# Effects of a Cash Transfer Program for Young Women in Malawi on Human Capital Accumulation

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# Outline

- A CCT vs. UCT experiment in Malawi among adolescent girls and young women
- A summary of one- and two-year impacts
- Four-year impacts on the beneficiaries
- Impacts on children's height
- Design ideas for cash transfer programs to young people

# Conditional Cash Transfers

- Targeted bursary programs in developed countries came to be known as Conditional Cash Transfers (CCTs) in development economics and burst into prominence with the influential randomized evaluation of Mexico's *PROGRESA* (later *Oportunidades*).
  - The benefits are targeted to poor families with children…
  - …conditional on households keeping eligible children in school.

- *"The real test of these programs is whether eventually you will not need them. If you have a program like this that lasts 30 years, you're failing because you're not really changing the underlying conditions."*

  Santiago Levy (on the Kojo Nnamdi Show, 2011)

- Notice that CCTs combine a protection aim (primarily through geographic and means-tested targeting) and a promotion one – for the next generation.

# CCTs vs. UCTs

- Conditional Cash Transfers (CCTs) are "… targeted to the poor and made conditional on certain behaviors of recipient households."
  - In our particular case the condition is going to be school enrollment.

- As of 2007, 29 countries around the world had some type of a Conditional Cash Transfer program (CCT) in place, with many others planning or piloting one (World Bank, 2009)
  - *Not only low income countries (Opportunity NYC)*

- Unconditional Cash Transfer programs (UCT) are also common and have also been shown to change behaviors on which CCTs are typically conditioned.

# Schooling, Income and Health Risk (SIHR) Study

SIHR aims to contribute to the knowledge in the following areas:

- We have limited rigorous evidence on the impact of CCT and UCT programs in the African context, let alone evidence on relative effectiveness.
- Evaluations tend to focus solely on the outcome on which the program is conditioned (e.g. enrollment) and ignore the fact that a program of this nature is likely going to change a variety of outcomes beyond those that are education focused (marriage, fertility and HIV)
- Evaluations are typically short-term, and don't look at outcomes after the intervention has ended.

Ultimately interested in knowing more about the causal impact of cash transfer programs (through increases in enrollment AND income) on adolescent well-being.

# A cash transfer experiment for adolescent girls in Malawi.

- Two-year cash transfer experiment targeted at 13-22 year-old never-married females in Zomba, Malawi at baseline:
  - CCTs to all young females who had already dropped out of school at baseline (*baseline dropouts: ~ 15% of the target population*).
  - CCTs or UCTs to a sample of young females who were in school at baseline (*baseline schoolgirls: ~ 85% of the target population* ).
  - Average transfer size approximately $10/month, equivalent to roughly 10% of mean household consumption expenditure.

