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## Exchange and Condom Use in Informal Sexual Relationships in Urban Kenya

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The exchange of money for sex has occurred across historical time and place and has been studied by a range of social scientists. The emergence of the HIV/AIDS epidemic sparked renewed interest in the dynamics of prostitution, as these relationships are believed to be a launching site for more generalized epidemics. Condom use within commercial sexual relationships has been widely promoted, often with very positive results, ranging from slight increases in usage to near-total compliance (e.g., Wong, Chan, and Koh 1998; Ford and Koetsawang 1999; Alary et al. 2002; Ma et al. 2002). Nevertheless, in most settings, greater amounts of monetary exchange still appear to induce female prostitutes to forgo condom use (Bhave et al. 1995; Varga 2001; Wojcicki and Malala 2001; Rao et al. 2003). These findings suggest that a market for condom use continues to exist and that sex workers trade off higher income for agreeing to engage in unsafe sexual behavior.

The continuing spread of HIV/AIDS, particularly in sub-Saharan Africa, has prompted increasing attention toward the “informal” exchange of money or gifts for sex that takes place outside of formalized prostitution. Informal exchange relationships are widespread in many African contexts and are believed to contribute to rising levels of HIV infection, particularly among adolescent girls. Numerous researchers have investigated these nonmarital relationships, using a variety of expressions to describe them: “sugar daddy relationships” (Meekers and Calves 1997b; Silberschmidt and Rasch 2001), “semi-prostitution” (Meekers and Calves 1997a), “informal sex work” (Woj-

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cicki 2002), “noninstitutional” sexual exchange (Orubuloye, Caldwell, and Caldwell 1992), and “transactional sex” (Nnko and Pool 1997; Leclerc-Madlala 2003), among others.<sup>1</sup> In this article, I use the term “informal exchange relationships” to designate nonmarital sexual partnerships where material items are given by a male to his female partner.<sup>2</sup> I use the umbrella term “transfers” to describe the items that are given, whether monetary or nonmonetary.<sup>3</sup> The major aim of this article is to determine if a market for unsafe sexual activity among informal relationships exists in a high HIV/AIDS environment, with money and gifts traded for sex without a condom.

There are two opposing views in the literature as to whether informal exchange relationships operate like a market. The “commodity exchange” view posits that partners within informal sexual relationships make trade-offs between the value of transfers and risky sexual activity, and therefore a strong negative association exists between transfers and condom use (Bohmer and Kirumira 1997; Görden et al. 1998; Rasch et al. 2000). Adolescent girls are seen to be particularly disadvantaged within these informal partnerships, where men can offer remarkably small amounts of money or gifts in exchange for sex without a condom (Fuglesang 1997). The opposing “gift exchange” view argues that there is no correlation between transfers and sexual behavior because the nature of informal relationships is substantially different from those involving commercial sex workers, and because the transfers or gifts given are often nonmonetary (Kaufman and Stavrou 2004). Thus, the decision to use a condom is not related to the occurrence or value of transfers within the partnership.

The evidence supporting these contrasting views about the role of transfers in informal sexual relationships stems largely from qualitative work in sub-Saharan Africa. There has been no statistical investigation, however, of the link between transfers and unsafe sexual behavior, nor has there been an investigation to determine if the effect is indeed more pronounced within partnerships involving adolescent girls. I use a unique data set on male nonmarital sexual partnerships and transfers in urban Kenya to examine this relationship more rigorously. At first glance, this analysis appears to be a simple exercise that compares the probability of condom use across partnerships involving various levels of transfers. However, estimation of the transfers–condom use

<sup>1</sup> Exchange also takes place within marriage, but the topic is beyond the scope of this article.

<sup>2</sup> I use the terms “relationship” and “partnership” interchangeably in this article. Both refer to sexual relations between a man and a woman that may vary from a one-time encounter to a more serious association.

<sup>3</sup> My study focused on material or tangible items within informal exchange partnerships whose value could be quantified; I did not include other assistance, such as social support or job contacts (see Orubuloye et al. 1992).

relationship must take into account selection into sexual partnerships. It could be that men who give large transfers to their sexual partners are also the types who have a particular aversion to condom use, which is not measured by the data. In this case, large transfers merely proxy for men who are less likely to use condoms in any case, and a spurious correlation is obtained. My strategy to avoid this selection bias is to use individual fixed effects analysis. This procedure effectively looks at various levels of transfers and condom use across partnerships for the same man, thereby controlling for all of the male's observed and unobserved characteristics that could bias the transfers–condom use relationship. There has been a wealth of studies on male sexual behavior in sub-Saharan Africa; very few of these take the issue of selection into account.

The article is divided into five sections. The second section lays out a conceptual framework that characterizes the properties of a market for unsafe sexual behavior, which leads to the testable prediction that condom use and transfers should be negatively correlated within partnerships. This section also describes the alternative view, which predicts the absence of such a relationship. The third section describes the empirical specification, data, and variables. The fourth section presents the estimates of the correlation between transfers and condom use in three parts: (1) the overall relationship between the level of transfers and the probability of condom use, (2) the relationship with monetary and nonmonetary transfers separately, and (3) the relationship between transfers and condom use across partnerships with females of different ages (adolescents vs. adults). The last section concludes.

### **Conceptual Framework of Transfers in Informal Exchange Relationships**

Many observers support the view that informal exchange partnerships represent “commodity exchange,” where two self-interested individuals make trade-offs between the value of goods and sexual services in a market context (Carrier 1991; Luke, forthcoming). This view is supported by evidence that the giving of money or gifts in exchange for sex is an accepted and expected practice in nonmarital sexual relationships throughout sub-Saharan Africa (McLean 1995; Bohmer and Kirumira 1997; Gørgen et al. 1998; Nyanzi, Pool, and Kinsman 2000). Moreover, female partners understand that the receipt of a transfer means they must reciprocate by agreeing to the unsafe sexual practices demanded by their partners (Gørgen et al. 1998; Leclerc-Madlala 2003; Kaufman and Stavrou 2004). Numerous studies have also found that transfers come in various forms in informal exchange relationships, including money and non-monetary items, such as clothing, perfume, food, and transport (Luke 2003).

The starting point for the commodity exchange view, and a common assumption in much of the literature on HIV/AIDS, is that men and women

have different preferences for risky sexual behavior. The male partner prefers unsafe sexual activities, such as unprotected sex (the nonuse of condoms and contraception), and the female prefers safe behavior. The gender preference gap for condoms may arise for various reasons. For example, there may be a perception among men that condoms are associated with reduced sexual pleasure and a loss of masculinity, while females may prefer condom use because they are more vulnerable to infection (Fuglesang 1997; Nyanzi et al. 2000; Glynn et al. 2001).<sup>4</sup> Because women value condom use more highly than men, men must compensate them with larger transfers in order to induce them to accept riskier sexual behavior. We will see below that a negative correlation between condom use and transfers consequently arises within the market for nonmarital sexual partnerships.

