

Are Wealthy Sugar Daddies Spreading HIV?:
Exploring Economic Status, Informal Exchange, and Sexual Risk in Kisumu, Kenya

Nancy Luke
Assistant Professor (Research)
Population Studies and Training Center
Brown University
Box 1836
Providence, RI 02912
401-863-3239 Tel 401-863-3351 Fax
nluke@brown.edu

DRAFT PAPER: DO NOT CITE WITHOUT AUTHOR'S PERMISSION

Paper presented at the Annual Meetings of the Population Association of America,
March 30-April 1, 2005, Los Angeles.

Acknowledgements: This paper is based on data from a project directed by Kaivan Munshi and Nancy Luke, Population Studies and Training Center, Brown University. We gratefully acknowledge support from the World Bank, the National Institutes of Health, National Institute on Aging, Grant number AG12836 through the Population Aging Research Center at the University of Pennsylvania, and the Mellon Foundation, the Center for AIDS Research, and the University Research Foundation at the University of Pennsylvania. We would like to thank Francis Ayuka and Survey Research Team, Nairobi, for their superb work collecting the data.

Introduction

In the early stages of the HIV/AIDS epidemic in sub-Saharan Africa, economic status was positively associated with HIV infection (Kimuna and Djamba 2005, Hargreaves et al. 2002). A key explanation for this relationship was that wealthier men could attract and afford multiple sexual partners—particularly commercial sex workers, who were believed to be the main sources of infection—and therefore faced greater risk of acquiring the disease. Through their engagement in commercial sex relationships, wealthy men helped channel HIV infection into the general population.

As the epidemic continues unabated in numerous African settings, many observers believe that wealthy men still play a disproportionate role in the spread of infection. As condom use within formal commercial sex relationships has often increased to high levels, particularly where information and knowledge about its risks has grown over time, concern has shifted to the multitude of wealthy “sugar daddies” who are giving money and gifts to other types of sexual partners, including schoolgirls, university students, and poor women (Illingworth 2004, Kuate-Defo 2004, Luke 2003). The suspicion voiced in many policy circles as well as in the African popular discourse is that sugar daddies’ involvement in these informal exchange relationships is widespread and the money and gifts that are offered are traded off for unsafe sexual activities (BBC 2005, Chase 2004, Hallman 2004, Mader 2004, Ulin 1992). Thus, in settings with more mature epidemics, wealthy men continue to be a major pathway of infection through their non-commercial exchange partnerships.

Our previous work has endeavored to examine several of these assumptions surrounding informal exchange in Kisumu, a city in western Kenya that is the site of an ongoing HIV/AIDS epidemic. According to a UNAIDS population-based survey, the HIV prevalence rate reached 26 percent in Kisumu by 1997 and, based on data from a sentinel surveillance site, HIV prevalence was estimated to be 29 percent in 2001, the year of our study (Glynn et al. 2001, NASCOP 2005). Using survey data on sexual behavior and the money and gifts that men give to their nonmarital sexual partners (what we refer to as “transfers”), our analyses found that informal exchange relationships are indeed commonplace in Kisumu and their cost is not trivial.

Transfers were given in three-quarters of men's recent nonmarital, non-commercial partnerships, and the expenditure for each partner was equivalent to 9 percent of men's income (Luke 2006). We are also the first to test the assumption that transfers are associated with unsafe sexual behavior. We found a negative and significant association between the value of transfers given and the likelihood of condom use within a partnership, indicating that a market for unsafe sexual activity has emerged within nonmarital relationships in Kisumu (Luke 2006, 2005a).¹ Our findings pertain to informal exchange within nonmarital partnerships; we did not, however, explore how male economic status is linked to transfers and condom use in this high HIV/AIDS environment to determine if wealthy men are actually more risky sexual partners.

There are two main hypotheses about the connection between male wealth and unsafe sexual behavior. According to the popular assumptions outlined above, wealthy men are more likely to be sugar daddies because they can afford to give greater amounts of money and gifts to their nonmarital sexual partners. Given the negative association between transfers and condom use that we confirmed in Kisumu, wealthy men would consequently be less likely to use condoms. In this case, the negative effect of wealth on condom use operates *indirectly* through transfers. However, we could also imagine that wealthy men may be safer partners in contexts of mature epidemics, such as Kisumu. Wealthy men are likely to be the types of individuals who have internalized concerns about their health and their future due to extensive information and behavior change campaigns that have been disseminated throughout the population. According to this hypothesis, wealthy men have greater incentives to protect themselves from HIV infection than poorer men, and therefore we would expect a *direct* positive effect of wealth on condom use.

Despite the escalating attention focused on the sugar daddy phenomenon and how informal exchange relationships help fuel the HIV/AIDS epidemic in Africa, there has been no empirical investigation of the connection between economic status, transfers, and unsafe sexual behavior. One potential reason for the paucity of studies examining these important relationships is the lack of quality data on economic status in African populations and transfers within sexual

¹ The giving of money and gifts in sexual relationships may not be associated with unsafe behavior in all settings or in all types of relationships (see Luke 2006, 2005b).

partnerships. We aim to tackle these problems by using our Kisumu survey data, which contains information on the economic status of working-age men and sexual risk behavior in their nonmarital partnerships. Ours is also one of the only existing surveys to collect detailed data on men's involvement in informal exchange relationships and the type and value of transfers given to their sexual partners.² In this paper, we first test the assumption that wealthier men are more likely to be sugar daddies, defined by involvement in informal exchange relationships and the giving of greater amounts of transfers to nonmarital sexual partners. Subsequently, we study the determinants of condom use and attempt to identify the direct or indirect mechanisms by which wealth is associated with condom use.

The Kisumu Survey

Our survey was conducted in Kisumu, the capital of Nyanza Province in western Kenya and traditional home to the Luo ethnic group. Kisumu is a destination for many young Luo migrants seeking educational and work opportunities as well as a central town on the highway from coastal Kenya into Uganda. The high mobility and young age structure of the population is believed to have contributed to the rapid spread of HIV as well as other sexually transmitted diseases in this region of Kenya (Voeten et al. 2004, Buvé et al. 2001b). We chose Kisumu as the site for a study of the effects of social organization, including marriage and informal exchange, on sexual and labor market behavior among a population of migrant men in urban Africa (see Luke and Munshi forthcoming, Luke and Munshi 2003).

