	-0.111 (0.074)
Lack of Social Competencies (ASPI)	0.022 (0.071)	-0.067 (0.079)
Lack of Social Skills (ASPI)	-0.032 (0.075)	-0.014 (0.076)
Withdrawn (ASPI)	0.027 (0.071)	-0.069 (0.076)
Conflict (Pianta)	-0.012 (0.066)	-0.169** (0.075)
Lack of closeness (Pianta)	-0.121* (0.064)	-0.099 (0.076)
Lack of positive relationship (Pianta)	-0.048 (0.066)	-0.166** (0.078)
Externalizing behavior problems	-0.169** (0.070)	-0.106 (0.072)

We find remarkably little evidence of a treatment effect on non-cognitive skills. [Standardized outcomes, so in SD units.]

## 2SLS estimates for 1<sup>st</sup> grade (teacher report, spring 2006)

<u>Teacher reports</u>	
Aggressive (ASPI)	-0.059 (0.085)
Oppositional (ASPI)	-0.009 (0.083)
Inattentive (ASPI)	-0.074 (0.079)
Shy/socially reticent (ASPI)	0.068 (0.079)
Withdrawn/low energy (ASPI)	0.043 (0.081)
Problems with structured learning (ASPI)	-0.021 (0.082)
Problems with interactions (ASPI)	-0.019 (0.077)
Combined ASPI index—negativity	-0.048 (0.074)
Combined ASPI index—shy	0.057 (0.071)
Combined ASPI index—interactive	-0.031 (0.068)
Lack of closeness (Pianta)	0.019 (0.087)
Lack of positive relationship (Pianta)	0.016 (0.089)
Conflict (Pianta)	0.023 (0.088)

Even less for teacher reports (only available beginning in K)

Health Insurance and Public Policy

PP290

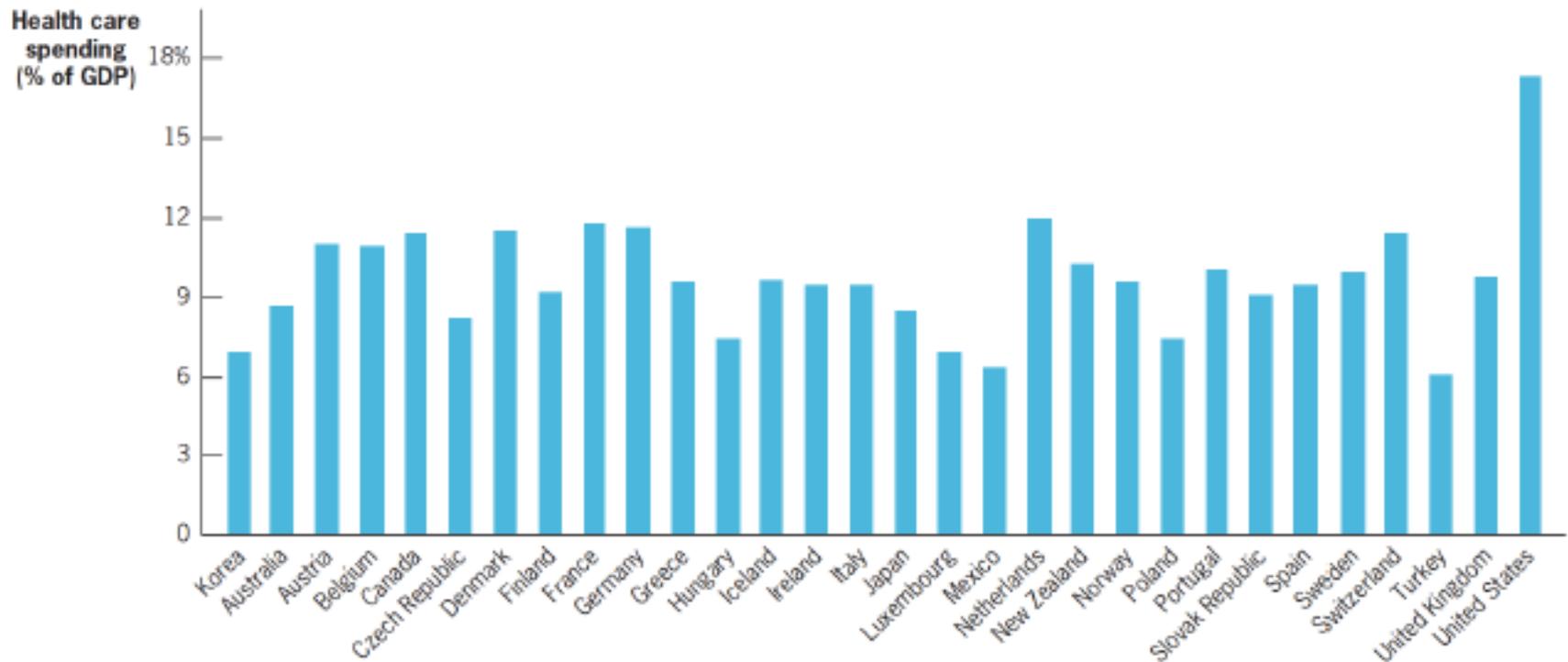
Hilary Hoynes

# Motivation

- Concerns with the US health care system: (a) expensive, (b) growing too fast, (c) huge share uninsured
- Enormous disparities in medical outcomes across demographic groups in the US
- Only major industrialized nation that does not endeavor to provide universal access to health care for its citizens
- ACA (and Massachusetts before it) presents major change to public policy on health insurance
- Opportunity to discuss justification for public policy intervention in health insurance, also social insurance more broadly

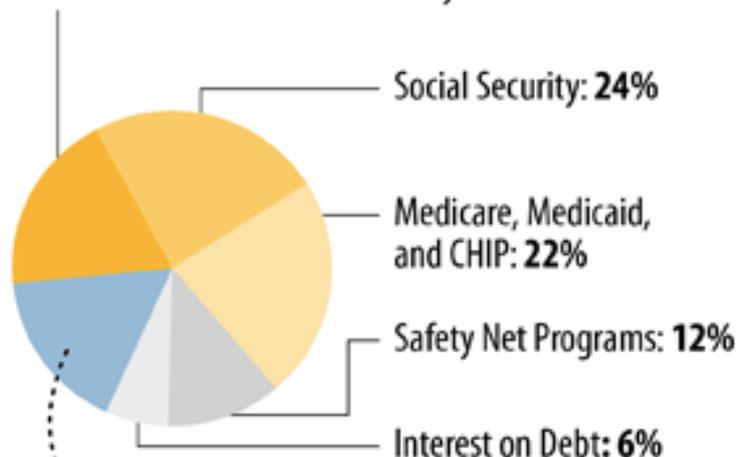
## 15.1

## Healthcare Spending in the OECD Nations

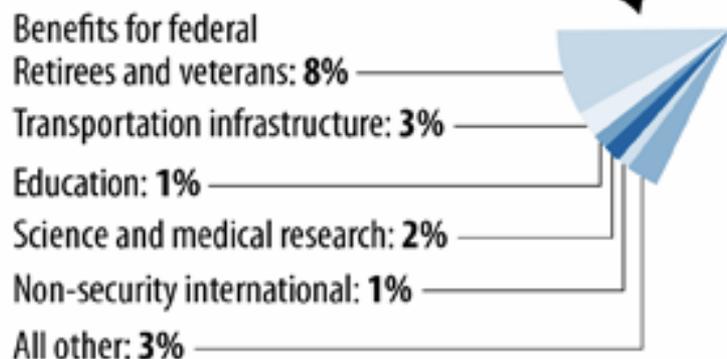


# Most of Budget Goes Toward Defense, Social Security, and Major Health Programs

Defense and International Security Assistance: **19%**



## Remaining Program Areas



Source: 2013 figures from Office of Management and Budget, FY 2015 Historical Tables.

# Outline of our two lectures

- Today:
  - Facts on US health spending and public insurance
  - Justification for government policies in this area
  - Evidence on Oregon experiment
- Tuesday:
  - Short and long run effects of Medicaid (aside from Oregon experiment)
  - Short and long run effects of Medicare
  - The uninsured on the eve of the ACA
  - The ACA and early evidence

# (1) Why is the government involved in the health insurance?

- Krugman NYT Healthcare 101: “we rely on free markets to deliver most goods and services, so why shouldn't we do the same thing for health care?”

# But first, what is insurance and what is the value of it?

- Protection against an adverse outcome
  - Pay premium; insurer promises to make payment; payment is triggered by some event
- Examples:
  - Auto insurance
  - Home insurance
  - Life insurance
  - Health insurance
- Why do we value insurance?
  - Want to smooth consumption across possible outcomes (“states of the world”)

- So then the next logical question is why SOCIAL insurance (rather than private insurance)?

# Justification 1: Market Failure

- Private market will not provide “socially desired” level of insurance
- First you need risk (of getting hit with health shock)
- Second, you need “information asymmetry” individuals know more about their risk than health insurers
- Adverse selection: those with the highest valuation for the insurance will take it → prices for insurance increase → more selection in → so on

# How can govt address adverse selection?

- Require everyone to purchase insurance
- Direct government provision of health insurance

## Other justifications for govt involvement

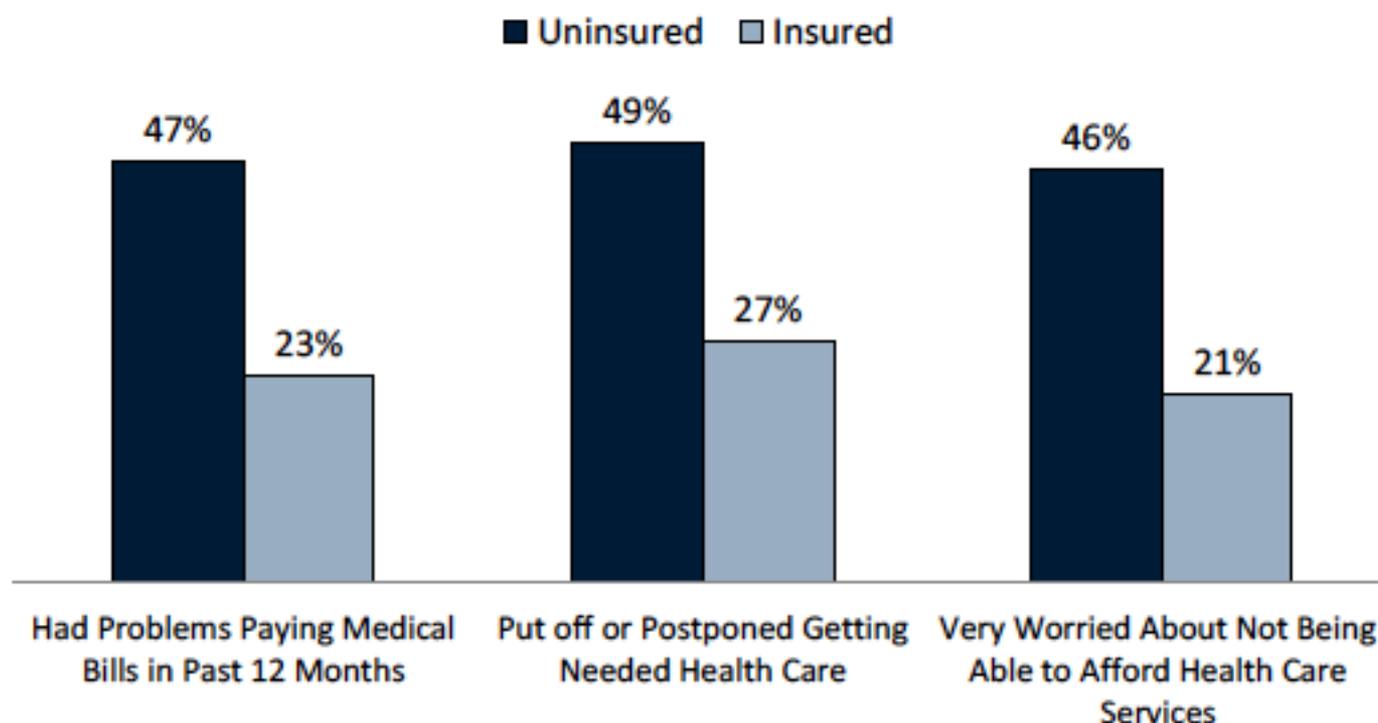
- Redistribution/Equity/social justice (Medicaid)
- Externalities (of uninsurance)
- Lower administrative costs
  - Medicare 1.44% administrative costs
  - Private insurance, up to 15%

# Protection vs Distortion

- Always balancing these features in social programs (including insurance)
- Protection – social insurance! Financial implications of adverse health shock
- Distortion?
  - Take less actions to stay healthy
  - “excess” consumption of health care (consumers)
  - Providers provide “too much” care (because consumer does not face full resource cost)

## Financial Consequences of Medical Bills by Insurance Status, 2012

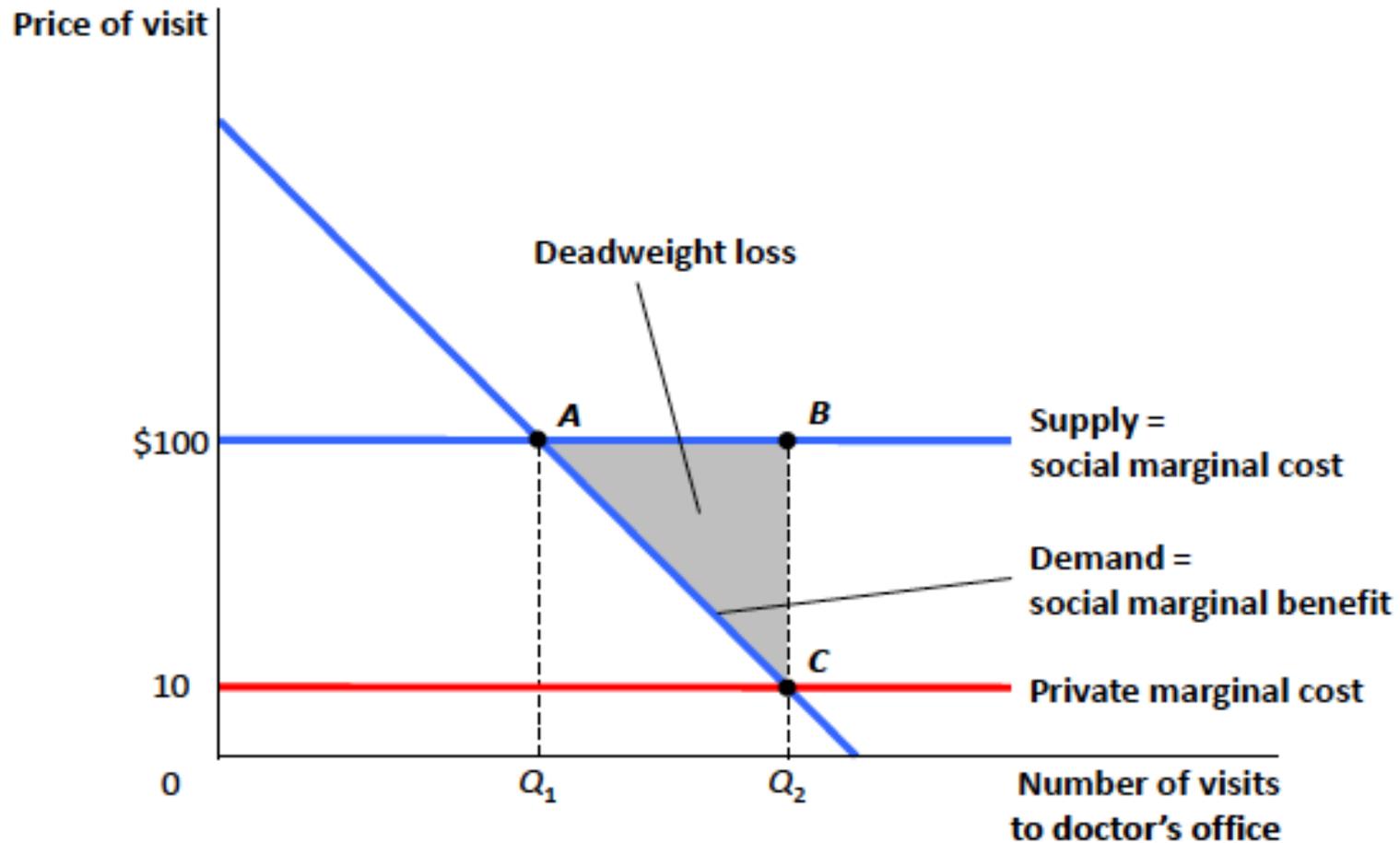
Percent of adults responding (age 18-64) reporting in the past 12 months:



All differences between insured and insurance groups are statistically significant ( $p < 0.05$ ).

SOURCE: Kaiser Family Foundation's Health Tracking Poll: June 2012

## Moral Hazard Costs of Health Insurance for Patients



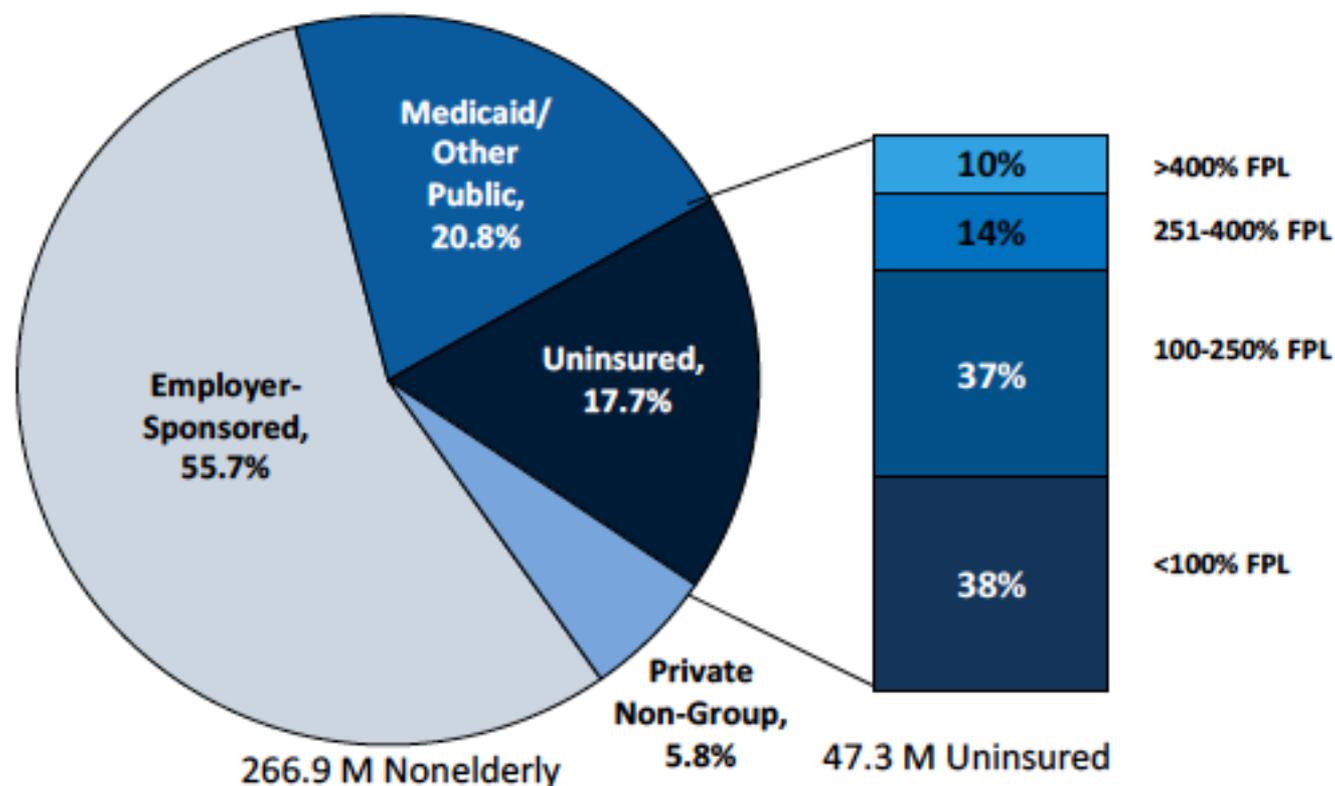
(2) What does the U.S. do?

# U.S. Health Insurance

- Mix of public and private insurance
- 1) Government provided insurance
  - Medicare for the elderly (65+)
  - Medicaid (and CHIP) for low income (children, disabled, elderly, some nonelderly adults)
  - Veterans benefits
- 2) Privately provided insurance:
  - Employer provided health insurance (large)
  - Direct private purchase (small)
  - Obamacare exchanges
- 3) Uninsured: (1/6) of population (before Obamacare)
- In the US, health insurance restricts treatments on effectiveness (does it work) rather than cost effectiveness → huge incentives for health providers to supply new expensive treatments

Figure 1

# The Uninsured Population—As a Share of the Nonelderly Population and by Poverty Levels, 2012

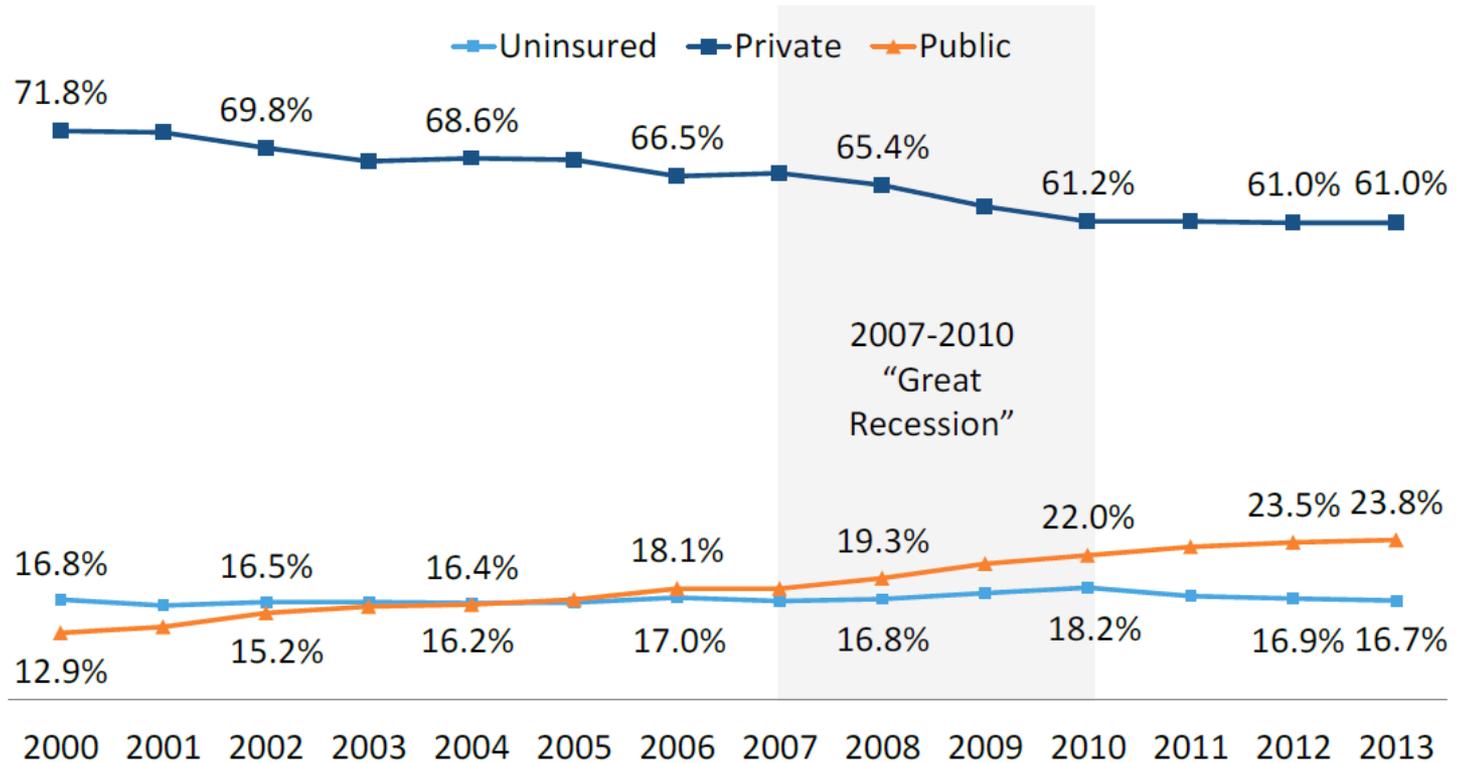


Medicaid and other public coverage includes: CHIP, other state programs, Medicare and military related coverage. The federal poverty level for a family of four in 2012 was \$23,050.

SOURCE: KCMU/Urban Institute analysis of the 2013 ASEC supplement to the CPS.