In my model of the sexual market, individuals choose from a menu of partnerships, where each partnership is characterized by a level of transfers and a probability of condom use. Assume all men have the same wealth endowments (which I believe are important for the ability to give transfers) and the same willingness to trade off condom use with transfers. All women are alike with respect to this trade-off as well, but they are endowed with different levels of wealth. The heterogeneity in wealth among the women allows multiple types of partnerships—some with high levels of transfers and low probabilities of condom use and others with low levels of transfers and high probabilities of condom use—to be sustained in equilibrium. Because they need economic support, less wealthy women will sort into partnerships with higher levels of transfers and, hence, lower levels of condom use. The level of transfers across the different partnerships will then adjust so that men are indifferent between all the partnerships that emerge in the market. The precise relationship between the probability of condom use and the level of transfers across these partnerships will in general be shaped by the preferences and wealth endowments of both men and women.

The discussion this far has assumed that men are indifferent to women with varying wealth endowments. Men are solely concerned with the level of transfers and the probability of condom use. Suppose instead that women are endowed with an additional characteristic—age—that determines their attractiveness. Younger and older females will then effectively operate in distinct matching

<sup>4</sup> Alternatively, an evolutionary explanation argues that men and women have different mating strategies, where males seek to maximize the number of offspring and females seek to ensure the survival of a few, quality children (Trivers 1972), which leads to different preferences for contraception, including condom use. My model does not attempt to distinguish between these alternative explanations for a gender preference gap for condom use but focuses on the implications of such a gap for the relationship between transfers and condom use.

markets. The willingness to trade off condom use with transfers as well as the wealth endowment is very likely to vary with the woman's age. From the discussion above, the level of transfers, the level of condom use, and the relationship between condom use and transfers will consequently vary across the matching markets. In general, the age group that is more numerous and has worse outside options will receive lower transfers and will also more readily reduce condom use in response to an increase in transfers.

Many observers believe that adolescent girls in sub-Saharan Africa have less wealth and fewer outside options than adult women. Qualitative evidence finds that adolescent girls are often in great need of financial support to help them and their families survive, continue their education, or afford the luxuries they desire (Orubuloye et al. 1992; Meekers and Calves 1997b; Nzyuko et al. 1997; Temin et al. 1999), and they have fewer alternative sources of income to meet these needs than adult females have (Bohmer and Kirumira 1997; Webb 1997; Nyanzi et al. 2000). Adolescent girls' lack of experience in sexual negotiations as well as their larger numbers in the sexual market might also lead to less favorable outcomes for them (Fuglesang 1997; Nyanzi et al. 2000; Luke 2003). These arguments suggest that the level of transfers will be lower to adolescent girls than to adult women and the negative correlation between transfers and condom use will be greater in partnerships involving adolescent girls than in those involving adult females.

Other evidence suggests that adolescent girls have greater wealth and more outside options than adult women on the sexual market for numerous reasons. First, adolescent girls are likely to be men's preferred partners. Reasons for this preference may stem from the perception that adolescent girls are free of HIV/AIDS and other sexually transmitted infections (STIs), or because younger partners boost male prestige among their peers (Ulin 1992; Haram 1995; Silberschmidt and Rasch 2001; Longfield et al. 2002). Second, although adolescent girls are often in need of financial assistance, adult women who are involved in nonmarital sexual relationships may be a select group who have relatively greater financial requirements, including support for numerous children or orphans. In light of these arguments, we might expect that the preceding implications for the level of transfers and the relationship between condom use and transfers would be reversed.

The contrasting view of exchange relationships posits that there is no correlation between transfers and condom use, which could arise for several reasons. First, informal relationships may not involve commodity exchange at all. Instead, informal partnerships may represent "gift exchange," where two individuals are in a social relationship, and gifts are given by each partner to signify that the relationship is reaffirmed and extended (Carrier 1991; Kaufman

and Stavrou 2004; Luke, forthcoming). Such gifts are not given on a one-to-one basis or traded off between individuals with reciprocal expectations. Thus, a transfer does not serve as a financial incentive to disregard condom use. For example, gifting is often part of dating relationships, where a meal or tickets to the cinema may serve as a symbol of interest and the giver demands nothing sexual in return. In more serious relationships, gifts may signify love, affection, or continuing commitment and have no connection to risky sexual activity.

Second, the prevailing norms of male dominance in sexual and reproductive decision making throughout much of sub-Saharan Africa constrain women from influencing sexual activities, especially condom use (Preston-Whyte 1994; McLean 1995; MacPhail and Campbell 2001). In this case, men chose whether or not to use condoms unilaterally, based on their preferences, and the level of transfers within the partnership will have no relationship to this choice.<sup>5</sup>

Finally, the assumption that male and female partners have conflicting preferences for condom use may not be satisfied in practice. For example, there are numerous examples in the literature where females have an incentive to disregard condom use. They may be interested in securing a longer-term relationship, whether marital or otherwise, and therefore will be unconcerned with or may actively seek pregnancy (Preston-Whyte 1994; Obbo 1995; Silberschmidt and Rasch 2001). In this case, the female does not require compensation for engaging in risky behavior, and so the negative correlation between condom use and transfers will not be observed.

Thus far in the discussion I have not addressed differences in the types of transfers that occur in informal exchange relationships. Commercial sexual relationships usually involve monetary payment for sexual activity. Informal exchange relationships involve both monetary and nonmonetary transfers. Under the commodity exchange view, both types of transfers are traded off against condom use. Under the gift exchange view, neither monetary nor nonmonetary transfers should be correlated with condom use.

## Data and Methods

### *Specification of the Relationship between Transfers and Condom Use*

The basic model with homogeneous men and women distinguished by their wealth endowments predicts that condom use will be negatively correlated with transfers, across partnerships, in equilibrium:

$$\Pr(C_{ij} = 1) = \alpha TRANS_{ij}, \quad (1)$$

<sup>5</sup> An alternative interpretation of this norm is that men can coerce women into engaging in risky behavior regardless of the level of transfers.

where  $C_{ij} = 1$  if man  $i$  and female partner  $j$  used a condom at last sexual intercourse and  $TRANS_{ij}$  measures transfers in the partnership between man  $i$  and partner  $j$ . If a market for unsafe sexual activity has emerged,  $\alpha < 0$ , whereas under the alternative gift exchange view,  $\alpha = 0$ .

Once I relax the homogeneity assumption, the first problem for consistent estimation is that unobserved male characteristics could generate a spurious correlation between condom use and transfers. This would be the case, for example, if men who are independently less likely to use condoms also give larger amounts of transfers to their partners. The standard approach to correct this statistical problem is to include observed male characteristics, such as age, education, and income, in the condom use regression, although this method may not control for other important unobserved male characteristics. In this article, I implement an alternative, more robust approach to estimate the condom use regression with male fixed effects.

