ERIKA DESERRANNO Student ID: 1199777

Università Commerciale Luigi Bocconi
Master of Science in Economics and Social Sciences

Thesis Advisor: Prof Eliana La Ferrara
Thesis Discussant: Elsa Vila Artadi

CONFLICTS AND FORCED MIGRATION
Empirical evidence for Africa

Abstract

In this study, we explore the relationship between forced migration and conflicts in Africa. Previous analyses have identified the presence of conflicts as the main determinant of forced migration. Yet, we argue that population movements can be an important mechanism by which conflicts spread across countries. Hence, forced migration flows are not only the consequence but can also be the cause of conflicts. Because these arguments have never been put to a systematic empirical test, the main contribution of this study is to test them empirically using an original dataset. The dataset includes a panel of 43 African countries for the years 1960-2006. The analysis is divided in two parts: the first part examines the impact of conflicts on forced migration outflows; the second part investigates the effect of refugee inflows on the onset of conflicts in hosting countries. We find that forced migration outflows in countries at war are significantly higher in comparison to countries at peace. Moreover, the decision of migrants to abandon their homeland is also influenced by the presence of civil wars in neighbouring states. Finally, we also find that the presence of refugees from neighbouring countries leads to an increased probability of the hosting state experiencing civil wars, especially ethnic civil wars. These findings have important policy implications. Because conflicts produce large displaced populations and because those movements create security concerns in receiving countries, the priority of the African governments and the international community should be put on breaking this vicious cycle.

Academic Year 2007/2008

Table of Contents

Index of tables

Index of figures

Introduction

With 74 armed conflicts in the last 60 years, Africa is the region of the world with the highest conflict incidence. From the Democratic Republic of the Congo to the Sierra Leone crisis, recent years have seen many African regions involved in war and internal or external conflict. At the end of 2007, eight countries were still in conflict, among which Sudan and Somalia are nowadays suffering from major wars. Long periods of conflicts, of generalized violence and of persecution of ethnic minorities and dissident individuals have frequently produced mass population displacements, either within or across national borders. Discords in Mozambique and Rwanda have for instance produced at various points in time well over one million forced migrants each. At the end of 2007, the United Nations High Commissioner for Refugees (UNHCR) has estimated that approximately a third of the world's refugee population was residing in Africa. Among the group of major hosting countries, Sudan and the Democratic Republic of the Congo hosted around 20 million refugees in the last 40 years. Conversely, Ethiopia is the largest sending country with 23 million refugees abandoning their homeland in the same period.

Because forced migration is one of the worst scourges that torment humankind and because durable and efficient solutions have not yet been found, this study is motivated by an interest in understanding why people make the decision to leave. More specifically, we explore the determinants of forced migration focusing principally on conflicts. So, the following questions are addressed: What characteristics make a country produce forced migrants? Do countries in conflict produce higher levels of refugees than countries in a state of peace? How can we explain the variation over time and across countries of forced migration flows? These questions are very important in a context in which the huge number of refugees in Africa has led several observers to talk about a refugee crisis.

Besides being a consequence of conflicts, some researches have also shown that forced migration can itself have important consequences for refugee-sending countries, host countries and for the relations between them. "Refugees are not simply the unfortunate by-products of wars, but may serve as catalysts for conflict" (Salehyan 2007). Therefore, this study also promises to significantly improve upon our understanding of the sources of intrastate and interstate conflicts, centring the attention mainly on the impact of refugee migration. Other motivating questions are hence the following: Does the presence of migrants raise the probability of a new conflict in the recipient country? Do all refugees have the same impact? Although forced migration may facilitate the generation of certain types of conflicts in some regions of Africa, the aim of this work is

absolutely not to support the policies, adopted by different countries, limiting the access to refugees. We believe indeed that the large majority of refugees are not in charge of the violence that may exist in the host country, but are rather the victims of it. Nonetheless, we are of the opinion that the potential risk of conflict that accompanies forced migrant flows should not be ignored. A better understanding of the security consequences involved by these refugee movements is essential for the implementation of more appropriate policies and for the improvement of the fundamental and legitimate humanitarian support to them.

Rather than only being the consequence of conflicts, we will thus try to determine if refugee flows can also be the cause, creating a vicious cycle in which conflicts produce forced migration and refugee flows increase the risk of conflict. To do so, we conduct statistical analyses using an original panel dataset, consisting of data from 43 African countries for the years 1960-2006, and controlling for other neighbourhood effects and domestic factors expected to have some explanatory power.

The thesis is organized as follows: in section 1 we start with an overview of the conflict and forced migration situations in Africa in the last half-century; then we analyze the theoretical correlation between conflicts and forced migration and discuss the previous literature on the topic. Section 2 describes the basic econometric specification and the sources of data. In section 3, we present the results of the estimation. Section 4 contains a discussion of the policy implications of our results. Finally, in the last section, we present the conclusions.

1. Conflicts and Forced Migration in Africa

1.1. An overview of the situation of conflict and civil wars in Africa

Why have African conflicts been so numerous? Why is Africa the only continent with an increasing incidence of conflict over the past thirty years? Before attempting to answer to these complex questions by highlighting the conflict situation in Africa, it will prove useful to first briefly define the terms we use.

The Uppsala Conflict Data Program (UCDP) defines a conflict as: "a 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." Depending on the type of parties involved, a conflict is categorized as extra systemic, interstate, internal or internationalized internal. While extra systemic armed conflicts occur between a state and a non-state group outside its own territory, interstate armed conflicts arise between two or more countries. Moreover, whereas internal armed conflicts occur between the government of a state and one or more internal opposition group(s) without intervention from other states, internationalized internal armed conflicts occur with intervention from other countries on one or both sides.

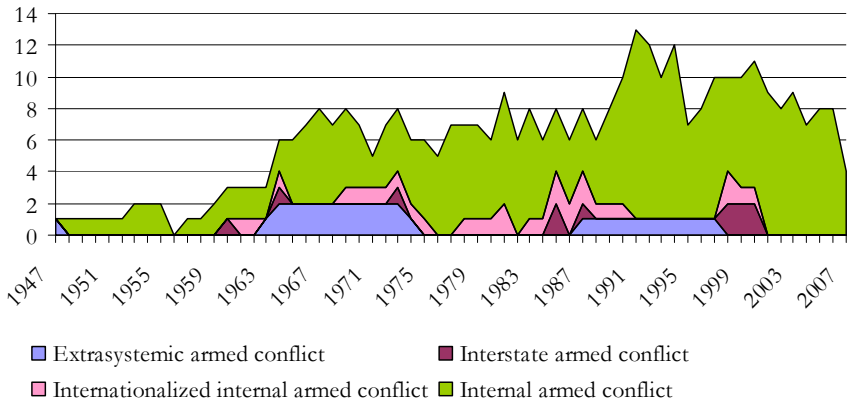
According to Michael W. Doyle and Nicholas Sambanis, an armed conflict is classified as a civil war if it satisfies the following criteria: (1) the war has caused more than one thousand battle deaths; (2) the war represented a challenge to the sovereignty of an internationally recognized country; (3) the war occurred within the recognized boundary of that country; (4) the war involved the state as one of the principal combatants; (5) the rebels were able to mount an organized military opposition to the state and to inflict significant casualties on the state. Moreover, in accordance with Myron Weiner's definition, civil wars are categorized as ethnic if "linguistic or racial groups, tribe, or religious communities are in conflict with the state or with other ethnic groups in their own country". On the contrary, non-ethnic civil wars include those "based upon class, regional, or ideological differences, or armed struggles for political power by the military or by political fraction". Ethnic differences may sometimes cause these struggles, but unless individuals are forced to flee because they belong to a specific ethnic group, the civil war is classified as non-ethnic (Weiner 1996). Finally, we also note that the nature of civil wars can change and make some conflicts hardly classifiable.

Basing the analysis on the International Peace Research Institute (IPRI) conflicts' data, we notice that the African conflicts' situation is dramatic and alarming. With 74 armed conflicts occurred in the years 1947-2006, it is the continent with the highest conflict incidence, followed by Asia.
The nature of African conflicts has been changing with time. While most of the conflicts in the pre-colonial era were ethnic or tribal with expansionary and natural resources' control intention, the level of those conflicts declined in the period of colonization since the colonialists had the capacity to put an end to most of those ethnic disputes. Then, in the 1950s, the African decolonization wars began; and in the 1960s, the pattern of conflicts shifted to military coups and to protracted and intractable wars in the 1970s and 1980s.

From Figures 1, 2 and 3 we can moreover note that: (1) most of the African conflicts are internal and the vast majority of civil wars are ethnic, caused by the multi-ethnic composition of African nations. (2) With half of the 53 countries at war and with more than ten conflicts each year, the 90s were the most catastrophic period of the African history. In opposition with the world global trend where the level of armed conflict declined after the end of Cold War marked by the collapse of the Soviet Union in 1991, the African conflict and civil war incidences reached their peak level in 1991 and continued to be elevated from 1991 onwards. (3) Non-ethnic/revolutionary African wars appeared in the 70s, resulting in "privatized wars which sheer use of violence to plunder for profit" (Anarfi 2004) (4) Among the different African regions, the conflict situation was dramatic in South Africa before the mid-80s; then, after the 90s, the situation became particularly alarming in Central, West and East Africa where the conflict incidence was on the upgrade from 1990 onwards.
Instead of focusing on the magnitude and the incidence of conflicts in Africa, another perspective explores the annual numbers of onsets of new wars in Africa. Figure 4 indicates that the frequency of conflict onsets has been irregular over time. With four new conflicts starting, peaks are reached in the years 1960, 1963, 1991, 1996 and 1998.

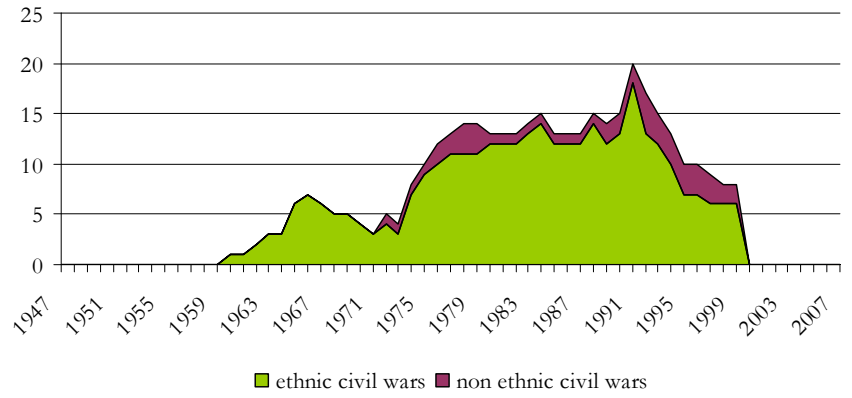
Among African countries, Ethiopia, Algeria, Angola, the Democratic Republic of the Congo, Mozambique, Sudan and Uganda are the ones which experienced in their history the most intensive conflicts and civil wars in terms of the number of battle-related deaths (see Figure 5; further details in Appendix 2). The causes of those conflicts are various: past history, colonialism, cold war, bad governance, ethnicity and natural disasters.

FIGURE 1 – CONFLICT INCIDENCE IN AFRICA FROM 1947 TO 2007, BY TYPE OF CONFLICT



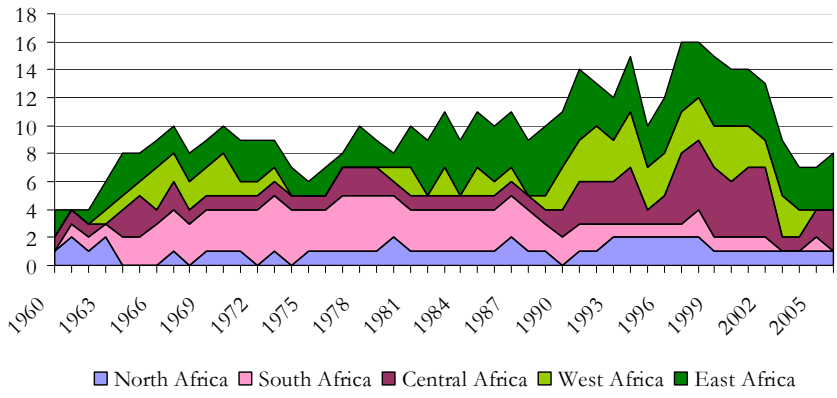
Source: Author's calculation on UDCP/PRIO Armed Conflict data

FIGURE 2 – CIVIL WAR INCIDENCE IN AFRICA FROM 1947 TO 2007, BY TYPE OF CIVIL WAR



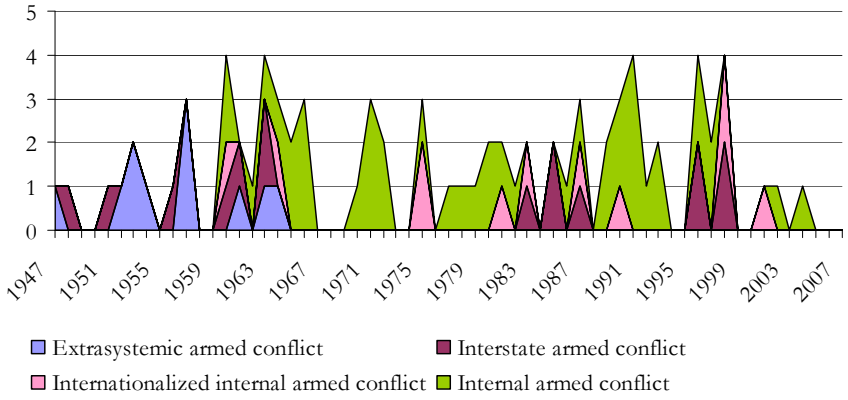
Source: Author's calculation on Doyle&Sambanis data

FIGURE 3 – CONFLICT INCIDENCE IN AFRICA FROM 1960 TO 2006, BY REGION



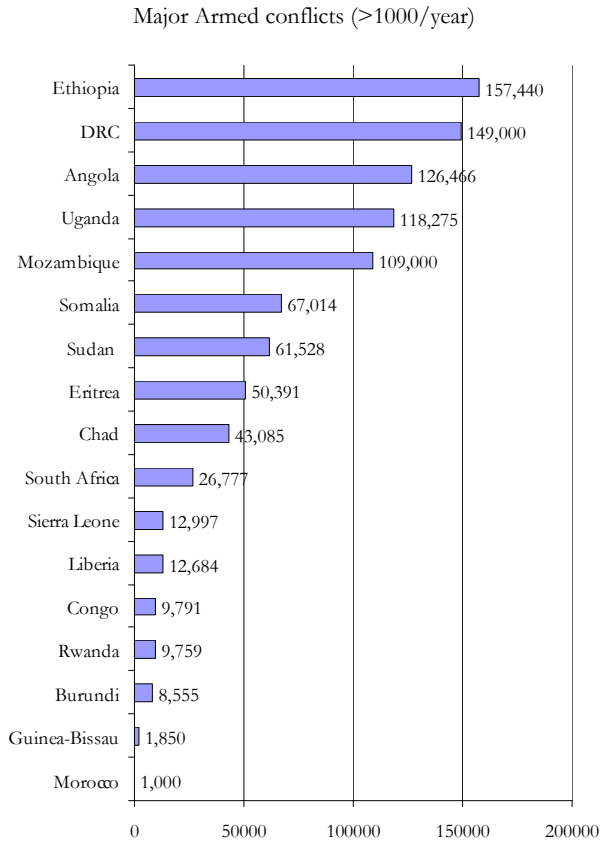
Source: Author's calculation on UDCP/PRIO Armed Conflict data

FIGURE 4 – CONFLICT ONSET IN AFRICA FROM 1947 TO 2007, BY TYPE OF CONFLICT



Source: Author's calculation on UDCP/PRIO Armed Conflict data

FIGURE 5 – BATTLE-DEATHS IN ARMED CONFLICTS IN AFRICA 1980-2006

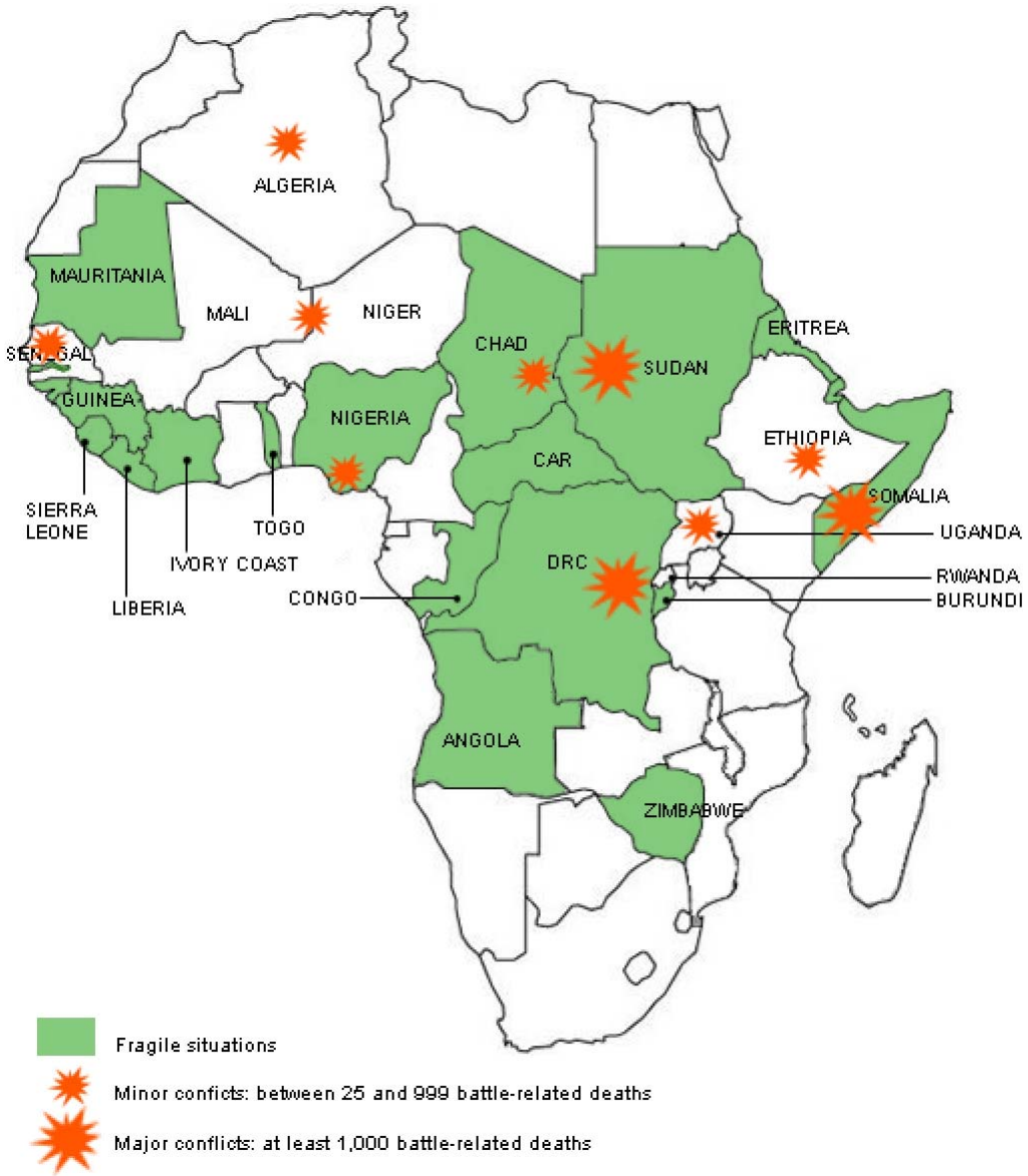


Source: Author's calculation on UDCP/PRIO Armed Conflict data

Recent years have seen many African regions involved in war and internal or external conflict, from the seven or so countries directly taking part to the Democratic Republic of the Congo (DRC) crisis to the Sierra Leone crisis. Figure 6 shows that eight countries were still in conflict or

at war at the end of 2007. Among those states, two of them are experiencing major wars: the Darfur region of western Sudan suffering from a military conflict started in 2003 with more than 400,000 death tolls; and Somalia, affected by a war which started in 2006 with an estimated number of deaths around 8,000. Figure 6 also indicates the 'fragile' African countries in 2007, i.e. those with a score below 3.2 on the Country Policy and Institutional Assessment (CPIA) of the World Bank (primary tool used by the Bank for assessing the quality of country policies).

FIGURE 6 – ARMED CONFLICTS AND LOW-INCOME COUNTRIES IN FRAGILE SITUATIONS IN 2007

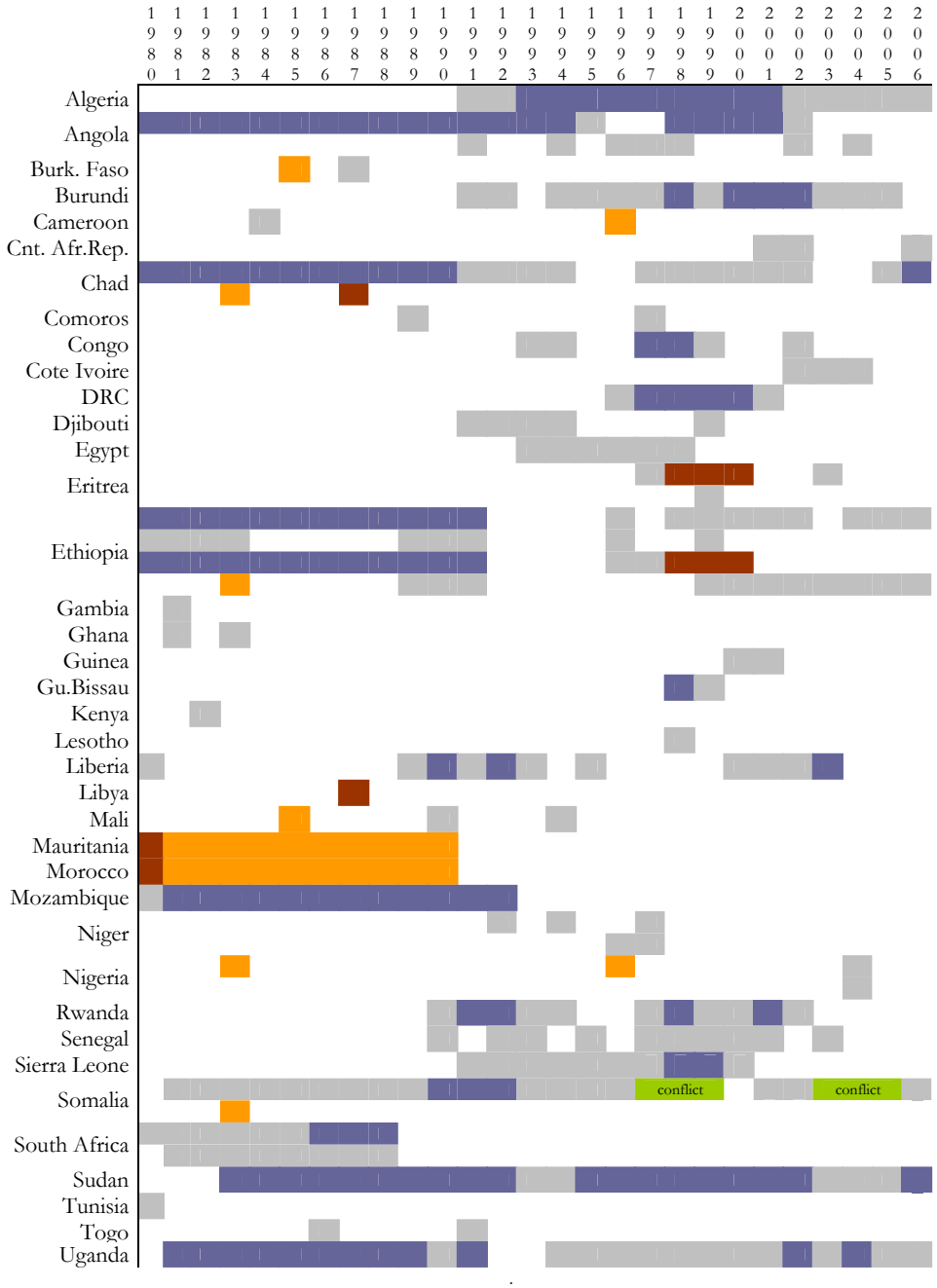


Source: Author's graphical representation based on UDCP/PRIO Armed Conflict data

The list of African conflicts with their respective intensity level for the years 1980-2006 is reported in Table 1. A more complete version of this table indicating the name of the opposition

organization and the conflict's type of incompatibility (territory/government) for the years 1947-2006 is available in Appendix 3. Similarly, Table 2 presents the list of civil wars with their respective type (ethnic/non ethnic) for the period 1980-1997.

TABLE 1 – MINOR AND MAJOR ARMED CONFLICTS IN AFRICA 1980-2006



	Intrastate & extra systemic conflicts	between 25 and 999 battle-related deaths in a given year
		at least 1000 battle-related deaths in a given year
	interstate conflicts	between 25 and 999 battle-related deaths in a given year
		at least 1000 battle-related deaths in a given year

Note: In 1997-2000 and 2003-2005, Somalia is not considered as experiencing a conflict since no government could be identified

Sources: Authors' graphical representation based on UCDP/PRIO Armed Conflict Dataset - Version 4-2007

TABLE 2 – ETHNIC AND NON-ETHNIC CIVIL WARS IN AFRICA 1980-1997

Sources: Authors' graphical representation based on Doyle and Sambanis Dataset, 2000

1.2. An overview of the situation of forced migration in Africa

As before, we define the terms we use before we turn to an investigation of the situation of forced migration in Africa. According to the United Nations High Commission for the Refugees (UNHCR), a refugee is a person who "owing to a well founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable, or owing to fear, unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside of his former habitual residence as a result of such events, is unable or, owing to such fear, unwilling to return to it (UNHCR 1999)." People who escape conditions of government persecution, conflicts and the breakdown of political regimes, are thus considered to be refugees. In the following of the study, it will be named 'refugees inflow' the quantity of refugees arriving in a host country and 'refugees outflow' those abandoning their origin nation.

The UNHCR similarly defines internally displaced persons as "people who are also forced to flee these dangers, but they either cannot or do not wish to cross an international border". Lastly, asylum-seekers are persons "who have applied for asylum or refugee status, but who have not yet received a final decision on their application". A distinction should be made between the number

of asylum-seekers who have submitted a request during a certain period ("asylum applications submitted"; also known as "flow") and the number of asylum-seekers whose asylum request has not yet been decided at a certain date ("backlog of undecided or pending cases"; also known as "stock") (UNHCR 2006).

