SOCIAL INTERACTIONS AND INDIVIDUAL REPRODUCTIVE DECISIONS

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Abstract. This paper presents a randomized field experiment to measure the social network effects of getting tested for HIV, carried out using a unique dataset with the social networks of nearly 100% of individuals in 21 villages in Central Malawi. The experiment gave respondents the opportunity to take part in one of two lotteries for cash prizes with one lottery having no condition placed upon redemption of the cash prizes and the other having taking a HIV-test as a condition. With a nearly complete social network map of villages, this study overcomes significant biases inherent to many social network studies that sample network graphs. Further since incentives are randomized within social networks, social network effects are consistently estimated. I find significant heterogeneities in social network influence by gender. Having an additional male contact get tested increases the likelihood that a person will get tested by 5.3 percentage points. However in contrast, having an additional female contact get tested decreases the likelihood that a person will get tested by 2.8 percentage points. These effects are particularly strong for females.

1. Introduction

Since HIV was first recognized in 1983, the WHO estimates that the disease has killed 25 million people, with a third of these deaths occurring in Africa (Greener (2002)). UNAIDS estimates 2.5 million new infections each year worldwide, with the majority of them occurring in Africa (UNAIDS (2002)).

DHS reports widespread knowledge (across Sub-Saharan Africa and in Malawi in particular, the site of this study) about the risk factors associated with getting infected with HIV/AIDS. There is also widespread awareness of the key behavioural responses to AIDS (abstinence, fidelity within relationships and condom use) (Chipeta et al. (2004)). Yet despite this awareness, people maintain risky sexual practices. For instance, long-term concurrent sexual partnerships that provide a superhighway for HIV infection in the population remain the norm in many parts of Southern and

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Eastern Africa (Halperin and Epstein (2004); Helleringer and Kohler (2007); Morris and Kretzschmar (1997)). Further, even with a multitude of of educational and marketing strategies, condom use in Africa remains markedly low (Green (2003)). Now into the fourth decade of the pandemic, HIV remains a serious threat to the development of nations, particularly those in Sub-Saharan Africa. Research has proven HIV to be an extremely difficult virus to render harmless, and no cure presently exists. Moreover after over 20 years of research, the development of a vaccine remains a distant goal (Johnston and Fauci (2008)). Every year millions more are infected, it is clear that HIV prevention is key towards controlling the epidemic (Canning (2006)).

Motivating people to change risky sexual habits, such as having multiple concurrent partners, in the face of a high risk of infection with HIV in Sub-Saharan Africa has proven difficult. Individuals' immediate social groups have a strong impact on their subjective perception of risk and on subsequent risk-taking behaviour (Bandura (1986)). Further, persons' adoption of safer sex practices is related to their perceived level of social and normative support (Catania et al. (1991); Kelly et al. (1992); McKusick et al. (1985)).

Given the importance of social networks in affecting individuals' decisions to do with their reproductive health, a vital avenue practitioners could use in order to encourage greater risk reduction behaviour is social networks. It is thus important to identify which networks are most relevant to individuals' decisions to do with their reproductive behaviour. This project examines what features of social networks matter for individuals' decision to get tested for HIV and their subsequent behavior in 21 villages in central Malawi.

Identification of social network effects is complicated by the endogeneity of social networks. That is, since joining a social network is a matter of individual choice, it is difficult to determine whether membership to a social network causes certain behavior or whether other unobservable characteristics that led to the individual joining the network, are what are driving outcomes. Identification of social network effects, given the endogeneity of social networks is possible due to the randomization of incentives across members of social networks. Randomization affects the incentives of a subset of a social network in some randomly selected groups. The presence of an impact of the intervention beyond the targeted group, is direct evidence of a social multiplier effect.

A further challenge to consistent identification of social network effects arises if social networks are measured incompletely. Even if nodes are sampled randomly, applying regression estimators to sampled subgraphs often yields misleading results. As the measurement error is non-classical, in regression contexts sampling may introduce expansion bias or sign-switching in addition to attenuation bias (Chandrasekhar and Lewis (2010)). This paper utilises a unique dataset with the social network information of nearly 100% of the adult population of 21 villages.

Following a social network survey of the villages, respondents were invited to take part in one of two lotteries. Half were given the opportunity to participate in Lottery A which awarded a randomized monetary amount for simply going to the redemption centre. The other half were given the opportunity to participate in Lottery B which similarly awarded a randomized monetary amount but with the condition that they had to get tested for HIV to collect their monetary incentive. Lotteries A and B were identical in all respects except for the conditionality of testing in Lottery B. HIV testing is free in Malawi. The lotteries were ran over the same time period and people had to travel the same distance to collect their incentive. To examine the effect of social influence, I measure spillovers within social networks of being randomized into a lottery where testing is compulsory on those who didn't have to get tested in order to receive their incentive.

