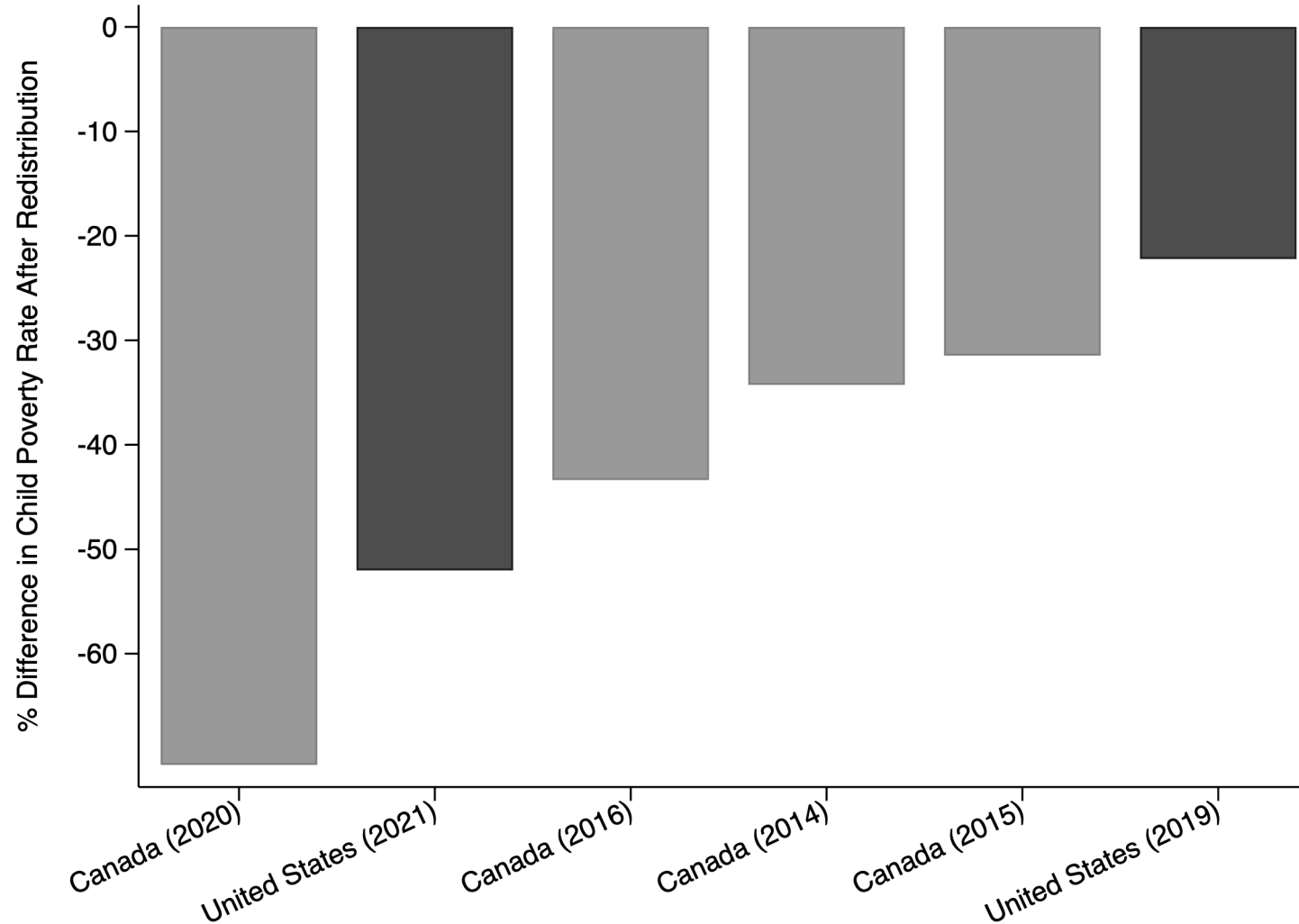


The Impact of Family Tax Benefits on Health, Education and Food Security

Michael Baker, Kourtney Koebel, Mark Stabile

Impact of Taxes and Transfers on Relative Child Poverty Rate

Percent Difference (United States and Canada)



Major Reforms in Canada

- 1993: Canada Child Tax Benefit (replaced 3 previous tax credits)
- 1998: National Child Benefit Supplement [available in and out of work; highly targeted]
- 2006: Universal Child Care Benefit (UCCB) [universal for children aged 0-5]
- 2007: Working Income Tax Benefit [in-work, like the EITC, but smaller]
- Provincial benefits also shift over this period (AB, BC, ON)
- 2015: UCCB increased and expanded
- 2016: Canada Child Benefit [replaces CCTB, NCB, UCCB]

Universal Child Care Benefit, July 2015

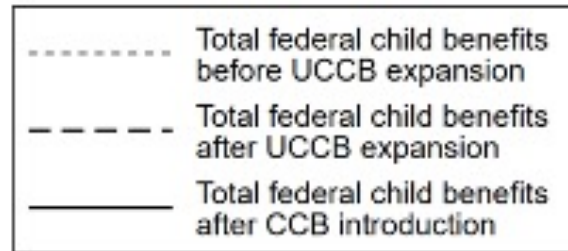
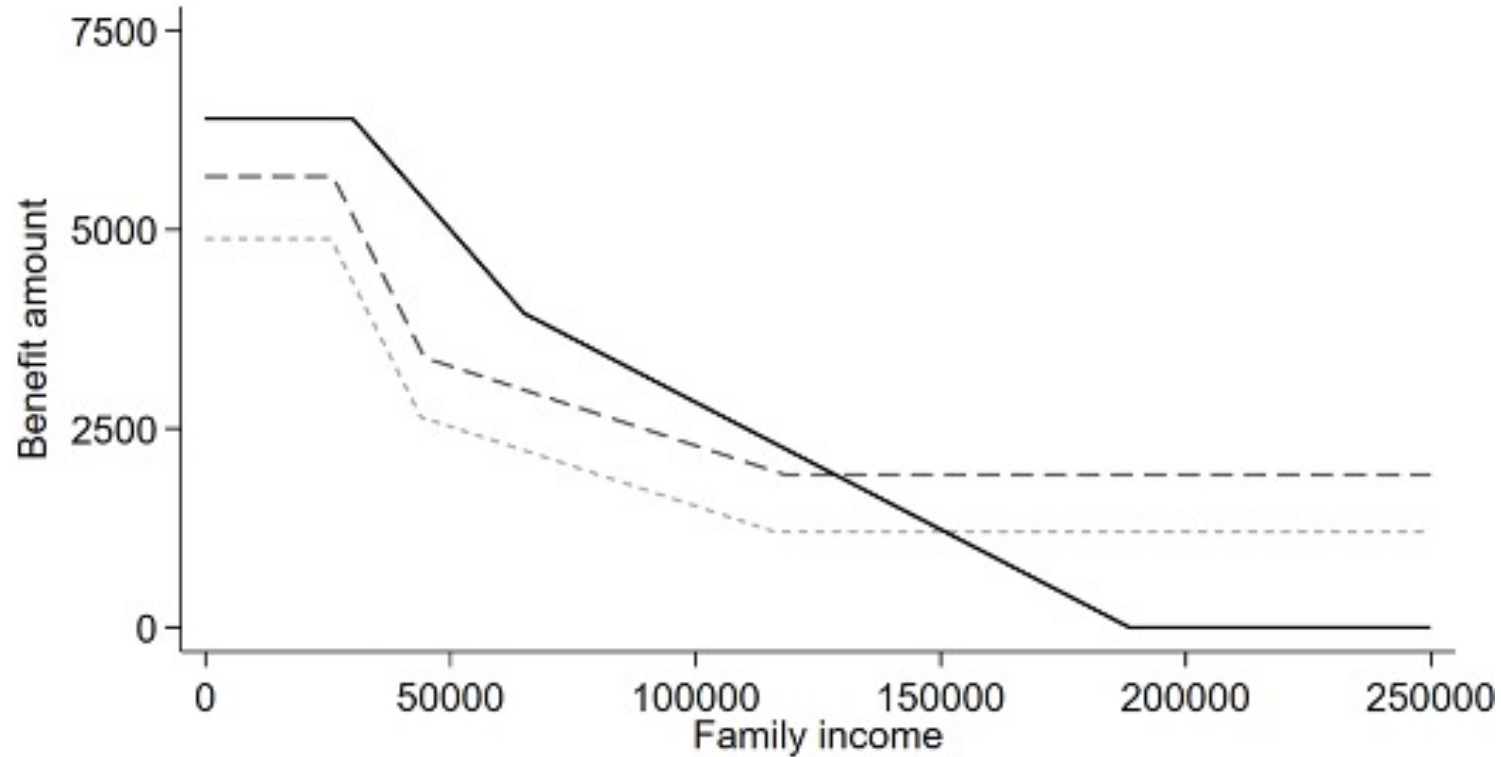
- Increase in UCCB by \$720 for all families with children aged 0-17
- Changes to CCTB
 - Increase in basic benefit from \$1446 to \$1471 per child aged 0-17
 - Increase in (after-tax) income cut-off threshold from \$43,953 to \$44,701
- Changes to NCBS
 - Increase in basic benefit for first child from \$2241 to \$2279
 - Increase in (after-tax) income cut-off threshold from from \$25,584 to \$26,021