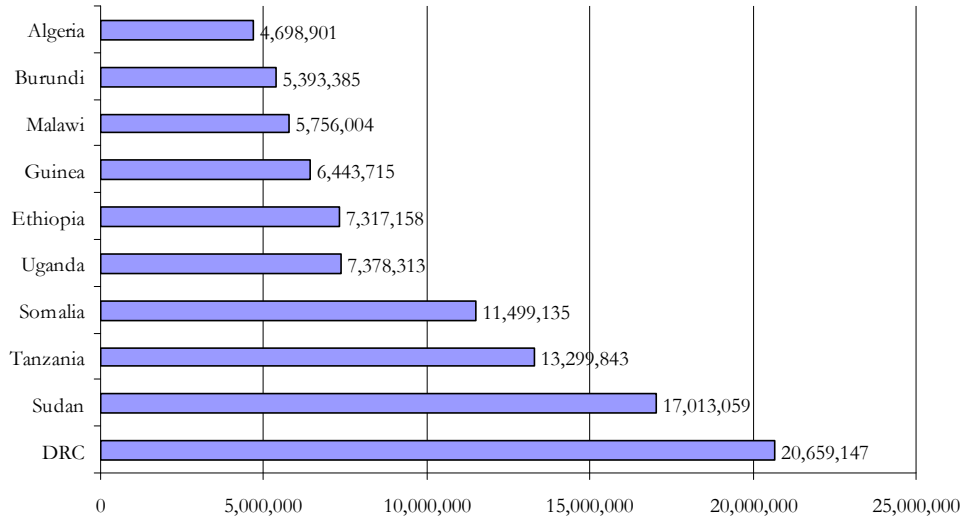
Because of the accuracy and reliability problems of data on internally displaced persons, we focus here on the analysis of the evolution over time and across countries of refugees and asylum seekers' movements in Africa, based on data provided by the UNHCR. The increasing number of armed conflicts in the last three decades has propelled new migration movements, especially within the African continent: 79 per cent of all refugees originated from Africa found asylum on the same continent. The enormous growth in the global population of forcibly displaced persons began in the mid-1980s and was particularly strong in the years 1986-1994. This upward trend has however not been constant over time: while the refugees' stock outside their country has augmented by 35% from 1979 to 1980 and by 25% from 1989 to 1994, a sharp decrease occurred in the years 1995-1997. In comparison with 1994, the number of refugees out of their country of origin is divided by two in 1997, going down from 7 to 3.5 million.

Moreover, by the end of 2006, the UNHCR estimated the worldwide presence of 9.9 million worldwide refugees, 744,000 asylum-seekers and 12.8 million UNHCR-assisted internally displaced persons (IDPs). Among those forced migrants, 3.2 million refugees and 216,000 asylum seekers were living in Africa. One year later, whereas the global figure of refugees and IDPs raised to 11.4 and 13.7 million respectively, the number of refugees decreased by 6 per cent in Africa. So considered, whereas the worldwide steady decline in refugee numbers witnessed since 2002 was reversed in 2006 when numbers started going up again, the quantity of refugees in Africa fell at a slow and almost constant rate from 2002 to 2007. The largest reductions, occurred in Western and Southern Africa (31% and 18% respectively), were primarily due to the successful voluntary repatriation operations to Sudan, the Democratic Republic of the Congo, Liberia and Burundi. This notwithstanding, renewed armed conflict and gross human rights violations in the Central African Republic, Chad, the Democratic Republic of the Congo, Somalia and Sudan also led in the years after 2001 to large refugee outflows, primarily to Kenya, Cameroon, Sudan, and Uganda (UNHCR 2007). The East and Horn of Africa region consequently witnessed an increase of roughly 10 per cent of the number of refugees out of their origin country.

At the end of 2007, it has been estimated that approximately a quarter of the world's refugee population was residing in North Africa and Middle East, while the rest of Africa hosted one

fifth of them. Asia and the Pacific countries had the largest share of refugees (almost one third); Europe and the Americas region had the smallest ones (9 and 14 per cent respectively). Among the group of major hosting countries, we find first Pakistan and the Islamic Republic of Iran, followed by Sudan and the Democratic Republic of the Congo. Considering the years 1961-2006, Figure 7 shows that those two African nations hosted 17 and 21 million refugees respectively (75% of all African refugees), among which 80% came from Angola and Rwanda for the DRC and 86% came from Ethiopia and Eritrea for Sudan. 46% of the total population of Sudan and 35% of the population of the DRC were refugees. Moreover, in the year 2006, the number of refugees hosted by Tanzania, Chad, Kenya and Uganda was also very high. Tanzania hosted more than 500,000 refugees among which 350,000 came from Burundi; Chad hosted 233,000 refugees from Sudan and Kenya hosted 174,000 refugees from Somalia (UNHCR 2006).

FIGURE 7 – THE 10 LEADING REFUGEE-RECEIVING AFRICAN COUNTRIES IN THE PERIOD 1961- 2006

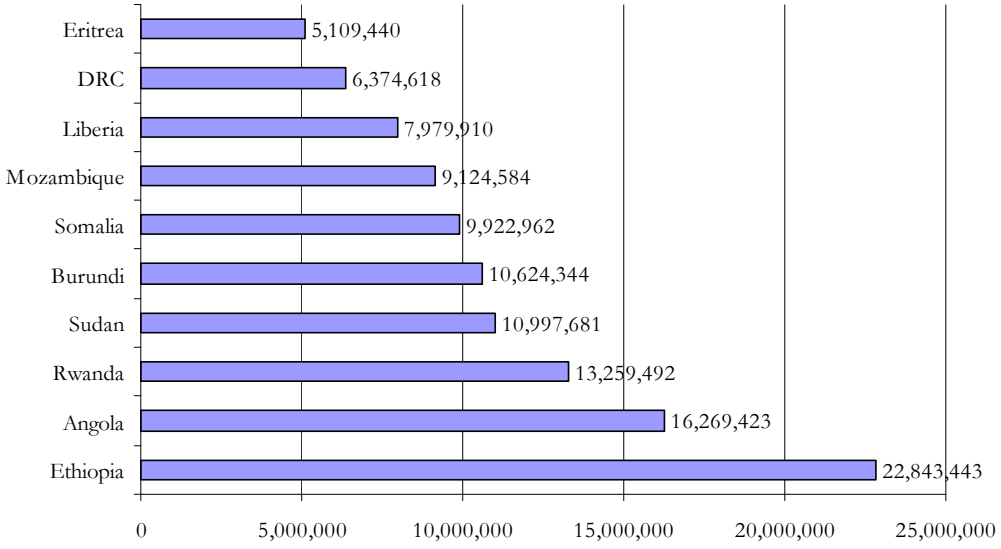


Source: Author's calculation on UNHCR data

Turning our attention to large refugees' producing states, the leading African country of origin in the period 1961-2006 is Ethiopia, with almost 23 million refugees produced, followed by Angola, Rwanda, Sudan and Burundi (see Figure 8). Those five countries account for 40% of the total number of refugees produced in Africa, while the top ten countries account for 80% of this total number. Focusing on the year 2007, the UNHCR reports that Sudan, with 686,000 of its nationals outside the country, was the leading African country of origin. Somalia (460,000), the DRC and Burundi (about 400,000 each) were next. Additionally, whereas the 2007 Somali refugee outflow intensified as a result of new arrivals in Yemen and Kenya, some major refugee

populations shrank in 2007 due to voluntary repatriation: Liberia (-31%), Burundi (-10%), and the Democratic Republic of the Congo (-7%).

FIGURE 8 – THE 10 LEADING REFUGEE-SENDING AFRICAN COUNTRIES IN THE PERIOD 1961- 2006



Source: Author's calculation on UNHCR data

Looking now at the time trend of asylum seekers' applications in Africa, the UNHCR data show that the number of asylum seekers who submitted applications for asylum or refugee status to foreign governments has increased in the period 1980-1991; plunged and reached the minimum in 1995; then rose again until reaching the peak of 253,167 asylum seekers out of their origin country in 2002. In comparison with 2006, the total number of people who applied for asylum in Africa has decreased in 2007. The main reason is the exclusion of Somali asylum-seekers in Kenya who are recognized by UNHCR as "refugees on a *prima facie* basis upon registration" (UNHCR 2007).

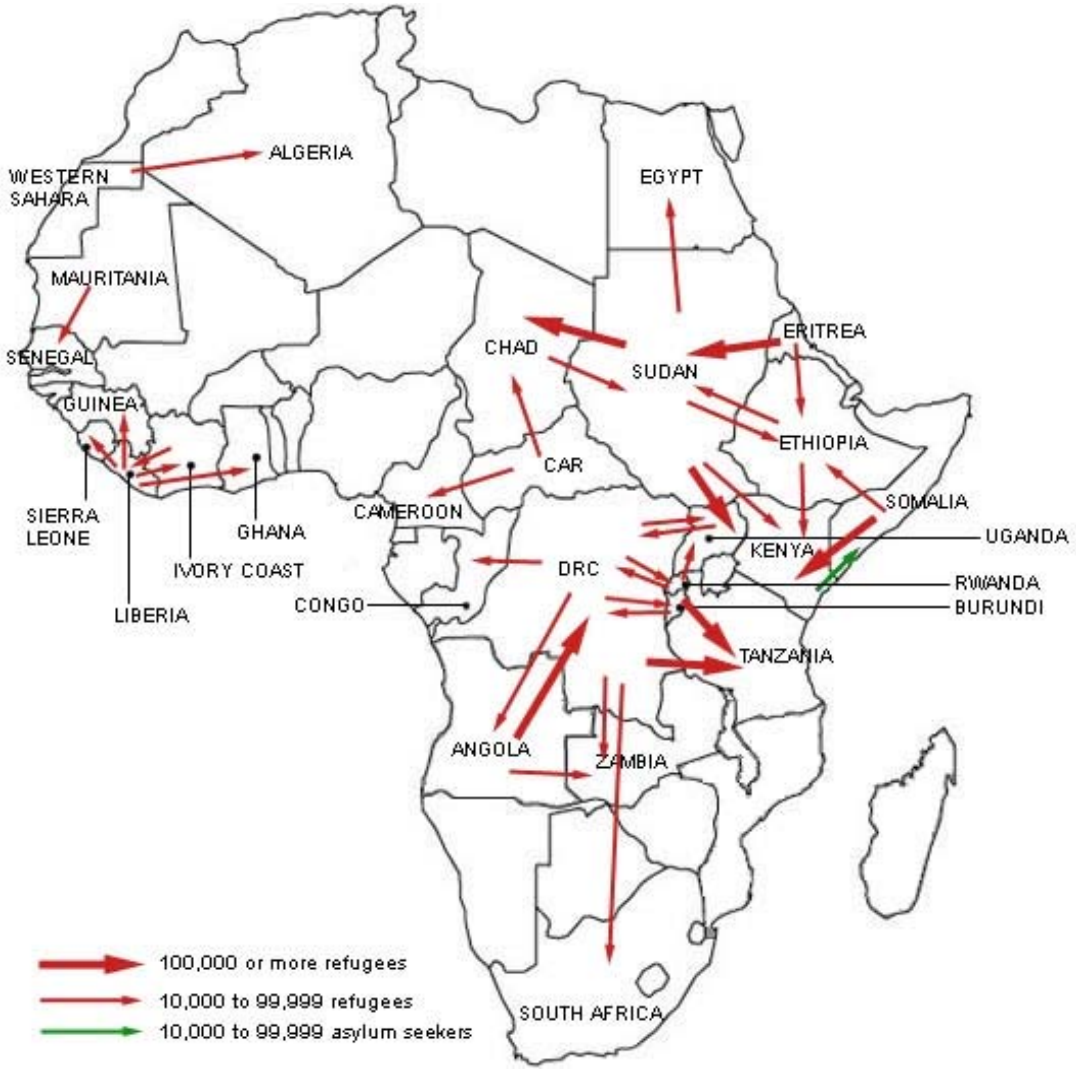
Globally, with 147,100 asylum claims registered during the year 2007, Africa is the second 'asylum' destination after Europe. Among African countries, South Africa is the largest recipient with a cumulative total of more than 251,000 individual asylum applications since 2002. While in 2006 South-Africa was the first recipient in the world with 53,400 asylum requests, it was in second position in 2007, preceded by the United States of America.

Moreover, by nationality, the highest number of new asylum claims in 2007 was filed by individuals originating from Somalia (46,100), Eritrea (36,000), Ethiopia (21,600), and Zimbabwe (20,700). Those asylum requests remain concentrated: half of all Somali asylum requests were submitted in Kenya and Ethiopia, Eritrean asylum-seekers are concentrated in Sudan and

Ethiopia and 85 per cent of all Zimbabwean asylum requests in 2007 were submitted in South Africa.

Figure 9 summarizes the intensive refugee and asylum seeker flows in Africa in 2006.

FIGURE 9 – REFUGEE AND ASYLUM SEEKER FLOWS FROM COUNTRIES WITH HIGH LEVELS OF FORCED MIGRATION IN 2006.



Source: Author's graphical representation based on UNHCR data

1.3. Theoretical background on the correlation between conflicts and forced migration

Why would people decide to abandon their family, friends, belongings, as well as their country and their culture for an uncertain future in another country? This research study is motivated by an interest in understanding the determinants of forced migration focusing principally on conflicts and civil wars. So, we address the following questions: What characteristics make a country produce forced migrants? Do countries in conflict produce higher levels of refugees than countries in a state of peace? How can we explain the variation over time and across countries of forced migration flows? Because forced migration is one of the worst scourges that torment humankind and because durable and efficient solutions have not yet been found, its determinants are an important topic to understand.

Several causal mechanisms that generate refugee flows can be identified. First of all, mass people movements can be the consequence of conflicts, civil wars, generalized violence and of the persecution of ethnic minorities and dissident individuals. Second, some projects implemented to enhance 'development' can also cause mass displacements. Infrastructure projects such as dams, roads, ports, airports; urban clearance initiatives; mining and deforestation; and the introduction of conservation parks/reserves and biosphere projects are examples of 'development-induced displacements'. It has been estimated that those projects have forced some 90 to 100 million individuals to abandon their homes in the 90s, and that dam projects alone evict 10 million people a year.[1] Third, people may be forced to abandon their homes because of natural disasters (floods, volcanoes, landslides, earthquakes), environmental change (deforestation, desertification, land degradation, global warming) and human-made disasters (industrial accidents, radioactivity). The drought in the Horn of Africa, the 1984-1985 famine in Ethiopia and the more recent Somali drought in 1992 combined with repressive regimes have generated mass refugee flows.

Besides of being a consequence of conflicts, many researches have shown that refugee migration can itself have important consequences for refugee-sending countries, host countries and for the relations between them. So considered, this study is also motivated by an interest in understanding the impact of the presence of refugees on the risk of a new conflict in the recipient country. Rather than being the consequence of conflicts, we will thus try to determine if refugee flows can also influence the risk of conflict.

[1] Forced Migration Online. What is forced migration? http://www.forcedmigration.org/whatisfm.htm

Theoretically, we may expect refugee displacements to create tensions between the host and the origin country as a result of cross-border hostility and negative externalities. In fact, once arrived in the host nation, refugees may decide to engage in political opposition to their country of origin, including rebellion (Salehyan 2005). This phenomenon is very present in Africa where 'refugee warriors', politically active communities in exile, such as Rwandan Tutsi in Uganda, can be active in the opposition to their home governments (Salehyan and Gleditsch 2004). Because recruitment into a rebel organization may provide refugees a better alternative to life in a camp, refugee camps are often fertile recruitment grounds. Moreover, the combatants, arms, and ideologies arriving from foreign countries; and the desire to engage in rebel organizations from which to attack the home country may not follow the intentions of the host government's foreign policy and may facilitate the spread of conflict. Thus, the refugees' opposition to the home government may give rise to a conflict with their host country. This happened in Uganda where Tutsi refugees from Rwanda constituted powerful opposition to the Obote regime. Also in South Africa, Zambian refugees have become important opponents to the South-African government. More recently, Chad is seriously destabilized by Sudanese refugees from the Darfur.

By collaborating with domestic rebel organizations belonging to the same ethnic group, refugees are also indirectly fighting with the host government. Somali refugees, for example, have often collaborated with ethnic Somali separatists in the Ethiopian Ogden region. Moreover, refugees may upset the ethnic balance in their host countries, leading sometimes to rivalry between locals and ethnically different immigrants, and may increase the risk of inter-group conflict. Ethnic tensions may become especially pronounced when refugees possess ethnic ties with groups already living in the host society. Finally, scarce resources such as employment, land, and water, are other sources of competition between locals and refugees (Salehyan and Gleditsch 2004).

An illustration of the theorized causal connections between refugees and conflict is the case of the Democratic Republic of the Congo. In his study "Forced Migration and Armed Conflict", Felix Gerdes, from the Research Unit of Wars of the Hamburg University, explains the situation. "In 1994, faced with an advancing guerrilla movement made up of second and third generation refugees, the Rwandan regime initiated massacres of the country's ethnic Tutsi population that were to go down in history as the third genocide of the 20th century. Within less than three months, some 800,000 civilians were killed. The government troops were eventually forced to retreat and took with them some two million civilian refugees. Among the roughly one million refugees who fled to eastern Zaire were numerous government officials as well as between 50,000 and 65,000 remaining members of the *Forces Armées Rwandaises* (FAR) and the *Interahamwe* militia,

the main perpetrators of the genocide. They immediately regrouped in the vast refugee camps in the border region and soon started carrying out cross-border attacks on Rwanda. In the camps openly controlled by militia, humanitarian assistance became the main source of revenue within the insurgents' economy, benefiting them both by ensuring supplies and controlling the civilian refugee population. Due to the unwillingness and incapability of the Zairian government and the international community to intervene, the new Rwandan army and an allied Zairian rebel group invaded the country's eastern Kivu provinces in 1996, closing down the refugee camps and triggering a conflict that two years later took on an extended regional dimension, involving at least five states."

We would like here to emphasize that the aim of this work is absolutely not to support the policies, adopted by different countries, limiting the access to refugees. The large majority of refugees are not in charge of the violence that may exist in the host country, but are rather the victims of it. Nonetheless, we are of the opinion that the potential risk of conflict that accompanies forced migrant flows should not be ignored. A better understanding of the security consequences involved by these refugee movements is essential for the implementation of more appropriate policies and for the improvement of the fundamental and legitimate humanitarian support to them.

1.4. Previous literature

The literature on migration is interdisciplinary and broad. While the majority of the papers, articles, books exploring the determinants of migration focus on the relationship between voluntary migration and economic conditions, there is a minority of studies exploring the link between forced migration and conflicts (e.g., Clark 1989; Zolberg, Suhrke, and Aguayo 1989; Schmeidl 1997; Gibney, Apodaca, and McCann 1996; Weiner 1996; Apodaca 1998; Moore and Shellman 2002; Davenport, Moore, and Poe 2003; Davenport et al 2003, Melander and Öberg 2003). We can summarize the characteristics of this previous literature by highlighting that, in opposition to voluntary migration literature based on micro analyses, forced migration research has a macro orientation. Moreover, this literature focus mainly on descriptive cases, on policy evaluations, on the challenges associated with aiding refugee populations, and suffer from weak empirical analyses. Because they examine exclusively countries producing positive refugee flows (e.g., Zolberg, Suhrke, and Aguayo 1989; Apodaca 1998), the selection bias problem is for instance easily identified. Among the studies with strongest empirics we find: Schmeidl 1997, Moore and Shellman 2002, Davenport et al 2003 and Melander and Öberg 2003. The basic

mechanism explaining forced migration in these papers is a simple decision theoretic model in which individuals base their decision to stay or leave on observable costs and benefits of relocating. Although the basic model is the same for all these empirical studies, each of them has extended it. Melander and Öberg's analysis has for instance assumed that the costs and benefits for relocating vary from one population of a country to the other. Because some people have higher motivation to abandon their country than others, a selection effect appears over time such that the individuals who did not leave will increasingly prefer to stay. Moreover, in opposition with previous research, the empirical study of Moore and Shellman takes into consideration the diverging impacts of different types of armed conflicts on forced migration. They found that whereas intrastate conflicts amplify the flow of refugees, interstate conflicts augment it only in countries directly affected by the fighting. As a consequence, a citizen of a state involved in an interstate conflict is more likely to feel the danger and flee if the battle is taking place in his own country.

Beyond the literature on forced migration, previous statistical analyses have also demonstrated that countries bordering states in conflict or at war are significantly more likely to experience conflict themselves. A variety of causal mechanisms of the spreading of conflicts across borders can be identified. Whereas Moore and Davis (1998) demonstrate that trans-border ethnic ties may lead individuals from a given country to support their ethnic kin in another, Beissinger (2002) and Kuran (1998) give statistical evidence that individuals from a given country may be influenced by conflicts in other states and decide to challenge their own government. Collier et al (2003), Sandler and Murdoch (2004) have instead focused their studies on the impact of civil wars on the increased probability of conflict in a region, through the deterioration of the economic conditions.

Additionally, because refugee camps are often crowded and unhealthy, different studies have concluded that forced migrants have negative public health externalities in host countries. Collier et al (2003); Rowland and Nosten (2001); Toole and Waldman (1997), Reynal-Querol and Montalvo (2007) demonstrate that refugees have contributed to the spread of diseases such as HIV/AIDS, malaria, cholera, and diarrhoea, among other infectious diseases. The empirical research of Ghobarah, Huth, and Russett (2003) and Iqbal (2006) moreover shows that civil wars significantly increase the rate of morbidity and mortality in the affected country itself as well as in neighbouring nations.

Referring more specifically to previous research linking refugees to conflicts; most of the literature treats migration movements as a consequence of conflicts rather than a possible cause.

Among the analyses focusing on forced migration as one of the potential causes of conflicts, we mention Salehyan (2005), Salehyan and Gledisch (2004), Lischer (2004), Stedman and Tanner (2003), Dowty and Loescher (1996) and Posen (1996). These authors discuss the mechanisms we mentioned above: refugees can change the ethnic composition of the recipient state; bring with them arms, combatants, and ideologies which may increase the level of violence; enhance economic competition; and engage in political opposition to the host and the origin country. Because these arguments have however never been put to a systematic empirical test, the main contribution of this thesis is to attempt to empirically and statistically analyze the impact of refugee inflows on conflict onset. We do so in the next section through an empirical study based on an original panel dataset consisting of data from 43 African countries for the years 1960-2006 (2030 observations). The list of countries included in the study is reported in Appendix 1. Moreover, in addition to the investigation of the role of forced migration on conflict onset, we will adopt a similar empirical reasoning to analyze the impact of conflicts on forced migration outflows. As a result, this research is motivated by an interest in understanding the main determinants of both conflicts and forced migration.

The study proceeds in three parts. First, empirical strategies and data sources are discussed. Second, results are presented and, lastly, the policy implications and considerations related to those results are explored.

2. Empirical strategy and data

For the purpose of finding the determinants of forced migration and conflict onset, we investigate not only the influence of the independent variables of interest (conflicts and forced migration), but also the impacts of other control covariates expected to have some explanatory power. As a result, the database we created includes many variables: one for forced migration, others for the presence, the onset and the characteristics of conflicts and civil wars, and finally a complete set of control variables.

Our two basic regressions are the following:

$$forced\ migrant\ outflow_{jt} = a_0 + a_1\, conflict_{jt} + \beta\, X_{jt} + \varepsilon_{jt} \quad (1)$$

$$conflict\ onset_{jt} = \gamma_0 + \gamma_1\ forced\ migrant\ inflow_{jt} + \delta\, Y_{jt} + \varepsilon_{jt} \quad (2)$$

where 'forced migrant outflow' is the number of forced migrants abandoning their origin African country j in year t and 'forced migrant inflow' is the quantity of migrants arriving in a host African country j at time t from all over the world. Additionally, while 'conflict' stands for the presence of a conflict, 'conflict onset' represents the start of a conflict in country j at time t. Moreover, the vector X includes the variables of forced migrant-sending countries that may have an effect on migration movements. These variables are divided in four groups: political regime characteristics, country-specific characteristics, natural disasters and spatial dependence. Similarly, Y includes the variables of receiving countries that influence the risk of conflict onset, i.e. political regime characteristics; ethnic, religious and linguistic fractionalization; time and spatial dependence. We discuss these variables in details here below.

Before going on with the study, it is important to highlight that we will need to bear the potential endogeneity problem in mind in our empirical analysis. Indeed, especially in the context of panel analysis of causal processes, it is important to limit as much as possible the two-way causality between dependent and independent variables, and reduce in this way the biasness of the regression coefficients.

2.1. Data sources and dataset construction

Forced migration

There are three basic sources of information for the data on forced migration: the United Nations High Commission for the Refugees (UNHCR), the US Committee for Refugees (USCR)

and the Internal Displacement Monitoring Centre (IDMC). Because we are studying the decision to abandon one's home or one's country, we should here consider data on refugees, on asylum seekers and on internally displaced persons (IDPs) produced by each country.

The data on refugees and asylum seekers we use come from the UNHCR Database available for the period 1961-2006. This dataset is organized by country of origin and country of asylum and provides information on the number of refugees and asylum seekers that leave their origin country for the asylum one at time t.

Data on IDPs are available in the UNHCR and in the IDMC databases. However, in both sources, the information provided is very scarce for IDPs. While the UNHCR database considers exclusively IDPs where the UNHCR provides assistance to them, the IDMC covers only 15 years (1993-2007) for 24 countries and contains 77 per cent of missing values. This lack of IDP estimates can be explained by the fact that internal movements are less subject to government control and therefore more difficult to monitor than movements across international borders. Also because of insecurity, IDPs sometimes show reticence to register officially. Similarly, asylum seekers inflow data are very scarce in the UNHCR database. As a consequence of these shortcomings, the use of these variables is very problematic and would reduce the significance of our regressions. For this reason, we decide to work only with refugees and asylum seekers data in forced migration regression (1) and exclusively with refugees' data in conflict onset regression (2).

Since the UNHCR estimates the measures of refugees and asylum seekers in stock, and as we are interested here in the flow, we create the flow measure from the stock one. To do so, we first take the sum of the refugee and asylum seeker variables to build a forced migration stock variable and then take the first difference. Because conflicts are often fostered by large surges of refugees, we decide to use forced migration flows data instead of stocks in regression (2) even if larger immigrant stocks may increase the number of opposition organizations and hence may be difficultly absorbed by the recipient country. As we focus here on the first wave of forced migration movements exclusively, and not in secondary movements or repatriations, we recode the negative values of forced migration flows at zero. Although this practice is not without flaws, it is the best available estimate of the annual refugee out- and inflow.

Moreover, the UNHCR data provide information on refugees and asylum seekers originating in colonies or dependent areas. This is the case of Angola and Eritrea prior to independence or Western Sahara, recognized as a community that aspires to independence. For colonies or areas within or bordering the country exercising territorial control, we code the refugees and asylum seekers as coming from the recognized nation exercising control over the territory. In the case of Western Sahara, we thus consider refugees and asylum seekers as originating from Morocco and

hence sum Western Sahara's forced migrant outflow to the one of Morocco. This method is correct only because refugees from Western Sahara predominantly go to Algeria, while almost none of them flee to Morocco.
Moreover, using the definition of neighbourhood we will define later, we divide data on refugee inflows in two groups: refugees coming from neighbour states and those coming from non-neighbour ones. The aim of this subdivision is to determine if those two groups of refugees have diverging impact on the dependent variable in regression (2).

