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## Economic Gains vs. Health Risks: Men's Migration and Women's HIV/AIDS Views in Mozambique

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# **Economic Gains vs. Health Risks: Men's Migration and Women's HIV/AIDS Views in Mozambique\***

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## Abstract

The study uses survey data from Mozambique to examine how men's labor migration affects their non-migrating wives' HIV/AIDS-related views. It compares women married to migrants and those married to non-migrants while also distinguishing between economically successful and unsuccessful migration. The analysis finds that migrants' wives were more likely than non-migrants' wives to suspect their husbands of extramarital sex. Migrants' wives were also more likely to worry about getting infected by their husbands, but the difference was statistically significant only for women married to successful migrants. Wives of successful migrants were less likely to worry about getting HIV from extramarital partners. The success of migration also affected the likelihood of HIV/AIDS-related spousal communication. Finally, wives of successful migrants were more likely to think that their husbands would object to condom use. These findings illustrate the tradeoffs between economic security and health risks that men's migration entails for their left-behind wives.

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## **Introduction**

A sizeable body of literature on STD/HIV/AIDS in sub-Saharan Africa and other regions has examined the association between migration and infection risks. This literature is premised on a general assumption that migrants are more likely than the general population to be both recipients and transmitters of any infection (Prothero 1977), but it has also been argued that “AIDS probably has a closer relationship to migration than any other infectious disease” (Caldwell et al. 1997: 51). The predominant view established in this literature is that migrants, removed from their usual social milieu and often separated from their permanent sexual partners, are a major vector in the spread of STD/HIV from high to low infection areas (e.g, Appleyard and Wilson 1998; Caldwell et al. 1997; De Schryver and Meheus 1990; Decosas et al. 1995; Hunt 1989; Mtika 2007; Quinn 1994). Migrants are said to be prone to risky sexual behavior (Agadjanian and Avogo 2008; Brockerhoff and Biddlecom 1999; Li et al. 2004; Liu et al. 2005; Mabey and Mayaud 1997; Yang, 2004) and to have higher STD/HIV infection levels than non-migrants (Yang 2004; Zuma et al. 2003; Zuma et al. 2005).

Yet some recent studies that have focused on seasonal and other temporary labor migration in South Africa have found the migration-HIV connection to be more complex (Lurie 2006). Thus Coffee et al. (2007) have argued that migration accelerates the spread of HIV only at early stages of the epidemic. A study by Coffee and colleagues (2005) in Zimbabwe found an association between rural-to-rural migration and HIV but no significant effect of rural-to-urban migration. Another Zimbabwe study showed that neither married men’s long-term migration nor their short-term mobility were associated with higher HIV prevalence (Voeten et al. 2002). In yet another study on Zimbabwe, Mundandi et al. (2006) found no difference in sexual risks and HIV

incidence between migrants and stayers. And Wolff et al. (2002) concluded that in South Africa male migrants in urban areas were no more prone to risky behavior than were rural men.

Most literature on the migration-STD/HIV links has dealt with migrants and their risks, and studies that have addressed the risks of non-migrating partners remain remarkably few. Hughes et al. (2006) have argued that migrants' wives who stay behind are at higher risks of STD/HIV due to their dependence on husbands' income and reduced power of sexual negotiation. Yet, Lurie et al. (2003a), while finding that male migrants were significantly more likely to be HIV-positive than non-migrants, detected no significant differences between their partners. Another study in South Africa (Lurie et al., 2003b) suggests that HIV infection may be transmitted not only from male migrants to their rural partners but also the other way around. These findings highlight the complexity of STD/HIV risks that migration entails for non-migrating partners of migrants but also underscore the need for a broad sociological conceptualization of these risks. Our study offers such a sociological contribution to the largely epidemiological scholarship on the migration—STD/HIV nexus by examining how men's labor migration from rural areas of southern Mozambique may influence their non-migrating wives' views of HIV risks.

While looking at the migration-HIV connections from the non-migrants' perspective, our analysis goes beyond a conventional comparison of migrants and non-migrants and of their respective partners in that we also examine the differences in migration economic outcomes and the implications of these differences for non-migrant partners' HIV risks. The scant literature that links migrants' economic success to STD risks suggests a positive relationship. Thus, Liu et al. (2005) reported that higher-income migrants in China have more opportunities for casual and commercial sex and as a result are more likely to engage in risky sexual behavior. In another study in China, He et al. (2005) also observed a higher STD prevalence among migrants with

higher income. Sevoyan and Agadjanian (2008) found that the likelihood of reporting STD-like symptoms by migrants' wives in rural Armenia increased with their households' income.