Figure 1

## Coverage Changes Among the Nonelderly, 2000-2013



SOURCE: KCMU Analysis of 2001-2014 National Health Interview Surveys

# What do other countries do?

- All OECD countries (except the US) provide universal health care insurance funded by taxation:
- Individuals who get sick can have health care paid for by the government
- Government either directly controls doctors/hospitals (e.g. UK) or government reimburses private health care providers (e.g. France)
- Government controls costs through:
  - 1) Regulation (govt picks allowed treatments based on cost effectiveness, bargains for prices, rations care)
  - 2) Patient co-payments (patients share part of the cost)

# Medicare

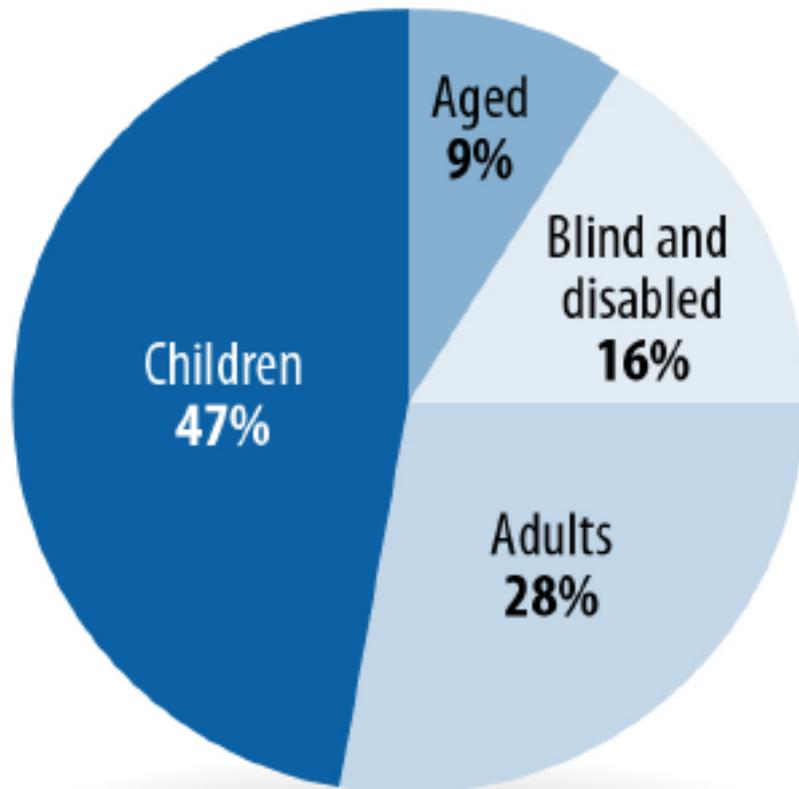
- Started in 1965 as a universal health insurance system
- Federal program that provides health insurance to all people over age 65 and disabled
- Every citizen who has worked for 10 years (or their spouse) is eligible.
- Financed with an uncapped payroll tax totaling 2.9%; this funds about 50% of Medicare expenses, remainder is funded with general funds
- Physician reimbursement fairly generous (but not as high as private insurance)

# Medicaid

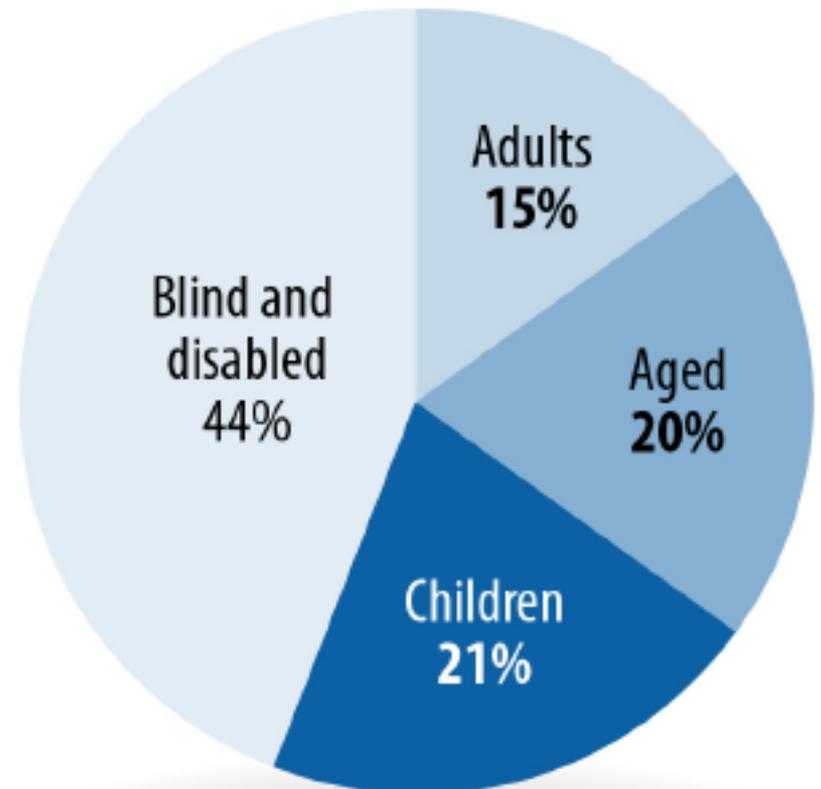
- Provides health care for low income (means-tested)
- Financed from general revenues (federal/state)
- Targets low income kids, SSI or TANF recipients, and elderly (for non-Medicare costs such as long-term care)
- 70% of recipients are mothers/kids but 66% of expenditure goes to long-term care for elderly.
- Doctor reimbursement low → some docs refuse Medicaid
- Big variation across states in Medicaid generosity
- Program eligibility criteria have been expanded over time (higher incomes allowed): Obamacare substantially expands Medicaid to reduce uninsured (but not all states will do it)

# Enrollment and Spending in Medicaid

Medicaid enrollment



Medicaid spending



Source: Spending estimates for FY2012 from the Congressional Budget Office's February 2013 Medicaid Baseline.

**Table 2****Features of Medicaid and Medicare**

	<b>Medicaid</b>	<b>Medicare</b>
<b>Eligibles</b>	Families on welfare Low-income children, pregnant women Low-income elderly, disabled	Retirees and spouses 65+ Certain disabled individuals People with kidney failure
<b>Premiums</b>	None	Hospital coverage: None Physician coverage: \$66.60/mo
<b>Deductibles/ copayments</b>	None (or very small)	Hospital coverage: \$876 deductible for first 60 days Physician coverage: \$100 deductible, 20% coinsurance
<b>Services excluded</b>	None (or very minor)	Prescription drugs (at least until 2006) Routine checkups, dental care, nursing home care, eyeglasses, hearing aids, immunization shots
<b>Provider reimbursement</b>	Very low	Moderate (but falling)

# Employer provided health insurance

- Way to pool risk across broader group (rather than purchasing individual insurance)
- The goal of all insurers is to create large insurance pools with a predictable distribution of medical risk.
- The law of large numbers helps achieve this goal.
- By pooling all employees, employer-provided health insurance also avoids adverse selection.
- AND major tax advantage for employer provided health insurance
  - earnings are taxed but employer payments for health insurance are untaxed → tax expenditure associated with this

## The Largest Tax Expenditures, 2008

Rank	Tax expenditure	Billions (\$)
1	Exclusion of employer contributions for medical insurance premiums and medical care	131.0
2	Net exclusion of pension contributions and earnings (all)	117.7
3	Deductibility of mortgage interest on owner-occupied homes	88.5
4	Accelerated depreciation of machinery and equipment (normal tax method)	55.9
5	Deductibility of nonbusiness state and local taxes other than owner-occupied homes	49.1
6	Deductibility of charitable contributions (all)	46.8
7	Deferral of income from controlled foreign corporations (normal tax method)	31.5
8	Capital gains exclusion on home sales	30.0
9	Deductability of State and local property tax on owner-occupied homes	29.1
10	Child credit <sup>a</sup>	28.4
11	Capital gains (except agriculture, timber, and coal)	24.2
12	Step-up basis of capital gains at death	21.5

### Notes:

(a) Nonrefundable portion only.

Source: Budget of the U.S. Government, FY 2010, Analytical Perspectives, Table 19.1.

# The Other Alternative: Nongroup Insurance

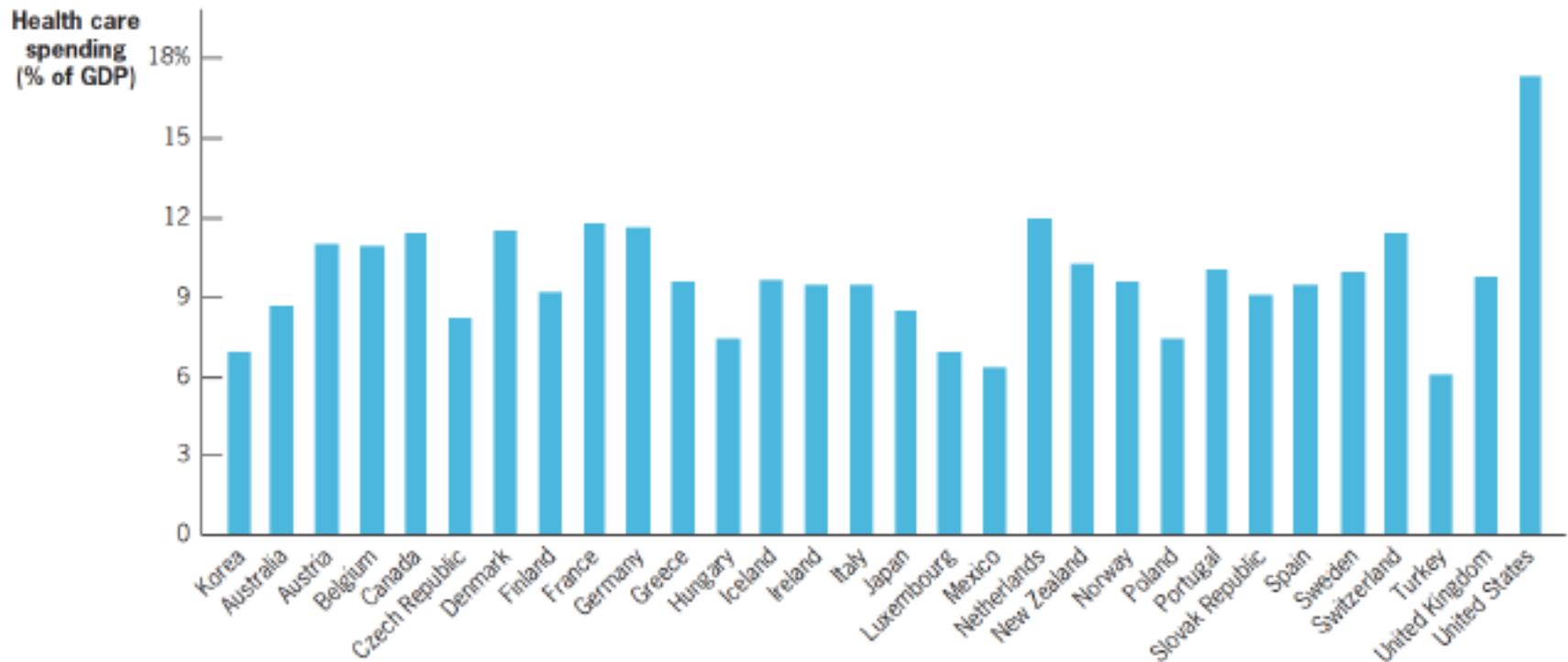
- The nongroup insurance market is not a well-functioning market.
- Nongroup insurance is not always available.
- Those in the worst health are often unable to obtain coverage (or obtain it only at an incredibly high price).
- ACA Marketplaces revolutionize the nongroup insurance market.
  - Individuals able to buy health insurance through Marketplaces that pool their risk with others.
  - Attempts to mitigate adverse selection (e.g. through mandate)

## (3) Problems with US Health Care System

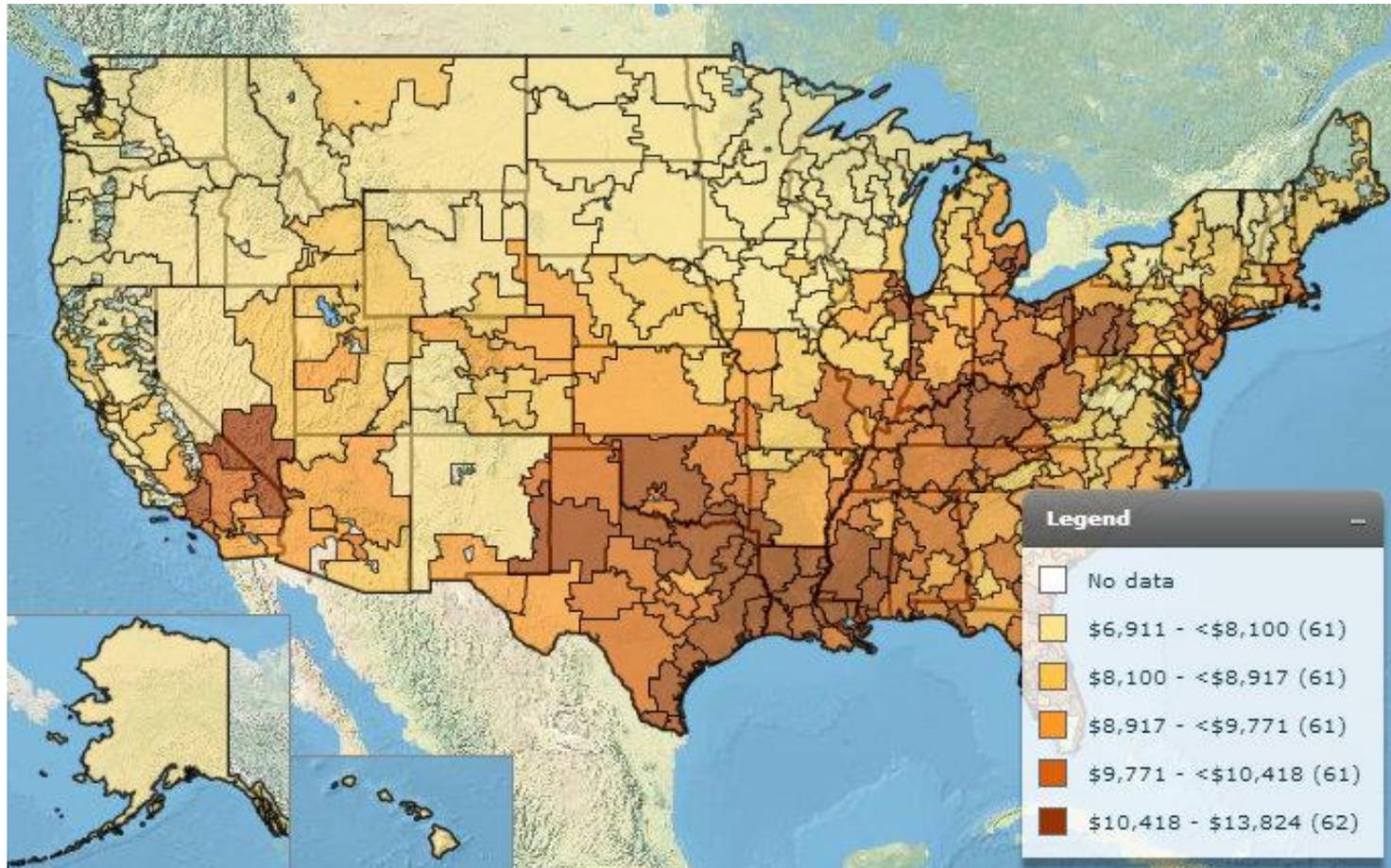
- Spend a lot
- Huge variation across areas
- Overuse of care (for some)?
- Huge inequities in access and outcomes
- Uninsured (will discuss more next time)

## 15.1

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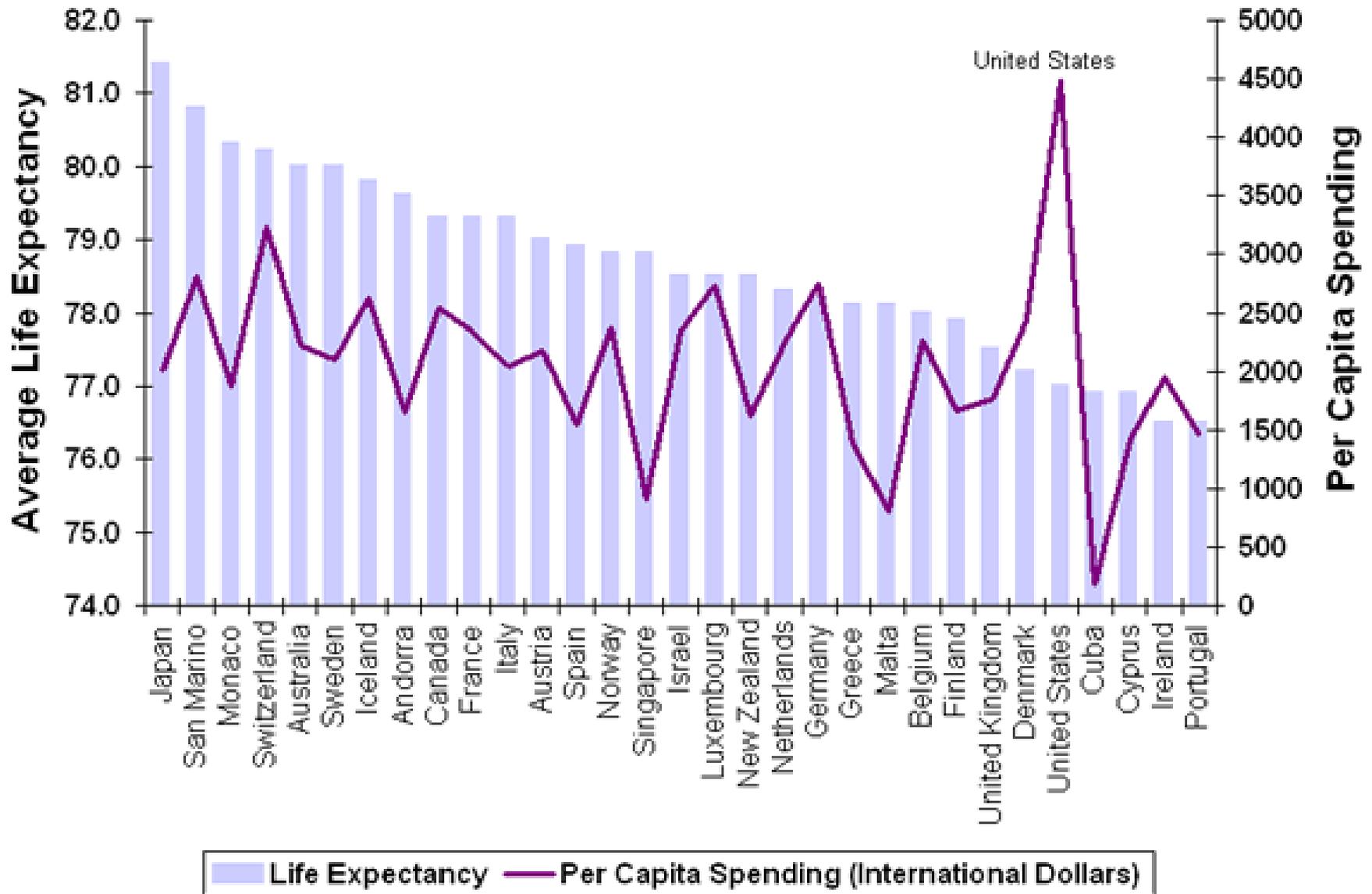
# TOTAL MEDICARE REIMBURSEMENTS PER ENROLLEE (Adjustment Type: Price, Age, Sex & Race; Year: 2010)



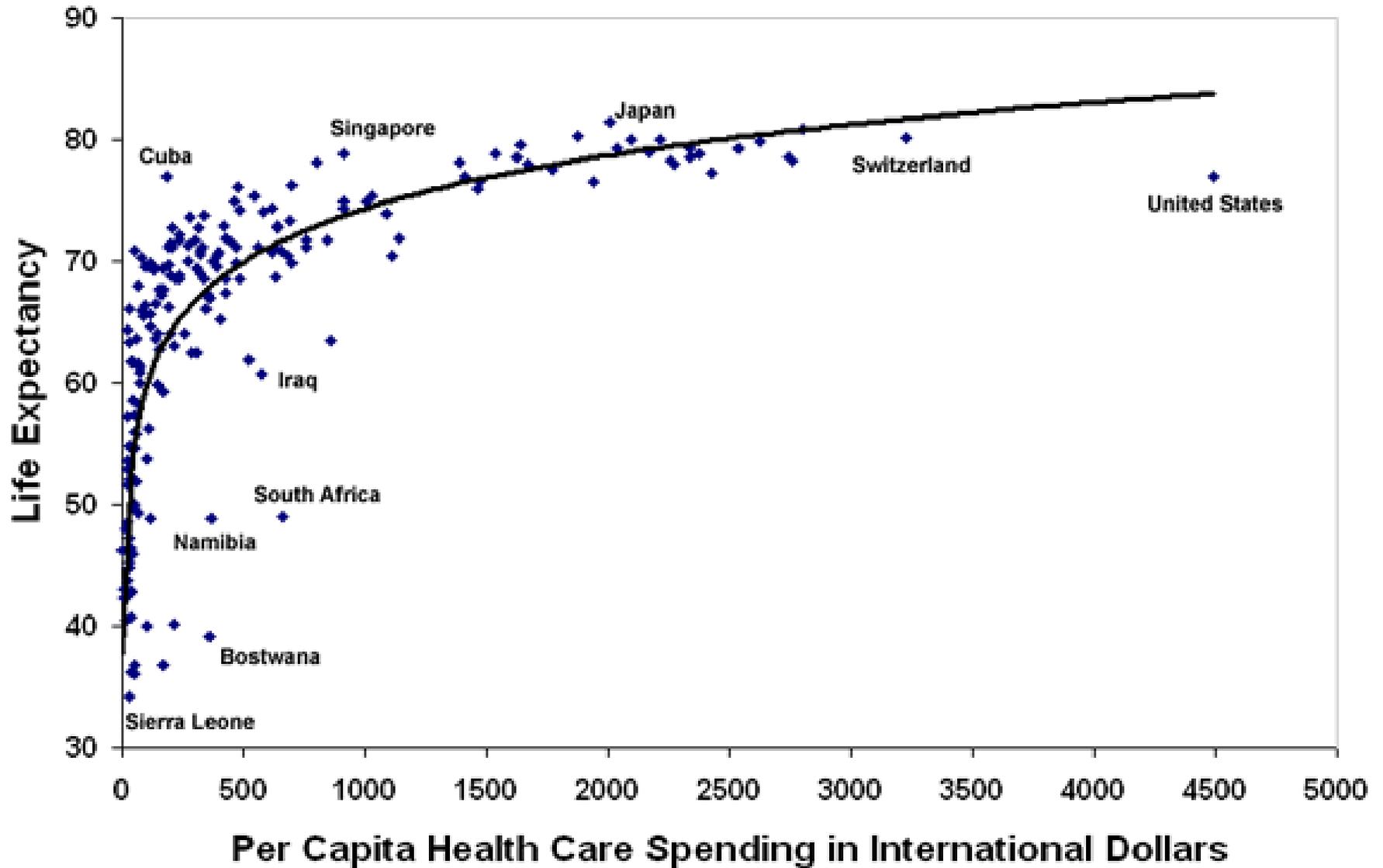
# Case Study: McAllen County TX (Atul Gawande New Yorker)

- 2<sup>nd</sup> most expensive health care market in the U.S.  
<http://www.dartmouthatlas.org/data/topic/topic.aspx?cat=21>
- \$15,000 per Medicare enrollee; twice the national average and > per capita income of residents!
- Gawande uncovers a fairly healthy population but with MUCH more utilization of services

