The Effects of Receiving Cash Transfers as Adolescents on Future Outcomes

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Introduction

- There is currently large interest in investing in adolescents, particularly adolescent girls (UNAIDS, Global Fund, Nike Foundation, WB, etc.)

- Simultaneously, there is an increasingly louder group of development economists advocating for unconditional cash transfers (UCTs) for poverty reduction (Blattman and Niehaus, 2014; Kenny, 2015, etc.)

Introduction

- The confluence of these two trends have policymakers trying to design programs that address a set of diverse issues for adolescents – programs that rely, at least in part on cash transfers (e.g. WB SP project in Zambia)
  - But, they still have to contend with the same design issues as before – perhaps more daunting with the recent evidence on CCTs vs. UCTs (vs. LCTs).
  - One of the important issues, at least in SSA, is that school dropout is early and is closely linked with the start of childbearing (and marriage) during adolescence.
    - So, CCTs for schooling have to contend with the large group of non-compliers…

Introduction

- In settings like Malawi, there are few labor market prospects, so the impact of schooling and income transfer programs are **not** likely to be Mincerian wage improvements

- Instead, they can be motivated by potential improvements in demographic outcomes:
  - Health and empowerment
  - Quality of marriages
  - Fertility and children's human capital

Schooling, Income, and Health Risks (SIHR)

- We have a long-term study that is designed to address some of these issues in the Zomba district of Malawi.

- Two-year cluster-randomized cash transfer experiment with random variations in:
  - Conditionality
  - Transfer size
  - Identity of the transfer recipient within the household, and
  - Intensity of treatment (for spillover effects)

Study Design: Sampling

- Study takes place in Zomba District of Malawi; relatively poor and rural area of the country with high HIV rates.
- All 13-22 year-old never-married females listed in 176 enumerations areas (EAs) and divided into two ex ante strata:
  - Baseline schoolgirls (CCT vs. UCT vs. Control)
  - Baseline dropouts (CCT vs. Control)
- Average transfer size approximately $10/month, equivalent to roughly 10% of mean household consumption expenditure.

Research Design

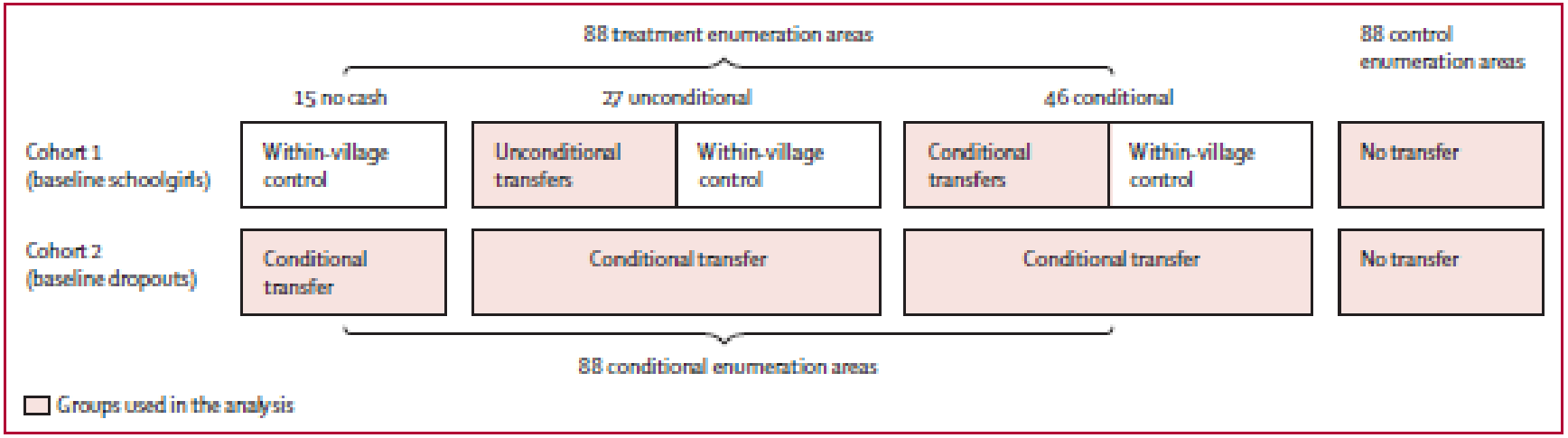


Figure 1: Intervention groups

Previous Results: Cash or Condition?

- CCT program had a significant effect on schooling (enrollment, attendance, and test scores)
  - Baseline schoolgirls
  - Baseline dropouts (*very large effects on re-enrollment*)
- UCT program had large effect on decreasing pregnancy, marriage.

Conundrum arising from previous study:

- The condition did generate an incentive to go to school, but by cutting off the transfers to those who drop out from school, but
- The transfers have particularly large benefits precisely for those girls who drop out and planning to get married/pregnant soon.

Cash or Condition: Marriage and Enrollment at Follow-up

Table VIII: Prevalence of being 'ever married' by school enrollment status during Term1, 2010

	Enrolled	Not enrolled	Total
	(1)	(2)	(3)
Control	1.7%	49.0%	20.2%
N (row %)	272 (59.7%)	184 (40.3%)	456 (100.0%)
Conditional treatment	0.5%	50.8%	16.2%
N (row %)	174 (69.2%)	78 (30.8%)	252 (100.0%)
Unconditional treatment	0.3%	25.3%	10.2%
N (row %)	82 (60.5%)	54 (39.5%)	136 (100.0%)
Total	1.1%	45.3%	17.4%
N (row %)	529 (62.7%)	315 (37.3%)	844 (100.0%)

The Purpose of studying longer-term outcomes

- Does a short (two year) intervention at a key time in the life of a young women's life have lasting impacts?

- Limited other evidence on these longer term effects, especially in SSA:
  - Schultz (2004), Behrman (2009), Barham, Macours, and Maluccio (2013)

- Why?
  - Not often looked at
  - Many studies are short term
  - Phase in design mitigates longer term impacts

Study Design: Timeline

- **Baseline data collection**: September 2007 – January 2008.
  - Household Survey
- **Cash Transfers begin**: February 2008
- **Round 2 data collection**: October 2008 - February 2009.
  - Household Survey
- **Biomarker data collection**: June - September 2009.
  - HIV, HSV-2
- **Cash Transfer Program ends**: December 2009.
- **Round 3 data collection**: February - June 2010.
  - Household Survey
  - Educational tests
- **Round 4 data collection**: March 2012 – April 2013
  - Household survey including competencies
  - HIV testing
  - Anthropometrics/cognitive for children.
  - Data on husbands for married CRs (including HIV testing and Raven's)

Five Year Effects: Primary Outcomes

- Pre-analysis plan registered in the AEA Soc. Sci Registry
- **Core Respondent:**
  - Education: highest grade completed, competencies
  - Marriage/Fertility: ever married, ever pregnant, # live births, age at first marriage/child
  - Health: HIV, Anemia, and others
  - Empowerment/Aspirations
  - Wages/Employment
- **Married core respondents:**
  - Empowerment/economic control/Husband quality/
- **Unmarried Core Respondents:** Empowerment
- **Children:**
  - Health/Anthropometrics
  - Parental Practices
  - Educational tests

Attrition to follow-up after 5 years

- 84% of baseline dropouts interviewed, no differential attrition between CCT and Control
- 87% of baseline schoolgirls found in the Control group compared with 92% in CCT and UCT.
- Re-analyzing the "Cash or Condition" paper (2011) using the current four-round panel changes none of the conclusions of the previous research using three rounds of data.
- Baseline characteristics are balanced

