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Armed Conflicts and Forced Displacements: Incentives and Consequences on Consumption and Social Preferences

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Annet Adong
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Referent: Prof. Dr. Joachim von Braun

Koreferent: Prof. Dr. Jakob Rhyner

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Abstract

Several countries currently have ongoing armed conflicts or are in post-conflict. Relatedly, the number of refugees has almost doubled in the last decade from continued armed conflicts with an increasing influx to countries like Uganda. This thesis examines armed conflicts and forced displacements with four specific objectives: (1) attempts to explore the incentives and disincentives of armed conflicts in the Great Lake Regions, (2) to assess the consequences of armed conflict on consumption and consumption pathways in post-conflict (3) to examine prosocial attitudes between hosts and refugees and to identify any discrimination (4) to evaluate the role of social preferences in informal contractual land arrangements between refugees and hosts. Informal contractual land arrangements offer an alternative sustainable and innovative way by which refugees can acquire land to be self-reliant. The thesis uses case study reviews, panel data methods, and lab in the field experiments. It focuses on the post-conflict Northern region of Uganda and Adjumani district that has a massive influx of refugees.

We find that armed conflicts in the Great Lake Regions are driven by several factors stemming from grievances from ethnic and religious differences and orchestrated by autocratic political systems. With three measures of household conflict exposure, this thesis finds that food consumption was significantly less by a range of between 21 to 30 percent for affected households three years after the cessation of hostilities compared to the level at the time of the conflict. As the threat of insecurity reduces, affected families rely less on consumption from market purchases and transfers and more on their own food production. Further, this thesis finds no evidence of refugees making discriminatory social differentiation of "us refugees" and "them host" in their interactions with hosts, particularly in areas remote from urban areas. They are more trustworthy towards hosts than to fellow refugees in remote areas. We find that refugees located more than 10km from district headquarters reciprocate the trust and are more generous to hosts than to fellow refugees by 8 and 15 percentage points, respectively, in the behavioral experiments. Hosts trust fellow hosts more than refugees, by a 10 percentage point difference. However, hosts located 10km or more from the center trust refugees more than they trust fellow hosts (22 percentage point difference). In remote areas, we think that high transaction costs of travel confines refugees and hosts to a smaller radius, allowing for meaningful interactions between them. Lastly, the results show that trust plays a significant role in determining the hosts' willingness to engage in informal land arrangements with refugees. At least 4 in 10 of both refugees and hosts are willing to enter into such an agreement. The host's trust is associated with a 20 percent increased willingness to participate in informal land transactions.

The study concludes with the following policy implications. First, governments in the Great Lake regions can avoid the reoccurrence of armed conflict by paying attention and addressing factors that have motivated past conflicts like grievances from high inequality and lack of political rights. Second, food assistance programs should be targeted at households directly affected by armed conflict, emphasizing fostering own food production after an armed conflict. Third, to minimize discrimination by hosts and boost refugee integration, the study suggests creating opportunities for meaningful refugee and host interactions such as community groups, sports activities, and religious worship. Finally, refugees' self-reliance can be enhanced by taking measures to build trust and leverage on existing behavioral attributes of hosts to promote informal land arrangements amidst costly Government land provision to refugees.

Zusammenfassung

Mehrere Länder befinden sich zurzeit in andauernden bewaffneten Konflikten oder in einer Post-Konfliktphase. In diesem Zusammenhang hat sich die Zahl der Flüchtlinge im letzten Jahrzehnt fast verdoppelt und der Zustrom von Flüchtlingen in Länder wie Uganda hält an. In der vorliegenden Dissertation werden bewaffnete Konflikte und Zwangsvertreibungen im Hinblick auf vier spezifischen Aspekte untersucht: (1) Die Faktoren, welche bewaffnete Konflikte in der Region der Afrikanischen Großen Seen hervorrufen bzw. verhindern; (2) die Auswirkungen des Konfliktes auf den Konsum und die Konsumgewohnheiten in der Zeit nach dem Konflikt; (3) die sozialen Einstellungen zwischen Gastgebern und Flüchtlingen zur Bestimmung potentieller Diskriminierung; (4) die Rolle sozialer Präferenzen bei informellen Landnutzungsverträgen zwischen Flüchtlingen und Gastgebern. Diese informellen Vereinbarungen bieten einen alternativen, nachhaltigen und innovativen Weg, durch den Flüchtlinge Ländereien zur Selbstversorgung erwerben können. Die Dissertation verwendet Fallstudien, Panelstudien und Feldversuche, um die nördliche Region Ugandas nach dem Konflikt und den Adjumani-Distrikt mit einem massiven Zustrom von Flüchtlingen zu erkunden.

Die bewaffneten Konflikte in der Region der Großen Seen werden von mehreren Faktoren angetrieben, die auf ethnische und religiöse Unterschiede zurückzuführen sind und von autokratischen politischen Systemen orchestriert werden. Anhand von drei Messungen der Konfliktbelastung in Haushalten wird in dieser Dissertation festgestellt, dass der Nahrungsmittelkonsum der betroffenen Haushalte drei Jahre nach Einstellung des Konflikts im Vergleich zum Zeitpunkt des Konflikts um 21 bis 30 % geringer war. Zudem wird gezeigt, dass mit abnehmender Bedrohung, die betroffenen Familien weniger auf den Konsum durch Marktkäufe oder Transfers und mehr auf ihre eigene Nahrungsmittelproduktion angewiesen sind.Darüber hinaus wurden während der Untersuchung keine Beweise dafür gefunden, dass Flüchtlinge in ländlichen Gebieten eine diskriminierende Differenzierung in ihren Interaktionen mit Gastgebern in Form einer "Wir-gegen-Sie" -Mentalität zeigten. In ländlichen Gebieten vertrauen Flüchtlinge ihren Gastgebern mehr als anderen Flüchtlingen. Wir stellen fest, dass Flüchtlinge, die mehr als 10 km vom Bezirkshauptquartier entfernt sind, 8 Prozentpunkte vertrauenswürdiger und 15 Prozentpunkte gegenüber Mitflüchtlingen großzügiger sind als gegenüber Gastgebern in den Verhaltensexperimenten. Die Gastgeber vertrauen anderen Gastgebern mehr als Flüchtlingen mit einer Differenz von 10 Prozentpunkten. Gastgeber, die 10 km oder mehr vom Zentrum entfernt sind, vertrauen Flüchtlingen jedoch mehr als anderen Gastgebern (Unterschied von 22 Prozentpunkten). Wir glauben, dass in abgelegenen Gebieten hohe Transaktionskosten für Reisen Flüchtlinge und Gastgeber in einem kleineren Radius halten und sinnvolle Interaktionen zwischen ihnen ermöglichen.

Schließlich zeigen die Ergebnisse, dass Vertrauen eine wichtige Rolle bei der Bestimmung der Bereitschaft der Gastgeber spielt, informelle Landvereinbarungen mit

Flüchtlingen zu treffen. Mindestens vier von zehn Flüchtlingen und Gastgebern sind bereit, eine solche Vereinbarung zu treffen. Das Vertrauen des Gastgebers ist mit einer um 20 Prozent erhöhten Bereitschaft verbunden, informelle Landtransaktionen durchzuführen

Die Studie schließt mit den folgenden politischen Implikationen. Erstens können die Regierungen in der Region der Großen Seen das Wiederaufflammen bewaffneter Konflikte vermeiden, indem sie die Faktoren beachten, welche bereits zuvor Konflikte ausgelöst haben. Zweitens sollten Nahrungsmittelhilfsprogramme auf Haushalte ausgerichtet sein, die direkt von bewaffneten Konflikten betroffen sind, wobei der Schwerpunkt auf der Förderung der eigenen Nahrungsmittelproduktion nach dem Konflikt liegen sollte. Drittens, die vorliegende Dissertation befürwortet es, Möglichkeiten der Interaktion zwischen Flüchtlingen und Gastgebern zu schaffen, um die Diskriminierung durch die Gastgeber zu minimieren und die Integration der Flüchtlinge zu fördern. Schließlich kann die Eigenständigkeit der Flüchtlinge gestärkt werden, indem Maßnahmen zur Vertrauensbildung auf Grundlage der Verhaltensmuster der Gastgeber initiiert werden, um so informelle Landarrangements zu fördern.

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I dedicate this to the memory of my Felicia Auma (RIP) and Justin Atima (RIP)

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List of Abbreviations

ACLED	Armed Conflict Location and Event Data
ADF	Allied Democratic Forces
ADFL	Alliance of Democratic Liberation Forces
CRRF	Comprehensive Refugee Response Framework
DR CONGO	Democratic Republic of Congo
FARDC	Armed Forces of the Democratic Republic of Congo
FDLR	Forces Democratiques pour la Liberation de Rwanda
FNL	Forces Nationales de Libertaion
GLR	Great Lakes Region
ICC	International Criminal Court
LRA	Lord Resistance Army
NRA	National Resistance Army
PALIPEHUTU-FNL	Party for the Liberation of Hutu people and National forces of Liberation
RPF	Rwandan Patriotic Front
SDG	Sustainable Development Goals
SPLM	Sudanese People's Liberation Movement
SPLM-IO	Sudanese People's Liberation Movement/Army in opposition
SSA	Sub Saharan Africa
UBoS	Uganda Bureau of Statistics
UNHCR	United Nations High Commission for Refugees
UNHS	Uganda National Household Survey

Chapter 1 : Introduction and Motivations

1.1 Background

Armed conflicts involving armed forces between two or more organized groups threaten to achieve the Sustainable Development Goals (SDG). Countries with active conflicts (as of 2019) include Afghanistan, Yemen, Syria, Libya, South Sudan, Somalia, Saudi Arabia, Mali, plus some other countries in the Sahel region. The ten most conflict-affected countries by fatalities from 1989 to 2015 include Rwanda, Syria, Afghanistan, Democratic Republic of Congo (DRC), Iraq, Sudan, Sri Lanka, Eritrea, India, and Ethiopia (Table 1.1). The most significant fatalities are from armed conflicts involving the Government except the Rwandan genocide and the DRC stemming from Hutu refugees' massacres in the eastern region (Melander et al., 2016). Armed conflicts have led to many unprecedented displacements of people forced to flee their homes to seek refuge elsewhere. From 2009 to 2018, the number of displaced people escalated from 43.3 to 70.8 million, mainly due to ongoing armed conflict (UNHCR, 2019a). 67 percent of displaced people are from conflict-affected countries, and the top five refugee-hosting countries in 2018 included Turkey (3.7 million refugees), Pakistan (1.4 million), Uganda (1.2 million), Sudan (1.1 million), and Germany (1.1 million) (UNHCR, 2019a).

Table 1.1: Conflict-affected countries by number of fatalities, 1989-2015

Country	Total no. of fatalities 1989–2015	Fatalities in state-based conflict	Fatalities in non-state conflict	Fatalities in one-sided violence
Rwanda	520,529	6,521	-	514,008
Syria	188,088	169,603	11,212	7,273
Afghanistan	162,035	150,618	2,517	8,900
Ethiopia	138,440	129,878	6,090	2,472
DR Congo	100,390	22,258	12,149	65,983
Iraq	95,243	77,931	2,943	14,369
Sudan	89,581	50,114	20,402	19,065
Sri Lanka	65,162	61,234	567	3,361
Eritrea	57,301	57,301	–	–
India	51,011	35,599	4,909	10,503

Source: Melander et al. (2016)

Most countries supporting refugees are signatories to global commitments such as the Comprehensive Refugee Response Framework (CRRF) and Global Refugee Impact that provide a framework to guide refugees' support by countries. CRRF prioritizes the need to ensure that refugees become self-reliant and contribute positively to hosting communities. In this regard, Uganda’s refugee policy, which allows refugees to access

land and other services accessed by fellow host communities, is heralded for being generous (UNHCR, 2019b).

To distinguish armed conflicts from continually occurring conflicts, Wallensteen & Axell (1993) define armed conflicts as: *"contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths in one calendar year".* Wallensteen & Axell's (1993) definition excludes non-state conflicts between organized rebel groups and communities common in Sub Saharan Africa (SSA). The threshold of 25 battle-related deaths also excludes armed conflicts that might report fewer fatalities but have immense consequences on food security and social preferences, a focus of this dissertation. This study adopts the above definition by Wallensteen & Axell (1993) and Collier & Hoeffler (2004) to distinguish armed conflicts from crime, litigation, strikes, and lockouts by having one or more of the following characteristics: (1) Government is a primary actor by engaging directly with rebels or in the repression of its leaders (state-based armed conflict and one-sided violence), (2) both warring parties suffer from the death of its members, (3) there is military action involving both internal and external parties, (4) there is the displacement of people to other countries as refugees. Lastly, the study dwells majorly on conflicts involving armed ammunition.

1.2 Motivations and framing of the research

Armed conflicts and displacements are of policy concern to policymakers, academia, and humanitarian organizations because of the immense negative consequences on economic and social outcomes. Collier (1999) estimates a 2.2 percentage point difference in economic growth between countries with ongoing civil war and no fighting. Guerrero Serdan (2009) estimates that children born in areas affected by high violence levels during the Iraq war are 0.8 cm shorter than children born in low violent provinces. Beyond consequences on economic performance, human capital, and institutional changes, there are other long-term immense effects of the war, such as diseases and disability, whose effects far outweigh the number of death during fighting (Ghobarah et al., 2003).

Past and recent research focuses on the consequences of conflict on child nutrition and health (Akresh et al., 2012; Bundervoet et al., 2009; Guerrero Serdan, 2009b), schooling (Shemyakina, 2011), economic performance (Akresh et al., 2012; Brück et al., 2018; Bundervoet et al., 2009; Rockmore, 2017, 2020), social preferences (Bauer et al., 2016, 2018; Hartman & Morse, 2018), famine (von Braun et al., 1998) and institutional changes (Annan et al., 2011; Bauer et al., 2016; Bellows & Miguel, 2009; Hartman & Morse, 2018). Most of the evidence shows immense negative consequences on economic performance, health, and education. Nevertheless, evidence also indicates positive outcomes of experiences of conflict on institutional changes. For example,

Blattman & Annan (2010) find that abduction from violence increases one's participation in voting and community leadership. Similarly, Bellows & Miguel (2006) find positive correlations between war experiences and community meetings involvement in Sierra Leone. Bauer et al. (2018) find that child soldiering has no detrimental effects on social behavior. Despite reasonably substantial literature on the causes and consequences of armed conflicts, a few gaps warrant further research and form this study's primary motivation.

First, the thesis adds to the limited literature on incentives for engaging in armed conflict in Sub-Saharan Africa. The Great Lake Regions (GLR), including Rwanda, Burundi, Uganda, and the Democratic Republic of Congo[1], and South Sudan[2], have a history of armed conflict since gaining independence with some active armed conflicts in South Sudan and the Democratic Republic of Congo. The number of forced displacements from the region has increased over the last decades. For example, in 2018, 5.4 million Congolese from the Democratic Republic of Congo, with 854,000 refugees or asylum seekers, were forcibly displaced. The GLR region is also characterized by crisscrossing hostilities. Some governments have supported fellow incumbent Governments to quell down a rebellion or have supported rebel groups hostile to sitting Governments. Therefore, the region provides an excellent case study to understand the incentives and disincentives of armed conflict, especially in SSA. Secondly, several studies looking at the consequences of armed conflicts limit conflict exposure to only households directly affected by death, loot, property destruction, and many others – usually due to data limitations. In essence, insecurity from violence is experienced by families within localities of armed conflicts and affects their economic performance. Relatedly, most of the studies have focused on the effects of armed conflict on consumption with no analysis, to the best of my knowledge, precisely focusing on its impact on consumption pathways. This thesis fills the research gaps by using three measures of household conflict exposure: a direct household experience of violence (self-reported) and households within 5km and 10km radius from conflict localities to understand the effects of Lord Resistance Army (LRA) on per capita household consumption expenditure and consumption pathways after the peak of the conflict and six years after the cessation of hostilities. To understand the mechanism of impact, we examine the effects of armed conflict on consumption from their own food production, market purchases, and transfers in post-conflict. I also explore the impact of conflict on returns to land and education and whether families affected by armed conflict are disproportionately affected by a lack of market access.

Third, most studies on refugees and host communities focus on livelihoods and less on their behavioral attributes. Refugees and their hosts may face challenges that emerge from differences in their social identity and characterization within and external to

[1] The Great Lake Regions constitute countries that surround the Great Lakes in Africa situated in the Eastern Rift Valley. Other countries in the GLR region that are not are a part of this study include the Tanzania, Malawi and Kenya.

[2] South Sudan is not part of the GLR but is included in this study.

refugee settlements. Non Governmental Organizations offering support in refugee communities may already make clear distinctions between refugees and hosts even when both groups face similar challenges. In the fourth chapter, we examine discrimination in trusts and altruism between refugees and hosts using the lab in the field experiments. Lab in the field experiments overcomes biases from the endogeneity of preferences experienced with other approaches of measuring trust and altruism, such as using survey data, conjoint experiments, and observational methods. This study also concentrates on the behavioral puzzle of understanding beliefs in trusts, reciprocity, and selflessness, crucial for many social interactions that remain largely informal between refugees and hosts. We examine how discrimination and or ethnic biases and stereotypes vary with remoteness.

Fourth, this thesis in chapter five examines bilateral informal land arrangements between refugees and host communities and whether social preferences of trust and altruism matter in these arrangements. Informal institutional land arrangements allow refugees to access land and provide alternative ways of ensuring refugees' self-reliance. Self-reliance has been at the center stage of global efforts and solidarity in refugee protection. The Comprehensive Refugee Response Framework (CRRF) urges member countries to adopt self-reliance approaches to refugees' management. In this regard, Uganda's refugee policy, which offers land for residence and agriculture purposes, is heralded as generous. However, Government land provision has proved insufficient and not sustainable. The area given to refugees has reduced over time; free land provision to refugees is a very costly endeavor. Amidst challenges of Government land distribution, informal land arrangements between hosts and refugees offer alternative opportunities by which refugees can acquire land. I explore bilateral land arrangements between refugees and host communities and examine whether social preferences of trust and altruism matter.

Fifth, most studies examining the consequences of armed conflicts, findings are biased from concerns of endogeneity and reverse causality. For example, armed conflicts are likely to affect food security because households cannot move to their gardens or affect labor supply (Brück & d'Errico, 2019). Yet, research also shows that limited availability of food due to climate variability (Marshall Burke et al., 2015) and acute food shortages (Koren, 2018) cause conflict. This thesis addresses the endogeneity bias in estimating the effects of conflict on consumption through panel data methods using the correlated random-effects model. This thesis also takes advantage of the randomness in attacks by the Lord Resistance Army insurgency (Blattman, 2009; Rockmore, 2020) on households as proof of exogeneity regarding which homes get exposed to conflict. Additionally, using the lab in the field experiments to examine prosocial attitudes between refugees and host communities, unlike other methodological approaches, addresses the endogeneity of preferences.

1.3 Research objectives of the thesis

The four main objectives of the thesis, which form four separate chapters, are to:

1) Examine the incentives and disincentives of engaging and disengaging in armed conflicts in the Great Lake Regions, including South Sudan. The region has a history of armed conflicts and crisscrossing hostilities between countries with ongoing active conflicts in South Sudan and the Democratic Republic of Congo, which provides a good study case.

2) Examine the effect of conflict exposure on per capita household consumption expenditure and consumption pathways after the conflict's peak and six years after the cessation of hostilities. We use three measures of conflict exposure: (1) whether a household had direct exposure (self-reported), (2) whether a family was within a 5 km radius of conflict points, and (3) whether a household was within a 10 km radius of conflict points. We hypothesize that households affected by conflict have lower per capita consumption expenditure immediately after the cessation of hostilities but increases over time as households recover in the post-conflict period. We also hypothesize that for households in post-conflict, per capita consumption expenditure from their own food production increase while per capita consumption expenditure from market purchases and transfers reduces. It is motivated by the fact that access to food by households affected by conflict may differ during and after conflict through changes in available income sources. Families may strengthen their social safety nets as alternative sources of food and income (Arias et al., 2017; Brück & d'Errico, 2019) or shift from agricultural activities that require high investments to activities with short-term yields and lower profitability (Arias et al., 2017). How these changes affect consumption or consumption pathways is ambiguous.

3) Examine prosocial attitudes between refugees fleeing from armed conflict and hosting communities who have previously experienced armed conflict to explore any forms of discrimination in trust, reciprocity of trust, and altruism. We further examine how these behavioral attributes vary with remoteness from district headquarters. The theory of parochial altruism in psychology literature postulates altruistic behavior towards in-group members and mistrust, hostility, or indifference towards out-groups (Baumgartner et al., 2012; Tajfel et al., 1971). In this regard, we hypothesize that there is likely to be favoritism towards people from the same social identity as refugees or hosts (out of tastes for discrimination or ethnic stereotypes) in trust, trustworthiness, and altruism and that such behavior changes with remoteness from urban areas, such as district headquarters.

4) Examine the role of social preferences in predicting the willingness and previous engagement in different informal land arrangements between hosts and refugees. Informal land arrangements include: (1) sharecropping agreements, (2) hosts give land to refugees in exchange for refugee labor in their plots, (3) land rental agreements for a specified period, (4) hosts giving refugees land for free for a specified period. We hypothesize that the more "trusting" members of the hosting communities and more trustworthy refugees are likely to engage in informal land arrangements. We also hypothesize that other intrinsic motives, such as altruism and expectations of trustworthiness, explain willingness and previous engagement in informal land arrangements.

1.4 Ethical considerations

As part of the ethical considerations, the study received approval from the Centre for Development Research, University of Bonn Ethics Review Committee. In Uganda, Makerere University School of Social Sciences and the Uganda National Council of Science and Technology (SS46) assessed and approved the study protocol. Department of Refugees, Ministry of Disaster Preparedness granted further clearance to conduct this research in refugee settlements. At the refugee settlements, we worked closely with the regional refugee desk office in Adjumani district to access both refugees and host communities. In refugee settlements, we used the local leadership to access households. We asked the sampled respondents for their consent, having explained in detail the objectives and game procedures before embarking on the research.

1.5 Structure of the thesis

The entire thesis is structured as follows: Chapter one provides the introductions and motivations for the thesis. Chapter Two examines the incentives and disincentives of engaging and disengaging in armed conflicts in the Great Lake Regions. In Chapter Three, we explore the consequences of exposure to Armed Conflict on per capita consumption expenditure and consumption pathways. In Chapter Four, we explore prosocial attitudes between refugees and host communities living in close proximity. Chapter Five examines informal contractual land arrangements between refugees and host communities and whether social preferences matter. The last chapter provides general conclusions and policy implications.

Chapter 2 : Armed conflicts in the Great Lakes Region: attempts to explain them based on different theories, including the role of incentives

Abstract

We examine the incentives and disincentives for engaging and disengaging in armed conflicts in the Great Lake Region of Sub-Saharan African. These countries have had a history of internal armed conflicts with crisscrossing hostility. Some have supported either rebel groups hostile to existing Governments or national armies to quell the rebellion. Opportunistic desires, grievances from ethnic discrimination, and suppression supported by autocratic political systems incentivize armed conflicts. Other incentives include the moral agency to revenge, supernatural beliefs and religiosity, and the desire to control mineral wealth orchestrated by the existing market of violence. Threats from prosecution, litigation, and penalties such as Uganda's self-referral to the International Criminal Court, the International Tribunal for Rwanda, and Dodd-Frank Wall Street Reform and Consumer Act in the United States have been disincentives to disengage in armed conflict.

Keywords: Armed conflict, Incentives, Disincentives, Great Lake Regions

2.1 Introduction

Armed conflicts are a significant threat to attaining many of the Sustainable Development Goals (SDGs) with well-known negative consequences on human development and economic growth (Ghobarah et al., 2003). For example, 489 of the 815 million hungry people are in conflict areas, and 75 percent of the world's stunted children are in countries affected by conflict (FAO & World Food Program, 2018). Collier (1999) estimates a growth gap of 2.2 percentage points between countries with ongoing civil war and those at peace, yet several states are currently either in battle or post-conflict. Examples include Iraq, Afghanistan, the Democratic Republic of Congo, Somalia, South Sudan, Syria, Central African Republic, Libya, Ukraine, Pakistan, and Nigeria.

Armed conflicts emanate from irrational or rational decisions and ignorant or inconsiderate leaders (Blattman & Miguel, 2010; Fearon, 1995). Irrational leaders ignore or are biased against the private and social costs and consequences of armed conflicts. On the other hand, rational leaders are aware of the social and private costs associated with armed conflicts but go ahead and engage in disputes (Bennett & Stam, 2016; Fearon, 1995) due to information asymmetry, bargaining, and commitment failure. Meanwhile, ignorant leaders engage in armed conflict as a "mistake" (Collier & Hoeffler, 2004) without prior consideration of costs and consequences. We attempt to explore the incentives and disincentives behind rational, irrational, and wrong decisions made by leaders, communities and nations to engage and disengage in armed conflict.

Our main contribution to armed conflict literature links theory to existing case studies of past and existing armed conflict in Sub-Saharan Africa. Armed conflict is theorized as a contestation of resources, maximizing benefits, and driven by social-cultural and behavioral factors (Blattman & Miguel, 2010; Collier, 1999; Cramer, 2002; Grossman, 1991). Specifically, we focus on five countries: Uganda, Democratic Republic of Congo (DRC), South Sudan, Burundi, and Rwanda, in the Great Lake Region (GLR). GLR countries have a history of armed and crisscrossing hostility since acquiring independence. The armed conflict in South Sudan is ongoing, while in other countries, there are reported pockets and occasional episodes of disputes. Each of the five GLR countries has a history of providing support directly to the national armies to quell a rebellion or to rebellion groups to fight incumbent armies, creating an environment of uncertainty and untrustworthiness. For example, Tanzania hosted the ousted President of Uganda at the time- Milton Obote, in 1971 and provided him grounds for reorganizing and rebelling against the incumbent President.

On the other hand, Uganda hosted Paul Kagame, the leader of the Rwandan Patriotic Army in the 1980s, and supported his efforts to oust the ruling Rwandan President at the time. Uganda and Rwanda supported Laurent Kabila's rebellion against Mobutu

Sseseko of Zaire (now DRC)) and successfully dislodged the latter. The Ugandan army has recently also been supportive of the South Sudan army to deal with the ongoing rebellion. Lastly, DRC currently hosts Hutu-origin refugees hostile to Rwanda, the Allied Democratic Forces (ADF), and Lord Resistance Army (LRA) hostile to Uganda. Therefore, it is of interest to understand the motives behind the different armed conflicts in the region.

Our analysis is at the individual and group level, where tremendous variation may exist. Understanding armed conflicts only from the national level (as is the case for many theoretical propositions) mars or undermines individuals' actual characteristics, interactions, and attributes forming the rebel groups (Cunningham et al., 2009). Our definition follows Collier & Hoeffler (2004) and Ngaruko & Nkirunziza (2000) defined in Chapter One, and we dwell majorly on conflicts involving armed ammunition.

From the discussion, incentives to engage in an armed conflict emerge from a complex mixture of nonmaterial and material factors. The bush war of 1986 in Uganda, the Rwandan genocide in 1994, the several rebellions in DRC, the armed conflicts in Burundi, and the ongoing armed conflict in South Sudan stem from grievances and the desire for control of power. The autocratic nature of the political systems in the countries in the GLR only aggravates existing ethnic and religious differences. The belief in psychic abilities blinds leaders from reflecting on the actual costs of engaging in armed conflict. We cite Alice Lakwena, the "spiritual leader" who led a rebellion against National Resistance Army (NRA) and the "Mayi" "Mayi" from DRC. Both groups motivated their soldiers to smear oil as a means to protect themselves from bullets. Other incentives include: (1) the availability and access to cheap capital such as military equipment, (2) support from internal and external sources, and (3) a positive externality from neighboring countries.

Dis-incentives to end armed conflicts have emerged from external interventions in prosecution, litigation, and disciplinary actions against perpetrators and actors in the armed conflict. For example, Uganda's self-referral of LRA's atrocities to the International Criminal Court (ICC) in December 2003 and, subsequently, ICC's issuance of arrest to the five leaders of LRA contributed to some extent in ending the two decades of armed conflict. On its part, the Dodd-Frank Wall Street Reform and Consumer Act in the United States (US) inhibits US companies from sourcing minerals from war-ravaged countries such as DRC disincentives rebel activities. However, further research to explore the impacts of the Dodd-Frank Wall Street Reform and Consumer Act in the United States (US) on armed conflict in DRC is needed. The International Tribunal for Rwanda set to prosecute persons responsible for crimes has been critical in quieting down the likelihood of reoccurrence of genocide in Rwanda. Lastly, offering impunities and security guarantees through granting amnesty also motivated former soldiers of LRA to stop fighting and return home. Incentives and disincentives involve a cross-fertilization of economic, social-cultural, and behavioral explanations.

The rest of the paper is structured as follows. The next section is an overview of armed conflicts in the five countries of the GLR. Section 2.3 provides some of the existing theoretical explanations for the incentives and disincentives of armed conflict. Section 2.4 looks at the methodology, including the conceptual framework adopted. In section 2.5, we provide a discussion based on case studies and the conclusion in section 2.6.

2.2 Overview of Armed conflicts in Great Lake Regions of SSA

In 2019, the Fund for Peace Fragility[3] Index ranked South Sudan as the third most fragile state globally, DRC as the fifth, Burundi as the 15th, Uganda as the 20th, and Rwanda as the 40th (The Fund For Peace, 2019). Most of the five countries' armed conflicts are state-based, involving government and rebel groups *(*Table 2.1).

Table 2.1: Nature of conflict in GRL region

	State-based armed conflict	One-sided violence	Non-state conflict
Actors	Governments, rebel groups	Governments, organized groups, e.g., rebel groups	Organized groups, e.g., rebel groups and communal groups
Outcomes	Battle related deaths	Violence against civilians, e.g., massacres and genocide	Communal violence, violence between rebel groups
Examples	LRA, Uganda, DRC, Burundi, Rwanda, South Sudan	Rwandan genocide	DRC, Uganda

Source: Author's modification of Wallensteen & Axell (1993)

Unique armed conflicts include the Rwanda genocide of 1994, some non-state armed conflicts in DRC, and the Karamoja raid in Uganda. A map of armed conflicts and fatalities in GLR is in Figure 2.1.

[3] The fragility states index uses twelve conflict risk indicators to assess the vulnerability of states to collapse

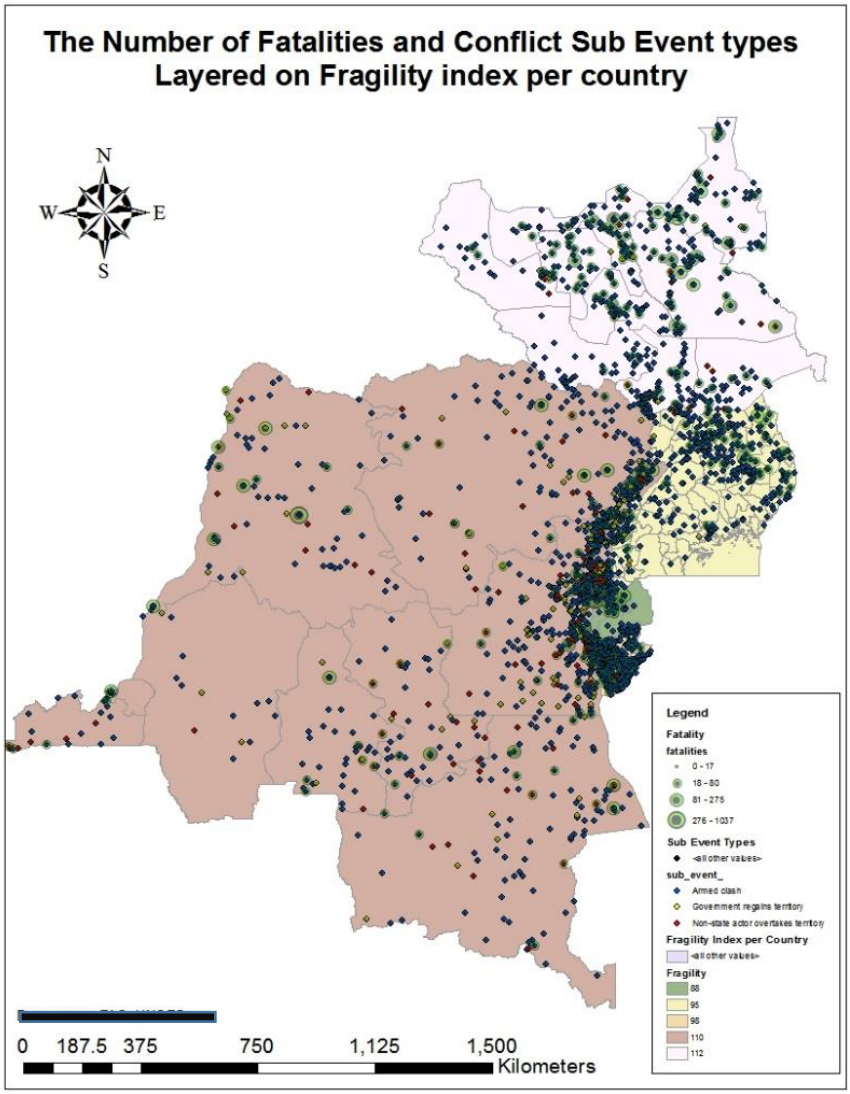


Figure 2.1: Armed conflicts in the Great Lake Region
Source: Author's construction from ACLED data from 1997-2019

2.2.1 Uganda

Uganda has an estimated 34.6 million population following the 2014 population census (Uganda Bureau of Standards (UBOS), 2016). Since it gained independence in 1962, it has witnessed several armed conflicts associated with power transition. Outstanding armed conflicts include the 1979 liberation war, the Ugandan Bush war, Lord Resistance (LRA), and the Allied Democratic Forces (ADF). Points of conflict localities and fatalities from 1997 to 2019 in Uganda are in the Appendix, Figure 8.1. The 1979 Liberation war was an armed conflict between Uganda and Tanzania, lasting about eight months and leading to the overthrow of President Idi Amin Dada in 1979. The Uganda civil war from 1980 to 1986, also known as the resistance war, was an armed conflict between Uganda National Liberation Army (UNLA) and several rebel groups, most distinctly the National Resistance Movement (NRM) under the leadership of Museveni. In 1986, NRM successfully took over the country's leadership. Several armed groups like the Uganda People's Democratic Army (UPDA), consisting of

soldiers from UNLA, the Holy Spirit movement led by Alice Auma (Lakwena), and LRA under Joseph Kony emerged afterward.

The most significant, the LRA insurgency spearheaded by Joseph Kony, lasted for two decades and has been the most devastating armed conflict in Uganda since independence. LRA committed several atrocities, including the abduction of children and adults, mutilations of people's body parts, and civilians' killings. In 2003, Uganda self-referred the LRA rebels' inhuman activities to the International Criminal Court for justice. Currently, LRA is in DRC and Central African Republic. Another major armed conflict was the Allied Democratic forces (ADF) insurgency by ADF rebels formed as a merger between Uganda's Tabliq movement and the ex-National Army for the Liberation of Uganda (NALU) soldiers. ADF operates within the borders of Uganda and DRC. Their first attempted attack on Uganda was in 1995. In 1998, they attacked Kichwamba Technical College and killed 80 people. In 2002, the group flea to the DRC, where they currently have their bases.

2.2.2 Democratic Republic of Congo

DRC is the second-largest country after Algeria in Africa with an estimated population of 80 million people and covered by sizeable dense forest and expansive fertile agriculture land. DRC has a massive endowment of natural resources with one thousand one hundred listed minerals and precious metals and is a world-leading producer of copper and cobalt. It has other minerals like Colton, diamond, silver, and petroleum. Past and ongoing conflicts are linked to mineral endowments (Bloem, 2019; Cuvelier et al., 2014). The armed conflicts in DRC take the form of secessions, rebellions, insurrections, revolts, invasions, and ethnic wars. Examples of armed forces include (1) Armed Forces of the DRC (FARDC) in the Orientale province in North East (2) LRA (from Uganda) at the border with the Central African Republic, (3) ADF with Ugandan origins in the North of Kivu area (DRC) and South Sudan (4) Forces Democratiques pour la Liberation de Rwanda (FDLR): an armed group with Hutu Rwandan Origins in the provinces of North Kivu and South Kivu (5) 23rd March Movement (M23) or Congolese Revolutionary Army with Tutsi Rwandan origins and (6) Forces Nationales de Liberation (FNL) with Burundian roots. In 2016, there were at least 70 active groups and militias in the Kivu area in Eastern Congo (Rufanges & Aspa, 2016).

DRC has also been at the center of Africa's world war involving several countries like Uganda, Rwanda, Angola, Namibia, and Zimbabwe. The first Congo war from 1996 to 1997 emerged due to about two million refugees of Huntu origin fleeing from Rwanda into DRC and antagonizing the host communities. In the refugee camps, the Huntu refugees imposed violence onto the hosts' communities, subsequently leading to an uprising of "Mayi-Mayi" to force the Huntu Rwandans out of Congo. "Mayi- Mayi" literally meaning "magic water- magic water," relied on the rituals and symbolism of magic water to protect warriors from bullets (Jourdan, 2011). The first Congo war led

to the uprising of the Allied Democratic Forces for the liberation of Congo-Zaire (AFDL) led by Laurent Kabila and backed by Rwandan and Ugandan armies. AFDL ousted the Mobutu government and replaced him with Laurent Kabila in April 1997. Despite the change in leadership, anti-Kabila armed conflicts continued in Eastern Congo. Supported by Angola, Namibia, and Zimbabwe, Laurent Kabila, turned against his allies- the Rwandan and Ugandan governments allowing Huntu armies to regroup in Eastern Congo. In 2001, the bodyguard of Laurent Kabila murdered him, and his son Joseph Kabila took over the DRC's leadership. In 2003, Joseph Kabila signed a transitional constitution power-sharing interim Government with rebel groups to allow opposition forces and the government's coexistence. In December 2018, DRC held an election, and Félix Tshisekedi replaced Joseph Kabila. Points of conflict events and fatalities are in the Appendix, Figure 8.2

2.2.3 South Sudan

South Sudan is a new country that got its independence in July 2011 from Sudan. Since then, it has witnessed several ethnic and political armed conflicts. The ongoing battle between the Sudanese People's Liberation Movement (SPLM) and Sudanese People's Liberation Movement/Army in Opposition (SPLM-IO) resulted from a political dispute between the ruling President Salva Kiir and his deputy Riek Machar. In 2015, the two leaders signed the Compromise Peace Agreement, and in June 2016, Riek Machar, the leader of SPLM-IO, was appointed the vice president to Salva Kiir. Nevertheless, the peace ordeal did not last and armed conflicts protracted with an attack in Juba. Not much has been achieved regarding negotiations between the warring parties, and the South Sudan conflict remains active. Points of conflict fatalities and events are in the Appendix, Figure 8.3

2.2.4 Rwanda

Rwanda has about 12 million people and is bordered by Uganda, Tanzania, Burundi, and DRC. It is composed of three ethnic tribes: Tutsi, Hutu, and Twa. Since attaining its independence from Belgium, there have been three major episodes of armed conflicts in Rwanda: (1) Rwandan Revolution, also known as the Social Revolution or the Wind of Destruction, (2) Rwandan civil war, (3) Rwandan Genocide. The Rwandan revolution took place between 1959 and 1962, marred by ethnic violence between the Tutsi and Hutu groups fighting for dominance and power control. The revolution led to the transition of power from the Tutsi monarchy that had succeeded the colonial rule masters to the Hutu-dominated Republic.

The Rwandan Civil war from October 1990 to July 1994 was an armed conflict between the Government armed forces and Rwandan Patriotic Front (RPF) rebels. Existing tension from ethnic differences between the Hutus and Tutsi led to RPF's emergence, which first attacked the North Eastern part of Rwanda in October 1990 but was halted

by the Rwandan Army with France's support troops. Under the command of the current President Paul Kagame, RPF then retrieved to the Virunga Mountains and reorganized themselves before re-emerging in a guerilla war that persisted until mid-1992. In 1993, under Habyarimana's leadership, the Government agreed to negotiations with RPF and signed the Arusha peace agreement in August 1993. On 6th April 1994, the assassination of President Habyarimana sparked off the Rwandan genocide in the next 100 days. Between 500,000 and 1,000,000 fatalities were killed in the genocide. The genocide ended with the invasion of the Tutsi-led Rwandan Patriotic Front (RPF) supported by Uganda. Points of conflict events and fatalities in Rwanda are in the Appendix, Figure 8.4.

2.2.5 Burundi

Burundi has approximately 11 million people and no significant natural resources. It comprises three major ethnic groups: Hutus (85 percent of the population), Tutsi, and Twa. Burundi's political history has been marred with armed conflicts since it gained its independence from Belgian in 1962. Six episodes of civil war can be traced, first in 1965, 1972, 1988, 1991, 1993 to 2003, and 2015. A failed coup by the Hutus in 1965, three years after gaining independence, led to the political exclusion of the Hutu by the Tutsi in power. In 1966, the Tutsi from the Southern province of Bururi, under their leader Captain Michael Micombero seized power, and in 1972, there was a political insurgency led by Hutu. In response, the Tutsi army repressed the Hutus, hunting down all the educated Huntus and forcing them to flee into exile. The massacre of the Hutus by the Tutsi army was massive, reducing Hutus to an oppressed underclass (Bundervoet et al., 2009). In 1988, there was another attempted Hutu insurgency to gain power. Like before, the Tutsi army repressed civilians of Hutu origin. In a democratic election in 1993, a Hutu got elected into power. However, in October the same year, Tutsi's coup attempt cut short his reign and marked the beginning of another prolonged armed conflict, which lasted close to10 years. Several Hutu armed rebel groups such as the National Council for the Defence of Democracy and the Forces for the Defence of Democracy (CNDD-FDD), Party for the Liberation of Hutu people, and National forces of Liberation (PALIPEHUTU-FNL) emerged against Burundi's regular army. In 2005, through democratic elections, power transitioned from Tutsi to Hutu with a few rebel activities. Points in conflict events and fatalities in Burundi are in the Appendix, Figure 8.5.