To be implemented, the fixed effects procedure requires multiple observations for each individual, which is feasible with the data I have collected. The procedure effectively studies the relationship between condom use and transfers across multiple nonmarital partnerships for the same man. Recall from the model that the man will be indifferent across these partnerships in equilibrium. Intuitively, I examine whether a partner who receives more than the average transfer for a given man is less likely to use condoms than the average condom use across partnerships for that same man. The fixed effects model purges all characteristics (observed and unobserved) that are constant across partnerships for the same individual, for example, his age or aversion to condom use, thus removing bias in the estimation of the transfers–condom use relationship that is caused by partnership-invariant male characteristics.<sup>6</sup>

While the fixed effects procedure controls for all observed and unobserved male characteristics that do not vary across an individual's partnerships, condom use could also depend on female characteristics and the nature of the relationship.<sup>7</sup> In this setting I expect that unobserved male characteristics are the main source of potential bias, and we will see later that while observed male characteristics have a strong effect on condom use, female characteristics, such

<sup>6</sup> 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 17.7% of the total observations in the sample. The potential concern with this procedure is that these men might not be representative of the overall sample. I 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).

<sup>7</sup> For example, the model implies that low-wealth women will select into high-transfer, low-condom use relationships. If female wealth directly determines condom use, rather than through the transfers, then a spurious relationship between the probability of condom use and transfers could be obtained.



as age and marital status (which are associated with wealth), as well as characteristics of the relationship, such as its duration, have little impact on condom use within the partnership. Nevertheless, I will include observed characteristics of the female and the partnership to estimate a regression of the form

$$\Pr(C_{ij} = 1) = \alpha TRANS_{ij} + X_{ij}\beta + \omega_i, \quad (2)$$

where  $X_{ij}$  is a vector of observed characteristics that describes the female partner and the nature of the partnership. In practice,  $X_{ij}$  includes the female partner's age (adolescent vs. adult), her marital status, and the duration of the partnership. The term  $\omega_i$  collects the male partner's characteristics that determine condom use. Some of these male characteristics, such as age, education, and income, are observed by the researcher. Other characteristics, such as aversion to using condoms, cannot be observed. The fixed effects procedure takes the average of each variable in equation (2), computed for each man, and subtracts it from the corresponding variable in the equation. Since  $\omega_i$  is the same across all partnerships for man  $i$ , this term is differenced out of the regression, allowing us to completely control for any male characteristic,  $\omega_i$ , that does not vary across partnerships for man  $i$ .

My empirical analysis is divided into three parts. In addition to the regression outlined above to study the relationship between the level of transfers and condom use, I also explore differences in the relationship between monetary and nonmonetary transfers and condom use by including a variable for the amount of money given within each partnership.

$$\Pr(C_{ij} = 1) = \alpha TRANS_{ij} + \gamma MONEY_{ij} + X_{ij}\beta + \omega_i, \quad (3)$$

where  $MONEY_{ij}$  is the monetary transfer from man  $i$  to partner  $j$ . Under the commodity exchange view, both monetary and nonmonetary transfers influence condom use in the same way, and so  $\alpha < 0$ ,  $\gamma = 0$ . Under the gift exchange view, in contrast,  $\alpha = 0$ ,  $\gamma = 0$ .

Finally, I examine the effect of the female partner's age (adolescent vs. adult) on the relationship between transfers and condom use. For this analysis I construct adolescent dummy variables, with the cutoffs separating adolescents and adults ranging from 17 to 22 years. The augmented condom use regression is now specified as

$$\Pr(C_{ij} = 1) = \alpha TRANS_{ij} + \delta ADOL_j * TRANS_{ij} + X_{ij}\beta + \omega_i. \quad (4)$$

Note that  $X_{ij}$  includes the adolescent dummy  $ADOL_j$ . If condom use is more responsive to transfers among adolescent girls, then  $\delta < 0$ ; if less responsive,  $\delta > 0$ .

The linear probability (LP) model, with and without fixed effects, is used

for the regressions that I report in this article. The advantage of the LP model is that the coefficients are easy to interpret in terms of the probability of condom use. The LP model is also consistent with the nonparametric regression of condom use on transfers that I later present in figure 1. 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 I present, at most 1.6% of the observations generate predicted values outside this range. An additional drawback is that the LP model produces biased standard errors. Because the structure of heteroskedasticity is known, I correct for this bias using generalized least squares in all of my regressions. As a robustness check, I also completed the full analysis using the logit model, and the results are qualitatively similar (not reported).

#### **Data**

This article uses data from Kisumu, Kenya, the capital of Nyanza Province and traditional home to the Luo ethnic group. Kisumu is a destination for many Luo migrants seeking educational and work opportunities as well as a central town on the highway from coastal Kenya into Uganda. In addition, Kisumu has one of the highest rates of HIV prevalence in Kenya, estimated at 30% in 2001 (NACC 2001). I chose Kisumu as an interesting site for a wider study of the effect of marriage and exchange relations on individual behavior, including sexual activity and labor market outcomes, among a migrant population in urban Africa. The data consist of a random sample of 2,700 Luo males ages 21–45 that were surveyed in 2001. Kenyan Census Bureau enumeration areas were used as primary sampling units. Of these, 121 were randomly chosen for the survey, and all households in the selected enumeration area were visited. In each household, all males of eligible age were interviewed by trained field-workers. The study followed procedures of informed consent and confidentiality.

A specific aim of the survey instrument was to gather information on male nonmarital sexual behavior. In addition to background demographic and socioeconomic questions, respondents were asked the number of nonmarital sexual partners they had in the last year, and information on the five most recent partners was gathered.<sup>8</sup> Partner information included female partner age, marital status, and if the female was a commercial sex worker. Partnership information included duration of relationship, time of last sexual intercourse, con-

<sup>8</sup> Of the men reporting nonmarital sexual partners in the last year, 95% had five partners or fewer.

dom use at last sexual intercourse, and material transfers respondents gave to each nonmarital partner in the last month.<sup>9</sup>

The data set I used for this analysis consists of recent nonmarital sexual partnerships formed by male respondents that did not involve commercial sex workers. By dropping the partnerships that male respondents designated as occurring with commercial sex workers, I was able to test the assumption that there is a correlation between transfers and condom use for relationships that are truly informal and do not involve formalized prostitution.<sup>10</sup> 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 my analysis captures only those sexual partnerships that were active in the last month (which I define as recent), I limit my sample to partnerships whose last act of sexual intercourse took place in the last month. Table 1 reports male characteristics for my final sample of 1,028 men, and female and partnership characteristics for their 1,522 recent nonmarital partnerships, and, finally, information on the 1,101 partnerships that involved some form of transfer in the last month. In my sample, men had 1.5 partnerships on average.

The regressions that I estimate study the correlation between transfers and condom use. Since unobserved male characteristics could determine the level of transfers as well as the probability of condom use, I use either male fixed effects or observed male characteristics (age, education, income, and current marital status) as controls. In addition, I include observed female characteristics (age and current marital status) and characteristics specific to each partnership

<sup>9</sup> Several steps were taken by the researchers to ensure the validity and reliability of reporting, particularly for questions regarding sexual behavior. The questionnaire was developed in a culturally specific manner, and interviewers were trained to inquire about sensitive issues. Data on sexual activity for the first half of the survey sample were logged daily along with interviewer codes and analyzed to statistically determine if any interviewer consistently gathered responses that seemed to over- or underreport such characteristics as men's number of nonmarital partners. In addition, 4% of respondents were reinterviewed to check reliability of responses, and 96% of those reinterviewed reported the same number of sexual partners as they had in the original interview. See Luke (2005) for more details.