Five Year Effects: Education

Table 1: Education Outcomes

	Highest Grade Completed			=1 if Passed Primary School (PSLC)		
	Round 2	**Round 3**	**Round 4**	**Round 2**	**Round 3**	**Round 4**
Panel A: Baseline Dropouts						
=1 if Conditional Schoolgirl	0.579***	0.558***	0.621***	0.030	0.058**	0.081***
	(0.073)	(0.102)	(0.125)	(0.025)	(0.025)	(0.026)
Mean in Control Group	6.345	6.967	6.997	0.328	0.351	0.366
Sample Size	697	718	744	697	718	744
Panel B: Baseline Schoolgirls						
=1 if Conditional Schoolgirl	0.078	0.126*	0.120	0.030	0.013	-0.014
	(0.090)	(0.069)	(0.080)	(0.039)	(0.024)	(0.019)
=1 if Unconditional Schoolgirl	0.122	0.103	0.095	0.046	0.030	0.017
	(0.109)	(0.121)	(0.129)	(0.038)	(0.026)	(0.016)
p-value UCT vs. CCT	0.708	0.854	0.850	0.755	0.600	0.166
p-value Treatment	0.469	0.174	0.309	0.386	0.488	0.359
Mean in Control Group	8.590	9.677	10.415	0.496	0.776	0.879
Sample Size	1,965	2,019	2,049	1,967	2,019	2,047

Five Year Effects: Education

Appendix Table XX: Competencies							
Panel A: Baseline Dropouts							
	Total Competency	**Fertilizer**	**Change Given**	**Text Message**	**Calculator**	**Profit**	**Total Time**
=1 if Conditional Schoolgirl	0.064	-0.044	-0.014	0.101	0.065	0.094	-0.007
	(0.057)	(0.069)	(0.062)	(0.072)	(0.071)	(0.076)	(0.091)
Mean in Control Group	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sample Size	742	742	741	741	741	742	742
Panel B: Baseline Schoolgirls							
=1 if Conditional Schoolgirl	0.065	0.015	0.048	0.077	0.060	-0.006	-0.113
	(0.058)	(0.071)	(0.071)	(0.070)	(0.054)	(0.076)	(0.085)
=1 if Unconditional Schoolgirl	0.098	0.096	-0.017	0.161**	0.098	-0.045	-0.118
	(0.067)	(0.092)	(0.057)	(0.079)	(0.064)	(0.090)	(0.085)
p-value UCT vs. CCT	0.630	0.378	0.389	0.364	0.584	0.636	0.963
p-value Treatment	0.297	0.570	0.685	0.105	0.249	0.862	0.258
Mean in Control Group	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sample Size	2,048	2,048	2,046	2,047	2,047	2,048	2,048

Five Year Effects: Marriage & Fertility

	Ever Married			Age First Marriage	Ever Pregnant			Age First Birth	Desired Fertility
	Round 2	Round 3	Round 4	Round 4	Round 2	Round 3	Round 4	Round 4	Round 4
=1 if Conditional Schoolgirl	-0.140***	-0.157***	-0.107***	0.431***	-0.057*	-0.081***	-0.040*	0.272*	-0.172**
	(0.029)	(0.037)	(0.032)	(0.155)	(0.030)	(0.027)	(0.021)	(0.164)	(0.087)
Mean in Control Group	0.291	0.575	0.809	19.644	0.610	0.784	0.924	18.499	3.217
Sample Size	698	718	744	500	698	718	744	634	744
Panel B: Baseline Schoolgirls									
=1 if Conditional Schoolgirl	0.000	-0.010	-0.035	-0.011	0.008	0.027	-0.024	-0.144	-0.072
	(0.012)	(0.024)	(0.027)	(0.148)	(0.015)	(0.027)	(0.034)	(0.136)	(0.064)
=1 if Unconditional Schoolgirl	-0.033***	-0.083***	-0.010	0.486**	-0.013	-0.063**	-0.001	0.001	-0.017
	(0.012)	(0.024)	(0.046)	(0.200)	(0.017)	(0.028)	(0.042)	(0.168)	(0.056)
p-value UCT vs. CCT	0.026	0.018	0.613	0.032	0.314	0.009	0.614	0.436	0.477
p-value Treatment	0.023	0.004	0.448	0.050	0.600	0.025	0.760	0.547	0.533
Mean in Control Group	0.047	0.180	0.402	18.651	0.092	0.247	0.501	18.718	2.974
Sample Size	1,967	2,018	2,049	821	1,966	2,019	2,049	998	2,048

Notes: Regressions are OLS models with robust standard errors dustered at the EA level. All regressions are weighted to make them representative of the target population in the study EAs. Baseline values of the following variables are induded as controls in the regression analyses: age indicators, strata indicators, household asset index, highest grade attended, and an indicator for never had sex. We restrict the sample to respondents who were surveyed in Round 4. Parameter estimates statistically different than zero at 99% (***), 95% (**), and 90% (*) confidence.

Five Year Effects: HIV

	HIV Prevalence			HIV Incidence
	Round 2	Round 3	Round 4	R4-R3
Panel B: Baseline Schoolgirls				
=1 if Conditional Schoolgirl	-0.020**	-0.005	-0.001	0.005
	(0.009)	(0.011)	(0.019)	(0.013)
=1 if Unconditional Schoolgirl	-0.018	-0.021*	-0.006	0.015
	(0.012)	(0.012)	(0.024)	(0.017)
p-value UCT vs. CCT	0.818	0.235	0.850	0.610
p-value Treatment	0.080	0.218	0.966	0.656
Mean in Control Group	0.034	0.042	0.061	0.020
Sample Size	1,287	2,145	2,000	1,958

Five Year Effects: Health

Table 1: Health

	=1 if Anemic	=1 if Suffers from Psysological Distress			Number of Meals Eaten		
	Round 4	**Round 2**	**Round 3**	**Round 4**	**Round 2**	**Round 3**	**Round 4**
Panel A: Baseline Dropouts							
=1 if Conditional Schoolgirl	0.037	-0.002	0.010	0.038	0.326	0.224	0.228
	(0.034)	(0.039)	(0.036)	(0.042)	(0.202)	(0.192)	(0.181)
Mean in Control Group	0.255	0.463	0.314	0.424	3.678	3.989	3.741
Sample Size	714	698	715	743	698	718	744
Panel B: Baseline Schoolgirls							
=1 if Conditional Schoolgirl	0.012	-0.068**	-0.037	-0.030	0.385**	0.596***	0.072
	(0.031)	(0.032)	(0.047)	(0.032)	(0.195)	(0.174)	(0.141)
=1 if Unconditional Schoolgirl	-0.065*	-0.139***	-0.026	-0.002	0.445**	0.338**	-0.043
	(0.033)	(0.035)	(0.054)	(0.046)	(0.199)	(0.153)	(0.240)
p-value UCT vs. CCT	0.074	0.068	0.860	0.552	0.814	0.215	0.672
p-value Treatment	0.123	0.000	0.677	0.627	0.023	0.001	0.858
Mean in Control Group	0.243	0.372	0.313	0.369	3.967	4.052	4.134
Sample Size	1,979	1,963	2,013	2,045	1,967	2,018	2,047