# Research Design

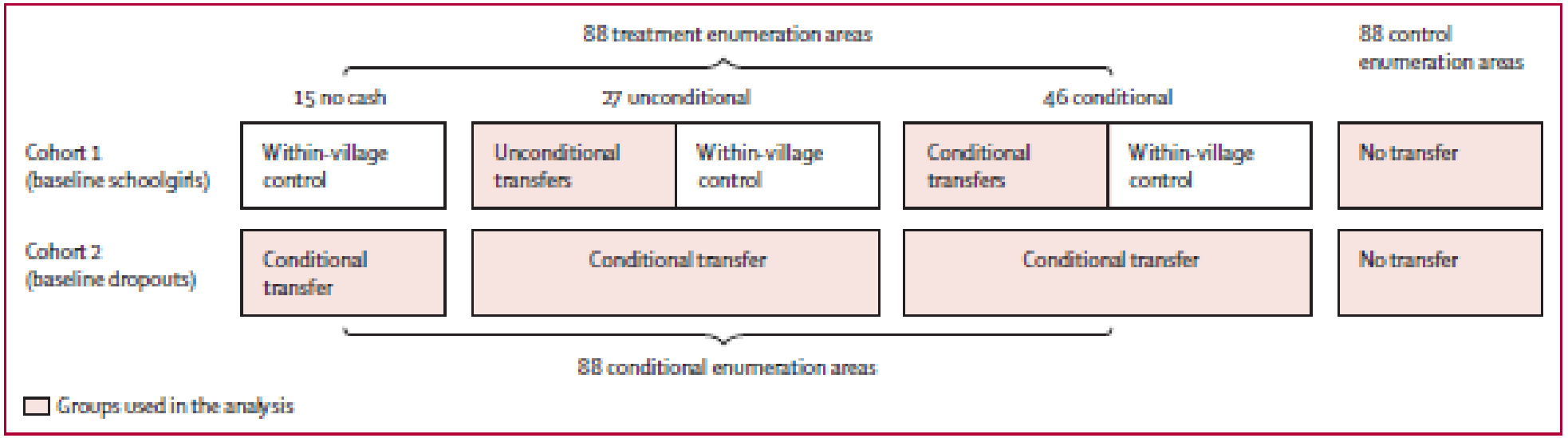



Figure 1: Intervention groups

# Descriptive Statistics

Table 3: Baseline Means and Balance

| | Baseline Schoolgirl | | | | Baseline Dropout | |
|---|---|---|---|---|---|---|
| | Mean (s.d.) | | | p-value (CCT-UCT) | Mean (s.d.) | |
| | Control group | Conditional group | Unconditional Group | | Control group | Conditional group |
| Urban Household | 0.348 | 0.475 | 0.427 | 0.783 | 0.181 | 0.126 |
| | (0.477) | (0.500) | (0.496) | | (0.385) | (0.333) |
| Mother Alive | 0.841 | 0.798 | 0.834 | 0.304 | 0.786 | 0.754 |
| | (0.366) | (0.402) | (0.373) | | (0.410) | (0.431) |
| Father Alive | 0.71 | 0.716 | 0.767 | 0.238 | 0.659 | 0.651 |
| | (0.454) | (0.451) | (0.424) | | (0.475) | (0.477) |
| Household Size | 6.38 | 6.349 | 6.664 | 0.168 | 6.118 | 6.138 |
| | (2.265) | (2.145) | (2.070) | | (2.403) | (2.623) |
| Asset Index | 0.637 | 1.063 | 1.342* | 0.563 | -0.806 | -0.722 |
| | (2.579) | (2.709) | (2.433) | | (2.246) | (2.487) |
| Age | 15.219 | 14.911* | 15.433 | 0.004 | 17.622 | 17.188 |
| | (1.897) | (1.826) | (1.918) | | (2.385) | (2.493) |
| Highest Grade Attended | 7.498 | 7.242 | 7.906** | 0.005 | 6.142 | 5.955 |
| | (1.646) | (1.599) | (1.580) | | (2.857) | (2.877) |
| Never Had Sex | 0.803 | 0.806 | 0.786 | 0.604 | 0.305 | 0.293 |
| | (0.398) | (0.395) | (0.411) | | (0.461) | (0.456) |
| Ever Pregnant | 0.021 | 0.030 | 0.030 | 0.981 | 0.447 | 0.417 |
| | (0.144) | (0.170) | (0.170) | | (0.498) | (0.494) |

# Zomba Cash Transfer Program Implementation

- For **CCT** recipients, attendance is checked monthly at each program school using a combination of physical checks and phone calls (*with random spot checks in Year 1, i.e. 2008*).

- For **CCT** recipients, the payment for the next month is withheld if attendance is below the required threshold. However, the girl remains in the program.

- **UCT** recipients receive their transfers by *only* showing up.

