Financial Incentives and HIV Prevention

Hans-Peter Kohler
University of Pennsylvania
hpkohler@pop.upenn.edu

Rebecca Thornton*
University of Michigan
rebeccal@umich.edu

December 22, 2009

Abstract

We evaluate a conditional cash transfer program in rural Malawi which offered financial incentives to men and women to maintain their HIV status for approximately one year. The amounts of the reward ranged from zero to approximately 4 months wage. We find no effect of the offered incentives on HIV status or on reported sexual behavior. However, shortly after receiving the reward, men who received the cash transfer were 8.5 percentage points *more* likely and women were 7.5 percentage points *less* likely to engage in risky sex. Programs that aim to motivate safe sexual behavior in Africa should take into account that money given in the present may have much stronger effects than rewards in the future.

1 Introduction

Since the beginning of the HIV/AIDS epidemic, various strategies have been put in place to curb the spread of the disease and prevent further infections. There is on-going research focusing on ways to reduce the HIV transmission rate such as treating of other sexually transmitted diseases (STDs), vaccine and microbicide trials, and male circumcision. The majority of the prevention strategies have targeted behavior change, encouraging individuals to shift from risky to less risky sex (ie. education about the disease and how to protect oneself, HIV testing to know one's own or one's partner's

*We gratefully acknowledge the support for this research through the National Institute of Child Health and Development (grant numbers R21 HD050653, RO1 HD044228 and R01 HD053781) and the University of Pennsylvania University Research Foundation. We thank the MDICP team for assistance with data collection. We also thank You-Tyng Luo, Sayeh Nikpay, Giordano Palloni, and Nick Snavely for excellent research assistance.

status, condom promotion, community, peer, and faith-based group advocacy, HIV de-stigmatization campaigns, better negotiation of risk (such as through condom use or partner selection), and the promotion of abstinence programs (ABCs)).[1] However, despite these prevention efforts, there is little evidence that there are dramatic behavior changes as a response to these programs in Africa, and medical vaccine development has to this date failed.

This paper evaluates a new HIV prevention strategy: offering financial incentives for individuals to maintain their HIV status. Conditional cash transfers (CCTs) have been found to be effective in a variety of settings (World Bank 2009). In the developing world, some of the most well known CCTs have involved incentives for households, parents, or children to engage in healthy behavior or to increase schooling attainment/performance.[2] In developed countries, CCTs have also focused on specific health behavior such stoping smoking (Gine et al. 2008, Volpp et al. 2009a), losing weight (Charness and Gneezy 2008, Volpp et al. 2008), or taking medicine (Volpp et al 2008b). However, until recently, there have been no programs that directly incentivized individuals to stay free of sexually transmitted diseases.[3]

We evaluate a conditional cash transfer program that was implemented in 2006 in rural Malawi. In 2006, approximately 1300 men and women were tested for HIV. They were then offered financial incentives of random amounts ranging from zero to values worth approximately four month's wage, given if they maintained their HIV status for approximately one year. Throughout the year, respondents were asked about their sexual behavior three times, through interviewer-administered sexual diaries. Respondents were then tested for HIV and financial incentives were awarded based on whether they had maintained their status. After the second round of testing, the incentives program stopped.

Using the randomized design, we evaluate the effects of being offered an incentive on reported sexual activity and condom use before the second round of HIV testing. We find no statistical difference in reported behavior between those offered incentives and those who were not

[1] See Bertozzi et al. 2006 for a review.

[2] There have been a variety of large scale and small scale CCT programs. For example, Progresa in Mexico, Bolsa Escola in Brazil, Red de Proteccion in Nicaragua, as well as programs in in Kenya and Malawi (de Janvry and Sadoulet 2006; Schultz 2004; Baird et al. 2009, Lagarde, Haines, and Palmer 2007).

[3] Several recent programs that are currently underway include a program that gave financial rewards for testing negative for non-HIV sexually transmitted diseases every few months in Tanzania (Dewalque and team), a program for health centers and workers for HIV/AIDS care and treatment in Rwanda (Bautista-Arredondo and team), and a program for adolescents in Mexico (Galarraga and Gertler).

over three rounds of data. It is important to note that our evaluation measures self-reported sexual behavior in response to the incentive. If those who were offered incentives were more likely to overstate safe sexual behavior, are estimates would overstate the true program effects and would thus be upper-bounds. Because we have attrition over the 3 rounds of data collection, we construct the most extreme bounds, which in most cases are very tight. There were no differential effects by time of the survey, gender, education, expectations, or measures of female empowerment.

One important question is whether we should have expected financial rewards to affect changes in sexual behavior at all. Outside of an incentives program, if individuals rationally maximize their lifetime utility, they should optimally choose how much risky or safe sex to engage in. Individuals facing higher risks of infection should adjust their behavior to substitute towards safer sex (Philipson and Posner 1995; Oster 2007).[4] Given that there is no cure for HIV, the cost of infection is high and would be arguable much higher than 4 months wage offered through the incentives program. On the other hand, there is a growing body of both theoretical and empirical literature in which individuals are hyperbolic, have difficulty with commitment, or have addictive behaviors.[5] Individuals wanting to abstain from having sex or wanting to use a condom trade off sexual pleasure in the present for future lifetime utility. If individuals place higher value on the present then offering cash incentives could help increase the short-term benefits of engaging in safe sex in the present.

In the case of this conditional cash transfer program, the failure of the monetary incentive to motivate behavior change may be due to a number of different factors. Rural men and women in Malawi may be less likely to respond to financial incentives than higher risk individuals such as urban men and women or individuals who are not in a stable marital relationships. It may also be that the amount of money was too small to induce a change in behavior. Another possibility is that the offer of the financial reward one year in the future was too far away from the present to overcome hyperbolic discounting and affect short term decisions to engage in safer sexual behavior. These issues are important in thinking through the design of future programs.

Although the conditional offer of money had no impact on reported sexual behavior, we find

[4]There are, however, a variety of potential non-behavioral reasons for the lack of behavioral change in response to the AIDS epidemic such as lack of information (about how to prevent infection), poverty or high mortality rates from other diseases (ie. lower life-time earnings) or lack of bargaining power (ie. to suggest condom use or abstinence).

[5]See for example, Laibson (1997) , ODonoghue and Rabin (1999; 2001), Gul and Pesendorfer (2001; 2004), Fudenberg and Levine (2006). Research on addiction or self-control include Gruber and Koszegi (2001), Bernheim and Rangel (2004), and Gul and Pesendorfer (2007).

large effects of receiving money approximately one week after the second round of HIV testing when the incentive program had ceased. Men who received the money were 13 percentage points more likely to have vaginal sex and had approximately 0.5 days more of sex. While they were 6.9 percentage points more likely to report using a condom, overall on net there was a 8.5 percentage point increase in risky sex. On the other hand, women were 7.5 percentage points less likely to have engaged in risky sexual sex – driven by abstinence rather than increased condom use.

