

Inequality and Child Human Capital

Janet Currie



CENTER FOR HEALTH
AND WELLBEING
PRINCETON UNIVERSITY



What is Human Capital?

Two meanings of ‘capital’ from the Oxford dictionary:

- “Wealth in the form of money or other assets owned by a person or organization or available for a purpose such as starting a company or investing.”
- “A valuable resource of a particular kind.”

Human capital is “a particular form of wealth” that is embodied in people.

Historically, economic research focused on education as a form of human capital that generates income as well as other “returns.”

Child health was thought to affect well being primarily by impacting education.

Increasingly, child health has been recognized as an important form of “capital” in its own right, and one that may contribute importantly to inequality.

Overview:

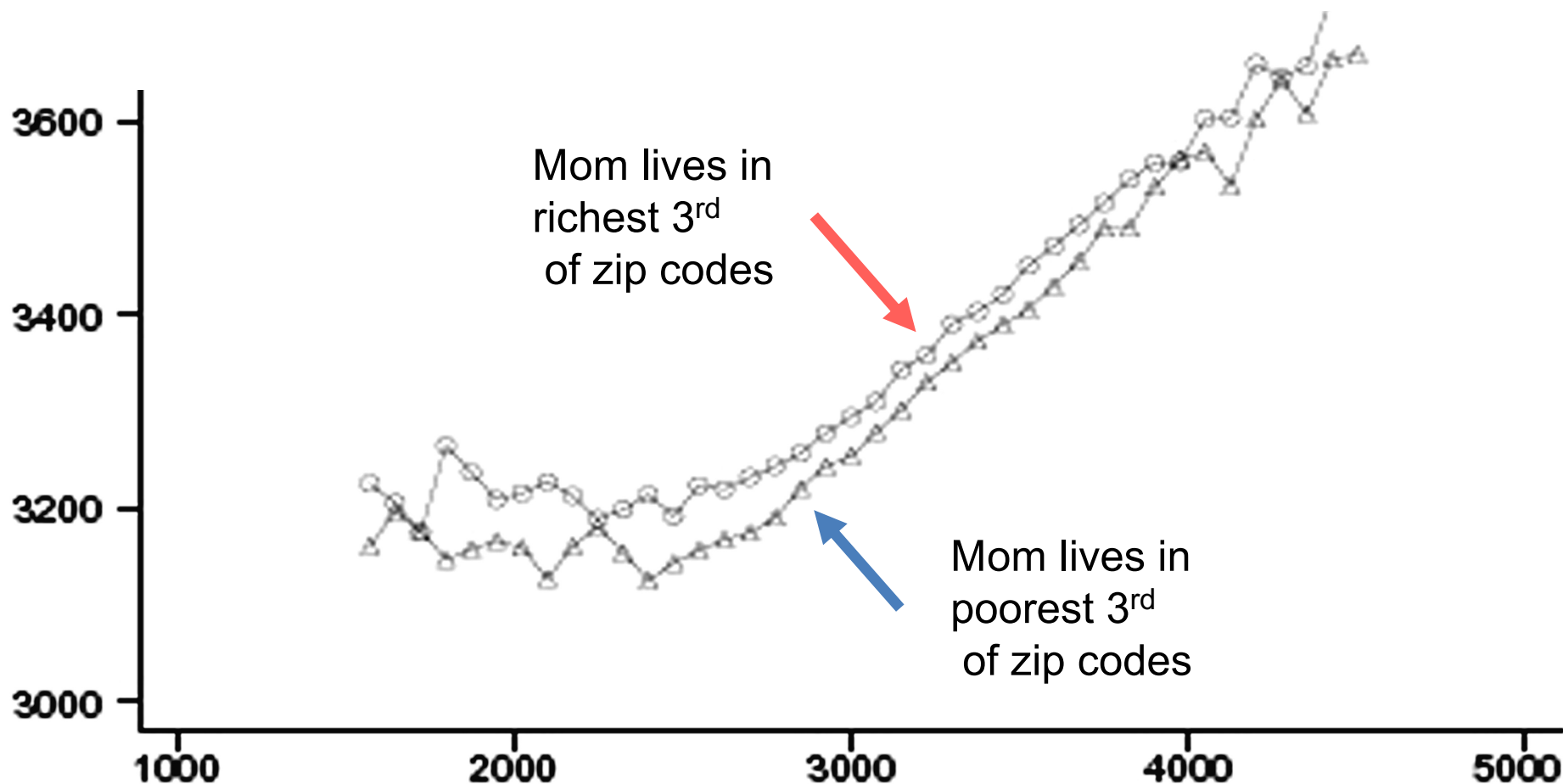
This lecture will:

- review highlights from recent literature
- Explore an extended example of a policy intervention to extend child health insurance and its effects on health and inequality.
- Suggest some directions for future research, including a focus on mental health.

Beginning at the Beginning: The Importance of the Fetal Period is Now Well Established

- Effects of “shocks” (pollution exposure, nutritional deficits, maternal stress...) are large and period in utero is small.
- Investments in improving fetal health have potentially dramatic effect.
- Both *nature* AND *nurture* matter because they interact.





Mother birth weight (x-axis) vs. child birth weight (y-axis)
 California, mothers born after 1970-74, children born after 1989-2001.

Janet Currie, et al. *Biology as Destiny? Short- and Long-Run Determinants of Intergenerational Transmission of Birth Weight*. *Journal of Labor Economics* 2007, 25:231-264.

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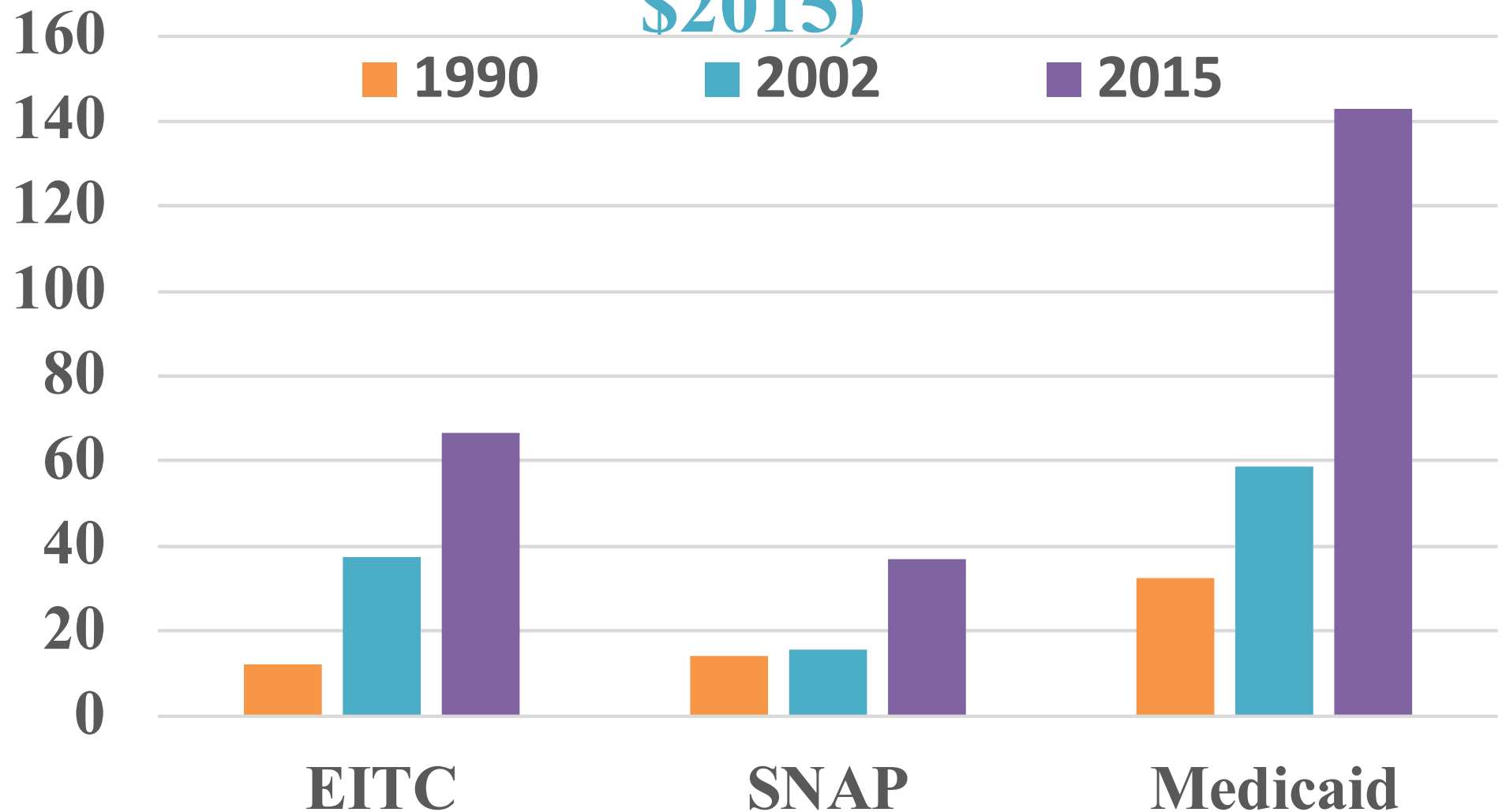
An Extended Example Illustrating Effects on Public Insurance on Health Inequalities:

- Medicaid is the public health insurance program for low income women and children in the U.S.
- Eligibility for pregnant women and children was greatly expanded beginning in the late 1980s.
- These expansions had differential impacts on poor and minority children.
- An opportunity to assess the value of public health insurance.



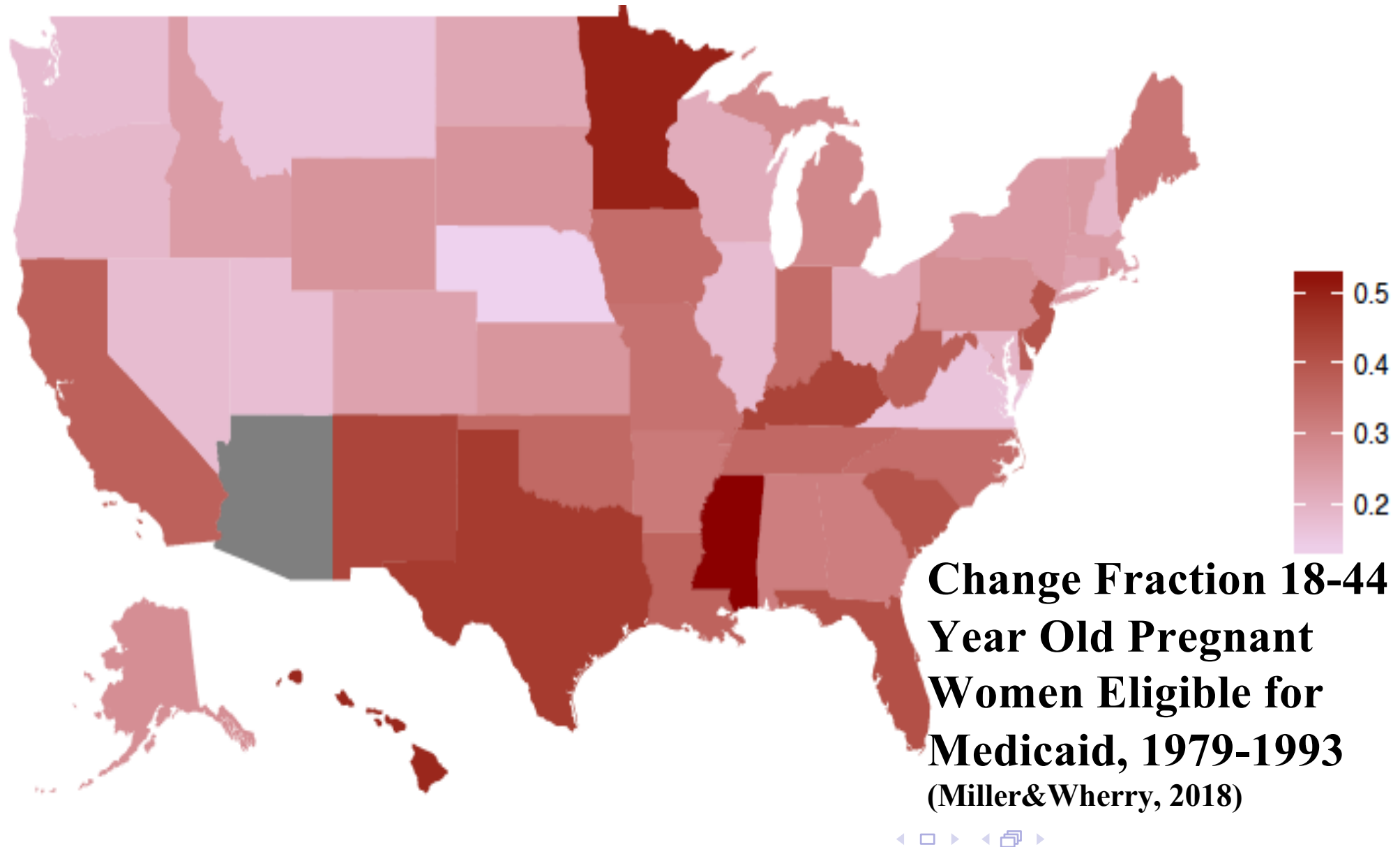
Patients at the Free Clinic in Newton, N.J. Credit Joshua Bright for The New York Times

