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A MICRO LEVEL ANALYSIS OF VIOLENT CONFLICT

Violent Conflicts and Risky Sexual Behavior in Uganda

MICROCON Research Working Paper 60

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May 2012

Correct citation: Delavande, A and Menezes Cordeiro, R (2012) *Violent Conflicts and Risky Sexual Behavior in Uganda* MICROCON Research Working Paper 60, Brighton: MICROCON

First published in 2011

ISBN 978-1-78118-055-6

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Violent Conflicts and Risky Sexual Behavior in Uganda

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Abstract: This paper investigates the relationship between violent conflicts and risky sexual behavior in Uganda. We use geographical and temporal variation in conflict intensity and a difference-in-differences approach to evaluate how individual exposure to conflicts in the past 5 years influences the decision to engage in risky sex. We find that exposure to more conflicts leads to safer sex practice. We further investigate how the relationship between risky sexual behavior and violent conflict exposure varies depending on the malaria risk in the region where individuals live. We find a heterogeneous effect highlighting that behavioral response to an increase in conflict exposure varies by the burden of diseases an individual faces: additional conflict exposure leads to safer sex practice in places with high malaria-related mortality and to riskier sex practice in places with low malaria-related mortality.

Keywords: Risky Sexual Behaviors, Conflicts, HIV/AIDS, Sub-Saharan Africa

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1. Introduction

Nearly three decades have passed since the beginning of the HIV epidemic in sub-Saharan Africa (SSA). The total number of people living with HIV in this region continues to rise, having reached 22.5 million in 2009, representing 68% of the total number of people infected with HIV in the world (UNAIDS, 2010). The last three decades also witnessed great instability and several violent conflicts in SSA. Because these two phenomena—violent conflict and HIV/AIDS—have occurred at the same time, with equally devastating effects in SSA, their relationship has been widely discussed and debated. Since the beginning of the 2000s, the role of conflict in promoting the spread of HIV/AIDS has generally been accepted by both policy makers and academics (McGinn et al., 2001; Elbe, 2002; Hankins et al., 2002; Pharoah and Schonteich, 2003). However, the link does not appear as straightforward, because HIV prevalence has been shown to stall or even decrease in conflict settings (Spiegel et al., 2007). Improving understanding of the dynamics between conflicts and HIV is needed to inform effective strategies to reduce HIV risk in conflict and post-conflict zones. In this paper, we investigate the potential channels through which the spread of the disease and conflicts interact in SSA by analyzing the relationship between violent conflicts and risky sexual behavior in Uganda.

There are various ways in which violent conflicts could influence the individual decision to engage in risky sexual behavior, and thus in turn affect the spread of HIV/AIDS. We speculate on two particular channels. On the one hand, living in a conflict area may imply a lower life expectancy, due to increased mortality directly from the conflicts or indirectly from poorer health or economic conditions. It has been argued that individuals facing higher non-HIV-related mortality risk have little motivation to adopt risk-prevention strategies, as these strategies are "costly" in the short-run in terms of financial expenses or foregone pleasures, but provide only limited gains in terms of decreased mortality risk (Philipson and Posner, 1993; Oster, forthcoming; Delavande and Kohler, 2011). As such, people living in conflict areas may be less likely to engage in safe sex practices (the *mortality* effect). On the other hand, conflicts have may be seen by local population as being associated with an increase in HIV/AIDS prevalence. This could be due for example to displacement of populations and the mixing of the general population with military personnel, who are generally thought to have high HIV prevalence (Iqbal and Zorn, 2010; Mock et al., 2004; Elbe, 2002; Docking, 2001). In Uganda, the HIV prevalence rate of 27% among the military

in 1996 was more than three times the 1999 national prevalence rate of 8.3% (U.S. Bureau of the Census, 1998). Evidence from focus groups in Northern Uganda shows that people believe that insecurity exacerbated the spread of HIV in their district (Rujumba and Kwiringira, 2010). Moreover, the media have emphasized (sometime erroneously) this correlation (Lowicki-Zucca et al., 2005). This suggests that people living in areas affected by conflict may perceive the HIV prevalence to be on the rise. Individuals living in a conflict area may respond to this (perceived) increase in HIV prevalence in their communities by adopting safer sex practice (the *prevalence* effect) (Oster, forthcoming). Other authors have pointed out that conflicts may result in riskier behavior due to the high frequency of rapes during war time (though the overall effect of those practices on prevalence is unclear) and also that conflicts may lead to decreased sexual activity as a result of depression and loss of libido (Mock et al., 2004; World Health Organization, 2004; McInnes, 2009). Determining which of these potential effects dominates is an empirical question.

Uganda was among the first countries to be hit by HIV epidemics, with HIV prevalence of 18% in 1992 and 6.1% in 2002 (Government of Uganda, 2010), and also among the countries most affected by conflict during the past thirty years. This makes the country a relevant setting for our empirical analysis. We merge individual-level data on sexual behavior with district-level data on conflicts occurring between 1990 and 2006 in Uganda, and use district-level variation in conflict intensity and a difference-in-differences approach to evaluate how individual exposure to conflicts in the past 5 years influences the decision to engage in safe sex practice. We find that exposure to more conflicts leads to safer sex practice. This is consistent with the idea that behavioral response to a higher HIV prevalence, the *prevalence* effect, dominates the behavioral response due to a decreased life expectancy, the *mortality* effect.

To better understand this mechanism, we further investigate how the relationship between risky sexual behavior and violent conflict exposure varies depending on the malaria risk in the region where individuals live. Malaria is the leading cause of mortality in Uganda (Uganda Ministry of Health, 2005). We speculate that in regions with high mortality due to malaria, the added mortality risk resulting from conflicts may be limited. As a result, the prevalence effect is likely to dominate. However, in regions where the malaria risk is low, the added mortality risk due to conflict may be substantial, which could make the mortality effect dominate. We therefore hypothesize that conflict exposure should lead to safer sex practice in places with high malaria mortality and to riskier sex practice in places with low malaria mortality. This prediction is verified in the data. This finding suggests that depression and loss

of libido due to conflict exposure are unlikely to be the main drivers of the negative relationship between conflict and risky sex. If they were, we would observe the same phenomenon in all the regions of various malaria risks.

Epstein (2001) highlights the relationship between HIV and violent conflict in Uganda by describing the similarities in their historical trends: HIV incidence and conflict rose dramatically in the 1980s, declined in early and mid-1990s, and increased again in late 1990s. Some of the causal pathways through which conflicts may act as a risk factor for HIV transmission includes increased prevalence of sex workers, mass migration, and decreased availability of reproductive health and other health services, resulting in poorer health (in particular, untreated sexually transmitted infections) (Mock et al., 2004). Yet, recent data indicating a decrease or stagnation in HIV prevalence in populations affected by conflicts suggest a more complex relationship between conflict and HIV, and some authors have argued that conflicts can also create conditions that inhibit the spread of the disease (Mock et al., 2004; Spiegel et al., 2004; 2007; Fabiani et al. 2007). Examples of these conditions include increased isolation of communities, increased death rates among high risk groups or disruption of sexual networks due to displacement. We contribute to the understanding of the relationship between conflicts and HIV by showing that exposure to violent conflicts overall is associated with safer sex practice in Uganda.

