The Journal of Development Studies

ISSN: 0022-0388 (Print) 1743-9140 (Online) Journal homepage: http://www.tandfonline.com/loi/fjds20

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To cite this article: Philip Verwimp & Juan Carlos Muñoz-Mora (2017): Returning Home after Civil War: Food Security and Nutrition among Burundian Households, The Journal of Development Studies, DOI: 10.1080/00220388.2017.1311407

To link to this article: http://dx.doi.org/10.1080/00220388.2017.1311407

The Journal of Development Studies, 2017
https://doi.org/10.1080/00220388.2017.1311407

Returning Home after Civil War: Food Security and Nutrition among Burundian Households

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(Original version submitted February 2016; Final version accepted March 2017)

ABSTRACT *This paper investigates the food security and nutritional status of formerly displaced households (HHs). 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 food security and nutritional status or the time lapsed since returning home. We use log-linear as well as propensity score matching and an instrumental variable-approach to control for self-selection bias. We find that the individuals and HHs who returned home just before the time of the survey are worse off compared to those who returned several years earlier. On average, the formerly displaced have 5 per cent lower food expenses and 6 per cent lower calorie intake. Moreover, we find evidence in favour of duration of displacement as the main mechanisms through which displacement affects HH welfare. Results are robust after controlling for 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.*

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. What the general public does not see are the dynamics and consequences on welfare during and after forced displacement. By limiting the ability to generate income, forced displacement causes significant welfare losses to affected households (HHs). When individuals and HHs are forced to migrate, they rarely have the time to sell their most valuable assets. Moreover, warring factions may also seize goods such as land or livestock, leading to an instant loss of wealth. Thereby, families cease deriving economic returns from productive assets and cannot invest capital in productive activities (Engel & Ibáñez, 2007; Fiala, 2015; Ruiz & Vargas-Silva, 2013).

During displacement, finding employment is difficult because displaced HHs often come from rural areas and their agricultural abilities are not valued in receiving municipalities or urban areas (Bozzoli, Bruck, & Wald, 2013; 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 HHs that are unable to smooth consumption may face health deterioration (Behrman,

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A Supplementary Material is available for this article which can be accessed via the online version of this journal available at. https://doi.org/10.1080/00220388.2017.1311407

1988) and lesser body size (Foster, 1995). Displaced HHs also adopt costly strategies to smooth consumption such as selling assets (Rosenzweig & Wolpin, 1993), adjusting labour supply (Fernandez, Ibanez, & Peña, 2011; Kochar, 1999; Ruiz & Vargas-Silva, 2015), foregoing risky but profitable activities to smooth income instead of consumption (Morduch, 1995), and dropping children out of school.

The effect of conflict on activities may still be felt by HHs long after war ends. Findings in Uganda indicate that the probability to start non-farm activities is reduced for HHs affected by war (Bozzoli, Brueck, & Muhumuza, 2015; Deininger, 2003). In Mozambique, HHsin the post-conflict period were able to engage in potential income generation activities, but the decisions to participate varied across HHs and seasons (Bozzoli & Brück, 2009). Empirical evidence on activity choices in Burundi finds that wealthier HHs 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 (Bundervoet, 2010). During recovery, development interventions and improved security provide opportunities for HHs 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 HH adaptation.

In northern Uganda, Lehrer (2008) finds a negative impact of conflict on the labour force participation of men. In turn, Ssewanyana, Younger, and Kasirye (2007) indicates that residence in an IDP[1] camp is highly associated with difficulty to farm. Stites et al. (Stites, Mazurana, & Carlson, 2006) study in the Kitgum district of Uganda finds that social capital is higher among HHs 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, Brück, and Muhumuza (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, which makes victims hopeless and overly pessimistic towards potential upward social mobility (Moya & Carter, 2014).

Yet, what happens when IDP's decide to return to their home? How much time could an IDP take to recover the same level of welfare as just before displacement? These questions can be approached using two complementary arguments. The *first* states that, upon return, a *convergence process* is starting. It takes a few years before the displaced HH is able to reap the benefits from farm work and cultivation, succeed in finding a job or set up a profitable business or commercial activity. Hence, HHs who returned before might be better off than those who just returned. The *second* argument points out that what counts may not be the number of years that has lapsed since the HH has returned home but the duration of absence. Heads of HHs 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. That is, the longer the absence, the lower the level of welfare. We called the first argument a *convergence process* starting from the moment when one returns, and the second a *divergence process* starting from the moment one leaves.

In this paper we investigate the food security and nutritional status of formerly displaced HHs after return in Burundi. In particular, we test whether it is the duration of displacement that matters for current welfare (that is *divergence process*) or the time lapsed since returning (that is *convergence process)*. We use the Core Welfare Indicator Questionnaire (CWIQ) Survey for World Bank (2006), a national representative survey. Besides the standard HH characteristics and consumption behaviour modules, the World Bank (2006) gathers detailed information about displacement and return experienced by interviewed HHs. Therefore, we can compare *calorie intake* and *level of food expenses* among different types of formerly displaced HHs with those HHs who never displaced during war.