Canada Child Benefit, July 2016

- \$6,400 for each child aged 0-5
- \$5,400 for each child aged 6 – 17
- Maximum benefit for income \$0-\$30,000; beyond that, income-tested on household income
- Not taxable
- Monthly payments made between July of t to June of $t + 1$
- Must file tax return every year – even if \$0 income – if eligible, benefits received automatically
- Indexed to inflation as of 2018

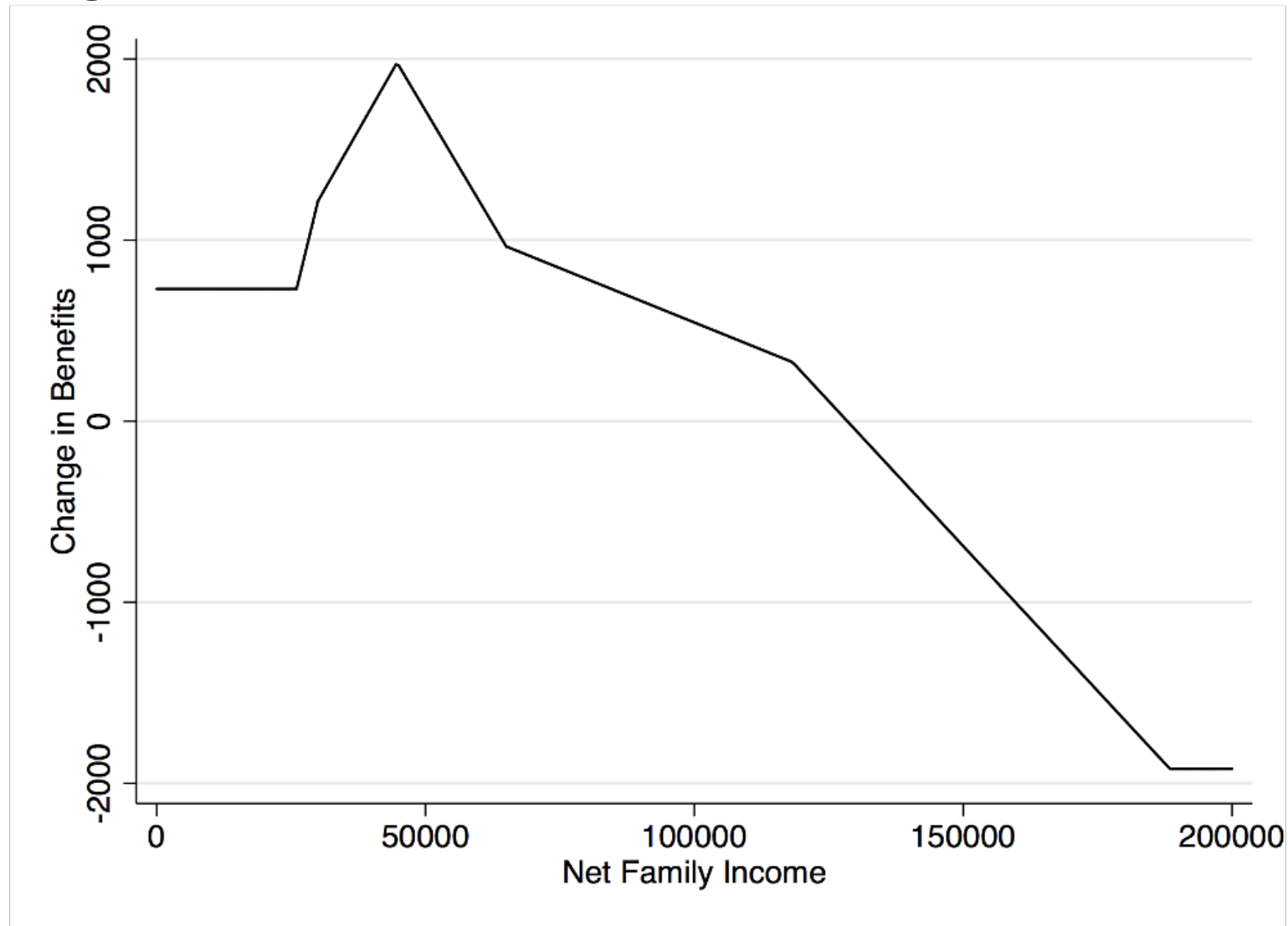
Pre- and Post-UCCB Expansion, CCB Expansion

One Child Under 6



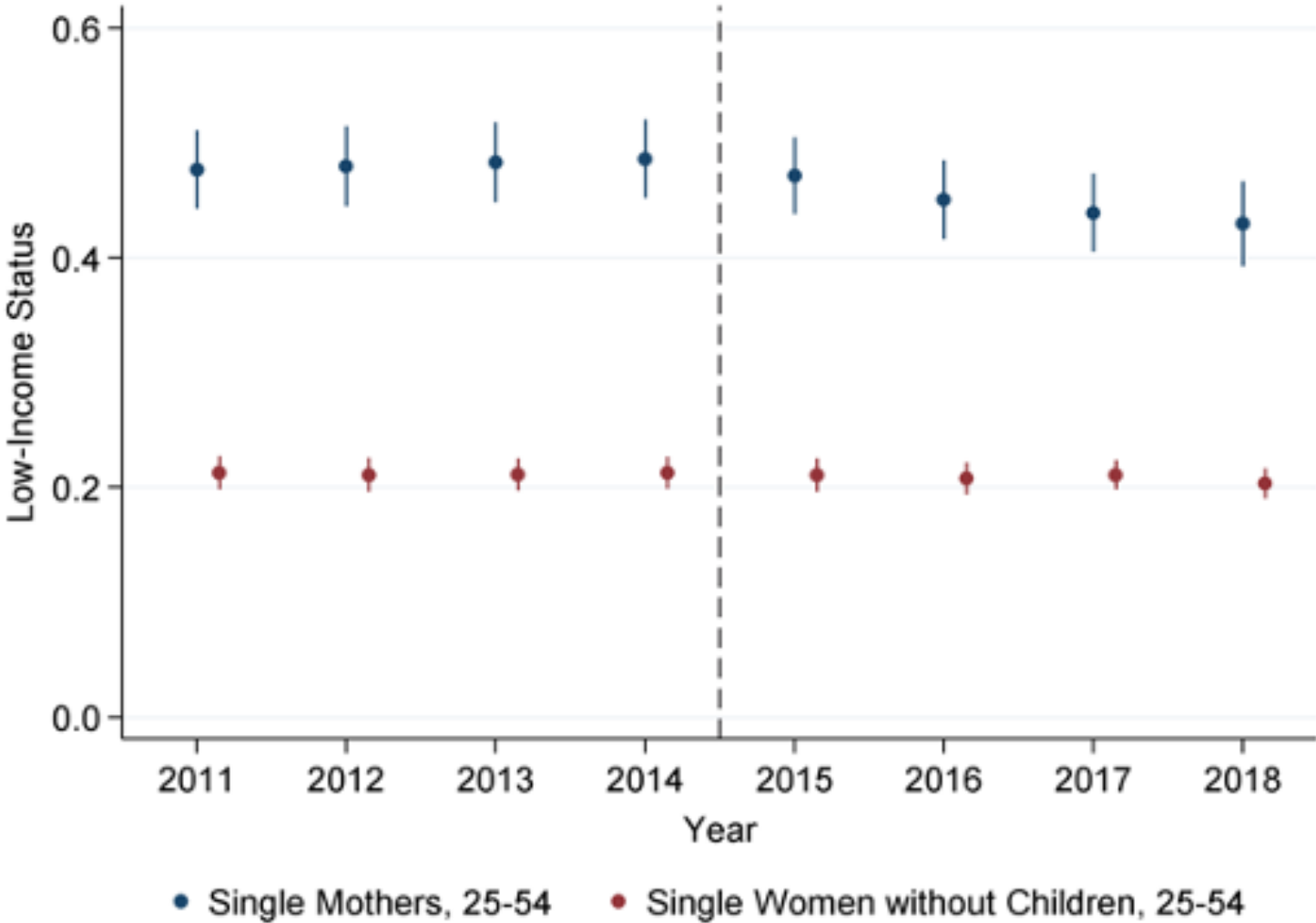
Changes in Benefit by Net Family Income, Post-CCB