Finally, forced migration data are rather noisy and crude approximations. All aggregate statistics on refugee flows should thus be interpreted with care. According to Myron Weiner in his paper "Bad neighbours, bad neighbourhood", one must consider a variety of issues. Firstly, even though the 1951 Refugee Convention and other relevant legal instruments provide clear refugee definitions, and despite the fact that most countries have implemented them, the definition of a refugee is still interpreted in different ways. Governments differ for instance in the criteria they use to count immigrants and refugees. Ethnic compatriots arriving in their country are sometimes not considered as refugees. Secondly, since refugee-sending countries do not collect information on the number of forced migrant outflows, the only sources of estimates we can use come from receiving countries and the UNHCR. The accuracy of these numbers depends in part upon whether the refugees are living in camps or are dispersed. Moreover, host governments often exaggerate the number of refugees they host in order to increase donor support. Thirdly, since they can return to the country from which they are originated, the UNHCR do not categorize as refugees those who are forced to flee the host country.

Conflicts/ civil wars

The data related to conflicts come from the 1946–2006 UCDP/PRIO Armed Conflict dataset, version 4-2007 (see Gleditsch et al. (2002) for further details). The latter includes all African countries, except Tanzania and the Gambia, which experienced at least one conflict in the considered period. The main independent variable 'conflict' in regression (1) is assigned a score of 1 in a specific year to countries in which at least one conflict took place that year, and a score of 0 otherwise. On the other hand, the main explanatory variable 'conflict onset' in regression (2) is coded 1 for the first year of conflict, zero if no conflict takes place in that specific year and subsequent ongoing years of the same conflict are dropped from the estimation range.
In addition to the data on the presence of conflicts, the UCDP/PRIO Armed Conflict dataset has the advantage to provide us with interesting information on the main characteristics of

conflicts, such as the type, the exact location, the intensity level and the type of incompatibility of the dispute (territorial/governmental). Moreover, the annexed Battle Death dataset (version 2.0) includes statistics for all battle deaths (soldiers and civilians killed in combat) in state-based armed conflicts.

As a robustness check, we also decide to restrict our empirical analysis to the more severe variables: 'presence of a civil war' and 'civil war onset'. The aim is here to assess if armed conflicts, resulting in at least 25 battle-related deaths, and civil wars, which involve more than 1,000 deaths and other conditions, have diverging impacts on forced migration.
Civil war data come from Doyle and Sambanis dataset (2000) which includes 124 events in the period 1947-1997 and provides rich information on the number of deaths, war recurrence, duration, outcome, etc. One of the information we use is whether a civil war is 'ethnic' or 'non-ethnic'. As ethnic or religious division frequently underlies the violent conflicts that generate refugee flows, we use Doyle and Sambanis data to determine whether ethnic civil wars have a substantive different impact on forced migration than non-ethnic ones. Furthermore, because refugees arriving in a recipient country may upset the ethnic balance, we expect their presence to have diverging impacts on the start of ethnic and non ethnic civil wars. The variable indicating the type of each civil war is coded 1 in our dataset if it is ethnic or coded 0 otherwise.

Finally, we will also discuss the influence of our covariates in the different regions of Africa (south, north, east, west and central Africa). This geographical subdivision, coming from the European Commission, facilitates us to understand if the impact of conflicts on forced migration, or the impact of refugees on conflict onset, is the same among the different African regions, or if, on the contrary, the effect is more pronounced in some specific regions. Once the regional subdivision of Africa is taken into consideration, our two basic regressions include interaction terms for the different African regions ($conflict_{jt}$*$African\ region_j$ / $forced\ migrant\ inflow_{jt}$*$African\ region_j$).

Political Regime Characteristics

After having discussed the dependent and independent variables of interest, we present now the control regressors expected to have some explanatory power on the forced migration outflow in regression (1) and on conflict onset in regression (2). Because we are interested in the extent to which the state engages in democratic or autocratic behaviour as this may have an impact on the dependent variables, a control for the level of democracy and autocracy is included in regression (1) and (2). As a matter of fact, people may decide to flee from authoritarian and revolutionary

regimes when there is neither a conflict nor a civil war, but the regime rejects human rights, restricts public assembly and freedom of the press. We thus expect that the more democratic a government, the less the risk of conflict and the less the number of forced migrants produced by the country.

The data on political regime characteristics come from the Polity IV Project dataset of Monty G. Marshall and Keith Jaggers. This dataset contains, for the years 1962-2004, an institutionalized democracy and autocratic scale ranging from –10 for the least democratic/autocratic political systems to value of 10 for democratic/autocratic polities. Additionally, a 'polity index' is calculated for each country by subtracting the autocracy score of a country from the democracy score. The resulting unified polity scale ranges from 10 (strongly democratic) to -10 (strongly autocratic). In the original data, a large number of 'polity index' observations have been assigned special transition codes that fall outside the –10 to 10 scale (e.g. -66 for 'foreign interruption' , -77 for 'interregnum', -88 'transitional'). We converted these observations in a polity score of 0. Indeed, many of these cases stem from civil wars, and so dropping them would not be appropriate.

In addition, we argue that uncertainty about the structure of the polity also influences people in their decision to flee. To evaluate uncertainty about the polity's future, we use a running measure of the durability of the regime's authority pattern for a given year available in the Polity IV Project dataset. This variable is defined as the number of years since the last substantive change in authority characteristics (defined as a 3-point change in the polity score). Let us highlight that the Polity IV Project conceives democracy as three essential, interdependent elements. One is the presence of institutions and procedures through which citizens can express effective preferences about alternative policies and leaders. Second is the existence of institutionalized constraints on the exercise of power by the executive. Third is the guarantee of civil liberties to all citizens in their daily lives and in acts of political participation (Marshall and Jaggers 2005).

Finally, it is important to remind that in the more recent years, the refugee flows from autocratic regimes has declined in Africa and is replaced by emigrants from former autocratic regimes looking for better economic conditions. Indeed, there has been for more than a decade, a decline in the number of authoritarian regimes and a surge in the number of democracies or quasi-democracies in Africa. Nonetheless, there still exists nowadays a large quantity of people fleeing non-democratic countries that engage in the persecution of political opponents and deny freedom of speech and assembly (Marshall and Jaggers 2005).

Natural disasters

Because natural disasters are one of the causes of mass migration, we include them as control variables in regression (1). Data come from the EM-DAT: the OFDA/CRED International Disaster Database. Since 1988 the WHO-collaborating Centre for Research on the Epidemiology Disasters (CRED) has been maintaining an emergency event database, EM-DAT. It contains essential core data on the occurrence and effects of over 16,000 mass disasters in the world from 1900 to the present day. These Disaster data give information on four groups of disasters (natural, technological, geological and hydro-meteorological) and eleven types (drought, earthquake, extreme temperature, epidemic, flood, slides, volcano, insect infestation, wave/surge, wild fire and wind storm) for each African country. Moreover, additional information is given for each disaster in each country on the number of deaths, injured and affected persons and on the total damage (given in US$ and/or Euro). For a disaster to be entered into the database at least one of the following criteria must be fulfilled: a) 10 or more people reported killed, b) 100 people reported affected, c) Declaration of a state of emergency, d) Call for international assistance.
Instead of introducing a control variable for the presence of each of the eleven natural disasters, we prefer to include in our regressions, information on the total number of persons killed and on the estimated value of the total damage.

Country-specific characteristics

Even though population size has almost never shown any significant effect in previous research, we may expect densely populated countries to have the potential to generate larger flows of forced migration than countries with smaller population. Therefore, we include measures of population size (logged) in our regressions. Moreover, for the reason that several researchers argue that forced migration is driven in part by poverty or economic insecurity in the county of origin, we control for the potential effects of poverty by including information on log-transformed GDP per capita in constant U.S dollars. Indeed, the higher is the GDP of a single country, the larger are the economic opportunities, and the higher are the benefits for an individual to stay in his country and not to migrate. This suggests that countries with higher income opportunities should be less likely to produce refugee flows. Making similar reasoning, as poverty can be the cause of conflicts; we expect the risk of conflict to be lower in richer countries than in poorer ones.
Data on population size and on GDP are based on the World Bank World Development Indicators which provide direct access to more than 800 development indicators, with time series for 209 countries from 1960 to 2007.

Since the intensity of the forced migrant outflow may impact on the wealth and the population size of the origin country, particularly if those variables are contemporaneous, we will need to be very careful about the endogeneity problem. We discuss this problem more deeply in section 3.

Time and spatial clustering dependence

The close proximity of countries with internal wars raises the questions of whether there are neighbourhood effects, that is, whether there is a high probability that internal conflicts in one country trigger a new dispute in neighbour states. Because weaker parties in a conflict may find ally in neighbour country, and because the refugees themselves may become the source of fighting within or between countries, conflicts are often closely related with one another. This consideration is well-illustrated by the conflict situation in the Horn of Africa (Somalia, Ethiopia and westward to the Sudan). So, we include the variable representing the presence of conflicts in neighbour countries in regression (2). Moreover, for regression (1), the following question is raised: is the intensity of a state's forced migration flow influenced by the presence and the number of conflicts in neighbour countries? On one hand, the feeling of living in an unsafe country may augment if neighbour countries are in conflict and may give incentive to flee from the region. On the other hand however, as individuals originated from a given country would certainly prefer not to migrate in neighbour countries in conflict, the number of potential neighbour host states decrease and may have a negative impact on migration.

With the intention of constructing a variable controlling for the presence of conflicts in neighbour countries, we need to define the term 'neighbourhood'. The first way to interpret it is to consider two countries as 'immediate' neighbours if their respective borders fall within a distance of 100 km or less, including contiguity. Notwithstanding, since this definition excludes states separated by short stretches of water, we prefer to identify neighbours as states falling within a distance of 950 km span around a given state's boundaries (Gleditsch and Ward 2001). Such a distance can be travelled over land by refugees in a relatively short period of time. Thanks to the data on distances between countries coming from the Gleditsch and Ward (2001) Minimum Distance dataset, we are able to construct a minimal distance matrix which takes value 1 if two countries are neighbours and 0 otherwise. We then create for each country and for each year, a variable coded 1 if at least one neighbour country, as defined above, experiences a conflict in that given year, and 0 otherwise. Once again, because our two main dependent variables may influence the presence of conflicts in neighbour countries (we will discuss this later on), we should bear the two-way causality problem in mind, especially when the dependent and independent variables are contemporaneous.

Additionally to spatial clustering, we expect conflicts to be more likely to appear soon after a previous dispute. We address this potential time dependence in regression (2) by including a control variable named 'number of preceding peace years' measuring time since last conflicts in year. As the dependent variables are available from the year 1947, we code 0 the number of 'peace years' in 1947; then we code it 1 in 1948 if there was no conflict in that year and 0 otherwise (etc). The calculation of this variable is done separately for conflicts, ethnic and non ethnic civil wars.

Previous research has also found temporal dependences in forced migration data from one year to the other. Therefore, we include, in regression (1), the lagged value of each origin country's forced migration outflow, i.e. the number of forced migrants lagged one year, using a specific dynamic panel data estimates model (we will discuss the model in details later on). We do so to measure the extent to which family and friends have been disrupted. The higher are the ethnic ties broken down, the higher we expect the incentive for an individual to abandon his own country. An initial migration flow tends to generate future migration because the decision of an individual of where to migrate is highly influenced by the existing networks and cultural spaces formed by migrant communities in host countries. Also because Diaspora culture often has an impact on forced migration flows, we expect to find a positive association between the passed and contemporaneous forced migration movements.

Fractionalization

Since ethnic relations and ethnic diversity are often thought to be important for the risk of conflict, we include three other covariates in our regression (2) measuring the fractionalization level of each country. Those variables are the indices of religious, ethnic and linguistic fractionalization calculated by A. Alesina, A. Devleeschauwer, W. Easterly, S. Kurlat and R.Wacziarg in their paper "Fractionalization". While ethnic and linguistic differences were previously aggregated in an 'ethno linguistic' fractionalization variable, the main improvement of these indices consists in that they clearly distinguish between religious, ethnic and linguistic heterogeneity. Those measures of fractionalization are computed by calculating the probability that two randomly selected individuals for a population belong to different groups. The formula is the following: $FRACT_j = 1 - \sum_{(i=1\ldots N)} s_{ij}^2$, where s_{ij} is the share of the group i (i=1….N) in country j. Because language is part of the criterion used by ethnologists and anthropologists to define the concept of ethnicity, the main obstacle of those indices' calculation is the distinction between the ethnic and the linguistic variable; and this particularly in Africa where racial and

physical criteria are seldom used to define ethnic groups (Alesina, Devleeschauwer, Easterly, Kurlat and Wacziarg 2003).

Apart from these three indices, the better-known index of ethno-linguistic fractionalization (ELF) is another important measure. Not surprisingly, the ELF index is more correlated with the ethnic and linguistic Alesina's indices (0.7152 and 0.9613 respectively) than with the religious one (0.4820). Finally, Marta Reynal-Querol and Jose G. Montalvo have also elaborated religious and ethnic polarization and fractionalization indices. Because Alesina's measures are the updated version of those indicators, we do not consider them in our study.

Finally, in regression (2) we also control for the number of trans-border ethnic groups in each country. We do so because we believe transnational ethnic ties to be one of the causes of conflict diffusion. We may thus expect the risk of conflict to increase the higher is the number of ethnic groups shared with other bordering countries. The elaboration of this variable is based upon the Minority Risk Dataset of Christian Davenport (2004) which provides information on majority and minority states of trans-border ethnic groups in Africa.

The summary statistics for all the regressors included in the above specifications are listed in Table 3. Interesting information can be gathered from those descriptive statistics:

- The forced migrant outflow is an event count of forced migrants leaving their country ranging from zero to more than one million, and with the mean of 13,936 individuals. The forced migrant inflow is scaled by 100,000 (refugees/100,000); ranges from zero to more than one million with the mean of 12,315. Among the emigrants, 32% live in Central Africa, 16% in West Africa and 92% are originated from neighbour countries. Disregarding the block of countries hosting no refugees, the distribution of the actual number of refugees in recipient states is highly skewed with a long right tail. Indeed, although 50% of the countries count less than 2,000 refugees, some of them, such as Sudan, have hosted more than one million refugees.
- While the average probability of conflict and civil war in Africa equals 23% and 19% respectively; this risk is higher in East Africa (7.2%-5.6%) and particularly low in North Africa (2.5%-1.5%). The probability of a new conflict and a new civil war equals on average 4.4% and 3.3% respectively (2.5% for ethnic civil wars). The polity score goes from -9 to 9, with a mean of -4 giving evidence for the presence of autocratic regimes in Africa. Among the countries with the highest polity index, we find South Africa and the Gambia, while Togo, Rwanda, the Republic Democratic of the Congo and Ivory Coast are those with the lowest polity score.

TABLE 3 – SUMMARY STATISTICS OF THE VARIABLES USED IN THE STUDY

Variable	Obs	Mean	Std. Dev.	Min	Max
forced migrant outflow	876	13936.2	77604.3	0	1808563
forced migrant inflow	1053	0.12315	0.57931	0	11.52295
neighbour forced migrant inflow	1088	0.11373	0.55917	0	11.52642
non neighbour forced migrant inflow	1088	0.01441	0.12567	0	3.38669
forced migrant inflow from North Africa	1053	0.00344	0.04634	0	1.15
forced migrant inflow from South Africa	1053	0.00687	0.07952	0	2.25
forced migrant inflow from East Africa	1053	0.05108	0.38898	0	8.24810
forced migrant inflow from West Africa	1053	0.01975	0.15399	0	2.71801
forced migrant inflow from Central Africa	1053	0.03954	0.40148	0	11.52295
conflict	1974	0.234	0.424	0	1
conflict onset	1573	0.044	0.206	0	1
conflict in North Africa	1974	0.025	0.157	0	1
conflict in South Africa	1974	0.052	0.221	0	1
conflict in East Africa	1974	0.072	0.258	0	1
conflict in West Africa	1974	0.037	0.190	0	1
conflict in Central Africa	1974	0.046	0.209	0	1
conflict in neighbour countries	2034	0.848	0.359	0	1
number of peace years before conflict	1622	16.871	13.349	0	58
civil war	1720	0.194	0.395	0	1
ethnic civil war	1720	0.163	0.370	0	1
non ethnic civil war	1669	0.031	0.174	0	1
civil war onset	1434	0.033	0.180	0	1
ethnic civil war onset	1481	0.026	0.159	0	1
non ethnic civil war onset	1678	0.006	0.077	0	1
civil war in North Africa	1720	0.015	0.120	0	1
civil war in South Africa	1720	0.055	0.229	0	1
civil war in East Africa	1720	0.056	0.231	0	1
civil war in West Africa	1720	0.018	0.133	0	1
civil war in Central Africa	1720	0.049	0.217	0	1
civil war in neighbour countries	2034	0.775	0.417	0	1
number of peace years before civil war	1358	24.996	14.062	0	52
polity index	1737	-4.042	5.021	-9	9
regime durability	1745	12.777	16.391	0	105
killed by natural disasters	1785	460.777	8632	0	300000
natural disaster's damage	1785	13262.1	187561.3	0	5200000
log (gdp)	1710	6.106	0.936	4.043	9.047
log (population)	2001	15.493	1.360	11.349	18.791
ethnic fractionalization	2021	0.657	0.238	0	0.93018
linguistic fractionalization	1974	0.611	0.294	0.01029	0.92268
religious fractionalization	2021	0.453	0.284	0.00275	0.86026
number of trans-border ethnies	2021	1.884	1.243	0	5

- On average, the number of years since the last substantive change in authority characteristics equals 12 years.
- The mean value of the number of persons killed during a natural disaster is 461 persons and the average total damage is $13,262. Extremely dangerous natural disasters happened in Kenya in 1983 where a terrible drought killed 300,000 persons and in 1980 when a damage estimated at $5.2 million was caused by an earthquake in Algeria.
- Ethnic and linguistic fractionalization values are on average higher than religious one (61-66% in comparison to 45%) and African countries have on average two trans-border ethnic groups.
- The average number of peace years preceding a new conflict in Africa in the period 1960-2006 is 25, while for civil wars it is 17. We should however keep in mind that this variable is influenced by the way we coded it (using 1947 as the baseline).
- In a given year, 85% of the African countries have a neighbour country in conflict and 77% a neighbour at war.

2.2. Econometric models

Next to the examination of the characteristics of our variables, we turn now to the investigation of the most appropriate model to be applied to our forced migration and conflict onset regressions.

Forced migration regressions

The first model we use is the ordinary least squares regression model. The latter is based on two main assumptions: the homogeneity of variance and the normality of residuals required for valid hypothesis testing (valid p-values for the t-tests and F-test). By computing the Breusch-Pagan/Cook-Weisberg test for heteroskedasticity and the skewess test for the normality, we prove that these basic assumptions are not satisfied. Let us note however that once the regional subdivision is taken into account, the errors of our regressions seem to be normally distributed for East and Central Africa. This brings into light the necessity to consider Africa as a heterogeneous continent composed of five distinct regions.

Moreover, because we recode all negative forced migration flows at zero, the coefficients estimated by the OLS regression model on positive flows are biased and inconsistent. The higher is the number of observations taking value 0, the more biased are these estimates. As a result, we shift the attention toward a second model that solves this problem: the Tobit model with left

censoring at zero. Since this model has a probit component, its results are also very sensitive to the assumption of homoskedasticity.

After the OLS and the Tobit model, we now refer to fixed and random effects linear models which allow for heteroskedasticity across panel units and are more appropriate for panel data. Because the Wald test for group wise heteroskedasticity in fixed effect regression model shows that residuals are heteroskedastic and because the Hausman test null hypothesis is not rejected, random effects are consistent and preferred to fixed effects. Moreover, the Breusch and Pagan Lagrangian multiplier test for random effects confirms that the OLS model is here inappropriate. To address heteroskedasticity, we also estimate robust standard errors.

Researchers often use either the Poisson or the negative binomial model when analyzing count data that are not normally distributed. The Poisson regression model is appropriate only if one assumes that the probability of any given event is independent of any other in a given unit of time. Because the decision of one person to flee in a given year depends on the decisions of other people to abandon their home in this same year, the events are not independent and the use of the Poisson distribution is hence not correct. An appropriate distribution in these circumstances is the negative binomial distribution. This model has two advantages: first, a parameter alfa that indicates the extent to which forced migrant flow observations are correlated with one another is included in the model; second, the fixed effects negative binomial model is easily estimated with common software package.

Another characteristic of our data we need to take into account is the high number of zero forced migration flow. In fact, although many countries produce positive outflow during the years 1960-2006, more than 25% of the total observations produce zero forced migrants. Because there may be a reason to believe that there is some unobserved heterogeneity, we use the zero-inflated negative binomial regression model which takes into consideration this specific feature of the data. The Vuong test confirms that the zero-inflated model fits our data better than the normal negative binomial as it is capable to split the African countries in two groups: those that have zero probability of producing forced migrants in a given year and those that instead have a positive probability. To address heteroskedastic errors, we moreover estimate the model using robust standard errors and fixed effect. As the fixed effects zero inflated negative binomial model does not exist in common software package, we control for fixed effects by including country dummies directly in the regressions.

Finally, in order to control for temporal dependences in forced migration data from one year to the other, we include another additional variable in our basic specification model: the lagged value of the forced migration outflow. Because the coefficient estimates of this variable are biased in one-way fixed and random effects models (the lagged dependent variable is correlated with the error terms), we explore here a model which solves the biasness problem: the Arellano-Bond linear dynamic panel data estimation model.

Conflict onset regressions

Similar to the forced migration regressions, the OLS conditions are not satisfied and the OLS model is thus inappropriate. For the reason that the Hausman test null hypothesis is accepted and the Breusch/Pagan Lagrangian test null hypothesis is rejected, random effects are consistent and preferred to fixed effects and to the simple OLS model.

Considering that our dependent variable 'conflict onset' takes values 0 or 1, the logit and probit regressions are the most appropriate ones for the prediction of the probability of the occurrence of a conflict. In order to check for specification errors related to the logit model, we compute the 'link test' which gives evidence that our model is properly specified: the predicted value of our dependent variable is significant while the squared value is not. In this way, we can conclude that 'conflict onset' is a statistically significant predictor. Moreover, the Hosmer and Lemeshow's goodness-of-fit test indicates that the logit and probit models fit the data well.

Other models we examine are the random and fixed effects logit and probit models. Indeed, while a linear probability for binary outcomes implies unnatural restrictions on the variation in the unobserved effects, those models have the advantage to incorporate these effects. We focus here on the results of the most popular model for binary outcomes with panel data: the unobserved effects probit model. Let us note that ideally we could estimate the quantities of interest without restricting the relationship between the unobserved effects and the other covariates by using a fixed effect probit analysis. Unfortunately, in addition to being computationally difficult, this fixed effect probit model introduces incidental parameters problem. We hence decide to use the traditional random effects probit model which solves this problem by adding strong assumptions on unobserved effects: the normality of their distribution and their independence with other regressors.

3. Empirical results

3.1. Forced migration regressions

Table 4, 5 and 6 report the results for our baseline model, the zero inflated negative binomial (Model 1), and include all the relevant variables outlined above. The difference between those three tables consists in that 'conflict' is considered as the main independent variable of interest in Table 4 whereas Table 5 focuses on civil wars and Table 6 on ethnic/non-ethnic civil wars. The random effects (Model 2), the Tobit (Model 3) and the Arellano-Bond linear model (Model 4) are reported in Appendix 4. The results for OLS, the fixed effects negative binomial and the fixed effects linear models are not included in this thesis as they are very similar to those drawn from some of the models we report here.
Additionally, each of these models 1, 2 and 3 is composed of two regressions; one general regression with contemporaneous independent variables which are not lagged and another one in which the independent variables are all lagged by one year. We do so to limit biases caused by potential endogeneity and to check if our regressors have delayed effects on the dependent variable; that is, if forced migration at time t is influenced by covariates at time t-1. In Table 3 and 4 of Appendix 4, we also report a third regression which includes interactive terms for the presence of conflicts/civil wars in the five African regions distinctly.

In relation to the zinb model (zero-inflated negative binomial), the results presented in the three tables below are composed of two equations: a count and an inflation equation. The former is a negative binomial regression with the flow of forced migrants going out of a country in a given year as the dependent variable. The latter is a logit regression of the covariates on the probability that there is no flow of forced migration in a given year. As the coefficient are logit, a negative sign indicates that the variable raises the probability that at least one person will emigrate. We expect the signs of the variables in the logit and in the count regression to be the opposite of one another. Moreover, in the count equation, we report the incidence rate ratios (IRRs) that represent the variation in forced migrants given a unit change in the independent variable, holding all others constant. So, IRRs of 1 indicate no change in the expected number of forced migrants, IRRs higher than 1 reflect an increase in the expected count; and lower than 1 reflect a decrease. In the case of dummy variables such as the presence of conflict or civil war, the IRRs are the relative rates of forced migrants for countries in state of conflict in comparison to countries at peace.