This paper also relates to two different strands of the economics literature. The first one investigates the microeconomic impact of violent conflicts on the human capital investment of non-combatants. Conflicts are in general found to be detrimental to health (e.g., Bundervoet, Verwimp and Akresh, 2009; Bozzoli and Brück, 2010; Akresh, Bundervoet and Verwimp, 2011; Akresh, Lucchettiand Thirumurthy, 2011; Mansour and Rees, forthcoming) and to education (e.g., Shemyakina, 2006; Akresh and de Walque, 2008; Justino, 2011). While we find that conflicts are associated with safer sex, i.e., higher investment in health, we do not know what the overall impact of conflicts on HIV prevalence is.

The second strand of literature assesses the impact of HIV/AIDS on sexual behaviors (e.g., Kremer, 1996; Philipson, 2000; Philipson and Posner, 2003). Related to our paper and in the SSA context, Oster (forthcoming) estimates that married individuals respond to an increase in HIV prevalence by reducing risky sexual behavior, and that the effect is stronger in lower mortality areas. Also highlighting the role of mortality risk in the decision to engage in risky sex, Delavande and Kohler (2011) find that the difference in individual subjective survival probability associated with having risky sex versus having safe sex influences the decision to have multiple sexual partners in rural Malawi.

The paper proceeds as follows. In section 2, we provide some historical context by describing the conflicts since the 60s and the HIV/AIDS epidemic in Uganda. We describe our two sources of data in Section 3. We present the empirical results in Section 4 and conclude in Section 5.

2. Background

2.1 Conflicts in Uganda

Uganda has suffered a number of internal conflicts since it gained independence from Britain in 1962. Regional and ethnic divisions in the country (e.g.: Baganda, Basoga, Banyankole, Bakiga, Langi, Iteso, Acholi, Karimojong, etc…) contribute to the absence of a national identity and fuel conflict.

Milton Obote, from the Langi ethnicity, governed the country during the period 1962-1971. During this period the country's army was mainly composed of members of his own ethnic compatriots from the Langi and the Acholi groups. In 1971, Idi carried out a coup and became president until 1979 - when the anti-Amin Ugandan forces UNLA (Uganda National Liberation Army), backed by the Tanzanian troops of Julius Nyerere, invaded the country and seized power.

Like Obote, Amin consolidated power by recruiting troops from his ethnic region (the West Nile region), while a large numbers of Acholi and Langi soldiers, presumed to be supporters of the deposed Obote, were massacred (Uppsala Conflict Data Program).

After Idi Amin was deposed some months of political instability followed and in 1980 elections brought Obote back to power. However, some of the groups that had joined UNLA in 1979 refused to accept the results of the elections. These dissidents included Yuweri Museveni, who created a rebel group called NRM (National Resistance Movement). Acholi and Langi soldiers, now back in power, soon took revenge on the inhabitants of Amin's home region. Furthermore, gross human rights abuses were committed in the Luwero district, where Museveni's NRM had many supporters, and thousands of civilians were killed (Uppsala Conflict Data Program[1]).

In 1985 Obote was deposed by General Tito Okello. Okello ruled for six months until he was overthrown by Museveni who became president and remains in office today. Due to this ethnic and political turnover, several rebel groups emerged in Uganda during the period we examine in this analysis. We describe the most important ones below:

[1] Source: http://www.ucdp.uu.se/gpdatabase/gpcountry.php?id=160&regionSelect=2-Southern_Africa

Allied Democratic Forces (ADF)

Between 1996 and 2002, ADF spread terror in the western region of Uganda. This rebel group, with Islamic ideology, was formed by the Tabliq sect, who claimed to be marginalized by the government. ADF chose the Western Region for strategic reasons and used various methods, ranging from attacks on civilians and military units in the Western region to bombing attacks on Kampala. During their activities, they were also responsible for several killings and child abductions, and for displacement of people (OCHA, 1999).

Lord's Resistance Army (LRA)

Fearing reprisals for the killings conducted in the Luwero region (among others), a great number of northern rebel groups emerged, among which was the LRA. The rebel group was formed in northern Uganda in 1986, and although it no longer operates in Uganda, it is still active in other central African countries. This self-proclaimed Christian rebel group has been responsible for the displacement of over 1.7 million people, mainly in Acholi region, which represents 90%-95% of the sub-region's population[2] (OCHA, 2005). Alienated from the Acholi, the LRA inflicts terror on the civilian population as a means of drawing attention to itself and challenging the government.

Other groups

Other groups spread violence in Uganda between 1990 and 2006, including the West Nile Bank Front (WNBF) and the Uganda National Rescue Front II (UNRF II), made up of former members of the original UNRF that refused to make peace with Museveni. Both rebel groups came from the West Nile Region[3] and used to act mainly in this same region.

The Karimojong are a group of pastoralist people who live in the northeast of Uganda, and although they are not considered rebels, they have always had a strong tradition of cattle raiding. Since 1999, with the availability of small arms, the Karimojong have staged cattle raids to spread terror in all counties[4] bordering the Karamoja region. Together with LRA, the Karimojong were responsible for an estimated 1.9 to 2 million internally displaced persons (IDPs) in the Northern region (OCHA, 2005).

[2] According to the UN Secretary General for Humanitarian Affairs and Emergency Relief Coordinator: "the biggest forgotten, neglected humanitarian emergency in the world today", Nairobi 11 November 2003."

[3] West Nile Region corresponds to the Northwestern part of Uganda and comprises the Arua, Moyo and Nebbi districts

[4] An official geographic division smaller than district.

2.2 The HIV/AIDS epidemic in Uganda

The first HIV/AIDS case was identified in Uganda in 1982. The epidemic progressed very fast to an estimated national prevalence of 18% by the end of 1992, reaching levels as high as 30% in some surveillance sites of pregnant women (Government of Uganda, 2010). As a response, the Government of Uganda established a National AIDS Control Program in 1986, the first HIV/AIDS control program in the region, and formed the Uganda AIDS Commission in 1992 (Kaiser Family Foundation, 2005).

According to Ministry of Health data, prevalence among pregnant women has declined consistently since the early 1990s at nearly all of the country's sentinel sites, with national prevalence estimated to be at 6.1% in 2002. This dramatic decline in prevalence is unique worldwide, and what drove it has been the subject of debates since the mid-1990s. One possible explanation includes behavioral changes fueled by Uganda policy, which included a high-level political support, a decentralized planning and implementation for behavior change communication, a high involvement of religious organizations, and Africa's first confidential voluntary counseling and testing services (USAIDS, 2002). Green et al. (2006) and Stoneburner and Low-Beer (2004) suggest in particular that a decline in multi-partner sexual behavior and casual relationships, promoted by the Ugandan government and local NGOs with campaigns such as "zero grazing" (faithfulness and partner reduction), is the behavioral change most likely associated with HIV decline. Another possible explanation for the decline in prevalence is the high rate of AIDS-related mortality:[5] Waver et al. (2005) estimated that increased deaths due to AIDS contributed 5% of the 6% decline in prevalence observed in the Rakai district between 1993 and 2004. Alsan and Cutler (2010) develop a simulation model of HIV transmission and conclude that all those factors play a role: among young women, the most important component was delaying sexual debut, while increase in condom use by high risk males and death among older women explain an important part of the reduction in AIDS in Uganda.

In 2009, Uganda had an estimated 1.2 million people living with HIV/AIDS, including 150,000 children (UNAIDS, 2010). Women account for 60% of the infected adults and heterosexual intercourse is the primary mode of transmission. There is geographical variation in prevalence across the country, with higher prevalence in urban areas and in the Gulu district (Kaiser Family Foundation, 2005).

