

HiCN Households in Conflict Network

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This publication is an output of TAMNEAC,
an Initial Training Network supported by the European
Commission's Seventh Framework Programme.
www.tamneac.eu

Returning Home after Civil War: *Food security, nutrition and poverty among Burundian households**

Philip Verwimp

ECARES and Centre Emile Bernheim – Université Libre de Bruxelles

Juan Carlos Muñoz-Mora

ECARES - Université Libre de Bruxelles

HiCN Working Paper 123

Updated February 2013

First Version September 2012

Abstract

Civil wars often force people to leave their homes. Displaced populations run higher risk in terms of disease, hunger and death, something that is well-documented. They leave their land, cattle and other assets behind for an uncertain existence in a refugee camp or depend on relatives or friends. But what happens when they return back home? This paper investigates the food security and poverty of formerly displaced households. Using the 2006 Core Welfare Indicator Survey for Burundi we compare their food intake and their level of expenses with that of their non-displaced neighbours. We test whether it is the duration of displacement that matters for current welfare or the time lapsed since returning. We use log-linear, ordered probit models as well as propensity score matching and an IV-approach to control by self-selection bias. We find that the individuals and households who returned home just before the time of the survey are worse off compared to those who returned several years earlier. On average, it takes 8 to 10 years after return before the level of welfare of the displaced converges to that of the non-displaced. The duration of displacement seems not to matter. On average, the formerly displaced have 7% lower food expenses and calorie intake, showing that the formerly displaced consume relatively more high calorie products. Results seem to be robust after controlling by self-selection bias. Despite international, government and NGO assistance, the welfare of recent returnees is lagging seriously behind in comparison with the local non-displaced populations.

Key words: Forced Displacement, Food Security, Nutrition, Poverty, Burundi

* *Acknowledgement:* A previous version of this paper was written as Background Paper for the UNDP report on Food Security in Africa. The second author gratefully acknowledges support funding from the European Union Seventh Framework Programme (Marie Curie, FP7/2007-2013) under grant agreement no: 263905 (TAMNEAC). Only the authors are responsible for the content of the paper. Remaining errors are the sole responsibility of the author. Views expressed in this paper are not the responsibility of UNDP.

Corresponding author's contact information Philip Verwimp, Email: philip.verwimp@ulb.ac.be,
European Center of Advanced Research in Economics and Statistics – ECARES –, Université Libre de
Bruxelles, Avenue Roosevelt 50 CP 114, 1050 Brussels-Belgium.

Co-author contact information: Juan Carlos Muñoz Mora. Email: juan.carlos.munoz.mora@ulb.ac.be,
European Center of Advanced Research in Economics and Statistics – ECARES –, Université Libre de
Bruxelles, Avenue Roosevelt 50 CP 114, 1050 Brussels-Belgium.

1. Introduction

To outside observers forced displacement is one of the most visible manifestations of violent conflict. Watching a mass movement of people in a short amount of time on television is the clearest indication that something very bad must have happened, something that makes people leave their home and their village. What the general public does not see are the underlying dynamics of a conflict that forces people to flee. Even more difficult to grasp is the fact that the refugee flow will in itself fuel further conflict or take to conflict to a new dimension. When peace settles in, refugees return home, giving rise to another set of issues such as reintegration and, asset recovery, among others. In the subsequent overview we pay attention to these three key ingredients of forced displacement, to wit the reasons to leave, the fuelling of the conflict, and the issues arising upon return. Later, we focus on the micro-level analysis on the food security, nutrition and poverty among the returned household.

Fleeing one's home

When individuals and households are forced to migrate, they rarely have the time to sell their assets or to take all their assets with them. When parts of their assets are seized by warring factions, or have to be abandoned, the displacement means instant loss of wealth. Families cease deriving economic returns from productive assets and cannot invest capital in productive activities (Ibáñez & Moya, 2010). Displacement also causes the disintegration of households as some members are assassinated or have been separated during flight.

Until recently, the forced migration and the violent conflict literature observed a division of tasks. The later occupied itself with the parties to the conflict, their strategic objectives, the recruitment of followers and the eventual macro-level peace process. The former on the other hand was focussed on humanitarian aid, the outbreak of epidemics in camps, and the question of relocation (e.g. Cohen and Deng (1998); Lischer (2006)). The analysis of the causes and conditioning of the flight has brought forced migration literature somewhat closer to violent conflict literature, firstly through the concept of 'root causes' (Zolberg, Suhrke, & Aguayo, 1992) and, more recently, through analyses of the way particular types of violence affect the setting in motion and the intensity of displacement flows (e.g. Schmeidl (1997); Moore and Gurr (1998); Edwards (2007)).

The lack of attention to the way violence produces and conditions displacement and return movements is hard to reconcile with the fact that these form a key part of the consequences of violent conflict. Either as a side-product, as a purposeful strategy or as a pursued goal, the patterns of relocation and return are an important source of socio-demographic change in the post-conflict period. As we shall see further on, this applies very much to the case of Burundi.

During displacement

By limiting the ability to generate income, forced displacement causes significant welfare losses to affected households. Results from various locations such as Colombia indicate that displaced households confront sizeable welfare losses (Ibáñez (Ibáñez & Moya, 2010)). Because forced displacement disrupts formal and informal mechanisms to share risk, a considerable proportion of the income shock affects household consumption. Also, the impact of income generation programs may be limited to a short period of time. Thus, the short and long-term costs of forced displacement are large; assets losses, school interruption, and pronounced drops in consumption may push households into a poverty trap.

In addition, finding employment is difficult because displaced households often come from rural areas and their agricultural abilities are not valued in receiving municipalities or urban areas (Calderón & Ibáñez, 2009). The long-term consequences of a sharp drop in consumption may transcend the direct welfare costs stemming from income losses (Morduch, 1995). Children from households that are unable to smooth consumption may face health deterioration (Behrman, 1988) and lesser body size (Foster, 1995). Households also adopt costly strategies to smooth consumption such as selling assets (Rosenzweig & Wolpin, 1993), adjusting labor supply (Kochar, 1999), foregoing risky but profitable activities to smooth income instead of consumption (Morduch, 1995), and dropping children out of school.

In Colombia, for example, displaced households are entitled to humanitarian aid in the first three months, which may be instrumental to prevent substantial drops in consumption (Ibáñez & Moya, 2010). After humanitarian aid ends, empirical evidence suggests that the vulnerability of displaced households increases significantly. Thus, consumption smoothing may vary according to time of settlement in reception municipalities. Nearly nine percent of families lost household members, and in many cases their household head, as a consequence of displacement. Because

the main breadwinners are no longer in the household, dependency rates and vulnerability to poverty increases.

Upon returning home

The effect of conflict on activities may still be felt by households long after war ends. Findings in Uganda indicate that the probability to start non-farm activities is reduced for households affected by war (Deininger, 2003). In Mozambique, households in the post-conflict period were able to engage in potential income generation activities, but the decisions to participate varied across household and seasons (Bruck, 2004). Empirical evidence on activity choices in Burundi (Bundervoet, 2010), finds that wealthier households in war regions are more likely to engage in low risk activities during war, while during non-war periods, they invest more in high-risk activities. During recovery, development interventions and improved security provide opportunities for households to rebuild their livelihoods but the benefits may not be across the board. In most cases these programmes bypass the most vulnerable groups and differences in access to assistance hinder household adaptation.

In northern Uganda, Lehrer (2008) finds a negative impact of conflict on the labour force participation of men. Ssewanyana (2007) indicate that residence in an IDP camp is highly associated with difficulty to farm. Stites et al. (2006) study in the Kitgum district of Uganda finds that social capital is higher among households in semi-settled communities than those in camps. Families in semi-settled communities are able to participate in collective farming and share proceeds from communal land: something not possible in camps. Bozzoli et al (2011) find that camp residents are less likely to participate in any of a wide range of economic activities. This observation may signal the loss of skills associated with displacement. Deterioration of skills may render individuals unproductive. Activities such as crafting require extracting inputs far from camps. Other households split up to diversify income sources, return to their hometown, and derive return from their assets. This strategy may reduce vulnerability by providing additional income sources (Ibáñez & Moya, 2010).

This paper investigates the food security and poverty of formerly displaced households after return. Using the Core Welfare Indicator Questionnaire –CWIQ– Survey for Burundi (2006), we compare their food intake and their level of expenses with that of their non-displaced neighbours. In particular, we test whether it is the duration of displacement that matters for current welfare or the time lapsed since

returning. It implies a compound treatment effect: (i) having been displaced and (ii) having returned. Even though we cannot entirely isolate the impact on the welfare after each treatment, we use an approach controlling the potential self-selection bias. In particular, we propose a propensity score matching where we use different treatments based on the duration of absence (e.g. early or lately return), and an IV-approach using the arrival place during displacement as instruments. We also estimate a log-linear and ordered probit as a benchmark. We find that, in general, having been displaced reduces the food security and increases the likelihood of being below the poverty line. Furthermore, households who returned home just before the time of the survey are worse off compared to those who returned several years earlier.

The remainder of the paper is as follows: section (2) gives an overview of forced displacement and return in Burundi. Section (3) describes the Burundian diet and the level of food expenditure of displaced and non-displaced populations. Section (4) analyses calorie intake and poverty on the basis of survey data and section (5) relates the research findings to current policies towards IDPs and refugees in Burundi.

2. Forced Displacement and Return in Burundi¹

A short history of the return of IDP's and refugees

Between 1999 and 2005, an estimated 700,000 IDPs returned to their homes under improved security conditions, some of them with international support (OCHA, 2005). In recent years most efforts have been directed towards assisting returning refugees. Between 2002 and 2009, over 500,000 refugees returned, mostly from Tanzania. Their reintegration, particularly of the 50,000 who fled in 1972, presented extraordinary challenges for the government (UNHCR, 2009). Many returned to find their land occupied, expropriated, sold or redistributed to others, and finding solutions to their pressing problems has accounted for the majority of the government's resources earmarked for helping victims of the conflict (IMDMC & NRC, 2011).

After 2005, despite the further improvement of the security situation, fewer IDPs returned home. According to the UN (2007), difficult economic and agricultural conditions, the lack of means to rebuild houses in areas of origin and the lack of sufficient trust among communities may explain this status quo. But other factors, such as new opportunities and livelihood found in IDP settlements may also

¹ This section is based on three comprehensive reports on the history of displacement and the situation of IDP's and former refugees in Burundi: OCHA (2004, 2005, 2011) and IMDMC & NRC (2011).

contribute to this slow return (UNHCR, 2007). In the south of the country however, IDPs were found to be gradually returning to their hills of origin (OCHA, 2005). All IDP settlements in the south were reported to have closed as of 2010. One possible explanation for the return of IDPs in the south compared to those in the north is that in the south, internal displacement was mostly caused by clashes between the army and armed groups, while in the north, many people had already fled inter-ethnic violence. When peace returned to the country, IDPs in the south were able to return home. At the same time, while many IDPs in the north have returned home, others have not done so, for several factors including – particularly for older IDPs – the fear of their former neighbours (IMDMC & NRC, 2011).

With the return of half a million refugees and many IDPs after the end of the conflict, Burundi had to reintegrate about 10 percent of its population. The return took place mostly to rural areas, in the context of widespread poverty, lack of basic infrastructure and land scarcity. The houses of many returning refugees were destroyed, and in some cases their land occupied. In a country where more than 90 percent of the population is dependent on subsistence agriculture, people without land cannot provide food for their families (UNHCR, 2009).