Researchers and policy makers have associated the lack of financial resources among women as a determinate of riskier sexual behavior because of the monetary transfers they receive from men (Wojcicki, 2002; World Bank, 2005; Shelton, Cassell, and Adetunji, 2005; Dupas 2009; Wines, 2004; Halperin and Epstein, 2004; Hallman, 2004; Robinson and Yeh, 2009). Similarly, researchers have hypothesized a positive relationship between male wealth and unsafe sexual behavior because men with higher incomes can afford to purchase riskier sex (See for example Gertler et al. 2003 and Luke 2009).[6] Evidence quantifying the effects of income transfers on sexual behavior among men and women, however, is limited, and often confounded by omitted variables that bias causal estimates.[7] In this case, the findings of the response to receiving the monetary transfer provides further evidence that money matters and can be protective for women. This finding also may have important implications for future CCTs offering financial incentives over time for testing negative. In particular, the total effect of money may include two potentially asymmetric effects of the incentive offer and the direct effect of money itself.

This paper proceeds as follows, Section 2 describes the experimental design and the data. Section 3 presents the estimates of the offered cash incentives on sexual behavior. Section 4 presents the effects of receiving the cash reward on sexual behavior. Section 5 concludes.

[6]The relationship between income and HIV has been studied in other settings. For example, research has found a positive correlation between household assets and HIV or early adult mortality (Shelton, Cassell, and Adetunji 2005; De Walque 2006; Yamano and Jayne 2004). Alternatively, wealthier men have higher returns to safe sex.

[7]Several exceptions include Duflo et al. who find that Kenyan girls receiving free school uniforms were less likely to become pregnant, Baird et al. 2009 who find that direct payments of secondary school fees lead to significant declines in early marriage, teenage pregnancy, and self-reported sexual activity, and Robinson and Yeh 2006 who find that health shocks lead Kenyan prostitutes to engage in riskier sexual behavior.

2 Malawi Incentives Project

2.1 Sample and Survey Data

The Malawi Incentives Project builds upon the Malawi Diffusion and Ideational Change Project (MDICP), a longitudinal study of men and women in three districts of rural Malawi. The original respondents were randomly selected from 125 villages in 1998 and included ever-married and their husbands; these individuals were re-interviewed in 2001. In 2004, an additional sample of adolescent men and women (ages 14-24) from the same villages was added to the original sample and these individuals were re-interviewed in 2006 and 2008. During the surveys in 2004, 2006, and 2008, a separate team of nurses offered respondents free tests for HIV through either oral swabs (in 2004) or rapid tests (in 2006 and 2008) (Anglewicz et al. 2004; Obare et al. 2009).

The incentives project involves a subsample of those who accepted an HIV test in 2006. Appendix A presents a time line of the incentives program. During the 2006 testing, 92 percent percent of the respondents who were offered an HIV test accepted the test. Among these, the HIV prevalence rate was 9.2 percent. This sub-sample involved randomly selecting respondents from the 2006 MDICP survey, with a higher weight on HIV discordant couples (from their 2004 and 2006 HIV results). Of those who were tested for HIV in 2006, we invited 1408 individuals to participate in the incentives project. Those individuals were approached one to two months after the 2006 survey and HIV testing. A total of 1312 (or 93%) were enrolled into the incentives program.

Table 1 presents summary statistics for the 1312 individuals analyzed in this paper. 45 percent are male, with an average age of 36. The majority, 84 percent were married. The sample is quite rural and consists of individuals engaged in subsistence agriculture. HIV is a salient disease; respondents report knowing approximately 8 friends who have died from AIDS.

2.2 Financial Incentives

At the time of the HIV test in 2006, individuals were randomly selected to be offered HIV counseling as either a couple, or as an individual.[8] The majority, 76 percent, of those involved in the incentives

[8]Only married spouses who were both in the MDICP sample were given the chance to have the couples counseling. If both of the spouses agreed to the couple testing, they would both be tested and both learn the HIV results together. If one of the individuals did not consent, then both members of the couple would receive individual counseling, and only learn their own HIV results.

project were tested as an individual. One to two months later, each individual was visited to introduce them to the incentives program. Each individual or couple randomly drew a token out of a bag to determine their incentive amount. The incentive amounts included 0, 500 Kwacha (approximately 4 dollars), or 2000 Kwacha (approximately 16 dollars) for an individual, or 0, 1000 Kwacha, or 4000 Kwacha (approximately 32 dollars) for a couple. Each individual was given a voucher of the financial amount they randomly drew, and was told that they must maintain their HIV status in order to receive the money approximately one year later.[9] Couples were told that both members of the couple must maintain their HIV status in order for the couple to receive the money.[10] Couples who divorced, separated, or for whom one member was away, would receive one half of the couple incentives after one year if the individual who tested maintained his/her status. Because of the endogeneity of choice to test as a couple or individual, this paper evaluates the effect of the program on individuals, controlling for the type of testing they received.

The financial incentives were viewed as a significant amount among respondents. Most of the respondents are subsistence farmers; the median annual reported income among the respondents is 5000 Kwacha. To gain perspective on this amount of money, a teacher's monthly salary in this area is approximately 3,000 Kwacha per month. Whiteside (1998) report piecework daily rates (ganyu) of 20 Kwacha for men and 510 Kwacha for women. Several different experiments in Malawi have found large responses to very small incentive amounts. A program that offered cash incentives to learn their HIV results after testing found that even just 10 Kwacha increased the likelihood of traveling for results by almost 20 percentage points (Thornton 2008). Another study that randomly offered 30 Kwacha to individuals for a days work found that 80 percent of individuals showed up for work (Goldberg 2009). Thus, the maximum amount of the incentive was likely to be viewed as substantial in this population.

It is important to note that the financial incentive was not specifically tied to being HIV-negative at the second round of testing. Recall that the sample included HIV-positives (who were part of a discordant couple). If an HIV-positive individual was enrolled as an individual (due to a spouse being away, or a spouse not giving consent to couple counseling), he or she would

[9]Due to logistical issues, the second round of HIV testing was conducted several months after that, approximately 15 months after the first round of testing.

[10]If the married couple had agreed to the couples VCT, they were offered to be enrolled into the couples' incentive program. All of the respondents who had had individual VCT, or those whose couple was away or who refused the couple incentive program, were offered the individual incentive program.

automatically receive the monetary amount at the end of the study.

