

**The Inter-Generational Impact of Conflict and Forced Displacement on Education:**

**Evidence from Burundi**

Sonja Fransen (corresponding author)

Maastricht Graduate School of Governance, Maastricht University

Melissa Siegel

Maastricht Graduate School of Governance, Maastricht University

Carlos Vargas-Silva

COMPAS, University of Oxford

## **Abstract**

This paper studies the long-term impacts of conflict and forced displacement experiences during Burundi's 1990s civil war on individuals who were of school age during the war and their children (i.e. the post-war generation). We use the exogenous variation in the duration and timing of the conflict across Burundi's provinces for identification purposes. This variation led to cohorts of school age children being exposed to conflict and forced displacement at different periods and for different lengths of time. Using data collected over a decade after the end of the conflict, we show that, consistent with previous research, both conflict and forced displacement experiences during school age years have significant, negative impacts on educational outcomes and that boys were more negatively affected than girls. The effects of conflict experiences are however not transmitted to the next generation. After controlling for relevant factors including pre-war wealth and caregiver education, we find that children whose caregiver(s) experienced conflict during school age years do not have significantly lower educational outcomes than other children. The forced displacement experiences, both internal and international, of caregivers did lead to reductions in educational outcomes for children in the post-war generation, which is most likely due to the reintegration challenges that returned displaced populations face in Burundi. Gender differences are no longer significant for the post-war generation.

## **Introduction**

The effects of conflict on human capital have been the subject of increasing academic scrutiny over the past decade. The evidence suggests that there are multiple factors related to conflict that may affect educational outcomes, including the destruction of schools, killing of teachers, child soldiering, forced displacement, and an overall state of insecurity which may encourage parents to withdraw their children from school (Akresh & De Walque, 2008; Ichino & Winter-Ebmer, 2004; Justino, 2011; Shemyakina, 2011; Verwimp & Van Bavel, 2014). Conflict may also weaken the schooling system because of a decrease in state expenditures on education (Lai and Thyne, 2007). These impacts are sometimes temporary as school enrollment and completion rates at national levels often return to pre-conflict levels after the end of fighting (United Nations Educational, Scientific and Cultural Organization, 2011). However, even if the national effect is temporary, experiencing conflict could have permanent consequences for those who were directly affected.

This paper studies the long-term impacts of conflict and forced migration experiences during Burundi's 1993-2000 civil war on human capital acquisition. Burundi's conflict resulted in an estimated 300,000 casualties and the displacement of over 1 million people (Ngaruku & Nkurunziza, 2005). The education system was seriously affected during the conflict, due to destruction of schools, killings of teachers, and lower government investments (Obura, 2008). The forced recruitment of children as soldiers was also common (International Labour Organization, 2003; Child Soldiers International, 2004) and school enrollment rates plummeted by an estimated 50% (Sommers, 2002). Verwimp and Van Bavel (2014) estimated, using 2002 data, that each year of conflict exposure during school age in Burundi decreased a child's likelihood of completing primary school by four to six percentage points.

Since the end of the 1990s conflict, educational outcomes have improved in Burundi. Between 1999 and 2011, Burundi's government doubled its investments in education (United Nations Educational, Scientific and Cultural Organization, 2011) and in 2005 primary school fees were abolished (Internal Displacement Monitoring Centre, 2008). Net enrollment rates for primary education increased from 57% in 1999 to 95% in 2013 (World Bank, 2014). These government investments in education may have important effects on long-term stability in the country. Studies have shown that investments in welfare policies such as those targeting education significantly reduce the possibility of civil conflict (Taydas & Peksen, 2012). Despite the improvements in the schooling system in Burundi, however, the long-term effects of the war on the education of those affected remains to be explored.

Fifteen years have passed since the official end of the conflict in Burundi. It is therefore possible to explore if these improvements in national educational outcomes have resulted in better long-term educational outcomes for those who were exposed to conflict during childhood. It is also possible to explore if their wartime experiences affect the educational outcomes of their children, i.e. the post-war generation. Evidence of impacts on the post-war generation would indicate that the impacts of conflict/displacement on human capital are more persistent than generally perceived.

Using nationally representative household and community data collected in early 2015 (i.e. 15 years after the end of conflict), this paper explores the long-term consequences of conflict and forced displacement on human capital acquisition in Burundi.<sup>1</sup> Following Bundervoet et al.

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<sup>1</sup> In April 2015 Burundi's President announced that he was running for a third term in office. Many interpreted a third term in office as a violation of the peace agreements and there was an escalation in violence and political tensions in the country. Over 200,000 were displaced from Burundi to neighboring countries in 2015, with over 100,000 going to Tanzania (UNHCR, 2015a, 2015b). This is the first episode of large forced displacement in the country in over a decade. The data collection for this paper finalized about six weeks before the announcement of the President and before this new wave of displacement (more details below).

(2009) and Verwimp and Van Bavel (2014) we combine survey data with provincial data on the timing of conflict and exploit the exogenous spatial and temporal variation of the Burundian conflict for identification purposes. The spread of the conflict was affected by a series of geographical factors and the natural endowments of the different provinces. This includes proximity to other countries (where rebels could organize), forests (which provided shelter) and lakes (which facilitated transportation).

We start the analysis by examining if the negative effects of conflict and forced displacement on educational outcomes shown in previous work are still observable 15 years later. Building on the work of Verwimp and Van Bavel (2014), who looked at the effects of wartime experiences on primary school completion, we explore the effects of wartime experiences on both primary school completion and years of schooling. Second, we explore the intergenerational impact of conflict and forced displacement experiences on education by estimating how the conflict and forced displacement experiences of caregivers relate to the educational outcomes of children who were born after the end of conflict.

During the conflict people residing close to Tanzania or Rwanda often crossed the border, whereas many others who resided further from the border became internally displaced people (IDPs). In the analyses on forced displacement we make a distinction between internal and international forced displacement to study how these different types of forced displacement experiences affected educational outcomes. People who are internally displaced in weak or conflict-affected states may receive less assistance than those who fled internationally, because their national governments lack the capacity and/or willingness to provide this assistance (UNESCO, 2011). Those who move internationally have a right to protection and assistance, including the right to basic education, as stated by the 1951 UN Refugee Convention relating to

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the Status of Refugees (UNHCR, 1951). There may consequently be significant differences in living conditions between internal and international forced displacement populations, which may affect their human capital acquisition during displacement.

Throughout the paper, we also put particular emphasis on gender differences in the impacts of wartime experiences on education. It is well known that conflict and displacement affect men and women differently (Bermúdez Torres, 2002; El-Bushra, 2000; Gurujara, 2000; Lai & Thyne, 2007). Daley (2008) explains that in the particular case of Burundi the likelihood of getting killed, conscripted, tortured or raped varied significantly across genders. Verwimp and Van Bavel (2014) found that boys' education was more affected than girls' education during Burundi's civil war. We will build on these findings by replicating them with data collected over a decade after the end of conflict and by studying the extent to which boys and girls from the post-war generation are affected differently.