[5] It is estimated that almost 900,000 people have died of HIV/AIDS in Uganda since the beginning of the epidemic.

3. Data

3.1. Household survey data: the Demographic and Health Surveys

We use survey data from the 1995, 2000/01 and 2006 Uganda Demographic and Health Surveys (UDHS). UDHS were conducted by the Uganda Bureau of Statistics (UBOS) and are nationally representative surveys of women age 15-49 and men age 15-54.

Because of security concerns, Kitgum district was not surveyed in 1995 UDHS and Kasese, Bundibugyo, Gulu and again Kitgum districts were not surveyed in 2000/01 UDHS. Data available from these four districts were excluded from the other waves in order to have comparable data. Uganda district boundaries changed across surveys as new districts were created. In order to keep the data consistent, 1995 UDHS district boundaries division - which comprehends 38 districts - is applied to the whole dataset.

To abstract from the decision to initiate sexual activity, we focus on respondents who have already had sex (87% of the sample). The total number of individuals surveyed on the three surveys, after excluding individuals who never had sex (and respondents who were visitor to the household), is 22,737. This number breaks down into 7,236 from the 1995 UDHS, 7,630 from 2000/01 UDHS and 7,871 from 2006 UDHS. The women's sample is considerably larger than men's sample, with a total of 17,819 individuals (78.4% of the total sample), against 4,918 individuals from the men's sample. This difference is due to the fact that men were only interviewed in one-third of all the households selected for the survey.

3.1.1. Demographic characteristics of the sample

Table 1 presents demographic characteristics of the sample of analysis. 12.2% of the respondents are under 20 years old and 17.3% are 40 years old or older. Married people represent 60% of the sample of analysis, 14.6% are living with someone and 12.4% are single. Women are much more likely to have no education: 24.1% compared to 8.1% for men. Few respondents have completed higher education: 3.8% of the sample (3.3% of women and 5.8% of men). Catholics represent the majority, accounting for 41.47% of the population surveyed, followed by Protestants (38.9%) and Muslims (13%). Finally, 72.8% of the respondents live in rural areas.

3.1.2. Measures of sexual behavior

We use three measures of sexual behavior:

- ***Used condom at last intercourse***: this variable takes the value 1 if the respondent reports using condom at last intercourse and zero if s/he reports not using condom at last intercourse.
- ***Number of sexual partners in the last 12 months:*** this variable takes 3 possible values: 1 if the respondent reports no sexual partner other than his/her spouse(s) during the 12 months preceding the survey interview[6]; 2 if the respondent reports having had one sexual partner other than spouse(s); and 3 if s/he reports more than one sexual partner other than spouse(s). [7]
- ***Risky sex index:*** this variable takes 3 possible values: 1 for respondents who had no sexual partners other than spouse(s); 2 for respondents who had one or several other sexual partners and who have used condom during their last sexual intercourse, and 3 for respondents who had one or more other sexual partners and who did not use a condom during the most recent sexual intercourse.

The second and third variables above are computed for married or cohabiting respondents only and are expected to capture the additional risk associated with having extra-marital relationships. For non-married respondents (or those not cohabiting) who report having one sexual partner, we cannot distinguish among those who had one regular sexual partner versus those who had one potentially risky encounter. Since those imply different risk levels, we decided to exclude non-married respondents from our main analysis. Non-married respondents include never married, widowed, divorced and respondents not living together (anymore), which altogether represent 25.4% of the sample (5,779 respondents). As a robustness check, we present results in the Appendix from these same variables when both married and non-married respondents are pooled together.

From Table 2 we can see that overall 9% of the respondents reported condom use at last sexual intercourse. Condom use increased in the period 1995-2006 from 6.8% to 10%. Men are much more likely to report condom use at last intercourse compared to females (15.2% versus 7.2%).

Overall, 12.7% of the married men report having one extra-marital partner in the last 12 months, and 3.4% report having more than one extra-marital partners. These proportions are lower for females: 5.7% and 0.3% respectively. If we look at the patterns by year, we see a sharp increase in the proportion of married respondents having an additional partner in addition to spouse in 2006 compared to the earlier survey years.

[6] Spouse also includes partners living together.
[7] In 1995, the UDHS asks the number of other sexual partners in the last 6 months rather than in the last 12 months. Since we focus on having 1 or more than 1 extra-marital partner, the difference in the time frame may have a limited impact.

The risky sex index variable reveals that the majority of respondents who have extra-marital affairs report not using condom at last intercourse. Note that we do not know whether their last intercourse was with their spouse or another partner, but condom use seems infrequent among individuals with multiple partners.

3.2. Conflict Data: the Armed Conflict Location and Event Dataset

We use conflict data from the Armed Conflict Location and Event Dataset (ACLED). ACLED accounts for the exact location, date, and additional characteristics of individual battle events. The following different types of events available in the ACLED database are:

1 – Battle (with no changes in territory)
2 - Battle (Rebels gain territory)
3 - Battle (Government gains territory)
4 – Rebel Base or Headquarters established
5 – Rebel activity without fighting
6 - Rebels gain territory (Date unknown)
7 – One-sided violence (e.g. raids against civilians)

We consider violent events that took place in Ugandan territory (i.e., events of types 1 to 3 and 7). We construct the variable "Conflict intensity" which gives the number of armed conflicts that occurred in each district, for each period in analysis. We use as period of analysis the 5-year period prior to the district's survey administration date and thus construct the variable for the following periods: 1990-1995; 1995-2000/01 and 2000/01-2006.[8] We allocate to each individual the conflict intensity of the district where the individual lived at the time of the survey.

According to ACLED, the total number of armed conflicts in Uganda was 18 for the period 1990-1995, 98 in 1995-2000/01 (the period when most of the rebel groups were active), and 65 in 2000/01-2006.[9] Figure 1 shows the heterogeneity of conflict intensity across districts in all periods of analysis. While there have always been districts that did not suffer any armed conflict, many others were highly affected: Soroti (in the Eastern region) had 8 armed conflicts in 1990-1995; Kabarole (in the Western region) had 11 armed conflicts in 1995-2000/01; and Lira (in the Northern region) had 19 in 2000/001-2006. As we can see in

[8] The periods in analysis vary from district to district and correspond to the period that is between the average interview days conducted in each district.
[9] Excluding the Districts not surveyed by DHS due to security reasons, and those excluded by us for comparison purposes.

Table 2, from 1990 to 2006, an individual was affected on average by 2.08 violent conflict-related events in the last 5 years, 0.48 in 1990-1995; 3.24 from 1995 to 2000/01; and 2.42 from 2000/01 to 2006.

In the Appendix, we present the results using a broader definition of conflict that includes all violent and non-violent ACLED events (events of type 1 to 7) that occurred in Uganda territory. Non-violent events described above can also have an impact on people's behaviors as they represent a source of instability in a region and often precede violent conflicts.

4. Empirical results

4.1. Empirical strategy

We use a difference-in-difference approach to evaluate the impact of conflict intensity on sexual behavior as follows:

$$Y_{idt} \quad Conflict_{dt} \quad X_{idt} \quad _d \quad _t \quad _{idt} \qquad (1)$$

where *i* is an individual, *d* is a district, and *t* is the survey year. We use three alternative dependent variables *Y*: (1) whether the individual used condom at last intercourse; (2) the number of sexual partners in the last 12 months; and (3) the risky sex index. $_d$ is a district dummy that captures time-invariant district-level factors such as local traditions, $_t$ is a survey year dummy that controls for country-level time trend, $Conflict_{dt}$ is the number of armed conflicts that occurred in district *d* in the last 5 years (conflict intensity). Finally, X_{idt} are individual-level controls such as age, gender, education, marital status, religion and whether the individual lives in a rural area. We cluster standard errors at the district interacted by survey year-level.