### **Conceptualization**

Our analysis focuses on left-behind wives' perceptions of risks of getting HIV infection from their husbands and from other men, on their communication with the husbands regarding HIV/AIDS matters, and on their views on acceptability of condom use with their husbands. Based on the predominant assumptions and findings of most literature on migration and STD/HIV risks, we expect that women who are married to migrants would be more likely than women married to non-migrants to think that their husbands have been unfaithful and to be worried about risks of contracting HIV from them regardless of other factors and characteristics. At the same time, due to physical and social barriers that men's labor migration may erect between spouses, we expect to find less spousal communication about HIV/AIDS in migrant couples than non-migrant couples. Men's migration may not only increase their risks of contracting HIV in places of migration destination (and consequently their wives' perceptions of risks of getting HIV from them) but also increase exposure of their left-behind wives to HIV risks by facilitating extramarital sex. Because reports of extramarital partnerships by married women sub-Saharan surveys may be unreliable (e.g., Curtis and Sutherland 2004), we use their stated worries about getting infected by men other than their husbands as proxies for such exposure. We hypothesize that women married to migrants are more likely to express such worries than women married to non-migrants net of other factors.

However, the perceptions of risks among migrants' wives may be contingent on migration's economic outcomes. This relationship is not straightforward. On the one hand, the economic

success of migration and a steady flow of remittances that it generates improve household material conditions and reduce the pressure on migrants' wives to find alternative forms of livelihoods, including those that may be contingent on transactional extramarital sex. On the other hand, because higher incomes offer migrants more opportunities for paid and other transactional extramarital sex, the wives of successful migrants may be particularly concerned about the risks of getting infected by their husbands. At the same time, migrants who manage to find good jobs and to remit money or bring goods back to their families may have greater leverage over their non-migrating spouses than migrants who are less successful in generating income and sending or bringing money and gifts to their wives and children. Women's dependence on their migrant husbands' income and remittances may therefore strengthen the patriarchal hierarchy within their households and diminish wives' ability to negotiate safer sex within marriage. Prolonged separations of marital partners due to migration may already make avoiding sex or using condoms less desirable as these actions could interfere with couples' reproductive plans. Besides, condoms remain unpopular in marital sex as they typically connote distrust and acknowledgement of extramarital partnerships. The authority that economically successful migration confers on the husband can further amplify this tendency. We therefore expect that, all else equal, more successful migration will be associated with a lower likelihood of condom acceptance and use.

### **Setting**

International labor migration, primarily directed toward the Republic of South Africa, has been a key feature of socioeconomic development in the Southern African region (Adepoju 2003; Agadjanian 2008). Southern Mozambique has played a significant role in this regional migration

system sending labor migrants to South African mines and other destinations for many decades (CEA/UEM 1997; Crush et al. 1991; First 1983) and as a result, making Mozambicans one of the largest migrant groups in South Africa (Adepoju 2003). However, in recent times Mozambican migration to South Africa has undergone an important transformation. On the one hand, radical political changes in the region, in particular the dismantling of the apartheid system in South Africa, have facilitated entry of Mozambicans into South Africa. On the other hand, with a drastic reduction of recruitment of foreigners in the South African mining industry, the political pressure in that country to limit work opportunities for foreigners, and rising xenophobia, employment options in South Africa for the majority of Mozambicans have become more limited, unpredictable, and increasingly illegal (Crush 1997; De Vletter 2006; SAMP 2008).

In parallel to international migration, migration within Mozambique, particularly from rural to urban areas, has also grown in recent decades. Limited and controlled by the colonial regime, rural-urban migration, especially to Maputo, Mozambique's capital, increased with Mozambique's independence from Portugal in 1975 and the civil war that soon followed (Dow 1989; Jenkins 1993). After the war ended in 1992, the structural adjustment policies, which further undermined traditional subsistence agriculture and magnified socioeconomic imbalances, have spurred new migration flows (Knauder 2000). Today, periodic environmental shocks, low and erratic agricultural yields, scarcity of non-agricultural employment, and the rising cost of living in rural areas continue to push rural men to look for job opportunities in South Africa and, to a lesser extent, in urban centers of southern Mozambique. Yet neither destination guarantees migrants economic success, especially as the regional economies slow down. As a result, the migratory flows of labor from rural areas remain strong, while economic returns to this migration grow less certain.

