Online Appendix

Incentivizing Safer Sexual Behavior: Evidence from a Lottery Experiment on HIV Prevention

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Table A1. STI as marker for risky sexual behavior and HIV

	HIV prevalence	Extramarital sex last intercourse	Condom used last intercourse	N. of partners in lifetime	High likelihood last partner HIV+	Practice safe sex
	(1)	(2)	(3)	(4)	(5)	(6)
STI positive at baseline	0.205***	0.031	- 0.052**	-0.130	0.075***	-0.094***
	(0.025)	(0.028)	(0.026)	(0.126)	(0.021)	(0.033)
Mean: STI negative- at baseline	0.139	0.129	0.400	3.074	0.122	
Observations	3029	1401	2758	2725	2746	3029

Note: Baseline data. See table 1 for definitions of the variables. Coefficients and standard errors in column (1)-(5) is from an OLS model with village fixed effects. "Practice safe sex" in column (6) is the average standardized difference derived between STI+ and STI- individuals in "Extramarital sex last intercourse", "Condom used last intercourse", "N. of partners in lifetime", and "High likelihood last partner HIV+", reversing the sign of "Extramarital sex", "N. of partners in lifetime" and "High likelihood last partner HIV+". Robust standard errors in parentheses. *** 1 percent, ** 5 percent, * 10 percent significance.

Table A2. Effects of the lottery incentive intervention on HIV incidence: Adjusted OR and RR

	Intervention group	Control group	Adjusted OR (95% CI)	Adjusted relative risk (95% CI)
Combined intervention group				
HIV incidence	140/1476 (9.5%)	111/946 (11.7%)	0.76 (0.58-1.00)	0.79 (0.62-1.00)
High lottery arm				
HIV incidence	68/785 (8.7%)	111/946 (11.7%)	0.69 (0.50-0.95)	0.72 (0.54-0.96)
Low lottery arm				
HIV incidence	72/691 (10.4%)	111/946 (11.7%)	0.87 (0.63-1.20)	0.89 (0.67-1.17)

Note: Data are n/N (percent) at 24 months. HIV incidence is defined as in table 3. Confidence intervals are constructed using robust standard errors. Adjusted odds ratios (OR) calculated with a logistic regression model of individual data with independent variables that include treatment status and indicators for geographical area (villages). Adjusted relative risks (RR) is estimated using the marginal standardization technique with the 95 percent CIs estimated with the delta method (Norton et al, 2013).

Table A3. Lee bounds: HIV incidence

	(1)	(2)
Any lottery l. bound	-0.038**	
	(0.015)	
Any lottery h. bound	-0.021	
	(0.013)	
High lottery l. bound		-0.048***
		(0.017)
High lottery h. bound		-0.029**
		(0.015)
Low lottery l. bound		-0.025
		(0.018)
Low lottery h. bound		-0.012
		(0.016)

Note: Sample of HIV negative individuals aged 18-32 at baseline. See table 3 for details. Lee bounds (upper and lower) are bounds on the coefficients in table 3 using the procedure proposed by Lee (2009). Standard errors in parentheses are bootstrapped. *** 1 percent, ** 5 percent, * 10 percent significance.

Table A4. Effects of the lottery incentive intervention on STI prevalence by gender

Panel A: Women

	STI prevalence			
	(1)	(2)	(4)	(5)
Any lottery	-0.040***	-0.039***		
	(0.007)	(0.007)		
High lottery			-0.043***	-0.042***
			(0.007)	(0.007)
Low lottery			-0.036***	-0.036***
			(0.008)	(0.008)
Mean control group	0.046	0.046	0.046	0.046
Control STI status baseline	No	Yes	No	Yes
P-value ($T_H=T_L$)			0.14	0.15
Observations	1982	1982	1982	1982

Panel B: Men

Any lottery	-0.013*	-0.014*		
	(0.007)	(0.007)		
High lottery			-0.011	-0.012
			(0.007)	(0.008)
Low lottery			-0.016**	-0.016**
			(0.007)	(0.007)
Mean control group	0.017	0.017	0.017	0.017
Control STI status baseline	No	Yes	No	Yes
P-value ($T_H=T_L$)			0.21	0.30
Observations	902	902	902	902

Note: See note under table 5. Robust standard errors in parentheses. *** 1 percent, ** 5 percent, * 10 percent significance.