The OCHA (2005) comprehensive IDP survey found that as of mid-2005, 18.5 per cent of IDPs in Southern and Eastern provinces were returning refugees, who either lived on trade with Tanzania or who felt more secure in IDP settlements due to the high criminality (OCHA, 2005). According to a 2004 OCHA IDP survey, some 89 percent of IDPs considered farming as their main source of income, and their own harvests as their primary or only source of daily food. While most IDPs continued to engage in agricultural activity on their native land, the yields are low and do not meet daily food needs. Many households supplement their subsistence by working for others, paid in either food or money, or through charity from others living in the IDP settlements, from church groups or – as of 2004 - from international assistance (OCHA, 2004).

According to the same OCHA survey, “Proximity of the place of origin to the site (i.e. IDP settlement) is an important element in determining an IDP household’s level of vulnerability. Those IDP families that do not live close enough to their home areas to permit continued cultivation of their land must seek alternative means of economic livelihood, which are extremely limited. Although some of these families manage to make a meagre living through hiring out their labour on nearby farms or

engaging in petty commerce or trade in the site, some remain entirely dependent on the aid of others (OCHA, 2004). Widow- or orphan-headed households were entirely dependent on support networks or external assistance (OCHA, 2004).

A number of factors explain why many IDPs face difficulties to be self-reliant: (i) *theft of crops*. According to an OCHA (2005) comprehensive IDP survey, the great distance between IDP settlements and fields of origin has led to thefts in the fields, as per cases registered in the communes' administrative centres. This in turn has reinforced food insecurity and mistrust between IDPs and those who have stayed on their hills of origin (OCHA, 2005); (ii) *Destruction of livestock*. According to an OCHA (2005) comprehensive IDP survey, IDPs said during interviews that an important part of their livestock had been destroyed during the conflict, which had led to decreased protein food intake and soil fertility (OCHA, 2005); (iii) *Poor access to credit*. The OCHA (2005) comprehensive IDP survey noted very high lending rates and in-kind reimbursement. It stated that for example, one "measure" of beans borrowed in the beginning of the planting season had to be paid back by two-and-a-half measures during harvest. For large amount credits, land has to be mortgaged, and the amount has to be paid back in full at once. After a certain time, the lender has the right to "buy back" the land at a price decided in advance. In any case, it is very difficult for IDPs to get out of debt. The survey then recommended micro-credit lending (OCHA, 2005); (iv) *Decreased land fertility*. The OCHA (2005) comprehensive IDP survey noted that IDPs in settlements also suffered from the fact that the land they have access to was less and less fertile, and had to feed more people due to demographic pressure. IDPs in settlements said that employment outside the farming sector would be welcome to ease the financial pressure they are facing (OCHA, 2005).

While the majority of IDPs rely on subsistence farming, IMDMC & NRC (2011) found during interviews in IDP settlements close to administrative centres that many IDPs now earned a living by building roads, providing a range of services in jobs from hairdressers to drivers, or by selling goods at the market (IMDMC & NRC, 2011).

Local settlement and Obstacles to voluntary return

An IDMC June 2010 survey in four IDP settlements found that 90 percent of interviewed IDPs wished to integrate locally (IMDMC & NRC, 2011). According to

the OCHA (2005) comprehensive survey on IDPs in Burundi, IDPs in the north and centre of the country remained suspicious, despite the signature of ceasefire agreements and increased security, and said they were afraid of their former neighbours. In the south and east of the country however, since armed groups had stopped fighting, IDPs did not show the same worries about insecurity. The fact that many people remained in IDP settlements was a sign of the climate of fear and uncertainty among IDPs. The OCHA survey went on to say that IDPs also remained in settlements in some places due to better economic opportunities than in areas of origin, and also due to a better access to basic services and infrastructure. The OCHA survey reported that those who wished to return conditioned their return to three main elements: (i) Material to build housing, since most of the houses in hills of origin are either entirely or partially destroyed; (ii) To return at the same time than other IDPs, as for many IDPs security and protection needs are linked to community reconciliation in the north, centre and south of the country, rather than linked to the 2010 national elections; (iii) the end of impunity of presumed criminals who killed their family members of their hills of origin, and who could kill returning IDPs in case of return (OCHA, 2005).

The IDMC survey in June 2010 found that some IDPs were afraid to visit their communities of origin on their own. This was particularly the case for older IDPs who generally said that they would not contemplate living with their former neighbours again, while the younger ones – who were children when they were displaced – were more open to the idea (IMDMC & NRC, 2011).

The main factor facilitating local integration is the strong desire of IDPs to remain where they are today. Having lived in their current location for up to 17 years in some cases, they have developed strong relationships with other members of the settlements. Many are elderly people and/or widows, and as such a social support network is crucial to them. One important element to gauge the prospects for success of local integration of IDPs is the relationship with surrounding communities. Focus group interviews with IDPs and neighbouring communities conducted by IMDMC & NRC in June 2010 emphasised the positive relationships between IDPs and members of the surrounding communities. IDPs were seen as just like any other inhabitants of the *colline*, taking part in local development projects such as the construction of school or roads, farming and herding associations and local elections. IDPs and their neighbours reported that they helped each other to harvest their crops and invited each

other to weddings, funerals and other events. Marriages between IDPs and their neighbours were also mentioned. They reported that their children went to the same schools, played and watched football matches together, took part in the same church-led activities, and shared some of their families' daily tasks such as collecting firewood and water. IDPs' neighbours noted that living closer together in the settlements played a significant role in improving security. The only significant sources of conflict with neighbouring communities are the competing claims on the land on which IDP settlements have been established.

Among the category of IDPs that express a willingness to return to their place of origin, but remain meanwhile in sites, the principal reasons preventing their return (in order of priority) are as follows: (1) insecurity in their place of origin (fighting, banditry, looting); (2) no protection force in their place of origin; (3) no house in their place of origin (or ability to construct a house, as cited in the case of some female and child heads of household); (4) mines in their place of origin (particularly prevalent in certain areas of Makamba province, along the Maragarazi River, and in certain areas of Ruyigi and Bubanza provinces); (5) fear of political developments and upcoming elections; presence of armed groups not yet disarmed / demobilised; (6) fear, distrust and lack of cohesion / reconciliation among communities in their place of origin (the predominant reason cited by IDP households in northern and central provinces); (7) home collines are empty; waiting for others to return.

Among the category of IDPs that express a desire to remain definitively in the site where they currently reside, the following are the principal reasons influencing their decision (in order of priority): (1) fear, distrust and lack of cohesion / reconciliation among communities in home areas; (2) Sense of solidarity, community cohesion and protection in the site; (3) banditry and absence of protection force in their place of origin; (4) house in the site; no house in their place of origin; (5) do not own land in their place of origin; (6) nowhere else to go; completely dependent on others in the site (especially cited among female and child heads of household); (7) long duration in the site (10 years) during which new family units have formed and semi-urban social ties, customs and lifestyles have emerged (closer association with the site than the place of origin); (8) Little direct dependence on agricultural activity and have another means / source of revenue in the site.

However, as was revealed in the IMDMC & NRC (2011) focus group discussions, having easy access to land does not necessarily translate into having an

adequate level of agricultural activity or output. The overwhelming numbers of participants in the focus groups say they are able to cultivate their native land but they do not achieve a sufficient harvest. The primary reason cited is theft of their crops by neighbours who live permanently in the *collines*, by armed groups or bandits in areas of ongoing insecurity. Other reasons cited for the diminished yields are the limited time they are able to spend on the farm – because of the distance they must walk from the site – preventing them from adequately maintaining or protecting their land. One IDP woman explains, for instance, that although she accesses and cultivates her land daily, she is unable to fertilize her land with animal dung as she did before her displacement because her animals were stolen. The distance that IDPs have to travel from the site to reach their land is in direct proportion to their ability to adequately manage and protect their land. Therefore, despite easy access to land, compromised productivity results in an erosion of livelihood capacity and decreased food security for many IDP households.

3. Diet Composition, Food Expenses and Forced Displacement: a description

Data

We use the 2006 Core Welfare Indicator Questionnaire –CWIQ– Survey for Burundi. This national representative survey has been applied in different African countries with propose of generating standardized indicators of poverty and welfare. The CWIQ Survey Technology developed by World Bank in collaboration with other international agencies, seeks to reduce the untimeliness of data and poor data quality with a less expensive alternative optimizing the sampling procedure and the questionnaire structure (Ajayi, 2006; Zoyem, Diang’a, & Wodon, 2008). Besides the standard core module concerning household characteristics and consumption behaviour, each country can implement additional modules according to its specificities. In the CWIQ (2006) for Burundi, questions about displacement and return were included. Our sample consists on 6700 households², which were selected with a 2-stage sampling design: first random sampling at the *sous-colline* (village) level and then households within the village. Although information from each household’s member is gathered, our analysis focuses at the household level.

² We applied a standard data cleaning process, where missing observations, data entry errors, potential measurement errors, distillation errors and outlier from unusual consumption were deleted.

Descriptive analysis

Farming is the principle economic activity of more than 80% of all Burundian households. The size of the average farm is less than 1 hectare and its produce feeds on average 5 persons. Most of farm production is for self-consumption. Only a tiny fraction of a farmer's plot is allocated to domestic cash crops or to export crop production. Given that the small size of the plot is insufficient to grow all the food a household needs as well as the need for non-food products, farm households have also other non-farm sources of revenue such as day labour, business and other off-farm income, sales of cattle products as well as gifts and transfers received from others.

In the rural areas, beans, sweet potatoes, cooking bananas, cassava flour and maize together deliver 60% of calorie intake and constitute the core of the Burundian diet. These five crops are grown on the farm as well as bought in the market. In urban areas, rice, fish and meat are more important than maize and sweet potatoes. Table 1 gives an overview of the importance of these crops. Typically, the poorer you are, the more important (in terms of expenses and calorie intake) these crops are. In *very poor or food poor households* (defined as having a level of consumption lower than the food poverty line), these crops constitute each on average 2% more of the daily food expenses and deliver 2% more of the daily calories than non-poor households and 1% more than in poor households.

Table 1 also shows the differences in diet composition according to the age of the head of the household, his or her sex and level of education, the number of household members and the displacement status of the head of the household. At first sight we find only minor differences in terms of diet composition for these variables. This means that, across a series of demographic and socio-economic characteristics, the five staple crops mentioned above are important *for all* Burundian households. The exceptions to this rule seem to merit our attention. The first is that the composition of the diet for households with a head of the household who has finished secondary education seems to differ markedly from all other households. For this group of the population, the five crops are *relatively* less important in the diet. And second, formerly displaced households seem to allocate a higher share of their food

expenses to cassave flour than others. These differences will need to be confirmed and understood in a multivariate regression framework later on.³

[Table 1 goes about here]

The description of overall expenses and their origin or channel in Table 2 shows that by and large production for own consumption and acquisition in the market are, for the average Burundian household, equally important. This household will acquire somewhat less than half of its food from its own farm and the same amount from the market, with the rest received from gifts and from humanitarian aid. Non-poor together with very poor, male-headed and secondary educated households rely more on the market channel compared to poor, female headed and lesser-educated households. These latter households rely more on production for own consumption. Our group of interest for this paper, the formerly displaced, are on average poorer than the non-displaced and receive relatively more gifts and aid, but the differences are small.

