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Economic Status, Informal Exchange, and Sexual Risk in Kisumu, Kenya

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I. Introduction

The connection between individual wealth and HIV/AIDS has long been of interest to researchers and policy makers. In the early stages of the epidemic in sub-Saharan Africa, economic status was positively associated with HIV infection (UNAIDS 1998; Hargreaves et al. 2002; Lyons 2003). 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 (Cleland, Ali, and Capo-Chichi 1999). 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. Condom use within formal commercial sex relationships has reached generally high levels, particularly where awareness about the risks of commercial sex has grown over time. Perhaps consequently, concern has shifted to the informal exchange of money and gifts within men's noncommercial relationships and its connection to HIV infection. Numerous studies have documented how wealthy men, or "sugar daddies," give money and gifts (what we refer to as "transfers") to young schoolgirls, university students, poor women, and long-term extramarital partners (Nyanzi, Pool, and Kinsman 2000; Machel 2001; Kaufman and Stavrou 2004; Kuate-Defo 2004) and that

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such informal exchange has become an expected practice in many contexts (Luke 2003). In addition, my research in Kisumu, Kenya—a city where HIV/AIDS prevalence rates have reached 25% for over a decade—has shown that transfers to nonmarital sexual partners are associated with unsafe sexual behavior, measured by decreased condom use (Luke 2006).[1] Thus, in settings with more mature epidemics, the general assumption among many health researchers is that wealthy men continue to be a major pathway of infection through their informal exchange partnerships.

Despite the escalating attention focused on the role of informal exchange in fueling the HIV/AIDS epidemic in Africa, there has been no empirical investigation of the connection between economic status, transfers, and sexual risk behavior. One potential reason for the paucity of studies examining these important linkages is the lack of quality data on economic status in African populations and transfers within sexual partnerships. I overcome this shortcoming by using survey data I collected in urban Kisumu that contain information on the economic status of working-age men and sexual risk behavior in their nonmarital partnerships. Mine is also one of the only existing surveys to collect detailed data on men's involvement in informal exchange relationships and the value of transfers given to their partners. In this article, I investigate various mechanisms through which economic status is associated with sexual risk behavior, as measured by the nonuse of condoms within sexual partnerships, to shed light on the role that wealthy men play in spreading infection in a high HIV/AIDS environment.

II. Analytical Framework

I attempt to disentangle the various channels through which male wealth affects condom use in Kisumu. I begin with the assumption that men and women have certain preferences for condom use and that, in general, women's preferences are stronger than men's (Luke 2006). The actual probability that a condom will be used in a particular partnership is thus a weighted average of the man's and woman's preferences:

$$\Pr(C = 1) = wP_M + (1 - w)P_F,$$

where $C = 1$ if a condom was used at last sexual intercourse, $C = 0$ if not; w is the weight placed on the man's preferences; P_M and P_F are male and female preferences, respectively; and w is an increasing function of transfers

[1] According to a UNAIDS population-based survey, the HIV prevalence rate reached 26% in Kisumu by 1997 (Glynn et al. 2001) and, based on data from a sentinel surveillance site, HIV prevalence was estimated to be 29% in 2001, the year of our study (NASCOP 2005).

to the female partner, which reflects the man's bargaining power within the partnership.

My previous research in Kisumu examined the relationship between transfers and condom use (Luke 2006). I ran a regression of condom use on transfers with individual male fixed effects, which allowed me to examine various levels of transfers and condom use across partnerships for the same man (effectively holding male preferences constant). In the context of the equation above, P_M was fixed, and I allowed w to vary across each individual's multiple partnerships. To take account of the possibility that the level of transfers could be correlated with the type of female partner, measured by P_F, I also controlled for important female characteristics. As predicted, those partnerships with greater transfers (larger w) were associated with lower condom use.

My current interest lies in the effect of economic status on unsafe sexual behavior, and I hypothesize three mechanisms through which wealth could affect condom use. As noted above, the common assumption is that, at later stages of the HIV/AIDS epidemic in sub-Saharan Africa, wealthier men continue to display greater risky behavior than poorer men, preferring to forgo condom use and, by virtue of their wealth, to give large transfers. I first test the assumption that wealthier men give more transfers to their female partners on average than poorer men. As discussed, transfers are associated with lower probabilities of condom use, and, if wealthier men's transfers are larger (larger w), we would expect them to be less likely to use condoms than poorer men, ceteris paribus.