The data derive from a random sample of 2700 Luo males ages 21-45 that was surveyed between July and August 2001. Kenyan Census Bureau enumeration areas were used as primary sampling units within Kisumu town. Of these, 121 were randomly chosen for the survey, and all households in each enumeration area were selected. In each household, all males of eligible age were interviewed by trained field-workers. The study followed procedures of confidentiality and

² The only other existing survey we know of with detailed information on transfers within nonmarital sexual partnerships is a study in Nigeria by Caldwell and colleagues (see Orubuloye et al. 1992).

informed consent. We discuss elsewhere the methods we employed to ensure validity and reliability of reporting, particularly on sexual behaviors (Luke 2005a).

The survey instrument gathered information on the economic status of the respondent, and we include two measures of wealth in this paper. First, we use the respondent's self-reported income in the last month. We include this variable as a continuous variable in the regression analysis, and for the descriptive statistics, we construct a dichotomous variable by designating men with the median income in the last month and above as "high" economic status and those below the median as "low" economic status. Most men in Kisumu have regular wage employment and so we expect income to be fairly accurately reported. Second, we use information on inherited land as a measure of economic status. Luos are patrilineal, where inheritance centers on the male line, and each son receives a share of his father's land. Each respondent was asked to report the amount of land in acres owned by his father and the number of his brothers who survived to age 5. We divide father's land by the number of sons (brothers plus one) as a measure of the respondent's inherited land.

A specific aim of the survey instrument was to gather information on male nonmarital sexual behavior that was not restricted to commercial sex. This is particularly useful to our analysis of the relationship between male wealth and sexual behavior in the later stages of the HIV/AIDS epidemic, where transmission due to risky behavior largely occurs outside of commercial sex relationships. In addition to background demographic and socioeconomic questions, respondents to our survey were asked the number of nonmarital sexual partners they had in the last year, and information on the five most recent partners was gathered.³ Partner information included female partner age and if the female was a commercial sex worker (CSW). Partnership information included duration of the relationship, time of last sexual intercourse, condom use at last sexual intercourse, and material transfers respondents gave to each nonmarital partner in the last month, which is discussed in more detail below.

Most of the analyses in this paper use a data set consisting of nonmarital sexual partnerships formed by male respondents, as opposed to individual-level data. We also limit our dataset to

³ Of the men reporting nonmarital sexual partners in the last year, 95 percent had 5 partners or fewer.

men's recent partnerships. Survey questions regarding nonmarital sexual partnerships used a reference period of the last year, while the reference period for questions regarding transfers was the last month, pertaining to current or relatively recent partnerships. In order to ensure that our analysis captures only those sexual partnerships that were active in the last month (which we define as recent), we limit our sample to partnerships whose last act of sexual intercourse took place in the last month. Of the initial men in our sample, 39 percent reported at least one nonmarital sexual partner in the last month, for a total of 1049 men and 1609 recent partnerships.⁴

The remainder of this section discusses the survey questions and construction of each of the variables in our analysis. Because we are interested in the relationship between economic status and both transfers and condom use, we also include descriptive statistics in Table 1 that compare the male, female, and partnership characteristics for two groups of male respondents by high and low economic status. We use *t*-tests to assess significant differences between wealthier and poorer men.

Transfers

According to the assumptions outlined above, we expect that wealthier men are more likely to be sugar daddies because, by virtue of their higher incomes, they are better able to provide their sexual partners with transfers and in greater amounts than poorer men. Many of the popular descriptions of sugar daddies in the print, radio, and online media portray them as prosperous businessmen in luxurious automobiles, who offer their female partners large amounts of cash and gifts, including clothing, trips abroad, and jewelry (Evian 2002, Leach and Machakanja 2001, Susman 2000, ZNFPC 1997, Uganda MOH 1996, GFPA 1994). Several qualitative research studies describe how young women in want or need of financial support seek well-off men as sexual partners, knowing they can acquire more from them (Longfield et al. 2004, Rasch et al. 2000, Temin et al. 1999, Meekers and Calves 1997, McLean 1995).

⁴ In addition to the 39 percent of men with at least one recent partner, 20 percent reported at least one nonmarital sexual partner in the last year, but none of these partnerships was recent (in the last month), and 41 percent reported no nonmarital sexual partners in the last year.

Other qualitative studies have concluded, however, that the informal exchange of money and gifts has become an expected practice in many African settings, such that a woman would not agree to have sex unless she received some sort of transfer (Görge et al. 1993). Mottos such as “No money, no sex” or “no money, no love” were voiced by women in numerous locations (e.g., Silberschmidt and Rasch 2001:1820, Komba-Malekela and Liljestrom 1994: 140). Men too, realized that exchanges of money and gifts are “normal nowadays” and that they could not attract sexual partners without offering a transfer (Görge et al. 1998:67, Kaufman and Stavrou 2004, Meekers and Calves 1997, Gage 1998). Therefore, it may be the case that all men are expected to give transfers to their sexual partners regardless of their economic status, and therefore no correlation between wealth and transfers would exist. Indeed, we noted that our previous work found that transfers are given in the majority of nonmarital partnerships in Kisumu, although the frequency and amount of transfers could still vary by the wealth of male partners.