Table A1 in the appendix presents some descriptive statistics for two subsamples: the first includes respondents who are not exposed to any conflict while the second includes respondents who have been exposed to conflict. While some of the means are statistically significantly different from each other, the two subsamples appear quite similar overall. Note that we control for all those characteristics in our regressions.

4.2. The impact of armed conflict on sexual behavior

In Tables 3.1, 3.2 and 3.3, we present the results from the difference-in-differences specification described above for each of the three measures of sexual behavior presented in Section 3.1.1.

Table 3.1, which uses condom use at last intercourse as dependent variable, reveals that greater exposure to conflict increases condom use by 0.1 percentage point for each additional armed conflict (the coefficient is statistically significant at the 10% level). This implies that more conflict exposure increases safe sex practice. This effect is essentially driven by men, for whom one additional armed conflict increases condom use by 0.3 percentage point (significant at the 5% level). When looking at the other independent variables, we see that condom use increases with the level of education, especially for female respondents who completed higher education and male respondents who completed secondary or higher education. Everything else equal, among female respondents, young women age 20 or younger are the ones who reported using a condom more frequently, whereas male respondents between ages 20 and 30 reported a higher rate of condom use at last sexual intercourse. Everything else equal, never-married respondents reported the lowest level of condom use during their last sexual intercourse, and the same is true for people living in rural areas.

Table 3.2 presents the results for the number of sexual partners in the last 12 months. Findings show that exposure to conflicts in the last 5 years reduces the propensity to have multiple sexual partners (coefficient is -0.006) and that the effect is precisely estimated for both males and females (significant at 5% for males and 1% for females). This suggests again that conflict exposure leads to safer sex practice. Looking at the other variables, we see that the number of sexual partners decreases with education, especially for respondents who completed higher education. Age is also associated with a gradual decline in the number of sexual partners for both women and men, and finally, respondents living with their partners have on average more sexual partners than married ones.

Table 3.3 gives us the results from the risky sex index. For each additional armed conflict, the risky sex index decreases by -0.011 and the coefficient is significant at the 1% level (the coefficient is -0.013 for males and significant at the 5% level, and -0.011 for females, significant at the 1% level). This highlights again that conflict exposure in the past 5 years decreases the level of risky sex. Overall, and for both genders separately, the risky sex index decreases with age and with education for women. Respondents living with their partners score at higher levels on this index compared to married people.

We conduct various alternative specifications to assess whether our results are robust

to alternative definitions of the variables of interest. In the left panel of Table A3, we present the results for the number of sexual partners and the risky sex index when pooling single and married respondents. The results are very similar to those of Tables 3.2 and 3.3. In the left panel of Table A4, we use the same definitions of the independent variables as in Tables 3.1 to 3.3 but use the broader definition of conflicts that include both violent and non-violent events (see Section 3.2). Again, we find very similar results to those presented in Tables 3.1 to 3.3.

One concern with the definition of the conflict intensity variable may be the influence of migration, as we use exposure to violent conflicts in the past 5 years under the implicit assumption that individuals have been living in the same district during that period. We do not actually know whether respondents have been living in the same district in the last 5 years, but have information on the number of years they have been living in the same place of residence. As another robustness check, we replicate in Table A5 the results of Tables 3.1, 3.2 and 3.3 by restricting the sample to respondents who have been living in the same place for 5 years or more. The results presented in Table A5 are very similar to those to Tables 3.1 to 3.3.

One concern for our identification is the possibility that change in unobservables in sexual behavior is correlated with conflict intensity. One potentially important variable that is missing as a control is the distribution of ethnic group within a district, as this could potentially influence both sexual practices and conflicts. Unfortunately, ethnicity was asked in 1995 only so we cannot include it as a control in our specification. Ethnic groups tend to be concentrated within the same district so the district dummy captures most of the variation due to ethnicity.[10] Moreover, we suspect that there was no major shift in the distribution of ethnic groups by districts. Most of the displacement of people took place in Acholiland, a region which contains the districts for which we do not have data due to safety reasons (Internal Displacement Monitoring Centre, 2010).[11] As an additional test, we evaluate the role of the concentration of ethnic groups within a district in generating conflicts and present in Table A2 a regression where conflict intensity at the district level in 1995 is the dependent variable and characteristics of the district, including the proportion of people constituting the major ethnic groups, are independent variables. We find that this measure of ethnic concentration does not predict conflict in the last 5 years.

[10] Seven different ethnic groups constitute the majority in one of the districts, and include on average 64% of the people in the district.

[11] There were also displacement in Katakwi and Lira districts in 2003-2004, but those tended to have been within-district displacement (Internal Displacement Monitoring Centre, 2010).

One potentially important time-varying missing factor is an indicator for interventions and programs to combat HIV/AIDS. Yearly and inter-district differences in the national interventions are captured by our year and district dummies. However, violent conflicts may have disrupted the functioning of the national interventions. If this were the case, we would observe people in places with more conflict to be less likely to engage in safe sex practices, due to less campaign exposure. Because we find the opposite effect, it is unlikely that the behavior change we observe were driven solely by geographical heterogeneity in how the campaign was conducted.

One may also worry that conflicts deteriorate the economic conditions of a district, leading to changes in the demand for health. Again, we would expect lower income to decrease the demand for safe sex (due for example to an increase in the prevalence of sex workers). While this mechanism may be present, it is not a dominant one empirically since we find exposure to conflict to lead to safer sex.

Overall, these results suggest that individuals exposed to more violent conflicts adopt risk-reduction strategies: They are more likely to use condom at their last intercourse, less likely to have multiple sexual partners, and less likely to exhibit a risky sexual behavior as measured by our Risky Sex Index.

4.3. Heterogeneous effects of conflict on sexual behavior by mortality environments

We now investigate how the mortality environment influences the behavioral response due to conflict exposure. In environments with high rates of non-conflict related mortality, the increased mortality due to conflicts may be limited. As a result, the main channel by which conflicts may influence individuals' sexual behavior might be through the perceived conflict-related increase of HIV prevalence. However, in environments with low rates of non-conflict related mortality, conflict exposure may lead to the perception of sharp decreased life expectancy, resulting in an increase in risky sex. These two different mortality environment set-ups can be found in Uganda across its districts: Malaria endemic districts have higher mortality rates than malaria-free districts (Snow and Omumbo, 2006).

In Uganda, malaria has historically been a very serious health problem. In 2005, the World Health Organization ranked Uganda as having the highest incidence of malaria in the world. The predominant strain of malaria in Uganda (*Plasmodium Falciparum*) is the most

deadly and has the highest case-fatality rates. These factors contribute to make malaria the leading cause of mortality in Uganda (Uganda Ministry of Health, 2005).

We use malaria data from MARA (Mapping Malaria Risk in Africa) to evaluate the levels of malaria risk in each of Uganda's districts. MARA uses eco-physiological and climate data, and empirical evidence mostly on parasite ratio to classify regions from lower risk to higher risk as follows: malaria absent or rarely epidemic, malaria marginal or epidemic, and malaria endemic regions. Because it is based mostly on meteorological and eco-physiological factors, this definition for malaria risk is not driven by behavioral factors such as bednet usage, economic conditions or HIV prevalence.[12] Figure 2 shows the distribution of malaria risk in Uganda according to MARA.[13] We classify regions with no malaria to have low malaria-related mortality and endemic regions to have high malaria-related mortality.[14] During the period 1995-2006, an individual living in malaria endemic region was on average exposed to 2.4 conflicts, compared to 1.8 conflicts in malaria-free region.