2.3 Theoretical approaches

Armed conflicts emanate from irrational decisions, rational decisions, and ignorant or inconsiderate leaders (Blattman & Miguel, 2010; Fearon, 1995). Rational leaders engage in armed conflicts due to information asymmetry, bargaining indivisibilities, the uncertainty of adversary and commitment problems (Blattman & Miguel, 2010; Fearon, 1995; Powell, 2006; Skaperdas, 2008)(Blattman & Miguel, 2010; Fearon, 1995;

Powell, 2006; Skaperdas, 2008). Commitment failure involves one party reneging on a mutually preferable term (Fearon, 1995) to have the first-strike advantage. Commitment failures and reneging on bargains emanate from a lack of contract enforcement capabilities, primarily due to weak institutions (Skaperdas, 2008). The presence of institutions and legal representation (local and international), market promotion, and tax levying can facilitate contracting (Acemoglu et al., 2010; Collier et al., 2004) and manage conflict (Besley & Persson, 2008a). Besley & Persson (2008) find that higher world market prices of exported and imported commodities are significant predictors of civil war. Higher prices of imported commodities reduce real wages and thus the costs of going into conflict yet also high export prices increase the revenue collected by the government and thus the incentive for warring parties to engage in war. International institutions like the Rome Statute of the International Criminal Court are crucial towards enforcing commitments and helping competing groups reach a compromise. Factors that make contracting difficult (geographically distance places, ethnical distance) by creating a power vacuum (Skaperdas, 2008) or increasing the cost of contracting also explain observed armed conflicts.

Theoretical explanations for conflict occurrence lean towards neoclassical (maximization of benefits) or psychological and sociological theories. Neoclassical conflict theories focus on explaining conflict emergence as being motivated by the desire to maximize economic gains. Conflict is theorized as an "enterprise" or investment that generates profit or has a payoff (Collier & Hoeffler, 2004; Grossman, 1991) driven entirely by greed. Engaging in armed conflict is only possible if the utility from participation is positive; otherwise, one would not. On the other hand, political science literature further explores grievances' role in initiating conflict (Collier & Hoeffler, 2004). The focus on only material explanations with no or little regard to nonmaterial answers such as grievances is reductionist and simplistic (Cramer, 2002). For example, reducing social relations' influence on armed conflict to only ethnic fractionalization is simplistic (Cramer, 2002). Social relations might, for example, explain rebel recruitment and coherence during a rebellion. Beyond materialistic explanations, non-materialistic explanations also suffice. For example, the unequal distribution of resources may cause a section of society, which is unfortunate, to feel aggrieved and resort to insurgency (Blattman & Miguel, 2010).

Contest models for the occurrence of armed conflict: In contest models, two parties, for example, the Government and rebel group, compete to allocate resources for production or appropriation. Production modeled using standard production function models. At the same time, allocation follows a "contest success function" (Blattman & Miguel, 2010) consisting of war artillery or other technologies (skill, firearms, training, rugged terrain) as inputs and the probability of winning and consuming the opponents' production function besides their own as the input. Under information asymmetry, one party has private information regarding their payoffs and military capacity but is unwilling to reveal or misrepresents this information to be better off than their adversary (Fearon, 1995; Powell, 2006).

Grossman (1991) and Collier & Hoeffler (1998) present two contest economic models essential for understanding incentives and disincentives for engaging in armed conflict. Both models only make considerations of two players, albeit, (Grossman 1991) considers the case for a ruler pitted against peasants.

Collier & Hoeffler (1998): the decision to engage in an insurgency is to either capture the state or secede from it (Equation 1)

$R = 1$if $U_R > 0$, else $R = 0$ …… Equation 1

Where $R = 1$ if an armed conflict occurs and $R = 0$ in its absence while U_R is the utility function of engaging in the armed conflict set out as in equation 2

$U_R = \int_{t=D}^{\infty} \frac{p(T).G(T,P)}{(1+r)^t} dt - \int_{t=0}^{t=D} \frac{(f(Y))+C}{(1+r)^t} dt$ ……Equation 2 (Hoeffler, 2012)

p is the probability of a successful insurgency, T is the taxable capacity of the economy, G is the gain when the rebellion is successful, P is the size of the population, D is how long the insurgency will take, Y is the per capita income, C is the transaction costs from coordinating rebel activities, and r is the discount rate. A war will thus occur when

$a.p(T).T + b.P - c.D - d.Y - e.C > \eta$ ……..Equation 3

From Equation 3, the occurrence and duration of war will be affected by the taxable base, per capita income, population size (captures the desire for secession), and insurgency cost. The cost of rebellion includes the loss of income from a sustained war and the transaction costs associated with coordination (Hoeffler, 2012).

Grossman (1991): armed conflict is an equilibrium outcome for competition for scarce resources (contest model). It's a two-person model consisting of the single ruler and the peasant farmers, with no cooperation to a one-shot game. The ruler seeks to maximize the expected income from his subjects through taxation or rent collection. On the other hand, peasants seek to maximize their anticipated revenue by allocating labor time to production, soldiering, or getting involved in a rebellion. The equilibrium for the ruler and the peasant is the distribution of time among production, soldiering, and insurrection and a probabilistic distribution of income among rents and taxes received by the ruler's clientele, net earnings of productive labor, wages of soldiering, and booty taken by insurgents (Grossman, 1991). With a higher tax rate, peasants are willing to engage in an insurrection (incentive is the booty), and the revenue the leader collects in rent or taxes and distribution) than to production. Ultimately, the ruler will get more revenue from taxes but increase the possibility of a successful rebellion. For the leader

to quiet down any secession efforts by farmers, military expenditure to soldiering and technology are crucial. Grossman (1991)'s model shows that poverty is a critical incentive. As the relative returns to fighting versus production increase, soldiering is likely to increase. Leaders have to motivate their citizenry into soldiering (opportunity costs of soldiering should be low) (Besley & Persson, 2008b; Blattman & Miguel, 2010). The wealth effect of owning natural resources is ambiguous. On the one hand, the higher the national wealth (taxes, natural resources, or external transfers), the higher the equilibrium effort is to fighting rather than producing. In the absence of resources, production is less rewarding than fighting, but also, the incentive for war reduces because of smaller gains (Blattman & Miguel, 2010; Grossman, 1991).

Models by Grossman (1991) and Collier & Hoeffler (1998) narrow the causality of war to greed from war payoffs or profits gained from toppling the Government. The two models also highlight taxation's role in maintaining power and preventing an uprising, income inequality, or ethnic misrepresentation. Political elites will be at the crossroads of maximizing rent through taxation but are also aware of the likelihood of high taxation fueling conflict. The middle ground is an efficient means of taxation that increases the benefits of controlling power but reduces the possibility of engaging in a battle (Acemoglu et al., 2010). Cramer (2002) criticizes both models and other neoclassical models of conflict that relate armed conflict to only opportunistic explanations, use of only two actors, the disregard for historical factors, and the international dimension of armed conflict.

Psychological, sociological, and historical motivations for the occurrence of armed conflict: material or economic explanations for the engagement of individuals and or groups in armed conflicts don't give complete descriptions. Even in cases where economists have reduced accounts to greed only, psychological and sociological motivations might be the reason rather than material benefits (Cramer, 2002). Collier & Hoeffler (2004) study on greed and grievances as causes of armed conflict found little explanatory power for variables that proxy for grievances like inequality, political rights, or ethnic and religious division. Cramer (2002) criticizes this simplistic use of proxies for grievances as not capturing in entirety what grievances entail. Some people might join insurgencies for no apparent material benefit but ideological reasons, religion, or kinship (Gates, 2015). For example, the rewards for engaging in armed conflicts, maybe because of the solidarity of belonging to a group rather than just material payoffs. Emotional and ideological outrage might emerge as a result of inequality and fuel conflict. Besides, behavioral notions of fairness, equity, and reciprocity (Fehr & Schmidt, 1999; Rabin, 1993) might explain the motivations for engaging in armed conflicts by individuals and the glue that holds insurgent groups together. Armed conflicts might also follow a path dependence due to historical factors. Colonial forces might have in the past institutionalized relations of force in the population (Cramer, 2002) such that conflict continues in the post-colonial era. Also, diversity or dominance in ethnicity is linked to conflicts (Collier et al., 2004).

2.4 Methodology

We combine theoretical arguments with case study analysis of armed conflicts that have taken place in DRC, Uganda, South Sudan, Rwanda, and Burundi. We also use secondary data on the number of armed conflicts and fatalities from ACLED data (Raleigh et al., 2010) and narratives from former rebels of LRA to understand the incentives and disincentives for individuals and groups engaging in armed conflict. We adopt the conceptual framework below to understand the incentives and disincentives to engage and disengaging in armed conflicts in the five countries.

Conceptual framework

Incentives can be positive or negative from an individual or a group perspective. When the expected utility in conflict is positive ($(U_t) > 0$) then individuals or groups will be incentivized to engage in conflict. Otherwise, when $E(U_t) < 0$), then individuals or groups will be dis-incentivized to engage in conflict. Collier & Hoeffler (2004) classify the decision to participate in armed conflicts into grievances and opportunities, while Hirshleifer (1995) classifies it into three; opportunities, preferences, and perceptions. The latter is at the intersection of the first two. If wrongly perceived, opportunism, and grievance that might have driven armed conflicts in the first place may indeed turn to be very unprofitable or result in more grievances (Collier & Hoeffler, 2004). Opportunistic reasons for engaging in armed conflicts include: extortion of natural resources, donations, subventions, availability of cheap conflict capital, weak government military, loot, future rewards, and protection from harm (Blattman & Miguel, 2010; Collier & Hoeffler, 2004). Some directly benefit those engaged in armed conflicts while others facilitate war to be less costly, increasing the likelihood that expected utility is positive.

Grievances arise from ethnic or religious discrimination, repression, exclusion, and inequality (Collier & Hoeffler, 2004). Peterson (2001) lists self-validating beliefs, emotions such as envy, dispositions such as altruism, norms of reciprocity, threshold-based behavior, network diffusion, and relative deprivation as causal patterns or mechanisms explaining an individual's actions to engage in armed conflicts. A number of these fall in the categorization of preferences suggested by Hirshleifer (1995). Following Collier & Hoeffler (2004), opportunistic motives for engaging in armed conflicts can further be disaggregated into (1) opportunities for financing rebellion, which include extortion of natural resources, donation from diasporas and subventions from hostile governments, (2) prospects for low costs which include costs of recruitment (opportunity costs for rebellion is small), weak government military (for example a favorable terrain for the rebels like forests, mountains) and lastly (3) opportunities from social cohesion including ethnicity (proxied by ethnolinguistic

fractionalization[4] or dominance) and religious diversity). Apart from opportunism and preference, a third classification arises from individuals or groups who unwillingly are forced by threat and or punished to engage in armed conflicts. We classify these as selective incentives.

2.5 Discussion

2.5.1 Fatalities and conflict events in the Great Lake Regions:

Uganda: The graph in *Figure 2.1* shows the number of events and armed battles in Uganda from 1997 (for which data is available) to 2019 extracted from the Armed Conflict Location and Event Data (ACLED) (Raleigh et al., 2010). The number of events and reported fatalities was highest between 1997 and 2001 and between 2001 and 2006. Between 1997 and 2001, armed conflicts include Karamajong ethnic militia, Jie ethnic militia, ADF, and LRA forces. Fatalities between 1997 and 2001 include (1) 624 deaths in 1999 from an armed battle between the Government of Uganda and the Interahamwe military. (2) 720 reported deaths in Kitgum in 2000 due to an armed clash between the Uganda army and the LRA rebels. Between 2001 and 2006, the majority of the reported fatalities were by the LRA. In 2004, 604 reported deaths from Karamoja ethnic clashes. Karamoja ethnic clashes were usually armed raids between different ethnic communities stealing, raiding, or recovering cattle (Saferworld, 2010). The reduction in the number of armed events and fatalities in 2006 and after that coincides with reduced LRA activities.

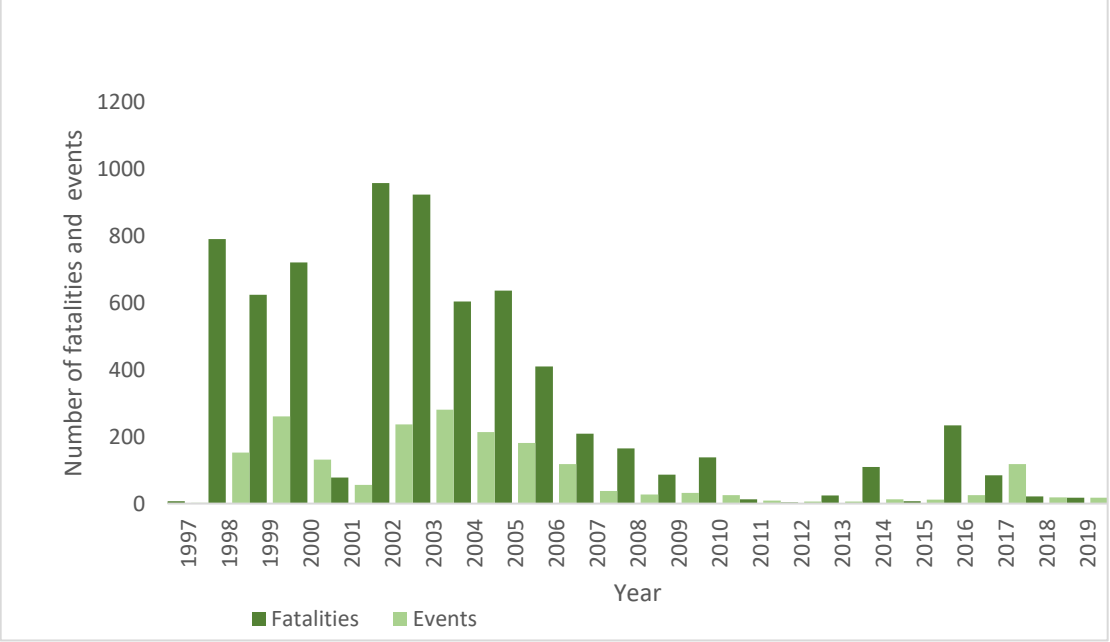


Figure 2.2: Number of fatalities and conflict events from 1997 to 2019 in Uganda.
Source: Author's construction from ACLED data

[4] Ethno linguistic fractionalization: " *is the probability that two randomly drawn people are from different ethnic groups*" (Collier & Hoeffler, 2004)

Democratic Republic of Congo (DRC): Figure 2.3 shows the number of events and related fatalities in DRC from 1997 to 2019 from ACLED data (Raleigh et al., 2010). The highest reported deaths were in 1999, 2002, and 2009. The total casualties in 1999 were 4436, while in 2002, there were an estimated 4670 reported fatalities, and in 2009, 3173 reported deaths. Between 1997 and 2009, reported fatalities were as a result of the following: (1) Mayi-Mayi rebellion which affected north and south Kivu, (2) movement for the liberation of Congo, (3) Lendu ethnic military and Hema ethnic military, (4) rally for Congolese Democracy (Kisangani), (5) Military Forces of Democratic Republic of Congo (1997-2001) (Banyamulenge faction), (6) Military Forces of Democratic Republic of Congo (1997-2001). Between 2010 and 2015, some battle events were from the clashes between Allied Democratic Forces and the National Army for the liberation of Uganda, the Lord Resistance Army originating from Northern Uganda, and currently settled in DRC.

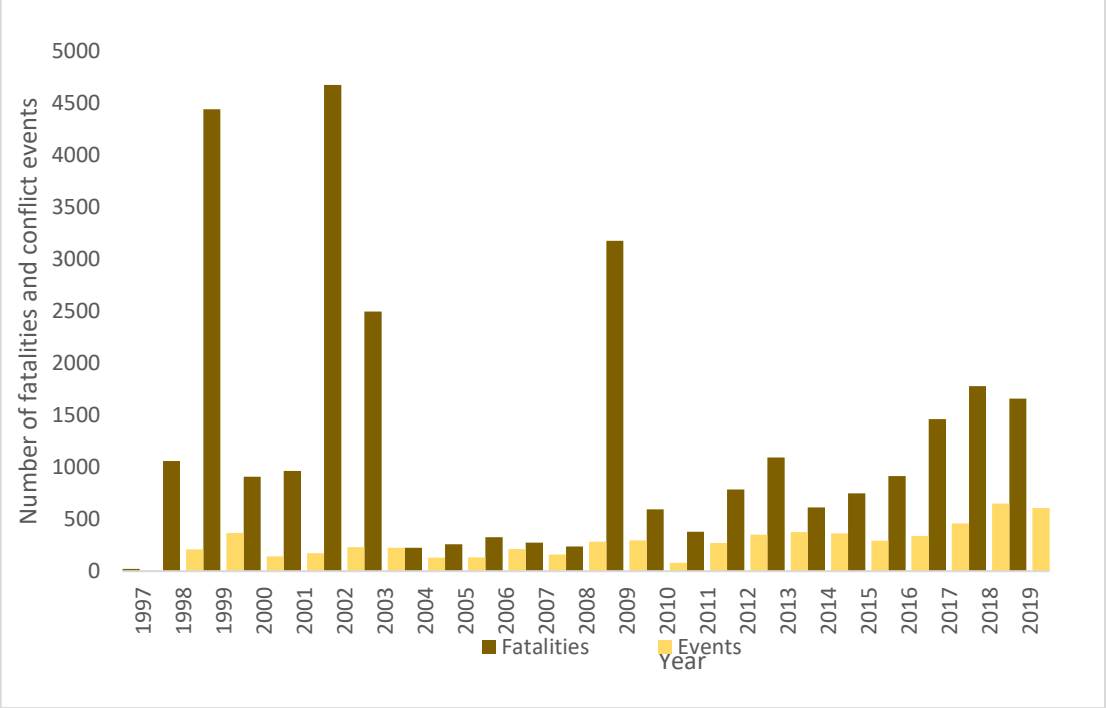


Figure 2.3: Number of fatalities and conflict events from 1997 to 2019 in DRC.
Source: Author's construction from ACLED data

Rwanda: Figure 2.4 shows a graph of the number of fatalities and armed conflict events in Rwanda between 1997 and 2019. After the genocide of 1994, occasional clashes between the Rwandan army and Hutu rebels continued until about 2000. In 1997, for example, between 200 to 300 people were killed when Hutu rebels attacked a jail in northwestern Rwanda to free their colleagues. In 1998, 250 rebels of Hutu origin were killed by the Rwandan patriotic army in Gisenyi. The clashes between RPA and Hutu rebels originating from DRC in 1998 led to about 2048 reported fatalities.

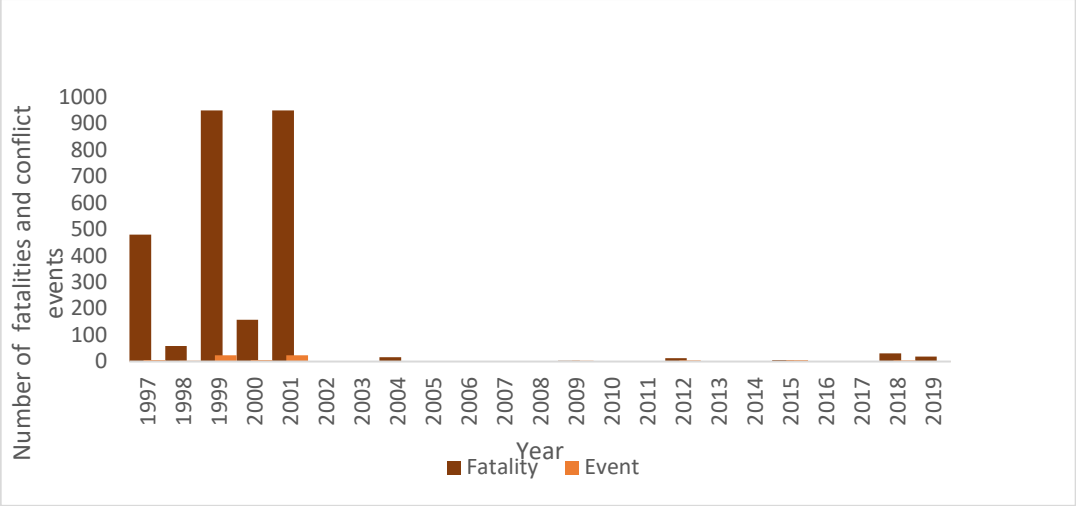


Figure 2.4: Number of fatalities and armed conflict events in Rwanda from 1997 to 2019.
Source: Authors construction from ACLED data

South Sudan: Figure **2.5** shows the number of fatalities and armed events in South Sudan since independence. The highest reported casualties were in 2014 (an estimated 4473 deaths from 537 armed conflict events) and 2017 (an estimated 3356 deaths from 618 armed conflict events). Fatalities have been driven mainly by clashes between Government forces and SPLM-IO.

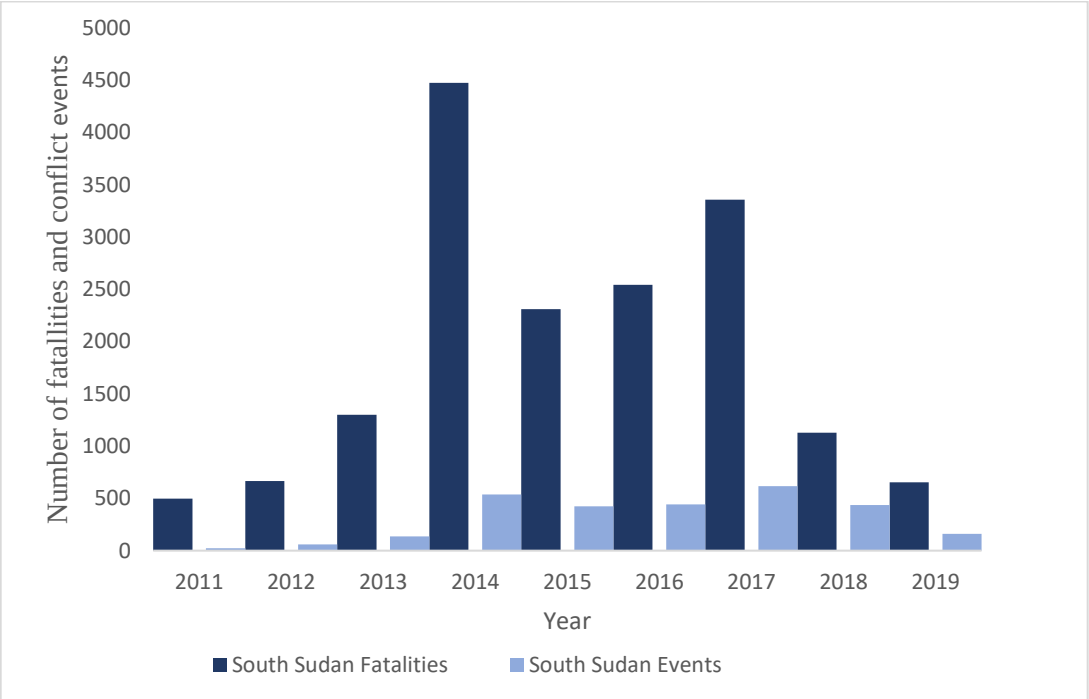


Figure 2.5: Number of fatalities and armed conflicts in South Sudan from 2011 to 2019
Source: Authors own construction from ACLED data

Burundi: In 2015, armed clashes between unidentified armed groups of people and the national police force took a toll, and several fatalities were reported (Figure 2.6). From

1997 to about 2003, the number of armed conflicts escalated, driven by clashes between Burundi government troops and Hutu rebels. For example, on 27th February 2001, at least 315 army soldiers were killed by the Defense of Democracy- a Hutu rebel group. Reduced fatalities in 2003 correspond to the signing of a ceasefire agreement between CNDD-FDD and the government. From 2005 to 2014, there were only occasional armed conflict escalations following the win by the leading rebel turned political group, the CNDD-FDD.

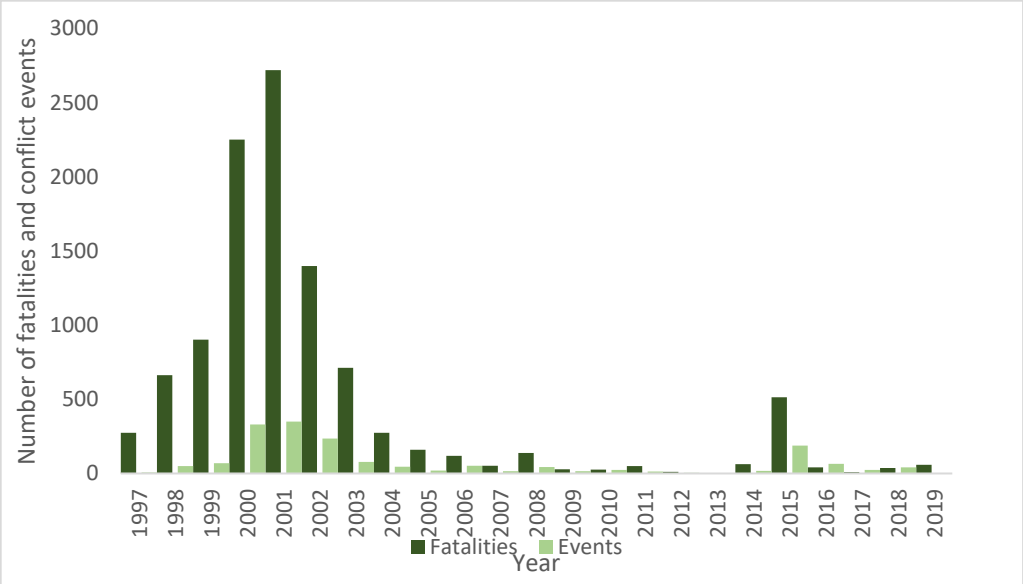


Figure 2.6: Number of fatalities and armed conflicts in Burundi from 1997 to 2019
Source: Authors own construction from ACLED data

From the conceptual framework, we classify incentives to engage in conflict into three broad categories (1) opportunistic, (2) preference driven, and (3) selective incentives. Despite this classification, it is difficult to isolate which incentives or disincentives provide a more persuasive explanation for engaging or disengaging in armed conflict, which comes first in sequencing the motives. Most of the armed conflicts are also path-dependent from a long time ago and are not primarily explained by most models.

2.5.2 Incentives for engaging in armed conflicts

Control for power to access economic benefits: As with theoretical presuppositions of Grossman (1991) and Collier & Hoeffler (1998), several conflicts emerge to have control over power and to access economic benefits such as from taxation. Neopatrimonialism associated with less democratic tendencies characterized by strong presidential rule, patronage-based distribution of power, and state resources for political legitimation (Sigman & Lindberg, 2017) drives the desire to have political power in many African countries. Burundi's neopatrimonialism system is akin to controlling economic power through various rents like allocating foreign aid, tax revenue, government employment, and awarding public contracts (Nkurunziza, 2015). In DRC, Mobutu's regime was characterized by clientelism, where power and property

concentrate in the hands of certain political elites in exchange for loyalty (Jourdan, 2011), incited grievances among the populace. Many rebel groups that emerged in the GLR have desired to be at the helm of neopatrimonialism.

Income flows from raiding and looting during conflict: raiding and looting offer opportunities for the survival of small armed groups with the lowest probability of capturing power (Blattman & Miguel, 2010). The LRA rebel activities in Northern Uganda mostly relied on raiding and looting food from the civilian communities. Similarly, several child soldiers in the AFDL army in Congo joined the armed forces for material gains (cited in Jourdan, 2011).

Natural Resources and other economic benefits: Literature mostly cites natural resources as one of the leading causes of armed conflict in Sub Saharan Africa (Collier, 1999; Collier et al., 2004; Collier & Hoeffler, 2004; Hoeffler, 2012). Grievances from poor governance, mismanagement, and rent distribution usually motivate individuals, communities, and nations to engage in war (Collier & Hoeffler, 2004; Sachs & Warner, 1995; UNECA, 2015). Besides, natural resources' revenues provide a viable source for financing armed conflict (Hoeffler, 2012; Sachs & Warner, 1995). Nevertheless, natural resources may have a crucial role in financing war but may not necessarily be the initial causes of war (Cramer, 2002). The presence of natural resources beyond a certain threshold erodes institutional quality threshold (Oskenbayev, 2015), affecting the enforcement of contracts or allegiance to bargains. Figure 2.7 shows the channels and effects of natural resource endowment and dependence.

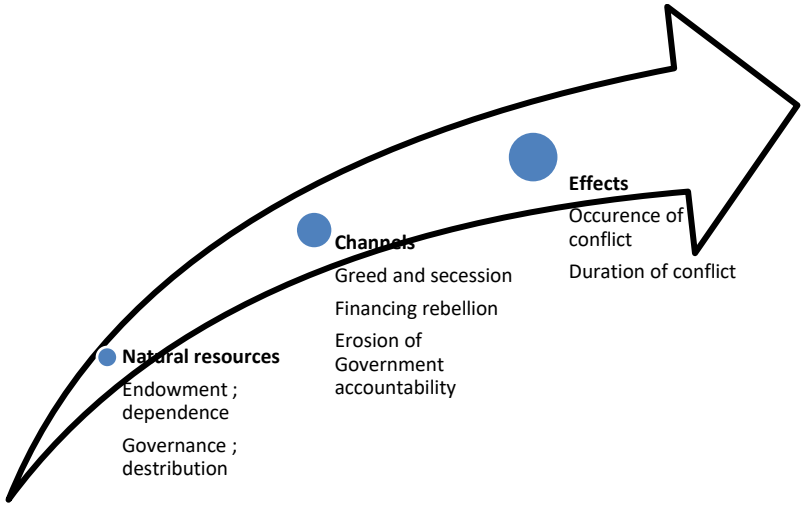


Figure 2.7: Natural resources and conflicts: channels of causation
Source: Authors construction from (UNECA, 2015)

The armed conflict in DRC is primarily attributed to the country's extensive natural resources (Cuvelier et al., 2014; Skaperdas, 2008), with minerals such as tin (cassiterite) and tantalum (coltan) characterized as "conflict minerals" (Bloem, 2019). Armed rebel groups may profit directly from these minerals as "boots on the ground" or indirectly by seeking rent from miners and traders (Cuvelier et al., 2014). Local and external markets for DRC minerals looted through violence also increase the feasibility of

engaging and continuing armed conflict. In the market of violence, violent acquisition of resources concurrently exists with non-violent trade (Elwert, 2018). Since 2000, there has been a growing presence of Chinese companies in DR Congo, targeting minerals such as cobalt, tin, tantalum, tungsten, and Gold (di Montenegro, 2017). Armed groups profit from illicitly obtaining the minerals and selling them to the Chinese who export them to China, which processes the minerals into consumer and industrial goods such as electronic products sold to consumers in the USA and Europe (Ma, 2009). Rwanda and Uganda's military engagement in DRC have also been attributed to the looting of valuable minerals such as Coltan and timber. Between 1999 and 2000, Uganda's coltan exports had increased by USD 250 million in 18 months which Venugopalan, (2016) attributes to their militaristic activities in DRC.

In DRC, the unequal distribution of resources is akin to the placement of resources across ethnic groups (UNECA, 2015), making some areas prone to armed conflicts. Katanga region has 70 percent of the country's copper and cobalt production. In contrast, the Kasai region is endowed with diamonds, and the Kivu region has vast reserves of gold and Colton, and tin. Conflict events and fatalities are higher in areas rich in mineral deposits. The "mayi-mayi" rebel group that ravaged the North and South Kivu regions resulted from disgruntled community members. Several armed conflicts in DRC also emerged out of discontent in how the central government manages revenue from natural resources. Simultaneously, rebel leaders in these mineral-rich areas have taken advantage of the grievances to push their selfish political motives forward.

In South Sudan, the ongoing armed conflict is partially attributed to the oil resource's presence in some of its regions (Nyadera, 2018). Oil-rich parts such as Unity, Jonglei, and Upper Nile are also areas with a high conflict occurrence. Despite the evidence of armed conflicts in areas of high mineral deposits in countries such as DRC and South Sudan, we cannot assume that minerals initiated the conflicts or were only a factor in sustaining the battle for a longer duration.

Availability and access to cheap conflict capital, e.g., military equipment: Availability and access to military equipment, reduce armed conflict costs. The newly independent South Sudan case provides a useful case scenario of how access and availability of arms can incentivize individuals into fighting. After seceding from Sudan following a prolonged war, disarmament was not adequately done. State security agencies and civilians had easy access to ammunition (O'Brien, 2009) and quickly took up arms in chaos.

Subventions from hostile Governments/ Support from external and internal sources: External and internal monetary funding for military equipment and other transaction costs reduce the costs of engaging in war for both rebel groups and national armies and explains the onset and increased duration of past and current armed conflicts in many countries in GLR. In the past, several countries have been hostile to other countries by sponsoring rebel movements to destabilize enemy nations or supporting national armies

to quell down the rebellion. Examples include troops of France assisting the Rwandan Armed forces against the uprising by the Rwandan Patriotic Front and the US-sponsoring training of 6000 Uganda People's Defense Forces (UPDF), which motivated the Government of Uganda to go for an offensive attack operation "Iron Fist" against the LRA in 2002. Non-monetary support by the local population also explains the existence and duration of wars in GLR. For example, the rebellion led by Laurent Kabila of the Alliance of Democratic Liberation Forces (ADFL) relied on the support of ethnic groups (such as "banyamulenge"), opposed to Mobutu's regime to wage a rebellion against the government of Mobutu.

A positive externality from neighboring countries: successful armed conflict elsewhere serves as a positive motivation for other individuals and communities elsewhere. In 1959, the Rwandan Hutus succeeded in a bloody revolution that saw political power shift from the Tutsi monarchy to the Hutu. This revolution motivated Hutus in Burundi to rebel against the power holding Tutsi. Aware of this motive, the Tutsi held on to political power and increased their dominance to prevent a similar revolution from happening in Burundi. The transnational ethnical identities and refugee flows in the GLR also explain why conflict in one country always extended beyond its borders.

Grievances and discontent arising from high inequality, lack of political rights, and general exclusion: Grossman (1991) highlights the role of distribution in minimizing insurgency. Social disparities, deprivation of basic needs, and unemployment create fertile grounds for conflict by exacerbating existing grievances and making rebellion less costly. Unemployed youth are a source of cheap labor and can quickly join revolutions. In DRC, the youth's marginalization over access to land (traditional collective land ownership replaced with the "Bakajika" law) led to youth grievances. The "Bakajika" law transferred control of land to the elite Congolese. Further, Mobutu's regime closely relied on clientelism, where power and property only concentrated in the hands of a few politicians and individuals loyal to those in leadership. Marginalization and a lack of a proper public education system left many youth disgruntled and lured them into armed groups like the "mayi-mayi".

Grievances from ethnic discrimination and or repression: Ethnicity refers to the identity (tribe, religion, sectarian belonging, social status) and solidarity for a group, which varies with time and interaction and is therefore unambiguous (Bakwesegha et al., 2004). Armed conflicts in GLRs have also emerged from discrimination and marginalization based on ethnic differences. Colonial administrations in many of the countries classified people along ethnic and tribal differences ("Hutu" and "Tutsi" referred initially to as farmers and cattle keepers) (Joras & Schetter, 2004) to divide and rule and garner support for themselves. In Uganda, the South, mainly of Bantu origin, was pitted against the North, primarily of Luo origin. In Rwanda and Burundi, the Tutsi were pitted against the Hutu. These colonial and post-colonial divisions paved the way for enhancing armed conflicts along ethnic lines in post-colonial error. In Uganda, LRA and the armed holy spirit battalion of Alice Lakwena emerged to protect the Acholi

(Luo ethnicity) from the discriminatory plans of Museveni's Government (Allen, 1991). Uganda National Rescue Front (UNRF) emerged as a rebellion against Museveni's government in Uganda to fight against people's marginalization from the West Nile. In South Sudan, orders from President Salva Kiir from the Dinka ethnicity group (largest ethnic group in South Sudan) to disarm all presidential guards from the Nuer ethnic group (second largest ethnic group) sparked off an armed conflict. The killing of about 20,000 civilians of Nuer ethnicity in Juba's capital caused grievances and hated among the Nuer ethnic group against other ethnic groups (Dessalegn, 2017). Subsequently, many soldiers sought revenge, and the white army fighters did not have to be coerced into fighting but emerged spontaneously in solidarity to rescue and revenge (Young, 2016).

In DRC, a massive influx of Hutu refugees from Rwanda to Congo created a delicate imbalance in power relations along ethnic lines and explains the armed conflicts from 1996-1997. Ethnic antagonism fueled by the political leadership of Mobutu pitting the Banyamulenge against the hosting communities partly explains the emergence of rebellion by Laurent Kabila of the Alliance of Democratic Liberation Forces (ADFL). ADFL relied on the support of ethnic groups who were opposed to Mobutu's regime. In Burundi, several conflicts are ethnically driven. Inferior Hutus often attempted to change their status quo (discrimination and exclusion) through engaging in rebellion. On the other hand, the Tutsi leaders marginalized the Hutus more (Nindorera, 2012) to maintain their status quo. Ngaruko & Nkirunziza (2000) describe the conflicts in Burundi as a conflict trap. Rebels of Hutu origin emerged due to killings of fellow high-ranking Hutus by Tutsi politicians or discriminatory acts in government and public sector positions. In response, the Government forces revenge by killing rebels and any Hutus irrespective of whether they are culprits or not, exacerbating existing grievances (Ngaruko & Nkirunziza, 2000).

Despite the prominence of ethnically driven motives in fueling several conflicts in the GLRs, it is also plausible to think that political leaders use existing ethnical grievances to rally support and push their agendas. There are incidences where the same leaders have, committed great atrocities to the very people they claim to fight for (Mkandawire, 2002). The LRA rebels in Uganda (Acholi tribe) attributed ethnic discrimination of their people to fight the Government. However, they killed, tortured, abducted, and mutilated several of the very people from their ethnicity along the way.

The moral agency to revenge or reciprocate ill-treatment and behavior: Reciprocating bad behavior with bad and good with good is common in behavioral economics (Ernst Fehr et al., 2002). Similarly, motives behind armed conflicts in the GLR have emerged from desires to revenge and or reciprocate ill-treatment, usually along ethnic lines. The armed conflict in South Sudan is between the Nuer and Dinka and follows a historical path dependency of intergroup grievances. The Bor massacre in 1991, where more than 2000 Dinka people got massacred, left an indelible historical mark that motivated the Nuer white army in South Sudan to take up ammunitions and fight the Dinka army

(Young, 2016). In Uganda, the Karamoja ethnic clashes were often for revenge for the murder of relatives or retaliation for raids inflicted upon them by other tribes (Saferworld, 2010).

The moral agency to protect boundaries: several governments in the region also find it a moral agency to protect their borders' confines. Between 1997 and 2001, Rwanda and Uganda often participated in armed conflicts with the Interahamwe military, who had receded to Mgahinga Park bordering DRC, Rwanda, and Uganda. On their part, the Rwandan government was always skeptical of the actions of the Ugandan Government and, at some point, got convinced that Uganda was training the Interahamwe military who are hostile to Rwanda (Kisangani, 2003; Relief web, 2002). In 1996, the Rwandan government made the first attack on Kivu's refugee camps with a strategy of preventing the ex banyamulenge soldiers who led the 1994 genocide from reordering and attacking Rwanda.

Psychic beliefs and or religiosity: psychologically persuades individuals to ignore the likely negative consequences of armed conflict. Many armed conflicts in the GLR in the past enticed local people to join the armed forces through the preaching of rituals and beliefs in supernatural powers that could, for example, protect warriors from bullets. Armed rebel groups like "mayi-mayi" that fought alongside ADFL in Congo believed in using magic water to protect rebels against weapons. Similar beliefs were held elsewhere in Tanzania by the "maji-maji" rebellion between 1905 and 1907 by the Lugbara in Uganda and Dinka and Mundu in South Sudan (Jourdan, 2011). In Uganda, Alice Lakwena's Holy Spirit battalion that emerged soon after the National Resistance Army came into power relied on spiritual beliefs such as smearing oneself with oil to protect against bullets and being protected by a supernatural being when fighting. Alice Lakwena believed she was a representative of magical powers sent to cleanse the Acholi tribe from their previous acts of murder, looting, and raiding (Allen, 1991). Joseph Kony, the LRA rebellion leader in Uganda, had Christian mystical beliefs and religious fanaticism. He referred to himself as the "spokesperson" of God and led a resistance based on the "10 commandments" principle. A former LRA soldier described how all soldiers got smeared with some sort of oil on the forehead, arm, and back and were cut with blades to make them invisible to the enemy and bullet-resistant (text in italics below).

The text below is an interview extract with a former LRA rebel. It highlights factors such as opportunities for income, flows from looting, marginalization, revenge, and lack of services such as education as reasons for soldiers joining the armed rebellion.

> *We were fighting because the government was not giving similar good jobs to people from the northern region, unlike the southern and western, and we're fighting for equal rights with other tribes in the south (Banyakole, Baganda, and Bantus). We were also struggling to overthrow President Museveni's regime, who had also violently taken over power from a person of our ethnicity. The war took long because of looted food*

and other assets that we would send back home, we had no hope of education, and staying at war was the only resort. I was also revenging the death of my parents killed by the Government.
Source: Author's interview with former LRA abductee and rebel

Selective incentives from threat and punishment: in common, most of the armed conflicts in the region involved forceful recruitment of children as soldiers. In Uganda, of the 25,231 children and youth returning to the reception centers following the end of LRA, 37 percent were children between the ages of 13-18, and 24 percent were youth between 19-30 years (Pham et al., 2008). An extract below from an LRA abductee gives a recount of being abducted by the LRA rebels.

I am 36 years old male abducted in 2003 from a burial ceremony. I spent three months in the bush but managed to escape. My role was to carry looted items from civilians to the base of the LRA within the Lango and Teso sub-region. I was abducted again on 23rd October 2004 after I had gone for a marriage ceremony in Aloi Sub-county Alebtong district with one of my brothers and trained and armed with a gun.
Source: Author's interview with former LRA abductee

2.5.3 Disincentives of engaging in armed conflicts

This section discusses factors that dis-incentivize individuals, groups, and countries from starting or continuing to engage in an armed conflict. We rely on evidence from past and present armed conflicts. Disincentives can be both positive and negative for as long as they prevent the onset or stop an ongoing battle.