Despite this surge of interest in informal exchange relationships and risk behavior in sub-Saharan Africa over the last decade, surveys have collected scant information on transfers between nonmarital sexual partners (for a discussion see Luke 2003, 2005b). In contrast, we designed our Kisumu survey to gather detailed information on the type and value of transfers that male respondents gave to each of their nonmarital sexual partners. Our survey question read: “It is common for men to give women gifts or other assistance when they are in a relationship. What have you given your partner(s) in the last month?” Response categories included the major types of transfers that were uncovered during pre-testing, including money; gifts; meals, drinks, and food; rent; and an open category, where respondents could designate other items given. The survey focused on material or tangible items whose value could be quantified; we did not include other assistance, such as social support or job contacts. For each category of transfer, the respondent was asked to estimate the amount of money or value of the items given in Kenyan shillings (US\$1 was approximately equal to Ksh 70 at the time of the study). In order to ensure accurate recall about the specific type of assistance given and the value of those transfers, the question was limited to transfers that were given in the last month. In this paper, we create two measures of informal exchange: a dichotomous variable for any transfer given in the last month within a partnership, coded 1 for yes and 0 for no, and a continuous variable designating the total

value of transfers given within the partnership.⁵ This variable was calculated by totaling the value of each category of assistance reported by the respondent specific to each partnership.

Descriptive statistics on involvement in informal exchange and the value of transfers by male economic status are presented in Panel A of Table 1. We find that wealthier men are in fact significantly more likely to give a transfer within their nonmarital partnerships and to give larger amounts than poorer men. For wealthier men, 77.5 percent of recent partnerships involved some form of a transfer, while 69.9 percent of partnerships of poorer men did. The average value of transfers in the last month per partnership from men of higher economic status was Ksh 587 (US\$8.40) versus Ksh 290 (US\$4.10) from low-status men.⁶ Although wealthier men provided larger sums on average to their sexual partners, it is interesting to note that poorer men gave a greater proportion of their incomes in transfers. Using data reported below in Panel C on the mean monthly income of men of high and low economic status, we calculate that transfers to the average partner comprised 7.4 percent of wealthier men's mean monthly income compared to 15.2 percent of poorer men's.

The results in Panel A show a positive association between wealth and the likelihood of engaging in informal exchange within a partnership and the amount given per partner. Coupled with our previous analysis of the Kisumu data, which found that larger transfers are associated with decreased condom use, we would expect to find lower levels of condom use within wealthier men's relationships compared to those of poorer men. We test for differences in condom use and other sexual behaviors for men of high and low economic status in the next section.

Sexual Behavior

Our survey elicited men's reports of condom use at last sexual intercourse within each of their nonmarital sexual partnerships, which we code 1 for yes and 0 for no. Results are presented in

⁵ See Luke (2006) for more details on the value of transfers given by category.

⁶ We drop the top 0.5 percent of total transfers as extreme outliers.

Panel B of Table 1. Interestingly, we find that wealthier men are not practicing more risky sexual behaviors. Looking across all partnerships in the last year, we see that a condom was used at last sexual intercourse in 54.1 percent of wealthier men's partnerships, which is significantly greater than partnerships involving poorer men, where a condom was used in 50.6 percent of partnerships. With respect to recent partnerships, condom use is statistically indistinguishable; 51.8 percent of wealthier men's and 48.5 percent of poorer men's partnerships included condom use at last sexual intercourse.

In Kisumu, wealthier men are engaging in higher levels of condom use in their partnerships than poorer men; nevertheless, wealthier men may have more sexual partners and therefore their overall risk could be increased. Information on the number of nonmarital sexual partners male respondents reported in the last year as well as the last month is presented in Panel B. We find that men of high economic status reported fewer sexual partners than men of low economic status. Wealthier men had 2.6 partners in the last year on average, where poorer men reported 2.8. This difference is not statistically significant. With respect to nonmarital partners in the last month, wealthier men were engaged with 1.5 partners on average, which is significantly smaller than 1.6 partners on average for poorer men.

The results in Panel B reject the notion that at the time of an established HIV/AIDS epidemic in Kisumu, men of higher economic status are particularly risky individuals as measured by multiple partnerships and condom use. Indeed, there appears to be a positive association between wealth and condom use in recent sexual partnerships.

The absence of a negative relationship between male wealth and condom use in the descriptive statistics suggests that the second effect of wealth on condom use that we discussed in the introduction is playing a role. We hypothesized that at later stages of the epidemic, wealthier men may be more likely to internalize threats to their health and use protective measures with their sexual partners than poorer men. In this case, economic status would have a direct positive effect on condom use, which could counter the negative indirect effect through transfers. We could also imagine that there are other characteristics that are correlated with wealth that might directly increase condom use, including characteristics of male respondents or their female

sexual partners. For example, wealthier men might be older or better educated, and age and education might be independently protective in this high HIV environment. We consequently turn to Panels C and D of Table 1 to study differences in observed male, female, and partnership characteristics for men of high and low economic status.

Male, Female, and Partnership Characteristics

Our survey recorded numerous background characteristics of male respondents in addition to economic status, including age, education, and marital status, and descriptive statistics are presented in Panel C. We included continuous variables for age and education. We find that, due to the young age structure of the urban migrant population in Kisumu, male average ages are quite low; nevertheless, age differs significantly by economic status. Wealthier men are 27 years old on average and poorer men are 25 years. In addition, men of high economic status have significantly more years of education, 10.3 years on average compared to 9.7 years for poorer men. We also include a measure of current marital status as a categorical variable designating currently single, married, or divorced, separated, or widowed. Wealthier men are significantly more likely to be married and less likely to be single than poorer men. There is no significant difference in the proportion divorced, separated, or widowed by group, however.

Panel C also reports descriptive statistics with respect to economic status. By construction, men of high economic status are those with income at or above the median and therefore have higher incomes on average than poorer men. We see that the differences in average income are quite large and that inherited land is marginally significantly different across income groups. In terms of income, wealthier men earned Ksh 7785 (US\$ 113) on average in the last month, whereas poorer men earned Ksh 1908 (US\$ 27).

Our survey also asked male respondents to report details of each of their nonmarital female sexual partners. Our analysis uses the age difference between partners as a measure of asymmetry within the relationship, the assumption being that the greater the age difference, the greater power yielded by the male partner in sexual decision-making (Luke 2003). In the survey,

male respondents reported the age of each female partner, and we subtract the age of the female partner from the age of the male partner to construct the continuous age difference variable. The statistics presented in Panel D of Table 1 show that the age difference with recent female partners of wealthier men is significantly higher (6 years difference on average) than the age difference with partners of poorer men (5 years difference on average).