[Table 2 goes about here]

Table 3 shows the poverty levels for the formerly displaced households in comparison to the non-displaced. The formerly displaced are over-represented among the poor and the very poor, a difference that is statistically significant at the 1% level. We remind that poverty here is measured using the monetary value of the expenses an adult needs to make per day to lead an active life. This means a minimum of expenses to consume 2100 Kcal per day (below which one is considered food poor) plus a non-food part (below which one is considered poor).

[Table 3 goes about here]

A binary variable ‘formerly displaced versus non-displaced’ may not be fine-grained enough to capture the status of the formerly displaced. In effect, as we have seen in section 2, the displaced have started to return to Burundi since one year after

³ Our results are in line with Zoyem, Diang’a and Wodon (2008).

the crisis, with the first returnees already in 1994, hence 12 years before the time of the survey. The average duration of forced displacement was two years with a low standard deviation, meaning that only for a minority the duration of displacement was very long. The average numbers of years that have lapsed since returning home was five years, with a large standard deviation around the mean meaning that Burundi witnessed a return of refugees every year, with no single peak. Figure 1 shows the timing of return and duration of displacement. About 70% of the displaced households had an *early return* (<1 year) after having been displaced, and have on average 6 years since return. Figure 2 shows the number of years since return and the duration of displacement by arrival place. Those households who went to another country during displacement have both more years since return and longer duration of displacement; in contrast, displaced household that went to the same province had a shorter duration of displacement.

[Figure 1 and 2 go about here]

It would be surprising when their welfare (or status vis-à-vis the non-displaced) would not be distinguishable from that of people who returned to Burundi only recently. To that purpose we have depicted the welfare levels of formerly displaced households compared to non-displaced according to the number of years since they returned to Burundi. Figure 3 panel (a) shows the total expenses per month by number of years since return. The longer ago one returned to Burundi, the closer one's welfare level is to that of the non-displaced.

The number of years ago that the head of household returned home is calculated in relation to the last time she/he was displaced. Many Burundian have suffered forced displacement from their homes more than once. In effect, CWIQ (2006) shows that 1/3 of the heads of households were never displaced, 1/3 was displaced once or twice and 1/3 was displaced at least three times. Hence, the duration of forced displacement is an underestimation of the total duration of displacement since the CWIQ Survey (2006) only has information on the most recent episode of forced displacement and return. This is a limitation of the data; the most recent episode of forced displacement may not be the only episode of displacement having an effect on current welfare. It may for example be that one lost cattle in an earlier episode. To the extent that one has to re-start cultivation 'all over again' after each

episode of displacement it is likely that the last episode is relevant for the part of welfare generated from cultivation. In a multivariate regression framework later on we will test if households who were displaced *multiple times* are more likely to return in less than one year after displacement.

Two mechanisms come to mind that could explain the welfare discrepancy between the early and the late returnees. The *first* states that, upon return, a convergence process is starting. It takes a few years before the displaced household is able to reap the benefits from farm work and cultivation, succeeds in finding a job or sets up a profitable business or commercial activity. The *second* argument points out that what counts may not be the number of years that has lapsed since the household has returned home but the duration of absence. Heads of households who were absent for a long time may run a higher risk of losing their assets such as land and cattle. This makes it harder for them to make a living when they return home. This second argument finds support in Figure 3 panel (b): the longer the absence, the lower the level of welfare. Importantly, the two arguments can be tested jointly in a multivariate regression framework, what we shall be doing later on. To repeat, the first argument sees a convergence process starting from the moment when one returns. The second see a divergence process starting from the moment one leaves. The two arguments are not necessarily incompatible.

[Figure 3 goes about here]

The CWIQ survey data (2006) offer additional evidence of the needs and the actions taken by heads of households when they returned home from forced displacement. According to the responses given in the survey, the first two *priorities of the returnees* are the (re-) construction of their houses and the (re-) start of their farm. They financed both by working and the sales of goods as well as - to a lesser extend - financial aid from friends and NGOs. One quarter of the forcibly displaced lost cattle during their absence, with these assets often sold by family members. Almost no one succeeds in recuperating these assets after return. Since the CWIQ (2006) does not have data on cattle ownership before displacement, we cannot infer how important that loss was. However, the ownership of cattle (mostly one or two) is a sign of wealth in Burundi. What counts for the loss of cattle - lost and unable to

recuperate - is also the case for agricultural equipment and, to a lesser extent one's house and land.⁴

Table 3 shows that formerly displaced households are overrepresented among the food poor (very poor). Table 4 adds to that picture that this may have intergenerational consequences: the food poor report a higher percentage of small children at birth. Among the displaced, the newly returned are worse off, just as we reported earlier in terms of expenses and food consumption. Here, the newly returned more often report a small size for their last-born child. These findings are statistically significant at the usual thresholds.⁵

[Tables 3 and 4 go about here]

From the maps (see Figures 4 and 5) we derive that food poverty as well as forced displacement are clustered in several distinct (but different) regions of Burundi. The former is particularly problematic in the eastern part, and the later in the western and southern part. This is because the civil war was particularly intense in the west and in the south.

[Figures 4 and 5 go about here]

4. Determinants of Calorie intake and Poverty

Identification strategy

The above relations, often discovered when working with cross-tabulations of two variables, needed to be tested in a multivariate framework. It may well be that a relation (e.g. between poverty and displacement) at first sight seems to exist but when controlled for province fixed effects (FE) or for demographic variables completely disappears, demonstrating that it are in fact these other variables that are correlated with poverty or displacement or both. We suggest working with three types of analysis. The first is the log-linear model whereby the total amount of calories consumed per adult equivalent (K) is explained by a series of household level

⁴ Land issues and land conflicts are pervasive in Burundi and the return of refugees has made these land issues very complex. The 2006 data do not offer much detail on them to explore them further in this paper.

⁵ The consequences of under-nutrition for young children, both *in utero* as well as in the first years of life are the subject of a lot of recent research, too much to treat in this paper. Also, since the 2006 data do not have anthropometric measurement we do not explore this issue further on. For a recent contribution we refer to Verwimp (2011).

variables (H), variables at the level of the head of the household (E), displacement variables (D) and α_g , the province fixed effect. This model can be written as

$$K_i = \alpha_g + \beta_1 H_i + \beta_2 E_i + \beta_3 D_i + e_i \quad (1)$$

We also regress the same for the calorie intake per person and the level of food expenses per adult equivalent. Since we are also interested in the *level* of poverty, we distinguish between non-poor, poor and food poor (extremely poor) and perform an ordered probit model, estimating the effect of each of the above variables on the probability to be in one of the three categories. It is an ordered and not a multinomial model because there is a hierarchy: the very poor or ranked lower than the poor who in their turn rank lower than the non-poor. We emphasize that this statement is made in terms of the poverty line, i.e. the monetary value of consumption per adult equivalent. It is not a moral or normative classification we want to make. The likelihood for the ordered probit model is the product of the probabilities associated with each of the discrete outcomes ((very poor (1), poor (2), non-poor (3))):

$$\begin{aligned} P[y_i = 1] &= \phi(u_1 - x_i\beta) \\ P[y_i = 2] &= \phi(u_1 - x_i\beta) - \phi(u_0 - x_i\beta) \\ P[y_i = 3] &= \phi(u_2 - x_i\beta) - \phi(u_1 - x_i\beta) \end{aligned}$$

Where u_0 , u_1 and u_2 are threshold parameters or cutpoints. In order to allow identification of the model, one often sets $u_0=0$ or suppress the intercept in the model. The product of the probabilities of the discrete outcomes translates into the log-likelihood

$$\ln L = \sum_1^n \sum_1^3 z_{i,j} \ln[\phi_{i,j} - \phi_{i,j-1}] \quad \text{with } z_{i,j} = 1 \text{ if } i = j \quad (2)$$

Thirdly, considering that the log-linear regression used above may suffer from potential selection bias when the profile of the displaced population – before displacement – differs from that of the non-displaced, we want to apply a matching technique as well as an IV approach. Even though recovering the unobservable information from the base line is very complex given the different gaps and the

compound treatment effect of having been displaced and then returned, through matching and IV we can approach its real effect on welfare and food security.

While we cannot entirely isolate the individual effect of having been displaced and then returned, there is evidence that the exposure to conflict for the average Burundese household should be regarded as exogenous to their own behavior. That is, household characteristics such as wealth, education, electoral results or other did not drive selection into violence (Voors et al., 2012). Therefore, because civil war seems to be indiscriminate, the first treatment of having been displaced was randomly assigned. Yet, the second treatment of returning probably not. As we pointed out above, household with better initial conditions may be more likely to return early because they have better risk coping mechanism at their disposal. In order to have a first glance of the self-section bias, we propose a Probit model for the determinants of having an early return (≤ 1 year) after displacement; we estimate:

$$P(\text{early return} (< 1 \text{ year}) (\text{yes} = 1)) = \alpha_g + \beta_1 H_i + \beta_2 E_i + \beta_3 V_i + e_i$$

Besides household and head levels controls described above, we include a set of controls for the experience of violence (V_i) that include the place of arrival after displacement and the loss of assets while being displaced.

The matching estimation procedure is adequate when certain observable characteristics such as level of schooling, sex, ago or place of residence may affect displacement. In that case, these observables have an effect on the outcome of interest (welfare or food consumption) as well as on the selection into treatment (forced displacement). Whereas in a linear regression framework, this will bias the estimator of the variable of interest, in matching it is possible to match on variables that are correlated with the error term in the outcome equation (Hui & Smith, 2006). Using a balance score (e.g. the propensity score) based on observable characteristic from before the treatment to match similar treated with non-treated households, matching allows to infer the causal effect of the treatment on out outcome of interest, in this

case the effect of forced displacement on welfare and food consumption.⁶ The matching estimator (ATT or Average Treatment Effect on the Treated) can be written as

$$\Delta_{ATT} = E(Y^1|X, D = 1) - E_X[E(Y^0|X, D = 0), D = 1]$$

where the first term can be estimated from the treatment group and the second term from the mean outcomes of the matched comparison group. The outer expectation is taken over the distribution of X (the observables) in the treated population. Regarding the definition of treatment and control group, we propose three different matching: (i) All displaced HH vs Never-displaced HH; (ii) Early return vs Never Displaced HH; (iii) Lately return vs Never Displaced HH. Using these different treatment and control groups we want to isolate the effect of the treatment as much as possible.

Finally, as exploratory analysis, we propose an IV-estimation using the proximity of the arrival place after displacement to the area of residence as instrument for the year of return and for the duration of displacement. In this way, we take advantage of the fact that people that where displaced close to their homes (i.e. same province) are more likely to return than others, independently of unobservable idiosyncratic characteristics. Hence we estimate a Local Treatment Effect. Because either “years of return” and “duration of displacement” are sources of endogeneity, we re-estimate equation (1) with the just-identified IV.

Results of the Estimations

In table 5 we present the results of an OLS regression explaining the *level* of calorie intake per day and the *level* of food expenses. Not surprisingly, households with larger farms have higher calorie intake and higher food expenses, in contrast, larger households has less for both variables, as shown in columns I-IV of Table 5. Female-headed households have lower calorie intake and lower food expenses and the schooling of the head of the household (all levels) boosts calorie intake and expenses with secondary schooling having the largest impact.

⁶ For a detailed treatment of propensity score matching and its two assumptions of unconfoundness and common support, we refer to Blundell & Dias (2009) and Imbens & Wooldridge (2009).