The incentives were distributed between the three levels, across both couples and individuals, with an equal probability of receiving each incentive amount. In practice, the actual distribution of the incentives resulted in 35 percent receiving zero, 32 percent receiving a medium-level incentive, and 33 percent receiving a high-level incentive. The distribution of the incentives given out was roughly identical to the theoretical distribution. We cannot reject that the actual and theoretical distributions of incentives is equal using a Kolmogorov-Smirnov test for equality of distributions (p-value of 0.997, not shown).

Table 2 presents baseline summary statistics among those offered zero, medium, and high amounts of the incentive. For almost each variable there is no significant effect of incentives. In comparing some of the averages across incentive groups, there are some significant differences, (for example, age, self-reported health, and HIV status), these differences are small in magnitude and we also include these demographic controls in the analysis.

2.3 Sexual Diaries and HIV Testing

Approximately three to six months after the incentives were offered and vouchers given out, respondents were interviewed in their homes and asked about their recent sexual behavior. In particular, asked about the previous nine days, asking sexual activities and condom use each day. These interviewer administered diaries were collected three times over the period of the study, which we identify as round 1, round 2, and round 3, respectively. These were unannounced visits that occurred approximately every three months; the same questionnaire was administered each time. At the end of the third round, respondents were visited by a project nurse and were offered another HIV test. This HIV test was tied to the financial incentives and thus was required in order to be eligible to receive any of the financial incentives.

Table 3 presents attrition statistics across each round of sexual diary and obtaining a follow-up HIV test. Approximately 93 percent of the sample completed round 1 diaries, 89 percent completed round 2 diaries, and 92 percent completed round 3 diaries. Mobility and mortality risk was associated with lower completion rates. For example, men – who are more mobile – were less likely to complete rounds (between 3.3 and 4.6 percentage points less than women; results not shown). Individuals who were HIV positive in 2006 were less likely to complete rounds, and this became more

of a factor over time. HIV positives were 7.5 percentage points less likely to be interviewed in round 1, 11.6 percentage points less likely to be interviewed in round 2, and 10.4 percentage points less likely to be interviewed in round 3. Older respondents were also less likely to complete sexual diary rounds. Almost all of the respondents (98 percent) completed at least one round of diaries, with an average of 2.7 rounds. Among the sample, 88 percent obtained a follow-up HIV test after round 3.

Importantly, completion rates of sexual diary rounds and obtaining a follow-up HIV test are correlated with the incentive offered. Those who were offered incentives (and in some cases, higher levels of incentives) were more likely to complete sexual diaries and were more likely to take the HIV test at the end of the study. Although in each round respondents received a small gift for their participation (soap), those who were not offered a financial reward may have had a lower return in continuing to answer survey questions. They would also had little potential gain in participating in an follow-up HIV test after having already learned their status one year earlier. If attritors who were offered the incentive were also more likely to have engaged in riskier sex, then our estimates of the effectiveness of the program on safe sexual behavior would be upwardly biased. We would under-estimate the true effect if the pattern of differential attrition was reversed. To address this, we will construct bounds of the estimates making the most extreme assumptions of the direction of the bias. In the end, these bounds are fairly tight and the main results do not change. In addition, if we check for differential attrition by interacting indicators of baseline risky sexual behavior (HIV status in 2006, ever using a condom, or number of sexual partners) and the incentive, there is no significant effect on completing any round (results not shown).

3 Empirical Strategy

Using the fact that the incentives were randomly offered, to empirically measure the impact of financial incentives on reported sexual behavior, we estimate the following specification:

$$Y_{i,j} = \alpha + \beta(\text{Any Incentive}_i) + \gamma \mathbf{X_i} + \epsilon_{i,j} \quad (1)$$

We first pool each of the rounds of the sexual diaries together. Y indicates reported sexual behavior for an individual i in round j. "*Any Incentive*" indicates that the individual was offered a

positive (non-zero) incentive offer. "X" is a vector including indicators of gender, age, marital status, if the incentive was given as an individual or as a couple, HIV status in 2006, as well as district and sexual diary round dummies. Standard errors are clustered by individual for the pooled regressions. In addition to pooling rounds, we estimate the above equation separately for each round; for these specifications we pool by village.[11]

Alternative specifications do not effect our main results. In addition to measuring the effect of being offered any incentive, we could also include dummy variables indicating whether respondents were offered medium-valued or high-valued incentives. All of the results are robust to this alternative specification (Results available upon request). Another approach would be to only include those who had tested HIV-negative in 2006. It is possible that these individuals had the greatest personal incentive to adjust their behavior. On the other hand, the incentive could have been greatest for the HIV-positives in order to protect their partner(s). We pool both HIV-positives and HIV-negatives together but the main results do not differ substantially among just the HIV-negative subgroup (Results available upon request). Although we run linear specifications, results are also robust to non-linear models when we have a binary outcome variable as well as using person-day observations.

Our primary coefficient of interest is β, which measures the impact of being offered a financial incentive on reported sexual behavior. While typically, financial status is correlated with other omitted variables which also influence sexual behavior, because the incentives were randomly allocated, β is an unbiased estimate of the impact of cash offered on sexual behavior.

Because we have evidence of attrition across rounds correlated to the incentive amount, we will construct upper and lower bounds. For each outcome variable, we make the most extreme assumptions of differential attrition correlated to incentive assignment. We impute the missing data by assigning either the most risky sexual outcome or the most safe sexual outcome to the attritors offered an incentive. We then run each regression on the new outcome variable containing the imputed values.

It is worth remarking on the fact that we report effects on follow-up HIV status and reported sexual behavior. While there was no direct benefit for respondents to overstate overstating their safer sexual practices to the interviewers, there is no reason to worry about biased estimates if

[11]The majority of the individuals in the sample are married. A subset of the individuals' spouses are included in the sample. This is by design when the couples counseling was introduced in 2006. However, given that individuals may report differently from each other, or may have extra-marital relationships, we treat each observation as independent.

misreporting is not correlated to the randomized incentives. On the other hand, even though respondents were no more likely to earn their incentive money if those offered larger incentive amounts overstated safe sexual behavior, our estimates would be an upper bound of the true effect of the program.

4 Effects of Offering a Financial Incentive

4.1 Results

This section reports our main results of the effect of being offered financial incentives on reported sexual behavior. We first pool all three rounds of reported sexual behavior and estimate average effects of being offered a financial incentive. Reported sexual behavior includes being pregnant (among women), having any vaginal sex (during the nine days of the sexual diary), number of days having vaginal sex, whether or not the respondent used a condom during the week (conditional on having sex), and if condoms were present at home. We also construct a composite variable indicating whether the respondent had safe sex (with a condom) or no sex. The average of each of these dependent variables are presented at the bottom of Table 4. Across all three rounds, 8.6 percent of women are pregnant, 53 percent engage in vaginal sex across the nine days of diary collection with an average of 1.5 days of sex (across the three rounds). Across the rounds, 12.6 percent report using a condom. In each of the rounds, only 12.1 percent reported having condoms at home. 55.6 percent of respondents practiced "safe sex" – either abstaining or using a condom.