Prosecution, litigation, disciplinary actions, or penalty: The threat of punishment through prosecution, litigation, or disciplinary actions and penalties to those involved in armed rebellion can potentially change behavior. Stigmatizing and isolating leaders through apprehension and persecution using existing laws and norms makes engaging in armed conflict unattractive. Also, taking action against leaders who engage in armed conflicts serves as a moral example to existing and aspiring leaders. It also increases the potential cost of war against the benefits, thus discouraging would-be participants. The Rome statute of the International Criminal Court, a treaty that brought into use the International Criminal court, is an example of international litigation used to prosecute genocide crimes, crimes against humanity, and war crimes at the international level. It came into force on 1st July 2002. As of November 2019, 27 African countries were signatory to the Rome Statute; DRC and Uganda are parties to the treaty. Burundi withdrew in 2017, while South Sudan and Rwanda are not a party. International Criminal Tribunals and International Criminal Courts act as forces to provide prosecution measures against those intending to commit crimes against humanity. For example, the International Tribunal for Rwanda was set to prosecute persons responsible for crimes such as murder and persecution. Its existence has been crucial in

quieting down the likelihood of the reoccurrences of the genocide in Rwanda. On its part, Uganda self-referred the atrocities committed by LRA to the International Criminal Court (ICC) in December 2003. Subsequently, the ICC issued an arrest of five prominent leaders of the LRA. The ICC involvement perhaps explains LRA's later reduced attacks on civilians and participation at the Juba peace talks in 2006.

Disciplinary actions have taken the form of legal frameworks that hinder the exploitation of minerals such as tin and tantalum from conflict-affected countries like DRC. Examples include the Organization for Economic Cooperation and Development (OECD) Due Diligence Guideline[5] and the Dodd-Frank Wall Street Reform and Consumer Act in the US. The Doff-Frank Wall Street Reform and Consumer Act instituted in 2010 require that all countries listed on the US stock exchange provide specific assurance that any product manufactured or contracted do not contain minerals that finance or benefit armed groups in DRC and its neighbors (Bloem, 2019; Cuvelier et al., 2014). Such a measure requiring transparency and strict reporting has led several companies to shun minerals from DRC and seek other supply chains elsewhere. DRC, on its part, self-imposed the ban of export for such metals for some period immediately after the passing of the Doff-Frank Wall Street Reform and Consumer Act.

Impunity and security guarantee through Amnesties: Offering security guarantee and immunity against war crimes committed by rebel groups might motivate those intending to continue to fight for an unknown cause to stop and come forward. For example, Uganda passed the Amnesty Act on 21st January 2000 to lure LRA combatants, particularly those forcefully abducted, to renounce war and return to their communities. In this regard, over 13,000 LRA former rebels returned home. Other armed groups like the Allied Democratic Font, West Nile Bank Front, and Ugandan National Rescue Front also benefited from the Amnesty.

Economic costs and social cost of war-related injuries, destruction, and death to communities: The obvious dis-incentive to engaging in armed conflict is associated with financial losses, war-related damages, and death. Beyond the loss of lives and physical injury, there are the social and development repercussions that have a long-term effect on the country. The looting of resources hinders warring nations from growth and creates an environment ripe for more violent conflicts (UNECA, 2015). DRC, for example, despite being well endowed with natural resources, has a high proportion of its population living in poverty; World Bank estimates that 73 percent of Congolese live in extreme poverty, perhaps the highest to Nigeria in Africa (World Bank, 2018). Only in recent years has DRC emerged from protracted economic contraction that has primarily been caused by wars. The costs of armed conflict are difficult to quantify. Mueller (2012) estimates up to an average price of USD 6.4 billion

[5]OECD Due Diligence Guideline provides recommendations that companies can voluntarily adhere to their decisions to purchase conflict related minerals as a way of not supporting conflict related activities that don't respect human life.

in low-income countries (obtained from the share of GDP during an average conflict period of 7 years and 14 years average in the post-conflict period).

2.6 Conclusion

Using case studies from five countries of the GLR, namely Uganda, DRC, South Sudan, Burundi, and Rwanda, we explore the incentives and disincentives of engaging and disengaging in armed conflicts in the region. Many economic, political, social, and cultural explanations explain the likely motives, and existing theories relate them to opportunistic or grievance (social-cultural and political) reasons.

Examples of incentives to engage in armed conflicts include; (1) the availability and access to cheap conflict capital such as military equipment, (2) support from internal and external sources, (3) a positive externality from neighboring countries, (4) grievances from high inequality and lack of political rights, (5) the moral agency to revenge or reciprocate ill-treatment, anarchy or the lack of institutions and (6) supernatural beliefs and religiosity. We find that prosecution, litigation, disciplinary actions, and penalties play a crucial role in dis-incentivizing individuals or communities from engaging in armed conflicts. Examples include: (1) Uganda's self-referral to the ICC, which played a vital role in defeating the LRA rebellion in Uganda, (2) the International Tribunal for Rwanda, which was essential for silencing any attempts similar to the genocide, and (3) Dodd-Frank Wall Street Reform and Consumer Act in the US which is vital as a check to prevent the sourcing of mineral wealth from conflict-affected DRC. Beyond prosecution and litigation, impunity measures include granting amnesties as a disincentive for individual rebels under LRA to stop fighting and returning to their original homes.

It is challenging to isolate opportunism from preferences and perceived incentives or identify what precedes the other discretely from the preceding discussion. There are also intersections in the GLR's motivations and disincentives, making it difficult to isolate, which played a more significant role. For example, LRA got donations from outside Uganda and motivated people to join as rebels by preaching supernatural beliefs. At the same time, they were brought to the table by existential threats and unconditional amnesty offers.

Within all five countries, the emergence of internal armed conflicts has an ethnic dimension linked to colonial times and autocratic leadership. Ethnic dominance, rather than ethnic diversity or fractionalization, seems to be the root cause of several armed conflicts. The Bush war in Uganda, the RPF rebellion in Rwanda, the LRA rebellion in Uganda, the "mayi-mayi" revolt in DRC, the several conflicts that have marred Burundi's small nation, and the current active conflict in South Sudan are motivated by discrimination and marginalization. Discrimination and marginalization along the lines of ethnicity emanate from the largely autocratic political system in the region that

supports elites' enrichment or a dominant ethnic. Despite this, it is difficult to distance ethnical arguments from greed or opportunistic incentives by rebel leaders to acquire mineral wealth or get into positions of power or loot. The timing and geographical placement of the conflicts in all the countries in the GLR, including South Sudan, carefully follow the change in regimes or leadership, highlighting the importance of political leadership in initiating disputes in the region. The conflicts in the area also have a historical colonial dimension and an international dimension. Past colonial masters continuously have a direct hand in quelling rebellions or providing foreign aid assistance to former colonies. Some conflicts in the DRC started because of the refugee influx from Rwanda into DRC, and their subsequent antagonization of the local communities around the Kivu region also tends to disregard the notion that natural resources cause armed conflict. Instead, natural resources are more likely to sustain or increase the battle's duration as rebels loot minerals.

Economic theoretical models also limit understanding the conflicts' motives with no explanations rendered for factors such as historical path dependence of armed conflicts in the region and the neighboring effect (to protect territory). Importantly, we find that the incentives that motivated individuals and communities to engage in the armed conflict in the past still linger and are the same motives behind current active armed conflicts. Countries also continue to meddle in other countries' armed conflicts, creating an environment of suspicion and untrustworthiness. Governments need to pay closer attention to these incentives to stop repeating historical armed conflicts in the region.

Chapter 3 : Conflict exposure and Food Consumption Pathways during and after conflict: Evidence from Uganda

Abstract

We examine the consequences of conflict exposure on food consumption and consumption pathways two and six years after the cessation of hostilities of the Lord Resistance Army insurgency in Northern Uganda. We use the correlated random effects model and fractional multinomial response model with nationally representative panel data collected during and after the cessation of hostilities. We also use three measures of conflict exposure: household within 5km of conflict locality, 10km of conflict locality, and self-reported (a proxy for direct exposure). We find up to between 21 to 30 percent reduction in consumption two to three years after the cessation of hostilities compared to during the armed conflict. Reduction in consumption immediately after hostilities' termination is notably higher for households directly affected by the armed conflict than within 5km and 10km of conflict vicinity. However, we find insignificant differences in consumption six years after the cessation of hostilities compared to during the conflict. Following the end of hostilities in the short run, households continue to rely on consumption from market purchases and transfers and less on their food produced. In the long term, directly affected families continue to rely on feeding on transfers (in-kind and cash). To examine the recovery of households from the effects of armed conflict, we find no significant differences in returns to land between homes exposed to violence and insecurity and those not exposed. Returns to skilled labor increase and families affected by armed conflict are disproportionately affected by lack of access to markets. Social safety nets, opportunities for non-farm employment, and assistance efforts focusing on improving subsistence production are some of the policy options to assist in the recovery of households following a conflict.

Keywords: Conflict Exposure, Consumption Pathways, Post-conflict

3.1 Introduction

Armed conflicts are one of the main drivers of hunger and undernutrition in the world today and one of the greatest threats to achieving the second Sustainable Development Goal (SDG) of Zero hunger. An estimated 489 million of the 815 million hungry people live in conflict areas (FAO & World Food Program, 2018), and at least every one in four people live in fragile countries or countries in post-conflict (Rockmore, 2017).

Numerous studies examine the consequences of armed conflict on several outcomes, including health and human development (Akresh et al., 2012; Brück et al., 2018; Bundervoet et al., 2009; Rockmore, 2017, 2020). Nevertheless, the microeconomic mechanism through which post-war recovery is manifested remains unclear (Rockmore, 2017; Serneels & Verpoorten, 2012; Verwimp et al., 2019). There is also a divergence in the data used and the measure of conflict exposure to distinguish between affected and non-affected households. Some studies use pre-conflict data in the former, while others use post-conflict data or during and after the conflict to study the consequences of war. In the latter, questions emerge on whether one should focus only on households directly affected by conflicts or whether a broader consideration of families within conflict vicinity areas should be used to estimate war consequences. For example, Brück et al. (2018) focus only on households who report the destruction of their main residence house by aggression characterized by airstrikes and ground operations. They do not consider that surrounding homes might have been affected by the threat of having their houses destroyed. Rockmore (2017, 2020) argues for the inclusion of both violence and insecurity in estimating conflict costs. Exposure to violence is from being directly attacked by rebels through looting, killing, and abduction. Insecurity emanates from the fear of rebel attacks and affects more people than those who directly get affected. We contribute to this literature on violence and insecurity in three dimensions. First, we examine the consequences of armed conflict on total household per capita food consumption expenditure and consumption pathways. Food consumption pathways are channels through which households can access food and include; own food production, market purchases, and receiving social transfers. No study that we are aware of dwells on the effect of conflict on consumption pathways, potentially revealing and explaining observed household welfare. Secondly, we use three related measures of conflict exposure: self-reported conflict exposure, households in the locality of 5km of conflict point, and 10km of conflict point to examine the consequences of conflict. Lastly, we use data collected during the conflict in 2005/06 and two to three years after the cessation of fighting in 2008/2009 and five to six years after the end of hostilities in 2011/2012.

The paper conceptually follows Rockmore (2020), who examines the costs of both violence and insecurity of the Lord Resistance Army (LRA) insurgency in Northern Uganda. We limit our measure of uncertainty from conflict exposure to within 5km and 10km of conflict points. 5km and 10km give an approximate coverage of most villages

(smallest administrative units in Uganda). Rockmore (2020) used cross-sectional household datasets merged with Armed Conflict Location and Events Dataset (ACLED) (Raleigh et al., 2010). We combine the panel dataset from the Uganda National Panel Survey (UNPS) with conflict data from ACLED. Most studies are constrained from understanding the causality mechanism due to the lack of panel data that we exploit in this study.

We examine two issues: (1) whether the effects of war on per capita consumption and food consumption pathways persist two and six years after the cessation of hostilities and (2) the recovery mechanism of households in post-conflict. First, we hypothesize that families affected by violence have higher total household per capita consumption expenditure in the post-conflict period (both in the long and short-run) than during the conflict. Secondly, we hypothesize that conflict affects consumption from own food produced, market purchases, and transfers differently in the short and long term. Lastly, we hypothesize that land and labor returns are higher for households exposed to armed conflict in the post-conflict period. Similarly, conflict-affected families are disproportionately affected by a lack of market access. Our hypothesis is motivated by the fact that access to food by households affected by conflict may differ during and after hostilities, mainly through changes in available income sources. For example, families are likely to strengthen their social safety nets (cash, in-kind and other transfers) (Arias et al., 2017; Verwimp et al., 2019) or shift from agricultural activities that require high investments to ones with short-term yields and lower profitability (Arias et al., 2017). How these changes affect food consumption, and consumption pathways are ambiguous. As an indicator of recovery, the returns to production factors, like land and skilled labor, should converge to the level of households not affected by conflict. Moreover, the returns to land and skilled labor should be substantial and positive given that most land was left uncultivated and there is increased demand for skilled labor in post-conflict either because of shortage or out-migration of educated people during the war (Blattman & Miguel, 2010; Serneels & Verpoorten, 2012).

The challenge for many studies examining the consequences of armed conflict is the reverse causality between conflict and several outcomes, including consumption, food security, and welfare, and non-randomness in attacks. Armed conflicts are likely to be in food-insecure areas (Brück et al., 2018), but also armed conflicts are known to cause food insecurity (FAO & World Food Program, 2018). The case of LRA armed conflict in Uganda is somehow unique. Rebel attacks, including abductions and mutilation of people and families, were random (Blattman, 2009). We discuss the implications of this for our estimation strategy in the methodology section. Besides, selection bias from households' migration during conflict might also bias the results, and we control for movement in our estimations. As a robustness check, we compare the results when we exclude migrating families.

Results show that two to three years (short-run) after the cessation of hostilities, per capita food consumption is between 21 to 30 percent less than at the time of the conflict

in 2005/06 both for households directly affected by violence and families who faced the threat of insecurity at a vicinity of 5km of conflict locality. However, there are no significant differences in per capita consumption expenditure during the conflict and five to six years after the cessation of hostilities. As expected, the consequences of armed conflict on total household per capita consumption expenditure are higher for households directly affected by the war (experience 30 percent less consumption) compared to conflict exposure at a vicinity of 5km (21 percent less) and 10km (25 percent less). Results also show that consumption from market purchases and transfers replaces food consumption from own food produced for households exposed to conflict in the short run. In the long term, families directly affected by the armed conflict continue to consume more from transfers and less from market purchases.

To understand households' recovery, we examine the consequences of conflict exposure on returns to land, skilled labor, and market access in the post-conflict period (2009 and 2012). In contrast to our expectations and theory, we find no significant impacts of conflict exposure on returns to land, perhaps because of minimal use of complementary inputs such as improved seeds or limited land use due to the fear of the likely reoccurrence of insecurity. We find positive and significant impacts of conflict on returns to skilled labor, suggesting non-farm opportunities in conflict-affected areas and the possibility of limited skilled labor supply due to migration. Lastly, we find that armed conflict households are disproportionately affected by lack of access to markets, unlike their counterparts not exposed to armed conflict.

The paper's remaining part is structured as follows: The next sub-section is the review of Lord Resistance Armed Conflict in Uganda. Section 3.2 discusses the related literature on economic recovery and the effects of conflict. Section 3.3 discusses the data and methods, including the empirical strategy applied in this Chapter. In section 3.4, we present the main results, and lastly, conclusions in section 3.5.

The Lord Resistance Armed Conflict in Uganda

The Lord’s Resistance Army (LRA) was founded in 1987 by Joseph Kony, fighting the regime of President Museveni Kaguta in Uganda. The two decades of insurgency between LRA and the Government of Uganda is one of the deadliest insurgent movements in Africa in recent time (Ahere & Maina, 2013) in the Northern and Eastern districts. LRA rebels raided several villages, abducting young children and girls to join their militaristic forces. LRA abducted an estimated 54,000 to 75000 people between 1987 to 2006 (Pham et al., 2008). The most affected areas were the Acholi districts of Gulu, Kitgum, Pader, Amuru, Nwoya, Agago, and Lamwo (Ahere & Maina, 2013). Pham et al. (2008) mapped out fourteen sub-counties located in Amuru, Kitgum, Pader, and Gulu that had at least 500 registered former abductees. At the peak of the war, the Government of Uganda relocated communities from their villages to internal

displacement camps (IDPs). In the IDP camps, people relied on relief aid from non-governmental organizations and farming on small plots.

In September 2006, the Government of Uganda and the LRA leaders signed a cessation of hostilities. Subsequently, relative peace returned to the populations with no gunshots experienced, and no armed fatalities reported after that (Ahere & Maina, 2013). In April 2008, further mediated peace talks were held in Juba-South Sudan between LRA and the Government of Uganda, although the LRA leader, Joseph Kony, refused to sign the peace deals. LRA continues to have occasional attacks in the neighboring country or the Democratic Republic of Congo.

3.2 Review of Literature

The Neoclassical Theory (Solow, 1956) and the Endogenous Growth Theory (Romer, 2011) relate war to economic growth. Neoclassical theory predicts that following conflict, an economy recovers to its steady state. The Endogenous Growth Theory, on the other hand, gives a more ambiguous outlook with predictions that are not easily identifiable (Koubi, 2005). Most empirical research uses Solow's growth model to predict the impact of war on economic performance and growth rates (Collier, 1999; Koubi, 2005; Serneels & Verpoorten, 2012). Subsequently, the debate has centered on how much time it takes for countries to converge to the steady-state after a conflict (Collier, 1999; Sachs, 2008). The heterogeneity in the war context and the convergence to the steady-state (Collier, 1999; Koubi, 2005). Civil war affects economic performance through its effects on factors of production (Collier, 1999). Armed conflicts destruct private and public capital like roads and increase the transaction costs involved in economic exchange (Collier, 1999; Deininger, 2003).

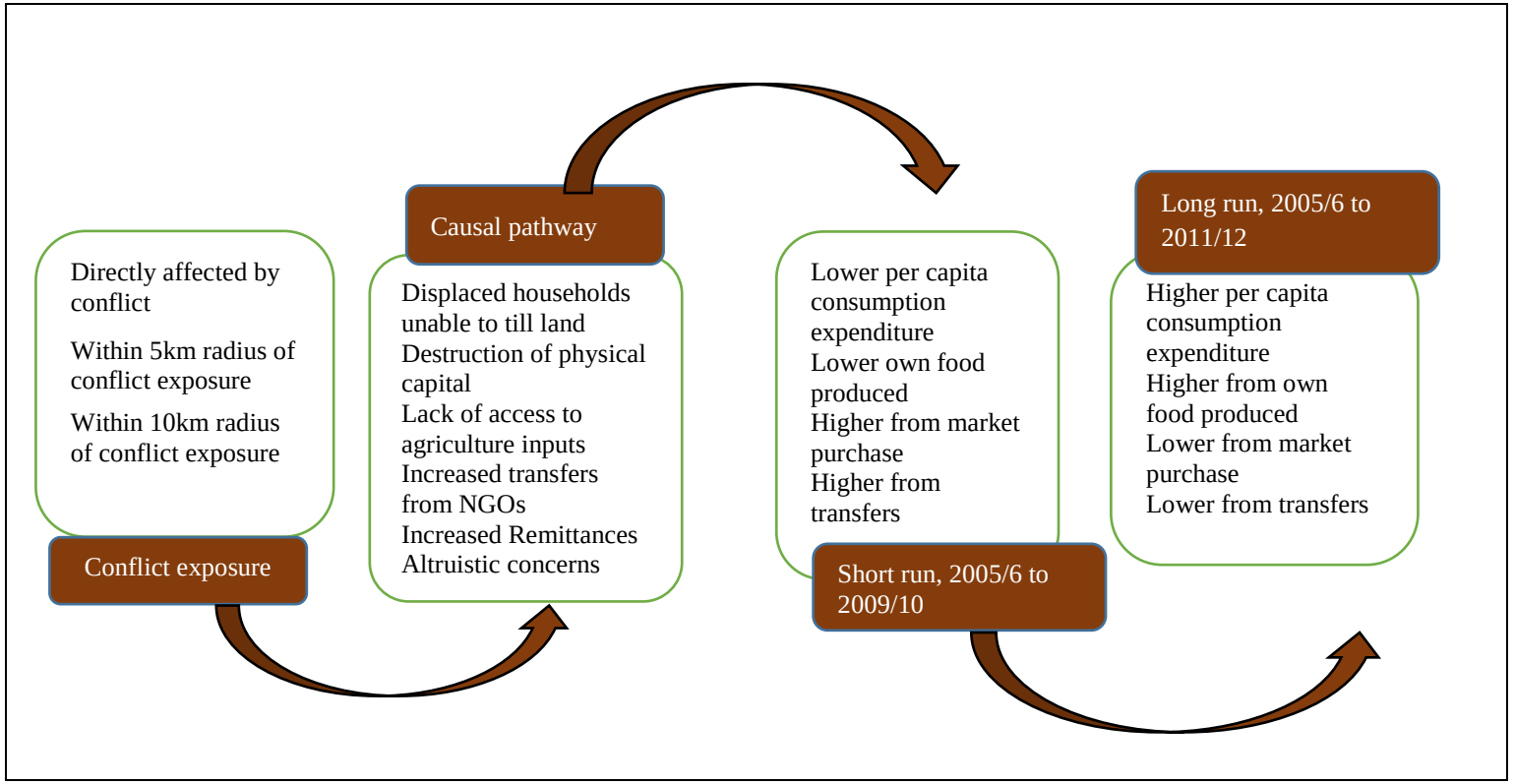
The extent and duration of recovery of affected households from the after-effects of the war depend on whether the threshold of the devastation (Arias et al., 2017; Murdoch & Sandler, 2002), which relies on the resilience of the households towards the shock from civil conflict (Brück & d'Errico, 2019; von Braun & Thorat, 2014). War sometimes imposes on households shocks from which they cannot recover (Tranchant et al., 2018) and remain trapped in low-risk strategies adopted during the conflict (Arias et al., 2017). Serneels & Verpoorten (2012) find that households and localities lag in consumption six years after the war in Rwanda. They account for the endogeneity of violence by using distance to the neighboring Rwandan country borders from which the rebels emerged as identifying instruments. Like Serneels & Verpoorten (2012), we focus on the performance of communities transiting from war and the mechanism through which conflict affects economic performance. Nevertheless, besides focusing on food consumption solemnly, we also examine consumption pathways and study the LRA war in Uganda, which was distinctly prolonged (two decades), unlike the Rwandan genocide, which only lasted a short time.

Existing studies that examine the consequences of the LRA in Uganda include (Blattman, 2009; Luca & Verpoorten, 2015; Rockmore, 2017, 2020). Luca & Verpoorten (2015) examine LRA's impact on civic and political participation and measure conflict exposure based on the district's number of conflict events. The treated groups are households located in the areas with conflict events. Rockmore (2017) explores the cost of fear by examining the effects of both violence and insecurity in the LRA conflict and finds that aggregate costs from insecurity are higher than from violence. In another study, Rockmore (2020) find that LRA conflict forced households to shift from agriculture portfolios that are profitable and risky to less profitable and risky agricultural portfolios.

Conceptual framework

The availability of food in the household depends on the household income, ability to grow food for home consumption, and health status (von Braun et al., 1992). Armed conflicts affect the household's ability to grow food by displacing households who therefore cannot access their land, reduces labor by causing death or physical harm, and families may not be in a position to access agricultural inputs like seeds (Akresh et al., 2012; Deininger, 2003). Armed conflict can also affect food intake from the market by increasing transaction costs of market participation and reducing household diversification into nonagricultural activities (Akresh et al., 2012; Arias et al., 2017; Deininger, 2003). Prolonged armed conflicts force households to shift from agricultural activities that require high investments to enterprises with lower investments, short-term yields, and lower profitability (Arias et al., 2017; Rockmore, 2020). Lastly, armed conflict is likely to increase consumption from transfers due to increased food assistance from Non-Governmental Organizations (NGOs). Also, in conflict areas, families affected by conflict are more likely to receive transfers from altruistic concerns by others (Lucas & Stark, 1985) and from remittances that help in consumption smoothing (Rosenzweig & Oded, 1989). Besides, they are likely to strengthen their social safety nets (cash, in-kind and other transfers) as alternative sources of food (Arias et al., 2017). Given these factors, we hypothesize that: (1) families affected by violence and the threat of insecurity have a higher total household per capita consumption expenditure in the post-conflict period, (2) conflicts affect consumption expenditures from own food produced, market purchases and transfers differently in the short and long run, (3) in the post conflict period, the returns to land and labor are higher for households exposed to armed conflict than those not affected. Figure 3.1 depicts the conceptual framework adopted.

Figure 3.1: Conceptual framework of the impact of armed conflict on consumption and consumption pathways



Authors construction from several studies including von Braun et al., 1992; Akresh et al., 2012; Arias et al., 2017; Deininger, 2003; Rockmore, 2020

3.3 Methods

3.3.1 Data

We use a balanced panel dataset from three waves of the Uganda National Panel Survey data (UNPS) collected in 2005/06, 2009/10, and 2011/12. UNPS is part of the Living Standard Measurement Studies collected by the World Bank and Uganda Bureau of Statistics (UBoS). In 2005/06, as part of the Uganda National Household Survey (UNHS), UBoS surveyed 7,421 households, and in 2009 on the reinstating of UNPS, randomly selected 3,123 from 7,421 households. The households surveyed in 2009/10 were followed in 2011/2012. The survey instruments contain information on household members, education, housing conditions, water and sanitation use, household consumption expenditures. Consumption expenditures focus mainly on the quantity and value of food, beverage, or tobacco consumed by households and guests within the past seven days. Consumption expenditure is captured as food produced, market purchase, or transfers received by the home. In the 2009/10 survey, families were asked if the activities of LRA disrupted their economic activities. Conflict data is from the Armed Conflict Location and Events Dataset (ACLED) that has information on the exact dates, actors, types of violence, locations, and fatalities (Raleigh et al., 2010)[6]. ACLED data is geo-referenced by point of conflict locality, which we use to construct households' distances in the UNPS data sets to the LRA's conflict points. Subsequently, we categorize households as either being within 5km or 10 km from points of conflict.

3.3.2 Variables and measurements

Independent variables

(i) Exposure to conflict

Our primary treatment variable of interest is whether the household is exposed to conflict or not. For many studies examining the consequences of violence on different outcomes, dissimilarities arise on how conflict exposure is measured. Queries emerge on whether to focus on only households directly affected by conflicts (violence exposure) or preferably, it should also encompass families within conflict areas (insecurity). Rockmore (2017, 2020) isolates between conflict risk and actual exposure to violence to study the LRA's effect on welfare and agriculture portfolios. Our empirical strategy and variable measuring conflict exposure consider both direct exposure and the threat from insecurity by allowing conflict exposure to include households within 5km and 10km of conflict locality (between 1997 and 2006) as treatment (Figure 3.2). The first two measures rightly cover the risk of armed conflict while the last captures direct violent exposure. Conflict exposure is the cumulative exposure of households from 1997 to 2006, and 13.6 percent of homes are within 5km

[6] Further information on ACLED data can be accessed from their website https://www.acleddata.com/about-acled/

of conflict locality, 31.1 percent within 10km of conflict, and 68.2 percent at a location of 50km from conflict point**.** Additionally, we use the household's self-reporting on whether they had been affected by the conflict or not as another measure of conflict exposure. 12.7 percent of our sample self-reported that their economic activities had been affected by conflict. 34.9 percent of these are within 5km of conflict points, while 82.9 percent of these are within 10km of conflict exposure.

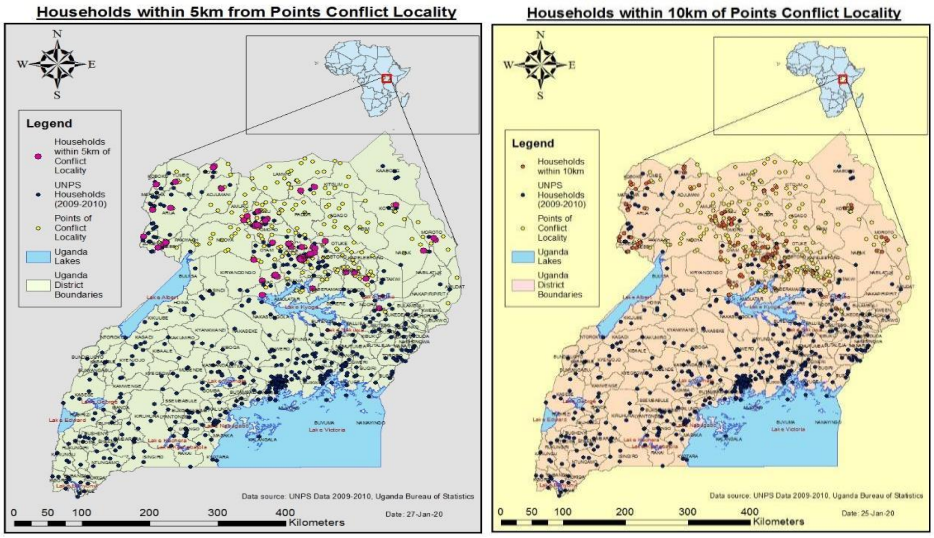


Figure 3.2: Households within 5km and 10km of conflict locality of Lord Resistance Armed Conflict in Uganda

Source: Authors construction from ACLED data from 1997-2019

In the ACLED data, localities are classified as high or low conflict intensity depending on total fatalities from 1997 to 2006. In Appendix, Table 8.1, Gulu, Kitgum, Lira, and Apac are localities of high conflict intensity, and the remaining areas are of low conflict intensity. Based on the three measures of conflict exposure, 27.62 percent of households that self-report conflict exposure, 44.14 percent of those are within 5km of conflict, and 88.70 percent are within 10km of war are in districts with high conflict intensity. Intuitively, using 5km and 10km of conflict locality to measure conflict exposure also provides for good proxies of whether households are in areas of high conflict intensity or not. We find a minimal variation of the proportion of families affected by armed conflict within a range of distances, including 4km, 6km, 9km, and 15km (Appendix, Figure 8.6), justifying the use of within 5km and 10km of the locality to reflect conflict exposure.

(ii) Other independent variables

Other independent variables used in the estimation include years of education, age, and gender of the household head, migration status, asset ownership like bicycles, motorcycles, and mobile phones (measures of household wealth), household size, household land size, distance from the market and climatic conditions measured by average rainfall season in the year for each of the household GPS locations. In Appendix, Table 8.2 and Table 8.3 are the summary statistics and descriptive statistics of variables used.

(iii) Dependent variable (Outcome of interest)

Our outcomes of interest are the total per capita household consumption expenditure and consumption pathways. Per capita, household consumption is the weighted monthly expenditures by households towards food consumed divided by the total adult equivalents. We use the average consumer price index, which measures both the differences in prices across time and geographical locations, as weights to account for inflationary changes over the years. Pathways for consumption include; own food production (households consume from its own food produced), market purchase (consumption from food purchased from the market), transfers (households consume from in-kind and cash contributions from other sources from home such as NGOs, friends, and the Government), and eating prepared meals away from home.

3.3.3 Identification strategy

Concerns of endogeneity are likely to be an issue in estimating the effect of conflict on consumption. Armed conflicts are usually strategically placed in some geographical areas and not others making them nonrandom (Arias et al., 2017), and ethnic homogeneity may influence the decision of warmongers to attack some places and not others (Rockmore, 2020). Food limitations and abundance due to climate change increase the likelihood of conflicts (Koren, 2018), and yet also conflicts are related to hunger in many countries (Collier, 1999), although evidence remains mixed. While these arguments are valid from several empirical evidence, each armed conflict is unique. The motives of the soldiers, the methods of attack, and brutality vary by war. For example, the LRA relied heavily on the abduction and looting of whole villages, and all households were liable to be attacked (Blattman, 2009). Nonrandom placement of attacks was pronounced at a larger geographical area, such as district-level rather than at the village (Rockmore, 2017, 2020). Small geographic stretches within a district were all liable to attack given the ethnic homogeneity.

In studying the LRA war in Uganda, Rockmore (2017) measure conflict risks as a temporal variation in placement from nonrandom attacks influenced by ethnic homogeneity and physical geography. On the other hand, actual violence exposure is exogenous, given the indiscriminate nature of offenses by LRA(Rockmore, 2017, 2020). A quantitative study by Blattman (2009) finds no significant differences in the mean characteristics of LRA's abducted and non-abducted youth. LRA commanders also concentrated on seizing as much loot and many people as much as possible and sorting them later (Blattman, 2009; Rockmore, 2017, 2020).

Besides exogeneity in attacks on households by LRA, we also argue for the exogeneity of attacks on communities not stretching more than 10km from conflict location points. The flat terrain within the district could not have rendered some areas more prone to LRA attacks after controlling for district fixed effects.

(i) Effect of armed conflicts on per capita household consumption expenditure

To measure the effect of conflict exposure on per capita household consumption expenditure, two and six years after cessation of hostilities, we estimate equation 1 and 2 below

$$Y_{it} = \beta_0 + \beta_1\ conflict_i + \beta_2 Year_{2005\_9} + \beta_3 Year_{2005\_9} conflict_i + \beta_4 land_{it} + \beta_5 school_{it} + \beta_6 Market_{it} + \beta_7 X_{it} + \delta_k + \epsilon_{it} \quad \ldots\ldots\ldots\ldots 1$$

$$Y_{it} = \beta_{10} + \beta_{11}\ conflict_i + \beta_{12} Year_{2005\_12} + \beta_{13} Year_{2005\_12} conflict_i + \beta_{14} land_{it} + \beta_{15} school_{it} + \beta_{16} Market_{it} + \beta_{17} X_{it} + \delta_k + \epsilon_{it} \quad \ldots\ldots\ldots\ldots 2$$

Where Y_{it} is the total household per capita consumption expenditure of household i in year t. Per capita consumption is log-transformed to ensure normality. $conflict_i$ is the measure of conflict exposure to attacks by LRA for household i. The three conflict exposure measures include a binary variable of whether households were within a stretch of 5km of conflict localities or not, a binary variable of whether families were within 10km of conflict localities or not, and a binary variable for household self-reported exposure to conflict or not. $Year_{2005\_9}$, represents the year dummy, which is equal to one in 2005/06 during the conflict and zero for 2009/2010, three years after the cessation of hostilities. $Year_{2005\_12}$ represents the year dummy equal to one in 2005/06 and 2011/2012, six years after the cessation of hostilities, respectively. The inclusion of year variables helps to control for between-year variations. $land_{it}$ represents the land size of the household i in year t while $school_{it}$ represents the years of schooling of the household head i in year t, $Market_{it}$ is the distance to the market of household i in year t. X_{it} represents a matrix of other control variables like age, gender, and marital status of the household head, household size, wealth status, and average rainfall in level form. Data on average precipitation is from the Centre for Hydrometeorology and Remote Sensing (CHRS) data portal. and ϵ_{it} represents the idiosyncratic error term.

Equations 1 and 2 can be estimated using panel data random effects, which allows for the estimation of time-invariant variables but make a strong assumption of no correlation between covariates and unobserved factors (Wooldridge, 2010). The fixed effect estimator is not appropriate because conflict exposure is time-invariant. A middle ground between the fixed effects model and the random-effects model is the correlated random effects (CRE) model (Mundlak, 1978; Neuhaus & Kalbfleisch, 1998; Wooldridge, 2010). CRE includes the means of time-varying explanatory variables as additional controls and relaxes the assumption of no correlation between unobserved fixed effects and the explanatory variables (Wooldridge, 2010). Equations 1 and 2 can therefore be modified to include the means of the explanatory variables.

(ii) Effect of armed conflicts on Consumption pathways

Each consumption pathway is a share of the household's total per capita expenditure on food and ranges between zero, $0 \leq Y_i \leq 1$. i is the index for the households. Due to the bounded nature of the fractional shares consumed from each consumption pathway (own food production, market purchase, and transfers), predicted values and the conditional expectations should lie between the bounded values (Wooldridge, 2010). Fractional probit and fractional logit models account for this bounded nature (Papke & Wooldridge, 1996). Tobit models could be the other alternative for fractional responses, but it has the prerequisite that there should be a pile-up of zeros and ones, which is a limitation (Wooldridge, 2010). In panel data, a pooled fractional response model that pools the data and clusters standard errors at the household level to eliminate serial correlation can be used (Papke & Wooldridge, 1996). However, a fractional response model ignores the unobserved effects, and a fractional fixed effect logit model is not identified (Wooldridge, 2010) and, therefore, not possible to use.

To capture households' combined decision to apportion their consumption from different pathways (own food, market access, transfers, and eating from out of home), we use a joint estimation using a fractional multinomial response model adopted by Mullahy (2015). The model maintains the independence of irrelevant alternatives assumption by ensuring that the ratio between pairs of shares does not depend on other shares (Becker, 2014). Fractional multinomial logit ensures individual shares add to one, and the predicted values lie between zero and one (Mullahy, 2015). It is robust to misspecification errors.

(iii) Heterogeneous analysis of impacts of armed conflict to understand recovery from conflict

To understand the mechanism of households' recovery from armed conflicts, we assess if returns to factors of production differ between families exposed and not exposed to conflict in the post-conflict period. In recovery, returns to factors of production should be the same for affected and unaffected households or significant and positive (Serneels & Verpoorten, 2012). Returns to skilled labor should be positive in the incidence that war-targeted educated people (Serneels & Verpoorten, 2012). The conflict led to the out-migration of educated people and increased opportunities for non-farm activities because of NGOs' increased presence. Returns to land should also be positive since the prevalence of prolonged insecurity left land uncultivated for long, as was the case for the Lord Resistance Army. Interacting conflict exposure with factors of production like land size (a proxy for capital) and skilled labor (years of schooling) and facilitating factors like access to markets in the post-conflict period helps assess the extent of recovery in the short and long run. To understand the recovery mechanism, we estimate equation 3 below, and the variables are as previously described above. We test separately if $\gamma_2 = 0, \gamma_3 = 0$, and $\gamma_4 = 0$ in equation 3

$$Y_{it} = \gamma_0 + \gamma_1\ conflict_i + \gamma_2\ conflict_i land_{it} + \gamma_3\ conflict_i school_{it} + \gamma_4\ conflict_i Market_{it} + \gamma_5 Year_{2009\_12} + \gamma_6 land_{it} + \gamma_7 school_{it} + \gamma_8 Market_{it} + \gamma_9 X_{it} + \delta_k + \epsilon_{it} \ldots\ldots\ldots\ldots 3$$

3.4 Results and Discussion

3.4.1 Descriptive statistics

Table 3.1 shows the mean difference in overall per capita household consumption and other household characteristics by conflict exposure. Detailed summary statistics are in Appendix, Table 8.3, and the average mean differences of some of the variables by the three measures of conflict exposure are in the Appendix, Table 8.4. Using 5km and 10km of conflict exposure and direct household conflict exposure (household reported), we find no statistical differences in total per capita food consumption between families affected and not affected by armed conflict. For example, using self-reported conflict exposure, the average monthly reported total per capita consumption expenditure (adult equivalent) is USD 31.06[7] for affected households and USD 31.05 for families not affected by conflict.

There is also no difference in the average share of consumption from own food produced by conflict exposure. For example, using a self-reported measure of conflict exposure, the average per capita monthly consumption expenditure from market purchases is USD 8.28 for conflict-affected households and USD 9.22 for non-conflict affected homes.

Using within 5km of conflict exposure, the average per capita monthly consumption expenditure from own production is USD 14.22 for conflict-affected households and USD 13.90 for families not affected by conflict. Appendix, Figure 8.7 shows that households affected by conflict have a high number of households with zero per capita consumption expenditure from their food produced, perhaps because armed conflict creates an unsafe production environment.

Using household reported conflict exposure, and within 10km of conflict exposure, there are no statistical differences in food expenditures from market purchases. Nevertheless, there are statistically significant differences in per capita consumption expenditure from market purchases between households within and those not within 5km of conflict exposure. Per capita, monthly consumption expenditure by households within 5km of conflict exposure is USD 10.54 compared to USD 8.86 for those not within 5km of conflict exposure.

[7] Exchange rate used is 1USD=UGX 3674.70

A significant proportion of households have zero consumption expenditure from market purchases (Appendix, Figure 8.8). Literature suggests most households in developing countries rely less on market purchases and more on subsistence production (von Braun, 1995).

Table 3.1: Differences in total per capita household consumption expenditure by conflict exposure

	Conflict-affected	Not conflict affected	
Panel A (Within 5km)			
	Within 5km (N´=487)	Not within (N=2782)	t statistics
Consumption from home production (USD)	14.422(18.529)	13.895(0.327)	-0.615
Consumption from market access (USD)	10.534(17.971)	8.845(16.171)	-2.091
Consumption away from home (USD)	5.665(11.67)	6.245(13.085)	0.922
Consumption from gifts (USD)	2.060(5.137)	1.781(5.800)	-0.997
Total consumption (USD)	32.682(26.179)	30.769(28.279)	-1.392
Land size(acres)	2.639(3.750)	2.523(3.822)	0.377
Migration	0.168(0.375)	0.124(0.330)	-2.658
Panel B (Within 10km conflict exposure)			
	Within 10km (N=1022)	Not within(N=2247)	t statistics
Consumption from home production (USD)	14.321(18.022)	13.816(17.174)	-0.767
Consumption from market access (USD)	9.615(15.74)	8.860(16.774)	-1.216
Consumption away from home (USD)	5.857(11.787)	6.300(13.35)	0.912
Consumption from gifts (USD)	2.572(7.513)	1.616(5.236)	-4.502
Total consumption (USD)	32.226(26.559)	30.521(28.593)	-1.616
Land size (acres)	2.639(3.666)	2.487(3.874)	-0.956
Migration	0.204(0.403)	0.098(0.297)	-8.385
Panel C (Household reported)			
	Affected (household reported)	Not affected (household reported)	t statistic
Consumption from home production (USD)	14.361(18.673)	13.917(17.260)	-0.484
Consumption from market access (USD)	8.282(14.112)	9.215(16.772)	1.0783
Consumption away from home (USD)	6.058(12.199)	6.177(12.982)	0.176
Consumption from gifts (USD)	2.351(7.947)	1.745(5.300)	-2.034
Total consumption (USD)	31.056(24.900)	31.054(28.404)	-0.001
Land size (acres)	2.653(3.828)	2.516(3.819)	0.638
Migration	0.202(0.402)	0.120(0.326)	4.634

The total per capita household consumption expenditure (adult equivalent) is annual. The numbers in parenthesis are standard errors.

There are statistical differences in consumption from gifts or transfers by conflict exposure for other consumption pathways, suggesting that households affected by conflict seem to rely on transfers in the form of cash or as food aid for survival. It is

mainly the case for self-reported conflict exposure and households within 10km of conflict exposure. On average, conflict-affected households have higher consumption from transfers (UGX USD 2.1 when self-reported and USD 2.6 considering 10km of conflict exposure) than households not exposed to conflict (USD 1.8 for self-reported and USD 1.6 using 10km of conflict exposure). Regarding income sources, households affected by conflict significantly engage more in cash crop growing; for example, 63.3 percent of households who self-reported to have been affected by conflict engage in cash crop production compared to 56.5 percent of families not affected by conflict. Cash crops include sunflower, cotton, coffee, palm oil. Further, households not affected by conflict engage more in cattle keeping. There are no statistical differences by conflict exposure for income sources such as receiving remittances, engagement in wage employment, and business.