## **Background**

### *A brief overview of the conflict*

Burundi is a small country in the African Great Lakes region that consistently ranks as one of the five poorest countries of the world. The country occupied the 184th place (out of 188) in the Human Development Index in 2014 (United Nations Development Programme, 2015). Gross national income per capita was just USD 270 in 2014, well below the average for sub-Saharan Africa (USD 1,699). The country is densely populated and while close to 90% of the population depends on subsistence agriculture, cultivable land is relatively scarce (World Bank, 2015).

There have been historical tensions between Burundi's two main ethnic groups (Hutus and Tutsis). These ethnic tensions are part of a complex and multifaceted power struggle that has led to large scale conflict. In 1993 the events that lead to the biggest conflict in Burundi's

history started when Melchior Ndadadye became the first democratically-elected Hutu president of the country. He was assassinated a few months later by Tutsi soldiers. This assassination led to a war that lasted for nearly a decade (Ngaruku & Nkurunziza, 2005; World Bank, 2009a). Whereas previous conflict episodes were limited to certain provinces, the 1990s war was a countrywide conflict in which just two provinces were not seriously affected.

### *Spread of the conflict*

The Burundian conflict spread gradually across the country and provinces were affected at different periods. There are two stages to the conflict. The first stage involved the killings following the assassination of President Ndadaye. In the first ten days after the assassination over 100,000 people were killed. The victims were both Hutu and Tutsi. All provinces were affected by the killings at this first stage, but as estimated by Bundervoet (2009), the impact was particularly strong in the central provinces of Gitega, Karuzi, Kayanza and Ngozi. As shown in Figure 1, Bundervoet's (2009) survey estimates indicate that over 20% of the respondents in these four provinces had their fathers killed during the crisis. These estimates are corrected for the fact that the sample only includes those who survived the 1993 killings.

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Figure 1 in here

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The second stage of the conflict is the spread of the civil war. As explained by Bundervoet et al. (2009), the spatial spread of the conflict was affected by geographical factors, such as the proximity to international borders, forests and lakes. They indicate that the conflict started early in the northwest provinces of Cibitoke, Bubanza, Bujumbura Rural and Ngozi. One

of the reasons for this was the proximity of the Democratic Republic of Congo (DRC) where the rebels had a base. Next the conflict spread to Kayanza province. One of the reasons for the spread to Ngozi and Kayanza provinces is the existence of the Kiriba forest in northwestern Burundi. This is the only montane forest in Burundi. Rebels were able to use the forest to hide and move across provinces. The conflict kept spreading gradually across provinces and, as explained by Verwimp and Van Bavel (2014), the Tanganyika Lake also played a role by allowing the use of boats to travel to the south of the country. Only the provinces of Rutana (southeast) and Cankuzo (east) were not seriously affected by the conflict.

#### *Internal and international forced displacement*

The war resulted in internal and international forced displacement. Around 700,000 people fled to neighbouring countries, mainly Tanzania, where they settled in refugee camps (Fransen & Kuschminder, 2012). It is estimated that the number of internally displaced reached 800,000 in 1999 (United Nations Office for the Coordination of Humanitarian Affairs, 1999). Geographical location was the main determinant of internal versus international forced displacement as the forcibly displaced were often forced to flee on foot.

Living conditions in the displacement camps within Burundi were generally poor. The majority of settlements lacked basic services such as clean drinking water and health care facilities (Zeender & McCallin, 2013). Burundi's government was responsible for funding educational facilities in the camps and reports suggest that at least 50% of school-aged internally displaced children did not go to school (Integrated Regional Information Network, 2002). One of the main reasons for the low school attendance was a lack of resources – living conditions were bad in the camps and households prioritized basic needs over paying school fees. Boys were



more likely to attend school than girls in the camps in Burundi, because girls often looked after other children in the household, or dropped out because of early marriage. The primary school enrollment rate in the camps was much lower than the national primary school enrollment rate in the same year, which was estimated at 65% (World Bank, 2014).

Educational facilities in the camps in Tanzania differed across refugee sites, but were generally better than those in Burundi during the war. In refugee camps in northwestern Tanzania primary schools were partly funded by UNHCR, who paid for teacher salaries, and were considered to be of good quality (Amnesty International, 2005). It has been estimated that around 90% of primary school age children who arrived in Tanzania after 1993 were enrolled in school in 2000 (Jackson, 2000). As such we should expect those who were displaced within Burundi to have worse educational outcomes than those displaced to Tanzania.

### *The return of displaced populations*

Since the end of the conflict Burundi has experienced a large wave of return of its displaced populations. UNHCR estimates suggest that over 500,000 Burundians have returned from Tanzania during the last decade (Fransen, 2015). This number includes children of Burundian refugees who were born in Tanzania. At the same time hundreds of thousands of internally displaced individuals have returned home as well (Verwimp & Muñoz-Mora, 2013).

The reintegration of the displaced has been a challenge. Many of those who returned were not able to reclaim their land, establish their livelihoods and gain access to government services such as education. A survey conducted in 2011 showed that returnees were significantly less likely to own agricultural land, which is among the most important sources for livelihood in rural Burundi (Fransen, 2015). Food insecurity was also found to be higher in communities with

more returnees from abroad, which indicates that the return of displaced populations, particularly when it occurred in large numbers, led to (increased) scarcity of food. Verwimp and Muñoz-Mora (2013) estimate that it takes between eight to ten years after return for the welfare level of the displaced to converge to that of the non-displaced. Apart from the experiences during displacement, reintegration challenges after return may therefore also have long-term consequences for human capital acquisition of households affected.

### *2015 displacement*

In 2015, over 200,000 people were displaced from Burundi to neighboring countries (UNHCR, 2016). This is the first episode of large forced displacement in the country in over a decade. The displacement is the result of increasing tensions and violence in response to the April 2015 announcement that the President was running for a third term in office. Many interpreted a third term in office as a violation of the Arusha peace agreements. The data collection for this paper was finalized approximately six weeks before the President's announcement and before this new wave of tensions and displacement, as discussed in more detail below.

### **Methodology and data**

Data were collected across all provinces of Burundi during January to March 2015. A total of 1,500 households were interviewed. Sampling of households followed a two-step self-weighting design based on Burundi's 2008 census. Within each *sous-colline* (the smallest administrative unit in the country), 15 households and one community representative were interviewed. Figure 2 shows the distribution of communities/*sous-collines* in the survey across Burundi.

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Figure 2 in here

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Information was collected at the individual, household and community level. Forced displacement experiences were recorded at the individual level. A person is defined as displaced if the person resided in a displacement camp in Burundi or had fled internationally and had resided abroad for a consecutive period of at least three months. One formerly displaced member of the household (internal and international displacement) was randomly selected for an in-depth interview.