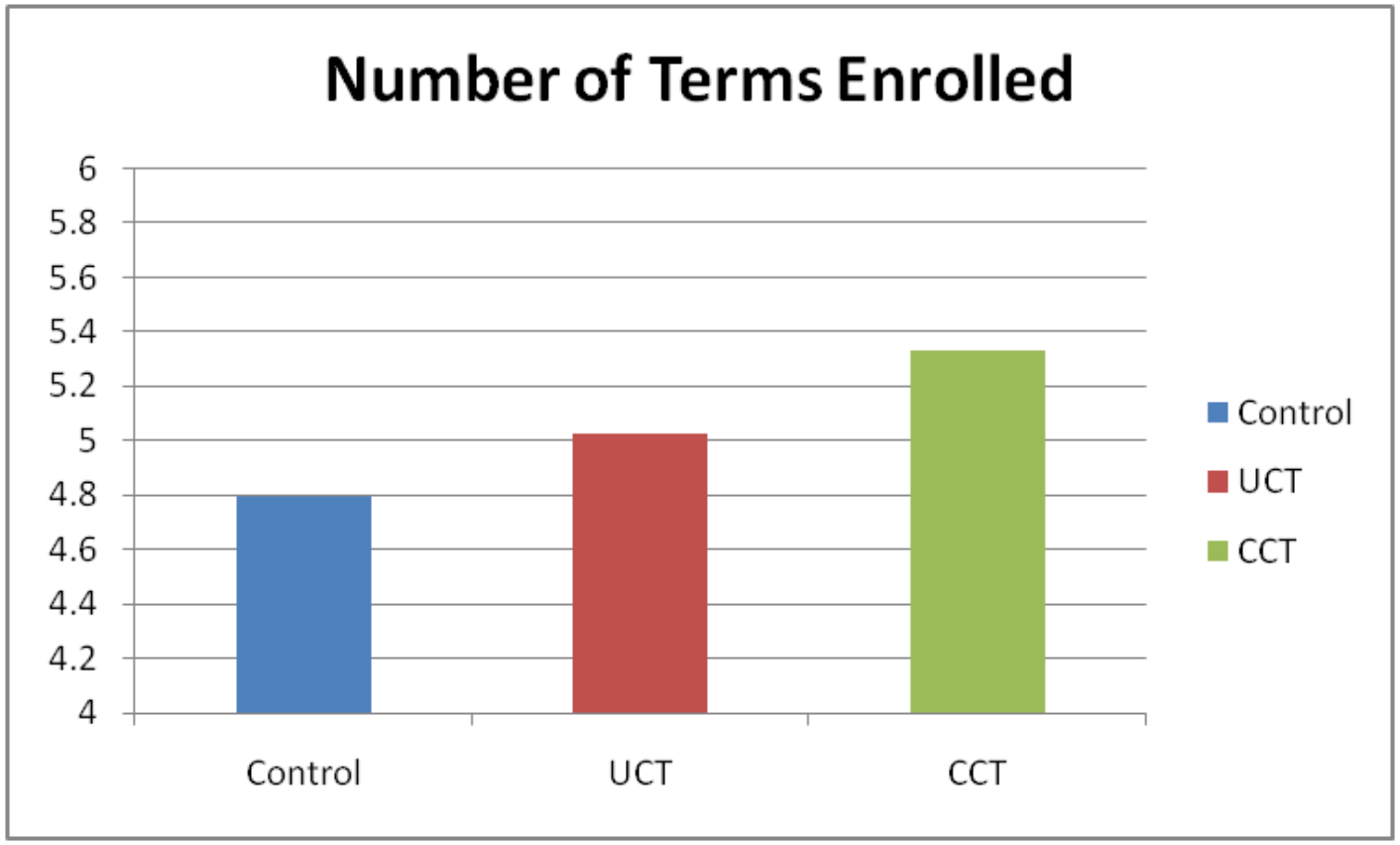
# SHORT-TERM EFFECTS (DURING AND IMMEDIATELY AFTER THE PROGRAM)

# Program impacts on schooling: Enrollment

Panel B: Program impacts on *teacher-reported* school enrollment

| | Dependent variable: =1 if enrolled in school during the relevant term | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | Year1: 2008 | | | Year2: 2009 | | | Total Terms | Year 3: 2010 |
| | Term1 | Term2 | Term3 | Term1 | Term2 | Term3 | (6 terms) | Term 1, Post-program |
| Conditional treatment | 0.043*** | 0.044*** | 0.061*** | 0.094** | 0.132*** | 0.113*** | 0.535*** | 0.058* |
| | (0.015) | (0.016) | (0.018) | (0.041) | (0.035) | (0.039) | (0.129) | (0.033) |
| Unconditional treatment | 0.020 | 0.038** | 0.018 | 0.027 | 0.059 | 0.033 | 0.231* | 0.001 |
| | (0.015) | (0.017) | (0.023) | (0.038) | (0.037) | (0.039) | (0.136) | (0.036) |
| Mean in the control group | 0.906 | 0.881 | 0.852 | 0.764 | 0.733 | 0.704 | 4.793 | 0.596 |
| Number of observations | 2,023 | 2,023 | 2,023 | 852 | 852 | 852 | 852 | 847 |
| Prob > F(Conditional=Unconditional) | 0.173 | 0.732 | 0.067 | 0.076 | 0.014 | 0.020 | 0.011 | 0.108 |

# School Enrollment (baseline schoolgirls: 24-month follow-up)



# Summary of schooling effects (24-month follow-up):

- **Enrollment**
  - Modest improvement in UCT…
  - … but only 43% of the effect in the CCT arm.
- **Attendance**
  - Among those enrolled in school, some evidence of higher attendance in the **CCT** arm.
- **Test scores**
  - Significant improvements in the **CCT** group in Math, English reading comprehension, and cognitive ability.

- → It is fair to conclude that CCTs outperformed UCTs in terms of improvements in schooling outcomes.