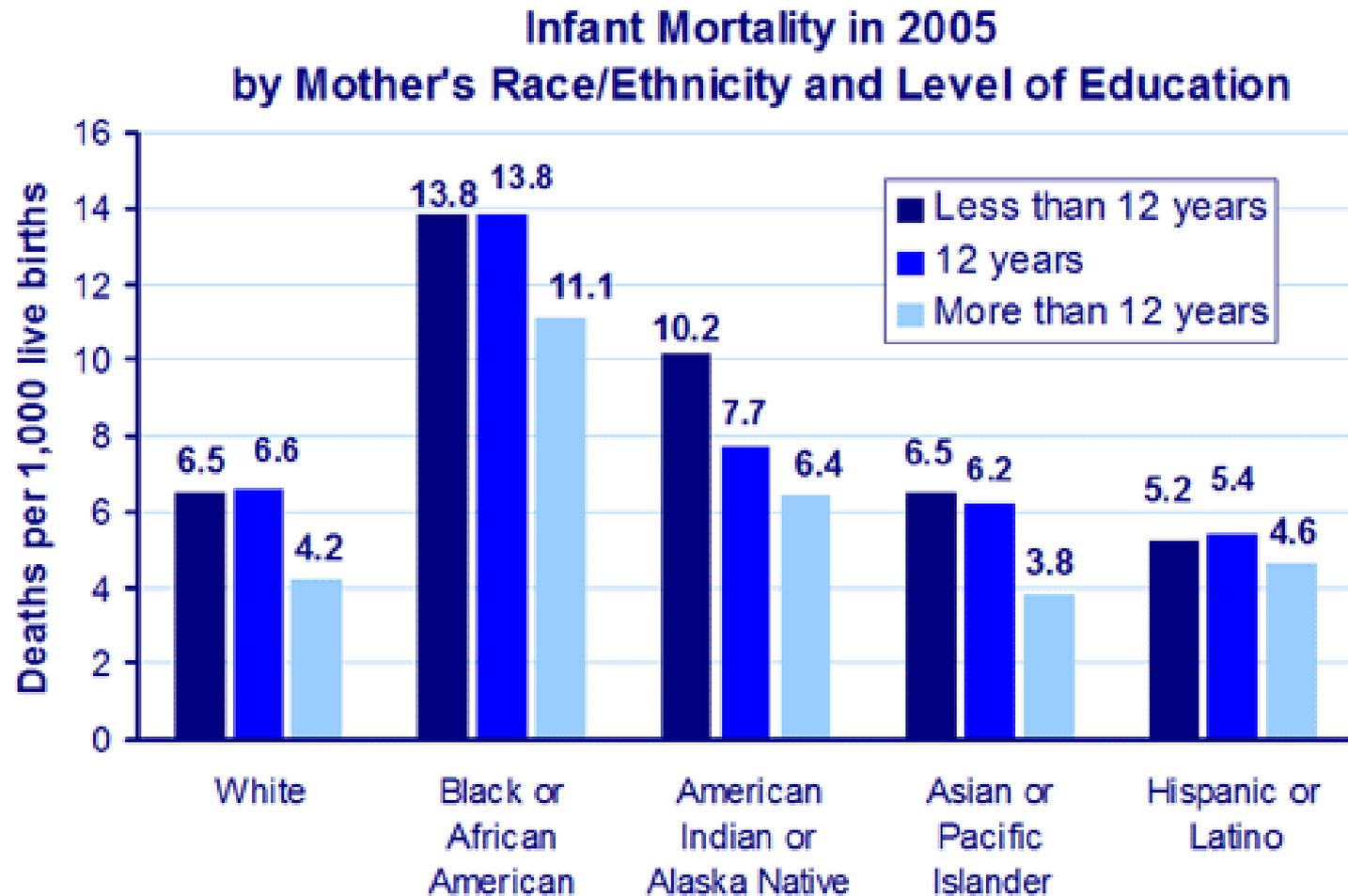
# The Cost of a Long Life



# Life Expectancy vs. Spending



# Disparities



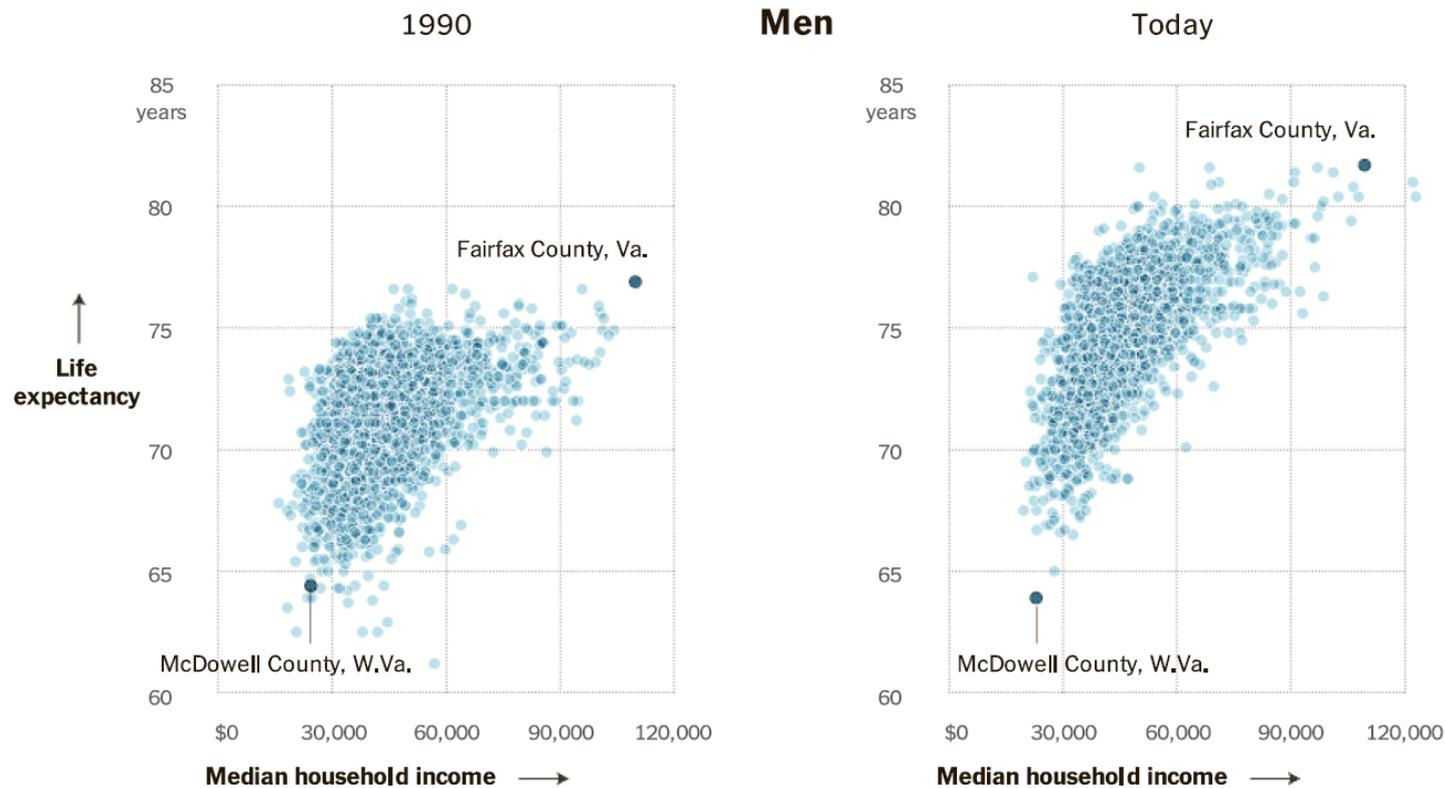
Source: Health, United States, 2008. Nat. Center for Health Statistics, U.S. DHHS

# Disparities

## Where Income Is Higher, Life Spans Are Longer

As incomes have diverged between the country's richest counties, like Fairfax County, Va., and its poorest ones, like McDowell County, W.Va., so have the life expectancies of their residents. MARCH 15, 2014

● Every U.S. county is represented by a dot.



<http://www.nytimes.com/interactive/2014/03/15/business/higher-income-longer-lives.html>

## (4) The Oregon Medicaid Health Insurance Experiment

- The first use of a randomized controlled design to evaluate the impact of Medicaid in the United States
- In 2008, Oregon wanted to expand its Medicaid program to cover more adults
- They had a limited budget and used a lottery to select who would receive the Medicaid insurance coverage
  - 90,000 signed up for this new insurance
  - Had budget to enroll 10,000
- 30,000 lottery winners (treatment group)
- 55,000 lottery losers (control group)
- Lottery winners → won ability to apply for Medicaid (needed 30K to get 10K enrolled, did not know eligible ex ante)

# Oregon Medicaid Health Insurance Experiment (cont)

- From January 28 to February 29, 2008, anyone could be added to the lottery list by telephone, by fax, in person sign-up, by mail, or online.
- The state conducted an extensive public awareness campaign about the lottery opportunity.
- To keep barriers to sign-up low, the sign-up form requested limited demographic information on the individual and any interested household member, and no attempt was made to verify the information or screen for program eligibility at sign-up for the lottery.

- Covers those financially (e.g. income eligible) but not categorically eligible for Medicaid
- Eligibility: 19–64, Oregon residents, U.S. citizens or legal immigrants, without health insurance for at least six months, incomes below poverty, less than \$2,000 in assets

# What do we expect to find?

- Uninsured decreased (first stage!)
- Costs:
  - Utilization/Access: increased health care utilization (moral hazard, natural property of demand curve!) → costs increase
  - More preventative care, less ER → decrease costs?
- Benefits
  - Improved health
  - Improved financial security (insurance!)
  - Increase employment and earnings (due to health and financial security) or decrease (due to work disincentive to keep eligibility)

## Importance of context

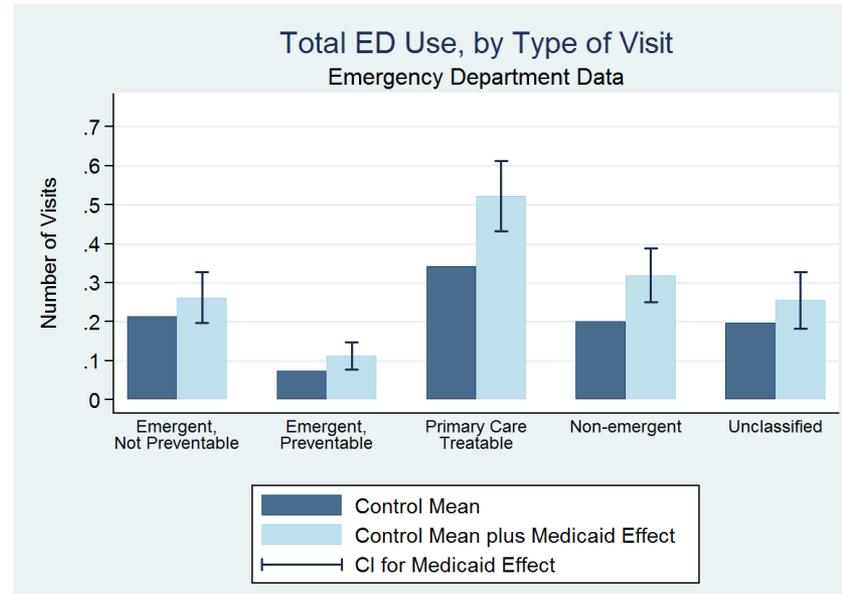
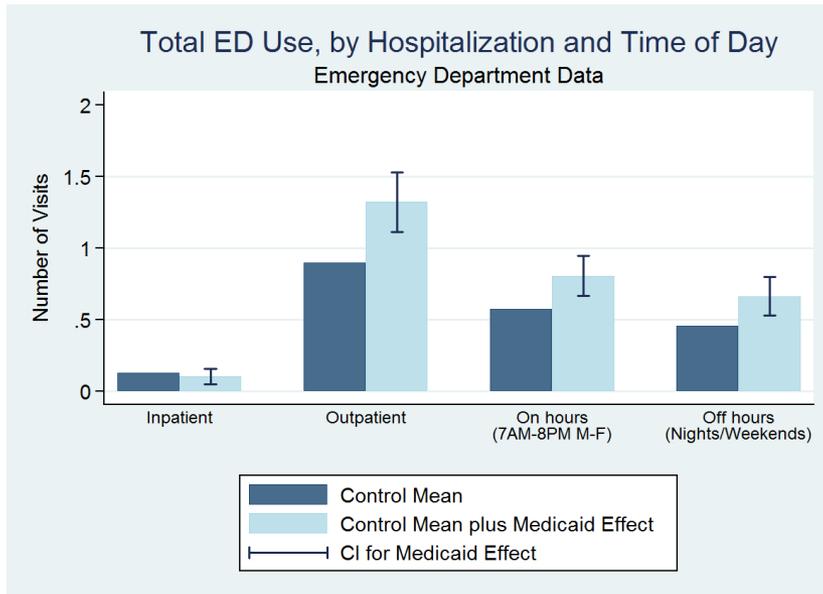
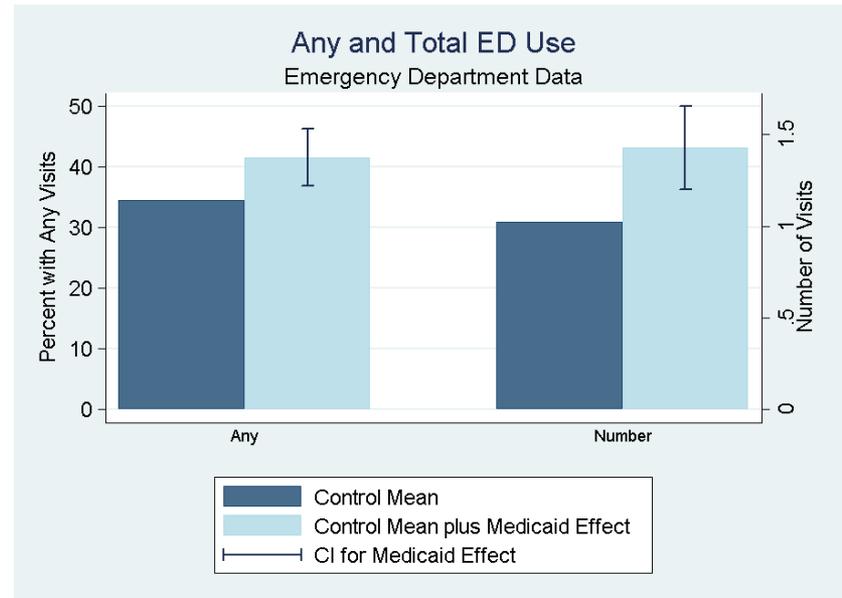
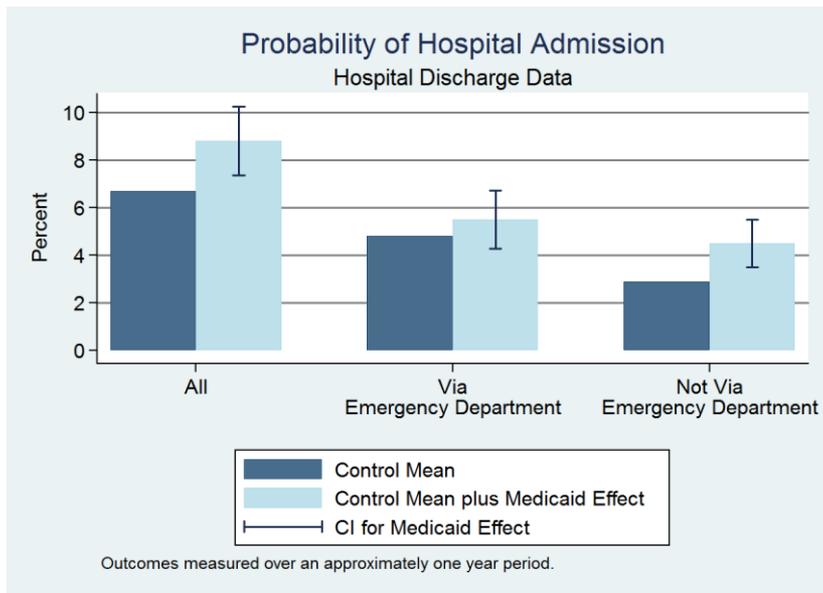
- Effects of Medicaid may be smaller than general insurance effects
- Social safety net (uncompensated care, public clinics) already providing some coverage
- Low reimbursement rate means limited access, wait times
- But, may be on steep portion of health production frontier
- Can only examine effects over 2 years (not long run)

# Data and Design

- Administrative: hospital, credit reports, earnings
- Mail surveys (25K respondents)
- In person interviews (12K respondents)
- Lottery experiment
  - Intent to treat: compare those selected and those not selected → effect of expanding access to Medicaid
  - TOT/IV: use lottery receipt as instrument for Medicaid coverage → effect of Medicaid coverage

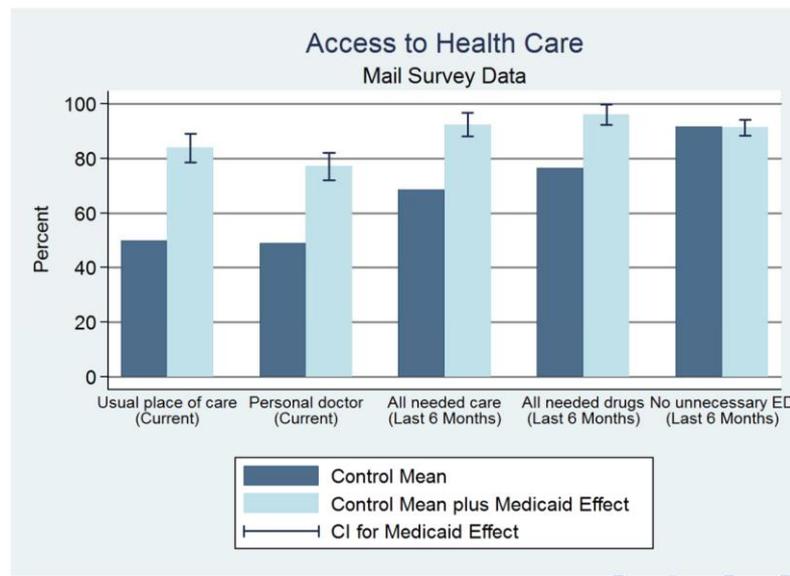
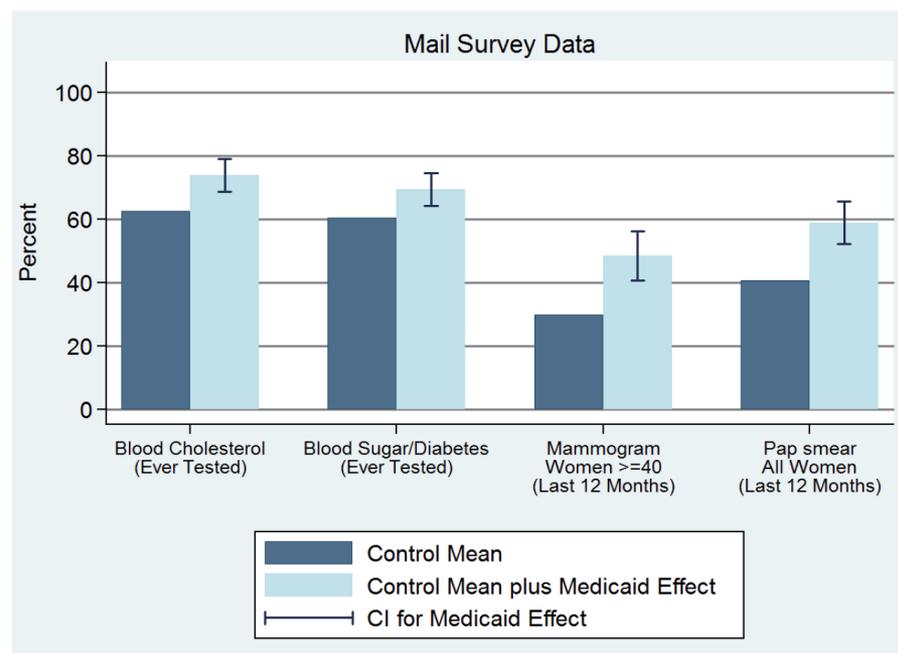
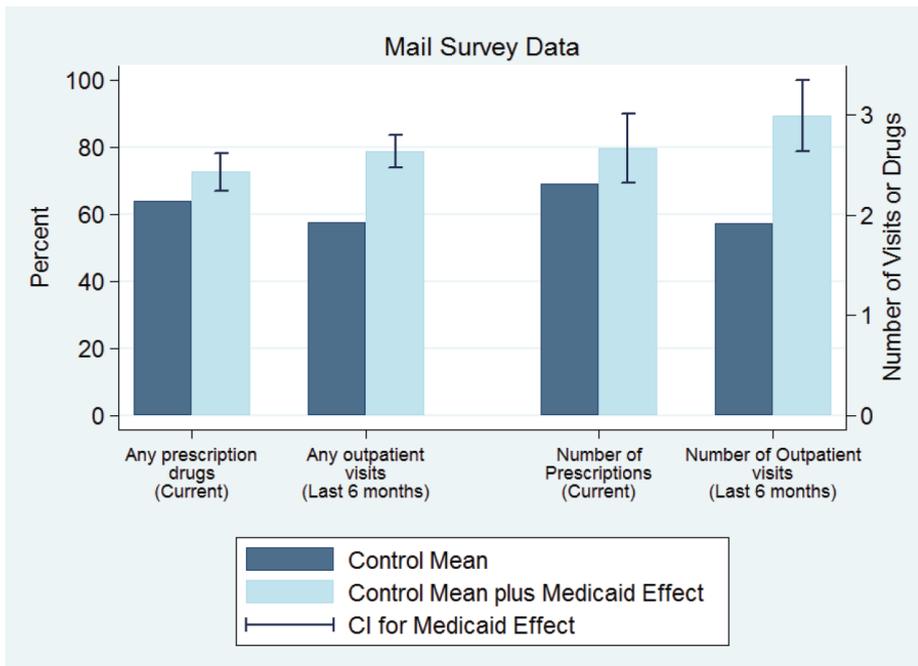
- Who signed up? [Exhibit 1]
- Individuals in Oregon who joined the waiting list are somewhat older and appear to be sicker than the overall target population.
- For example, of those who signed up, about 30% report having been diagnosed with high blood pressure compared to 17% in the target population, 33% are 50-64 compared to 9% in the target pop.
- Is this a surprise?