As explained above, the Burundian conflict spread gradually across the country and provinces were affected at different periods. This enables a comparison of individuals who were affected by conflict during their school years to those of the same birth cohort who were not affected by conflict during their school years and to those who had already finished their education when the conflict started. This latter group provides a control group for those who were of school age during the conflict.

We assume that those who finished their education before the war would have been equally affected as the cohort that was of school age during the war, had they experienced conflict as well. Therefore, our analysis is similar to a differences-in-differences approach. This identification strategy has been used in previous research exploring the effects of conflict on children (e.g. Akresh & De Walque 2008; Bundervoet et al., 2009; Verwimp & Van Bavel 2014).

In the first part of the analysis we study the impact of conflict and forced displacement on those who were school aged during the war. Here we made several modifications to the sample. First, households in the capital (Bujumbura) were eliminated from the sample. The identification methodology relies on the timing of the conflict in the different provinces and there is no

agreement when and to the degree in which households in the capital were affected by the conflict. Second, we dropped those who were born before 1950, because their educational outcomes are not a good indicator of the outcomes of those who finished their education before the war. In the 1940s, the Burundi primary school system was reformed and formalized, becoming more state owned instead of run by catholic churches. The number of primary schools and primary school enrolment rates increased substantially after the reforms (Obura, 2008). Finally, we dropped from the sample all those who came of schooling age (i.e. seven years of age) after the end of the conflict in 2000. These modifications yielded a dataset of 2,763 individuals for this first part of the analyses. Of those 2,763 individuals, 814 (29%) were of primary school age during the conflict.

The second part of the analyses focuses on the impact of the conflict and forced displacement experiences of caregivers on the educational outcomes of those who became of school age after the war (i.e. seven or older in 2000). For this part of the analysis we also exclude households in Bujumbura and children who did not finish primary school yet when the data were collected (i.e. younger than 12 years of age). This yielded a dataset of 1,837 individuals who were between 12 and 21 years of age (mean = 15.91) at the time of data collection. Of these 1,837 individuals, 1,335 (73%) resided in a household in which at least one caregiver had experienced conflict during school age.

To measure conflict experiences we use provincial data on the timing of conflict from Bundervoet et al. (2009) and Verwimp and Van Bavel (2014) and combine this information with our individual data on the year of birth. We assume that an individual was exposed to conflict during school age if he/she had resided in a province that was affected by conflict *and* if the individual was of school age when the province was affected by conflict. We also use an

alternative conflict variable that measures the number of years for which the person was exposed to conflict during school age.

We estimate multiple variations of the following models:

$$School_i = \alpha_p + \tau + \beta Conf_p + \gamma X_i + \rho M_i + \vartheta M_i * Conf_p + \varepsilon_{ip} \quad (1)$$

$$School_i = \alpha_p + \tau + \theta Disp_i + \gamma X_i + \rho M_i + \delta M_i * Disp_i + \varepsilon_{ip} \quad (2)$$

$School_i$  is either a dummy indicating the person completed primary school or years of education,  $\alpha_p$  is the province fixed effect,  $\tau$  is the birth cohort effect and  $\varepsilon_{ip}$  is the error.  $Conf_p$  can be either a dummy which is equal to 1 if the individual was affected by conflict during school age or the number of years for which the individual was affected by conflict during school age.  $Disp_i$  indicates that the individual had either resided in a displacement camp in Burundi or had been displaced in another country. Later we separate the internally displaced (IDPs) from the internationally displaced (refugees).  $X_i$  are a series of controls for individual and household characteristics, which include gender and age of the child and a pre-war wealth index based on livestock ownership of the household before the war ( $W_i$ ). Following previous papers the livestock index is a standardized version of tropical livestock units (Bundervoet, 2009; Bundervoet, 2010). We include an interaction between conflict/forced displacement experiences and being male ( $M_i$ ). The main coefficients of interest for the analysis are  $\beta$ ,  $\theta$ ,  $\vartheta$  and  $\delta$ .

In the robustness section we also look at the number of years of schooling that the individual completed as the dependent variable. Our data shows that 59% of individuals who were of primary school age during the conflict did not finish primary school (which takes six years in Burundi). This group of school leavers has on average 2.6 years of schooling. Therefore, it is also useful to look at the impact of conflict and forced displacement on years of schooling.

In a second step we explore the impact of caregiver conflict experiences on the post-war generation. For this we create a dummy, which indicates that at least one of the caregivers experienced conflict or forced displacement. In this case we estimate several models along the following lines:

$$School_i = \alpha_p + \tau + \beta Conf Care_i + School Care_i + \gamma I_i + \vartheta M_i * Con Care_f_p + \varepsilon_{ip} \quad (3)$$

$$School_i = \alpha_p + \tau + \theta Disp Care_i + School Care_i + \gamma I_i + \delta M_i * Disp Care_i + \varepsilon_{ip} \quad (4)$$

Where  $School_i$  now refers to the education level of children who became of school age after the war,  $Con Care_i$  and  $Disp Care_i$  are equal to one if at least one of the caregivers was affected by conflict or displacement during school age, respectively and  $School Care_i$  is the average educational level of the caregivers.

### **Preliminary data analysis**

Table I reports, firstly, the levels of primary education completion and years of schooling of those exposed and not exposed to conflict and forced displacement experiences during school age years, and, secondly, the educational outcomes of the post-war generation whose caregivers were exposed and not exposed to conflict and forced displacement experiences. The table shows that those who experienced conflict or forced displacement during their school age years are significantly less likely to have completed primary school and have fewer years of schooling than those who did not experience conflict during school age years. Likewise, children who belong to the post-war generation and who reside in households in which at least one caregiver experienced conflict or forced displacement during school age years have lower educational

outcomes than other children. Table I also presents means for the control variables that were used in the subsequent analyses.

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Table I in here

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## **Results**

### *Conflict, forced displacement and the war generation*

Tables II presents the effects of conflict experiences, both as a dummy and in terms of years of conflict experienced, during primary school age years on the likelihood of completing primary education for the war generation. Given the dichotomous nature of the dependent variable we show results from linear probability and logit models. The results are similar across models. The results suggest that those who experienced conflict during their primary schooling years (i.e. seven to 13 years of age) are significantly less likely to have completed primary school, compared to other individuals. Having experienced conflict during primary school age years reduces the chances of completing primary school by eight percentage points (column 1), while each additional year of conflict experience reduces the chances of completing primary school by four percentage points (column 3).

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Table II in here

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As expected, greater pre-war wealth has a positive effect on primary school completion and males have higher educational levels. The interaction between the male dummy and experiencing conflict is not significant, suggesting that the education of males is not more

affected by conflict relative to females. This finding does not corroborate with the results of Verwimp and Van Bavel (2014) who used data collected in Burundi in 2002 and found that conflict experiences decreased the gender gap in educational outcomes because boys had been affected to a larger extent. As we described in the introduction, large investments were made into the education sector in Burundi after the war and primary school enrollment rates increased to 95%. Because girls had lower educational levels before and during the war, they probably benefitted most from these investments. It is possible that in the period between 2002 and 2015, when our data were collected, conflict-affected girls caught up with their male counterparts in terms of primary school completion.