# Marriage and pregnancy (baseline schoolgirls: 24-month follow-up)

- ✓ However, substantial delays in ***marriage and pregnancy*** in the UCT group.
  - No such effect in CCT
  - Similar effects on ***psychological wellbeing*** during the program
- ✓ Schooling gains in CCT achieved at the cost of denying transfers to *non-compliers* who are shown to be particularly 'at risk' for early marriage and teenage pregnancy.

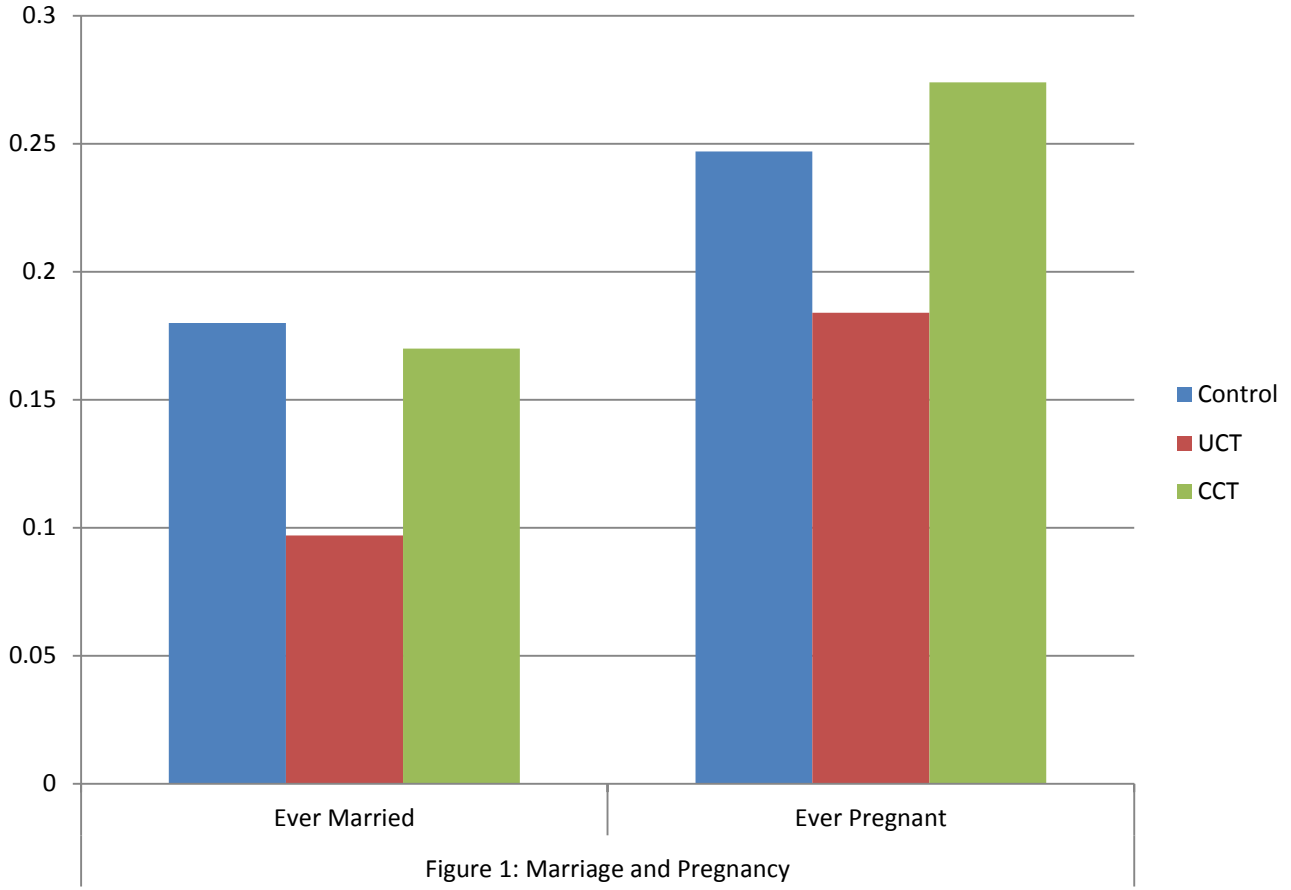


Figure 1: Marriage and Pregnancy

# 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% | 46.9% | 19.9% |
| (row %) | (59.8%) | (40.2%) | (100.0%) |
| Conditional treatment | 0.5% | 50.8% | 16.0% |
| (row %) | (69.2%) | (30.8%) | (100.0%) |
| Unconditional treatment | 0.3% | 25.2% | 10.1% |
| (row %) | (60.5%) | (39.5%) | (100.0%) |
| Total | 1.1% | 44.2% | 17.2% |
| (row %) | (62.7%) | (37.3%) | (100.0%) |

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.