Regarding wealth, households exposed to the conflict are poorer than those not exposed to conflict. There is a significant difference in proportions of homes in the second-lowest wealth quintile and the second-highest and highest wealth quintile. Due to a lack of previous data on conflict-affected households' wealth status before the armed conflict, we cannot ascertain if it is because of the conflict that they are poor. In the next subsection, we further explore the consequences of armed conflict while controlling other confounding variables.

3.4.2 Empirical results

The effect of conflict exposure on total per capita household consumption expenditure

Table 3.2 shows results from a correlated random effects model for conflict exposure and total per capita consumption expenditure in the short-run (two to three years after the cessation of hostilities) for the three measures of conflict exposure, namely: direct household conflict exposure, within 5km, and 10km of conflict exposure. The results show that three years after the cessation of hostilities in 2009, households affected by conflict have less consumption expenditure than their counterparts who are not affected. Self-reported conflict exposure is associated with a 30.5[8] percent less per capita total consumption expenditure in 2009 than in 2005, while households within 5km of conflict locality have 21.2 percent less total per capita household consumption expenditure than their counterparts not within 5km of conflict exposure in 2009. Lastly, within 10km of conflict locality, families had 25 percent less per capita consumption expenditure in 2009 than households, not within 10km of conflict exposure. Results suggest that if the average per capita adult consumption expenditure was USD 18.05 in 2005, then two to three years after the cessation of hostilities, per capita consumption expenditure declined to USD 12.55 for households directly affected by conflict. The end of the hostilities of the LRA insurgency was at the end of 2006. By 2008, most households were still returning home and trying to embark on their former livelihoods before the

[8] Interpretation of logged dependent variable is equal to 1 minus the exponential of coefficient multiplied by 100

conflict. It is plausible to think that families affected by the armed conflict had a higher consumption expenditure during the war than three years later because of the time needed to rebuild destroyed physical and human capital. The decrease in per capita consumption expenditure is higher for households directly affected by war than for all families within 5km or 10km of conflict exposure. Similarly, Rockmore (2017) finds that LRA conflict reduces household income by 16 percent in violence-affected homes and 6 percent in families that are not directly exposed. In Rwanda, Serneels & Verpoorten (2012) find that families affected by the genocide experience 36 percent lower consumption six years after the genocide's cessation.

Table 3.2: Conflict exposure and total per capita food consumption expenditure (log) in short-run (2005, 2009), Correlated Random Effects Model

	The dependent variable is the log of total per capita food consumption expenditure		
	Household reported conflict exposure	Within 5km conflict exposure	Within 10km, conflict exposure
Variables			
Household reported conflict (d, 1=Yes)	-0.222***		
	(0.077)		
Year dummy(d, 1=2009)	0.608***	0.626***	0.683***
	(0.062)	(0.066)	(0.071)
Household reported #year dummy (d, 1=2009)	**-0.266*** **		
	(0.099)		
Years schooling	-0.015	-0.013	-0.015
	(0.023)	(0.023)	(0.023)
Land size	0.021***	0.020**	0.020**
	(0.008)	(0.009)	(0.008)
Distance to market	0.00002	0.00001	-2.57E-06
	(0.00004)	(0.00004)	(0.00004)
Within 5km conflict (d, 1=Yes)		0.143	
		(0.542)	
Within5km#year dummy		**-0.192** **	
		(0.097)	
Within 10km conflict (d, 1=Yes)			-0.162
			(0.499)
Within10km#year dummy			**-0.224*** **
			(0.077)
Constant	10.68***	10.73***	10.76***
	(0.287)	(0.287)	(0.288)
Observations	1,934	1,934	1,934
Number of households	1,087	1,087	1,087

*** p<0.01, ** p<0.05, * p<0.1. Standard errors in parentheses. Other variables controlled for include: age, gender, and years of education of household head, wealth status, land size, household size, distance to the market, average rainfall received, and whether the household migrated or not. d represents a dummy variable equal to 1 if yes and 0 if No.

Table 3.3 are results of the correlated random effects model for conflict exposure and per capita consumption expenditure, in the long run, six years after the cessation of

hostilities in 2011/2012 for the three measures of conflict exposure, namely: direct household conflict exposure, within 5km, and 10km of conflict exposure. There are no significant differences in household food consumption expenditure during the battle in 2005 and six years after the cessation of hostilities for all measures of conflict exposure.

Table 3.3: Conflict exposure and log of total per capita food consumption e in the long run (2011/2012), Correlated Random Effects Model

	Dependent variable: log of total per capita consumption expenditure		
Variables	Household reported	Within 5km, conflict exposure	Within 10km, conflict exposure
Household reported (1=yes)	-0.079		
	(0.061)		
Year dummy (2005=1)	0.902***	0.872***	0.865***
	(0.045)	(0.047)	(0.049)
Household reported# year	**0.091**		
	(0.059)		
Years of schooling	-0.011	-0.013	-0.011
	(0.014)	(0.014)	(0.014)
Land size	0.009	0.009*	0.009*
	(0.005)	(0.005)	(0.005)
Distance to the market	-3.50E-05	-2.83E-05	-2.62E-05
	(0.0000465)	(0.0000466)	(0.0000467)
Within 5km		-0.352	
		(0.221)	
Within 5km#year dummy		**-0.069**	
		(0.059)	
Within 10km (1= yes)			-0.073
			(0.224)
Within 10km#year dummy			**0.052**
			(0.0463)
Constant	11.42***	11.41***	11.40***
	-0.237	-0.238	-0.238
Observations	2,253	2,253	2,253
Number of households	1,117	1,117	1,117

Notes: The dependent variable is annualized total per capita food consumption expenditure per adult equivalent (log) Coefficient estimates are reported with robust standard errors clustered at household level in parentheses. Other variables controlled for include: age, gender, and years of education of household head, wealth status, land size, household size, distance to the market, average rainfall received, and whether the household migrated or not. Also controlled for are district fixed effects. *** p<0.01, ** p<0.05, * p<0.1. represent statistical significance at 1%, 5% and 10% respectively

; # refers to an interaction

There are no statistically significant differences in per capita household consumption expenditure from their own food produced during the conflict in 2005 and six years after the cessation of hostilities for directly affected households. The results suggest that families directly affected by conflict have not yet recovered during this period.

The Effect of Conflict Exposure on Consumption pathways

We explore the effect of conflict on household's combined decision on the shares of total consumption expenditure to own food produced, market purchases, social

transfers, and consumption away from home in the short-run (2005 to 2009) in Table 3.4 and in the long run (2005 to 2012) in Table 3.5 using a fractional multinomial logit model. Given the non-linear nature of the fractional multinomial logit model, we cannot interpret the coefficients directly. Nonetheless, we evaluate the increase or decrease in one consumption pathway and not the other.

Table 3.4: Conflict exposure and consumption pathways in the short-run (Fractional multinomial logit model)

	Dependent variable: Consumption pathways			
	Own food	Market purchase	Transfers	Away from home
Panel A				
Within 5km conflict exposure (d, 1=yes)	-0.15***	0.15***	0.003	0.00
	(0.02)	(0.03)	(0.01)	(0.004)
Year dummy (d, 1=yes)	-0.04*	-0.003	0.03***	0.01**
	(0.02)	(0.021)	(0.011)	(0.004)
Panel B				
Within 10km conflict exposure (d, 1=yes)	-0.06***	0.04*	0.02**	0.00
	(0.02)	(0.02)	(0.01)	(0.00)
Year dummy (d, 1=2009; 0=2005)	-0.04**	-0.001	0.03***	0.01**
	(0.02)	(0.02)	(0.01)	(0.004)
Panel C				
Household reported (d, 1=yes)	0.02	-0.04	0.03***	-0.01***
	(0.02)	(0.02)	(0.01)	(0.004)
Year Dummy (d, 1=2009; 0=2005)	-0.04*	-0.003	0.03***	0.008**
	(0.02)	(0.02)	(0.01)	(0.004)
Observations	1,934	1,934	1,934	1,934
Household Fixed effects	Yes	Yes	Yes	Yes
District Fixed effects	Yes	Yes	Yes	Yes

Standard errors in parentheses. Other variables controlled for in all panels include age, gender, and years of education of household head, wealth status, land size, household size, distance to the market, average rainfall received, and whether the household migrated or not. *** p<0.01, ** p<0.05, * p<0.1

Panel A shows conflict exposure results defined by households within 5km of conflict exposure; panel B shows conflict exposure defined by families within 10km of conflict exposure, and panel C shows self-reported conflict exposure. There is a significant negative association between the shares of total food consumed from own food produced and conflict exposure defined by using within 5km and 10km of conflict exposure and not directly affected by armed conflict. On the other hand, there is a positive statistically significant effect of conflict exposure (within 5km and 10km) on food consumed from market purchases. In panel C, results show a positive impact of direct household conflict exposure on social transfers. The results suggest that armed conflict reduces the share of food consumed from own food produced food and increases consumption from the market purchases in the short run. Suffice it to say, the adverse effects of insecurity on consumption from own food produced surpass the positive impact on consumption from market purchases to create an overall negative

impact on household per capita consumption, particularly in the short run. Moreover, households directly affected by armed conflict have increased consumption from social safety nets, possibly from aid directed to conflict-affected families.

Table 3.5 shows the effects of conflict exposure in the long run from 2005 to 2012. Panel a shows results for conflict-affected households within 5km, panel b shows conflict-affected families within 10km of conflict exposure, and panel c shows conflict exposure as reported by homes (direct exposure). There is no significant impact of conflict exposure on the share of total food consumed from own food produced in the long run. On the other hand, there is a positive statistically significant effect of conflict exposure (within 5km and household reported) on food consumed from market purchases for families within 5km of conflict exposure. Families directly affected by conflict consume less from the market and more from transfers in the long run.

Table 3.5: Conflict exposure and consumption pathways in the long run (Fractional multinomial logit model)

	Consumption pathways			
	Own food	Market purchase	Transfers	Away from home
Panel A				
Within 5km (d,1=yes)	0.002	0.05***	-0.005	-0.06***
	(0.02)	(0.01)	(0.01)	(0.02)
Year dummy (d, 1=2012; 0=2005)	0.197***	-0.586***	0.0257**	0.363***
	(0.03)	(0.03)	(0.01)	(0.02)
Panel B				
Within 10km (1=yes)	-0.0114	0.0107	0.0208*	-0.02
	(0.02)	(0.01)	(0.01)	(0.02)
Year dummy (d, 1=2012; 0=2005)	0.202***	-0.588***	0.0242**	0.362***
	(0.03)	(0.03)	(0.01)	(0.01)
Panel C				
Household reported conflict(1=yes)	0.02	-0.03**	0.02**	-0.01
	(0.02)	(0.01)	(0.01)	(0.02)
Year dummy (d, 1=2012; 0=2005)	0.201***	-0.588***	0.0267**	0.360***
	(0.03)	(0.03)	(0.01)	(0.02)
Observations	2,253	2,253	2,253	2,253
Household FE	Yes	Yes	Yes	Yes
Yes District FE	Yes	Yes	Yes	Yes

Standard errors in parentheses. Other variables controlled for include: age, gender and years of education of household head, wealth status, land size, household size, distance to the market, average rainfall received, and whether the household migrated or not
FE refers to fixed effects, d represents a dummy variable

The results suggest that the risk of insecurity (households within 5km and 10km of conflict exposure) reduces consumption from own produced food and increased consumption from the market purchases in the short and long run (at least up to six years from cessation of hostilities). Even so, the adverse effects of insecurity on the

share of total consumption from own food produced surpass the positive impact on the percentage of total consumption from market purchases to create an overall negative effect on household per capita consumption, particularly in the short run. Furthermore, households directly affected by armed conflict have increased consumption from transfers, possibly from aid directed to conflict-affected families.
Households directly affected and within 5km of conflict exposure significantly consume more from social transfers than families not affected. Similarly, Brück et al. (2018) found that the Gaza conflict in Palestine increased social safety nets and attributed it to increased support from national and international organizations. Several non-governmental organizations emerged during the conflict to provide relief support to affected households for LRA's case. After the conflict, such organizations' withdrawal might explain the observed results for families directly affected by the armed conflict. The fact that directly affected households have a significant share of consumption from transfers also suggests that proper targeting of social assistance programs is needed.

Mechanism of recovery in post-conflict

To examine the recovery of households from the conflict, we compare the returns to production and access to markets between families exposed to conflict and those not. We interact with conflict exposure variables, production factors like land, skilled labor (years of schooling), and access to markets. In post-conflict settings, the returns to land should be large and positive. During the two decades of conflict, affected households were not in a position to cultivate their land. Upon returning to normalcy, returns to land should be substantial (soils are more fertile due to its redundancy during the conflict).
Similarly, returns to labor, mainly skilled labor, should be positive in the presence of non-farm work. In the post-conflict period, several NGOs and Government programs such as the Youth Livelihood Projects were introduced to skill youth and employ them in the Northern Region of Uganda. Access to markets is crucial for the purchase of food but also for the sale of agricultural produce.

In Table 3.6, we estimate the returns to factors of production for conflict-affected and non-conflict-affected households using a correlated random effects model. We find a negative but statistically insignificant impact of conflict on returns to land. The results show that whereas the returns to land are generally positive, the returns to land for households within 5km of conflict exposure are not significantly different from those of their counterparts, not within 5km of conflict exposure. We find a positive and significant effect of conflict ($p>0.10$) on returns to skilled labor. Within 5km of conflict locality, households have higher returns to skilled labor in the post-conflict period than those not within 5km of conflict locality. The adverse and significant effects of the interaction of conflict exposure within 5km and access to the market imply that households within 5km of conflict exposure and far from the market have less consumption.

Table 3.6: Within 5km of conflict exposure and returns to land, education, and market access in the post-conflict period (2009 -2012)

Variables	The dependent variable is the total household per capita consumption expenditure(log)		
	Land size	Years of education	Distance to market
Within 5km conflict exposure (1=yes)	-0.09	-0.31	0.035
	(0.32)	(0.33)	(0.31)
Within 5km# years of education		0.09*	
		(0.05)	
Land size(log)	0.10**		
	(0.05)		
Years of education (Log)		0.001	
		(0.03)	
Year dummy (1=2009)	-0.01	-0.01	-0.16***
	(0.04)	(0.04)	(0.05)
Within 5km# land size (log)	-0.03		
	(0.1)		
Within5km# distance market (log)			-0.04**
			(0.02)
Distance market (log)			-0.05***
			(0.01)
Constant	11.35***	11.42***	11.80***
	(0.35)	(0.352)	(0.359)
Observations	2,349	2,349	2,349
Number of households	1,030	1,030	1,030

Notes: the same as those in Table 3.3

Examining the returns to land and labor for households within 10km of conflict exposure results in Table 3.7 show positive effects of conflict exposure within 10km on returns to skilled labor ($p>0.10$), adverse effects on market access ($p>0.05$), and no significant impact on returns to land. It suggests that returns to skilled labor are higher for households within 10km of conflict exposure than families not within 10km of conflict exposure. Homes within 10km of conflict exposure far from the market have less consumption than households not within 10km of conflict exposure far from the market, suggesting that market access disproportionately affects those households affected by insecurity.

Table 3.7: Within 10km of conflict exposure and returns to land, education, and market access in the post-conflict period (2009 -2012)

Variables	The dependent variable is the total household per capita consumption expenditure(log)		
	Land size	Years of education	Distance to the market
Within10km (1=yes)	0.005	-0.14	0.16*
	(0.1)	(0.1)	(0.09)
Within10km#years education (log)		0.08*	
		(0.04)	
Farm size (acres)	0.10**		
	(0.05)		
Years of education (log)		-0.01	
		(0.03)	
Within10km#landsizefarm (log)	-0.03		
	(0.07)		
Within10km#distancemarket (log)			-0.04***
			(0.01)
Distance to market			-0.04***
			(0.01)
Constant	11.36***	11.42***	11.77***
	(0.355)	(0.356)	(0.363)
Observations	2,349	2,349	2,349
Number of households	1,030	1,030	1,030

Notes: the same as those in Table 3.3

For household reported conflict exposure, the results in Table 3.8 show no significant impact of conflict on returns to skilled labor and land. We also find a weak negative effect on market access ($p>0.10$). Unlike households' exposure to insecurity (within 5km and 10km of conflict exposure), families directly exposed to conflict (family reported) are more vulnerable and might be near markets but cannot reap the benefits.

Table 3.8: Household reported conflict exposure and returns to land, education, and market access in the post-conflict period (2009 -2012)

Variables	The dependent variable is the total household per capita consumption expenditure (log)		
	Land size	Years of education	Distance to the market
Household affected(1=yes)	0.08	-0.03	0.12
	(0.11)	(0.1)	(0.09)
Household affected#years of education (log)		0.01	
		(0.05)	
Land size (log)	0.10**		
	(0.05)		
Years of education (log)		0.01	
		(0.03)	
Year Dummy	-0.01	-0.01	-0.16***
	(0.04)	(0.04)	(0.05)
Household affected#landsize (log)	-0.08		
	(0.09)		
Household affected#distance market (log)			-0.03*
			(0.02)
Distance to market(log)			-0.05***
			(0.01)
Constant	11.35***	11.36***	11.76***
	(0.35)	(0.35)	(0.359)
Observations	2,349	2,349	2,349
Number of households	1,030	1,030	1,030

Notes: the same as those in Table 3.3

Excluding migration

Migration, including leaving homes to stay in the camps, is a common phenomenon during conflicts. During the battle in 2005, 18 percent of households had ever migrated, 10 percent had ever migrated in 2009, and 12 percent of the families had ever migrated in 2012. Migration is likely to explain the above findings, such as why consumption is less two to three years after cessation of hostilities and why households consume more from market purchases and transfers than from their food produced. To assess the consistency of the results, we estimate the models and exclude migrated households. Results in Appendix, Table 8.5 remain consistent, albeit lower in magnitude; families affected by conflict have a lower consumption immediately after the battle than during the war. For example, households directly affected by conflict consume 30 percent less immediately after than during the war.

In the long term, as in a short time, households directly affected by the conflict continue to have a lower consumption in Appendix, Table 8.6. Nevertheless, the magnitude in reduction is 10 percentage points less in five to six years after the cessation of hostilities

(17.4 percentage points) than two to three years after the end of hostilities (27.1 percentage points) with the exclusion of migrated households. We further examine if migrating homes might be driving the effect of conflict on the returns to land, skilled labor, and market access by excluding migrating households from the analysis. As before, we find an insignificant impact of conflict on returns to land; additionally, with the exclusion of migrating families, we find negligible effects of conflict exposure (all measures) on returns to schooling, suggesting that the presence of migrating households drives previous results. Lastly, lack of market access (proxied by distance) disproportionately affects households exposed to conflict even with the exclusion of families that have ever migrated.

3.4.3 Discussion

Results show that two to three years after the cessation of hostilities, per capita consumption is significantly less than during the conflict both for households directly affected by conflict and those involved from the threat of insecurity at a vicinity of 5km and 10km of conflict point. As expected, the consequences of armed conflict on per capita consumption are higher for households directly affected (self-reported) by the war. Families who self-report have 30 percent less total per capita consumption, families who are within 5km of conflict locality have 21 percent less consumption. In comparison, families who are 10km of conflict locality have 25 percent less consumption three years after the cessation of hostilities than during the conflict. In the long run, five to six years after the end of hostilities, there are no significant differences in consumption during the war and after that. To further understand the consequences, we explore the effect of armed conflict on the share of total per capita household consumption expenditures from own food produced, market purchase, and consumption from transfers. Results show that in the short run, households exposed to the threat of insecurity (within 5km and 10km) significantly have lower consumption from their own food produced and higher consumption from market purchases compared to those not affected. Even so, for households within 10km of conflict exposure and those directly affected (self-reported), consumption from transfers is significantly higher than those not within 10km of conflict exposure or those not directly involved. In the long run, for all measures of conflict exposure (within 5km, 10km, and self-reported), there are no significant differences with those not affected by the conflict in the share of consumption from own food produced. Also, families within 5km of conflict exposure have a higher percentage of consumption expenditure from market access. In contrast, households directly affected by armed conflict have less consumption from the market and higher consumption from transfers.

The higher consumption expenditure during the conflict compared to two to three years after the cessation of hostilities might be due to the withdrawal of food relief support to affected households and the fact that rebuilding assets and investment lost and destroyed take time. During the Lord Resistance Armed conflict, families could not

cultivate the land and relied majorly on relief food. With the cessation of hostilities, households had to embark on the cultivation and rebuilding of assets. The shift between the shares of total food consumed from own production, market purchased, and transfers also varied in the short and long run and by conflict exposure. In the short term, households exposed to conflict (within 5km and 10km of conflict exposure) rely more on market purchases and less on their own food produced perhaps from remittances and support from Government and NGOs. Consumption from own food produced is also less as households clear land. Besides, the fear of attacks or insecurity might still prevail two to three years after hostilities' cessation. Families directly affected continue to rely on transfers in the short and long run for several reasons, including the lack of labor, land, and fear for the reoccurrence of insecurity.

We hypothesize that returns to land, skilled labor, and access to markets are higher for conflict-affected households to understand the post-recovery mechanism. We reject our hypothesis and show that whereas the returns to land are generally positive, there are no significant effects of conflict exposure on land returns. The return to peaceful living with no rebel activities should mean that households have the opportunity to utilize the available land more efficiently. However, if farmers lack complementary inputs such as improved seeds and fertilizer, then returns to land may remain insignificantly different from those not affected by armed conflict. The returns to skilled labor are somewhat higher in areas within 5km and 10km of conflict exposure, perhaps due to the out-migration of educated people due to conflict. Lastly, for all conflict exposure measures, lack of access to markets disproportionately affects those affected by armed conflict, thus the importance of infrastructure developments in conflict-affected areas.

3.5 Conclusion

We examined the effect of armed conflict two and six years after the cessation of hostilities on total household per capita consumption expenditure and food consumption pathways. We also discuss the recovery of households affected by conflict by assessing the effect of war on returns to land, labor, and access to the market. Towards the end of 2006, the Government of Uganda and LRA signed the cessation of hostilities of the two-decades-long conflict. Around 2008 and 2009, households were embarking on their previous livelihoods before the armed conflict, although the threat of insecurity still lingered. To understand the extent of recovery, we hypothesized that per capita household consumption expenditure increases with the cessation of hostilities both in the short and long run. After the end of hostilities, the increase in per capita consumption is from increased consumption from own food produced and reduction in consumption from market purchases and transfers. These effects vary by the measure of conflict exposure used. We used three measures of conflict exposure: families directly affected during the war (self-reported), households within the vicinity of 5km of conflict locality, and households within 10km of conflict locality. We use the correlated random effects to understand the impact of armed conflict on consumption

during and after the war in the short and long run. We use the fractional multinomial logit model to estimate the share consumed from the different consumption pathways.

Our results suggest that the recovery of households following a prolonged conflict takes time. Immediately after the cessation of hostilities, families consume less than during the war. Households who directly report exposure to the conflict have up to 30 percent less consumption expenditure. Those within 5km of conflict exposure have 21 percent less consumption expenditure, and those within 10km of conflict exposure have 25 percent less consumption expenditure. Market purchases and transfers dominate the share of total consumption expenditure, mainly in the short run. Returns to land remain unaffected in the post-conflict period, perhaps because of less use of complementary inputs or underutilization of available land as the fear from insecurity continues to ponder. Returns from skilled labor are positive and significant due to the out-migration of educated people, suggesting the need for non-farm opportunities in post-conflict areas. At the same time, access to the market remains crucial for affected households. The incidence of insecurity from armed conflicts (families within 5km and 10km of armed conflict) positively affects consumption from market purchases. Still, as the threat of insecurity lessens, households rely less on consuming from market purchases and transfers and more on their food produced. Nevertheless, households directly affected by war continue to rely more on transfers than their production or market purchase, suggesting that it takes some time for such families to recover as they rebuild destroyed capital. The results show the importance of directly targeting affected households and directing assistance towards subsistence production for households recovering from war.

The following policy recommendations suffice from the results of this study: (1) transfers and other social safety nets remain crucial interventions for people emerging out of a prolonged conflict, (2) there should be increased opportunities for nonfarm employment in post-conflict areas (3) any support for households directly affected by armed conflict should focus on improving agriculture production for subsistence consumption (4) improvement in infrastructure such as increased access to markets should be prioritized in areas recovering from war.

Chapter 4 : Prosocial attitudes between Refugees and Host communities exposed to armed conflict: Experimental evidence from Northern Uganda

Abstract

We examine prosocial attitudes between refugees and host communities exposed to armed conflict in Northern Uganda. By conducting trust and dictator games in the field, we test if there is any discrimination in trust and altruism by hosts and discrimination in trustworthiness and altruism by refugees based on information provided as to whether one's partner in both games is a refugee or hosts. We examine if these beliefs or stereotypes change with remoteness from district headquarters. Results show that refugees show preferences for reciprocating trust and altruism to hosts rather than fellow refugees with increasing remoteness. Refugees located more than 10km from district headquarters transfer more of their endowment to hosts than to fellow refugees by 8 and 15 percentage points on reciprocating trust and generosity, respectively. Hosts show preferences for trusting fellow hosts rather than refugees by a 10 percentage point difference, although it changes with increasing remoteness. Hosts located 10 km or more from the district headquarters trust refugees more than hosts by 22 percentage points. Refugees also do not perceive that their partners might expect their beliefs to change based on their identity. On the other hand, hosts believe that their partners, irrespective of whether they are refugees or hosts, expect them to favor fellow hosts. We conclude that refugees do not consider the social differentiation of "us refugees" and "them host" in their interactions. Hosts, on the other hand, show some prejudices, although it changes with remoteness. The results are crucial to the policy arena of social connections and refugee integration, a high global refugee management agenda.

Keywords: Trust, Trustworthiness, Altruism, Refugees, Host communities
JEL CODES: D9, C91, D03

4.1 Introduction

Armed conflicts are associated with the displacement of multitudes of people forced to flee their homes' comfort to other countries as refugees. The countries or communities they flee to have their own identity characterized by similar norms, ethnicity, religion, and taboos. Hosting refugees who are different in social identity creates a social characterization of "us" hosting communities and "them" refugees, which is likely to affect social behavior between the two groups (Tajfel et al., 1971). External organizations and Government agencies offering support to displaced persons often distinguish between refugees and host communities when providing services. Refugees are likely to have correlated preferences from shared norms, taboos, and kinship (Bénabou & Tirole, 2011; Denison & Muller, 2016) and uncorrelated choices with hosting communities.

Nevertheless, the categorization of social identity evolves (Akerlof & Kranton, 2000), and with repeated social interactions, some preferences might change (Ernst Fehr et al., 2002). Discrimination against out-groups or favoritism to in-group members evidenced in several studies (Baumgartner et al., 2012; Bernhard et al., 2006; Chen & Li, 2009; Tajfel et al., 1971) may be ambiguous. It is even more ambiguous for social groups exposed to war, such as refugees and host communities, following literature that shows that war experiences increase prosocial behavior (Bauer et al., 2016; Voors et al., 2012).

We contribute to this puzzle by examining two social groups' prosocial behavior, namely refugees fleeing from armed conflict and hosting communities who have previously experienced armed conflict. The context that we study is unique because communities currently hosting refugees from South Sudan were refugees in the past. Our main goal is to examine any forms of discrimination in trust, reciprocity of trust, and altruism by refugees and hosts.

The theory of social identity in psychology literature postulates altruistic behavior towards in-group members and mistrust, hostility, or indifference towards out-groups (Baumgartner et al., 2012; Tajfel et al., 1971). In economics, the concept of social identity is extended to understand issues of gender discrimination, household division of labor, and social exclusion based on ethnicity or religion (Akerlof & Kranton, 2000). Fershtman & Gneezy (2001) distinguish between discrimination arising from a taste of discrimination and ethnic stereotypes. The former reflects prejudice, already embedded in one's utility function, and can reflect dislike, anger, or similar emotions. The latter on stereotypes reflects perceptions held towards a group and is not necessarily standardized. In the trust game, we are unable to distinguish between the two forms of discrimination. Comparing results from the trust and the dictator game, we can separate trust emanating from prejudice and one originating from stereotypes or beliefs about a given social identity (Fershtman & Gneezy, 2001b). In this study, we provide information on one's partner's social orientation regarding whether they are refugees or

hosts and, therefore, cannot distinguish between discrimination arising from prejudice (tastes for discrimination) and stereotypes.

We hypothesize that people from the same social identity will favor those from their social group. In this case, refugees will show preferences in trustworthiness and altruism for fellow refugees and discriminate against hosts. Hosts will have preferences in trust and generosity for hosts and discriminate against refugees (out of tastes for discrimination or ethnic stereotypes). Secondly, we hypothesize that these preferences for one's social group will change with remoteness from urban areas, such as district headquarters. The assumption is that with repeated social interaction, attitudes of discrimination against out-groups change (Ernst Fehr et al., 2002) may change. Our treatment is the random assignment to information on whether one plays with a refugee or member of the hosts. We test the above hypothesis by conducting trust and dictator games with refugees and the host community members in the Adjumani district in Uganda. We use the within-subject design in which all players play both the trust and dictator games in an unexpected order. The context provides a unique setting for understanding the role of social identity in refugee integration. Refugee settlements are near hosts with no restrictions on interactions. Also, both refugees and hosts have experienced war and have some shared norms and cultures.

The most closely related paper to this study in literature is by Hartman & Morse (2018), who study violence, empathy, and altruism of the Ivorian refugee crisis in Liberia. Hartman & Morse (2018) explore how past exposure to violence affects altruism towards refugees of a different ethnic or religious group in the Liberian context. They fail to rule out omitted factors by using survey data, conjoint experiments, and observational approaches to measure altruism[9]. We corroborate their findings by using a lab in the field experiments of trust and dictator games with refugees and members of the host community to address the endogeneity of preferences. Hartman & Morse (2018) also rely on host communities' self-reported behavior that may not reflect the households' actual reality. In a controlled experimental environment, such biases from self-reporting are limited. Besides, our study focuses on a different behavioral puzzle of understanding trust, trustworthiness, and altruism, influencing many informal social and economic interactions that remain largely informal (Bauer et al., 2018; Berg et al., 1995). Limited studies focus on this puzzle or have a similar context. Bauer et al. (2018) use trust and dictator games to understand if the experience of being abducted to fight for a rebel group affects individual trustworthiness. Werner & Lambsdorff (2019) investigate the impact of activation of memories of conflict on prosociality and find no evidence for discrimination of out-groups. Other studies artificially create social groups in the lab (Chen & Li, 2009; Everett et al., 2015), which might not depict real-life

[9] In conjoint experiments, players are presented with a hypothetical condition and told to make a choice based on several factors such as gender, ethnicity, religion, food security and other factors that the players consider prime and are likely to affect the choices made. Hartman & Morse (2018) use conjoint experiments to elicit respondent's preferences over attributes of refugees.

categorization of individual social group identities based on regular interactions, emotional ties, or prevailing norms (Everett et al., 2015).

Lastly, we contribute to the limited research focusing on refugees and their hosts' behavioral aspects, unlike many studies centered on refugee livelihoods. The results are crucial to the policy arena in many humanitarian contexts, where concern for the vulnerable displaced people's assistance is the prime agenda. Recent policy discussions on refugee settlement have cantered on whether refugees should be integrated with local communities and allowed some degree of work and freedom of movement or be secluded in designated camps and settlements (Bohnet & Schmitz, 2019). Uganda is heralded for its move towards reintegrating refugees into host communities (refugees live with host communities rather than in secluded camps) with no restrictions on work, access to land, and movement (UNDP, 2017)

We find that refugees show preferences for reciprocating trust and altruism towards hosts with increasing remoteness from district headquarters. Hosts show preferences for trust towards fellow hosts, although this changes with increasing remoteness from the urban areas, particularly from the district headquarters. Hosts nevertheless show no preferences for altruistic behavior to fellow hosts even with increasing remoteness. We attribute the results to increased interaction opportunities between the two groups, with increasing remoteness from the district headquarters due to high transaction costs that limit travel and interactions to closer confines. Other arguments may be attributed to the fact that; (1) remote settlements have a higher population density (2)a high ratio of refugees to hosts or (3) are nearer the South Sudan border, thus a higher likelihood of shared language and cultural identity between hosts and refugees. The distribution of settlements and the fact that we control for settlement fixed effects may rule out these inferences. There are limited self-selection and screening of refugees into particular localities, thus limiting the possibility of bias. Refugee settlements are established as the need arises; once the existing cluster has reached its capacity, another settlement is established. There is also limited migration of refugees from one settlement to another. Lastly, results are likely to be influenced by the fact that only trustworthy and altruistic refugees move into Uganda following forced displacement. Nevertheless, we think this is less likely to be the case given the history and the erratic nature of the conflict in South Sudan that drives refugees to Uganda.

To ensure our findings' robustness, we use socioeconomic information about the players from household surveys to check for the randomization success. We control the players' socioeconomic characteristics in our regression and corroborate our findings with survey responses and focus group discussions. We rule out the possibility that refugees reciprocate trust more to hosts than to fellow refugees with increasing remoteness to gain favour from them in confidence. Focus group discussions also show that refugees perceive hosts as being the same with shared cultures and tribes. Less trust by hosts towards refugees also does not stem from their anticipation of less reciprocity from the

latter. In focus group discussions, hosts indicated that refugees were thieves and a danger to collective resources.

The rest of the paper is structured as follows: the next section reviews Northern Uganda's post-conflict region. Section 4.3 discusses the related literature on trust, altruism, empathy, social identity, and discrimination. Section 4.4 then discusses the methods, including experimental design, sampling, and procedures for the game. In chapter 4.5, we present the main results from the experiment, and in section 4.6, we offer conclusions and policy recommendations.

4.2 Review of post-conflict and refugee-hosting in Northern Uganda

Uganda is a landlocked country situated in East Africa, with about 34.6 million people following the 2014 population census (Uganda Bureau of Standards (UBOS), 2016). Between 2006 and 2013, poverty reduced from 31.2 percent of the population living below the poverty line to 19.7 percent (WorldBank, 2016). Nevertheless, poverty remains concentrated in the Northern and Eastern parts, with 84 percent of the poor living in these regions.

The Northern region has experienced several armed conflicts over the decades since independence in 1962. The downfall of President Idi Amin in 1979 led to ethnic clashes (Merkx, 2000). Many people of Alur, Lugbara, Kakwa, and Madi descent were harassed and had to flee to Southern Sudan, where similar tribes exist. In 1986, the National Resistance Movement (NRM) led by Yoweri Museveni took over political leadership, and several uprisings such as the Holy Spirit Movement of Alice Lakwena and the Lord's Resistance Army (LRA) under the supervision of Joseph Kony emerged. The armed conflict between LRA and the Government of Uganda lasted for two decades, and several people were displaced and relocated to internal displacement camps.

Despite a history of displacement of its people due to armed conflicts, Uganda currently has one of the most significant refugee influxes globally. It is third to Turkey and Pakistan as a "refugee go-to host country," hosting about 1.2 million refugees fleeing from the ethnic armed conflict in South Sudan, the Democratic Republic of Congo, and Somalia. It has a generous refugee policy that allows refugees free movement, work, engagement in business opportunities, and access to services such as health care and education. This model contrasts the reluctance of several countries whose policies on refugees confine refugees to camps with no liberty of working and movement.

We conduct our study in the Adjumani district located in the West Nile region of northern Uganda. Adjumani has been plagued by several civil tensions arising internally within Uganda but also from neighboring South Sudan. For example, in 1979, the overthrow of President Idi Amin was accompanied by public pressures forcing communities from Adjumani to flee into South Sudan. In 1986, displaced populations

returned home due to escalating conflict in South Sudan (Hovil, 2001). Adjumani was also affected by the two decades of the Lord's Resistance Army (LRA) war traumatized by many communities in Northern Uganda. Currently, Adjumani has the highest refugee ratio to the host population (43:57) communities in Uganda (Figure 4.1). As of 2016, it also had one of the largest refugee settlements in Uganda, with about 185,000 inhabitants.

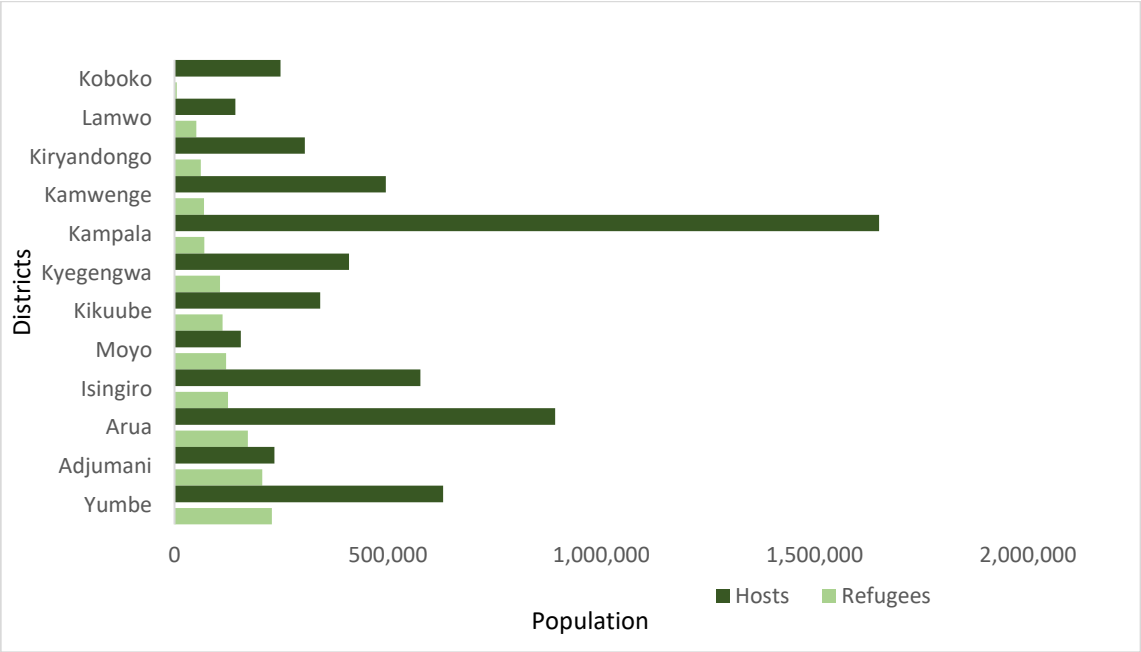


Figure 4.1: Refugee host populations by districts in Uganda as of 31st August 2019.
Source: UNHCR & Government of Uganda, (2019)

4.3 Review of Literature

4.3.1 Trust, reciprocity, and altruism

Social preference models incorporate fairness concerns such as difference aversion and reciprocity when individuals care for their payoffs and payoffs received by others (Fehr & Schmidt, 1999). Social preferences include distributional preferences and concerns for reciprocity. Distributional concerns like difference aversion are motivated by the desire to reduce differences in payoffs (Fisman et al., 2007). Reciprocity is driven by the desire to raise or lower payoffs depending on how fairly others behave (Rabin, 1993).

To understand social preferences using two-person games, consider two players, A and B, in a non-strategic setting. If π_i represents monetary payoffs for person i and π is a set of possible payoffs for a game, to maximize utility, A chooses payoffs $(\pi_A, \pi_B) \in \pi$ in which case $U_A = \pi_A$. Nevertheless, with concerns for altruism, a more general form of utility suffices in which players A's utility is a weighted sum of her material payoff and partners (B) material payoff and can be represented by equation 1 and 2 below

In this case if

$\pi_B \geq \pi_A$, then $U_B(\pi_A, \pi_B) \equiv (1 - p - \theta q)\pi_B + (p + \theta q)\pi_A$, Equation 1

and when $\pi_B \leq \pi_A$ then $U_B(\pi_A, \pi_B) \equiv (1 - \delta - \theta q)\pi_B + (\delta + \theta q)\pi_A$ Equation 2 (adopted from Charness & Rabin, 2002)

The weight B places on $A's$ payoff depend on (1) equity concerns (whether A is getting a higher or lower payoff than B) (Fehr & Schmidt, 1999; Loewenstein & Thompson, 1989), (2) reciprocity behavior (whether A has behaved unfairly or not), (3) worm glow giving and (4) simply altruistic concerns (Rabin, 1993). Parameter θ allows for incorporating preferences due to reciprocity behavior, while p and δ allows for distributional outcomes other than reciprocity (Charness & Rabin, 2002) such as competitive preferences and difference aversion. Other factors likely to affect how much B gives to A include the level of anonymity, gender of A or the framing of the game (Andreoni & Miller, 2002), psychological emotions like anger and surprise (Geanakoplosand et al., 1989). These also enter the utility function of A represented as $U_A = u_A(\pi_A, \pi_B; \gamma)$ where γ is a vector of all these attributes.

The assumption $\delta \leq p \leq 0$ holds if player B always prefers to have a competitive advantage (higher payoff than others) but maintains fairness concerns. $\delta < 0 < p < 1$ holds if $B's$ interests lie in minimizing disparities in monetary payoff, the case for difference aversion (Loewenstein & Thompson, 1989). For reciprocal behavior, $B's$ value for p and δ vary with $B's$ perception of player $A's$ intentions depending on whether A is fair or not in behavior. If A is not fair in behavior, then $\theta > 0$; when $= -1$.

Trust and dictator games

To measure trust and trustworthiness, Berg, Dickhaut, & McCabe (1995) proposed a two-player sequential game of trust with no contract to enforce agreement (Johnson & Mislin, 2011). It involves two players- the sender/trustor/investor and receiver/trustee anonymously paired and endowed with an initial amount, say X_0. In the first stage, the sender decides how much to send to the receiver. He can send nothing in which case he remains with all the endowment of X_0 or send a proportion X_a of the endowment which lies in the range $0 \leq X_a \leq X_0$ with the hope that he will get some of it back in case the trustee reciprocates. In this case, he remains with $X_0 - X_a$. The amount sent by the trustor is tripled by the experimenter $3X_a$ and passed to the receiver (trustee) who decides how much to send back to the trustor which we denote as $Kb(3X_a)$. Subsequently, the amount the trustor sends with the hope that the other party will reciprocate measures trust while the amount sent back by the receiver or trustee measures trustworthiness (Berg et al., 1995; Johnson & Mislin, 2011).