In Table III we replace the conflict variables by a variable that indicates whether the person experienced forced displacement, either internal or international, during school age. As explained by Van Bavel and Verwimp (2014), forced displacement is one of the key channels through which conflict can affect the education of children. The results suggest that forced displacement experiences indeed have a negative effect on educational outcomes of those who received education during the war. Experiencing forced displacement during primary school age years reduces the chance of completing primary school by five percentage points (column 1). The effect remains significant, although decreases slightly, after controlling for conflict experiences (columns 3 and 4). The results for the interaction between forced displacement experiences and gender is inconsistent across models and does therefore not provide concluding evidence for different effects of forced displacement on boys and girls.

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Table III in here

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In Table IV we separate forced migrants between those who were internally displaced in camps and those who were international migrants (mostly refugees in Tanzania). As we explained above, these two groups had different access to education while in displacement. Table IV shows that the negative effect of forced displacement experiences on education is mostly driven by IDP camp experiences (columns 3 and 4). Individuals who resided in IDP camps during primary school age years are significantly less likely to have completed primary school. Refugee experiences, on the other hand, do not seem to have had a significant impact on educational outcomes.

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Table IV in here

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#### *The post-war generation*

One of the key objectives of this paper is to explore if the effects of conflict and forced displacement span more than one generation. Table V shows the effects of conflict experiences of caregivers during school age on the likelihood of children in the post-war generation to complete primary school. The results show that, controlling for caregiver educational level and household pre-war wealth, children who have at least one of caregiver who had experienced conflict during school age do not have significantly lower educational outcomes than other children. These findings suggest that the negative of conflict experiences on education were not transmitted to the next generation in Burundi. As expected, the schooling of the household head has a significant, positive effect on the education of the post-war children in the household.

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Table V in here

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Table VI presents the impact of forced displacement experiences of caregivers during school age on the chances of completing primary schooling. Here we find evidence of an impact of the caregivers' forced displacement experiences on this variable. The forced migration experiences, internal or international, of a caregiver reduce a child's likelihood of completing primary school by five percentage points. Once we separate refugees from IDPs (Table VII) we find that both IDP and refugee experiences of caregivers are significantly related to the educational outcomes of children in the post-war generation. Children in the post-war generation who have a caregiver that fled internationally during school age have an 11-percentage point lower likelihood of completing primary school and children who have a caregiver that resided in an IDP camp during the war have a five-percentage point lower likelihood of completing primary school.

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Table VI in here

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Table VII in here

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These findings are in contrast with our previous results for the war generation in which only the IDP camp residents' education was negatively affected. However, the results are compatible with the experiences of both generations after the war. As described earlier, many refugee children from the war generation were able to get education in Tanzanian refugee camps during the 1990s (Amnesty International, 2005). As such, we expected the education of refugees

to have been less affected by displacement as compared to the education of IDPs. This was confirmed by our previous analyses that were presented in Table IV. However, the reintegration of refugees coming from mainly Tanzania since the early 2000s has been a challenge (Fransen, 2015). This was for a large part due to the time that refugees spent in exile. Our data shows that during their last displacement episode refugees spent almost 56 months abroad whereas the average duration of displacement for IDPs was 20 months. Returnee households were consequently at a significant disadvantage as compared to other households in Burundi after the war, which may have affected their children's educational outcomes.

Finally, some important gender differences emerge from these analyses as well. While in the war generation girls had lower educational outcomes than males, this seems to have reversed in the post-war generation. The analyses consistently show that males who are part of the post-war generation are less likely to finish primary school. The interaction terms between conflict and forced displacement experiences of the caregiver and the gender of the child are not significant: the wartime experiences of caregivers do not seem to affect boys and girls in the post-war generation differently.

### *Robustness checks*

In the previous sections we explored the impact of conflict and forced displacement on the likelihood of individuals finishing primary school. As described earlier, most people in our sample did not finish primary school, but have some years of education. In this section we explore the impact of conflict and forced displacement on years of completed schooling as it provides further disaggregation across educational outcomes.

Table VIII shows the estimates for the impact of experiencing conflict during primary school age on the years of schooling for the war generation. Given that the main independent variable is a count variable we present results from OLS and negative binomial models. The results are similar to those presented in Table III, showing that conflict experiences during school age years have a significant, negative effect on educational outcomes. Individuals that experienced conflict during school age years have on average 0.6 fewer years of schooling, compared to other individuals. The results for the interaction terms provide some indication that boys were affected by conflict to a larger extent than girls although the results vary across the different models.

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Table VIII in here

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Table IX replicates the findings of Table III, in which we investigated the effects of forced displacement experiences on primary school completion for the war generation, now using the years of schooling as the outcome variable. The results show a significant relationship between forced displacement experiences on years of schooling using the negative binomial model, and provide more robust evidence for the less conclusive findings in Table III that boys were more negatively affected by forced displacement experiences than girls.

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Table IX in here

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Tables X and XI replicate the results in Tables V and VI where we investigated the impact of conflict and forced displacement, respectively, of the caregivers on primary school

completion of children that are part of the post-war generation. In Tables X and XI we replace the dependent variable of primary school completion with the total years of schooling of a child. Table X confirms the findings that emerged from Table V: children that reside in a household in which at least one caregiver experienced conflict do not have significantly fewer years of schooling, on average, than other children. Again, the analyses show that boys and girls were not affected differently by the caregivers' conflict experiences.

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Table X in here

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Table XI shows the estimates for the forced displacement experiences of the caregivers. Children that reside in a household in which at least one caregiver had fled internationally or internally during his or her school age years have significantly fewer years of schooling than other children, which confirms the findings in Table VI. The finding is robust against the inclusion of conflict experiences as a control variable. In these estimations we again do not find any evidence for gender differences in the relationship between the wartime experiences of caregivers and the educational outcomes of children of the post-war generation.

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Table XI in here

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## **Conclusion**

This paper contributed to the growing literature on conflict and education in conflict-affected societies by exploring the effects of the 1993 - 2000 Burundi civil war on the education for those

who were of school age during the war and their children. We focused on the direct effects of conflict, estimating the effects of residing in a conflict-affected province during school age years, and explored an important mechanism through which conflict may affect education: forced displacement. We looked at two types of forced displacement, internal displacement (IDPs) and international displacement (refugees), as these different experiences may have varying effects on human capital acquisition during displacement. Data were collected around fifteen years after the end of conflict in the country, which enabled a longer-term perspective on the impacts of conflict on education in Burundi.

