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Seeds of Distrust: Conflict in Uganda

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Abstract

We study the effect of civil conflict on social capital, focusing on the experience of Uganda during the last decade. Using individual and county-level data, we document causal effects on trust and ethnic identity of an exogenous outburst of ethnic conflicts in 2002-04. We exploit two waves of survey data from Afrobarometer 2000 and 2008, including information on socioeconomic characteristics at the individual level, and geo-referenced measures of fighting events from ACLED. Our identification strategy exploits variations in the intensity of fighting both in the spatial and cross-ethnic dimensions. We find that more intense fighting decreases generalized trust and increases ethnic identity. The effects are quantitatively large and robust to a number of control variables, alternative measures of violence, and different statistical techniques involving ethnic and county fixed effects and instrumental variables. We also document that the post-war effects of ethnic violence depend on the ethnic fractionalization. Fighting has a negative effect on the economic situation in highly fractionalized counties, but has no effect in less fractionalized counties. Our findings are consistent with the existence of a self-reinforcing process between conflicts and ethnic cleavages.

JEL Classification: D74, O12, Z1.

Keywords: Conflict, Trust, Ethnic Fighting, Uganda, Social Capital, Identity.

1 Introduction

This paper investigates from an empirical perspective the effect of civil conflict on social capital, focusing on the experience of Uganda during the last decade. Civil conflicts have persistent devastating effects on economic development (DeRouen and Bercovitch 2008, Collier and Hoeffler 2004, Collier, Hoeffler and Rohner 2009, Quinn, Mason and Gurses 2007, and Walter 2004). Their legacy involves

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more than physical and human capital destruction. The aftermaths of civil conflicts are often plagued by the breakdown of civic and economic cooperation within society.

We are motivated by our previous theoretical work (Rohner, Thoenig and Zilibotti 2011), where we argue that war leads to a collapse of trust and social capital which in turn carries the seeds of further conflicts. In our theory, trade is the opportunity cost of war, and war shocks destroy social capital by inducing beliefs that the other ethnic group is not predisposed to peaceful trade. While our theory is consistent with a number of casual observations (e.g., inter-ethnic trade between Hindu and Muslim communities in India, see Jha 2008), there are instances in which wars appear to cement rather than destroy cooperation. Historically, wars promoted nation building in Europe (Tilly 1975), while the aftermath of World War II in Western Europe was characterized by strong institutional development involving social cooperation, renewed national identity and sustained high economic growth (Eichengreen 2008). While the post-war dynamics of international conflicts are arguably different from those of civil wars, Bellows and Miguel (2009) also report evidence of positive social capital developments in Sierra Leone after the devastating civil conflict of 1991-2002.¹ The goal of this paper is to contribute to address two questions: First, is there evidence of causal effects of war on inter-ethnic trust? Second, how do such effects differ across different dimensions of trust and social capital?

We document causal effects of ethnic conflict on trust and ethnic identity using individual, county- and district-level data from Uganda. Uganda is a natural environment for such a micro-study. It is an ethnic mosaic consisting of at least 52 groups. Ethnic (or ethnic-related) conflicts have been pervasive in this country at least since independence in 1962. The history of military coups and violent regime changes is associated with the hegemony of different ethnic groups, the main divide being that between the Nilotic people of the North, and the Bantu people of the South. Since 1985, Uganda has been ruled by the National Resistance Movement (NRM) led by Yoweri Museveni, who participated first in the demise of Idi Amin Dada, and then in the rebellion against Amin's successor (and former predecessor), Milton Obote. Although generally viewed as non sectarian, Museveni's government has its main constituency in the Bantu-dominated South, while it has faced resilient opposition and armed rebellion in the North of the country, especially in the "Acholiland" region. The Acholi people, traditionally the warrior elite of Uganda, had been loyal to Obote and have remained by-and-large alienated from the NRM. The main military challenge against the government has come from the Lord's Resistance Army (LRA), a sectarian Acholi-nationalistic group led by Joseph Kony and active in Northern Uganda. Not only Acholiland has been troubled by rebellion. The second most important rebel army, the Allied Democratic Forces (ADF), running on an Islamic radical agenda, was active in the Western border area of Uganda, close to the border with the Democratic Republic of Congo. Other areas have also been troubled by traditional tribal and ethnic conflicts.

Our empirical strategy exploits an exogenous change in the policy against internal insurgency

¹Bellows and Miguel (2009) use a household survey to analyze whether people who have been victimized in the civil war in Sierra Leone are affected in their post-war behavior. In particular, they find that more victimized people are more likely to "attend community meetings", and to "join social and political groups".

that occurred in 2001, after the September 11 attack. The declaration of "war against terror" was a turning point. In earlier years, the international community had tried without much success to promote negotiated settlements of the Ugandan conflicts.² In 2001, the US Patriot Act officially declared the LRA and the ADF to be terrorist organizations. Among its consequences, the ruling Sudanese National Islamic Front that had secured sanctuary and military hardware to the LRA withdrew its support to the rebel army. These shifts provided the opportunity for Museveni's government to pursue a military crackdown on the rebel armies.³ On the one hand, the ADF was annihilated and has ceased any significant military activity within Uganda since 2004. On the other hand, in March 2002, the army launched a large-scale offensive, named "Operation Iron Fist", against the LRA bases in South Sudan. The LRA responded by attacking many villages and the government forces in Northern Uganda. Both fighting sides appear to have exercised brutal violence against civilians (Finnström 2008). Military activity and reprisals peaked in 2003, then the rebel activity declined considerably as of 2004. In 2005, the LRA was forced to move its bases to the Democratic Republic of Congo, while the International Criminal Court issued arrest warrants for Joseph Kony and other LRA commanders. A cease-fire between the LRA and the government of Uganda was signed on September 2006, with the mediation of the autonomous government of South Sudan. Negotiations about a permanent settlement continued in Juba (South Sudan). Although hopes were later frustrated by Kony's refusal to sign the peace agreement in 2008, LRA-related fighting in Uganda has been sporadic after 2006.

Figure 1 shows the total number of geo-referenced fighting events between 1997 and 2008 from Armed Conflicts Location Events Data (ACLED). Between 2000 and 2008 ACLED reports over 2600 geo-located conflict events. Consistent with the narrative above, there was a sharp escalation in 2002-04. This is followed by a decline, and very low levels of violence have been recorded since 2006. It is worth noting that the escalation of violence in 2002-04 is not merely an Acholi phenomenon. An increasing number of conflicts were recorded all over Uganda in this period (see Figure 2). This justifies studying the effect of conflict across all Uganda.

We are interested in measuring the effects of such fighting on different measures of trust and ethnic identity. To this aim, we exploit two waves of survey data from Afrobarometer 2000 and 2008, including information on socioeconomic characteristics at the individual level.⁴ The Afrobarometer is a repeated cross section of individuals (a panel at the district-level). Our strategy is to regress individual measures of social capital in year 2008 on county-level measures of intensity of fighting during 2000-08,

²An example of this strategy is the Amnesty Act of 2000, by which the Government of Uganda granted amnesty to all rebels who would abandon violence, renouncing to criminal prosecution or punishment for offenses related to the insurgency.

³An additional factor was the end of the Second Congo War, which made it possible to the armed forces of Uganda to concentrate on the internal front.

⁴Although Afrobarometer also run a survey in 2005, we decided to use the 2008 data, since the number of conflicts was still relatively large in 2005 (see Figure 1). Moreover, the number of people living in refugee camps was very large in 2005. This raises two issues. On the one hand, the hardship of life in refugee camps may be responsible for the low trust of respondents. On the other hand, although as we document below most camps are located close to people's village of residence, some people may be displaced outside of their counties, rendering our identification strategy invalid. The problem is far less severe in 2008.

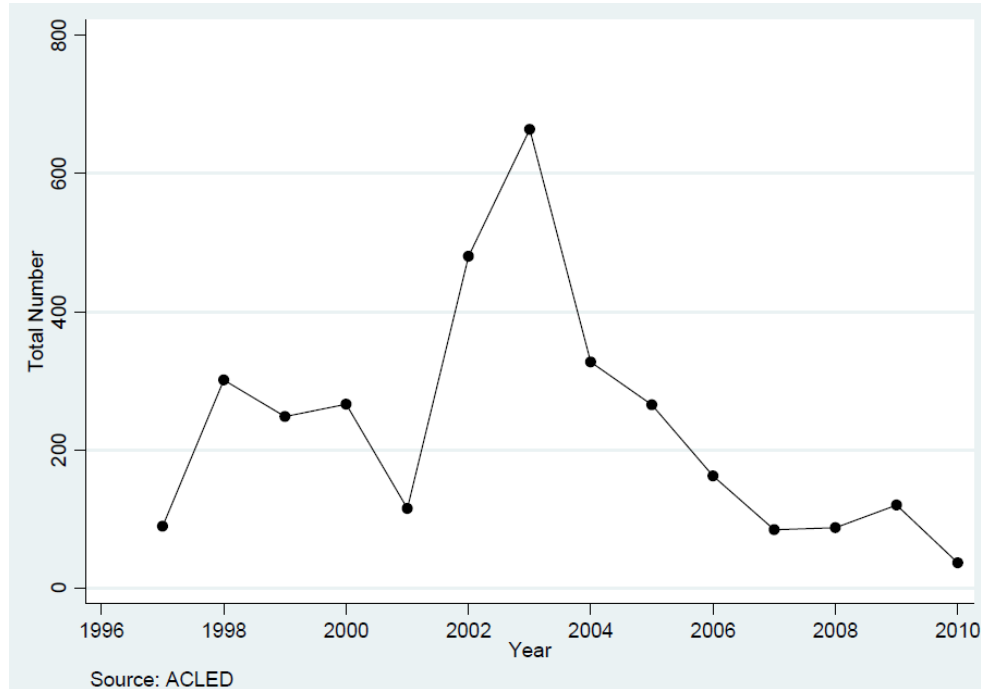


Figure 1: Number of Fighting Events Over Time in Uganda

controlling for a large number of individual and district characteristics. Most important, we control for the average social capital at the district level in 2000, in order to filter out the cross-district heterogeneity due to long-standing factors.

We address concerns about reverse causality and omitted variables by two complementary strategies. First, we adopt an instrumental variables strategy. Our identification relies on an external political shock (i.e., the US enlisting the rebel movements of Uganda as a terrorist organization, and the Khartoum government withdrawing support to the LRA) affecting the intensity of fighting, but having no direct effect on trust measures. This political shock impacted the probability of fighting in a spatially heterogeneous way with a larger increase observed in high elevation areas and in Northern Uganda, and more specifically close to the Sudanese border. We use the county-level average distance from Sudan as a first instrument for the number of fighting events. We use the county-level maximum altitude as an additional instrument, since this also affects the probability of guerrilla activities (cf. Collier, Hoeffler, and Rohner 2009).⁵

We also consider an alternative identification strategy relying on the within-county variation in conflict involving different ethnic groups. In particular, we exploit the information provided by ACLED identifying the rebel groups and ethnic militias involved in each single conflict event. When conflicts

⁵Although both instruments are time invariant, our identification relies on the fact that such geographical characteristics affected the number of fightings in the post-2001 environment. So, in a sense, our instruments are the interaction between the 2001 political shock and the above mentioned geographic characteristics.

involve organized rebel groups, we map each rebel group or ethnic militia (whenever possible) to their main ethnic affiliation. Then, we regress measures of trust and identity on the number of conflict events involving different ethnic groups within each county, controlling for both county and ethnic group fixed effects. Our hypothesis is that respondents should be especially affected by events involving their own ethnic group.⁶

Our main finding is that fighting events have a negative and statistically significant effect on "trust towards other people from Uganda". The estimated effect is quantitatively large, and robust to instrumenting fighting events by distance to Sudan and altitude. A one-standard-deviation increase in fighting translates into a 41% standard deviation decrease in trust. The effect is stronger when fighting events involve the respondent's ethnic group. Fighting has smaller effects, instead, on "trust in known people" and hardly any effect on "trust in relatives". The findings suggest that fighting induces distrust mainly towards people outside the ordinary social network. Moreover, people living in counties experiencing more fighting report a large increase in a self-reported measure of "ethnic identity", i.e., they identify themselves more strongly with their own ethnic group relative to alternative forms of national Ugandan affiliation. This result is robust to the inclusion of county and ethnic group fixed effects. Moreover, the results are not driven by the Acholi region, the most tormented by the conflict between the LRA and the government. Excluding all counties of core Acholiland reduces the size of the estimated coefficients, but the main results remain significant.