I find significant heterogeneities in social network influence by gender. Having an additional male contact get tested increases the likelihood that a person will get tested by 5.3 percentage points. However in contrast, having an additional female contact get tested decreases the likelihood that a person will get tested by 2.8 percentage points. These effects are particularly strong for females and negative social network effects appear to be coming primarily from peers.

An important preliminary conclusion of this study is that the existence of multiple channels of interaction which might be working in opposite directions implies that the researcher needs to exercise caution in making inferences from an aggregate social network effect.

The rest of the paper proceeds as follows. Section 2 details some theoretical considerations. Section 3 describes the setting and the experiment, Section 4 describes the data and Section 5 concludes.

2. Theoretical Considerations

2.1. **Social Networks and HIV.** The HIV epidemic though global in its devastation has spread in markedly different ways around the world. Epidemiologists make the distinction between concentrated and generalized epidemics. In a concentrated epidemic, transmission occurs largely in defined vulnerable groups such as commercial sex workers, men who have sex with men and injecting drug users, and their sexual partners. Epidemics are generalized on the other hand, if transmission in the general population is sustained by sexual behaviour in the general population and would persist despite effective programs for vulnerable groups (Wilson and Halperin (2008)).

This distinction is an important one as different kinds of epidemics require different responses. In Latin America, the Middle East, Europe and Asia, the HIV epidemic has largely been concentrated. New infections predominantly result from high risk activities i.e. commercial sex work, men having sex with men and injecting drug use (Wilson and Halperin (2008); Ruxrungtham et al. (2004)). Targeted interventions in these concentrated epidemics have had documented efficacy in containing the epidemic. For instance, there have been successes in Thailand and Cambodia promoting the use of condoms among sex-workers. A "100% Condom Program" in Thailand and Cambodia that mandated brothel owners to enforce condom use in every paid sex act led to reductions in rate of STIs and HIV incidence among young men and pregnant women (Celentano et al. (1998)).

The majority of new HIV cases in most of Southern and parts of East Africa come from heterosexual sexual relationships among low-risk individuals. The rapid spread of HIV in Southern and Eastern Africa has been linked to long-term concurrent sexual partnerships that are the norm in many parts of Southern and Eastern Africa (Halperin and Epstein (2004); Helleringer and Kohler (2007); Morris and Kretzschmar (1997)). Practitioners report that spouses and those in stable relationships often shun condoms because to insist upon or ask for one would be interpreted as a sign of mistrust between regular partners (Cohen and Trussell (1996)).

It is puzzling that new infections occur despite the fact that in Malawi and across the continent there is widespread knowledge about the risk factors associated with getting infected with HIV/AIDS and the key behavioural responses to AIDS (abstinence, fidelity within relationships and condom use) (Government (2007)). Despite this knowledge, it seems that many people in Africa have made limited changes to their sexual behaviour (Stoneburner and Low-Beer (2004); Lagarde et al. (1996); Lindan et al. (1991); Bloom et al. (2000); Ng'weshemi et al. (1996); Thorton (2008)).

The generalized nature of the HIV epidemic in Southern and Eastern Africa puts the entire population at risk of infection. A deeper understanding of patterns of influence and information sharing is crucial in trying to understand how to induce behavioural change. There are multiple ways in which individuals interact in society and each of these levels of interactions are likely to influence behaviour and possibly in opposite directions.

2.2. **Estimating Social Network Effects.** An important challenge in the empirical literature is to identify what drives the correlation between people who interact in a social network. Manski (1993) distinguishes between *endogenous effects* in which the propensity of an individual to behave in some way varies with the prevalence of the behaviour in the group and *correlated effects* which is the fact that individuals in the same group tend to behave similarly because they face similar environments and have similar personal characteristics. Similar behaviour could stem from endogenous effects if for instance group members experience pressure to conform to group norms. Or group similarities might reflect correlated effects since people with similar characteristics might choose to associate with one another.

Current research has tried to overcome this endogeneity in two ways. One group exploits the random assignment of individuals into shared environments (Sacerdote (2001); Zimmerman (2003); Bayer et al. (2009), 2004). The other strand exploits random variation in the treatment of individuals within an existing peer network to determine how the intervention affects treated individuals' peers (Miguel and Kremer (2004); Duflo and Saez (2003); Godlonton and Thornton (2010)). This project hopes to extend existing literature by looking at which social networks matter for individual's reproductive decision making.