Turning to the variables of interest for this paper, we notice that two of the three forced displacement variables have a statistically significant effect on calorie intake and food expenses at the household level. First is the displacement dummy, columns I-IV show that this variable has a negative effect on calorie intake measured by adult equivalent and food expenses, corresponding to 7%. However, building on the observations in Figure 1 we also introduce the duration of forced displacement (in years) as well as the number of years that have lapsed since returning home. We find that only the latter variable is statistically significant, lending credibility to the *convergence argument* presented in section 3. The magnitude of the return-effect is such that for every additional year that the household has returned, the calorie-intake as well as the food expenses increased by 0.5%. This means that it takes on average 8 to 10 years after returning home before the negative effect of displacement is cancelled out, and before the level of calorie intake and food expenses of formerly displaced households converges to the level of the non-displaced households.⁷ Adding production variables to the regressions in order to capture the effect of potentially imperfect markets on consumption and production decisions of farm households does not change the results much. Regressions in columns II and IV do show that producers of domestic and export cash crops have higher calorie intake and food expenditure levels.

The last two columns of table 5 serve as a robustness check, but also allow us to analyze the effect of forced displacement (and other characteristics) on *the level of poverty*. We have already seen that the displaced are overrepresented among the food poor. We find the same results as in the other columns of table 7, with formerly displaced households having a larger probability to be in the poor and food poor categories, a probability that decreases with the number of years since returning home.

[Table 5 goes about here]

Now, table 6 shows the results for determinants of having an early return (<1=year) after displacement. The household level characteristics has not effect on the

⁷ As we discussed in the model before, this result is only valid to the extent that the displaced households do not have a different profile than the non-displaced, meaning that they are not ‘selected into displacement’ by observable characteristics. For that reason we will also do a matching analysis. Given that we are dealing with forced displacement, and thus the level of discretion or choice is very low, there is no a priori reason for the displaced population to have a different profile than the non-displaced.

decision of early return, however, younger head household male increased the probability around 5%. As expected, both the arrival place and household who were displaced more than one time have strong effects on the return decision, in particular, those households who went to another country.

[Table 6 goes about here]

In order to correct for potential selection into displacement we match different groups. Table 7 shows the propensity score for the different comparison groups proposed. The observable variables that we use are age, sex, schooling and province of residence of the head of the household. The 2006 survey did not explicitly collect the level of these variables before the onset of displacement, but since we are dealing with adult heads of household we are sure that their level of schooling was determined before the onset of displacement. Sex and age are not affected by displacement either, and current province of residence is most often the same as before displacement. In general, the estimated propensity score is homogeneous for the four groups (see Figure 6), which will guarantee that most of the observation is in the common support.

[Table 7 and Figure 6 go about here]

Results of the matching procedure are presented in table 8. We find that the treated (displaced) households have lower total expenses per adult equivalent (-12.94%), lower food expenses (-9.02%) and lower calorie intake (-6.02%). The magnitudes are similar for the subsequent groups, where we compare early returned and late returned versus not displaced households. Because of the matching technique, we can confirm that these differences between the displaced and the non-displaced are *caused* by the compound treatment effect of having been displaced and then returned.

[Table 8 goes about here]

Finally, we proceed with the just-identified IV estimation approach. Table 9 shows the first stage results for the different model specifications. In general, instruments are

statistically significant at the 1% level. Instrument relevancy is confirmed by the under-identification tests, which show that our instruments are relevant.

[Table 9 goes about here]

Results after instrumenting are very similar as in Table 5. Both magnitude and sign are around the same range for Calorie intake and the Food expenses, for the years since return the effect increases by 1-percentage points (from 0.4% to 1.5%). These results strength the intuition about the convergence hypothesis developed above. Moreover, after applying the exogeneity test for our interest variables, results suggest that variables could be treated as exogenous.

[Table 10 goes about here]

5. Support for returned IDP's and refugees

In 2008 an ad-hoc commission for return and reintegration (the *Commission Intégrée Ad-hoc pour le Rapatriement et la Réintégration*) was set up within the Ministry of National Solidarity with UNHCR and UNDP support. The same year, it published a “villagisation” strategy document to guide the repatriation and integration of returning refugees without land (R. d. Burundi, 2008a). It foresaw the creation of new villages with basic services and the making of additional land available to allow greater numbers of beneficiaries to re-establish viable livelihoods. One of its main thrusts was to accommodate various ethnic groups in the same location in an effort to foster reconciliation, peace and security. The programme also envisaged the development of simplified procedures to allow the rural population to register their homes and land with the commune in order to avoid potential land conflicts. The programme, which mentions IDPs but only as secondary beneficiaries, has been run by the Project to Support the Repatriation and Reintegration of War Affected People.

In parallel, the government developed a new national land policy (*Lettre de politique foncière*), to take into account developments since the introduction of its 1986 land code, most notably the fundamental changes brought about by displacement (R. d. Burundi, 2008b). Its main objective was to reduce conflict over

land via the creation of “integrated rural villages” (known by their French acronym VRIs) to accommodate people from different ethnicities. Some villages, like the one of Muriza, Ruyigi Province, have included ethnic Tutsi IDP families and ethnic Hutu returning refugees, chosen among the most vulnerable. The villages are meant to be models of inter-ethnic reconciliation and to improve access to local infrastructure. The strategy provides, on a voluntary basis, durable solutions for landless returnees and displaced people of mixed ethnic origins as well as vulnerable people and people from various social backgrounds. It provides access to housing and land, water and sanitation, education and health, agricultural support, as well as non-agriculture based income generating activities aiming for the self-sufficiency of beneficiaries. The programme was led by the government and involves several UN agencies (OCHA, 2011). The focus on land access is supported by our results: from table 7 it can be derived that the size of farm land (and thus more general access to land) is an important determinant of calorie intake, food expenses and the level of poverty.

In March 2010, the government adopted its “socio-economic reintegration strategy for people affected by the conflict”, the end goal of which is “to create an environment conducive to the country’s sustainable development”. It aims to “foster the setting up of rural development centres in concentrated settlements that facilitate access to land and infrastructure” in VRIs. On displacement, it declares that the return of IDPs to their community of origin, or the transformation of IDP settlements into VRIs “ [...] is an essential objective of a socio-economic reintegration strategy leading to the consolidation of peace.”. The national strategy envisages the creation of an IDP technical group to review all IDP settlements, and on the basis of its findings, to define a reintegration policy. Taking into account IDPs’ preferences, it would either determine the feasibility of their return, or work towards the formal recognition of their settlement, the latter including the resolution of any outstanding land claim pertaining to the settlement in question (R. o. Burundi, 2010). The IDP working group but in place to implement the strategy convened for the first time in October 2010.

With the data available for the current paper we are not able to evaluate the success/failure of the current return policy. Hence we cannot say whether or not the new reintegration strategy addresses the needs and the fears of the IDPs mentioned in section 2. Ideally one would need a series of welfare indicators from villages where the policy was (pilot) tested and compare these with villages where the policy was not (yet) implemented. The author is not aware whether such data exist. International

agencies, the government and NGO's assist the returnees upon their arrival and in the first months and years after their arrival, but the findings presented in this paper show that it is clearly not enough. The welfare of recent returnees is lagging seriously behind in comparison with the local non-displaced populations.

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Table 1. Calorie Intake and Composition of the Diet per Adult Equivalent in 2006

Category	Observations	Food expenses per day**	Daily calorie intake**	Beans		Manioc Farine		Maize		Sweet Potatoes		Cooking Bananas		
				% exp	% Kcal	% exp	% Kcal	% exp	% Kcal	% exp	% Kcal	% exp	% Kcal	
Whole sample	6700	423.467 [308.005]	2381.824 [1441.650]	16.091 [13.278]	18.813 [14.780]	11.239 [12.207]	16.439 [16.341]	9.533 [12.333]	15.986 [18.349]	7.573 [9.117]	9.638 [11.072]	5.792 [8.721]	4.817 [7.489]	
Urban	759	724.534 [467.532]	2948.082 [1617.273]	13.769 [9.730]	20.564 [11.805]	10.963 [10.534]	16.208 [13.775]	2.593 [5.741]	5.166 [10.127]	3.820 [5.531]	5.152 [7.018]	4.243 [5.260]	3.512 [4.599]	
Rural	5941	385.004 [256.970]	2309.481 [1401.408]	16.387 [13.638]	18.589 [15.104]	11.275 [12.404]	16.469 [16.641]	10.419 [12.664]	17.369 [18.702]	8.053 [9.371]	10.212 [11.361]	5.990 [9.049]	4.983 [7.766]	
Poverty	Food Poor	3637	244.713 [105.893]	1397.873 [381.162]	16.032 [13.533]	18.645 [15.220]	11.369 [12.525]	16.583 [16.786]	8.720 [11.584]	14.725 [17.501]	8.847 [10.087]	11.123 [12.173]	6.450 [9.525]	5.367 [8.280]
	Poor	1475	414.441 [88.243]	2774.297 [576.047]	17.622 [14.341]	18.853 [15.431]	12.913 [13.422]	17.844 [17.415]	14.089 [15.078]	22.244 [21.226]	7.251 [8.132]	8.905 [9.671]	4.540 [7.706]	3.521 [6.120]
	Non Poor	1588	841.252 [345.787]	4270.823 [1483.078]	14.803 [11.393]	19.160 [13.041]	9.387 [9.804]	14.805 [13.978]	7.162 [9.850]	13.063 [15.887]	4.954 [6.757]	6.920 [8.838]	5.449 [7.445]	4.758 [6.529]
HH size	<4	2871	517.834 [354.494]	2955.945 [1701.268]	16.678 [14.506]	19.388 [16.041]	10.907 [12.348]	15.958 [16.586]	9.527 [13.146]	15.762 [19.237]	7.915 [10.021]	10.007 [12.076]	5.419 [9.584]	4.543 [8.318]
	>3 & <7	2723	367.040 [252.384]	2039.604 [1060.079]	15.719 [12.475]	18.412 [13.986]	11.348 [12.364]	16.532 [16.477]	9.668 [12.184]	16.267 [18.296]	7.579 [8.803]	9.624 [10.690]	5.966 [8.301]	4.955 [7.071]
	>6	1106	317.432 [222.685]	1734.052 [865.637]	15.479 [11.721]	18.307 [13.142]	11.836 [11.402]	17.462 [15.295]	9.213 [10.362]	15.876 [15.972]	6.673 [7.148]	8.720 [9.037]	6.335 [7.211]	5.187 [6.065]
Age head	<35	2341	474.064 [325.200]	2660.308 [1516.294]	16.199 [13.154]	19.046 [14.804]	11.461 [12.029]	16.929 [16.396]	8.861 [12.023]	14.824 [17.910]	7.339 [9.223]	9.296 [11.150]	5.551 [8.710]	4.655 [7.464]
	>34 & <50	2517	371.655 [276.855]	2092.180 [1235.857]	15.877 [12.936]	18.402 [14.223]	11.442 [12.231]	16.638 [16.270]	9.986 [12.076]	16.762 [18.078]	7.347 [8.392]	9.382 [10.261]	5.838 [8.007]	4.784 [6.729]
	>49	1842	429.962 [314.741]	2423.681 [1529.034]	16.246 [13.887]	19.077 [15.477]	10.682 [12.386]	15.546 [16.342]	9.766 [13.020]	16.403 [19.186]	8.179 [9.878]	10.424 [11.971]	6.036 [9.620]	5.067 [8.443]
Sex head	Female	5443	421.303 [305.995]	2349.406 [1397.241]	15.967 [12.857]	18.751 [14.388]	11.197 [12.072]	16.498 [16.271]	9.332 [11.836]	15.813 [17.875]	7.530 [9.022]	9.629 [10.985]	5.800 [8.503]	4.850 [7.327]
	Male	1257	432.840 [316.515]	2522.198 [1613.064]	16.627 [14.959]	19.079 [16.375]	11.422 [12.775]	16.184 [16.643]	10.403 [14.258]	16.735 [20.263]	7.762 [9.518]	9.682 [11.446]	5.757 [9.610]	4.673 [8.154]
Education head	No education	2210	367.691 [251.231]	2219.776 [1382.434]	16.643 [14.699]	18.758 [16.018]	12.406 [13.194]	17.701 [17.173]	10.004 [12.709]	16.521 [18.741]	7.877 [9.345]	9.889 [11.171]	5.985 [9.141]	4.840 [7.706]
	Religious	1700	371.223 [254.367]	2184.361 [1345.201]	15.450 [13.265]	17.763 [14.949]	10.681 [11.790]	15.586 [15.989]	10.760 [13.232]	17.709 [19.225]	8.652 [9.911]	10.798 [11.847]	5.832 [8.853]	4.859 [7.653]
	Primary	2339	437.415 [294.489]	2480.976 [1426.815]	16.541 [12.380]	19.462 [14.000]	11.177 [11.912]	16.571 [16.254]	9.188 [11.747]	15.635 [17.791]	7.342 [8.642]	9.506 [10.796]	5.730 [8.608]	4.808 [7.471]
	At least secondary	451	821.377 [471.452]	3405.983 [1664.463]	13.461 [9.608]	19.668 [11.108]	7.953 [9.096]	12.792 [12.875]	4.382 [7.703]	8.692 [13.474]	3.212 [5.062]	4.729 [6.875]	5.018 [6.348]	4.584 [5.676]
Displaced	Never	2179	472.648 [355.936]	2495.423 [1482.810]	15.567 [13.187]	18.814 [14.719]	9.107 [11.262]	13.452 [15.140]	9.187 [12.150]	15.836 [18.719]	7.997 [9.711]	10.045 [11.697]	6.101 [8.618]	5.097 [7.310]
	At least once	4521	399.763 [278.973]	2327.072 [1418.306]	16.343 [13.316]	18.812 [14.811]	12.267 [12.509]	17.879 [16.701]	9.699 [12.418]	16.059 [18.170]	7.369 [8.810]	9.442 [10.753]	5.643 [8.766]	4.682 [7.571]