Men in Kisumu engage with different types of female partners in their nonmarital sexual relationships, including CSWs, casual partners, and longer-term, more serious girlfriends, commonly referred to as *jadiya* by Luo men. Our analysis uses two measures of the nature of the sexual partnership. First, the survey asked male respondents if each of their nonmarital sexual partners was a CSW, and we construct a dummy variable for each female partner, coded 1 for yes and 0 for no. Panel D shows that 6 percent of wealthier men's recent partners were CSWs compared to 4.7 percent of poor men's, and this difference is not statistically significant. It appears that wealthier men are not engaging in commercial sex relationships to a greater extent than poorer men at the later stage of the epidemic in Kisumu. Condom use within these commercial sex relationships is approximately 80 percent (not shown), and perhaps men's preference for sex without a condom leads them to choose other types of partners for the majority of their relationships. Our second indicator of the nature of the partnership is its duration, which is measured as a continuous variable in months. We find that wealthier men's recent relationships are approximately 14 months in duration on average, which is (marginally) significantly longer than poorer men's relationships, which are approximately 12 months on average.

The descriptive statistics from Table 1 suggest that wealthier men are more likely to engage in informal exchange relationships and to give their non-marital partners greater amounts of transfers, however the sexual risk behaviors reported on the survey are very similar for both groups. At same time, wealthier men and their sexual partnerships are significantly different from poorer men along other dimensions, which could confound the true relationship between economic status and condom use. The regressions that follow will investigate whether the relationship between economic status, transfers, and condom use is maintained after controlling

for important individual and partnership characteristics.

Specifications for the Effect of Wealth on Transfers and Condom Use

In the regression analysis, we first test the assumption that wealth is positively correlated with involvement in informal exchange relationships and the level of transfers provided in nonmarital sexual partnerships. Subsequently, we study the determinants of condom use.

We examine the relationship between economic status and transfers in two ways. We first estimate a regression of the probability of being involved in a relationship that included a transfer. The regression specification is the following:

$$\Pr(TRANS_{ij} = 1) = \alpha ESTATUS_i + \varepsilon_{ij} \quad (1)$$

where $TRANS_{ij}$ is coded 1 if the male i gave the female partner j any transfer in the last month, and 0 if not. $ESTATUS_i$ is the economic status of male i , measured by male income or inherited land. ε_{ij} includes all unobservable determinants of engaging in an informal exchange relationship. If wealthier men are more likely to give transfers in their relationships than poorer men, $\alpha > 0$; if they are less likely, $\alpha < 0$.

Involvement in an informal exchange relationship may also depend on characteristics of the male and female and the nature of the partnership. We introduce several observed characteristics to estimate a regression of the form

$$\Pr(TRANS_{ij} = 1) = \alpha ESTATUS_i + Z_i \mu + X_{ij} \lambda + \varepsilon_{ij} \quad (2)$$

Z_i collects observable male partner characteristics that determine transfers in addition to economic status, including age, education, and marital status. X_{ij} is a vector of observed measures that describe female partner and partnership characteristics and includes the age difference between partners, if the female partner is a CSW, and the duration of the relationship.

Next we estimate a regression of the effect of economic status on the level of transfers in the partnership using the following specification:

$$AMOUNT_{ij} = \beta ESTATUS_i + Z_i \mu + X_{ij} \lambda + \varepsilon_{ij} \quad (3)$$

where $AMOUNT_{ij}$ is the value of transfers in the last month given by man i to female partner j . If wealthier men give greater amounts of transfers than men of lower economic status, $\beta > 0$; if they give less, $\beta < 0$.

The second part of our regression analysis studies the relationship between wealth and condom use, controlling for important male, female, and partnership characteristics. We investigate this association with a regression specification as follows:

$$\Pr(C_{ij} = 1) = \delta ESTATUS_i + Z_i \mu + X_{ij} \lambda + \varepsilon_{ij} \quad (4)$$

where $C_{ij} = 1$ if man i and female partner j used a condom at last sexual intercourse. If wealthier men are less likely to engage in relationships that involve safe sexual practices than men of lower economic status, $\delta < 0$; if they are more likely to use condoms, $\delta > 0$.

The linear probability (LP) model is used for the regressions that we report in this paper. The advantage of the LP model is that the coefficients are easy to interpret in terms of the probability of giving a transfer, the level of transfers, and the probability of condom use. A potential drawback of the LP model is that the predicted probability of condom use is not constrained to lie in the $[0,1]$ range. However, across all the regressions we present, at most 2.9 percent of the observations generate predicted values outside this range.

Empirical Results

Estimates of the Relationship between Economic Status and Transfers

The first part of the regression analysis examines the association between male economic status and (1) the probability of giving a transfer and (2) the level of transfers within the nonmarital sexual partnership. The regression results are presented in Table 2. We run three regressions for each of the dependent variables. The first specification for each dependent variable (columns 1 and 4) includes observed exogenous male characteristics that could affect transfers, including income in the last month, age, and education. The second specification (columns 2 and 5) introduces additional variables, including male marital status, as well as female and partnership characteristics, including the age difference between partners, if the female partner is a CSW, and the duration of the relationship. The third specification (columns 3 and 6) contains the same variables as the second but substitutes inherited land for income as an exogenous measure of male economic status. The recent partnership sample size decreases slightly in the regressions with inherited land, as several respondents did not report this information. In all regressions we present, income and the amount of transfers are measured in thousands of Kenyan shillings for ease of exposition. Standard errors that allow for correlated residuals across partnerships for the same individual are reported in parentheses beneath the coefficients. The constant terms are reported but not discussed.

The results in Table 2 confirm that economic status is positively and significantly associated with both the giving of transfers and the amount across most of the regressions that we report. For every Ksh 1000 in male income, the probability of giving a transfer increases approximately 1 percent, and the total amount of transfers increases Ksh 28 (US\$0.40). Inherited land has a positive effect on giving a transfer, however the effect is not significant. Inherited land significantly increases the total amount of transfers, however. For every additional acre in inherited land, the total amount of transfers increases by Ksh 9 on average. It is also important to note that the coefficients on economic status remain stable across specifications as additional controls are introduced.