A further challenge to estimating social network effects arises from incorrectly or incompletely measured social networks. In much contemporary applied research into social networks, network data is usually obtained by randomly selecting a subset of nodes within the network and creating a subgraph with the data. The sub-network thus created is treated as the true network of interest. However sampling network information induces non-classical measurement error which may lead to expansion bias or sign switching in addition to attenuation bias (Chandrasekhar and Lewis (2010)). This study overcomes this problem by collecting social network information of nearly 100% of the population of 21 villages in Central Malawi.

3. Experimental Design

3.1. **Setting.** The study was conducted in Lilongwe District in the central region of Malawi. The data were collected between December 2009 and July 2010. At the baseline in December 2009, enumerators visited the study villages and collected basic information from all the households in the village. Each of the households was asked to provide a list of all household members 16 years and older, and some basic information about each household member. We then created a village roster of all the adult inhabitants of the village assigning each individual an ID number. Enumerators then returned to the villages to collect information about each person's social connections. Respondents were asked to list their friends, family members and people that they admire in the village. The names that the respondents gave were matched to IDs from the village roster.

Figures 5.2 - 5.5 show how the social network maps were constructed. Nodes coded in black represent male respondents while white nodes represent female respondents. Figure 5.2 shows the links of friendship within one of the study villages. A notable feature about Figure 5.2, which is true of all the villages in this study is that there is a bias in friendship among individuals of the same gender. As can be seen in the figure, people in these villages appear somewhat segregated by gender. Table 1 indicates that 90.17% of men's friendships are with other men, and similarly 93.79% of women's friendships are with other women.

Figure 5.3 shows the family links within the same study village. Figure 5.4 is a directed graph where each link shows the person a respondent named in the survey as someone they admire. Figure 5.5 is the union of the links in Figures 5.2, 5.3 and 5.4.

3.2. **The Experiment.** In June 2010, enumerators returned to the study villages to recruit respondents for the study. From the original population of 3155 respondents, 21 had since passed away and 397 had permanently moved away[1]. These 418 respondents have been removed from the social networks used in subsequent analysis.

A further 664 respondents were not available during the days when enumerators visited the villages to recruit participants for the study. Enumerators were stationed at the villages for 2 or 3 days and not the whole village was available during this time. These respondents were often away at work or had temporarily left the village to visit friends or other family members.

2073 respondents were available during the recruitment period. The study was restricted to healthy adults between 16 and 60 years. Thus 323 respondents weren't eligible to participate. 87 eligible respondents declined to participate in the study.

The remaining 1666 respondents were given the opportunity to participate in one of two lotteries. The lotteries gave respondents the opportunity to collect a randomly determined lottery amount between zero and four dollars. Respondents would have to travel to a pre-determined centre to pick up their incentive. Respondents randomized into Lottery A had no conditions placed on their

[1]Respondents had moved to villages not covered in the study

collection of the lottery amount while those in Lottery B will had to get an HIV test in order to collect their lottery amount.

The lotteries were presented to study participants in the following way. Enumerators asked participants to pick one lottery amount out of four from a bag. They then also picked whether or not they had to get tested in order to collect their lottery amount or not. Enumerators then took a photograph of the participants. The participant's picture, lottery amount pick and lottery were printed out on a card. Enumerators distributed the cards to participants a few days later. Respondents were informed that if they took their entry cards to one of the six partner VCT centres during a special promotional week, they would be able to redeem their entry coupon for the lottery amount they picked. The redemption centres were partner Voluntary Counseling and Testing Centres and are between two and eight kilometers away from the study villages.

During the promotional week, enumerators were stationed at the partner VCT centres. The enumerator verified that the bearer of the entry coupon was the one photographed and paid the lottery draw. Those assigned to the conditional lottery (Lottery B) received their lottery draw only after being tested for HIV.

Figure 5.1 illustrates the various stages of the study.

4. Estimation

4.1. **Attrition.** Table 2 looks at the various levels of attrition from the study from respondents' unavailability during the experiment and refusal to participate. Being male and having more years of education are both associated with unavailability during the experiment. This might be due to the fact that enumerators recruited participants for the study during weekdays when better educated males might be away at work. Further men are slightly more likely to consent to the study (2% off a mean of 96.5%) and each additional year is associated with being 0.2% less likely to consent to the experiment.

The analysis that follows includes these covariates as controls.