Table A6 presents demographic characteristics according to the malaria risk. Note that the sample size using individuals in malaria-free areas is substantially smaller due to few regions with that classification. In endemic regions, individuals tend to be more likely to engage in risky sex, tend to be younger and more educated when compared to malaria-free regions.

Table 4 shows the results from separate difference-in-differences specifications for low and high malaria-related mortality regions (malaria-free and endemic regions). Table 4 reveals that in high malaria-related mortality regions, the number of sexual partners and the level of risky sex decreases as a result of more confliction exposure. This is consistent with the prevalence effect dominating. However, in low malaria-related mortality regions, we can see that conflict exposure significantly *increases* the number of sexual partners and the level of risky sex for females, which is consistent with the mortality effect dominating.

[12] There is some evidence that HIV infection increases the risk of malaria (Snow and Omumbo, 2006).
[13] For each district, MARA provide the number of people who live in malaria-free, epidemic and endemic areas within that district. Some districts are covered by all three areas. In these cases, a district is classified as Malaria-free (resp. endemic) if more than 50% of its population live in a malaria-free (resp. endemic) area and less than 1/3 live in a endemic (resp. malaria-free) area.
[14] Because malaria is very unstable in epidemic regions, and despite the fact that mortality is high upon a malaria epidemic strike, epidemic regions are harder to classify with respect to mortality due to the lack of data on the frequency, intensity and duration of each epidemic. We therefore focus on malaria-free and endemic regions which have clearly distinct stable mortality rates.

The results are qualitatively similar when we combine married and single respondents (Table A3). When we use the broad definitions of conflict (Table A4), we find more precisely estimated effects for both men and women in the malaria-free regions.

Overall these results show that the behavioral response to an increase in conflict exposure varies by malaria prevalence in a way that is consistent with our theory.

5. Conclusion

In this paper, we investigated the effects of exposure to violent conflicts on risky sexual behavior in Uganda. We argued that the sign of this relationship is *a priori* ambiguous. On the one hand, people living in conflicts areas may be less likely to engage in safe sex practices because of increased mortality attributed to conflict (the *mortality* effect), given that they have less to gain in terms of life expectancy from risk prevention strategies and less incentive to forgo short-term pleasure. On the other hand, people living in conflict areas may respond to the perceived increase in HIV/AIDS prevalence associated with conflicts by adopting safer sex practice (the *prevalence* effect). We found that exposure to more conflicts leads to safer sex practice, suggesting that the *prevalence* effect dominates in Uganda. We also found interactions between the non-HIV and non-conflict related mortality environment and the effect of exposure to conflict on sexually risky behavior. In particular, we found that in places with high malaria-related mortality (where the mortality effect is likely to be reduced), conflict exposure leads to safer sex practice; by contrast, in places with low malaria-related mortality (where the mortality effect is likely to be stronger), conflict exposure leads to riskier sex practice.

These results highlight one mechanism through which conflicts, by changing sexual behavior, may influence the spread of HIV/AIDS. If the Ugandan example can be extended to other SSA countries, we expect the behavioral response to conflict to depend, in other contexts, on the burden of diseases and in particular on non-HIV/AIDS and non-conflict-related mortality. Particular policy effort to reduce the spread of HIV in conflict and post-conflict zones should be made in environments with low mortality. Since our results suggest that individuals in SSA are responsive to changes in HIV prevalence and mortality risk, providing accurate information about rising prevalence may be one possible way to change behavior. In the Ugandan context, our results also suggests that conflict exposure may have partly contributed to the drastic decline in prevalence that has been observed in the past 20 years by leading people to adopt safer sexual

practices. Conflicts need therefore to be taken into consideration when evaluating the effectiveness of the Ugandan policy at changing behavior.

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Table 1: Demographic characteristics of the sample

Variables	***Total***	***Female***	***Male***
Education Level: No Education	20.6%	24.1%	8.1%
Education Level: Primary	57.2%	56.1%	61%
Education Level: Secondary	18.4%	16.5%	25.2%
Education Level: Higher	3.8%	3.3%	5.8%
Age Group: Age<20	12.2%	12.8%	9.9%
Age Group: 20<=Age<30	41.3%	42.6%	36.8%
Age Group: 30<=Age<40	29.2%	28.8%	30.9%
Age Group: 40<=Age	17.3%	15.9%	22.5%
Living in Rural Area	72.80%	72.64%	73.4%
Religion: Catholic	41.5%	41.3%	42.2%
Religion: Protestant	38.9%	38.4%	40.7%
Religion: Muslim	13%	13.2%	12.1%
Religion: Other	6.6%	7.1%	5%
Marital Status: Single	12.4%	9.8%	21.7%
Marital Status: Married	60%	58.4%	65.9%
Marital Status: Living Together	14.6%	17.1%	5.3%
Marital Status: Widowed	3.8%	4.6%	0.9%
Marital Status: Divorced	1.4%	1.4%	1.4%
Marital Status: Not Living Together	7.8%	8.7%	4.7%
Observations	22737	17819 (78.4%)	4918 (21.6%)

Table 2: Descriptive statistics of sexual behavior and conflict intensity by year and gender

Variables		***1995***	***2000/01***	***2006***	***Male (all years)***	***Female (all years)***	***Total***
Last Intercourse Used Condom		6.8%	10.2%	10%	15.2%	7.2%	9%
Number of Other Sexual partners*	None	96.8%	95.1%	84.1%	83.9%	94%	91.9%
	One	2.5%	4.3%	14.4%	12.7%	5.7%	7.2%
	More than one	0.7%	0.6%	1.5%	3.4%	0.3%	0.9%
Risk Index*	No other sex partners	96.8%	95.1%	84.2%	83.9%	94%	92%
	Other sex partners & used condom	0.3%	0.7%	1.1%	2.2%	0.3%	0.7%
	Other sex partners & no condom use	3%	4.2%	14.7%	13.8%	5.7%	7.4%
Individual conflict intensity		0.48	3.24	2.42	2.02	2.09	2.08
Observations		7236	7630	7871	4918	17819	22737