TABLE 4 – "CONFLICTS" AS A SOURCE OF FORCED MIGRATION

dependent variable : forced migrant outflow	Reg 1-1.1	Reg 1-1.1 (inflate)	Reg 1-1.2	Reg 1-1.2 (inflate)
	contemporaneous explanatory variables		one-year lagged explanatory variables	
conflict	2.096 [0.000]** {8.15}	-0.121 [0.500]	2.266 [0.000]** {9.64}	-0.055 [0.756]
conflict in neighbour countries	2.596 [0.000]** {13.40}	0.397 [0.208]	1.266 [0.004]** {3.54}	0.313 [0.270]
polity index	-0.004 [0.871] {1.00}	0.053 [0.003]**	0.009 [0.770] {1.01}	0.051 [0.004]**
regime duration	-0.005 [0.446] {0.99}	0.000 [0.981]	0.014 [0.089] {1.01}	0.002 [0.756]
killed by natural disasters	0.000 [0.000]** {1.00}	0.000 [0.121]	0.000 [0.391] {1.00}	0.000 [0.115]
natural disasters' damage	0.000 [0.490] {1.00}	0.000 [0.023]*	0.000 [0.000]** {1.00}	0.000 [0.400]
log (population)	0.007 [0.942] {1.07}	-0.068 [0.334]	-0.119 [0.346] {0.89}	-0.088 [0.205]
log (gdp)	-1.292 [0.000]** {0.27}	-0.185 [0.070]	-1.405 [0.000]** {0.24}	-0.181 [0.080]
Constant	13.398 [0.000]**	1.665 [0.163]	17.334 [0.000]**	1.948 [0.100]
ln alfa	1.030 [0.000]**		1.200 [0.000]**	
alfa	2.802		3.319	
Wald chi-square	474.740		752.380	
Log likelihood	-4239.583		-4471.639	
Observations	703	703	739	739

Note: Robust p-values in brackets ; Incidence Rate Ratios in braces

Baseline model: zero inflated negative binomial

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

TABLE 5 – "CIVIL WARS" AS A SOURCE OF FORCED MIGRATION

dependent variable : forced migrant outflow	Reg 2-1.1	Reg 2-1.1 (inflate)	Reg 2-1.2	Reg 2-1.2 (inflate)
	contemporaneous explanatory variables		one-year lagged explanatory variables	
civil war	2.382 [0.000]** {10.82}	-0.613 [0.038]*	2.557 [0.000]** {12.90}	-0.406 [0.124]
civil war in neighbour countries	2.476 [0.000]** {11.89}	0.630 [0.039]*	1.328 [0.013]* {3.77}	0.842 [0.001]**
polity index	0.022 [0.556] {1.02}	0.091 [0.010]**	-0.006 [0.880] {1.00}	0.067 [0.031]*
regime duration	-0.014 [0.194] {0.99}	-0.003 [0.736]	0.010 [0.155] {1.00}	0.002 [0.830]
killed by natural disasters	0.000 [0.000]** {1.00}	0.000 [0.069]	0.000 [0.551] {1.00}	-0.000 [0.036]*
natural disasters' damage	0.000 [0.170] {1.00}	0.000 [0.460]	0.000 [0.000]** {1.00}	0.000 [0.786]
log (population)	-0.086 [0.457] {0.91}	-0.036 [0.652]	-0.277 [0.021]* {0.75}	-0.086 [0.275]
log (gdp)	-1.290 [0.000]** {0.27}	-0.140 [0.371]	-1.442 [0.000]** {0.23}	-0.237 [0.096]
Constant	15.195 [0.000]**	1.173 [0.416]	19.981 [0.000]**	2.017 [0.190]
ln alfa	0.947 [0.000]**		1.111 [0.000]**	
alfa	2.578		3.036	
Wald chi-square	622.090		1384.140	
Log likelihood	-3073.745		-3403.302	
Observations	523	523	558	558

Note: Robust p-values in brackets ; Incidence Rate Ratios in braces

Baseline model: zero inflated negative binomial

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

TABLE 6 – "CIVIL WARS" AS A SOURCE OF FORCED MIGRATION – DIFFERENCIATION BETWEEN "ETHNIC" AND "NON ETHNIC" CIVIL WARS

dependent variable: forced migrant outflow	Reg 2-1.3	Reg 2-1.3 (inflate)	Reg 2-1.4	Reg 2-1.4 (inflate)	Reg 2-1.5	Reg 2-1.5 (inflate)	Reg 2-1.6	Reg 2-1.6 (inflate)
	contemporaneous explanatory variables		one-year lagged explanatory variables		contemporaneous explanatory variables		one-year lagged explanatory variables	
ethnic civil war	2.106 [0.000]** {8.21}	-0.251 [0.394]	2.379 [0.000]** {10.79}	-0.176 [0.533]				
non ethnic civil war					1.254 [0.003]** {3.50}	-1.524 [0.001]**	2.455 [0.229] {11.65}	-0.814 [0.074]
civil war in neighbour countries	2.441 [0.000]** {11.48}	0.596 [0.073]	0.992 [0.048]* {2.70}	0.806 [0.004]**	2.786 [0.000]** {16.22}	0.680 [0.010]*	1.339 [0.154] {3.81}	0.819 [0.021]*
polity index	0.022 [0.613] {1.02}	0.087 [0.010]**	0.022 [0.579] {1.02}	0.065 [0.029]*	0.062 [0.210] {1.06}	0.091 [0.011]*	0.017 [0.687] {1.02}	0.064 [0.054]
regime duration	-0.009 [0.427] {0.99}	-0.003 [0.688]	0.027 [0.002]** {1.03}	0.002 [0.771]	-0.029 [0.022]* {0.97}	-0.002 [0.83]	-0.004 [0.807] {0.99}	0.001 [0.880]
killed by natural disasters	0.000 [0.000]** {1.00}	0.000 [0.085]**	0.000 [0.892] {1.00}	0.000 [0.026]*	0.000 [0.073] {1.00}	0.000 [0.091]	0.000 [0.038]* {1.00}	0.000 [0.042]*
natural disasters' damage	0.000 [0.542] {1.00}	0.000 [0.482]	0.000 [0.000]** {1.00}	0.000 [0.756]	0.000 [0.670] {1.00}	0.000 [0.516]	0.000 [0.000]** {1.00}	0.000 [0.772]
log (population)	-0.168 [0.361] {0.84}	-0.058 [0.458]	-0.333 [0.036]* {0.72}	-0.103 [0.192]	0.240 [0.229] {1.27}	-0.087 [0.329]	-0.046 [0.877] {0.95}	-0.116 [0.213]
log (gdp)	-1.660 [0.000]** {0.19}	-0.115 [0.475]	-1.831 [0.000]** {0.16}	-0.233 [0.107]	-1.066 [0.000]** {0.19}	-0.190 [0.266]	-1.245 [0.000]** {0.29}	-0.283 [0.087]
Constant	19.260 [0.000]**	1.234 [0.401]	23.845 [0.000]**	2.156 [0.158]	10.012 [0.010]*	2.033 [0.254]	16.653 [0.002]**	2.581 [0.183]
ln alfa	1.136 [0.000]**		1.252 [0.000]**		1.281 [0.000]**		1.482 [0.000]**	
alfa	3.115		3.497		3.600		4.401	
Wald chi-square	292.780		1532.140		237.840		503.670	
Log likelihood	-3105.714		-3426.883		-3107.004		-3436.894	
Observations	523	523	558	558	515	515	558	558

Note: Robust p-values in brackets ; Incidence Rate Ratios in braces

Baseline model: zero inflated negative binomial

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

So as to have a general idea of the appropriateness of the models, the first thing to examine in the tables is the results of the Wald and the Likelihood Ratio chi-square tests which check whether the independent variables have a statistically significant relationship with the regressors. Since the tests are always statistically significant in the above tables and in the tables reported in Appendix 4, our models seem to be pertinent. For the zero inflated binomial model (zinb), information on the over dispersion alfa parameters is also provided. Given that one individual's motivation to abandon his country depends on other people's decisions to flee, the alfa parameter is always positive and statistically significant, giving further indication that our baseline model is appropriate.

Let us now turn our attention to the more directly interpretable variables. We begin with a discussion of how the presence of a conflict or a civil war influences the number of persons being forced to abandon their country. In 20 regressions out of the 22 we report, the presence of at least one conflict or one civil war in a given year has a statistically significant and positive impact on forced migration outflows in the same year and in the succeeding year. In 18 regressions those coefficients are significant at 1%. This indicates that forced migration flows in a given year are the consequence of conflicts occurred in the same year but also of conflicts in the previous year. According to the zinb model, the effect of one-year lagged conflicts is even larger than for contemporaneous conflicts.

The IRRs of the zinb regressions 1-1.1 and 1-1.2 suggest that countries in conflict in year t produce a forced migration outflow in the same year which is 8 times higher than the flow produced by countries at peace, while conflicts in time t-1 amplify the flow in time t by almost 10 times. Once the Africa regional subdivision is taking into account, the presence of a conflict magnifies the forced migrant outflow by more than 18 times (Appendix 4, Table 3, Regression 3-1.1). For civil wars, the IRRs are even more elevated: with regional separation, countries at war produce 90 times more forced migrants than countries without civil war (Appendix 4, Table 4, Regression 4-1.1). The inflation equation of the zinb model moreover demonstrates that while the presence of a conflict does not significantly decrease the probability of having a zero forced migration flow; this probability is reduced in countries at war.

By splitting civil wars in ethnic and non ethnic, we obtain that both coefficients are positive and statistically significantly in the above Table 6, Regressions 2-1.3 and 2.1-5. However, whereas the presence of ethnic wars in a given year intensifies the number of forced migrants in the same year by 8 times, the presence of non ethnic wars increase the flow by 3.5 times, i.e. less than half the

impact of ethnic civil wars. The past history of Africa reflects this conclusion. Ethnic wars have indeed generated the highest refugee flows in Africa, especially where territorially based ethnic groups were active in secessionist or autonomy struggles, were persecuted or were in conflict with one another (Weiner 1996). Many examples illustrate such situations: the violent attacks against the Tutsi in Rwanda, the clash between Moors and Black Senegalese, etc. Finally, while it appears that ethnic wars in t-1 have a significant influence on the flow in year t; non ethnic wars have no impact (Table 6, Regressions 2-1.4 and 2-1.6).

Turning now to the tobit model results, the coefficients and the marginal effects are more complex to interpret. The easier way to deal with this problem is to predict the probability that the forced migration flow, conditional on the independent variables, falls within the particular interval $(0, +\infty)$. We generate the marginal effects of each explanatory variable on the probability that a country experiences a positive forced migration flow. Considering contemporaneous explanatory variables, we obtain that countries in conflict or at war increase their probability of producing a positive flow by 14% and 23% respectively, and by 16% and 32% for ethnic and non ethnic civil wars. Excluding all zero forced migration observations; countries in conflict and at war amplify the expected number of refugees by 13,143 and 77,488. Next, from the random effects linear regression model, we obtain that the number of forced migrants fleeing a country in conflict is 29,809 higher while a country experiencing a civil war raises it by 46,785 (Appendix 4, Table 1 and 2, Regressions 1-2.1 and 2-2.1).

Finally, because the coefficients related to civil war are higher than the ones of conflict in all the regressions of our three models, the number of forced migrants in the presence of a civil war resulting in at least 1,000 battle deaths is higher than in the presence of a conflict involving in average fewer deaths. As the coefficients remain however significant in both cases, we may expect individuals to abandon their countries even when the intensity of the conflict is lower than 1,000 battle deaths.

Moreover, except in Regression 4-2.1, the coefficients of conflict and civil war are significantly higher when Africa regional subdivision is considered. According to Model 1 and 2 reported in Table 3 of Appendix 4, forced migration is more negatively and significantly influenced by North African conflicts than by South African ones (control group). Model 1 moreover shows that civil wars in Central, West and East Africa have a lower significant impact on forced migration than conflicts in South Africa. This consideration demonstrates that the impacts of conflicts and civil wars on forced migration movements diverge among regions. However, because the coefficients

obtained for the conflict and civil war variables in the different regions vary from one model to the other, we are not able to draw definitive and general conclusions.

After having analyzed the impact of conflicts on migration movements, we shift now our attention toward the influence of conflicts in neighbour countries. The main question to be answered to is the following: Does the presence of a conflict or a civil war in a given country raises the number of forced migrants produced by neighbour countries? Because the coefficients of the 'contemporaneous' variables representing the presence of a conflict/civil war in neighbour countries are positive and statistically significant at 1% in Model 1 and 2, we could answer positively to the above question. We need however to remember here the necessity to limit the endogeneity problem as much as possible by lagging the variable 'presence of conflict/civil war in neighbour countries', while considering all the other explanatory variables as contemporaneous. We obtain that the coefficient of the 'presence of conflict in a neighbour country' is not significant anymore while the 'presence of a civil war in a neighbour country' remain significant. According to Table 6, the zinb model indicates that having at least one neighbour at war in year t augments the forced migration flow by around 4 times in the next year. The assumption that civil wars are independent and domestic phenomena can hence be rejected.

Other variables we are interested in are the polity index of a country and the durability of the regime's authority pattern. In the Tobit model, the polity index coefficient is statistically significant and negative indicating that the forced migration flow is lower in democratic states. More precisely, as long as the Tobit regression with civil war is considered, a one point increase in the polity score reduces the number of emigrants by 4,555 (Appendix 4, Table 2, Regression 2-3.1). Additionally, since the coefficient of regime duration is always insignificant except in regression 2-1.4, the durability of the regime authority seems not to influence forced migrant movements.

Consistent with our expectations, we also find that the coefficients related to the GDP are significant and negative for both the 'contemporaneous' and the 'lagged' variable. In consequence, the richer is a country the lower is the incentive of its habitant to abandon it. More precisely, a one point increase in the log of the GDP per capita, i.e. a 2.7 increase in the GDP, approximately divides the number of emigrants by three (Table 6, Regressions 1-1.1, 1-1.2, 2-1.1 and 2-1.2).

With regard to the population size, the coefficients are almost always negative and non significant in the regressions with 'contemporaneous' explanatory variables (except for the Arellano-Bond model). Perhaps because of endogeneity, the results become more significant once the lagged

value of the 'population size' is considered, especially in the regressions with the 'presence of civil war' as the main independent variable. This indicates that the more populated is a country in year t, the lower is the forced migrant flow in the next year. Although the negative sign of the population variable is surprising, we should remember here that small African countries, such as Rwanda, Burundi, Uganda and Liberia are at the origin of important refugee movements.

Except some specific cases, the quantity of persons killed and the total damage caused by natural disasters have no significant impact on the forced migration flows. Indeed, although we may expect an increasing incentive to flee one's country the higher is the number of persons killed by natural disasters and the more elevated is the total damage, i.e. the higher is the probability of one's home destruction, we need here to bear in mind that the UNHCR definitions of forced migration consider exclusively individuals who emigrate "owing to a well founded fear of being persecuted". Finally, the Arellano-Bond model surprisingly indicates that intensive forced migration outflow in year t reduce the outflow in the year t+1. Nonetheless, because the coefficients are small and almost equal to zero, there seems to be no significant temporal interdependence in our data.

To sum up, we have assessed that the presence of a conflict in a given country increases the number of forced migrants deciding to abandon this country. However, many questions have not yet been answered. Do all the types of conflict have the same impact on forced migration? Is the intensity or the type of incompatibility (government/territorial) influencing refugees in their decision to abandon their country? With the intention to answer to these questions, we run the same regressions as before adding new regressors and considering, for each year, exclusively countries in conflict. From the results reported in Table 7 here below and in Table 6 of Appendix 4, we see that the random effects and the zinb models give evidence that different types of conflicts have diverging impacts on forced migration. Interstate armed conflicts have for instance a lower effect on forced migration outflows than internationalized internal armed conflict with intervention from other states (control group). Moreover, the intervention from other states in an internal armed conflict does not lead to a surge in migration displacements. Add to this, the forced migration outflow in year t decreases if, in the previous year, the conflict is a territorial dispute instead of being a governmental dispute. Finally, individuals have higher incentive to emigrate in a given year; the higher is the intensity level, i.e. the higher is the number of conflict victims, in their origin country in this same year.

TABLE 7 – CONFLICT CHARACTERISTICS AND FORCED MIGRATION

dependent variable : forced migrant outflow	Reg 5-1.1	Reg 5-1.1 (inflate)	Reg 5-1.2
	contemporaneous explanatory variables		one-year lagged explanatory variables
territorial dispute	0.119 [0.701]	0.514 [0.243]	-1.051 [0.029]*
interstate conflict	-2.251 [0.000]**	-25.874 [0.000]**	-2.042 [0.025]*
internal conflict	-0.146 [0.522]	0.555 [0.161]	0.236 [0.470]
intensity level	0.611 [0.024]*	-0.250 [0.437]	0.453 [0.218]
conflict in neighbour countries	4.014 [0.000]**	-0.172 [0.745]	1.618 [0.005]**
polity index	-0.028 [0.234]	0.054 [0.133]	-0.050 [0.129]
regime duration	-0.006 [0.388]	-0.001 [0.405]	0.020 [0.014]*
killed by natural disasters	0.000 [0.000]**	0.000 [0.185]	0.000 [0.012]*
natural disaster's damage	0.000 [0.265]	0.000 [0.115]	0.000 [0.707]
log (population)	-0.183 [0.148]	-0.112 [0.493]	-0.414 [0.101]
log (gdp)	-1.221 [0.000]**	-0.269 [0.0.131]	-1.081 [0.000]**
Constant	16.473 [0.000]**	2.989 [0.246]	21.559 [0.000]**
ln alfa	0.344 [0.001]**	0.344 [0.001]**	0.719 [0.001]**
alfa	1.410	1.410	2.052
Wald chi-square	449.180	449.180	188.580
Log likelihood	-1772.758	-1772.758	-1809.602
Observations	239	239	244

Note: Robust p values in brackets
Baseline model: zero inflated negative binomial
* significant at 5%; ** significant at 1%

TABLE 8 – CIVIL WAR CHARACTERISTICS AND FORCED MIGRATION

dependent variable : forced migrant outflow	Reg 6-1.1	Reg 6-1.1 (inflate)	Reg 6-1.2
	contemporaneous explanatory variables		one-year lagged explanatory variables
ethnic war	-0.267 [0.510]	0.927 [0.101]	0.326 [0.457]
number of deaths	0.000 [0.073]	0.000 [0.007]**	0.000 [0.013]*
war duration (in years)	-0.004 [0.665]	0.007 [0.614]	-0.014 [0.131]
war in the 10 preceding years	-0.206 [0.638]	0.672 [0.204]	-0.165 [0.726]
civil war in neighbour countries	2.395 [0.000]**	1.885 [0.083]	1.169 [0.108]
polity index	0.016 [0.665]	0.072 [0.122]	-0.036 [0.224]
regime duration	-0.019 [0.103]	-0.007 [0.56]	0.019 [0.012]*
killed by natural disasters	0.000 [0.000]**	-0.001 [0.17]	0.000 [0.063]
natural disasters' damage	0.000 [0.258]	0.000 [0.067]	0.000 [0.443]
log (population)	-0.133 [0.488]	0.162 [0.507]	-0.606 [0.009]**
log (gdp)	-0.935 [0.000]**	0.045 [0.838]	-1.132 [0.000]**
Constant	16.439 [0.000]**	-5.739 [0.17]	25.398 [0.000]**
ln alfa	0.438 [0.000]**		0.519 [0.000]**
alfa	1.549		1.680
Wald chi-square	178.820		164.700
Log likelihood	-1267.919		-1158.769
Observations	159	159	145

Note: Robust p values in brackets
Baseline model: zero inflated negative binomial
* significant at 5%; ** significant at 1%

Making the same reasoning for civil wars, we run similar regressions considering exclusively countries at war and including new independent variables: the war type, the war outcome, the number of deaths, the war duration and a dummy taking value 1 if, in a given year, a war took place in the ten preceding years. From the results reported in Table 8 and in Table 7 in Appendix 4, we point out that according to the zinb and Tobit models; individuals have higher incentive to emigrate in a given year, the higher is the number of wars' victims in their origin country. Because the number of observations of this last category of regressions is small (around 240 for conflict regressions and 150 for civil war ones), these results should be interpreted with care.

3.2. Conflict and civil war onset regressions

We start this section by re-emphasizing that the large majority of the refugees do not contribute to the onset of conflict and never engage in fighting. In fact, only 5% of the total refugee inflow is associated with conflict and civil war onsets (see Table 9).

TABLE 9 – REFUGEES AND CONFLIT/CIVIL WAR ONSET

	conflict onset			civil war onset			ethnic civil war onset			non ethnic civil war onset		
	No	Yes	Total	No	Yes	Total	No	Yes	Total	No	Yes	Total
Refugees	727	35	762	569	30	599	611	22	633	731	8	739
	(95%)	(5%)		(95%)	(5%)		(98%)	(2%)		(99%)	(1%)	

*percentages in parenthesis

For this second type of regressions, the baseline model is the probit model (Model 1) estimated in Table 10 for conflict onset regressions and in Tables 11 and 12 for civil war onset. While the OLS, the logit and the random effects probit models are reported in Appendix 5 (Model 2, 3 and 4 respectively), the random and fixed effects linear models are not included in the appendix because the inferences one draws from these models are very similar to those drawn from some other models we report here. For each of these models, we moreover consider three cases according to the origin of migrants: refugees coming from neighbour countries, those coming from non neighbour ones and refugees in general. In each of these cases, we run two regressions: the first considers contemporaneous independent variables while the second uses one year lag of all our regressors. We do so to limit biases caused by endogeneity, particularly reverse causation, and because we do not necessarily expect an immediate impact of refugees on the risk of conflict onset. As the estimates of the lagged forced migration inflows ignore conflicts that occur during the first year of a refugee crisis, this approach is not without flaws. In consequence, we report results for the lagged and the non lagged value of the refugee inflow.

TABLE 10 – FORCED MIGRATION AND THE SPREAD OF CONFLICTS

dependent variable : conflict onset	Reg 1-1.1	Reg 1-1.2	Reg 1-1.3	Reg 1-1.4	Reg 1-1.5	Reg 1-1.6
	explanatory variables					
	contemp-oraneous	one-year lagged	contemp-oraneous	one-year lagged	contemp-oraneous	one-year lagged
	origin of migrants					
	all countries		neighbour countries		non neighbour countries	
forced migrant inflow	-0.058 [0.027]*	-0.004 [0.477]	-0.069 [0.024]*	-0.019 [0.277]	-0.823 [0.154]	-0.016 [0.756]
polity index	-0.001 [0.521]	0.001 [0.354]	-0.001 [0.368]	0.000 [0.686]	-0.001 [0.467]	0.001 [0.632]
conflict in neighbour countries	0.004 [0.838]	0.009 [0.640]	0.006 [0.751]	0.005 [0.803]	0.003 [0.825]	0.004 [0.850]
ethnic frac.	-0.020 [0.738]	-0.017 [0.769]	-0.018 [0.759]	-0.020 [0.728]	-0.017 [0.679]	-0.024 [0.686]
language frac.	0.109 [0.035]*	0.084 [0.081]	0.085 [0.115]	0.060 [0.263]	0.052 [0.149]	0.062 [0.268]
religious frac.	-0.083 [0.000]**	-0.077 [0.001]**	-0.069 [0.005]**	-0.066 [0.007]**	-0.044 [0.005]**	-0.067 [0.007]**
number of transborder ethnies	-0.008 [0.190]	-0.001 [0.919]	-0.004 [0.571]	0.005 [0.520]	-0.002 [0.614]	0.005 [0.537]
log (population)	0.023 [0.006]**	0.018 [0.023]*	0.020 [0.018]*	0.016 [0.070]	0.013 [0.017]*	0.016 [0.076]
log (gdp)	-0.018 [0.132]	-0.007 [0.438]	-0.023 [0.057]	-0.013 [0.205]	-0.015 [0.073]	-0.013 [0.205]
number of preceding peace years	0.001 [0.005]**	0.002 [0.001]**	0.001 [0.005]**	0.002 [0.001]**	0.001 [0.006]**	0.002 [0.001]**
Wald chi-square	26.900	20.100	21.090	20.670	19.980	23.420
Observations	658	601	658	630	658	630

Note: Marginal probit coefficients
Robust p values in brackets
Baseline model: probit
* significant at 5%; ** significant at 1%

TABLE 11 – FORCED MIGRATION AND THE SPREAD OF CIVIL WARS

dependent variable : civil war onset	Reg 2-1.1	Reg 2-1.2	Reg 2-1.3	Reg 2-1.4	Reg 2-1.5	Reg 2-1.6
	explanatory variables					
	contemp-oraneous	one-year lagged	contemp-oraneous	one-year lagged	contemp-oraneous	one-year lagged
	origin of migrants					
	all countries		neighbour countries		non neighbour countries	
forced migrant inflow	0.025 [0.054]	0.024 [0.066]	0.039 [0.020]*	0.030 [0.086]	-0.036 [0.544]	0.034 [0.434]
polity index	0.002 [0.192]	0.002 [0.207]	0.002 [0.404]	0.002 [0.414]	0.001 [0.541]	0.002 [0.490]
civil war in neighbour countries	-0.008 [0.717]	0.004 [0.863]	0.003 [0.897]	0.015 [0.520]	0.007 [0.749]	0.017 [0.469]
ethnic frac.	0.177 [0.169]	0.175 [0.172]	0.137 [0.309]	0.142 [0.311]	0.149 [0.271]	0.145 [0.296]
language frac.	-0.074 [0.492]	-0.071 [0.519]	-0.109 [0.395]	-0.118 [0.379]	-0.112 [0.381]	-0.111 [0.402]
religious frac.	-0.030 [0.420]	-0.032 [0.377]	-0.018 [0.614]	-0.017 [0.641]	-0.016 [0.650]	-0.018 [0.630]
number of transborder ethnies	-0.001 [0.864]	0.003 [0.691]	-0.001 [0.931]	0.005 [0.558]	-0.001 [0.947]	0.004 [0.617]
log (population)	0.007 [0.395]	0.004 [0.645]	0.000 [0.985]	-0.005 [0.568]	0.001 [0.889]	-0.004 [0.617]
log (gdp)	-0.009 [0.425]	0.001 [0.954]	-0.025 [0.058]	-0.017 [0.153]	-0.026 [0.053]	-0.016 [0.156]
number of preceding peace years	0.000 [0.310]	0.000 [0.265]	-0.001 [0.068]	-0.001 [0.032]*	-0.001 [0.065]	-0.001 [0.028]*
Wald chi-square	19.370	20.360	23.490	16.400	16.400	17.140
Observations	515	469	541	492	541	492

Note: Marginal probit coefficients
Robust p values in brackets
Baseline model: probit
* significant at 5%; ** significant at 1%

TABLE 12 – FORCED MIGRATION AND THE SPREAD OF ETHNIC CIVIL WARS

dependent variable : ethnic civil war onset	Reg 3-1.1	Reg 3-1.2	Reg 3-1.3	Reg 3-1.4	Reg 3-1.5	Reg 3-1.6
	explanatory variables					
	contemp-oraneous	one-year lagged	contemp-oraneous	one-year lagged	contemp-oraneous	one-year lagged
	origin of migrants					
	all countries		neighbour countries		non neighbour countries	
forced migrant inflow	0.020 [0.009]**	0.494 [0.013]*	0.031 [0.003]**	0.024 [0.015]*	-0.021 [0.540]	0.020 [0.455]
polity index	0.000 [0.973]	-0.018 [0.608]	0 [0.777]	-0.001 [0.539]	-0.001 [0.647]	-0.001 [0.461]
civil war in neighbour countries	0.008 [0.555]	0.303 [0.493]	0.015 [0.331]	0.017 [0.255]	0.018 [0.254]	0.019 [0.212]
ethnic frac.	0.032 [0.696]	0.442 [0.840]	-0.008 [0.922]	-0.021 [0.804]	0.003 [0.971]	-0.014 [0.869]
language frac.	0.012 [0.845]	0.760 [0.647]	-0.004 [0.960]	0.006 [0.937]	-0.007 [0.922]	0.008 [0.915]
religious frac.	-0.032 [0.272]	-0.882 [0.279]	-0.024 [0.312]	-0.024 [0.335]	-0.023 [0.371]	-0.026 [0.336]
number of transborder ethnies	0.002 [0.604]	0.107 [0.419]	0.004 [0.457]	0.006 [0.274]	0.004 [0.467]	0.006 [0.340]
log (population)	0.007 [0.206]	0.180 [0.271]	0.003 [0.651]	0.002 [0.809]	0.003 [0.594]	0.002 [0.814]
log (gdp)	0.000 [0.981]	0.060 [0.723]	-0.012 [0.152]	-0.011 [0.206]	-0.012 [0.140]	-0.011 [0.219]
number of preceding peace years	0.000 [0.075]	-0.007 [0.297]	-0.001 [0.004]**	-0.001 [0.014]*	-0.001 [0.004]**	-0.001 [0.008]**
Wald chi-square	26.030	23.030	31.680	22.550	26.880	20.020
Observations	545	503	571	526	571	526

Note: Marginal probit coefficients
Robust p values in brackets
Baseline model: probit
* significant at 5%; ** significant at 1%

Additionally, since the relationship between refugee inflows and conflict onset may not be strictly linear, we also try with the natural logs of the forced migration inflows (after adding one to the base) and with a measure weighting the total number of migrants relative to the size of the host countries' population. Still, because the results obtained with these two variables are less significant and less interesting, we do not report them.
Finally, in order to check if the impact of refugees on conflict and civil war onsets varies from one region to the other, we also run all the onset regressions including interactive terms for the forced migrant inflows in the five African regions distinctly. Unfortunately, too many failures appear when running such regressions civil war and ethnic civil war onset as the dependent variables.