Table 4 presents the main results of the impact of being offered any incentive to maintain HIV status. There are no significant effects of the incentive on any measure of reported sexual behavior. Not only are the coefficients not statistically significant, the size of the coefficients are small. Figure 1 graphs the coefficients, with 95% confidence bars to illustrate the relatively small point estimates. To the extent that individuals receiving higher incentives may have felt the need to over-report safe sexual behavior to interviewers, these results are overestimates of the true effect of the incentive on actual sexual behavior.

The covariates in the table are of expected signs and magnitudes. Married individuals are significantly more likely to engage in sex and less likely to use a condom. Men report more sexual activity but more condom use/ownership. Individuals who are HIV positive are less likely to report

having sex and more likely to report using condoms and having condoms at home. There are also sharp differences in reported sexual behavior between districts (Rumphi, Balaka, and Mchinji) which could be due in part to ethnic or geographic differences.

Table 5 presents the estimates separately for each round of data collection. Again, there are no statistically significant effects of being offered the incentive during any round or for any variable. In addition to the main set of variables, we also present the effects on HIV status during round 3. Overall there appears to be little impact of the offer of the incentive on any sexual behavior.

Because of the possibilities of differential attrition biasing the estimates of the effects of the incentive offer on sexual behavior, we construct bounds of the estimates with the most extreme assumptions about the sexual behavior of those who attrit. For each of the variables and each round, even the most extreme possibility of differential attrition does not significantly change the overall results and the finding that there was no impact of offering the incentives. One exception are the fairly wide bounds on pregnancy and on HIV status in round 3, which are too wide to be informative.

4.2 Channels

There may be a variety of reasons as to why we might observe no effect of offering financial incentives on sexual behavior. We explore several of these channels in Appendix B by measuring heterogenous responses to the incentive offer. One often-cited reason for the lack of observed behavior change in Africa in response to the HIV epidemic is that there is a lack of knowledge or awareness of how to change behavior. In theory, education, could be positively correlated to behavior change - either because individuals learn how to protect themselves from infection, or because education raises the return to staying un-infected (Dewalque 2006; Oster 2009). While overall, the average years of education is quite low, at 4.5 years, with 23 percent having never attended school, there is essentially no differential impact of education on the response to being offered any incentive.

Another possibility to why there was no observed behavior change in response to the financial incentive is that the incentive amount was not enough to induce behavior change. Given the levels of poverty in this sample, it is difficult to reason that there were no individuals who would not have been affected on the margin and that we wouldn't pick up changes in response to the monetary incentives. However, we can estimate any possible effects among those who are at different levels of income. While those which higher income are less likely to have sex and less likely to use a

condom, there is no consistent pattern on the interaction between income and the incentive on our outcome variables.

Similarly, men and women could have responded differently to being offered incentives, either due to preferences, or ability to bargain on sexual behavior within the relationship. Again, there is no consistent pattern in the difference in the response to the incentive by gender. To examine whether bargaining power was important for women, we estimate the impact of the incentive among women who were more or less "empowered". We construct an index by taking an average of a series of attitudinal questions related to gender empowerment.[12] This index ranges from zero to one with an average value of 0.47. Higher values of the index indicates higher levels of empowerment. We estimate differential effects among females only and again there appears to be no differential response.

Overall, the results indicate no response to being offered the monetary incentive on the sample. This may be due to the fact that the monetary reward was too far in the future, that it was not enough money, or that these individuals were already optimizing prior to the incentive scheme. One possibility that we assert is less likely to be a reason for the limited effects is the credibility of receiving the incentives. These individuals were part of a larger longitudinal study which had previously offered – and distributed – financial rewards for traveling to a mobile clinic to learn their HIV results (Thornton 2008). It is therefore unlikely that the credibility of the program was the most critical factor.

5 Effects of Receiving a Financial Incentive

Approximately one week after the third round of sexual diaries, HIV testing, and distribution of the monetary incentives, interviewers returned to each respondent to administer a shorter version of the sexual diaries. Again, completion of a survey was correlated to incentive status. Overall, 91.6

[12]The empowerment questions included "Do you think it is proper for a wife to leave her husband if: He does not support her and the children financially?; He beats her frequently?; He is sexually unfaithful?; She thinks he might be infected with HIV?; He does not allow her to use family planning?; He cannot provide her with children?; He doesn't sexually satisfy her?". "Is it acceptable for you to go to: The local market without informing your husband?; The local health center without informing your husband."; "A woman has the right to refuse sex with her husband when she: Is tired from working hard; Doesn't feel like it or is not in the mood; During the abstinence period after childbirth; Is no longer attracted to her husband."; "A woman has the right to refuse unprotected sex with her husband when she:Thinks her husband may have HIV/AIDS; Thinks she may have HIV/AIDS; Doesn't want to risk getting pregnant"; "If a woman often refuses sex with her husband, is it acceptable for the husband to: Refuse to eat her nsima; Sleep with another sexual partner; Sleep with her by force; Stop providing for her".

percent were interviewed although this varied by no incentive (89.1 percent), medium incentive (93.1 percent) and a high incentive (92.9 percent).

Table 6, Panel B presents the effects of receiving the monetary incentives on sexual behavior, separately among men and women. Among men, those who received any incentive were 13 percentage points to engage in any vaginal sex and had 0.6 additional days of sex. Men who received incentives were also significantly more likely to report using a condom during sex (6.9 percentage points more likely), but overall, they were more likely to engage in riskier sex. These results are similar to findings in Luke 2008 who found that wealthier men were more likely to engage in sex but also more likely to use condoms. Women who received the incentive, on the other hand, were less likely to report having any vaginal sex and there was no impact on reported condom use. In some cases, the amount of the incentive also mattered - for example, among women, the largest effect of the incentive was among those who received the largest incentive, rather than the medium-valued incentive (Table 6 Panel C). For men on the other hand, there is no statistical difference between the response to high incentives and medium incentives.

There could be several mechanisms through which receiving the financial incentive affected sexual behavior among both the men and women. First, the money could have been a directly used by the men to purchase risky sex, and the money could have been used by the women to substitute away from "selling" risky sex. Another possible mechanism for men is that the incentive may have been a signal that the individual was HIV-negative. If everyone in the village knew about the incentives program, a man could use the earning of the incentive as an indication that he was not infected. Ironically, this could have resulted in an increase in risky sex.

How exactly the money affected sexual behavior is worth exploring in future research.

