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Schooling, Income and HIV Risk:

Experimental Evidence from Malawi

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Program Objectives

- By providing cash transfers for schooling, “Schooling, Income, and HIV Risk” (SIHR) hopes to improve outcomes for young women in Malawi in the following areas:
 - Educational attainment and labor market outcomes
 - HIV/STD risk
 - Empowerment (prevention of unwanted pregnancy or “early” marriage).
- The impact evaluation of SIHR focuses specifically on the impact of these cash transfers on sexual behavior and HIV/STD risk among school-aged women in Malawi directly, as well as through its effect on schooling.

Research Questions

- Two obvious areas policy can affect for youth transitioning into adulthood are education and health (WDR 2007). These transitions are particularly critical for young women in sub-Saharan Africa.
- Furthermore, education has a potential role in protecting young people from engaging in risky sex.
- However, most of the evidence on this relationship gathered so far is based on observed correlations.

Research Questions

- Second, while there is a large literature on the relationship between poverty, especially women's poverty, and HIV/AIDS risk, we know very little regarding the marginal impact of income for young women on their sexual behavior and partner selection.
- Hence, with this study, our main focus is to help fill some of the knowledge gap regarding the relationship between income, schooling, and HIV Risk.

Research Questions

- The main research questions are:
 1. *What is the marginal impact of schooling on sexual behavior and HIV/STD risk for young (school-aged) women?*
 2. *What is the income elasticity of (risky) sexual behavior?*
 3. *Are there any negative (or positive) spillover effects of increasing schooling and/or income of some on other young women (young men)?*
 4. *What is the effect of cash transfers on returning to (or staying in) school in Malawi?*
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Sampling and Survey Design

- Approximately 4,000 young women from 176 EAs from the Zomba district of Malawi.
- EAs randomly drawn from three strata: urban, near rural, and far rural.
- All households in each sampled EA listed using two forms, then the sample selected from the pool of eligible young women.

Sampling and Survey Design

- Eligibility into the program was defined as follows:
 - Eligible *dropouts*: unmarried girls 13-22, out of school for less than 3 years, and
 - Eligible *schoolgirls*: unmarried girls 13-22, who can return to Standard 7-Form 4, enrolled in school at the time of their first interview.
- The survey designed for SIHR consists of two parts:

Sampling and Survey Design

- Part I is administered to the HH head, and collects information on the following:
 - household roster,
 - dwelling characteristics,
 - household assets and durables,
 - consumption (food and non-food),
 - household access to safety nets, and
 - shocks (economic, health, and otherwise) experienced by the household.