# More ER, more hospitalization

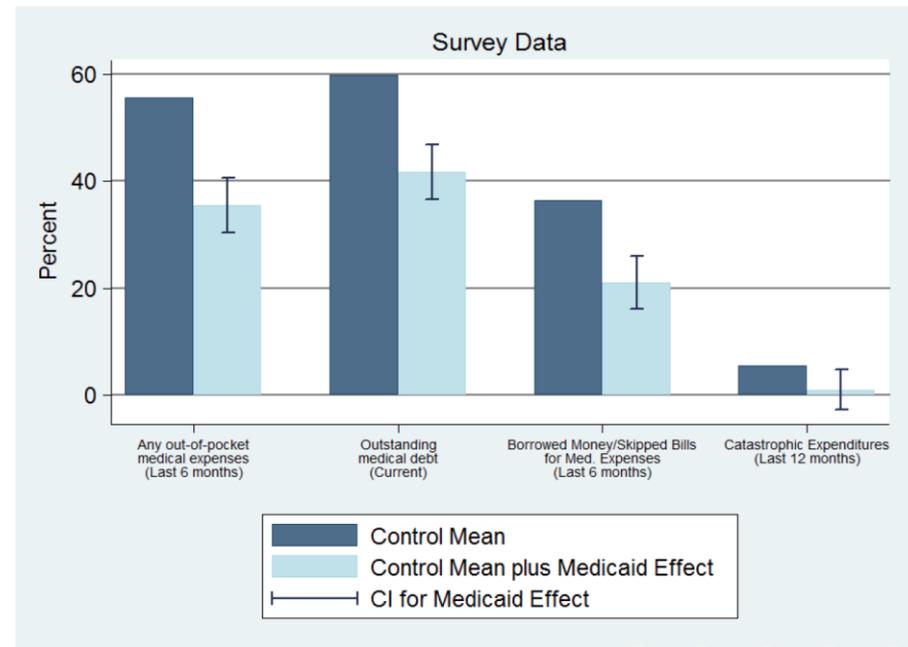
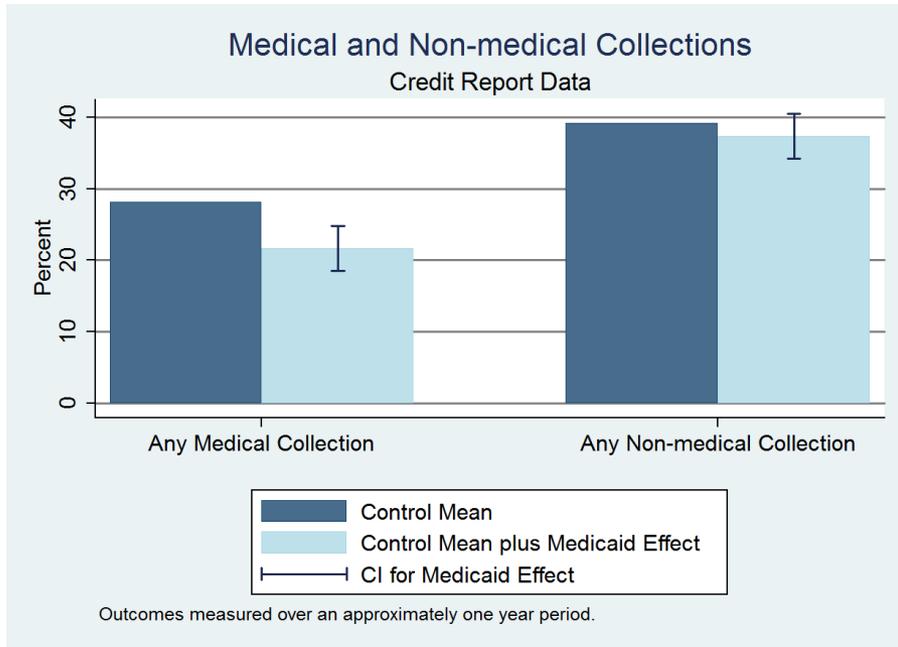


- Is it a surprise that ER use increased?
  - Price decreased to 0 → utilization should go up
  - But price of doctor's visit also 0 → cross price effects suggest that ER use should go down if substitutes

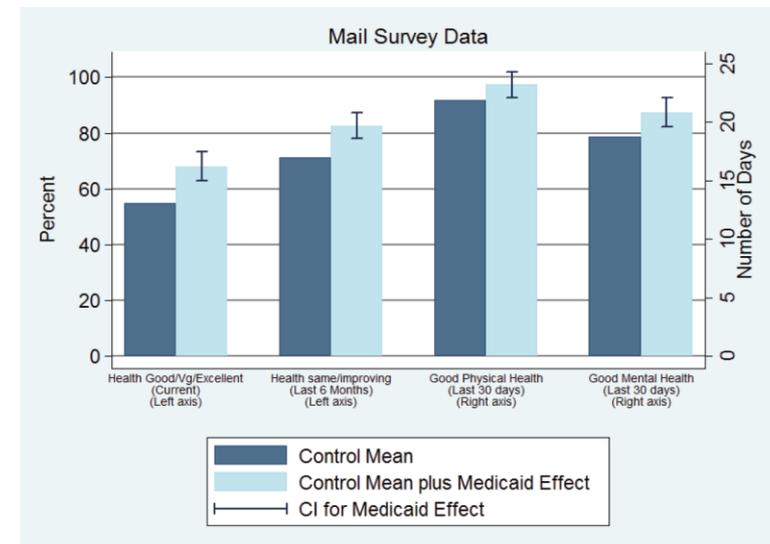
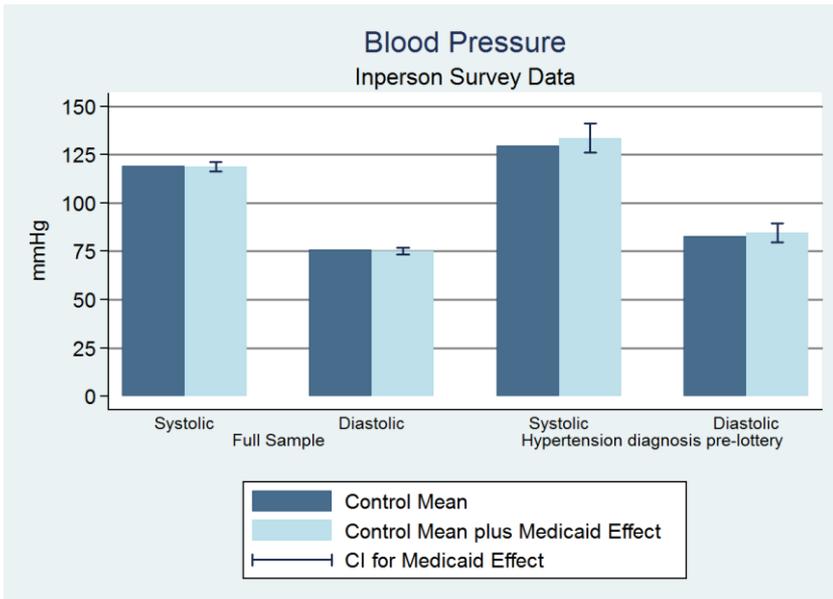
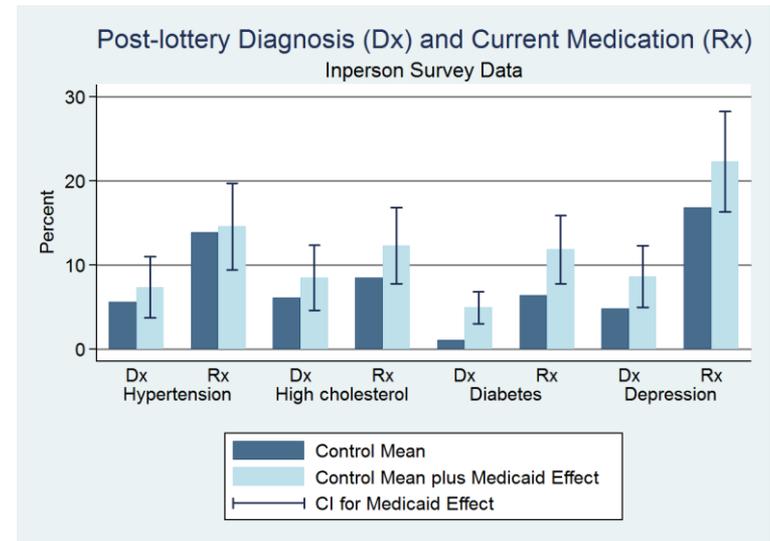
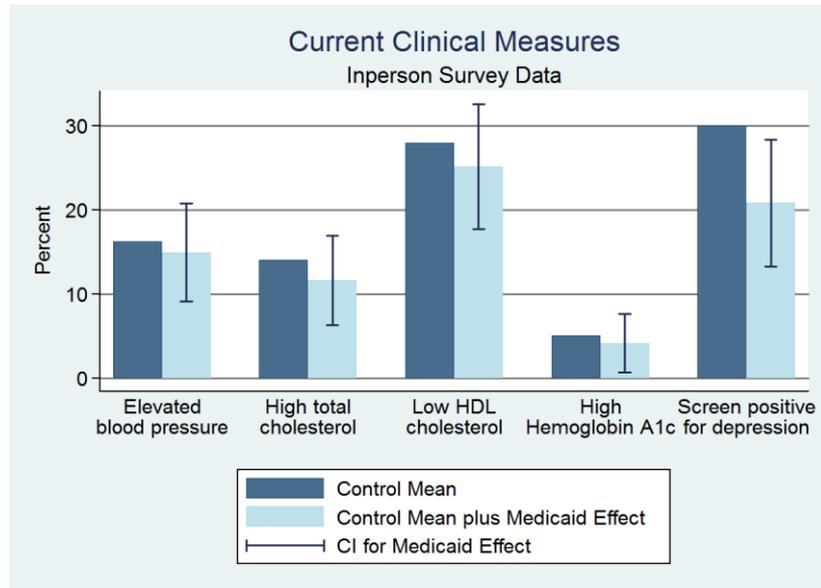
# More access, more preventative care



# Major improvement in financial stress



# Self reported health improves, insig on other health



# The Oregon Experiment: Summary

- Key results: winning the Medicaid lottery leads to:
- 1) higher health care utilization (including primary and preventive care as well as hospitalizations)
- 2) lower out-of-pocket medical expenditures and medical debt (including fewer bills sent to collection)
- 3) better self-reported physical and mental health
- 4) more diagnoses of conditions, no evidence that the chronic conditions are more under control

# Some thoughts

- **“Medicaid is worthless or worse than no insurance”**
  - Not true: Increases in utilization, reductions in financial strain, and improvement in depression, self-reported health and well-being
  - No improvements in measured physical health over (in this time period)
- **“Covering the uninsured will get them out of the Emergency Room”**
  - Not true: Medicaid increases use of ER (overall and for broad range of visit types)
- **“Health insurance saves money”**
  - Not true in short run: increases in health care use
  - In long run, remains to be seen: increases in preventive care and improvements in self-reported health

# These studies can have a huge influence

## **5 Things the Oregon Medicaid Study Tells Us About American Health Care**

A landmark new study of Oregon's Medicaid program reveals what's wrong with American health care

**Four Reasons Why The Oregon Medicaid Results Are Even Worse Than They Look**

**Does The Oregon Health Study Show That People Are Better Off With Only Catastrophic Coverage?**

**Here's what the Oregon Medicaid study really said**

**Oregon's Lesson to the Nation: Medicaid Works**

## **Is health insurance an antidepressant?**

New findings show that wider coverage has one clear effect on the population, and it's not one that anyone is talking about.

Spending on Medicaid doesn't actually help the poor

**Medicaid Access Increases Use of Care, Study Finds**

# But it costs a lot!

National Institute  
on Aging ■ ◆ ✦ ✧

[www.nia.nih.gov](http://www.nia.nih.gov)



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MACARTHUR

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[www.macfound.org](http://www.macfound.org)



[www.cms.hhs.gov](http://www.cms.hhs.gov)

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FOUNDATION

[www.srf.org](http://www.srf.org)



[www.ssa.gov](http://www.ssa.gov)

# Health Insurance and Public Policy

(Part 2)

PP290

Hilary Hoynes

# Outline of our two lectures

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  - Facts on US health spending and public insurance
  - Justification for government policies in this area
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  - Short and long run effects of Medicare
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# Medicare

- Universal health insurance for 65+ since 1965
- How to evaluate the effect of Medicare?
- “Regression discontinuity” – compare those just over age 65 to those just under 65
  - Need to make sure that the two groups (just over vs just under) are similar → no other reasons for differing other than Medicare
- Program Introduction – compare outcomes before and after 1965
  - Need to make sure that there is nothing else affecting the outcomes over this time period

# Medicare: Regression Discontinuity

- Basic idea is to draw graphs of outcomes based on age for various groups
- The discontinuity at 65 captures short-term changes in health care utilization and mortality from shift from  $< 65$  to  $> 65$
- We have results that: examine effects of Medicare on health insurance and health care utilization, focusing on impacts across groups
  - Card-Dobkin-Maestas “The Impact of Nearly Universal Insurance Coverage on Health Care Utilization and Health: Evidence from Medicare” AER 2008
- We have results that: examine impacts on health (mortality following hospital admission)
  - Card-Dobkin-Maestas “Does Medicare Save Lives?” QJE 2009

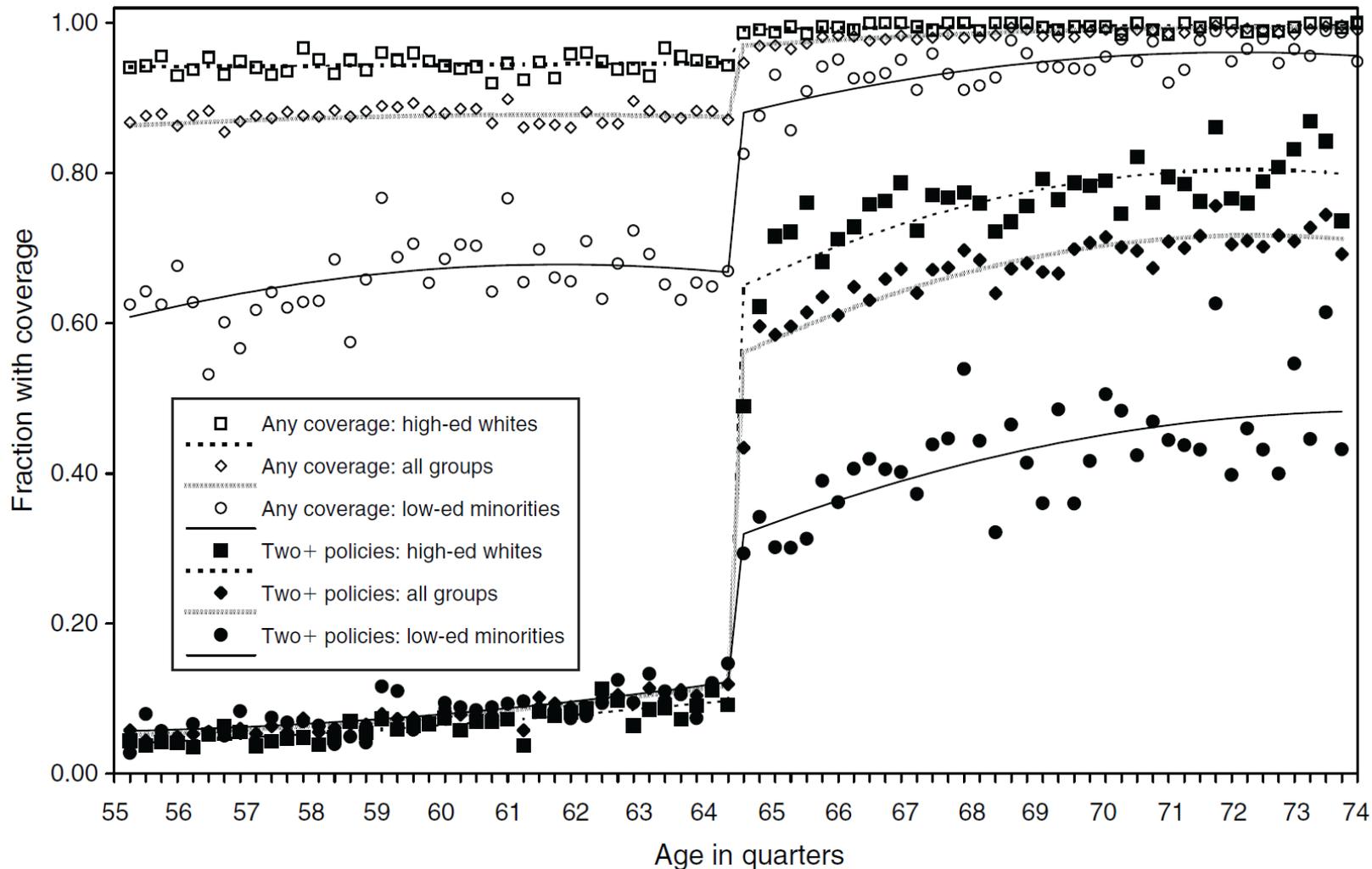


FIGURE 1. COVERAGE BY ANY INSURANCE AND BY TWO OR MORE POLICIES, BY AGE AND DEMOGRAPHIC GROUP

First stage: sharp increase in coverage at age 65; more for disadvantaged

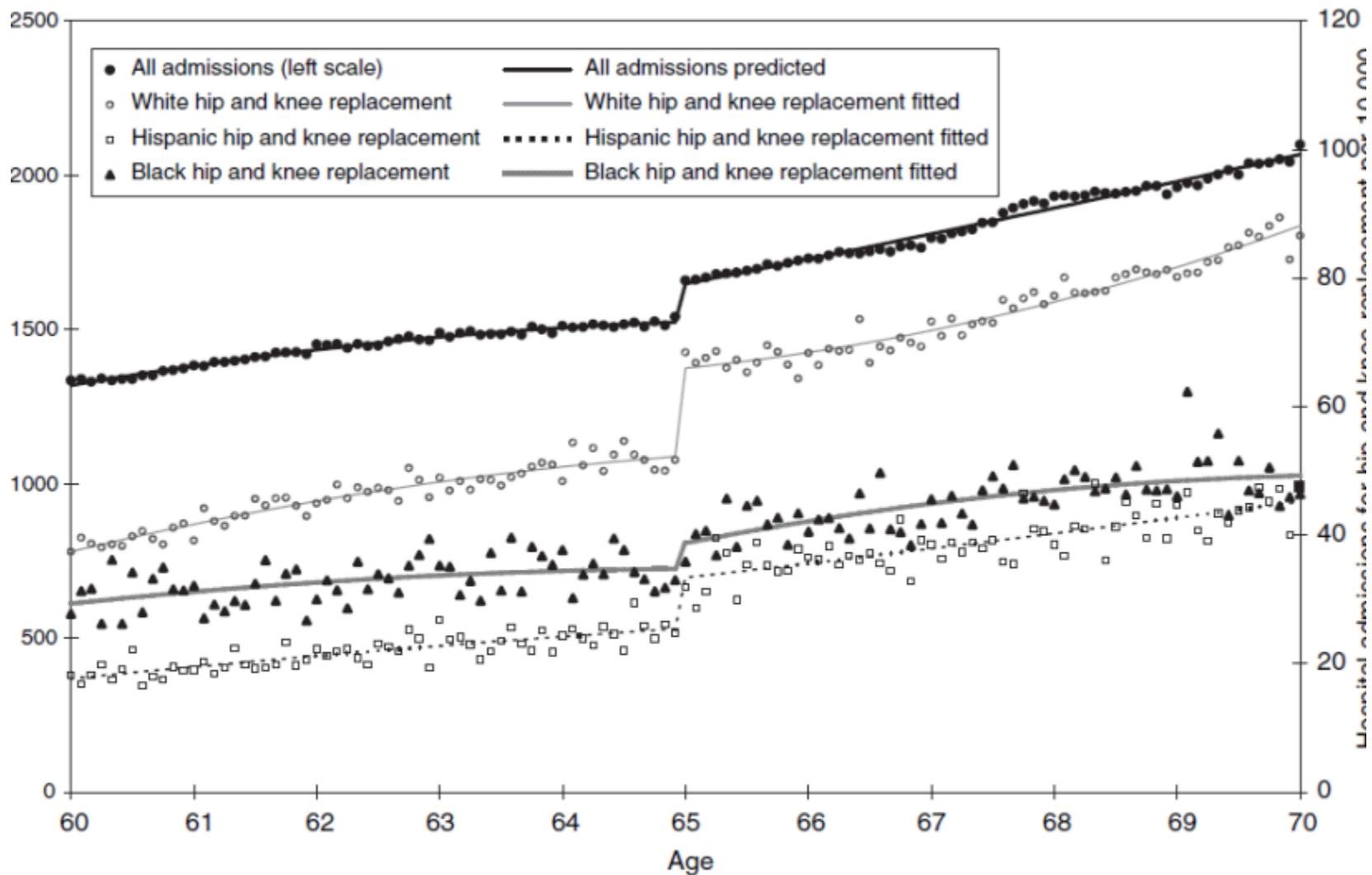


FIGURE 3. HOSPITAL ADMISSION RATES BY RACE/ETHNICITY

Increase in hospital admissions; driven by discretionary medical care, diagnostic heart treatments.

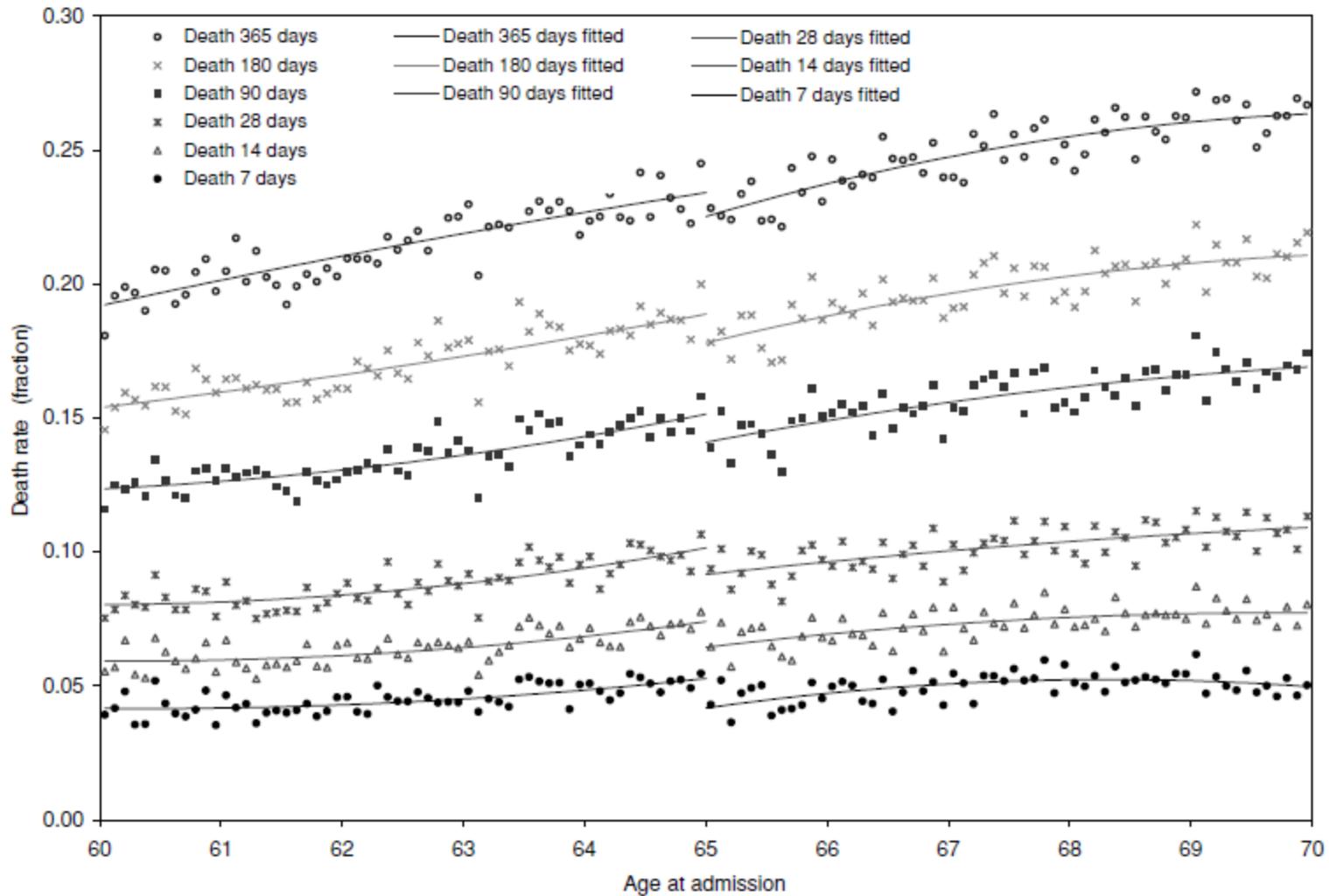


FIGURE VI  
Patient Mortality Rates over Different Follow-Up Intervals

Nontrivial decrease in mortality.