Five Year Effects: Employment

	Opportunity Cost of Time	Typical Wage	Sector of Employment
Panel A: Baseline Dropouts			
=1 if Conditional Schoolgirl	-11.077	-41.927**	-0.011
	(23.718)	(20.336)	(0.009)
Mean in Control Group	212.324	112.661	0.061
Sample Size	718	743	744
Panel B: Baseline Schoolgirls			
=1 if Conditional Schoolgirl	-15.207	-3.387	0.003
	(30.374)	(17.502)	(0.005)
=1 if Unconditional Schoolgirl	-34.577	10.948	0.002
	(22.126)	(31.185)	(0.008)
p-value UCT vs. CCT	0.550	0.665	0.842
p-value Treatment	0.297	0.910	0.784
Mean in Control Group	269.565	63.566	0.029
Sample Size	2,002	2,048	2,045

Five Year Effects: Empowerment

	Super-index of Overall Empowerment	Change in Ladder from Five Years Ago to Today	Super-Index of Unmarried Empowerment	Super-Index of Married Empowerment
Panel A: Baseline Dropouts				
=1 if Conditional Schoolgirl	-0.083	-0.032	0.018	-0.130
	(0.074)	(0.232)	(0.112)	(0.098)
Mean in Control Group	0.000	1.120	0.000	0
Sample Size	744	744	289	455
Panel B: Baseline Schoolgirls				
=1 if Conditional Schoolgirl	0.049	0.276	0.111	-0.005
	(0.082)	(0.187)	(0.098)	(0.099)
=1 if Unconditional Schoolgirl	-0.159**	0.176	-0.094	-0.357**
	(0.081)	(0.190)	(0.109)	(0.173)
p-value UCT vs. CCT	0.052	0.650	0.120	0.068
p-value Treatment	0.101	0.306	0.287	0.121
Mean in Control Group	0.000	0.906	0.000	0.000
Sample Size	2,049	2,049	1,271	776

Five Year Effects on CRs: Summary

- Most of the effects of cash were transitory and faded out very quickly.

- In contrast, very large and durable effects of CCT among baseline dropouts, who experienced very large increases in school attainment.

- Caveats:
  - No experiment with UCT among baseline dropouts
  - Even baseline dropouts did not see major long-term improvements outside of marriage, fertility, and assortative matching with more educated husbands…

Effects on children's height and husband quality

Program effects on height-for-age (children 0-59 months)

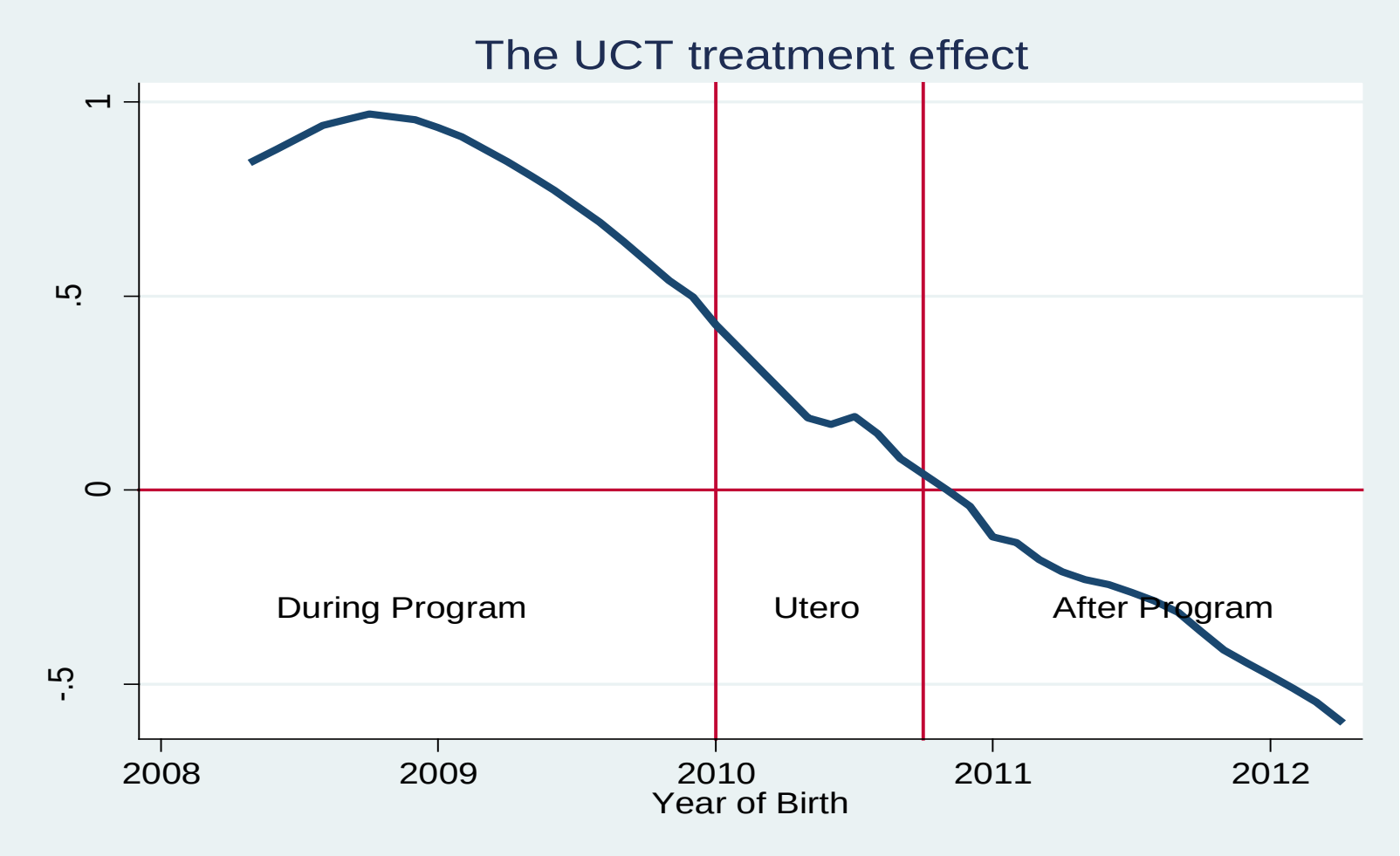
	HAZ
=1 if Conditional Schoolgirl	0.096
	(0.109)
=1 if Unconditional Schoolgirl	0.065
	(0.176)
Number of observations	1,032

Secondary analysis (also discussed in the registered pre-analysis plan…)

But, generally, program effects differ by exposure and age

- Randomized evaluation of PROGRESA shows no effect of child nutrition overall, but when exposure to the program is taken into account substantial effects are observed for 12-36 month-old children (Behrman and Hoddinott, 2005)
  - Key difference: it's mostly about the effect of nutritional supplements
- A review of CCT programs finds evidence of positive effects on height – for children exposed at a young age and where transfers are larger (Ruel and Alderman, 2013)
  - "…interventions to improve growth are more efficacious when they reach children during their first two years of age rather than later, and the younger within this critical age range, the greater the impact." (Leroy, Ruel, and Verhofstadt, 2009)
- Doubling cumulative transfers associated with a 10 pp drop in stunting in Mexico (Fernald et al. 2008)

Impact on HAZ by timing of birth



Impacts on HAZ by timing of birth

DURING	HAZ
=1 if Conditional Schoolgirl	0.103
	(0.173)
=1 if Unconditional Schoolgirl	0.833**
	(0.389)
Number of observations	315
WITHIN 9 MONTHS	
=1 if Conditional Schoolgirl	0.403
	(0.286)
=1 if Unconditional Schoolgirl	0.148
	(0.393)
Number of observations	211
AFTER	
=1 if Conditional Schoolgirl	-0.031
	(0.165)
=1 if Unconditional Schoolgirl	-0.410*
	(0.211)
Number of observations	506

Trivial and non-trivial components of the overall effect

- Because we're now fully in the non-experimental world – because a whole bunch of selection effects are occurring – we'd like to eliminate/net out some the trivial effects and get an idea of the size of meaningful treatment effects.