* Restricted to married respondents and those living together with their partner

Table 3.1: Difference-in-Differences for Used condom at last intercourse

VARIABLES	*Total*	*Female*	*Male*
Conflict Intensity	0.001* [0.001]	0.000 [0.001]	0.003** [0.001]
2000/01 Survey	0.080*** [0.015]	0.077*** [0.021]	-0.089 [0.082]
2006 Survey	-0.045 [0.064]	-0.030 [0.086]	0.087*** [0.026]
Education Level - Primary (Base: No Education)	-0.058*** [0.018]	0.062 [0.087]	0.026 [0.021]
Education Level - Secondary (Base: No Education)	0.029** [0.014]	0.041*** [0.016]	0.248*** [0.090]
Education Level - Higher (Base: No Education)	0.183*** [0.064]	0.147* [0.085]	0.278*** [0.087]
Gender - Female (Base: Male)	-0.044*** [0.007]		
20<=Age<30 (Base: Age<20)	0.001 [0.008]	-0.016** [0.008]	0.087*** [0.032]
30<=Age<40 (Base: Age<20)	-0.010 [0.007]	-0.019** [0.007]	0.061* [0.031]
40<=Age (Base: Age<20)	-0.013 [0.009]	-0.015* [0.009]	0.047 [0.032]
Religion - Protestant (Base: Catholic)	0.007 [0.004]	0.005 [0.004]	0.012 [0.011]
Religion - Muslim (Base: Catholic)	-0.002 [0.007]	-0.007 [0.008]	0.020 [0.017]
Religion - Other (Base: Catholic)	-0.018** [0.007]	-0.011 [0.007]	-0.051*** [0.018]
Religion - Missing Val (Base: Catholic)	-0.065* [0.034]	0.008 [0.064]	-0.223** [0.105]
Marital Status - Married (Base: Never Married)	-0.354*** [0.024]	-0.316*** [0.027]	-0.438*** [0.031]
Marital Status - Living Together (Base: Never Married)	-0.359*** [0.026]	-0.326*** [0.028]	-0.422*** [0.037]
Marital Status - Widowed (Base: Never Married)	-0.204*** [0.023]	-0.190*** [0.025]	-0.092 [0.073]
Marital Status - Divorced (Base: Never Married)	-0.150*** [0.045]	-0.149*** [0.051]	-0.140** [0.066]
Marital Status - Not Living Together (Base: Never Married)	-0.191*** [0.018]	-0.166*** [0.022]	-0.206*** [0.033]
Rural Area (Base: Urban Area)	-0.042*** [0.006]	-0.034*** [0.007]	-0.072*** [0.013]
Observations	20275	15768	4507
R-squared	0.251	0.215	0.322

Robust standard errors in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 3.2: Difference-in-Differences for Number of Sexual Partners in the last 12 months – Married and Cohabiting Respondents

VARIABLES	***Total***	***Female***	***Male***
Conflict Intensity	-0.006***	-0.006***	-0.008**
	[0.002]	[0.002]	[0.003]
2000/01 Survey	0.004	0.010	0.252***
	[0.022]	[0.029]	[0.070]
2006 Survey	0.166***	0.168***	0.320***
	[0.027]	[0.023]	[0.056]
Education Level - Primary	-0.010	-0.041*	-0.132*
(Base: No Education)	[0.007]	[0.025]	[0.068]
Education Level - Secondary	-0.015	-0.010	-0.085
(Base: No Education)	[0.015]	[0.011]	[0.082]
Education Level - Higher	-0.129***	-0.028	-0.086**
(Base: No Education)	[0.016]	[0.030]	[0.040]
Gender - Female	-0.169***		
(Base: Male)	[0.017]		
20<=Age<30	-0.008	-0.012	-0.025
(Base: Age<20)	[0.009]	[0.009]	[0.060]
30<=Age<40	-0.014	-0.016*	-0.046
(Base: Age<20)	[0.009]	[0.009]	[0.059]
40<=Age	-0.043***	-0.020**	-0.120**
(Base: Age<20)	[0.010]	[0.009]	[0.058]
Religion - Protestant	-0.005	-0.007*	0.004
(Base: Catholic)	[0.005]	[0.004]	[0.018]
Religion - Muslim	0.008	0.000	0.054**
(Base: Catholic)	[0.008]	[0.007]	[0.027]
Religion - Other	-0.040***	-0.031***	-0.091***
(Base: Catholic)	[0.009]	[0.008]	[0.034]
Religion - Missing Val	-0.093***	-0.087***	-0.062
(Base: Catholic)	[0.021]	[0.023]	[0.067]
Marital Status - Living Together	0.217***	0.211***	0.355***
(Base: Never Married)	[0.044]	[0.042]	[0.086]
Rural Area	-0.011	0.006	-0.077***
(Base: Urban Area)	[0.009]	[0.007]	[0.028]
Observations	16942	13445	3497
R-squared	0.174	0.210	0.139

Robust standard errors in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 3.3: Difference-in-Differences for Risky Sex Index – Married and Cohabiting Respondents

VARIABLES	*Total*	*Female*	*Male*
Conflict Intensity	-0.011***	-0.011***	-0.013**
	[0.003]	[0.003]	[0.005]
2000/01 Survey	0.187***	0.010	0.355***
	[0.037]	[0.049]	[0.092]
2006 Survey	0.401***	0.317***	0.304***
	[0.043]	[0.043]	[0.075]
Education Level - Primary	-0.216***	-0.010	0.145***
(Base: No Education)	[0.036]	[0.010]	[0.039]
Education Level - Secondary	-0.138**	-0.024	-0.097
(Base: No Education)	[0.058]	[0.021]	[0.111]
Education Level - Higher	-0.183***	-0.047	-0.112*
(Base: No Education)	[0.027]	[0.052]	[0.059]
Gender - Female	-0.249***		
(Base: Male)	[0.023]		
20<=Age<30	-0.009	-0.016	-0.006
(Base: Age<20)	[0.016]	[0.016]	[0.082]
30<=Age<40	-0.025	-0.027*	-0.052
(Base: Age<20)	[0.016]	[0.016]	[0.082]
40<=Age	-0.064***	-0.033**	-0.150*
(Base: Age<20)	[0.016]	[0.016]	[0.078]
Religion - Protestant	-0.012	-0.012	-0.009
(Base: Catholic)	[0.009]	[0.008]	[0.028]
Religion - Muslim	0.006	-0.000	0.054
(Base: Catholic)	[0.013]	[0.013]	[0.038]
Religion - Other	-0.066***	-0.053***	-0.131**
(Base: Catholic)	[0.018]	[0.016]	[0.054]
Religion - Missing Val	-0.165***	-0.161***	-0.121
(Base: Catholic)	[0.037]	[0.045]	[0.110]
Marital Status - Living Together	0.391***	0.395***	0.472***
(Base: Never Married)	[0.078]	[0.080]	[0.105]
Rural Area	-0.008	0.013	-0.087**
(Base: Urban Area)	[0.015]	[0.015]	[0.038]
Observations	16936	13440	3496
R-squared	0.187	0.223	0.128

Robust standard errors in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 4: Difference-in-Differences for conflict for low and high-mortality malaria areas (coefficient associated with Conflict Intensity)