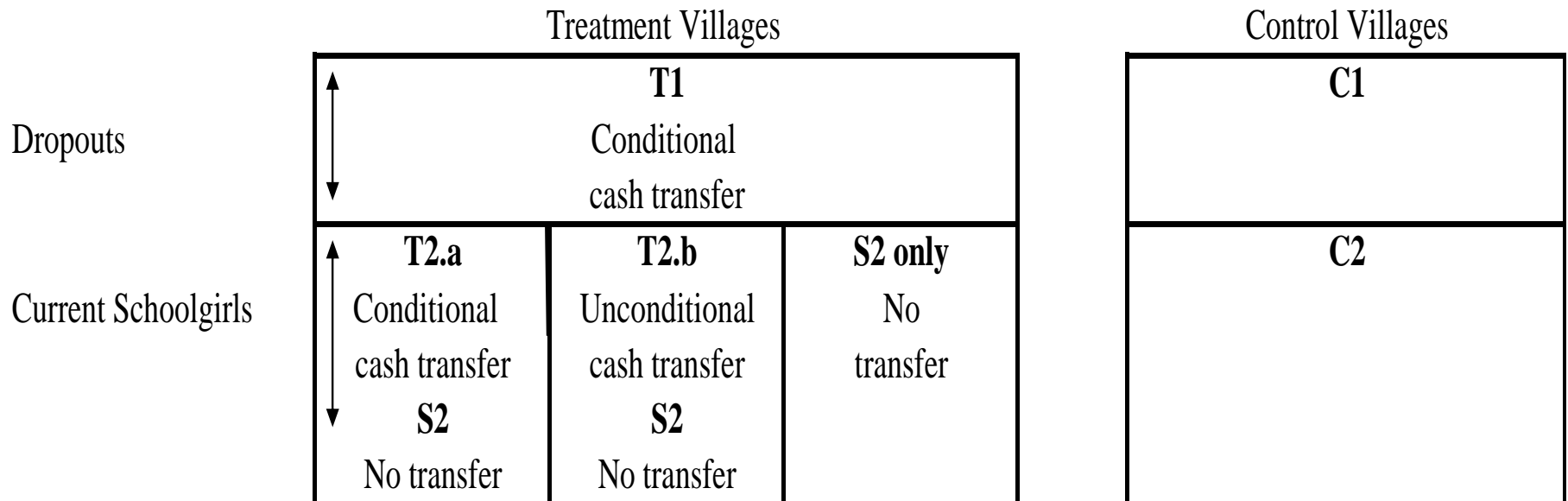
Sampling and Survey Design

- Part II is administered to the core respondent, who provides further information about her:
 - family background,
 - education and labor market participation,
 - health,
 - dating patterns, sexual behavior, marital expectations, knowledge of HIV/AIDS,
 - social networks,
 - own consumption of girl-specific goods (such as soaps, mobile phone airtime, clothing, braids, sodas and alcoholic drinks, etc.).

Design of the Program and its Evaluation

Malawi Research Design:

Treatment Status randomized across villages:



Design of the Program and its Evaluation

- There are three types of treatment villages in SIHR:
 - Dropouts with CCTs **only**,
 - Dropouts with CCTs **and** schoolgirls with CCTs,
 - Dropouts with CCTs **and** schoolgirls with CTs.

 - The percentage of schoolgirls receiving a transfer is varied randomly across EAs (0, 33, 66, and 100%).
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Design of the Program and its Evaluation

- Each transfer offer has two main components:
 - A transfer to the **parents/guardians** that varies **across** EAs,
 - A transfer to the **girl** that varies **within** each EA.
 - In addition, if the **CCT** recipient is attending **secondary school**, then a transfer equal to the school fee is made directly to the school each term.
- Transfer amounts for the parents range from \$4 to \$10 per month.
- Transfer amounts for the girls range from \$1 to \$5 per month.

Identification of impacts

- *Impact of Conditional Transfers:*
 - Direct comparison of the experimental groups T1/T2.a with C1/C2 gives the impact of the average conditional transfers (intention to treat), which can be examined separately for dropouts and schoolgirls.
- *Design of the Program and its Evaluation*
- *Impact of Unconditional Transfers:*
 - Direct comparison of the outcomes for groups T2.b with C2 gives the impact of the average unconditional transfer on schoolgirls (treatment effect on the treated).

Identification of impacts

- *Elasticity of Sexual Behavior with respect to the size of the transfers:*
 - By comparing reported sexual behavior, STD/HIV rates, and fertility across the size of the transfer within T2.b, we can estimate how unconditional transfers alter risk profiles for schoolgirls.
 - Use of non-parametric and parametric methods to analyze the average relationship between sexual behavior and income
 - Can also calculate an *elasticity* for T1 and T2.a, but only conditional on schooling incentives...

Identification of impacts

- *Isolating the impact of the conditionality:*
 - We get at the sole impact of the schooling transfers by making the same average parental and personal transfers in the two treatment arms T2.a and T2.b.
 - Thus, the only difference between groups T2.a and T2.b is the **conditionality** itself, and its impact is given by the simple difference (T2.a - T2.b).
- The school fees relevant for the girls receiving a CT will be given (monthly) to households in the CT group, so that the mean transfers are truly identical.

Identification of impacts

- *Experimental Average Spillover Effect.*
 - Direct comparison of S2 to C2 gives us the average joint spillover effect of the three treatment arms.
- *Network Spillovers:*
 - By collecting information on each girl's five closest friends and exploiting the random variation in the share of treated friends in each of the girl's social network, we can measure the intensity of the spillovers.

Identification of impacts

- Other interesting causal impacts that can be identified include:
 - HH income pooling and the relationship (*not necessarily causal*) between “money in girl’s pocket” and sexual behavior (experimental and PSM)

- And, with some more data collection:
 - Spillovers on boys/young men,
 - Schooling spillovers,
 - GE effects.