Single Mothers, 1 Child Under 6 (relative to 2015)



Poverty Rates: LAD Low-Income Measure

Single Women (Baker, Messacar, Stabile 2023)



Given the reduction in poverty and increase in income...

- Might expect there to be effects on child and family outcomes
- This paper examines a subset of these:
 - Child health
 - Education (test scores)
 - Maternal wellbeing
 - Family food security

Data: Education and Mental Health

- School administrative records for all students enrolled in public and independent schools in BC from 1991/92 to 2020/21
- Admin records include birthdate, sex, home language, indigenous status, school child attends, public/private school, special education needs and test scores for grade 4 and 7 (among other things)
- Linked with parent tax records (T1FF) to observe household income and family benefit amount (also to tag siblings)
- Standardized test scores from BC Foundational Skills Assessment (FSA); monitors students' progress in reading, numeracy and writing
- Child health measured using special education need (SEN) designations made annually

Data: Mental Health Cont.

- Mental health measures are derived from 12 categories of special education need within the school admin files
- These include moderate mental health or behavioral issues (aggression or hyperactivity) and severe mental health or behavioral issues requiring intensive support
- Special needs are reported at the beginning of the year, but assessments are completed the year before to qualify for the current year
- Medical professional assessment is necessary but not sufficient for a diagnosis of mental health need

Behaviour Needs or Mental Illness: Quick Guide

Category	Students Requiring Moderate Behaviour Supports or Students with Mental Illness	Students Requiring Intensive Behaviour Interventions or Students with Serious Mental Illness (Special Education Funding Supplement)
Assessment Criteria Related to Student	<ul style="list-style-type: none"> • Must have documentation of a behavioural, mental health and/or psychological assessment which indicates needs related to behaviour or mental illness • Demonstrate aggression, hyperactivity, delinquency, substance abuse, effects of child abuse or neglect, anxiety, stress related disorders, depression, etc. • Severity of the behaviour or condition has disruptive effect on classroom learning, social relations, or personal adjustment • Behaviour exists over extended time and in more than one setting • Regular in-class strategies not sufficient to support behaviour needs of student; beyond common disciplinary interventions • Rule out other conditions which may be contributing to the behaviour (for example, side effects of medication, learning disabilities) • For Mental Illness, the diagnosis must be made by a qualified mental health clinician 	<ul style="list-style-type: none"> • Must have documentation of a behavioural, mental health and/or psychological assessment which indicates the need for intensive intervention beyond the normal capacity of the school to educate • Demonstrate antisocial, extremely disruptive behaviour or profound withdrawal or other internalizing conditions in school • Behaviour or mental illness serious enough to be a risk to themselves or others and/or significantly interfere with academic progress of self and others • Behaviour persistent over time in most other settings • Behaviour or mental illness serious enough to warrant extensive interventions beyond the school • For <i>Serious Mental Illness</i>, the diagnosis must be made by a qualified mental health clinician (psychologist with appropriate training, psychiatrist or physician)

Data: Maternal Health and Food Security

- Canadian Community Health Survey (2011-2019)
- Annual cross-sectional survey that measures health, health behaviours and use of care
- Includes measures of food security: 18 questions, 10 of which relate to adults and 8 to children
- Food insecure if 6-10 of adult questions OR 5-8 child questions are answered affirmatively
- Self-assessed health questions related to physical health, mental health, stress, life satisfaction; top 2 categories are classified as 1, 0 otherwise
- Sample: Women aged 25-54 with and without children

Methods: Education and Mental Health

- Simulated benefit strategy using tax info from 2010-2013 to simulate benefits received between 2014 and 2018
- Estimate: i) reduced form model of simulated benefits; and ii) IV models of actual benefits using the simulated benefit as an instrument

$$Y_{its} = \beta actchildbenefit_{it} + \eta X_{it} + \mu_i + \gamma_t + \pi_s + \varepsilon_{it}$$

- Where t=time, s=school, i=child
- X includes average age of the tax filers and age, grade, household size and number of earner fixed effects
- Estimate model separately by income quintile to account for heterogenous effects

Methods: Maternal Health and Food Security

- Event-study d-in-d framework comparing women with and without children over time

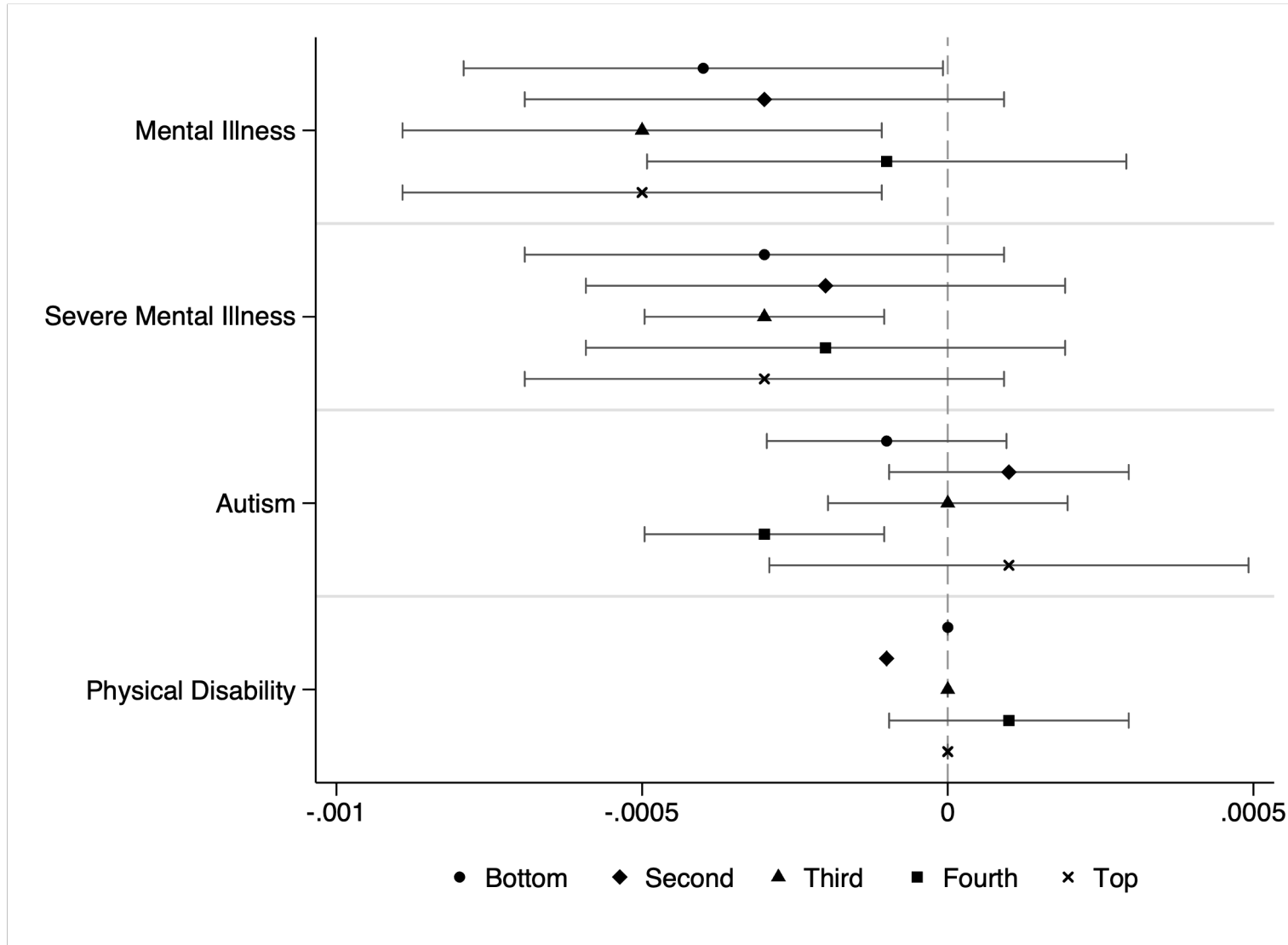
$$Y_{ipt} = \beta_t \sum_{t=2011, t \neq 2014}^{2019} 1(\text{year}_t) * 1(\text{child}_i) + \varphi \text{child}_i + \eta X_{it} + \delta_m + \gamma_t + \pi_p + \varepsilon_{ipt}$$