<sup>10</sup> There is a concern that respondents did not report female partners as commercial sex workers, and therefore numerous commercial relationships remain in my sample. I do not believe this is a problem for two reasons. First, the questionnaire was designed and the interviewers trained not to stigmatize any type of nonmarital sexual behavior, and therefore I believe respondents accurately reported their commercial relationships. Second, the characteristics of commercial sex partnerships differ greatly from the sample of noncommercial partnerships, which indicates that there is a clear distinction between these types of relationships. For example, condom use in noncommercial partnerships is 48%, while it is 80% in commercial partnerships.

**TABLE 1**  
**SUMMARY STATISTICS FOR MEN AND THEIR RECENT NONMARITAL SEXUAL PARTNERSHIPS**

Characteristic	Mean	Standard Deviation
Panel A. Condom use and transfers within partnerships:		
Percent condom use at last sexual intercourse	48.3	
Percent with transfer in last month	72.4	
Amount of transfers in last month (Ksh)	429.5	701.1
N	1,522	
Panel B. Partnership characteristics (conditional on transfers):		
Percent of transfer value in money	51.4	
Percent of transfer value in gifts	18.3	
Percent of transfer value in meals/drinks	26.5	
Percent of transfer value in rent	1.2	
Percent of transfer value in other items	2.6	
N	1,101	
Panel C. Female partner and partnership characteristics:		
Age (years)	20.1	3.6
Percent adolescents (<20 years)	48.7	
Percent currently single	84.6	
Percent currently married	3.9	
Percent currently divorced, separated, widowed	7.9	
Percent marital status unknown	3.6	
Duration of partnership (months)	13.7	17.1
N	1,522	
Panel D. Male partner characteristics:		
Age (years)	26.1	5.3
Education (years)	10.0	2.6
Income in last month (Ksh)	4,862.5	5,450.7
Percent currently single	59.0	
Percent currently married	36.5	
Percent currently divorced, separated, widowed	4.5	
N	1,028	

**Note.** "Recent nonmarital sexual partnerships" refers to men's nonmarital sexual partnerships that did not involve commercial sex workers and whose last act of sexual intercourse occurred in the last month. Panels A and C refer to the sample of all men's recent nonmarital sexual partnerships; panel B refers to the sample of all men's recent nonmarital sexual partnerships that involved some form of economic assistance in the last month; panel D refers to the sample of men with recent nonmarital partnerships.

(duration of the relationship). Construction of and descriptive statistics for each of these variables are discussed below.

### ***Dependent Variable***

The main aim of my analysis is to study the trade-off between transfers and unsafe sexual behavior in noncommercial, nonmarital sexual relationships. There are numerous measures of unsafe sexual behavior that are related to the risk of STIs and HIV that have been identified in previous work. These include the number of partners with whom an individual has had sexual intercourse; ever engaging in sexual relations with partners from specific risk groups, such as commercial sex workers or casual partners; and the overall frequency with which an individual uses condoms across all of his or her sexual experiences.

A drawback to these types of indicators is that they measure an individual's cumulative risk behavior and do not take into account how unsafe sexual behavior can vary across an individual's multiple partnerships. My survey collected information from male respondents about their recent nonmarital sexual partners and condom use at last sexual intercourse with each of these partners. Thus, the dependent variable in my analysis—condom use at last sexual intercourse—is a measure of risk behavior that is particular to each partnership. As shown in table 1, 48.3% of recent nonmarital partnerships included condom use at last sexual intercourse. Condom use is measured as a dichotomous variable coded 1 for yes and 0 for no.

#### *Independent Variables*

*Transfers.* Similar to previous work on risky sexual behavior, past survey questions on exchange in sexual relationships face several limitations (see Luke 2003, forthcoming). The standard survey question asks if a respondent has ever exchanged money or gifts for sex. Such questions regarding one-to-one exchanges involving sexual activities are viewed as prostitution in many settings and may lead to underreporting of these behaviors. Furthermore, this phrasing only captures relationships that explicitly demonstrate commodity exchange and may fail to elicit information for those relationships where the link between transfers and unsafe behavior is not so clear. Another limitation is that past surveys do not record items beyond money and gifts that are exchanged (for an exception, see Orubuloye et al. [1992]), nor specific transfers across an individual's multiple partnerships.

My survey questions were constructed to capture an expanded characterization of material transfers across nonmarital sexual partnerships in the Kisumu context. The 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?"<sup>11</sup> This question was asked about all men's nonmarital partners. The wording of this question was pretested extensively to ensure that the giving of transfers was not likened to tacit prostitution and the stigma that is associated with it, and that transfers were reported regardless of accompanying sexual activity. Response categories comprised the major types of transfers that were uncovered during pretesting, specifically money and

<sup>11</sup> The survey gathered information on the material assistance that adult men in Kisumu gave to their female partners. I did not inquire about material assistance that respondents received from their female partners, as I believe that men generally give more transfers to females than they receive. Several studies in various African settings reveal that young women receive more money and gifts than young men and that young women are more likely to engage in sexual behavior due to economic motivations than are young men (Meekers and Calves 1997a; Matasha et al. 1998).

nonmonetary items including gifts, meals and drinks, rent, and an open category where respondents could specify other types of assistance, such as tickets to the cinema or transportation. For each category of transfer, the amount of money or value of the items given was recorded in Kenyan shillings (US\$1 approximately equal to Ksh 70 at the time of the study). In order to ensure accurate recall about the specific types of assistance given and the value of that assistance, the question was limited to transfers that were given in the last month.

To construct a measure of the total amount of transfers within each partnership, I totaled the value of each type of assistance reported by the respondent specific to each partnership.<sup>12</sup> In order to compare the relationship between monetary and nonmonetary transfers and condom use, which is the second component of the analysis, I will include a separate variable for the amount of money that was given in the partnership in some of the regressions.

I chose to collect separate information on the amount of transfers given in the last month and condom use at the last act of sexual intercourse that took place in the last month because I wished to distinguish between commercial sex and informal exchange relationships. In contrast to commercial relationships where there is a one-to-one, temporal relationship between transfers and sexual activity, transfers given within informal exchange relationships might be ongoing or infrequent and might not precisely coincide with each sexual encounter. Had I instead collected information on condom use and transfers at a specific sexual encounter, I may have missed many informal exchange relationships.