The described transformation of the migration regime in southern Mozambique has coincided with a rise in HIV prevalence. Mozambique is among the world's worst affected countries by the HIV/AIDS epidemic: the national prevalence among adults aged 15–49 increased from 8.2% in 1998 to 16.0% in 2007. The national estimate masks the wide variability in HIV prevalence throughout the country. In 2007, the prevalence ranged from 9% in the northern part of Mozambique, to 18% in the center, to 21% in the south. The surveillance data also point to a particularly rapid rise of HIV levels in the southern Gaza province, where the fieldwork for this study was conducted: estimated adult HIV prevalence there rose from 20% in 2004 to 27% in 2007 (Ministry of Health 2005; 2008). Not surprisingly, population mobility, and especially male labor migration to South Africa, has been considered an important factor fueling this trend. Although direct evidence linking migration to HIV/AIDS in Mozambique is lacking, higher seroprevalence levels around the transportation corridors and along international borders (Barradas and Arnaldo 2003; Barreto et al. 2002; Raimundo 2004) indirectly support this connection. A possible link between migration to South Africa and HIV/AIDS is not known just to a small circle of policy makers and researchers: anecdotal evidence amassed during our fieldwork suggests that despite the limited availability of HIV testing in rural southern Mozambique, HIV/AIDS is well known and is widely believed to be brought to local communities by migrants returning from South Africa. One local woman thus summed up this common view: “We can see AIDS in those men who come back sick from South Africa... They come back skinny, with those blisters, diarrhea... they don't eat anything, and if they eat something, they throw it up right away, [food] doesn't stay in their stomach.”

## **Data and Methods**

Our study uses individual and community survey data collected in rural areas of southern Mozambique in 2006. The individual survey sample was drawn from the population of married women aged 18-40 residing in 56 villages of four districts in southern Mozambique (the area of c. 5,900 sq. m. and the total population of c. 625,000). In each district, 14 villages were selected with the probability proportional to size. In each selected village (or in a randomly picked section thereof if a village was big), all households with at least one woman in a formalized or non-formalized marital union were canvassed and assigned into two lists: 1. those with at least one woman married to a migrant (i.e., a man who was working or looking for work outside of the village and did not spend a single night in the village for at least 30 days before the survey) and 2. those with no such women. These two lists were used as sampling frames: from each of them 15 households were randomly selected (if there were fewer than 15 households in either list, the missing number was drawn from the other list to achieve a village sample size of 30 households). In each selected household a woman was interviewed; in households classified as migrant, the interview was conducted with a woman married to a migrant. The resulting sample included 1680 women, of which 41% were wives of migrants and 59% wives of non-migrants. The survey collected detailed individual and household demographic and socioeconomic information, including husband's migration and work history, as well as information on HIV/AIDS knowledge, views, worries, and behavior. In parallel with the women's survey, in each village a brief community survey focused on village economic and social life, out-migration, and HIV/AIDS was carried with a village administrator.

### Variables and Model

The main outcomes for the multivariate tests are defined and operationalized below:

*Knowledge or suspicion of husband's sexual relationships with other women.* Respondents were asked whether they know or suspect that their husbands had sex with other women (excluding their other wives, for polygynous men), in the twelve months preceding the survey. This outcome is coded as a dichotomy: knows/suspects that husband had sex with other women vs. knows that he did not or is not sure.

*Being very worried about getting HIV from husband.* This dichotomy is operationalized as follows: very worried about getting infected from husband vs. somewhat worried, not worried, or does not know (these options were read to respondents, and very few of them said they were not worried). The survey respondents were not asked about their serostatus. Only one respondent spontaneously identified herself as HIV+, and she is excluded from the analysis.

*Being worried about getting HIV from another man or other men.* Whereas the direct question about respondents' extramarital experience produced responses that cannot be deemed reliable, the questions about perceptions of risks of contracting HIV from other men (asked in a different section of the interview) may yield a reasonable proxy for respondents' exposure to risks through extramarital sex. This variable is operationalized as a dichotomy: very worried or worried vs. not worried or does not know.

*Spousal communication about HIV/AIDS.* This outcome is formulated as follows: recently talked in person or by phone, even if in passim, with the husband about issues pertaining to HIV/AIDS vs. did not talk or could not recall talking to the husband about it. In the model predicting this outcome we exclude migrants' wives who reported having no recent contacts with their husbands.

*Potential and actual condom use with husband.* Two outcomes are considered. The first outcome is a respondent's opinion on whether or not her husband would object to using condom

with her. This dichotomy is constructed as follows: those who think their husbands would object vs. those who think that they would accept or are not sure. Women who have used condom with their husbands at least once are included in the former category. This outcome is a proxy for women's ability to negotiate safer sex with their husbands. A negative formulation (objecting) is preferred to a positive one (accepting) because it is more likely to capture women's perceptions of men's control over their lives. The second outcome is whether or not a respondent ever used condom in sex with husband, regardless of time and purpose of use. These and other outcomes are summarized in Table 1.