We find that conflict and forced displacement experiences during the war have a significant, negative effect on the educational outcomes of individuals who attended school during the war. Individuals with conflict experiences during their primary school age years were, on average, eight percentage points less likely to complete primary school. The effects are robust to using years of schooling instead of completion of primary schooling. These findings are in line with previous studies on the effects of conflict on education in Burundi (Verwimp & Van Bavel, 2013) and those conducted in other countries (see, e.g., Akresh & De Walque, 2008; Ichino & Winter-Ebmer, 2004; Justino, 2011) and indicate that wartime experiences have long-lasting, negative effects for the human capital acquisition of those affected.

The negative effects of forced displacement during Burundi's conflict were mainly driven by IDP experiences. Individuals that had resided in IDP camps during their school age years were significantly less likely to have completed primary school and had fewer years of schooling than other individuals. This finding confirms our expectations because living conditions were commonly poor in the IDP camps in Burundi. Even though individuals generally resided in the IDP camps for a shorter period of time as compared to those who fled internationally, the effects

of the IDP experience had long-lasting, negative consequences for the human capital accumulation of individuals who were internally displaced during the conflict.

Our findings also show that the negative effects of experiencing conflict do not trickle down to the next generation. Those individuals who became of schooling age after the war and reside in households in which at least one caregiver experienced conflict during his or her school age years do not have lower educational outcomes than other individuals from the same cohort. The forced displacement experiences of caregivers did however have significant negative effects on the educational outcomes of the post-war generation. Both internal and international forced displacement experiences of caregivers during the war affected the education of children who went to school after war. This is most likely due to the reintegration challenges that many former refugees and IDPs faced upon their return to the country or their communities of origin. A recent study has shown that households with returned refugees are for example significantly less likely to own land, which is the most important asset in rural Burundi, and face worse living conditions compared to households without returned refugees (Fransen, 2015). These reintegration challenges are likely to have affected the educational outcomes of children residing in those households.

Throughout the paper we found some interesting gender differences in the effect of wartime experiences and the wartime experiences of caregivers. Males had significantly better educational outcomes in the war generation, but we find some, although rather inconclusive, evidence that they were affected by conflict and particularly IDP experiences to a larger extent than their female counterparts. This finding corroborates with that of Verwimp and Van Bavel (2014) and indicates that the gender gap in education was slightly reduced by wartime experiences. In the post-war generation, however, girls were more likely to have better

educational outcomes when controlling for variables such as household wealth and education of the caregiver. Moreover, boys and girls were equally affected by the conflict or forced displacement experiences of their caregivers. These findings are likely to be the result of drastic changes in the Burundi school system, such as the abolishment of primary school fees in 2005. In 2013, the primary school completion rates for boys and girls were 67% and 73%, respectively (World Bank, 2014). This is a stark contrast to the situation in 1992, right before the outbreak of the civil war, when the primary school completion rate for boys was 54% and girls had a lower primary school completion rate of 41%.

As described in the introduction, large investments were made in education in Burundi after the war, which led to large increases in primary school enrollment rates. In 2013, 95% of all primary school aged children went to school. These investments have most likely benefitted the post-war generation to an extent that it prevented the negative effects of conflict experiences on human capital to be transmitted to the next generation. This is an important finding because other studies have shown that investments in welfare policies such as those targeting education significantly reduce the possibility of civil conflict (see, e.g., Taydas & Peksen, 2012). Individuals that were directly affected during the war have, however, not been able to catch up with their unaffected peers after the war. As human capital acquisition is closely related to employment, income and living standards, it is likely that this group will be in a long-term disadvantaged position compared to those that did not experience conflict or forced migration. Our results also suggest that households with a history of forced migration are particularly vulnerable in Burundi in the post-war period, most likely due to the reintegration challenges that they face (Fransen, 2015), which in turn affects the education of children in those households.



These findings call for specific policies that target these vulnerable groups to prevent the effects of conflict and forced migration experiences on human capital to endure for generations to come.

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Table I. Child and household characteristics, by exposure to conflict and forced migration

War generation	Conflict exposure <sup>1</sup>			Forced migration exposure <sup>1</sup>		
	Non-exposed	Exposed	t-test	Non-exposed	Exposed	t-test
Primary school completion	0.50	0.32	5.15***	0.45	0.34	3.00**
Years of schooling	6.72	5.27	4.20***	6.39	5.28	3.09***
Current age	23.36	26.91	-34.61	24.91	25.58	-2.75**
Gender (1 = male)	0.44	0.47	-0.87	0.45	0.47	-0.51
Household pre-war wealth	1.03	0.51	3.53***	0.77	0.77	0.02
Post-war generation	Conflict exposure of the caregiver			Forced migration exposure of the caregiver		
	Non-exposed	Exposed	t-test	Non-exposed	Exposed	t-test
Primary school completion	0.44	0.37	3.00***	0.44	0.35	3.70***
Years of schooling	6.36	5.78	3.91***	6.09	5.83	1.90*
Age	16.15	15.80	2.45**	16.00	15.81	1.46
Gender of the child (1 = male)	0.49	0.48	0.59	0.47	0.49	-0.98
Age of the household head	53.36	48.99	8.04 ***	50.79	49.76	2.09**
Gender of the household head (1 = female)	0.24	0.16	3.92***	0.16	0.20	-2.23**
Years of schooling of the household head	2.40	2.95	-3.04***	2.61	2.96	-2.11**
Household pre-war wealth (index)	1.71	0.98	5.40***	1.26	1.12	-1.14
Household current wealth (index)	0.98	0.86	1.52	0.97	0.83	2.06**
Household current land ownership	0.93	0.94	-1.18	0.93	0.95	-1.96*

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. <sup>1</sup> The sample used here includes only those individuals that were of primary school age during the

conflict period (1993 – 2005) and thus excludes those that went to school before the war started. See Appendix for a full explanation of the

variable construction.

Table II. Impact of experiencing conflict during primary school age on completing primary education

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Independent variables	Linear prob.	Logit	Linear prob.	Logit	Linear prob.	Logit	Linear prob.	Logit
Conflict exp. (1 = yes)	-0.08*** (0.02)	-0.41*** (0.12)			-0.09*** (0.03)	-0.33* (0.16)		
Years of conflict exp.			-0.04*** (0.01)	-0.22*** (0.07)			-0.05*** (0.01)	-0.23*** (0.09)
Gender (1 = male)	0.14*** (0.02)	0.88*** (0.10)	0.14*** (0.02)	0.88*** (0.10)	0.14*** (0.02)	0.92*** (0.12)	0.13*** (0.02)	0.87*** (0.11)
Pre-war wealth	0.01*** (0.00)	0.07*** (0.02)	0.01*** (0.00)	0.07*** (0.02)	0.01*** (0.00)	0.07*** (0.02)	0.01*** (0.00)	0.07*** (0.02)
<b>Interactions</b>								
Conflict exp.*male					0.02 (0.04)	-0.16 (0.22)		
Years of conflict exp.*male							0.02 (0.02)	0.03 (0.11)
Sample size	2,763	2,763	2,763	2,763	2,763	2,763	2,763	2,763

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. All estimations include province and birth cohort dummies. The estimations include a control for the age of the child.