Medicaid is the Largest U.S. Social Program Affecting Children (billions \$2015)

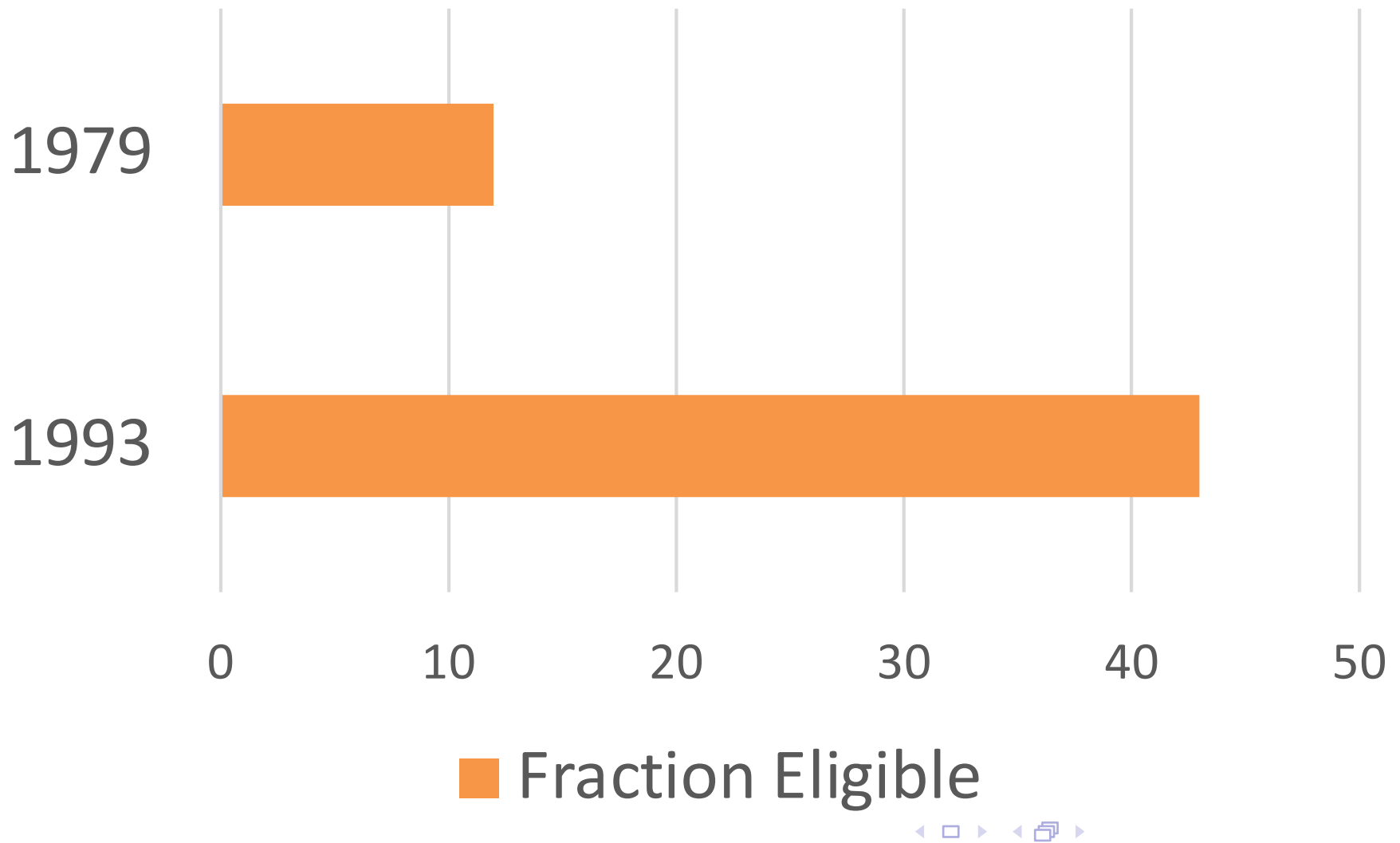


Note: Only Medicaid for children and non-disabled adults is included. Assumed that ½ of Food Stamp/SNAP payments go to families with children.

Staggered Phase-in of Medicaid Expansions for Pregnant Women Can be Used to Identify Effects



%Pregnant Women Eligible for Medicaid Coverage, 1979 and 1993



Currie and Gruber (1996) study short term effects of the Medicaid eligibility expansions for pregnant women

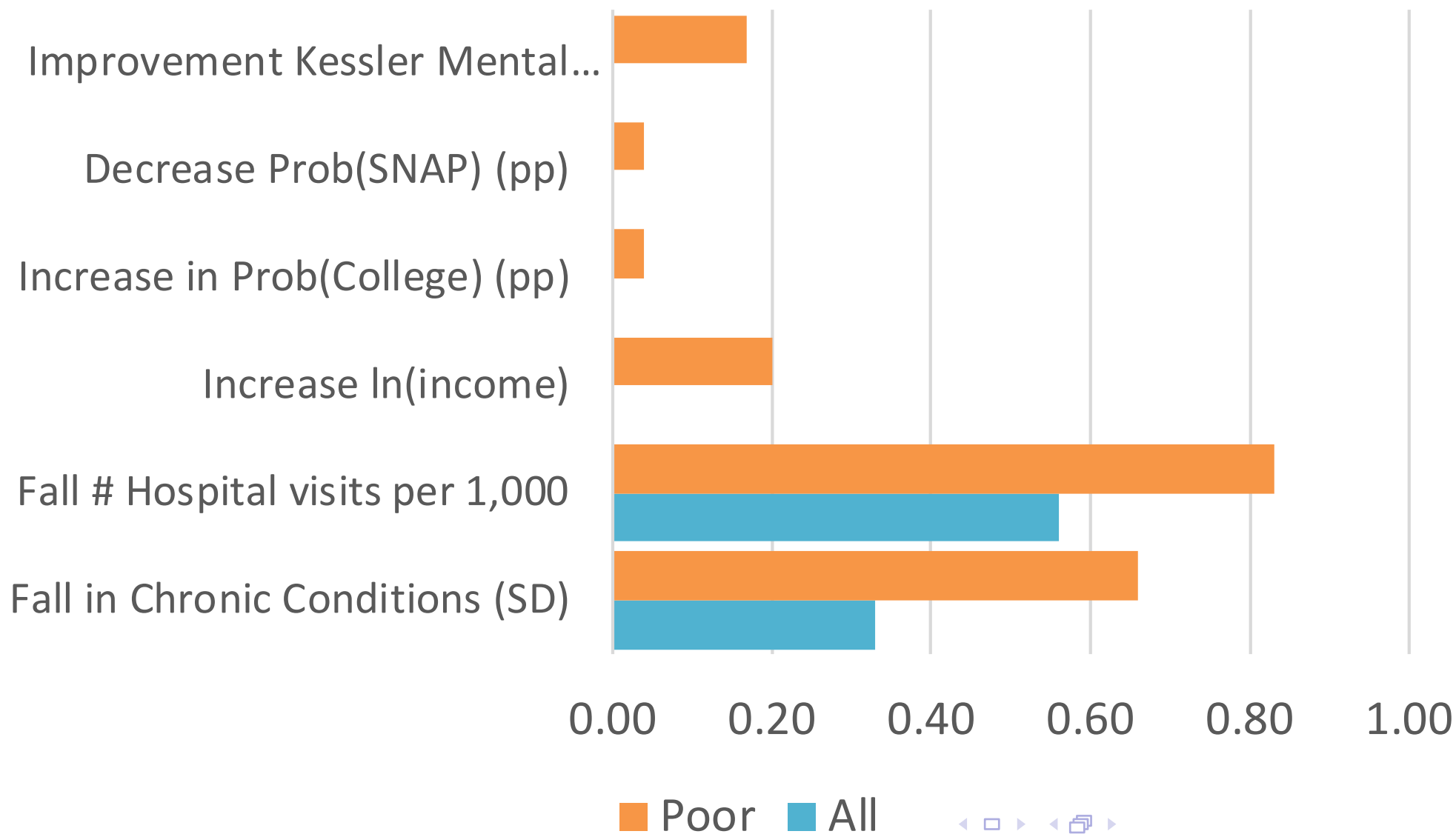
- 8.5% reduction infant mortality
- 50% reduction in delay in obtaining prenatal care among mothers in the highest poverty group.