Table 1 here

Our main predictor is migration status of a respondent's husband: we look at differences between women married to migrants and those married to non-migrants in the above outcomes. Following our conceptual model, we also examine differences in migration economic outcomes. We use two approaches to measure migration success. The first approach is based on the type and frequency of remittances. We use remittances that are either sent by the husband through formal and informal intermediaries or brought by the husband upon his return for vacation. We also consider non-monetary remittances sent by husbands as well as money that women receive from their husbands when they visit them at places of their husbands' work. To avoid an excessive fragmentation of the migrant-husband subsample that could affect the statistical power of the analysis, we subdivide women married to migrants into just two groups: those whose husbands sent/brought/gave money and other things regularly and those whose husbands remitted seldom or did not remit at all in the twelve months preceding the survey. This definition

therefore attempts to capture objective and absolute benefits of husband's migration. Although the exact boundary between the two subcategories of migrants' wives is drawn somewhat arbitrarily, we believe that a simple dichotomy like this is sufficient to illustrate our main conceptual points and to test the corresponding hypotheses. However, because the assessment of the impact of remittances on household is a subjective process contingent on prior expectations and a number of unobservable factors, we also employ an alternative definition of husband's migration success—the one based on women's own stated perceptions of whether or not the living conditions of their households' improved as a result of their husbands' migration. In addition to its subjective nature, this assessment is also more general as in most cases it is not bound by a one-year time span. Given that our outcomes are of behavioral and attitudinal nature, this specification of migration success may be more relevant for the analysis of women's views than the one based on reported remittances. Although the two specifications are overlapping and the two indicators are highly related (chi-square significant at  $p < .001$ ), these indicators nonetheless have different distributions. Whereas on the remittances-based, "objective" variable, the successful vs. unsuccessful migration breakdown is 72% vs. 28%, respectively, in the variable based wife's perception ("subjective" definition) the two subgroups are nearly equal in size (see Table 1).

Because all the outcomes are dichotomies, we use binomial logit as the multivariate statistical tool. For each outcome we fit three logit models: 1. a model that compares wives of migrants to wives of non-migrants; 2. a model that compares wives of objectively successful and objectively unsuccessful migrants to wives of non-migrants; and 3. a model that compares wives of subjectively successful and subjectively unsuccessful migrants to wives of non-migrants. Each model controls for woman's age, education, recent gainful employment, and religious affiliation,

the bridewealth status of the marriage (whether or not bridewealth was paid in full), polygyny, household material status and economic characteristics, and co-residence with parents-in-law. All models also control for the approximate proportion of village married men who work in South Africa derived from the community survey. The variables used in all the statistical tests are listed and defined in Table 1. Other covariates are added to some of the models when substantively justified. Because under the cluster sampling design individual respondents and their households may share with other respondents and households in their villages some unobserved characteristics that may affect the associations of interest, in all statistical models we employ a random-intercept approach, allowing the intercept of the outcome variables to vary randomly by village. All statistical models are fitted using the GLIMMIX procedure in SAS (SAS 2009).

## **Results**

The odds ratios from the multivariate logit models are presented by sections in Table 2. We first estimate the likelihood of respondents knowing or thinking that their husbands have had extramarital sexual partners (section 1). The results in panel 1.A indicate that women married to migrants are significantly more likely than non-migrants' wives to reckon that their husbands had had other sexual partners even after controlling for other characteristics: the odds of knowledge/suspicion of husband's infidelity among wives of migrants are 38% higher than those among wives of non-migrants. When we separate wives of successful migrants from wives of unsuccessful migrants on the basis of remittances, the difference from wives of non-migrants is strong and statistically significant only for women married to successful migrants (panel 1.B). When we use the subjective definition of migration success (i.e. the definition based on a

woman's assessment of changes in household's living conditions resulting from her husband's migration), the effect of successful migration remains significant while the effect of unsuccessful migration is now also within the conventional range of statistical significance and is similar in magnitude to the effect of successful migration (panel 1.C). Among other effects, it is notable that being in a polygynous marriage increases the likelihood of suspicions of infidelity as does the experience of physical abuse by the husband. It is also to note that knowledge/suspicion of husband's infidelity is positively associated with the share of village married men working in South Africa.

Table 2 about here

The odds ratios from the models predicting whether a respondent was very worried about risks of contracting the HIV virus from her husband are presented in panels 2.A-2C. Woman's knowledge/suspicion that her husband has had extramarital sex is now included as a covariate. Again, women married to migrants are significantly different from those married to non-migrants: other things equal, migrants' wives are more likely than non-migrants' wives to express great worries about getting infected by their husbands (OR 1.41, panel 2.A). When women married to successful migrants are separated from those married to unsuccessful migrants, based either on remittances or on women's perceptions of the effects of migration, the above effect is statistically significant only for wives of successful migrants (panels 2.B and 2.C). The magnitudes of the effects of being married to a successful migrant and being married to an unsuccessful migrant are similar in the model where migration success is objectively defined but are rather different in the model that uses the subjective definition of migration

success. It should be emphasized that the effects of men's successful migration on their wives' worries about getting infected in both models remain strong even after controlling for women's knowledge/perception of their husbands' infidelity.

