

# The Short-Term Impacts of a Schooling Conditional Cash Transfer Program on the Sexual Behavior of Young Women

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# Program description

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## ▶ Location

### ▶ Zomba district of Malawi

- Malawi - impoverished country in southern Africa with the eighth-highest HIV prevalence in the world (14 percent of the adult population infected);
- HIV/AIDS rates of women in Zomba are the highest in the country at 24.6% !

## ▶ Goal of the program

- ▶ provide incentives (CCT) to current schoolgirls and young women who have recently dropped out of school to stay in or return to school
- ▶ and thus, decrease early marriage, teenage pregnancy, and self-reported sexual activity among young women

## ▶ Timeline

- ▶ Years 2008 and 2009 (the paper analyzes only the one-year impact of the program)



# Evaluation questions

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- ▶ Impact on self-reported(?!) schooling: enrollment and attendance;
- ▶ Impact on early marriage;
- ▶ Impact on teen pregnancy;
- ▶ Impact on sexual activity and risk behavior.

## Target group

- ▶ current school girls;
  - ▶ dropouts (girls not in school).
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# Program Design (I)

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- Eligible: All never married,  
13-22 years old girls and young women,  
who are living in **176** EAs in Zomba district  
Together: 3,805

- Participants: From the randomly chosen **88** EAs:  
All school dropouts  
75-100% of current school girls

Randomization  
at the EAs level



942 girls offered CCT \*

- out of which 50 didn't in fact participate and in  
the one-year follow-up there was 93% success rate in tracking  
→ 876 treated → **Intent -to- treat effect**

Attrition



# Program design (II)

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- Follow-up period: 12 months  
(baseline – 1<sup>st</sup> round of the survey - Oct.2007 – Febr.2008;  
follow-up – 2<sup>nd</sup> round of the survey - Oct.2008 – Febr.2009)
- CCT in a form of:
  - Secondary school fees paid directly to the school in full
  - 10\$/month offered to HH – 15% of total monthly HH consumption
    - Out of which 3\$ directly to the girl
    - The rest to the HH
- Cash was given each month in churches, schools, etc.
- On each meeting basic info was collected
- Data – collected via surveys and during the cash provision



# Summary Statistics

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Table 1a: Summary Statistics (N=2893)

	Mean	Std. Dev.	Min	Max
Age	15.611	2.235	12	22
Father Alive	0.692	0.462	0	1
Mother Alive	0.808	0.394	0	1
Female Headed	0.338	0.473	0	1
Age Household Head	47.133	13.083	13	110
Household Size	6.333	2.300	1	15
Muslim	0.187	0.390	0	1
Urban Household	0.358	0.480	0	1
Read English	0.741	0.438	0	1
No Qualification	0.669	0.471	0	1
Ever pregnant	0.107	0.309	0	1
Never had sex	0.694	0.461	0	1
Number of partners	0.449	0.809	0	6



# Success of randomization

Table 1b: Equality of Means at Baseline

	Dropouts (N=889)		School Girl (N=2003)	
	Control Mean	Treatment Difference	Control Mean	Treatment Difference
Age	17.434	-0.301	15.249	-0.199
Father Alive	0.646	0.004	0.696	0.019
Mother Alive	0.784	-0.038	0.834	-0.042
Female Headed	0.420	-0.004	0.351	-0.095***
Age Household Head	46.855	-0.502	47.775	-1.323
Household Size	6.091	0.011	6.433	-0.105
Muslim	0.225	-0.006	0.194	-0.045
Urban Household	0.194	-0.010	0.362	0.110
Read English	0.469	-0.065	0.829	-0.024
No Qualification	0.673	0.012	0.659	0.021
Ever pregnant	0.436	-0.020	0.021	0.008
Never had sex	0.309	-0.017	0.794	0.008
Number of partners	1.135	0.031	0.270	-0.015

For dropouts at the baseline there are no significant differences

For school girls at the baseline there is one statistically different variable - female headed HH



# Estimation method

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▶ Diff-in-diff

$$Y_{idt} = \alpha_i + \delta_t + \beta(T_d * \delta_t) + \varepsilon_{idt}$$

*intent-to-treat effect*  
↓

$i$  - individuals,  $d$  - Enumeration Areas,  $t$  - each of the two waves of the survey.

$\alpha_i$  - individual-level fixed effects;

$\delta_t$  - dummy variable for the second round;

$(T_d * \delta_t)$  - dummy variable that is equal to unity only for units offered the treatment in the second round.

## Outcomes:

- self-reported(!) schooling: enrollment and attendance;
- early marriage;
- teen pregnancy;
- sexual activity and risk behavior.



# RESULTS – School Enrollment

Table 3: Dependent Variable is Enrolled in School

	All	Dropouts	School Girls
<b>Intent-to-treat Effect <math>\beta</math></b> Post-Treatment Indicator	0.124*** (0.018)	0.442*** (0.035)	0.038** (0.019)
<b><math>\delta_t</math></b> Round 2 Indicator	-0.141*** (0.013)	0.172*** (0.020)	-0.109*** (0.013)
Baseline mean of outcome in control	0.832	0.000	1.000
Number of observations	5,384	1,608	3,776
Number of individuals	2,692	804	1,888

\*Denotes significance at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level

**Among dropouts at the baseline:**  
 17.2% of controls returned to school  
 61.4% of treated returned to school

**Among school girls at the baseline:**  
 89.1% of controls still enrolled at the end of 2008  
 93% of treated still enrolled