In Rohner, Thoenig and Zilibotti (2011), we argue that by undermining trust, conflict hinders economic cohesion in ethnically divided societies. A thorough empirical investigation of this question would require a longer time span of data. However, in the second part of the paper, we make a first step in this direction by extending the analysis to the economic effects of ethnic conflicts. Ideally, we would like to use district-level GDP per capita. However, such data are not available for Uganda. We resort to proxying them by using the subjective information contained in the Afrobarometer where people are asked an assessment of their own economic situation, and then aggregating at the county level (the same question was asked in both 2000 and 2008, so we can control for the district-level economic situation in 2000). Since we use the Afrobarometer survey of 2008 (while, recall, most fighting events are in the period 2002-05), the responses are unlikely to reflect the direct economic effects of conflict, due to, e.g., destructions of villages or crops. We document an interesting interaction effect: the post-war effects of fighting depend on the ethnic fractionalization at the county level. Fighting has a negative effect on the economic situation in highly fractionalized counties, but has no effect in less fractionalized counties. Since survey-based data about the economic situation are subject to perception biases, we repeat the analysis using an alternative proxy of the level of economic activity, i.e., the average intensity of light recorded by U.S. meteorological satellites during night for each county in Uganda in our years of interest.

The finding that violence that occurred mostly four-to-five years before the survey has a stronger

⁶People may also respond to violence involving their own ethnic group outside of the district where they live. However, such events are likely to be observed less precisely. Interestingly, we find that people owning a radio also respond to out-of-district events involving the own ethnic group.

effect on economic outcomes in ethnically fractionalized counties is consistent with the view that conflict hinders economic cooperation in ethnically divided societies. The evidence suggests that the effects of violence on social capital may have weaker effects on economic cooperation when violence does not involve ethnic cleavages. Therefore, violence may have more persistent effects in an ethnically divided society.

1.1 Related literature

This paper is part of a large literature on inter-ethnic conflict. Most theoretical papers focus on the effect of the exogenously given population composition (see, e.g., Esteban and Ray 2008, 2011, and Rohner 2011). Relative to these papers, our study suggests that ethnic identity may be endogenous relative to the conflict dynamics.⁷

While our study focuses on the effect of conflict on social capital, a large literature has studied over the last decade the opposite channel, i.e., how different measures of ethnic diversity predict the outbreak of civil wars.⁸ However, there is also a growing number of microlevel studies dealing with the impact of conflicts on human capital. Matching household survey data with information on local war intensity, some papers document that war experience reduces the educational attainment of the cohorts exposed (cf. Swee 2008 for Bosnia; Leon 2009 for Peru; Akresh and de Walque 2010 for Rwanda; Shemyakina 2010 for Tajikistan). Blattman and Annan (2009) find that former abductees in Uganda have lower education and lower salaries later in life, as well as more psychological distress. There is also a literature in medicine, finding that child soldiers or children who experienced war are much more likely to experience depression, post-traumatic stress or anxiety in the months and years after the event.⁹

The studies above focus on human rather than social capital. More directly related to our work is the recent literature on the effect of individual war experience on political participation and local collective action. In particular, Bellows and Miguel (2009) use a household survey and analyze whether people who have been victimized in the civil (not ethnic) war in Sierra Leone are affected in their post-war behavior. In particular, they find that more victimized people are more likely to “attend

⁷In this sense our paper is related to a small literature studying endogenous ethnic identity in contexts that are very different.

Fryer and Levitt (2004) show that the intensity of "black" identity in the United States, and the use of distinctively black names have varied widely over time, peaking during the period of the Black Power movement. In a development context, Posner (2004) studies the relations between the Chewas and Tumbukas across the border between Malawi and Zambia. He shows that although the objective differences between these two groups are the same on both sides of the border, in Malawi the relations between these two ethnic groups are very hostile and filled with distrust, while in Zambia they are close allies. His explanation is that this is because in Malawi the groups are large enough relative to the other groups in the country for being mobilized politically, while in Zambia they are both small players that cooperate together.

Finally, Caselli and Coleman (2011) present a theory of ethnic conflict where the composition of ethnic groups is endogenous, as people can switch groups.

⁸See Fearon and Laitin (2003), Collier and Hoeffler (2004), Collier and Rohner (2008), Collier, Hoeffler and Rohner (2009), Montalvo and Reynal-Querol (2005) and Esteban, Mayoral and Ray (2011).

⁹See Dyregrov et al. (2000); Dyregrov, Gjestad and Raundalen, (2002); Barenbaum, Ruchkin and Schwab-Stone (2004); Derluyn et al. (2004); Kohrt et al. (2008).

community meetings”, and to “join social and political groups”. Related research focuses on the reintegration of child soldiers. The study of Blattman (2009) on Northern Uganda finds that young men who have been abducted and forced into joining rebel forces are subsequently more prone to vote and engage in local community action. Humphreys and Weinstein (2007) find that past participation in abusive military fractions makes reintegration in society harder in Sierra Leone. Further, ideologues, men and younger fighters have more problems reintegrating than other ex-combatants.

There is also a related literature based on lab and field experiments. Whitt and Wilson (2007) make Bosnians play the dictator game and find that players treat opponents from the same ethnic group with more fairness. Voors et al. (2010) find that players who have been exposed to more violence in their past behave more altruistically to neighbors and are more risk seeking. Cassar, Grosjean and Whitt (2011) run experiments in Tajikistan and find that conflict exposure reduces trusting and fair behavior to a larger extent in interactions with other players from the same area than with people from elsewhere. They explain this finding by the nature of the Tajik war, where clear frontlines were absent and where there was much violence within villages. To check whether war exposure breeds aggressive behavior in the future, Miguel, Saiegh and Satyanath (2011) study the behavior of foreign players in the main professional soccer leagues in Europe, finding that indeed past civil war exposure correlates with the number of yellow and red cards received.

Our paper is also related to the literature linking trust and social capital in communities to past history and to ethnic fragmentation.¹⁰ While Alesina and La Ferrara (2000) find that participation in social activities is lower in ethnically heterogeneous communities, the same authors show in a later paper that a recent history of traumatic experiences and discrimination, poverty, low education, ethnic diversity, and economic inequality correlate with low trust (Alesina and La Ferrara 2002).¹¹ Using Afrobarometer and various historical data, Nunn and Wantchekon (2011) find that individuals living in sub-Saharan African countries whose ancestors belonged to tribes that were subject to a high intensity of enslavement report lower trust levels today. Our results are complementary to theirs. While they emphasize persistent effects of events that occurred long time ago, we show that large contemporaneous shocks can indeed change beliefs and social capital.

Moving to business links, Fafchamps (2000) and Fisman (2003) find that African firms are more likely to obtain supplier and bank credit from firms associated to the same ethnic group. Macours (2004) shows that also in the Guatemalan land rental market – where property rights are mostly absent and ethnic tensions are strong – landlords are more likely to rent out to tenants from the same ethnic group. These papers are related to the findings in our paper that fighting appears to have larger post-war economic effects in ethnically fractionalized counties. Although we have no direct measure of inter-ethnic business links, our results are consistent with the hypothesis that inter-ethnic business links are more sensitive to disruptions associated with the collapse of social capital, and thus

¹⁰For a general discussion of the origins and effects of trust and social capital, see the survey articles of Guiso, Sapienza and Zingales (2006) and Fehr (2009). See also Dasgupta (1988, 1999) and Sobel (2002).

¹¹Related to this, Alesina and Zhuravskaya (2011) find that more ethnically and linguistically segregated countries have a lower quality of government.

ethnically fractionalized counties suffer larger economic consequences after fighting.

Finally, our paper is related to the limited literature on the consequences of the conflict in Uganda. Aside from the papers already mentioned above, the most closely related work to ours is Bozzoli, Brueck and Muhumuza (2011), who analyze the effect of conflict on individual expectations in Northern Uganda. Their paper is complementary to ours insofar as it documents the effect of differential exposure to conflict. However, they use a different dataset (the Northern Uganda Livelihood Survey) which only covers the population living in six Northern districts. This survey is only available for 2007, so pre-conflict attitudes cannot be controlled for. Most important, their study focuses on a psychological dimension rather than on trust. In particular, they show that exposure to conflict affects negatively people's optimism about future perspectives. A recent paper by De Luca and Verpoorten (2011) studies the effect of conflict in Uganda on associational membership and trust.¹² Deininger (2003) analyzes household survey data for Uganda, and finds that households that were more heavily affected by civil strife are less likely to engage in (non-farm) enterprise expansion or startup and are more likely to close down an existing enterprise. Vargas Hill, Bernard and Dewina (2008) documents that in Uganda agricultural "cooperatives were much less likely (...) to exist in communities that had recently experienced civil conflict". Finally, Collier (1999) finds that transaction and capital intensive sectors like construction, transports, finance, and manufacturing suffered relatively more from the war in Uganda than less vulnerable sectors like subsistence agriculture.

Section 2 describe the historical context of the Ugandan conflict. Section 3 describes the data and empirical strategy. Section 4 discusses the main empirical results of the analysis of the effect of conflict on various measures of trust and ethnic identity. Section 5 analyzes the economic effects of ethnic conflict. Section 6 concludes. A number of additional statistics and robustness tests are in the Appendix.

2 Context of Conflict in Uganda

Already in pre-colonial times the area of what is Uganda today has been ethnically very heterogenous, with the main division being between the people of the North who are part of the broader ethnic category of "Nilotes", while the South has been occupied by people belonging to the "Bantu" ethnic category.¹³

¹²To the best of our knowledge, the study of De Luca and Verpoorten (2011) – posterior to the first version of our paper – was carried out independently of ours. The two papers share some common grounds, but differ in both the motivations and key aspects of the analysis. They merge, as we do, data from ACLED and Afrobarometer, although they use the 2005 survey, while we preferred to use the 2008 survey for reasons explained below. They adopt a different econometric specification, although they adopt a similar IV strategy. They focus on associational membership and infer from the data some "suggestive evidence for a rapid recovery of social capital", two dimensions that we do not touch upon. They do not control for past trust (which is important in our identification), nor do they consider ethnic identity. They do not link fighting events to specific ethnic groups, whereas an important part of our contribution is to study the variation in ethnic violence involving different groups within each district. Finally, our study considers persistent economic effects of ethnic violence on living conditions, whereas theirs does not.

¹³The following discussion of the context of the Ugandan conflict draws heavily on Nannyonjo (2005) and Finnström (2008).

The ethnic identities were fostered by the British colonization as part of a divide-and-rule strategy. In particular, the colonial administration restricted interethnic movements, and "colonial practices were powerful instruments in the making of more rigid ethnic boundaries and divides in Uganda" (Finnström, 2008: 38). This is confirmed by Nannyonjo (2005), arguing that the British encouraged the divisions between the North and the Bantu-dominated South. While the Nilotic tribes (and in particular the Acholi tribe) were over-represented in the army, they were under-represented in the administration and white-collar jobs, and generally discriminated (Nannyonjo 2005).

Even after independence in 1962, Ugandan politics remained dominated by ethnicity, and each leader favored some tribes, and repressed others. "Uganda's first prime minister, Milton Obote, was overthrown by his army commander Idi Amin in 1971. During Amin's regime (1971-79) Langi and Acholi soldiers, perceived to be Obote's agents, were treated harshly" (Nannyonjo 2005: 475). After Amin, it was again the turn of Obote to rule the country, who was followed by Acholi officer Tito Okello. During this period, the dominant position of northerners in the army was reinstated, only to be dismantled again when Okello lost power in 1986 to the former rebel leader of the National Resistance Army (NRA) and current President of Uganda, Yoweri Museveni, who is a southerner (Finnström 2008).¹⁴ The northerner (and in particular, Acholi) ex-officers and soldiers of the Ugandan army who fell from grace under Museveni have since then been important components of the various Northern-based rebel movements of the last decades. "In April 1987 Joseph Kony started his own military movement by drawing support mostly from the Acholi UPDA deserters" (Nannyonjo 2005: 476). This movement eventually became in 1994 the most important and persistent rebel movement of Uganda, under the name of Lord's Resistance Army (LRA).

Although the Lord's Resistance Army has increasingly multiplied criminal activities and often attacked also people from their own ethnic background accused of being traitors, the conflict has a clear ethnic dimension. On one side, there are the northern combatants that used to represent the official army and are now considered rebels, and on the other side there are the southern fighters of Museveni who used to be rebels and now represent the official Ugandan army.¹⁵ According to Nannyonjo (2005: 475), "the current conflict in the Acholi and Lango sub-regions between the LRA and the Ugandan government has deep historical roots resulting from ethnic hostilities, colonial-era marginalization of the north, institutional weaknesses, troubled politics during the post-independence period when military sectors of different ethnic groups aspired to regain power from a succession of Ugandan governments, and from certain external factors". As expressed by Finnström (2008: 74-75), "the majority of people in central Uganda perceived Museveni's war as a war against a regime of northerners, rather than the war for democracy. (...) While he was a guerrilla leader, Museveni

¹⁴"Okello's military junta of Acholi-dominated forces withdrew to their homelands in northern Uganda and later to Sudan, where they formed the Uganda People's Democratic Army (UPDA) to oppose the NRA" (Nannyonjo 2005: 476-7).