Second, wealth could affect condom use through men's preferences, P_M. At the onset of the epidemic, all individuals suffered from a lack of information about the disease and its transmission, and we could assume that preferences for safe sexual behavior were the same for wealthier and poorer men. However, in contexts of mature HIV/AIDS epidemics, such as in Kisumu, extensive information and education campaigns have made most people aware of the risky behaviors associated with HIV infection. Because of their accumulated assets and status, wealthier men might care relatively more about their future health and would practice safer sex than poorer men in such an environment. Furthermore, men of higher economic status might have had more personal experience with AIDS deaths among their (relatively wealthy) relatives and friends. According to this hypothesis, wealthier men have greater incentives to protect themselves from HIV infection than poorer men, and their preferences, P_M, would be more aligned with the preferences of their female partners, P_F, leading to greater condom use. The two effects of increased transfers and pro-condom preferences operate in opposite directions; if the

preference effect is sufficiently large, wealthier men could actually end up using more condoms even though they give more transfers to their partners.

The third channel through which male economic status could affect transfers is through men's partnerships. If wealthier men match with women who have a particularly strong preference for condom use (P_F is larger), then they could actually increase their use of condoms. This would be the case even if wealth has no effect on male preferences and if wealthier men give more transfers to their female partners, which puts less weight on the preferences of the female.

Past research has revealed the characteristics of female partners that are associated with condom use, and wealthy men may be more likely to enter into relationships with these women. For example, at the later stages of the epidemic, commercial sex workers typically have strong preferences for safe sexual behavior. Commercial sex workers have been the target of a myriad of programs aimed at educating them about the risks of HIV/AIDS and increasing their negotiating skills with clients to insist on condom use. Condom use is also more frequent with shorter-term casual partners, whom men do not know well, in contrast to lower condom use in partnerships with longer-term, more serious partners. Relationships with longer-term partners are generally distinguish by emotional attachment and trust, which, in turn, have been linked to low levels of condom use in other studies (Harrison, Xaba, and Kunene 2002). In addition, wealthier men might engage in partnerships characterized by small age differences between partners, which are associated with higher levels of condom use and lower levels of HIV infection (Glynn et al. 2001; Gregson et al. 2002; Kelly et al. 2003; Luke 2003).

Despite the various linkages that I have hypothesized, much of the literature assumes that the effects of male economic status and transfers reinforce to produce a negative effect of wealth on safe sexual behavior. In my analysis, I investigate these multiple pathways through which wealth is associated with condom use to determine if wealthier men are actually more risky sexual partners than poorer men in Kisumu.

III. The Kisumu Survey and Data

The 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 (Buvé et al. 2001; Voeten, Egesah, and Habbema 2004). I 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 2003, 2006; Luke 2005a, 2006).

The data derive from a random sample of 2,700 Luo males aged 21–45 that was surveyed between July and August 2001. Kenyan Census Bureau enumeration areas were used as primary sampling units within the 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 fieldworkers. Data quality was of paramount importance to the project, and the research team took several steps to ensure the validity and reliability of reporting. These measures included developing a culturally sensitive survey instrument, continuous training and monitoring of interviewers throughout the survey period, and carrying out numerous reliability checks in the field, such as reinterviewing 4% of the sample to confirm the reliability of responses with respect to marriage, migration, and sexual behavior.[2] I believe that the careful attention I placed on training and data quality resulted in a high response rate (96%) and accurate reporting.

In addition to background demographic and sociocultural questions, the survey instrument gathered information on the economic status of the respondent, and I include two measures of wealth in this study. First, I use the respondent's self-reported income in the last month. I include this variable as a continuous variable in the regression analysis, and for the descriptive statistics I construct a dichotomous variable by designating men with the median income in the last month and above as having "high" economic status and those below the median as having "low" economic status. Most men in Kisumu have regular wage employment, and therefore I expect income to be fairly accurately reported. For instance, of the men in my sample, 76% were engaged in occupations typified by regular wages or were self-employed, 5% were students, and 5% were unemployed. The remainder of the sample was employed in casual labor. The second measure of male economic status uses information on potential bequests of land, the main form of inheritable asset among the patrilineal Luo (Hoddinott 1994). 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. I 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 my analysis of the relationship between male wealth and