New Evidence on Long-Term Effects Prenatal and Infant Coverage

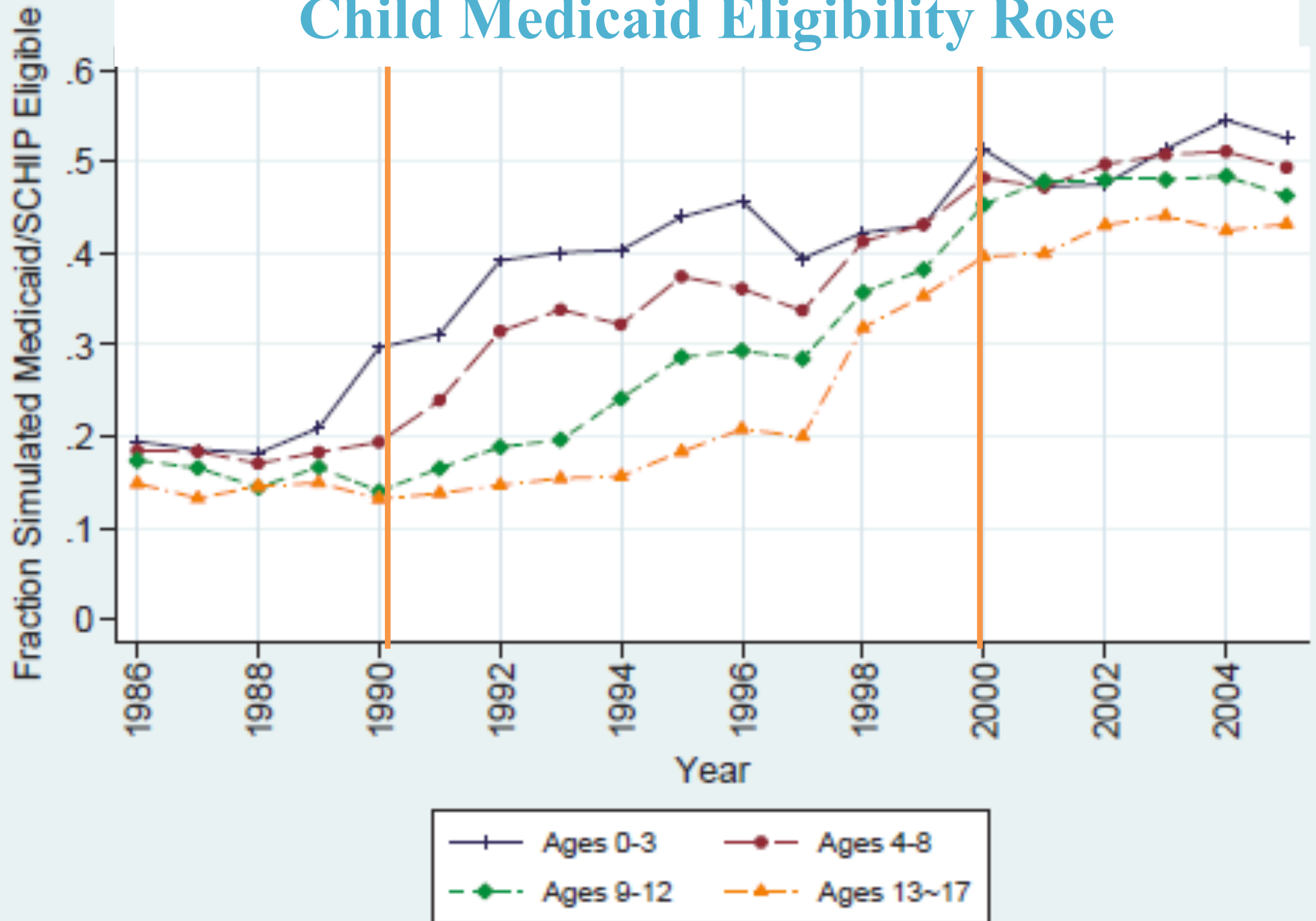


Children born 1990-
2000 are now 19-29

Long-Term Effects Prenatal and Infant Medicaid Coverage (Miller and Wherry (2018))



Child Medicaid Eligibility Rose



Source: Currie, Decker, Lin, 2008

Health Insurance Expansions Reduced Child Mortality—e.g. U.S. vs. Canada



Canada had universal coverage since the 1970s. U.S. has had public health insurance only for those over 65 and children.

Implementing a Mortality Comparison for the U.S. vs. Canada

(Baker, Currie, and Schwandt, 2018)

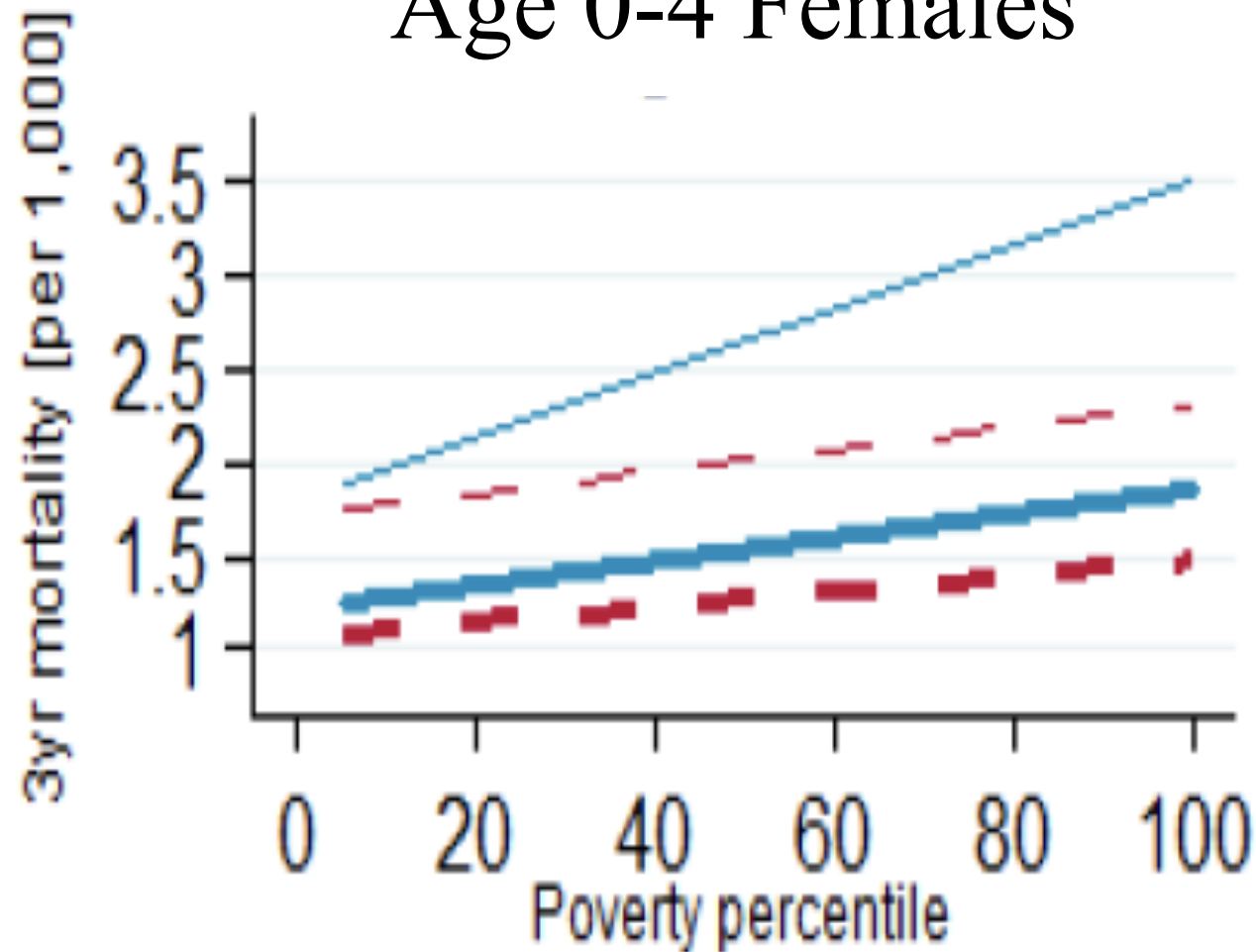
Rank counties from richest to poorest.

Group counties into “bins” representing
~5% of the population separately for
1990, 2000, and 2010.

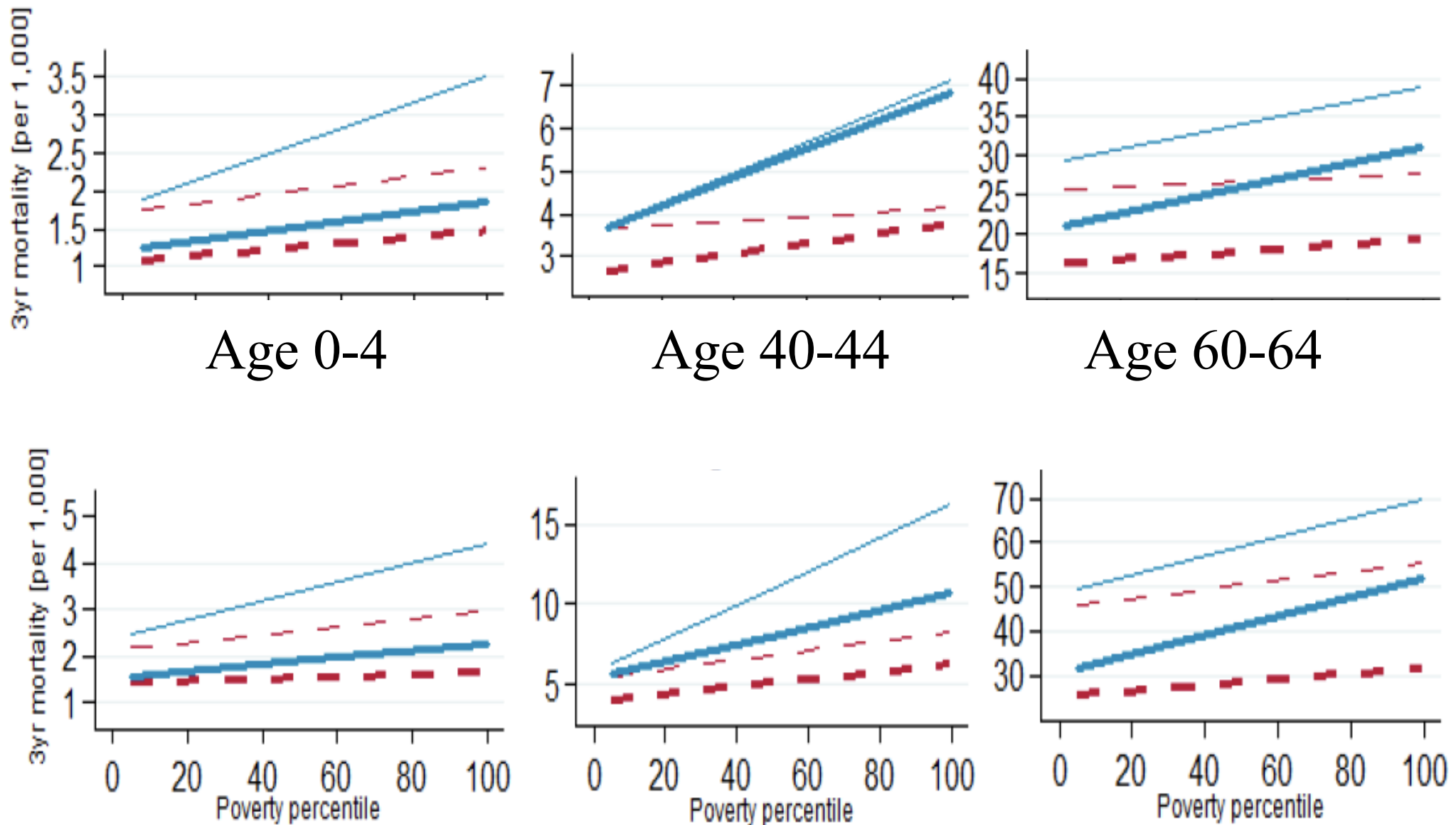
In each Census year, compare mortality
in different groups, e.g. those
representing the top and bottom 5% of
the population.

Mortality in 1990/91 (thin) vs. mortality in 2010/11 (thick) by county poverty percentile.
Canada ---- vs. US ----

Age 0-4 Females



Mortality in 1990/91 (thin) vs. mortality in 2010/11
(thick) by county poverty percentile.
Females (top), Males (bottom). Canada ---- vs. US ----



The Medicaid Expansions Reduced Mortality and Improved Health Among Poor Children But Do They Reduce Inequality Among Survivors?

- Traditionally economists regard human capital investment as something that increases incomes.
- Interventions that reduce mortality could result in a sicker pool of survivors.
- Availability of administrative data allows the assessment of long-term effects by looking backwards at cohorts who were affected by shocks in the prenatal period or early childhood.