4.2. **Results.** Table 3 presents the first stage: what is the probability that a respondent assigned to the HIV test lottery went on to get tested?

$$Tested_{ij} = \alpha + \beta_1 IncentiveAmount_{ij} + \beta_2 TestLottery_{ij} + X'_{ij}\delta + Y_j\gamma + \epsilon_{ij} \tag{4.1}$$

$IncentiveAmount_{ij}$ is the amount the amount respondent i in village j randomly drew in the lottery. $TestLottery_{ij}$ is whether the respondent drew the lottery where they had to get tested in order to collect their lottery draw.

Table 3 indicates that 62.6% of respondents randomized into the test lottery got tested for HIV. 20% of respondents who didn't have to get tested in order to collect their lottery award got tested.

4.3. **Social Network Effects.** This section presents estimates of the causal effect of having social contacts who get tested on an individual's decision to get tested. Random assignment to the HIV-Test lottery serves as an exogenous instrument for social contacts getting a HIV test and as a result allows identification of social network effects.

To measure the effect of social contacts getting an HIV-test on individual's decision to get tested, I estimate:

$$Tested_{ij} = \alpha + \beta_1 \cdot \#SocialContactsTested_{ij} + \beta_2 \cdot \#SocialContacts_{ij} + X'_{ij}\delta + \epsilon_{ij} \qquad (4.2)$$

where $Tested_{ij}$ is an indicator of whether individual i in village j who was randomized into the No-Condition lottery, got an HIV test. $\#SocialContactsTested_{ij}$ is the number of social contacts who get an HIV test and $\#SocialContacts_{ij}$ is the number of social contacts the respondent has. The social network examined will be variously defined as all social connections, female contacts and male contacts in order to see which networks are most relevant to individual's decision making. These variables will be instrumented by the number of people in that network who were randomized into the HIV-Test Lottery.

Table 4 presents the results. In Panel A, regression (1) estimates the impact of having any of the respondent's social contacts getting a HIV test on their decision to get tested which is negative but not statistically significant. Regression 2 attempts to disaggregate this by looking at differently at the impact of male social contacts versus female social contacts. The coefficient on male social contacts is positive and statistically significant. Having an additional male contact get tested increases the likelihood that a person will get tested by 5.3 percentage points. However in contrast, having an additional female contact get tested decreases the likelihood that a person will get tested by 2.8 percentage points.

Regressions 3-6 of Panel A look at the impact of having social contacts get tested separately on men and women. Column (3) shows a small positive but imprecisely estimated aggregate social effect, but again a positive effect of male contacts on the likelihood of getting tested. The imprecise estimation may be coming from the small number of observations. Columns (5) and (6) reveal a negative but imprecisely estimated aggregate effect, but a similar pattern as before with a positive effect of male social contacts, and a negative one of female social contacts.

Panel B looks at the impact of Table 4 compares the impact of having social contacts on married respondents and finds a similar pattern of social impact to Panel A. Having a spouse who gets tested appears to have a slightly negative though imprecisely estimated impact on testing for married men (Column 4 - Panel B) and a slightly positive and marginally significant impact on married women (Column 6 - Panel B).

Table 5 further disaggregates social network effects by the type of link: peers, relatives or person the respondent admires. Peers appear to have a negative effect on testing and particularly so for women while relatives and admired contacts have a positive, albeit imprecisely estimated effect.

The heterogeneities in social network effects suggest that the existence of multiple channels of interaction which might be working in opposite directions implies that the researcher needs to exercise caution in making inferences from an aggregate social network effect.

Future work hopes to make use of detailed social network information to try and explain the different effects by gender and link type.

5. Conclusion

This study aims to contribute toward a better understanding of the role that networks play in motivating sexual behavioural change. Studies have shown that individuals' immediate social groups have a strong impact on their subjective perception of risk and on subsequent risk-taking behaviour. However measuring social network effects is complicated by the fact that social networks are endogenous. This study creates a unique dataset of the full social network map of 21 villages in Central Malawi and overcomes the difficult identification problems of detecting social network effects by varying the incentives of a subset of a social group to get tested for HIV and evaluating whether the intervention extends beyond the group targeted.

This paper shows significant heterogeneities in social network influence. The separate identification of different social effects is important for policy evaluation because different channels of influence generally require different policies.

Results from this study could guide policy about the best way to target interventions to induce greater risk prevention behaviour. Every year, there are a significant number of new infections and further still, research shows these occur in low risk populations who have made limited behavioural responses to the general population level risk of being infected with HIV/AIDS. Given the primacy of social networks, for a wide range of economic and social outcomes, this study hopes to identify which social interactions should be targeted by policy makers.