The findings in table 1 point to the normative nature of informal exchange relationships in Kisumu. Approximately three-quarters of all recent nonmarital, noncommercial partnerships included some form of transfer in the last month. The mean amount given per partnership is Ksh 430 (approximately \$6) in the last month. We will see below that mean monthly income for the men in my sample is Ksh 4,863 (approximately \$69). Thus, the transfer for one partner is approximately 9% of men's mean monthly income, which suggests that informal exchange relationships are a considerable financial undertaking. Table 1 also reports transfers by type, and we see that most of the value of transfers is monetary: 51.4% is given in monetary assistance, 18.3% in gifts, 26.5% as meals or drinks, and the remainder as rent and other items, mostly transportation, such as bus fare. Numerous qualitative studies report that young females often receive other items from their male partners, such as school fees or tuition and living expenses (Kaufman and Stavrou 2004). It appears that

<sup>12</sup> I drop the top 0.5% of total transfers as extreme outliers.

the men in Kisumu report items such as these as general monetary assistance, perhaps because cash transfers are subsequently allocated by the female partner for a specific purpose. As noted above, most surveys inquire only about money or gifts exchanged for sex, and it is interesting to note that approximately one-third of the value of items reported in Kisumu was uncovered by asking specifically about additional types of transfers. Thus, these items—meals and drinks, rent, and other miscellaneous expenditures—may otherwise have gone unreported.

*Female and partnership characteristics.* My survey collected information on men's female sexual partners, including female age and marital status, which I believe are characteristics likely to influence condom use and transfers. Throughout sub-Saharan Africa, men's marital and nonmarital partners are on average younger than they are (Luke 2003). This is the case for the adult men in Kisumu, where we see in table 1 that the mean age of men's nonmarital sexual partners is relatively young, 20.1 years. As noted in my conceptual framework, adolescent girls are believed to be particularly disadvantaged in exchange relationships because they have fewer outside options than older women. Moreover, the qualitative literature describes how many young, single women are in weaker positions vis-à-vis their male partners (Komba-Malekela and Liljestrom 1994; Silberschmidt and Rasch 2001). This implies that both condom use and the level of transfers will depend on the female partner's age and marital status. Both these variables will thus be included as controls in the regressions that I report.

Age ranges for adolescents differ by study, and I have chosen to designate females younger than 20 years of age as adolescents, which is common in the literature. I label women ages 20 and over as "adult females." In order to test the robustness of this age cutoff in further analysis, I also construct categories for adolescent girls younger than 17, 18, 19, 21, and 22 years. As seen in table 1, almost half of the female partners of the adult men in my sample are adolescents: 48.7% are females younger than 20 years old. In addition, the majority of men's nonmarital partners are reported to be currently single (84.6%), 3.9% are currently married, and 7.9% are divorced, separated, or widowed women. For the remainder of female partners (3.6%), current marital status is unknown.

The survey also recorded the duration of each partnership in months, which I include as a specific characteristic that is an indicator of the type of relationship. For example, relationships of longer duration are likely to be more serious and involve higher levels of trust between partners. Several studies find that partnership duration is associated with condom use, and as partners know each other longer, trust between them increases and condom use decreases

(Outwater et al. 2000; Kaufman and Stavrou 2004). The average duration of men's nonmarital partnerships in Kisumu is approximately 14 months. This relatively long duration contrasts with what we would expect to find in commercial sexual relationships. We may also expect that men could reduce transfers as a relationship continues. Thus, partnerships of longer duration may be associated with lower transfers and lower probabilities of condom use, and thus a variable for the duration of the partnership in months will be included in the regressions that I report.

*Observed male characteristics.* While my preferred specification of the condom use regression includes male fixed effects, I will also experiment with regression specifications that include observed male characteristics that could determine both condom use and transfers, such as age, education, income, and current marital status. With respect to age, we see in table 1 that the mean age of men in my sample is 26 years, which reflects the young age structure of the urban migrant population in Kisumu. We may expect younger ages to be associated with higher probabilities of condom use, as past studies have found that HIV/AIDS prevention campaigns have reached the youngest members of the population (Ahmed et al. 2001). In addition, younger men are less likely to be employed and earn lower incomes and therefore are less able to provide larger transfers to their sexual partners than older men are (Webb 1997). A spurious negative correlation between transfers and condom use could thus be obtained if the man's age was not included in the condom use regressions.

Higher socioeconomic status, measured by educational attainment and income, has also been found to be associated with increased condom use in Africa, where it is believed that condom promotion and other HIV/AIDS prevention programs have successfully modified behavior among the higher status population (Fylkesnes et al. [2001]; see Lagarde et al. [2001] and Hargreaves et al. [2002] for Kisumu). Higher socioeconomic status also provides the potential for giving larger transfers, which would weaken the transfers–condom use correlation if education and income were not included in the regression analysis. The mean years of education in my urban sample is 10, and the mean income in the last month is Ksh 4,863 (approximately US\$69). I include a variable for years of education and a variable for the mean income in the last month as the potential pool from which transfers in the last month to female partners are taken.

With respect to current marital status, 59.0% of the men in my sample are single, 36.5% are married, and the remaining 4.5% are divorced, separated, or widowed. Previous studies in Africa have found that married men are less likely to engage in risky sexual behavior than single men are (Caraël 1994). We may also expect that married men are less able to give large transfers



because of their family obligations. Thus, omission of marital status from the condom use regression could strengthen the negative transfers–condom use correlation once again.

## Results

### *Estimates of the Relationship between Transfers and Condom Use*

The first part of my analysis examines the relationship between the level of transfers and condom use at last sexual intercourse. I begin with a nonparametric regression of condom use on transfers, with and without fixed effects (see fig. 1). For the fixed effects regression, condom use is regressed on transfers and transfers squared in a first-stage regression with male fixed effects. Condom use, net of the estimated fixed effects, is then regressed on transfers in the second stage nonparametric regression using the Epanechnikov kernel smoothing function. We see in the figure that the relationship between the probability of condom use and transfers is much more negative with fixed effects than without.<sup>13</sup>

To investigate these results further, I report parametric regressions in table 2 that sequentially introduce additional controls. I run three sets of regressions. In each set, the first specification is a regression with observed male characteristics as controls, and the second specification is a regression that includes male fixed effects. Observed male characteristics include age, education, income in the last month, and current marital status.<sup>14</sup>

The first set of specifications in columns 1–2 in table 2 includes male characteristics and the level of transfers within partnerships in the last month. The second set of regressions in columns 3–4 adds female and partnership characteristics, namely, the age of the female partner (adolescent vs. adult) and the duration of the partnership. The third set of regressions in columns 5–6 adds a variable for the female partner's current marital status in an attempt to control further for female characteristics. Here, I drop those partnerships where the current marital status is not reported, and thus my sample is restricted to 1,466 partnerships.<sup>15</sup> Income and amount of transfers are measured

<sup>13</sup> The increase in condom use beyond Ksh 4,000 in the regression without fixed effects is due to the presence of a small number of outliers. As discussed in greater detail below, the quadratic term in a parametric regression of condom use on transfers is statistically insignificant.

<sup>14</sup> I also tested for nonlinearities in all the variables by including quadratic terms; however, none were significant. We can also see from fig. 1 that the relationship between transfers and condom use, at least with fixed effects, appears linear.