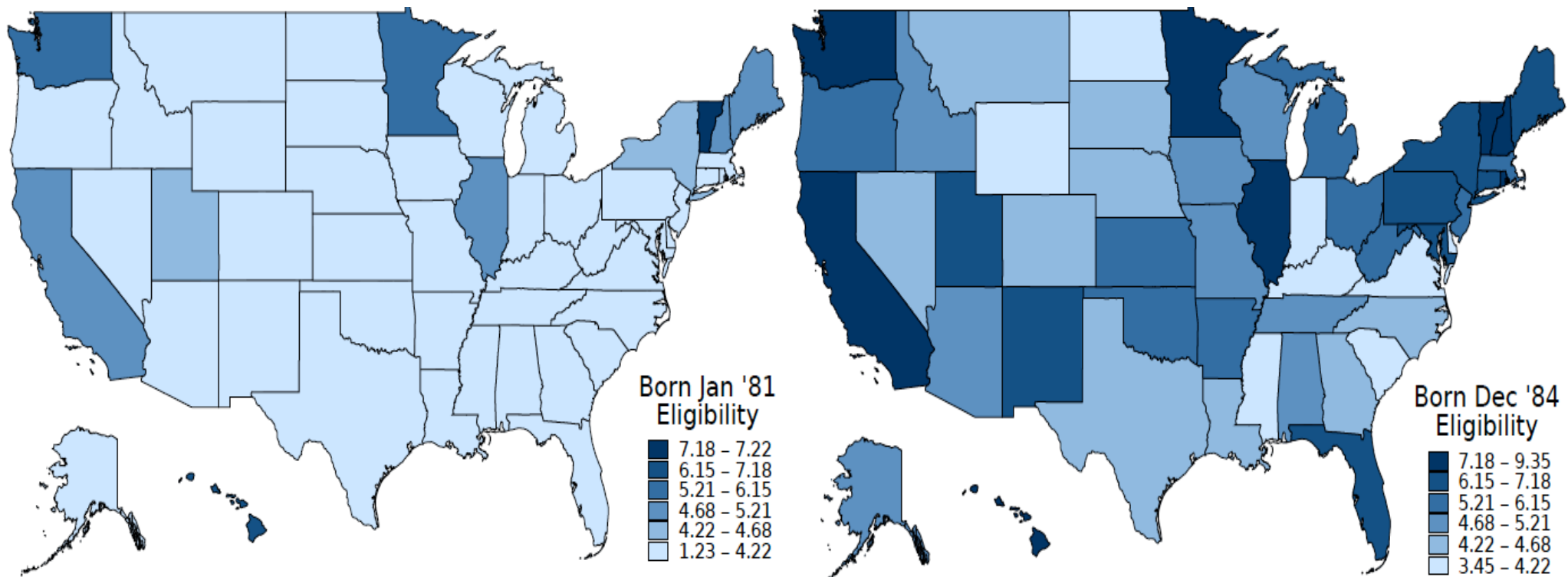
Among U.S. children, a sharp cutoff in eligibility by birthdate helps to identify the effects of public health insurance

Only children born after September 1, 1983 were eligible for expansions, creating a discontinuity.

Recent research shows long term effects on the health of children who became eligible (Currie, Decker, Lin, 2008; Wherry et al. 2015; Meyer and Wherry, 2016; Kowalski et al. 2015; Goodman-Bacon, 2016, Cohodes et al. 2015)

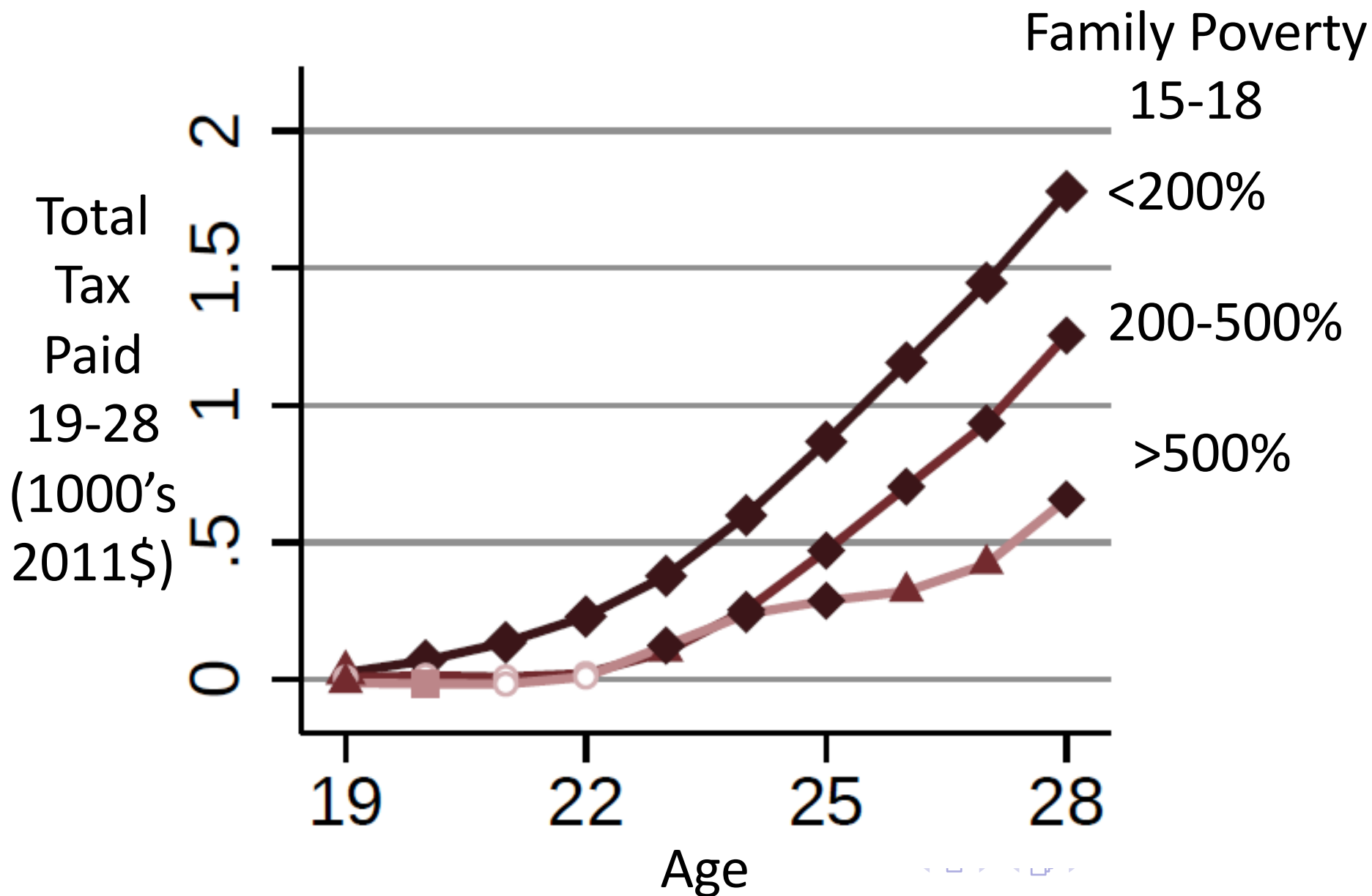
Cumulative Years of Medicaid Eligibility 0-18 for Children born 1981 vs. 1984

(Source: Brown, Kowalski, and Lurie 2018).



Effect of Years of Medicaid Eligibility 0-18

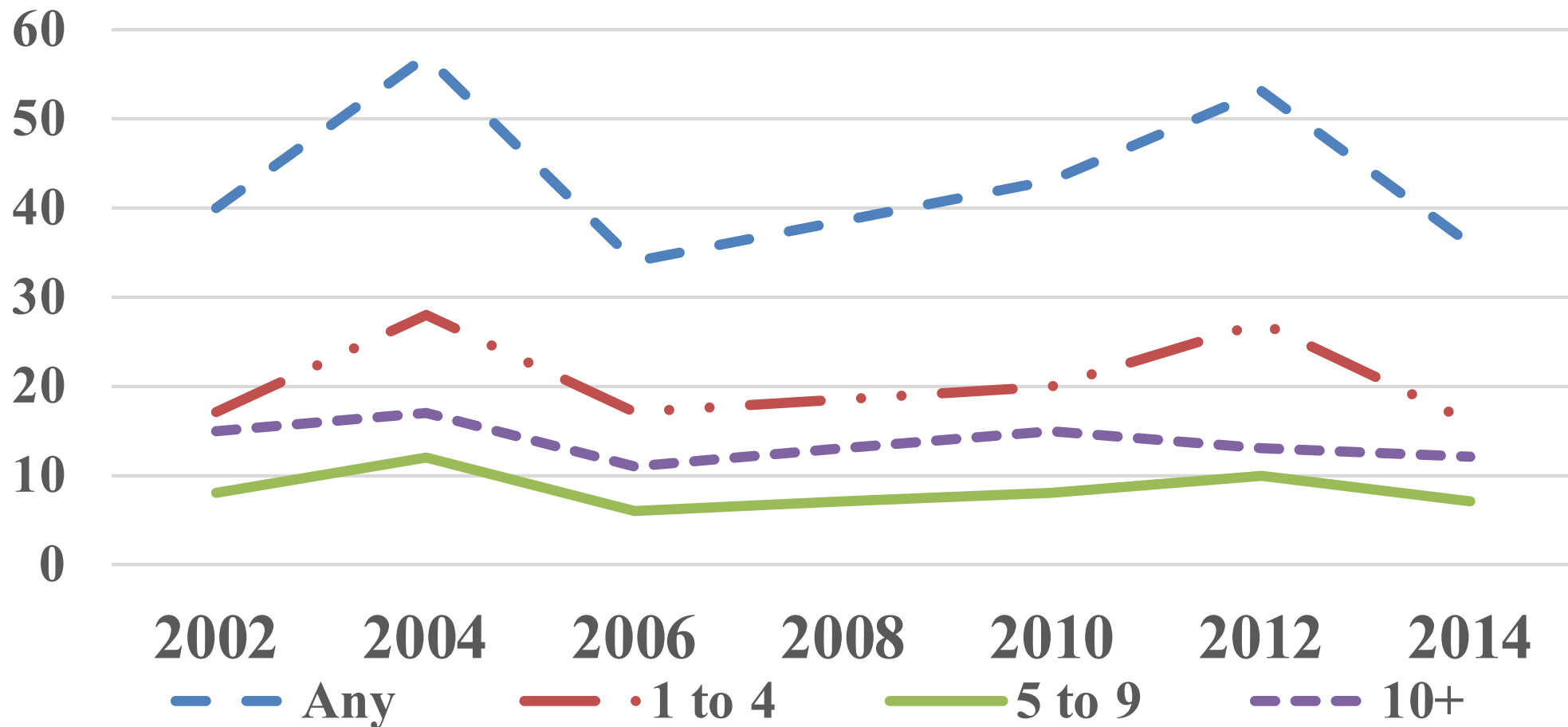
(Brown, Kowalski, and Lurie, 2018)



Some of Increase in Earnings May Come Through Improving Mental Health

- Mental health is one of the most important determinants of adult outcomes, especially by affecting work.
- Many mental health problems manifest in early adulthood, but start in early childhood or as early as the prenatal period.
- Mental health problems are extremely common.
- Mental health problems affect traits/skills that are useful in the labor market such as focus, internal motivation, stress tolerance, and ability to get along with others.