Table A5. MPL design

Task	Lottery: Safe option	Lottery: Risky option	EV^{safe}	EV^{risky}	CRRA ranges	midpoint r
1	0	0.5 of 500; 0.5 of 0	0	250	.	.
2	25	0.5 of 500; 0.5 of 0	25	250	r > 0.77	0.77
3	50	0.5 of 500; 0.5 of 0	50	250	0.70 < r < 0.77	0.73
4	75	0.5 of 500; 0.5 of 0	75	250	0.63 < r < 0.70	0.67
5	100	0.5 of 500; 0.5 of 0	100	250	0.57 < r < 0.63	0.60
6	125	0.5 of 500; 0.5 of 0	125	250	0.50 < r < 0.57	0.53
7	150	0.5 of 500; 0.5 of 0	150	250	0.42 < r < 0.50	0.46
8	175	0.5 of 500; 0.5 of 0	175	250	0.34 < r < 0.42	0.38
9	200	0.5 of 500; 0.5 of 0	200	250	0.24 < r < 0.34	0.29
10	225	0.5 of 500; 0.5 of 0	225	250	0.13 < r < 0.24	0.19
11	250	0.5 of 500; 0.5 of 0	250	250	0 < r < 0.13	0.07
12	275	0.5 of 500; 0.5 of 0	275	250	-0.16 < r < 0	-0.08
13	300	0.5 of 500; 0.5 of 0	300	250	-0.36 < r < -0.16	-0.26
14	325	0.5 of 500; 0.5 of 0	325	250	-0.61 < r < -0.36	-0.48
15	350	0.5 of 500; 0.5 of 0	350	250	-0.94 < r < -0.61	-0.78

Note: For each decision row (task), respondents were asked to choose between a safe option (a certain amount) or a risky lottery. EV ^{safe} is the expected value of the safe option and EV ^{risky} is the expected value of the risky lottery. All prizes and values are in expressed in Maloti (10 Maloti is approximately $1). CRRA ranges are constructed following the discussion in Andersen et al. (2008) and r is the CRRA risk coefficient.

Table A6. Baseline characteristics of the risk loving vs risk-averse participants

	Risk lover	Risk averse	Difference	P-value
Panel A: Biomarkers				
HIV positive	0.192	0.154	0.038	0.048
STI positive	0.169	0.138	0.031	0.091
Panel B: Household Characteristics				
Female	0.686	0.671	0.015	0.526
Age	23.6	23.3	0.3	0.076
Single	0.490	0.488	0.002	0.932
No education	0.013	0.011	0.002	0.655
Primary education	0.438	0.470	-0.032	0.212
Some secondary education	0.400	0.401	0.001	0.960
Durable goods	3.140	2.970	0.170	0.022
Panel C: Sexual behavior				
Extramarital sex last intercourse	0.153	0.126	0.027	0.297
Condom used last intercourse	0.428	0.405	0.023	0.380
N. of partners in lifetime	3.254	3.074	0.180	0.196
High likelihood HIV last partner	0.158	0.126	0.032	0.085
Practice safe sex (difference)			-0.059	0.075
			(0.033)	

Note: Sample of individuals aged 18-32 at baseline who responded to the hypothetical risk aversion question. Mean outcomes for the sample of risk loving and risk-averse individuals. Individuals are "Risk loving" if, at baseline, they preferred a lottery with 50 percent chance of winning 500 Maloti instead of a fixed amount of money above the expected value of 250 Maloti. Individuals are "Risk-averse" if, at baseline, they preferred a fixed amount of money less than 250 maloti instead of a lottery with 50 percent chance of winning 500 Maloti. See table 1 for variable definition.

Table A7. Heterogeneous treatment effects - Risk preferences: HIV incidence and STI prevalence in the control and treatment group

	HIV incidence				STI Prevalence			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Risk-lover	0.115***	-0.012			0.036**	0.008		
	(0.038)	(0.022)			(0.017)	(0.005)		
Risk coefficient			-0.139***	0.025			-0.056***	-0.008
			(0.045)	(0.027)			(0.021)	(0.006)
Sample	Control	Treatment	Control	Treatment	Control	Treatment	Control	Treatment
Mean group of risk-averse	0.095	0.095	-	-	0.022	0.000	-	-
Observations	535	824	535	824	638	982	638	982

Note: Sample of individuals aged 18-32 at baseline. "Risk-lover" is a binary variable taking the value 0 for respondents who preferred a fixed amount of money below the expected value of 250 Maloti instead of a lottery with 50 percent chance of winning 500 maloti and 1 otherwise. Risk coefficient is deduced from the MPL question and assuming a CRRA utility function (see main text for details). All regressions include village fixed effects. Robust standard errors in parentheses. *** 1 percent, ** 5 percent, * 10 percent significance.

Table A8. Robustness check on measure of risk attitudes

	(1)	(2)	(3)	(4)	(5)
			HIV incidence		
Any lottery×Risk-lover			-0.056**	-0.049*	-0.047*
			(0.026)	(0.026)	(0.026)
Risk-lover	0.037*	-0.018	0.038*	0.034	0.033
	(0.022)	(0.017)	(0.021)	(0.021)	(0.021)
Any lottery			0.013	0.010	0.022
			(0.019)	(0.019)	(0.117)
Sample	Control	Treatment	All	All	All
Mean group of risk-averse	0.087	0.103	-	-	-
Mean control group	-	-	0.112	0.112	0.112
Baseline controls	No	No	No	Yes	Yes
Baseline control×treatment	No	No	No	No	Yes
Observations	922	1427	2349	2349	2349

Note: See notes under table 7. Sample includes all respondents of the MLP question including those that always chose the safe option (coded as risk-averse, 0) and respondents always choosing the risky option (coded as risk-lovers, 1). All regressions include village fixed effects. Robust standard errors in parentheses. *** 1 percent, ** 5 percent, * 10 percent significance.