<sup>15</sup> The sample size for the full sample is 1,522 partnerships. Observations whose predicted values lie outside of the [0,1] range will drop out when the standard errors are computed using generalized least squares, and thus the sample size in each regression may be less than 1,522. As noted above, these omitted observations are never more than 1.6% of the total sample, and therefore the change in sample size across specifications is negligible.

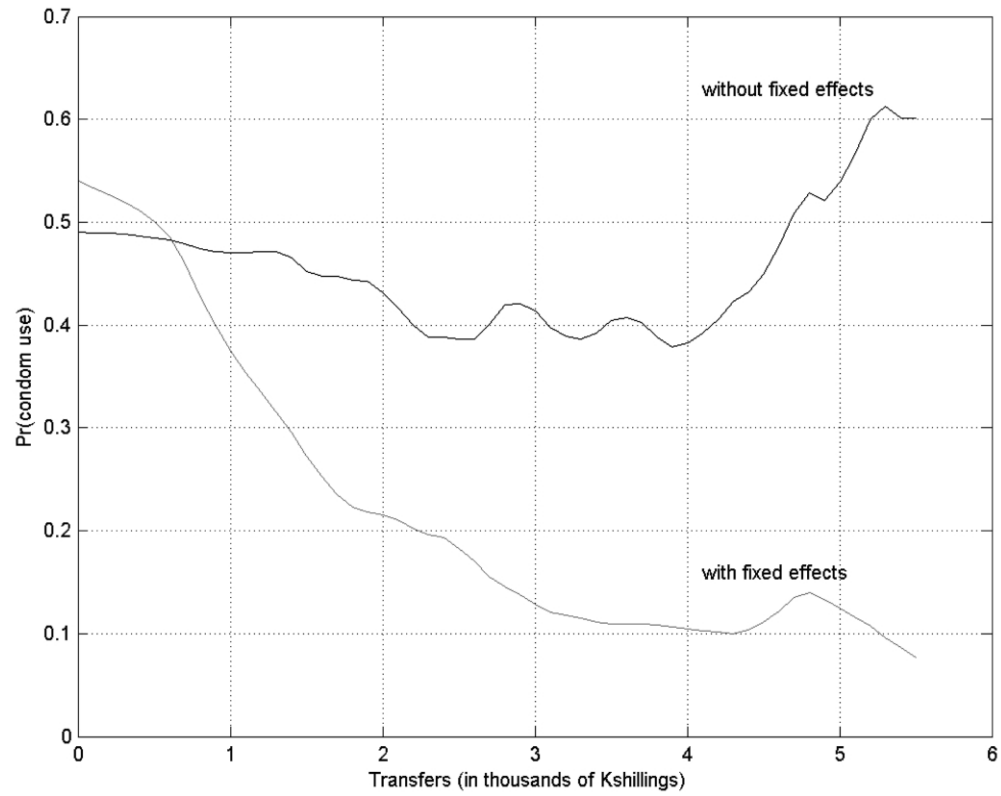


Figure 1. Nonparametric regression of condom use on transfers. Bandwidth = 0.75.

**TABLE 2**  
**DETERMINANTS OF CONDOM USE AT LAST SEXUAL INTERCOURSE WITHIN MEN'S RECENT NONMARITAL SEXUAL PARTNERSHIPS**

Independent Variables	Linear Probability (1)	Linear Probability Fixed Effects (2)	Linear Probability (3)	Linear Probability Fixed Effects (4)	Linear Probability (5)	Linear Probability Fixed Effects (6)
Male partner characteristics:						
Age (years)	-.001 (.003)		.001 (.003)		-.001 (.003)	
Education (years)	.030*** (.006)		.037*** (.006)		.035*** (.007)	
Income in last month (Ksh/1,000)	.003 (.003)		.002 (.003)		.003 (.003)	
Current marital status (reference = single):						
Married	.011 (.038)		.020 (.039)		.014 (.039)	
Divorced/separated/widowed	-.138* (.070)		-.116 (.071)		-.110 (.081)	

Female partner characteristics:						
Adolescent (reference = adult)			.019 (.030)	.010 (.065)	.017 (.031)	.015 (.070)
Current marital status (reference = single):						
Married					-.052 (.066)	.018 (.105)
Divorced/separated /widowed					.043 (.047)	.028 (.133)
Partnership characteristics:						
Duration of partnership (months)			-.002 <sup>+</sup> (.001)	-.003 (.002)	-.002 (.001)	-.003 (.002)
Total amount of transfers in last month (Ksh/1,000)	-.041* (.021)	-.165* (.074)	-.043* (.021)	-.147* (.071)	-.043* (.021)	-.145* (.074)
Constant	.481* (.203)	1.150*** (.069)	.239 (.193)	1.194*** (.110)	.318 (.231)	1.150*** (.217)
N	1,522	1,520	1,521	1,506	1,466	1,451

**Note.** Standard errors (in parentheses) are corrected for heteroskedasticity and are robust to clustered residuals across partnerships for each individual. "Recent nonmarital sexual partnerships" refers to men's nonmarital sexual partnerships that did not involve commercial sex workers and whose last act of sexual intercourse occurred in the last month. Columns 1–2 show the base specification, which includes male characteristics and the level of transfers. Columns 3–4 add female age and duration of partnership. Columns 5–6 add female marital status.

<sup>+</sup>  $p < .10$ .

\*  $p < .05$ .

\*\*\*  $p \leq .001$ .

in thousands of Kenyan shillings in all the regressions 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.<sup>16</sup>

Looking across the results for the regressions without fixed effects in table 2, we see that the male partner's age is not associated with condom use. With respect to socioeconomic status, the male partner's education level is positively and significantly associated with condom use. For each additional year of educational attainment, the probability of condom use at last sexual intercourse increases by approximately 3.5%. The male partner's income, however, is not significantly associated with condom use. With respect to current marital status, I selected single men as the reference category to compare them to ever-married men, designated as currently married or currently divorced, separated, and widowed. Currently married men are statistically indistinguishable from single men in all specifications. Divorced, separated, and widowed men are 14% less likely to use a condom than those in the reference category, single men, in column 1, and this is a statistically significant result. The point estimates are relatively stable in columns 3 and 5; however, they are not significant. This suggests that divorced, separated, and widowed men are a distinct group with respect to condom use in nonmarital sexual relationships.

Having an adolescent female partner does not have a significant effect on condom use in any of the regressions. This finding runs contrary to the popular belief that adolescent girls are particularly vulnerable to risky behaviors in sexual relationships. Similar to my analysis of male marital status, I compare single females to those ever-married, including currently married or currently divorced, separated, and widowed. Across all three groups in columns 5 and 6, there is no significant difference in condom use. The duration of the partnership is negatively and marginally significantly related to condom use in column 3; however, the effect is insignificant in all other regressions.