Number days in past 30 when mental health was not good as a % of Employed U.S. General Social Survey Respondents



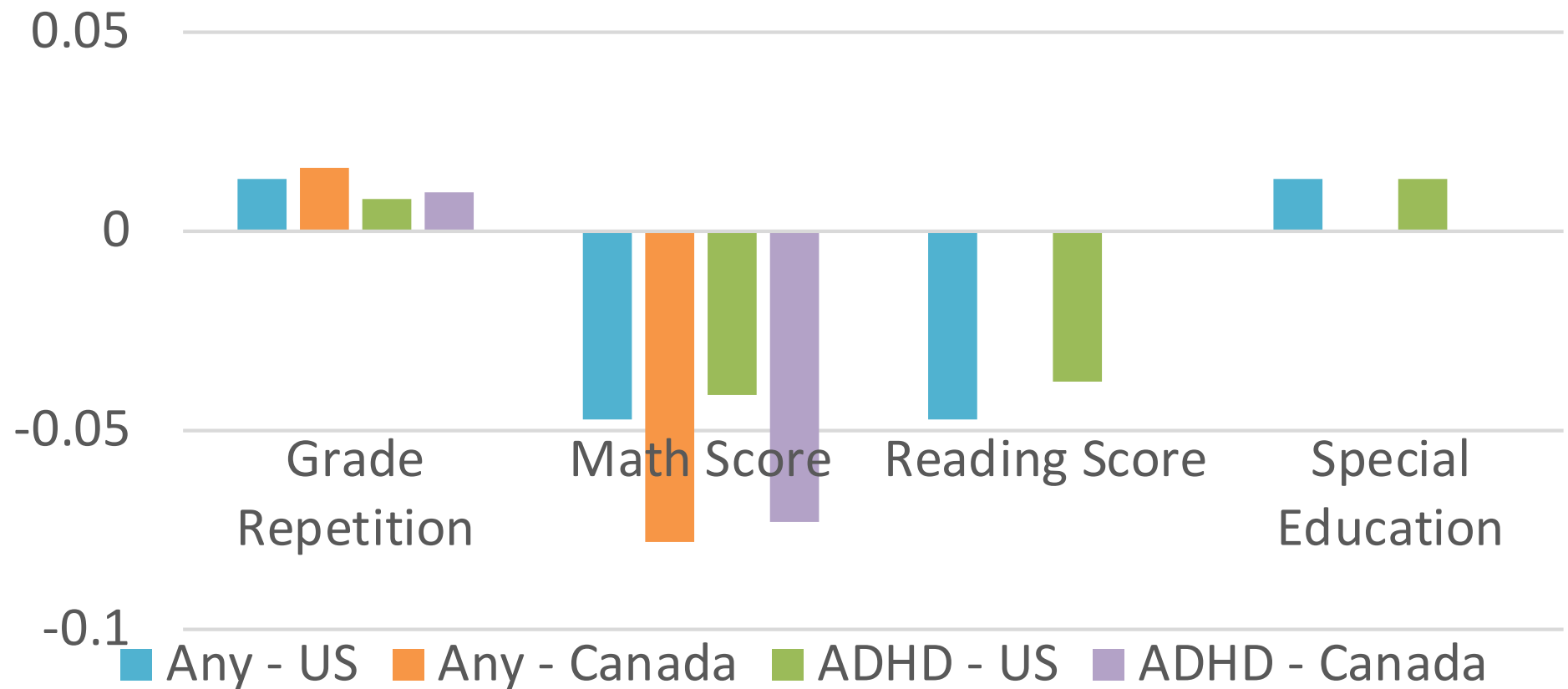
Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?

Breakdown of ER visits per 1,000 population, 2014, mean (standard deviation), 6 U.S. states

	Level	Percent
All ER visits, any cause	379.93 (98.28)	100.0
Any mental health issue	50.93 (20.58)	13.4
Substance abuse only	10.57 (5.06)	2.8
Mood Disorder	19.17 (12.56)	5.0
Anxiety	18.55 (9.62)	4.9

Mental Health Problems Often Begin Early and Impact Educational Attainment

Effect of MH in Early Childhood on Middle School Attainment, Sibling Comparisons



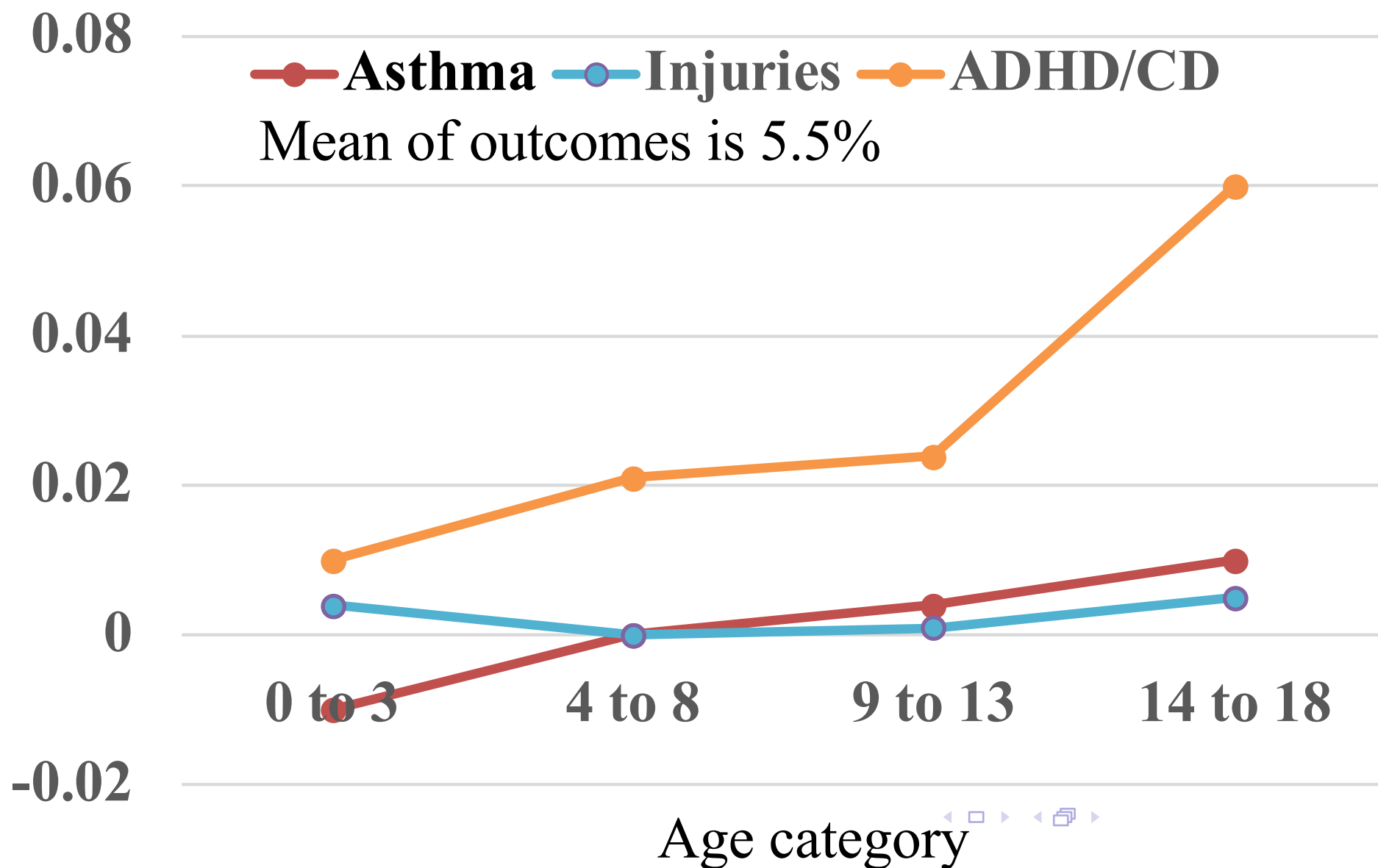
Mental Health Problems Often Continue into Adulthood

- Currie et al. (2010) use Canadian linked administrative data to examine effects of child health conditions on young adults
- Compare the impact of common physical conditions (asthma, injuries) to those of mental health conditions (ADHD, Conduct Disorder).
- Examine impact of diagnosis/treatment at four age ranges, and impact of persistent conditions.

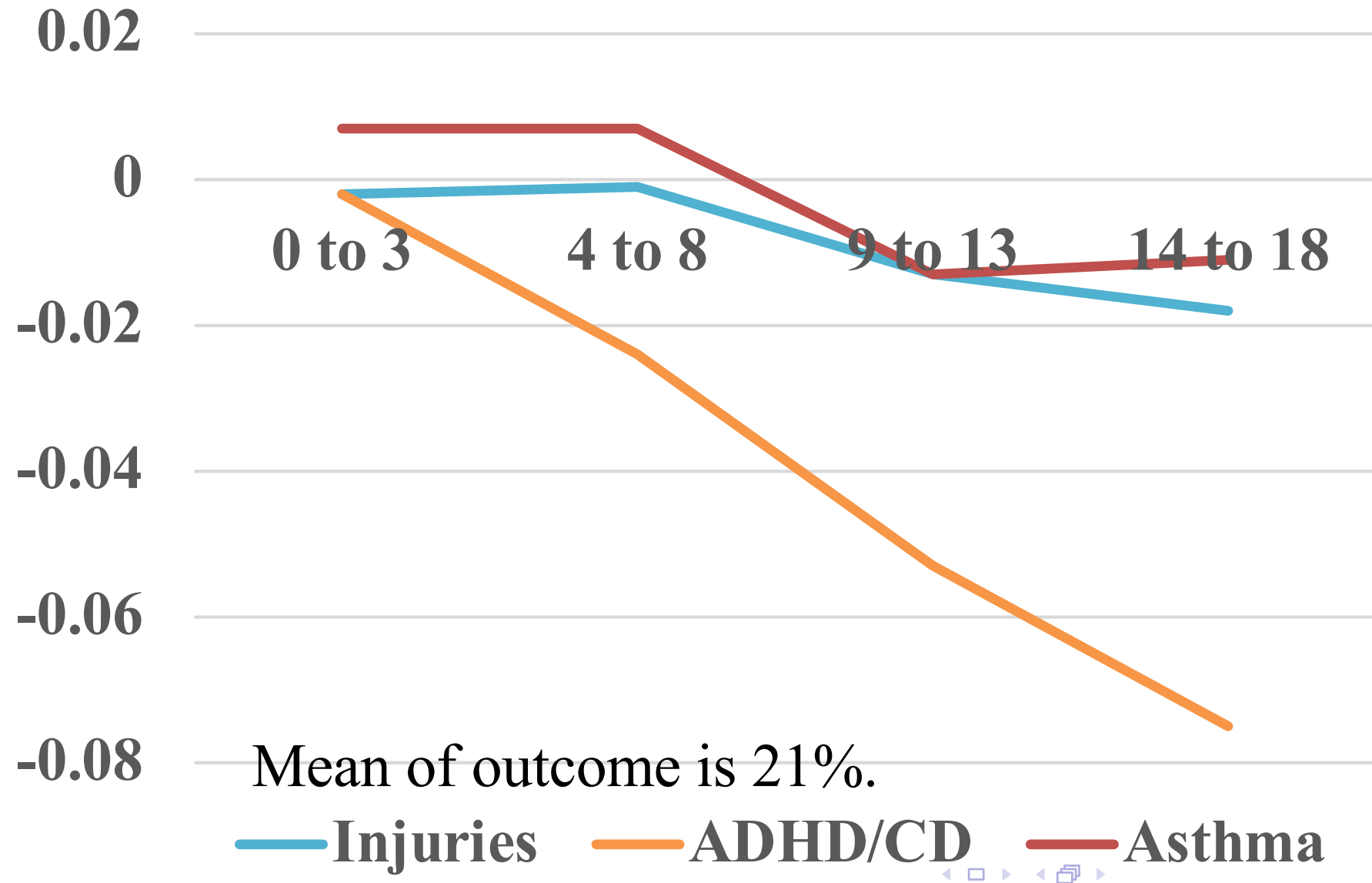
Currie et al. (2010)

- 50,000 Canadian children and their siblings. Health records merged to data on educational attainment and welfare use.
- Compare affected children to siblings without these conditions.
- Outcomes: Welfare use after age 18, being in Grade 12 by age 17, taking college-prep math courses in high school.

Estimated effect of condition on receipt of social assistance after age 18, by age (sibling FE models)



Estimated Effect on Taking College Prep Math in HS for each Condition and Age



Prenatal conditions can place children at higher risk of poor mental health

- Evidence linking Dutch “Hunger Winter” to schizophrenia (Susser 1992, 1996, 1998)
- Malaspina et al. (2008) find a relationship between exposure to the 6-day war in Israel and schizophrenia.
- Petterson et al. (2015) use a large administrative sample of Danish twins and find a strong association between birth weight and ADHD, even in identical (monozygotic) twins.