We find that numerous male, female, and partnership characteristics are significantly associated with transfer behavior. Age of male respondents has a significant positive association with the giving of a transfer and the amount; however, the effect on giving a transfer is only significant at the 10 percent level. Male education has no effect on giving a transfer once additional controls are included in the regression specification, however it is significantly related to the total amount given. On the whole, marital status is not significantly associated with transfers, except that formerly married (divorced, separated, or widowed) men are less likely to give a transfer than single men, the reference category, which is a significant at the 10 percent level.

With respect to characteristics of female partners and the partnership, the age difference between partners and the duration of the partnership are not associated with receiving a transfer. The only significant characteristic predicting the presence of a transfer is if the female partner is a CSW. This is to be expected, as commercial sex is by definition a transactional arrangement. CSWs are 20 percent more likely to be given a transfer than other types of partners. CSWs did not receive significantly greater amounts of transfers than other women, however. Finally, the age difference between partners is not associated with the total amount given, however the duration of the partnership is positively and significantly related the value of transfers.

Overall, the results of the regression analysis in Table 2 show that male economic status is an important determinant of men's engagement in informal exchange as well as the level of transfers men provide their nonmarital sexual partners. This confirms the common assumption outlined above that wealthier men are more likely to be sugar daddies, who give larger amounts of money and gifts to their sexual partners.

Estimates of the Relationship between Economic Status and Condom Use

The second part of our analysis examines the effect of male economic status on the probability of condom use at last sexual intercourse, and the regression results are presented in Table 3. Similar to those reported in Table 2, we run three regression specifications, sequentially adding

observed male, female, and partnership characteristics as additional controls in columns 1 and 2 and substituting inherited land for male income in column 3.

Looking across the results, we find that male economic status has no effect on condom use at last sexual intercourse, confirming once again the findings reported in the descriptive statistics. This result is upheld whether economic status is measured by income and inherited land and as additional controls are introduced into the regression specification.

Several male, female, and partnership characteristics are also significant predictors of condom use. Although male age has no effect, educational status has a significant positive association with condom use: each year of educational attainment increases the probability of condom use by approximately 3.4 percent. With respect to marital status, divorced, separated, or widowed men are approximately 16 percent less likely to use a condom than single men, the reference category, and this is a significant result.

Several studies have found that large age differences—such as 10 or more years—are associated with HIV infection and unsafe sexual behaviors (Glynn et al. 2001, Gregson et al. 2002, Kelly et al. 2003, Luke 2005a). The age difference between partners in our analysis is unrelated to condom use. We also experimented with including a dummy variable indicating an age difference of 10 or more years within the partnership, coded 1 for yes and 0 for no. This variable also showed no significant association with condom use across all regression specifications. Condom use was significantly more likely to occur in partnerships with CSWs, however; if the female partner is a CSW, the probability of condom use increases approximately 29 percent. Partnerships of longer duration are also significantly associated with decreased condom use, however the effect is small in magnitude.

In sum, the findings of the regression analyses in Tables 2 and 3 support the descriptive statistics, concluding that men of higher economic status are more likely to engage in informal exchange and to provide higher levels of transfers to their recent partners. However, condom use in recent partnerships does not vary with male economic status. The final part of our analysis aims to shed light on why this is the case.

Determinants of Condom Use with Male Fixed Effects

There could be two reasons for the apparent absence of any relationship between economic status and condom use despite the fact that wealthier men give larger transfers to their partners. One explanation is that higher economic status might simultaneously *directly* increase condom use because wealthier men are more risk averse and wish to protect their health to a greater extent than poorer men do. An alternative explanation is that although wealth does indirectly determine condom use through transfers, the *effect* of transfers on condom use differs across men of varying economic status. We can imagine that there are two distinct matching markets for unsafe sexual behavior in Kisumu—one for wealthier men and one for poorer—and that the characteristics of wealthier men’s female partners positively influence condom use. In this case, each Kenyan shilling that is given from a wealthier man has a weaker (less negative) effect on condom use than one given from a poorer man. Recall that the descriptive statistics in Table 1 showed that wealthier and poorer men match with different types of partners on several dimensions.

By including the interaction between transfers and economic status as an additional regressor in the condom use regression, we can test statistically whether there is a differential effect of transfers on condom use for wealthier and poorer men. The amount of transfers given within the partnership is jointly determined with condom use, therefore we cannot directly regress condom use on transfers to see whether this relationship varies with economic status. Instead, we take advantage of our data on multiple sexual partnerships for each man to include individual fixed effects. This procedure effectively looks at various levels of transfers and condom use across partnerships for the same man, therefore controlling for all of the male’s observed and unobserved characteristics that could bias the transfers-condom use relationship.

We present the results of this analysis in Table 4. The first specification in columns 1 and 2 uses income as a measure of male economic status and the second (columns 3 and 4) uses inherited land. Each specification also includes female and partnership characteristics as in Tables 2-3.

Because we use male fixed effects, any observed male characteristics, including economic status, drop out of the regression,⁷ while the interaction term remains.

Looking to the results in Table 4, we see that there is a significant effect of transfers on the probability of condom use, but that the coefficients on female and partnership characteristics are all insignificant. For every Ksh 1000 given in transfers, the probability of condom use decreases approximately 18 percent. This result confirms the findings from our previous work that transfers and condom use are negatively correlated, and also indicates that both measures of economic status operate in a similar manner with respect to condom use and transfers. Due to the inclusion of the interaction term, the coefficients on transfers apply to partnerships of men of lower economic status. With respect to the additional effect of transfers on condom use for partnerships of wealthier men, we find that the interaction term is very small and insignificant across both regressions. Thus, our latter explanation—that the effect of transfers on condom use differs for partnerships involving wealthier and poorer men—cannot explain the absence of a relationship between economic status and condom use. We are left to conclude that there must be a direct positive effect of wealth on condom use, which offsets the indirect negative effect operating through transfers in the Kisumu sexual market.