- Where i=individual women, t=year, p=province
- X_{it} includes mothers' education, age, number of children aged 0-5 and number of children aged 6-17 fixed effects
- Estimated separately for single and married women

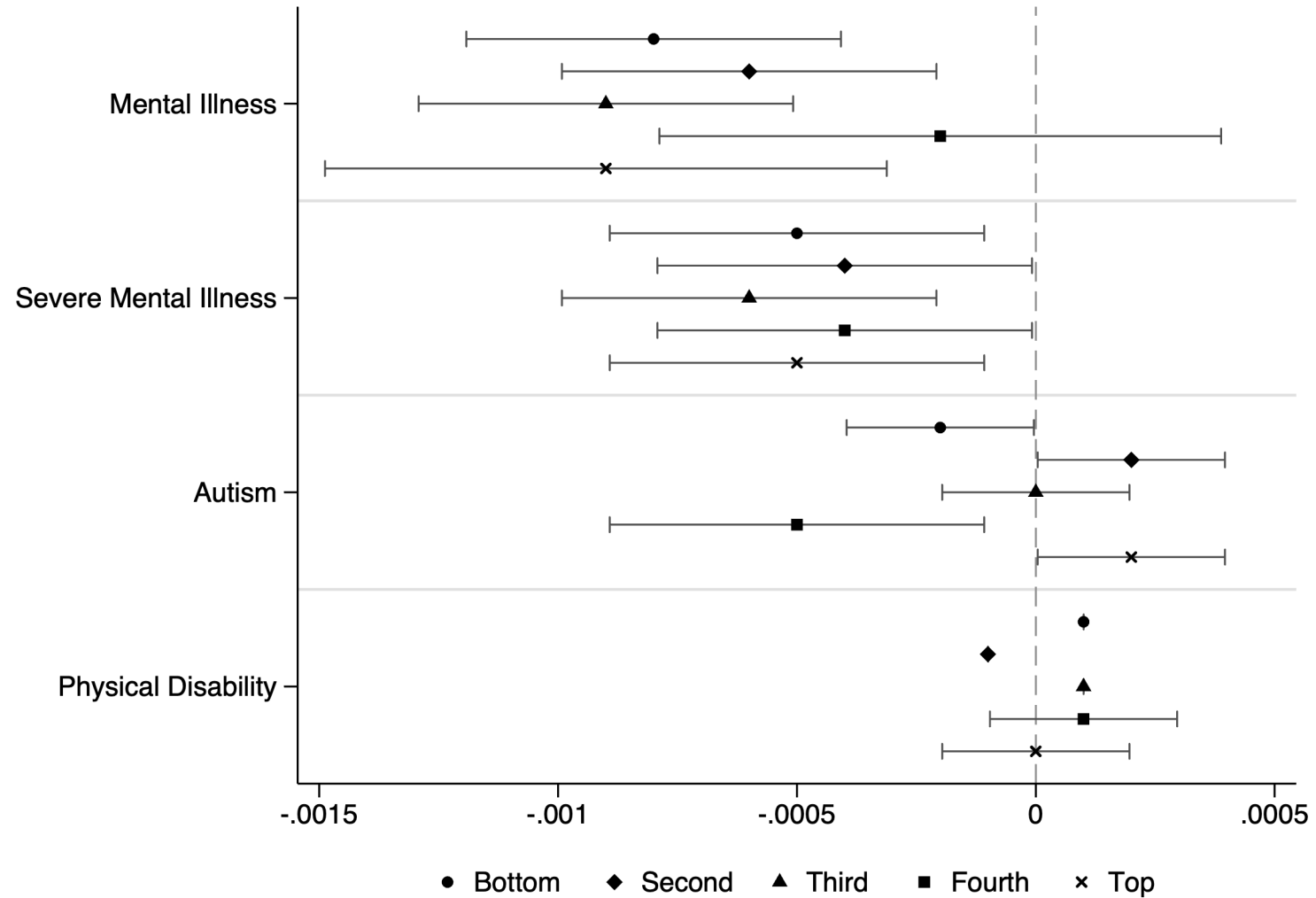
Results: Health, First Stage

		Income Quintile				
		Bottom	Second	Middle	Fourth	Top
Full Sample	Simulated Child Benefit	0.5631*** (0.0050)	0.5347*** (0.0036)	0.6126*** (0.0035)	0.5669*** (0.0035)	0.5461*** (0.0027)
	F-Statistic	12446.26	22102.35	31130.78	26980.49	41161.16
	Girls	0.5626*** (0.0072)	0.5319*** (0.0051)	0.6146*** (0.0048)	0.5718*** (0.0048)	0.5573*** (0.0037)
	F-Statistic	6120.23	10673.25	16271.50	14172.06	22151.61
Boys	Simulated Child Benefit	0.5633*** (0.0071)	0.5342*** (0.0051)	0.6096*** (0.0050)	0.5628*** (0.0050)	0.5343*** (0.0039)
	F-Statistic	6229.52	11150.51	14704.04	12782.93	18961.21