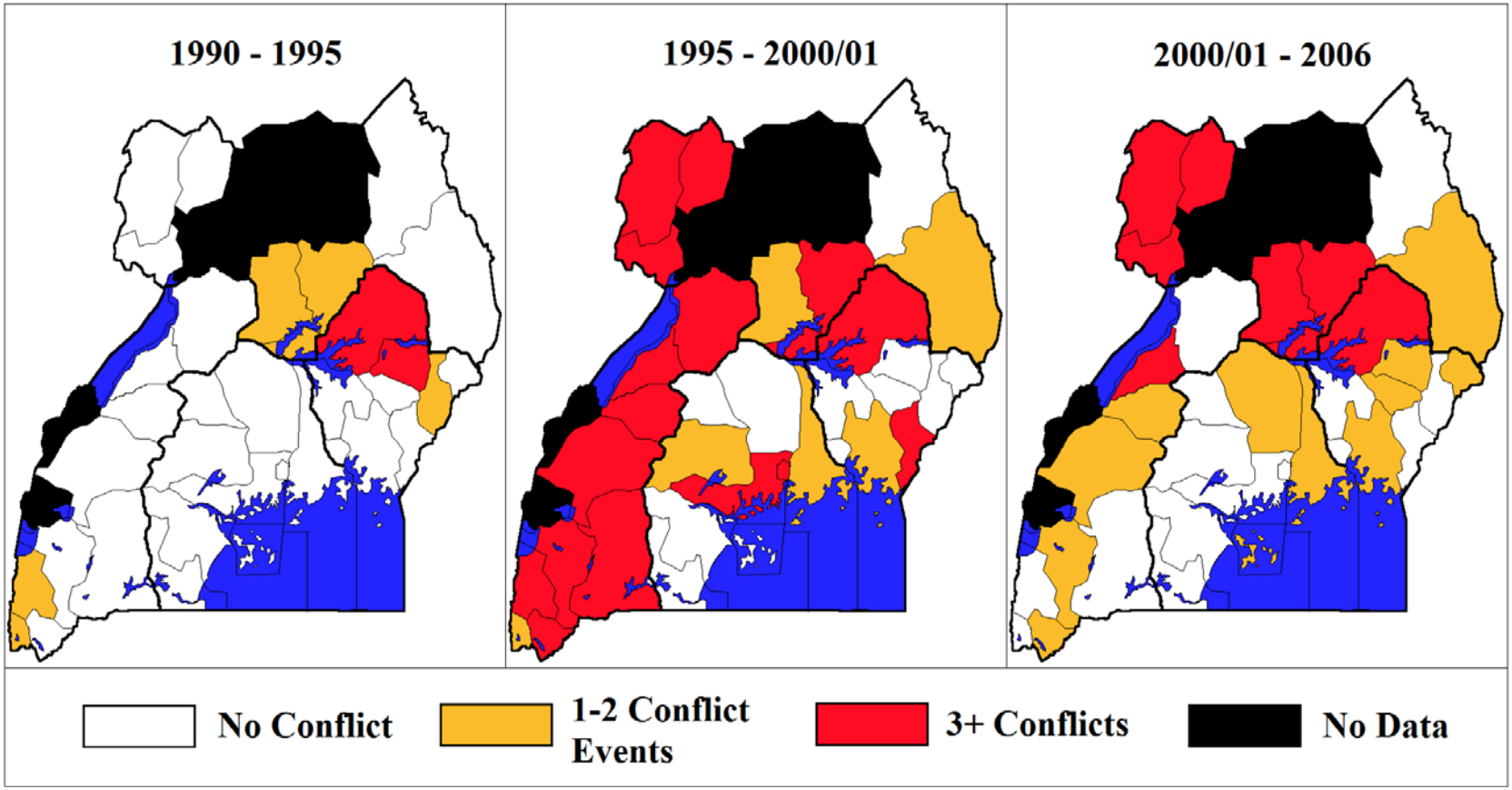
	No Malaria (low mortality)			**Endemic Malaria (high mortality)**		
Variables	***Total***	***Female***	***Male***	***Total***	***Female***	***Male***
Last Intercourse Used Condom	-0.006 (0.007)	-0.012 (0.007)	0.015* (0.008)	0.001 (0.001)	0.000 (0.001)	0.002 (0.001)
Number of other sexual partners[1]	0.008 (0.006)	0.002** (0.001)	0.033 (0.02)	-0.008*** (0.002)	-0.008*** (0.002)	-0.009*** (0.003)
Risk Index[1]	0.007 (0.01)	0.005** (0.001)	0.011 (0.031)	-0.014*** (0.003)	-0.014*** (0.003)	-0.016*** (0.005)
Observations	774	603	171	14612	11381	3231

Robust standard errors in parentheses

[1] Married and cohabiting respondents only

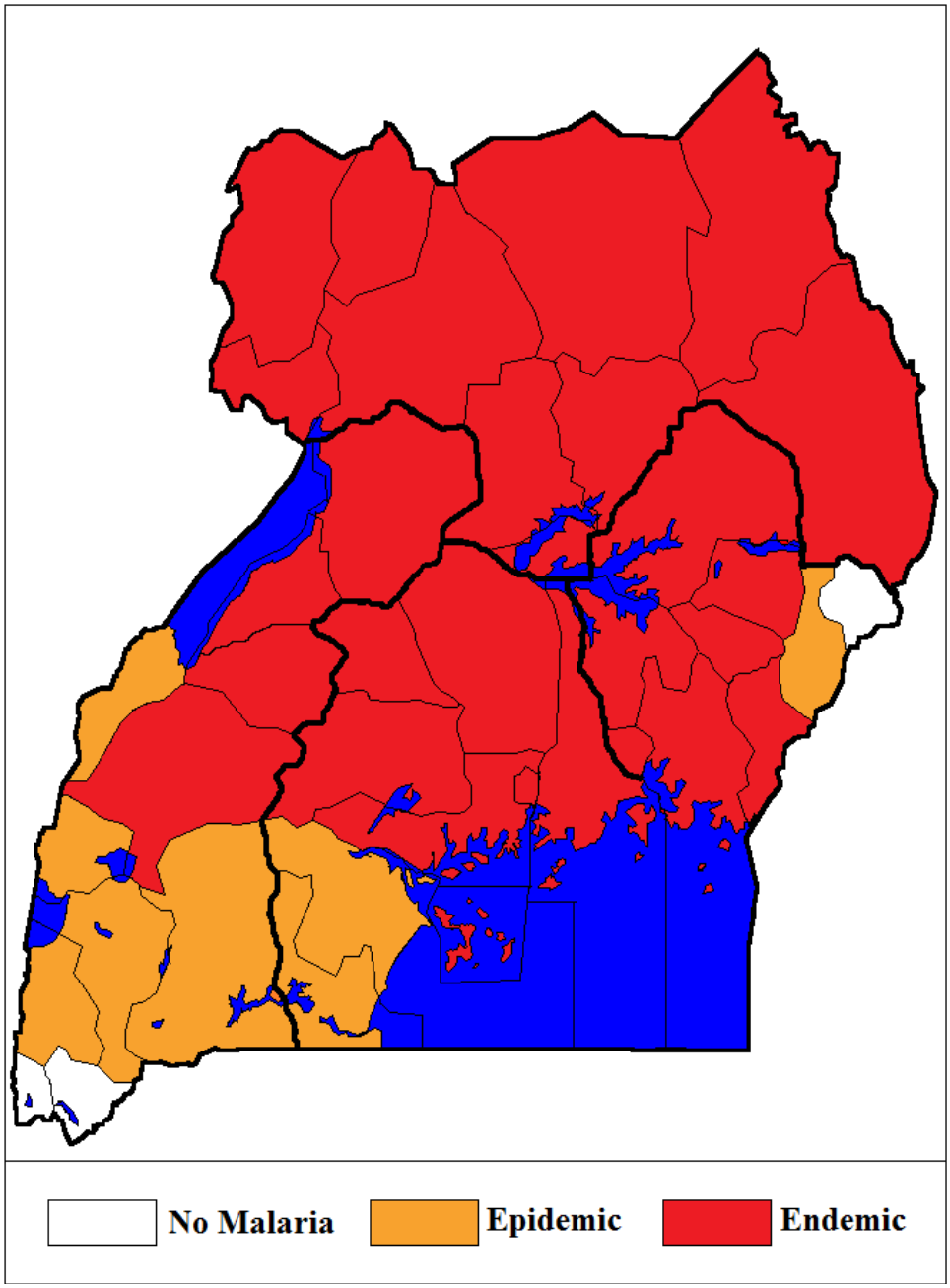
* significant at 10%; ** significant at 5%; *** significant at 1%