# Baseline Dropouts (24 Month Follow-Up)

| | Number Terms Enrolled (out of 6) | English Test Score (standardized) | Math Test Score (standardized) | Cognitive Test Score (standardized) | Ever Pregnant | Ever married |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Conditional Treatment | 2.348*** | 0.131* | 0.164** | 0.142** | -0.082*** | -0.126*** |
| | (0.163) | (0.070) | (0.066) | (0.071) | (0.027) | (0.036) |
| Mean in the control group | 1.021 | 0.000 | 0.000 | 0.000 | 0.780 | 0.551 |
| Number of observations | 749 | 729 | 729 | 729 | 749 | 749 |

Notes: Regressions are OLS models with robust standard errors clustered 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 included as controls in the regression analyses: age dummies, strata dummies, household asset index, highest grade attended, and an indicator for never had sex. Parameter estimates statistically different than zero at 99% (***), 95% (**), and 90% (*) confidence.

# MEDIUM-TERM EFFECTS
## (MORE THAN TWO YEARS AFTER THE CESSATION OF CASH TRANSFERS)

# Descriptive statistics: Baseline Schoolgirls

- ~20 years of age (17-27)
- 41% still in school
- 88% passed the primary school leaving exam
- 40% ever married
- 50% ever pregnant
- 6% HIV positive
- 3% in any kind of wage work
- Mostly spend their time in school, own agriculture or domestic work.

# Descriptive statistics: Baseline Dropouts

- ~22 years of age (17-27)
- 2% still in school
- 37% passed the primary school leaving exam
- 81% ever married
- 92% ever pregnant
- 16% HIV positive
- 6% in any kind of wage work
- Mostly spend their time in own agriculture or domestic work.