Results: Health by Income Quintile, Reduced Form

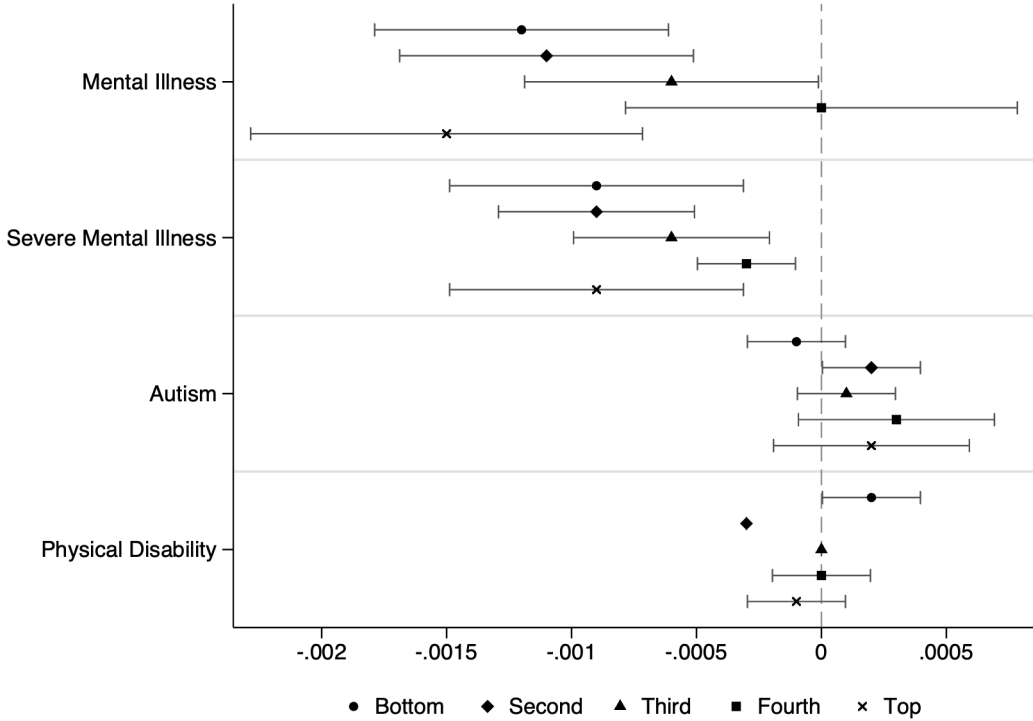


Results: Health by Income Quintile, IV

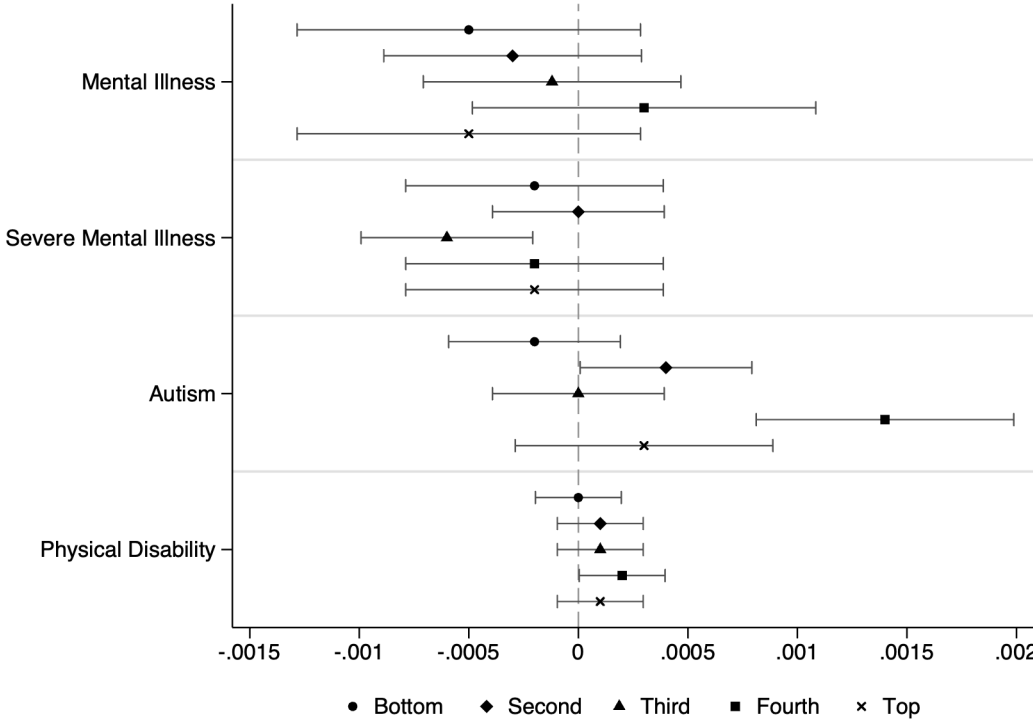


Results: Health by Income Quintile and Gender, IV

Girls



Boys



Results: Education, First Stage

Grade 4 and 7, Standardized Test Scores

		Income Quintile				
		Bottom	Second	Middle	Fourth	Top
Reading Score	Simulated	0.6293***	0.5829***	0.6388***	0.6516***	0.5850***
	Child Benefit	(0.0221)	(0.0156)	(0.0133)	(0.0135)	(0.0096)
	F-Statistic	811.85	1400.57	2296.45	2320.66	3719.20
Math Score	Simulated	0.6246***	0.5757***	0.6413***	0.6532***	0.5873***
	Child Benefit	(0.0222)	(0.0156)	(0.0133)	(0.0135)	(0.0096)
	F-Statistic	790.98	1357.35	2320.51	2333.69	3721.52
Writing Score	Simulated	0.6206***	0.5840***	0.6369***	0.6519***	0.5892***
	Child Benefit	(0.0230)	(0.0160)	(0.0137)	(0.0137)	(0.0098)
	F-Statistic	731.09	1330.78	2158.90	2256.85	3613.88

Results: Education by Income Quintile and Gender

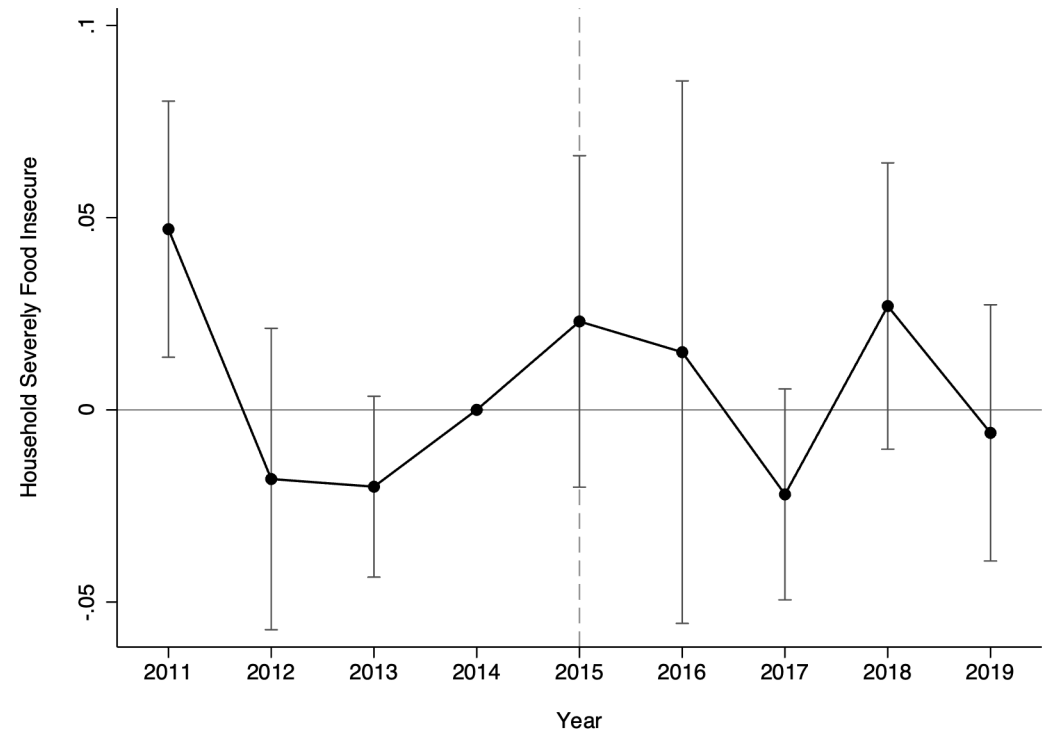
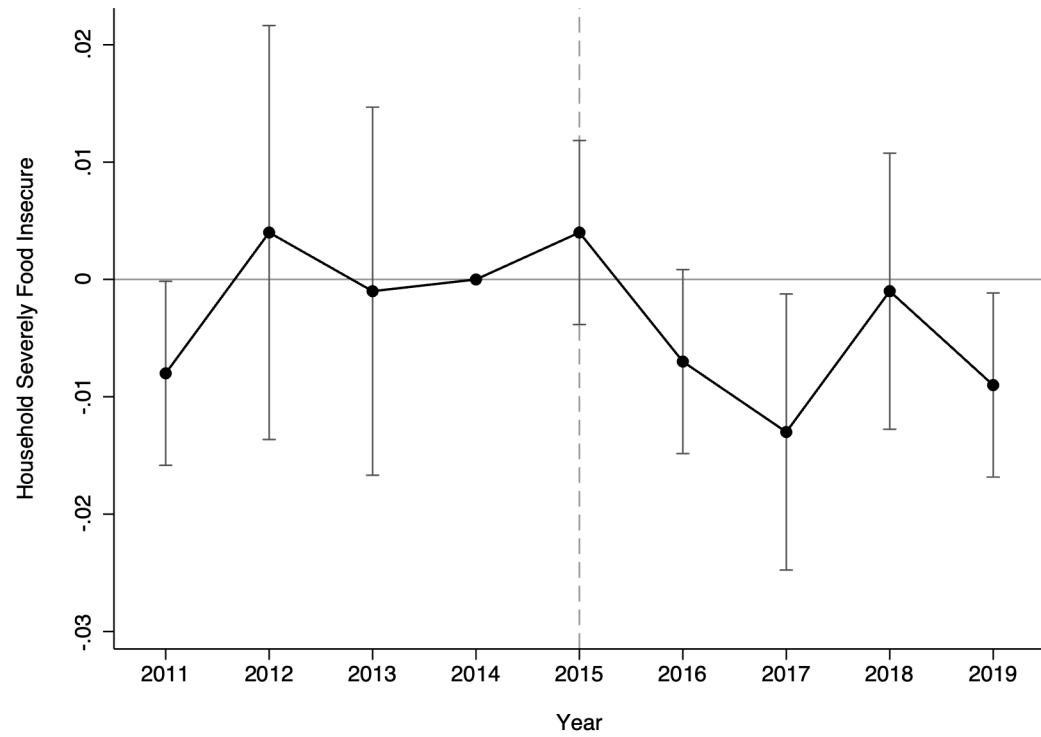
Grade 4 and 7, Standardized Test Scores