Baseline data collection and preliminary results

- Baseline data on approximately 4,000 individuals (and their households) in 176 EAs were collected between October, 2007 and January, 2008.
 - The 176 EAs are randomly assigned equally into treatment and control groups:
 - Within the 88 treatment EAs, 15 are assigned S2 only status, 44 assigned T2.a, and 29 assigned T2.b.
 - Half of the sampled girls live in treatment villages, and approximately one third receive cash transfers.
 - In what follows, we present some baseline data from 1,673 individuals (in 1,451 HHs) in 90 EAs.
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Summary Statistics for key variables

Table 3: Summary Statistics for Key Variables

Variable	Mean	Std Dev	# Obs
Age	15.97	2.2	1665
Currently in School	0.751	0.433	1656
Sexually Active	0.339	0.473	1659
Ever Been Pregnant	0.112	0.315	1659

Table 4: Dropouts vs. School Girls

Variable	Dropouts	Schoolgirls	Difference
Percent of total sample	0.249	0.751	0.502
Age	17.35	15.51	-1.84
Highest grade completed	6.51	7.32	0.81
Highest qualification obtained:			
None	65.38	70.88	5.5
PSLC	23.24	23.89	0.65
JCE	8.47	4.99	-3.48
Sexually Active	0.641	0.239	-0.402
Ever Been Pregnant	0.383	0.022	-0.361

Table 5: Summary Statistics on Sexual Behavior

<i>Panel A: Overall Sample</i>	Percent	Year Change	Cum. Change	
Sexually Active by Age:				
	13	6.31		
	14	14.12	7.81	7.81
	15	22.05	7.93	15.74
	16	33.09	11.04	26.78
	17	45.07	11.98	38.76
	18	57.14	12.07	50.83
	19	68.54	11.4	62.23
	20	76.06	7.52	69.75
	21	73.81	-2.25	67.5
	22	85.19	11.38	78.88
<i>Panel B: Sexually Active Sample</i>	Mean	Std Dev	Min	Max
Average Number of Partners	1.48	0.842	1	6
Gift Given Ever	0.643	0.479	0	1
Monthly Value of Gift Given (Kwacha)	1131	1494	20	11000
Money Ever Given	0.885	0.318	0	1
Monthly Value of Money Given (Kwacha)	1050	1365	20	11500
Any given	0.946	0.227	0	1
Total Monthly Value of Gift + Money (Kwacha)	1756	2318	20	17000

Table 6: (An incomplete) Baseline Comparison of Treatment and Control

<i>EA Treatment</i>	Treatment		Control		t-stat
	Mean	n	Mean	n	
Age	15.9	48	15.96	42	0.39
In School	0.754	48	0.747	42	0.26
Sexually Active	0.319	48	0.367	42	1.70*
Future Risk of HIV	1.62	48	1.66	42	0.6
<i>Girl Treatment-School Girl</i>					
Age	15.54	387	15.49	856	0.45
Sexually Active	0.235	387	0.241	856	0.2
Future Risk of HIV	1.58	387	1.58	856	0
<i>Girl Treatment-Dropout</i>					
Age	16.99	196	17.67	217	2.52**
Sexually Active	0.602	196	0.676	216	1.47
Future Risk of HIV	1.65	196	1.72	216	0.97

Table 8: Main Reason Girl Not Attending School

	Freq.	Percent	Cum.
Acquired all education wanted	8	1.93	1.93
No money for fees or uniform	170	41.06	43
Too old to continue	4	0.97	43.96
Became pregnant	90	21.74	65.7
Illness or disability	23	5.56	71.26
Found work	5	1.21	72.46
Not interested, lazy	43	10.39	82.85
Parents told me to stop	3	0.72	83.57
had to help or work at home	15	3.62	87.2
Poor/crowded school facilities	3	0.72	87.92
Poor quality instruction	1	0.24	88.16
School too far from home	1	0.24	88.41
Failed promotion exam	8	1.93	90.34
Dismissed/Expelled	1	0.24	90.58
Other	26	6.28	96.86

Timeline for future data collection

- Follow-up data collection & HIV/STD testing: Nov/2008 - Jan/2009
 - And one year later, pending additional funding.
- Offers made in treatment EAs: Dec/2007 - Jan/2008.
- Intervention period: Feb/2008 - Nov/2008.
 - And Feb/2009-Nov/2009, pending additional funding

Other questions/future plans

- Effect of CT/CCT on staying in school in Malawi,
- Examine longer term outcomes, such as:
 - access to and success in the labor markets
 - age at first marriage, fertility, family size
 - investment in own children's health, nutrition, and education
- Interaction of the program with school quality or access to credit.



SIHR Offer stage and Lottery