- If one thinks of CCTs for schooling, they might generally be removing financial support for school-age mothers when that support may be crucial for the health of the mother/child.
  - So, one interesting question is what happens to height for children born to mothers receiving UCTs.
  - But, we have to net out a bunch of irrelevant stuff first…

Trivial components of the overall effect

1. **Trivial effect #1: Selection on mother type**
   - We know that, by R4, there is no extensive margin effect on having children.
   - However, the UCT sample who started childbearing may be different than the control group in a way that would produce taller children.
   - Even if not, the intervention may have shuffled the "good" moms around, meaning that all UCT girls who would have had taller babies anyway gave birth during the program.
   - If such differential selection by predicted child height is present, then the observed effects are not very meaningful…

Selection on predicted child quality?

Overall selection

	Predicted Child Quality
birth_ever	-0.002
	(0.016)
=1 if Conditional Schoolgirl	0.010
	(0.038)
=1 if Unconditional Schoolgirl	0.003
	(0.040)
CCT x birth_ever	0.015
	(0.040)
UCT x birth_ever	0.044
	(0.036)
Constant	-1.419***
	(0.019)
Number of observations	2,266

Selection by epoch

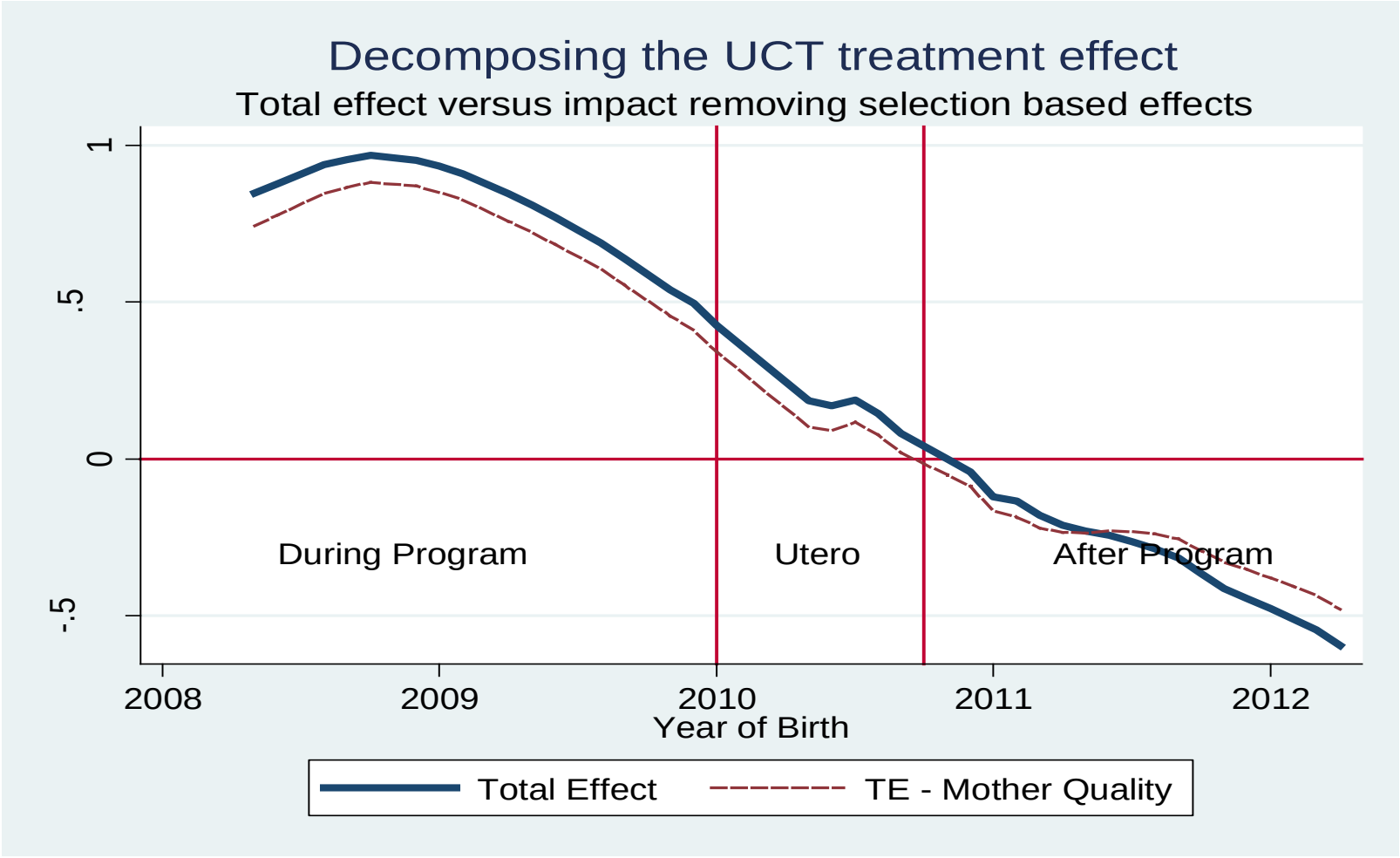
	Predicted Child Quality
Born < 9 mo. after the end of CT	-0.071**
	(0.034)
Born > 9 mo. after the end of CT	-0.048*
	(0.029)
=1 if Conditional Schoolgirl	0.057
	(0.056)
=1 if Unconditional Schoolgirl	0.155*
	(0.089)
CCT x Exposed only in utero	-0.046
	(0.061)
CCT x Unexposed	-0.045
	(0.055)
UCT x Exposed only in utero	-0.070
	(0.094)
UCT x Unexposed	-0.144*
	(0.081)
Constant	-1.377***
	(0.033)
Number of observations	1,174

Trivial components of the overall effect

1. **Trivial effect #1: Selection on mother type**
   - We find no evidence of differential selection by predicted child height *between those who started childbearing and those who have not*, BUT
   - We do find evidence of significant selection – exactly in the direction of the observed effects *between those who gave birth at different times*

   - Using our predictions (based on the control group using the LOO method suggested by Abadie et al. 2014), we create predicted child height using mother's baseline characteristics for everyone and subtract this from the actual treatment effect:

Impact on HAZ (net of Mother Type)