	Reading		Numeracy		Writing	
	Reduced Form	2SLS	Reduced Form	2SLS	Reduced Form	2SLS
	(n=84,340)		(n=84,012)		(n=80,330)	
Bottom	0.0050 (0.0060)	0.0079 (0.0066)	-0.0056 (0.0055)	-0.0090 (0.0059)	-0.0019 (0.0077)	-0.0031 (0.0085)
Second	-0.0025 (0.0050)	-0.0043 (0.0059)	-0.0030 (0.0045)	-0.0053 (0.0054)	-0.0059 (0.0066)	-0.0101 (0.0076)
Third	0.0132** (0.0056)	0.0206*** (0.0061)	-0.0021 (0.0053)	-0.0033 (0.0055)	0.0037 (0.0076)	0.0058 (0.0079)
Fourth	0.0050 (0.0066)	0.0083 (0.0076)	-0.0031 (0.0062)	-0.0048 (0.0069)	0.0136 (0.0096)	0.0208** (0.0098)
Top	0.0056 (0.0063)	0.0096 (0.0074)	0.0014 (0.0061)	0.0023 (0.0071)	-0.0078 (0.0093)	-0.0133 (0.0103)

Results: Household Food Security

Married

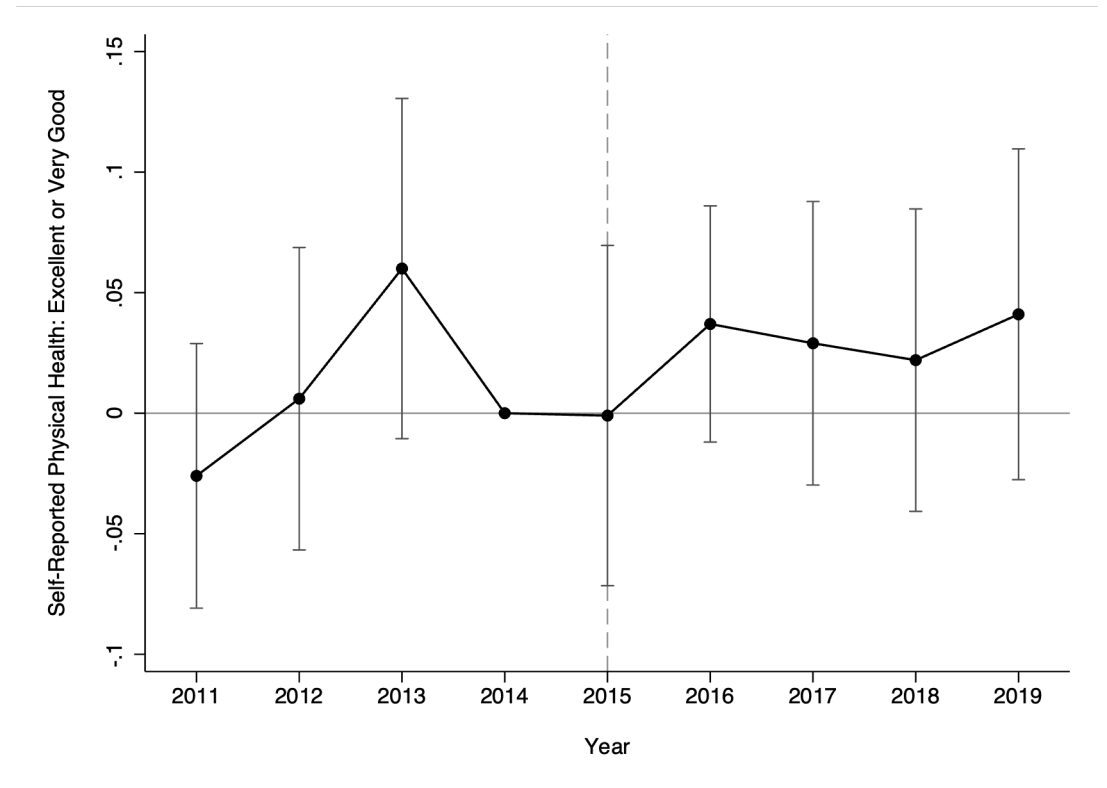
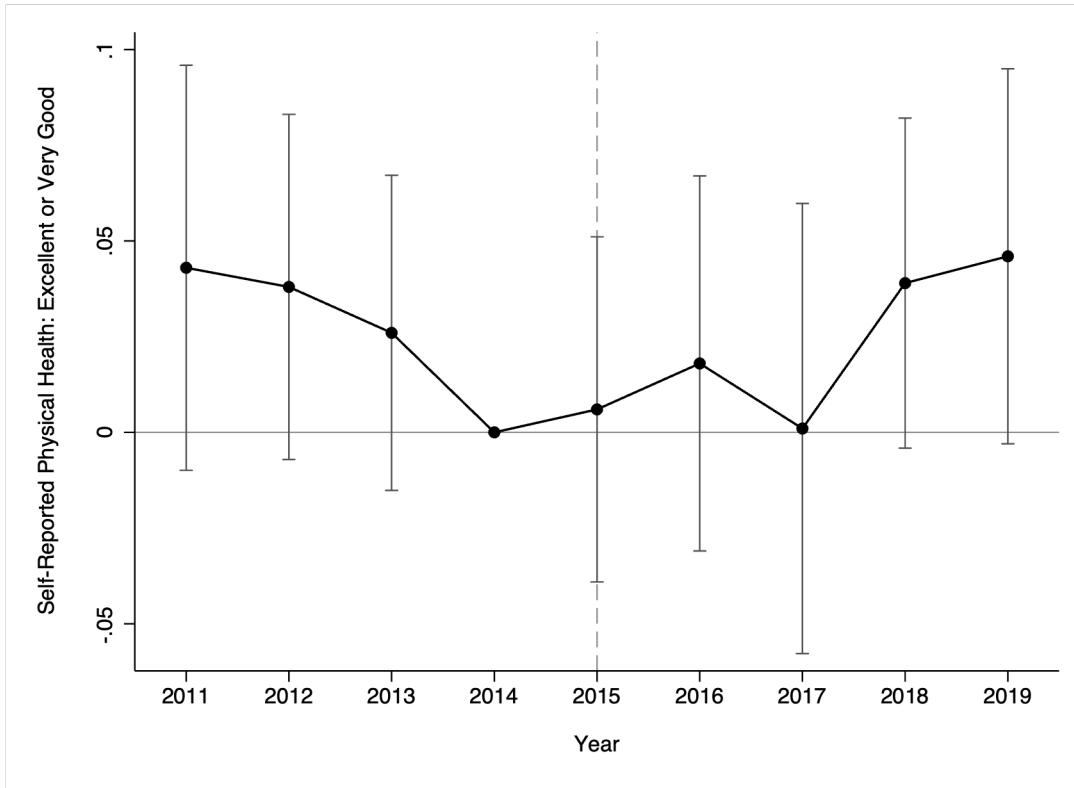
Single