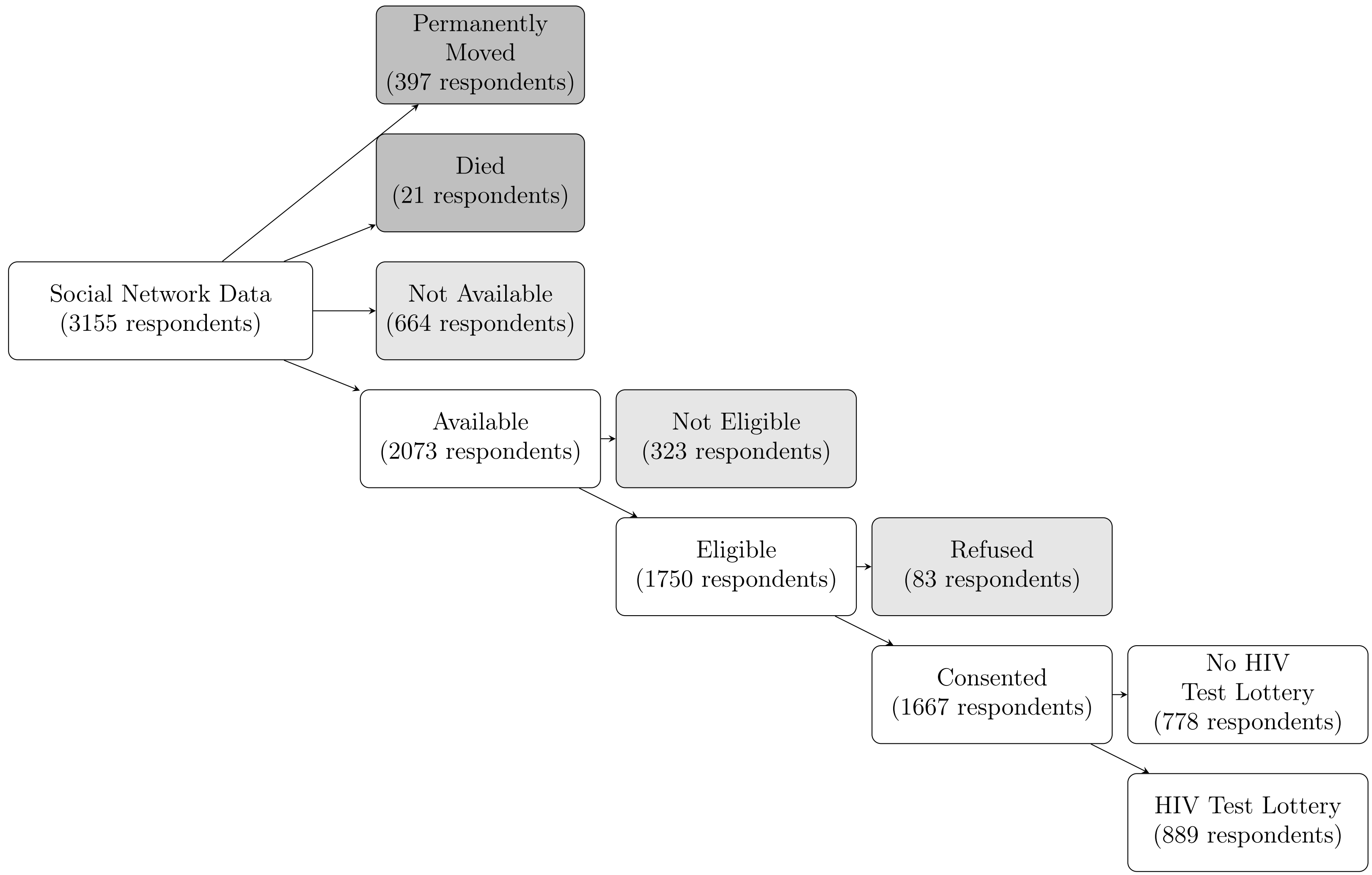

FIGURE 5.1. Study Timeline

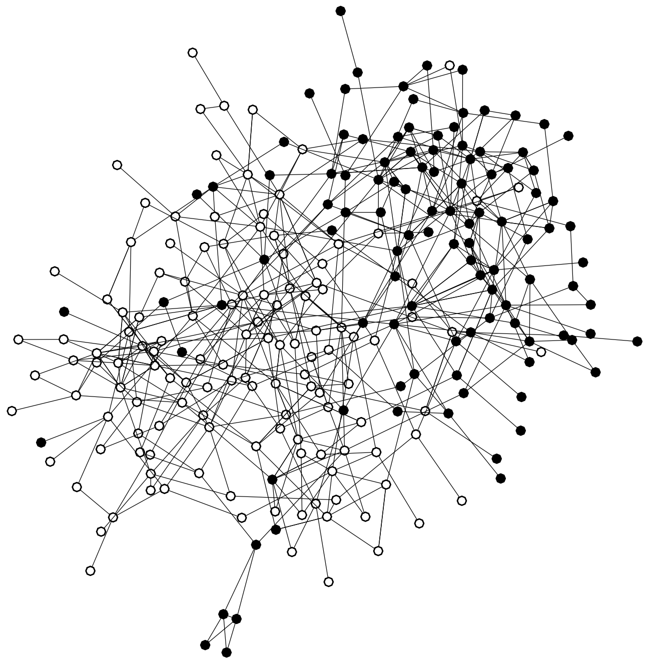

FIGURE 5.2. Link denotes that at least one of the two respondents named the other as a friend in the survey. Nodes coded by Gender: Black=Male, White=Female.

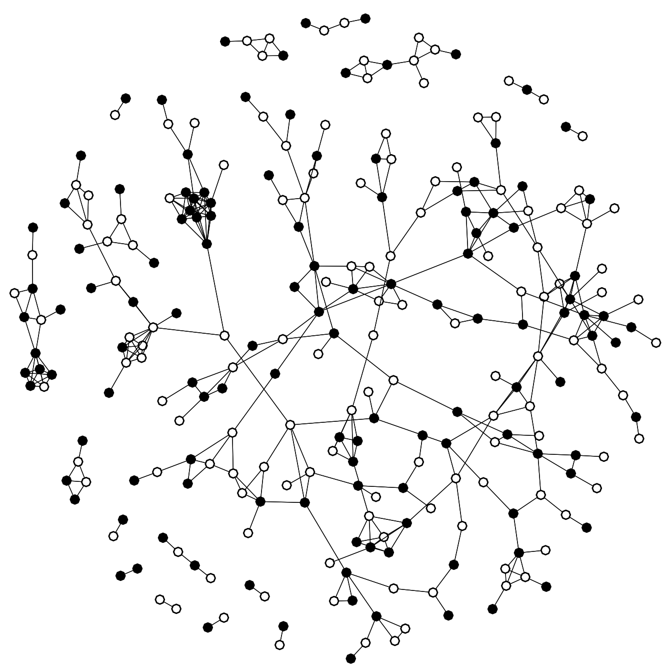