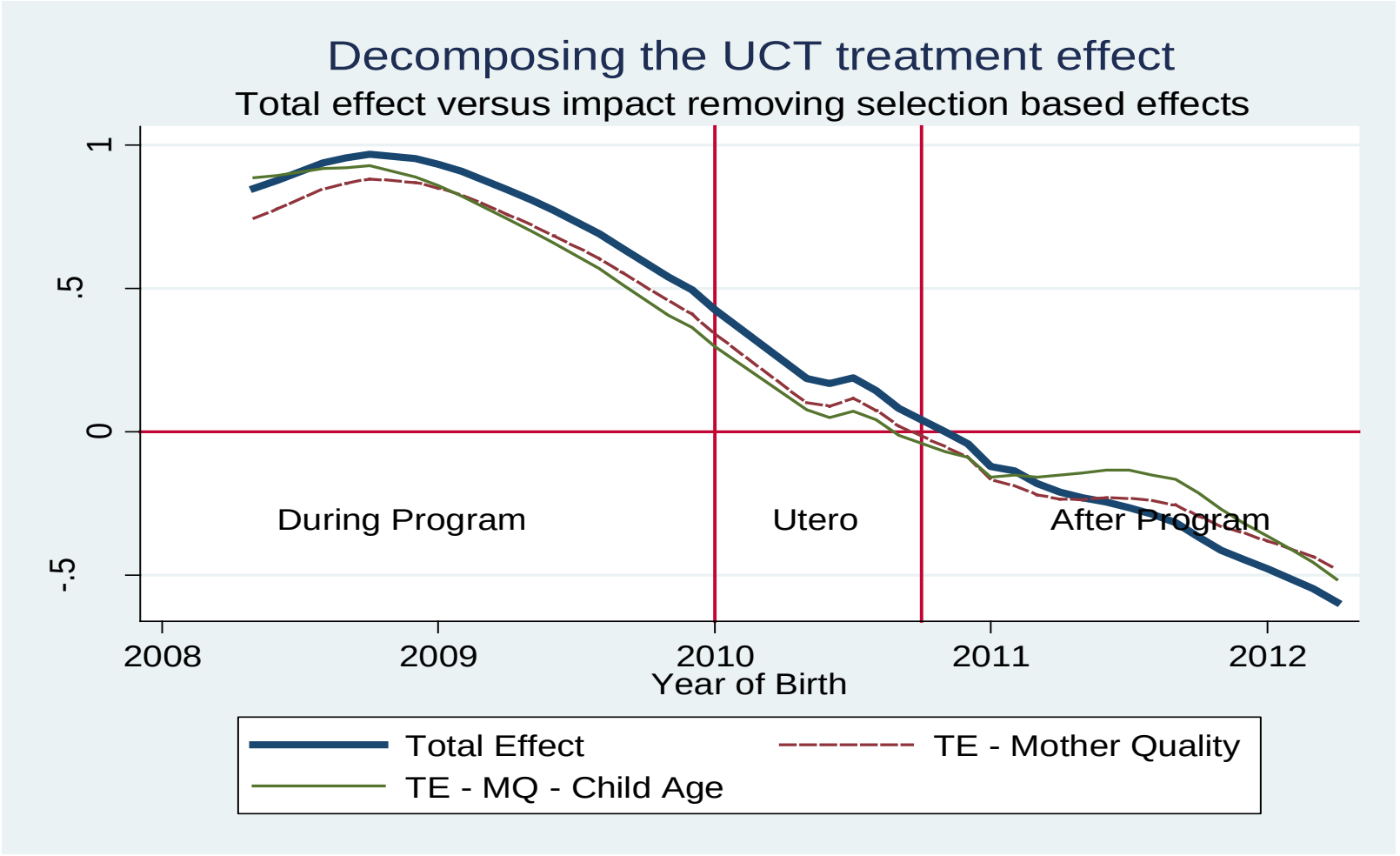
Trivial components of the overall effect

2. Trivial effect #2: Child age by epoch

- It turns out that children in poor countries like Malawi are born much like their US counterparts (HAZ at or a little lower than zero), but decline rapidly due to a multitude of environmental factors:
- So, if average age in months is different between UCT and Control groups by epoch, then this could explain part of the observed effects.

- Finding that there is an difference here as well (again in the expected direction during the "unexposed" period), we now net out this effect as well…

Impact on HAZ (net of Mother Type and Child Age)



Trivial components of the overall effect

3. Trivial effect #3: Birth order

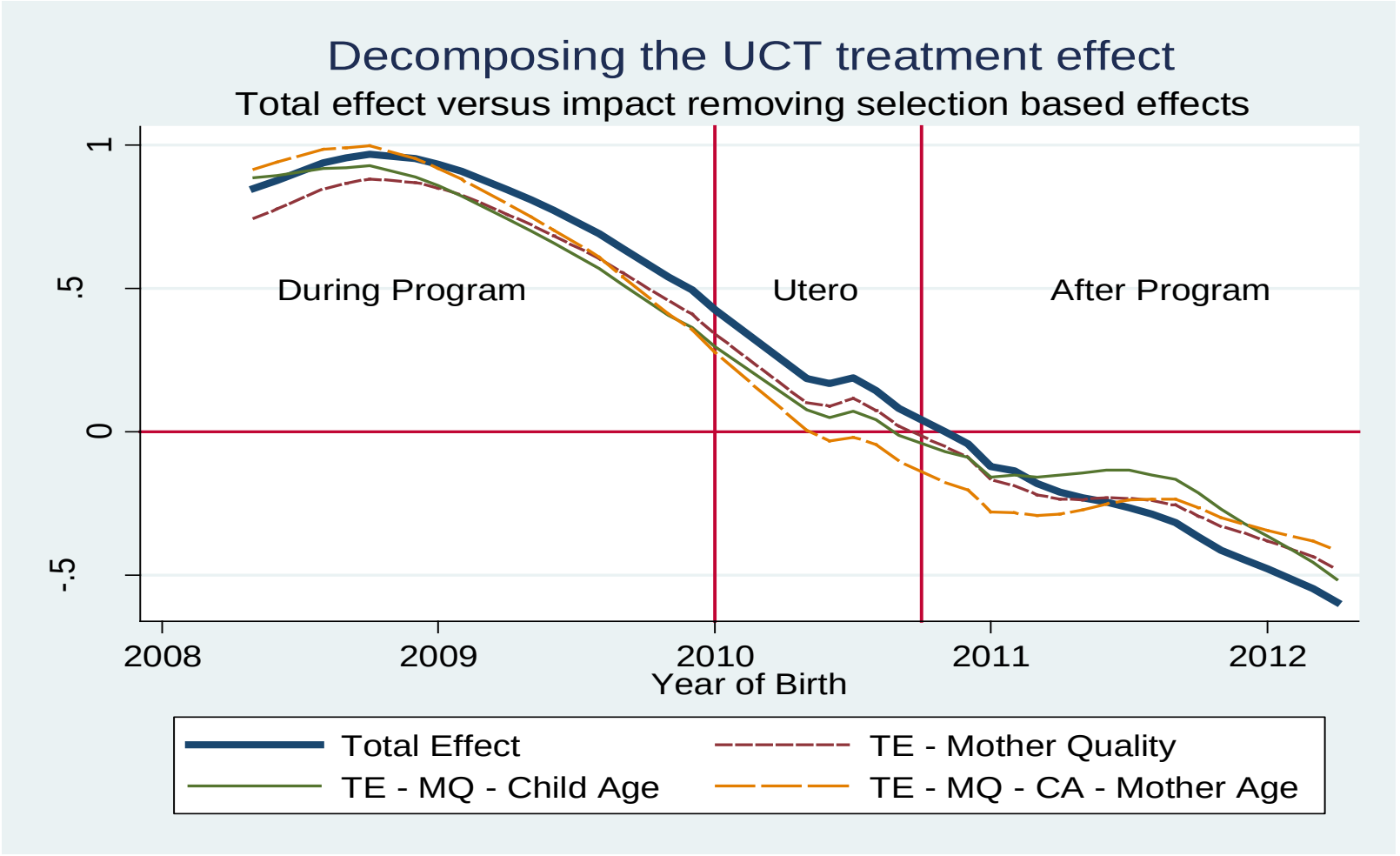
- If the children in the, say, "unexposed" period are more likely to be the second children in the Control Group vs. first children in the UCT group, this could further explain effects.
  - We do have about 7-8% of the study sample with more than one child (with these being almost exclusively mothers with two children)
- We have not tackled this issue yet, but a quick reading of the literature suggests birth order effects on HAZ for orders>2 (Hoddinott?)
  - And it can be dealt with in the same manner as before…

Non-trivial components of the overall effect

1. **Non-trivial effect #1: Mother's age**
   - We know that the UCT intervention caused a delay in marriage and pregnancy.
   - Even though the age at first birth effects have disappeared by R4, mother's age at birth of child is different between groups across epochs.