6 Conclusion

This paper presents the results from a conditional cash transfer program in rural Malawi where individuals were offered financial rewards to maintain their HIV status for approximately one year. We find no overall significant or substantial effects of being offered the reward on subsequent self-reported sexual behavior. Despite the fact that self-reports might be biased towards individuals over-reporting safe sexual behavior, we estimate small and statistically insignificant point estimates.

The lessons from this evaluation can help in the design of future evaluations and CCT programs and for understanding sexual behavior more generally. It seems plausible that rewards offered in more frequent intervals over the year might be more effective in affecting sexual behavior than a one time reward offered in one year. In addition, it might be useful targeting individuals who are in less stable sexual relationships or who are more at risk such as unmarried adolescents.

We find large and significant effects approximately one week after receiving the incentives money. Men who received money were 13 percentage points more likely to have vaginal sex and had approximately 0.5 days more of sex. While condom use among these men increased (by 6.9 percentage points), on net risky sex increased by 8.5 percentage points. On the other hand, women were 7.5 percentage points less likely to have engaged in risky sexual sex. These findings help to further quantify how men and women respond to money and raise additional important questions. Is there an increase in risky sex among men due to the fact that they purchase risky sex, or, is increase in income a signal to women that the men were HIV-negative? Did the men spend money on items that increased their level of attraction (such as purchasing new clothes or soap)? Additional investigation into the response of men and women to cash transfers is warranted. In particular, if giving men money increases their risky sex then studies that pay respondents may actually increase the risky sex in the study. This is related to work by Oster (2007) who finds a strong relationship between exports and HIV prevalence rates.

There are several arguments that have been posed for and against offering incentives for individuals to stay HIV-negative. The arguments against largely fall into two categories: ethics and efficacy. Concerns about coercion or equity have been raised by ethicists, which are somewhat parallel to arguments against other CCT programs and merit scholarships (Wadman 2008). In this sample, the HIV-positives were also given incentives for maintaining their own status, and given rewards for maintaining their partner's status. While we saw no large effects of the reward, this particular design might help to get around concerns of ethics. In terms of the effect of the program, while we found no effect, we hope that the lessons learned will guide future program design. To the extent that there are social externalities of HIV, offering rewards might help to reduce the epidemic. If individuals can be incentivized to form habits, or to transition to less risky stages of life (for example, from adolescence to adulthood), then such a cash transfer program could be cost effective.

References

Anglewicz, Philip, Simona Bignami-Van Assche, Li-Wei Chao, David Chilongozi, Irving Hoffman, Hans-Peter Kohler, Francis Martinson, Francis Onyango, Georges Reniers, and Kirsten Smith, "HIV/STI Testing in the 2004 Malawi Diffusion and Ideational Change Project: Lessons Learned," *Social Networks Project Working Papers*, 2004.

Baird, Sarah, Ephraim Chirwa, Craig McIntosh, and Berk zler, "The Short-Term Impacts of a Schooling Conditional Cash Transfer Program on the Sexual Behavior of Young Women," *Health Economics*, forthcoming.

Bernheim, B. D. and A. Rangel, "Addiction and Cue-Triggered Decision Processes," *American Economic Review*, 2004, *94*, 1558–1590.

Bertozzi, Stefano, Nancy S. Padian, Jeny Wegbreit, Lisa M. DeMaria, Becca Feldman, Helene Gayle, Julian Gold, Robert Grant, , and Michael T. Isbell, *Disease Control Priorities in Developing Countries (2nd Edition),ed.* 2006.

Charness, Gary and Uri Gneezy, "Incentives to Exercise," *Econometrica*, 2009, pp. 909–931.

D., De Walque, "Who gets AIDS and how? The determinants of HIV infection and sexual behaviors in Burkina Faso, Cameroon, Ghana, Kenya and Tanzania," *Policy Research Working Paper No. 3844, The World Bank*, 2006.

de Janvry, Alain and Elisabeth Sadoulet, "Making Conditional Cash Transfer Programs More Efficient: Designing for Maximum Effect of the Conditionality," *World Bank Economic Review*, 2006, *20* (1).

Fiszbein, Ariel, Norbert Schady, Francisco H.G. Ferreira, Margaret Grosh, Nial Kelleher, Pedro Olinto, and Emmanuel Skoufias, *Conditional Cash Transfers Reducing Present and Future Poverty*, The World Bank, 2009.

Fudenberg, D. and D. K. Levine, "A Dual-Self Model of Impulse Control," *American Economic Review*, 2006, *96*, 1449–1476.

Gin, Xavier, Dean Karlan, and Jonathan Zinman, "Put Your Money Where Your Butt Is: A Commitment Contract for Smoking Cessation," *World Bank Policy Research Working Paper No. 4985*, 2009.

Goldberg, Jessica, "Supply of Casual Wage Labor in Rural Malawi," 2009.

Gruber, J. and B. Koszegi, "Is Addiction "Rational"? Theory and Evidence," *The Quarterly Journal of Economics*, 2001, *116*, 1261–1303.

Gul, F. and W. Pesendorfer, "Temptation and Self-Control," *Econometrica*, 2001, *69*, 1403–1035.

___ **and** ___ , "Self-Control and the Theory of Consumption," *Econometrica*, 2004, *72*, 119–158.

___ **and** ___ , "Harmful Addiction," *Review of Economic Studies*, 2007, *74*, 147–172.

JD, Shelton, Cassell MM, and Adetunji J, "Is poverty or wealth at the root of HIV?," *The Lancet*, 2005, *366*, 10571058.

KG, Volpp, Troxel AB, Pauly MV, Glick HA, Puig A, Asch DA, Galvin R, Zhu J, Wan F, DeGuzman J, Corbett E, Weiner J, and Audrain-McGovern J., "A randomized, controlled trial of financial incentives for smoking cessation," *New England Journal of Medicine*, 2009, *60*, 699–709.

Lagarde, M, A. Haines, and N. Palmer, "Conditional cash transfers for improving uptake of health interventions in low- and middle-income countries: a systematic review," *JAMA*, 2007, *298*, 1900–1910.

Laibson, David, "Golden Eggs and Hyperbolic Discounting," *Quarterly Journal of Economics*, 1997, *112*, 443–477.

Luke, Nancy, "Are Wealthy Sugar Daddies Spreading HIV?: Exploring Economic Status, Informal Exchange, and Sexual Risk in Kisumu, Kenya," *Paper presented at the Annual Meetings of the Population Association of America*, 2006.

M, Lagarde and Palmer N Haines A, "Conditional cash transfers for improving uptake of health interventions in low- and middle-income countries: a systematic review," *JAMA*, 2007, *298*, 1900–1910.