FIGURE 5.3. Link denotes denotes that at least one of the two respondents named the other as a blood relative in the survey.

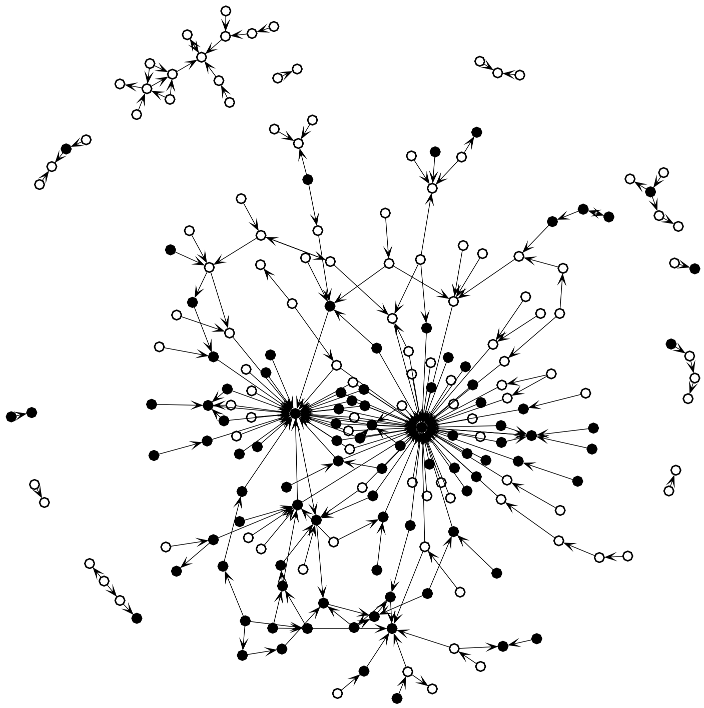

FIGURE 5.4. Directed graph with each link denoting someone the respondent named in the survey as someone that they admire.