If the initial endowment was 10 units, for example, the trustor's strategy X_a is given by $(0,1,2 \ldots \ldots 10)$ while the trustee's strategy is such that K_b: $(0,3, \ldots \ldots \ldots 30)$ which should satisfy $0 \leq K_b(3X_a) \leq 3X_a$. The payoffs will be such that trustors get

$P_a(X_0, K_b) = X_0 - X_a + K_b(3X_0)$ while trustees get $P_b(X_a, K_b) = 3X_a - K_b(3X_a)$. If the subjects have a strictly increasing direct utility function for wealth given by $V_i(W_i + P_i(X_a - K_b))$ where V_i is the utility function and W represents welfare for $i = a, b$ and want to maximize their welfare, then the dominant trustee's strategy will be to keep all the money in which case $K_b(3X_a) = 0$. In anticipation of this behavior, trustors send nothing such that $X_a = 0$. The subgame-perfect equilibrium is such that if subjects have selfish interests and only care about their monetary payoffs, the trustee will never send anything back because returning money reduces one's payoff (Burks et al., 2003).

The dictator game shows that people still make some transfers even when they expect nothing and are not sure of the partner's status (Andreoni & Miller, 2002). The dictator game distinguishes expectations of reciprocity from preferences not conditioned on others' behaviors (Ashraf et al., 2006; Bauer et al., 2018). In the dictator game, two players – a dictator (D) and receiver (R) split a prize normalized to have a unit value. If $X \epsilon (0,1)$ denotes what the receiver gets, then D is left with $(1 - X)$. D chooses what to transfer with probability $(1 - p)$ and nature sets this equal to some fixed value X_0 with probability of p (Andreoni & Bernheim, 2009). In a standard dictator game, p is 0. The difference between what is sent in the dictator and trust game constitutes the portion of trust attributed to the other party's expectations of reciprocity (Ashraf et al., 2006).

Evidence also shows that people playing either role (trustor or trustee) do make some transfers (Berg et al., 1995; Burks et al., 2003; Cesarini et al., 2008; Kosfeld et al., 2005) in the trust game showing trust and trustworthiness. For every definite amount sent by the trustor, the trustee's average net return is positive (Rabin, 1993). Returning positive amounts by senders in the trust game is attributed to unconditional altruism, inequality aversion, and reciprocity (Andreoni & Miller, 2002; Bauer et al., 2018). Dictator games are used for measuring unconditional selflessness, not directly linked to kinship, reciprocity, or the immediate threat of punishment (Andreoni & Bernheim, 2009; Cox, 2004a). Cameron, Gelbach, & Miller (2007) and Fehr & Schmidt (1999) attribute positive transfers, especially equal splits, to inequity aversion – the resistance for inequitable outcomes. Other factors to explain the puzzle of positive giving are attributed to genetics (Kosfeld & Rustagi, 2015), environment (Cesarini et al., 2008), gender (Haselhuhn, Kennedy, Kray, Van Zant, & Schweitzer, 2015a), social preferences, and internalized norms (Andreoni & Bernheim, 2009; Ashraf et al., 2006; Burks et al., 2003; Kimbrough & Vostroknutov, 2016) audience effects or social image (Andreoni & Bernheim, 2009), fairness and reciprocity (Charness & Rabin, 2002). Ashraf et al. (2006) find that expectations of return and unconditional kindness account for the variance in trust. Andreoni, James, and Miller (2002) agree that people behave in kindness to others, and when rephrased in the language of prices and income, can be shown to be rational.

To determine if trust and trustworthiness are gender-sensitive, Chaudhuri, Paichayontvijit, and Shen (2013) find that female individuals are most reciprocal,

although such gender differences dissipate over time. Haselhuhn et al. (2015) find that women are both less likely to lose trust and more likely to restore trust than men. Several studies find a positive relationship (Bauer et al., 2018; Bellows & Miguel, 2009; Hartman & Morse, 2018; Voors, Nillesen, Verwimp, Bulte, Lensink, & Soest, 2012) between social preferences and cooperative behavior. Voors et al. (2012) find that individuals exposed to violence display more altruistic behavior towards their neighbors, are more risk-seeking, and have higher discount rates. Bellows & Miguel (2006) find that households affected by war are more likely to attend community meetings and join political and community groups. Hartman & Morse (2018) study how regions plagued by reoccurring periods of war and displacement are altruistic towards members of different ethnic or religious groups and find that violence promotes intergroup cooperation. Lastly, Bauer et al. (2018) explore the effects of forced military services on trust and trustworthiness and find that soldiering experience increases individual reliability and community engagement.

4.3.2 Social identity and discrimination

Favoring members of one's ethnic, racial, or language in-group is referred to as parochialism (Bernhard et al., 2006) even with no expected gains (Rabellino et al., 2016). In the psychology literature, parochial altruism theory is associated with altruistic behavior towards in-group members (one's ethnic, racial, or any other social group) and mistrust, indifference, or hostility towards out-groups (Baumgartner et al., 2012; Tajfel et al., 1971). In neoclassical utility functions, a proxy for forms of exclusion and discrimination based on gender, ethnicity, and religion is used to understand gender discrimination, labor division, and many others (Akerlof & Kranton, 2000). Social identity is synonymous with a norm of groupings associated with parochial social instincts (Bernhard et al., 2006), and members within the social cluster benefit from altruistic behavior amongst members. When there is a categorization of "us" and "them" (Tajfel et al., 1971), then social identity creates social bridges and affects the integration of refugees with hosts (Ager & Strang, 2008). Discrimination based on social status influences the social connection between groups and their interactions.

Several studies reveal how prosocial behavior favors in-groups compared to out-groups (Baumgartner et al., 2012; Bernhard et al., 2006; Chen & Li, 2009; Rabellino et al., 2016; Tajfel et al., 1971). Bernhard et al. (2006), using "punishment experiments" in Papua New Guinea, found that punishers protect in-group victims much more than out-group victims. On their part, the norm violators have higher expectations of lenience by punishers from their social group. Similarly, Baumgartner et al. (2012) find that more reliable in-group networks lead to severe punishment of out-groups for norm violation than in-groups.

Empirical findings show evidence of in-group favoritism (Chen & Li, 2009; Rabellino et al., 2016). Chen & Li (2009) find that 19 and 13 percent of the study sample are

more likely to reward an in-group member for good behavior and punish them for misbehavior, respectively. They also find that participants are significantly more likely to choose social-welfare-maximizing actions when matched with an in-group member than an out-group member. Rabellino et al. (2016) find that punishers tend to punish those who exhibit unfair play towards their group members.

Several factors may explain social preferences for in-groups. First, higher expectations of reciprocity (Bernhard et al., 2006) from in-group members compared to out-group members to minimize differences within the group (inequity aversion within the group likely to be higher). Second, the desire to maximize in-group payoffs relative to out-group payoffs increases inequity feelings to out-groups (Everett et al., 2015). Third, maximizing utility is selfish behavior because of the perceived higher reciprocity from the in-group rather than out-group (Rabbie et al., 1989). Fourth, observed immoral acts of out-groups, which threaten resources (Everett et al., 2015), might explain one's group preferences.

Like other preferences, favoring one's group can be shaped by economic and social conditions such as market integration (Ernst Fehr et al., 2002). Markets allow for repeated interactions between non-kin, and, commonly, non-cooperative actions such as cheating get punished such that in the long run, cooperations develop (Denison & Muller, 2016). Besides, market integration is also associated with greater prosociality (Henrich et al., 2005). Prosocial attitudes towards individuals with similar life experiences, such as war, might also outride discrimination from differences in social identity (Hartman & Morse, 2018). Shared ethnic backgrounds between refugees and hosts may also invoke hosts' altruism or sympathetic feelings (Kreibaum, 2016).

4.4 Methods

4.4.1 Empirical strategy

We examine whether refugees favor fellow refugees when reciprocating trust and altruism based on the information given to them regarding whether they play the trust and dictator games with a refugee or with a host. All refugees are receivers and are randomly assigned to know that their sender is either a host or a fellow refugee. Similarly, we examine whether members of the host favor fellow hosts in trust and altruism based on the information given regarding whether they play the trust and dictator games with fellow hosts or with refugees. All hosts are senders and are randomly assigned to know that their receiver is a refugee or a fellow host.
We estimate equations 1 and 2 for refugees and hosts, respectively.

$$D_{ir} = \alpha + \beta_1 P_r + \beta_2 T_r + \beta_3 P_r T_r + \delta controls + \epsilon_r \quad \text{Equation1}$$
$$D_{ih} = \alpha + \beta_1 P_h + \beta_2 T_h + \beta_3 P_h T_h + \delta controls + \epsilon_h \quad \text{Equation 2}$$

Where D_{ir} is the outcome for individual i in the refugee household r and can be trustworthiness or altruism. To measure trustworthiness, we solicit responses using the strategic method on how much one would send back if the trustor sent UGX 1000 and if the trustor sent back UGX 2000, respectively. P_r is the treatment dummy variable equal to one if the subject is randomly assigned to the information they play with a refugee or equal to zero if they are randomly assigned to the information they play with a host. The coefficient β_1 in equation 1 measures the average treatment effect and is a measure of the difference in the level of trustworthiness towards refugees and the host community. T_r measures the distance of the player's home from district headquarters. We capture distance as a dummy equal to one for players located 10km or more from the district headquarters and equal to zero if located less than 10km. We hypothesize that remoteness from the district increases prosocial attitudes of trust, reciprocating trust, and altruism towards out-groups from increased opportunities for interaction due to closer confines from limited movement due to high transaction costs of travel.
The coefficient β_1 in equation 2 measures the difference in the level of trust towards refugees and the host community members. In equation 2, D_{ih} is the outcome for individual i in the host community household h and can be either trust or altruism of host communities. Trust is the measure of the amount sent in the trust game while altruism is the amount of money sent in the dictator games, the description of other variables used in the model is in Appendix, Table 8.7. For both equation 1 and equation 2, $controls$ is vector of individual characteristics of the player such as age, gender, level of education, and household characteristics such as household size and wealth that affect behavior (Henrich et al., 2006) and ϵ_r and ϵ_h are the error terms with standard errors clustered at the settlement level.

4.4.2 The Experiment

Experimental design

We use a within-subject design where a participant plays both the trust and dictator game in random order and follow the gold standard trust game discussed previously. Trustors are given an endowment (UGX 2000) and have the opportunity to send money to another participant with information on whether their partner is a member of the host community or is a refugee. Treatment was the players' information regarding whether their playing partner is a refugee or a host community member. Refugees and hosts were randomly assigned to the treatment arm one – playing with refugees or treatment arm two – playing with hosts. Players were assigned to the same treatment in both the dictator and the trust games. Other details of the matched partner, such as the names, the location from which they come from, remained anonymous. Subsequently, each trustee chooses how much of the tripled amount to send back to the trustor. The hosts played as senders (trustors).

In contrast, refugees played as receivers (trustees) to measure the degree of trust by hosts who are the owners of most of the resources and the degree of trustworthiness by resource-constrained refugees. In the dictator game, participants were asked to decide what amount they would want to send to an anonymous partner with the knowledge that this amount sent would be tripled, and the receiver would not have to return any of that amount. The receiver, on the other hand, did not send back any money to the sender.

Sampling and sample selection

We used a multistage sampling technique. We randomly selected refugee settlements selected from "new" and "old" settlements in the first stage. New settlements had been established in 2016, while old ones had been in existence for more than three years in 2018. The study covered Elema, Boroli, Mugula, Oliji, Alere, Agojo, Maji, Merieyi, Ayilo, and Pagirinya settlements in Adjumani district. In the second stage, we randomly selected households from a list of refugee households. 288 refugee households were randomly selected from 10 refugee settlements using probability proportional to size sampling. We also randomly chose two of the five host community local councils within a 15 km radius[10] of each refugee settlement. From the eligible local councils, we randomly selected 331 host households using probability proportional to size sampling. In total, we surveyed 619 households from localities shown in Figure 4.2 between April and May 2018 and conducted experiments in June 2018. The corresponding number of refugee and host community households surveyed in each settlement is in the Appendix, Table 8.8.

[10] Zhu et al., (2016) established that majority of refugee activities and transactions took place within a 15km radius of the settlements.

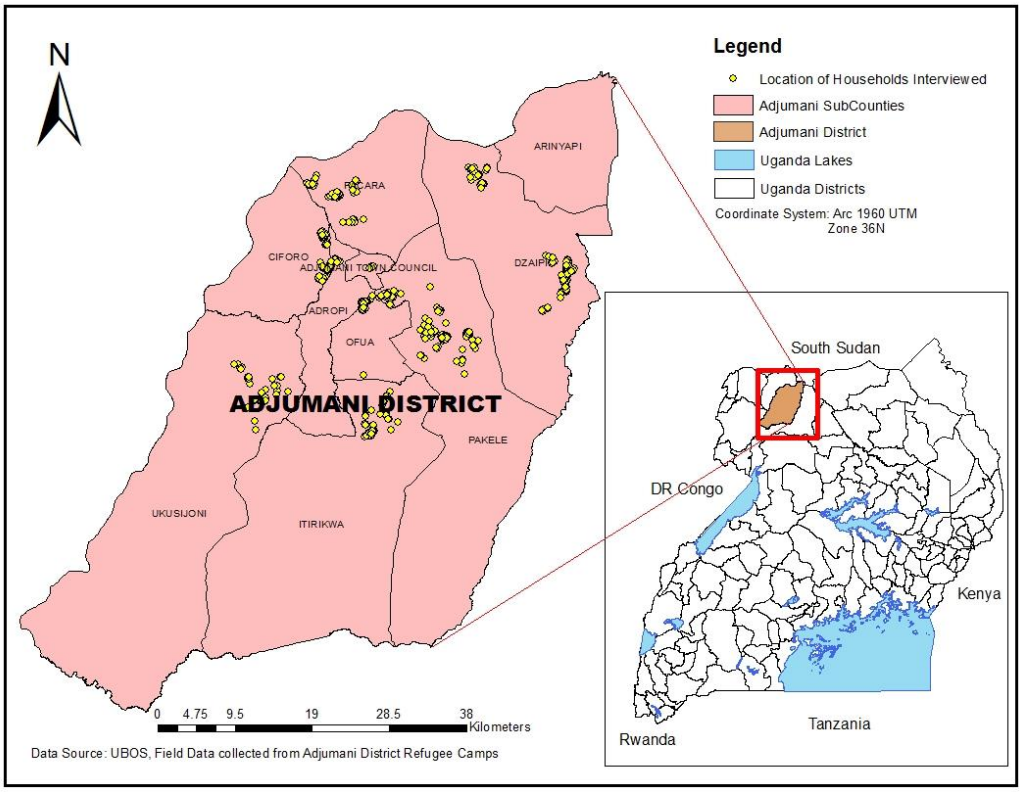


Figure 4.2: A map of Adjumani district showing the distribution of the households in the study

Author's construction

Experimental procedure and instructions

Our experimental procedures and instructions closely follow Bauer et al. (2018), who conducted trust and dictator games in Northern Uganda, Gulu, and Kitgum districts, which are about 157 km and 115 km from Adjumani district, respectively. Bauer et al. (2018) adapted the written protocols by Barr (2003) and Henrich et al. (2006). We intensively trained research assistants for two months with sequential piloting of the games in Kampala. The household head, in his or her absence, the spouse, played the games, and in a few cases, we allowed an adult member of the household above 18 years to take part. We conducted a short exit interview asking for the player's demographic characteristics and soliciting for risk preferences

.

We randomly assign hosts and refugees to treatment (knowing whether the anonymous person they play the game with is either a refugee or host). To minimize any possibility of creating antagonism within the communities, hosts and refugees played in separate places close to their local council. We read out a uniform profile to the players, for example, that their paired partner was between the ages of 18 – 60 years old, that they were refugees (assuming this was the treatment) registered and staying in one of the refugee camps demarcated by Government of Uganda in Adjumani district. The enumerators made no mention of the village or refugee settlement, which would most likely bias the results. We told both parties what information was shared with the other

party depending on the treatment. For example, members of the host community treated with the knowledge that their anonymous partner is a refugee were aware that their paired partner knew that they were from the host community.

Similarly, refugees were informed that the senders knew that they were refugees living in nearby settlements. Playing games in a specific order is likely to bring about order effects due to learning. To address order effects, we allowed for alterations in the order in which the games were played. To further understand the role of risk in making decisions in the games, we solicited risk preferences by asking players to choose between four gambles with different payoffs, although no actual payoffs were made.

We conducted the experiments in the local languages; instructions were given first at the group level and then individually to ensure that participants understood everything well. We also tested out the player's comprehension of the game. Only three players could not comprehend the game and were dropped off and replaced. In the end, the total pay was a sum of the show-up fee plus the payment for correct predictions and the amount from the outcome of either the dictator or trust game determined by tossing a coin. The challenge with this design is that half of the respondents did not have an actual match (hosts that send to fellow hosts or refugees that send to fellow refugees); in such a case, payment was based on solicited responses of their expectations in the trust and dictator games.

4.5 Results and discussions

4.5.1 Descriptive statistics

Descriptive statistics for refugees and the host community are in Table 4.1. On average, refugee players were 39 years, and hosts were, on average, 38 years. 80 and 47 percent of all refugees and host players respectively were female. On average, refugee household heads were younger and widowed while the hosts' household heads tended to be older and married. A significant proportion of refugees hardly had any education; 39 percent of the refugees had not attended any formal school, unlike 12 percent of hosts. Refugees also had more household members than hosts. On average refugee household size was 6.5 compared to an average household size of 5.4 for hosts. As expected, refugees were more impoverished (less likely to be in the highest wealth quintile). Refugees were also, on average, closer to the district headquarters. Lastly, 73 percent of refugees, unlike 45 percent of hosts, had experienced war in the past.

Table 4.1: Characteristics of refugees and members of the host community

Characteristics of the player	Refugees	Hosts	t statistics
Age	38.66(14.61)	37.66 (14.33)	0.83
Gender (1= female)	0.8(0.39)	0.47(0.50)	-8.6
Education			
No formal education	0.39(0.49)	0.12(0.32)	**8.16**
Primary	0.41(0.49)	0.63(0.48)	5.4
Secondary and above	0.19(0.40)	0.25(0.43)	1.66
Characteristics of households			
Years of schooling of the household head	4.02(4.40)	5.54(3.69)	**4.51**
Gender of household head (1= male)	0.25(0.44)	0.63(0.48)	**9.86**
Marital status (1= married, 0= single, separated, not married)	0.49(0.50)	0.73(0.45)	6
Experienced death in the household (1=yes)	0.28(0.44)	0.24(0.42)	1.07
Experienced war (1=yes)	0.73(0 .44)	0.43(0.49)	**7.62**
Household size	6.37(3.33)	5.49(2.98)	**3.31**
Household is risk lover(1= yes, 0=no)	0.5(0.50)	0.4(0.49)	**2.65**
Lowest wealth quintile	0.29(0.45)	0.28(0.45)	0.39
Second lowest wealth quintile	0.27(0.44)	0.17(0.38)	**2.78**
Third lowest wealth quintile	0.28(0.45)	0.23(0.42)	**1.72**
Highest wealth quintile	0.15(0.36)	0.32(0.46)	**4.87**
Distance to district headquarters	6.73(3.70)	9.96(5.10)	**8.611**
Distance to tarmac	9.33(6.72)	10.16(8.18)	1.33

Author's construction. The numbers in parenthesis are standard errors.

4.5.2 Randomization check

There are no significant differences in several of the characteristics such as age, marital status, household size, and wealth (Appendix, Table 8.9) by treatment assignment for refugees and host players in the game. Nevertheless, there were significant differences in average years of schooling and level of risk preferences.

Using equation 3, we test for the significance of the covariates on the likelihood of being treated. Y_i is the dependent variable of the kind of treatment respondent i received. β_i is the coefficient for other control variables like the gender of the player, gender of the household head, education of the player, level of risk aversion, wealth, household size, and if a household had been affected by war or not.

$Y_i = \beta_i \, covariates_i + \varepsilon_i$ Equation 3

Overall, there was a balance on both refugees' treatment and hosts on several variables (Appendix, Table 8.10). Also, we fail to reject the likelihood ratio chi-square test that all of the coefficients in the logistic model are zero showing that our randomization was successful for both groups suggesting that treatment was successfully randomized. Therefore, any observed outcomes, such as parochialism, can only be attributed to the treatment and not other factors. As a robustness check, we use alternative probit models

and find similar non-significance of the model variables. Using the Kolmogorov Smirnov, a non-parametric test that does not take into account the underlying cumulative distribution function being tested, we find no statistical difference by treatment received for both refugees and hosts for a number of the variables (Appendix, Table 8.11)

4.5.3 Experimental outcomes for refugees

This section presents the differences in trustworthiness/reciprocity and altruism of refugees towards fellow refugees and hosts. We hypothesize that refugees are more likely to be trustworthy and generous to fellow refugees than hosts due to in-group preferences but changes with increasing remoteness from district headquarters.

The trustworthiness of refugees towards fellow refugees and towards hosts
Using the strategy method, we asked refugees (receivers) what they would transfer from the tripled amount received when the trustor sends them UGX 1000 and UGX 2000[11]. The percentage amount returned in both decisions is a measure of the level of trustworthiness. Refugees send back almost equal amounts to fellow refugees and hosts irrespective of treatment. The average percentage returned to fellow refugees is 36.36 percent compared to 38.6 percent returned to hosts (Table 4.2), which is in line with proportions sent in similar studies using trust games.

Table 4.2: Experimental outcomes for refugees: trust and dictator games

Experimental outcomes	Receivers (Refugees)			
Treatment[+]	Refugees	Host community	All	t value
Trustworthiness: Average percentage returned	36.36(18.30)	38.62(18.90)	37.25(18.47)	0.9505
Beliefs of expected trustworthiness: perception of what others think they send back (average percentage)	43.14(17.82)	41.99(17.89)	42.66 (17.81)	-0.5
Expected Trust: beliefs of senders transfer in the trust game (UGX)	1115.65(530.15)	1048.54(530.97)	1088(530.45)	0.984
Altruism : transfer in the dictator game (UGX)	785.71(604.60)	839.62 (649.34)	807.69 (622.56)	-0.685
Expected Altruism: expectation of sender's transfer in dictator game (UGX)	980.51(491.37)	1084.90(619.03)	1000 (547.38)	-1.512

[+] Treatment is the knowledge of whether one plays with a refugee or host. Numbers in parenthesis are standard errors

For example, Johnson & Mislin (2011) find that players send an average of 31.9% in a meta-analysis of trust games conducted across Africa while Bauer et al. (2018), in a

[11] With an exchange rate of 1 USD = UGX 3685, UGX 1000 is approx. USD 0.27 and UGX 2000 is approx. USD 0.54 cents. More than 25 percent of refugees live on less than UGX 1000 per day and 69 percent on less than UGX 2000 per day (Development Pathways, 2018)

study amongst former rebels in northern Uganda, found that the average percentage returned ranges from 34 percent to 35 percent. Figure 4.3 suggests that refugees seem to reciprocate more to hosts than to fellow refugees irrespective of district headquarters' remoteness. We examine this further by analysing if discrimination in reciprocating trust differs by refugee remoteness in regression analysis.

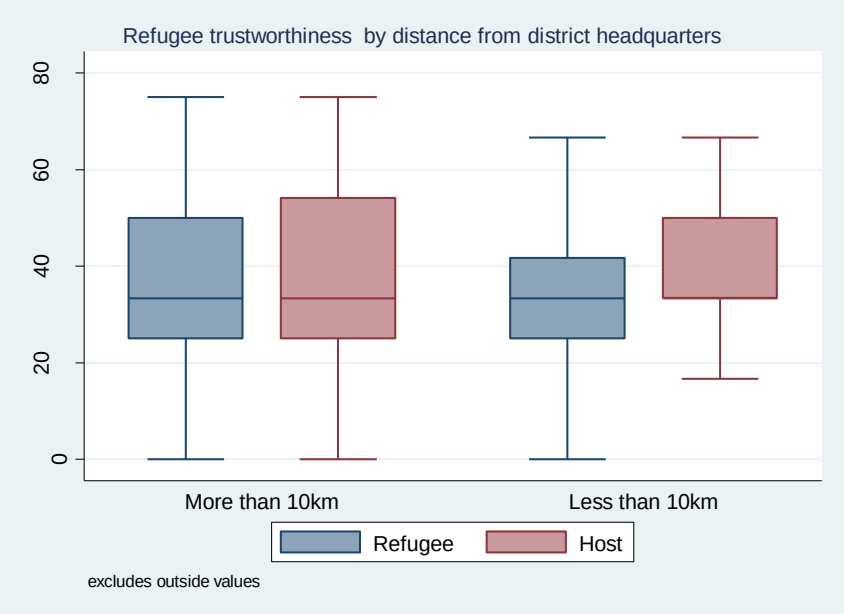


Figure 4.3: Variation in the trustworthiness of refugees by remoteness from district headquarters

In Table 4.3, the first column is the parsimonious regression of treatment's effect on the amount reciprocated. The second column includes distance to the district headquarters as a dummy variable and other control variables.

The fourth column consists of the distance expressed as a continuous variable, and the last column includes an interaction term between distance and treatment. Panel a is the level of trustworthiness measured by the average percentage of the tripled amount sent back when one receives UGX 1000 and UGX 2000. Panel B (Table 4.3) is the proportion of the tripled amount of money refugees' return on receiving UGX 1000, and panel c is the proportion of the tripled amount of money refugees' return when they receive UGX 2000. Results show that the average treatment effect is negative but non-significant on the average amount returned by refugees. We analyze the average treatment effects on trustworthiness when refugees receive the tripled amount UGX 1000 and UGX 2000 sent by trustors in panels b and c of Table 4.3, respectively. We find that refugees transfer less to fellow refugees than to hosts by 5 percentage points (p=0.10) of the tripled UGX 1000 that trustors send. Nevertheless, the treatment effect is statistically insignificant for a more considerable amount of UGX 2000 in panel c of Table 4.3.

Table 4.3: Refugees and Trustworthiness

	(1)	(2)	(3)	(4)	(5)
Panel (A) Dependent variable	The average percentage returned in the trust game				
Treatment (1= partner is refugee, 0= partner is host)	-2.438	-2.835	-1.679	-3.012	-0.248
	(1.98)	(2.19)	(3.28)	(2.23)	(4.67)
Distance to district (≥ 10km) (d)		2.276	3.806		
		(3.89)	(4.93)		
Treatment *Distance (d)			-2.679		
			(4.23)		
Distance (Km)				-0.0231	0.165
				(0.41)	(0.48)
Distance*Treatment					-0.314
					(0.40)
Constant	38.70***	45.39***	44.86***	47.27***	45.67***
	(2.45)	(6.40)	(6.71)	(7.69)	(8.31)
Observations	249	234	234	234	234
R-squared	0.004	0.066	0.068	0.063	0.064
Panel (B) Dependent variable	Percentage of the amount returned when trustor sends UGX 1000				
Treatment (1= partner is refugee, 0= partner is host)	-4.202*	-4.662*	-5.78	-4.991*	-8.087
	(2.41)	(2.55)	(3.74)	(2.63)	(5.73)
Distance to district (≥10km) (d)		0.712	-0.768		
		(4.50)	(5.45)		
Treatment *Distance (d)			2.591		
			(4.84)		
Distance (Km)				-0.281	-0.491
				(0.44)	(0.51)
Distance*Treatment					0.351
					(0.49)
Constant	40.06***	54.42***	54.94***	58.00***	59.79***
	(2.83)	(6.61)	(7.03)	(7.58)	(8.40)
Observations	249	234	234	234	234
R-squared	0.01	0.055	0.056	0.058	0.059
Panel (C) Dependent variable	Percentage of the amount sent back when trustor sends UGX 2000				
Treatment (1=partner is refugee, 0= partner is host)	-0.673	-1.008	2.421	-1.034	7.591
	(2.10)	(2.44)	(3.50)	(2.44)	(4.62)
Distance to district (≥ 10km) (d)		3.839	8.38		
		(3.71)	(4.97)		
Treatment *Distance (d)			-7.948*		
			(4.31)		
Distance (Km)				0.234	0.82
				(0.42)	(0.49)
Distance*Treatment					-0.979**
					(0.40)
Constant	37.34***	36.37***	34.77***	36.54***	31.55***
	(2.43)	(7.40)	(7.56)	(8.73)	(9.14)
Observations	249	234	234	234	234
R-squared	0	0.077	0.085	0.071	0.081

Notes: Numbers in parenthesis are standard errors, and the analysis is clustered at the village level with settlement fixed effects. Treatment is a dummy for 1= knowledge that one plays the trust game with a refugee and 0 knowledge that one plays with hosts. In all the columns except (1), we control for other factors such as age, marital status, risk levels, gender, and education level of the player and household size, wealth (from principal component analysis of total household assets like the value of livestock, possession of charcoal stove, radio, bicycle, and phone) of the household and order of the games. ** p<0.05, * p<0.1.

The third column consists of an interaction term between the dummy variable for distance to the district headquarters and the treatment to predict the effect of remoteness and knowledge of one's social orientation.

To analyze the impact of remoteness on the level of reciprocity with knowledge of one's social identity (interaction of distance with treatment), we find negative statistically significant effects of the interaction (columns 3 and 5, panel C). Refugees located more than 10km from district headquarters reciprocate trust more to hosts than to refugees by 8 percentage points at the extensive margin. Compared with the average trustworthiness of 37.2 percent, this translates to an increment of UGX 430 (21.5 percent) with an endowment of UGX 2000. The results suggest that remoteness increases refugees' preferences to reciprocate trust at an extensive margin, perhaps from increased interaction opportunities in remote areas than in areas close to the district.

Refugee's beliefs of partners expected trustworthiness: are there prior beliefs of partner's expectations in discrimination? Examining refugees' impressions of the partner's loyalty expectations helps understand any preconceived notions or stereotypes that refugees may have of their partner. In this regard, we asked refugees how much they think their partners in the trust game expect from them (tripled amount) in return if they are sent UGX 1000 and sent UGX 2000. Results in Table8.12 in the Appendix for both panels A and B (intensive and extensive amounts) show treatment has no significant effect on refugee's beliefs of partner's expected reciprocity. Knowledge of whether one plays with hosts or refugees also does not affect refugee's opinions about the partner's expectations with increasing remoteness. The results suggest that refugees have no prior expectations of discrimination by either fellow refugees or by hosts.

Do refugees have some preferences for being kind (altruistic) to fellow refugees than to fellow hosts? The dictator game in which treatment is the random assignment to information on whether one plays with a fellow refugee or host helps us ascertain whether refugees may have some preferences for being generous to fellow refugees than hosts. On average, refugees transfer more money to hosts (UGX 839.62) than to fellow refugees (UGX 785.71) in the dictator game; the difference nevertheless is statistically insignificant (Table 4.2). Treatment does not affect the amount transferred in the dictator game (Table 4.4, panel A) and in expected amounts to be received (Table 4.4, panel B) when we control for other variables likely to altruistic behaviour. Nevertheless, the interaction between treatment and distance (measured as a dummy) is negative and significant, suggesting that refugees are less likely to be generous to fellow refugees with increasing remoteness from district headquarters. Specifically, refugees further than 10km from district headquarters transfer more to hosts than to refugees by 15 percentage points, 37.1 percent higher than an average of 40.4% of the endowment. The results defy our hypothesis and theory of parochial altruism between people of the same social identity (Chen & Li, 2009; Tajfel et al., 1971) and emphasize the role of remoteness from commercial places such as the district headquarters.

Table 4.4: Altruism and expected altruism by refugees

Sample	Refugees		
	(1)	(2)	(3)
Panel (a)			
Dependent variable	Altruism: transfer in the dictator game		
Treatment (1= partner is refugee, 0= partner is host)	-2.446	-1.795	1.682
	(3.62)	(3.23)	(3.15)
Distance to district (≥ 10km) (d)		14.00***	22.94***
		(3.39)	(3.1)
Treatment *Distance (d)			-15.43***
			(5.12)
Constant	41.26***	28.00**	26.28**
	(4.04)	(11.56)	(11.52)
Observations	255	242	242
R-squared	0.002	0.092	0.102
Panel (b)			
Dependent variable	Expected Altruism: elicited expectations of partner's transfer in the dictator game		
Treatment (1= partner is refugee, 0= partner is host)	-5.685*	-5.422	-2.832
	(3.18)	(3.38)	(3.18)
Distance to district (≥10km,) (d)		8.763**	15.43**
		(3.74)	(6.37)
Treatment *Distance (d)			-11.49
			(11.67)
Constant	54.37***	52.80***	51.52***
	(3.12)	(4.76)	(5.43)
Observations	255	242	242
R-squared	0.011	0.041	0.048

Notes are the same as in Table 4

We attribute refugees' altruistic preferences for another social identity rather than their own in remote areas to increased opportunities for interaction and prospects for integration. We also elicited expected altruism by refugees (panel b) and found results that mirror those of altruism in panel a. Nevertheless, the interaction between treatment and distance is not significant. Results also show no significant effect of treatment by remoteness on refugees' expectations of discrimination in trust (Appendix, Table 7.3)

4.5.4 Experimental outcomes for hosts

This section explores trust, beliefs of expected trust, expected trustworthiness, and the host's altruism towards fellow hosts and refugees. We examine hosts' differences in trust and altruism towards refugees and hosts given the treatment. A regression controlling for all variables in Table 8.10 in the Appendix shows that the randomization of treatment within-host was balanced.

Trust of hosts towards refugees and fellow host

Table 4.5 provides results of experimental outcomes for the hosts. On average, hosts transferred slightly more money to fellow hosts than refugees, although the difference is not statistically different (p=0.313). Of the UGX 2000 endowment, hosts send, on average, 47.7 percent of this endowment to refugees and 48.7 percent of this endowment to fellow hosts. Johnson & Mislin (2011) find that trustors send, on average, 50 percent of their donation in the trust game, while another study amongst former rebels in Northern Uganda finds that subjects transfer, on average, 55.7 percent of their endowment of UGX 2000 (Bauer et al., 2018). Hosts' expected trustworthiness- defined as the tripled amount (percentage) that hosts expect receivers to return in the trust is higher from fellow hosts, although the result is also not statistically different.

Table 4.5: Experimental outcomes (trust and dictator games) for the host (UGX)

Experimental outcomes	**Senders**			
Treatment[+]	**Refugees**	**Host**	**All**	**t-test of difference**
Trust: transfer in the trust game	953.48 (600.33)	973.45 (589.49)	961.4 (595.1)	-0.277
Expected trustworthiness: expectations of average amount to be returned (%)	49.95 (20.38)	51.33 (18.81)	50.5 (19.8)	-0.575
Altruism: transfer in the dictator game	719.51 (602.13)	810.81 (667.60)	756.4 (629.8)	-1.18
Expected Altruism: belief of senders transfer in dictator game	993.90 (536.94)	954.95 (562.25)	978.2 (546.6)	0.579

[+]Treatment is knowing whether your partner in the game is a refugee or a member of the host community. The numbers in parenthesis are standard errors.

Similarly, altruism measured by the amounts transferred in the dictator game was higher towards hosts than towards refugees, but the difference is not statistically different. Host's expected altruism (beliefs of what senders will transfer in the dictator game) was higher from refugees than from fellow hosts, although the difference is not statistically significant. Those who had experienced war sent on average 48.9 percent of their UGX 2000 endowment in the trust game, while those who had not experienced any war forwarded 49.7 percent of their UGX 2000 endowment. To confirm the results, we control other variables such as the player's risk attitude, age, education level of the player, and marital status in a regression.

Trust and investments: Do hosts show more preferences in trust and investments towards fellow hosts than to refugees?

Table 4.6 shows the trust (panel a) and investment behavior (panel b) of hosts. Trust is the percentage amount transferred by the trustor in the trust game, while investment is the percentage difference between the amounts transferred in the trust game and the amounts transferred in the dictator game. Treatment is a random assignment to

information on whether one plays with hosts or refugees. Column (1) in Table 4.6, is a regression of the dependent variable on treatment while in column (2) and column (4), we control for all variables likely to explain trust, including distance as a dummy variable of less than 10km (column 2) or as a continuous variable (column 4 and 5). To examine whether hosts will prefer their fellow hosts in trust with increasing remoteness, we interact treatment with distance both as a dummy (column 3) and as a continuous variable (column 5).

The average treatment effect is negative after controlling for distance and its interaction with the treatment in columns 3 and 5 in Table 4.6. Hosts transfer less to refugees than to hosts by 10 percentage points, suggesting that they show preferences for trusting fellow hosts more than refugees. Nevertheless, interacting treatment with distance (dummy and continuous variable) has a significant positive effect. Hosts located 10km or more from the district headquarters transfer more of the share of their endowment to refugees than hosts by 22 percentage points. In other words, hosts trust refugees more than fellow hosts with increasing remoteness from the district, suggesting that remoteness reduces discrimination of trust and defies the theory of biases in social preferences towards one's social identity. There is likely to be increased opportunities for repeated interaction between the host community members and refugees for places far away from district headquarters in remote areas.

Following Cox (2004), we identified pure behavioral trust by taking the difference between the amount of money sent in the trust game and the dictator game. This difference is the 'investment portion' of the trust game allocation or the strategic element of the trusting behavior (Bauer et al., 2018; Cox, 2004a; Ernst Fehr, 2009). Controlling for all factors likely to affect investment (Table 4.6; panel b), hosts will invest in refugees more than fellow hosts in remote areas. Specifically, hosts who are more than 10km from district headquarters invest 32 percentage points more to refugees than the host, suggesting that remoteness increases hosts' investments towards refugees than towards fellow hosts.

Table 4.6: Trust and Investment behavior by hosts

Sample	Hosts as senders				
	(1)	(2)	(3)	(4)	(5)
Panel (a)					
Dependent variable	Trust – Percentage amount sent in the trust game				
Treatment (1= partner is refugee, 0= partner is host)	-1.48	-2.536	-10.07**	-2.583	-19.48**
	(5.29)	(5.18)	(4.81)	(5.23)	(8.54)
Distance to district (≥10km) (d)		-3.933	-17.50**		
		(5.48)	(7.78)		
Treatment *Distance (d)			22.23***		
			(6.54)		
Distance (Km)				-0.461	-1.886**
				(0.52)	(0.70)
Distance*Treatment					2.217***
					(0.73)
Constant	49.10***	43.19***	46.86***	45.94***	55.32***
	(4.40)	(12.44)	(12.34)	(12.82)	(13.22)
Observations	279	262	262	262	262
R-squared	0.001	0.034	0.064	0.035	0.063
Panel (b)					
Dependent variable	Investment: percentage difference between trust and dictator allocations				
Treatment (1= partner is refugee, 0= partner is host)	0.997	0.839	-10.29	0.736	-22.47*
	(7.34)	(7.60)	(6.42)	(7.74)	(10.96)
Distance to district (≥ 10km) (d)		-9.110**	-29.16***		
		(4.00)	(8.83)		
Treatment *Distance (d)			32.85***		
			(9.20)		
Distance (Km)				-0.912**	-2.868***
				(0.39)	(0.81)
Distance*Treatment					3.043***
					(0.87)
Constant	4.955	4.747	10.17	9.745	22.63*
	(5.76)	(11.41)	(11.56)	(11.18)	(13.03)
Observations	279	262	262	262	262
R-squared	0	0.035	0.072	0.034	0.064

Notes are the same as that for Table 4.3

Host's beliefs of partners' expectations to trust and trustworthiness: are there prior beliefs and expectations in discrimination?

We asked hosts what they believe their partners would expect from them as senders in the trust game to measure their beliefs of the partner's expected trust. Results in Appendix, Table 8.14 columns 3 and 5 panels a, after controlling for distance and its interaction with treatment, the effect of treatment on beliefs of partner's expected trust is negative and statistically significant. It reveals that hosts believe that their fellow hosts expect more trust from them than refugees do. Also, host beliefs of expected

confidence from fellow hosts decrease with increasing remoteness, and there is no effect of remoteness on preferences of trust towards one's social identity. Despite these beliefs, hosts perceived expectations of trust by their partners do not reflect their actual behavior measured in the trust game.

Theory suggests that the amounts sent by the trustor reflect both expectations of trustworthiness as well as social preferences towards the receiver (Ashraf et al., 2006; Ernst Fehr, 2009) such that the combined effect might produce a non-result in the trust game (Bauer et al., 2018). Similarly, hosts might think of refugees as untrustworthy because of differences in ethnicity or the likelihood of returning to South Sudan. On the other hand, it is also likely that hosts may not discriminate against refugees because of altruistic reasons. In such circumstances, host communities' negative and positive considerations about refugees may cancel out in the trust game and produce a non-result.

These considerations are explored more in Table 8.14, panels' b, and c in the Appendix, where expectations of reciprocity are assessed when hosts send UGX 1000 and UGX 2000, respectively. Results show no significant effect of treatment and remoteness on reciprocity expectations at the intensive and extensive margins. It suggests that hosts have no prior beliefs of expected discrimination in reciprocity by either refugees or fellow hosts but believe that fellow hosts expect more from them in trust.

Are hosts parochial altruistic?

We analyze if hosts have parochial altruistic behavior or have a prior expectation of parochial altruism. On average, hosts send 40.5 percent and 36 percent of their UGX 2000 endowment to fellow hosts and refugees, respectively, in the dictator game (Table 4.7). Using a statistical t-test, the difference in the amount sent by treatment is nevertheless statistically insignificant (p=0.228). Using the Kolmogorov–Smirnov test, we find no statistical difference in distributing the amount posted in the dictator game by hosts to either refugees or fellow hosts. We also find that those who had experienced war sent on average 33.33 percent of their UGX 2000 compared to 42.1 percent posted by those who had not experienced war. Results in Table 4.7, panel a, confirm and show that treatment has no significant effect on the proportion of the endowment transferred by the host in the dictator game, suggesting no discrimination in altruism by the hosts. Remoteness also does not seem to influence altruistic parochial behavior.