- A second approach is to analyzing Medicare introduction
- Chay et al “Health Insurance, Hospital Utilization and Mortality: Evidence from Medicare’s Origins”

Figure 1: Hospital Insurance rates in the United States, by age and year

A. Percent with hospital insurance

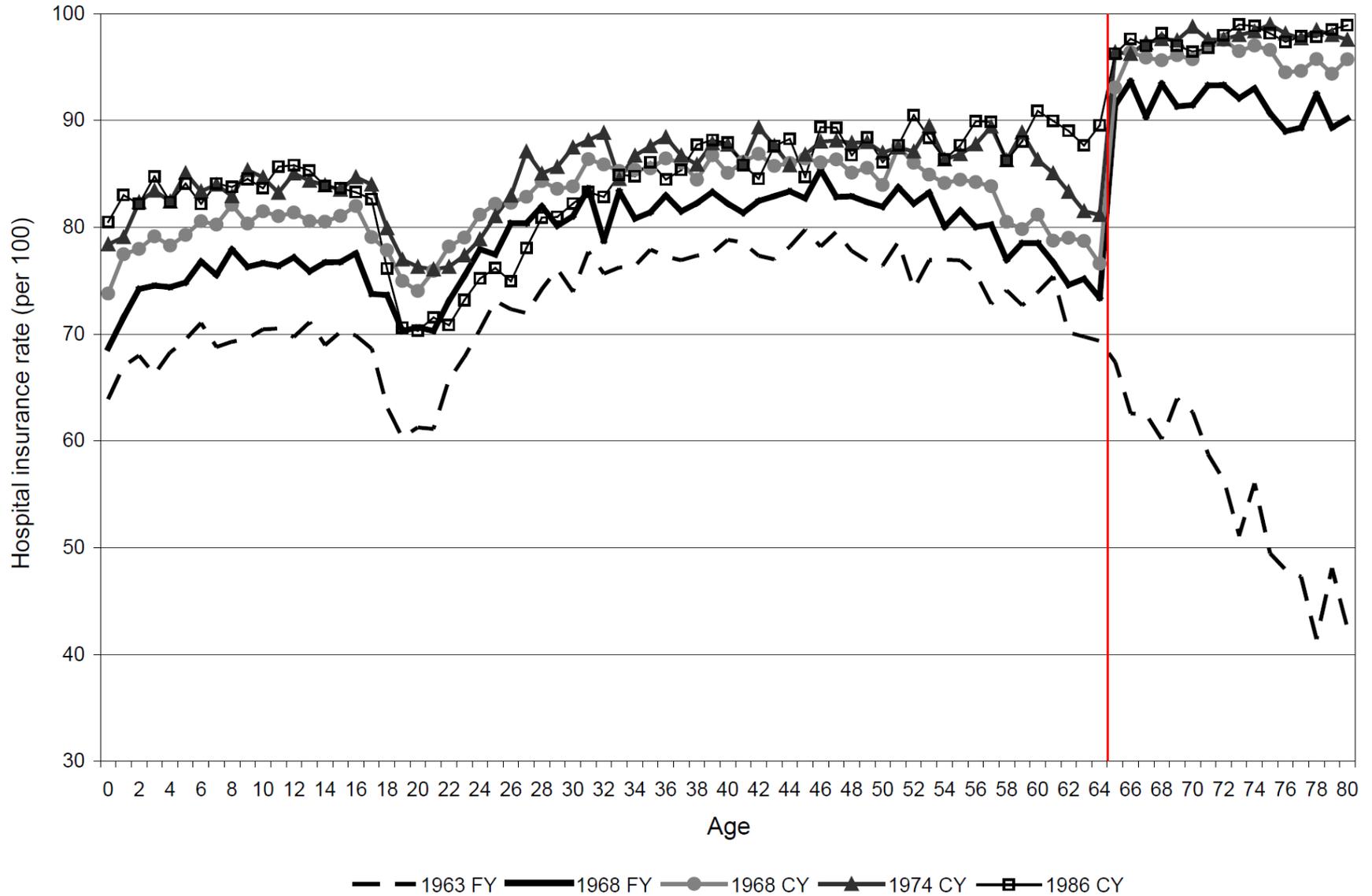
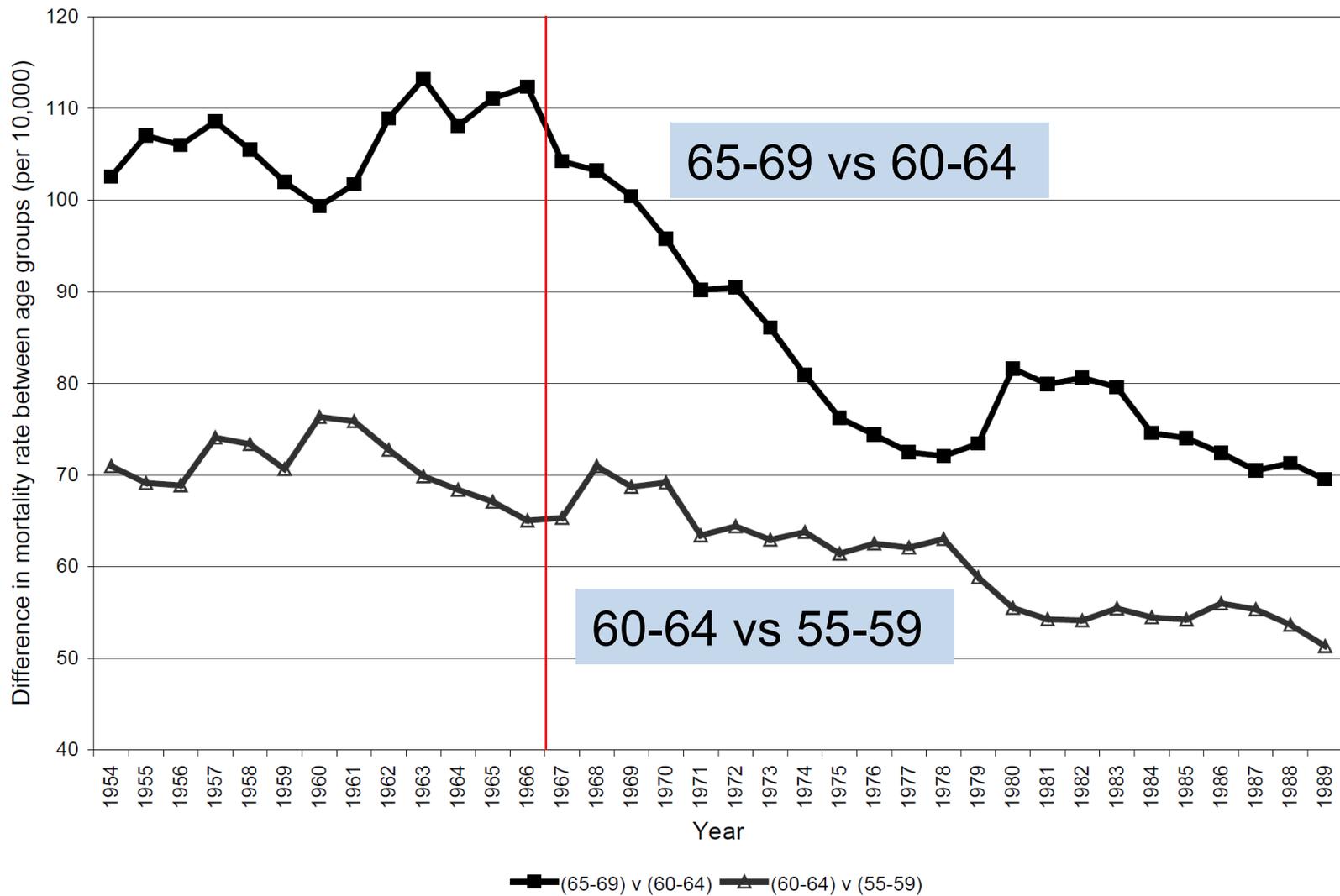


Figure 4: Mortality rates over time in the United States, differences across age groups

A. Age group differences in all-cause mortality rates (per 10,000 individuals)

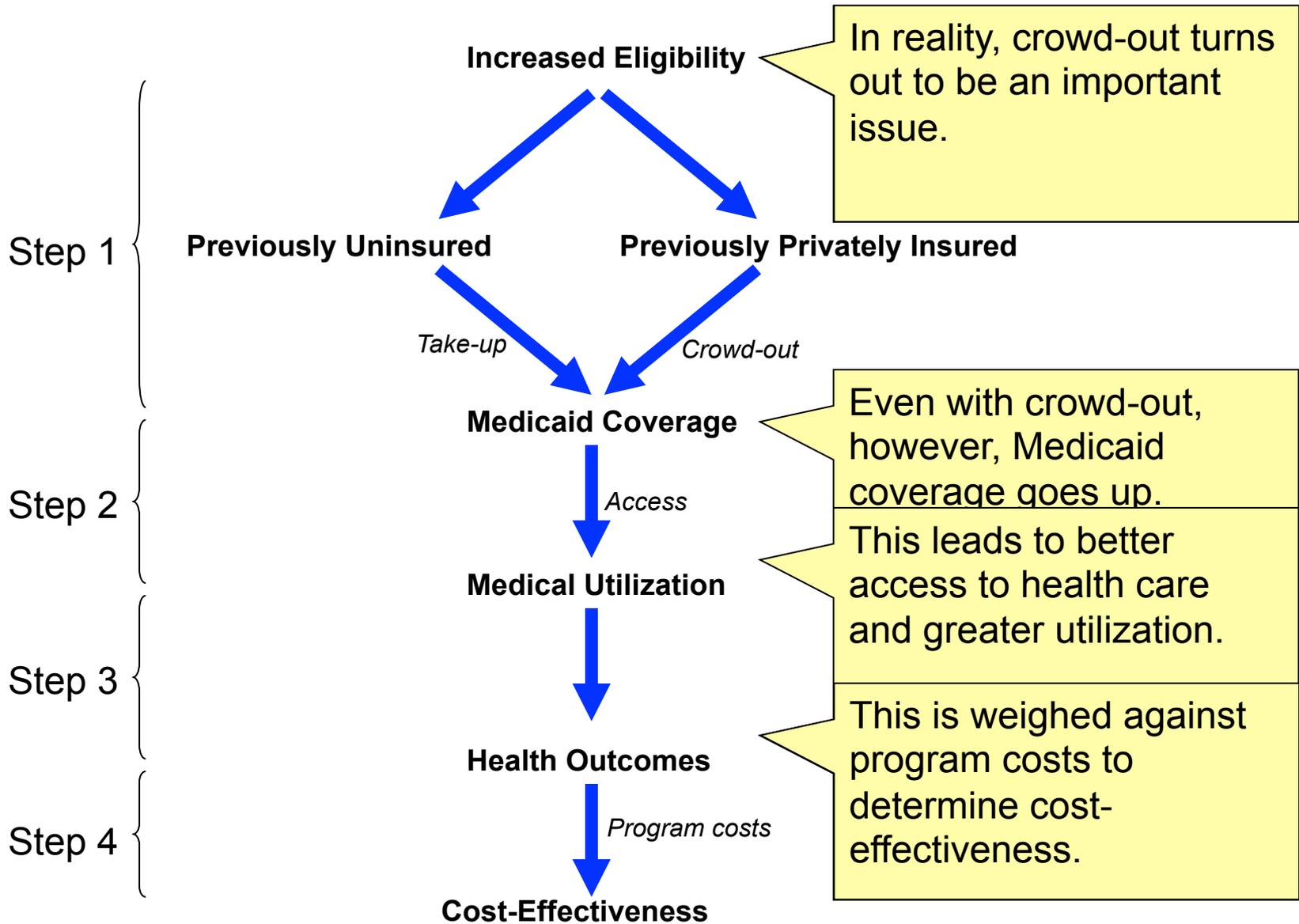


# Medicaid

- Research looks at how has the program affected:
  - The uninsured
  - Health care utilization
  - Health
  - Very recent literature on longer term effects on labor market and mortality
- The available evidence tells us about the benefits of expanding coverage for
  - Pregnant women [Medicaid expansions]
  - Children [Medicaid expansions]
  - Older low income adults [Oregon], already discussed

# Medicaid expansions

- Mid 1980s: expansion of Medicaid for children and pregnant mothers; to extend to families higher up the income scale
- 1997 Further expansion through CHIP



# Type of variation used in Medicaid expansions

## 16.2

### EVIDENCE: Using State Medicaid Expansions to Estimate Program Effects

#### Eligibility for all Children, by State

Year	Missouri Eligibility	Michigan Eligibility
1982	12%	20%
2000	76%	34%

#### Eligibility for Children by age in Washington, D.C.

Year	Age 13	Age 0
1982	18%	48%
2000	59%	56%

Table 3: State Medicaid Age and Income Eligibility Thresholds for Children.

State	<u>January 1988</u>		<u>December 1989</u>		<u>December 1991</u>		<u>December 1993</u>	
	Age	Medicaid	Age	Medicaid	Age	Medicaid	Age	Medicaid
Alabama			1	185	8	133	10	133
Alaska			2	100	8	133	10	133
Arizona	1	100	2	100	8	140	12	140
Arkansas	2	75	7	100	8	185	10	133
California			5	185	8	185	10	200
Colorado			1	75	8	133	10	133
Connecticut	0.5	100	2.5	185	8	185	10	185
Delaware	0.5	100	2.5	100	8	160	18	185
D.C.	1	100	2	100	8	185	10	185
Florida	1.5	100	5	100	8	150	10	185
Georgia	0.5	100	3	100	8	133	18	185
Hawaii			4	100	8	185	10	185
Idaho			1	75	8	133	10	133
Illinois			1	100	8	133	10	133
Indiana			3	100	8	150	10	150
Iowa	0.5	100	5.5	185	8	185	10	185
Kansas			5	150	8	150	10	150
Kentucky	1.5	100	2	125	8	185	10	185
Louisiana			6	100	8	133	10	133
Maine			5	185	8	185	18	185
Maryland	0.5	100	6	185	8	185	10	185
Massachusetts	0.5	100	5	185	8	185	10	200

## Results (contemporaneous)

1. Crowd-out is important to measure: *private insurance declines 20-50% of the public insurance increases*
2. Utilization of health services increased: Early prenatal care visits and child regular visits rose by more than 50%
3. Health care outcomes improved: Infant mortality declined by 8.5% due to the expansions in Medicaid for pregnant women.

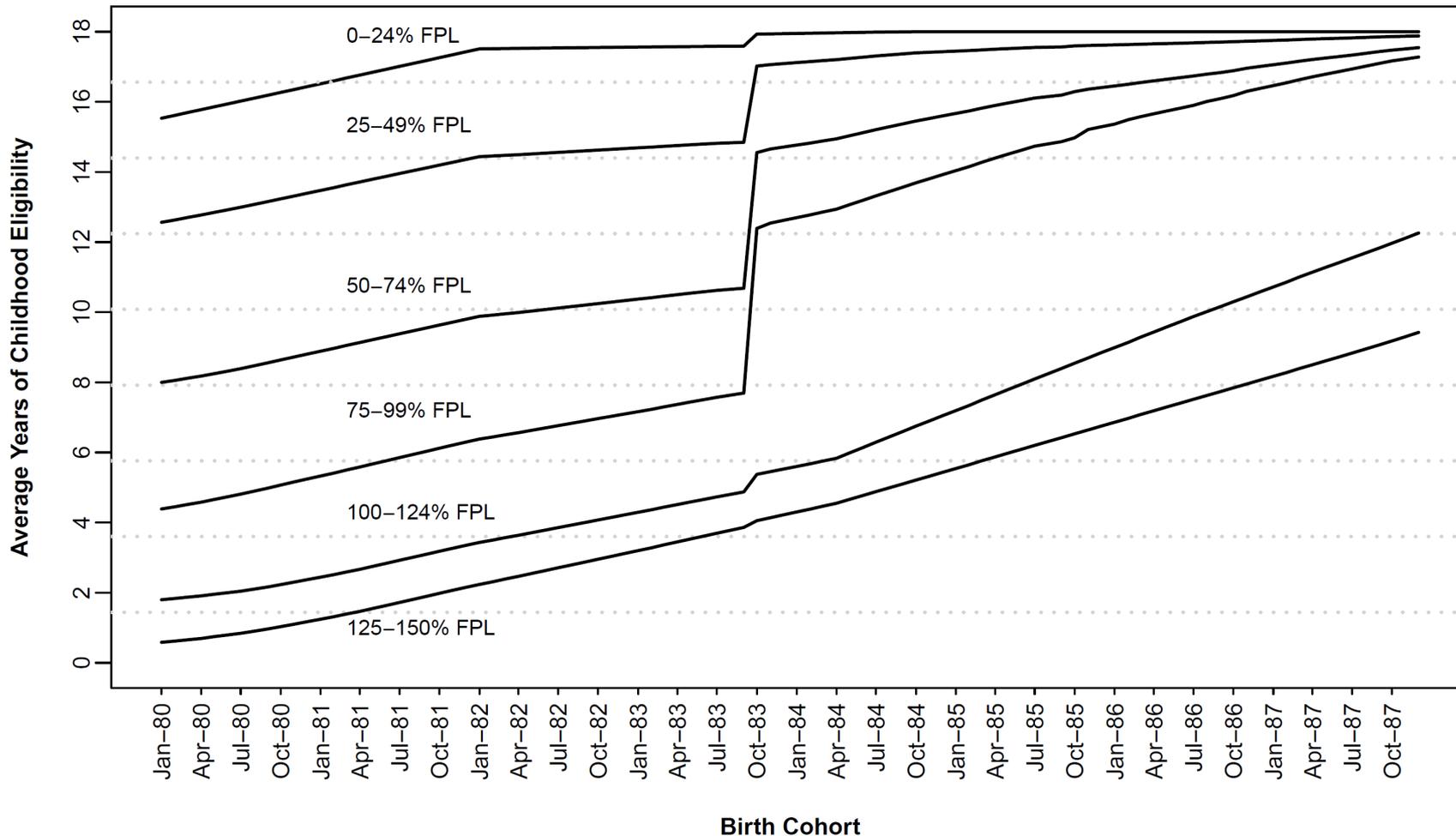
Highly cost-effective policy

## Longer term effects (very recent work)

1. Kowalski (and coauthors) – relate Medicaid coverage for birth-age 18 and use the universe of tax record to look at outcomes at ages 19-28: earnings, college going, EITC, mortality
2. Meyer (and coauthor) – focus on sharp discontinuity between births just before and after Oct 1983 when the Medicaid expansions kicked in. Examine impacts on mortality.

# Key Results from Meyer (mortality)

Figure 1. Average Years of Childhood Eligibility for Medicaid/SCHIP by Birth Cohort and Family Income (%FPL)



Notes: Weighted average calculated using the characteristics and state of residence of a sample of children of ages 0–17 in the 1981–1988 March CPS. See text for more information. Family income is indexed using the CPI-U and assumed to be constant over the child's lifetime.

Figure 9: Child Mortality from Internal Causes by Child Race

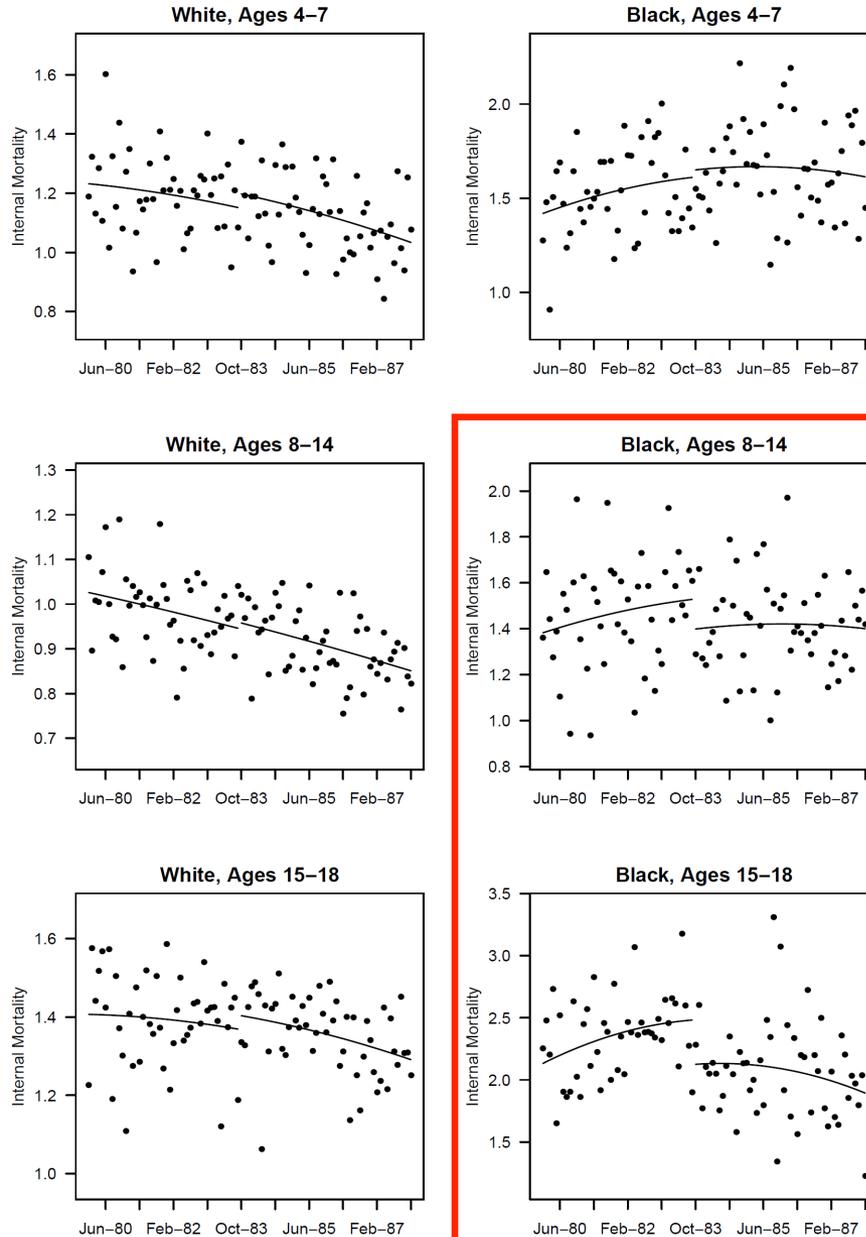
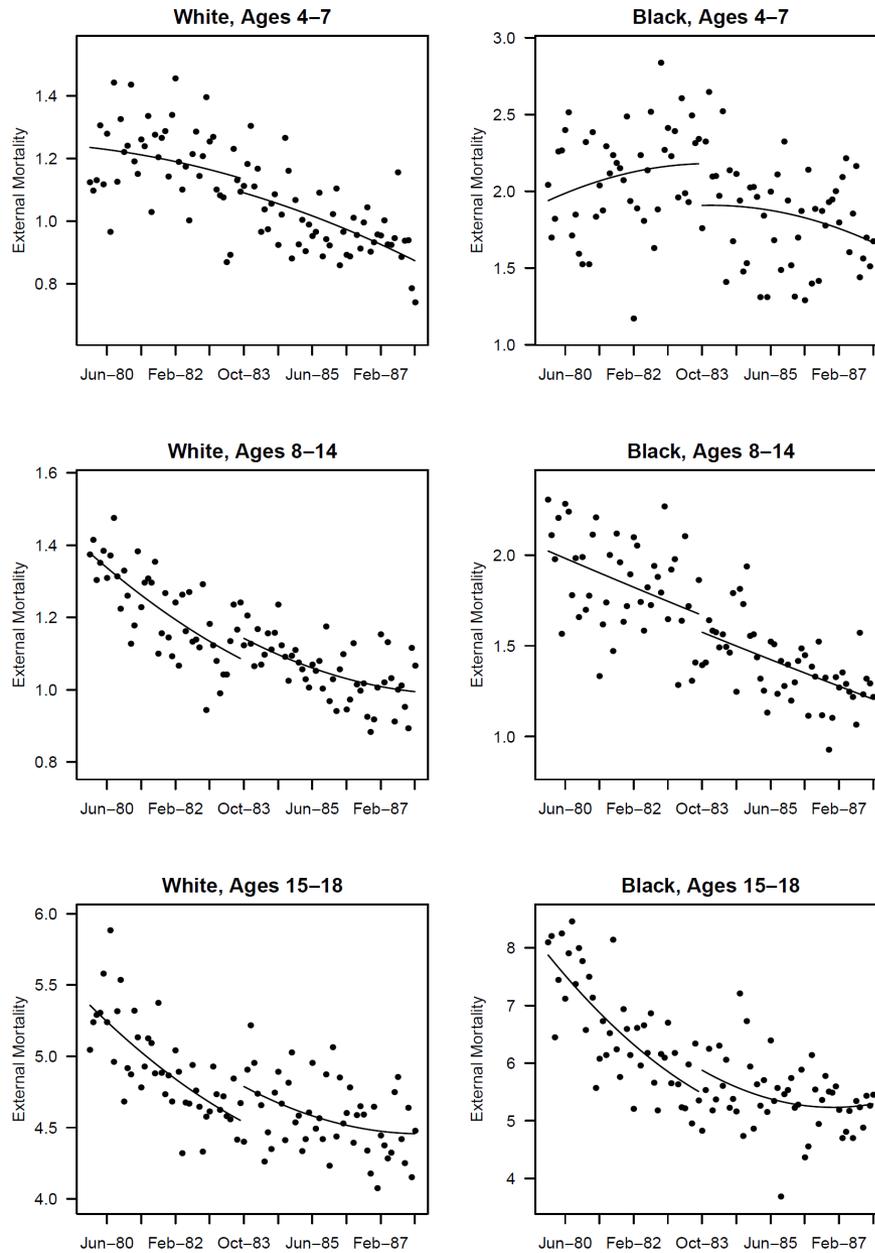


Figure 10: Child Mortality from External Causes by Child Race

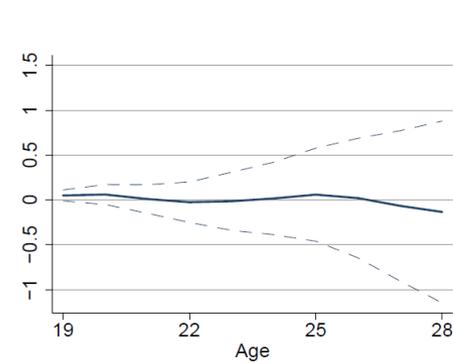
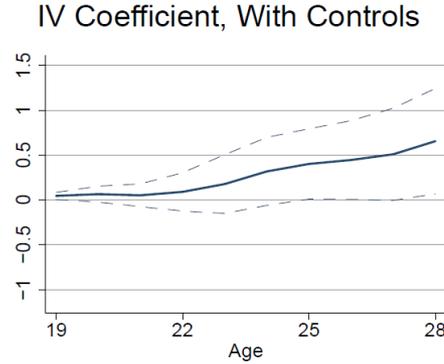
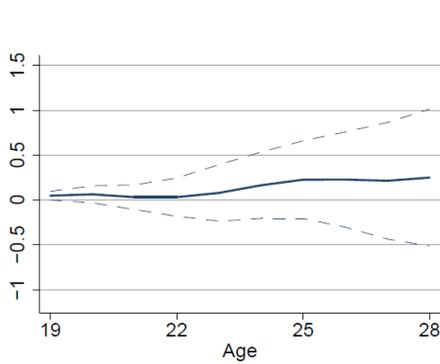