Notes – ** per adult equivalent. Standard errors in brackets. Data source: Core Welfare Survey for Burundi (2006).

Table 2. Food Expenses at the household level in 2006.

Category	Observation	Total expenses (per month)	% Non-food	% Food	in % of food expenses				
					From own production	Bought	Gift	Aid	
Whole sample	6700	74869.992 [69790.609]	33.084 [12.325]	66.916 [12.325]	46.363 [29.591]	46.838 [30.223]	4.088 [11.838]	2.711 [11.202]	
Urban	759	173522.448 [145108.199]	42.053 [13.300]	57.947 [13.300]	8.877 [17.415]	88.128 [20.560]	2.552 [9.717]	0.444 [5.396]	
Rural	5941	62266.523 [37465.443]	31.938 [11.711]	68.062 [11.711]	51.152 [27.318]	41.563 [27.028]	4.285 [12.069]	3.001 [11.708]	
Poverty	Food Poor	3637	53230.273 [32331.699]	34.988 [12.139]	65.012 [12.139]	47.013 [27.314]	46.510 [27.496]	4.424 [12.452]	2.053 [9.625]
	Poor	1475	67805.401 [28387.932]	27.247 [9.075]	72.753 [9.075]	54.502 [28.988]	38.011 [28.359]	3.306 [9.925]	4.180 [14.205]
	Non-poor	1588	130993.375 [114653.052]	34.144 [13.637]	65.856 [13.637]	37.314 [32.586]	55.785 [34.984]	4.047 [12.001]	2.854 [11.271]
HH size	<4	2871	56903.956 [42283.681]	35.901 [12.932]	64.099 [12.932]	46.312 [30.271]	44.179 [30.676]	5.926 [15.230]	3.583 [12.899]
	>3 & <7	2723	79558.212 [68483.188]	31.264 [11.254]	68.736 [11.254]	46.605 [29.182]	48.199 [29.895]	2.911 [8.502]	2.285 [10.250]
	>6	1106	109964.449 [105859.797]	30.250 [11.733]	69.750 [11.733]	45.898 [28.812]	50.387 [29.266]	2.217 [7.312]	1.498 [8.117]
Age head	<35	2341	68020.923 [58891.307]	34.387 [12.534]	65.613 [12.534]	43.874 [29.375]	49.820 [30.036]	3.904 [10.900]	2.402 [10.152]
	>34 & <50	2517	82180.355 [75933.041]	31.326 [11.777]	68.674 [11.777]	47.516 [29.346]	46.819 [29.730]	3.112 [9.484]	2.553 [11.253]
	>49	1842	73585.241 [72808.449]	33.830 [12.512]	66.170 [12.512]	47.949 [30.004]	43.072 [30.719]	5.657 [15.238]	3.321 [12.331]
Sex head	Female	5443	78447.166 [73158.625]	32.725 [12.186]	67.275 [12.186]	46.221 [29.240]	48.172 [29.793]	3.279 [10.033]	2.328 [10.249]
	Male	1257	59380.288 [49929.754]	34.639 [12.795]	65.361 [12.795]	46.977 [31.068]	41.060 [31.380]	7.592 [17.210]	4.371 [14.518]
Education head	No education	2210	58482.994 [37537.280]	31.844 [11.958]	68.156 [11.958]	49.484 [29.064]	41.691 [28.769]	5.320 [14.492]	3.505 [13.172]
	Religious	1700	60210.210 [32192.439]	32.065 [11.665]	67.935 [11.665]	50.440 [27.238]	42.002 [26.954]	4.531 [11.880]	3.028 [11.454]
	Primary	2339	75175.414 [58629.112]	33.324 [12.087]	66.676 [12.087]	45.716 [29.289]	49.045 [30.040]	3.063 [9.246]	2.175 [9.807]
	At least secondary	451	208844.528 [153947.934]	41.756 [14.119]	58.244 [14.119]	19.053 [27.746]	78.835 [28.875]	1.705 [7.673]	0.408 [3.341]
Displaced	Never	2179	88465.910 [97294.067]	34.288 [13.056]	65.712 [13.056]	44.852 [30.903]	48.992 [31.872]	3.714 [11.378]	2.442 [10.712]
	At least once	4521	68317.127 [50253.457]	32.504 [11.914]	67.496 [11.914]	47.091 [28.912]	45.799 [29.342]	4.269 [12.051]	2.841 [11.430]

Notes – ** per adult equivalent. Standard errors in brackets. Data source: Core Welfare Survey for Burundi (2006).

Table 3. Displacement, Poverty and Food Poverty

Forced Displacement	Level of Poverty			Totals
	Very poor	Poor	Non- Poor	
Never	1104 50.67	492 22.58	583 26.76	2179 100%
At least once	2533 56.03	983 21.74	1005 22.23	4521 100%
<i>Total</i>	3637 54.28	1475 22.01	1588 23.70	6700 100%

Notes – Pearson Chi Square (2)= 20.96 [p-value=0.000] Data source: Core Welfare Survey for Burundi (2006).

Table 4. Size at Birth of the last born Child and Poverty

Size of the last born child	Level of poverty			Totals
	very poor	poor	Non-poor	
small	186 64.58	47 16.32	55 19.10	288 100%
average	648 55.24	253 21.56	272 23.18	1173 100%
large	432 53.27	199 24.54	180 22.19	811 100%
Total	1266	499	507	2272

Notes – Pearson Chi Square (2)= 13.43 [p-value=0.009] We include all the last-born child for each household, in extended households we include the last-born children for each member. Data source: Core Welfare Survey for Burundi (2006).
Size of the last born child is self-reported

Table 5. Determinants of the level of caloric intake and the level of poverty (OLS and Ordered-Probit)

		Log. Calorie intake per adult equivalent		Log. Calorie intake per person		Log Food expenses per adult equivalent		Ordered-Probit	
		OLS		OLS		OLS		Level of poverty per adult equivalent	
		(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)
Household level	Land size	0.457*** [0.052]	0.432*** [0.052]	0.431*** [0.053]	0.404*** [0.053]	0.534*** [0.061]	0.503*** [0.059]	0.359*** [0.035]	0.341*** [0.034]
	Household size	-0.087*** [0.004]	-0.089*** [0.004]	-0.094*** [0.004]	-0.096*** [0.004]	-0.087*** [0.004]	-0.090*** [0.004]	-0.053*** [0.003]	-0.055*** [0.003]
Head level	Age	-0.001 [0.003]	-0.002 [0.003]	0.007*** [0.003]	0.006** [0.003]	-0.001 [0.003]	-0.002 [0.003]	-0.001 [0.002]	-0.002 [0.002]
	Age Square	0.000 [0.000]	0.000 [0.000]	-0.000** [0.000]	-0.000* [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
	Sex (Male=1)	-0.034* [0.018]	-0.027 [0.018]	-0.048*** [0.018]	-0.040** [0.018]	-0.069*** [0.018]	-0.059*** [0.017]	-0.031*** [0.011]	-0.027** [0.011]
	Religious education (yes=1)	0.034* [0.017]	0.026 [0.017]	0.028 [0.018]	0.019 [0.017]	0.051*** [0.018]	0.041** [0.016]	0.024** [0.012]	0.019 [0.012]
	Primary education (yes=1)	0.106*** [0.015]	0.099*** [0.015]	0.102*** [0.015]	0.095*** [0.015]	0.136*** [0.016]	0.126*** [0.015]	0.071*** [0.011]	0.066*** [0.011]
	Secondary education (yes=1)	0.414*** [0.040]	0.415*** [0.041]	0.425*** [0.039]	0.427*** [0.040]	0.579*** [0.050]	0.581*** [0.035]	0.446*** [0.045]	0.449*** [0.047]
	Have been displaced (yes=1)	-0.064** [0.025]	-0.070*** [0.025]	-0.071*** [0.025]	-0.078*** [0.025]	-0.071*** [0.027]	-0.079*** [0.022]	-0.035** [0.017]	-0.040** [0.017]
Displacement head	Duration of absence	-0.002 [0.003]	-0.001 [0.003]	-0.001 [0.003]	0.000 [0.003]	-0.005* [0.003]	-0.003 [0.003]	-0.002 [0.002]	-0.001 [0.002]
	Years since return	0.004 [0.002]	0.004* [0.002]	0.005* [0.002]	0.005** [0.002]	0.004* [0.003]	0.004** [0.002]	0.003* [0.002]	0.003* [0.002]
Cash crop production	Rice		0.067*** [0.021]		0.069*** [0.022]		0.077*** [0.021]		0.046*** [0.016]
	Banana Beer		0.055*** [0.013]		0.059*** [0.013]		0.077*** [0.013]		0.039*** [0.009]
	Coffee/tea/cotton		0.059*** [0.015]		0.070*** [0.015]		0.071*** [0.015]		0.029*** [0.011]
Observations		6700	6700	6700	6700	6700	6700	6700	6700
Province Fixed Effects		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R2/Pseudo R2		0.298	0.304	0.300	0.307	0.305	0.314	0.159	0.163
F-Stat		90.129***	82.739***	86.287***	79.616***	80.799***	105.438***		
Wald Chi-stat								1322.56***	1298.22***
Log-LL		-4313.409	-4283.561	-4340.562	-4304.635	-4630.481	-4586.381	-1073414.498	-1068532.258

Notes – All regressions were weighted by the cluster sampling weight. Standard errors in brackets, clustered at the *sous colline* level. * significant at 10%, ** significant at 5%, and *** significant at 1%. Dependent variable: Early return from displacement (< 1 year) (yes=1). Marginal effects reported. Data source: Core Welfare Survey for Burundi (2006).