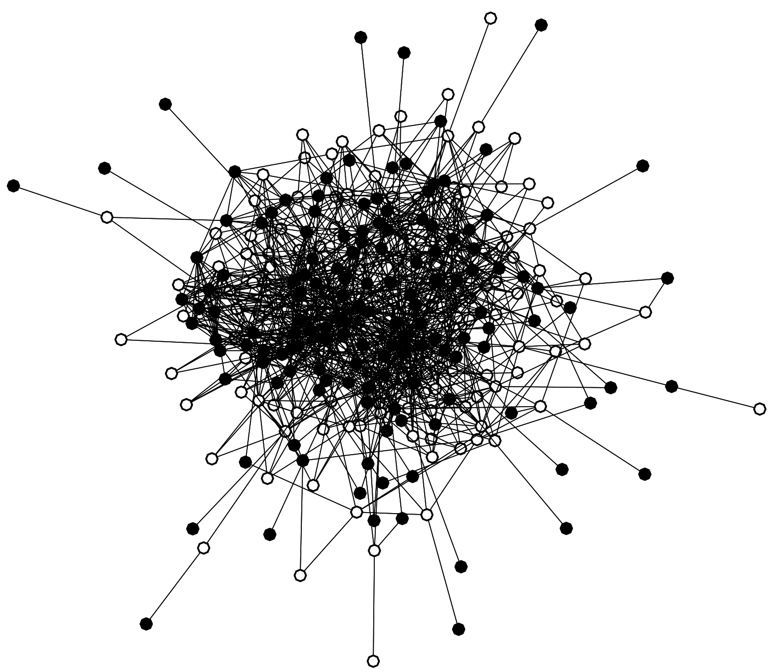

FIGURE 5.5. Village Social Network map with a union of all the links in Figures 5.2, 5.3 and 5.4.

Table 1. **Frequency of friendships across gender**

	Men	Women
% of the population	42.69%	57.31%
% of friendships by gender: Men	90.17%	9.83%
Women	6.21%	93.79%
Observations	996	1337

Table 2. **Attrition**

Dependent Variable:	(1) Respondent Available	(2) Respondent Consented
Male	-0.071***	0.021*
	(0.017)	(0.011)
Married	0.002	0.033
	(0.015)	(0.028)
Age	0.001	-0.002**
	(0.001)	(0.001)
Missing Age	-0.278***	-0.180**
	(0.051)	(0.085)
Years of Education	-0.009**	-0.000
	(0.004)	(0.002)
Missing Years of Education	0.005	0.014
	(0.038)	(0.029)
Ever Tested Before for HIV	0.014	0.015
	(0.015)	(0.010)
Missing Information on Ever Tested Before for HIV	-0.581***	-0.771***
	(0.028)	(0.110)
Constant	0.870***	0.965***
	(0.041)	(0.018)
Observations	2,737	1,750
R-squared	0.355	0.192

Notes: Robust standard errors clustered at the village level, in parentheses.
* significant with 90% confidence, ** 95%, *** 99%.

Table 3. **Regressions of whether respondents collected their lottery draw**

Dependent Variable: Tested	(1)
Male	-0.046*
	(0.024)
Test Lottery	0.626***
	(0.039)
Lottery Amount	0.027***
	(0.009)
Constant	0.201***
	(0.050)
Observations	1,667
R-squared	0.445

Notes: Robust standard errors clustered at the village level, in parentheses. Additional controls not presented here but included in the regressions are age, lottery amount, whether the person has been previously tested for HIV, education level and village fixed effects.
* significant with 90% confidence, ** 95%, *** 99%.

TABLE 4. **IV Regressions of whether respondents randomized into No-Test Lottery got tested during the testing week**

Panel A: All Respondents	**All**		**Men**		**Women**	
Dependent Var: Tested	(1)	(2)	(3)	(4)	(5)	(6)
# All Contacts Tested	0.005		0.015		-0.003	
	(0.007)		(0.019)		(0.011)	
# All Contacts	-0.006		0.004		-0.012	
	(0.006)		(0.009)		(0.007)	
# Male Contacts Tested		0.053*		0.041		0.118*
		(0.029)		(0.032)		(0.061)
# Male Contacts		-0.007		0.009		-0.013
		(0.008)		(0.012)		(0.013)
# Female Contacts Tested		-0.028*		-0.037		-0.039**
		(0.016)		(0.029)		(0.019)
# Female Contacts		-0.001		-0.007		-0.000
		(0.011)		(0.014)		(0.016)
Male	-0.003	-0.073*				
	(0.026)	(0.038)				
Constant	0.253***	0.319***	0.354***	0.404***	0.206	0.229
	(0.087)	(0.095)	(0.078)	(0.080)	(0.130)	(0.137)
Observations	778	778	307	307	471	471
R-squared	0.174	0.177	0.181	0.182	0.213	0.228
Panel B: Married Respondents	**All**		**Men**		**Women**	
Dependent Var: Tested	(1)	(2)	(3)	(4)	(5)	(6)
# All Contacts Tested	0.008		0.023		-0.001	
	(0.013)		(0.023)		(0.018)	
# All Contacts	-0.009		-0.001		-0.015	
	(0.010)		(0.012)		(0.013)	
# Male Contacts Tested		0.061**		0.041		0.116*
		(0.029)		(0.033)		(0.062)
# Male Contacts		-0.008		0.007		-0.020*
		(0.008)		(0.012)		(0.011)
# Female Contacts Tested		-0.027		-0.021		-0.040*
		(0.018)		(0.030)		(0.021)
# Female Contacts		-0.006		-0.013		-0.002
		(0.012)		(0.016)		(0.018)
Spouse Tested	0.023	0.021	0.011	-0.014	0.053	0.045
	(0.056)	(0.063)	(0.058)	(0.077)	(0.089)	(0.091)
Male	-0.010	-0.121***				
	(0.029)	(0.036)				
Constant	0.162*	0.223**	0.192	0.217*	0.130	0.146
	(0.089)	(0.093)	(0.115)	(0.111)	(0.127)	(0.138)
Observations	611	611	239	239	372	372
R-squared	0.183	0.191	0.236	0.238	0.202	0.221