After having checked that the Wald chi-square test is always significant and that our models are pertinent, we first begin with a discussion of the impact of the presence of refugees in a recipient country on civil war onset in this same country. The results of the logit and the probit models show that refugees have a significant and positive impact on civil war onset. When dividing refugees in neighbour and non neighbour, it appears that while the former has a positive and significant impact on the start of a civil war, the latter has a negative and non significant effect. The probit regression with regional subdivision shows that the presence of non-neighbour refugees can even significantly reduce the civil war onset. Moreover, the increased probability of civil war seems to be immediate. Indeed, this probability in a given year is positively and significantly correlated with the refugee flow in this same year, while the flow in the previous year has no major impact on it. Let us bear in mind here the potential endogeneity problem between 'contemporaneous' forced migrant inflow and civil war onset.

Because probit coefficients are difficult to interpret, the presentation of the probit regressions' results above lists the 'marginal probit coefficients', which represent the impact of the explanatory variables on the dependent variable calculated at the sample means of the regressors. In the case of dummy independent variables, such as the presence of conflicts or civil wars in neighbouring countries, the marginal coefficients indicate the effect of going from 0 to 1 on the probability of civil war onset. We see in Table 11 that such a probability increases by 2.5% once 100,000 additional refugees arrive in the host country. When these refugees come from neighbour countries, the civil war onset probability increases by 3.9%.

We moreover compute predicted probabilities of civil war onset by setting a hypothetical baseline and varying the number of refugees keeping other values constant. We estimate how the presence

of refugees contributes to the predicted risk of civil war and what the predicted risk would have been in the absence of refugees. The results are reported in Table 13. In the baseline case, there are no refugees; the dummy representing the presence of a conflict or a civil war in a neighbour country is set at 1 (because in 80% of the observations this variable takes value 1); and all the others values are fixed at their means. With no refugee flows, our model predicts that civil war onset is approximately 4.2%. By increasing the neighbour refugee inflow by 2,500, which is the mean flow for all positive observations, the predicted probability jumps up by 30%, reaching 5.4%. With the entry of 100,000 neighbour refugees (the mean refugee stock in recipient countries), the risk of civil war more than doubles in comparison to the baseline situation, reaching a predicted probability equal to 10.8%.

TABLE 13 – PROBIT PREDICTED PROBABILITIES

	Civil War Onset	Ethnic Civil War Onset	Conflict Onset
Baseline	0.042	0.021	0.030
2,500 neighbour refugees	0.054	0.031	0.016
100,000 neighbour refugees	0.108	0.085	0.001

*Baseline: no refugees, presence of a neighbour country in conflict, all other variables at mean

Taking into account the distinction between ethnic and non ethnic civil wars, the results become even more significant. As we can see in Table 12 for the probit model and in Table 5 of Appendix 5 for the random effect probit one, the reported estimates give evidence that the refugees are more likely to raise the probability of an ethnic civil war onset than a non ethnic one. The results for non-ethnic civil war regressions are not reported here because of too many failures in running the regressions. Nonetheless, the coefficients of the variable 'forced migrant inflow' are negative and non significant in other simplified non ethnic civil war onset regressions. In addition, as long as the considered dependent variable is 'ethnic civil war onset', the probit coefficient for neighbour refugees is positive and significant at 1% while the coefficient for non neighbour refugees is not significant. Moreover, since we can draw the same conclusions for the lagged value of refugee flows, the risk of a new ethnic civil war in a given year is amplified by the arrival of neighbour refugees in the same year and in the previous year. Finally, according to Table 13, the predicted probability of ethnic civil war onset equals 2.1% with no refugees. The arrival of 2,500 neighbour refugees raises this predicted probability by 45% in the year of the inflow and by 35% in the succeeding year, reaching respectively 3.1% and 2.9%. By increasing the number of neighbour refugees by 100,000, the baseline probability is multiplied by three in the

year of the inflow and by two in the succeeding year, leading to a risk of ethnic civil war equal to 8.5% and 6.7% respectively.

In a broader context, let us now turn to the onset of conflicts. All the models we use, with the exception of the random effect probit model, show that refugees are significantly and negatively correlated with the onset of conflicts. This conclusion can however not been attributed to refugees in general, since only neighbour refugees appear to consistently decrease this risk. As reported by Table 13, the influx of 2,500 neighbour refugees in a given year halves the risk of conflict: the predicted probability of the onset of conflict drops from 3 to 1.6%. The entry of 100,000 neighbour refugees almost completely eliminates the risk of conflict, reducing it by 95%. Moreover, Table 10 indicates that the conflict onset probability is reduced by 5.8% with the arrival of 100,000 refugees and by 6.9% if those 100,000 refugees come from neighbour countries. In comparison to civil war onset regressions, the magnitude of the effect of refugees is larger for conflict onsets.
Finally, the results obtained in Table 6 of Appendix 5 bring into light the diverging impact among regions of the presence of refugees on the risk of new conflicts. In comparison to South Africa (control group), the probit and the logit models give evidence that refugees are significantly less negatively correlated with the onset of conflicts in East and West Africa. It could hence be possible that the presence of refugees decreases the risk of a new conflict in South, Central and North Africa, while their presence increases this risk in East and West Africa.

Since the hypothetical baseline comparison profile may not be appropriate for specific African country analyses, we use another methodology which computes predicted probabilities for a specific country of interest in a given year. Considering first Sudan, the 2006 largest refugee-receiving country, we obtain that in 2006 the predicted probability for the onset of civil war was 7% with no refugees and went up to 10.2% with the 52,732 neighbour refugees that Sudan hosted in 2006. For conflicts, this risk decreased from 6.2% to 1.7%. Similarly, considering the Democratic Republic of the Congo in 1994, our model predicts that with the record number of 1,152,642 neighbour refugees from Rwanda, Burundi, Angola and Sudan hosted in 1994, the DRC's risk of civil war was equal to 99%. Because this predicted probability would have dropped to 5.5% if no refugees were fleeing to DRC and if none of the neighbours were at war, the civil war onset in the DRC was clearly highly influenced by the presence of refugees and by civil wars in neighbouring countries.

To sum up, we find first of all that neighbour refugees increase the onset of civil wars in the recipient countries, especially ethnic ones. Non neighbour refugees have instead no significant impact on the start of civil wars. So, the risk of discord between different linguistic, racial and religious groups, or between one of these groups and the state is intensified in the hosting country with the presence of neighbour refugees. This makes sense if we consider that 90 per cent of the African countries have trans-border ethnies and hence that neighbour refugees often possess ethnic ties with groups already present in the host country. So considered, the arrival of migrants may upset the ethnic balance, leading to competition among locals and ethnically different refugees, and may increase the risk of inter-group conflict. Conversely, their presence has lower impact on non-ethnic civil wars, based upon class, regional, or ideological differences.

Second, we find that neighbour refugees are negatively and significantly correlated with the onset of conflicts. Given that the magnitude of the effect of refugees is larger for conflict onsets than for civil war onsets, it appears that the presence of refugees has a larger impact on the decreased probability of conflict onset than on the increased probability of civil war onset. Taking into consideration how civil wars and conflicts differ in their respective definition, we may interpret the diverging impact of neighbour refugees on the onset of conflicts and civil wars in different ways. The first possible explanation could be that neighbour refugees contribute to the onset of intensive wars involving more than 1,000 deaths while they decrease the risk of less killing conflicts. As there is low correlation between the inflow of neighbour refugees and the number of persons killed in a conflict, this explanation is however not pertinent. Another more plausible justification is related to the type of the dispute. Because the civil war onset regressions show that the refugee inflow coefficients are strongly influenced by the type of the disputes (ethnic/non-ethnic) and since we do not have this information for conflicts, we make the assumption that refugees are positively correlated with the onset of ethnic conflicts. Considering the similarity between the definition of internal conflict and civil war; and remembering that 85% of the African civil wars coded in our dataset are ethnic, we deduce that most of the internal and internalized internal conflicts are triggered by ethnic disputes. In consequence, we may believe that neighbour refugees are positively correlated with internal conflict onset; and hence that they are negatively correlated with the onset of external conflicts (interstate and extra systemic). In this sense, the presence of neighbour refugees in a given country would surprisingly attenuate the probability of conflict between this country and another nation, or between this country and a non-state group outside its own territory. Conversely, the presence of neighbour refugees would increase the risk of internal conflicts. Because of too many failures in Stata when running the

conflict onset regressions separately for the different types of conflicts (few observations), we are unfortunately unable to test empirically this reasoning.

After having analyzed the impact of the presence of forced migrants on conflict and civil war onset, we shift now our attention toward the influence of other regressors.

First, we surprisingly find significantly positive coefficients' estimates for the variable 'number of preceding peace years' in all our regressions with conflict onset as the dependent variable. Yet, the coefficients remain relatively small. In contrast, we find evidence for dependence over time in the case of ethnic civil war onset, higher numbers of peace years decreasing the likelihood of onset. Because we do not necessarily expect the onset of conflict and civil war to be linear in the 'number of preceding peace years', we also run the regressions adding the squared value of the latter. The coefficients for this variable are however never significant. Additionally, we also try with a discrete variable taking value from 1 to 12: 1 when the number of peace years is smaller than 5; 2 when its value is included in the interval (5-10), etc. The results obtained for this discrete variable are very similar to the ones of the continuous variable.

Second, we find that while religious fractionalization seems to reduce the risk of a new conflict, linguistic fractionalization increases this risk. Both of them have moreover no influence on the start of a civil war. Finally, while the coefficients' estimates for the number of trans-border ethnic groups, the polity index and the GDP are almost never significant in our regressions, the results for the size of a country's population show strong positive relationship with the likelihood of conflict onset.

4. Policy implications

We have shown in the previous part that in comparison to the state of peace, the presence of a conflict or a civil war in a given country increases the forced migration outflow. Also having one neighbour at war raises the incentive to flee from the origin country. Since neighbour refugees are positively correlated with the onset of civil war in the receiving country, our results moreover suggest that the spread of civil wars arises in part from refugee movements, although they are also the cause of neighbouring effects. These outcomes have important normative and policy implications.

Because wars produce large populations of displaced persons and because those movements create security concerns in receiving countries, the African governments and the international community should put priority on breaking this vicious cycle through both conflict prevention and the research of durable solutions for forced migration crises. As we mentioned in the first part of the thesis, around one third of the world forced migrant population was residing in Africa at the end of 2007. This situation is even more alarming once the deaths tolls, ruined lives and the quantity of protracted refugee situations, caused partly by the large number of longstanding armed conflicts in Africa, are considered. In his study "No Solutions in Sight: the Problem of Protracted Refugee Situations in Africa", Jeff Crisp defines protracted refugees as those who "find themselves trapped in a state of limbo: they cannot go back to their homeland, in most cases because it is not safe for them to do so; they are unable to settle permanently in their country of first asylum, because the host state does not want them to remain indefinitely on its territory; and they do not have the option of moving on, as no third country has agreed to admit them and to provide them with permanent residence rights." In 2005, the major protracted refugee situations were observed in Burundi with 444,000 protracted refugees from Tanzania and in Algeria with 165,000 refugees from Western Sahara (UNHCR 2005).

4.1. Solutions to the forced migration problem

It is commonly said that there exist three 'durable' solutions to the refugee problem: local integration, voluntary return to the countries of origin, or resettlement in a third country. While the solution of resettlement was promoted from 1945 until 1985, the attention shifted to voluntary and forced repatriation from the mid-1980s onwards. Because refugees were increasingly considered as a threat to local security and economy in recipient countries (especially after the Great Lakes crisis), repatriation was more and more regarded by the receiving

governments as the best solution to refugee problems. In recent years, the 'repatriation rather than integration' approach has been also adopted by many donor countries. Indeed, instead of focusing their attention on protracted situations where a durable solution for the refugees is difficulty found, the international actors are mainly preoccupied by large flows of individuals moving from origin to asylum countries. So, while progress was made in developing the responsiveness of each of the three durable solutions outlined before, little attention was paid on how they could be applied for protracted refugee problems. As a result, some assistance programs have been deprived of funds (Crisp 2002). In her draft "A beneficiary-based evaluation of UNHCR's program in Guinea, West Africa", Tania Keiser writes: "Moving around the camps, one routinely hears complaints that the quality and quantity of food assistance has declined. When the 'old' refugees first arrived, they received up to twelve items in the food basket. Today they receive only three."

Relating to the concept of 'local integration', three dimensions can be underlined: a legal, a social and an economic dimension. First, the legal dimension refers to the rights conceded to forced migrants, including the basic human rights to which they are entitled under the provisions of the 1951 Refugee Convention and other international instruments (the right to enjoy freedom of movement, to have access to public services such as education, to seek employment, etc). Second, local integration can be regarded as an economic process allowing refugees to "establish sustainable livelihoods, attain a growing degree of self-reliance, and become progressively less reliant on state aid or humanitarian assistance" (Crisp 2002). A refugee who does not contribute to the local economy because of the impossibility of finding a place in the labour market, and whose living standards are lower than the ones of the locals, cannot be considered to be locally integrated. Third, the social dimension enables the refugees to live without the fear of being "discriminated, intimidated or exploited by the authorities or people of the asylum country". Refugees are entitled to maintain their own identity, become part of the host society and live together in an acceptable way, without assimilating to the host population.

'Local integration' in the country of asylum has never been seriously considered as a solution to the forced migration problem in Africa. To illustrate this, let us note that African refugees are still nowadays lacking the basic human rights they are theoretically entitled under the provisions of the 1951 Refugee Convention. Cases of refugees raped by soldiers and rebel groups are often observed. Moreover, forced migrants often suffer from limited freedom of movement and are obliged to stay in camps for years. As Jeff Crisp mentions "the right to life has been bought at the cost of almost every other right". In Kenya for instance, the 65,000 Sudanese, Somalis and

Ethiopians refugees living in the Kakuma camp, benefit from no freedoms except from being allowed to remain there, and escape from the violence existing in their home country.

Because of the multidimensional nature and the complexity of the African refugee situation, there exists no easy and absolute solution to the forced migration problem. While some proposals have been implemented in the past without success, others are nowadays simply politically undoable. Development programs which provide aid to refugees and benefits to the host population have for instance been put into practice in some African countries but were a failure. Because of the high risk of early pushback, proposals such as the "complete freedom of move" for long-term refugees allowing them to settle wherever they wish in their country of asylum would not appear to be politically viable. While it is thus difficult here to find the perfect solution to the refugee problem, there still exist suggestions that certainly would mitigate it.

Local integration

Since local integration would improve the quality of life for refugees and would allow them to become financially independent, we are of the opinion that the international community should highly promote this concept. The adoption of this principle would also enable refugees to take part and contribute to the economy of the host country. This would lead their presence to be increasingly regarded as a benefit, rather than a burden, and would reduce violence against them. Either because forced migrants sometimes prefer to return home or because the country of asylum does not want them to settle permanently, local integration is not always a feasible solution, especially when a large proportion of African refugees is concerned. Still, the potential for local integration exists when there are surplus of agricultural land or economic opportunities for refugees in the country of asylum; or when refugees belong to the same ethnic group than the host population and have less difficulty to become socially integrated.

With intent to enhance refugees' local integration, several requirements need to be satisfied (Crisp 2002):

- Ensure that forced migrants benefit from the rights they are entitled under international law.
- Ensure that forced migrants receive adequate health cares in camps and that the infrastructure in the camps meets the required standards.
- Enhance the productivity of lands given to forced migrants.
- Increase the expertise of humanitarian organizations in the field.

- Enhance the quantity and quality of education available to refugees. With so many children growing up in camps, this requirement is fundamental as it could help them to build their lives in a different way. Much greater efforts should hence be made to understand and develop their skills. Moreover, past experience in Africa gives evidence that the refugees who have lived in camps for years, without receiving education, without working and surviving on humanitarian assistance, are less prepared to go home and contribute to the reconstruction of their own country. Conversely, educated refugees going back to their origin land conduce to the attenuation of conflicts. This last consideration brings into light the importance of promoting the principle of local integration in order to favour conflict attenuation in refugee-sending countries. Notwithstanding, African camps are still nowadays conceived as holding centres for survival and the education level available for refugees is declining.

Voluntary instead of forced repatriation

In recent years, recipient countries have forced an increasing number of refugees to go back home. Because forced repatriation is contrary to international and African refugee law, the international community should absolutely promote the principle of voluntary repatriation. By forcing refugees to go back in a period of conflicts and persecutions, forced repatriation destabilizes the country of origin and jeopardizes the safety of refugees.

The efficient response of Malawi to the refugee crisis of the '80s and early '90s illustrates the possibility for hosting countries to reduce potential security risks caused by the arrival of forced migrants. Despite its extreme poverty, Malawi was able to manage the 2 million immigrants (10% of Malawi's population) forced to flee the cruel conflicts in Mozambique. Local integration efforts such as refugees' access to land and employment opportunities; and collaboration with the UNHCR and the World Food Program prevented the diffusion of conflict from Mozambique (Salehyan 2007). In the year 2000 the UNHCR reported that 90 per cent of the forced migrants present in Malawi were doing some productive work such as making crafts, raising livestock, and processing maize. As soon as the conflict in Mozambique ended, Malawi, Mozambique and the UNHCR cooperated in voluntary repatriation efforts. From a policy point of view, the case of Malawi shows that generous asylum programs can attenuate armed conflict not only between states but also in the refugee-sending countries.

4.2. Conflict Prevention

In Africa, the large majority of conflicts have continued for decades, passed unresolved from one generation to another and interrupted by cessation of fighting. Only two of the 32 sub-Saharan African countries that experienced violent conflicts during the period 1980-2006 were able to achieve peace for at least a decade. And only nine of the 154 cessations of fighting lasted ten years (UCDP/PRIO Dataset). Many of the peace agreements in Africa were indeed imposed by outside pressure, and have frozen conflicts rather than resolve them.

Without the wish to diminish the importance of legitimate humanitarian support to migrants, our previous empirical results suggest that massive forced migration is more than a humanitarian issue. Instead of reacting to forced migration exclusively through humanitarian aid, the international community as a whole should also give greater attention to conflict prevention measures. More intensive mediation, peace building and peacekeeping efforts should be undertaken by regional and international organizations such as the African Union and the United Nations. Indeed, even if conflicts are certainly matters of domestic politics, the poorest states are often the least able to find peaceful solutions to resolving conflicts. For this reason, regional and international interventions may be required as they have an economic and political influence in the countries where wars are taking place. Too often, however, foreign countries and international organizations have been reluctant to intervene in internal disputes. Moreover, in the past experience of Africa, these external intervention forces sometimes became themselves sources of instability and human rights violations.

In the following we discuss two solutions to preventing resurgence of conflict: building capacity for peace and closing/opening borders.

Closing/opening borders

Because the empirical results obtained in section 3 indicate that the presence of refugees increases the probability of civil war onset in the country of asylum, one may propose to limit the access to new refugees, and hence close the borders, as a solution to attenuating the risk of civil war. Notwithstanding, since another result of the previous section is that the presence of refugees may decrease the probability of conflicts in some regions of Africa, mainly South, North and Central Africa, closing borders in those regions seems to be an inappropriate solution. This consideration is even more important once we consider that refugees have a larger impact on the

decreased probability of conflict onset than on the increased probability of civil war onset. Even when the refugee-receiving country is poor and unable to provide enough assistance to forced migrants, opening borders seems hence to be a more appropriate solution for conflict prevention in North, South and Central Africa, as the presence of refugees may attenuate the risk of conflicts.

Moreover, let us point out that limiting the refugees' entries, and hence sending them back in their origin country, has often led in the past history of Africa to a surge of violence in the origin country, resulting sometimes in a surge of violence in the recipient country itself. The closure of borders can finally also generate interstate conflicts between the refugee-sending and the potential receiving countries. This happened for instance in Kenya in January 2007, when Kenya shut its border with Somalia and deployed tanks and helicopters to enforce the border closure.

Besides the question of opening/closing the borders, the size and the location of camps are other important factors. Because refugees are perceived as a security threat, many host countries keep the camps along the border in order to prevent migrants from mixing with the home population. In other cases, host governments provide financial support to rebel refugee groups and maintain camps at the border to make possible the penetration in enemy territory. As a result, many security incidences in refugees' camps have taken place near the borders. According to *Refugees International*, "the 25,000 Liberian refugees in the Ivory Coast are today in imminent danger. At Nicla camp, near the western border, more than 8,000 refugees face ongoing fighting and active recruitment from belligerent forces". In October 2000, *Refugees International* also reported on the situation at refugee camps in the Gueckedou region in Guinea close to fighting on the Sierra Leone side. "Combatants infiltrated camps, and rebel incursions had included an attack at Koulou-Bengu in which seven refugees died, and an unknown number of civilians were captured".

Although the UNHCR Handbook for Emergencies recommends that refugees "should be settled at a reasonable distance from international borders", and the *Sphere Humanitarian Charter and Minimum Standards in Disaster Response* suggests that a safe distance from external threats is usually "not less than 50 km", there exists no international refugee law specifying the size or location of camps. Efforts should be made to implement such lacking standards.

Build capacity for peace

We report a non-exhaustive list of the priorities required to build capacity for peace (Fuduka-Parr and Picciotto 2007).

- Increase the transparency and representativeness of African governments.
- Reduce horizontal inequalities through policies favouring pro-poor growth, progressive taxation and universal access to social services.
- Increase the intervention of civil society in policy debate (important role of civil society in conflict mediation).
- The structure of land ownership is often skewed in Africa and therefore land disputes are important sources of conflicts. Those disputes have been aggravated by infrastructure investments which have forced poor farmers to abandon their land. A priority to preventing conflict is hence to redistribute land in a more equitable way.
- It has been demonstrated that the more dependent on natural resources, the higher is the probability of a country experiencing a conflict (Hoeffler). This is mainly due to the fact that in Africa all revenues from natural resources are controlled by local elites able to purchase arms and recruit combatants to control the state by violent means. Another priority to preventing conflict is hence to redistribute the revenues from the control of natural resources in a more equitable way.
- In recent years, the labour force is increasing in Africa. Because growth is not sufficient to create enough jobs, the unemployment rate among African youth is the highest in the world. In response to their deprivations, the African young people often resort to violence. Consequently, the risk of civil war in Africa is 2.5 times higher than in other continents (Cincotta) and Africa is also home of 80 per cent of the world estimated total of 300,000 young soldiers. Addressing youth unemployment and favouring education are hence important priorities to preventing conflict.

Conclusion

The point of departure for this study is the situation of conflicts in Africa and their dramatic impact on forced migration. We propose to investigate, on one hand, the correlation between conflicts and forced migration in Africa, and on the other, the potential solutions able to attenuate these alarming situations. Because these arguments have never been put to a systematic empirical test, the main contribution of this study is to analyze empirically the impact of conflicts on forced migration outflows and the effect of refugee inflows on the onset of conflicts.

By conducting statistical analyses using an original dataset, including a panel of 43 African countries for the years 1960-2006, we draw the following main conclusions:
(1) The presence of a conflict or a civil war in a given year significantly increases the forced migration outflow in the same year and in the succeeding year. With respect to countries at peace, the forced migration outflows in countries in conflict or at war are respectively 18 and 90 times higher. This conclusion cannot be attributed to an effect of civil wars in general, as ethnic civil wars appear to have an effect which is twice as high as the one of non-ethnic wars.
(2) The decision of migrants to abandon their homeland is influenced not only by the presence of a civil war in their own country, but also by civil wars in neighbouring states. Indeed, the forced migration outflow is 4 times higher in countries having at least one neighbour at war.
(3) Different types of conflicts have diverging impacts on forced migration. Interstate armed conflicts are for instance found to have a lower effect than internationalized internal armed conflicts. Also the type of dispute incompatibility (territorial/governmental) matters in determining the forced migration outflow. Finally, the richer and the more democratic is a country, the lower is the incentive of its habitant to abandon it.
(4) Refugee inflows significantly increase the risk of civil war onset in recipient countries, particularly ethnic civil wars. Because only refugees from neighbouring states appear to consistently increase this risk, our results suggest that the spread of civil wars arise in part from refugee movements, although they are also the cause of neighbouring effects. We may hence conclude that the presence of neighbour refugees intensifies the risk of discords between different linguistic, racial and religious groups in the recipient country. Conversely, their presence has lower impact on non-ethnic civil wars, based upon class, regional, or ideological differences. More precisely, by predicting the probabilities of civil wars from our models, we obtain that in comparison to a situation with no refugees, the inflow of 100,000 neighbour refugees more than doubles the risk of a new civil war, raising it from 4.2 to 10.8%, and multiplies the risk of new ethnic civil wars by three.

Considering a more specific case: the Democratic Republic of the Congo; our model predicts that with the record number of more than one million neighbour refugees from Rwanda, Burundi, Angola and Sudan hosted in 1994, the DRC's risk of civil war was equal to 99%. Because this predicted probability would have dropped to 5.5% if there were no refugee inflows and no civil wars in neighbouring states, the civil war onset in the DRC was clearly highly influenced by the presence of refugees and by civil wars in neighbouring countries.
(5) In opposition to the previous outcome, we find that refugee inflows significantly reduce the risk of a new armed conflict in hosting countries. Only neighbour refugees appear to consistently reduce this risk and the magnitude of the effect is larger for conflict than for civil war onset. Indeed, the influx of 100,000 neighbour refugees almost completely eliminates the probability of new conflicts in the refugee-receiving countries, reducing it by 95%. Furthermore, the models we use give evidence that this correlation is significantly more negative in South, North and Central Africa than in East and West Africa. Based on a reasoning centred on how civil wars and conflicts differ in their respective definition, we moreover believe that the reduction in the risk of a new conflict thanks to the presence of refugees is more related to interstate and extrasystemic conflicts than to internal conflicts.

These conclusions have important normative and policy implications. Because civil wars produce large populations of displaced persons and because those movements create security concerns in receiving countries, African governments and the international community should put priority on breaking this cycle through both conflict prevention and the research of durable solutions for forced migration crises. Two solutions to the forced migration problem are suggested: promoting local integration and replacing forced repatriation with voluntary repatriation. Moreover, it is suggested that rather than reacting to refugee crises, the international community as a whole should give greater attention to conflict prevention measures through conflict mediation, peace building and peacekeeping efforts. In some regions of Africa, mainly South, North and Central Africa, we argue that opening borders may be a solution for conflict prevention.