¹⁵According to Finnström (2008) the Museveni government has tried hard to frame the Lord's Resistance Army as unpolitical criminals who attack their own people. In particular, "the rhetoric of a local northern conflict in which Acholi kill fellow Acholi like cannibalistic grasshoppers, reflects a more general Ugandan conception of the Acholi as violent and war-prone" (Finnström 2008: 107).

sometimes propagated Bantu commonality in an effort to strengthen local support in the immediate war zone. (...) In Museveni's war propaganda, the enemy was alleged to be northerners in general and Acholi in particular". In the words of the Women's Commission (2001: 81), "the current conflict in northern Uganda has its roots in ethnic mistrust between the Acholi people and the ethnic groups of central and southern Uganda as well as in the religious and spiritual beliefs of the Acholi people and the manipulation of these beliefs." And this distrust has persisted, as "still today it is common for people in Kampala and beyond to regard people from northern Uganda as backward and martial" (Finnström 2008: 79).

Interestingly, even if the northern population suffers not only from large-scale violence and abuse of the southern government troops (Dolan 2009)¹⁶, but is also repeatedly targeted by the Lord's Resistance Army, the primary blame and grievances are still directed against the government in Kampala and the southern Bantu-speaking tribes that it represents. "The more violence the rebels commit against the noncombatant population, the more the government will be blamed by the same exposed people for its failure to protect and provide for its citizens. A growing number of young people feel that the war increasingly excludes them from the various modern developments in Uganda" (Finnström 2008: 129).

The role of Sudan is especially important. Since the early 1990s, the Khartoum government had provided the LRA with logistic support and military equipment, allowing its base camps in southern Sudan. In exchange, the LRA helped the Sudanese army to fight against the south Sudanese rebels. The Ugandan government, in turn, supported the Sudan People's Liberation Army (Finnström 2008: 84-85). Reciprocal accusations led the two governments to cut diplomatic relationships in 1995, allegedly because of Sudan's support for the Lord's Resistance Army (LRA) in retaliation for the government of Uganda's involvement in the Sudanese government's war against the Sudan People's Liberation Movement/Army (SPLM/A). In early 1999, the former US President Jimmy Carter chaired negotiations to restore diplomatic relations (see Neu 2002). Progress was slow, till an acceleration occurred after September 11, 2001, when the Sudanese government was under heavy pressure for its support to Islamic radicalism. In 2002 Uganda and Sudan restored diplomatic relations and signed a protocol which gave the Ugandan army the right to enter southern Sudan and attack the LRA.

Besides this major violent conflict between the southern government and the northern rebels of the Lord's Resistance Army, there have been in recent years several other smaller-scale ethnic conflicts in Uganda. For example, the rebels of Allied Democratic Forces (ADF) have been fighting the government in southwestern Uganda, while there has been wide-spread tribal violence in the northeastern Karamoja region, triggered by cattle raiding (Nannyonjo 2005; Finnström 2008).

¹⁶ According to Finnström (2008: 71), "in northern Uganda, it turned out that the conduct of the Museveni's troops (...) soon deteriorated. Killings, rape, and other forms of physical abuse aimed at noncombatants became the order of the day soon after the soldiers established themselves in Acholiland, which was foreign territory for them".

3 Econometric Analysis

3.1 Data

In this section, we discuss the original data used. All variables are described in detail in the Data Appendix, and the descriptive statistics of all variables used are contained in Table 15 in the Appendix. The backbone of our dataset is the Afrobarometer 2008 survey on Uganda, in which 2431 subjects were surveyed between July and October 2008, in 55 districts and 125 counties of Uganda.¹⁷¹⁸ This survey contains various measures of insecurity, trust and ethnic identity (dependent variables), subjective assessment of the own living conditions (dependent variable) and socioeconomic status measures that we use as control variables in the analysis.

In order to control for trust in 2000 and other initial conditions, we use as well the Afrobarometer 2000 survey on Uganda (Afrobarometer 2000), and construct for each subject of the 2008 survey the level of trust and other controls in 2000 in its district (no information about the respondents' counties are available in year 2000). While ideally we would have liked to follow particular individuals over time, this is not possible, since the Afrobarometer is not a panel and surveys different people in 2008 and in 2000. Hence, we have a repeated cross-section, and districts are the most disaggregated level for which we can match the data from the 2000 and 2008 Afrobarometer waves.

The main independent variable is called *FIGHTING* and corresponds to the number of fighting events that took place in a particular county between 2000 and 2008 (the range is chosen so as to match the beginning and end dates of the Afrobarometer survey).¹⁹ We also use in the analysis alternative measures of violence, discussed below. The data are from the ACLED (Armed Conflict and Location Event Data, 2011) dataset that provides the geo-location of various categories of fighting events. Using ArcGIS, we have matched these events with the counties and districts in the Afrobarometer. Between the 2000 and 2008 Afrobarometer waves ACLED records 2623 fighting events in Uganda, spread in varying intensity over most regions of Uganda (see Figure 2).

District-level demographic and economic control variables are from the Census of the Ugandan Bureau of Statistics (2002). These data are not available at the county level. Information on elevation is from a geo-referenced shape-file produced by Hijmans Lab at UC Davis (2010). Finally, we use the Geo-Referenced Ethnic Group (GREG) dataset, which allows us to compute ethnic fractionalization measures on the district and county levels (Weidmann, Rød and Cederman 2010).

¹⁷Afrobarometer selects samples in the following way: "The sample is designed as a representative cross-section of all citizens of voting age in a given country. The goal is to give every adult citizen an equal and known chance of selection for interview. We strive to reach this objective by (a) strictly applying random selection methods at every stage of sampling and by (b) applying sampling with probability proportionate to population size wherever possible (...). The sample is stratified by key social characteristics in the population such as sub-national area (e.g. region/province) and residential locality (urban or rural)" (Afrobarometer 2011).

¹⁸In Uganda, there are 78 districts which are divided up into 146 counties. The average population of a district in 2009 is about 410000, whereas that of a county is 219000.

¹⁹In particular, we have included all fighting events that have taken place between the last day of the Afrobarometer 2000 survey (on June 26, 2000) and the first day of the Afrobarometer 2008 survey (on July 27, 2008).

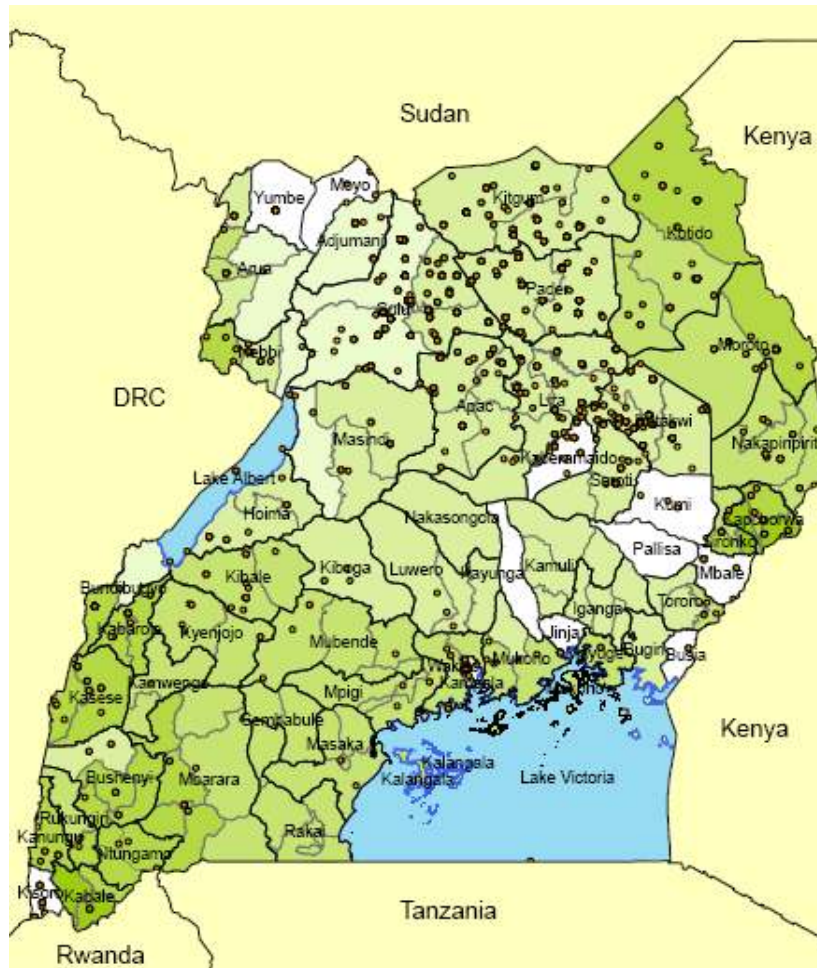


Figure 2: Map of Uganda (red dots=conflict events, darker green=higher altitude). Source: ACLED

3.2 Empirical Strategy

We consider the following benchmark econometric model:

$$\Pr(TRUST_{i,c}^{08} = 1) = \Phi [\alpha_0 + \alpha_1 FIGHTING_c^{00-08} + \alpha_2 TRUST_d^{00} + \mathbf{X}'_i \boldsymbol{\beta} + \mathbf{Z}'_d \boldsymbol{\gamma} + u_{i,c}], \quad (1)$$

where i denotes an individual, c a county, d a district. A county is a sub-unit of a district. We have information about the county where each individual lives.

The dependent variable, $TRUST_{i,c}^{08}$, is the individual measure of trust in year 2008 coming from the Afrobarometer survey. This binary measure will vary across different specifications as explained below. In addition to a Probit model, we also estimate a Linear Probability model (OLS) for which standard statistical tests are available in presence of instrumental variables. Therefore, in equation (1), the functional $\Phi(\cdot)$ is the cdf of a standard normal distribution (in Probit model) or the identity function (in OLS). $FIGHTING_c^{00-08}$ is the main explanatory variable, measuring the number of fighting events occurring between the two waves of the Afrobarometer of 2000 and 2008 at the county-level. In alternative specifications we consider a measure of fighting aggregated at the district-level. As robustness check we also consider alternative forms of violence such as the number of episodes involving violence against civilians, battlefield fighting and number of people who were forced into refugee camps. \mathbf{X}_i is a vector of individual sociodemographic controls including age, education, employment status, gender, rural/urban location, and ownership of TV. \mathbf{Z}_d is a vector of district-level controls including population, urbanization rate, demographic structure, ethnic fractionalization, share of manufacture and share of subsistence farming. $TRUST_d^{00}$ is a particular control which is singled out because it plays an especially important role in our identification strategy. It measures the district-level average trust in year 2000. Hence, equation (1) is akin to a model in first difference in trust. Note that, since Afrobarometer is a panel at the district-level and a repeated cross-section at the individual level, it is possible to filter out past trust in year 2000 only at the district-level. A consequence of this identification strategy is that we must allow for intracluster correlation of the error terms $u_{i,c}$ within each county (or district, depending on the specification).

The main coefficient of interest is α_1 capturing the effect of county-level fighting on trust. In order for this coefficient to be estimated consistently, we must address two issues. First, there can be reverse causality: the intensity of fighting may be determined by the local average trust. Even though we measure trust at the end of the 2000-08 period, serial correlation in this variable could still lead to reverse causation. Second, omitted variables correlated with $FIGHTING_c^{00-08}$ might bias the estimate of α_1 . We address the endogeneity bias issue by an instrumental variable strategy. In particular, we instrument $FIGHTING_c^{00-08}$ by a set of county-level geographic characteristics $\{G\}$ that are correlated with the fighting intensity, while having plausibly no direct effect on trust. We focus in particular on the "distance to Sudan" and the "Maximum elevation".

Distance from Sudan is a natural instrument, since Southern Sudan played a crucial role in the 2002-04 military escalation. In particular, before 2001 it used to be a safe heaven for rebel movements – most notably the Lord’s Resistance Army. However, the events following September 11 forced the

Sudanese government to withdraw its support to the LRA and to let the Ugandan army attack the LRA bases in Sudanese territory. This triggered the response of the LRA with repeated incursions, looting and engagements with the army within the Ugandan territory.²⁰

Maximum elevation is also a natural factor affecting fighting. Collier, Hoeffler, and Rohner (2009) have shown that countries with a larger proportion of mountainous terrain tend to be more likely to experience civil wars. They argue that this is because rebels benefit from hiding in rough terrain. Hence, in a setting of classic guerrilla warfare like in Uganda, where clear frontlines and an open battlefield are lacking, we expect fighting to be most intense in areas close to the rebels' hiding grounds.