Section 3 presents the results of the tests predicting worries about getting HIV from another man or other men, which, as we said earlier, is used as a proxy for women's exposure to extramarital sex. These models also control for how common it is for village married women to engage in petty trade outside the village (not common, somewhat common, very common), which is a proxy for the overall exposure of village women to extramarital sexual risks. As we can see, husband's migration status per se does not significantly affect the outcome: women with migrant husbands seem less likely to express such worries, but this effect is not statistically significant (panel 3.A). When the migrant-husband group is subdivided into two on the basis of remittances, wives of successful migrants are significantly less likely to worry about getting infected by other men than wives of non-migrants. At the same time, the effect of being married to an unsuccessful migrant tends in the opposite direction but is not statistically significant (panel 3.B). The corresponding coefficients in the model with migration success defined on the basis of perceptions of change in household conditions tell the same story, but the difference in the effects of the two types of migration outcomes is much less pronounced as wives of unsuccessful migrants are now indistinguishable from wives of non-migrants (3.C). For other covariates, it is noteworthy that knowledge/suspicion that husband has been unfaithful increases the likelihood of worries about getting infected by another man. This statistically significant association may point to a greater likelihood of extramarital sex among women whose husbands are also engaged in sex outside marriage.

We now turn to spousal communication regarding HIV/AIDS (section 4). The models in this set do not control for knowledge of husband's extramarital sex and worries about getting infected from husband as such knowledge and worries could both trigger spousal communication about HIV/AIDS and result from it and therefore their inclusion as covariates is problematic. The results presented in panel 4.A indicate that, other things equal, women married to migrants are considerably less likely to have talked to their husbands about HIV/AIDS than women married to non-migrants. However, panels 4.B and 4.C also show important differences between the two categories of migrants' wives. Thus, only women married to unsuccessful migrants are significantly different from those married to non-migrants; the difference between wives of successful migrants, however migration success is defined, and non-migrants' wives, while pointing in the same direction, is much smaller and not statistically significant at the conventional threshold. It should be stressed that these patterns persist after controlling for education, a trait that typically account for much of the variation in spousal communication. It is also interesting that higher levels of men's labor migration from the community are associated with lower likelihood of HIV/AIDS-related communication.

The last section of Table 2 displays the results of a logit model predicting women's opinion on whether their husbands would be against using condom in sex with them. In addition to the predictors used in the previous tests, these models control for recent frequency of intercourse. The results show that migrants' wives, while taken together, are not significantly different from wives of non-migrants in thinking that their husbands would oppose condom use (panel 5.A). When we separate more successful from less successful migrants based on remittances, the differences remain statistically non-significant (panel 5.B). However, the breakdown of the migrant category based on women's perception of migration effects on household's living

conditions reveals important differences between respondents married to successful and unsuccessful migrants: only the former are significantly more likely to think that their husbands would oppose condom use than non-migrants' wives. In fact, wives of unsuccessful migrants appear to be less likely than the reference group to hold that opinion, but this difference is not statistically significant (panel 5.C). Notably, spousal communication about HIV/AIDS does not show any significant effect, suggesting that a woman's perception of her husband's stance on condom use is not necessarily based on what her husband tells her directly. In fact, having a successful migrant husband is the only statistically significant predictor in that model with the exception of age and polygyny.

When we test for differences in actual condom use (whether a respondent has ever used condom with her husband), however, neither sub-group of migrants' wives is different from non-migrants' wives. Yet, because reports of condom use may be highly unreliable and the overall reported use of condoms within marriage for disease prevention was very low (only four percent of respondents reported having used condoms with their husbands for the sole or partial purpose of disease prevention) these results should be considered with caution (these non-significant results are not shown).

## **Conclusion**

The results of this study add important insights to our understanding of the complex connections between migration and HIV. While the data on which this study is based do not provide information on actual HIV infection among wives of migrants and non-migrants, they did allow us to test for attitudinal and behavioral differences between the two types of married rural women. In most models, the effect of husband's migration status, as a whole or broken down

based on its success, was strong and statistically significant. In fact, husband's migration status was among only a few significant predictors. While these results suggest the existence of other, unobserved factors that may be influencing women's HIV/AIDS perceptions and risks, they also stress the key role of male migration.