Persson and Rossin-Slater (2018)

Use Swedish registry data and find that the death of a close maternal relative during pregnancy has negative effects *relative* to a death in the months after birth:

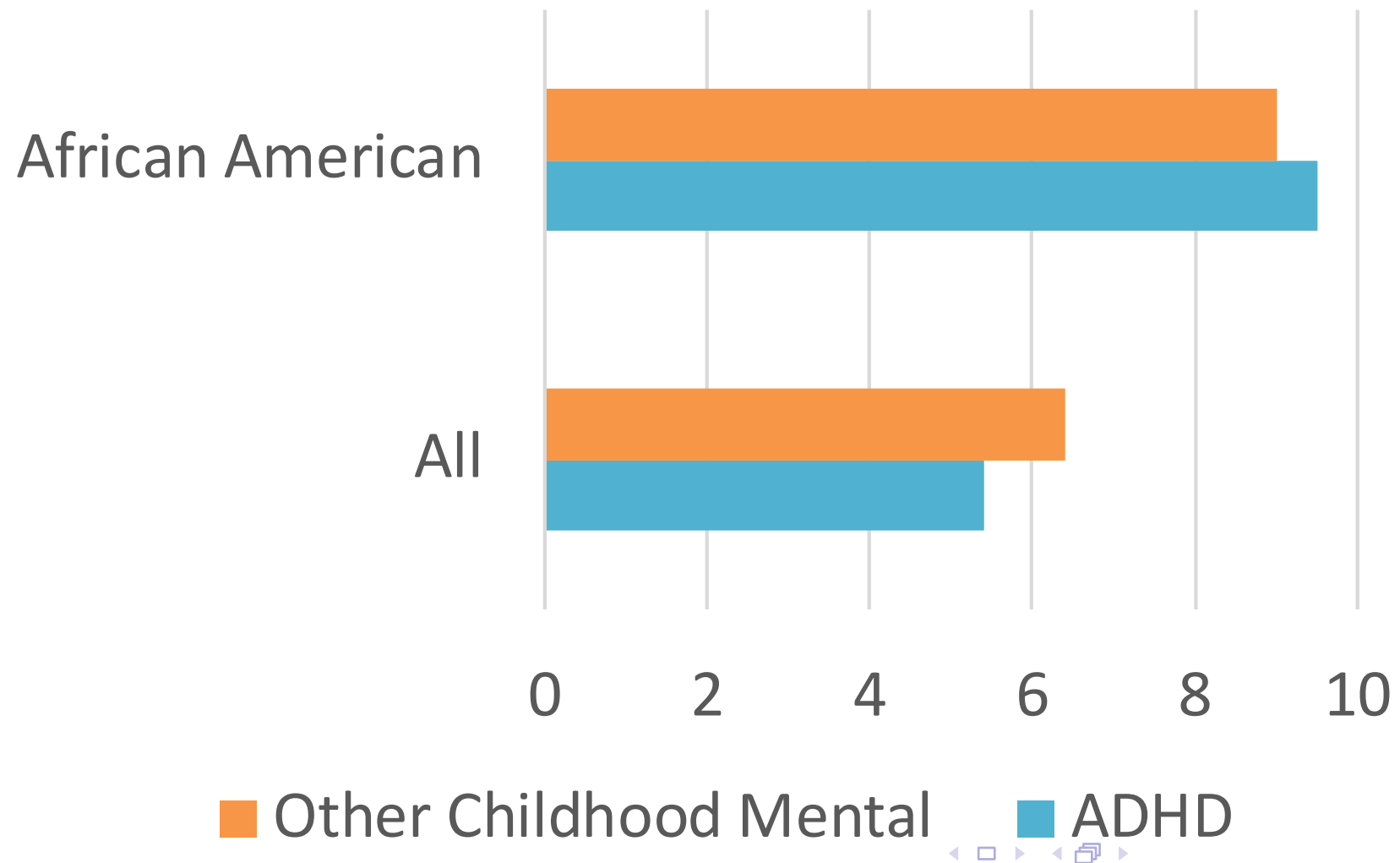
- * The probability of using an ADHD drug increases 25% in childhood
- * The probability of using drugs for anxiety or depression in adulthood rises by 13 and 8%, respectively.

Can Interventions During Pregnancy Prevent Future Mental Health Problems?

- Chorniy, Currie, and Sonchak (2018) examine prenatal WIC participation and the mental health of South Carolina children 6-11 years old.
- WIC is a nutrition program but also improves access to medical care. Often available through maternal and child health clinics.
- Children were born between 2004 and 2009, and can be followed up to 2015 in the administrative Medicaid data.

Prenatal WIC and Percent *Reduction* in Mental Health Conditions in Children 6-11

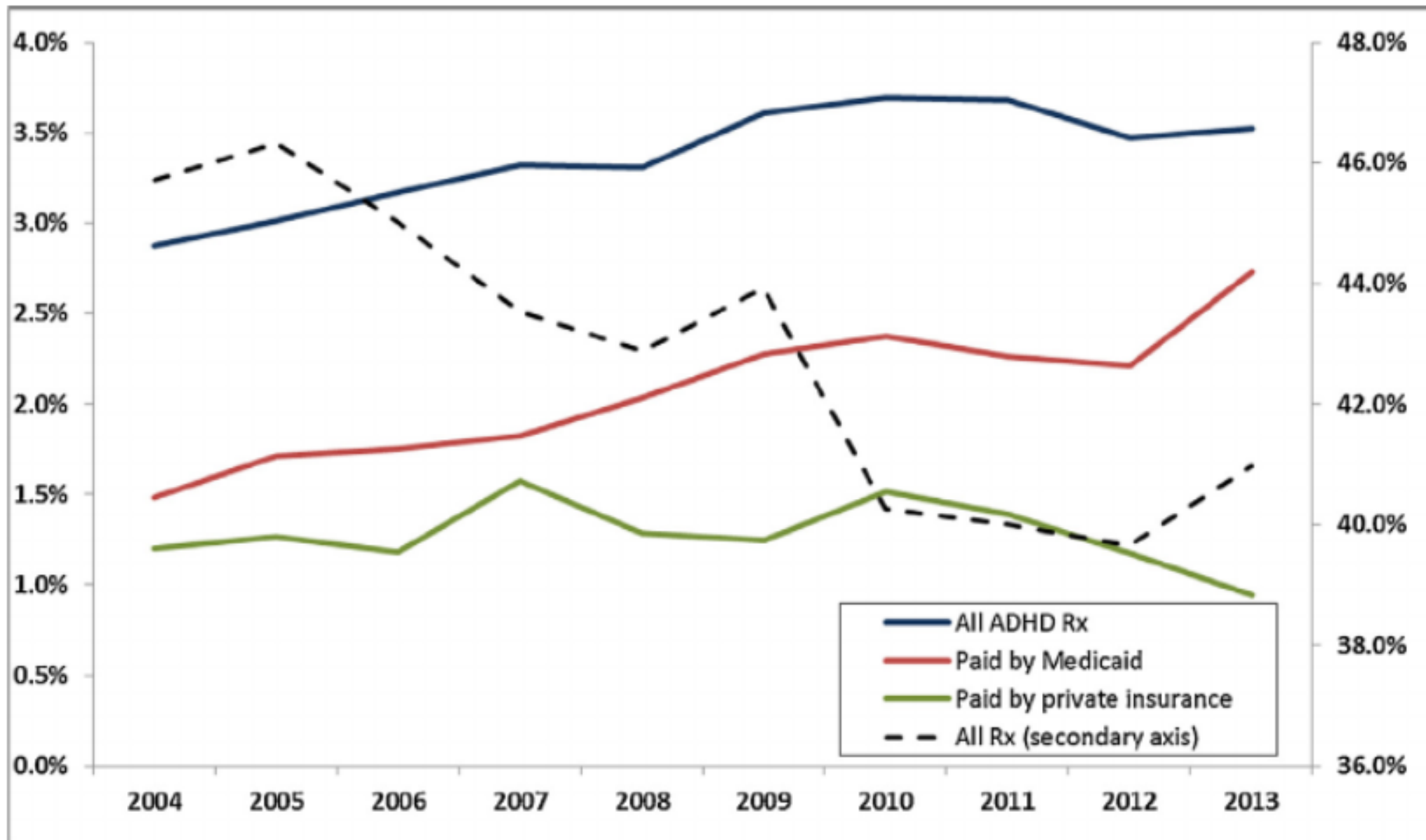
Sibling FE Models, (Chorniy, Currie, Sonchak, 2018a)



If Access to Care is Making Child Mental Health Better, Why Does it Seem Like it is Getting Worse?

- Diagnostic standards for many conditions are changing.
- Changes in coverage and in incentives facing providers have resulted in more screening.
- More access = more screening = more cases.

In the U.S. increases in ADHD prescribing occurred mainly in the Medicaid population (data from MEPS, children <17, Chorniy and Currie, 2018b)