Table 4.7: Altruistic behavior and Expectations of Altruism by hosts

Sample	Host (Senders)				
	(1)	(2)	(3)	(4)	(5)
Panel a					
Dependent variable	Host's Altruism				
Treatment (1= partner is refugee, 0= partner is host)	-4.6	-6.36	-1.026	-6.55	1.437
	(3.87)	(4.23)	(5.43)	(4.20)	(8.97)
Distance to district (< 10km) (d)		-6.835*	-0.923		
		(3.60)	(6.42)		
Treatment *Distance (d)			-10.09		
			(7.14)		
Distance (Km)				-0.706**	-0.175
				-0.328	-0.691
Distance (Km)*Treatment					-0.853
					-0.827
Constant	40.63***	54.64***	52.14***	57.19***	52.81***
	(3.06)	(8.78)	(9.48)	(8.75)	(10.87)
Observations	273	254	254	254	254
R-squared	0.005	0.032	0.038	0.033	0.037
Panel (b)					
Dependent variable	Host's expectations of altruism				
Treatment (1= partner is refugee, 0= partner is host)	-5.685*	2.128	-2.832	1.984	1.305
	(3.18)	(2.08)	(3.18)	(2.04)	(5.45)
Distance to the district (≥ 10km) (d)		-8.805*	15.43**		
		(4.52)	(6.37)		
Treatment *Distance (d)			-11.49		
			(11.67)		
Distance (Km)				-0.747	-0.793
				(0.44)	(0.51)
Distance (Km)*Treatment					0.0725
					(0.46)
Constant	54.37***	67.92***	51.52***	69.74***	70.11***
	(3.12)	(5.63)	(5.43)	(5.84)	(5.61)
Observations	255	254	242	254	254
R-squared	0.011	0.067	0.048	0.059	0.059

Notes are the same as that for Table 4.3

4.5.5 Discussion of the experimental results

The results show that refugees discriminate against fellow refugees in reciprocating trust at the extensive margin and are more generous to hosts than to fellow refugees, with increasing remoteness. It suggests that refugees don't have any prejudices against hosts and are biased against fellow refugees in rural areas. Similarly, refugees have no prior beliefs that their partners expect them to discriminate based on whether they are refugees or hosts. In the focus group discussions, refugees considered themselves no different in identity with hosts given similar languages in some instances. It corresponds to results in other studies conducted in the refugee settlements in northern Uganda

(FAO, 2018). This finding suggests that refugees feel integrated with the hosts. One's identity within a particular group provides a sense of belonging (Ager & Strang, 2008). Results also reveal that hosts are more likely to trust fellow hosts than refugees and perceive that their partners expect them to discriminate by social identity.

Nevertheless, with increasing remoteness, hosts are more likely to trust and invest in refugees than fellow hosts. In the focus group discussions, hosts had mixed responses regarding trusting refugees. Some felt empathetic of the refugees' situation; others did not trust refugees because they considered them thieves. 61 percent thought that refugees were thieves (Appendix, Table 8.15). Generally, many hosts associated refugee influx with positive outcomes such as improved health and education than with negative issues such as increased inequality (Appendix, Table 8.15).

It is also likely that with increasing remoteness, refugee's preferences to reciprocate the trust and have fairness concerns for hosts than fellow refugees may be due to their higher perceived relative economic and social status of hosts compared to refugees. Indeed refugees highly regard hosts both socially and economically. We asked refugees to place neighbors who are fellow refugees and hosts on a ten-step socioeconomic status ladder. The bottom stands people who are entirely without free choice and control over the way their lives turn out, and on the highest step, stands those with the highest degree of free will over their lives. On average, we find that refugees placed themselves at 3.5, their neighbors who are fellow refugees at 3.7, and hosts at a higher average of 5.9, suggesting that refugees perceive fellow refugees to be at a slightly lower economic and social status than hosts.

Refugee's high regard for host relative to fellow refugees is also highly correlated to distance. However, we rule out the possibility that the higher perceived social, economic status of hosts relative to refugees might explain refugees' positive attitudes towards hosts compared to fellow refugees. If this was the case, differences in refugee's beliefs of the partner's expected reciprocity should have been significantly different when the partner is a host, and when the partner is a refugee. Similarly, suppose hosts' perceived socioeconomic status of hosts relative to refugees mattered in their social attitudes towards refugees or hosts. In that case, their prior beliefs in expectations of trusts should have been significantly different. Nevertheless, this is not the case.

The fact that trustworthiness, trust, and altruism towards partners of another social identity increases with remoteness reveals the possibility of more significant and meaningful interaction between hosts and refugees in remote areas than in urban areas. First, settlements in remote areas with high transportation costs confine both parties to a smaller radius, increasing interaction (Kreibaum, 2016). Business opportunities such as home-owned shops in rural areas are avenues for close interactions, unlike in the urban areas where communication is with a diverse population. Indeed our data shows that more home-owned shops exist in rural areas. There is a 30 percent correlation between distance from district headquarters and the number of shops available within

the community. Increased prosociality towards outgroups might be explained by the higher density of refugees in remote settlements. For example, Ayilo, Mungula, and Pagirinya refugee settlements have the highest refugee population (Appendix, Table 8.8). To minimize these effects, we control settlement fixed effects and cluster the analysis at the village level. Lastly, it might be that settlements in the remote areas are closer to the South Sudan border, and therefore share similar languages and culture. Nevertheless, this is not the case as Adjumani town has a central location. Some settlements are far away from the South Sudan border and Adjumani town but closer to other Uganda districts.

Concerns for self-selection

Remoteness seems to increase the likelihood of trust or reciprocating trust to the partner, who is not of their social identity. Suppose refugee placement in different settlements involves self-selection and systematic screening and is thus non-random. In that case, there is likely to be correlations between refugees and hosts' behavior to remoteness. We argue that the placement of refugees in settlements in Uganda has been random. Refugee settlements have been established sequentially as per the influx of refugees into the country. Any batch of refugees fleeing from war at a given point in time gets settled in a particular locality to when it can no longer take in any more refugees, a new settlement is established. In this case, refugees cannot choose which areas to live in, thus eliminating the possibilities of self-selection and screening to a given location. It can also be argued that the refugee influx into Uganda has been non-random with the chance that only refugees who are trustworthy, empathetic, and generous decide to move into Uganda following a conflict. Nevertheless, this is unlikely given the nature of war and displacements from South Sudan, which are numerous, spontaneous, and random displacing households, irrespective of social status and behavior.

4.6 Conclusion

This paper examined trust, trustworthiness, and altruism between hosting communities and refugees exposed to armed conflicts. We hypothesize that there is likely to be favoritism in trust, trustworthiness, and altruism towards people from the same social identity out of tastes for discrimination or ethnic stereotypes. Such social preferences change with remoteness from urban areas as district headquarters. It follows the assumption that remoteness from urban areas allows for meaningful and repeated interactions between the refugees and hosts. To examine these, we conducted trust and dictator games in eleven refugee settlements in Adjumani district and randomly selected host community villages close to the settlements. We randomly assigned host communities and refugees to treatment, which was the knowledge of whether the partner, with whom one plays the games, is either a refugee or a host. Other characteristics of the partner remained anonymous for all the players.

We find that refugees are more likely to reciprocate trust and altruism to hosts with increasing remoteness from urban areas, specifically district headquarters. Refugees located more than 10km from district headquarters transfer more of their endowment (as a measure of trust and generosity) to hosts than to fellow refugees by 8 and 15 percentage points, respectively.

The possibility that refugees' behavior may be due to the partner's beliefs ceases to be, as we find no prior convictions of the partner's expectations in discrimination even with increasing remoteness. On the other hand, host communities are likely to trust hosts when they know who they are playing with, but their preferences change with increasing remoteness from urban areas. Results show that hosts transfer less of their endowment in trust to refugees than to hosts by 10 percentage points; nevertheless, hosts located 10km or more from the district headquarters trust refugees more than hosts by 22 percentage points difference. Unlike refugees, hosts are also not altruistic to either fellow hosts or refugees, even with increasing remoteness. Hosts also anticipate that their partners expect them to favor fellow hosts in trust but are indifferent about whether their partners will expect them to be more altruistic. The mistrusts by hosts show existing stereotypes or beliefs about refugees that hosts hold onto likely to create social bridges and affect refugee integration. For example, about 61 percent of hosts believed that refugees were thieves. Such stereotypes, for instance, might lead hosts to exclude refugees in their social and economic interactions. The fact that remoteness from urban areas increases trust, altruism and reciprocity suggests that refugees and hosts have closer social ties and, therefore, more integrated in the remote areas. We attribute the findings mainly to increased opportunities for interaction from small business opportunities like shops and to narrower confines of interaction in rural areas due to high transaction costs to travel.

From the policy perspective, there is a need to include investments in social development interventions to have social cohesion dimensions such as trust, feelings of

shared identity and sense of social belonging, tolerance, compromise, and integration, which will reduce any prejudices. Activities that allow for interaction such as sports, religious worship, and community groups can also break any social bridges.

Chapter 5 : Informal land arrangements between refugees and host communities in Northern Uganda: Do social preferences matter?

Abstract

Informal contractual land arrangements between refugees and hosts offer innovative ways by which refugees can acquire land besides land provision by the Government, which is insufficient and unsustainable. We examine whether trust, trustworthiness, and altruism signal previous engagement and willingness to engage in informal contractual land transactions between host communities and refugees. Results show that high levels of trust and expectations of trustworthiness, unlike altruism, by hosts signal their willingness and previous engagement in informal land arrangements with refugees. Host's trust is associated with a 20 percent increased willingness to engage in informal land transactions. For refugees, high levels of reciprocity do not indicate past commitment in any land engagements, showing the failure of informal institutional settings to segregate trustworthy refugees from untrustworthy ones. Other factors that predict informal land engagements include age, the gender of the household head, education levels, wealth, and perceived relative economic, social status. For example, female-headed households are associated with 16 percent less willing to engage in informal land transactions with refugees than their male counterparts. Our results provide evidence of how economic experiments relate to day-to-day economic outcomes such as informal institutional settings. From a policy perspective, the study is essential for banking on existing behavioral attributes for refugee land acquisition through bilateral informal land arrangements.

Keywords: **Informal land arrangements, trust, reciprocity, altruism, refugees, host community**

5.1 Introduction

Humanitarian approaches to supporting refugees are leaning towards novel methods that allow refugees to "assists themselves" amid protracted displacement, waning humanitarian assistance, and inclusivity agenda 2030 (United Nations Development Programme, 2018; Zhu, Taylor, et al., 2016). Providing land to refugees for residential and agricultural purposes is one such avenue through which refugee self-reliance can be achieved (United Nations Development Programme, 2018). The land is a valuable resource to agrarian households displaced by conflict. It is crucial for poverty reduction and overall welfare (Keswell & Carter, 2014; Zhu, Taylor, et al., 2016). Keswell & Carter (2014), for example, find that land transfers to poor households boost consumption by an average of around 25 percent. Also, the marginal benefit of providing refugees with land besides aid significantly increases refugees' impacts on local incomes by a range of $92 to $205 (Zhu, Taylor, et al., 2016). For a developing country like Uganda experiencing escalating refugee influx, Government land provision to refugees is insufficient and unsustainable. Bilateral agreements between refugees and members of the host community offer alternative avenues of making land available to refugees (United Nations Development Programme, 2018).

In many parts of the developing world, the structure of land ownership and land use is driven to no small extent by non-market transactions such as inheritance, allocation by village chiefs, and friendly rental agreement among kin (Deininger & Feder, 2001). Informal land arrangements usually don't require documentation or written contracts but instead rely on indigenous forms of verification or evidence (Martiniello, 2010). The absence of enforceable and observable contracts forces people to embark on informal agreements that depend to a greater extent on existing relationships (Karlan, 2005). Examples of informal land arrangements are fixed rentals, sharecropping arrangements, access rights over perennial crops without land, labor exchange for land, and many others. This study explores whether social preferences and trust relationships drive land arrangements between refugees and hosts. Host communities are the owners of productive inputs such as land which refugees do not have and informal land transactions provides an opportunity for refugees to acquire land.

Most of the research on social preferences is limited to individual attitudes and relations (Bauer et al., 2016, 2018) not linked to economic outcomes. Yet, they are usually not the real outcomes of interest but are links overcoming market failures and enforcing contracts (Karlan, 2005). In this regard, we explore if social preferences of reciprocity, altruism, and trust predict the willingness and previous engagement in different forms of land arrangements, including free land arrangements, exchange of labor for land, and land renting arrangements. We hypothesize that the more "trusting" hosting communities and more trustworthy refugees are likely and willing to engage in informal land arrangements. We also speculate that other intrinsic motives such as altruism and

expectations of trustworthiness explain willingness and previous engagement in casual land arrangements

The contribution of this paper is threefold. First, it's of excellent policy relevance in addressing refugee integration into hosting communities. If fairness or social preferences are deep amongst refugees and hosting communities, informal land transactions might provide an alternative sustainable approach for refugees to acquire land. Ignoring positive behavioral attributes through government provision may crowd out such private provision (Andreoni, 1990). Behavioral heterogeneity should be considered in designing policies, specifically interventions or incentives that aim to promote positive behavior. External motives might increase intrinsic motivations or crowd them off (Frey & Jegen, 2001); if the community is willing to provide land to refugees based on contractual arrangements, Government land provision may erode this intrinsic motive by the host community. Second, we also use experiments that measure trust, reciprocity, altruism, and other individual attributes much more convincingly than other measures used in surveys (Glaeser et al., 2000). Lastly, understanding social preferences and how they relate to informal land arrangements contribute to the literature linking behavioral economics to informal institutions and economic development.

Results show that high levels of trust and expectations of trustworthiness are associated with willingness and previous engagement in informal land arrangements. The results confirm the importance of trust in contractual agreements in rural settings that remain informal. It might be the case that hosts willing to engage in any land arrangement with refugees have previously been involved and are well aware of their behavior. Nonetheless, results also show that trust is associated with hosts who have never engaged but show a willingness to engage in informal land arrangements with refugees. Experimental measures of trust corroborate with survey measures of trust. 87 percent of the host communities who have ever participated in any informal land arrangement trust refugees compared to 79 percent who have never engaged in any contractual land arrangements with refugees. The difference is statistically different. Results suggest that hosts' altruism does not signal the willingness to engage in casual land arrangements with refugees. We do not claim causality but associations between measures of social preferences (trusts, reciprocity, and altruism) and the desire or previous engagement in informal land transactions due to the possibility of reverse causality. High prosociality might increase the likelihood of engaging in an informal land arrangement. Yet previous land engagements may also lead to high prosociality. Nevertheless, our findings are essential in verifying whether experimental games provide inferences to economic outcomes such as informal land transactions or related behavioral economics to institutional economics. Karlan (2005) use a similar empirical strategy to explore whether creditworthiness in microfinance institutions signal trustworthiness.

5.2 Government land provision to refugees in Uganda

Uganda hosts about 1.4 million refugees, approximately 3.5 percent of its population (CSBAG, 2018a) from South Sudan, the Democratic Republic of Congo, Somalia, Rwanda, Eritrea, Burundi, and other countries. Over the years, refugee numbers have skyrocketed (Figure 5.1) and Uganda is currently third to Turkey and Pakistan as a refugee-hosting country. Enshrined in the 2006 Refugee Act and 2010 Refugee Regulations, Uganda's Refugee policy allows refugees free movement, work, and access to services such as health and education as their host communities. Refugees receive small plots (average of 30 meters by 30 meters for residence) of land to stay and cultivate, an approach that contrasts the reluctance by several countries that confine refugees to camps (United Nations Development Programme, 2018).

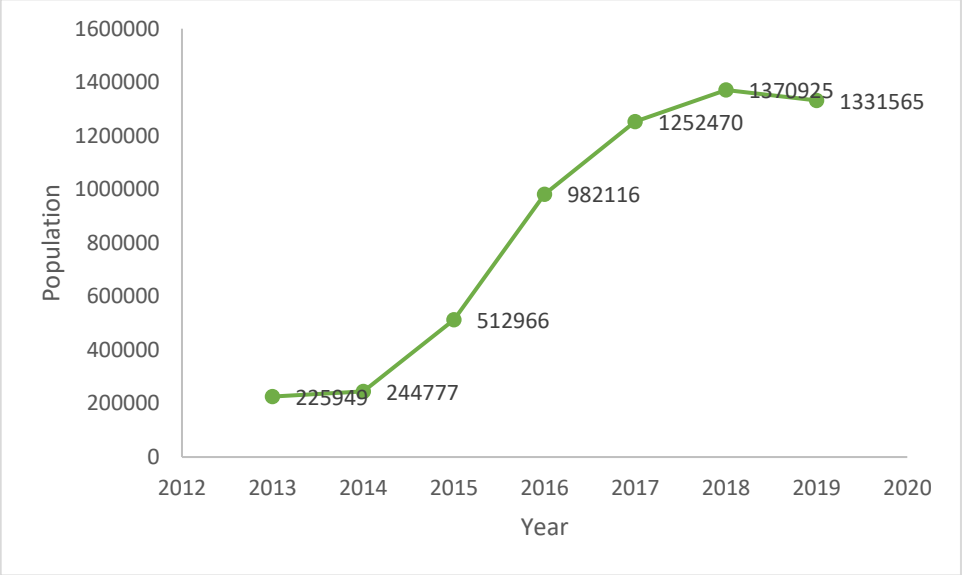


Figure 5.1: Number of refugees fleeing into Uganda between 2012 and 2019
Source: (UNHCR, 2019b)

Currently, between 70 to 90 percent of refugees have access to land for cultivation (FAO, 2018; UNHCR, 2019b) officially gazetted by the Government (Poole, 2019; UNHCR, 2018). Other avenues for land acquisition include an agreement with the land user, purchase of land, and even incidences of walking in and cultivating without asking for permission (United Nations Development Programme, 2018). The generous refugee policy significantly constrains the Government of Uganda. Between the financial year 2013/2014 and 2016/2017, the government expended approximately USD 270,575.50 to USD 405, 863.25 (CSBAG, 2018b) in refugee management and support, including receiving resettlement, repatriation, and demarcation of refugees plots. The protracted nature of refugee settlements in Uganda puts additional pressure on the resources of the government. For example, in 2019/2020, 18 percent of the budget allocated to disaster preparedness and refugee management was used to resettle refugees. For a developing country that ranks 159th out of 189 on the human development index, free land distribution puts pressure on Government resources, which should be available for other

competitive purposes. Amidst this, the Government strongly relies on donor funding from supporting agencies from the USA, UK, Sweden, Canada, and Germany, which nevertheless is very volatile. For example, at the end of 2017, the United Nations High Commission for Refugees (UNHCR) was only able to raise 39 percent of the required funds for the refugee response. The 2017 solidarity summit raised USD 350 million out of the targeted USD 2 billion. Also, despite the excellent gesture of land distribution to refugees, the allocated plots of land are of poor quality and small in size for refugees to earn a living for self-reliance (Bohnet & Schmitz, 2019). The average plot sizes are 30metres by 30metres used for residential purposes. Before 2016, refugee households received residential plots of agricultural land of about 50 meters by 50 meters in area and a homestead plot of 20 meters by 30 meters in one of the districts (United Nations Development Programme, 2018). The small pieces of land cannot meet the refugees' food demands, leaving them in dire situations (Coggio, 2019). In the absence of insufficient land provision by the Government, informal land arrangements based on suitable contractual arrangements between hosts and refugees may offer alternative land access opportunities.

5.3. Informal contractual arrangements and social preferences

Contractual arrangements such as sharecropping, fixed-wage contracts, and fixed rentals (Burke & Young, 2009) are typical in developing countries' rural settings. Two or more contractual arrangements coexist at the same time and space due to market imperfections such as risks and the absence of insurance markets (Binswanger & Rosenzweig, 1981; Eswaran & Kotwal, 1985) (Binswanger & Rosenzweig, 1981; Eswaran & Kotwal, 1985). Sharecropping, for example, is a means of risk-sharing and minimization of transaction costs of monitoring. Simultaneously, fixed-wage contracts and fixed rentals emerge to substitute for the absent insurance markets (Binswanger & Rosenzweig, 1981).

These contractual arrangements are partnerships and rely on personal relations of trust, altruism, and other informal institutions such as existing cooperative norms. Unlike formal contracts with written rules that reinforce trust and certainty, and predictability (Odera, 2013), informal agreements rely on existing relations. In the presence of casual contractual arrangements, trust, and other social preferences matter in settling on the best bargain, monitoring, and enforcement. For example, in sharecropping, there might be agency problems in effort provision like moral hazard and shirking (Ghatak & Karaivanov, 2014). An element of mutual trust provides room for both parties that no one will renege on the contractual arrangements. Sharing of output in sharecropping or setting the terms for a fixed wage may depend on social preferences of reciprocity and altruism. For example, in sharecropping, parties might consider an equal share of the pie rather than competitive returns to labor and land or on the bargaining powers of either the principal or the agent (Burke & Young, 2009). Similarly, the tenant/landowner might decide to bear all the costs of the inputs (perhaps due to altruism concerns) or share the expenses in the same proportion (fairness concerns)

(Allen & Lueck, 1992). Therefore beyond neoclassical predictions of maximizing returns from transactions, matters for fairness might emerge in informal contractual arrangements.

From standard economic theory, motivations manifest underlying preferences, and psychological literature differentiates motivations into intrinsic and extrinsic motives (Frey, 1997; Frey & Jegen, 2001). External interventions can crowd in or crowd out extrinsic motivations if they are viewed as supportive or controlling (Frey & Jegen, 2001). Intrinsic motives such as altruism by hosts for refugees might be eroded if Government steps in to provide support in the form of financial assistance or in-kind support.

Prosocial behavior is linked to outcomes such as creditworthiness (Karlan, 2005), political allegiance (Fisman et al., 2007), and market integration (Jakiela, 2011). Karlan (2005) uses investment games to explore whether creditworthiness in microfinance institutions signals trustworthiness. They find that trustors give significantly more to (and believe they will receive more from) microfinance borrowers. Using a modified dictator game (decomposes distributional preferences into fair-mindedness and equality efficiency tradeoffs), Fisman et al. (2007) study whether fair-minded people may disagree about the extent to which efficiency should be prioritized before inequality. They use political party allegiance (Democratic Party, tailored towards ensuring fairness measure by redistributive tax policies, while Republics who lean more towards efficiency benefits) and find that equality efficiency tradeoffs predict political decisions. Jakiela (2011) uses dictator games to examine the relationship between market integration and individual choices and find that giving in the dictator game is significantly associated with market integration (proximity to roads). A related paper by Henrich et al. (2010) finds that fairness varies with the extent of market integration (percentage of purchased calories). They also find that religiosity is associated with fairness, although not across all measures. They conclude that norms and institutions that have emerged throughout human history could perhaps also explain observed prosociality.

5.3 Methods

5.3.1 Empirical strategy

We hypothesize that hosts' trust, expected trustworthiness, and altruism are associated with an increased likelihood or previous engagement in informal land transactions with hosts and refugees. Similarly, refugee's reciprocity and altruism are associated with an increased probability of prior informal land arrangements participation. In other words, trusting and altruistic hosts are more willing to engage or have previously been involved in land arrangements than non-trusting and selfish hosts.

We estimate a binary model in which a household is either willing to engage in land transactions with refugees or is not ready. In the second case, the binary dependent variable is whether the family has previously been involved in informal land transactions with refugees or not. Binary models follow the underlying latent model where observed values for $Y_h = 1$ or $Y_h = 0$ follows

$$Y_h = \begin{cases} 1, y_i^* > 0 \\ 0, y_i^* \leq 0 \end{cases}$$

and the latent variable y_i^* is expressed as $y_h^* = x_i^* \beta + \varepsilon_i$ and

$P(Y_h = 1/x) = p(Y_i^* > 0/x)$ which is the same as $P(Y_h = 1/p(x_i^* \beta + \varepsilon_i > 0/x)$ or $P(Y_h = 1/x) = p(\varepsilon_i > -x_i^* \beta/x)$ and $P(Y_h = 1/x) = 1 - F(-x_i^* \beta)$.

Therefore, $P(Y_h = 1/x) = F(x_i \beta)$.

For a probit model, $F(x_i \beta)$ follows a standard normal cumulative distribution function. For simplicity,

$Y_h = \beta_0 + \beta_1 T_{ih} + \beta_2 R_{i_h} + \beta_3 A_{i_h} + \beta_4 X_h + \beta_5 D_i + \beta_6 E_h + \epsilon_h$

Y_h is the willingness to engage in informal land arrangements with refugees (or previous engagement). T is a measure of trust of individual i from household h. Trust is measured by the amount transferred in the trust game. It is a binary variable equal to one if the trustor (hosts) sends positive amounts and equal to zero if the trustor sends nothing to their partner. β_1 is the magnitude of association between trust and willingness or previous engagement in informal land transactions with the refugees. R_{ih} is the measure of the host's expected reciprocity. Hosts were asked in the trust game what they expect their partners to return to them. β_2 is the association between expected reciprocity and willingness to engage in informal land transactions with refugees. A_{ih} measures altruism, which we measure as a dummy variable on whether a household transferred positive amounts or not in the dictator game, coefficient β_3 is the association between altruism and willingness to engage in informal land transactions with refugees. X_h is a matrix of household characteristics like household size, land size held by the household, wealth status, educational level of the household head, etc. D_i are characteristics of player, E_h measures the perceived ratio of the socio-economic status of hosts to refugees. Lastly ϵ_h is the error term. As a robustness check, we exclude hosts who have ever engaged in any informal land arrangements in a separate regression. One might argue that hosts who have engaged in informal land arrangements with refugees already have prior reasons for trusting or not trusting, introducing bias. Excluding them from our analysis may limit this possibility.

To explore the association between measures of social preferences and the combined decision of previous engagement and current willingness to engage in informal land arrangements, we constructed four choices from our responses, namely: (1) hosts who have ever and are willing to have an informal land arrangement with refugees (2) hosts who have ever engaged but not willing to participate anymore in casual land arrangements with refugees, (3) hosts who have never had any informal land arrangement with refugees but are willing to engage, (4) hosts who have never had any informal land arrangement with refugees and are not willing to engage. The probability

the household chooses one alternative i over j possibilities is expressed as in equation 4 below

$p(i/x) = p(\beta' x_i + \varepsilon_i > \beta' x_j + \varepsilon_j \; for \; all \; j = 1, \ldots\ldots j; j \neq i)$ and $x = (x_i, \ldots\ldots\ldots, x_j)$…..4

The dependent variable is four discrete choices, so we used the multinomial logit model to estimate the likelihood for a household to be associated with one option over the other. The primary assumption is that the error terms are independently and identically distributed across the alternatives.

5.3.2 The Experiment

Experimental procedures, sampling, and sample size are as previously described in the preceding chapter 4. We conducted trust and dictator games following procedures by Bauer et al., (2018). Both games were played separately by refugees and host communities. Refugees played as trustees/receivers in the trust game and also played the dictator game. Hosts, on the other hand, played as trustors in the trust game and also played the dictator game. Trustors were endowed with slips equivalent to UGX 2000 and had the opportunity to send either UGX 0, 1000, or all the endowments. This amount was tripled and given to the trustees who had the chance of sending back UGX 3000 if the trustor sent UGX 1000 and up to UGX 6000 if the trustor sent them UGX 2000. Hosting communities were asked to place how much they expected from their partner in the envelopes if they transferred UGX 1000 (tripled amount 3000) and UGX 2000 (tripled amount UGX 6000). Both groups played separately in different demarcated areas. To control for learning effects from playing the game in the same order, we randomly assigned individuals to which game (either trust or dictator game) that they play first.

Before the start of the game, all rules were explained to the group of refugees and host communities, for example: (i) that the game would remain anonymous, (ii) that the cards or slips used to represent 1000 shilling notes which will be replaced with real money after the game (iii) payments will be from one of the randomly chosen two games (iv) expectations shall be paid UGX 500 for every correct prediction, (v) envelopes of different colors will be used for the amount of money that the players decide to transfer, retain and one for expectations. Instructions for playing the game were provided first at the group level and subsequently at the individual level. We tested the players' comprehension and understanding of the game and dropped and replaced those who did not seem to understand the experiment.

5.3.3 Data

We use three sources of data, (1) a household survey, (2) focus group discussion, and (3) experimental games. Refugees play as receivers in the trust game while hosts play as trustors or senders. Both groups performed the dictator game. Thus, we can examine the extent of trust that hosts have and the level of trustworthiness that the refugees have, and the level of altruism for both groups. The average amount transferred by the hosts in the trust game was UGX 981.1 [12] (while the average amount transferred in the dictator game by all players (both refugees and hosts) is UGX 787.7. Hosts' expectations of reciprocity were 50.76 percent of the tripled amount that they transfer. This amount is comparatively higher than the actual average reciprocated amount by refugees (37.29 percent). Refugee's expectations of the amount their partners transfer in the trust game as a measure of expected trust was an average of UGX 1092, representing about 54.6 percent of the endowment. Table 5.1 shows summary statistics for age, years of schooling, distance to district headquarters, and other variables. In playing the games, treatment is the random assignment to information on whether one plays with a refugee or hosts. It does not predict previous engagement and willingness to engage in informal land arrangements, so it does not affect our analysis.

[12] 1 USD = UGX 3600; therefore UGX 981.1 is approx. 0.27 USD. For simplicity, we maintain the use of UGX throughout the paper

Table 5.1: Summary statistics of variables used

Variables	(1) N	(2) Mean	(3) Standard Deviation	(4) Minimum	(5) Maximum
1. The ratio of perceived economic, social status of oneself to a neighboring refugee	619	1.072	0.893	0.100	9
2. The ratio of perceived economic, social status of oneself to a neighboring host community	619	0.925	0.844	0.100	10
3. Gender of the player (d, 1= Female)	589	0.628	0.484	0	1
4. Age of player/Household head	624	38.48	14.86	22	90
5. Average amount transferred in trust game	317	981.1	578.9	0	2,000
6. Amount transferred in dictator game (Refugees and Hosts)	589	787.8	626.1	0	2,000
7. Host's beliefs of the expected average % amount to be reciprocated	318	50.76	19.53	0	100
8. Average percentage reciprocated in trust game by refugees	272	37.29	18.45	0	100
9. Refugees expectations of amount to be transferred in trust game	272	1,092	525.0	0	2,000
10. Years of schooling of the household head	585	4.844	4.104	0	17
11. Distance to district headquarters	619	8.572	4.795	1	16
12. Number of shops in the locality	619	6.596	3.412	1	12
13. Logarithm of total productive assets	624	2.967	4.418	0	13.62
14. Ever participated in land arrangement with refugees (d, 1=yes)	628	0.253	0.435	0	1
15. Ever participated in land arrangement with host community (d, 1=yes)	628	0.347	0.476	0	1
16. Willingness to offer refugees land freely (d, 1=yes)	628	0.347	0.476	0	1
17. Willingness to rent land to refugees (d, 1=yes)	628	0.121	0.326	0	1
18. Willingness to engage in land labor arrangements (d, 1=yes)	628	0.0701	0.255	0	1
19. Willingness to engage in other land arrangements (d, 1=yes)	628	0.0303	0.171	0	1
20. Ever engaged in any land arrangement (d, 1=yes)	628	0.473	0.500	0	1
21. Willingness to engage in any non-market land transactions (d, 1=yes)	628	0.433	0.496	0	1

5.4 Results and Discussion

5.4.1 Descriptive statistics

We asked hosts and refugees if they had ever engaged in any informal land arrangements with refugees, hosts, or both. We also asked if they were willing to engage in each of the following casual land arrangements: (1) free land arrangements (cultivate the land for free for a specified period), (2) offer land in exchange for labor, (3) rent land for a specified period and (4) other unspecified informal land arrangements. Overall, 47.3 percent of both refugees and hosts had ever engaged in any land arrangements, and 43.3 percent were willing to engage in any form of informal land arrangements. Specifically, 34.7 percent of hosts are willing to engage in free land arrangements with refugees. 12.1 percent are ready to rent out their land, 7 percent are willing to engage in land labor arrangements, and 3 percent are willing to engage in other unspecified land arrangements.

Previous engagement in informal land arrangements by the Host community

Results in Table 5.2 show hosts' characteristics based on whether they have ever had any land arrangements with refugees in the past or not. Results show no statistical difference in the amounts transferred in the dictator game by the host's previous engagement in informal land arrangements. There are also no significant differences in trust, expectations of reciprocity, and altruism by last participation in casual land arrangements with refugees. Regarding other characteristics, females are significantly less likely to have engaged in any land arrangements with refugees compared to males. 34.9 percent of females had had land arrangements with refugees compared to 58.8 percent of male-headed households of hosting communities. There are also significant differences in the household head's years of schooling by engagement in informal land arrangements with refugees. Relative perceived socioeconomic status of self (host community) to refugees and fellow hosts and the value of productive assets are not statistically different between hosts willing to engage in informal land arrangements and those unwilling to engage in casual land arrangements.

Table 5.2: Characteristics of hosts based on whether they have ever had any land arrangements with refugees or not

	Had any informal land arrangements with refugees (%)			
	Yes (46.2 %)	**No**	**All**	**t value**
Trust: transfer in the trust game	1037.5 (645.211)	962.02 (554.86)	981.07 (578.86)	-1.008
Expected trustworthiness: belief of average percentage returned	54.219(20.88)	49.61(18.96)	50.76(19.53)	-1.823
Altruism : transfer in the dictator game	739.726(643.85)	788.24(617.19)	765.82 (629.11)	0.683
Gender of the household head	0.349 (0.478)	0.588 (0.494)	0.477 (0.500)	**4.351**
Age of the household head	38.06(14.22)	37.33(14.46)	37.67(14.33)	0.452
Years of schooling	6.234 (3.815)	4.953 (3.496)	5.543(3.696)	**3.109**
Ratio of perceived economic status of self to refugees	1.14(1.095)	1.01(0.791)	1.074 (0.945)	-1.156
Ratio of perceived economic status of self to host community	1.088(0.694)	1.032(0.802)	1.058(0.753)	-0.661
Value of productive assets	8294.521(28626.95)	10305.88(43181.2)	2011.36(37129.79)	0.479

Authors own construction. The number in parenthesis are standard errors

Willingness to participate in informal land arrangements by the host community

In Table 5.3, we show the host's characteristics by the willingness to engage in informal land transactions. 71.5 percent of hosts are willing to engage in land arrangements with refugees. Specifically, 61.4 percent are willing to engage in free land arrangements, 12.3 percent in land labor exchange, and another 5percent are willing to engage in other unspecified land arrangements. There are significant differences in trust by hosts willing to engage in informal land arrangements. Hosts willing to engage in informal land transactions with refugees transfer UGX 1090 (about 54.5 percent of their UGX 2000 endowment) to their partner, while their counterparts are unwilling to engage in any of the land arrangements with refugees transfer a less amount of about UGX 913.26. Other behavior measures, such as expectations of trustworthiness and beliefs of expected trust, are not significantly different between hosts willing and unwilling to engage in informal land arrangements. Other variables, such as gender of the household head and the ratio of perceived socio-economic status to refugees, show a significant difference between willingness to engage in informal land transactions and

unwillingness. For example, those willing to engage in informal land transactions perceive themselves to be of a higher social, economic status relative to their neighbors-

Table 5.3: Characteristics of hosts by the willingness to engage in land arrangements with refugees.

	Willingness to engage any land arrangement with refugees			
	Yes (N=226)	**N=(90)**	**N=(316)**	**t value of the difference**
Trust: transfer in the trust game	1090.9(562.73)	913.26(579.67)	981.07(578.86)	-2.68
Altruism : Transfer in dictator game	769.91(632.57)	755.56(623.71)	765.82(629.11)	-0.183
Expected partner's reciprocity	52.92(19.28)	49.45(19.60)	50.76(19.53)	1.53
Beliefs in partner's expected trust	1108.33(498.67)	1070.7(498.78)	1084.9(498.28)	0.652
Gender of the household head	0.39(0.49)	0.68(0.47)	0.47(0.50)	4.625
Age of the household head	36.69(13.69)	40.11(15.63)	37.66(14.33)	1.92
Years of schooling	5.897(3.64)	4.66(3.69)	5.54(3.69)	-2.72
Ratio of perceived socio economic status of oneself to hosts	1.08(1.01)	1.057(0.752)	1.074(0.945)	0.195
Ratio of perceived socio economic status of oneself to refugee	1.12(0.837)	0.893(0.436)	1.05(0.753)	-2.445
Total value of productive assets	10995.58(10995.58)	5311.11 (12255.38)	9376.58(37129.79)	-1.229

Authors own construction. Number in parenthesis are standard errors

The combined decision of previous engagement and willingness to engage in informal land arrangements

Categorizing households based on both their previous engagement and their present willingness to engage in informal land arrangements, 187 families (29.8 percent) have ever and are willing to engage in casual land arrangements. 110 households (17.5 percent) had ever and are unwilling to engage, while 85 (13.5 percent) have never engaged but are willing to engage. Lastly, 246 (39.17 percent) have never participated and were unwilling to engage in any non-market land transaction. Refugees dominate the last category because they lack land. For host communities, 162 households (51.3 percent) had ever engaged and were willing to engage in informal land arrangements. 40 families (17.5percent) had participated in the past and were no longer willing to engage in non-market land transactions. 64 (20.6 percent) have never engaged but are willing to engage in non-market land transactions. Lastly, 50 (15.82 percent) have never participated and are unwilling to participate in any non-market land transactions.

Figure 8.10 shows that the highest proportion of hosts who sent all their initial endowment of UGX 2000 in the trust game are those who have ever engaged and are willing to engage, suggesting that they trust a lot more. Those who have never been involved in any land arrangement and are willing to engage send the highest proportion of a 50/50 split of their endowment (UGX 1000). It's probable to think that these are individuals who care for inequity aversion. Lastly, players who have ever engaged and are unwilling to engage anymore have the highest proportion of players who send nothing from their endowment, suggesting that they trustless (27.12 percent). They are followed by those who have never engaged and are unwilling to engage. Overall, those unwilling to engage in any land arrangements with refugees show the highest degree of selfishness (transfer zero in the trust game).

Figure 8.10 illustrates graphs of the amount sent in the dictator game as a measure of altruism by the household's engagement and willingness to engage in any of the informal land arrangements. Families who have never participated and are unwilling to engage send the highest proportion of their endowment, followed by households who have never but are willing to engage. The figures seem to illustrate the possibility that host communities who have never engaged with refugees in any land arrangement may be more altruistic than those who have engaged with them in the past, perhaps because they are clueless about the latter's behavior and socioeconomic status. Indeed the median and mean of the perceived ratio of one's socioeconomic status to their neighbors who are refugees are slightly higher for hosts who have never engaged with refugees. For hosts who have previously been involved with refugees, hosts' perceived socio-economic ratio to refugees is somewhat lower than hosts who have never engaged involved with refugees. Their expectations of reciprocity are also low.

The reciprocity of trust is crucial for informal transactions. To trust substantially, one's expectations of a partner's reciprocation of their trust is an important determinant. The highest proportion of players whose beliefs about expected reciprocity or trustworthiness of their partners is zero are hosts who have previously engaged in informal land transactions with refugees but are unwilling to engage anymore. In other words, their expectations of reciprocity by refugees are low in the trust game, perhaps given their previous engagement. Hosts who have previously engaged and currently willing to or have never participated but willing to engage with refugees have firmer beliefs in reciprocation of trust by refugees[13]. The survey results on trust also show that 20.5 percent of hosts who have previously been involved with refugees are unwilling to engage with them anymore trust refugees. 12 percent of hosts who have never encountered and are not willing to engage trust refugees. 9.3 percent of hosts who have been involved with refugees and are willing to engage trust refugees. Lastly, 8.3 percent of the hosts have not been involved in the past but are willing to trust refugees.

[13] Our previous treatment in playing the dictator and trust game was the random assignment to information that one plays with a either refugee or member of the host community. We find that it does not predict whether one has ever engaged in informal land transaction in the past or their willingness to engage, so it does not affect our analysis

5.4.2 Econometric estimation

We examine whether trust, trustworthiness, and altruism are associated with increased engagement by hosts in informal land arrangements with refugees. We hypothesize that the more "trusting" hosting communities and more trustworthy refugees are likely and willing to engage in casual land arrangements. The dependent variables are: (1) whether a host has previously participated in informal land transactions with refugees and fellow hosts or not, (2) whether hosts are willing to participate in any land arrangement or not (3) whether hosts have ever engaged in any informal land arrangements or not. We use a probit model to estimate the associations between willingness and previous engagement in land arrangments with social preferences. We use a multinomial logit model to compare the decisions of households amongst four choices (1) willing to engage in informal land transactions with refugees having previously engaged, (2), unwilling to engage having already engaged, (3) willing to engage having never encountered, and lastly (4) reluctant to engage having previously not been involved in any land arrangement.

Hosts previous engagement in informal land transactions

Table 5.4 is a regression of factors affecting hosts' likelihood to have engaged in informal land transactions with fellow hosts and with refugees. The amount sent in the dictator game is a positive and marginally significant factor in explaining hosts' likelihood to engage in informal land arrangements with refugees. Hosts who send a positive amount (generous) in the dictator game (irrespective of whether it is to a refugee or hosts) are associated with a 12 percent probability to have engaged in informal land arrangements with fellow hosts. Nevertheless, altruism has no significant association with engaging in casual land arrangements with refugees. Transfer of money in the trust game is a positive and insignificant factor in explaining hosts' likelihood to engage in land arrangements with both hosts and refugees. The total value of productive assets that the household owns dictates, whether hosts engage in informal land transactions with fellow hosts. If the assets' value increases by 10 percent, the likelihood for a household to engage in informal land arrangement with fellow hosts increases by 0.002 percent[14].

[l]Independent variable is log transformed; a one unit increase in the independent variable increases the dependent variable by the coefficient divided by 100 percent.

Table 5.4: A probit regression of factors influencing the likelihood of hosts to engage in informal land arrangements with refugees (Margins)

	Ever had a land arrangement with the fellow host community					**Ever had a land arrangement with refugees**				
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Transferred in dictator game (Dummy; 1=Yes)	0.070	0.108	0.102	0.123*	0.124*	-0.056	-0.035	-0.021	-0.005	-0.007
	(0.061)	(0.068)	(0.069)	(0.072)	(0.070)	(0.081)	(0.052)	(0.055)	(0.063)	(0.059)
Transferred in the trust game (Dummy; 1=Yes)		-0.078	-0.062	-0.038	-0.032		-0.014	-0.043	-0.015	-0.016
		(0.053)	(0.052)	(0.051)	(0.050)		(0.088)	(0.092)	(0.081)	(0.081)
Average expected trustworthiness (percentage)			-0.001	-0.002	-0.002*			0.002***	0.002***	0.002**
			(0.001)	(0.001)	(0.001)			(0.001)	(0.001)	(0.001)
Gender of the household head				-0.094	-0.086				-0.164***	-0.146***
				(0.065)	(0.063)				(0.050)	(0.053)
Age of the household head				-0.0002	-0.000				-0.001	-0.001
				(0.002)	(0.002)				(0.002)	(0.002)
Years of schooling household head				0.010	0.010				0.010	0.008
				(0.010)	(0.011)				(0.008)	(0.007)
Log of total assets				0.016***	0.016***				0.008	0.006
				(0.004)	(0.005)				(0.006)	(0.006)
Log of the ratio of perceived socio-economic status of self to refugees					0.023					0.088**
					(0.040)					(0.043)
Log of the ratio of perceived socio-economic status of self to host community					-0.062*					-0.033
					(0.034)					(0.053)
Pseudo R squared	0.003	0.009	0.012	0.059	0.066	0.002	0.001	0.009	0.085	0.106
Observations	312	314	313	309	309	312	314	313	309	309

Notes: The dependent variable for the first five columns is whether the hosts have ever had a land arrangement with fellow hosts and from columns 6 to 10, the dependent variable is whether the hosts have ever had a land arrangement with refugees. Coefficient estimates are reported with robust standard errors clustered at the settlement level. *** p<0.01, ** p<0.05, * p<0.1. represent statistical significance at 1%, 5% and 10% respectively.