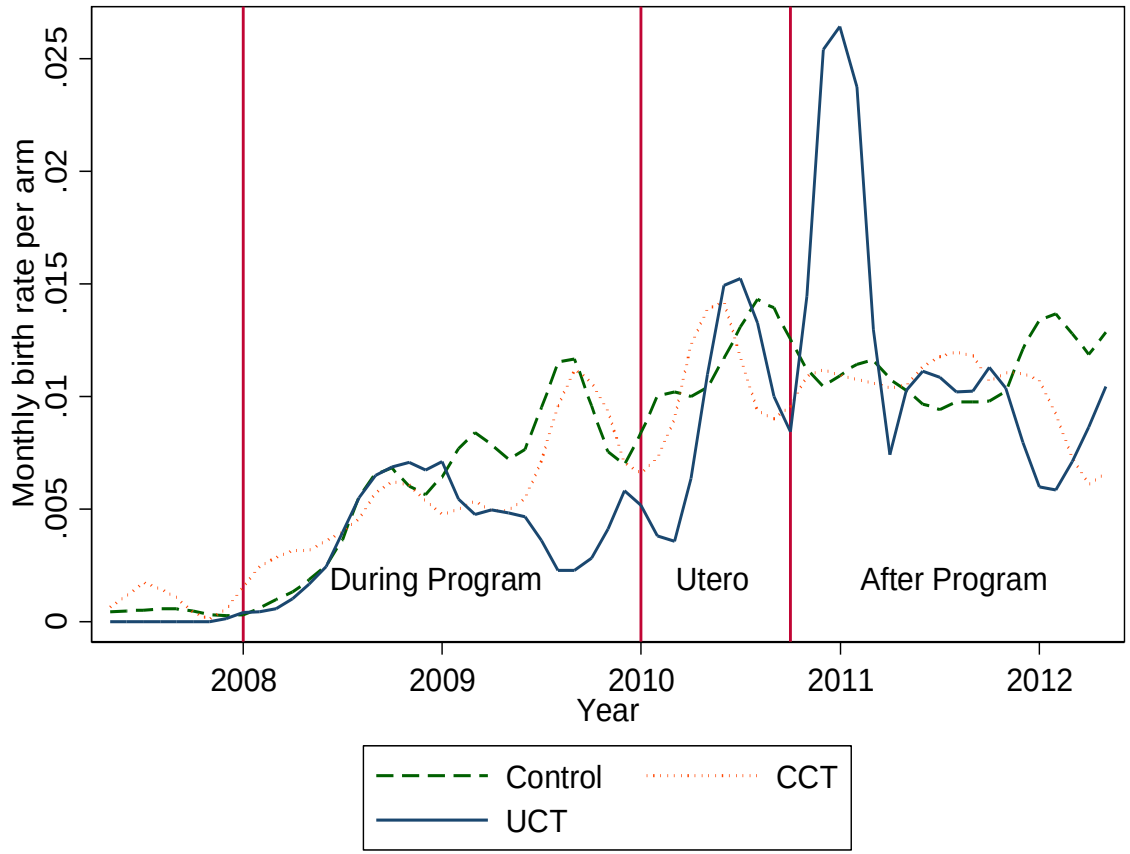
# *Five Year Effects:* Education

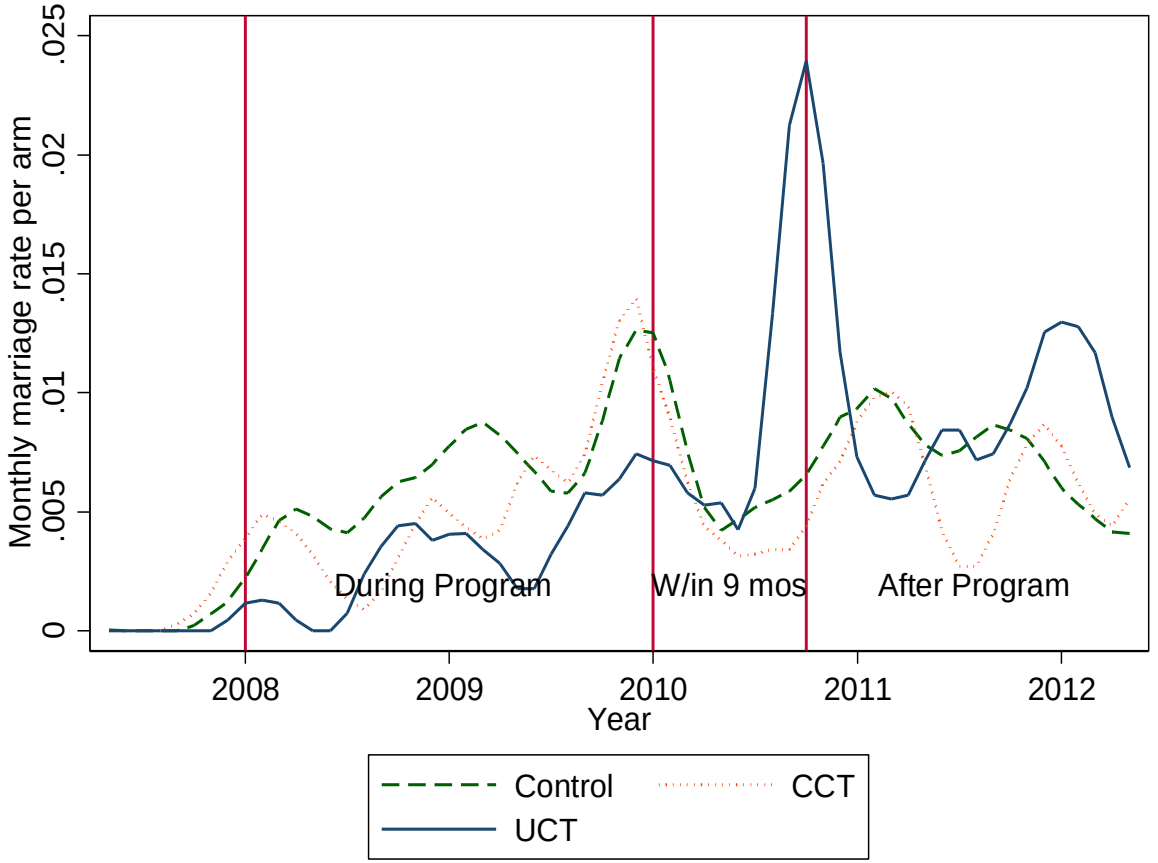
- Substantial, durable effects of the CCT program on those who had dropped out of school at baseline
  - 0.6 higher grade completed (over a base of 7).
  - 8.1pp more likely to pass primary school leaving exam (over a base of 0.37)
  - Gaps between treatment and control in many cases *grew* in the two years after the program ended.
- We see no sustained significant impact of the CCT impact on education outcomes by R4 for baseline schoolgirls.
  - Remember short term impacts on enrolment and test scores
- UCT impacts for baseline schoolgirls remain insignificant.
  - Small impacts on enrolment in the short term
- But, transfers to baseline schoolgirls are likely inframarginal…