Table III. Impact of experiencing forced migration (yes/no) on completing primary education

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)
	Linear prob.	Logit	Linear prob.	Logit	Linear prob.	Logit
Forced migration exp. (1 = yes)	-0.05*** (0.02)	-0.31*** (0.10)	-0.04*** (0.02)	-0.28*** (0.10)	-0.00 (0.02)	-0.08 (0.16)
Gender (1 = male)	0.14*** (0.02)	0.87*** (0.10)	0.14*** (0.02)	0.88*** (0.10)	0.17*** (0.02)	0.99*** (0.12)
Pre-war wealth	0.01*** (0.00)	0.08*** (0.02)	0.01*** (0.00)	0.07*** (0.02)	0.01*** (0.00)	0.07*** (0.02)
Conflict exp. (1 = yes)			-0.08*** (0.02)	-0.38*** (0.12)	-0.06** (0.03)	-0.34** (0.15)
<b>Interactions</b>						
Forced migration exp.*male					-0.07** (0.03)	-0.30 (0.20)
Conflict exp.*forced migration					-0.03 (0.04)	-0.10 (0.22)
Sample size	2,763	2,763	2,763	2,763	2,763	2,763

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. All estimations include province and birth cohort dummies. The estimations include a control for the age of the child.

Table IV. Impact of experiencing types of forced migration during primary school age on completing primary education

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Independent variables	Linear prob.	Logit	Linear prob.	Logit	Linear prob.	Logit	Linear prob.	Logit
Refugee exp. (1 = yes)	-0.02 (0.04)	-0.04 (0.25)			-0.01 (0.06)	0.03 (0.40)		
IDP exp. (1 = yes)			-0.05*** (0.02)	-0.30*** (0.10)			-0.01 (0.02)	-0.13 (0.15)
Gender (1 = male)	0.14*** (0.02)	0.87*** (0.10)	0.14*** (0.02)	0.87*** (0.10)	0.14*** (0.02)	0.88*** (0.10)	0.17*** (0.02)	0.97*** (0.12)
Pre-war wealth	0.01*** (0.00)	0.08*** (0.02)	0.01*** (0.00)	0.08*** (0.02)	0.01*** (0.00)	0.08*** (0.02)	0.01*** (0.00)	0.08*** (0.02)
<b>Interactions</b>								
Refugee exp.*male					-0.02 (0.08)	-0.10 (0.51)		
IDP exp.*male							-0.07** (0.03)	-0.30 (0.20)
Sample size	2,763	2,763	2,763	2,763	2,763	2,763	2,763	2,763

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. All estimations include province and birth cohort dummies. The estimations include a control for the age of the child.

Table V. Impact of the caregiver experiencing conflict on children completing primary education

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Independent variables	Linear prob.	Logit	Linear prob.	Logit	Linear prob.	Logit	Linear prob.	Logit
Caregiver conflict exp. (1 = yes)	-0.04 (0.04)	-0.20 (0.22)			-0.03 (0.06)	-0.17 (0.30)		
Caregiver years of conflict exp.			-0.01 (0.01)	-0.04 (0.04)			-0.01 (0.01)	-0.05 (0.05)
Gender of the child (1 = male)	-0.06*** (0.02)	-0.31*** (0.10)	-0.06*** (0.02)	-0.31** (0.10)	-0.05 (0.04)	-0.27 (0.20)	-0.07*** (0.02)	-0.35*** (0.12)
Schooling of the household head (years)	0.02*** (0.00)	0.09*** (0.02)	0.02*** (0.00)	0.10*** (0.02)	0.02*** (0.00)	0.09*** (0.02)	0.02*** (0.00)	0.09*** (0.02)
<b>Interactions</b>								
Caregiver conflict exp.*male					-0.01 (0.05)	-0.06 (0.27)		
Caregiver years of conflict exp.*male							-0.00 (0.01)	0.03 (0.04)
Sample size	1,807	1,807	1,807	1,807	1,807	1,807	1,807	1,807

Notes: \*\*\* p<0.001, \*\* p<0.01, \* p<0.05, + p<0.1. All estimations include province and birth cohort dummies. The estimations include controls for age and gender of the household head, pre-war wealth (livestock index), current wealth (livestock index), and current land ownership.

Table VI. Impact of the caregiver experiencing forced migration during school age on completing primary education

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)
	Linear prob.	Logit	Linear prob.	Logit	Linear prob.	Logit
Caregiver forced migr. exp. (1 = yes)	-0.05* (0.02)	-0.27* (0.14)	-0.05* (0.03)	-0.27 (0.14)	-0.14** (0.06)	-0.71** (0.28)
Gender of the child (1 = male)	-0.06*** (0.02)	-0.30*** (0.09)	-0.06*** (0.02)	-0.30*** (0.09)	-0.09*** (0.03)	-0.47*** (0.14)
Schooling of the household head (years)	0.02*** (0.00)	0.09*** (0.02)	0.02*** (0.00)	0.09*** (0.02)	0.02*** (0.00)	0.10*** (0.02)
Caregiver conflict exp. (1 = yes)			-0.04 (0.04)	-0.20 (0.22)	-0.08 (0.06)	-0.41 (0.28)
<b>Interactions</b>						
Caregiver forced migration exp.*male					0.06 (0.04)	0.31 (0.21)
Caregiver conflict exp.*caregiver forced migration exp.					0.09 (0.06)	0.41 (0.32)
Sample size	1,805	1,805	1,805	1,805	1,805	1,805

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. All estimations include province and birth cohort dummies. The estimations include controls for age and gender of the household head, pre-war wealth (livestock index), current wealth (livestock index), and current land ownership.

Table VII. Impact of the caregiver experiencing types of forced migration during school age on primary school completion

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Independent variables	Linear prob.	Logit	Linear prob.	Logit	Linear prob.	Logit	Linear prob.	Logit
Caregiver refugee exp. (1 = yes)	-0.11** (0.03)	-0.62*** (0.20)			-0.10** (0.0)	-0.65* (0.38)		
Caregiver IDP exp. (1 = yes)			-0.05* (0.02)	-0.24** (0.12)			-0.06* (0.03)	-0.35** (0.17)
Gender of the child (1 = male)	-0.05*** (0.02)	-0.28*** (0.10)	-0.06*** (0.02)	-0.29*** (0.10)	-0.06*** (0.02)	-0.30*** (0.10)	-0.09** (0.03)	-0.46** (0.14)
Schooling of the household head (years)	0.02*** (0.00)	0.09*** (0.02)	0.02*** (0.00)	0.09*** (0.02)	0.02*** (0.00)	0.09*** (0.02)	0.02*** (0.00)	0.10*** (0.02)
<b>Interactions</b>								
Caregiver refugee exp.*male					0.01 (0.06)	0.12 (0.43)		
Caregiver IDP exp.*male							0.06 (0.04)	0.32 (0.23)
Sample size	1,805	1,805	1,805	1,805	1,805	1,805	1,805	1,805

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. All estimations include province and birth cohort dummies. The estimations include controls for age and gender of the household head, pre-war wealth (livestock index), current wealth (livestock index), and current land ownership.