   - We now predict child height using mother's baseline characteristics, child age, and mother's age at birth of child and again subtract it from the actual (observed effect):

Impact on HAZ (net of Mother Type, Child Age, and Mother's Age)



Impacts on HAZ by timing of birth

	Exposed during		Exposed only in utero		Unexposed	
	Total	Residual	Total	Residual	Total	Residual
	(1)	(2)	(3)	(4)	(5)	(6)
=1 if Conditional Schoolgirl	0.103	0.118	0.403	0.403	-0.031	-0.005
	(0.173)	(0.166)	(0.286)	(0.274)	(0.165)	(0.153)
=1 if Unconditional Schoolgirl	0.833**	0.883**	0.148	-0.128	-0.410*	-0.275
	(0.389)	(0.385)	(0.393)	(0.295)	(0.211)	(0.183)
Number of observations	315	315	211	210	506	503

note: *** p<0.01, ** p<0.05, * p<0.1

OLS regressions with standard errors clustered at the EA level. Observations are weighted to make results representative of the target population in the study EAs.

Non-trivial components of the overall effect

1. **Non-trivial effect #1: Mother's age**
2. **Non-trivial effect #2: Husband quality**
   - **Do I have any time left?**

3. **Non-trivial effect #3: Endogenous mother characteristics:**
   1. **Mother's nutrition (meals, anaemia)**
   2. **Mother's height (we should have collected this)**
   3. **Maternal stress (psychological distress)**
   4. **Better parenting practices (exclusive breastfeeding, vaccinations, using bednets, etc.)**
   5. **Caveat: need to check infant mortality…**

Husband outcomes

Baseline Dropouts

	Husband Quality Index	Husband Highest Grade	Husband Completed Secondary	Husband Cognitive Score
=1 if Treatment Dropout	0.084	0.561	0.074**	-0.049
	(0.106)	(0.348)	(0.037)	(0.110)
Baseline Schoolgirls				
=1 if Conditional Schoolgirl	0.141	0.046	0.059	0.014
	(0.096)	(0.271)	(0.053)	(0.109)
=1 if Unconditional Schoolgirl	-0.186	-0.454	-0.088	-0.357**
	(0.180)	(0.425)	(0.054)	(0.163)
Number of observations	543	543	543	539

Husband quality index

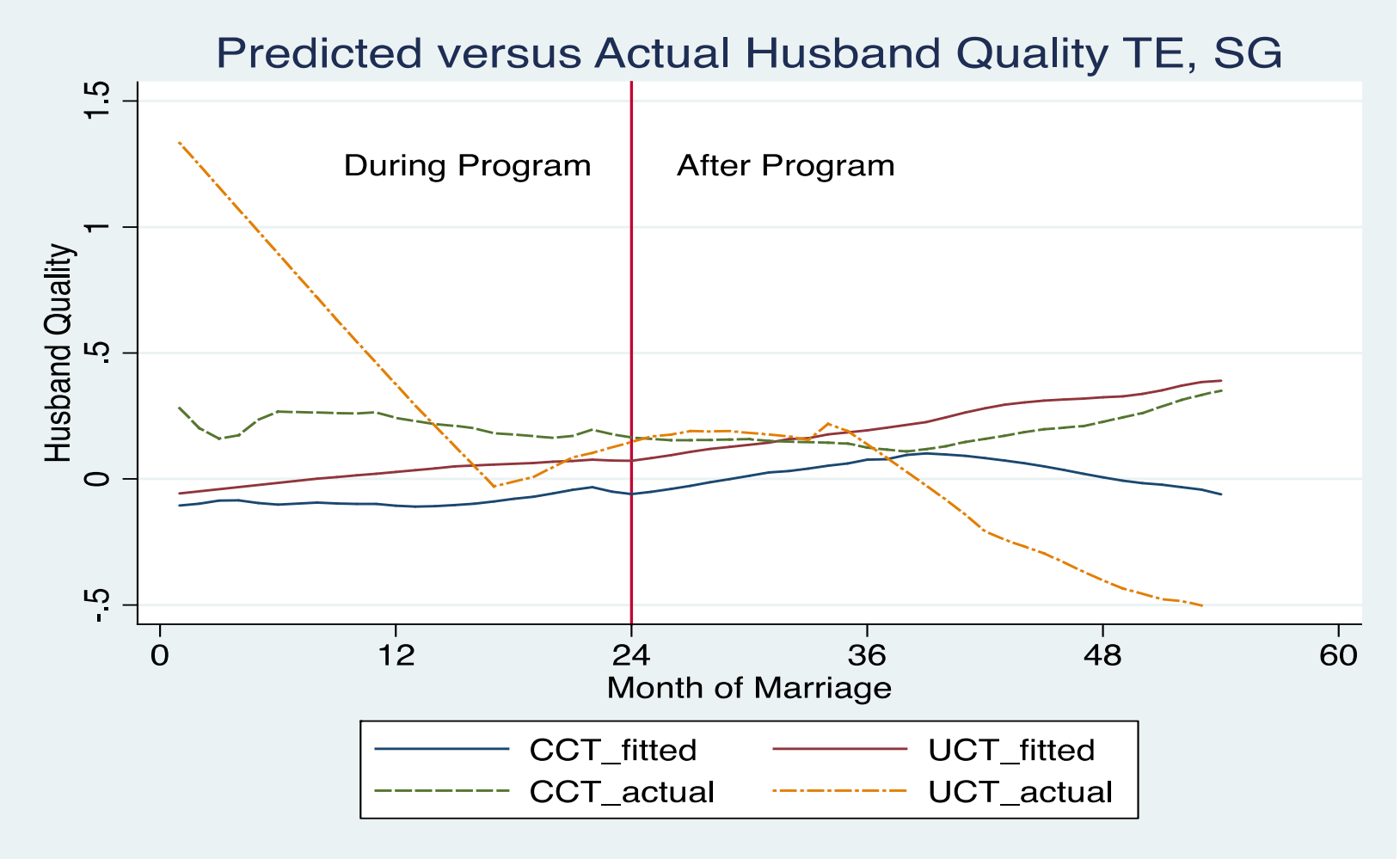
- *From the preregistered pre-analysis plan:*
  1. Husband Quality.
     i. Husband's highest grade completed, highest certificate attained. S25 Q2,4
     ii. Husband's wage rate S26 Q5
     iii. Currently employed S26 Q6..
     iv. Husband's score on cognitive test
     v. Husband HIV status.
     vi. Husband marital fidelity. Partners ever: S32 Q2, Partners 12 mo. S32 Q3. Concurrence: S32 Q15 answer for spouse (column 1)
     vii. Husband's mental health (constructed in same manner as CR) and then standardized.
- **Super-index of husband quality: i-vii.**

Are females with better/worse prospects more likely to be married in R4?