[2] See Luke (2005a) for further description of data quality checks.

sexual behavior in the later stages of the HIV/AIDS epidemic, where transmission due to risky behavior largely occurs outside of commercial sex relationships. Further benefits of the survey were the collection of information about multiple sexual partnerships engaged in by respondents and details of both members of the partnership. My survey asked respondents the number of nonmarital sexual partners they had had in the last year, and information on the five most recent partners was gathered.[3] Before constructing the survey, I conducted in-depth interviews with 20 male residents of Kisumu to assist in the formulation of detailed questions on the types and characteristics of men's nonmarital sexual partnerships. The in-depth interviews revealed the importance of sexual partners called *jadiya* in men's lives. *Jadiya* is a Luo slang term derived from the English phrase "my dear" and refers to serious girlfriends or lovers. Respondents also described the circumstances of men's relationships with casual partners and commercial sex workers (CSWs). Thus, on the survey, I collected female partner information that included each partner's age and if she was a CSW, casual partner, or *jadiya*. In addition, respondents reported the duration of the relationship, time of last sexual intercourse, condom use at last sexual intercourse, and material transfers they gave to each partner in the last month, the latter of which is discussed in more detail below.

Most of the analyses in this article use a data set consisting of nonmarital sexual partnerships formed by male respondents. I also limit our data set to men's recent partnerships, which I define as those active in the last month. I do this because survey questions regarding nonmarital sexual partnerships used a reference period of the past year, while the reference period for questions regarding transfers was the past month, pertaining to current or relatively recent partnerships. In order to ensure that my analysis captures only those sexual partnerships that were active in the past month, I limit my sample to partnerships whose last act of sexual intercourse took place in the past 4 weeks. Of the initial men in my sample, 39% reported at least one nonmarital sexual partner in the past month, for a total of 1,049 men and 1,609 recent partnerships.

The remainder of this section discusses the survey questions and construction of each of the variables in my analysis. Table 1 includes descriptive statistics that compare transfers, condom use, female partner characteristics, and male characteristics for the two groups of respondents by high and low economic status. I use *t*-tests to assess significant differences between wealthier and poorer men.

[3] Of the men reporting nonmarital sexual partners in the last year, 95% had five partners or fewer.

TABLE 1
CHARACTERISTICS OF MEN AND THEIR RECENT NONMARITAL SEXUAL PARTNERSHIPS BY MALE ECONOMIC STATUS

	Economic Status		
	High	Low	Significance
A. Transfers:[a]			
Percent of partnerships that involved a transfer	77.5	69.9	**
Mean amount of transfer (KSh)	586.6	298.8	***
B. Men's nonmarital sexual behavior:			
Percent of partnerships where condom used at last intercourse[a]	51.8	48.5	
Mean number of partners[b]	1.5	1.6	*
C. Female and partnership characteristics:[a]			
Mean age difference between partners (years)	6.0	5.0	***
Percent CSW/casual	41.3	45.7	+
Mean duration of partnerships (months)	13.8	12.4	+
D. 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, or widowed	3.8	5.1	
Mean income in last month (KSh)	7,885.1	1,907.8	***
Mean acres inherited land	4.1	3.3	+

Note. "Recent" refers to men's nonmarital sexual partnerships whose last act of sexual intercourse occurred in the past month. To assess significant differences between wealthier and poorer men, *t*-tests are used.

[a] From sample of recent partnerships. $N = 778$ for high economic status, and $N = 831$ for low status.

[b] From sample of men. $N = 520$ for high economic status, and $N = 529$ for low status.

+ $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p \leq .001$.

A. Transfers to Nonmarital Sexual Partners

According to the common assumptions outlined above, we would expect that wealthier men, by virtue of their higher incomes, are more likely to provide their sexual partners with transfers and to do so in greater amounts than poorer men. Many of the popular descriptions of wealthy men, or "sugar daddies," in the print, radio, and online media portray them as prosperous businessmen who offer their female partners large amounts of cash and gifts, including clothing, trips abroad, and jewelry (Susman 2000; Leach and Machakanja 2001; Evian 2002; Illingworth 2004).[4] Several qualitative research studies describe

[4] The stereotypical "sugar daddy" is a male who exchanges large amounts of money and gifts for sexual favors with much younger women. Thus, sugar daddy relationships involve large age differences between sexual partners, as well as the transfer of material resources. In this article, we are concerned with informal exchange and the amount of transfers and their relationship to male wealth. I define and measure sugar daddy relationships (composed of both large age differences and transfers) and their association with condom use in a companion paper (Luke 2005a).

how young women in want or need of financial support seek well-off men as sexual partners, knowing that they can acquire more from them (McLean 1995; Meekers and Calves 1997; Temin et al. 1999; Rasch et al. 2000; Longfield et al. 2004).