With the understanding we gained, we conclude with some directions for empirical improvement and for further analysis. With respect to our analysis, more reliable and valid measures of the forced migrant flows would certainly increase the accuracy of the results we obtained. The revision of the collecting methodology of scarce data on internally displaced persons and asylum seekers would help us to better capture the effect of our variables of theoretical interest by allowing us to include these data in the calculation of the forced migration stocks and flows. Making uniform the way in which governments count immigrants and making clearer the

UNHCR definitions of refugees and asylum seekers would also improve the accuracy of forced migration data. Finally, with respect to extensions, we believe that one worthwhile direction for future inquiry would be the analysis of in depth case studies that exploit the time series dimension. Those case studies would provide us with more information on the impact of our regressors in more specific forced migration and conflict events.

References

Papers and books

A. Alesina, A. Devleeschauwer, W. Easterly, S. Kurlat and R.Wacziarg. 2003. Fractionalization. *Journal of Economic Growth, 8, 155-194.*

Anastasia Bermúdez Torres. FMO Thematic Guide: Gender and Forced Migration.

Andreas Beger, Will H. Moore. 2008. Looking Under the Hood: Ethnic Groups, Parity, and Civil War. *International Studies Association, San Francisco, CA, 26-29 March 2008.*

Andrew Bosson. 2007. Forced migration/internal displacement in Burma with an emphasis on government-controlled areas. *Internal Displacement Monitoring Center.*

Assefaw Bariagaber. 1997. Political Violence and the Uprooted in the Horn of Africa: A Study of Refugee Flows from Ethiopia. *Journal of Black Studies*, *Vol. 28, No. 1. pp. 26-42.*

Barry R. Posen. Military Responses to Refugee Disasters. *International Security, Vol. 21, No. 1, (Summer, 1996), pp. 72-111.*

Bayard Roberts. FMO Thematic Guide: HIV/AIDS, Conflict and Forced Migration.

Bruce Russett, Paul Huth, Hazem Ghobarah. Civil Wars Kill and Maim People—Long after the Shooting Stops.

B. S. Chimni. 1999. From resettlement to involuntary repatriation: towards a critical history of durable solutions to refugee problems. *UNHCR- Working Paper No. 2.*

Chaim Kaufmann. *1996*. Possible and Impossible Solutions to Ethnic Civil Wars. *International Security, Vol. 20, No. 4 (Spring 1996), pp. 136--175.*

Chaim D. Kaufmann. 1998. When All Else Fails: Ethnic Population Transfers and Partitions in the Twentieth Century. *International Security, Vol. 23, No. 2, pp. 120-156.*

Channe Lindstrom. 2003. Addressing the Root Causes of Forced Migration: A European Union policy of containment? RSC Working Paper No. 11.

Christpher F. Baum. An Introduction to Modern Econometrics Using Stata.

Christopher Rudolph. 2002. Security and the Political Economy of International Migration. *Institute of Governmental Studies Year.*

Davenport, Christian, Will H. Moore, and Steven C. Poe. 2002. Sometimes You Just Have to Leave: Domestic Threats and Forced Migration, 1964-1989.

David E. Cunningham, Kristian Skrede Gleditsch, Idean Salehyan. It Takes Two: A Dyadic Analysis of Civil War Duration and Outcome.

Douglas Woodwell. 2004. Unwelcome Neighbors: Shared Ethnicity and International Conflict During the Cold War. *International Studies Quarterly (2004) 48, 197–223.*

Edward Miguel, Shanker Satyanath, Ernest Sergenti. Economic Shocks and Civil Conflict: An Instrumental Variables Approach. *Journal of Political Economy, 2004, vol. 112, no. 4.*

Edward Miguel, John Bellows. 2006. War and Local Institutions in Sierra Leone.

Egide Rwamatwara. 2005. Forced migration in Africa: a challenge to development. *Wiener Zeitschrift für kritische Afrikastudien Nr.8/2005, 5. Jg.*

E. Melander & M. Oberg. 2003. Forced Migration: The effects of the Magnitude and Scope of Fighting. *Uppsala Peace Research Papers No. 8.*

Eric Werker. 2005. Refugee Camp Economies. *Presentation to the Workshop on the Economics of Forced Migration.*

Fatmata Lovetta Sesay. Refugees in developing countries: burden or benefit?

Felix Gerdes. 2006. Forced Migration and Armed Conflict: An Analytical Framework and a Case Study of Refugee-Warriors in Guinea.

Gerald Schneider, Nina Wiesehomeier. 2005. Rules that Matter Political Institutions and the Polarization-Conflict Nexus.

Gledistch, Nils Petter, Peter Wallensteen, Mikael Eriksson, Margareta Sollenberg, and Håvard Strand. 2002. Armed Conflict 1946-2001: A New Dataset. *Journal of Peace Research 39 (5):615-637.*

Gledistch, Ward. 2001. Measuring Space: A Minimum-Distance Database and Applications to International Studies. *Journal of Peace Research, vol. 38, no. 6, 2001, pp. 739–758.*

Halvard Buhaug, Scott Gates. 2002. The Geography of Civil War. *Peace Research Institute, Oslo (PRIO) 2002 Journal of Peace Research, vol. 39, no. 4, 2002, pp. 417–433.*

Heinrich Härke; Stefan Altekamp; David W. Anthony; Bettina Arnold; Stefan Burmeister; Margarita Díaz-Andreu; Pavel M. Dolukhanov; Leo Klejn; Philip L. Kohl; Cristina La Rocca; Suzanne Marchand; María Isabel Martínez Navarrete; Irina Podgorny; Walter Pohl; Nandini Rao; Kenneth M. Schoenberg; Ulrich Veit. Archaeologists and Migrations: A Problem of Attitude? *Current Anthropology, Vol. 39, No. 1. (Feb., 1998), pp. 19-45.*

Idean Salehyan. 2007. The Externalities of Civil Strife: Refugees as a Source of International Conflict. *Presented at the conference on "Migration, International Relations, and the Evolution of World Politics" (March 2007) .*

Idean Salehyan. Kristian & Skrede Gleditsch. 2004. Refugees and the Spread of Civil War.

James C.Murdoch, Todd Sandler. Economic Growth, Civil Wars, and Spatial Spillovers. *Journal of Conflict Resolution* 2002; 46; 91.

James D. Fearon, David D. Laitin. 2002. Ethnicity, Insurgency and Civil War. *American Political Science Review.*

James D. Fearon. 1995. Rationalist Explanations for War. *International Organization, Vol. 49, No. 3, (Summer, 1995), pp. 379-414.*

Jawaharlal Nehru University. 1999. Framework for durable solutions for refugees and persons of concern. *Core Group on Durable Solutions UNHCR Geneva.*

Jeff Crisp. 2002. No Solutions in Sight: the Problem of Protracted Refugee Situations in Africa. *Head, Evaluation and Policy Analysis Unit of UNHCR.* Working Paper 68.

Jeff Crisp. 2004. Local settlement of refugees: a conceptual and historical analysis. *Head,Evaluation and Policy Analysis Unit of UNHCR.* Working Paper 102.

Jeffrey M. Woodbridge. Econometric Analysis of Cross Section and Panel Data.

Jeremy Hein. 1993. Refugees, Immigrants, and the State. *Annual Review of Sociology, Vol. 19., pp. 43-59.*

Joan Esteban, Debraj Ray. 2005. A Model of Ethnic Conflict. *Instituto de Analisis Economico (CSIC)* .

Joan Esteban, Debraj Ray. 2006. Polarization, Fractionalization and Conflict. *Instituto de Analisis Economico (CSIC)* .

John Anarfi. 2004. From conflict to conflict: migration, population displacement and refugee flow: whither Africa?

Jose G. Montalvo. Marta Reynal-Querol. 2006. Civil wars, forced migration and malaria.

Jose G. Montalvo. Marta Reynal-Querol. 2007. Fighting against Malaria: prevent wars while waiting for the "miraculous" vaccine. *The Review of Economics and Statistics, February 2007, 89(1): 165–177.*

Jose G. Montalvo, Marta Reynal-Querol. 2005. Ethnic Polarization and the Duration of Civil Wars.

Kavita Singh, Unni Karunakara, Gilbert Burnham, Kenneth Hill. 2005. Forced Migration and Under-five Mortality: A Comparison of Refugees and Hosts in North-western Uganda and Southern Sudanz. *European Journal of Population (2005) 21: 247–270.*

Kangni Kpodar. 2007. Manuel d'initiation à Stata.

Kenneth A. Schultz. 2007. War as an Enforcement Problem: Interstate Conflict over Rebel Support in Civil Wars. *Stanford University.*

Klaus Deininger, Ana María Ibáñez , Pablo Querubin. Determinants of internal displacement and the desire to return: Micro-level evidence from Colombia

Kristian Skrede Gleditsch. 2007. Transnational Dimensions of Civil War. J*ournal of Peace Research, vol. 44, no. 3, 2007, pp. 293–309.*

Laura Nader, Elisabetta Grande. 2002. Current Illusions and Delusions about Conflict Management-In Africa and Elsewhere; *Law & Social Inquiry*, Vol. 27, No. 3. (Summer, 2002), pp. 573-594.

Laura Nader, Elisabetta Grande. 2002. Current Illusions and Delusions about Conflict Management-In Africa and Elsewhere *Law & Social Inquiry*, Vol. 27, No. 3. (Summer, 2002), pp. 573-594.

Lindsay Heger, idean Salehyan. 2007. Ruthless Rulers: Coalition Size and the Severity of Civil Conflict. *International Studies Quarterly (2007) 51, 385–403.*

M. Rowland, F. Nosten. 2001. Malaria epidemiology and control in refugee camps and complex emergencies.

M. Toole, R.Waldman. 1997. The Public Health aspects of complex emergencies and refugee situations. *Annu. Rev. Public Health 1997. 18:283–312.*

Maja Maksudova. The intensity of civil war: Does Ethnicity Really Matter?

Martin, Adrian. Environmental Conflict Between Refugee and Host Communities. *Journal of Peace Research* 2005; 42; 329.

Mathias Czaika, Krisztina Kis-Katos. 2007. Civil Conflict and Displacement Village-Level Determinants of Forced Migration in Aceh. *HiCN Working Paper 32.*

Michael W. Doyle, Nicholas Sambanis. 2000. International Peacebuilding: A Theoretical and Quantitative Analysis. *The American Political Science Review, Vol. 94, No. 4, (Dec., 2000), pp. 779-801.*

Benjamin Miller. Why some regions are peaceful and others are not. *Cambridge University Press.*

Monty G. Marshall and Keith Jaggers. 2005. Polity IV Project – Dataset User's Manual.

Mulenga Nkula. Refugees and Durable solutions: The case of Mozambique and Kosovo. *Electronic Publications from the University of Zambia, Lusaka. Published on the Internet by the SAP - Project at http://www.fiuc.org/iaup/sap/*

Myron Weiner. 1996. Bad Neighbours, Bad Neighbourhoods: An Inquiry into the Causes of Refugee Flows. *International Security*, Vol. 21, No. 1, pp. 5-42.

Myron Weiner. 1992-1993. Security, Stability, and International Migration. *International Security, Vol. 17, No. 3, (Winter, 1992-1993), pp. 91-126.*

Nicholas Sambanis. 2001. A Theoretical and Empirical Inquiry : Do Ethnic and Non ethnic Civil Wars Have the Same Causes? *Journal of Conflict Resolution* 2001; 45; 259.

Nicholas Sambanis, Ibrahim A.Elbadwi. External Interventions and the Duration of Civil Wars.

Nicholas Sambanis, Ibrahim A.Elbadwi. 2002. How Much War Will we see? Explaining the Prevalence of Civil War. *Journal of Conflict Resolution* 2002; 46; 307.

Nicholas Sambanis. 2003. Using Case Studies to Expand the Theory of Civil War. *CPR Working Papers: Social Development Department Environmentally and Socially Sustainable Development Network, Paper No. 5.*

Olaf J. de Groot. 2007. The Spill-Over Effects of Conflict on Economic Growth in Neighbouring Countries in Africa. *Bocconi University and IEP.*

Paul Collier. 2002. The Bottom Billion: Why the Poorest Countries are Failing and What Can Be Done About It.

Paul Collier, Anke Hoeffler. 2002. Aid, Policy and Growth in Post-Conflict Societies. *World Bank Policy Research Working Paper 2902.*

Paul Collier, Anke Hoeffler. 1998. On economic causes of civil war. *Oxford Economic Papers* 50 563-573.

Paul Collier, Lani Elliott, Håvard Hegre, Anke Hoeffler, Marta Reynal-Querol, Nicholas Sambanis. 2003; Breaking the Conflict Trap: Civil War and Development Policy. *World Bank Policy Research Report.*

Paul Collier, Anke Hoeffler. 2002. Greed and Grievance in Civil War. *The World Bank.*

Project on Internal Displacement. 2007. When Displacement Ends. A Framework for Durable Solutions. *The Brookings Institution-University of Bern.*

René Torenvlied, Carolien Klein Haarhuis. 2005. Polarization, fractionalization, and policy reform: anti-corruption policy-making in seven sub- Saharan African countries.

Refugee Study Center. 2007. Forced Migration review: Humanitarian reform: fulfilling its promise?

Refugee Study Center. 2003. Forced Migration review: African displacement: roots, resources and resolution.

Richard Akresh, Tom Bundervoet, Philip Verwimp. 2007. Civil War, Crop Failure, and Child Stunting in Rwanda.

Richard Akresh, Tom Bundervoet , Philip Verwimp. 2008. Health and Civil War in Rural Burundi.

Ruud Lubbers. 2004. Attaining Solutions for Africa's Refugees: Challenges and Opportunities. *UNHCR.*

Sahan Dissanayake, Dr. M. S. Rahman. The Causes and Consequences of Civil Conflict.

Sakiko Fuduka-Parr. Robert Picciotto. 2007. Integrating conflict prevention in development policy and aid agendas. *Policy Messages from the Wilton Park Conference: Conflict Prevention and Development Cooperation in Africa, a Policy Workshop.*

Sakiko Fuduka-Parr. 2008. Integrating conflict prevention in development and aid agendas. *GDN Conference.*

Susanne Schmeidl (1997). Exploring the Causes of Forced Migration: A Pooled Time-Series Analysis, 1971–1990. *Social Science Quarterly*, Vol. 78, pp. 284–308.

Susanne Schmeidl (1998). Comparative Trends in Forced Displacement: Refugees and IDPs, 1964–96. *Internally Displaced People: A Global Survey*, London: Earth Scan Publications, pp. 24–33.

Susanne Schmeidl, , J.Craig Jenkins (1998). The Early Warning of Humanitarian Disasters: Problems in Building an Early Warning System. *International Migration Review,* Vol. 26, pp. 471–486.

Singer J.David and Melvin Small (1994). *Correlates of War Project: International and Civil War Data, 1816–1992*, Ann Arbor, Michigan: Inter-university Consortium for Political and Social Research.

Stephen C. Averill, Sow-Theng Leong, Tim Wright. Migration and Ethnicity in Chinese History: Hakkas, Pengmin, and Their Neighbors. *The China Journal, No. 41. (Jan., 1999), pp. 242-244.*

Stephen M. Shellman, Brandon Stewart. 2006. Predicting Risk Factors Associated with Forced Migration: An Early Warning Model of Haitian Flight.

Stephen Philip Cohen. Sons of the Soil: Migration and Ethnic Conflict in India. *The Journal of Asian Studies, Vol. 40, No. 2, (Feb., 1981), pp. 415-41.*

Stergios Skaperdas. An economic approach to analyzing civil wars.

Ted Robert Gurr, Mark Woodward, Monty G. Marshall. Forecasting Instability: Are Ethnic Wars and Muslim Countries Different?

The United Nations High Commission for the Refugees. UNHCR Statistical Yearbook 2006.

The United Nations High Commission for the Refugees. UNHCR Statistical Yearbook 2005.

The United Nations High Commission for the Refugees. UNHCR Statistical Yearbook 2004.

The United Nations High Commission for the Refugees. UNHCR Statistical Yearbook 2003.

The United Nations High Commission for the Refugees. UNHCR Protracted refugee situations: the search for practical solutions.

The United Nations High Commission for the Refugees. UNHCR Global Trends 2007: Refugees, Asylum-seekers, Returnees, Internally Displaced and Stateless Persons.

The World Health Organization. Report 2006. Working together for health.

United Nations Expert Group Meeting on Population Distribution, Urbanization, Internal Migration and Development. 2008. An overview of urbanization, internal migration, population distribution and development in the world.

William B. Wood. Local Conflicts and International Dilemmas. *Association of American Geographers, Vol. 84, No. 4, (Dec., 1994), pp. 607-634.*

Will H. Moore. Stephen M. Shellman. Whither Will They Go? A Global Study of Refugees' Destinations, 1965–1995. *International Studies Quarterly (2007) 51, 811–834.*

Will H. Moore, Stephen M. Shellman. 2006. Refugee or Internally Displaced Person?: To Where Should One Flee? *Comparative Political Studies 2006; 39; 599.*

Will H. Moore & S.M. Shellman. 2005. What Have Empirical Models Taught Us About Forced Migration? *Workshop on the Economics of Forced Migration, MIT.*

Will H. Moore, Jacqueline H. Rubin. 2007. Risk Factors for Forced Migrant Flight. *Conflict Management and Peace Science*, 24:85–104, 2007.

Will H. Moore, Stephen M. Shellman. 2004 . Fear of Persecution, Forced Migration 1952-1995. *Journal of Conflict Resolution.*

Yinon Cohen. 1998 War and Social Integration: The Effects of the Israeli-Arab Conflict on Jewish Emigration from Israel. *American Sociological Review*, Vol. 53, No. 6. (Dec. 1988), pp. 908-918.

Zaryab Iqbal. Health and Human Security: The Public Health Impact of Violent Conflict. *International Studies Quarterly (2006) 50, 631–649.*

Websites

BREAD
http://chd.ucla.edu/dev_data/index.html

Center for Disease Control and Prevention
http://www.cdc.gov/hiv/topics/surveillance/basic.htm

Center for Research and Analysis of Migration (CREAM)
http://www.econ.ucl.ac.uk/cream/

Council of European Social Sciences Data Archives (CESSDA)
http://www.nsd.uib.no/cessda/extcessda.jsp

Demographic and Health Service (DHS)
http://www.measuredhs.com/

European Commission
http://ec.europa.eu/justice_home/doc_centre/asylum/statistics/doc_asylum_statistics_en.htm

European Social Survey
http://www.europeansocialsurvey.org/

Forced Migration Online
- http://www.forcedmigration.org/
- http://www.forcedmigration.org/browse/regional/africa.htm

- http://www.forcedmigration.org/browse/thematic/durablesolutions.htm
- http://www.forcedmigration.org:8080/live/WebSearchResults.jsp?category=Web+Catalogue&general=type%3Adata&hitsPerPage=10&Submit=Search+Now

Global Conflict Trends (GST)
http://www.systemicpeace.org/conflict.htm

Human Rights Watch (HRW)
http://hrw.org/
http://hrw.org/reports/2004/sudan0504/

Integrated Network for Social Conflict Research (INSCR)
http://www.systemicpeace.org/inscr.htm

International Conflict Research (INCORE)
http://www.incore.ulst.ac.uk/
http://www.incore.ulst.ac.uk/services/cds/themes/refugee.html

Internal Displacement Monitoring Center (IDMC)
http://www.internal-displacement.org/

International Institute for Strategic Studies (IISS)
www.iiss.org

International Peace Research Institute (PRIO)
http://www.prio.no/
http://www.prio.no/Data/
http://www.prio.no/CSCW/Datasets/Armed-Conflict/UCDP-PRIO/

Living Standards Measurement Study (LSMS)
http://www.worldbank.org/LSMS/
http://www.internationalsurveynetwork.org/home/

Migration, Globalization and Poverty
http://www.migrationdrc.org/research/typesofmigration/global_migrant_origin_database.html

Migration Information Sources
http://www.migrationinformation.org/Resources/
http://www.migrationinformation.org/Feature/display.cfm?ID=49

Minorities at risk (MAR)
http://www.cidcm.umd.edu/mar/registration.asp

National Bureau of Economic Research (NBER)
http://www.nber.org/cgi-bin/get_bars.pl?bar=data

Organization of economic and development cooperation (OECD)
http://www.oecd.org/document/35/0,3343,en_2649_39023663_34840035_1_1_1_1,00.html

Penn World Tables
http://pwt.econ.upenn.edu/php_site/pwt62/pwt62_form.php

Polarization and Conflict
http://www.polarizationandconflict.org/

Political Instability Task Force (PITF)- State Failure Project
http://globalpolicy.gmu.edu/pitf/

Polity IV Country Reports 2006
http://www.systemicpeace.org/polity/polity06.htm

STATA- Data Analysis and Statistical Software
http://www.stata.com/

The American Political Science Association
http://www.apsanet.org/content_29436.cfm

The Dataverse Network Project
http://thedata.org/

The Institute for Quantitative Social Sciences at Harvard University-IQSS Dataverse Network
http://dvn.iq.harvard.edu/

The International Emergency Disasters Database (EMDAT)
http://www.emdat.be/
http://www.emdat.be/Database/terms.html
http://www.emdat.be/Database/DisasterList/emdat_display_list.php

The Inter-University Committee on International Migration
http://web.mit.edu/cis/www/migration/dec05workshop/program.htm

The United Nations
- http://www.un.org/esa/population/meetings/sixthcoord2007/sixthcoord2007.htm
- http://www.unaids.org/en/KnowledgeCentre/HIVData/default.asp
- http://unstats.un.org/unsd/methods/inter-natlinks/refs3.htm
- http://www.un.org/esa/population/unpop.htm

The United Nations High Commission for the Refugees (UNHCR)
http://www.unhcr.org/cgi-bin/texis/vtx/home
http://www.unhcr.org/statistics.html
http://www.who.int/globalatlas/dataQuery/default.asp

The World Bank Datasets
- http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:20388241~menuPK:665266~pagePK:64165401~piPK:64165026~theSitePK:469382,00.html
- http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTPROGRAMS/EXTCONFLICT/0,,contentMDK:20336174~menuPK:637270~pagePK:64168182~piPK:64168060~theSitePK:477960,00.html
- http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTPROGRAMS/EXTINTERNATIONAL/0,,contentMDK:21087611~menuPK:3043414~pagePK:64168182~piPK:64168060~theSitePK:1572893,00.html
- http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,,contentMDK:21122877~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html

The World Health Organization
http://www.who.int/healthinfo/statistics/en/
http://www.who.int/whosis/mort/download/en/index.html

Transnationality of Migrants (TOM)
http://www.cepr.org/research/Networks/TOM/default.htm

UCLA Academic Technology Services (Stata)
http://www.ats.ucla.edu/stat/stata/

United Nations Studies at Yale
http://research.yale.edu/iss/unsy/civilwars/data.htm

Uppsala Conflict Data Program (UCDP)
http://www.ucdp.uu.se/
http://www.pcr.uu.se/research/UCDP/data_and_publications/publications.htm

Uppsala University
http://www.pcr.uu.se/
http://www.pcr.uu.se/database/

U.S. Committee for Refugees and Immigrants (USCRI)
http://www.refugees.org/
http://www.refugees.org/countryreports.aspx?id=1991

Wikipedia
www.wikipedia.org

World Bank's World Development Indicators
http://0-ddp-ext.worldbank.org.lib.unibocconi.it/ext/DDPQQ/report.do?method=showReport

Docquier Webpage - International migration data sets
http://www.ires.ucl.ac.be/CSSSP/home_pa_pers/Docquier/oxlight.htm

Miguel Webpage
http://www.econ.berkeley.edu/~emiguel/index.php

Craig Jenkins Webpage
http://www.sociology.ohio-state.edu/jcj/research.htm

Marta Reynal Webpage
http://www.econ.upf.edu/~reynal/marta_publications.htm

Sambanis Webpage
http://pantheon.yale.edu/~ns237/index/links.html
http://unjobs.org/authors/nicholas-sambanis

Davenport Webpage
http://www.cdavenport.com/

Idean Salehyan Webpage
http://www.cas.unt.edu/~idean/Projects.htm

James D. Fearon Webpage
http://www.stanford.edu/~jfearon/

W. H. Moore Webpage
http://garnet.acns.fsu.edu/~whmoore/
http://garnet.acns.fsu.edu/~whmoore/researchpapers.html

James D. Fearon and David D. Laitin Research
http://www.stanford.edu/group/ethnic/

Appendices

List of Tables

Appendix 1: List of abbreviations and list of countries in the study

List of abbreviations

CRED	Centre for Research on the Epidemiology Disasters
CPIA	Country Policy and Institutional Assessment
DRC	Democratic Republic of the Congo
ELF	Ethno-Linguistic Fractionalization
FAR	Forces Armées Rwandaises
IDMC	Internal Displacement Monitoring Centre
IDPs	Internally Displaced Persons
IPRI	International Peace Research Institute
IRRs	Incidence Rate Ratios
OFDA	Office of Foreign Disaster Assistance
UCDP	Uppsala Conflict Data Program
UNHCR	United Nations High Commissioner for Refugees
USCR	US Committee for Refugees
WHO	World Health Organization
ZINB	Zero-Inflated Negative Binomial

List of countries in the study

Algeria	Egypt	Lesotho	Rwanda
Angola	Equatorial Guinea	Liberia	Senegal
Burkina Faso	Eritrea	Libya	Sierra Leone
Burundi	Ethiopia	Madagascar	Somalia
Cameroon	Gabon	Mali	South Africa
Central African Republic	Gambia	Mauritania	Sudan
Chad	Ghana	Morocco	Togo
Comoros	Guinea	Mozambique	Tunisia
Congo Brazzaville	Guinea-Bissau	Namibia	Uganda
Congo Kinshasa	Ivory Coast	Niger	Zimbabwe
Djibouti	Kenya	Nigeria	

Appendix 2: Battle-related deaths

TABLE 1 – BATTLE DEATHS IN MAJOR ARMED CONFLICTS IN AFRICA 1980-2005

	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005	Total by Country
Angola	27665	27668	54143	11850	5140		126466
Burundi			1215	2800	4240	300	8555
Chad	13970	20180	7449	275	1101	110	43085
Congo			175	9500	116		9791
DRC				100066	48934		149000
Eritrea				40334	10057		50391
Ethiopia	64692	61493	26476	2029	1977	773	157440
Guinea-Bissau				1850			1850
Liberia	27	100	7999	500	4058		12684
Morocco	1000						1000
Mozambique	23250	82500	3250				109000
Rwanda			5500	2700	1559		9759
Sierra Leone			1998	10599	400		12997
Somalia	600	25424	39526	1200	264		67014
South Africa	18478	8299					26777
Sudan	8000	20000	10000	12500	10528	500	61528
Uganda	68532	38268	1950	2300	6556	669	118275

MAJOR CONFLICT (>1000/year)