With respect to transfers, table 2 shows that the relationship between the total amount of transfers and condom use is negative and significant across all regressions with and without fixed effects. The effect increases (becomes more negative) more than threefold in the male fixed effects regressions. For every Ksh 1,000, the probability of condom use decreases approximately 15%–17%. This is equivalent to finding that for every Ksh 500—roughly the mean amount given in transfers per partnership—the probability of condom

<sup>16</sup> In the linear probability regressions, the reported constant is interpreted as usual as the intercept term, setting all the regressors to zero. In the regressions with fixed effects, the constant term is chosen so that the predicted value computed at the sample mean of the regressors is equal to the sample mean of the dependent variable.

use decreases approximately 8%. It is also reassuring to note that the coefficients on the total amount of transfers remain stable across alternative specifications as I introduce female and partnership characteristics.

Overall, the results from the analysis in table 2 show that there is indeed a significant negative correlation between the level of transfers and the probability of condom use within men's nonmarital, noncommercial sexual partnerships, and the magnitude of the relationship is not trivial. This result suggests that a market for risky sexual activity exists, where even a small transfer is associated with a substantial decrease in the probability of condom use.

It is important to note that the coefficients on the total amount of transfers increase three- to fourfold when estimated with male fixed effects models. Thus, while male education has a strong effect on condom use, controlling for education and other individual male characteristics is not sufficient to account for unobserved male heterogeneity. It appears that omitted variable bias understates the negative effect of transfers on condom use, which implies that men with a greater (unobserved) propensity to use condoms give more in transfers. My conclusions regarding the negative transfers coefficients, and hence the presence of a market for unsafe sexual activity, would have been quite different if the fixed effects estimation procedure was not implemented.

#### ***Estimates for Condom Use by Type of Transfer***

I investigate the relationship between the type of transfers—monetary versus nonmonetary—and the probability of condom use at last sexual intercourse in table 3. In addition to the male, female, and partnership variables utilized in table 2, I include a variable reporting the total value of monetary transfers within the partnership. This specification enables us to explore whether the marginal effect of monetary transfers on condom use differs from the marginal effect for nonmonetary transfers. The first specification in table 3 is an LP regression without male fixed effects, and the second specification includes fixed effects.

The coefficients on the male, female, and partnership controls in table 3 are similar to those in table 2. The coefficients on the total amount of transfers are also roughly the same as in table 2, particularly with fixed effects, which is a statistically significant result. The coefficients on monetary transfers are small and insignificant in each case. These results indicate that in urban Kisumu, there is no significant difference in the relationship between transfers and condom use by the type of transfer. Nonmonetary transfers appear to be perfect substitutes for monetary compensation.

**TABLE 3**  
**DETERMINANTS OF CONDOM USE AT LAST SEXUAL INTERCOURSE WITHIN MEN'S RECENT**  
**NONMARITAL PARTNERSHIPS**

Independent Variables	Linear Probability (1)	Linear Probability Fixed Effects (2)
Male partner characteristics:		
Age (years)	.001 (.003)	
Education (years)	.037*** (.006)	
Income in last month (Ksh/1,000)	.002 (.003)	
Current marital status (single = reference):		
Married	.020 (.039)	
Divorced/separated/widowed	-.128 (.079)	
Female partner characteristics:		
Adolescent (adult = reference)	.020 (.032)	.010 (.064)
Partnership characteristics:		
Length of partnership (months)	-.002 (.001)	-.003 (.002)
Total amount of transfer in last month (Ksh/1,000)	-.015 (.030)	-.156* (.080)
Total amount of transfers in money in the last month (Ksh/1,000)	-.053 (.058)	.034 (.143)
Constant	.213 (.230)	1.190*** (.113)
N	1,520	1,506

**Note.** Standard errors (in parentheses) are corrected for heteroskedasticity and are robust to clustered residuals across partnerships for each individual. "Recent nonmarital sexual partnerships" refers to men's nonmarital sexual partnerships that did not involve commercial sex workers and whose last act of sexual intercourse occurred in the last month.

\*  $p < .05$ .

\*\*\*  $p \leq .001$ .

#### *Estimates for Condom Use by Age of Female Partner*

The final part of my analysis examines the relationship between transfers and condom use separately for partnerships involving adolescent girls and adult females. I begin with descriptive statistics in table 4 that compare the characteristics of partnerships and transfers for the two age groups of female partners (with 20 years as the cutoff separating the two groups) using *t*-tests to assess significance. With respect to condom use, there is no significant difference between partnerships involving adolescents and those involving adult females. Regarding transfers, male partners gave some form of material assistance to their adolescent female partners in a great majority of cases (69.3%) in the last month. This figure is significantly lower, however, than the proportion of

**TABLE 4**  
**CHARACTERISTICS OF MEN'S RECENT NONMARITAL PARTNERSHIPS BY AGE GROUP OF FEMALE PARTNER**

Characteristics	Partnerships Involving Adolescent Girls (≤19 Years)	Partnerships Involving Adult Females (20+ Years)
Panel A. Condom use and transfers within partnerships:		
Percent condom use at last sexual intercourse	48.0	48.7
Percent with transfer in last month	69.3	75.7**
Mean amount of transfers in last month (Ksh)	332.1	521.9***
N	741	781
Panel B. Partnership characteristics (conditional on transfers):		
Percent of transfer value in money	50.1	52.6
Percent of transfer value in gifts	20.5	16.4*
Percent of transfer value in meals/drinks	26.8	26.3
Percent of transfer value in rent	.7	1.6 <sup>+</sup>
Percent of transfer value in other items	2.0	3.2
N	512	590
Panel C. Male partner characteristics:		
Mean age (years)	23.7	27.6***
Mean education (years)	9.5	10.3***
Mean income in last month (Ksh)	3,887.6	5,262.6***
N	741	781

**Note.** "Recent nonmarital sexual partnerships" refers to men's nonmarital sexual partnerships that did not involve commercial sex workers and whose last act of sexual intercourse occurred in the last month. Panels A and C refer to the sample of all men's recent nonmarital sexual partnerships; panel B refers to the sample of all men's recent nonmarital sexual partnerships that involved some form of economic assistance in the last month.

<sup>+</sup>  $p < .10$ .

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p \leq .001$ .

adult partnerships that involved a transfer (75.7%). The mean value of transfers in adolescent partnerships is Ksh 332 (approximately US\$4.75) for adolescent girls, which is significantly less than Ksh 522 (approximately US\$7.50) received on average by adult females. There are slight differences in the type of transfers given in adolescent and adult partnerships as well. In adolescent relationships, approximately one-half of the value of all transfers is given in monetary assistance, 20.5% in gifts, 26.8% as meals or drinks, less than 1% as rent, and 2.0% as other items. Adults receive significantly less in gifts and slightly more in rent and monetary transfers, although the latter difference is insignificant.

The differences in the prevalence, value, and type of transfers are consistent with the general perception that adolescent girls cannot demand as much on the sexual market as older females. Since condom use is the same for both groups of females, these results taken together also imply that fewer transfers



are required to induce adolescent girls to forgo condom use. These descriptive statistics do not, however, account for differences in the characteristics of male partners of adolescent girls and adult women. Indeed, we find in the lower portion of table 4 that male characteristics are significantly different between the two groups. For partnerships involving adult females, the mean age, education, and income of male partners are higher than in partnerships involving adolescent girls. We now turn to table 5 and the results of the regressions using male fixed effects to determine whether the transfers–condom use relationship varies by the age of the female.