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 no woman would agree to have sex unless she received some sort of transfer (Görgen, Maier, and Diesfeld 1993). Mottos such as "No money, no sex" or "No money, no love" were voiced by women in numerous locations (e.g., Komba-Malekela and Liljestrom 1994, 140; Silberschmidt and Rasch 2001, 1820). Men, too, realize that exchanges of money and gifts are "normal nowadays" and that they may not attract sexual partners without offering a transfer (Meekers and Calves 1997; Gage 1998; Görgen et al. 1998, 67; Kaufman and Stavrou 2004). Therefore, it might be the case that all men are required to give transfers to their sexual partners regardless of their economic status, and therefore no correlation between wealth and transfers would exist. Indeed, my previous work found that transfers are given in the majority of nonmarital partnerships in Kisumu (Luke 2005a, 2006), although the frequency and amount of transfers could still vary by the wealth of the male partners.

I designed my Kisumu survey to gather detailed information on the type and value of transfers that male respondents gave to each of their nonmarital sexual partners.[5] My 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 pretesting, 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; I 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 KSh70 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 past month. In this article, I create two measures of informal exchange: a dichotomous variable for any transfer given in the last month within a partnership, coded one for yes and zero for no, and a continuous variable designating the total value of transfers given within the partnership. This variable was calculated by totaling the value

[5] For further discussion on conceptualizing and measuring transfers, see Luke (2003, 2005b).

of each category of assistance reported by the respondent specific to each partnership.[6]

Descriptive statistics on involvement in informal exchange partnerships and the value of transfers by male economic status are presented in panel A of table 1. Transfers were exchanged in approximately three-quarters of all recent partnerships; however, wealthier men were significantly more likely to give a transfer and to do so in significantly larger amounts than poorer men.[7] The average value of transfers in the last month from men of higher economic status was KSh587 (US$8.40) per partnership as compared to KSh299 (US$4.30) from low-status men. Although wealthier men provided transfers more often and in 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. Transfers to the average partner were 7.4% of wealthier men's mean monthly income as compared to 15.2% of poorer men's.

The results in panel A show a positive association between wealth and transfer behavior. Coupled with my previous analysis of the Kisumu data, which found that larger transfers are associated with decreased condom use, I would expect to find lower levels of condom use within wealthier men's relationships as compared to those of poorer men if wealth does not affect male preferences and the characteristics of female partners. I test for differences in sexual behavior for men of high and low economic status in the next section.

B. Sexual Behavior

My survey elicited men's reports of sexual risk behavior, including multiple recent partnerships and condom use at last sexual intercourse within each of their nonmarital sexual partnerships. The number of sexual partnerships is coded as a continuous variable, and condom use is coded one for yes and zero for no. Descriptive statistics are presented in panel B of table 1. Among recent partnerships, we find that a condom was used at last sexual intercourse in 51.8% of wealthier men's partnerships; although this figure is higher, it is not significantly different than that for partnerships involving poorer men, where a condom was used in 48.5% of partnerships.

Although wealthier men in Kisumu engage in a level of condom use in

[6] I drop the top 0.5% of total transfers as extreme outliers.

[7] Involvement of women in informal exchange relationships varies across contexts. A recent review of the literature in sub-Saharan Africa found that 5%–80% of adolescent girls were ever involved in the exchange of money and gifts for sex (Luke 2003). I did not collect data from a female sample in Kisumu and therefore am unable to determine the percentage of women's partnerships that involved transfers.

their partnerships similar to that of poorer men, wealthier men may have more sexual partners and therefore their overall risk could be increased. Information on the number of nonmarital sexual partners in the last month shows that men of high economic status reported slightly fewer sexual partners than men of low economic status. Wealthier men had 1.5 partners in the past year on average, while poorer men reported having had 1.6 partners. Although this difference is minor, it is statistically significant. Overall, the results in panel B reject the notion that men of higher economic status are particularly risky individuals as measured by multiple partnerships and condom use. Indeed, there appears to be a weak positive association between wealth and safe sexual behavior.