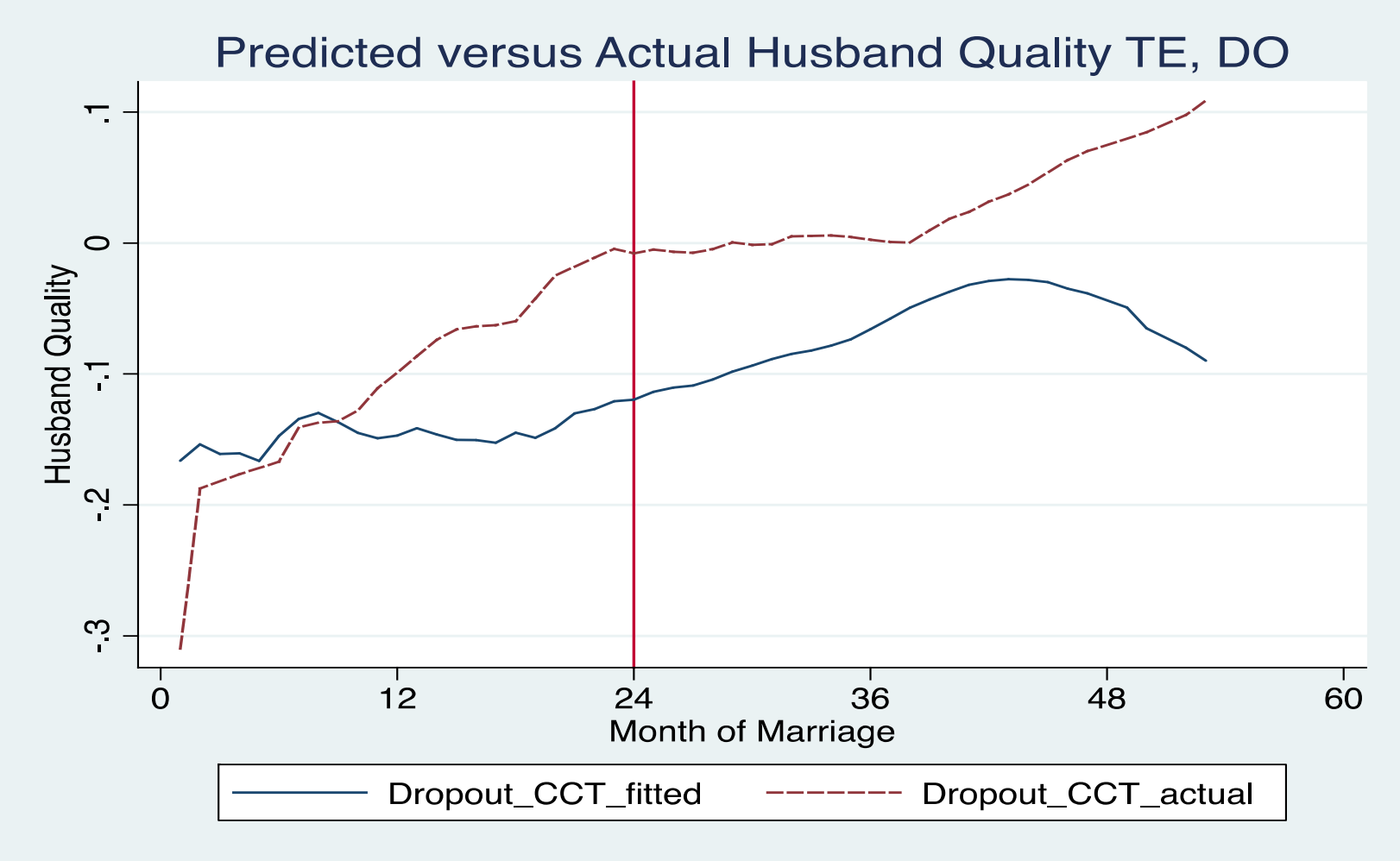
- **No sign of differential selection** (signs are in the opposite direction from observed effects)
- Baseline imbalance for UCTs – again in the wrong direction.
- We can now look at mechanisms at the intensive margin.

Husband Quality Selection Effects				
	Baseline balance		Differential selection	
	(2)	(4)	(6)	(8)
=1 if Treatment Dropout	-0.088		-0.026	
	(0.087)		(0.088)	
=1 if Conditional Schoolgirl		-0.006		-0.024
		(0.073)		(0.076)
=1 if Unconditional Schoolgirl		0.151**		0.124
		(0.076)		(0.087)
=1 if Currently Married			-0.055	-0.160***
			(0.063)	(0.045)
Dropout_CCT_married			-0.118	
			(0.093)	
CCT_married				0.033
				(0.073)
UCT_married				0.084
				(0.081)
_cons	0.067	0.107**	0.103*	0.162***
	(0.053)	(0.044)	(0.059)	(0.049)
Number of observations	737	2,043	737	2,043
note: .01 - ***; .05 - **; .1 - *;				
OLS regressions with standard errors clustered at the EA level. Observations are weighted to make results representative of the target population in the study EAs.				

Predicted vs. Actual HQ, Schoolgirls



Predicted vs. Actual HQ, Dropouts



Conclusions – Core question: what lasts?

- In this context, education has little direct benefit in terms of employment rates, wages, migration to cities, or any other direct product of human capital.
  - It's surprising that even the competencies, which are strongly correlated with R3 test scores, did not improve.
  - It's possible that longer-term outcomes will improve given more time, but. . .
  - …as of two years after the end of the program, benefits to improvements in human capital in this context are exclusively in the territory of marriage and fertility.

Conclusions – Core question: what lasts?

- **The effects of unconditional cash are transient**
  - *Exception*: children, in utero, during infancy and early childhood, are sensitive to a variety of factors improved by extra cash (nutrition, maternal stress, etc.) that they display permanent benefits from transitory income shocks.
  - Other than this, every one of the strong effects of UCTs appear to have dissipated within two years of the end of the program.
  - Waiting to get pregnant and married seems like it should be a good thing, and yet these girls may have lost out in the marriage market, which may be responsible for knock-on effects on their own welfare (empowerment) and children's outcomes (stunting)…

Conclusions – Core question: what lasts?

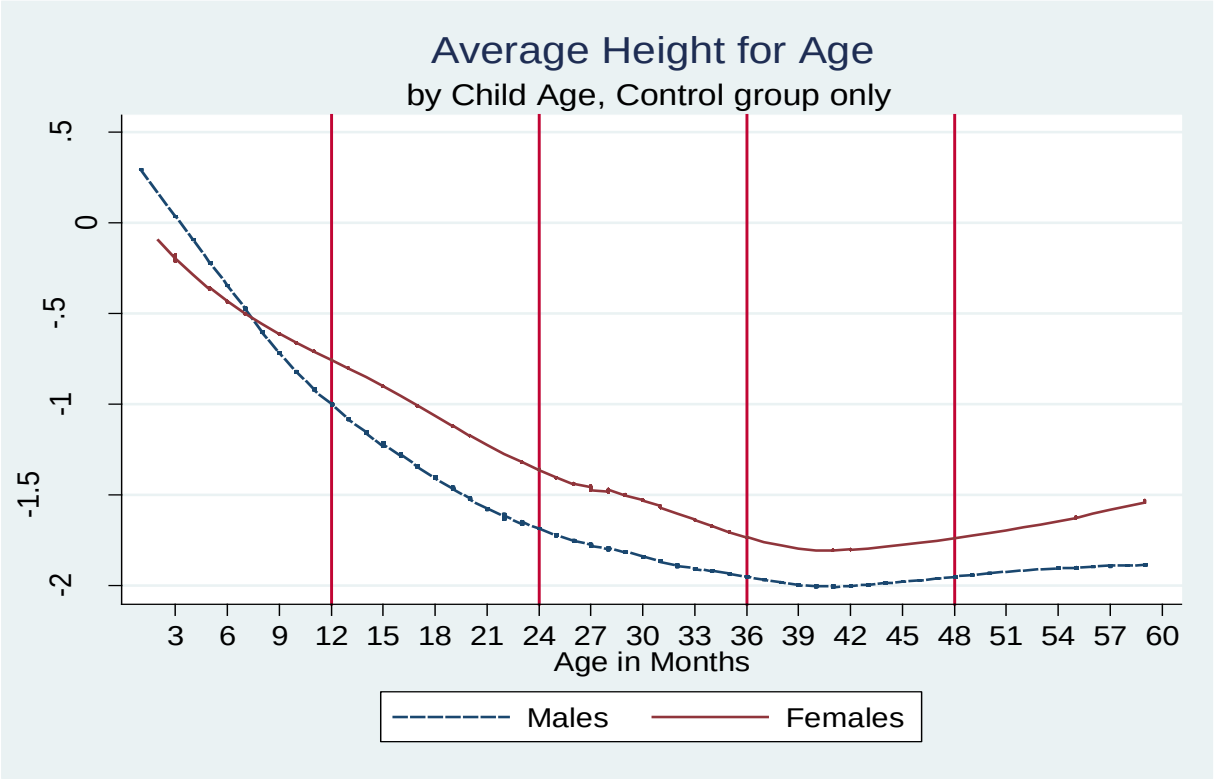
- **The effects of schooling are durable**
  - The long-term benefits of schooling can be seen in many ways, especially among baseline dropouts:
    - later marriage, pregnancy, lower desired fertility
    - more educated husbands
    - better children born after the program? *(tentative)*