Table 6. **Determinants of having an early return (<=1 year) after displacement. (Probit estimation)**

		I	II	III	IV
Household level	Land size	0.006 [0.049]	0.010 [0.050]	-0.006 [0.049]	-0.003 [0.049]
	Household size	0.000 [0.004]	0.005 [0.004]	0.005 [0.004]	0.005 [0.004]

Head level	Age		-0.006* [0.003]	-0.006** [0.003]	-0.006** [0.003]
	Age Square		0.000** [0.000]	0.000** [0.000]	0.000** [0.000]
	Sex (Male=1)		0.049** [0.019]	0.050** [0.019]	0.048** [0.019]
	Religious education (yes=1)		0.078*** [0.019]	0.070*** [0.020]	0.070*** [0.020]
	Primary education (yes=1)		0.033* [0.018]	0.025 [0.018]	0.024 [0.018]
	Secondary education (yes=1)		-0.009 [0.041]	0.006 [0.041]	0.004 [0.041]

Violence experience	Have been displaced more than one time (yes=1)			0.102*** [0.020]	0.101*** [0.020]
	Went to another country after displacement (yes=1)			-0.141*** [0.030]	-0.139*** [0.030]
	Went to same province after displacement (yes=1)			0.116*** [0.020]	0.114*** [0.020]
	Went to a refugee camp (yes=1)			-0.108*** [0.032]	-0.107*** [0.032]
	Lost cattle while displacement (yes=1)				0.005 [0.029]
	Lost some equipment while displacement (yes=1)				0.005 [0.028]
	Lost other good (yes=1)				-0.050 [0.032]
Observations		4521	4521	4521	4521
<i>Province Fixed Effects</i>		<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Pseudo R2		0.076	0.082	0.120	0.121
Log-LL		-506047.902	-502942.815	-482185.116	-481310.014

Notes – All regressions were weighted by the cluster sampling weight. Standard errors in brackets, clustered at the *sous colline* level. * significant at 10%, ** significant at 5%, and *** significant at 1%. Dependent variable: Early return from displacement (< 1 year) (yes=1). Marginal effects reported. Data source: Core Welfare Survey for Burundi (2006).

Table 7. Propensity Score for different treatments (Probit).

	<i>All displaced HH vs Never-Displaced HH</i> (I)	<i>Early return HH vs Never Displaced HH</i> (II)	<i>Lately return HH vs Never Displaced HH</i> (III)
Age	0.031*** [0.006]	0.030*** [0.007]	0.038*** [0.009]
Age Square	-0.000*** [0.000]	-0.000*** [0.000]	-0.000*** [0.000]
Sex (Male=1)	0.081* [0.049]	0.114** [0.053]	-0.016 [0.067]
Religious education (yes=1)	0.182*** [0.054]	0.258*** [0.059]	0.007 [0.072]
Primary education (yes=1)	0.023 [0.048]	0.049 [0.054]	-0.042 [0.063]
Secondary education (yes=1)	-0.553*** [0.094]	-0.564*** [0.106]	-0.530*** [0.125]
Observations	6700	5318	3561
Province Fixed Effects	Yes	Yes	Yes
R2/Pseudo R2	0.099	0.107	0.150
Log-LL	-724142.701	-615519.785	-383222.589

Notes – All regressions were weighted by the cluster sampling weight. Standard errors in brackets, clustered at the *sous colline* level. * significant at 10%, ** significant at 5%, and *** significant at 1%. Dependent variable: Early return from displacement (< 1 year) (yes=1). Marginal effects reported. Data source: Core Welfare Survey for Burundi (2006).

Table 8. Average Treatment effect on the Treated (ATT), using different treatments.

	Treated	Controls	Difference		t-stat
			Abs.	% Treated	
<i>All displaced HH vs non-displaced HH</i>					
Total Expenses per day per adult eq.	539.38	609.173	-69.793	-12.94%	-3.35***
Food Expenses per day per adult eq.	355.844	387.953	-32.109	-9.02%	-3.20***
Calorie Intake per day per adult eq.	2061.063	2185.07	-124.007	-6.02%	-3.09***
Observations	4,521	2,179			
<i>Early return HH (<=1 year) vs non-displaced HH</i>					
Total Expenses per day per adult eq.	541.516	600.852	-59.336	-10.96%	-2.82***
Food Expenses per day per adult eq.	358.227	377.7	-19.473	-5.44%	-1.92**
Calorie Intake per day per adult eq.	2055.906	2144.531	-88.625	-4.31%	-2.14***
Observations	2,950	2,179			
<i>Lately return HH (>1 year) vs non-displaced HH</i>					
Total Expenses per day per adult eq.	603.163	670.742	-67.387	-12.61%	-2.11***
Food Expenses per day per adult eq.	350.344	383.489	-33.145	-9.46%	-1.75*
Calorie Intake per day per adult eq.	2380.068	2463.063	-120.594	-5.82%	-1.08
Observations	1,382	2,179			

Notes – Standard errors in brackets, clustered at the municipality level. * significant at 10%, ** significant at 5%, and *** significant at 1%. Data randomly sorted due to similar propensity score. Data source: Core Welfare Survey for Burundi (2006).

Table 9. **First Step**

	<i>Years since return</i>			<i>Duration of absence</i>		
	I	II	III	IV	V	VI
Went to the same province after displacement (yes=1)	1.307***	-1.608***	-1.610***	0.003	-0.981***	-0.959***
	[0.174]	[0.156]	[0.156]	[0.086]	[0.095]	[0.095]
<i>Province Fixed Effect</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Household level controls</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>
<i>Head level controls</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>
<i>Other violence controls</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>	<i>No</i>	<i>No</i>	<i>Yes</i>
<i>Cash crop production controls</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>No</i>	<i>Yes</i>
Observations	6700	6700	6700	6700	6700	6700
R2	0.130	0.628	0.628	0.063	0.291	0.294
F-statistic	18.848	134.305	125.344	10.036	55.342	52.465

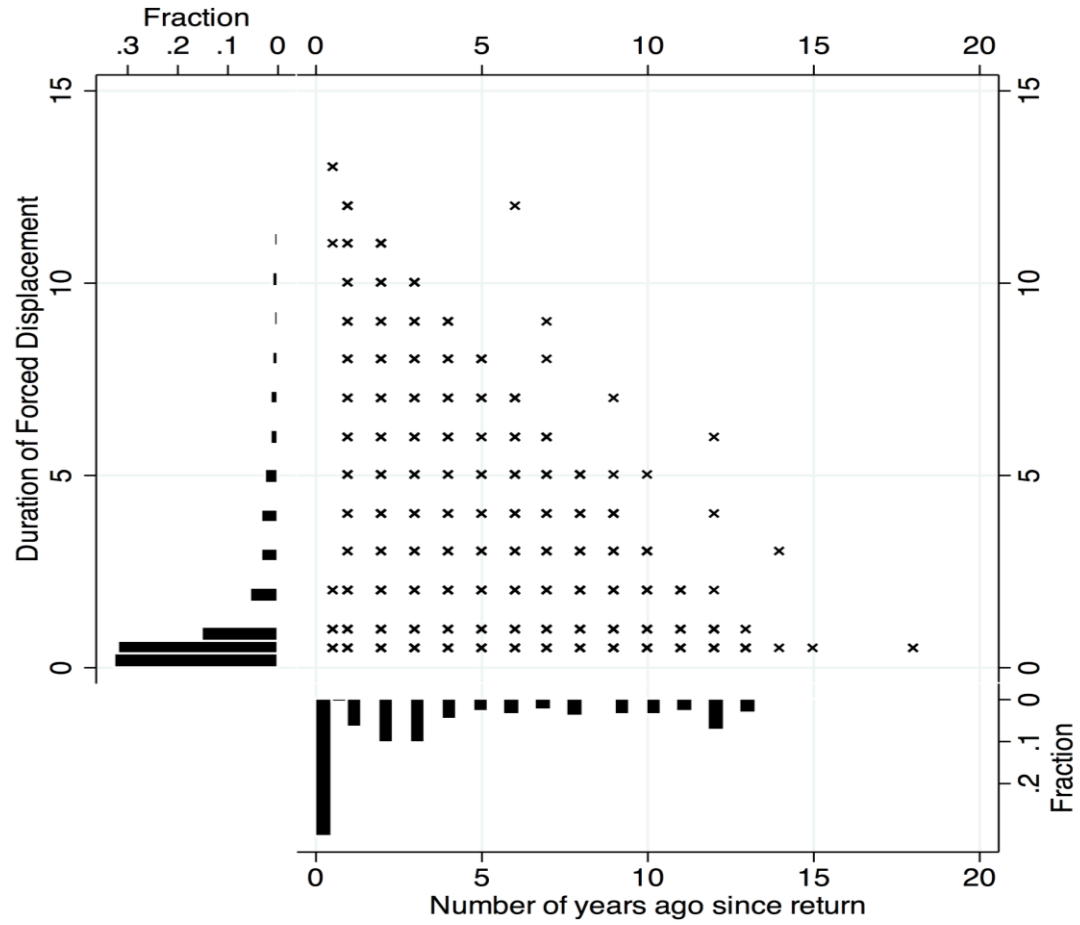
Notes - All regressions were weighted by the cluster sampling weight. Standard errors in brackets, clustered at the *sous colline* level level. * significant at 10%, ** significant at 5%, and *** significant at 1%. Estimation method by OLS. Dependent variable columns I to III: Years since return. For columns V to VIII: Duration of absence. Province fixed effects included. Household level controls include: Land size and Household size. Head level controls: Age, Age square, Sex (Male=1), Religious education (yes=1), Primary education (yes=1) and Secondary education (yes=1). Other violence controls: Have been displaced (yes=1), Duration of absence (for columns I to III) and Years since return (for columns IV to VI). Data source: Core Welfare Survey for Burundi (2006).