Conclusion

Much attention has been focused on informal exchange relationships as a contributing factor in the ongoing HIV/AIDS epidemic in sub-Saharan Africa and the “sugar daddies” who give money and gifts to their partners in exchange for unsafe sexual activities. It is commonly believed that by virtue of their wealth, men of higher economic status have greater potential to become sugar daddies and give large transfers to their sexual partners. Wealth may therefore

⁷ The estimates in the fixed effects regressions are identified off those men who report variation in the outcome (condom use) across their multiple partnerships. These men’s partnerships account for 19.0 percent of the total observations in our sample, and 11.0 percent of men. The potential concern with this procedure is that these men might not be representative of the overall sample. We compared these men with the overall sample and found they did not significantly differ on observed dimensions, such as education and income, however, they were slightly younger (not shown).

increase men's participation in informal sexual relationships that we have found to be, in turn, associated with decreased condom use. This paper uses survey data from men in Kisumu, Kenya, which include detailed information on economic status and transfers within men's nonmarital sexual partnerships, to test the relationship between economic status, transfers, and condom use.

Our analysis finds that economic status is positively associated with the giving of transfers as well as the amount exchanged, however, wealth is not correlated with condom use in urban Kisumu. We examine two explanations for this interesting finding: First, that the relationship between transfers and condom use differs for men of higher and lower economic status; and second, that wealth directly increases condom use. Our final regression analysis estimates the relationship between transfers and condom using male fixed effects and finds that the effect of transfers does not differ between men of varying degrees of economic status. It appears that the protective nature of higher economic status offsets the negative effect of larger transfers that wealthier men give to their sexual partners.

Our results have implications for policies and programs aimed at increasing safe sexual behaviors within nonmarital partnerships. While some have argued that wealthy men are to blame for the ongoing HIV/AIDS epidemic in numerous African contexts, our analysis concludes otherwise. While wealthier men are more likely to be sugar daddies who engage in the risky practice of informal exchange, they are also likely to be disproportionately affected by information about the disease and its risks that has come to the fore as the epidemic has progressed. More concern should be placed on the men of lower economic status who give large transfers to their sexual partners. These poorer sugar daddies wield a double-edged sword of risk in their relationships. Like wealthy sugar daddies, they are less likely to use condoms due to the larger transfers they provide; unlike wealthier men, unfortunately, they lack the incentives to practice safer sex, which counteracts the negative effect of transfers.

References

- British Broadcasting Corporation (BBC). 2005. "Why have a 'Sugar Daddy'?" *Africa Live* broadcast, August 18. <http://news.bbc.co.uk/2/hi/africa/4145674.stm>
- Buvé A , Weiss HA, Laga M, Van Dyck E, Musonda R, Zekeng L, Kahindo M, Anagonou S, Morison L, Robinson NJ, Hayes RJ for the Study Group on Heterogeneity of HIV Epidemics in African Cities. 2001b. "The Epidemiology of Gonorrhoea, Chlamydial Infection and Syphilis in Four African Cities." *AIDS* 15(Suppl. 4):S79-S88.
- Chase, Marilyn. 2004. "Saying No to 'Sugar Daddies': Can a Financial Prophylactic Shield Girls From Liaisons that Spread AIDS in Africa?" *The Wall Street Journal*, February 25.
- Evian, Clive. 2002. "Sugar daddy syndrome" shortcuts the route of HIV infection. *Mail & Guardian*. November 29.
- Gage, A.J. 1998. "Sexual Activity and Contraceptive Use: The Components of the Decision Making Process." *Studies in Family Planning* 29(2):154-166.
- Gambia Family Planning Association (GFPA). 1994. Poster: Beware of sugar daddy. The Gambia.
- Glynn, J.R., M. Caraël, B. Auvert, M. Kahindo, J. Chege, R. Musonda, F. Kaona, A. Buve, and the Study Group on the Heterogeneity of HIV Epidemics in African Cities. 2001. "Why Do Young Women have a Much Higher Prevalence of HIV than Young Men? A Study in Kisumu, Kenya and Ndola, Zambia." *AIDS* 15(suppl. 4):S51-S60.
- Görge, R., B. Maier and H.J. Diesfeld. 1993. Problems related to schoolgirls' pregnancies in Burkina Faso. *Studies in Family Planning* 24(5): 283-294.
- Görge, R., M.L. Yansane, M. Marx et al. 1998. Sexual behavior and attitudes among unmarried urban youths in Guinea. *International Family Planning Perspectives* 24(2): 65-71.
- Gregson, Simon, Constance A. Nyamukapa, Geoffrey P. Garnett, Peter R. Mason, Tom Zhuwau, Michael Carael, Stephen K. Chandiwan, Roy M. Anderson. 2002. Sexual mixing patterns and sex-differentials in teenage exposure to HIV infection in rural Zimbabwe. *The Lancet* 359:1896-1903.
- Hallman, Kelly. 2004. "Socioeconomic Disadvantage and Unsafe Sexual Behaviors Among Young Women and Men in South Africa." *Population Council Policy Research Division Working Paper* No. 190. New York: The Population Council.
- Hargreaves, James R., Linda A. Morison, Jane Chege, Naomi Rutenburg, Maina Kahindo, Helen A. Weiss, Richard Hayes, and Anne Buve. 2002. "Socioeconomic Status and Risk of HIV Infection in an Urban Population in Kenya." *Tropical Medicine and International Health* 7(9):793-802.