Figure 1: Number of Armed Conflicts per district



Data source: ACLED

Figure 2: Malaria Risk in Uganda



Data source: MARA

Appendix

Table A1: Demographic characteristics by conflict exposure

Variables	*No Conflict*	*Conflict*	*p-value for equality of means (t-test)*
Female	78.2%	78.5%	0.5347
Education Level: No Education	19.7%	21.6%	0.0003
Education Level: Primary	56.2%	58.3%	0.0017
Education Level: Secondary	20.4%	16.2%	0.0000
Education Level: Higher	3.7%	4%	0.3538
Age Group: Age<20	12.6%	11.7%	0.0382
Age Group: 20<=Age<30	42.7%	39.8%	0.0000
Age Group: 30<=Age<40	28.5%	30%	0.0109
Age Group: 40<=Age	16.2%	18.5%	0.0000
Living in Rural Area	68.9%	77.1%	0.0000
Religion: Catholic	41%	42%	0.1212
Religion: Protestant	37.4%	40.5%	0.0000
Religion: Muslim	14.9%	11%	0.0000
Religion: Other	6.8%	6.5%	0.3554
Marital Status: Single	13.3%	11.5%	0.0000
Marital Status: Married	60.9%	60%	0.0051
Marital Status: Living Together	13%	16.3%	0.0000
Marital Status: Widowed	3.5%	4.1%	0.0301
Marital Status: Divorced	1.6%	1.3%	0.1199
Marital Status: Not Living Together	7.8%	7.8%	0.9821
Observations	11,862	10,875	

Table A2: Ordinary Least Square Regression predicting 1995 Conflict Intensity at the district level

VARIABLES	
Proportion of individuals from majority ethnic group	1.157
	[2.137]
Proportion rural	-3.594
	[3.164]
Proportion female	5.644
	[12.45]
Proportion with no education	-96.13
	[69.80]
Proportion with primary education	-80.51
	[67.96]
Proportion with no education	-108.0
	[75.31]
Proportion age 20 to 29	-6.192
	[11.12]
Proportion age 30 to 39	5.101
	[10.48]
Proportion age 40+	2.496
	[11.91]
Proportion Protestant	2.356
	[3.277]
Proportion Muslim	2.456
	[3.787]
Proportion Other Religion	-10.74
	[7.732]
Proportion Missing Religion	53.56
	[165.4]
Proportion Married	-18.29
	[14.15]
Proportion Living Together	-12.75
	[14.06]
Proportion Widowed	-59.50*
	[29.30]
Proportion Divorced	-69.69*
	[36.37]
Proportion not living together	-59.38**
	[26.40]
Observations	34

R-squared	0.525

Standard errors in brackets
*** p<O.Ol, ** p<0.05, * p<O.l

Table A3: Difference-in-Differences results pooling married and single respondents (coefficients associated with Conflict Intensity)

	Overall			**No Malaria (low mortality)**			**Endemic Malaria (high mortality)**		
Variables	***Total***	***Female***	***Male***	***Total***	***Female***	***Male***	***Total***	***Female***	***Male***
Number of sexual partners in the last 12 months	-0.006*** (0.002)	-0.006*** (0.002)	-0.007* (0.003)	0.006** (0.002)	0.000 (0.004)	0.031 (0.019)	-0.007*** (0.002)	-0.007*** (0.002)	-0.006* (0.004)
Risky Sex Index	-0.009*** (0.003)	-0.008** (0.003)	-0.013*** (0.004)	0.011** (0.003)	0.007 (0.005)	0.018 (0.019)	-0.011*** (0.003)	-0.01*** (0.003)	-0.013*** (0.005)
Observations	22716	17802	4914	929	741	188	16388	12850	3538

Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table A4: Difference-in-Differences using the broad definition of conflicts (coefficients associated with Conflict)

	Overall			**No Malaria (low mortality)**			**Endemic Malaria (high mortality)**		
Variables	***Total***	***Female***	***Male***	***Total***	***Female***	***Male***	***Total***	***Female***	***Male***
Used condom at last intercourse	0.001 (0.000)	0.000 (0.000)	0.002* (0.001)	-0.014** (0.005)	-0.017*** (0.005)	-0.002 (0.011)	0.000 (0.000)	0.000 (0.001)	0.001 (0.001)
Number of sexual partners in the last 12 months [1]	-0.005*** (0.001)	-0.005*** (0.001)	-0.006** (0.003)	0.017** (0.006)	0.003* (0.001)	0.072** (0.025)	-0.006*** (0.001)	-0.006*** (0.001)	-0.007** (0.003)
Risky sex index[1]	-0.009*** (0.003)	-0.009*** (0.003)	-0.01** (0.004)	0.023*** (0.006)	0.005* (0.003)	0.084*** (0.024)	-0.011*** (0.002)	-0.011*** (0.002)	-0.012** (0.004)
Observations	20275	15768	4507	774	603	171	14612	11381	3231

Robust standard errors in parentheses

[1] Married and cohabiting respondents only

* significant at 10%; ** significant at 5%; *** significant at 1%

Table A5: Difference-in-Differences of the three dependent variables when restricting the sample to people living in the same place of residence for 5 years or more (coefficients associated with Conflict Intensity)

Variables	***Total***	***Female***	***Male***
Last intercourse used condom	0.001 (0.001)	-0.000 (0.001)	0.004** (0.002)
Number of sexual partners in the last 12 months[1]	-0.005*** (0.002)	-0.004** (0.002)	-0.009** (0.003)
Risky sex index[1]	-0.008*** (0.003)	-0.006* (0.003)	-0.015*** (0.006)
Observations	12414	9069	3345

Robust standard errors in parentheses
[1] Married and cohabiting respondents only
* significant at 10%; ** significant at 5%; *** significant at 1%

Table A6: Demographic characteristics of the sample according to Malaria Prevalence Level

Variables		*No Malaria*	*Endemic*	*p-value for equality of means (t-test)*
Last intercourse used condom		4.1%	10.1%	0.0000
Number of sexual partners in the last 12 months *	None	97.9%	91.6%	0.0000
	One	1.8%	7.5%	0.0000
	More than one	0.3%	0.9%	0.0769
Risk sex index*	No other sex partners	97.9%	91.7%	0.0000
	Other sex partners & used condom	0.1%	0.7%	0.0659
	Other sex partners & no condom use	2%	7.6%	0.0000
Female		79.8%	78.4%	0.3209
Education Level: No Education		33.9%	20.2%	0.0000
Education Level: Primary		47.3%	55.9%	0.0000
Education Level: Secondary		14.5%	19.8%	0.0001
Education Level: Higher		4.3%	4.1%	0.7892
Age Group: Age<20		8.1%	12.9%	0.0000
Age Group: 20<=Age<30		39.8%	41.5%	0.3058
Age Group: 30<=Age<40		32.2%	28.5%	0.0155
Age Group: 40<=Age		20%	17.1%	0.0232
Living in Rural Area		79%	70.2%	0.0000
Religion: Catholic		33.9%	43.0%	0.0000
Religion: Protestant		58.9%	35.6%	0.0000
Religion: Muslim		3.8%	14.3%	0.0000
Religion: Other		3.4%	7.1%	0.0000

Marital Status: Single	10.1%	13%	0.0102
Marital Status: Married	52.9%	59.9%	0.0000
Marital Status: Living Together	23.3%	14.0%	0.0000
Marital Status: Widowed	6.8%	3.4%	0.0000
Marital Status: Divorced	0.8%	1.5%	0.0753
Marital Status: Not Living Together	6.1%	8.2%	0.0261
Observations	930	16,401	

* Married and cohabiting respondents only