It is important to discuss the validity of the exclusion restrictions. These would be violated if the error term $u_{i,c}$ were correlated with either of the instruments. In this respect, it is crucial that the set of control variables includes the local average trust in 2000. $TRUST_d^{00}$ filters out the long-run correlation between $\{G\}$ and potential omitted factors. For instance, if regions neighboring Sudan were less inclined to trust and cooperation, due to unobserved historical or cultural factors, such factors might have a direct effect on $TRUST_d^{08}$. However, they would as well affect $TRUST_d^{00}$, and as long as their influence has not changed after 2000 (other than through fighting), the instruments would be uncorrelated with the omitted variables conditional on the observables – which include $TRUST_d^{00}$. To the opposite, problems would arise if $u_{i,c}$ included time varying shocks that are correlated with the geographical variables (see section 4.6 below). Note that proxies of income are included in the set of individual control variables, limiting the concern that trust might be affected indirectly through income.

Another potential concern relates to conflict-induced migration: some people may live in 2008 in different counties from those where they used to live at the time of conflict. However, this concern appears to be of limited importance in Uganda. First, although there has been massive forced displacement of population during the conflict, most of it took place within counties: people were forced to move from rural areas to so-called “protected villages” established mostly in local trading centers (UNOCHA 2002, Médecins sans frontières 2004). As a result, cross-county internal migration is altogether modest over the period. Given that our main explanatory variable is also defined at the county-level, the results are unlikely be contaminated by cross-county conflict-induced migration. Second, by 2008 the majority of displaced people had returned to their home villages (see UN 2009; UNHCR 2010). The concern is more severe in 2005, when the number of people living in refugee camps peaked at 1.8 millions; for this reason we do not use the information in Afrobarometer 2005.

²⁰If we had a longer span of data and a full dynamic model, the instrument would be the interaction between September 11 and "distance to Sudan". Note that "distance to Sudan" could have a direct permanent effect on trust (if, e.g., Acholi people trust less the Kampala government than people in the rest of Uganda). However, this effect is filtered out by $TRUST_d^{00}$. See the discussion below.

4 Results

Table 1 presents the main results of our benchmark estimation. The dependent variable is *Generalized trust* in 2008. This is coded according to the answer to the question "How much do you trust other Ugandans?" (question Q84C in Afrobarometer 2008). All specifications control for individual sociodemographic variables, including age, education, employment status, gender, rural or urban residence, ownership of a television, and district characteristics, including past average measures (from the 2000 Afrobarometer) of generalized trust, trust in other groups, trust in people from the same group, and ethnic identity, as well as population, urbanization, demographic structure, ethnic fractionalization, share of manufacture, and share of subsistence farming.²¹ In all specifications (robust) standard errors are clustered at the county level. Column (1) reports the marginal effects from a Probit regression of *Generalized trust* on *All fighting*. The estimated marginal effect is negative (-1.8) and highly significant: people living in counties experiencing a large number of fighting became on average less trustful towards other Ugandans relative to year 2000.²² In column (2) we report the results of the same specification as in column (1) using a OLS regression from a linear probability model. The coefficient of *All fighting* is very similar to the marginal effect of the Probit model (-1.9). Columns (3)–(7) report the results from IV regressions (using two-stage least square, TSLS) in the linear probability model. In Appendix A in Table 13 we report the results of the same set of regressions using IV-Probit, which are very similar. The coefficient of *All fighting* in the IV regression is -4.2 (Column 3) and it is more than twice as large in absolute value as its OLS counterpart, and remains statistically significant. Including a survey measure from the Afrobarometer of the individual perception of violence (*Insecure*) does not alter the results significantly (see column (4)).²³ The result is also robust to alternative county-level measures of violence, including the number of episodes of violence against civilians (column (5)), battles (column (6)), and internally displaced people (*IDP*, column (7)).²⁴ On the contrary, the result does not hold up to a measure counting the number of riots, which are likely to be less associated with ethnic conflicts. In Appendix A in Table 14 we show that the results of Table 1 continue to hold when the generalized trust variable is not coded as a dummy, but left at an ordinal scale, and when Ordered Probit regressions are run.

²¹These control variables are included in all specifications in this section. Unfortunately, the questions of the 2000 and 2008 waves are not identical. A detailed discussion of all variables can be found in Appendix B.

²²There is high persistence in trust at the district level: the marginal effect of the district-level measure of generalized trust in 2000 is close to unity in all regressions of Table 11 (coefficient not shown in the table).

²³The measure is based on the individual answers to the question "Over the past year, how often, if ever, have you or anyone in your family: Been physically attacked?". We do not focus on this individual measure of insecurity, because it suffers from the potential selection into victimization issue discussed by Bellows and Miguel (2009). Although we control for a number of observable individual characteristics, it is likely to be correlated with unobservable socio-economic or cultural variables. Yet, it is interesting that the result is robust to controlling for the individual perception of insecurity, as one might worry about people with selected characteristics driving individual insecurity being oversampled in some districts.

²⁴We include IDP for two reasons: First, they are a proxy of fighting intensity. Second, forced displacements can be themselves viewed as a deliberate military strategy in conflict (cf. Esteban, Morelli and Rohner 2011). Indeed, some authors see the protected villages for IDP in Uganda as part of an aggressive military strategy pursued by the Museveni government to control and oppress the civilian population in the North (Finnström 2008; Dolan 2009).

Our IV results of Table 1 suggest that fighting events have a causal effect on social capital. Following Altonji, Elder, and Taber (2005), we performed a robustness check aimed to gauge how severe the omitted variable bias should be in order for the effect of fighting to be fully driven by unobserved characteristics. This procedure – used (among others) by recent papers of Bellows and Miguel (2009) and Nunn and Wantchekon (2011) – assesses the attenuation in the coefficient of fighting when additional observable characteristics are included. The smaller the attenuation, the less the estimate is affected by selection on observables, and the larger the selection on unobservables should be in order to explain the entire effect of fighting. In our case, the coefficient of *All fighting* in the OLS specification including the full set of observables (individual sociodemographics and district-level characteristics) is estimated to be -1.9 (see column (2) in Table 1). In an unreported regression where the set of controls is restricted to the four variables measuring past trust in 2000, this point estimate is equal to -1.0. The absence of attenuation in the coefficient of fighting when a richer set of controls is included provides additional evidence that the result is unlikely to be fully driven by omitted variables. However the power of this robustness test depends on the explanatory power of the observable characteristics that are included. In our case, only six out of sixteen control variables are significant at the 5% level and their inclusion increases the R-squared from 0.09 to 0.11.

Table 11 in the Appendix reports the results for the same set of regressions than table 1 when fighting is measured at the district rather than at the county level. The results are robust: all coefficients remain highly significant, although the coefficients of *All fighting* are smaller. We interpret the difference in the size of coefficients as due to the different size of geographical units and to informational frictions. Since our fighting variable codes even minor events, people are probably better informed of events occurring close to their place of residence. Therefore, an additional event occurring in a county is likely to trigger a stronger response from people living in the same county than an event happening farther away in the same district.

4.1 First stage regression

Panel (a) of Table 2 reports the coefficients of the excluded instruments in the first-stage regressions in Table 1 (columns 1-5). In all cases the IV coefficients are highly significant with the expected sign. Robust (Kleibergen-Paap) F-statistics accounting for clustered residuals are large, although they are in three cases below the conventional "safety threshold" ($F=10$) to exclude weak instrument bias.²⁵ All first stage regressions pass the Hansen overidentification test.

We address the potential concern with a weak instrument bias by performing a number of diagnostics, following the procedure suggested by Angrist and Pischke (2009: 212-13). Panel (b) of Table 2 reports the coefficient of *All fighting* in the second stage regression, along with a number of statistics of the first-stage regressions from a variety of specifications and estimation techniques. Column (1),

²⁵It is important to recall here that the standard Stock-Yogo critical values to exclude weak instruments are constructed for the case of i.i.d. residuals, and that they do not apply to the case of clustered standard errors (see, e.g., Bun and de Haan, 2010). Therefore, the F-statistics provides no precise diagnostic of the weak instrument problem.

Dependent variable: Generalized Trust in 2008							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All fighting	-1.79*** (0.43)	-1.89*** (0.39)	-4.24*** (1.54)	-4.00*** (1.51)			
Insecure				-0.06** (0.02)			
Violence Civil.					-11.35*** (3.95)		
Battles						-6.10*** (2.26)	
IDP							-0.67*** (0.19)
Method	Probit	OLS	2SLS	2SLS	2SLS	2SLS	2SLS
Observations	2259	2259	2259	2259	2259	2259	2259
Pseudo R-squared	0.088	0.109	0.085	0.092	0.075	0.090	0.102

Note: Standard errors in parenthesis (robust, clustered at county level). Significance levels * p<0.1, ** p<0.05, *** p<0.01. All specifications control for unreported individual sociodemographics (Age, Education, Employed, Gender, Rural, Own TV), and districts characteristics (Past Generalized Trust, Past Trust in Own Group, Past Ethnic Identity, Population, Urban, Demographic Structure, Ethnic Fractionalization, Share of Manufacture, Share of Subsistence Farming).

Table 1: The Effect of Fighting on Generalized Trust.

reported for comparison, yields the same specification as column (1) in Panel (a). Column (2) shows how the results would change if only the most powerful instruments, *Distance from Sudan*, were retained, and the second instrument, *Maximum elevation*, were dropped. The estimated coefficient of *All fighting* remains significant at the 95% confidence level, while the F-statistics increases to 15.8, safely above the standard thresholds. Next, in column (3) we use a LIML estimator instead of TSLS. This estimator is less efficient than TSLS but less subject to bias when instruments are weak. The fact that the results are almost identical to column (1) suggests that there is no significant bias due to weak instruments. In column (4), we run a reduced-form regression. The coefficients of the two excluded instruments have the expected sign and are highly significant, which is again reassuring. Finally, in columns (5)-(6) we report the result of a specification where we collapse all variables to the county level. The results are similar to the benchmark specification using individual level variables. In this specification, standard errors are not clustered, allowing us to compute standard Cragg-Donald Wald F-statistics for i.i.d. residuals which can be compared to the Stock-Yogo bounds. We obtain F=9.1 (only marginally below the level of 10) in the case in which both instruments are retained and F=13.2 for the case with only one instrument. We conclude from this analysis that our analysis is not subject to a weak instrument problem. Although the evidence concerning the instrument *Maximum elevation* is somewhat less solid, this is no severe concern, since all results are robust to the just-identified specification with only one instrument.

Figure 3 provides some informal evidence about the plausibility of the exclusion restriction. The

Panel A

Dep. var:	All fight.	All fight.	Viol. Civ.	Battles	IDP
	(1)	(2)	(3)	(4)	(5)
Dist. from Sudan	-0.11*** (0.02)	-0.11*** (0.02)	-0.05*** (0.01)	-0.06*** (0.02)	-0.86*** (0.12)
Max. elevation	0.02** (0.01)	0.02** (0.01)	0.00* (0.00)	0.01*** (0.00)	0.07*** (0.02)
Method	OLS	OLS	OLS	OLS	OLS
Observations	2259	2259	2259	2259	2259
R-squared	0.646	0.646	0.591	0.546	0.614
Hansen J stat: (p-value)	0.60	0.59	0.70	0.30	0.43
F stat. (Kleibergen-Paap)	8.89	8.55	13.53	6.54	24.23

Note: Standard errors in parenthesis (robust, clustered at the county level). Significance levels * p<0.1, ** p<0.05, *** p<0.01.

Panel B

Dep.var:	Generalized Trust in 2008 (Second stage)					
	(1)	(2)	(3)	(4)	(5)	(6)
All fighting	-4.24*** (1.54)	-5.07** (2.08)	-4.24*** (1.55)		-5.12*** (1.59)	-4.27** (1.83)
Dist. from Sudan				0.52*** (0.20)		
Max. elevation				-0.06*** (0.02)		
Method	2SLS	2SLS	2SLS (LIML)	OLS	2SLS	2SLS
Instruments	Sudan, elev.	Sudan	Sudan, elev.	n/a	Sudan, elev.	Sudan
Observations	2259	2259	2259	2259	117	117
R-squared	0.085	0.064	0.084	0.109	0.416	0.467
Hansen J stat (p-value)	0.60	n/a	0.60	n/a	0.43	n/a
F stat. (Kleibergen-Paap)	8.886	15.771	8.886	n/a	n/a	n/a
F stat. (Cragg-Donald)	n/a	n/a	n/a	n/a	9.084	13.211

Note: Standard errors in parenthesis (robust, clustered at county level). Significance levels * p<0.1, ** p<0.05, *** p<0.01.