# Key Results from Kowalski (Tax Data)

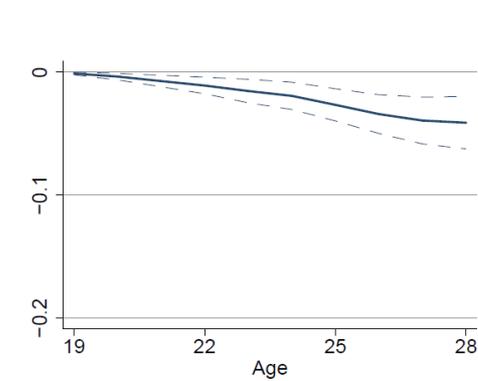
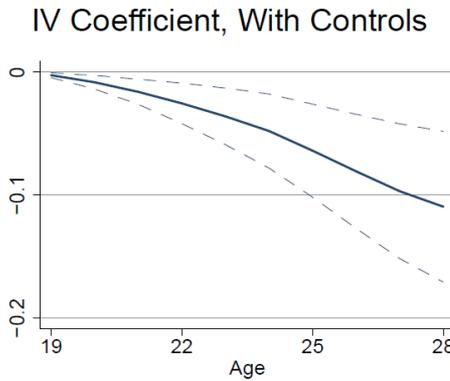
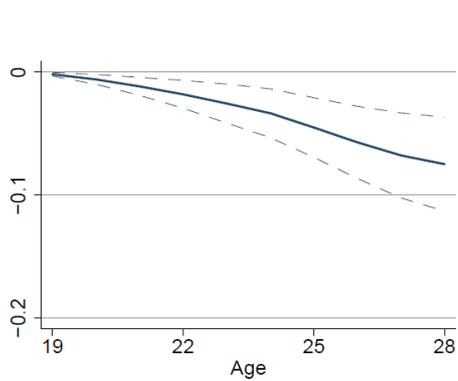
All

Female

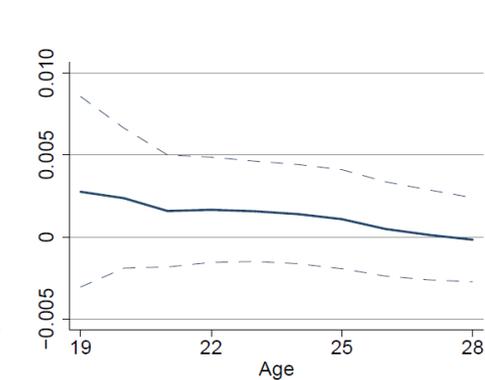
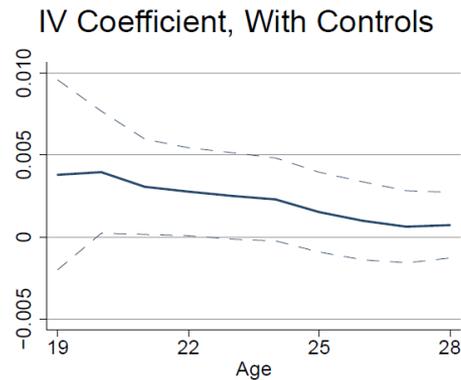
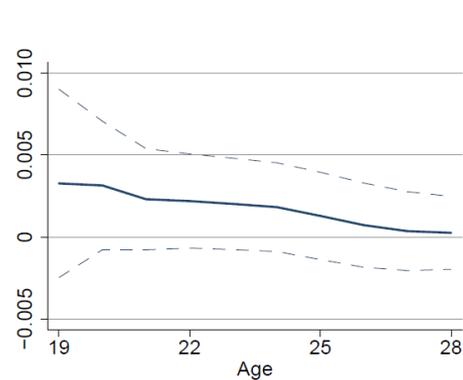
Male



Annual earnings (\$1000)



EITC (\$1000)



Any college

# Health Care Reform, the ACA

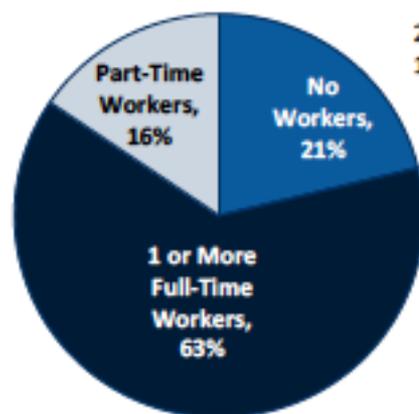
## The uninsured (kind of pre-ACA)

- In 2012, over 47 million uninsured, 18%
- What does the Kaiser study say about who is uninsured?
  - Young adults
  - Lower Incomes
  - Employed in low wage jobs
  - Minorities

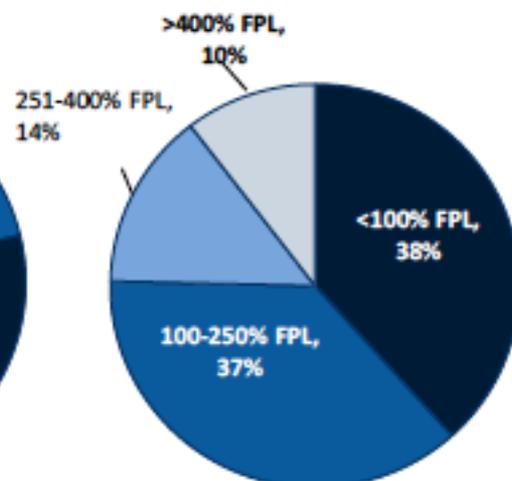
Figure 5

# Characteristics of the Nonelderly Uninsured Population , 2012

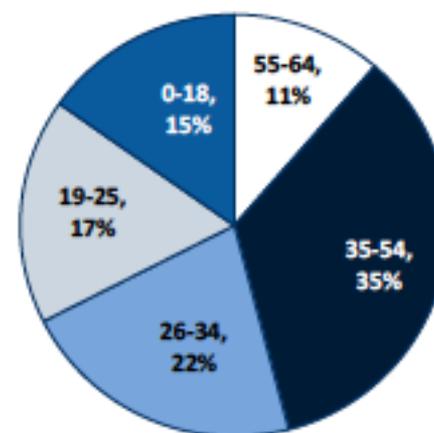
## Family Work Status



## Family Income



## Age

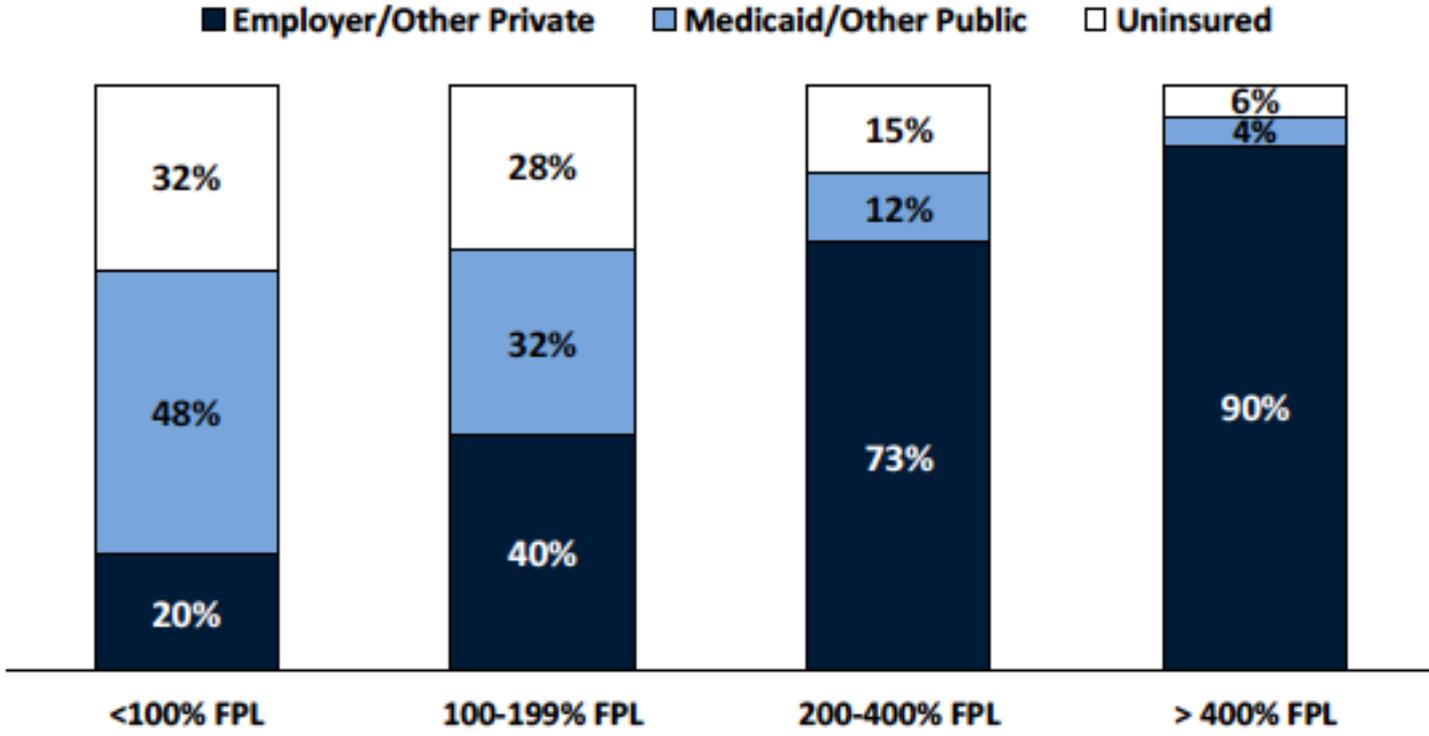


**Total = 47.3 Million Uninsured**

The federal poverty level was \$23,050 for a family of four in 2012. Data may not total 100% due to rounding.  
SOURCE: KCMU/Urban Institute analysis of 2013 ASEC Supplement to the CPS.

Figure 2

# Health Insurance Coverage of the Nonelderly by Poverty Level, 2012

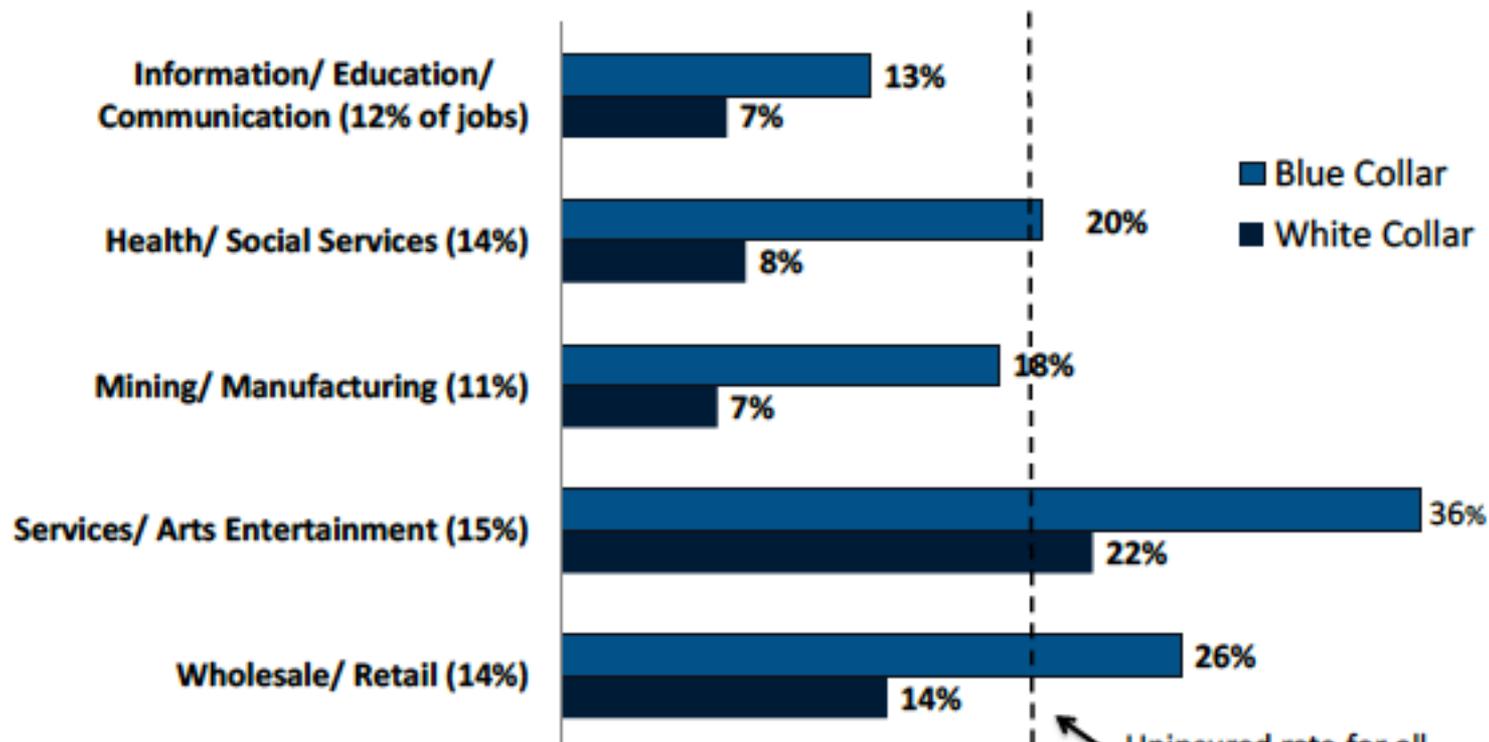


FPL – The federal poverty level was \$23,050 for a family of four in 2012. Data may not total 100% due to rounding.  
SOURCE: KCMU/Urban Institute analysis of 2013 ASEC Supplement to the CPS.



Figure 3

## Uninsured Rates Among Selected Industry Groups, White vs. Blue Collar Jobs, 2012



Analysis of workers age 18-64. White collar workers include all professionals and managers; all other workers classified as blue collar.

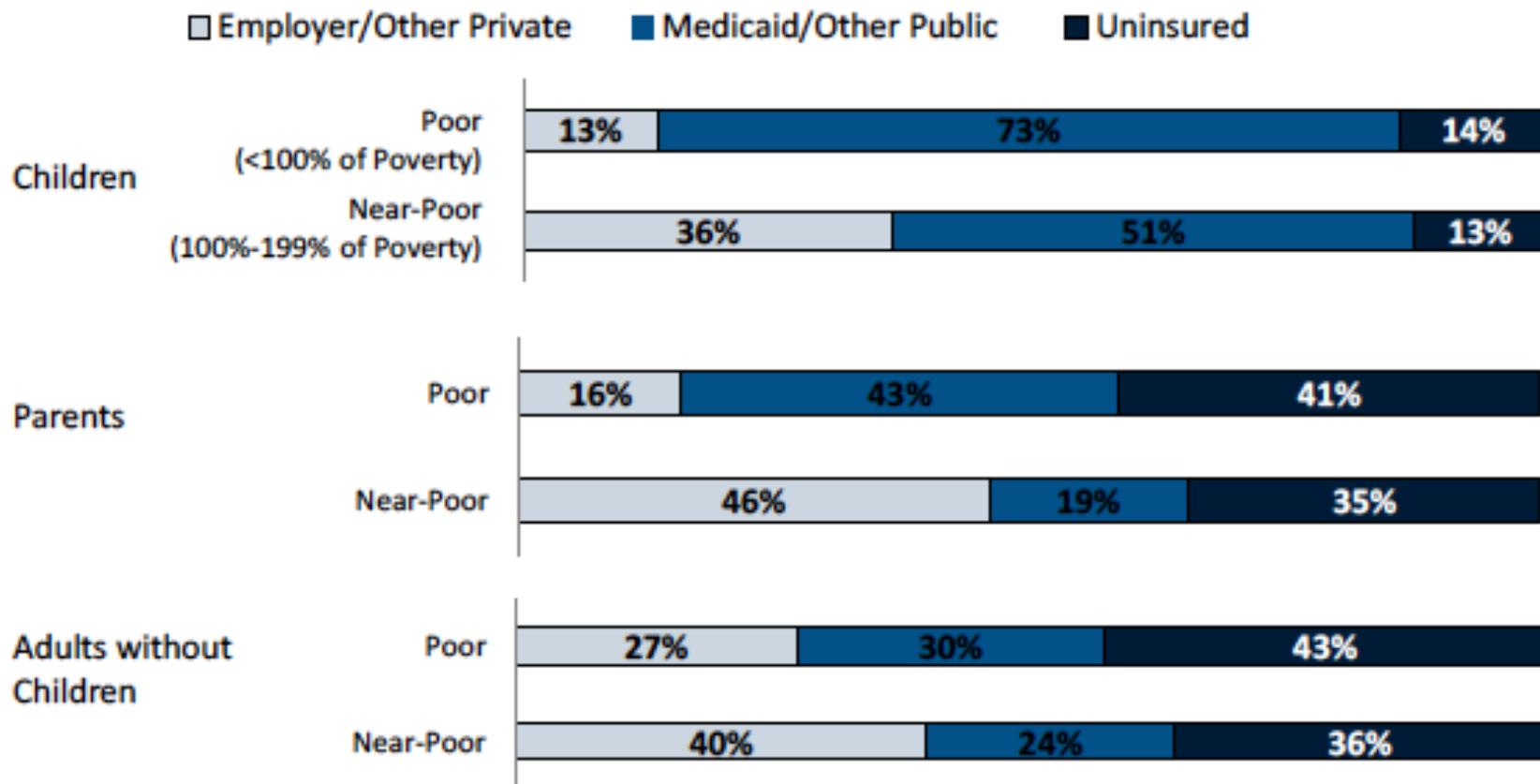
SOURCE: KCMU/Urban Institute analysis of 2013 ASEC Supplement to the CPS.



er-sponsored benefits) cover only 8% of people under age

Figure 4

# Health Insurance Coverage of Low-Income Adults and Children, 2012

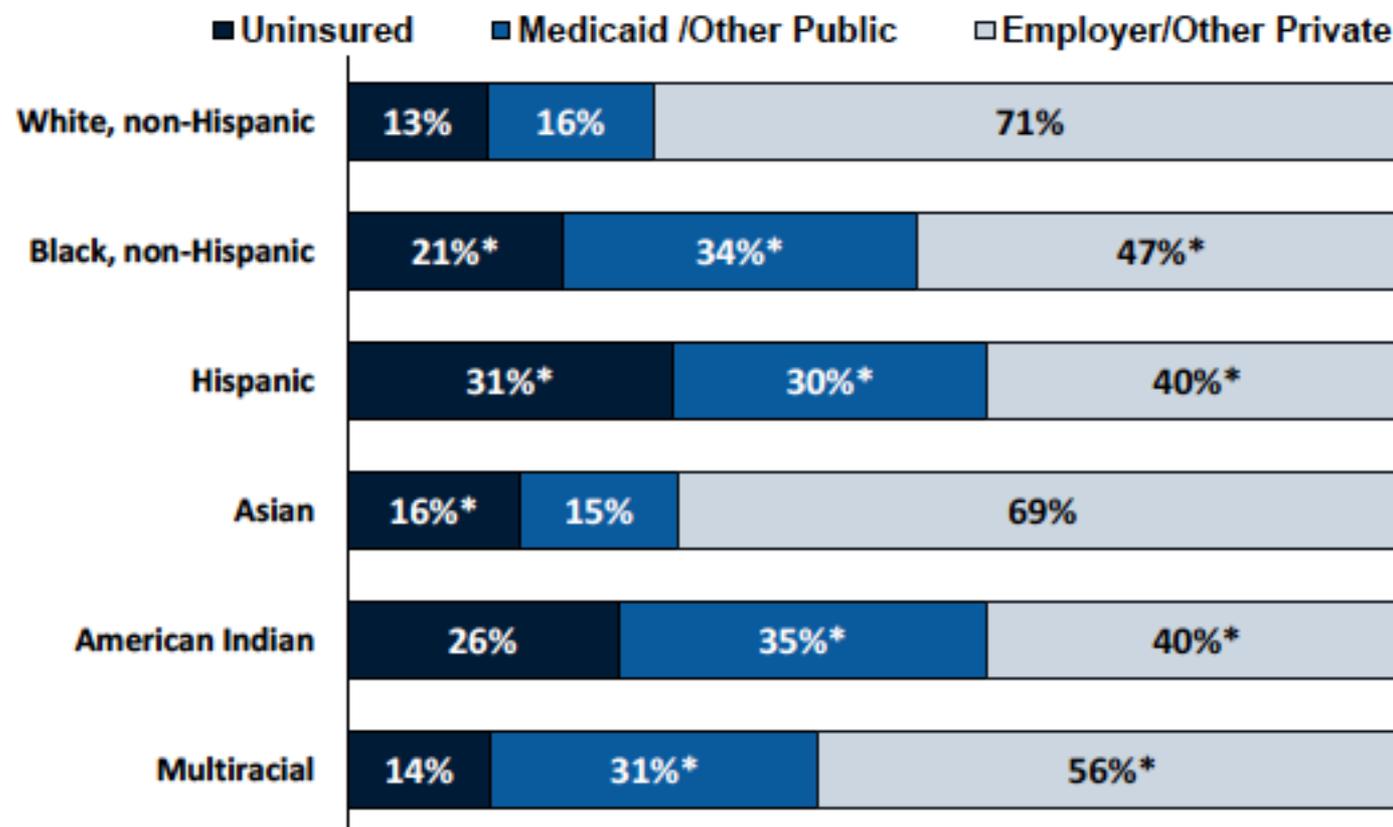


Data may not total 100% due to rounding.

SOURCE: KCMU/Urban Institute analysis of 2013 ASEC supplement to the CPS.

Figure 6

## Insurance Coverage of Nonelderly by Race/Ethnicity, 2012



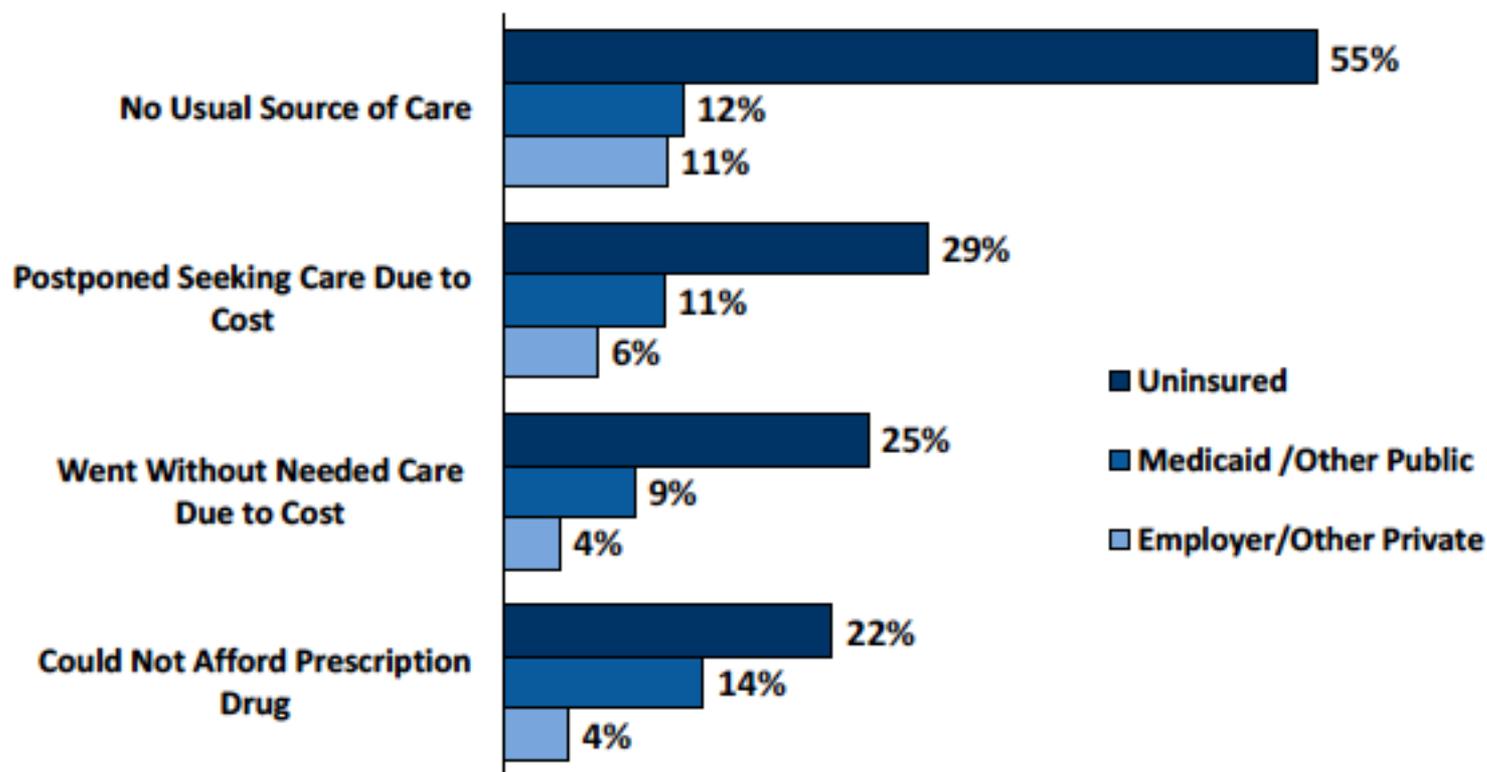
Asian group includes Pacific Islanders. American Indian group includes Aleutian Eskimos. Data may not total 100% due to rounding.