- Illingworth, Betsy. 2004. "Sugar Daddies in Africa: The Growing Trend of Transactional Sex." Choice! Magazine. Planned Parenthood Federation of America. December 4.
<http://www.plannedparenthood.org/pp2/portal/files/portal/webzine/newspoliticsactivism/fean-041202-transactional.xml>
- Kaufman, Carol E. and Stavros E. Stavrou. 2004. "'Bus fare please': The Economics of Sex and Gifts Among Young People in Urban South Africa." *Culture, Health and Sexuality* 6(5):377-391.
- Kelly, Robert J., Ronald H. Gray, Nelson K. Sewankambo, David Serwadda, Fred Wabwire-Mangen, Tom Lutalo, and Maria J. Wawer. 2003. Age differences in sexual partners and risk of HIV-1 infection in rural Uganda. *Journal of Acquired Immune Deficiency Syndromes* 32(4):446-451.
- Kimuna, Sitawa R. and Yanyi K. Djamba. 2005. "Wealth and Extramarital Sex Among Men in Zambia." *International Family Planning Perspectives* 31(2):83-89.
- Komba-Malekela, B. and R. Liljestrom. 1994. Looking for men. In *Chelewa, Chelewa. The Dilemma of Teenage Girls*. Eds. Z. Tumbo-Masabo and R. Liljestrom. Sweden: The Scandinavian Institute of African Studies, pp. 133-49.
- Kuate-Defo, Barthelémy. 2004. "Young People's Relationships with Sugar Daddies and Sugar Mummies: What Do We Know and What Do We Need to Know?" *African Journal of Reproductive Health* 8(2):13-37.
- Leach, Fiona and Pamela Machakanja. 2001. The sugar daddy trap. Peer pressure pushes girls into sex. *Insights Gender Violence Special Issue*. August.
- Longfield, Kim, Anne Glick, Margaret Waithaka, and John Berman. 2004. Relationships Between Older Men and Younger Women: Implications for STIs/HIV in Kenya. *Studies in Family Planning* 35(2):125-134.
- Luke, Nancy. 2006. "Exchange and Condom Use in Informal Sexual Relationships in Urban Kenya." *Economic Development and Cultural Change* 54(2):319-348.
- Luke, Nancy. 2005a. "Confronting the 'Sugar Daddy' Stereotype: Age and Economic Asymmetries and Risky Sexual Behavior in Urban Kenya." *International Family Planning Perspectives* 31(1).
- Luke, Nancy. 2005b. "Investigating Exchange in Sexual Relationships in Sub-Saharan African using Survey Data." In Shireen Jejeebhoy and Deepkia Ganju, eds. *Non-consensual Sex and Young People: Perspectives from the Developing World*. London: Zed Books.
- Luke, Nancy. 2003. "Age and Economic Asymmetries in the Sexual Relationships of Adolescent Girls in Sub-Saharan Africa." *Studies in Family Planning* 34(2):67-86.

- Luke, Nancy and Kaivan Munshi. Forthcoming. "New Roles for Marriage in Urban Africa: Kinship Networks and the Labor Market in Kenya." *Review of Economics and Statistics*
- Luke, Nancy and Kaivan Munshi. 2003. "What Role Does Marriage Play in Urban Africa?: Evidence from a High HIV Area in Kenya." *BREAD Working Paper* No. 032
- Mader. 2004. "'Sugar Daddies' Contribute to Spread of HIV in Africa, Experts Say." AP/Yahoo! News. July 16. Accessed on Daily Reports at kaisernetwork.org. http://www.kaisernetwork.org/daily_reports/rep_index.cfm?DR_ID=24805
- McLean, Polly. 1995. Sexual behaviors and attitudes of high school students in the Kingdom of Swaziland. *Journal of Adolescent Research* 10(3):400-420.
- Meekers, Dominique and Anne-Emmanuele Calves. 1997. "Main" girlfriends, girlfriends, marriage, and money: The social context of HIV risk behavior in sub-Saharan Africa. *Health Transition Review* 7(Suppl.):361-375.
- National AIDS and STI Control Programme (NASCOP). 2005. *AIDS in Kenya: Trends, Interventions, Impact*, 7th Edition. Nairobi: Ministry of Health.
- Orubuloye, I.O., J.C. Caldwell and P. Caldwell. 1992. Diffusion and focus in sexual networking: Identifying partners and partners' partners. *Studies in Family Planning* 23(6): 343-351.
- Rasch, Vibeke, Margrethe Silberschmidt, Yasinta Mchumvu, Vumilia Mmary. 2000. Adolescent girls with illegally induced abortion in Dar es Salaam: The discrepancy between sexual behavior and lack of access to contraception. *Reproductive Health Matters* 8(15):52-62.
- Silberschmidt, Margrethe, and Vibeke Rasch. 2001. Adolescent girls, illegal abortions and "sugar daddies" in Dar es Salaam: Vulnerable victim and active social agents. *Social Science and Medicine* 52:1815-1826.
- Susman, Tina. 2000. Staggering numbers in Africa. *Newsday.com*. July 13. www.newsday.com/news/health.
- Temin, Miriam J., Friday E. Okonofua, Francesca O. Omorodion, Elisha P. Renne, Paul Coplan, H. Kris Heggengougen, and Joan Kaufman. 1999. Perceptions of sexual behavior and knowledge about sexually transmitted diseases among adolescents in Benin City, Nigeria. *International family planning perspectives* 25(4):186-190 & 195.
- Uganda Ministry of Health (MOH). 1996. Poster: Support your friends: help them to remain AIDS free. Entebbe, Uganda: Uganda Ministry of Health, National Tuberculosis & Leprosy Control Unit.

Ulin, Priscilla R. 1992. "African Women and AIDS: Negotiating Behavioral Change." *Social Science & Medicine* 34(1):63-73.

Voeten H.A.C.M., O.B. Egesha, and J.K.F. Habbema. 2004. "Sexual Behavior is More Risky in Rural than in Urban Areas among Young Women in Nyanza Province, Kenya." *Sexually Transmitted Diseases* 31(8):481-487.

Zimbabwe National Family Planning Council (ZNFPC). 1997. Poster: Sugar daddies are only interested in you... until someone new comes along. Harare, Zimbabwe: ZNFPC.