Conclusions: Policy Implications

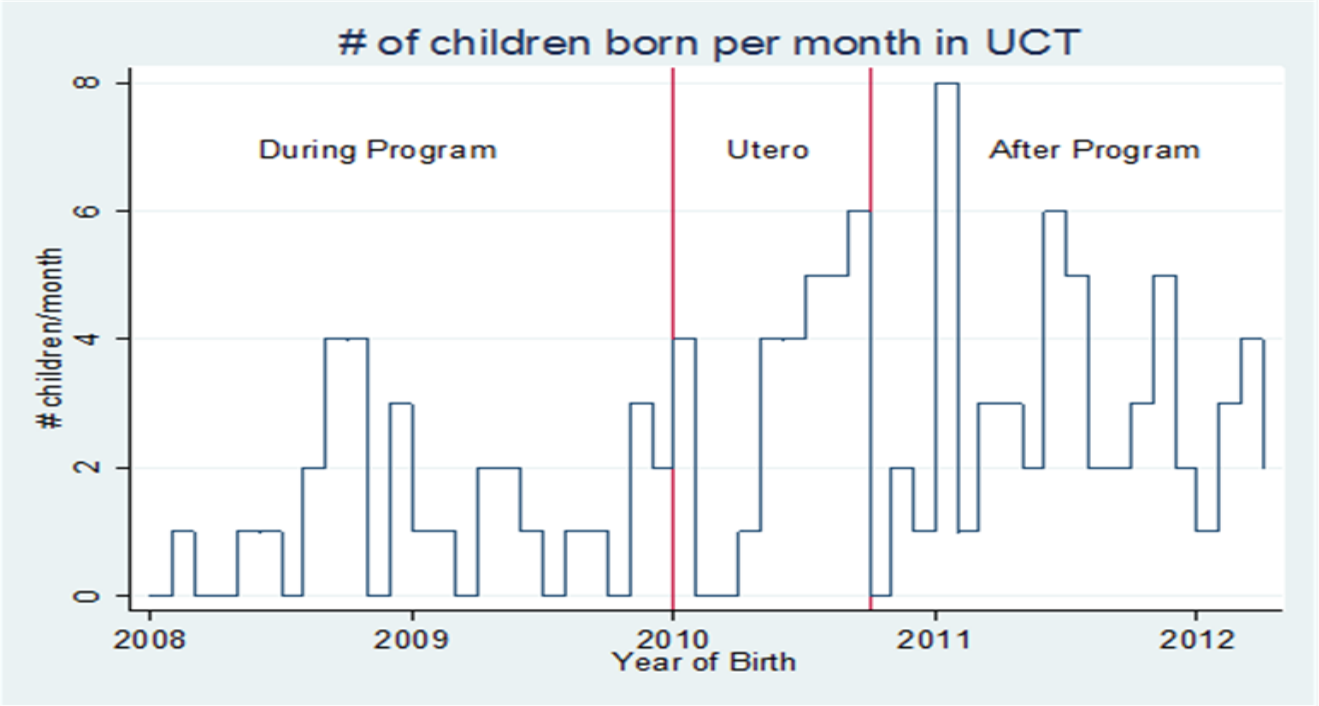
- In CCT programs, don't forget about children who are already out of school.
- CCT programs may penalize adolescent girls at exactly the wrong moment for dropping out of school
  - A base UCT topped up by a CCT?
- Without well-paying jobs or profitable income generating activities, the only way to convert increased schooling into future welfare gains is through marriage…
- GE Effects on marriage markets?

THANK YOU.

Secular trend of HAZ by age in months



Balance for age in months by epoch



Balance for age in months by epoch

	Exposed during	Exposed only in utero	Unexposed
	(1)	(2)	(3)
=1 if Conditional Schoolgirl	1.130	-0.011	1.463
	(1.050)	(0.843)	(1.055)
=1 if Unconditional Schoolgirl	-0.089	-2.493**	2.813***
	(1.634)	(1.176)	(1.067)
Number of observations	323	214	509
Mean in sample	49.32	26.99	14.12

Behrman, Sengupta, and Todd (PROGRESA, EDCC 2005)

TABLE 1

OVERALL AVERAGE EFFECT OF PROGRAM ON PROBABILITY OF REPEATING A GRADE, DROPPING OUT, AND REENTERING SCHOOL

	Probability of Repeating among Those Enrolled in School			Probability of Dropping Out among Those Enrolled in School			Probability of Reentering among Those Dropped Out of School		
Age	T	C	Diff.	T	C	Diff.	T	C	Diff.
6	39.8	46	−6.2	.8	1.6	−.8	...	...	...
7	26.7	34	−7.1	1.0	1.0	.0	100.0	100.0	.0
8	26.9	32	−5.5	.3	.7	−.4	100.0	96.0	4.0
9	23.9	30	−6.5	1.0	1.4	−.4	97.2	94.7	2.5
10	24.2	25	−.8	1.6	2.9	−1.3	94.4	87.5	6.9
11	19.8	24.8	−5.0	6.3	12.2	−5.9	65.5	45.8	19.7
12	30.0	33.7	−3.7	10.4	16.8	−6.4	44.5	29.7	14.8
13	34.6	39.7	−5.1	12.2	22.7	−10.5	34.1	16.9	17.2
14	49.3	47.4	1.9	23.3	34.9	−11.6	16.9	15.5	1.4
15	57.8	61.9	−4.1	31.3	37.7	−6.4	14.2	10.8	3.4

Note. T = treatment, C = control, Diff. = difference.

Five Year Effects: Pre-Analysis Plan

- Large number of possible outcomes to look at, need to avoid ad-hoc analysis/fishing for significance
- Pre-Analysis Plan
  - Define core specification: CCT vs. UCT vs. Control (baseline schoolgirls), CCT vs. Control (baseline dropouts)
  - Controls: Cash or Condition
  - Standard Errors clustered at EA level, results weighted to make them representative of the study EAs.
  - If significant result on primary outcome:
    - Explore heterogeneity in terms of additional research design features (amount/split), as well as in terms of urban vs. rural and age.
    - Explore analysis of sub-variables within an index, only if overall index significant.