Obare, Francis, Peter Fleming, Philip Anglewicz, Rebecca Thornton, F. Martinson, Agatha Kapatuka, Michelle Poulin, Susan C. Watkins, and Hans-Peter Kohler, "Acceptance of Repeat Population-based Voluntary Counseling and Testing for HIV in Rural Malawi," *Sexually Transmitted Infections*, 2009, *85*, 139–144.

O'Donoghue, T. and M. Rabin, "Doing It Now or Later," *American Economic Review*, 1999, *89*, 103–124.

___ **and** ___ , "Choice and Procrastination," *Quarterly Journal of Economics*, 2001, *116*, 121–160.

Oster, Emily, "HIV and Sexual Behavior Change: Why Not Africa?," *NBER Working Paper Number 13049*, 2007.

___ , "Routes of Infection: Exports and HIV Incidence in Sub-Saharan Africa," *NBER Working Paper No. 13610*, 2007.

Philipson, T. J. and R. A. Posner, "A Theoretical and Empirical-Investigation of the Effects of Public-Health Subsidies for Std Testing," *Quarterly Journal of Economics*, 1995, *110* (2), 445–474.

Robinson, Jonathan and Ethan Yeh, "Transactional Sex as a Response to Risk in Western Kenya," *World Bank Policy Research Working Paper Series*, 2009.

Schultz, T Paul, "School subsidies for the poor: evaluating the Mexican Progresa poverty program," *Journal of Development Economics, Elsevier*, 2004, *74* (1), 199–250.

T, Jayne T. Yamano, "Measuring the impacts of working-age adult mortality on small-scale farm households in Kenya," *World Development*, 2004, *32*, 91119.

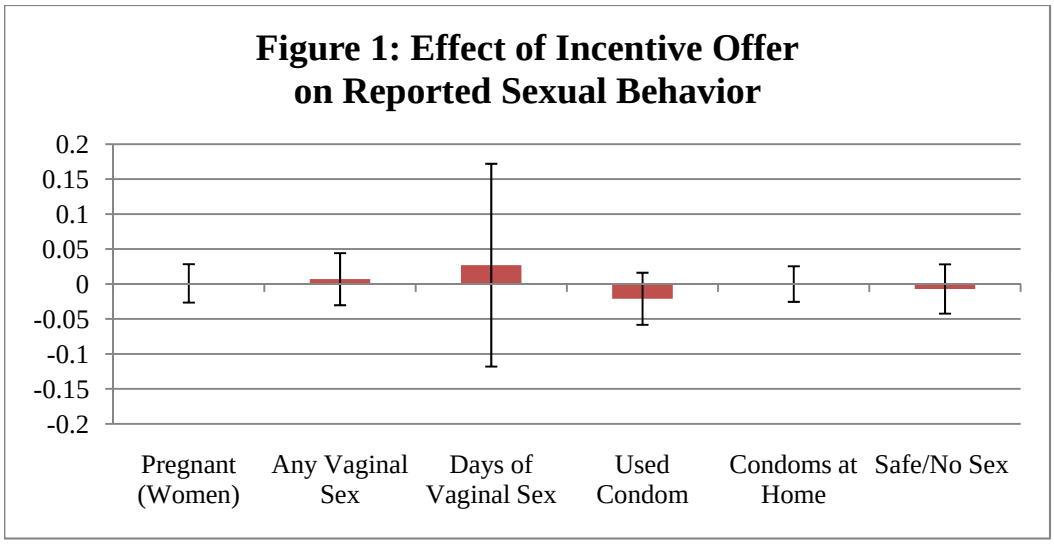
Thornton, Rebecca L., "The Demand for, and Impact of, Learning HIV Status," *American Economic Review*, 2008, *98*, 18291863.

Volpp, Kevin G, George Loewenstein, Andrea B Troxel, Jalpa Doshi, Maureen Price, Mitchell Laskin, and Stephen E Kimmel, "A test of financial incentives to improve warfarin adherence," *BMC Health Serv Res.*, 2008, *8.*

Volpp, Kevin G., Leslie K. John, Andrea B. Troxel, Laurie Norton, Jennifer Fassbender, and George Loewenstein, "Financial IncentiveBased Approaches for Weight Loss A Randomized Trial," *JAMA*, 2008, *300*, 2631–2637.

Wadman, Meredith, "Payments in planned HIV trial raise ethical concerns," *Nature Medicine*, 2008, *14*.

Whiteside, M., "When the whole is more than the sum of the parts the effect of cross-borderinteractions on livelihood security in southern Malawiand northern Mozambique," 1998. Report for Oxfam GB.



Notes: This figure presents the coefficients on "Any Incentive" and 95% confidence intervals from OLS regressions in table 4 of the pooled round 1, round 2 and round 3 observations.

Table 1: Summary Statistics

	Mean	Standard Dev
	(1)	(2)
Male	0.45	0.50
Age	35.75	12.95
Married	0.84	0.37
Overall Health	2.07	0.94
Income	9947.71	22432.72
Have savings	0.22	0.41
Fear about HIV	1.60	0.76
Number friends died of HIV	8.20	8.06
Acceptable to use condom	0.41	0.49
HIV positive at baseline	0.09	0.29
Number of lifetime sexual partners	3.11	3.78
Ever used condom with current partner	0.26	0.44

Notes: This table presents baseline summary statistics among 1,312 respondents who participated in the incentives program. Overall health represents self-reported health (ranging from low to high: 1-5). Fear about HIV is also self-reported (ranging from low to high: 1-3). Each variable was measured before the incentives were offered.

Table 2: Baseline Characteristics by Incentives Offered

	Zero Incentive (N=458)	Medium Incentive (N=420)	High Incentive (N=434)	Differences (t-statistic)		
				diff (0/M)	diff (0/H)	diff (M/H)
	(1)	(2)	(3)	(4)	(5)	(6)
Male	0.44	0.47	0.43	-0.70	0.30	0.98
Age	34.75	35.52	37.04	-0.92	-2.63***	-1.67*
Married	0.84	0.83	0.84	0.47	0.26	-0.21
Overall Health	2.03	2.00	2.17	0.51	-2.02**	-2.50**
Income	11077.41	10031.48	8694.24	0.61	1.44	1.05
Savings	0.23	0.23	0.20	-0.23	0.89	1.10
Fear about HIV	1.61	1.58	1.61	0.53	-0.07	-0.59
Number friends died of HIV	7.79	8.58	8.27	-1.32	-0.89	0.56
Acceptable to use condom	0.40	0.39	0.43	0.35	-0.69	-1.02
HIV positive	0.11	0.09	0.07	1.15	2.07**	0.90
Number of lifetime sexual partners	2.95	3.35	3.06	-1.32	-0.51	0.90
Used condom with current partner	0.26	0.26	0.27	0.15	-0.36	-0.51

Standard errors in parenthesis *signifcant at 10%; **signifcant at 5%; ***signifcant at 1%

Notes: This table presents baseline demographic statistics by incentives amounts among 1,312 respondents who participated in the incentives program.