The ratio of the host's perceived socio-economic status to fellow hosts is also significantly associated (p>0.10) with the likelihood to engage in an informal land transaction. Suppose hosts perceive that their socio-economic status has increased by 10 percent relative to fellow neighboring hosts, in that case, there is a 0.6 reduced association of them participating in an informal land arrangement with fellow hosts. The host's expectations of trustworthiness, irrespective of whether it is a refugee or fellow hosts, matter in the likelihood of them engaging in an informal land arrangement. A 10 percent increase in the average percentage expected trustworthiness by hosts is associated with a 0.02 percent increase in the likelihood to participate in a simple land transaction with refugees. The gender of the household head and the perceived ratio of hosts' socio-economic status to a neighboring refugee are also associated with the likelihood to engage in informal land arrangements with refugees. Male-headed households are 15 percent more likely to have engaged in an informal land arrangement with refugees than females. Also, hosts who perceive that they are relatively better off socioeconomically than refugees are more likely to have engaged with refugees than their counterparts who don't. Specifically, suppose members of the host community perceive that they are 10 percent socially and economically better off than refugees; in that case, there is an associated 0.8 percent probability that they have ever engaged in an informal land arrangement with refugees.

Hosts willingness to engage in informal land arrangements

Table 5.5 provides an analysis of the likelihood to engage in informal land arrangements using a full sample and a reduced sample (households that have never been involved in any casual land arrangements). As a robustness check, excluding those who have previously engaged removes trust biases because of previous engagements. Results show that transfers of positive amounts (UGX 1000 or UGX 2000) in the trust game are associated with a 20 percent increased willingness to engage in informal land transactions compared to making no transfers. Although marginally significant at 10 percent, a positive transfer in the trust game is associated with a 13 percent increased willingness to engage in an informal land arrangement with refugees when we exclude hosts that have ever committed. It suggests that trust is crucial for the willingness of hosts to engage informal land transactions[15]. In the full sample, the gender of the household head and the total value of assets are associated with the willingness to engage in informal land transactions with refugees. Specifically, females are associated with a 16 percent less willing to engage in informal land transactions with refugees than their male counterparts. A 10 percent increase in the value of total assets that the household owns is associated with a 0.01 percent increase in the willingness to engage in informal land transactions with refugees. The perceived ratio of hosts' socio-economic status to refugees is also associated with an increased likelihood to engage in everyday land transactions with refugees. If hosts see that refugees are better off than

[15] We are unable to distinguish between whether it is trust towards refugees or trust towards hosts due to limited sample associated with an increased likelihood of the willingness of members

they are, it is associated with less willingness by hosts to engage in informal land transactions with refugees.

Table 5.5: A probit analysis of factors associated with the willingness for hosts to engage in informal land arrangements with refugees (margins)

	Willingness to engage in land arrangements (Full sample)					**Willingness to engage in a land arrangement (Sample excludes those who have ever)**			
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Transferred in the dictator game (Dummy; 1=Yes)	-0.003	-0.092*	-0.082*	-0.075	-0.078*	-0.095	-0.086	-0.084	-0.098
	(0.048)	(0.047)	(0.047)	(0.047)	(0.046)	(0.070)	(0.071)	(0.070)	(0.067)
Transferred a positive amount in the trust game(Dummy; 1=Yes)		0.183***	0.166**	0.205**	0.201**	0.163**	0.140*	0.174*	0.132*
		(0.070)	(0.074)	(0.085)	(0.083)	(0.065)	(0.077)	(0.096)	(0.073)
Average expected trustworthiness (percentage)			0.001	0.001	0.001		0.002	0.002	0.002
			(0.002)	(0.002)	(0.002)		(0.002)	(0.002)	(0.002)
Household size				-0.019**	-0.014			-0.024*	-0.015
				(0.010)	(0.009)			(0.012)	(0.010)
Gender of the household head				-0.204***	-0.160**			-0.115	-0.052
				(0.077)	(0.070)			(0.107)	(0.091)
Age of the household head				-0.002	-0.002			-0.003	-0.001
				(0.003)	(0.002)			(0.002)	(0.002)
Years of schooling				0.005	0.001			0.003	0.002
				(0.008)	(0.008)			(0.009)	(0.007)
Log of total assets				0.016***	0.013**			0.009	0.005
				(0.006)	(0.006)			(0.008)	(0.007)
Log perceived ratio of socio-economic status of self to neighboring refugees					0.183***				0.191***
					(0.024)				(0.033)
Log perceived ratio of socio-economic status of self to neighboring host community					-0.114***				-0.087***
					(0.034)				(0.0311)
Pseudo squared	0.000	0.017	0.018	0.101	0.171	0.018	0.022	0.081	0.164
Observations	312	314	313	302	302	234	234	224	224

Notes: The dependent variable for the first five columns is whether the hosts is willing to engage in any land arrangement and from column 6 to 9, the dependent variable is whether the hosts are willing to have any land arrangement but the sample excludes hosts who have ever had any land arrangement. Coefficient estimates are reported with robust standard errors clustered at the settlement level. *** p<0.01, ** p<0.05, * p<0.1. represents statistical significance at 1%, 5% and 10% respectively

The combined decisions of previous engagement and current willingness to engage in informal land transactions

Table 5.6 is a multinomial logit model comparing factors associated with previous engagement and current willingness to engage in informal land transactions with refugees. The base outcome is households who have never had and are not willing to engage in any informal land transactions with refugees. The results show that people who transfer positive amounts in the dictator game are associated more with the option of not having engaged and not willing to engage in informal land arrangements as compared to never engaged and willing to engage in informal land arrangements with refugees. Specifically, there is a 10 percent likely association of transfer of positive amounts in the dictator game (altruism) and the option of never engaging and not willing to engage in any informal land transactions with refugees. It suggests that altruistic hosts are not necessarily involved in or willing to engage in informal land transactions with refugees. Results also show that individuals who transfer positive amounts in the trust game are more likely to be associated with never engaged but willing to engage in any informal land transaction with refugees. Specifically, there is a 15 percent more likely association between individuals that transfer positive amounts in the trust game and the willingness to engage in informal land transactions with refugees when they have not been involved in the past. Although marginally significant, trust is less associated with individuals from households who have ever engaged and are unwilling to engage with refugees suggesting that hosts need to trust refugees before engaging in any informal land arrangements.

Apart from trust and altruism, the results also show that female-headed households are less likely or willing to engage in informal land arrangements with refugees at the survey time. They are more likely to be in the category of never been involved and unwilling to engage. On the other hand, a 10 percent increase in the total assets is associated with a 0.2 percentage point increase in the likelihood of having ever had a land engagement with refugees and willingness to engage in informal land transactions with refugees. Therefore wealthy households are more likely to engage in casual land arrangements with refugees.

Table 5.6: A multinomial logit model comparing factors associated with previous engagement and current willingness for host communities to engage in informal land arrangements with refugees (margins)

	Ever had a land engagement and willing to engage with refugees (N=162)				Ever had a land engagement and not willing to engage with refugees (N=40)				Never had a land engagement and willing to engage with refugees (N=64)			
VARIABLES	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**
Transferred in the dictator game (Dummy; 1=Yes)	-0.013	-0.002	0.012	0.026	0.040	0.034	0.036	0.046	0.008	-0.089**	-0.093**	-0.099**
	(0.065)	(0.037)	(0.041)	(0.045)	(0.045)	(0.060)	(0.063)	(0.058)	(0.058)	(0.038)	(0.041)	(0.041)
Transferred in the trust game(Dummy; 1=Yes)		0.056	0.067	0.093		-0.122*	-0.128*	-0.136*		0.136**	0.143**	0.152**
		(0.058)	(0.066)	(0.073)		(0.069)	(0.075)	(0.074)		(0.060)	(0.065)	(0.069)
Gender of the household head			-0.247***	-0.211***			-0.004	0.026			-0.002	0.009
			(0.056)	(0.045)			(0.063)	(0.061)			(0.062)	(0.073)
Age of the household head				-0.001				0.002				-0.002
				(0.003)				(0.002)				(0.001)
Years of schooling				0.006				0.010*				0.002
				(0.009)				(0.006)				(0.006)
Log of total assets				0.018***				0.001				-0.001
				(0.006)				(0.004)				(0.004)
Pseudo R squared	0.002	0.014	0.055	0.079	0.002	0.014	0.055	0.079	0.002	0.014	0.055	0.079
Observations	312	314	314	310	312	314	314	310	312	314	314	310

Notes: The base outcome is "Never had a land arrangement with refugees and not willing to engage in any land arrangement" (N=50).
Standard errors are in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Refugee's engagement in informal land arrangements

About 35 percent of refugees have ever engaged in an informal land transaction with either host or fellow refugees**.** Reciprocity is higher for those refugees who have never participated in any form of casual land transaction with either refugees or hosts (Table 5.7). 13.48 percent of refugees who have never engaged in any informal land arrangement send all their endowments compared to only 8.4 percent who have ever been involved in any land arrangements (Appendix, Figure 8.11). Expectations of trust and transfers in the dictator game that signals altruism are higher for refugees who have never participated in any land engagements. For example, 12.3 percent of refugees who have ever engaged in any land arrangement expect their partners to transfer zero of their endowment compared to 3.6 percent who have never been involved in any land arrangement (Appendix, Figure 8.12). The differences are, nevertheless, not significantly different. One factor that is significantly different between refugees engaged in informal land transactions and those that have not is the years of schooling, with the former having, on average, 4.9 years of education compared to 3.5 years of schooling for the latter.

Table 5.7: Characteristics of refugees by engagement in informal land transactions

	Ever participated in an informal land transaction			
	Yes (N=95)	No (N=178)	All (N=273)	**t value of the difference**
Average trustworthiness	36.46(17.92)	38.55(19.24)	37.29(18.45)	0.911
Expectations of trust	1072.28(567.46)	1122.64 (451.51)	1091.91(525.03)	0.771
Altruism (Amount sent in the dictator game)	736.84(605.12)	853.93(629.78)	813.19(622.71)	1.483
Gender of the household head	0.768(0.424)	0.820(0.385)	0.802(0.399)	1.022
Age of the household head	40.358(12.884)	37.758(15.414)	38.663(14.612)	1.403
Years of schooling	4.915(4.511)	3.548(4.279)	4.029(4.403)	2.459
Total value of productive assets	12384.21(84419.69)	2665.73(8858.54)	6047.61(50353.47)	1.523
Ratio of perceived socio economic status of self to refugee	1.145(0.787)	1.021(0.909)	1.065(0.869)	-1.119
Ratio of perceived socio economic status of self to refugee	0.831(0.897)	0.731(0.965)	0.765(0.942)	0.83

The number in parenthesis are standard errors.

Table 5.8 shows that social preferences are less associated with refugee's participation in informal land transactions. Transfers in the dictator game, a measure of altruism and trustworthiness, are not associated with refugees' likely engagement in the land market. We reject our hypothesis that participation in informal land transactions signals which refugees are trustworthy. Gender, age, and the years of schooling of the household head

are the significant factors associated with refugees' participation in non-market land transactions. Female-headed households are 18.7 percent less associated with involvement in the non-market land transactions than male-headed household heads. An additional year to the household head's age is associated with refugees' likely participation in informal land transactions by 0.5 percentage points. Also, one other year of schooling for a refugee household's head is related to an increase in likely participation in non-market land transactions by 2.5 percent.

Table 5.8: A probit model of factors associated with engagement in informal land transactions by refugees (margins)

	If a refugee household has ever participated in an informal land transaction			
VARIABLES	(1)	(2)	(3)	(4)
Transferred in the dictator game (Dummy; 1=Yes)	-0.069	-0.019	-0.017	-0.018
	(0.057)	(0.071)	(0.067)	(0.070)
Average percentage trustworthiness		-0.001	-8.82e-05	0.000
		(0.002)	(0.002)	(0.002)
Gender of the household head			-0.192***	-0.187***
			(0.071)	(0.07)
Age of the household head			0.006***	0.006***
			(0.002)	(0.002)
Years of schooling			0.027***	0.025**
			(0.010)	(0.010)
The logarithm of total assets			0.004	0.004
			(0.006)	(0.006)
Log perceived ratio of socio-economic status of self to members of the host community				-0.017
				(0.045)
Log perceived ratio of socio-economic status of self to refugees				0.062*
				(0.037)
Pseudo R squared	0.003	0.002	0.105	0.110
Observations	272	270	270	270

5.5 Conclusion

The land is a valuable resource that ensures that resource-constrained displaced households continue to derive their livelihoods from agriculture. Uganda provides a good reference point for its generous refugee policy that distributes land to refugees upon arrival. The marginal benefit of providing refugees with land besides aid increases their impact on the economy by $92 to $205 (Zhu, Taylor, et al., 2016). Nevertheless, land distribution and its management have cost implications on the national budget of Uganda. Over time, the Government has reduced the plot sizes allocated to individual households from an average size of 50 meters by 50 meters to as low as an average size of 30 meters by 30 meters in some refugee settlements. In light of unsustainable and insufficient government land distribution to refugees, informal land arrangements offer alternative ways by which refugees can access land from members of the host. Currently, 47.2 and 43.3 percent of both refugees and hosts have ever engaged or are willing to participate in any informal land arrangements, respectively, including giving land for free for a specified period, land labor exchanges, land rent, and other unspecified methods. Unlike formal agreements, casual contracts might have to rely to a great extent on trust, reciprocity, and altruism to ensure enforcement and adherence to the set terms. In this regard, we examine if social preferences of trust, reciprocity, and selflessness are associated with informal land arrangements between refugees and hosts.

This paper provides evidence that engagement in informal land arrangements is associated with trust, expectations of reciprocity, and altruism by members of the host community. We have also shown that experimental measures predict essential outcomes in casual institutional provisions such as casual land arrangements. Trusting members of the host community are associated more with the willingness to engage in informal land transactions with refugees and previous engagement in land engagements with fellow hosts. For example, we find that host's trust is associated with a 20 percent increased willingness to engage in informal land transactions. On the other hand, hosts' high expectations of trustworthiness are related to previous participation in informal land arrangements with refugees. A 10 percent increase in the expected reciprocity by hosts is associated with a 0.02 percent increase in the likelihood to participate in a simple land transaction with refugees. Generous or altruistic hosts are more likely to engage in casual land arrangements with fellow hosts (albeit weakly significant) and less willing to participate in any formal land arrangements with refugees. We find that altruistic hosts are 10 percent less associated with the option of ever engaged and not ready to engage in any informal land transactions with refugees than with the option of willing to engage having engaged in land arrangements with refugees previously. It suggests that altruistic hosts are not necessarily the ones involved in or willing to engage in informal land transactions with refugees

Other factors explaining host willingness and engagement in informal land arrangements include the value of assets owned, the gender of the household head, and the perceived relative socio-economic status of hosts to neighboring refugees. For example, if hosts perceive that refugees are better off, there is a reduced willingness to engage in informal land transactions with refugees. Wealthier hosts are also more likely to have participated or are willing to engage in casual land arrangements with refugees. Female household heads are less likely to have involved or are eager to engage in informal land arrangements. For refugees, their engagement in informal land arrangements is not associated with reciprocity and altruism, showing informal institutions' failure to segregate trustworthy refugees from untrustworthy ones. Other factors such as the level of education, the gender of the household head, and the perceived relative social-economic status of refugees to hosts explain observed informal land arrangments by refugees. For example, female-headed households are associated with 16 percent less willing to engage in informal land transactions with refugees compared to their male counterparts

Trust is crucial for many operations which remain informal and noncontractual and is likely to be high towards individuals with shared cultures and norms. In the focus group discussions, hosts associated refugees with theft showing their lack of trust in the latter. It's also likely that hosts who have previously engaged in informal land arrangements with refugees also show a willingness to participate because of an existing trust. To limit this bias, we exclude those who have previously engaged in any land transactions with refugees to determine the association between trust and engagement in the informal land arrangement. We find that trust is still associated with hosts' willingness to engage in informal land arrangements with refugees, albeit to a lesser magnitude and level of significance. From a policy perspective, beyond relying on Government land provision, existing interventions aimed at improving refugee self-reliance by both the Government, non-Governmental organizations, and development partners should bank on existing behavioral attributes to enhance bilateral informal land arrangements. For example, interventions that increase refugees' opportunities and host interaction, and build trust, such as mixed social and farmer groups, should be encouraged.

Chapter 6 : General Conclusions and Policy implications

This dissertation focuses on four main issues related to armed conflicts and displacements, namely: (1) motives for engaging and disincentives for disengaging in armed conflicts, (2) consequences of armed conflict on consumption and consumption pathways, (3) prosocial attitudes between refugees and hosts to identify any discrimination and stereotypes based on social identity and lastly, (4) the social preferences in informal (land) contractual arrangements between refugees and hosts.

In the second chapter, we attempt to explore the motives for engaging in armed conflicts using a case study analysis of the Great Lake Region (GLR), which includes DR Congo, Uganda, Rwanda, Burundi, and we also have South Sudan. We find an interaction between economic and non-economic incentives for rebels or governments to engage in armed conflicts. Notably, in the GLR, ethnic divides cannot be separated from the incidence of armed conflict. Unlike theoretical explanations and studies that hinged on ethnic diversity as the likely factor driving armed conflict, in the GLR, the desire for ethnic dominance is placed as the most likely source of conflict. Moreover, as similar ethnicities cut across the borders, one successfully led armed conflict by a given ethnicity in one country motivates the same ethnical group to wage a similar upheaval in other countries. Political leaders with selfish interests have also taken advantage of ethnic differences to drive their motives for gaining power. Ethnical divides also cannot be separated from the colonial era, which historically institutionalized divisions, petting one ethnic group against the other to the advantage of the colonial masters. The concept of "market of violence" also explains why countries in the region meddled in the affairs of mineral-rich DR Congo, primarily due to the ready demand for minerals obtained through violence.

Armed conflicts prelude the selfish desire to ascend to power and be in charge of the economic benefits from autocratic leadership characteristics of the region's political leadership. Prosecution, litigation, disciplinary actions, or penalty have been a demotivating factor for engaging in conflicts in the areas. Examples include: (1) Uganda's self-referral to the ICC, which helped quell down the LRA rebellion (2) the International Tribunal for Rwanda silenced any attempts similar to the Rwanda genocide in 1994 (3) Dodd-Frank Wall Street Reform and Consumer Act in the USA is a check to prevent the sourcing of mineral wealth from conflict-affected countries like DR Congo. Beyond prosecution and litigation, impunity measures include granting amnesties as an incentive for individual rebels under LRA to stop fighting and return home. Armed conflicts remain active in South Sudan and DR Congo. We recommend that governments pay attention to and address incentives that have motivated armed conflict in the past to minimize the repetition of historical armed conflicts in the region.

In Chapter 3, we examined the consequences of armed conflict on consumption and consumption pathways. Beyond using only one measure of conflict exposure used in several studies exploring the effect of conflict on economic performance, we used three measures of conflict exposure: household directly affected (self-reported), families within 5km of conflict exposure, and families within 10km of conflict exposure. We also explored the consequences of conflict on consumption pathways defined as household food expenditure towards own food production, food purchased from the market, and transfers. We took advantage of the fact that the attacks by the Lord Resistance Armed conflict in Uganda were randomly distributed such that all families were equally likely to be attacked. Similarly, households within the vicinity of 5 and 10km of a reported conflict event were also equally assaulted after controlling for district fixed effects.

We showed that households affected by conflict have a reduction in food consumption of between 21 to 30 percent immediately after cessation of hostilities as compared to during the battle, somehow an unexpected result but not surprising. Specifically, the reduction in consumption was tremendous for directly affected households (30 percent reduction in consumption), perhaps from the withdrawal of transfers from non-governmental organizations and Government. Indeed, we show that consumption from market purchases and transfers decreases immediately after the conflict, while consumption from own production increases. Nevertheless, because households are still rebuilding their assets and other investments, including the fear of the reoccurrence of insecurity, productivity remains low. No wonder we also find that the difference in returns to labor and land remains insignificant between households affected by conflict and those not affected three years after the cessation of hostilities. We also show that as the incidence of insecurity from armed conflicts (households within 5km and 10km of armed conflict) increases, households rely less on consuming from market purchases and transfers and more on their own food produced. Nevertheless, families directly affected by war continue to rely more on transfers than from their production or market purchase. The results in this chapter reveal the need for: (1) prioritizing and targeting directly affected households rather than having blanket interventions for everybody within conflict vicinity (2) continuing to support families recovering from armed conflict with some form of social assistance; immediate withdrawals of such aid has dire consequences on consumption (3) supporting subsistence production through for example provision of agricultural inputs for households recovering from war.

In Chapters 4 and 5, the thesis focuses mainly on refugees' and hosts' behavior and how they may affect informal land contractual arrangements. For refugee integration, discrimination based on the social status of either being a refugee or a host should be minimal. We demonstrate in Chapter 4 that refugees do not consider the social differentiation of “us refugees” and “them host” in their interactions as much as hosts do, particularly in areas remote from urban areas. First, refugees will reciprocate trust more to hosts than fellow refugees in remote areas. Refugees located more than 10km

from district headquarters return trust more to hosts than to refugees by 8 percentage points. Second, refugees will also be more altruistic to hosts than fellow refugees in remote areas. Refugees located more than 10km from district headquarters transfer more of the share of their endowment to hosts than refugees by 15 percentage points difference in generosity. Lastly, refugees do not anticipate that their partners may expect them to favor fellow refugees or support hosts. Focus group discussions also revealed that refugees don't think they are any different in identity from hosts.

Hosts who played as trustors, on the other hand, tend to favor fellow hosts but not in rural areas. They also anticipate that their fellow hosts will expect more from them in trust, and refugees will expect less from them in confidence. Hosts trust refugees less than they trust hosts by 10 percentage points difference; nevertheless, hosts located 10km or more from the district headquarters transfer more to refugees than hosts by 22 percentage points difference in trust. Lastly, hosts are not charitable to either fellow hosts or refugees, even in remote areas. These results reveal the possibility that there seem to be more constructive interactions between hosts and refugees in remote areas. To a greater extent, this may be due to the closer confines or radius of exchange due to limited movement from high transaction costs. There is also a possibility that the observed results may be attributed to refugees' high density in remote areas. Nevertheless, we control for settlement fixed effects in our analysis and thus unlikely to be the case. We recommend investments in social development activities such as joint social gatherings and social clubs that increase interaction between refugees and hosts.

Further, in Chapter 5, we explore how host-refugee behavior might affect informal contract land arrangements. In light of unsustainable and insufficient government land distribution to refugees, informal contractual land arrangments offer alternative ways by which refugees can access land from the host and be self-reliant. Casual contracts might rely on personal relations of trust, altruism, and cooperative norms and may not require any documentation. Currently, 47.2 and 43.3 percent of both refugees and hosts have ever or are willing to engage in informal land arrangements such as giving land for free for a specified period, land labor exchanges, land rent, and other unspecified methods. In this chapter, we were able to show : (1) that hosts who send a positive amount (generous) in the dictator game (irrespective of whether they know that their partner is a refugee or hosts) are associated with 12 percent more probability of having engaged in informal land arrangements with fellow hosts but not with refugees; (2) a 10 percent increase in expected trustworthiness by hosts is associated with 0.02 percentage increase in the likelihood to participate in a casual land transaction with refugees (3) transfers of positive amounts in the trust game are associated with a 20 percent increased willingness to engage in informal land contracts. To further verify our findings, we used a multinomial logit to compare the possible association between hosts' current willingness to engage, given their previous engagement in informal land arrangements. In this way, we would see if behavioral factors of trust and altruism might explain the change in willingness conditioned on previous engagement. Our findings

show that: (1) there is a 10 percent likely association of transfer of positive amounts in the dictator game (altruism) with the option of never engaging and not willing to engage in any informal land transactions with refugees. (2) there is a 15 percent more likely association between individuals that transfer positive amounts in the trust game with the willingness to engage in informal land transactions with refugees conditioned on having engaged in the past. We conclude that the extent to which hosts trust refugees is likely to determine the degree by which they are willing to engage in informal land arrangements. We treat these results cautiously given a possibility of reverse causality; engaging in land arrangement increases trust, and trust might increase willingness in reverse. We also don't underestimate the extent to which other factors such as asset ownership, expectations in beliefs, and gender affect the desire to engage in informal land arrangements. These are novel results that can guide the Government's action in ensuring that refugees access to land and become self-reliant. The government should encourage informal contractual provisions to increase refugee self-reliance by banking and improving positive existing behavioral attributes such as trust and altruism between refugees and hosts.

Limitations of the thesis and suggestions for further research

This thesis is not without limitations, and in this section, we highlight some and suggest future research to build on the study's objectives. In the first chapter, we acknowledge that we only make attempts to dwell into the incentives and disincentives in engaging in armed conflicts in the region. Further research could tackle the depth of the motivations and disincentives for each of the countries' cited armed conflicts. In the second chapter, we have only examined the consequence of conflict on consumption and consumption pathways during and after an armed conflict. Potentially armed conflicts affect the rural labor supply, which has long-term consequences on consumption pathways, an area for further research. Chapter 4 examines prosocial attributes between refugees and hosts to understand discrimination based on social identity, refugees are receivers, and hosts are senders in the trust game. We based this design on the fact that hosts are the owners of crucial resources such as land. At the same time, refugees are resource-constrained. It is essential to ascertain the extent to which hosts trust refugees and how refugees reciprocate the trusts for any meaningful transaction to happen, which this study does. For comparability between refugees and t hosts' trust, further research could allow hosts and refugees to play both roles of senders and receivers in the trust game. Besides, an opportunity exists to examine how cooperative behavior between refugees and hosts could impact the management and use of natural resources, which is currently a key concern given the increased influx of refugees in Uganda and other countries.

Chapter 5 focuses on informal contractual arrangements between refugees and hosts. We do not ask for the size of land transacted through informal land arrangments, or the area hosts might be willing to give out through such a mechanism. Further research

could extend this concept of informal land arrangements between refugees and hosts and focus more on the size of land transacted and how it impacts food security. A randomized control trial could, for example, be used to assess the impact of refugees acquiring additional land on welfare outcomes. Chapter 5 also falls short of evaluating the land distribution program's cost and benefits by Uganda's Government. Notably, 85 percent of refugees access land through Government, yet only a few studies have evaluated its costs and benefits extensively. Using the local economy impact evaluation model, Zhu, Filipski, et al. (2016) examine the general equilibrium effects of land transfers to refugees in Uganda. In another related study, they simulate the impacts of an additional refugee household receipt of land on real total income in the local economy.

Despite the limitations, this thesis remains novel. It contributes to academic, policy, and development understandings on motives of conflict in Sub Saharan Africa, recovery of households from protracted armed conflicts, and social preferences between refugees and hosts and what it means for informal contractual arrangments.

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Chapter 8 : Appendices

7.1 Appendix to Chapter 2

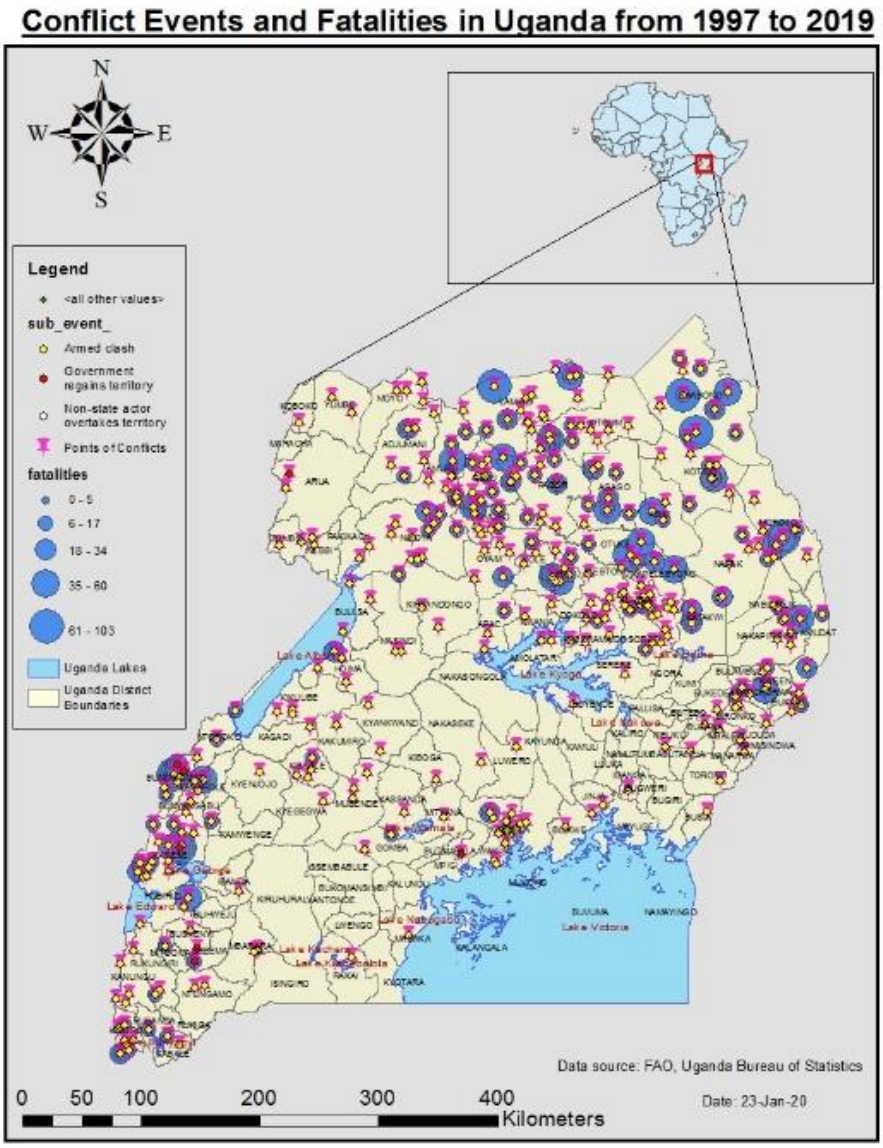


Figure 8.1: Conflict Events and Fatalities in Uganda

Source: Authors construction from ACLED data from 1997-2019

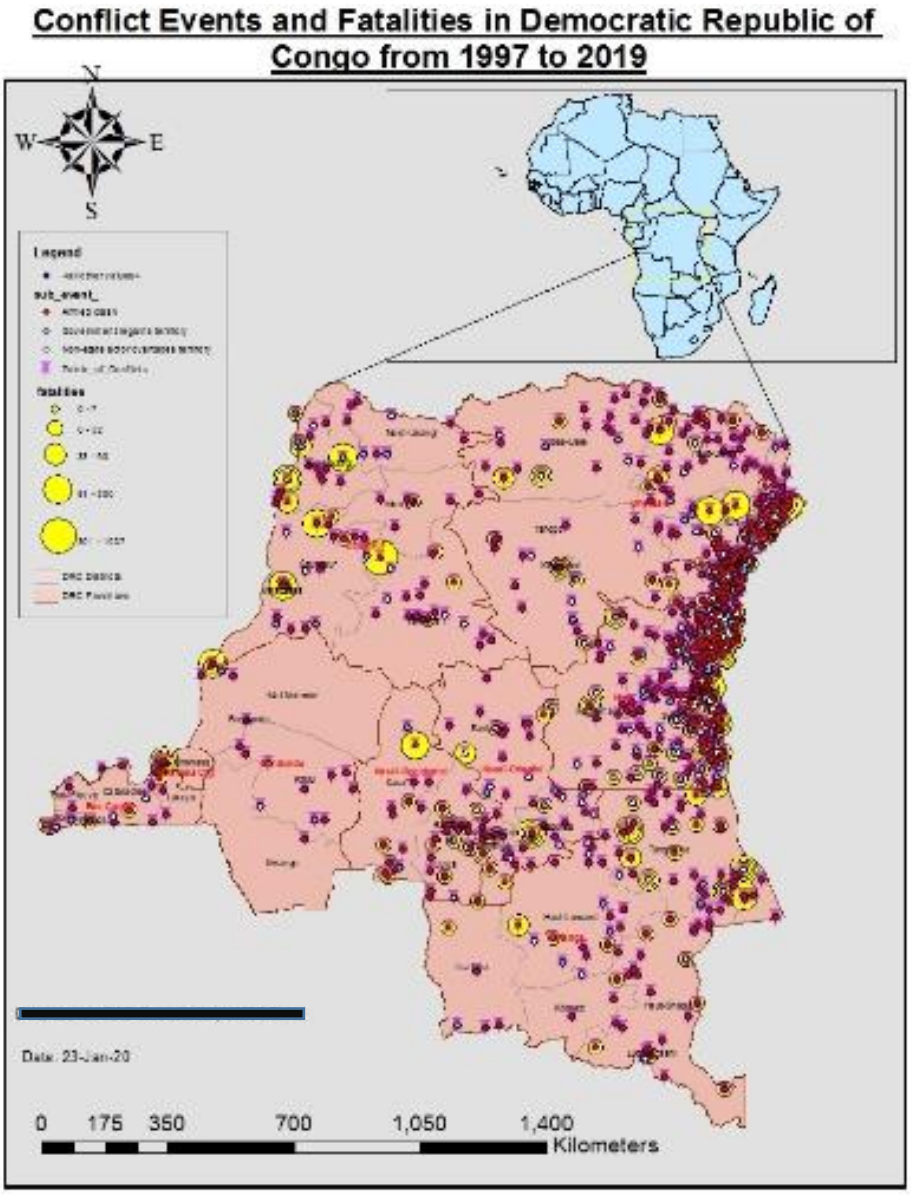


Figure 8.2: Points of Conflict Events and Fatalities in DR Congo

Source: Authors construction from ACLED data from 1997-2019

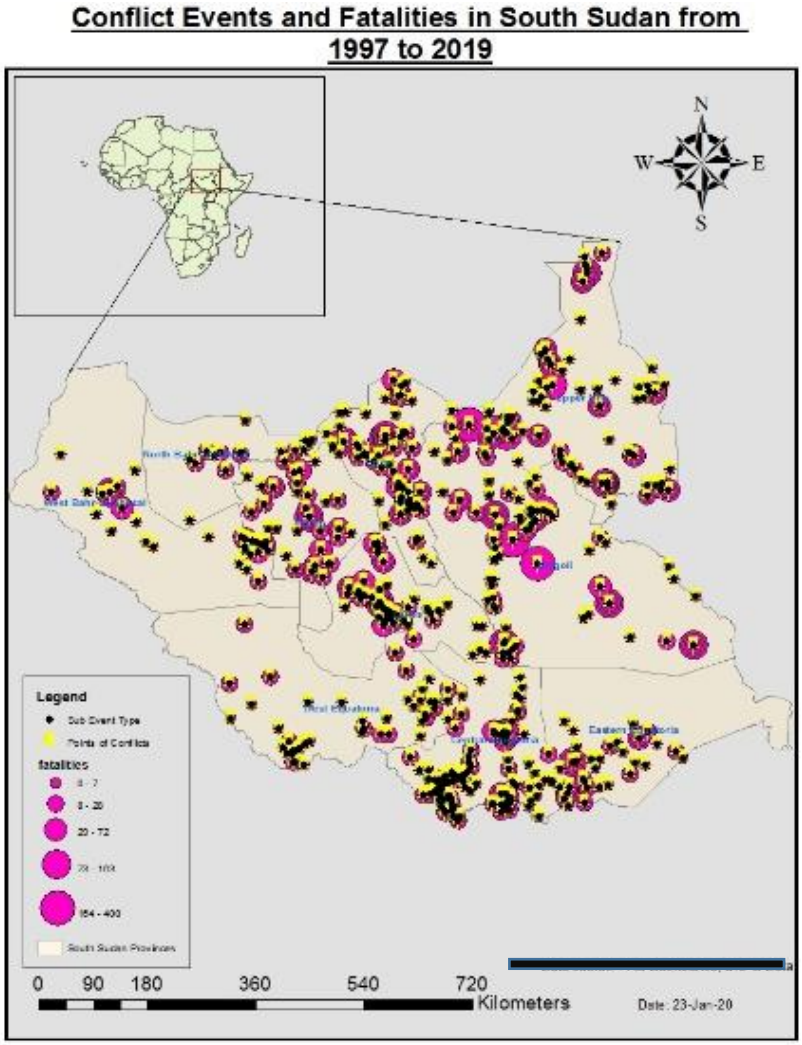


Figure 8.3: Points of Conflict Events and Fatalities in South Sudan

Source: Authors construction from ACLED data from 1997-2019

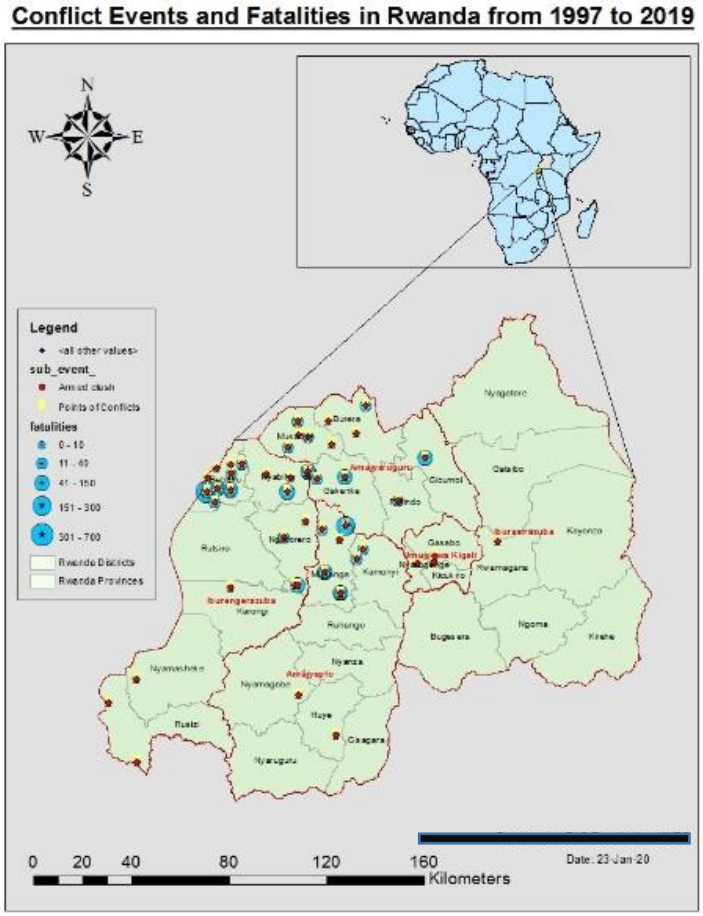


Figure 8.4: Points of Conflict Events and Fatalities in Rwanda

Source: Authors construction from ACLED data from 1997-2019

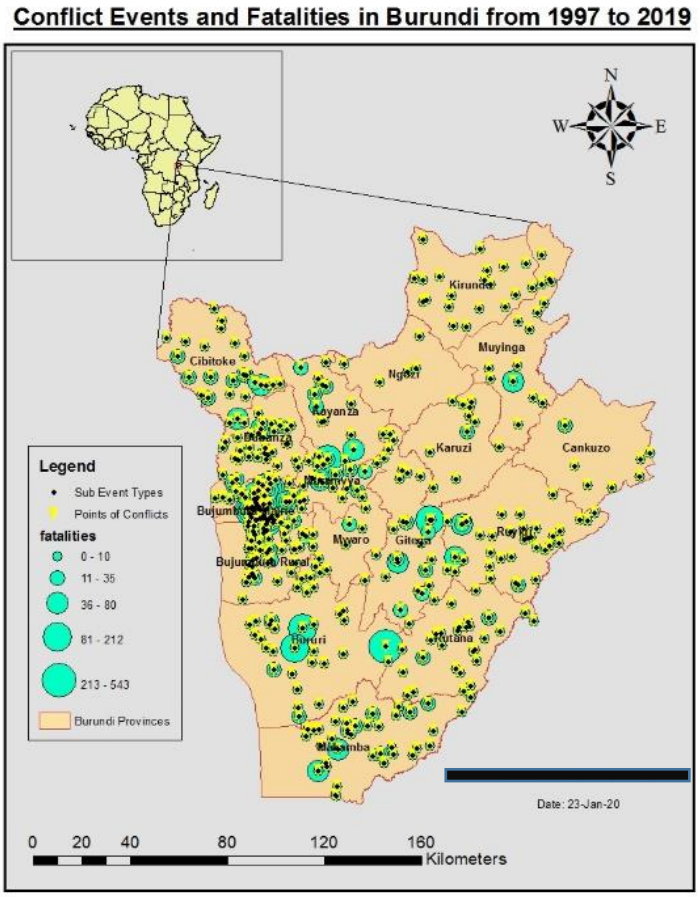


Figure 8.5: Points of Conflict Events and Fatalities in Burundi

Source: Authors construction from ACLED data from 1997-2019

7.2 Appendix to Chapter 3

Table 8.1: Number of conflict events and fatalities of Lord Resistance Armed conflict by districts in Uganda

Old district name	No of conflict events	Number of fatalities LRA
Adjumani	51	100
Apac	72	318
Arua	30	0
Gulu	603	1663
Kitgum	816	3144
Kotido	85	8
Kumi	2	0
Lira	218	1142
Moroto	105	33
Moyo	14	3
Nakapiripirit	3	0
Nebbi	131	178
Soroti	121	175
Yumbe	25	0