Table 10. IV-approach

		Log. Calorie intake per household						Log Food expenses per household					
		OLS		Years since return as endogenous		Duration of absence as endogenous		OLS		Years since return as endogenous		Duration of absence as endogenous	
		(I)	(II)	(III)	(IV)	(V)	(VI)	(I)	(II)	(III)	(IV)	(V)	(VI)
Displacement head	Duration of absence	-0.002 [0.003]	-0.001 [0.003]	0.000 [0.005]	0.003 [0.005]	0.009 [0.017]	0.016 [0.018]	-0.005* [0.003]	-0.003 [0.003]	-0.003 [0.005]	0.001 [0.005]	0.006 [0.018]	0.015 [0.018]
	Years since return	0.004* [0.002]	0.004* [0.002]	0.011 [0.010]	0.014 [0.010]	0.006* [0.004]	0.007* [0.004]	0.004* [0.003]	0.004* [0.003]	0.011 [0.011]	0.015 [0.011]	0.006* [0.004]	0.008* [0.004]
	Have been displaced (yes=1)	-0.064** [0.025]	-0.070*** [0.025]	-0.117 [0.081]	-0.146* [0.082]	-0.100* [0.058]	-0.123** [0.060]	-0.071*** [0.027]	-0.079*** [0.027]	-0.122 [0.085]	-0.161* [0.086]	-0.105* [0.061]	-0.136** [0.063]
Household level	Land size	0.457*** [0.052]	0.432*** [0.052]	0.458*** [0.052]	0.434*** [0.052]	0.459*** [0.053]	0.434*** [0.052]	0.534*** [0.061]	0.503*** [0.060]	0.536*** [0.061]	0.504*** [0.060]	0.536*** [0.062]	0.504*** [0.061]
	Household size	-0.087*** [0.004]	-0.089*** [0.004]	-0.087*** [0.004]	-0.089*** [0.004]	-0.087*** [0.004]	-0.089*** [0.004]	-0.087*** [0.004]	-0.090*** [0.004]	-0.087*** [0.004]	-0.090*** [0.004]	-0.087*** [0.004]	-0.090*** [0.004]
Head level	Age	-0.001 [0.003]	-0.002 [0.003]	-0.001 [0.003]	-0.002 [0.003]	-0.001 [0.003]	-0.002 [0.003]	-0.001 [0.003]	-0.002 [0.003]	-0.001 [0.003]	-0.002 [0.003]	-0.001 [0.003]	-0.002 [0.003]
	Age Square	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
	Sex (Male=1)	-0.034* [0.018]	-0.027 [0.018]	-0.035* [0.018]	-0.028 [0.018]	-0.033* [0.018]	-0.024 [0.018]	-0.069*** [0.018]	-0.059*** [0.018]	-0.070*** [0.018]	-0.061*** [0.018]	-0.068*** [0.018]	-0.056*** [0.018]
	Religious education (yes=1)	0.034** [0.017]	0.026 [0.017]	0.035** [0.017]	0.027 [0.017]	0.037** [0.018]	0.030* [0.017]	0.051*** [0.018]	0.041** [0.018]	0.052*** [0.018]	0.042** [0.018]	0.054*** [0.019]	0.045** [0.018]
	Primary education (yes=1)	0.106*** [0.015]	0.099*** [0.015]	0.106*** [0.015]	0.099*** [0.015]	0.108*** [0.015]	0.100*** [0.016]	0.136*** [0.016]	0.126*** [0.016]	0.136*** [0.017]	0.126*** [0.017]	0.137*** [0.017]	0.128*** [0.017]
	Secondary education (yes=1)	0.414*** [0.040]	0.415*** [0.041]	0.410*** [0.040]	0.409*** [0.041]	0.412*** [0.040]	0.413*** [0.041]	0.579*** [0.050]	0.581*** [0.052]	0.575*** [0.050]	0.574*** [0.052]	0.577*** [0.050]	0.578*** [0.052]
Cash crop production	Rice		0.067*** [0.021]		0.069*** [0.021]		0.068*** [0.021]		0.077*** [0.023]		0.078*** [0.023]		0.077*** [0.023]
	Banana Beer		0.055*** [0.013]		0.057*** [0.013]		0.060*** [0.014]		0.077*** [0.014]		0.078*** [0.014]		0.082*** [0.015]
	Coffee/tea/cotton		0.059*** [0.015]		0.058*** [0.015]		0.060*** [0.015]		0.071*** [0.016]		0.070*** [0.016]		0.073*** [0.016]
Observations	6700	6700	6700	6700	6700	6700	6700	6700	6700	6700	6700	6700	6700
LM statistics (under identification)			88.08	88.17	85.57	83.70			88.08	88.17	85.57	83.70	
<i>P-value</i>			0	0	0	0			0	0	0	0	
Endogeneity test (chi2)			0.477	0.994	0.477	0.944			0.415	1.033	0.415	1.033	
<i>P-value</i>			0.489	0.331	0.489	0.331			0.519	0.309	0.5195	0.309	
Kleibergen-Paap rk Wald F			106.4	107.0	105.7	102.3			106.4	107.0	105.7	102.3	
Province Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
R2	0.298	0.304	0.296	0.301	0.296	0.301	0.305	0.314	0.304	0.311	0.303	0.310	
F-Stat	90.129***	82.739***	90.022***	82.493***	90.781***	83.405***	80.799***	76.028***	80.612***	75.835***	80.946***	75.797***	
Log-LL	-4313.409	-4283.561	-4319.224	-4295.495	-4320.591	-4299.005	-4630.481	-4586.381	-4635.537	-4599.391	-4636.726	-4603.216	

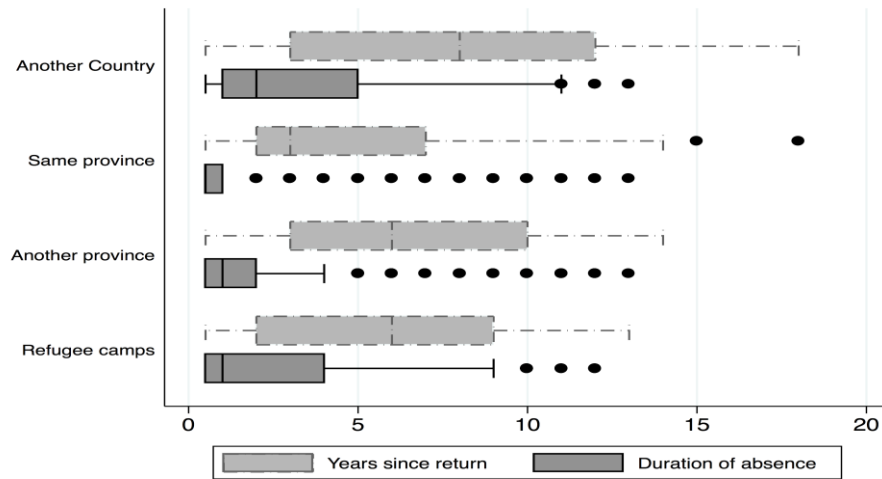
Notes – All regressions were weighted by the cluster sampling weight. Standard errors in brackets, clustered at the *sous colline* level level. * significant at 10%, ** significant at 5%, and *** significant at 1%. For the first fourth column Data source: Core Welfare Survey for Burundi (2006).

Figure 1. **Timing of Return and Duration of Displacement**



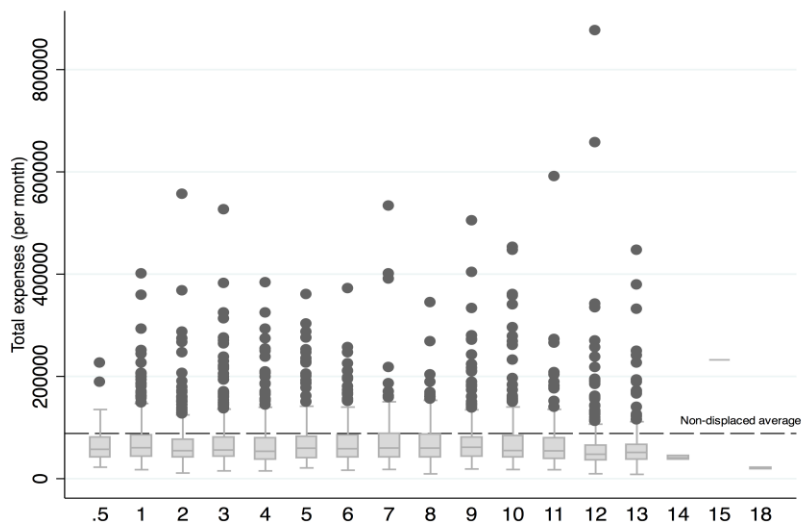
Notes – We consider only the information from the household head. Data source: Core Welfare Survey for Burundi (2006).

Figure 2. Years since return and absence by arrival place after displacement.

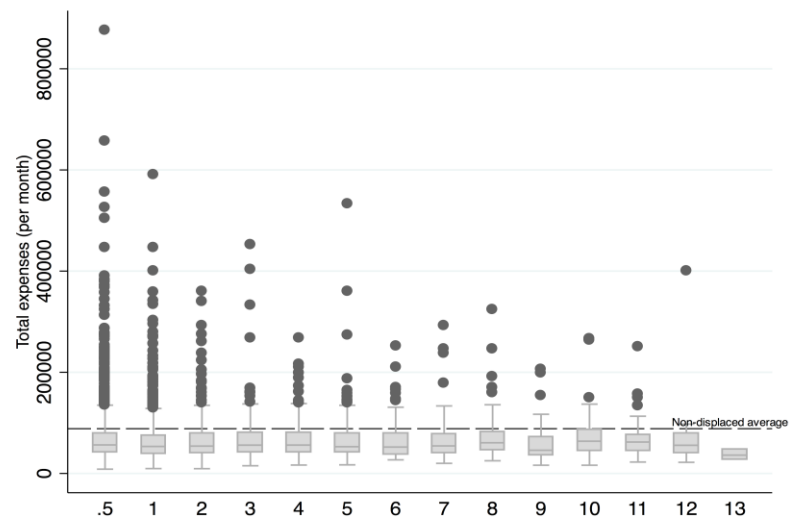


Notes – We consider only the information from the household head. Data source: Core Welfare Survey for Burundi (2006).

Figure 3. Total Expenses per month (food and non-food, in adult equivalent) by duration of displacement and years since return.