Table 3: Attrition/Survey Completion Rates

	All	Zero Incentive	Medium Incentive	High Incentive	Differences (t-statistic) diff (0/M)	diff (0/H)	diff (M/H)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Enrolled in Incentives Project	1312	458	420	434			
Completed Round 1	0.928	0.919	0.921	0.945	-0.12	-1.51	-1.36
Completed Round 2	0.889	0.882	0.902	0.882	-0.97	-0.02	0.94
Completed Round 3	0.916	0.891	0.931	0.929	-2.08**	-1.96*	0.136
Completed at Least One Round	0.979	0.972	0.988	0.977	-1.72*	-0.50	1.24
Completed Each Round	0.829	0.801	0.845	0.843	-1.70*	-1.64	0.08
Number rounds completed	2.733	2.692	2.755	2.756	-1.39	-1.42	-0.02
Follow-up HIV Test	0.884	0.821	0.907	0.929	-3.73***	-4.89***	-1.14

Standard errors in parenthesis *signifcant at 10%; **signifcant at 5%; ***signifcant at 1%

Notes: This table presents survey completion rates by incentives amounts. The sample includes 1,312 respondents who participated in the incentives program.

Table 4: Impact of Incentive Offer on Reported Sexual Behavior, All Rounds

	Pregnant (Women)	Any Vaginal Sex	Days of Vaginal Sex	Used Condom	Condoms at Home	Safe/No Sex
	(1)	(2)	(3)	(4)	(5)	(6)
Any Incentive	0.001	0.007	0.027	-0.021	0.00	-0.007
	[0.014]	[0.019]	[0.074]	[0.019]	[0.013]	[0.018]
Male		0.136***	0.439***	0.094***	0.090***	-0.095***
		[0.021]	[0.083]	[0.017]	[0.014]	[0.021]
Married	0.025	0.334***	0.925***	-0.057	0.075***	-0.293***
	[0.020]	[0.035]	[0.117]	[0.043]	[0.020]	[0.029]
HIV Positive at baseline	-0.028	-0.073**	-0.392***	0.140**	0.127***	0.129***
	[0.018]	[0.034]	[0.121]	[0.054]	[0.030]	[0.038]
Age	-0.006	0.004	0.045**	-0.011**	-0.005	-0.006
	[0.003]	[0.004]	[0.019]	[0.005]	[0.003]	[0.004]
Age-squared	0.000	-0.000*	-0.001***	0.000	0.000	0.000*
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Some school	-0.023*	0.019	0.07	0.009	0.031***	-0.014
	[0.014]	[0.022]	[0.095]	[0.019]	[0.012]	[0.024]
Number of children	-0.003	0.011***	0.050**	-0.001	0.000	-0.012***
	[0.002]	[0.004]	[0.019]	[0.003]	[0.002]	[0.004]
Rumphi	0.001	-0.083***	0.006	0.122***	0.049**	0.156***
	[0.016]	[0.027]	[0.107]	[0.027]	[0.022]	[0.027]
Balaka	0.006	-0.125***	-0.274***	0.006	0.005	0.099***
	[0.018]	[0.026]	[0.102]	[0.038]	[0.023]	[0.027]
Round 2	-0.003	-0.021	-0.093	-0.005	0.001	-0.040*
	[0.011]	[0.020]	[0.070]	[0.016]	[0.011]	[0.022]
Round 3	-0.003	-0.044**	-0.016	-0.01	-0.005	-0.017
	[0.015]	[0.019]	[0.091]	[0.020]	[0.012]	[0.018]
Constant	0.261***	0.241***	0.02	0.374***	0.123**	0.881***
	[0.075]	[0.083]	[0.347]	[0.109]	[0.059]	[0.087]
Observations	1996	3552	3552	1873	3552	3552
R-squared	0.036	0.104	0.07	0.082	0.051	0.091
Mean of dependent variable	0.086	0.531	1.510	0.126	0.121	0.556

* significant at 10%; ** significant at 5%; *** significant at 1%

Note: All columns present OLS regressions. Robust standard errors clustered by village, in brackets. "Used a condom" is conditional on reported sexual activity. "Safe Sex or No Sex" is equal to one if the respondent abstained from sex or used a condom and zero otherwise.

Table 5: Impact of Incentive Offer on Reported Sexual Behavior, Separate Rounds

Dependent Variable:		HIV Positive (Round 3)	Pregnant (Women)	Any Vaginal Sex	Days Vaginal Sex	Used Condom	Condoms at Home	Safe/No Sex
		(1)	(2)	(3)	(4)	(5)	(6)	(7)
Round 1	"Any Incentive" Coefficient	--	0.023	0.04	0.155	-0.028	0.002	-0.025
		--	[0.025]	[0.031]	[0.108]	[0.025]	[0.022]	[0.032]
	Mean of dep var	--	0.089	0.553	1.548	0.132	0.123	0.575
	Lower bound	--	-0.045	0.031	0.064	-0.046	-0.002	-0.031
		--	[0.029]	[0.029]	[0.133]	[0.030]	[0.025]	[0.031]
	Upper bound	--	0.066***	0.042	0.157	-0.006	0.002	-0.019
		--	[0.025]	[0.030]	[0.104]	[0.013]	[0.020]	[0.030]
Round 2	"Any Incentive" Coefficient	--	-0.004	-0.011	-0.033	-0.029	-0.014	-0.007
		--	[0.021]	[0.026]	[0.107]	[0.030]	[0.019]	[0.030]
	Mean of dep var	--	0.085	0.533	1.460	0.129	0.123	0.533
	Lower bound	--	-0.106***	-0.010	-0.063	-0.014	-0.018	-0.012
		--	[0.027]	[0.025]	[0.152]	[0.028]	[0.024]	[0.029]
	Upper bound	--	0.086***	-0.005	-0.015	-0.019	-0.012	-0.006
		--	[0.021]	[0.026]	[0.104]	[0.015]	[0.017]	[0.028]
Round 3	"Any Incentive" Coefficient	0.001	-0.016	-0.008	-0.042	0.001	0.014	0.012
		[0.005]	[0.019]	[0.027]	[0.114]	[0.030]	[0.016]	[0.026]
	Mean of dep var	0.074	0.085	0.506	1.522	0.116	0.116	0.560
	Lower bound	-0.072***	-0.092***	-0.021	-0.308	-0.016	-0.025	-0.009
		[0.017]	[0.020]	[0.025]	[0.154]	[0.026]	[0.021]	[0.026]
	Upper bound	0.021**	0.042**	0.017	0.032	0.001	0.019	0.029
		[0.009]	[0.020]	[0.026]	[0.104]	[0.014]	[0.014]	[0.025]

* significant at 10%; ** significant at 5%; *** significant at 1%

Note: Each cell presents a separate OLS regression of the dependent variable on a dummy variable for whether the respondent was offered any incentive controlling for whether the respondent is male, married, has some schooling, tested hiv positive in the baseline, lives in Rumphi, lives in Balaka. Number of living children is also included as a control. Robust standard errors clustered by village, in brackets. Upper and lower bounds are presented with the most conservative assumptions that attritors with an incentive either had the most extreme value of the dependent variable. For dependent variables that are binary, this involves assigning values of zero or one; for days sex, this involves assigning values of either 9 (max days) or 0. 1305 observations are used for the bounds.