TABLE 2 – BATTLE DEATHS IN CIVIL WARS IN AFRICA 1980-1999

	1980-1984	1985-1989	1990-1994	1995-1999	Total by Country
Algeria			200000	250000	450000
Kenya			4500		4500
Morocco	79240	79240			158480
Angola	1729000	1729000	2191600	2500000	8149600
DRC			1000000	750000	1750000
Congo			6000	6000	12000
Rwanda			4000000		4000000
Sudan	2400000	6000000	6000000	6000000	20400000
Uganda	1500000	1200000			2700000
Mozambique	2500000	2500000	1500000		6500000
Chad	7500	7500	7500	3000	25500
Burundi		100000	6000	7500	113500
Nigeria	9910				9910
South Africa	500000	500000	500000		1500000
Zimbabwe	10000				10000
Somalia		800000	1025000	375000	2200000
Liberia		150000	600000	300000	1050000
Djibouti			4000		4000
Ethiopia	180000	96000	30000		306000
Eritrea	750000	9935	300000		1059935
Mali			4000		4000
Namibia	325000	325000			650000
Sierra Leone			1998	10999	12997

Appendix 3: Conflicts in Africa

TABLE 1 – LIST OF ARMED CONFLICTS IN AFRICA 1947-2006

Location	Incompatib.	Opposition organization	Year	Intensity
Algeria	Terr (Algeria)	France vs. FLN (National Liberation Front)	1954	Minor
		MNA (Algerian National Movement)	1955–61	War
	Govt	Takfir wa'l Hijra (Exile and Redemption), MIA (Armed Islamic Movement), FIS (Islamic Salvation Front), GIA (Armed Islamic Group), GSPC (Salafist Group for Preaching andCombat)	1991–92	Minor
			1993–2001	War
			2002–06	Minor
Algeria - Morocco	Terr (Common border)		1963	Minor
Angola	Terr (Angola)	Portugal vs. MPLA (Popular Movement for the Liberation of Angola), FNLA (National front for the Liberation of Angola), UNITA (National Union for the Total Independence of Angola)	1961–65	Minor
			1966–74	Minor
	Govt	UNITA (National Union for the Total Independence of Angola), South Africa, FNLA (National front for the Liberation of Angola), MPLA faction, Zaire	1975–94	War
			1995	Minor
			1998–2001	War
			2002	Minor
	Terr (Cabinda)	FLEC-R (Front for the Liberation of the Enclave of Cabinda-Renewed), FLEC-FAC (Front for the Liberation of the Enclave of Cabinda-Armed Forces of Cabinda)	1991	Minor
			1994	Minor
			1996–98	Minor
			2002	Minor
			2004	Minor
Burkina Faso	Govt	Popular Front	1987	Minor
Burkina Faso - Mali	Terr (Agacher strip)		1985	Minor
Burundi	Govt	Military faction	1965	Minor
		Palipehutu (Party for the Liberation of the Hutu People)	1991–92	Minor
		CNDD (National Council for the Defense of Democracy), Palipehutu-FNL (Party for the Liberation of the Hutu People-Forces for National Liberation), Frolina (National Liberation Front), CNDD-FDD (National Council for the Defense of Democracy)	1994–96	Minor
			1997	Minor
			1998	War
			1999	Minor
			2000–02	War
			2003–06	Minor
Cameroon	Terr (Cameroon)	France vs. UPC (Union of the Populations of Cameroon)	1957–59	Minor
		UPC (Union of the Populations of Cameroon)	1960	War
			1961	Minor
		Military faction	1984	Minor

Location	Incompatib.	Opposition organization	Year	Intensity
Cameroon - Nigeria	Terr (Bakassi)		1996	Minor
Central African Republic	Govt	Military faction	2001	Minor
		Forces of François Bozize	2002	Minor
		UFDR (Union of Democratic Forces for Unity)	2006	Minor
Chad	Govt	Chad insurgents	1965	War
		FROLINAT (National Liberation Front of Chad)	1966–70	War
		First Liberation Army, CCFAN (Command Council of the Armed Forces of the North), FAN (Armed Forces of the North), FAP (People's Armed Forces), Third Liberation Army, First Volcan Army, New Volcan Army, Libya	1971–81	War
		GUNT (Transitional Government of National Unity), GUNT/CDR, Codos groups, Islamic Legion, MOSANAT (Mouvement pour le salut national du Chad), military faction, MPS (Patriotic Salvation Movement), Libya	1982–1990	War
		MDD (Movement for Democracy and Development), CSNPD (Committee of National Revival for Peace and Democracy), CNR (National Council for Recovery), FNT (Chad National Front), FARF(Armed Forces of the Federal Republic), MDJT (Movement for Democracy and Justice in Chad)	1991–94	Minor
			1997–2002	Minor
		RDL (Rally for Democray and Liberty)	2005	Minor
		RDL/FUCD (United Front for Democratic Change), UFDD (the Union Force for Democracy and Development), RAFD (Rally of Democratic Forces)	2006	War
Chad - Libya	Terr (Aozou strip)		1987	War
Chad - Nigeria	Terr (Lake Chad)		1983	Minor
Comoros	Govt	Presidential guard	1989	Minor
	Terr (Anjouan)	MPA (Anjouan People's Movement)/Republic of Anjouan	1997	Minor
Congo		Ninjas, Cobras, Angola, Cocoyes, Ntsiloulous	1993–94	Minor
			1997–98	War
			1999	Minor
			2002	Minor
DRC	Govt	CNL (National Liberation Council)	1964–65	War
		Opposition militias	1967	Minor
		FLNC (Congolese National Liberation Front)	1977–78	
		AFDL (Alliance of Democratic Forces for the Liberation of Congo-Kinshasa), Rwanda	1996	Minor
		AFDL, RCD (Congolese Democratic Rally), RCD-ML (Congolese Democratic Rally-Liberation Movement), MLC (Congolese Liberation Movement), Angola, Rwanda, Uganda	1997–2000	War
			2001	Minor
	Terr (South Kasai)	Independent Mining State of South Kasai	1960–62	Minor
	Terr (Katanga)	Katanga	1960–62	Minor
Djibouti	Govt	FRUD (Front for the Restoration of Unity and Democracy)	1991–94	Minor
		FRUD faction	1999	Minor
Egypt	Govt	Al-Gama'a al-Islamiyya (Islamic Association)	1993–98	Minor
	Terr (Suez)		1951–52	Minor

Location	Incompatib.	Opposition organization	Year	Intensity
Egypt	Terr (Palestine)		1948	War
	Terr (Suez)		1949	Minor
	Terr (Suez)		1956	War
	Terr (Suez/Sinai)		1967	War
	Terr (Suez/Sinai)		1969–70	Minor
Equatorial Guinea	Govt	Military faction	1979	Minor
Eritrea	Govt	EIJM (Harakat al Jihad al Islami: Eritrean Islamic Jihad Movement) - Abu Suhail faction	1997	Minor
			1999	Minor
			2003	Minor
Eritrea - Ethiopia	Terr (Badme)		1998–2000	War
	Govt	Military faction	1960	Minor
		EPRP (Ethiopian People's Revolutionary Party), Military faction, TPLF (Tigrean People's Liberation Front), EPDM (Ethiopian People's Democratic Movement), EPRDF (Ethiopian People's Revolutionary Democratic Front)	1976–91	War
	Terr (Eritrea)	ELF (Eritrean Liberation Front), ELF factions, EPLF (Eritrean People's Liberation Front)	1962–67	Minor
			1968–73	Minor
			1974–91	War
	Terr (Ogaden)	WSLF (Western Somali Liberation Front)	1975–76	Minor
			1977–78	War
			1979–83	Minor
		ONLF (Ogaden National Liberation Front)	1996	Minor
			1998–2002	Minor
			2004–06	Minor
	Terr (Afar)	ALF (Afar Liberation Front)	1989–91	Minor
		ARDUF (Afar Revolutionary Democratic Unity Front)	1996	Minor
Ethiopia	Terr (Somali)	al-Itahad al-Islami (Islamic Union)	1996–97	Minor
			1999	Minor
	Terr (Oromiya)	OLF (Oromo Liberation Front)	1989–91	Minor
			1999–2006	Minor
Ethiopia - Somalia	Terr (Ogaden)		1960	Minor
			1964	Minor
			1973	Minor
			1983	Minor
Gabon	Govt	Military faction	1964	Minor
Gambia	Govt	SRLP (Socialist and Revolutionary Labour Party)	1981	Minor
Ghana	Govt	Military faction (National Liberation Council)	1966	Minor
		Military faction (Provisional National Defence Council)	1981	Minor
		Military faction	1983	Minor
Guinea	Govt	Military faction	1970	Minor
		RFDG (Rassemblement des forces démocratiques de Guinée: Rally of Democratic Forces of Guinea)	2000–01	Minor
Guinea Bissau	Terr (Guinea-Bissau)	Portugal vs. PAIGC (African Party for the Independence of Guinea-Bissau and Cape Verde	1963–64	Minor
			1965–73	Minor

Location	Incompatib.	Opposition organization	Year	Intensity
Guinea Bissau	Govt	Military Junta for the Consolidation of Democracy, Peace and Justice	1998	War
			1999	Minor
Ivory Coast	Govt	MPCI (Patriotic Movement of Ivory Coast), MJP (Movement for Justice and Peace), MPIGO (Ivorian Movement for the Greater West)	2002–03	Minor
Ivory Coast		Forces Nouvelles	2004	Minor
Kenya	Terr (Kenya)	United Kingdom vs. Mau Mau	1952	Minor
			1953–56	War
	Govt	Military faction	1982	Minor
Lesotho	Govt	Military faction	1998	Minor
Liberia	Govt	Military faction (People's Redemption Council)	1980	Minor
		NPFL (National Patriotic Forces of Liberia), INPFL (Independent NPFL)	1989	Minor
			1990	War
			1991	Minor
			1992	War
			1993–95	Minor
		LURD (Liberians United for Reconciliation and Democracy)	2000–02	Minor
		LURD, MODEL (Movement for Democracy in Liberia)	2003	War
Madagas-car	Terr (Malagasy)	France vs. MDRM (Democratic Movement for Malagasy Renewal)	1947	War
	Govt	Monima (National Movement for the Independence of Madagascar)	1971	Minor
Mali	Terr (Azawad)	MPA (Azawad People´s Movement)	1990	Minor
		FIAA (Islamic Arab Front of Azawad)	1994	Minor
Morocco	Terr (Morocco)	France vs. Istiqlal (Moroccan Nationalist Party)	1953–56	Minor
	Terr (Morocco/ Spanish territories)	Spain vs. NLA (National Liberation Army)	1957	Minor
	Govt	Military faction	1971	Minor
Morocco - Mauritania	Terr (Morocco /Mauritania)	France vs. NLA (National Liberation Army)	1957–58	Minor
	Terr (Western Sahara)	Polisario (Popular Front for the Liberation of Saguia al Hamra and Rio de Oro)	1975–80	War
			1981–89	Minor
Mozamb-ique	Terr (Mozambique)	Portugal vs. Frelimo (Front for the Liberation of Mozambique)	1964–65	Minor
			1966–71	Minor
			1972–73	War
			1974	Minor
	Govt	Renamo (Mozambican National Resistance, MNR)	1977–80	Minor
			1981–92	War
Niger	Terr (Aïr & Azawad)	FLAA (Aïr and Azawad Liberation Front)	1992	Minor
		CRA (Coordination of the Armed Resistance)	1994	Minor
		UFRA (Union of Forces of the Armed Resistance)	1997	Minor
	Terr (Eastern Niger)	FDR (Democratic Front for Renewal)	1996	Minor
		FARS (Revolutionary Armed Forces of the Sahara)	1997	Minor
Nigeria	Govt	Military faction	1966	Minor

Location	Incompatib.	Opposition organization	Year	Inten-sity
Nigeria	Terr (Biafra)	Republic of Biafra	1967–70	War
	Terr (Northern Nigeria)	Ahlul Sunna Jamaa (Followers of the Prophet)	2004	Minor
	Terr (Niger Delta)	NDPVF (Niger Delta People's Volunteer Force)	2004	Minor
Rwanda	Govt	FPR (Rwandan Patriotic Front)	1990	Minor
			1991–92	War
			1993–94	Minor
		FDLR (Democratic Liberation Forces of Rwanda)	1997	Minor
			1998	War
			1999–2000	Minor
			2001	War
			2002	Minor
Senegal	Terr (Casamance)	MFDC (Movement of the Democratic Forces of the Casamance)	1990	Minor
			1992–93	Minor
			1995	Minor
			1997–98	Minor
			1999–2001	Minor
			2003	Minor
Sierra Leone	Govt	RUF (Revolutionary United Front), AFRC (Armed Forces Revolutionary Council), Kamajors, West Side Boys	1991–93	Minor
			1994–97	Minor
			1998–99	War
			2000	Minor
Somalia	Govt	Military faction	1978	Minor
		SSDF (Somali Salvation Democratic Front), SNM (Somali National Movement), SPM (Somali Patriotic Movement), USC (United Somali Congress)-Madhi faction, USC- Aideed faction	1981–86	Minor
			1987–89	Minor
			1990–92	War
			1993–96	Minor
		SRRC (Somali Reconciliation and Restoration Council)	2001–02	Minor
		SICS (Supreme Islamic Council of Somalia)	2006	Minor
South Africa	Govt	ANC (African National Congress), PAC (Pan Africanist Congress), Azapo (Azanian People's Organization)	1981–88	Minor
	Terr (Namibia)	SWAPO (South West Africa People's Organization)	1966–78	Minor
			1979	Minor
			1980–83	Minor
			1984–85	Minor
			1986–88	War
Sudan	Govt	Sudanese Communist Party	1971	Minor
		Islamic Charter Front	1976	Minor
		SPLM (Sudanese People's Liberation Movement/Army)	1983–92	War
			1993–94	Minor
		SPLM/A, NDA (National Democratic Alliance), SAF (Sudan Alliance Forces)	1995–2002	War
		SPLM/A, SLM/A (Sudan Liberation Movement/Army), JEM (Justice and Equality Movement)	2003–04	War
		SLM/A	2005	Minor
		SLM/A, NRF (National Redemption Front), SLM/A–MM (Sudan Liberation Movement/Army–Minni Minawi faction)	2006	War

Location	Incompatib.	Opposition organization	Year	Intensity
Sudan	Terr (Southern Sudan)	Anya Nya	1963–72	War
Togo	Govt	MTD (Togolese Movement for Democracy)		
		Military faction	1986	Minor
			1991	Minor
Tunisia	Terr (Tunisia)	France vs. National Liberation Army	1953–56	Minor
Tunisia	Govt	Tunisian Armed Resistance	1980	Minor
	Terr (Bizerte)		1961	War
Uganda	Govt	Military faction	1971	Minor
		UPA (Uganda People's Army)	1972	Minor
		Military faction	1974	Minor
		Military faction, UNLA (Uganda National Liberation Army), Tanzania	1978	Minor
		NRA (National Resistance Army), UFM (Uganda Freedom Movement), UPM (Ugandan Patriotic Movement), UNRF (Uganda National Rescue Front), UFDM (Ugandan Federal Democratic Movement), UPF (Uganda People's Front), UPDA (Ugandan People's Democratic Army), UPC (Uganda People's Congress), UNLA (Uganda National Liberation Army), FOBA (Force Obote Back Again), UDCA (Uganda Democratic Christian Army), HSM (Holy Spirit Movement), HSM-Severino faction	1981–1988	War
		UPDA faction, UPA (Uganda People's Army), UDCA (Uganda Democratic Christian Army)	1989	War
			1990	Minor
			1991	War
		LRA (Lord's Resistance Army), WNBF (West Nile Bank Front), ADF (Alliance of Democratic Forces), UNRF II (Uganda National Rescue Front II)	1994–2001	Minor
			2002	War
			2003	Minor
			2004	War
		LRA	2005–06	Minor
Zimbabwe	Govt	ZANU (Zimbabwe African National Union), ZAPU (Zimbabwe African People's Union)	1972–75	Minor
			1976–79	War

TABLE 2 – LIST OF CIVIL WARS IN AFRICA 1947-1997

Location	Year	War type
Angola	1975-1991	Ethnic
	1992-2002	Ethnic
Burundi	1965-1969	Ethnic
	1988	Ethnic
	1972-1973	Ethnic
	1991-2003	Ethnic
Central African Republic	1995-1997	Non Ethnic
Chad	1965-1979	Ethnic
	1980-1994	Ethnic
Congo	1992-1996	Non Ethnic
Democratic Republic of Congo	1996-1997	Ethnic
	1960-1965	Ethnic
	1967	Ethnic
	1975-1979	Ethnic
Djibouti	1991-1995	Non Ethnic
Eritrea	1974-1991	Ethnic
Ethiopia	1977-1985	Ethnic
	1974-1991	Non Ethnic
Kenya	1991-1993	Ethnic
Liberia	1993-1996	Non Ethnic
	1989-1992	Non Ethnic
Mali	1990-1995	Ethnic
Morocco/West Sahara	1975-1989	Ethnic
Mozambique	1979-1992	Non Ethnic
Namibia	1965-1989	Ethnic
Nigeria	1967-1970	Ethnic
	1980-1984	Ethnic
Rwanda	1963-1984	Ethnic
	1990-1994	Ethnic
Sierra Leone	1991-1996	Non Ethnic
Somalia	1988-1991	Ethnic
	1992-2006	Ethnic
South Africa	1976-1994	Ethnic
Sudan	1963-1972	Ethnic
	1983-2005	Ethnic
Uganda	1966	Ethnic
	1978-1979	Non Ethnic
	1980-1986	Ethnic
Zimbabwe	1972-1980	Ethnic
	1984	Ethnic

Appendix 4: Conflicts and Civil wars as sources of Forced Migration

TABLE 1 – "CONFLICT" AS A SOURCE OF FORCED MIGRATION

MODEL 2 AND 3

dependent variable : forced migrant outflow	Model 2: Random effects linear		Model 3: Tobit	
	Reg 1-2.1	Reg 1-2.2	Reg 1-3.1	Reg 1-3.2
	contemporaneous explanatory variables	one-year lagged explanatory variables	contemporaneous explanatory variables	one-year lagged explanatory variables
conflict	29808.705 [0.000]**	32287.501 [0.001]**	63450.133 [0.017]*	42866.880 [0.000]**
conflict in neighbour countries	14367.117 [0.001]**	1983.853 [0.839]	8404.045 [0.625]	-3346.407 [0.829]
polity index	-570.384 [0.200]	-270.298 [0.586]	-2435.960 [0.020]*	-1967.765 [0.047]*
regime duration	-105.788 [0.388]	373.897 [0.482]	-174.869 [0.653]	405.295 [0.255]
killed by natural disasters	-0.135 [0.023]*	0.481 [0.000]**	-0.004 [0.991]	0.610 [0.057]
natural disasters' damage	0.002 [0.519]	-0.001 [0.610]	-0.020 [0.554]	-0.009 [0.606]
log (population)	-1329.057 [0.441]	-1710.874 [0.252]	557.740 [0.888]	227.600 [0.952]
log (gdp)	-10223.224 [0.000]**	-10112.680 [0.009]**	-9020.640 [0.124]	-9393.707 [0.094]
Constant	74751.211 [0.027]*	84592.877 [0.029]*	-9505.682 [0.889]	1155.284 [0.986]
Wald chi-square	45.310	104.180		
LR chi-square			31.370	36.620
Log likelihood			-5438.294	-5660.375
Observations	703	739	703	739

Note: Robust p-values in brackets

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

TABLE 2 – "CIVIL WAR" AS A SOURCE OF FORCED MIGRATION

MODEL 2 AND 3

dependent variable : forced migrant outflow	Model 2: Random effects linear		Model 3: Tobit	
	Reg 2-2.1	Reg 2-2.2	Reg 2-3.1	Reg 2-3.2
	contemporaneous explanatory variables	one-year lagged explanatory variables	contemporaneous explanatory variables	one-year lagged explanatory variables
civil war	46785.285 [0.001]**	45359.088 [0.001]**	77487.818 [0.000]**	68928.260 [0.000]**
civil war in neighbour countries	18233.922 [0.004]**	2465.147 [0.816]	5977.661 [0.783]	-17134.540 [0.365]
polity index	-755.210 [0.227]	-645.807 [0.354]	-4554.872 [0.003]**	-3166.389 [0.018]*
regime duration	-209.387 [0.355]	331.524 [0.595]	-167.970 [0.735]	384.751 [0.369]
killed by natural disasters	-0.203 [0.043]*	0.428 [0.001]**	-0.095 [0.804]	0.555 [0.128]
natural disasters' damage	0.019 [0.356]	0.000 [0.899]	-0.003 [0.972]	-0.001 [0.973]
log (population)	-3691.934 [0.202]	-3499.302 [0.157]	-2767.914 [0.619]	-2093.285 [0.681]
log (gdp)	-12525.493 [0.001]**	-11288.414 [0.011]*	-13033.669 [0.105]	-8482.991 [0.248]
Constant	121369.260 [0.015]*	117825.979 [0.011]*	39552.762 [0.672]	27635.760 [0.746]
Wald chi-square	53.940	217.990		
LR chi-square			45.380	40.220
Log Likelihood			-3921.016	-4310.452
Observations	523	558	523	558

Note: Robust p-values in brackets

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

TABLE 3 – "CONFLICT" AS A SOURCE OF FORCED MIGRATION – REGIONAL SUBDIVISION OF AFRICA

dependent variable : forced migrant outflow	Model 1: Zero-inflated negative binomial		Model 2: Random effects linear	Model 3: Tobit
	Reg 3-1.1	Reg 3-1.1 (inflate)	Reg 3-2.1	Reg 3-3.1
conflict	2.917 [0.000]** {18.49}	-0.681 [0.170]	36,288.456 [0.001]**	63,400.460 [0.017]*
south africa	0.226 [0.687] {1.25}	0.627 [0.403]	7,229.304 [0.102]	-13,082.129 [0.737]
north africa	0.436 [0.393] {1.54}	0.213 [0.773]	15,034.525 [0.001]**	11,178.102 [0.765]
central africa	1.374 [0.037]* {3.95}	0.645 [0.374]	2,155.019 [0.786]	-13,956.921 [0.709]
west africa	0.521 [0.323] {1.68}	0.353 [0.619]	-9,516.035 [0.026]*	-19,722.307 [0.585]
east africa	0.302 [0.594] {1.35}	1.094 [0.146]	-4,276.602 [0.307]	-40,335.548 [0.310]
conflict in north africa	-1.784 [0.005]** {0.17}	0.237 [0.766]	-34,596.457 [0.002]**	-52,483.341 [0.180]
conflict in central africa	-1.472 [0.089] {0.23}	0.606 [0.335]	-446.508 [0.991]	-16,935.053 [0.630]
conflict in west africa	-0.766 [0.243] {0.46}	0.751 [0.215]	-3,130.391 [0.872]	-24,156.786 [0.472]
conflict in east africa	-0.493 [0.442] {0.61}	0.262 [0.668]	-15,755.956 [0.240]	-18,913.172 [0.592]
conflict in neighbour countries	2.461 [0.000]** {11.72}	0.513 [0.159]	13,748.130 [0.002]**	3,064.334 [0.866]
polity index	-0.017 [0.501] {0.98}	0.046 [0.018]*	-481.548 [0.367]	-2,032.239 [0.076]
regime duration	-0.016 [0.053] {0.98}	0.002 [0.804]	-133.722 [0.215]	-272.642 [0.497]
killed by natural disasters	0.000 [0.000]** {1.00}	0.000 [0.111]	-0.111 [0.061]	0.046 [0.889]
natural disasters' damage	0.000 [0.381] {1.00}	0.000 [0.011]*	0.005 [0.130]	-0.020 [0.569]

dependent variable : forced migrant outflow	Model 1: Zero-inflated negative binomial		Model 2: Random effects linear	Model 3: Tobit
	Reg 3-1.1	Reg 3-1.1 (inflate)	Reg 3-2.1	Reg 3-3.1
log (population)	0.031 [0.782] {1.03}	-0.042 [0.588]	-1,678.710 [0.231]	-362.756 [0.934]
log (gdp)	-1.047 [0.000]** {0.35}	-0.089 [0.521]	-14,332.303 [0.000]**	-15,409.535 [0.057]
Constant	11.118 [0.000]**	0.021 [0.991]	107,358.159 [0.004]**	66,322.377 [0.514]
ln alfa	0.987 [0.000]**			
alfa	2.684			
Wald chi-square	727.300		64.060	38.720
Log likelihood	-4,225.469			-5,434.620
Observations	703	703	703	703

Note: Robust p-values in brackets ; Incidence Rate Ratios in braces

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

TABLE 4 – "CIVIL WAR" AS A SOURCE OF FORCED MIGRATION – REGIONAL SUBDIVISION OF AFRICA

dependent variable : forced migrant outflow	Model 1: Zero-inflated negative binomial		Model 2: Random effects linear	Model 3: Tobit
	Reg 4-1.1	Reg 4-1.1 (inflate)	Reg 4-2.1	Reg 4-3.1
civil war	4.505 [0.000]** {90.49}	-1.171 [0.022]*	40,832.525 [0.078]	96,676.019 [0.009]**
south africa	-0.780 [0.319] {0.46}	0.553 [0.168]	5,112.238 [0.454]	-35,624.512 [0.545]
north africa	0.442 [0.335] {1.56}	0.785 [0.370]	16,066.959 [0.003]**	19,674.739 [0.719]
central africa	1.791 [0.000]** {6.00}	-0.157 [0.852]	-8,384.943 [0.183]	-31,854.455 [0.566]
west africa	1.461 [0.003]** {4.31}	0.553 [0.507]	-6,679.830 [0.294]	-18,669.137 [0.727]
east africa	1.589 [0.004]** {4.90}	0.309 [0.703]	-5,704.765 [0.317]	-59,574.101 [0.308]
civil war in north africa	-1.610 [0.094] {0.20}	1.168 [0.177]	-34,760.559 [0.154]	-69,862.571 [0.226]
civil war in central africa	-2.607 [0.007]** {0.07}	0.150 [0.891]	29,828.750 [0.547]	7,705.822 [0.873]
civil war in west africa	-2.317 [0.01]* {0.10}	0.645 [0.347]	32,551.306 [0.360]	20,816.946 [0.681]
civil war in east africa	-2.513 [0.002]** {0.08}	-0.038 [0.962]	-12,093.604 [0.639]	-22,194.063 [0.654]
civil war in neighbour countries	2.522 [0.000]** {12.45}	0.497 [0.474]	13,161.849 [0.005]**	2,419.781 [0.920]
polity index	0.032 [0.296] {1.03}	0.082 [0.001]**	-953.068 [0.186]	-4,342.688 [0.008]**
regime duration	-0.021 [0.016]* {0.98}	0.001 [0.925]	-260.854 [0.295]	-400.806 [0.451]
killed by natural disasters	0.000 [0.000]** {1.00}	0.000 [0.051]	-0.133 [0.109]	0.039 [0.919]
natural disasters' damage	0.000 [0.054] {1.00}	0.000 [0.417]	0.016 [0.460]	-0.010 [0.914]

dependent variable : forced migrant outflow	Model 1: Zero-inflated negative binomial		Model 2: Random effects linear	Model 3: Tobit
	Reg 4-1.1	Reg 4-1.1 (inflate)	Reg 4-2.1	Reg 4-3.1
log (population)	-0.070 [0.590] {0.93}	-0.024 [0.792]	-3,030.475 [0.205]	-2,172.723 [0.727]
log (gdp)	-0.925 [0.000]** {0.40}	-0.005 [0.977]	-14,553.432 [0.022]*	-18,657.305 [0.131]
Constant	11.607 [0.000]**	-0.257 [0.908]	129,301.771 [0.035]*	91,179.125 [0.536]
ln alfa	0.898 [0.000]**			
alfa	2.454			
Wald chi-square	842.670		100.120	58.350
Log likelihood	-3,056.465			-3,914.534
Observations	523	523	523	523