The absence of a negative relationship between male wealth and condom use in the descriptive statistics—despite the fact that wealthier men give more transfers to their partners—suggests that one of our alternative hypothesized wealth effects is playing a role. I posited that, at later stages of the epidemic, wealthier men would be more likely than poorer men to internalize threats to their health and to use protective measures with their sexual partners. In this case, male preferences would be closely aligned with those of females, and economic status would have a positive effect on condom use. It could also be the case that wealthier men match with particular female partners or are in particular types of partnerships that are associated with condom use. We now turn to panel C of table 1 to investigate the latter possibility by comparing observed characteristics of female partners and the nature of the partnership for men of high and low economic status.

C. Female Partner Characteristics

My survey asked male respondents to report details of each of their nonmarital sexual partnerships, and my analysis uses three measures of the nature of these partnerships that have been shown to be related to condom use. First, male respondents reported the age of each female partner, and I 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 C 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). Recall from the discussion above that larger age differences between sexual partners have been linked to unsafe sexual behavior in past research.

Second, my survey asked men to designate their female partners as CSWs, casual partners, or *jadiya* (serious girlfriends). Few of the men's partners were reported to be CSWs (approximately 5%), which confirms an earlier UNAIDS

study that recorded a very low level of formal commercial sex activity in Kisumu (Morison et al. 2001). Coupled with my previous finding that transfers were given in approximately three-quarters of men's sexual partnerships, this suggests that most of the transfer activity in Kisumu occurs within informal exchange partnerships as opposed to formal commercial sex encounters. Due to the small number of commercial sex partnerships, I collapse the categories casual and commercial sex partners for the remainder of my analysis and construct a dummy variable coded one for a CSW/casual partner and zero for a *jadiya* partner. The results in panel C show that the majority of both wealthier and poorer men's relationships do not involve commercial or casual partners but are with *jadiya* girlfriends: 41.3% of wealthier men's recent partners were commercial or casual partners as compared to 45.7% of poor men's, a difference that is marginally significant. We also find that relationships with commercial sex and casual partners display higher levels of condom use as compared to relationships involving *jadiya* (not shown).[8]

My third indicator of the nature of the partnership is its duration, which is measured as a continuous variable in months. Overall, we find that men in Kisumu maintain ongoing relationships with nonmarital sexual partners. In fact, men's nonmarital relationships in Kisumu were the longest recorded in a comparative study across four African cities (Ferry et al. 2001). Relationship duration also varies significantly by male economic status: wealthier men's relationships are approximately 14 months in duration on average as compared to approximately 12 months on average for poorer men. The previous discussion noted that relationship length is negatively associated with condom use.

In terms of the types of female partners that men match with and the types of partnerships they form, wealthier men in Kisumu engage in relationships whose characteristics—larger age differences, longer duration, and *jadiya* partnerships—are associated with decreased condom use. Thus, these female partner characteristics do little to help explain the absence of a negative relationship between wealth and condom use that I uncovered in the descriptive statistics in panel B of table 1.

D. Male Characteristics

The results in table 1 thus far have shown a contradiction. On the one hand, wealthier men engage in particular behaviors that are associated with decreased condom use, including giving transfers more often and in larger amounts than poorer men and forming partnerships with certain types of female partners,

[8] Condom use at last sexual intercourse was reported in 62% of recent relationships with casual partners, in 86% of relationships with CSWs, and in 38% of relationships with *jadiya* (Luke 2007).

such as long-term girlfriends. On the other hand, wealthier men are just as likely to use condoms as poorer men. These findings lead me to believe that wealth must have a direct positive effect on condom use. However, it could also be the case that wealth is correlated with other male characteristics that could independently determine condom use, including age, education, and marital status. For example, past research has demonstrated that condom use is less prevalent among older men (Ahmed et al. 2001) and among those with lower levels of education (Fylkesnes et al. 2001; Lagarde et al. 2001). In addition, emerging research has focused on marital status and its connection to HIV/AIDS. Researchers have hypothesized that marriage is related to HIV infection, particularly among young women, due to the greater likelihood of frequent unprotected sexual activity within marital unions (Clark 2004).