Table 6: Effect of Receiving Incentive on Reported Sexual Behavior, Round 4

Panel A: Attrition to Round 4 Survey

	All	Zero Incentive	Medium Incentive	High Incentive	Differences (t-statistic) diff (0/M)	diff (0/H)	diff (M/H)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Completed Round 4	0.916	0.891	0.931	0.929	-2.08**	-1.96*	0.136

Panel B: Effects of Receiving an Incentive on Sexual Behavior

	Men				Women			
	Any Vaginal Sex	Days Vaginal Sex	Used Condom	Safe/No Sex	Any Vaginal Sex	Days Vaginal Sex	Used Condom	Safe/No Sex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Any Incentive	0.130***	0.551**	0.069**	-0.085*	-0.085**	-0.231	0.002	0.075**
	[0.048]	[0.211]	[0.032]	[0.045]	[0.039]	[0.173]	[0.032]	[0.038]
Observations	466	466	292	466	631	631	359	631
R-squared	0.135	0.089	0.166	0.178	0.067	0.037	0.128	0.081

Panel C: Effects of Receiving an Incentive on Sexual Behavior

	Men				Women			
	Any Vaginal Sex	Days Vaginal Sex	Used Condom	Safe/No Sex	Any Vaginal Sex	Days Vaginal Sex	Used Condom	Safe/No Sex
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
High Incentive	0.123**	0.709***	0.080*	-0.080*	-0.113***	-0.315*	-0.019	0.096**
	[0.052]	[0.268]	[0.041]	[0.047]	[0.042]	[0.188]	[0.036]	[0.046]
Lo Incentive	0.136**	0.388*	0.059	-0.09	-0.055	-0.14	0.022	0.053
	[0.055]	[0.232]	[0.040]	[0.056]	[0.049]	[0.210]	[0.037]	[0.044]
Observations	466	466	292	466	631	631	359	631
R-squared	0.135	0.093	0.166	0.178	0.07	0.039	0.131	0.082

Notes: All coefficients are from OLS regressions. Control variables not shown. "Vaginal Sex" is a dummy variable equal to one if the respondent reported having had vaginal sex. "Used a Condom" is a dummy variable equal to one if the respondent reported using a condom. "Safe Sex or No Sex" is a dummy variable equal to one if the respondent either reported using a condom or reported not having sex. Robust standard errors clustered by village, in brackets.

Appendix A: Differential Responses to Incentive Offer

	Pregnant (Women)	Any Vaginal Sex	Days Vaginal Sex	Used Condom	Condoms at Home	Safe/No Sex
Panel A: Education	(1)	(2)	(3)	(4)	(5)	(6)
Any Incentive	-0.007	0.019	0.045	0.018	0.009	0.015
	[0.022]	[0.032]	[0.110]	[0.019]	[0.033]	[0.015]
Any * Education	0.003	-0.003	-0.004	-0.009*	-0.004	-0.004
	[0.004]	[0.007]	[0.023]	[0.005]	[0.006]	[0.003]
Education	-0.003	0.005	-0.015	0.008	0.002	0.011**
	[0.004]	[0.007]	[0.025]	[0.007]	[0.006]	[0.005]
Observations	1996	3552	3552	1873	3552	3552
R-squared	0.036	0.104	0.070	0.084	0.091	0.054
Panel B: Income	(1)	(2)	(3)	(4)	(5)	(6)
Any Incentive	0.023	-0.126***	-0.265	-0.065	0.075	-0.045
	[0.023]	[0.038]	[0.188]	[0.052]	[0.045]	[0.034]
Any * Log Income	-0.004	0.017***	0.037	0.008	-0.010*	0.007
	[0.003]	[0.005]	[0.023]	[0.006]	[0.006]	[0.004]
Log Income	0.003	-0.010**	-0.018	-0.014**	0.003	-0.005
	[0.002]	[0.004]	[0.018]	[0.005]	[0.005]	[0.004]
Observations	1877	3342	3342	1744	3342	3342
R-squared	0.034	0.103	0.070	0.090	0.088	0.052
Panel C: Gender	(1)	(2)	(3)	(4)	(5)	(6)
Any Incentive	--	-0.006	-0.077	-0.038*	-0.001	-0.009
	--	[0.023]	[0.084]	[0.022]	[0.021]	[0.015]
Any * Male	--	0.031	0.237	0.035	-0.013	0.021
	--	[0.036]	[0.155]	[0.036]	[0.036]	[0.028]
Male	--	0.116***	0.283**	0.071**	-0.086**	0.075***
	--	[0.035]	[0.132]	[0.032]	[0.036]	[0.024]
Observations	--	3552	3552	1873	3552	3552
R-squared	--	0.104	0.071	0.083	0.091	0.051
Panel D: Empowerment (Females only)	(1)	(2)	(3)	(4)	(5)	(6)
Any Incentive	0.03	-0.003	0.250	-0.081	-0.011	-0.065
	[0.046]	[0.087]	[0.360]	[0.078]	[0.084]	[0.052]
Any * Empowered	-0.069	-0.013	-0.677	0.104	0.019	0.108
	[0.095]	[0.174]	[0.697]	[0.160]	[0.165]	[0.098]
Empowered	0.00	0.002	0.144	-0.025	-0.040	-0.012
	[0.075]	[0.147]	[0.626]	[0.123]	[0.138]	[0.084]
Observations	1876	1878	1878	876	1878	1878
R-squared	0.034	0.098	0.065	0.056	0.074	0.040

* significant at 10%; ** significant at 5%; *** significant at 1%

Note: All columns present OLS regressions. Robust standard errors clustered by village, in brackets. "Used a condom" is conditional on reported sexual activity. "Safe Sex or No Sex" is equal to one if the respondent abstained from sex or used a condom and zero otherwise.