Note: Robust p-values in brackets ; Incidence Rate Ratios in braces
* significant at 5%; ** significant at 1%

TABLE 5 – "CONFLICT" AND "CIVIL WAR" AS SOURCES OF FORCED MIGRATION – MODEL 4: DYNAMIC PANEL-DATA

dependent variable : forced migrant outflow	Model 4: Arellano-Bond linear model			
	Reg 1-4.1	Reg 2-4.1	Reg 2-4.2	Reg 2-4.3
conflict	20,464.547 [0.109]			
civil war		86,405.241 [0.000]**		
ethnic civil war			69,461.564 [0.008]**	112,819.730
non ethnic civil war				[0.017]*
one-year lagged forced migration outflow	-0.086 [0.041]*	-0.114 [0.024]*	-0.119 [0.018]*	-0.127 [0.013]*
conflict in neighbour countries	14,939.544 [0.470]			
civil war in neighbour countries		45,214.026 [0.191]	43,571.581 [0.206]	44,693.918 [0.214]
polity index	-1,854.403 [0.342]	-2,355.987 [0.371]	-3,114.458 [0.233]	-1,596.930 [0.557]
regime duration	-598.258 [0.453]	-917.546 [0.373]	-683.658 [0.505]	-1,019.643 [0.327]
killed by natural disasters	-0.278 [0.349]	-0.327 [0.349]	-0.304 [0.383]	-0.260 [0.460]
natural disasters' damage	0.004 [0.821]	0.038 [0.593]	0.036 [0.613]	0.042 [0.560]
log (population)	-363,995.840 [0.004]**	-522,178.118 [0.002]**	-529,659.209 [0.002]**	-489,820.820 [0.005]**
log (gdp)	-85,746.252 [0.011]*	-77,225.989 [0.153]	-121,733.119 [0.019]*	-82,669.821 [0.121]
Constant	8,413.073 [0.015]*	12,601.157 [0.009]**	12,157.897 [0.012]*	10,953.448 [0.024]*
Wald chi-square	32.320	43.450	37.120	34.430
Observations	570	389	389	385

Note: Robust p-values in brackets

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

TABLE 6 - CONFLICT CHARACTERISTICS AND FORCED MIGRATION

MODEL 2 AND 3

dependent variable : forced migrant outflow	Model 2: Random effects linear		Model 3: Tobit	
	Reg 5-2.1	Reg 5-2.2	Reg 5-3.1	Reg 5-3.2
	contemporaneous explanatory variables	one-year lagged explanatory variables	contemporaneous explanatory variables	one-year lagged explanatory variables
territorial dispute	-4758.638 [0.634]	-38620.283 [0.076]	-25237.556 [0.530]	-61878.922 [0.127]
interstate conflict	-45580.506 [0.020]*	-17715.062 [0.442]	5654.562 [0.950]	16322.508 [0.859]
internal conflict	-9951.383 [0.575]	-14973.680 [0.355]	-29845.484 [0.387]	-16875.829 [0.639]
intensity level	10902.566 [0.587]	-7539.294 [0.644]	22387.535 [0.430]	-2467.656 [0.933]
conflict in neighbour countries	31917.171 [0.046]*	-10500.035 [0.767]	52869.446 [0.335]	-35142.893 [0.484]
polity index	-1945.361 [0.305]	-1571.176 [0.363]	-5195.691 [0.121]	-2343.045 [0.485]
regime duration	290.224 [0.200]	1597.235 [0.195]	618.712 [0.513]	1705.374 [0.079]
killed by natural disasters	-0.189 [0.018]*	0.532 [0.000]**	0.056 [0.917]	0.836 [0.130]
natural disasters' damage	0.011 [0.020]*	0.000 [0.930]	-0.079 [0.689]	-0.193 [0.540]
log (population)	-6706.651 [0.376]	-5443.185 [0.355]	-2138.800 [0.880]	-3965.920 [0.785]
log (gdp)	-24031.244 [0.000]**	-26846.350 [0.010]**	-18432.713 [0.248]	-22553.426 [0.174]
Constant	251974.549 [0.048]*	293328.881 [0.035]*	63327.934 [0.784]	202991.788 [0.389]
Wald chi-square	35.640	70.740		
LR chi-square			11.720	11.220
Log likelihood			-2017.337	-2039.492
Observations	239	244	239	244

Note: Robust p values in brackets

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

TABLE 7 – CIVIL WAR CHARACTERISTICS AND FORCED MIGRATION

MODEL 2 AND 3

dependent variable : forced migrant outflow	Model 2: Random effects linear		Model 3: Tobit	
	Reg 6-2.1	Reg 6-2.2	Reg 6-3.1	Reg 6-3.2
	contemporaneous explanatory variables	one-year lagged explanatory variables	contemporaneous explanatory variables	one-year lagged explanatory variables
Ethnic war	-410.548 [0.996]	8769.281 [0.928]	-48131.379 [0.355]	-63733.221 [0.266]
number of deaths	0.123 [0.303]	0.203 [0.364]	0.176 [0.002]**	0.211 [0.001]**
war duration (in years)	27.205 [0.967]	218.565 [0.861]	-325.810 [0.812]	-654.321 [0.684]
war in the 10 preceding years	-94403.702 [0.393]	-93417.967 [0.545]	-115735.597 [0.020]*	-103443.162 [0.066]
civil war in neighbour countries	25754.074 [0.146]	-117648.225 [0.173]	-25045.145 [0.734]	-112949.480 [0.196]
polity index	-990.596 [0.670]	-345.433 [0.904]	-4798.957 [0.266]	-3329.324 [0.480]
regime duration	-694.475 [0.252]	455.048 [0.806]	-471.672 [0.689]	873.787 [0.482]
killed by natural disasters	-0.172 [0.316]	0.467 [0.036]*	0.117 [0.848]	0.840 [0.187]
natural disasters' damage	0.077 [0.234]	-0.005 [0.939]	-0.204 [0.602]	-1.005 [0.475]
log (population)	-21061.567 [0.416]	-43731.751 [0.321]	-28564.666 [0.199]	-51547.397 [0.039]*
log (gdp)	-42862.093 [0.198]	-32627.873 [0.235]	-45462.521 [0.052]	-36193.853 [0.156]
Constant	649110.349 [0.269]	1051874.021 [0.214]	794717.672 [0.040]*	1186388.996 [0.007]**
LR chi-square	15.010	11.010	25.960	30.600
Log likelihood			-1439.377	-1301.453
Observations	159	145	159	145

Note: Robust p values in brackets

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

Appendix 5: Forced Migration and the spread of Conflicts and Civil wars

TABLE 1 - FORCED MIGRATION AND THE SPREAD OF CONFLICTS

MODEL 2 AND 3

dependent variable : conflict onset	Model 2: OLS						Model 3: Logit					
	Reg 1-2.1	Reg 1-2.2	Reg 1-2.3	Reg 1-2.4	Reg 1-2.5	Reg 1-2.6	Reg 1-3.1	Reg 1-3.2	Reg 1-3.3	Reg 1-3.4	Reg 1-3.5	Reg 1-3.6
	explanatory variables						explanatory variables					
	contemporaneous	one-year lagged	contemporaneous	one-year lagged	contemporaneous	one-year lagged	contemporaneous	one-year lagged	contemporaneous	one-year lagged	contemporaneous	one-year lagged
	origin of migrants						origin of migrants					
	all countries		neighbour countries		non neighbour countries		all countries		neighbour countries		non neighbour countries	
forced migrant inflow	-0.017 [0.029]*	-0.005 [0.471]	-0.019 [0.026]*	-0.011 [0.047]*	-0.088 [0.004]**	-0.040 [0.371]	-2.104 [0.037]*	-0.137 [0.541]	-2.331 [0.037]*	-0.566 [0.306]	-43.769 [0.176]	-0.595 [0.733]
polity index	0.000 [0.913]	0.002 [0.263]	0.000 [0.800]	0.001 [0.432]	0.000 [0.808]	-0.001 [0.632]	-0.030 [0.525]	0.034 [0.428]	-0.040 [0.373]	0.013 [0.764]	-0.034 [0.452]	0.015 [0.712]
civil war in neighbour countries	-0.004 [0.890]	0.012 [0.661]	0.003 [0.900]	0.004 [0.895]	0.002 [0.943]	-0.016 [0.625]	0.166 [0.813]	0.550 [0.542]	0.288 [0.685]	0.248 [0.735]	0.212 [0.767]	0.209 [0.775]
ethnic frac.	-0.042 [0.420]	-0.040 [0.458]	-0.020 [0.710]	-0.023 [0.680]	-0.024 [0.655]	-0.026 [0.632]	-1.349 [0.620]	-0.890 [0.726]	-1.255 [0.599]	-1.047 [0.637]	-1.446 [0.545]	-1.128 [0.618]
language frac.	0.126 [0.031]*	0.098 [0.085]	0.089 [0.132]	0.067 [0.263]	0.086 [0.146]	0.092 [0.126]	4.483 [0.039]*	3.231 [0.109]	3.382 [0.108]	2.168 [0.255]	3.020 [0.132]	2.147 [0.263]
religious frac.	-0.091 [0.005]**	-0.086 [0.009]**	-0.074 [0.021]*	-0.078 [0.023]*	-0.075 [0.019]*	-0.085 [0.015]*	-3.175 [0.001]**	-2.777 [0.001]**	-2.417 [0.009]**	-1.991 [0.019]*	-2.268 [0.008]**	-1.997 [0.017]*
number of transborder ethnies	-0.006 [0.496]	0.003 [0.676]	0.000 [0.965]	0.009 [0.310]	0.000 [0.992]	0.003 [0.749]	-0.322 [0.156]	-0.051 [0.835]	-0.150 [0.522]	0.123 [0.619]	-0.125 [0.571]	0.120 [0.631]
log (population)	0.023 [0.006]**	0.017 [0.032]*	0.019 [0.021]*	0.014 [0.087]	0.018 [0.026]*	0.018 [0.030]*	0.942 [0.011]*	0.714 [0.054]	0.760 [0.029]*	0.546 [0.122]	0.709 [0.029]*	0.523 [0.131]
log (gdp)	-0.014 [0.096]	-0.005 [0.516]	-0.019 [0.023]*	-0.010 [0.169]	-0.019 [0.024]*	-0.016 [0.051]	-0.783 [0.152]	-0.303 [0.470]	-0.902 [0.077]	-0.456 [0.275]	-0.823 [0.093]	-0.438 [0.285]
number of preceding peace years	0.002 [0.036]*	0.002 [0.007]**	0.002 [0.026]*	0.002 [0.007]**	0.002 [0.027]*	0.002 [0.043]*	0.049 [0.006]**	0.060 [0.001]**	0.050 [0.005]**	0.057 [0.001]**	0.048 [0.007]**	0.056 [0.001]**
constant	-0.254 [0.063]	-0.249 [0.058]	-0.181 [0.171]	-0.163 [0.215]	-0.164 [0.214]	-0.168 [0.219]	-14.492 [0.004]**	-14.530 [0.004]**	-10.981 [0.010]*	-10.406 [0.021]*	-10.260 [0.019]*	-10.024 [0.023]*
Wald chi-square							24.940	18.460	19.690	19.730	18.210	22.580
Observations	658	601	658	630	658	630	658	601	658	630	658	630

Note: Robust p-values in brackets
* significant at 5%; ** significant at 1%

TABLE 2 - FORCED MIGRATION AND THE SPREAD OF CIVIL WARS

MODEL 2 AND 3

dependent variable : civil war onset	Model 2: OLS						Model 3: Logit					
	Reg 2-2.1	Reg 2-2.2	Reg 2-2.3	Reg 2-2.4	Reg 2-2.5	Reg 2-2.6	Reg 2-3.1	Reg 2-3.2	Reg 2-3.3	Reg 2-3.4	Reg 2-3.5	Reg 2-3.6
	explanatory variables						explanatory variables					
	contemp	one-year lagged	contemp	one-year lagged	contemp	one-year lagged	contemp	one-year lagged	contemp	one-year lagged	contemp	one-year lagged
	origin of migrants						origin of migrants					
	all countries		neighbour countries		non neighbour countries		all countries		neighbour countries		non neighbour countries	
forced migrant inflow	0.042	0.042	0.063	0.046	-0.035	0.054	0.718	0.723	0.908	0.753	-0.873	0.733
	[0.206]	[0.215]	[0.123]	[0.214]	[0.450]	[0.558]	[0.031]*	[0.046]*	[0.012]*	[0.051]	[0.587]	[0.420]
polity index	0.002	0.002	0.002	0.002	0.001	0.002	0.069	0.072	0.041	0.045	0.029	0.038
	[0.363]	[0.419]	[0.514]	[0.554]	[0.628]	[0.610]	[0.256]	[0.288]	[0.492]	[0.486]	[0.632]	[0.558]
civil war in neighbour countries	-0.005	0.009	0.008	0.024	0.013	0.026	-0.338	0.129	0.037	0.511	0.146	0.567
	[0.840]	[0.704]	[0.760]	[0.297]	[0.618]	[0.268]	[0.632]	[0.872]	[0.956]	[0.510]	[0.827]	[0.467]
ethnic frac.	0.187	0.200	0.144	0.163	0.156	0.165	7.083	7.121	4.54	4.529	4.53	4.384
	[0.181]	[0.190]	[0.310]	[0.299]	[0.277]	[0.301]	[0.167]	[0.192]	[0.275]	[0.308]	[0.258]	[0.303]
language frac.	-0.106	-0.122	-0.116	-0.141	-0.119	-0.133	-3.356	-3.281	-3.859	-4.072	-3.699	-3.667
	[0.417]	[0.388]	[0.379]	[0.331]	[0.369]	[0.360]	[0.414]	[0.470]	[0.335]	[0.349]	[0.337]	[0.375]
religious frac.	-0.015	-0.018	-0.011	-0.014	-0.011	-0.013	-0.78	-0.953	-0.152	-0.158	-0.134	-0.165
	[0.667]	[0.640]	[0.764]	[0.726]	[0.752]	[0.731]	[0.569]	[0.522]	[0.892]	[0.893]	[0.905]	[0.888]
number of transborder ethnies	-0.001	0.006	-0.001	0.006	-0.001	0.005	-0.023	0.104	0.017	0.155	0.01	0.132
	[0.944]	[0.661]	[0.926]	[0.651]	[0.957]	[0.684]	[0.925]	[0.696]	[0.935]	[0.509]	[0.962]	[0.580]
log(population)	0.006	0.001	0.000	-0.006	0.000	-0.005	0.224	0.108	0.014	-0.136	0.025	-0.118
	[0.450]	[0.891]	[0.982]	[0.519]	[0.969]	[0.569]	[0.395]	[0.690]	[0.947]	[0.536]	[0.903]	[0.588]
log (gdp)	-0.011	-0.003	-0.024	-0.018	-0.025	-0.018	-0.327	-0.021	-0.74	-0.501	-0.737	-0.488
	[0.308]	[0.808]	[0.049]*	[0.153]	[0.044]*	[0.146]	[0.423]	[0.951]	[0.079]	[0.152]	[0.076]	[0.149]
number of preceding peace years	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.012	-0.016	-0.021	-0.027	-0.021	-0.026
	[0.236]	[0.212]	[0.073]	[0.043]*	[0.061]	[0.042]*	[0.376]	[0.276]	[0.091]	[0.033]*	[0.085]	[0.029]*
constant	0.002	0.003	0.207	0.247	0.198	0.230	-6.279	-6.830	1.193	1.817	0.899	1.309
	[0.988]	[0.981]	[0.188]	[0.164]	[0.224]	[0.178]	[0.232]	[0.209]	[0.745]	[0.641]	[0.809]	[0.726]
Wald chi-square							17.540	17.390	22.800	16.200	16.170	17.120
Observat-ions	515	469	541	492	541	492	515	469	541	492	541	492

Note: Robust p-values in brackets
"contemp" = contemporanous
* significant at 5%; ** significant at 1%

TABLE 3 - FORCED MIGRATION AND THE SPREAD OF CONFLICTS

MODEL 4: RANDOM EFFECTS PROBIT MODEL

dependent variable : conflict onset	Reg 1-4.1	Reg 1-4.2	Reg 1-4.3	Reg 1-4.4	Reg 1-4.5	Reg 1-4.6
	explanatory variables					
	contemp-oraneous	one-year lagged	contemp-oraneous	one-year lagged	contemp-oraneous	one-year lagged
	origin of migrants					
	all countries		neighbour countries		non neighbour countries	
forced migrant inflow	-1.000 [0.206]	-0.281 [0.527]	-1.110 [0.179]	0.002 [0.985]	-19.315 [0.429]	-0.244 [0.842]
polity index	-0.012 [0.544]	0.007 [0.703]	-0.017 [0.395]	-0.014 [0.461]	-0.014 [0.487]	0.009 [0.649]
civil war in neighbour countries	0.066 [0.836]	0.081 [0.795]	0.102 [0.736]	-0.134 [0.636]	0.072 [0.813]	0.061 [0.843]
ethnic frac.	-0.351 [0.765]	-0.309 [0.764]	-0.291 [0.785]	-0.464 [0.662]	-0.391 [0.714]	-0.362 [0.725]
language frac.	1.872 [0.072]	0.912 [0.343]	1.366 [0.167]	1.334 [0.178]	1.210 [0.220]	0.911 [0.347]
religious frac.	-1.431 [0.004]**	-0.992 [0.020]*	-1.097 [0.012]*	-1.095 [0.010]*	-1.040 [0.016]*	-0.989 [0.020]*
number of transborder ethnies	-0.133 [0.186]	0.069 [0.509]	-0.058 [0.546]	-0.027 [0.778]	-0.050 [0.596]	0.067 [0.522]
log (population)	0.395 [0.001]**	0.238 [0.038]*	0.319 [0.005]**	0.288 [0.011]*	0.303 [0.007]**	0.231 [0.043]*
log (gdp)	-0.310 [0.076]	-0.200 [0.209]	-0.374 [0.025]*	-0.314 [0.058]	-0.345 [0.039]*	-0.195 [0.217]
number of preceding peace years	0.022 [0.002]**	0.026 [0.000]**	0.022 [0.002]**	0.020 [0.005]**	0.021 [0.002]**	0.025 [0.000]**
constant	-6.672 [0.001]**	-4.904 [0.005]**	-5.115 [0.002]**	-4.682 [0.005]**	-4.850 [0.004]**	-4.762 [0.006]**
Wald chi-square	17.680	14.270	16.060	15.160	15.450	15.280
Observations	658	601	658	630	658	630

Note: Robust p-values in brackets
* significant at 5%; ** significant at 1%

TABLE 4 - FORCED MIGRATION AND THE SPREAD OF CIVIL WARS

MODEL 4: RANDOM EFFECTS PROBIT MODEL

dependent variable : civil war onset	Reg 2-4.1	Reg 2-4.2	Reg 2-4.3	Reg 2-4.4	Reg 2-4.5	Reg 2-4.6
	explanatory variables					
	contemp-oraneous	one-year lagged	contemp-oraneous	one-year lagged	contemp-oraneous	one-year lagged
	origin of migrants					
	all countries		neighbour countries		non neighbour countries	
forced migrant inflow	0.374 [0.180]	0.372 [0.177]	0.489 [0.062]	0.373 [0.196]	-0.445 [0.737]	0.419 [0.621]
polity index	0.034 [0.236]	0.033 [0.183]	0.020 [0.369]	0.021 [0.372]	0.015 [0.500]	0.018 [0.447]
civil war in neighbour countries	-0.134 [0.694]	0.060 [0.865]	0.038 [0.898]	0.214 [0.522]	0.094 [0.751]	0.242 [0.467]
ethnic frac.	2.596 [0.131]	2.734 [0.121]	1.743 [0.252]	1.795 [0.259]	1.828 [0.222]	1.806 [0.249]
language frac.	-1.022 [0.546]	-1.110 [0.511]	-1.379 [0.361]	-1.497 [0.347]	-1.376 [0.355]	-1.377 [0.380]
religious frac.	-0.473 [0.395]	-0.505 [0.343]	-0.224 [0.618]	-0.213 [0.641]	-0.200 [0.653]	-0.222 [0.629]
number of transborder ethnies	-0.030 [0.808]	0.047 [0.673]	-0.009 [0.929]	0.063 [0.557]	-0.007 [0.946]	0.054 [0.611]
log (population)	0.112 [0.431]	0.055 [0.652]	0.002 [0.986]	-0.058 [0.576]	0.014 [0.893]	-0.051 [0.624]
log (gdp)	-0.126 [0.462]	0.008 [0.960]	-0.317 [0.040]*	-0.211 [0.165]	-0.317 [0.039]*	-0.203 [0.180]
number of preceding peace years	-0.005 [0.606]	-0.007 [0.286]	-0.010 [0.096]	-0.012 [0.053]	-0.010 [0.091]	-0.012 [0.048]*
constant	-3.285 [0.235]	-3.474 [0.163]	0.279 [0.867]	0.424 [0.806]	0.017 [0.992]	0.193 [0.912]
Wald chi-square	13.640	11.840	10.870	10.940	8.930	11.160
Observations	515	469	541	492	541	492

Note: Robust p-values in brackets
* significant at 5%; ** significant at 1%

TABLE 5 - FORCED MIGRATION AND THE SPREAD OF ETHNIC AND NON-ETHNIC CIVIL WARS

MODEL 4: RANDOM EFFECTS PROBIT MODEL

dependent variable : ethnic civil war onset	Reg 3-4.1	Reg 3-4.2	Reg 3-4.3	Reg 3-4.4	Reg 3-4.5	Reg 3-4.6
	explanatory variables					
	contemp-oraneous	one-year lagged	contemp-oraneous	one-year lagged	contemp-oraneous	one-year lagged
	origin of migrants					
	all countries		neighbour countries		non neighbour countries	
forced migrant inflow	0.503 [0.072]	0.494 [0.078]	0.655 [0.015]*	0.518 [0.081]	-0.41 [0.750]	0.4 [0.638]
polity index	0.001 [0.974]	-0.018 [0.568]	-0.008 [0.770]	-0.023 [0.461]	-0.013 [0.625]	-0.027 [0.384]
civil war in neighbour countries	0.259 [0.563]	0.303 [0.505]	0.419 [0.328]	0.491 [0.257]	0.481 [0.259]	0.534 [0.217]
ethnic frac.	0.814 [0.672]	0.442 [0.827]	-0.178 [0.920]	-0.459 [0.800]	0.06 [0.972]	-0.286 [0.870]
language frac.	0.311 [0.867]	0.76 [0.697]	-0.079 [0.964]	0.128 [0.942]	-0.143 [0.932]	0.161 [0.925]
religious frac.	-0.81 [0.179]	-0.882 [0.167]	-0.509 [0.323]	-0.523 [0.326]	-0.442 [0.381]	-0.519 [0.325]
number of transborder ethnies	0.061 [0.603]	0.107 [0.405]	0.08 [0.478]	0.125 [0.303]	0.077 [0.490]	0.111 [0.356]
log (population)	0.186 [0.196]	0.18 [0.246]	0.06 [0.616]	0.034 [0.788]	0.07 [0.569]	0.031 [0.797]
log (gdp)	-0.004 [0.984]	0.06 [0.774]	-0.249 [0.148]	-0.233 [0.204]	-0.24 [0.150]	-0.213 [0.235]
number of preceding peace years	-0.011 [0.147]	-0.007 [0.388]	-0.017 [0.014]*	-0.015 [0.038]*	-0.02 [0.011]*	-0.015 [0.029]*
constant	-5.46 [0.063]	-6.124 [0.055]	-1.203 [0.517]	-1.08 [0.573]	-1.446 [0.424]	-1.243 [0.516]
Wald chi-square	15.700	14.760	19.760	17.190	15.960	16.050
Observations	545	503	571	526	571	526

Note: Robust p values in brackets
* significant at 5%; ** significant at 1%

TABLE 6 - FORCED MIGRATION AND THE SPREAD OF CONFLICTS – REGIONAL SUBDIVISION OF AFRICA

dependent variable : conflict onset	Model 1: Probit		Model 2: Logit	
	Reg 3-1.1	Reg 3-1.2	Reg 3-3.1	Reg 3-3.2
	explanatory variables			
	contemp-oraneous	one-year lagged	contemp-oraneous	one-year lagged
forced migrant inflow	-0.250 [0.003]**	-0.140 [0.017]*	-0.235 [0.001]**	-0.129 [0.011]*
south africa	0.013 [0.799]		0.005 [0.908]	
north africa	0.035 [0.559]	0.059 [0.418]	0.031 [0.601]	0.068 [0.403]
central africa	-0.022 [0.370]	-0.033 [0.136]	-0.020 [0.359]	-0.032 [0.123]
west africa	-0.036 [0.221]	-0.078 [0.039]*	-0.030 [0.244]	-0.075 [0.050]*
east africa	0.002 [0.941]	-0.015 [0.529]	-0.002 [0.933]	-0.014 [0.470]
forced migrant inflow in north africa	-0.181 [0.655]	0.072 [0.429]	-0.184 [0.678]	0.056 [0.626]
forced migrant inflow in central africa	0.162 [0.181]	0.100 [0.118]	0.151 [0.200]	0.096 [0.088]
forced migrant inflow in west africa	0.185 [0.054]	0.152 [0.011]*	0.183 [0.020]*	0.138 [0.007]**
forced migrant inflow in east africa	0.216 [0.015]*	0.140 [0.026]*	0.213 [0.003]**	0.132 [0.014]*
polity index	0.000 [0.699]	0.002 [0.172]	-0.001 [0.612]	0.001 [0.265]
conflict in neighbour countries	0.006 [0.709]	0.009 [0.594]	0.004 [0.743]	0.008 [0.629]
ethnic frac.	0.035 [0.617]	0.041 [0.456]	0.026 [0.711]	0.042 [0.441]
language frac.	0.072 [0.063]	0.060 [0.114]	0.064 [0.062]	0.050 [0.125]
religious frac.	-0.061 [0.026]*	-0.035 [0.293]	-0.051 [0.057]	-0.023 [0.478]
number of transborder ethnies	0.004 [0.592]	0.015 [0.131]	0.141 [0.700]	0.014 [0.165]
log (population)	0.012 [0.147]	0.004 [0.647]	0.010 [0.245]	0.001 [0.901]
log (gdp)	-0.022 [0.086]	-0.017 [0.180]	-0.019 [0.123]	-0.015 [0.262]
number of preceding peace years	0.001 [0.001]**	0.002 [0.000]**	0.001 [0.002]**	0.002 [0.001]**
Wald chi-square	68.600	54.160	65.280	48.500
Observations	583	529	583	529

Note: Marginal probit and logit coefficients

Robust p values in brackets

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