\*-category for the given race/ethnicity is statistically different from White non-Hispanics

SOURCE: KCMU/ Urban Institute analysis of 2013 ASEC Supplement to the CPS.

Figure 11

## Barriers to Health Care Among Nonelderly Adults by Insurance Status, 2012



In past 12 months.

Respondents who said usual source of care was the emergency room were included among those not having a usual source of care.

All differences between uninsured and insurance groups are statistically significant ( $p < 0.05$ ).

SOURCE: KCMU analysis of 2013 NHIS data.

# Why care about uninsurance?

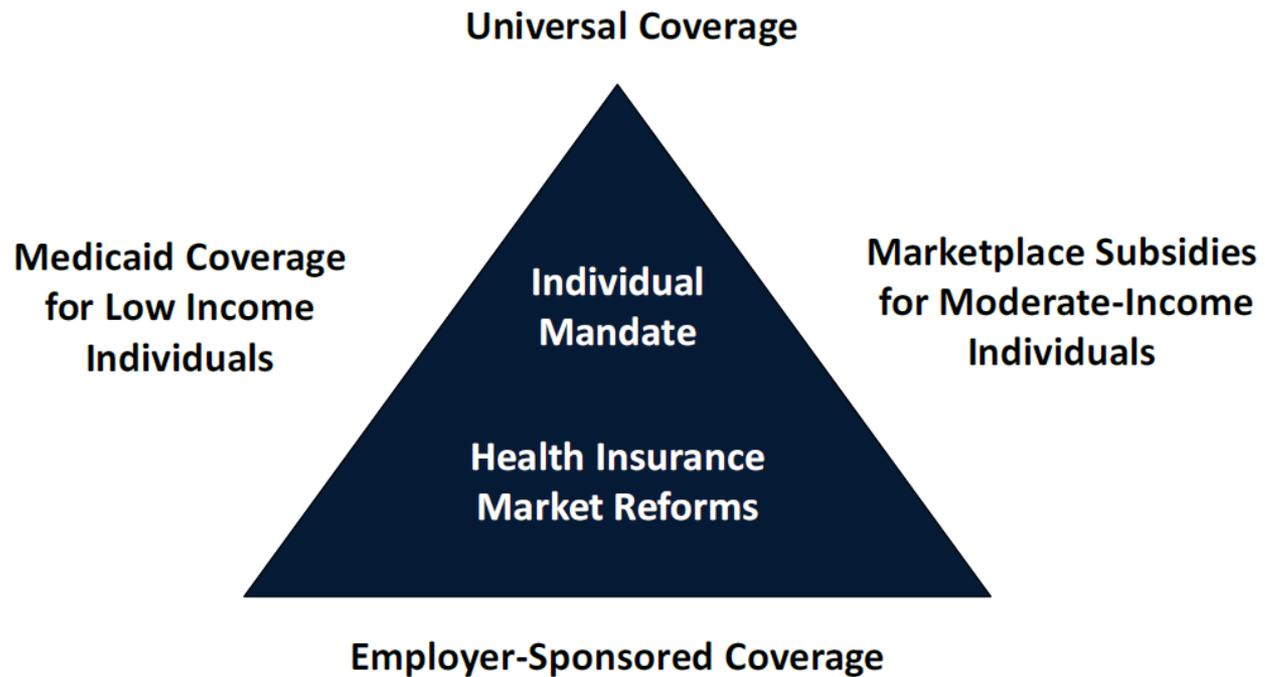
- There are equity motivations for caring about the uninsured
- Becoming uninsured is a concern/risk for millions of individuals who currently have insurance.
- Health insurance availability may inhibit productivity-increasing job switches (job lock): you do not want to quit a job offering health insurance
- Care is not delivered appropriately to the uninsured.
- There is a significant financial externality imposed by the uninsured on the insured.
- There are physical externalities associated with communicable diseases.

# Obamacare: Patient Protection and Affordable Care Act (ACA)

- Insurance market regulation: Bans pre-existing conditions exclusion and pricing based on health status
- Mandate: individuals (and large employers) are required to buy health insurance [else they pay a tax]
  - \$95 in 2014, \$325 in 2015, \$695 in 2016
- Free/subsidized insurance for low-income families [Medicaid expanded to 133% poverty line, subsidized health insurance up to 400% of poverty line]
- health care exchanges “marketplaces”: for individuals or small employers
- Starts trying to control costs [indeed costs increases have slowed down in recent years]
- The cost of the legislation will be financed through a combination of savings from Medicaid and Medicare and new taxes and fees, including an excise tax on high-cost insurance.

Figure 5

## Key Elements of Health Reform

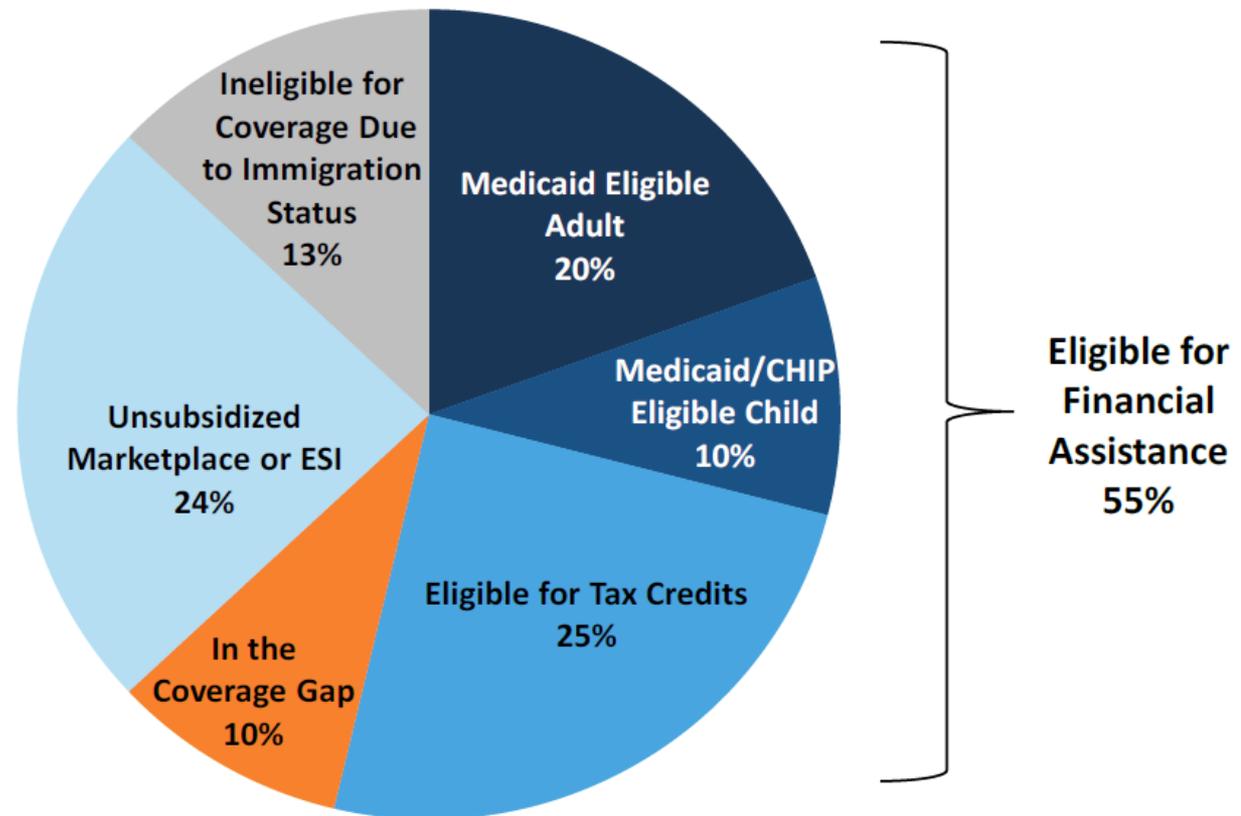


# Exchanges: plans

- Create four benefit categories of plans plus a separate catastrophic plan to be offered through the Exchange, and in the individual and small group markets:
  - *Bronze plan* represents minimum creditable coverage and provides the essential health benefits, covers 60% of the benefit costs of the plan, with an out-of-pocket limit equal to the Health Savings Account (HSA) current law limit (\$5,950 for individuals and \$11,900 for families in 2010);
  - *Silver plan* provides the essential health benefits, covers 70% of the benefit costs of the plan, with the HSA out-of-pocket limits;
  - *Gold plan* provides the essential health benefits, covers 80% of the benefit costs of the plan, with the HSA out-of-pocket limits;
  - *Platinum plan* provides the essential health benefits, covers 90% of the benefit costs of the plan, with the HSA out-of-pocket limits;
  - *Catastrophic plan* available to those up to age 30 or to those who are exempt from the mandate to purchase coverage and provides catastrophic coverage only with the coverage level set at the HSA current law levels except that prevention benefits and coverage for three primary care visits would be exempt from the deductible. This plan is only available in the individual market.

Figure 6

## Eligibility for Coverage as of 2014 Among Currently Uninsured Nonelderly Individuals



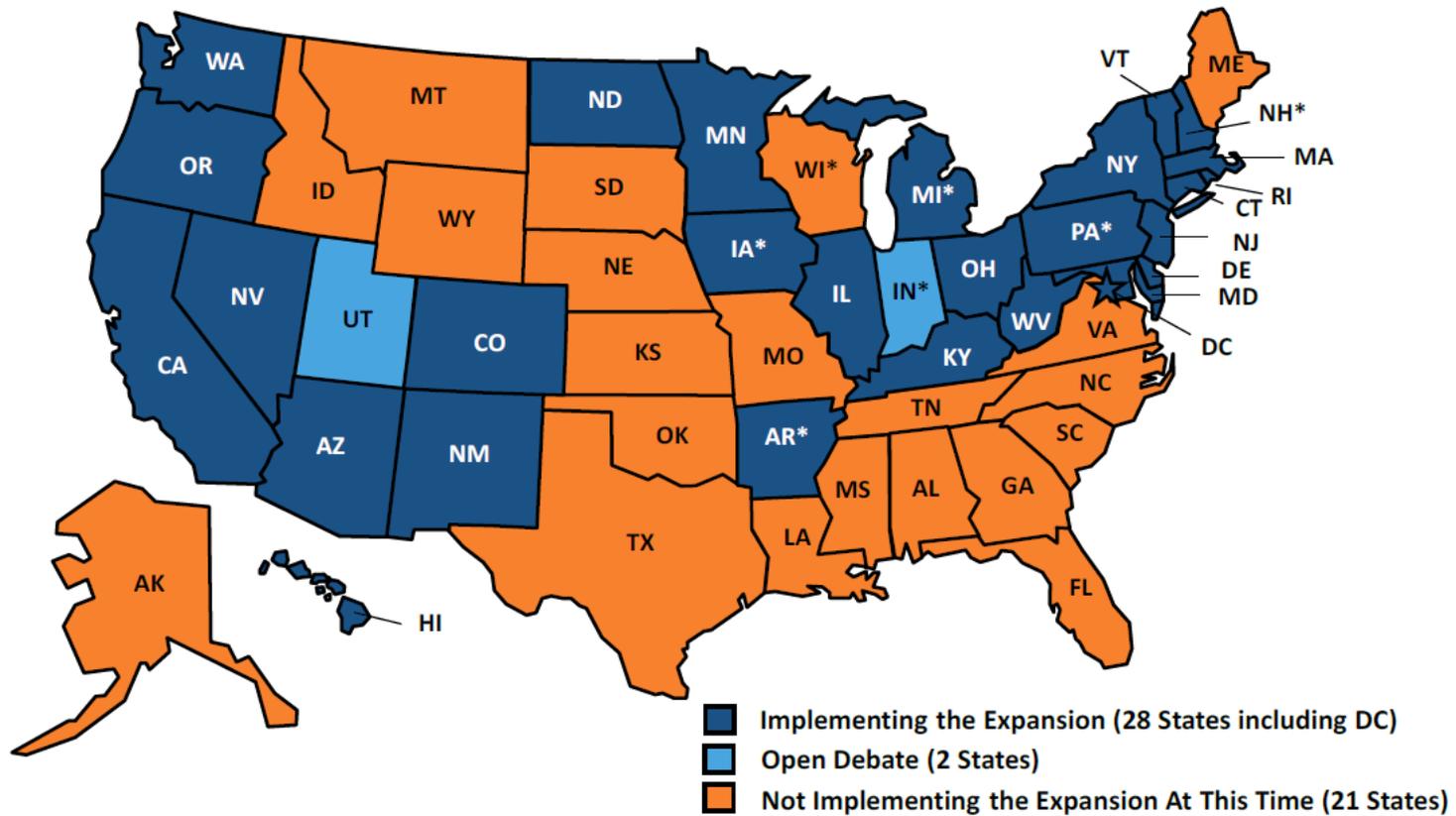
**Total = 41.3 Million Nonelderly Uninsured**

Notes: Those Ineligible for financial assistance includes people with ESI, individuals eligible to purchase unsubsidized Marketplace coverage, and individuals ineligible for coverage due to immigration status. People who have an affordable offer of coverage through their employer or other source of public coverage (such as Medicare or CHAMPUS) are ineligible for tax credits. Unauthorized immigrants are ineligible for either Medicaid/CHIP or Marketplace coverage.

SOURCE: Kaiser Family Foundation analysis based on 2014 Medicaid eligibility levels and 2014 Current Population Survey.

Figure 7

# Current Status of State Medicaid Expansion Decisions



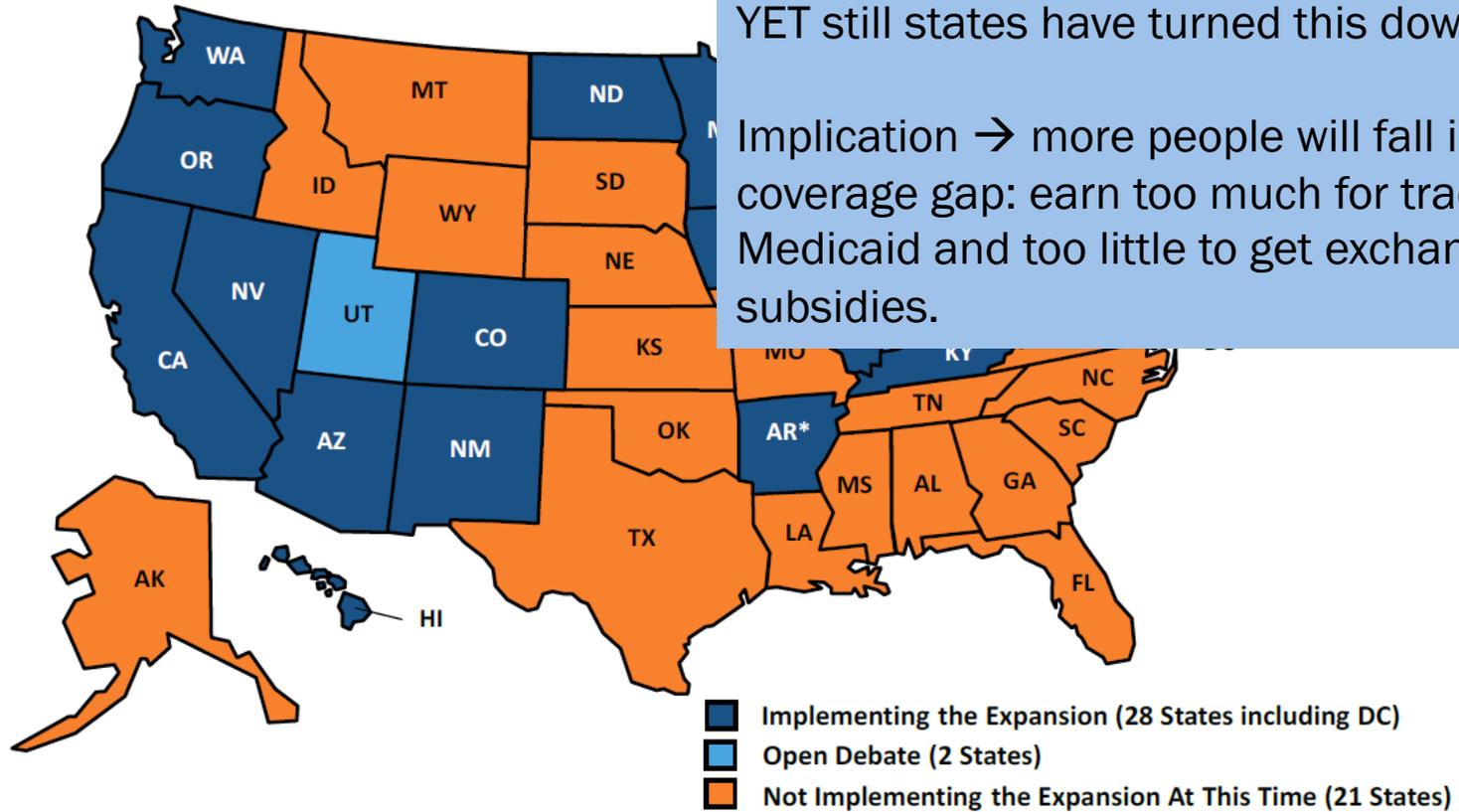
NOTES: State Medicaid expansion decisions are as of August 28, 2014. \*AR, IA, MI, and PA have approved Section 1115 waivers for Medicaid expansion. In PA, coverage will go into effect January 1, 2015. NH has implemented the Medicaid expansion and plans to seek a waiver at a later date to operate a premium assistance model. IN has a pending waiver to implement the Medicaid expansion. WI amended its Medicaid state plan and existing Section 1115 waiver to cover adults up to 100% FPL in Medicaid, but did not adopt the Medicaid expansion.

SOURCE: "Status of State Action on the Medicaid Expansion Decision," KFF State Health Facts, as of August 28, 2014:

<http://kff.org/health-reform/state-indicator/state-activity-around-expanding-medicaid-under-the-affordable-care-act/>

Figure 7

## Current Status of State Medicaid



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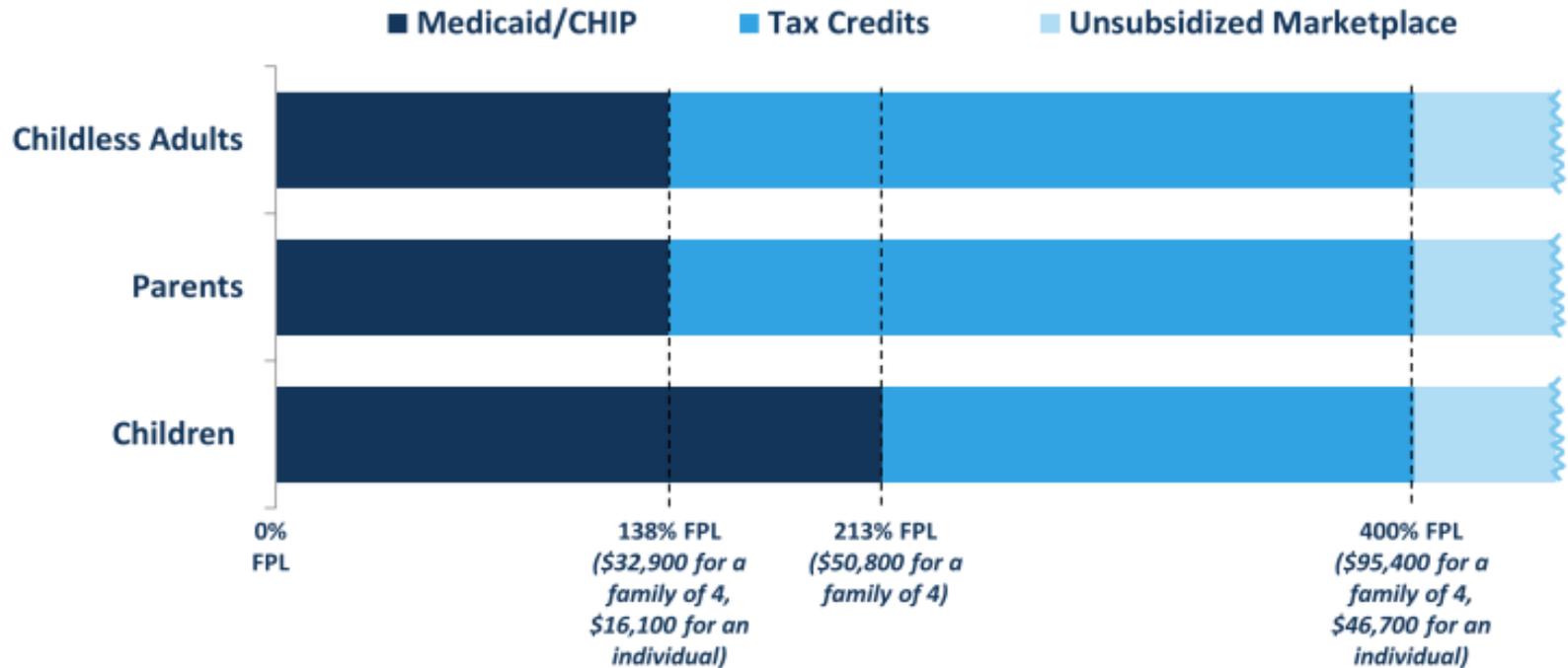
The federal government will pay nearly all of the expansion costs – 93 percent over the first nine years (2014-2022) – according to CBO estimates

YET still states have turned this down.

Implication → more people will fall into coverage gap: earn too much for traditional Medicaid and too little to get exchange subsidies.

Figure 2

## Income Eligibility Levels for Medicaid/CHIP and Marketplace Tax Credits in States Implementing the Medicaid Expansion as of 2014

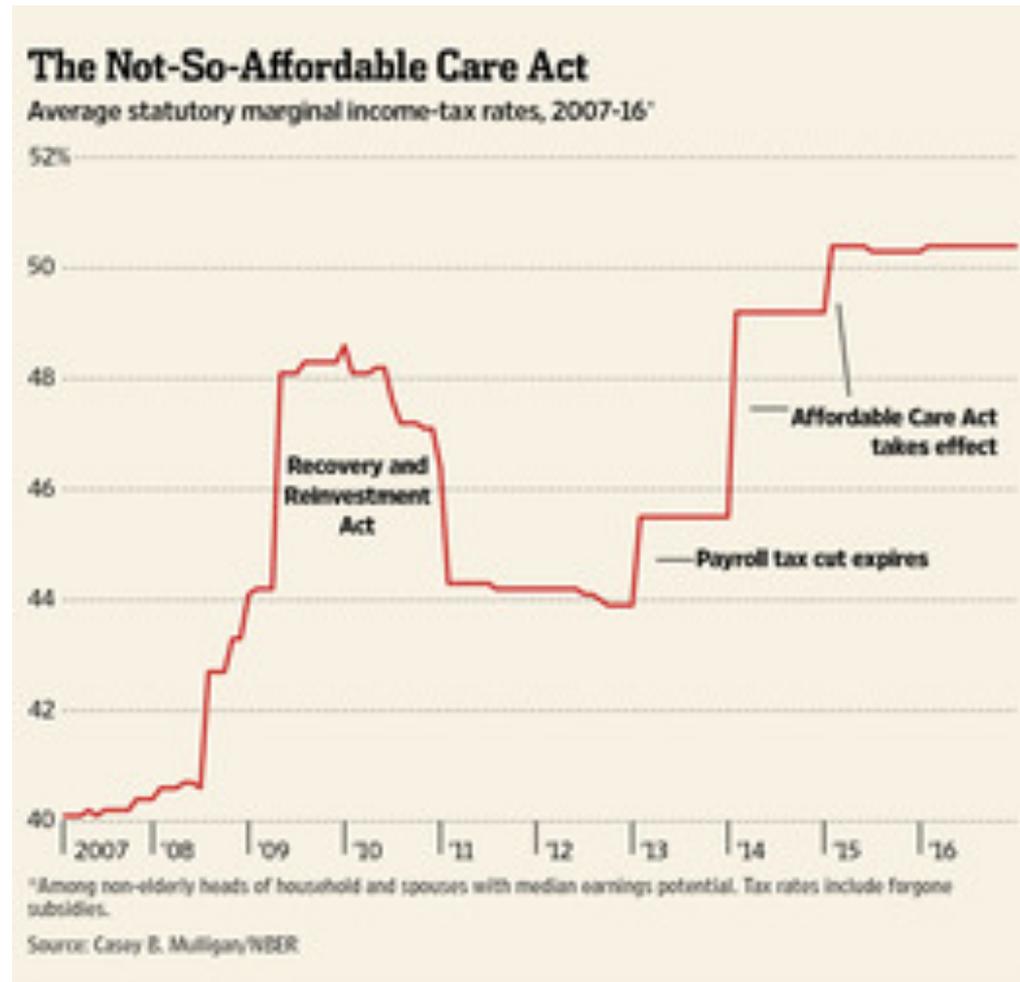


Notes: Medicaid eligibility is based on current Medicaid eligibility rules converted to MAGI. Applies only to MAGI populations. Medicaid eligibility levels as a share of poverty vary slightly by family size; levels shown are for a family of four. People who have an affordable offer of coverage through their employer or other source of public coverage (such as Medicare or CHAMPUS) are ineligible for tax credits. Unauthorized immigrants are ineligible for either Medicaid/CHIP or Marketplace coverage.  
Source: Kaiser Family Foundation analysis based on 2014 Medicaid eligibility levels.