# *Five Year Effects:* Marriage and Fertility

- Major results during program were a substantial decrease in marriage and pregnancy for the UCT group.
  - These gaps closed completely for all marriage and pregnancy-related outcomes between R3 and R4, suggesting complete catch-up and a rate of marriage and pregnancy that is *higher* for the UCT group than the control in this interval.
  - **Effects of cash are transitory!**
- In contrast, very large and durable effects on CCT dropouts who had huge education changes.
  - **Effect of human capital accumulation are not!**

# Baby boom and shotgun marriages after the program



# *Five Year Effects:* Employment and Empowerment

- No impacts on employment, but minimal opportunities for employment
  - In the control group, 3% of total hours of baseline schoolgirls and 6% of total hours of baseline dropouts are spent in any sort of paid work.

- No impacts on any measure of empowerment for CCTs

- Negative and significant impact on overall empowerment for UCTs
  - Largely driven by self-efficacy.
  - Even stronger negative impact on married empowerment
  - Seem to have lower quality husbands.

# Husband outcomes

| **Panel A: Dropouts** | Husband Quality Index (1) | Highest Grade Completed (2) | MSCE (Secondary Completion certificate) (3) | Currently Employed (4) | Cognitive Test (5) | Mental Health (6) |
|---|---|---|---|---|---|---|
| =1 if Treatment Dropout | 0.084 | 0.561 | 0.074** | -0.024 | -0.049 | 0.014 |
| | (0.106) | (0.348) | (0.037) | (0.040) | (0.110) | (0.126) |
| Number of observations | 326 | 326 | 326 | 326 | 323 | 326 |
| Control Group Mean | 0.000 | 7.806 | 0.097 | 0.246 | 0.000 | 0.000 |

| **Panel B: Schoolgirls** | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| =1 if Conditional Schoolgirl | 0.141 | 0.046 | 0.059 | 0.045 | 0.014 | 0.154 |
| | (0.096) | (0.271) | (0.053) | (0.051) | (0.109) | (0.126) |
| =1 if Unconditional Schoolgirl | -0.186 | -0.454 | -0.088 | -0.091 | -0.357** | 0.016 |
| | (0.180) | (0.425) | (0.054) | (0.093) | (0.163) | (0.194) |
| Number of observations | 543 | 543 | 543 | 543 | 539 | 541 |
| Control Group Mean | 0.000 | 9.743 | 0.258 | 0.352 | 0.000 | 0.000 |
| F test: CCT=UCT | 3.025 | 1.391 | 4.227 | 1.899 | 4.119 | 0.441 |
| p-value on F-test | 0.084 | 0.240 | 0.042 | 0.170 | 0.044 | 0.508 |