Table 2: First Stage of Benchmark Regressions (Panel A) and Robustness IV (Panel B).

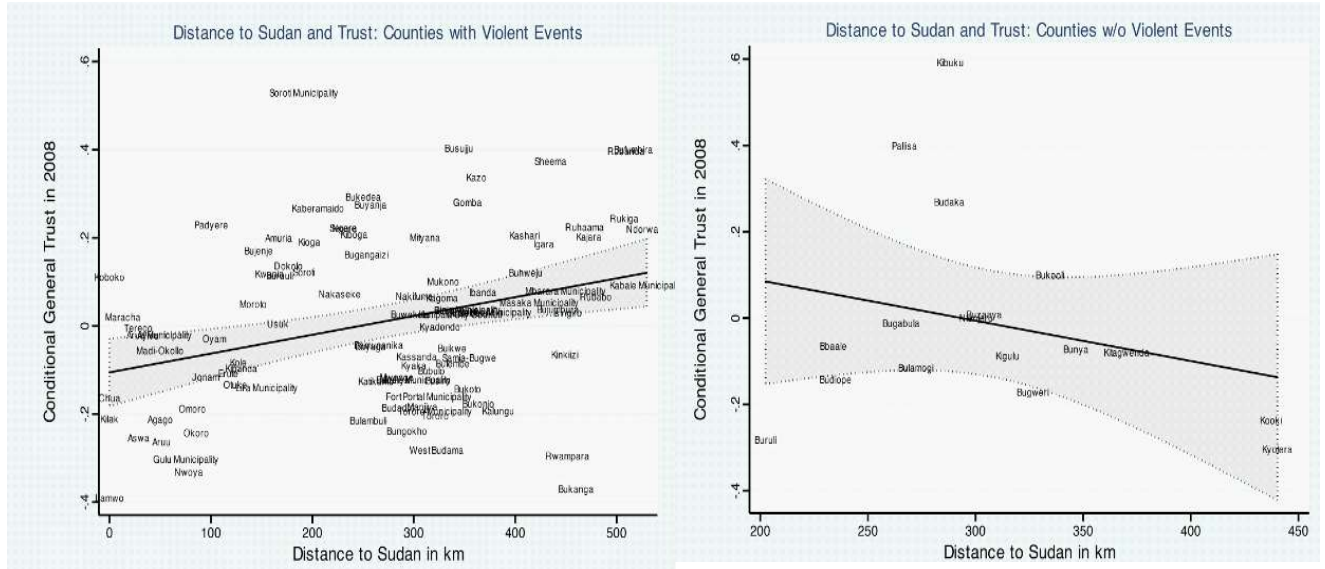


Figure 3: Distance to Sudan and Trust

first panel considers counties characterized by a positive number of fighting episodes, while the second panel considers counties in which no fighting occurred. Each figure plots on the horizontal axes the distance from Sudan, and on the vertical axes the county-level average of generalized trust filtered by the set of control variables. Remarkably, the relationship is positive and highly significant across counties experiencing violence, while it is insignificant across those experiencing no violence. While this is by no means a formal test of the validity of our exclusion restriction, this falsification analysis is an interesting observation.

4.2 Quantitative effects

The magnitude of the estimated effects is large.²⁶ The dependent variable, *Generalized trust* in 2008, has a sample mean equal to 0.31 with a standard deviation of 0.46. *All fighting* ranges between 0 and 227 violent events with a standard deviation of 45 events. In table 11, an estimated coefficient of -4.24 in the TSLS means that a one-standard-deviation increase in *All fighting* (i.e., 45 additional episodes of violence) translates into a 41% standard deviation decrease in generalized trust (i.e., a decrease in generalized trust of approximately 20 percentage points). With the more conservative OLS estimate we get that a one-standard-deviation increase in *All fighting* leads to a 18% standard deviation decrease in generalized trust; the "maximum" effect between counties with no violence and the county with the highest violence corresponds to a 43 percentage points decrease in trust towards other Ugandans. This is a very large effect, and is in the order of magnitude of the difference between

²⁶In all the tables, the fighting variables have been rescaled by a factor 10^3 in order to improve readability of their estimated coefficients.

Dependent variable: Trust in Known People in 2008							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All fighting	-1.62*** (0.35)	-1.65*** (0.36)	-2.94** (1.22)	-2.59** (1.16)			
Insecure				-0.08*** (0.03)			
Violence Civil.					-6.42* (3.33)		
Battles						-4.67*** (1.78)	
IDP							-0.35* (0.19)
Method	Probit	OLS	2SLS	2SLS	2SLS	2SLS	2SLS
Observations	2257	2257	2257	2257	2257	2257	2257
Pseudo R-squared	0.048	0.064	0.058	0.065	0.056	0.057	0.065

Note: Standard errors in parenthesis (robust, clustered at county level). Significance levels * p<0.1, ** p<0.05, *** p<0.01. All specifications control for unreported individual sociodemographics (Age, Education, Employed, Gender, Rural, Own TV), and districts characteristics (Past Generalized Trust, Past Trust in Own Group, Past Ethnic Identity, Population, Urban, Demographic Structure, Ethnic Fractionalization, Share of Manufacture, Share of Subsistence Farming).

Table 3: Trust in Known People.

Netherlands (0.48), the eighth most trusting country in world, and the three countries with the lowest trust levels (Peru (0.05), Brazil (0.05); Philippines (0.06)).²⁷ The quantitative effects are similar when alternative measures of violence are considered.

4.3 Other dimensions of trust

Table 3 is the analogue of Table 1 when the dependent variable is replaced by *Trust in known people*. This variable is based on the answer to the question "How much do you trust other people you know?" (Afrobarometer 2008, question Q84B). The estimated effects of violence are significantly smaller than in the case of *Generalized trust*, although they remain statistically significant.

In Table 4, the dependent variable is *Trust in relatives* in 2008, which is based on the answer to the question "How much do you trust your relatives?" (Afrobarometer 2008, question Q84A). In this case, the effects are even smaller and become insignificant in the TSLS regressions. This finding is partially different from Nunn and Wantchekon (2011), who find that a past history of enslavement has a negative effect on all dimension of trust, including trust in relatives. This suggests that the effect of local ethnic conflicts is less pervasive and mostly confined to the inter-ethnic dimension.

²⁷These figures correspond to the average percentage of respondents answering "Most people can be trusted" to the World Values Survey Question A165 "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?". We use the average scores over the first three waves of the World Values

Dependent variable: Trust in Relatives in 2008							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All fighting	-0.84***	-0.85**	-0.49	-0.29			
	(0.31)	(0.33)	(0.95)	(0.99)			
Insecure				-0.05**			
				(0.02)			
Violence Civil.					-1.05		
					(2.31)		
Battles						-0.79	
						(1.46)	
IDP							-0.06
							(0.13)
Method	Probit	OLS	2SLS	2SLS	2SLS	2SLS	2SLS
Observations	2264	2264	2264	2264	2264	2264	2264
Pseudo R-squared	0.043	0.042	0.041	0.042	0.040	0.041	0.038

Note: Standard errors in parenthesis (robust, clustered at county level). Significance levels * p<0.1, ** p<0.05, *** p<0.01. All specifications control for unreported individual sociodemographics (Age, Education, Employed, Gender, Rural, Own TV), and districts characteristics (Past Generalized Trust, Past Trust in Own Group, Past Ethnic Identity, Population, Urban, Demographic Structure, Ethnic Fractionalization, Share of Manufacture, Share of Subsistence Farming).

Table 4: Trust in Relatives.

4.4 Ethnic identity

To corroborate this view further, we replace trust by a measure of *Ethnic identity*, based on the answer to the question "Let us suppose that you had to choose between being a Ugandan and being a _ [R's Ethnic Group]. Which of the following best expresses your feelings?" (Afrobarometer 2008, question Q83). Results are reported in Table 5. The estimated coefficient of interest is in all cases positive and significant.²⁸ In the TSLS regression, a one standard deviation increase in *All fighting* translates into a 34% standard deviation increase in ethnic identity (i.e. 13.8 percentage point). The estimated effect between the least and most conflictive districts is a 68.1 percentage points increase in ethnic identity. The quantitative effects are similar when alternative measures of violence are considered. The results are robust to running all regressions at the district, as opposed to the county level.

The first-stage regressions yield similar results to those discussed above for the case of generalized trust (see Appendix, Table 10). Concerning the falsification test, the two panels in Figure 4 show that the distance from Sudan is negatively correlated with the ethnic identity (conditional on the set of control variables) across districts experiencing violence, whereas the relationship is insignificant across

Survey.

²⁸We repeated the test of Altonji, Elder, and Taber (2005) with ethnic identity as a dependent variable. The point estimate of "All fighting" is 0.34 when the (restricted) set of controls is included, while it is equal to 0.73 when the full set of controls is included.

Dependent variable: Ethnic Identity in 2008							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All fighting	0.64** (0.32)	0.73** (0.35)	3.00** (1.27)	2.71** (1.18)			
Insecure				0.07*** (0.02)			
Violence Civil.					8.56*** (3.07)		
Battles						4.16** (1.90)	
IDP							0.51*** (0.14)
Method	Probit	OLS	2SLS	2SLS	2SLS	2SLS	2SLS
Observations	2266	2266	2266	2266	2266	2266	2266
Pseudo R-squared	0.031	0.032	0.001	0.013	0.00	0.009	0.013

Note: Standard errors in parenthesis (robust, clustered at county level). Significance levels * p<0.1, ** p<0.05, *** p<0.01. All specifications control for unreported individual sociodemographics (Age, Education, Employed, Gender, Rural, Own TV), and districts characteristics (Past Generalized Trust, Past Trust in Own Group, Past Ethnic Identity, Population, Urban, Demographic Structure, Ethnic Fractionalization, Share of Manufacture, Share of Subsistence Farming).

Table 5: Ethnic Identity.

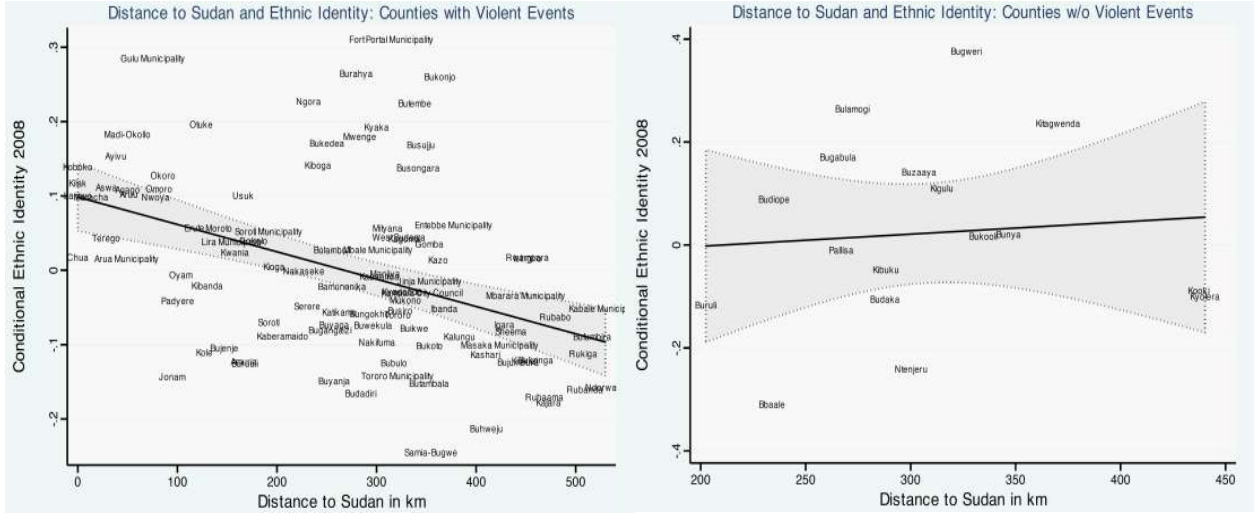


Figure 4: Distance to Sudan and Ethnic Identity

districts experiencing no violence. Similarly to the case of trust, distance to Sudan appears to have an effect on ethnic identity only in the subsample of districts exposed to some fighting.