The foregoing analysis moved beyond the conventional migrant vs. non-migrant dichotomy and examined differences among women married to migrants. The breakdown of the migrant-husband category based on migration outcomes illuminated the complexities of the connections between migration and perceptions of risk. Thus, the finding that women who are married to migrants in general are more likely than those married to non-migrants to think that their husbands have had sex with other women may not come as a surprise as it echoes a common popular assumption that men cannot live without sex for a long time, a view of men's sexuality that is widely held in many sub-Saharan and other similar settings (e.g., Orubuloye et al., 1997). However, when wives of successful and unsuccessful migrant husbands were separated based on remittances, only women married to successful migrants were significantly different from those married to non-migrants, perhaps reflecting, as we hypothesized, women's assessment of their husbands' income and consequently the husbands' ability to pay for extramarital sex.

Also as we expected, migrants' wives were more likely than non-migrants' wives to feel very worried about getting infected by their husbands, even after controlling for knowledge of husband's infidelity. However, the dissection of the migrants' wives category showed that only women' married to successful migrants were significantly different from those married to non-migrants. This finding fits with our expectation and is quite instructive: for women married to successful migrants, greater risks of infection become a tradeoff of material benefits derived from migration. The results for these models are paralleled by the results of the tests of worries

about getting the HIV virus from other men. As we hypothesized, wives of migrants whose migration they perceived as beneficial for their households were less likely to worry about getting infected by other men than were wives of non-migrants. Although women who are physically separated from their migrant husbands for prolonged periods of time have, *ceteris paribus*, greater exposure to risks of extramarital sexual encounters, the material benefits that these women derive from their husbands' migration may more than offset these heightened risks by reducing the need to engage in transactional sexual partnerships.

While resulting in greater worries about HIV infection from husband, husband's migration, as we hypothesized, appears to preclude effective spousal communication on managing these risks. Yet, the difference between the two types of migrants was also substantial. Notably, only women married to less successful migrants showed a lower probability of having talked about HIV/AIDS matters with their husbands, relative to women married to non-migrants. These findings may partially reflect an overall reduction in communication between unsuccessful migrants and their wives, yet, at the same time, the reduced probability of HIV/AIDS-specific communication between unsuccessful migrants and their wives may also have to do with lesser concerns among the latter about getting infected by their husbands. In comparison, women married to successful migrants, defined either on the basis of remittances or on the basis of women's perceptions, were not significantly different from those married to non-migrants in the likelihood of having conversed with husbands on HIV/AIDS matters. Again, interestingly, the heightened worries about getting HIV infection from successful migrant husbands do not find a parallel in the proclivity to talk with them about HIV/AIDS matters. However, the cross-sectional nature of the data does not allow us to establish with confidence the temporal and causal relationships between worries and spousal communication.

Whereas women married to more successful migrants were no different from those married to non-migrants in the likelihood of having talked about AIDS, they were, as we had anticipated, more likely to think that their husbands would object to condom use. Interestingly, this difference was statistically significant only when we used the classification of migration success based on woman's subjective assessment, which is arguably more relevant to women's other attitudes and views regarding their relationships with their husbands than the "objective" classification based on remittances.

Our findings dialogue with the literature on how income and other components of socioeconomic status (SES) affect HIV risks and prevalence. This literature has produced conflicting evidence (e.g., Hargreaves et al. 2008; Mishra et al. 2007). In her review of studies conducted in sub-Saharan Africa, Wojcicki (2005) observed no linear association between women's socioeconomic status (SES) and their HIV risks. Instead, HIV risks appear to increase with the initial increase in SES and then to decline as SES rises further. The growth of rural incomes associated with labor migration may represent an early stage of rising SES. Our findings therefore shed light on the mechanisms that produce the initial positive association between income and HIV risks.

However, our findings also illustrate how in the contemporary sub-Saharan context socioeconomic status may interact with gender inequality to shape HIV/AIDS risks. Typically, the literature sees the two factors as mutually reinforcing (Hunter 2007; Krishnan et al. 2008). Yet our study suggests that the relationship between poverty and gender inequality is more complex. In rural Mozambique, as in many other rural African settings, where employment opportunities for women outside subsistence agriculture are greatly limited, improvements in a

marital unit's socioeconomic standing are possible mainly by virtue of the male partner's earnings that typically come from working outside the community. In such settings, incomes generated by men's migrant labor may noticeably shore up their families' material wellbeing (at least in comparison to families with no access to migration remittances), but the gains in economic security may be well offset by increased exposure to HIV/AIDS risks. Importantly, these heightened risks may not stem just from migrant men's wider networks of concurrent sexual partnerships and therefore greater likelihood of being infected, but also from the reduced ability of women who depend economically on those men's incomes to negotiate safer sex. And insofar as women's negotiating power is undermined by the economic success of their husbands' migration, this success bolsters men's sense of gendered preeminence, the sense that is further enhanced by the domineering masculine identities nurtured in migrants' milieu (Campbell 1997).