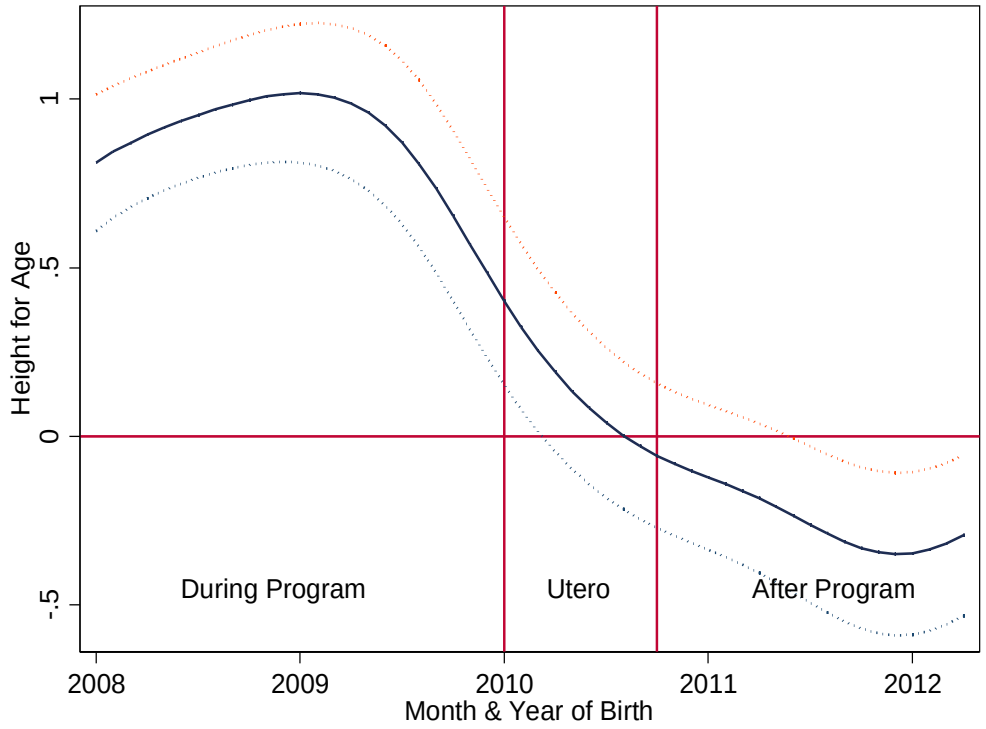
note: *** p<0.01, ** p<0.05, * p<0.1

# Five Year Effects: Children

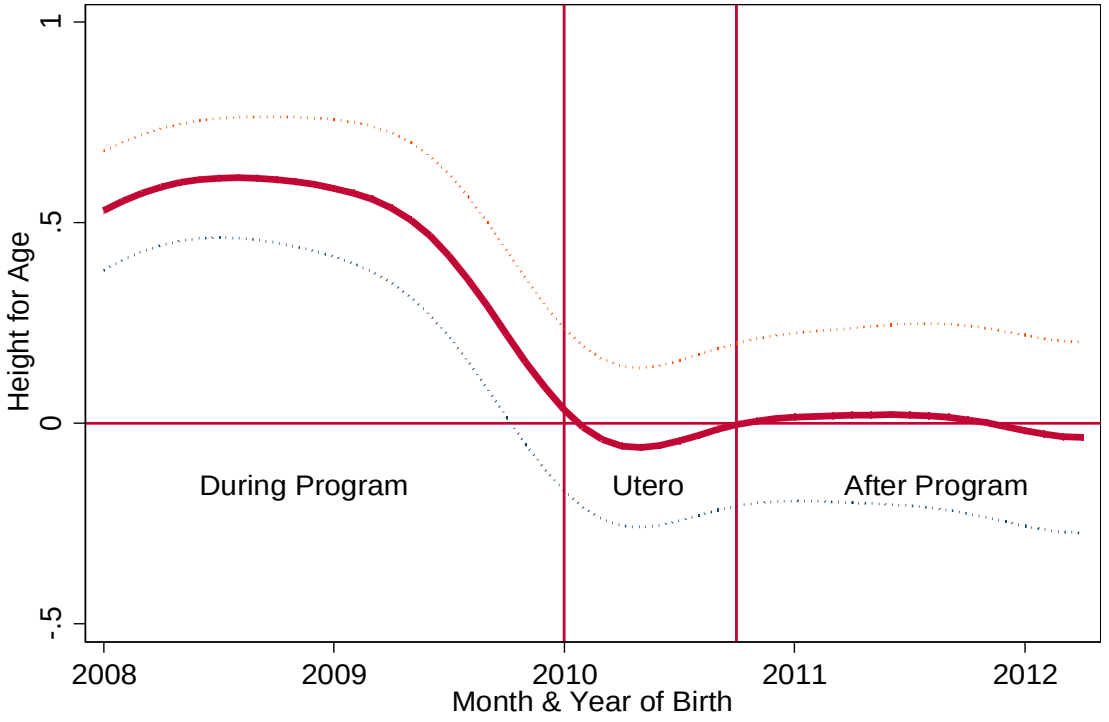
- We are also interested in the impact of the intervention on children of the core respondents
- Focus on the height for age z-score (HAZ)
- We find evidence that children born during the program to girls in the UCT arm are significantly less likely to be stunted
  - Cash matters during these critical periods!

# Height-for-age z-scores by month of birth (*baseline schoolgirls*)

**Baseline schoolgirls (UCT) - *raw***




**Baseline schoolgirls (UCT) - *adjusted***




Includes propensity weighting, child and maternal age, maternal and paternal attributes

# 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 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).

# 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
    - better husbands

# Conclusions: Policy Implications

- Strong contemporaneous effects of CT programs on poverty did not translate into longer-term benefits in this context.

- While designing 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? → *a good candidate for experimentation!*

# Universal transfers to women of childbearing age?

- Indeed, (Currie and Almond 2011) have suggested that targeting transfers towards women of childbearing age may be beneficial in the U.S. context, so as to maximize benefits to children *in utero*.

- This form of targeting would suffer from remarkably little 'leakage' in the Malawian context; two thirds of women aged 20-24 gave birth by age 20 and virtually all females have started childbearing by age 25 (NSO 2005).

- Our results suggest that targeting unconditional transfers towards low-income adolescents and young women can generate substantial human capital benefits for the next generation in Sub-Saharan Africa.