Finally, we note that in all the regressions discussed in this section the (unreported) coefficient of ethnic fractionalization does not appear to have a significant effect on trust or ethnic identity in 2008. This is not surprising, since there is little time variation in fractionalization, and any time invariant effect has been filtered out through controlling for measures of trust in 2000. More interesting, one could expect heterogeneous effects on trust depending on the extent of fractionalization. Consistent with such an hypothesis, when we split the sample between the most fractionalized quartile and the three least fractionalized quartiles (which is a sensible threshold, since most districts have zero fractionalization), it appears as if trust and ethnic identity are significantly more affected in high-fractionalization districts. However, the result is not robust: an OLS specification with an interaction yields an insignificant coefficient.

Table 12 in the Appendix A shows that the results on ethnic identity carry over if the analysis is performed at the district rather than county level.

4.5 Excluding Acholiland

The previous results are not entirely driven by Acholiland, the troubled region in the North where most of the fighting between the government and the LRA took place. Here we focus on the robustness of our benchmark TSLS estimates and restrict attention to the dependent variables *Generalized trust* (Column 3 in Table 11) and *Ethnic identity* (Column 3 in Table 5). The results are reported in the Appendix Table 9. Columns (1)-(4) refer to the regression for *Generalized trust*. In column (1) we add a dummy coding for all counties in districts classified as Acholi by the Geo-Referenced Ethnic

Group (GREG) dataset (Weidmann, Rød and Cederman 2010).²⁹ The dummy is insignificant and our coefficient of interest is close to its benchmark estimate. In column (2) we add a dummy variable coding for all districts classified as Acholi by the Ethnologue (ETHNO) definition of Acholiland (Lewis (ed.) 2009). The dummy is again insignificant and the coefficient of interest is stable. In column (3) we remove from the sample the districts classified as Acholi by GREG, and in column (4) we remove from the sample the districts classified as Acholi by ETHNO. In neither case are the results significantly different from the benchmark specification of Table 1. In columns (5)-(8) we perform the corresponding analysis for *Ethnic identity* (Table 5). The results are again fully robust.

4.6 Within-County Ethnic Violence

In the previous sections, we have shown that violence across Ugandan counties is negatively associated with changes in trust towards other Ugandans, and positively associated with changes in ethnic identity. In this section, we propose an alternative econometric specification addressing two related issues. First, we would like to cast more light on the mechanism linking violence to trust. The evidence presented so far could be driven by the mere exposure to conflict and violence. However, some theories including our earlier work in Rohner, Thoenig and Zilibotti (2011) link the effect of war on social capital hinges to inter-ethnic relationships. According to this view, people’s beliefs should respond to violence targeting their own ethnic group rather (or more) than to generic violence occurring within their own county. Second, the cross-county identification is subject to a *caveat*. Counties might be subject to unobservable shocks correlated with both a high incidence of conflict and low trust. For example, the government might have reduced during the period under consideration transfers or public goods to districts (or counties) populated by hostile ethnic groups. Unfortunately, we have no direct measure of such policies.

To make progress in this direction, we exploit *spatial* \times *ethnic* variations in violence. We use the information provided by ACLED about the nature of each conflict event. Each episode is classified as involving specific rebel groups or ethnic militias, civilians, or the Ugandan army. Many rebel groups have a main ethnic affiliation, e.g. events involving the LRA can be linked to the Acholi group. Therefore, we can associate most events with one or more ethnic groups involved, as well as with the counties where they occurred.³⁰ Having constructed such a variable, we identify the effect of violence on trust and ethnic identity out of the within-county variation in the number of events involving different ethnic groups, after controlling for both county and ethnic group fixed effects.

To begin with, column (1) of Table 6 we replicate the Logit specification of Column (1) in Table 1 after splitting the variable *All fighting* at the county-level into events involving (i.e. $Fight(Tr, Cou)$) and not involving (i.e. $Fight(OtherTr, Cou)$) the respondent’s ethnic group. The coefficient of $Fight(Tr, Cou)$

²⁹In particular, this dummy codes as one all counties where Acholis are the largest ethnic group everywhere in the territory according to GREG.

³⁰We have followed a conservative matching strategy, only linking events that can be attributed with a very high confidence to particular groups. The results are very similar when a more aggressive matching strategy is used, or when particular rebel groups are removed. The matching table is available from the authors upon publication.

Dep. var.:	Gen. Trust	Gen. Trust	Gen. Trust	Identity	Identity	Identity
	(1)	(2)	(3)	(4)	(5)	(6)
Fight(OtherTr,Cou)	-1.20*			0.25		
	(0.68)			(0.56)		
Fight(Tr,Cou)	-1.91***			0.70**		
	(0.49)			(0.31)		
Fight(Tr)*Fight(Cou)		-0.38	-0.47		1.76*	1.73**
		(0.67)	(0.69)		(0.95)	(0.86)
Fight(Tr)*Radio			-0.08**			0.07*
			(0.04)			(0.04)
Own Radio			0.02			0.02
			(0.02)			(0.03)
Method	Probit	Probit	Probit	Probit	Probit	Probit
Fixed Effects	No	County, Tribe	County, Tribe	No	County, Tribe	County, Tribe
Observations	2259	2358	2357	2266	2290	2289
R-squared	0.088	0.195	0.197	0.031	0.107	0.110

Note: Standard errors in parenthesis (robust, clustered at county level). Significance levels * p<0.1, ** p<0.05, *** p<0.01. All specifications control for unreported individual sociodemographics (Age, Education, Employed, Gender, Rural, Own TV), and columns (1) and (4) for districts characteristics (Past Generalized Trust, Past Trust in Own Group, Past Ethnic Identity, Population, Urban, Demographic Structure, Ethnic Fractionalization, Share of Manufacture, Share of Subsistence Farming).

Table 6: Ethnic Fighting, Generalized Trust and Identity.

is larger in absolute value than the coefficient of $Fight(OtherTr, Cou)$ and their difference is statistically significant. Column (4) reports the coefficient for the same regression where the dependent is *Ethnic identity* (cf. Table 5). The qualitative results are similar. These regressions show that fighting events linked to a respondent’s own ethnic group have a stronger effect on *Generalized trust* and *Ethnic identity* than have fighting events involving other ethnic groups.

Next, we consider a more demanding econometric specification including both county (FE_c) and ethnic (FE_e) fixed effect:

$$\Pr(TRUST_{i,c,e}^{08} = 1) = \Phi [\alpha_0 + FE_c + FE_e + \alpha_1 (FIGHT_c^{00-08} \times FIGHT_e^{00-08}) + \mathbf{X}'_i \boldsymbol{\beta} + u_{i,c,e}]. \quad (2)$$

In this specification (where e stands for ethnic group), the main explanatory variable is an interaction term taking on the value one whenever a fighting occurs in the county of which the respondent is resident *and* involves the ethnic group of the respondent. In this specification, all district-level controls are absorbed by the county fixed effects. The set of individual controls \mathbf{X}_i is the same as before.³¹ The main results are presented in column (2) (for *Generalized trust*) and column (5) (for *Ethnic identity*). The point estimate of the interaction effects are, as expected, negative (-0.4) and positive (1.8), respectively, but the coefficient is statistically significant (at the 10% level) only in the regression for *Ethnic identity*. In columns (3) and (6), we consider the effect of exposure to news of ethnic violence anywhere in Uganda. To this aim, we include an interaction between the ownership of a radio (a binary variable included in all specifications) and the number of fighting at the Ugandan national level involving the respondent’s group. As expected the interaction coefficient is negative and significant (-0.08) in the case of *Generalized trust*, and positive and significant (0.07) in the case of *Ethnic identity*. People owning a radio are more responsive to the news of violence involving their own ethnic group anywhere in Uganda.³² Note also that in this specification the coefficient of α_1 is significant at the 95% level in the case of *Ethnic identity*.

In conclusion, this section shows that the ethnic channel plays a crucial role in driving the effects of violence on social capital. Since all results are robust to controlling for *Insecurity*, the results do not appear to be driven by members of specific groups feeling subject to stronger personal threat. Moreover, the within-county results show that the increase in ethnic identity is not driven by target government policies, i.e., by the government spending less on hostile districts or counties. *A caveat*

³¹We do not include among the control the self-reported insecurity measure, due to its likely endogeneity. However, all results are robust to its inclusion.

³²We interpret this result as an interesting correlation. There is a growing literature studying politico-economic effects of mass media (see Strömberg 2004 for a seminal contribution). Recent applications to ethnic conflict include Della Vigna et al. (2011), and Yanagizawa (2010), focusing respectively on partisan radio broadcasting in the Serbo-Croatian and Rwandan conflicts. These papers show that an exogenous increase in the exposure to radical news affects people’s attitude about ongoing conflicts. In this paper, we do not try to identify exogenous variation in the exposure to radio broadcasting. Thus, the effect identified by our regression could reflect some self-selection of individuals in the decision of owning a radio.

is that we cannot instrument the within-county variation in events involving different ethnic groups. Yet, we believe the two strategies discussed in the sections above to provide evidence of a causal effect of ethnic conflict of different dimensions of social capital.

5 The Heterogenous Effects of Conflict on Economic Activity

In this section we study the effect of violence on economic outcomes and living standards. Ideally, we would like to use county- or district-level GDP statistics, but this is not available in Uganda. We use two alternative proxies. First, we code a dummy variable using the responses to the Afrobarometer 2008 question about individual living conditions. We set the variable equal to one whenever the survey respondent declares his living conditions to be either good or very good. We set it to zero when he declares them to be either bad or very bad. The main problem of this variable is that it reflects subjective assessments that may be affected by non-economic components of well-being. Second, we use Satellite Nightlight Data from the National Oceanic and Atmospheric Administration (2010). The raw data is produced by meteorologic satellites that measure light intensity during night. These data have been used in recent research as a proxy for economic activity (cf. for example Henderson, Storeygard, and Weil 2011, and Hodler and Raschky 2011). The exact data construction is detailed in the Data Appendix.

The focal point of our analysis is the extent to which the effect of violence is heterogenous across counties characterized by different ethnic fractionalization. In particular, our hypothesis is that if conflict destroys inter-ethnic trust, more fractionalized districts that depend more heavily on inter-ethnic business would suffer stronger and more persistent economic effects.

When the dependent variable is the individual self-declared measure of living condition, we estimate the following equation:

$$LIVING_COND_{i,c}^{08} = \Phi[\alpha_0 + \alpha_1 LIVING_COND_d^{00} + \alpha_2 FIGHTING_c^{00-08} + \alpha_3 FRAC_c + \alpha_4 FIGHTING_c^{00-08} \times FRAC_c + \mathbf{X}'_i \boldsymbol{\beta} + \mathbf{Z}'_d \boldsymbol{\gamma} + u_{i,c}]. \quad (3)$$

The main coefficient of interest is α_4 .

The results are reported in Table 7. Column (1) shows that neither the level of fighting nor the extent of fractionalization have an effect on average living conditions once past living conditions and other covariates (including individual trust) are controlled for. However, column (2) shows that there is a negative and significant interaction effect: Fighting affects living condition negatively in more fractionalized counties. The main effects are measured at a zero level of fractionalization. Therefore, the coefficient on *All fighting* (which is always insignificant) shows that violence has no economic effect in non-fractionalized districts. Columns (6)-(8) show that the results of column (2) carry over to all alternative measures of violence. The result is robust to using OLS instead of Probit (column (3)). Unfortunately, we face well-known difficulties in instrumenting the interaction terms. To make

Dependent variable: Living Conditions in 2008								
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Liv. cond. 2000	0.26** (0.13)	0.27** (0.13)	0.27** (0.13)	0.11 (0.25)	0.74*** (0.18)	0.21 (0.13)	0.30** (0.13)	0.21 (0.14)
All fighting	-0.57 (0.36)	-0.37 (0.33)	-0.37 (0.33)	-1.34 (1.42)	-14.31* (7.55)			
Ethnic frac.	-0.02 (0.09)	0.02 (0.09)	0.01 (0.09)	-0.17 (0.24)	-0.40 (0.28)	0.01 (0.10)	0.01 (0.09)	0.00 (0.10)
Fighting*Frac		-6.13* (3.63)	-5.86* (3.41)					
Civ. viol.						-1.87* (1.12)		
Civ.*Frac						-17.63* (9.01)		
Battles							-0.26 (0.44)	
Battles*Frac							-8.22* (4.57)	
IDP								-0.13* (0.08)
IDP*Frac								-0.88* (0.46)
Method	Probit	Probit	OLS	2SLS	2SLS	Probit	Probit	Probit
Sample	All	All	All	Low Frac.	High Frac.	All	All	All
Observations	2247	2247	2247	1691	556	2247	2247	2247
R-squared	0.043	0.044	0.060	0.065	0.100	0.047	0.043	0.047

Note: Standard errors in parenthesis (robust, clustered at county level). Significance levels * p<0.1, ** p<0.05, *** p<0.01. All specifications control for unreported individual sociodemographics (Age, Education, Employed, Gender, Rural, Own TV), and districts characteristics (Population, Urban, Demographic structure, Ethnic Fractionalization, Share of Manufacture, Share of subsistence Farming).