Table VIII. Impact of experiencing conflict during primary school age on years of schooling

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	Neg. bin.	OLS	Neg. bin.	OLS	Neg. bin.	OLS	Neg. bin.
Conflict exp. (1 = yes)	-0.61*** (0.20)	-0.11** (0.05)			-0.70*** (0.25)	0.00 (0.08)		
Years of conflict exp.			-0.32*** (0.11)	-0.07** (0.02)			-0.46*** (0.14)	-0.04 (0.04)
Gender (1 = male)	1.80*** (0.15)	0.59*** (0.04)	1.81*** (0.15)	0.59*** (0.04)	1.76*** (0.17)	0.65*** (0.05)	1.71*** (0.16)	0.62*** (0.05)
Pre-war wealth	0.20*** (0.03)	0.05*** (0.01)	0.20*** (0.03)	0.05*** (0.01)	0.20*** (0.03)	0.05*** (0.01)	0.19*** (0.03)	0.05*** (0.01)
<b>Interactions</b>								
Conflict exp.*male					0.20 (0.35)	-0.20** (0.10)		
Years of conflict exp.*male							0.28 (0.18)	-0.05 (0.05)
Sample size	2,763	2,763	2,763	2,763	2,763	2,763	2,763	2,763

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. All estimations include province and birth cohort dummies. The estimations include a control for the age of the child.

Table IX. Impact of experiencing forced migration (yes/no) on years of schooling

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	Neg. bin.	OLS	Neg. bin.	OLS	Neg. bin.
Forced migration exp. (1 = yes)	-0.22 (0.15)	-0.08* (0.05)	-0.19 (0.15)	-0.07 (0.05)	0.27 (0.22)	0.03 (0.08)
Gender (1 = male)	1.81*** (0.15)	0.59*** (0.04)	1.81*** (0.15)	0.59*** (0.04)	2.11*** (0.19)	0.65*** (0.06)
Pre-war wealth	0.20*** (0.03)	0.05*** (0.01)	0.20*** (0.03)	0.05*** (0.01)	0.20*** (0.03)	0.05*** (0.01)
Conflict exp. (1 = yes)			-0.59*** (0.20)	-0.11** (0.05)	-0.37 (0.25)	-0.10 (0.06)
<b>Interactions</b>						
Forced migration exp.*male					-0.73** (0.22)	-0.16* (0.09)
Conflict exp.*forced migration					-0.48 (0.35)	-0.02 (0.10)
Sample size	2,763	2,763	2,763	2,763	2,763	2,763

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. All estimations include province and birth cohort dummies. The estimations include a control for the age of the child.

Table X. Impact of the caregiver experiencing conflict on children's years of schooling

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Independent variables	OLS	Neg. bin.	OLS	Neg. bin.	OLS	Neg. bin.	OLS	Neg. bin.
Caregiver conflict exp. (1 = yes)	0.04 (0.27)	0.01 (0.04)			0.06 (0.32)	0.01 (0.05)		
Caregiver years of conflict exp.			-0.01 (0.03)	-0.00 (0.01)			-0.02 (0.04)	-0.00 (0.01)
Gender of the child (1 = male)	-0.04 (0.15)	-0.01 (0.02)	-0.04 (0.15)	-0.01 (0.02)	0.00 (0.27)	-0.00 (0.04)	-0.09 (0.17)	-0.01 (0.03)
Schooling of the household head (years)	0.16*** (0.02)	0.03*** (0.00)	0.16*** (0.02)	0.03*** (0.00)	0.16*** (0.02)	0.03*** (0.00)	0.16*** (0.02)	0.03*** (0.00)
<b>Interactions</b>								
Caregiver conflict exp.*male					-0.05 (0.33)	-0.00 (0.06)		
Caregiver years of conflict exp.*male							0.03 (0.04)	0.01 (0.01)
Sample size	1,807	1,807	1,807	1,807	1,807	1,807	1,807	1,807

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. All estimations include province and birth cohort dummies. The estimations include controls for age and gender of the household head, pre-war wealth (livestock index), current wealth (livestock index), and current land ownership.