We look at the relationship between male wealth and male age, education, and marital status in panel D of table 1. With respect to age and education, I include continuous variables for each in my analyses. We find that age and education differ significantly by economic status; wealthier men are older and more educated on average than poorer men. Current marital status is included as a categorical variable, designating 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. Because only 5% of men are formerly married in my sample, I collapse marital status categories into currently married versus unmarried (single, divorced, separated, or widowed) for the regression analysis below.

Panel D of table 1 also reports descriptive statistics with respect to economic status to provide an overall picture of the level of wealth in the community. By construction, men of high economic status are those with income at or above the median, and they therefore have higher incomes on average than poorer men. We see that the magnitude and statistical significance of the differences in average income are quite large and that inherited land is marginally significantly different across wealth groups. In terms of income, wealthier men earned KSh7785 (US$111) on average in the past month, whereas poorer men earned KSh1908 (US$27). The average income for poorer men is less than US$1 a day; nevertheless, we see from the figures reported above that poorer men allocate significant proportions of their incomes to nonmarital sexual partners.

The results of panel D show that wealth is positively correlated with male education, which is associated with safer sexual behavior. Thus, individual male characteristics—as opposed to a direct positive effect of wealth—could account for the lack of a negative association between wealth and condom use that I uncovered in panel B of table 1. I now subject the relationships between wealth

and informal exchange, condom use, and female partner characteristics to more scrutiny in the regressions that follow.

IV. Specifications and Empirical Results

My regression analysis is presented in several parts. I first test the assumption that male wealth is positively correlated with involvement in informal exchange relationships and the level of transfers provided to female partners, controlling for male age, education, and marital status. In addition, I examine the association between wealth and condom use. The last part of my analysis explores the effect of wealth on female characteristics that are associated with risky sexual behavior.

The linear probability model is used for the regressions that I report in this article. The advantage of the linear probability model is that the coefficients are easy to interpret in terms of the dependent variables I have chosen for the analysis. I run two regressions for each of the dependent variables. The first specification includes observed male characteristics as independent variables, including income in the last month, age, education, and marital status. The second specification contains the same variables but substitutes inherited land for income as an alternative 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 of the regressions that I 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.

A. Economic Status, Transfers, and Condom Use

I examine the relationship between economic status and transfers in two ways. I first estimate a regression of the probability of being involved in a relationship that included a transfer. Second, I estimate a regression of the effect of economic status on the level of transfers in the partnership. The regression results are presented in table 2.

The findings confirm that economic status is positively and significantly associated with both the giving of transfers (in cols. 1 and 2) and the amount (in cols. 3 and 4) across most of the regressions that we report. For every KSh1000 in male income, the probability of giving a transfer in the past month increases approximately 1% and the total amount of transfers increases KSh29 (US$0.40). Inherited land has a positive effect on giving a transfer and the amount, although the former effect is not precisely estimated. For every

TABLE 2

DETERMINANTS OF TRANSFERS AND CONDOM USE WITHIN MEN'S RECENT NONMARITAL SEXUAL PARTNERSHIPS

	Dependent Variable/Economic Status Variable					
	Any Transfer		Total Amount of Transfers		Condom Use	
	Income (1)	Inherited Land (2)	Income (3)	Inherited Land (4)	Income (5)	Inherited Land (6)
Male partner characteristics:						
Economic status	.008***	.001	.029***	.010**	.003	−.001
	(.002)	(.001)	(.006)	(.003)	(.003)	(.002)
Age (years)	.004	.005^{+}	.010*	.013**	−.005	−.004
	(.003)	(.003)	(.005)	(.005)	(.004)	(.004)
Education (years)	.007	.011*	.036***	.042***	.033***	.034***
	(.005)	(.005)	(.008)	(.008)	(.006)	(.006)
Current marital status (reference = single)	.028	.015	.033	−.018	−.004	−.001
	(.030)	(.031)	(.046)	(.046)	(.037)	(.037)
Constant	.497***	.479***	−.337*	−.347*	.296*	.264*
	(.094)	(.095)	(.168)	(.173)	(.121)	(.121)
N	1,609	1,585	1,609	1,585	1,609	1,585

Note. "Recent" refers to men's nonmarital sexual partnerships whose last act of sexual intercourse occurred in the last month. Standard errors (in parentheses) are corrected for heteroscedasticity and are robust to clustered residuals across partnerships for each individual. Income is income in last month in Kenyan shillings/1,000. Total amount of transfers is transfers in Kenyan shillings/1,000.