The fixed effects regressions in table 5 include the same variables as in my previous specifications: age group of female partner, duration of partnership, and amount of transfers. Because I wish to examine the differential correlation between transfers and condom use for adolescent and adult partners, I interact the age group of the female partner with transfers. To test for robustness, I include six different cutoffs for the upper age of adolescents, each of which is included in a separate regression. In order to save space, I include only the results of the fixed effects regressions; the coefficients with observed male characteristics as controls are similar to what I obtained earlier in table 2.

Across all specifications in table 5, the effect of age group of female partner and duration of the relationship are insignificant, as in the analyses in tables 2 and 3. The magnitude and significance of the coefficients for the level of transfers are similar to my previous findings as well.<sup>17</sup> With respect to the additional effect of the female partner being an adolescent, I find that the interaction term with the amount of transfers is small and insignificant across all regressions. These findings indicate that the trade-off between transfers and condom use does not vary between adolescents and adult females once I control for male partner characteristics.<sup>18</sup>

### Conclusion

The major aim of this article is to assess whether a market for unsafe sexual activity exists among informal sexual relationships in a high HIV/AIDS en-

<sup>17</sup> To examine the differential correlation between transfers and condom use for partnerships of longer and shorter duration, I interacted the duration of the relationship with transfers as well. This variable was not significant in any of the regressions either (not reported).

<sup>18</sup> My estimates indicate that a one-unit increase in transfers has the same effect on the absolute probability of condom use for partnerships involving adolescent girls and adult females. Recall from table 4 that condom use is the same for adolescent and adult females, but the level of transfers is significantly lower on average for partnerships involving adolescents. This implies that the effect of a 1% change in transfers on the percent change in condom use would be smaller in partnerships involving adolescent females. This finding reinforces my conclusion that there is no evidence that adolescents more readily trade off transfers for risky behavior than adult females do.

**TABLE 5**  
**DETERMINANTS OF CONDOM USE AT LAST SEXUAL INTERCOURSE WITHIN MEN'S RECENT NONMARITAL SEXUAL PARTNERSHIPS, ALTERNATIVE FEMALE AGE GROUP CUTOFFS**

Independent Variables	Adolescent < Age 17 (1)	Adolescent < Age 18 (2)	Adolescent < Age 19 (3)	Adolescent < Age 20 (4)	Adolescent < Age 21 (5)	Adolescent < Age 22 (6)
Female partner characteristics:						
Adolescent (ref = adult)	-.019 (.101)	.010 (.083)	.015 (.073)	-.010 (.072)	.023 (.069)	.057 (.079)
Partnership characteristics:						
Duration of partnership (months)	-.003 (.002)	-.003 (.002)	-.003 (.002)	-.002 (.002)	-.002 (.002)	-.003 (.002)
Total amount of transfers in last month (Ksh/1,000)	-.162* (.080)	-.152+ (.084)	-.148+ (.081)	-.114+ (.068)	-.161+ (.091)	-.196*** (.044)
Total amount of transfers × age group of female	.091 (.105)	.020 (.141)	.001 (.104)	.005 (.069)	.028 (.039)	.070 (.074)
Constant	1.211*** (.087)	1.208*** (.096)	1.209*** (.104)	1.200*** (.125)	1.175*** (.133)	1.133*** (.140)
N	1,502	1,506	1,507	1,497	1,500	1,504

**Note.** Standard errors (in parentheses) are corrected for heteroskedasticity and are robust to clustered residuals across partnerships for each individual. "Recent nonmarital sexual partnerships" refers to men's nonmarital sexual partnerships that did not involve commercial sex workers and whose last act of sexual intercourse occurred in the last month.

+  $p < .10$ .

\*  $p < .05$ .

\*\*\*  $p \leq .001$ .

vironment. The exchange of money for sex without a condom is well known within commercial sexual partnerships, but it is unclear from the previous qualitative evidence whether markets can emerge among noncommercial relationships as well. I use new data on nonmarital sexual partnerships and transfers from Kisumu, Kenya, to investigate this question.

I find a strong negative relationship between transfers and condom use in informal relationships after controlling for male fixed effects and other important female and partnership characteristics. I also find that nonmonetary transfers, such as gifts and meals, have the same effect on condom use as monetary transfers. Furthermore, the results reveal that the trade-off between transfers and condom use does not differ between partnerships involving adolescent girls and adult females; in other words, the same value of transfer induces the same response in nonmarital female partners of different ages.

My study takes an important step toward controlling for selection into sexual partnerships by including male fixed effects. This procedure removes bias in the estimation of the transfers–condom use relationship that is caused by observed and unobserved male characteristics that are constant across an individual's multiple nonmarital, noncommercial partnerships. I include female age and marital status in the condom use regressions, but other unobserved female characteristics could motivate women to select into different types of partnerships. Similarly, while I include the duration of the relationship as an indicator of the type of partnership, there may be other, perhaps better, measures of the nature of sexual relationships.

One direction for future research into informal exchange relationships is to develop and collect improved measures of female and partnership characteristics, particularly female income and poverty status. Questions on these characteristics could be incorporated into existing surveys on male sexual behavior, or researchers could attempt to locate men's female partners and interview them directly. Another approach would be to study condom use and transfers within the same relationship over time, which would permit the use of partnership-specific fixed effects. Finally, instrumental variable regressions could be implemented if changes in economic conditions that determined transfers, but not condom use directly, were available.

Although my results indicate that a market for unsafe sexual activity exists in urban Kisumu, I am unable to determine if this market has always been present or if it emerged in response to perceived risk in this high HIV/AIDS environment. The practice of trading money for sex may be a historical occurrence in Kisumu. However, given the relatively recent onset of the HIV/AIDS epidemic, I conjecture that the market for risky sexual behavior is a new phenomenon.

In contrast to the conception that women, and adolescent girls in particular, are “vulnerable victims” who unknowingly or unwillingly participate in unsafe activities dictated by their male partners, the presence of a market for unsafe sexual behavior suggests otherwise: that adolescent girls and older women are active agents who make conscious trade-offs between the risks and the benefits of informal exchange relationships. Nevertheless, I find that a small change in transfers gives rise to a substantial decrease in condom use, presumably as a consequence of the limited wealth endowments and poor outside options that women have access to in Kisumu. Improvements in alternative economic opportunities for women could therefore change the terms of trade in the sexual marketplace significantly.

While the emergence of a market could, in principle, improve individual welfare by compensating people for the risks that they take, the actual levels of risk in equilibrium may not be socially optimal. The decision to engage in unsafe sexual behavior is based on an individual’s assessment of the costs and benefits to himself or herself and not on the negative externality for society that accompanies this behavior through subsequent transmission of HIV/AIDS to future partners. The market could generate too much risky behavior, as may be the case in Kisumu.

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