Table 7: Explaining Living Conditions in 2008.

progress in this direction, we followed Besley and Persson (2011) splitting the sample into high- and low-fractionalization counties and instrument separately in each regression the main effect. Since 47% of the counties have no fractionalization, and 75% have a measure of fractionalization below 23%, we decided to split the sample between the three lowest quartiles (low-fractionalization counties) and the highest quartile (high-fractionalization counties). The coefficient of interest are now those of *All fighting* in columns (4)–(5). Fighting generates a large and significant fall in living conditions in high-fractionalization counties (column (4)), whereas there is no significant effect in less fractionalized counties (column (4)).³³ The finding that violence that occurred mostly in 2002-2004, henceforth four-to-five years before data collection (in 2008), has a negative effect on economic outcomes in ethnically fractionalized counties is consistent with the view that conflict hinders economic cooperation in ethnically divided societies. The evidence suggests that the effects of violence on social capital may have weaker effects on economic cooperation when violence does not involve ethnic cleavages. Therefore, violence may have more persistent effects in ethnically divided areas.

In Table 8, we replace $LIVING_COND_i^{08}$ in equation (3) with $SAT_LIGHT_c^{08}$, a county-level average of satellite light which proxies for local GDP. We also replace $LIVING_COND_d^{00}$ with $SAT_LIGHT_c^{00}$. Interestingly, the satellite light data is significantly autocorrelated, showing that there is signal in the data. Since the dependent variable is at the county level, we drop all individual control variables. Also, we use a Tobit regressor since satellite light data are censored at zero. Column (1) in Table 8 is consistent with column (1) in Table 7. Neither *All fighting* nor *Ethnic Fractionalization* have a significant explanatory power in the regression. Column (2) shows that there is a strong and significant interaction effect, also consistent with Column (2) in Table 7. Columns (5)-(7) show that the result holds up to alternative measures of violence. In the columns (3) and (4) the sample is split into low- and high-fractionalization counties and IVTobit regressions are run. The coefficient of *All fighting* is ten times larger in high-fractionalization counties than in low-fractionalization counties, although both are statistically insignificant.

6 Conclusions

We have studied the effect of civil conflict on social capital, focusing on the experience of Uganda during the last decade. Using individual and county-level data, we document causal effects of an outburst of civil conflict in 2002-04, driven by an exogenous shock, on post-conflict trust and ethnic identity. We find that the extent of fighting has a strong and statistically significant negative impact on *Trust towards other Ugandans* between 2000 and 2008. The estimated effect is quantitatively large and robust to a number of control variables, alternative measures of violence and different statistical techniques. The effects on *Trust in relatives* is insignificant. On the contrary, people living in districts experiencing more violence report a strong increase in a measure of *Ethnic identity*, i.e.,

³³The smaller sample size in the split sample reduces the power of the first-stage regression, causing a concern with a weak-instrument problem. The Kleibergen-Paap F-stats for the two separate IV regressions are, respectively, 4.53 and 6.73.

Dependent variable: Satellite light in 2008							
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Sat.light (2000)	0.82*** (0.08)	0.83*** (0.09)	0.80*** (0.11)	0.92*** (0.09)	0.84*** (0.09)	0.83*** (0.09)	0.82*** (0.09)
All fighting	-0.59 (1.24)	-0.24 (1.26)	-2.17 (1.86)	-22.97 (18.41)			
Ethnic frac.	0.05 (0.13)	0.15 (0.12)	1.65 (1.85)	0.04 (0.65)	0.15 (0.12)	0.13 (0.13)	0.12 (0.13)
Fighting*Frac		-28.64** (14.06)					
Civ. viol.					-0.15 (2.92)		
Civ.*Frac					-69.44** (33.21)		
Battles						-0.25 (1.97)	
Battles*Frac						-43.91* (26.42)	
IDP							-0.04 (0.14)
IDP*Frac							-8.93** (3.98)
Method	Tobit	Tobit	IVTobit	IVTobit	Tobit	Tobit	Tobit
Sample	All	All	Low Frac.	High Frac.	All	All	All
Observations	125	125	75	43	125	125	125
Log Pseudolikelihood	-22.09	-19.77	137.28	140.74	-19.50	-20.41	-19.08

Note: Robust standard errors in parenthesis. Significance levels * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All specifications control for districts characteristics (Population, Urban, Demographic structure, Ethnic Fractionalization, Share of Manufacture, Share of subsistence Farming).

Table 8: Explaining Living Conditions in 2008 (Measured Using Satellite Light Data).

they identify themselves more strongly with their own ethnic group relative to alternative forms of national affiliation. Thus, conflict appears to strengthen within-ethnic group solidarity. This finding is consistent with the casual evidence that social capital is strengthened by external wars: countries acquire a stronger internal cohesion.

The results are robust to an instrumental variable strategy exploiting an external political shock that occurred in 2001. In addition, the findings about ethnic identity (and, to a lesser extent, those about generalized trust) are robust to a demanding identification strategy relying on the variation within each district in the ethnic violence involving different ethnic groups. This specification controls for both district and ethnic groups fixed effect. The importance of ethnic elements suggests that the destruction of social capital may not be a psychological response due to the mere experience of violence. Nor do the findings appear to be driven by fear or insecurity at the individual level, since these are controlled in some of our regressions.

We also study the economic effects of conflict. Few years after the conflict outburst, the intensity of fighting has a negative effect on the economic situation in highly fractionalized counties, but no effect in less fractionalized counties. We interpret this finding as consistent with recent theories emphasizing the negative effect of ethnic conflict on inter-ethnic economic cooperation and business links, that we studied from a theoretical perspective in a recent companion paper (Rohner, Thoenig and Zilibotti 2011). Our findings also suggest the existence of a self-reinforcing process between conflicts and ethnic cleavages.

We plan to extend the approach in this paper to the study of conflict in other African countries.

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Dep. var.:	Gen. Trust	Gen. Trust	Gen. Trust	Gen. Trust	Identity	Identity	Identity	Identity
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
All fighting	-4.58** (1.95)	-6.35** (2.56)	-6.85** (3.11)	-6.39** (2.58)	3.51** (1.71)	5.91*** (1.68)	7.01*** (2.69)	6.04*** (1.68)
AcholiLandGREG	0.07 (0.10)				-0.11 (0.08)			
AcholiLandETHNO		0.60 (0.40)				-0.77*** (0.28)		
Method	2SLS	2SLS	2SLS w/o	2SLS w/o	2SLS	2SLS	2SLS w/o	2SLS w/o
Sample	Full	Full	AchGREG	AchETHN	Full	Full	AchGREG	AchETHN
Observations	2259	2259	1973	2163	2266	2266	1980	2170
R-squared	0.078	0.062	0.091	0.087	0.00	0.00	0.00	0.00

Note: Standard errors in parenthesis (robust, clustered at county level). Significance levels * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All specifications control for unreported individual sociodemographics (Age, Education, Employed, Gender, Rural, Own TV), and districts characteristics (Past Generalized Trust, Past Trust in Own Group, Past Ethnic Identity, Population, Urban, Demographic Structure, Ethnic Fractionalization, Share of Manufacture, Share of Subsistence Farming).

Table 9: Robustness to removing Acholi regions

Appendix A: Additional Tables

Panel A

Dep. var:	All fight.	All fight.	Viol. Civ.	Battles	IDP
	(1)	(2)	(3)	(4)	(5)
Dist. from Sudan	-0.11*** (0.02)	-0.11*** (0.02)	-0.05*** (0.01)	-0.06*** (0.02)	-0.87*** (0.12)
Max. elevation	0.02** (0.01)	0.02** (0.01)	0.00* (0.00)	0.01*** (0.00)	0.07*** (0.02)
Method	OLS	OLS	OLS	OLS	OLS
Observations	2266	2266	2266	2266	2266
R-squared	0.647	0.647	0.591	0.546	0.614
Hansen J stat: (p-value)	0.18	0.15	0.77	0.03	0.96
F stat. (Kleibergen-Paap)	8.89	8.55	13.53	6.55	24.26

Note: Standard errors in parenthesis (robust, clustered at the county level). Significance levels * p<0.1, ** p<0.05, *** p<0.01.

Panel B

Dep.var:	Ethnic Identity in 2008 (Second stage)					
	(1)	(2)	(3)	(4)	(5)	(6)
All fighting	3.00** (1.27)	4.50*** (1.41)	3.02** (1.28)		4.11*** (1.25)	4.63*** (1.60)
Dist. from Sudan				-0.45*** (0.10)		
Max. elevation				0.04* (0.02)		
Method	2SLS	2SLS	2SLS (LIML)	OLS	2SLS	2SLS
Instruments	Sudan, elev.	Sudan	Sudan, elev.	n/a	Sudan, elev.	Sudan
Observations	2266	2266	2266	2266	117	117
R-squared	0.001	0.16	0.001	0.040	0.66	0.63
Hansen J stat (p-value)	0.18	n/a	0.18	n/a	0.54	n/a
F stat. (Kleibergen-Paap)	8.892	15.788	8.892	n/a	n/a	n/a
F stat. (Cragg-Donald)	n/a	n/a	n/a	n/a	9.084	13.211

Note: Standard errors in parenthesis (robust, clustered at county level). Significance levels * p<0.1, ** p<0.05, *** p<0.01.

Table 10: First Stage of Benchmark Regressions (Panel A) and Robustness IV (Panel B) for Identity.

Dependent variable: Generalized Trust in 2008							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All fighting	-0.70*** (0.13)	-0.70*** (0.14)	-1.36** (0.58)	-1.30** (0.57)			
Insecure				-0.05** (0.02)			
Violence Civil.					-2.64** (1.27)		
Battles						-2.49** (0.98)	
IDP							-0.66*** (0.24)
Method	Probit	OLS	2SLS	2SLS	2SLS	2SLS	2SLS
Observations	2259	2259	2259	2259	2259	2259	2259
Pseudo R-squared	0.091	0.112	0.095	0.100	0.096	0.090	0.103

Note: Standard errors in parenthesis (robust, clustered at district level). Significance levels * p<0.1, ** p<0.05, *** p<0.01. All specifications control for unreported individual sociodemographics (Age, Education, Employed, Gender, Rural, Own TV), and districts characteristics (Past Generalized Trust, Past Trust in Own Group, Past Ethnic Identity, Population, Urban, Demographic Structure, Ethnic Fractionalization, Share of Manufacture, Share of Subsistence Farming).

Table 11: The Effect of Fighting on Generalized Trust (District Level).

Dependent variable: Ethnic Identity in 2008							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All fighting	0.31*** (0.11)	0.36*** (0.11)	0.99*** (0.37)	0.92** (0.36)			
Insecure				0.06** (0.03)			
Violence Civil.					2.13*** (0.76)		
Battles						1.70** (0.67)	
IDP							0.46*** (0.15)
Method	Probit	OLS	2SLS	2SLS	2SLS	2SLS	2SLS
Observations	2266	2266	2266	2266	2266	2266	2266
Pseudo R-squared	0.034	0.035	0.015	0.023	0.020	0.011	0.019

Note: Standard errors in parenthesis (robust, clustered at district level). Significance levels * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All specifications control for unreported individual sociodemographics (Age, Education, Employed, Gender, Rural, Own TV), and districts characteristics (Past Generalized Trust, Past Trust in Own Group, Past Ethnic Identity, Population, Urban, Demographic Structure, Ethnic Fractionalization, Share of Manufacture, Share of Subsistence Farming).

Table 12: Ethnic Identity (District Level).

Dep. Var:	Trust gen.	Trust know.	Trust rel.	Identity
Model:	(1)	(2)	(3)	(4)
All fighting	-3.66*** (1.32)	-2.83*** (1.06)	-0.61 (1.00)	2.81** (1.19)
Method	IVProbit	IVProbit	IVProbit	IVProbit
Observations	2259	2257	2264	2266
Log Pseudolikelihood	3571.70	3372.15	3893.72	3763.03

Note: Standard errors in parenthesis (robust, clustered at county level). Significance levels * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All specifications control for unreported individual sociodemographics (Age, Education, Employed, Gender, Rural, Own TV), and districts characteristics (Past Generalized Trust, Past Trust in Own Group, Past Ethnic Identity, Population, Urban, Demographic Structure, Ethnic Fractionalization, Share of Manufacture, Share of Subsistence Farming).

Table 13: Robustness to using IVProbit.