Results: Maternal Physical Health (self-reported)

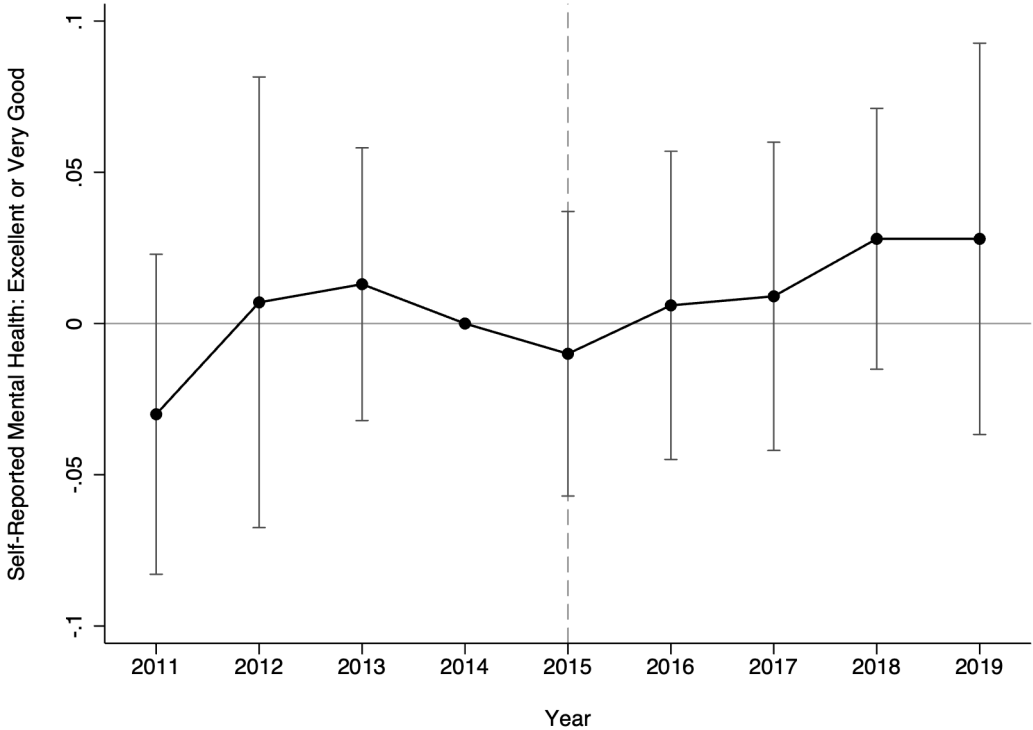
Married

Single

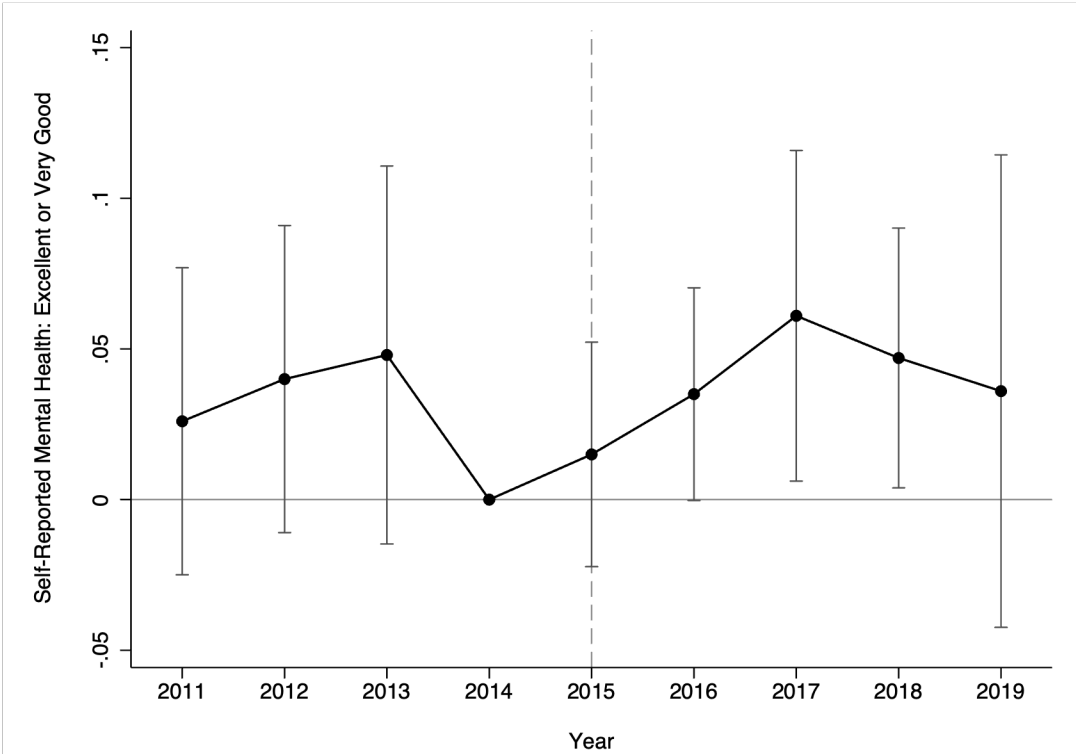


Results: Maternal Mental Health (self-reported)