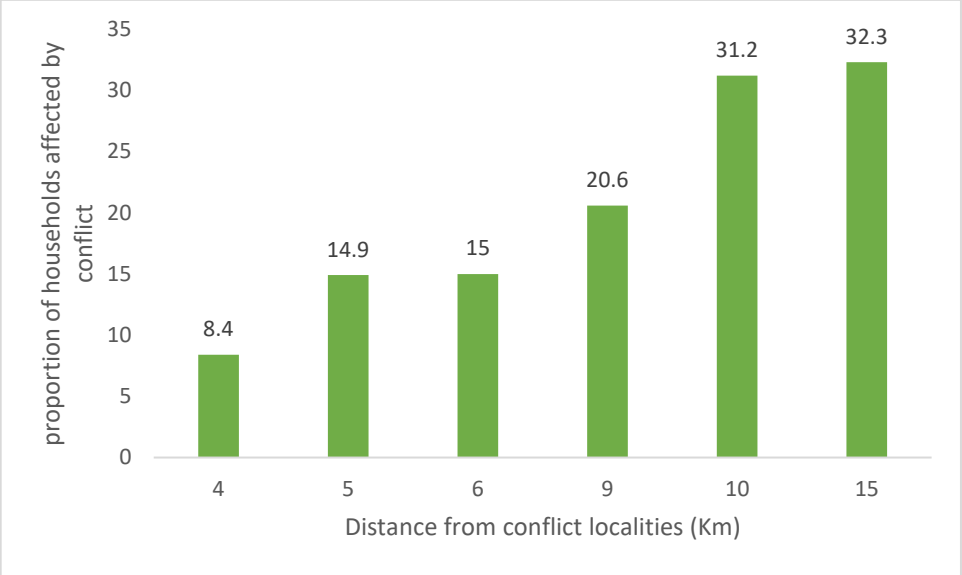


Figure 8.6: Proportion of households by distance from a conflict point (%)

Source: Authors construction from ACLED data from 1997-2019

Table 8.2: Description of variables used in the model

Variable	Description
Household size	Number of household members
Household owns a bicycle	Is a dummy variable of whether a household owns a bicycle or not
Household owns a mobile phone	Is a dummy variable of whether a household owns a mobile phone or not
Years of education of household head	Years of education of household head
Engaged in wage employment	Is a dummy variable of whether a household has any member engaged in wage employment
Gender of the household head	Is a dummy variable of whether the household head is female or male
Age of the household head	Years
The household has ever migrated	Is a dummy variable of whether the household has ever migrated or not
Household received remittances within	Is a dummy variable of whether the household has received remittances within the country or not
Household received remittances from abroad	Is a dummy variable of whether the household has received remittances from abroad or not
Land size	Land size owned by the household in acres
Distance to market (meters)	Is the distance to the market in acres
Household is engaged in the business	Is whether the household is engaged in business or not
Household is within 10km of conflict exposure	Is a dummy variable of whether the household is within 10km of conflict exposure or not
Household is within 5kmof conflict exposure	Is a dummy variable of whether a household is within 5km of conflict exposure or not
Average rainfall	Is the average rainfall received in the area of the locality of the household
Per capita consumption(monthly)	Is the per capita consumption of the household (monthly)
The fraction of per capita consumption from own produced	Is the share of per capita consumption from own food produced
The fraction of per capita consumption from market purchase	Is the share of per capita consumption from market purchase
The faction of per capita consumption from transfers	Is the share of per capita consumption from transfers received by the household
Fraction of per capita consumption away from home	Is the share of consumption away from home like in restaurants
Household is engaged in growing cereals	Is a dummy variable of whether the household is engaged in the production of cereals like millet, maize, sorghum
Household is engaged in growing legumes	Is a dummy variable of whether the household is engaged in the production of legumes
Household is engaged in growing cash crops (sunflower, cotton, coffee)	Is a dummy variable of whether the household is engaged in growing cash crops like sunflower, cotton, and coffee, which are intentionally for earning the sale
Household grows fruits and trees	Is a dummy variable of whether a household is engaged in growing fruits and trees
Number of income sources household has	Is the number of income sources that the household has

Table 8.3: Summary statistics of variables used

VARIABLES	(1) N	(2) mean	(3) Standard Deviation	(4) Min	(5) Max
Household size	3,269	7.684	3.461	1	28
Household owns a bicycle	3,269	0.403	0.491	0	1
Household owns a mobile phone	3,269	0.380	0.485	0	1
Years of education of household head	3,269	2.596	1.172	1	5
Engaged in wage employment	3,256	0.330	0.470	0	1
Gender of household head (d, male)	3,269	0.741	0.438	0	1
Age of the household head	3,269	45.87	14.64	18	95
Household has ever migrated	3,269	0.131	0.337	0	1
Household received remittances within	3,269	0.310	0.463	0	1
Household received remittances from abroad	3,266	0.0214	0.145	0	1
Land size	3,269	2.369	3.514	0	40
Distance to market (meters)	3,269	360.6	391.1	0	2,000
Household is engaged in business	2,691	0.551	0.497	0	1
Household is within 10km of conflict exposure	3,269	0.313	0.464	0	1
Household is within 5kmof conflict exposure	3,269	0.149	0.356	0	1
Average rainfall	3,269	181.6	46.86	22.42	318.3
Per capita consumption(monthly)	3,269	114,115	102,819	1,564	856,624
Fraction of per capita consumption from own produced	3,269	0.440	0.286	0	1
Fraction of per capita consumption from market purchase	3,269	0.314	0.333	0	1
Faction of per capita consumption from transfers	3,269	0.0657	0.150	0	1
Fraction of per capita consumption away from hone	3,269	0.180	0.276	0	1
Household is engaged in growing cereals	3,269	0.927	0.260	0	1
Household is engaged in growing legumes	3,269	0.909	0.287	0	1
Household is engaged in growing cash crops (sunflower, cotton, coffee)	3,269	0.574	0.495	0	1
Household grows fruits and trees	3,269	0.250	0.433	0	1
Number of income sources household has	2,495	4.057	1.115	0	7

Table 8.4 Average mean differences for some variables by different measures of conflict exposure

	Within 5km of conflict (N´=487)	Not within (N=2782)	t statistics	Within 10km of conflict (N=1022)	Not within(N=2247)	t statistics	Affected by conflict	Not affected	t statistic
Consumption from home production	52996.16 (68090.04)	51060.43 (1201.639)	-0.615	52623.92 (66226.89)	50768.85 (63110.28)	-0.767	52771.79 (68617.8)	51141.89 (63422.36)	-0.484
Consumption from market access	38709.36 (66037.77)	32501.14 (59423.31)	-2.091	35333.19 (57851.58)	32558.57 (61637.61)	-1.216	30434.71 (51858.76)	33860.98 (61634.05)	1.0783
Consumption away from home	20817.78 (42881.94)	22962.14 (48082.86)	0.922	21522.37 (43313.01)	23152.24 (49069.15)	0.912	22260.78 (44827.6)	22698.22 (47706.42)	0.176
Consumption from gifts	7571.406(18876.7)	6544.269 (21312.64)	-0.997	9451.23 (27607.05)	5939.24 (19240.83)	-4.502	8652.335 (29201.17)	6413 (19474.2)	-2.034
Total consumption	120094.7 (96198.12)	113068 (103915.8)	-1.392	118421.5 (97597.51)	112156 (105071.1)	-1.616	114119.6 (91501.63)	114114.1 (104377.3)	-0.001
Received remittances	0.324 (0.469)	0.3073 (0.4614)	-0.753	0.3307 (0.471)	0.300 (0.458)	-1.738	0.293 (0.456)	0.312 (0.463)	0.75
Engaged in wage employment	0.367 (0.482)	0.323 (0.468)	-1.871	0.3661 (0.4819)	0.313 (0.464)	-2.943	0.308 (0.462)	0.333 (0.471)	1.012
Does cattle keeping	0.394 0.489)	0.484 (0.499)	3.446	0.414 (0.492)	0.497 (0.500)	4.227	0.428 (0.495)	0.478 (0.499)	1.836
Engaged in cash crop	0.6406 (0.480)	0.5618 (0.496)	-3.249	0.6183 (0.486)	0.5531 (0.497)	-3.5	0.633 (0.482)	0.565 (0.496)	-2.654
Engaged in Business	0.584 (0.493)	0.545 (0.498)	-1.532	0.545 (0.498)	0.567 (0.495)	-1.178	0.558 (0.497)	0.550 (0.498)	0.268
Land size	2.639 (3.750)	2.523 (3.822)	0.377	2.639 (3.666)	2.487 (3.874)	-0.956	2.653 (3.828)	2.516 (3.819)	0.638
Migration	0.168 (0.375)	0.124 (0.330)	-2.658	0.204 (0.403)	0.098 (0.297)	-8.385	0.202 (0.402)	0.120 (0.326)	4.634
Lowest wealth quintile	0.129 (0.335)	0.131 (0.338)	0.171	0.413 (0.492)	0.411 (0.492)	-0.115	0.418 (0.494)	0.411 (0.492)	0.293
Second lowest quintile	0.209 (0.407)	0.174 (0.379)	-1.869	0.215 (0.411)	0.163 (0.369)	-3.64	0.247 (0.432)	0.170 (0.375)	-3.831
Third lowest quintile	0.305 (0.461)	0.337 (0.472)	1.354	0.294 (0.455)	0.350 (0.477)	3.151	0.295 (0.456)	0.338 (0.473)	1.718
Highest wealth quintile	0.104 (0.306)	0.07 (0.256)	-0.119	0.076 (0.265)	0.075 (0.263)	-0.119	0.038 (0.193)	0.081 (0.272)	3.038

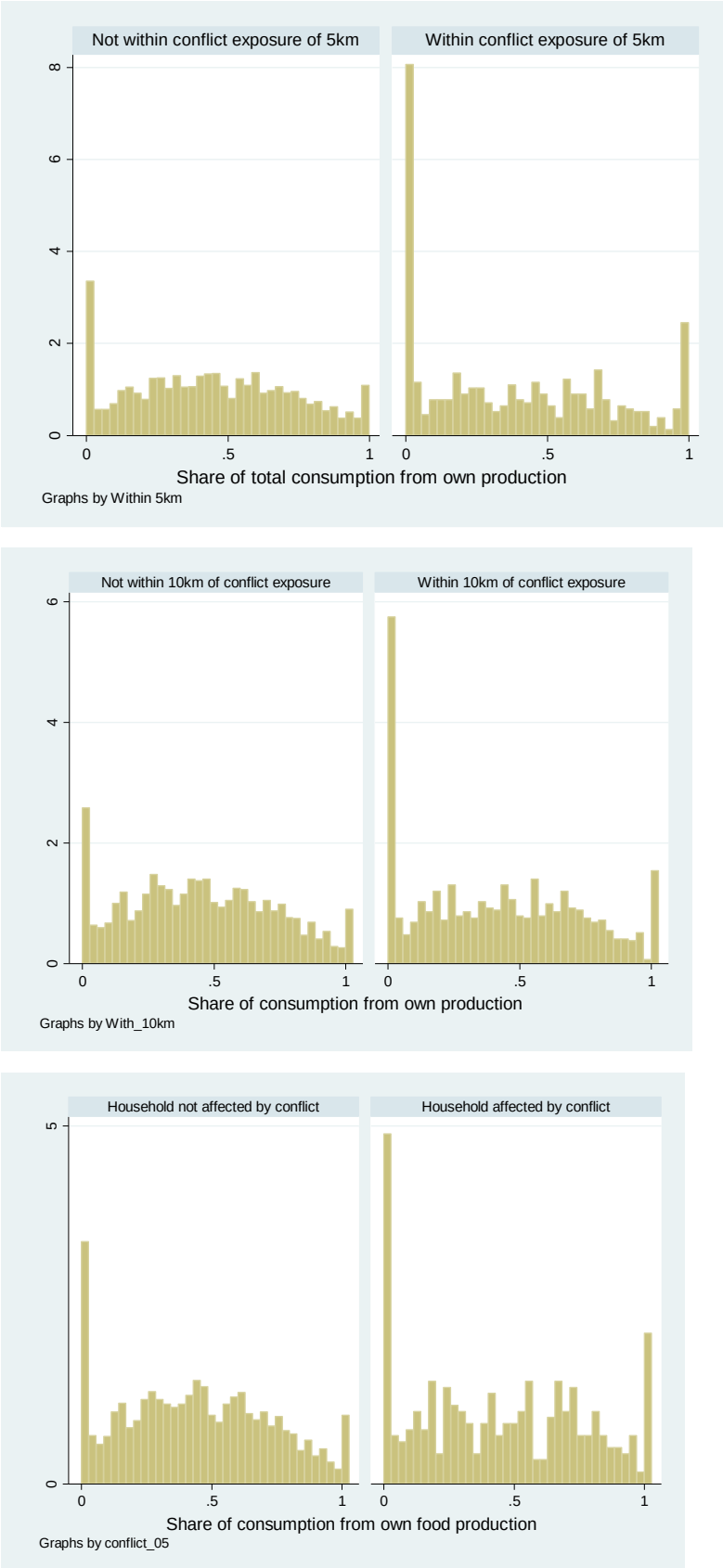
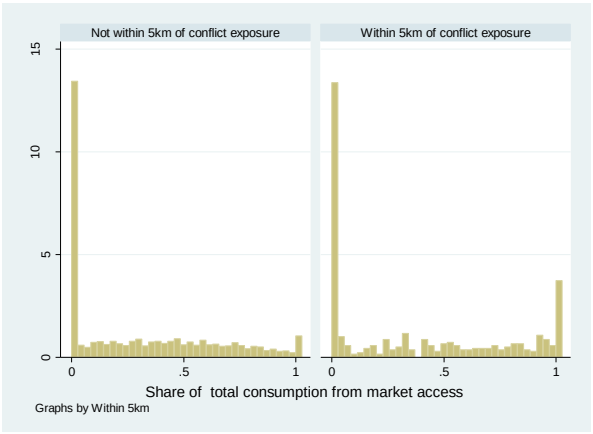
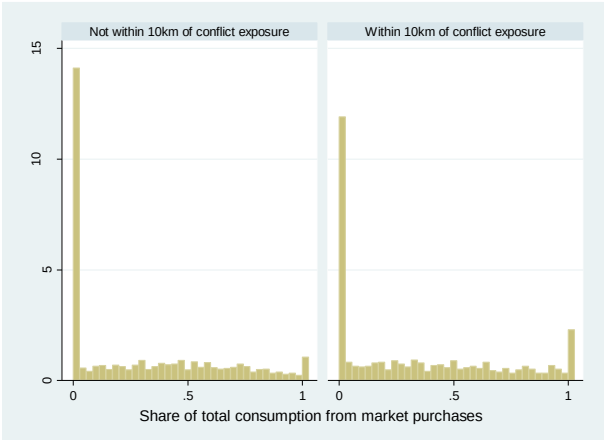


Figure 8.7: Share of Consumption from own production by different measures of conflict exposure

Source: Authors construction from ACLED data from 1997-2019





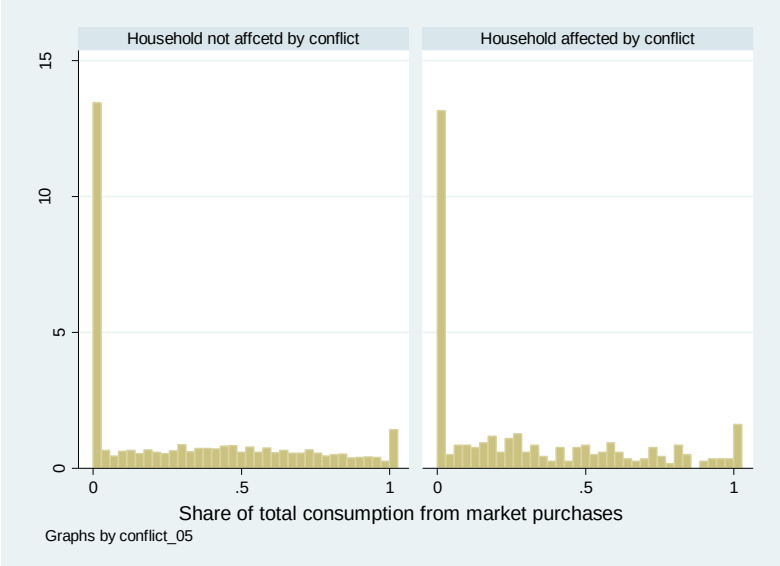


Figure 8.8: Share of total consumption from a market purchase using different conflict exposure measures

Source: Authors construction from ACLED data from 1997-2019

Table 8.5: Conflict exposure and total per capita food consumption (log) consumption in short-run (2005 and 2009) excluding migration

	Household reported conflict exposure		Within 5km of conflict exposure		Within 10km of conflict exposure	
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	RE	CRE	RE	CRE	RE	CRE
Household reported conflict (1=Yes)	-0.056	0.009				
	(0.074)	(0.084)				
Year (1=2005; 0=2009)	-0.568***	-0.609***	-0.566***	-0.630***	-0.584***	-0.667***
	(0.050)	(0.069)	(0.052)	(0.073)	(0.055)	(0.079)
Household reported#1.year0509	0.234**	0.235**				
	(0.110)	(0.113)				
Years of schooling	-0.004	-0.031	-0.004	-0.031	-0.005	-0.032
	(0.017)	(0.025)	(0.017)	(0.026)	(0.017)	(0.026)
Land size	0.015***	0.019**	0.015***	0.018**	0.015***	0.018**
	(0.005)	(0.009)	(0.005)	(0.009)	(0.005)	(0.008)
Distance to the market	-5.41e-06	-1.74e-06	-9.02e-06	-7.63e-06	-1.03e-05	-1.35e-05
	(4.28e-05)	(4.70e-05)	(4.30e-05)	(4.72e-05)	(4.34e-05)	(4.78e-05)
Within 5km of conflict			-0.079	0.197		
			(0.069)	(0.59)		
Within 5km#year			0.145	0.197*		
			(0.102)	(0.109)		
Within 10km of conflict (1=Yes)					-0.039	-0.144
					(0.053)	(0.553)
Within 10km#year					0.139*	0.187**
					(0.078)	(0.089)
Constant	11.30***	11.16***	11.32***	11.23***	11.32***	11.29***
	(0.116)	(0.322)	(0.117)	(0.326)	(0.120)	(0.331)
Observations	1,664	1,664	1,664	1,664	1,664	1,664
Number of households	982	982	982	982	982	982
Yes District FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 8.6: Conflict exposure and total per capita food consumption (log) consumption in the long run (2005 and 2012) excluding migration

	Household reported conflict exposure		Within 5km, conflict exposure		Within 10km, conflict exposure	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Household reported conflict	0.040	-0.077				
	(0.058)	(0.068)				
Year dummy(1=2005)	-0.751***	-0.873***	-0.717***	-0.820***	-0.716***	-0.816***
	(0.037)	(0.050)	(0.038)	(0.052)	(0.039)	(0.055)
Household reported# year dummy (1=2005)	0.134*	0.164**				
Years schooling	(0.069)	(0.070)				
	-0.003	-0.011	-0.005	-0.013	-0.003	-0.011
	(0.012)	(0.015)	(0.012)	(0.015)	(0.012)	(0.015)
Land size	0.016***	0.011*	0.016***	0.011*	0.016***	0.011*
	(0.004)	(0.006)	(0.004)	(0.006)	(0.004)	(0.006)
Distance to market	-9.08e-05*	-4.94e-05	-7.74e-05	-3.11e-05	-7.10e-05	-2.95e-05
	(4.77e-05)	(5.09e-05)	(4.75e-05)	(5.08e-05)	(4.76e-05)	(5.10e-05)
Within 5km			0.202***	-0.268		
			(0.052)	(0.260)		
Within 5km#year dummy			-0.134**	-0.119*		
			(0.063)	(0.066)		
Within 10km conflict					0.184***	-0.359
					(0.042)	(0.292)
Within 10km#year dummy (1=2012)					-0.096*	-0.079
					(0.050)	(0.054)
Constant	12.03***	12.24***	11.97***	12.13***	11.94***	12.14***
	(0.094)	(0.265)	(0.095)	(0.268)	(0.096)	(0.269)
Observations	1,931	1,931	1,931	1,931	1,931	1,931
Number of Household	1,034	1,034	1,034	1,034	1,034	1,034

7.3 Appendix to Chapter 4

Table 8.7: Variable Description

Concept	Variable name	Description
Trust behavior		Amount trustors send in the trust game
Trustworthy		The average amount trustees would send back if they are sent UGX 1000 and UGX 2000
Altruism		Amount dictator sends in the dictator game
Beliefs of expected trust		What trustees believe trustors will send in the trust game
Beliefs of expected trustworthiness		What trustors expect trustees to return measured as the average amount expected to be returned when the trustors send UGX 1000 and UGX 2000
Beliefs of partners expected trustworthiness		What trustees believe trustors expect in return measured as an average
Treatment	Treatment	Having information on whether one's partner is a host or is a refugee
Risk	Risk level	Measured as a dummy variable of risk lover or risk-averse
Total assets	Total assets	Assets is measured as an index from principal component analysis of total productive household assets (agriculture and non-agriculture assets), the value of livestock, and possession of charcoal stove, radio, bicycle, and phone following principal component analysis
Marital status	Marital status	Dummy variable of whether the household head was married or not (separated, widowed or single)

Table 8.8: Number of refugees and hosts interviewed from each of the settlements

	Number of Refugees	Number of Hosts	Distance from settlement to Adjumani town (Km)	The population of refugees as of 31st December 2017
Pagirinya	55	48	17	32055
Agojo	41	51	9	3026
Alere1	31	24	7	5986 (Whole of Alere)
Ayilo	9	37	21	34470
Merieyi	35	70	3	3509
Boroli	41	35	15	12415
Olijo	16	12	17	1342
Elema	12	17	12	4834
Mungula	35	28	21	5972
Alere2	13	9	7	Same as Alere above

Table 8.9: Differences in characteristics by treatment received

	Receivers (Refugees)				Senders (Host community)			
Variable	Refugees (N=104)	Host community (N=154)	All (N=257)	t	Refugees (N=112)	Host community (N=159)	All (N=271)	t
Treatment (Information on who you play with)								
Characteristic of Players								
Age	38.17(13.86)	38.61(14.53)	38.35(14.11)	0.241	37.92(14.52)	36.60(14.25)	37.38 (14.40)	-0.74
Player is female	0.77 (0.41)	0.85(0.35)	0.80(.39)	1.588	0.51(0.50)	0.43 (0.49)	0.48 (0.50)	-1.4
Education								
None	0.37 (0.48)	0.46 (0.50)	0.4(0.49)	1.515	0.11(0.32)	0.1(0.30)	0..10(0.31)	-0.41
Primary	0.38(0.49)	0.41(0.49)	0.38(0.49)	0.484	0.67(0.03)	0.57(0 .50)	0.63(0 .48)	-1.65
Secondary and Above	0.25 (0.43)	0.12(0.33)	0.12(0.33)	-2.47	0.21(0.41)	0.32(0.47)	0.25(0.43)	2.11
Average years of schooling	**4.53(4.70)**	**3.26(4.02)**	**4.01(0.28)**	**-2.241**	**5.16(3.68)**	**6.17(3.57)**	**5.57(3.66)**	**2.25**
Characteristics of Households								
Age of the Household head	40.86(14.62)	43.3 (16.03)	41.84(4.47)	1.25	55.00(12.06)	41.75(13.07)	49.56(18.03)	-0.91
Household Head is Single or separated	0.15(0.35)	0.17(0.38)	0.16(0.36)	0.49	0.09(0.30)	0.1(0.31)	0.1(0.30)	0.207
Household head is widowed/widower	0.34(0.47)	0.35(0.47)	0.34(0.02)	0.121	0.18(0.38)	0.13(0.34)	0.16(0.36)	-1.01
Household head is married	0.50(0.50)	0.47(0.50)	0.49(0.50)	-0.48	0.72(0.45)	0.75(0.42)	0.73(0.44)	0.7
Household size	6.6(3.62)	6.22(2.86)	6.45(3.33)	-0.88	5.45(2.85)	5.33(2.81)	5.4(2.83)	-0.33
Wealth	-0.12(0.88)	-0.23(0.74)	-0.17(0.82)	-1.028	0 .19 (1.13)	0.01(1.08)	0 .12(1.11)	-1.30
Risk preference	**2.66(1.14)**	**2.38(1.17)**	**2.55(1.16)**	**-1.859**	**3.03(1.12)**	**2.72(1.03)**	**2.90(1.09)**	**-2.27**
Household had a death or accident shock	0.29(0.45)	0.23(0.42)	0.27(0.44)	-1.11	0.19(0.40)	0.26(0.44)	0.22(0.41)	1.33
Household has experienced war	0.76(0.42)	0.66(0.47)	0.72(0.44)	-1.63	0.49(0.50)	0.40(0.49)	0.45(0.49)	-1.45
Household's perception of Refugee influx (Index)					0.002(1.00)	0.07(0.96)	0.03(0.986)	0.589

	Receivers (Refugees)				Senders (Host community)			
Variable	Refugees (N=104)	Host community (N=154)	All (N=257)	t	Refugees (N=112)	Host community (N=159)	All (N=271)	t
Characteristics by Community								
Presence of shops	0.973(0.160)	0.990(0.098)	0.98(0.14)	0.936	0.763(0.425)	0.75(0.434)	0.76(0 .43)	0.264
Distance to the district (Km)	6.69(3.67)	6.98(3.62)	6.8(3.64)	0.62	8.98(5.17)	9.74(4.72)	9.29(5.0)	1.23
Distance to the nearest tarmac (Km)	8.98(6.44)	9.41(6.91)	9.15(6.63)	0.52	8.37(7.39)	10.03(7.77)	9.06(7.58)	1.78
Distance to SACCO (Km)	1.42(0.45)	1.33(0.47)	1.39(0.48)	1.33	1.55(0.49)	1.54(0.50)	1.54(0.49)	-0.09

The wealth of households is an index from principal component analysis of total productive household assets, livestock value, and possession of charcoal stove, radio, bicycle, and phone. The numbers in parenthesis are standard deviations

Table 8.10: Randomization balance of treatment within refugees and members of the host community

Dependent variable (Treatment is whether one has information that they play with refugees or host community)	Refugees	Host Community
Death/Accident of Household member [+]	0.062	-0.086
	(0.07)	(0.07)
Affected by war [++]	0.146*	0.104
	(0.07)	(0.06)
Gender of Household head[+++]	-0.098	0.049
	(0.09)	(0.07)
Gender of Player[+++]	-0.038	-0.021
	(0.09)	(0.07)
Age of player	0.001	0.00
	(0.00)	(0.00)
Age of household head	-0.001	0.001
	(0.00)	(0.00)
Household size	0.006	-0.001
	(0.01)	(0.01)
Primary Education (Cf: No Education)	0.07	-0.004
	(0.08)	(0.11)
Secondary Education and Above (Cf: No Education)	0.228*	-0.119
	(0.11)	(0.12)
Medium Risk Lover (Cf: Highly Risk Lover)	0.153	-0.144
	(0.08)	(0.10)
Medium Risk Averse (Cf: Highly Risk Lover)	-0.018	-0.079
	(0.09)	(0.11)
Highly Risk-averse (Cf: Highly Risk Lover)	0.175*	0.081
	(0.08)	(0.10)
Wealth	0.02	0.042
	(0.04)	(0.03)
Duration of Refugee Status	-0.001*	
	0.00	
No. Observations	235	253
Wald chi2	23.8	21.56
Pseudo R2	0.085	0.068

+ Dummy, 1= yes, 0=no; ++ dummy 1= yes, 0=no; +++ dummy 1= female, 0=, male

Table 8.11: Kolmogorov-Smirnov test for equality of distribution functions

Characteristics	Refugees		Hosts	
	Kolmogorov-Smirnov value	p value	Kolmogorov-Smirnov value	p value
Gender of player	0.0795	0.83	0.089	0.658
Age of the player	0.095	0.636	0.0838	0.738
Have no formal education	0.0698	0.924	0.0168	1
Have a primary education	0.0303	1	0.094	0.6
Have a secondary education and above	0.1254	0.29	0.111	0.389
Household size	0.08	0.84	0.0603	0.975
Refugee duration	0.1474	0.137	0.148	0.14
Lowest wealth quintile	0.0587	0.985	0.0705	0.898
Second lowest wealth quintile	0.06	0.981	0.0232	1
Third lowest wealth quintile	0.0386	1	0.0437	1
Highest wealth quintile	0.0372	1	0.0911	0.645

Table8.12: Refugees beliefs of partners expected reciprocity

Sample	**Refugees**				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
Panel (a)					
Dependent variable	Refugees beliefs of partners expected reciprocity when they receive UGX 1000 in trust game (Percentages)				
Treatment	1.915	1.622	-2.483	1.792	-2.063
	(3.78)	(4.05)	(4.48)	(4.06)	(6.75)
Distance to district (< 10km) (d)		-1.529	-6.982		
		(3.85)	(6.05)		
Treatment *Distance (d)			9.485		
			-7.563		
Distance (Km)				0.0534	-0.208
				(0.46)	(0.65)
Distance*Treatment					0.437
					(0.78)
Constant	44.66***	37.98***	39.87***	36.30***	38.53***
	(3.36)	(11.18)	(10.75)	(11.34)	(10.52)
Observations	249	234	234	234	234
R-squared	0.002	0.04	0.05	0.039	0.041
Panel (b)					
Dependent variable	Refugees beliefs of partners expected reciprocity when they receive UGX 2000 in trust game (Percentage)				
Treatment	0.291	-0.371	0.48	-0.233	3.538
	(2.60)	(2.58)	(2.72)	(2.52)	(3.85)
Distance to district (< 10km) (d)		1.432	2.562		
		(2.71)	(4.68)		
Treatment *Distance (d)			-1.965		
			(5.58)		
Distance (Km)				0.243	0.499
				(0.35)	(0.50)
Distance*Treatment					-0.427
					(0.53)
Constant	39.32***	44.70***	44.31***	43.08***	40.89***
	(2.43)	(7.05)	(7.25)	(7.65)	(7.69)
Observations	249	234	234	234	234
R-squared	0	0.077	0.077	0.079	0.081

Notes: same notes as for Table 4.3

Table 8.13: Refugees anticipation of trust from partners

Dependent variable	(1)	(2)	(3)	(4)	(5)
	Refugees elicited beliefs of expected transfers from senders in the trust game				
Treatment	3.395	2.28	-4.494	2.135	-6.686
	(3.95)	(3.92)	(4.58)	(3.98)	(6.94)
Distance to district (< 10km,) (d)		-0.0585	-9.057		
		(5.57)	(6.76)		
Treatment *Distance (d			15.65**		
			(7.44)		
Distance (Km)				-0.148	-0.748
				(0.60)	(0.84)
Distance*Treatment					1
					(0.79)
Constant	52.43***	56.15***	59.27***	57.72***	62.83***
	(3.16)	(8.96)	(9.11)	(10.32)	(12.28)
Observations	249	234	234	234	234
R-squared	0.004	0.037	0.057	0.038	0.044

Notes for the above table are the same as in Table 4.3

Table 8.14: Host's beliefs of expected trust and their expectations of trustworthiness

Sample	Hosts				
	(1)	(2)	(3)	(4)	(5)
Panel (a)					
Dependent variable	**Elicited beliefs of partner's expected trust**				
Treatment	-2.897	-3.532	-4.409***	-3.631	-8.442***
	(1.79)	(2.41)	(1.15)	(2.36)	(2.86)
Distance to district (< 10km) (d)		-10.29**	-11.87***		
		(3.69)	(2.20)		
Treatment *Distance (d)			2.599		
			(7.00)		
Distance (Km)				-0.852**	-1.256***
				(0.35)	(0.26)
Distance*Treatment					0.632
					(0.57)
Constant	55.86***	59.30***	59.72***	63.31***	66.03***
	(1.97)	(6.37)	(6.06)	(7.91)	(6.89)
Observations	280	263	263	263	263
R-squared	0.003	0.07	0.071	0.057	0.061
Panel (b)					
Dependent variable	**Elicited beliefs of expected trustworthiness when sent UGX 1000**				
Treatment	1.715	-0.175	-2.283	-0.182	-5.661
	(3.20)	(3.48)	(3.27)	(3.45)	(5.93)
Distance to district (< 10km) (d)		-2.419	-6.223		
		(2.28)	(5.05)		
Distance*Treatment			6.25		
			(7.54)		
Distance (Km)				0.044	-0.418
				(0.20)	(0.59)
Distance*Treatment					0.719
					(0.82)
Constant	50.75***	43.34***	44.37***	42.21***	45.23***
	(2.84)	(10.31)	(10.67)	(10.44)	(11.27)
Observations	280	263	263	263	263
R-squared	0.001	0.037	0.041	0.035	0.04
Panel (c)					
Dependent variable	**Elicited beliefs of expected trustworthiness when sent UGX 2000**				
Treatment	-2.831	-3.471	-3.21	-3.441	-4.196
	(3.16)	(3.46)	(2.71)	(3.33)	(5.24)
Distance to district (< 10km) (d)		0.615	1.086		
		(3.08)	(5.68)		
Treatment *Distance (d)			-0.774		
			(9.26)		
Distance (Km)				0.44	0.376
				(0.26)	(0.56)
Distance*Treatment					0.0991
					(0.84)
Constant	51.35***	41.58***	41.45***	37.99***	38.41***
	(2.58)	(6.82)	(6.61)	(7.16)	(7.49)
Observations	280	263	263	263	263
R-squared	0.005	0.043	0.043	0.052	0.052

Notes are the same as that for Table 4.3

Table 8.15: Perception of the host community on the influx of refugees

Impact of the refugee influx	Proportion saying yes
Land wrangles increased	39.27
Health services have improved	90.63
Education	91.24
Inequality increased	36.86
Business opportunities have improved	82.18
Livelihood loss	38.67
Access to improved water	80.66
Increased theft impact	61.63
Increased prostitution	39.88
Increased opportunities for NGO	51.96

7.5 Appendix for Chapter 5

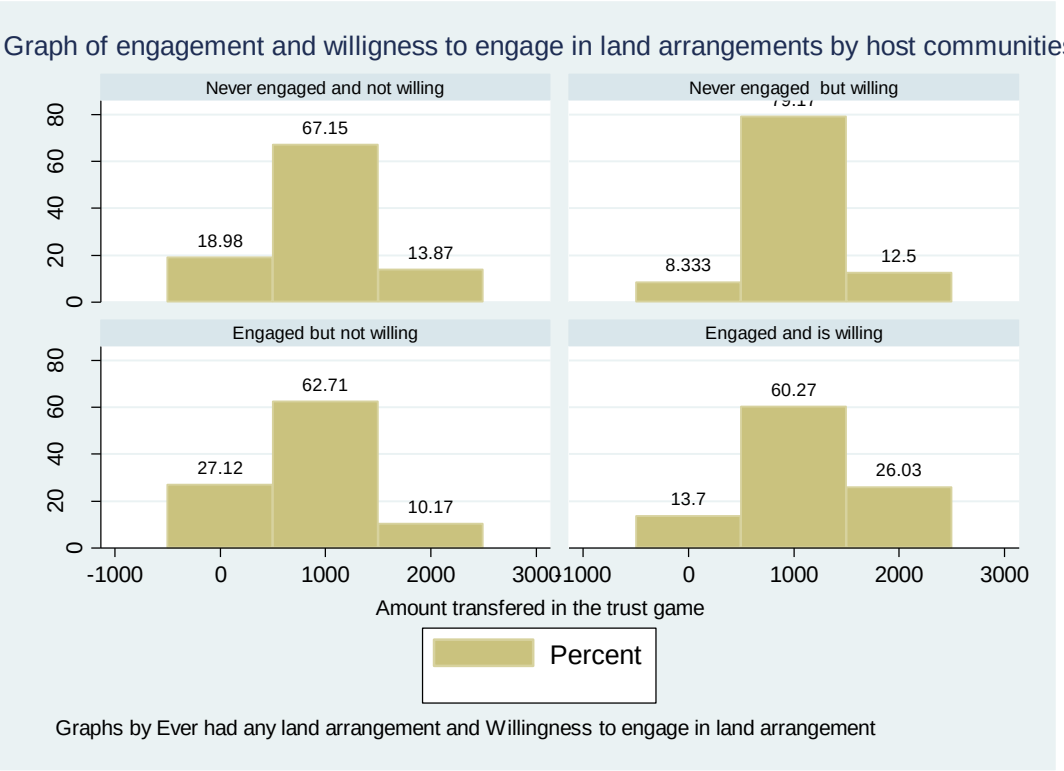


Figure 8.9: Amount transferred in the trust game by the host's previous engagement and willingness to engage in informal land arrangements

Source: Authors construction

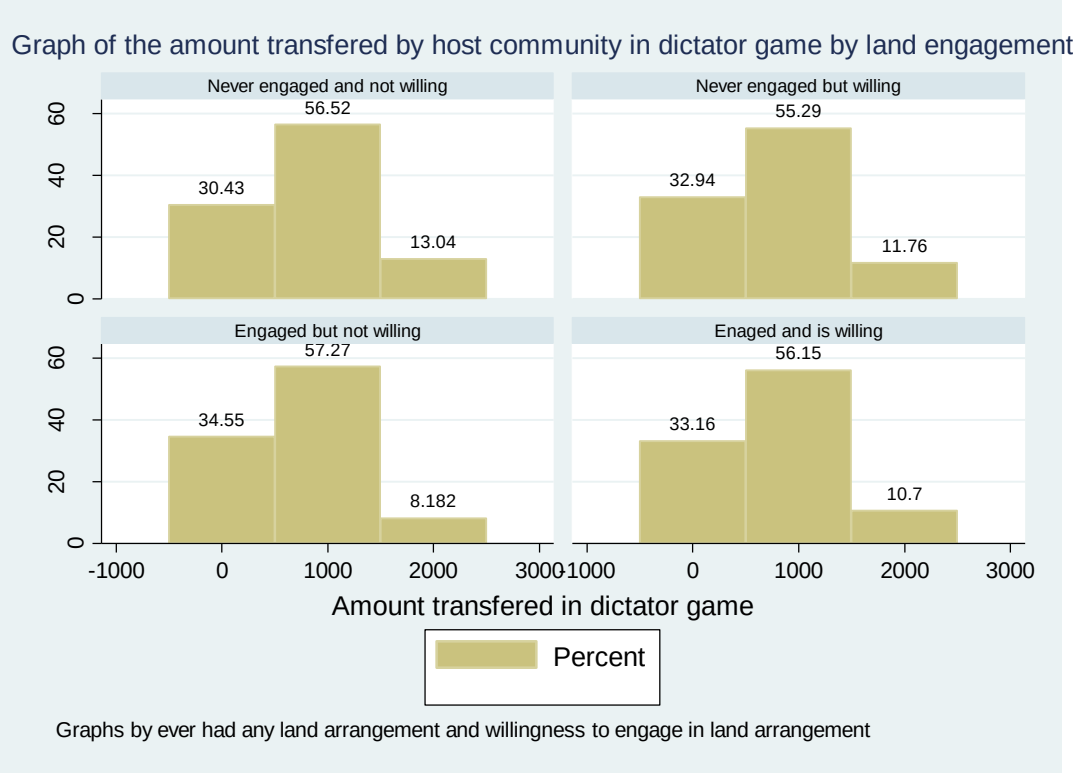


Figure 8.10: Amount transferred by hosts in the dictator game by previous engagement and willingness to engage in informal land arrangements

Source: Authors construction

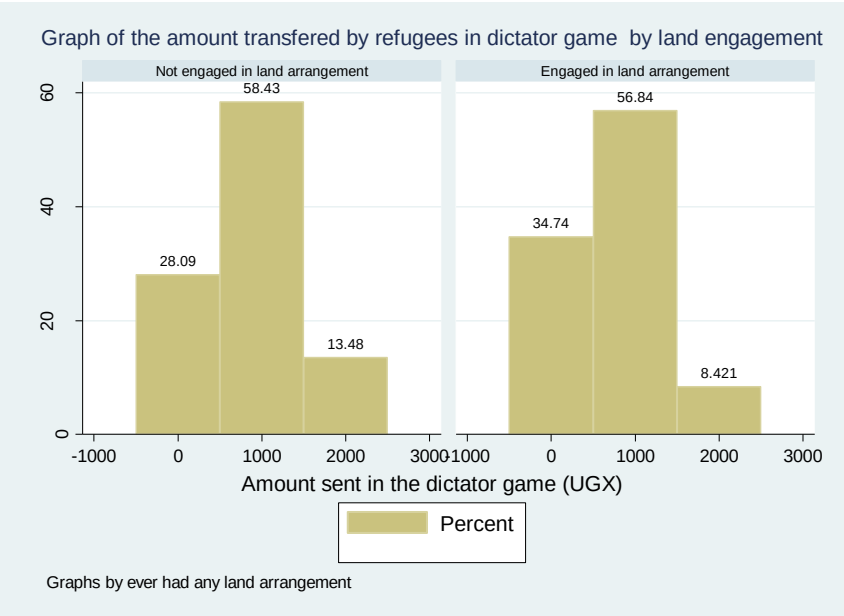


Figure 8.11: Amount transferred by refugees in dictator game by land engagement

Source: Authors construction

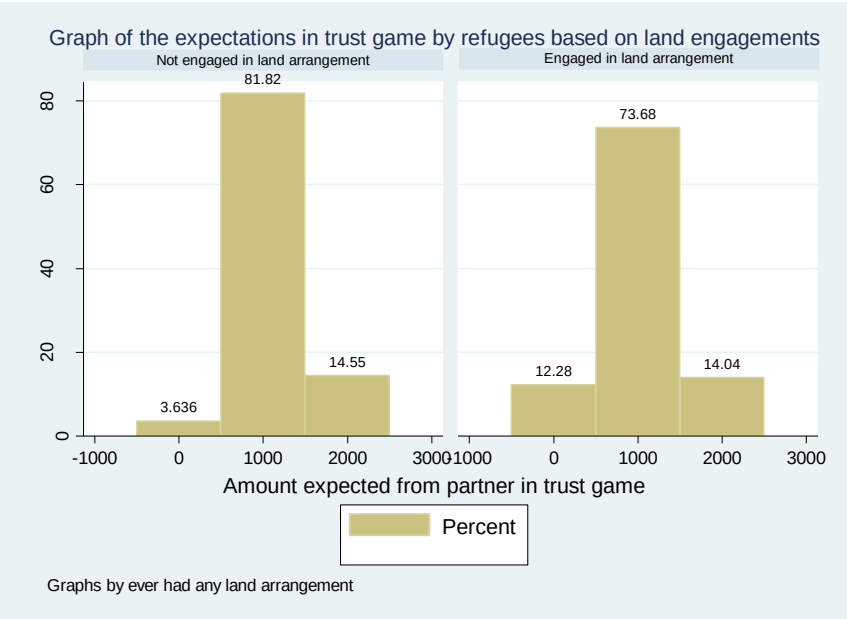


Figure 8.12: Refugee's expectation of trust by land engagement

Source: Authors construction