Dep. Var:	Generalized trust in 2008 (ordinal scale)			
Model:	(1)	(2)	(3)	(4)
All fighting	-4.60*** (0.92)			
Viol. Civil.		-9.95*** (2.29)		
Battles			-7.46*** (1.51)	
IDP				-0.96*** (0.15)
Method	Ordered Probit	Ordered Probit	Ordered Probit	Ordered Probit
Observations	2259	2259	2259	2259
Pseudo R-sq.	0.050	0.048	0.051	0.053

Note: Standard errors in parenthesis (robust, clustered at county level). Significance levels * p<0.1, ** p<0.05, *** p<0.01. All specifications control for unreported individual sociodemographics (Age, Education, Employed, Gender, Rural, Own TV), and districts characteristics (Past Generalized Trust, Past Trust in Own Group, Past Ethnic Identity, Population, Urban, Demographic Structure, Ethnic Fractionalization, Share of Manufacture, Share of Subsistence Farming).

Table 14: Robustness to using Ordered Probit.

Variable	Obs	Mean	Std. Dev.	Min	Max
Trust variables:					
Trust generalized 2008	2424	.3180693	.4658226	0	1
Trust known people 2008	2422	.5396367	.4985294	0	1
Trust relatives 2008	2429	.8369699	.3694692	0	1
Ethnic identity 2008	2431	.2073221	.4054717	0	1
Trust generalized 2000	2279	.1553152	.1020895	0	.34375
Trust own group 2000	2279	.8197781	.1325227	.4722222	1
Trust in others 2000	2279	.7015967	.1357914	.3958333	.9375
Ethnic identity 2000	2279	0.1212459	0.0804707	0	0.3191489
Fighting variables (main specification):					
Fighting events	2431	21.3262	45.9608	0	227
Violence against civilians	2431	7.946935	16.83046	0	94
Battles	2431	9.881119	26.42823	0	141
IDP	2431	0.0993206	0.250148	0	0.9458593
Socio-demographic variables:					
Age	2421	33.70921	12.28614	18	81
Education	2431	.4960921	.5000876	0	1
Own TV	2428	.1214992	.3267738	0	1
Own radio	2430	.7353909	.4412156	0	1
Employed	2431	.3973673	.4894539	0	1
Female	2431	1.499383	.5001025	1	2
Urban	2431	1.79926	.4006367	1	2
District level variables:					
Population District	2431	588125.4	277121.5	127064	1189142
Urbanization District	2431	13.28453	22.4144	1.1	100
Age Dependency Ratio	2431	110.7223	14.7269	64.2	132.8
Fractionalization	2431	.131371	.1885135	0	.6659015
Manufacturing District	2431	2.39239	1.952001	.2	9.5
Subsistence Farming District	2431	30.64801	21.05091	7.5	97.9
Living condition variables:					
Living conditions 2008	2420	.4801653	.4997097	0	1
Living conditions 2000	2279	.5599112	.1426186	.2363636	.8125
Instruments:					
Distance from Sudan (in km)	2431	271.0786	132.5202	0	529.7582
Maximum elevation	2431	1605.039	748.8192	875	4688
Satellite Light:					
Satellite Light 2008	125	.2728527	.8278942	0	6.753723
Satellite Light 2000	125	.3233163	.8965602	0	7.117774

Table 15: Descriptive Statistics

Appendix B: Data

Variables used in Section 3.2

First the dependent variables:

Generalized trust (in 2008): This is a dummy variable varying on the individual level and taking a value of 1 if "I trust them somewhat" or "I trust them a lot" is answered to the question "How much do you trust each of the following types of people: Other Ugandans?" from the Afrobarometer 2008 (question Q84C).

Trust in Known People (in 2008): This is a dummy variable varying on the individual level and taking a value of 1 if "I trust them somewhat" or "I trust them a lot" is answered to the question "How much do you trust each of the following types of people: Other people you know?" from the Afrobarometer 2008 (question Q84B).

Trust in relatives (in 2008): This is a dummy variable varying on the individual level and taking a value of 1 if "I trust them somewhat" or "I trust them a lot" is answered to the question "How much do you trust each of the following types of people: Your relatives?" from the Afrobarometer 2008 (question Q84A).

Ethnic identity (in 2008): This is a dummy variable varying on the individual level and taking a value of 1 if "I feel only (R's ethnic group)" or "I feel more (R's ethnic group) than Ugandan" is answered to the question "Let us suppose that you had to choose between being a Ugandan and being a _ [R's Ethnic Group]. Which of the following best expresses your feelings?" from the Afrobarometer 2008 (question Q83).

The main independent variables:

Generalized trust (in 2000): This is a continuous district level variable that gives the percentage of respondents in a given district who answer "Most people can be trusted" to the question "Generally speaking, would you say that most people can be trusted or that you must be very careful in dealing with people?" from the Afrobarometer 2000 (question Q59).

Trust in other groups (in 2000): This is a continuous district level variable that gives the percentage of respondents in a given district who answer "I trust them somewhat" or "I trust them a lot" to the question "I am now going to read you a list of people and organizations. How much do you trust each of them to do what is right? Ugandans from other ethnic groups" from the Afrobarometer 2000 (question Q60B).

Trust in own group (in 2000): This is a continuous district level variable that gives the percentage of respondents in a given district who answer "I trust them somewhat" or "I trust them a lot" to the question "I am now going to read you a list of people and organizations. How much do you trust each of them to do what is right? Someone from your own ethnic group" from the Afrobarometer 2000 (question Q60A).

Ethnic identity (in 2000): This is a continuous district level variable that gives the percentage of respondents in a given district who answer "Ethnic" to the question "We have spoken to many

Ugandans and they have all described themselves in different ways. Some people describe themselves in terms of their region, language, ethnic group, religion, or gender. Others describe themselves in economic terms, such as working class, middle class, or according to their occupation (e.g. a farmer or a housewife). Besides being Ugandan, which specific group do you feel you belong to first and foremost?" from the Afrobarometer 2000 (question Q18).

Insecure: This is a dummy variable varying on the individual level and taking a value of 0 if "Never" is answered and a value of 1 if "Just once or twice", "Several times", "Many times", "Always", or "Don't know" is answered to the question "Over the past year, how often, if ever, have you or anyone in your family: Been physically attacked?" from the Afrobarometer 2008 (question Q9C).

Fighting (County): Taking the Aclcd (2011) dataset, we have generated with the help of ArcGIS the number of violent events per county. In particular, this variable varies on the county level, and corresponds to the total amount of all violent events in a county taking place between the last day of the Afrobarometer 2000 survey (on June 26, 2000) and the first day of the Afrobarometer 2008 survey (on July 27, 2008). It corresponds to the sum of the events of the following "Event Type": "Battle-Government regains territory", "Battle-No change of territory", "Battle-Rebels gain territory", "Riots/Protests", and "Violence against civilians".

Violence Against Civilians (County): Taking the Aclcd (2011) dataset, we have generated with the help of ArcGIS the number of violent events per county. In particular, this variable varies on the county level, and corresponds to the total amount of all events of the "Event Type" of "Violence against civilians" in a county taking place between the last day of the Afrobarometer 2000 survey (on June 26, 2000) and the first day of the Afrobarometer 2008 survey (on July 27, 2008).

Battles (County): Taking the Aclcd (2011) dataset, we have generated with the help of ArcGIS the number of violent events per county. In particular, this variable varies on the county level, and corresponds to the total amount of all battle events in a county taking place between the last day of the Afrobarometer 2000 survey (on June 26, 2000) and the first day of the Afrobarometer 2008 survey (on July 27, 2008). Concretely, it corresponds to the sum of the events of the following "Event Type": "Battle-Government regains territory", "Battle-No change of territory", and "Battle-Rebels gain territory".

Internally Displaced People (IDP): Total number of internally displaced people per district in 2006 (From UNHCR, 2006).

Fighting (Tribe): Taking the Aclcd (2011) dataset, we have matched all fighting events to a particular tribe (Q79) in the Afrobarometer 2008 survey (where feasible). In particular, this variable varies on the tribe level, and corresponds to the total amount of all violent events linked to a tribe taking place between the last day of the Afrobarometer 2000 survey (on June 26, 2000) and the first day of the Afrobarometer 2008 survey (on July 27, 2008). It corresponds to the sum of the events of the following "Event Type": "Battle-Government regains territory", "Battle-No change of territory", "Battle-Rebels gain territory", "Riots/Protests", and "Violence against civilians".

Fighting (Tribe, County): Taking the Aclad (2011) dataset, we have generated with the help of ArcGIS the number of violent events per county and tribe (Q79). In particular, this variable varies on the county and tribe level, and corresponds to the total amount of all violent events in a county and linked to a given tribe taking place between the last day of the Afrobarometer 2000 survey (on June 26, 2000) and the first day of the Afrobarometer 2008 survey (on July 27, 2008). It corresponds to the sum of the events of the following "Event Type": "Battle-Government regains territory", "Battle-No change of territory", "Battle-Rebels gain territory", "Riots/Protests", and "Violence against civilians".

Additional individual level controls (not reported in the main Tables):

Age: Continuous variable that varies on the individual level. Answer to the question "How old are you?" (question Q1) of the Afrobarometer 2008.

Education: Dummy variable that varies on the individual level. Takes a value of 1 if the respondent indicates at least an education level of 4 in the question Q89 of the Afrobarometer 2008.

Employed: Dummy variable that varies on the individual level. From Afrobarometer 2008. It takes a value of 1 if "yes" (answer categories 2,3,4, and 5) is answered to the question "Do you have a job that pays a cash income?" (question Q94).

Gender: Variable that varies on the individual level. 1=Male, 2=Female. From question Q101 of the Afrobarometer 2008.

Rural: Variable that varies on the individual level. 1=Urban, 2=Rural. From question URBRUR of the Afrobarometer 2008.

Own TV: Dummy variable that varies on the individual level. From Afrobarometer 2008. It takes a value of 1 if "Yes (Do own)" is answered to the question "Which of these things do you personally own: Television?" (question Q92B).

Own Radio: Dummy variable that varies on the individual level. From Afrobarometer 2008. It takes a value of 1 if "Yes (Do own)" is answered to the question "Which of these things do you personally own: Radio?" (question Q92A).

Additional district/county level controls (not reported in the main Tables):

Population: Total population in district in 2002. From the Census 2002 (Ugandan Bureau of Statistics, 2002).

Urban: Urbanization rate in district in 2002. From the Census 2002 (Ugandan Bureau of Statistics, 2002).

Demographic Structure: Age dependency ratio in district in 2002. From the Census 2002 (Ugandan Bureau of Statistics, 2002).

Ethnic Fractionalization: This is a continuous county level variable that varies between 0 and 1. Using the Geo-Referenced Ethnic Group (GREG) dataset (Weidmann, Rød and Cederman, 2010), we obtain with the help of ArcGIS the percentage of the area of a given county that is occupied by a given ethnic group. For each county fractionalization is computed using the following formula:

$$FRAC = \sum_{i=1}^n share_i * (1 - share_i).$$

Share of Manufacture: Percentage of working population that are in the manufacturing sector

in a given district in 2002. From the Census 2002 (Ugandan Bureau of Statistics, 2002).

Share of Subsistence Farming: Percentage of working population that are in subsistence farming in a given district in 2002. From the Census 2002 (Ugandan Bureau of Statistics, 2002).

Ethnic (Tribe) FE: From variable Q79 ("What is your tribe? You know, your ethnic or cultural group.") of Afrobarometer 2008.

Variables used in Section 5

Now we shall list the additional variables included in the empirical analysis of Section ???. Note that when a variable is not listed this means that the variable definition detailed above applies. Further, notice that for the living conditions regressions all variables are used on the individual level, while for the satellite light regressions they are aggregated at the county level.

Living conditions (in 2008): This is a dummy variable varying on the individual level and taking a value of 1 if "Neither good nor bad", "Fairly good", or "Very good" is answered to the question "In general, how would you describe: Your own present living conditions?" from the Afrobarometer 2008 (question Q4B).

Living conditions (in 2000): This is a continuous district level variable that gives the percentage of respondents in a given district who answer "Somewhat satisfied" or "Very satisfied" to the question "How satisfied are you with: A. Your own living conditions today?" from the Afrobarometer 2000 (question Q8A).

Satellite nightlight (in 2000 and 2008): The data comes from the National Oceanic and Atmospheric Administration (2010). We use their data on Average Visible, Stable Lights, & Cloud Free Coverages of their satellite F15/F16. In particular, we use their "cleaned" and "filtered" version of the data, which "contains the lights from cities, towns, and other sites with persistent lighting, including gas flares. Ephemeral events, such as fires have been discarded. Then the background noise was identified and replaced with values of zero. Data values range from 1-63." Using ArcGIS we generate the county level average nightlight intensity.