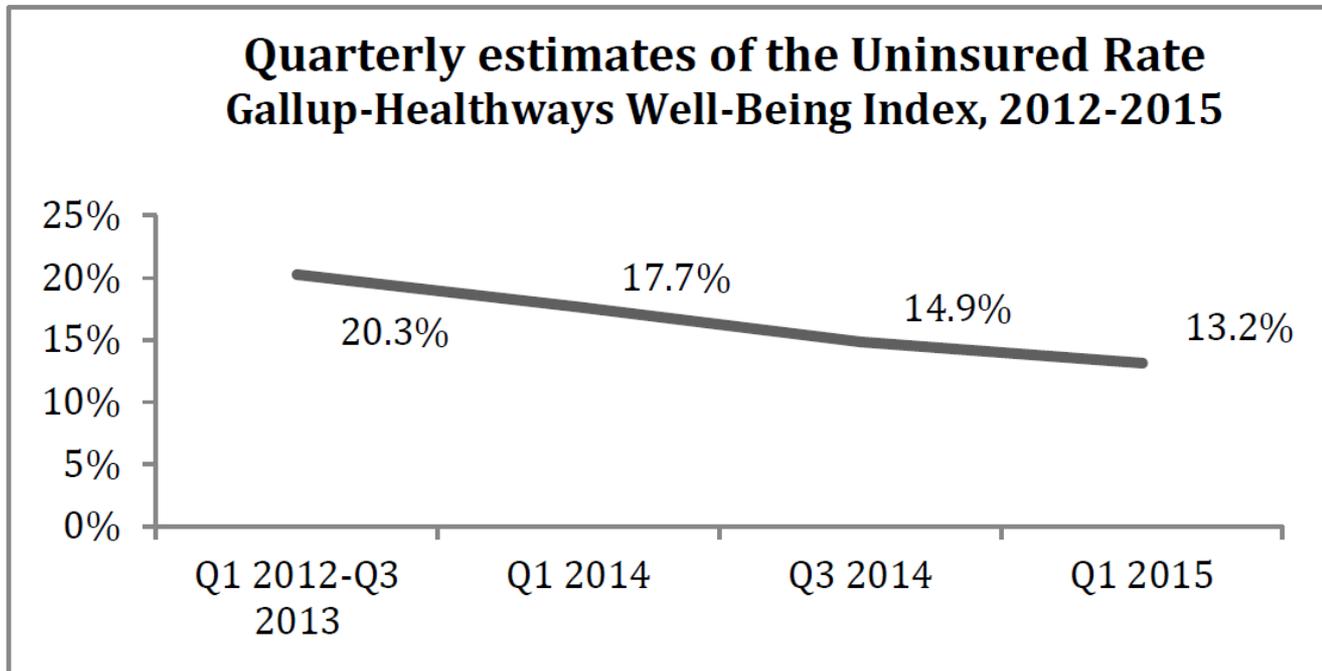
# Early evidence on the ACA

- The Congressional Budget Office (CBO) estimates that the legislation will reduce the number of uninsured by 25 million in 2016 at a total cost of ~\$1 trillion over ten years. According to CBO, by 2018, the legislation will result in 25 million people obtaining coverage in the Marketplaces, including some who previously purchased coverage on their own in the individual market. In addition, 12 million more people will enroll in Medicaid and the Children's Health Insurance Program.

- CBO report: subsidy phase-outs, loss of Medicaid, and other provisions reduce incentive to work and result in a reduction in full-time-equivalent work hours of 2.5 million jobs
- Mulligan oped



# “Health Insurance Coverage and ACA” HHS, 3/16/15



	Q1 2014	Q3 2014	Q1 2015
<b>Number gained coverage since baseline (Q1 2012-Q3 2013)</b>	5,200,000	10,700,000	14,100,000

	Baseline Uninsured Rate	Q1 2014	Q3 2014	Q1 2015
		Change in Percentage Points from Baseline Trend		
<b>Non-expansion</b>	23.4	-2.5	-4.5	-6.9
<138% of FPL	61.8	2.7	-0.9	-7
139-400% of FPL	22.2	-4.7	-7.3	-10.1
>400% of FPL	1.9	0.4	-0.6	-1.1
<b>Expansion</b>	18.2	-2.8	-6.2	-7.4
<138% of FPL	55.0	-2.7	-5.5	-13
139-400% of FPL	18.1	-4.1	-8.3	-9.5
>400% of FPL	1.8	-0.4	-1.3	-1.3

## Results from Massachusetts (April 2006, similar reform)

- MA uninsurance rate 3%, compared to 18% nationally.
- Half of the increase in coverage from Medicaid or government subsidized plans.
- Premiums in the non-group market have fallen by half relative national trends.
- Decreased in inpatient admissions originating from the ER. Some evidence that hospitalizations for preventable conditions were reduced.
- Costs of the reform roughly consistent with projections.

## Different models for health care reform

- Single payer, government run system
- Private sector expansion: Expand health insurance credits to reduce costs of gaining insurance

## National health insurance: Pluses and Minuses

- Coverage 100%
- Fairness, inequities
- Reduce admin costs
- Centralized approach to cost control?
- Huge revenue burden for govt (how to fund it?)
- Rationing?
- Political challenge

## Private sector expansions: Pluses and Minuses

- Politically feasible
- No govt revenue needed
- Ignores fundamental market failures!
- Adverse selection!

Social Impact Bonds

PP290

Hilary Hoynes

# Outline

- What are social impact bonds?
- What is the typical payment schedule?
- Some examples of social impact bonds
- What problems are social impact bonds addressing (e.g. in government)
- Potential benefits; potential concerns
- When they might work well
- Step by step guide for S&L governments
- Questions going forward
- Other issues around improving government effectiveness

# Outline

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# What is a SIB?

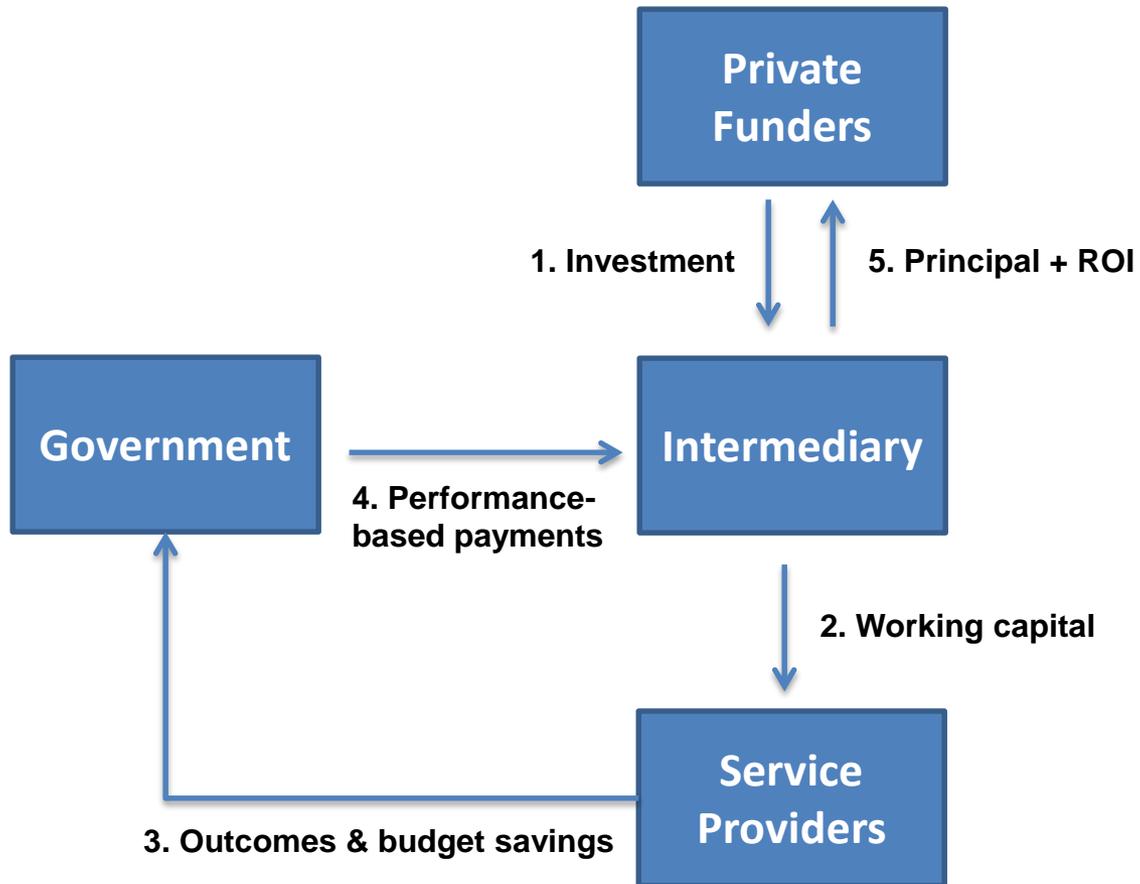
- The government contacts with a private-sector intermediary (“social impact bond-issuing organization”) to obtain social services
- Government pays the intermediary entirely (or close to) based on achieving performance targets
  - Sometimes payments are tied to government cost-saving
- Intermediary obtains operating funds by issuing bonds to private investors who provide upfront capital in exchange for a share of the government payments.

# What is a SIB? (cont)

- Risk is borne by the private capital holders
- Private capital holders decide whether the project is worth investing in (positive: need to be convinced that the idea is sound and that the team is good; negative: should policy be determined by the preferences of a few?)
- Hard to implement performance based pay for social service providers currently (can't come up with upfront capital to perform services).
- p.s. The term "Social Impact Bond", which was coined in the UK, has led to some confusion. The private sector financing arrangement is not a typical debt instrument and these transactions do not require the government to issue debt. To avoid these misperceptions, the federal government tends to call these projects "pay-for-success contracts."

# “Classic” SIB Model

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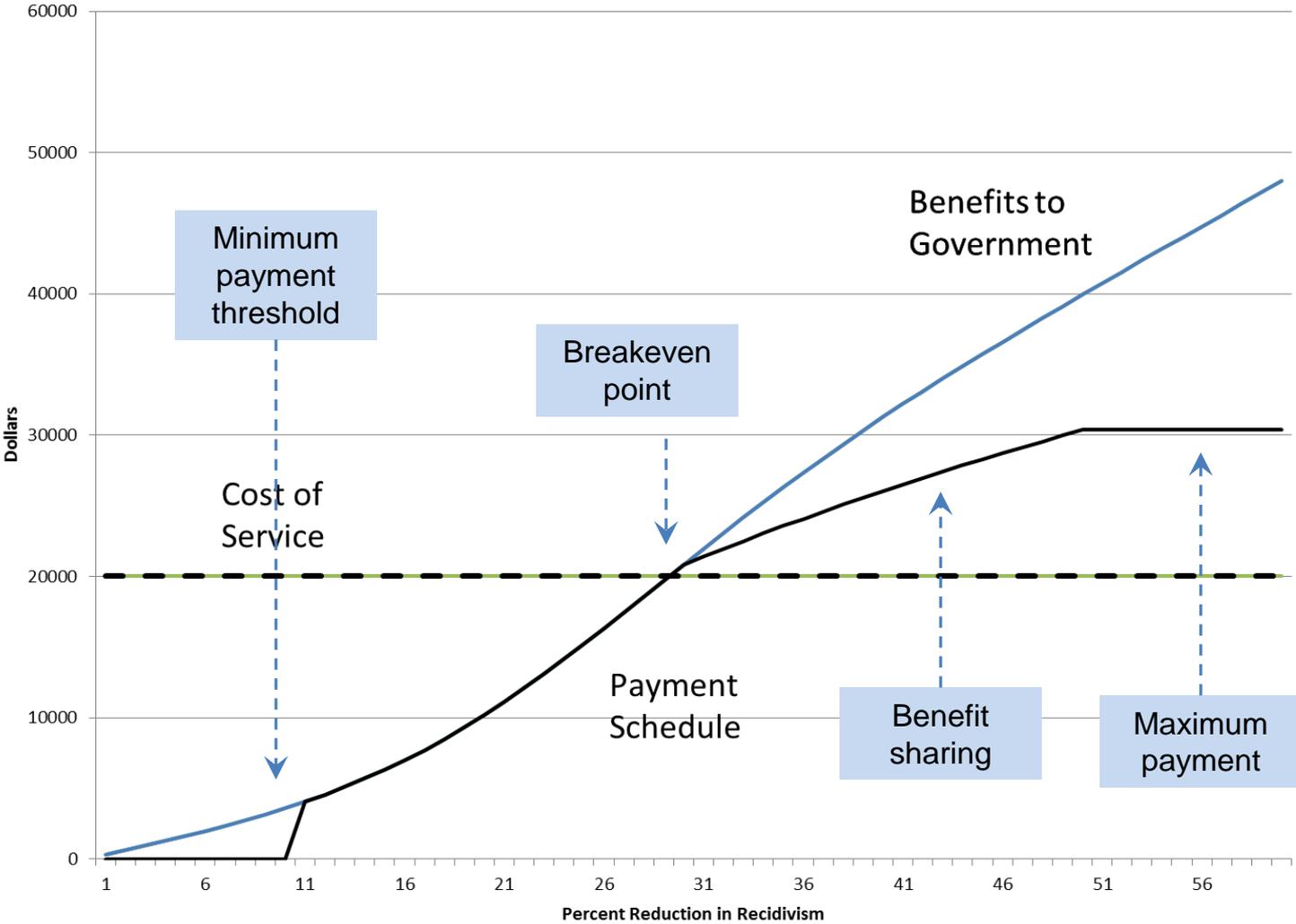
# Outline

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# Typical payment schedule for SIB

- Minimum payment threshold: government pays only when results are sufficiently large (e.g. such that with high likelihood the impacts are not simply the result of chance)
  - balances its competing priorities of setting a high enough threshold to ensure sufficiently strong evidence before making payments and a low enough threshold to ensure that the private sector partners have positive performance incentives over as wide a range of outcomes as possible
- Above minimal threshold, governments pay an amount equal to the full social benefits until the breakeven point (principal is repaid)
- Above breakeven point, incremental benefits are shared (often 50/50) between government and investors
- Subject to maximum repayment

# Illustrative payment schedule



# Uncertainty in this setting

- Uncertainty about the true impact of the program
  - Number and size of previous evaluations
  - Methodological uncertainty of the previous evaluations
- Implementation uncertainty
  - External validity of prior evaluations (for your context)

# Outline

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# A selective timeline

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- 2010 First SIB launched in Peterborough, England.
- 2012 Massachusetts issued 2 RFRs for pay for success contracts and enacted legislation authorizing \$50 million in SIBs.
- 2012-2013 New York State issued two RFPs and enacted legislation authorizing \$30 million in SIBs.
- 2012 New York City created first U.S. SIB, providing services to youth jailed at Rikers Island.
- 2013 SIB Lab holds national competition for technical assistance. 28 governments apply.
- 2014 Six U.S. SIBs launch. Another dozen under development.
- 2015 CNCS funds technical assistance for several dozen more projects.

## First SIB: Peterborough Prison (UK)

- UK Justice Ministry: services to reduce prisoner recidivism
- Population of 3,000 male short-sentence (baseline recidivism rate = 60% within 1 year)
- Social Finance (London based nonprofit) raised \$7.9m; services were provided by St Giles Trust (another nonprofit)
- Payments triggered if recidivism falls by at least 7.5% more than comparison group of prisons (max rate of return 13% if reduction in recidivism rate >12.5% higher than controls)
- Contract: 3 – 2year contracts
- How to protect against cream skimming? Include entire population in the evaluation/data tracking

## First U.S. SIB: NYC Recidivism (youth)

- 16-18 year olds who are jailed at Rikers Island
- Goal: reduce recidivism
- 3,000 men per year (9/12-8/15)
- MDRC is the intermediary (implementation, management)
- Goldman Sachs \$9.6m funding loan to MDRC
- 2 nonprofit service providers
- Payments: \$4.8m if recidivism is reduced by 8.5% to max of \$11.7 if recidivism is reduced by 20%
- Bloomberg Philanthropies is guaranteeing the first \$7.2m of loan repayment

## Other U.S. SIBs

- Massachusetts: 900 youth over 3 years who are aging out of juvenile justice system (cost savings from reduced incarceration)
- Massachusetts: 400 chronically homeless individuals; provide housing over a 3-year period (cost savings from reduced Medicaid)
- NY: transitional employment services to adults released from prison

## **SIBs Currently Operational in the U.S.:**

### ***Recidivism***

New York City  
New York State  
Massachusetts

### ***Pre-K***

Utah  
Chicago

### ***Homelessness***

Massachusetts  
Cuyahoga

## **SIBs Under Developed:**

### ***Homelessness***

Denver

### ***Early Childhood***

South Carolina  
New York State  
Michigan

***Addiction***  
Connecticut

### ***High Risk Youth***

Illinois  
New York State

### ***Adult Basic Education***

Massachusetts

### ***Other***

Michigan  
Colorado

# SIBs in Implementation Stage Overseas

Government Agency	Issue Area	Investment Raised	Start Date	Evaluation Methodology	Sample size	Duration
<b>Australia</b>						
New South Wales	Child welfare	US\$6.4 M	July 2013	Matched comparison group	700	7 years
New South Wales	Child welfare	US\$9.2 M	August 2013	Matched comparison group	400	5 years
<b>United Kingdom</b>						
Ministry of Justice	Recidivism	US\$7.6 M	September 2010	Matched comparison group	3,000	8 years
Essex County	Child welfare	US\$4.7 M	November 2012	Historical benchmark	380	5 years
Greater London Authority	Homelessness	US\$7.6 M	November 2012	Historical benchmark	831	3 years
Department of Work and Pensions	Workforce development	US\$ 10 M	April/ November 2012	Payment for outcomes; no comparison group	Up to 17,000	3 years

# Outline

- What are social impact bonds?
- What is the typical payment schedule?
- Some examples of social impact bonds
- **What problems are social impact bonds addressing (e.g. in government)**
- Potential benefits; potential concerns
- When they might work well
- Step by step guide for S&L governments
- Questions going forward
- Other issues around improving government effectiveness

## What problems are the SIBs addressing?

- Our outcomes are not very good
- Budgets are tight, need more benefits for each \$
- Not enough evidence is used in budgeting and decision making (agencies do not have staff and/or expertise)
- Fragmented system of programs all aimed at same outcome, not coordinated
  - EX: mental health, housing, job-readiness

# Motivation for interest in SIBs

1. Insufficient use of data and evidence in decision making
2. Inadequate performance evaluation (ineffective programs stay, effective programs to not move in)
  - Governments pay for inputs not outcomes
3. Preventative programs often are not funded out of budgets they help to reduce
  - EX: state program to help disabled youth transition from school to work – can not be funded out of SSI but main benefits come from SSI
4. Underinvestment in prevention
5. Inadequate mechanisms for collaborating with community partners.
6. Takes too long to get ideas into policy
7. Budgets are tight – where does new \$\$ come from to innovate? Some SIB can be funded with no cost to govt<sup>20</sup>

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## Potential benefits

- Incentivize lower cost solutions to public problems
- Accelerating adoption of new solutions
- Data created, opportunities for evaluation (built in?)
  - This could also be part of regular policy process (e.g. welfare reform)

# Potential concerns

- Unintended consequences?
  - Pay for welfare to work transitions: what if generate short term, low pay jobs without a solid trajectory?
  - “Teach to the test?”
- Need measurable outcomes
- General opportunities for manipulation
  - Defining population of interest
  - Cream skimming?
- Need credible impact assessments
- How can this be used when benefits are long term?
- How much do investors need to be compensated for risk?
- What if the main benefits are to the recipients? SIBs are focused on projects that can be “paid for” through reduction in govt costs (e.g. recidivism). But what if the main benefit is to the recipient (their health, earnings, well being)? Does it fit this model?

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## When might it work well

- Potential for high benefits / high priority areas
- Measureable outcomes (with timely administrative data)
- Well defined treatment population
- Good control group (credible impact assessment)
- Safeguards against harming the treatment population
  - Works better when it is not a “core” service and instead supplemental (termination of SIB could be a problem for core services)

## Examples of policies that might fit these criteria

- Employment services for hard to employ
- Health and disability related interventions
- College retention services
- Chronic and/or family homelessness
- Home-based serviced to keep seniors out of nursing homes
- Kindergarten readiness

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# Step-by-Step SIB Development Process (from Guide to S&L Govts)

## 1. Determining whether SIBs are a Good Fit for Your Organization

Enthusiasm and commitment among leadership	A realistic possibility of taking a successful initiative to scale	Alignment with other performance goals	Sufficient interest from investors
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## 2. Selecting a Suitable Policy

Sources of initial ideas	Criteria for filtering ideas
Internal government discussions	Priority policies
Informal conversations	Strong agency leadership
Lists of programs with successful program evaluations	Potential for high net benefits
A formal "request for information"	Technically feasible

### 3. Navigating the Development Process

Data Analysis Tasks	Financial Modeling Tasks	Structural Tasks
Match administrative data sets	Conduct a benefit-cost analysis	Begin initial engagement with potential partners
Analyze historical baselines	Build a model of payment schedule options	Obtain authority from the legislature
Choose target population	Develop a financial cash flow model for the project	Undertake a procurement process to engage services of an intermediary
Analyze historical performance of specific providers		Undertake a process to engage services of providers
Conduct analysis necessary to develop evaluation methodology		Hire an independent evaluator

#### 4. Putting All the Pieces Together

Negotiate payment terms

Support the intermediary as it raises private capital

Develop operating procedures

Draft and execute contract

Establish plan for making decisions about scaling/expanding

#### 5. Implementing and Monitoring

Monitoring and oversight

Field office support

Evaluation support

#### 6. Wrapping Up

Final determination of outcomes and payments

Interpreting the results

Decision about follow-on contracts

# Example: The SIB Action Lab (HKS)

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1. Government Innovation Fellows on the ground.
2. Technical assistance from senior staff in Cambridge.
3. Additional resources to support data analysis.
4. A network of innovators in governments around the country.

Jan 2013: Announced it would provide pro bono technical assistance to 4 S&L governments. Received 28 proposals.

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# Questions going forward

- How can this model become sustainable and scalable?
- Risk vs reward
  - we need innovation but that is risky (so not good for SIB); with proven interventions governments might want to fund directly (without complexity of SIB)
- Can we use SIBs for interventions whose benefits accrue over a long horizon?
  - EX: Prenatal health care. May produce short-term benefits (improved infant and maternal health and lower health care costs) but may also produce longer-term benefits (reduced special education, reduced crime, and increased adult earnings). While it would not make sense for a SIB contract to pay out over two decades as results become apparent—the feedback loop between management practices and results would be too long to be useful—it might be possible to design a SIB that paid out based upon short-term results that are predictive of longer-term benefits.

## Questions going forward (cont)

- Sustaining across political administrations
- How to scale up successful SIBs

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# Other related issues around improving effectiveness

- More experimentation
  - New York City Center for Economic Opportunity \$100m annual fund (Bloomberg) to implement and evaluate new solutions
- Award prizes
- More evidence – build requirements to evaluate into legislation, or set aside \$ in agency budgets for this purpose
  - Dept of Labor has authority to reserve a portion of program spending to fund program evaluations, others should too
- More transparency and reporting on evaluations
- Orient interventions around outcomes rather than services