Notes: Robust standard errors clustered at the village level, in parentheses. * significant with 90% confidence, ** 95%, *** 99%.
Instruments used are whether contacts were randomized into the lottery where they had to get tested for HIV in order to collect their lottery draw. Additional controls not presented here but included in the regressions are age, lottery amount, whether the person has been previously tested for HIV, education level and village fixed effects.

Table 5. **IV Regressions of whether respondents in No-Test Lottery Got Tested**

Panel A: All Respondents	**All**		**Men**		**Women**	
Dependent Var: Tested	(1)	(2)	(3)	(4)	(5)	(6)
# All Contacts Tested	0.005		0.015		-0.003	
	(0.007)		(0.019)		(0.011)	
# All Contacts	-0.006		0.004		-0.012	
	(0.006)		(0.009)		(0.007)	
# Peers Tested		-0.013		0.010		-0.034**
		(0.009)		(0.025)		(0.016)
# Peers		-0.005		0.001		-0.004
		(0.008)		(0.012)		(0.012)
# Relatives Tested		0.013		-0.017		0.047
		(0.037)		(0.044)		(0.058)
# Relatives		0.005		0.012		-0.003
		(0.012)		(0.020)		(0.019)
# Admired Contacts Tested		0.036		0.016		0.075
		(0.022)		(0.022)		(0.064)
# Admired Contacts		-0.013*		-0.006		-0.039*
		(0.007)		(0.007)		(0.023)
Male	-0.003	-0.018				
	(0.026)	(0.027)				
Constant	0.253***	0.221**	0.354***	0.309***	0.206	0.177
	(0.087)	(0.080)	(0.078)	(0.091)	(0.130)	(0.141)
Observations	778	778	307	307	471	471
R-squared	0.174	0.190	0.181	0.207	0.213	0.223
Panel B: Married Respondents						
# All Contacts Tested	0.007		0.023		-0.002	
	(0.013)		(0.023)		(0.018)	
# All Contacts	-0.008		-0.002		-0.014	
	(0.010)		(0.012)		(0.013)	
# Peers Tested		-0.023*		-0.005		-0.043*
		(0.013)		(0.031)		(0.022)
# Peers		-0.000		0.008		0.001
		(0.012)		(0.012)		(0.018)
# Relatives Tested		0.056		0.037		0.083
		(0.048)		(0.050)		(0.075)
# Relatives		-0.021		-0.021		-0.025
		(0.019)		(0.025)		(0.028)
# Admired Contacts Tested		0.035		0.016		0.085
		(0.025)		(0.021)		(0.085)
# Admired Contacts		-0.011		-0.005		-0.048
		(0.007)		(0.006)		(0.028)
Spouse Tested	0.033	0.022	0.018	0.007	0.065	0.049
	(0.053)	(0.050)	(0.059)	(0.052)	(0.086)	(0.091)
Male	-0.004	-0.019				
	(0.029)	(0.029)				
Constant	0.181**	0.176**	0.204*	0.202**	0.150	0.136
	(0.086)	(0.079)	(0.117)	(0.096)	(0.126)	(0.121)
Observations	611	611	239	239	372	372
R-squared	0.188	0.210	0.244	0.282	0.207	0.222

Notes: Robust standard errors clustered at the village level, in parentheses. * significant with 90% confidence, ** 95%, *** 99%.
Instruments used are whether contacts were randomized into the lottery where they had to get tested for HIV in order to collect their lottery draw. Additional controls not presented here but included in the

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