$^{+}$ $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p \leq .001$.

additional acre in inherited land, the total amount of transfers increases by KSh10 on average.

I completed supplementary analyses to test the relationship between economic status and the type of transfer given (not shown). We might expect that certain categories of transfers—such as monetary ones—would be associated with decreased condom use, while other categories—such as nonmonetary gifts or meals—might not be. It could be the case, then, that wealthier men give the categories of transfers that are related to unsafe sexual behavior. However, my previous work shows that the relationship between transfers and condom use does not vary by the type of transfer (monetary vs. nonmonetary; Luke 2006).[9] In addition, my supplementary analyses find no difference in the category of transfer by wealth of the male partner. Thus, the types of transfers given in informal exchange relationships in Kisumu appear to be quite uniform across economic status and to display similar relationships with condom use.

The results in table 2 also reveal that several male characteristics, including age and education, are positively associated with engaging in informal exchange relationships and the total amount given. However, marital status is not significantly associated with transfer behavior.[10]

The regressions in columns 5 and 6 study the effect of male economic status on the probability of condom use at last sexual intercourse, controlling for male characteristics. Looking across the results, we find that male wealth has no effect, as the coefficients are small and imprecisely estimated, confirming once again the findings reported in the descriptive statistics. This result is upheld whether economic status is measured by income and inherited land.

Male age and marital status are not associated with condom use. The result for marital status echoes the findings from my previous work in Kisumu, which found no causal relationship between current marital status and male sexual behavior in terms of the number and types of sexual partners with whom men were engaged (Luke and Munshi 2003). In contrast, education has a significant positive association with condom use: each additional year of education increases the probability of condom use by approximately 3.4%.

The findings of the regression analyses in table 2 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. These results lead me to believe that wealthier

[9] See Luke (2006) for more details on the value of transfers given by category and the connection between the type of transfer (monetary vs. nonmonetary) and condom use.

[10] I ran all the regressions that I report in this article without marital status as well, and the results were qualitatively similar.

men themselves are different from poorer men and display a stronger preference for condom use, or that wealthier men match with partners who insist on condom use. Either of these positive effects could offset the negative effect of wealth operating through transfers. The final part of my analysis explores the possibility that wealthier men match with the types of female partners who have a strong preference for condoms.

B. Economic Status and Female Partner Characteristics

Table 3 presents the results of the effect of economic status on three measures of partner characteristics: the age differences between partners, involvement with a commercial or casual partner versus involvement with a *jadiya*, and the length of the relationship in months. We find that economic status—measured by male income or inherited land—is not significantly associated with any of the female partner characteristics in any of the regressions in table 3. I also experimented with alternative forms of the continuous dependent variables to test for threshold effects. For example, several studies have found that large age differences of 10 or more years between sexual partners are associated with HIV infection and unsafe sexual behavior (Glynn et al. 2001; Gregson et al. 2002; Kelly et al. 2003; Luke 2005a). I regress male characteristics on a dummy variable indicating an age difference between partners of 10 or more years versus less than 10 years; however, the coefficients on income and inherited land were small and imprecisely estimated. The effect of economic status on age differences with a cutoff of 5 or more years was also small and insignificant. Numerous constructions of a dummy variable for duration of the relationship were also tested, such as 1 month, 1 year, and 2 years; however, none of the coefficients were large or precisely estimated.

Recall that the descriptive statistics revealed a weak association between wealth and female partner characteristics that are associated with the nonuse of condoms. However, when I control for other male characteristics, including age and education, wealth shows no effect on female partner characteristics. Thus, I am left to conclude that economic status must have a direct positive effect on condom use and that wealthier men indeed have a stronger preference for condoms than poorer men in Kisumu.