Intent-to-treat effect on average girl: 44.2%

Reduction in the dropout rates by 10.9% and 7% respectively



# RESULTS - Marriage

Table 4: Dependent Variable is Never Married

Intent-to-treat effect

$\delta_f$

	All	Dropouts	School Girls
Post-Treatment Indicator	0.023* (0.013)	0.113*** (0.027)	-0.001 (0.013)
Round 2 Indicator	-0.056*** (0.008)	-0.277*** (0.019)	-0.047*** (0.008)
Baseline mean of outcome in control	1.000	1.000	1.000
Number of observations	5,384	1,608	3,776
Number of individuals	2,692	804	1,888

\*Denotes significance at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level

**Among dropouts at the baseline:**  
**27.7% in the control group got married**  
**16.4% of the treated got married**  
**Reduction in the marriage rate app. 40%**

**Among school girls at the baseline:**  
**No effect**  
**4.7% got married both in the treated and control groups**

**Intent-to-treat effect on average girl: 11.3%**



# RESULTS – Fertility

Table 5: Dependent Variable is Ever Pregnant

	All	Dropouts	School Girls
Post-Treatment Indicator	-0.011 (0.013)	-0.051** (0.024)	-0.001 (0.015)
Round 2 Indicator	0.073*** (0.008)	0.162*** (0.016)	0.070*** (0.008)
Baseline mean of outcome in control	0.093	0.444	0.022
Number of observations	5,382	1,608	3,774
Number of individuals	2,691	804	1,887

\*Denotes significance at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level

Intent-to-treat effect

$\delta_f$

**Among dropouts at the baseline:**  
treated girls are 5.1% less likely to become pregnant over the past year

**Among school girls at the baseline:**  
No effect

**Reduction in the likelihood of becoming pregnant of more than 30%**

# RESULTS – Sexual Activity

Table 6a: Sexual Activity

Dependent Variable:	Number of partners in the past 12 months					
	=1 if Never Had Sex					
	All	Dropouts	School Girls	All	Dropouts	All School Girls
<b>Intent-to- treat effect</b>						
Post-Treatment Indicator	0.031** (0.013)	0.055*** (0.020)	0.024 (0.015)	-0.053** (0.027)	-0.112** (0.048)	-0.038 (0.029)
$\delta_f$ Round 2 Indicator	-0.082*** (0.010)	-0.118*** (0.016)	-0.080*** (0.010)	0.176*** (0.015)	0.428*** (0.031)	0.170*** (0.015)
Baseline mean of outcome in control	0.709	0.302	0.791	0.413	1.120	0.270
Number of observations	5,382	1,606	3,776	5,382	1,606	3,776
Number of individuals	2,691	803	1,888	2,691	803	1,888
*Denotes significance at the 10% level, ** at the 5% level and *** at the 1% level						

Among dropouts at the baseline: treated girls are 5.5% less likely to become sexually active

Reduction in the onset of sexual activity of app. 46%

Among school girls at the baseline: treated girls are 2.4% less likely to become sexually active (p-value 0.112)

Reduction in the onset of sexual activity of app. 30%

Among both dropouts and school girls at the baseline there is present a decrease in the number of partners for the treated girls (although only for dropouts significant)

Reduction in the number of partners of app. 25%

Note: the sexual activity data are self- reported



# RESULTS – Risky sexual behaviors

Table 7: Risky Sexual Activity

Dependent Variable:	Average Condom Use			=1 if Sexually Active at Least Once a Week			Share of Partners who are at Least One Year Older		
	All	Dropouts	School Girls	All	Dropouts	School Girls	All	Dropouts	All School Girls
<b>Intent-to-treat effect</b> $\delta_f$ Post-Treatment Indicator	-0.088 (0.284)	-0.254 (0.266)	0.039 (0.463)	-0.136* (0.075)	-0.048 (0.088)	-0.204* (0.106)	-0.071 (0.062)	0.043 (0.079)	-0.159* (0.095)
Round 2 Indicator	0.079 (0.194)	0.356** (0.174)	0.031 (0.201)	0.067 (0.054)	0.178*** (0.063)	0.093 (0.058)	0.023 (0.046)	-0.035 (0.049)	0.057 (0.053)
Baseline mean of outcome in control	2.842	2.389	3.150	0.162	0.251	0.102	0.235	0.581	0.165
Number of observations	671	351	320	671	351	320	672	352	320
Number of individuals	336	176	160	336	176	160	336	176	160

\*Denotes significance at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level

Note: the risky sexual activity data are self-reported

Note: there is a problem of SELECTION BIAS. Table 7 reports the impact of the program for those who are sexually active at the baseline and follow-up. The young women observed to be sexually active consist of women who would be active in the absence of the program and also those who would have stopped being active had they received the treatment.

No effect of the program on the condom-use

Among school girls at the baseline treated girls are less likely to have sexual intercourses on weekly basis

Among school girls at the baseline treated girls are less likely to have an older sexual partner



# Conclusions of the study

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- ▶ High importance of CCT program for schooling in combating HIV problem in Africa
  - ▶ large increases in self-reported school enrollment;
  - ▶ declines in early marriage, teenage pregnancy, sexual activity, and risky sexual behavior;
- ▶ Evidence presented in the study provides impetus for the expansion of CCT programs (which already cover much of Latin America) to Sub-Saharan Africa.



# The Evaluation of the Evaluation study

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- ▶ Do we believe the results? YES – randomized experiment
- ▶ Concerns:
  - ▶ Because of the Zomba district's particular characteristics (high poverty & HIV prevalence) the findings may not be relevant for other parts of Malawi – NOT REALLY – representative for Southern Region, which is the poorest in the country with high HIV rates → natural place for government to implement such program
  - ▶ Only short term impact - BUT the increase in the age of first marriage and pregnancy may lead to better outcomes for the next generation
  - ▶ Self-reported data → measurement errors, possible bias



Thank you for your  
attention!

Questions?