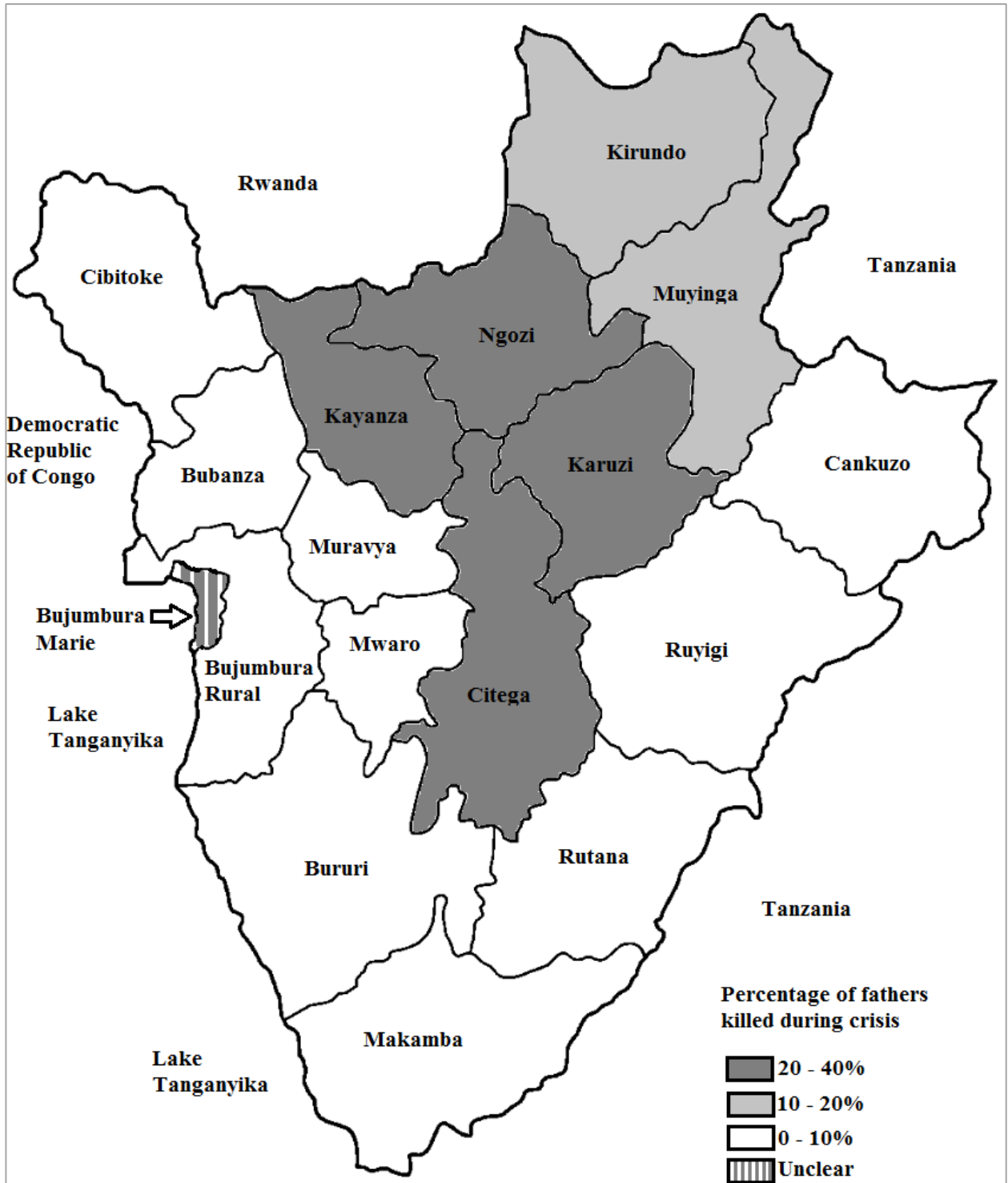


Table XI. Impact of the caregiver experiencing forced migration during school age on children's years of schooling

	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables	OLS	Neg. bin.	OLS	Neg. bin.	OLS	Neg. bin.
Caregiver forced displacement exp. (1 = yes)	-0.05* (0.03)	-0.13* (0.07)	-0.05* (0.03)	-0.13* (0.07)	-0.14** (0.06)	-0.30** (0.13)
Gender of the child (1 = male)	-0.06*** (0.02)	-0.14*** (0.05)	-0.06*** (0.02)	-0.14*** (0.05)	-0.09*** (0.03)	-0.21*** (0.07)
Schooling of the household head (years)	0.02*** (0.00)	0.04*** (0.01)	0.02*** (0.00)	0.04*** (0.01)	0.02*** (0.00)	0.04*** (0.01)
Caregiver conflict exp. (1 = yes)			-0.04 (0.04)	-0.12 (0.10)	-0.08 (0.06)	-0.19* (0.11)
<b>Interactions</b>						
Caregiver forced displacement exp.*male					0.06 (0.04)	0.13 (0.10)
Caregiver conflict exp.*caregiver forced displacement exp.					0.09 (0.06)	0.16 (0.15)
Sample size	1,805	1,805	1,805	1,805	1,805	1,805

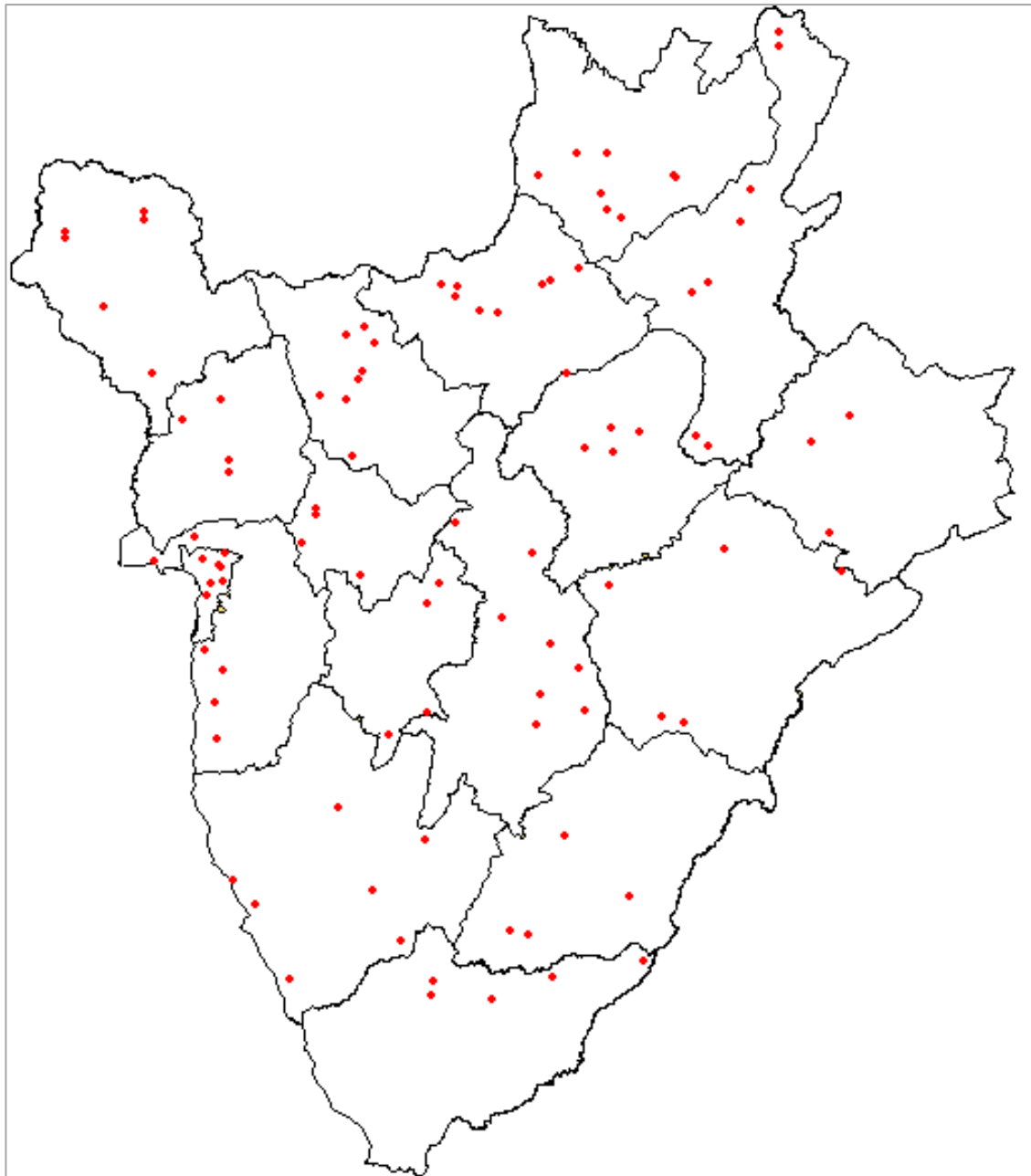
Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. All estimations include province and birth cohort dummies. The estimations include controls for age and gender of the household head, pre-war wealth (livestock index), current wealth (livestock index), and current land ownership.

Figure 1 – Percentage of individuals with fathers killed during the crisis.



Note: Data comes from estimates of Bundervoet (2009).

Figure 2 – Location of the communities surveyed



Notes: The data collection for this study took place between January and March of 2015 in all 17 provinces of Burundi. The communities sampled were selected according to the demographic weight of these provinces in the 2008 Burundi Census. The Figure above shows the distribution of the communities across Burundi.