Viewed in this context, our findings lend support to our assumption that men's migration, while yielding material benefits to their wives and their households, may also reinforce the patriarchal hierarchy within the household and therefore potentially increase the wives' vulnerability to HIV/AIDS. This general conclusion resonates with the literature that points to complex and often contradictory effects of migration on household wellbeing, marital relationships, and gender roles and relations in origin areas (e.g., Aysa and Massey 2004; Menjívar and Agadjanian 2007; Salgado de Snyder 1993).

The limitations of our study should be acknowledged. As we already mentioned, the cross-sectional nature of the data constrains causal inferences. Also, given the very low level of condom use in the communities and problematic reporting of that use, the influence of migration and of its divergent outcomes on condom use within marriage could not be soundly investigated. By design, our data do not allow us to examine the longer-term consequences of less successful

migration for women left behind. While the failure of migrants to provide adequate financial and material support to their wives may diminish women's dependence on their husbands and offer them greater decision-making autonomy, in economically stagnant rural settings such independence and autonomy rarely translate into tangible benefits for the women and their children (see e.g., Aysa and Massey 2004). Unable to secure adequate livelihoods, these women are more likely to exit their marriages and, as part of survival strategies, to engage in unstable transactional sexual relationships. Migration may become an option for such women as well, and, as some studies have found, may expose women to disproportionate risks of STD/HIV (Yang and Xia 2006; 2008; Zuma et al. 2003). Although prevention campaigns targeting migrants could help mitigate these risks, they may not be sufficient to offset their gendered insecurities in economically unpredictable and increasingly xenophobic host settings.

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Table 1. Variable definition and distribution (percent unless noted otherwise)

<i>Outcomes</i>		
Knowledge/suspicion of husband's infidelity	Knows/suspects that husband is unfaithful	32.1
	Knows that husband is faithful or not sure	67.9
Worries about getting infected by husband	Very worried	79.7
	Not very worried	20.3
Worries about getting infected by another man	Worried	18.9
	Not worried	81.1
Recent communication with husband regarding HIV/AIDS	Talked to husband about HIV/AIDS	58.9
	Did not talk to husband about HIV/AIDS	48.1
Perceived husband's objection to condom	Thinks husband would object to condom use	30.5
	Thinks husband would accept or not sure	69.5
Condom use with husband <sup>a</sup>	Used at least once	8.2
	Never used	91.8
<i>Main predictors</i>		
Husband's migration status	Husband is a migrant	41.1
	Husband is not a migrant	58.9
Success of husband's migration, based on remittances	Sends/brings remittances regularly	29.8
	Sends/brings remittances seldom/never	11.3
Success of husband's migration, based on wife's assessment of its effect on household	Migration has improved HH wellbeing	20.6
	Migration has not improved HH wellbeing	20.5
<i>Other covariates</i>		
Respondent's age	18-20	15.9
	21-25	28.0
	26-30	28.0
	31 or older	28.1
Number of living children	Actual number	2.2 <sup>b</sup>
Type of marital union	Polygynous union	21.1
	Monogamous union	78.9
Bridewealth payment status of marriage	Bridewealth paid fully or partly	39.6
	No bridewealth paid	60.4
Co-residence with parents-in-laws	Co-resides with at least one parent-in-law	38.4
	No co-resident parent-in-law	61.6
Respondent's education	None	26.7
	1 to 4 years	45.3
	5 or more years	28.0
Current work for income	Works for income	21.5
	Does not work for income	78.6
HH material possessions (radio, bicycle, motorcycle, car)	Scale from 1 to 4	2.1 <sup>b</sup>
Roof material of main dwelling	Thatch	39.4
	Other (metal, tile, cement)	60.6
Sale of agricultural sales	Household sell at least some crops	10.2
	Household does not sell any crops	89.8
Religious affiliation	None	13.9
	A mainline church	27.4
	A Zionist/other Pentecostal	58.7
Physical abuse by husband	Husband beat her up at least once	34.9
	Husband never beat her up	65.1
Share of married men working in South Africa	Scale from 1 (almost 0) to 4 (75% or more)	2.7 <sup>b</sup>

Note: <sup>a</sup> Only 4% of respondents ever used condom with husband to prevent disease or to prevent both disease and pregnancy; <sup>b</sup> mean.