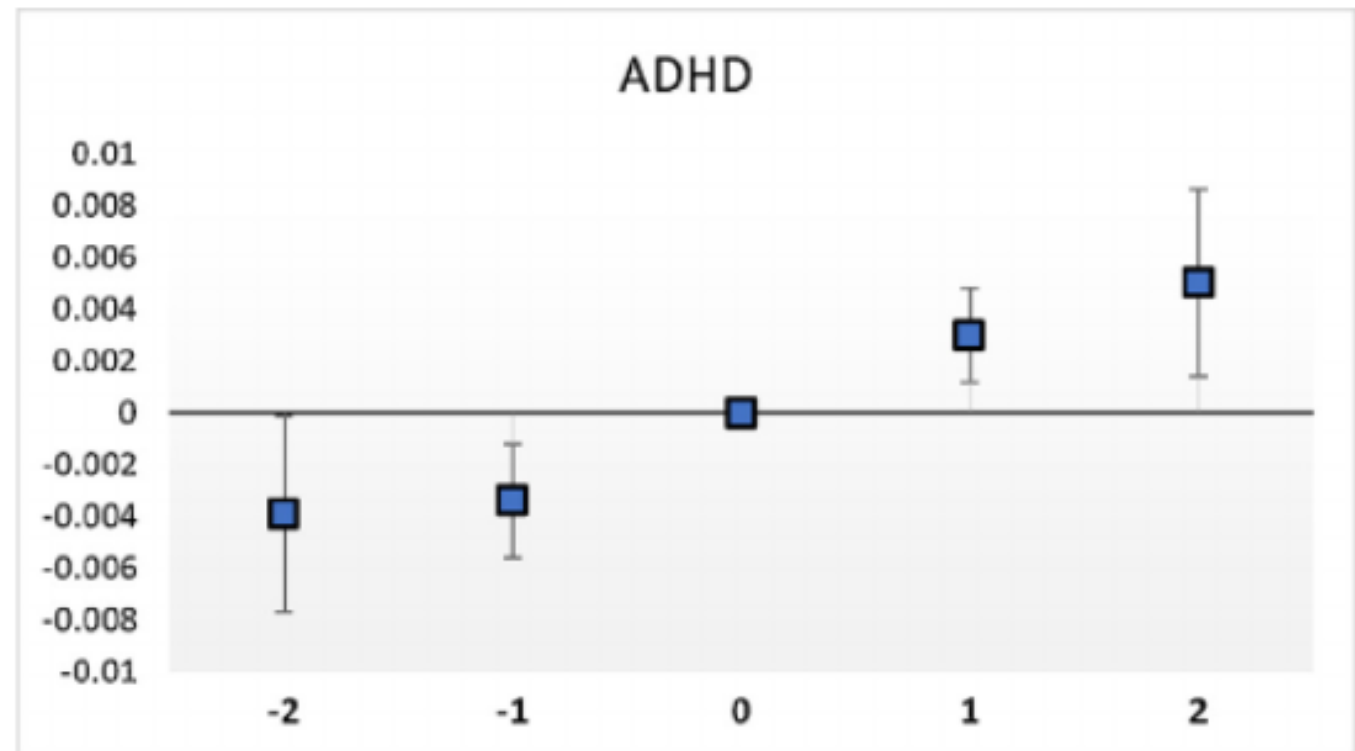
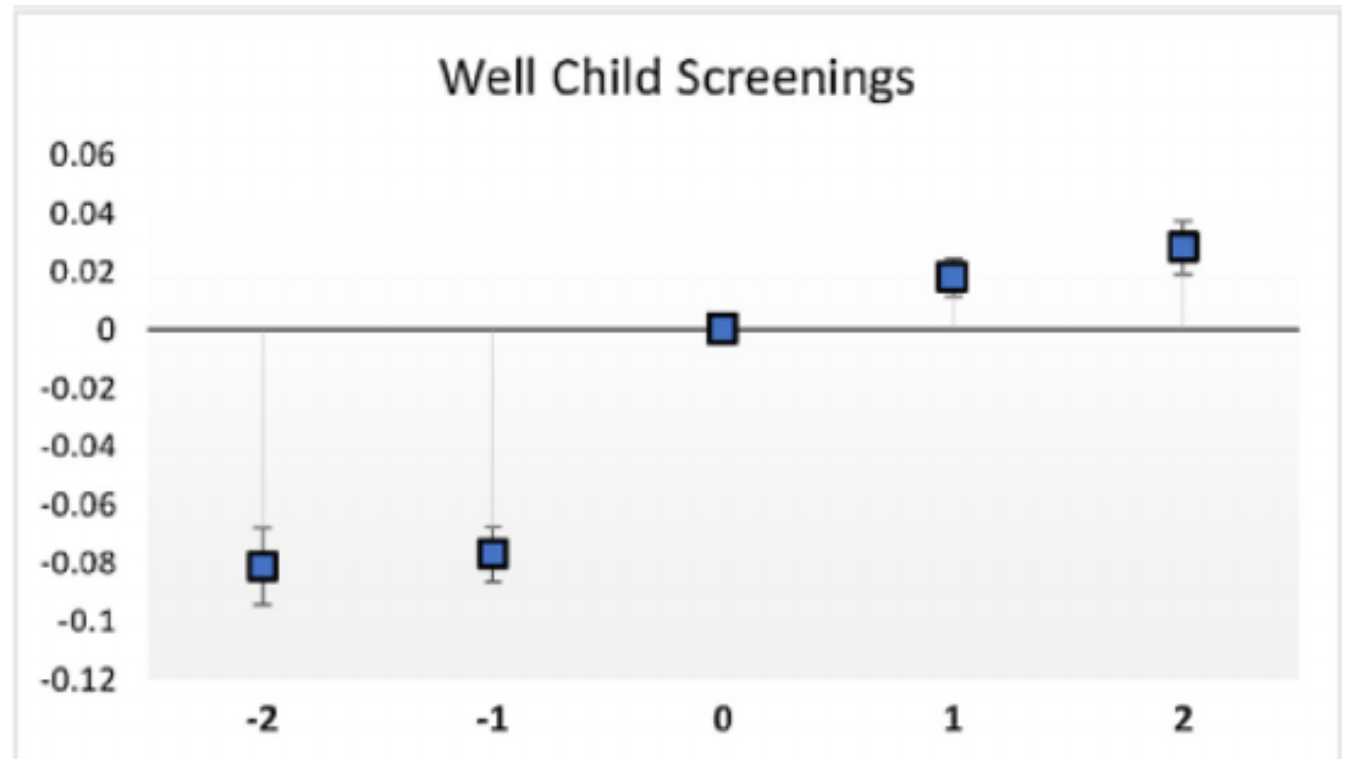
Changes in Medicaid encouraged screening

- Switch from fee-for-service to managed care. Easier for government to hold managed care organizations accountable for screening than individual providers.
- Managed care plans have incentives to promote screening because capitated reimbursement rates are higher for children with chronic conditions.

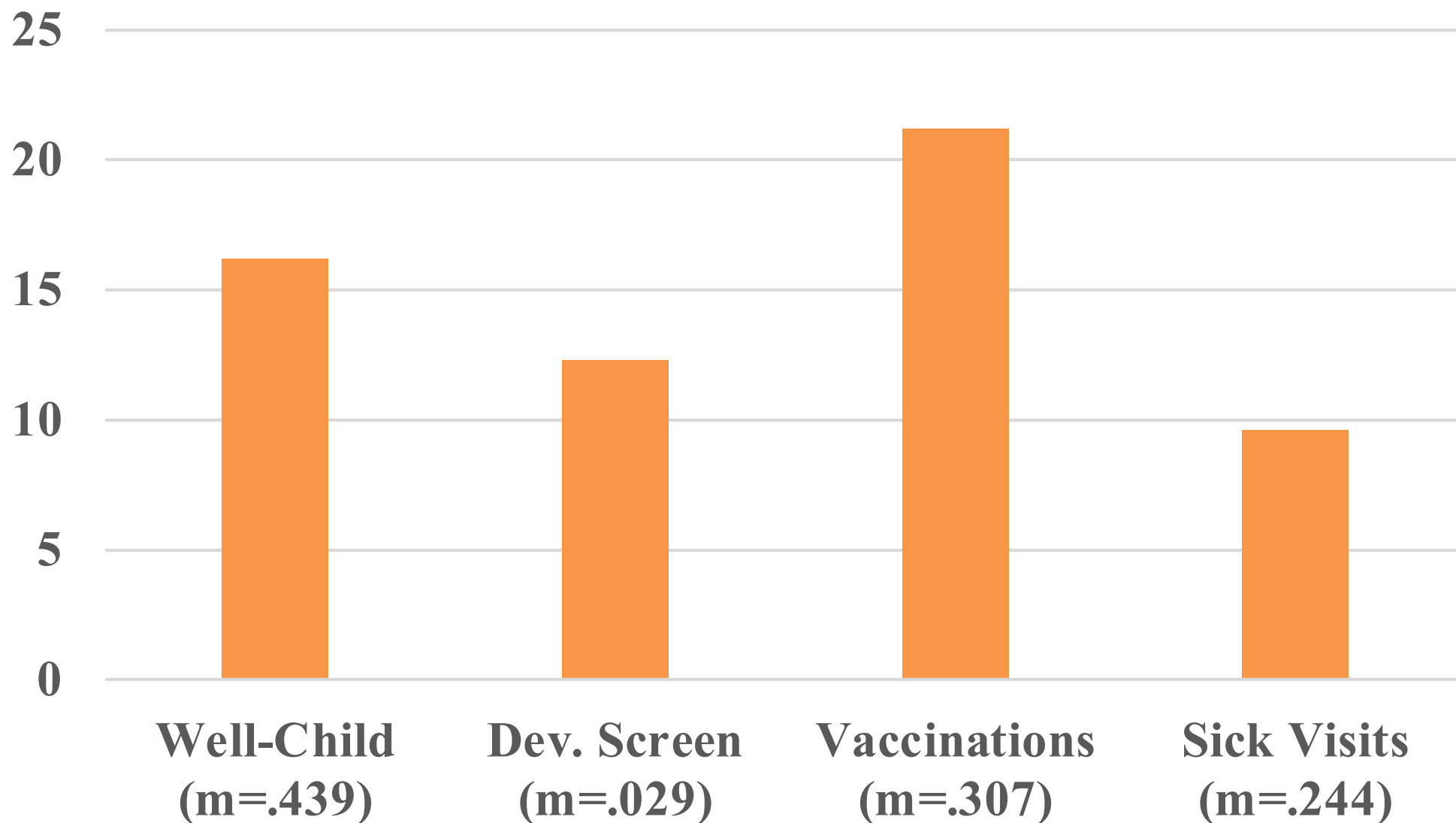
Chorniy and Currie (2018b) examine effects of Switching to Managed Care in South Carolina Medicaid

- SC switched the “default” plan to managed care between Oct. 2007 and May 2008.
- Use a 60% random sample of all children <17 in Medicaid any time between 2004 and 2015.
- Two identification strategies:
 - Event study: All children sampled anytime in the 2 years before and after switch to MC, n=409,230.
 - Individual child fixed effects: All children whose individual plan type changed, n=209,607.

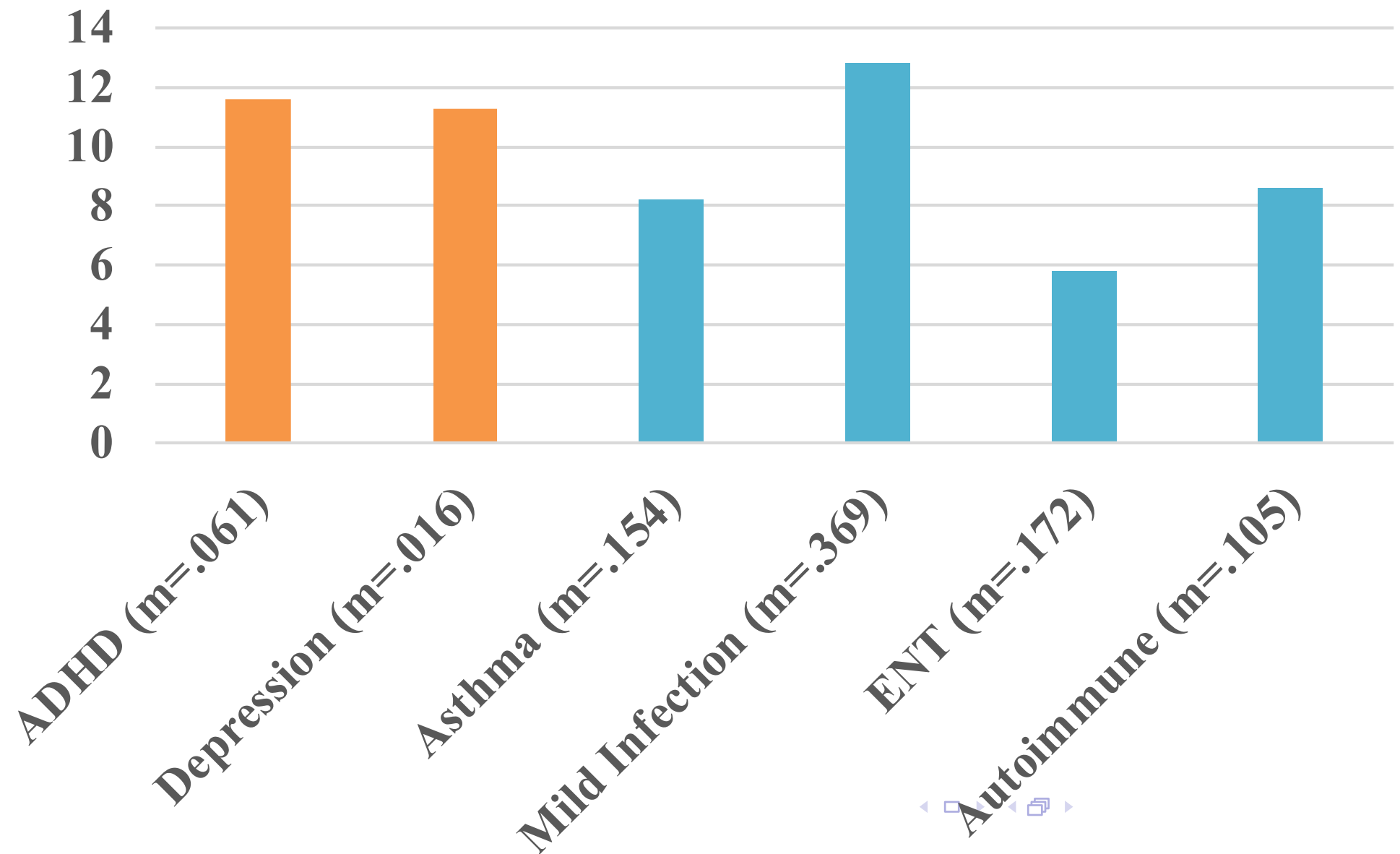
Event Studies with county fixed effects



Estimated % increase in access in the 12 months after switch to MC, child FE models