We also find that education is by and large related to female partner characteristics associated with higher condom use in table 3, including smaller age differences and greater likelihood of engaging in relationships with casual or commercial sex partners as opposed to relationships with more longer-term, serious *jadiya* partners. Taken as a whole, my results reveal that the linkages between education and condom use slightly diverge from the relationship between wealth and condom use that I uncover. Like wealthier men, educated

TABLE 3

DETERMINANTS OF FEMALE PARTNER CHARACTERISTICS WITHIN MEN'S RECENT NONMARITAL SEXUAL PARTNERSHIPS

	Dependent Variable/Economic Status Variable					
	Age Difference between Partners (Years)		CSW/Casual Partner vs. *Jadiya*		Duration of Partnership (Months)	
	Income (1)	Inherited Land (2)	Income (3)	Inherited Land (4)	Income (5)	Inherited Land (6)
Male partner characteristics:						
Economic status	−.005	−.014	−.0004	−.0001	.050	.030
	(.016)	(.011)	(.003)	(.002)	(.100)	(.044)
Age (years)	.622***	.622***	−.005	−.005	.232*	.224^{+}
	(.029)	(.029)	(.003)	(.003)	(.118)	(.116)
Education (years)	−.204***	−.199***	.009^{+}	.009^{+}	.783***	.761***
	(.035)	(.035)	(.005)	(.005)	(.175)	(.172)
Current marital status (reference = single)	.368^{+}	.409^{+}	−.073*	−.071*	1.286	.886
	(.223)	(.224)	(.034)	(.034)	(1.069)	(1.076)
Constant	−8.736***	−8.771***	.522***	.511***	−1.705	−.998
	(.822)	(.820)	(.107)	(.108)	(3.990)	(3.987)
N	1,609	1,585	1,609	1,585	1,609	1,585

Note. "Recent" refers to men's nonmarital sexual partnerships whose last act of sexual intercourse occurred in the last month. Standard errors (in parentheses) are corrected for heteroscedasticity and are robust to clustered residuals across partnerships for each individual. Income is income in last month in Kenyan shillings/1,000. Total amount of transfers is transfers in Kenyan shillings/1,000.

$^{+}$ $p < .10$.

* $p < .05$.

*** $p \leq .001$.

men are likely to engage in informal exchange and to transfer large amounts of money and gifts to their sexual partners; at the same time, educated men are more likely to use condoms than wealthier men. This higher probability of condom use could be due to the fact that educated men are intrinsically safer (they have stronger preferences for condom use) or, as the results in table 3 show, it could be due to the fact that they match with female partners who are generally safer. I am unable to interpret which of these effects dominates among educated men.

V. 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 give larger transfers to their sexual partners. Wealth may therefore increase men's participation in informal exchange relationships that we have found to be, in turn, associated with decreased condom use. This article uses survey data from men in Kisumu, Kenya, which include detailed information on economic status and transfers within men's nonmarital sexual partnerships, to examine for the first time the relationship between economic status, transfers, and condom use.

My analysis finds that, net of male age and education, economic status is positively associated with the giving of transfers as well as with the amount exchanged; however, wealth is not correlated with condom use in urban Kisumu. Thus, a positive effect of wealth on condom use must be operating, which I hypothesized could stem from one of two sources. First, wealthier men might have a positive preference for condom use at this stage of the epidemic as compared with poorer men; or second, wealthier men might partner with women who themselves have strong preferences for safe sex. I find that the types of females and partnerships that wealthier men enter into are not significantly different on observed characteristics than those of poorer men. Therefore, wealthier men must display preferences for safer sexual behavior, which offsets the negative effect of larger transfers that they give to their sexual partners.

My results leave us with an interesting question regarding the purpose of wealthy men's transfers to their sexual partners. If both male and female partners display similar preferences for condoms, we would expect the level of transfers to decrease as they are no longer needed to compensate the female partner to engage in risky sexual behavior. So why do wealthy men continue to give large transfers? My previous work has argued that transfers can serve

more than one purpose. They may serve as a payment for unsafe sexual activity or they might signify love and commitment, where men receive social and emotional support in return (Luke 2005b, 2006). It appears that, at this stage in the epidemic, wealthier men in Kisumu are trading their money and gifts for these other, more personalized benefits of nonmarital sexual relationships.

The results of my investigation regarding economic status, informal exchange, and condom use also have implications for policies and programs aimed at increasing safe sexual behavior within nonmarital sexual partnerships. While some have argued that wealthier men are to blame for the ongoing HIV/AIDS epidemic in numerous African contexts, my analysis concludes that wealthier men are not particularly risky sexual partners in Kisumu. Consequently, I argue that more concern should be placed on the men of lower economic status who give large transfers to their sexual partners. These poorer men wield a double-edged sword of risk in their relationships. Like men of higher economic status, 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.

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