Table 1. Characteristics of men and their nonmarital sexual partnerships, by male economic status, Kisumu, Kenya

	Economic status	
	High	Low
Panel A: Transfers (a)		
Percent of recent partnerships that involved a transfer	77.5	69.9 **
Mean amount of transfer (Ksh)	586.6	298.8 ***
Panel B: Men's nonmarital sexual behavior		
Percent of partnerships in last year where condom used at last intercourse (c)	54.1	50.6 *
Percent of recent partnerships where condom used at last intercourse (a)	51.8	48.5
Mean number of partners in last year (b)	2.6	2.8
Mean number of recent partners (b)	1.5	1.6 *
Panel C: Men's characteristics (b)		
Mean age (years)	27.3	24.9 ***
Mean years education	10.3	9.7 ***
Percent single	50.8	66.2 ***
Percent married	45.4	28.7 ***
Percent divorced, separated, widowed	3.8	5.1
Mean income in last month (Ksh)	7885.1	1907.8 ***
Mean acres inherited land	4.1	3.3 +
Panel D: Female and partnership characteristics (a)		
Mean age difference between recent partners (years)	6.0	5.0 ***
Percent CSW	6.0	4.7
Mean duration of recent partnerships (months)	13.8	12.4 +

***p<0.001; *p<0.05; +p<.10; t-tests

"Recent" refers to men's non-marital sexual partnerships whose last act of sexual intercourse occurred in the last month

(a) from sample of recent partnerships, N=778 for high economic status and 831 for low

(b) from sample of men, N=520 for high economic status and 529 for low

(c) from sample of partnerships in the last year, N=1719 for high economic status and 2281 for low

Table 2. Determinants of transfers within men's recent non-marital sexual partnerships

Dependent variable:	Any transfer			Total amount of transfers		
Economic status variable:	Income		Inherited land	Income		Inherited land
	(1)	(2)	(3)	(4)	(5)	(6)
Male partner characteristics						
Economic status	0.008 *** (.002)	0.007 *** (.002)	0.001 (.001)	0.028 *** (.006)	0.028 *** (.006)	0.009 ** (.003)
Age (years)	0.003 (.002)	0.006 + (.004)	0.007 + (.004)	0.008 * (.004)	0.014 ** (.005)	0.016 ** (.005)
Education (years)	0.008 + (.005)	0.005 (.005)	0.008 (.005)	0.037 *** (.008)	0.031 *** (.008)	0.037 *** (.008)
Current marital status (ref=single)						
Married		-0.024 (.032)	-0.010 (.032)		-0.029 (.048)	0.026 (.047)
Div/sep/wid		-0.103 + (.059)	-0.105 + (.059)		-0.038 (.081)	-0.032 (.085)
Female partner and partnership characteristics						
Age difference between partners (years)		-0.004 (.004)	-0.004 (.004)		-0.008 (.005)	-0.006 (.006)
Female partner is CSW (ref=no)		0.202 *** (.033)	0.207 *** (.033)		0.019 (.076)	0.055 (.082)
Duration of partnership (months)		0.001 (.001)	0.001 (.001)		0.005 *** (.001)	0.005 *** (.001)
Constant	0.541 *** (.082)	0.502 *** (.090)	0.475 *** (.091)	-0.285 * (.136)	-0.364 * (.148)	-0.412 ** (.154)
N	1609	1609	1585	1609	1609	1585

***p<0.001; **p<0.01; *p<0.05; +p<0.10; standard errors in parentheses

"Recent" refers to men's non-marital sexual partnerships whose last act of sexual intercourse occurred in the last month

Standard errors are corrected for heteroscedasticity and are robust to clustered residuals across partnerships for each individual

Income: income in last month in Kenyan shillings/1000; Total amount of transfers: transfers in Kenya shillings/1000

Table 3. Determinants of condom use at last sexual intercourse within men's recent non-marital sexual partnerships

Dependent variable:	Condom use		
	Income		Inherited land
Economic status variable:	(1)	(2)	(3)
Male partner characteristics			
Economic status	0.004 (.003)	0.003 (.003)	-0.001 (.002)
Age (years)	-0.005 (.003)	-0.004 (.004)	-0.003 (.004)
Education (years)	0.033 *** (.006)	0.033 *** (.006)	0.034 *** (.006)
Current marital status (ref=single)			
Married		0.013 (.037)	0.010 (.037)
Div/sep/wid		-0.153 * (.070)	-0.158 * (.070)
Female partner and partnership characteristics			
Age difference between partners (years)		-0.001 (.004)	-0.001 (.004)
Female partner is CSW (ref=no)		0.280 *** (.050)	0.287 *** (.050)
Duration of partnership (months)		-0.003 *** (.001)	-0.003 *** (.001)
Constant	0.290 ** (.104)	0.294 ** (.106)	0.275 ** (.105)
N	1609	1609	1585

***p<0.001; **p<0.01; *p<0.05; +p<0.10; standard errors in parentheses

"Recent" refers to men's non-marital sexual partnerships whose last act of sexual intercourse occurred in the last month

Standard errors are corrected for heteroscedasticity and are robust to clustered residuals across partnerships for each individual

Income: income in last month in Kenyan shillings/1000

Table 4. Determinants of condom use at last sexual intercourse within men's recent non-marital partnerships, fixed effects

Dependent variable: Economic status variable:	Condom use			
	Income		Inherited land	
	(1)	(2)	(3)	(4)
Economic status and transfers				
Total amount of transfers	-0.189 *	-0.179 +	-0.199 **	-0.182 **
	(.096)	(.096)	(.067)	(.065)
Total amount of transfers x economic status	1.77 x 10-9	2.90 x 10-9	2.99 x 10-6	2.89 x 10-6
	(8.64 x 10-9)	(9.33 x 10-9)	(2.03 x 10-6)	(2.27 x 10-6)
Female and partnership characteristics				
Age difference between partners (years)		0.007		0.007
		(.009)		(.009)
Female partner is CSW (ref=no)		0.169		0.171
		(.125)		(.125)
Duration of partnership (months)		-0.002		-0.002
		(.002)		(.002)
Constant		0.729 ***		0.729 ***
		(.188)		(.186)
N	1609	1609	1585	1585

***p<0.001; **p<0.01; *p<0.05; +p<0.10; standard errors in parentheses

"Recent" refers to men's non-marital sexual partnerships whose last act of sexual intercourse occurred in the last month
Standard errors are corrected for heteroscedasticity and are robust to clustered residuals across partnerships for each individual

Income: income in last month in Kenyan shillings/1000; Total amount of transfers: transfers in Kenyan shillings/1000