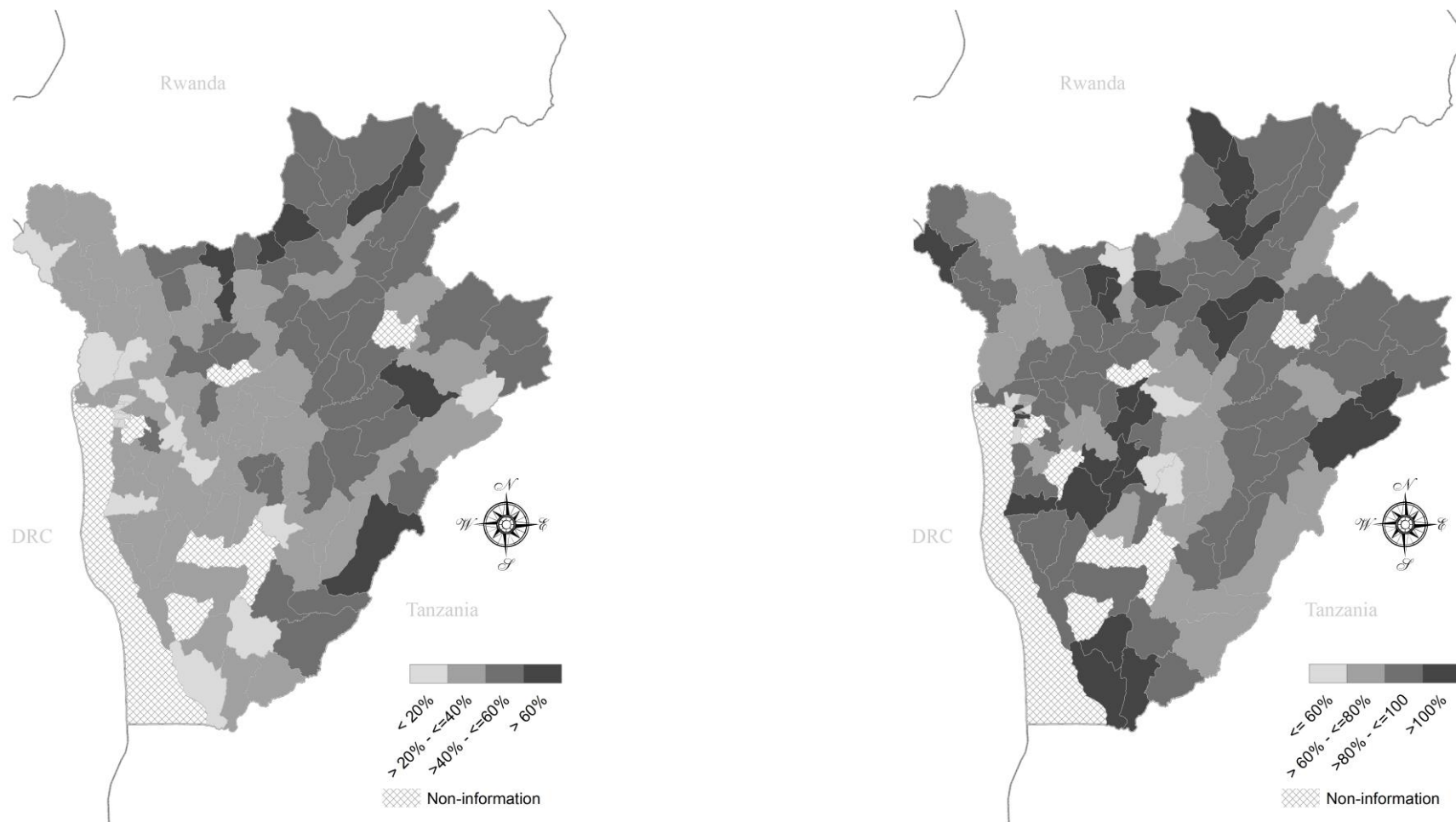
a) Years since return



b) Duration of displacement

Notes – We consider only the information from the household head. Data source: Core Welfare Survey for Burundi (2006).

Figure 4. Poverty and expenses for entire sample and displaced population.

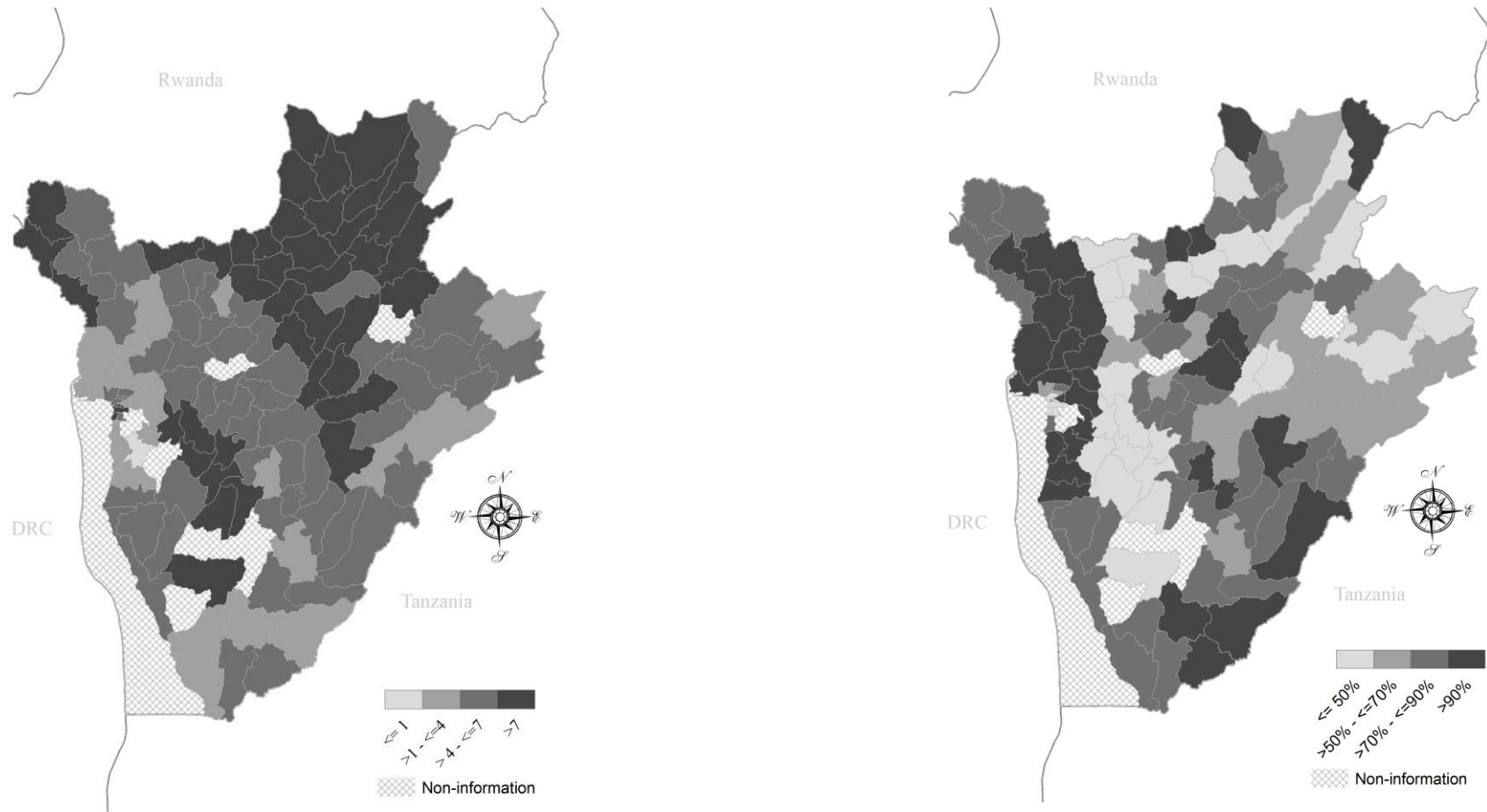


a) Percentage of the population with expenses below the food poverty line

b) Total expenses of the displaced in percentages of the non-displaced averaged at the province level, by Commune.

Notes – We consider only the information from the household head. The Food Poverty Line was calculated using the UN's standards Data source: Core Welfare Survey for Burundi (2006).

Figure 5. Percentage of the population with expenses below the Food Poverty Line AND

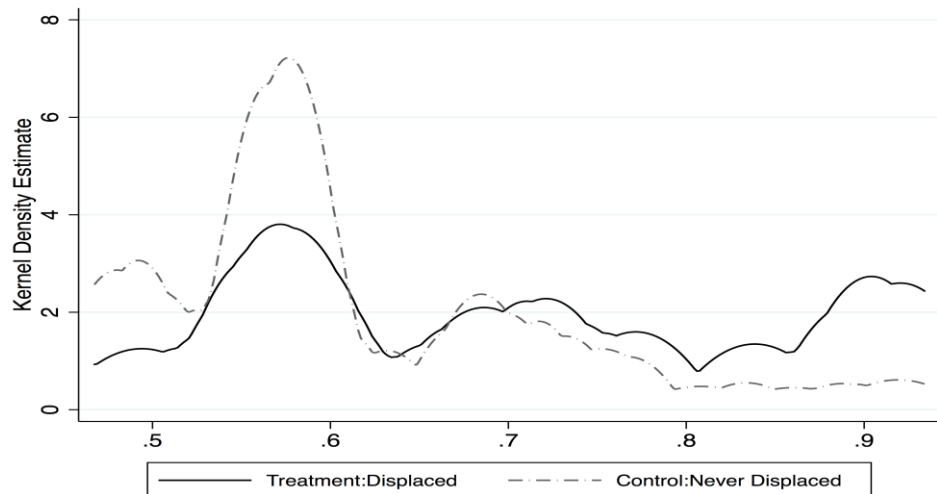


a) Years since return from displacement, by Commune

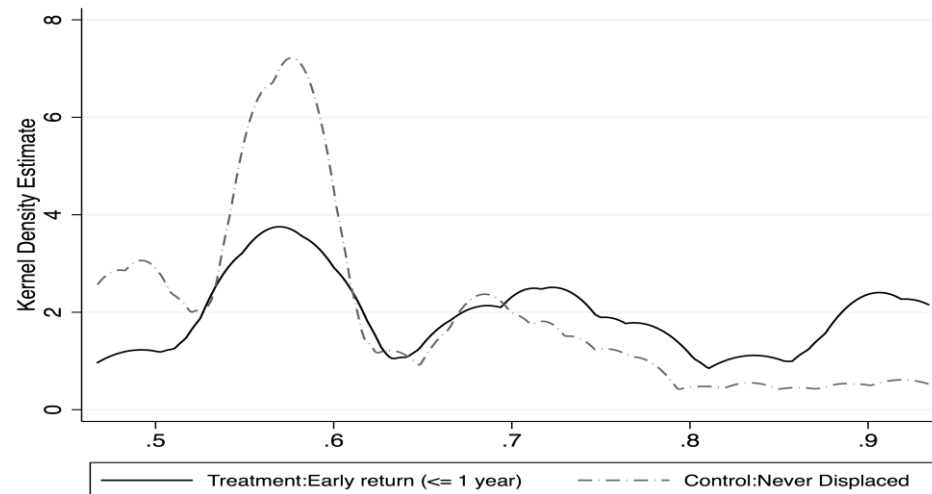
b) Percentage of Heads Households ever displaced, by Commune.

Notes – We consider only the information from the household head. The Food Poverty Line was calculated using the UN's standards Data source: Core Welfare Survey for Burundi (2006).

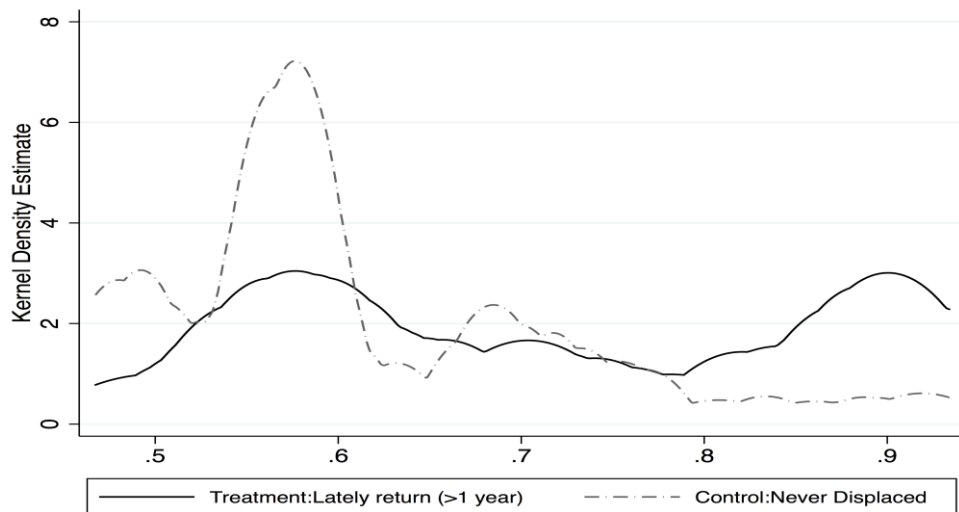
Figure 6. Kernel density estimate for the propensity score



Displaced HH vs Never Displaced HH



Early return (<= 1 year) vs Never Displaced HH



Lately return (>1 year) vs Never Displaced HH

Notes – We consider the whole sample. Data source: Core Welfare Survey for Burundi (2006).