Table 2. Women's HIV/AIDS-related views and behavior, random intercept logit models (odds ratios)

Predictor	1. Knows/thinks that husband had sex with other women			2. Very worried about getting infected by husband			3. Worried about getting infected by other men			4. Has talked with husband about HIV/AIDS			5. Thinks husband would object to condom use		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Husband is a migrant	1.38**			1.41*			0.82			0.78*			1.07		
Husband is a successful migrant		1.48**	1.41*		1.42*	1.55*		0.65*	0.64*		0.86	0.87		1.05	1.38*
Husband is an unsuccessful migrant		1.14	1.34*		1.38	1.30		1.33	1.01		0.61**	0.71*		1.15	0.81
Age 21-25	1.24	1.23	1.24	1.53*	1.52*	1.52*	1.04	1.08	1.06	1.11	1.09	1.10	1.55*	1.55*	1.52*
Age 26-30	0.94	0.92	0.94	1.81**	1.81**	1.81**	0.94	0.98	0.95	1.39	1.36	1.39	1.41	1.42	1.41
Age 31+	0.95	0.93	0.95	1.39	1.38	1.38	1.21	1.26	1.22	1.30	1.27	1.30	1.58*	1.59*	1.57*
Number of living children	0.98	0.98	0.98	1.05	1.05	1.05	1.00	1.00	1.00	1.09	1.09*	1.08	0.99	0.99	0.99
In polygynous union	1.33*	1.35*	1.34*	1.13	1.13	1.14	0.81	0.79	0.78	0.80	0.81	0.81	1.33*	1.33*	1.37*
At least some bridewealth paid	0.87	0.86	0.87	0.94	0.94	0.93	0.95	0.99	0.98	1.10	1.08	1.08	0.97	0.98	0.94
Co-resides with in-laws	0.99	0.98	0.99	1.19	1.19	1.19	1.08	1.10	1.08	0.82	0.82	0.82	0.93	0.93	0.93
Education 1 to 4 yrs	1.31*	1.31	1.31*	1.66**	1.66**	1.65**	1.01	1.02	1.03	1.45**	1.45**	1.44**	0.96	0.96	0.95
Education 5 or more yrs	1.25	1.24	1.25	1.42	1.42	1.41	1.07	1.10	1.09	1.99**	1.98**	1.98**	0.86	0.86	0.84
Works for income	1.47**	1.48**	1.47**	1.43*	1.44*	1.44*	0.94	0.92	0.93	1.42**	1.43*	1.43**	1.06	1.06	1.07
Mainline church	1.24	1.25	1.25	1.14	1.14	1.15	0.79	0.78	0.79	1.46	1.47*	1.47*	0.74	0.74	0.74
Zionist/other Pentecostal church	1.00	1.00	1.00	0.92	0.92	0.93	0.77	0.77	0.76	1.41*	1.42*	1.41*	1.02	1.02	1.02
HH material possessions scale	1.09	1.08	1.08	1.02	1.02	1.02	0.98	1.00	1.00	1.14*	1.13*	1.13*	1.02	1.02	1.00
Thatched roof of main dwelling	0.75*	0.75*	0.75*	0.75*	0.75*	0.75*	1.10	1.11	1.09	1.20	1.20	1.20	0.97	0.97	0.98
HH sells at least some crops	1.28	1.29	1.28	1.44	1.44	1.44	1.85**	1.84**	1.86**	1.03	1.03	1.03	1.37	1.37	1.37
Husband beat her up at least once	2.54**	2.55**	2.54**	1.00	1.00	1.00				1.25	1.26	1.25	0.88	0.88	0.89
Knows/thinks husband is unfaithful				2.23**	2.23**	2.23**	1.62**	1.65**	1.62**				1.16	1.16	1.15
Has talked to husband about AIDS													1.10	1.10	1.09
Has not had sex w/ husb. recently													0.81	0.81	0.81
Share of married men in S. Africa	1.18*	1.18*	1.18*	0.99	0.99	0.99	0.69	0.69	0.68	0.64**	0.64**	0.64**	0.94	0.94	0.94
Common for women to sell outside							2.63*	2.62*	2.63*						
Model Chi-square	1637	1639	1637	1557	1557	1559	1379	1357	1365	1573	1574	1574	1583	1583	1586
Number of observations		1671			1670			1671			1653			1671	

Notes: A – no distinction within migrants' wives category; B – migrant's success defined on the basis of remittances; C – migrant's success defined on the basis of wife's perceptions. Reference categories: Husband is non-migrant, Age 18-20; In monogamous union; No bridewealth paid; Does not co-reside with in-laws; No education; Does not work for income; Metal, tile, or cement roof; HH does not sell crops; No church affiliation; Husband never beat her up; Thinks husband is faithful or unsure; Has not talked to husband about AIDS; Has had sex with husband recently. Significance level: \*\* p≤.01; \* p≤.05.