Estimated % increase in diagnoses in 12 mo. after Switch to MC, Child FE Models

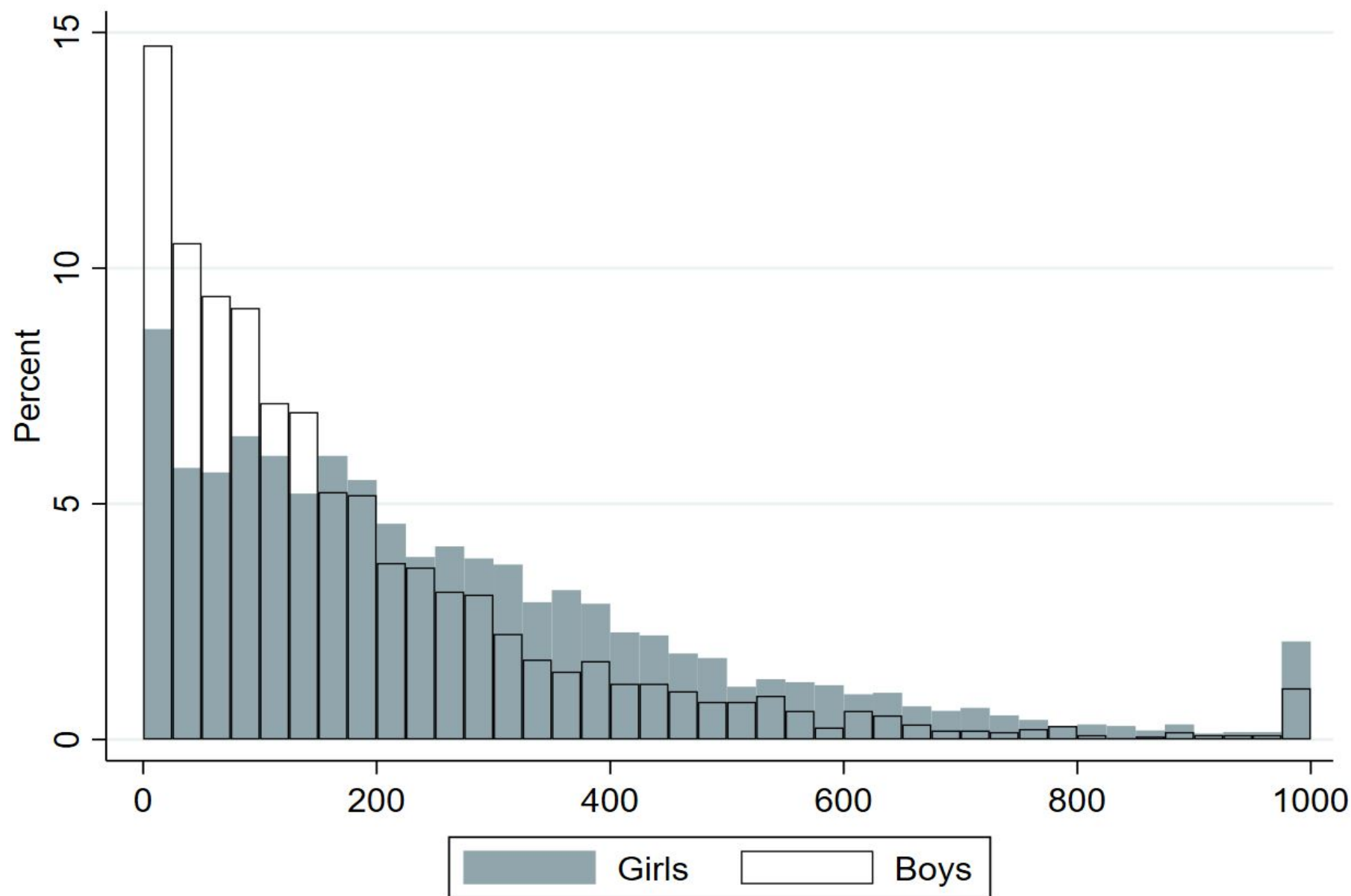


We have touched on prevention and diagnosis of child mental health conditions

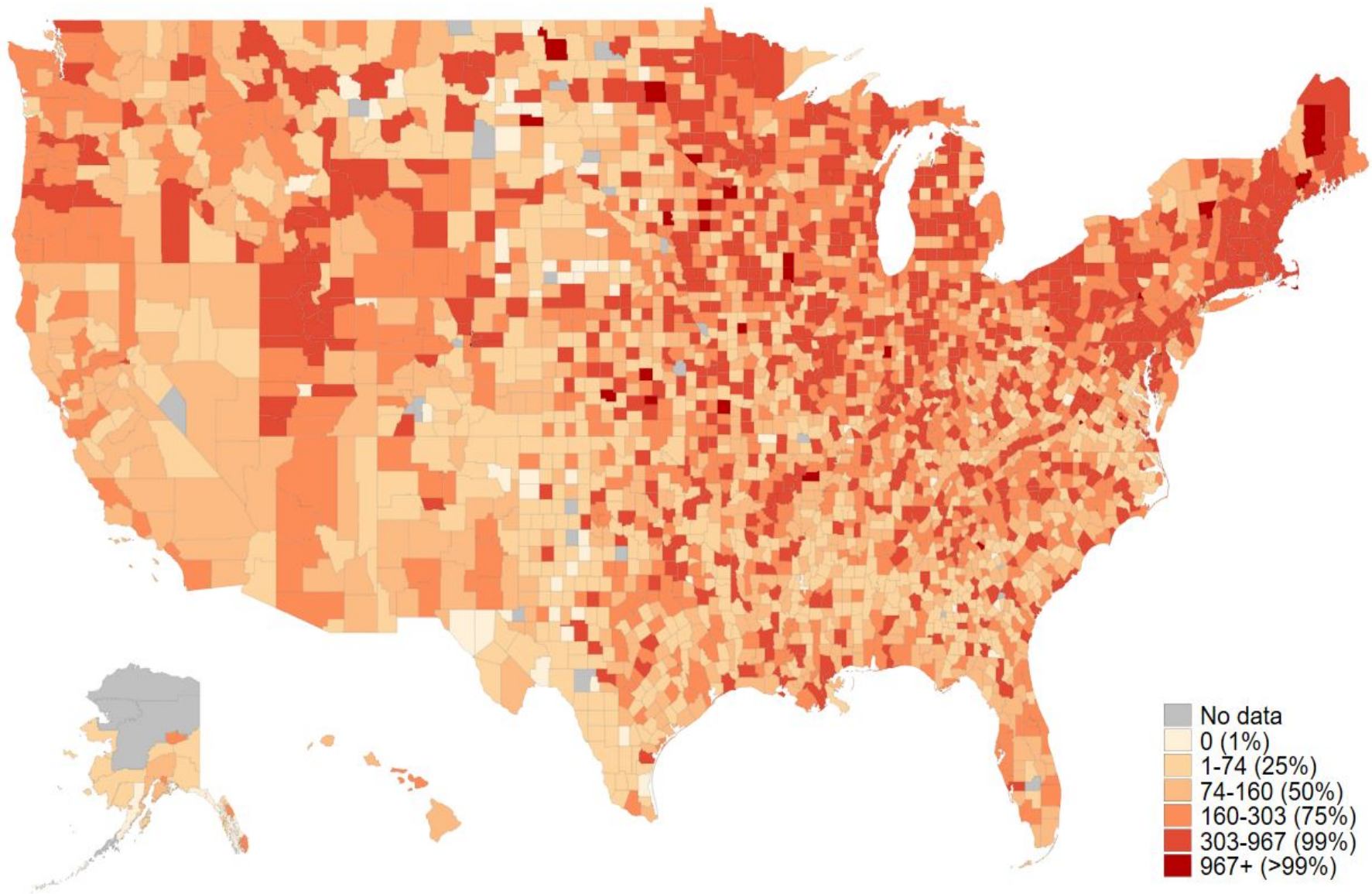
What can we say about treatment?

- Just as the U.S. can serve as a laboratory for understanding the effects of access to medical care, it may serve as a laboratory for understanding the effectiveness of mental health treatment given large variations in practice style.

County Anti-Depressant Prescriptions per 1,000 Children 10-19 by Gender, 2014



Annual Prescriptions of Anti-Depressant Drugs by County Per 1000 Persons 10-19 Years Old, 2014



Source=Cuddy and Currie, 2019 from IQVIA data on retail prescriptions.

The FDA's boxed warning for the antidepressant Lexapro

WARNINGS: SUICIDALITY AND ANTIDEPRESSANT DRUGS

Antidepressants increased the risk compared to placebo of suicidal thinking and behavior (suicidality) in children, adolescents, and young adults in short-term studies of major depressive disorder (MDD) and other psychiatric disorders. Anyone considering the use of Lexapro or any other antidepressant in a child, adolescent, or young adult must balance this risk with the clinical need. Short-term studies did not show an increase in the risk of suicidality with antidepressants compared to placebo in adults beyond age 24; there was a reduction in risk with antidepressants compared to placebo in adults aged 65 and older. Depression and certain other psychiatric disorders are themselves associated with increases in the risk of suicide. Patients of all ages who are started on antidepressant therapy should be monitored appropriately and observed closely for clinical worsening, suicidality, or unusual changes in behavior. Families and caregivers should be advised of the need for close observation and communication with the prescriber. Lexapro is not approved for use in pediatric patients less than 12 years of age. [See Warnings and Precautions: Clinical Worsening and Suicide Risk (5.1), Patient Counseling Information: Information for Patients (17.1), and Use in Specific Populations: Pediatric Use (8.4)].

Maps show:

- Widespread use of antidepressants in 10-19 population despite serious health risks and mixed evidence on efficacy
- Few molecules approved by FDA for treatment in children and adolescents; use is typically “off-label” (in 2014, nearly 70% of prescriptions)
- Unclear “real-world” health implications of antidepressant use on children with mental illness and little research even on short-term effects.

Summary and Conclusions:

- Child health is an important form of human capital -- Healthier children live longer healthier lives and earn higher wages.
- While improvement of physical health remains important, there is new understanding of the importance of child mental health for future outcomes.
- Mental health diagnoses in children are increasing as is treatment, making understanding the effects of treatment an urgent topic for research.

Postscript:

- If we do not move forward we risk moving backwards.
- 450,000 U.S. citizen children lost Medicaid coverage in 2018 through a combination of changes in administrative procedures and fear in families where a parent or other family member was an immigrant.

Prenatal WIC and Mental Health in Children 6-11

Sibling FE Models, (Chorniy and Currie, 2018a)

	Full Sample	Non- Hispanic whites	African- Americans	Lower Income
<i>Mental conditions</i>				
ADHD	-0.0089*	-0.0015	-0.0144**	-0.0127*
	(0.0050)	(0.0074)	(0.0069)	(0.0076)
Mean of Dep. Var.	0.1664	0.1861	0.1508	0.1994
Childhood mental, excl. ADHD	-0.0119**	-0.0076	-0.0160**	-0.0073
	(0.0054)	(0.0079)	(0.0074)	(0.0078)
Mean of Dep. Var.	0.1863	0.1973	0.1778	0.2018
Depression/Anxiety	-0.0004	0.0034	-0.0025	0.0016
	(0.0026)	(0.0043)	(0.0031)	(0.0038)
Mean of Dep. Var.	0.0301	0.0403	0.0214	0.0347