Married

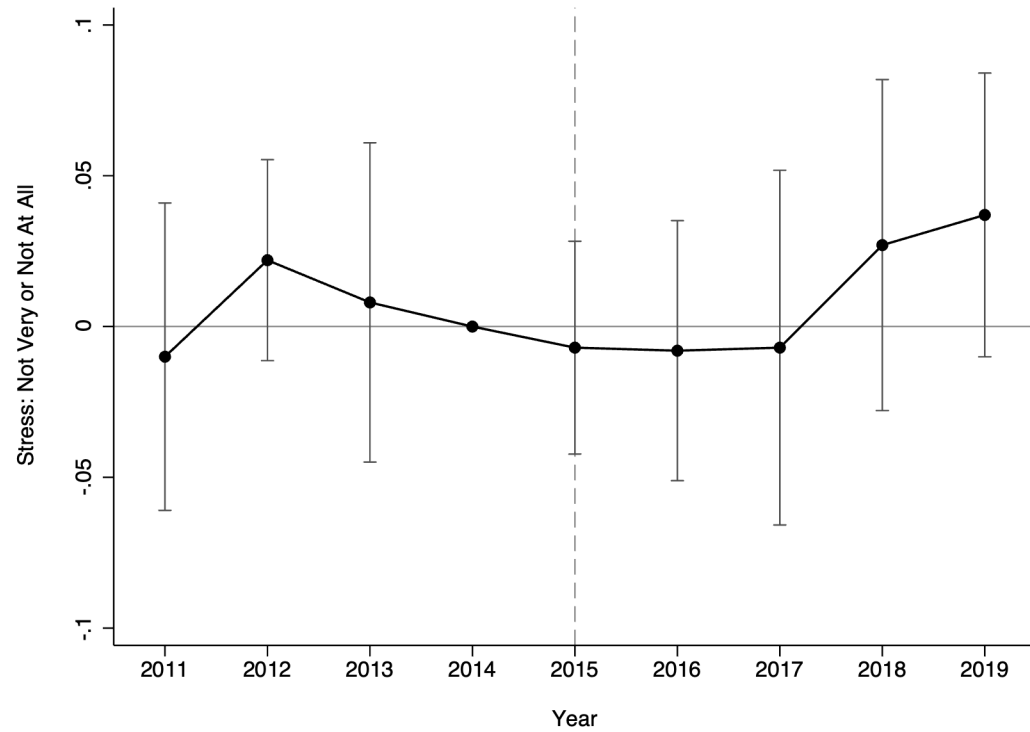


Single

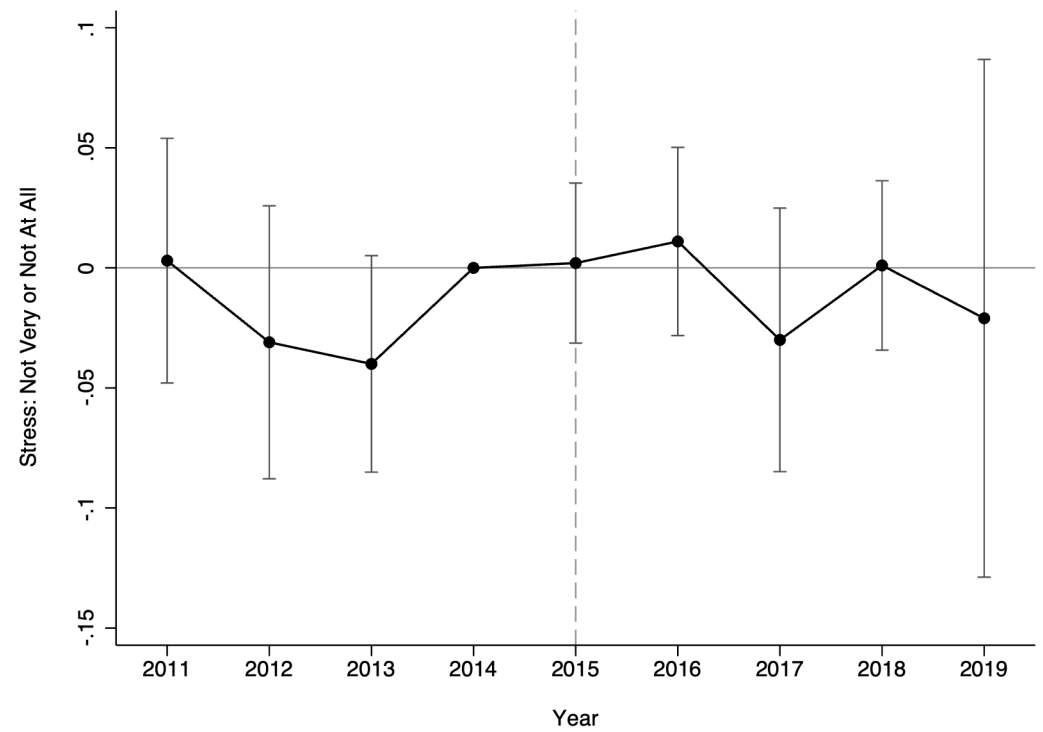


Results: Maternal Stress (self-reported)

Married



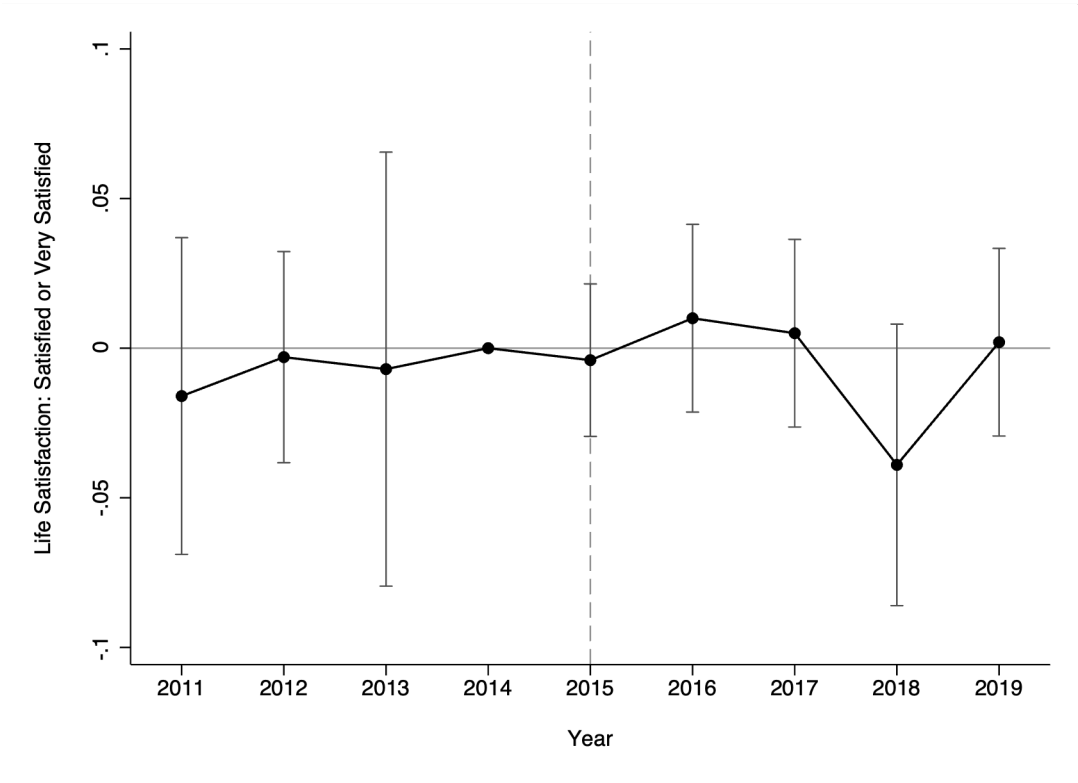
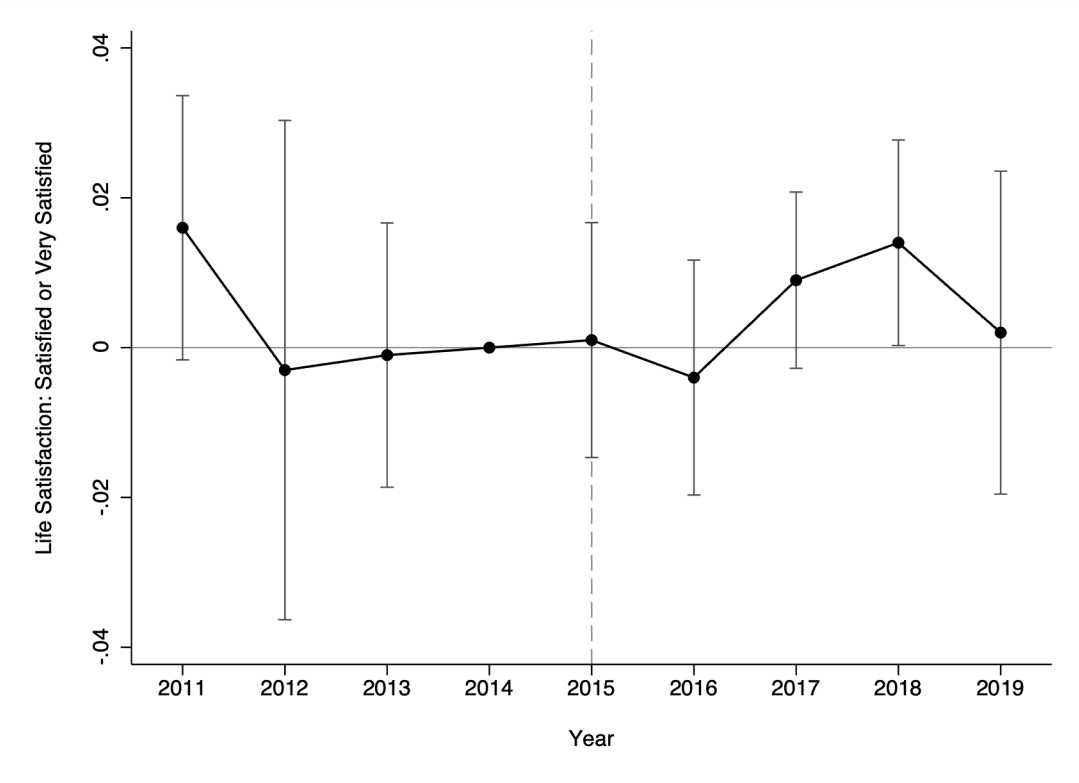
Single



Results: Maternal Life Satisfaction (self-reported)

Married

Single



Conclusions

- Reforms reduced poverty and are often cited as having impacts beyond poverty
- We explore these impacts across several dimensions
- Find evidence of improvements in mental health, especially for girls (consistent with previous evidence)
- Not much evidence of impact elsewhere
- Next up: explore mechanisms further