Sample selection is our main concern. Returning home after civil war is the result of a compound treatment: (i) having been displaced; and, afterwards (ii) having returned. That is, there are two important sources of sample selection. *First*, forced displacement is often a non-random event. HHs are forced to flee by rebels/army taking possession of their land, expanding territorial control, weakening population support for opponent groups or increasing their own support base and increasing income (Justino, 2011; Kalyvas, 2006). Thereby, it is likely that characteristics such as wealth or local visibility makes some HHs more prone to being forcibly displaced than others.

Second, returning home is a complex decision. HHs who are poorly integrated in the host economy or with more assets at their original home may be more likely to return (Arias, Ibáñez, & Querubin, 2014). As a consequence, either the decision of displacement or return may be correlated with unobserved HH characteristics, which would make for biased estimates.

While baseline information from just before displacement or return is not available, we take advantage of the diverse set of experiences after returning home registered in the World Bank (2006) to tackle these hurdles. In particular, World Bank (2006) allows us to identify two different types of returnees: those who returned just after displacement (that is ≤ 1 year – *early return*) and those who stayed abroad longer (that is >1 year – *late return*). We argue that both groups of IDP's were most likely taking the return decision under similar within-group conditions. Therefore, even though we cannot entirely get rid of the selection bias, we can provide insights on the relationship between food security and nutrition of formerly displaced HHs after return in Burundi. Based on this premise, we propose different estimation techniques. *First*, as a benchmark, we estimate a log-linear specification without taking into account a correction for potential endogeneity. *Second*, taking advantage of the ample socio-economic information available in CWIQ 2006, we apply propensity score matching to deal with endogeneity. *Finally*, we propose an instrumental variable (IV)-approach using the place of arrival during displacement as an instrument.

We find that, in general, Internally Displaced Persons (IDPs) who returned home have relatively less *calorie intake* and *food expenses* than the average Burundian HH, corresponding to 5 per cent and 6 per cent respectively. Furthermore, we find evidence in favour of the *divergence argument*, but not for the *convergence argument*. For every two years (that is one standard deviation) that the HH was absent, the *calorie-intake* as well as the *food expenses* decreases by 1 per cent with respect to the average HH. In fact, on average, returned IDP's had 12.63 per cent less expenses on food and 9.54 per cent calorie intake than those HHs who never were displaced. Our results are confirmed in the IV approach.

The contribution of this paper is twofold. First, we provide empirical evidence on the long-term effect of returning home after displacement, exploring two complementary mechanisms (that is a divergence and convergence process). Second, we provide technical analysis and evidence into the debate on policies in support of IDPs and refugees who returned home or who want to return home.

The structure of the paper is as follows. Section two gives an overview of forced displacement and return in Burundi. Section three describes the Burundian diet and the level of food expenditure of displaced and non-displaced populations. Section four analyses calorie intake and poverty on the basis of survey data. Finally, section five relates the research findings to current policies towards IDPs and refugees in Burundi.

2. Forced displacement and return in Burundi[2]

With the return of refugees and many IDPs after the end of the conflict, Burundi had to reintegrate about 10 per cent of its population. The return has taken 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 80 per cent of the population is dependent on rain-fed smallholder farming, people without land cannot provide food for their families (UNHCR, 2009).

Between 1999 and 2005, an estimated 700,000 IDPs returned to their homes under improved security conditions (OCHA, 2005). 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 (IMDMCNRC, 2011). After 2005, despite the further improvement of the security situation, fewer IDPs returned home. According to the UNHCR (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 livelihoods found in IDP settlements may also contribute to this slow return (UNHCR, 2007). In the south of the country, however, IDPs were found to be gradually returning to their hills[3] 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 –fear of their former neighbours (IMDMCNRC, 2011). The fact that many people remained in IDP settlements was a sign of the climate of fear and uncertainty among IDPs.

According to OCHA (2004), some 89 per cent 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,[4] the yields are low and do not meet daily food needs. Many HHs 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 from international assistance. OCHA (2005) suggests four factors might explain why many IDPs face these difficulties to be self-reliant during displacement: (i) theft of crops; (ii) destruction of livestock; (iii) poor access to credit; and, (iv) decreased land fertility.

Despite the high vulnerability of IDPs in their current location, some of them refuse to return home. 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. Focus groups with IDPs and neighbouring communities conducted by IMDMC (Internal Displacement Monitoring Centre and Norwegian Refugee Council) (IMDMCNRC, 2011) emphasized the positive relationships between IDPs and members of the surrounding communities. IDPs were seen as just like any other inhabitants of the hill, taking part in local development projects such as the construction of school or roads, farming and herding associations and local elections. In turn, the OCHA (2005) survey found that those IDPs who express a desire to remain indefinitely at the site where they currently reside, do that mainly for the following reasons (in order of priority): (1) fear, distrust and lack of cohesion and/or 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; (5) do not own land or house in their place of origin; (6) nowhere else to go; (7) completely dependent on others in the site; (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; (8) Little direct dependence on agricultural activity and have another means of revenue in the site.

Yet, what happens with those IDPs who wish to return? The OCHA (2005) survey reported that retuning home seems to be conditioned on 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 as other IDPs; (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. 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 (for example, 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); (4) mines in their place of origin[5]; (5) fear of political developments and upcoming elections; (6) presence of armed groups not yet disarmed or demobilised; (7) fear, distrust and lack of cohesion and/or reconciliation among communities in their place of origin; (8) home villages are empty, waiting for others to return (OCHA, 2005).

3. Diet composition, food expenses and forced displacement: a description

3.1 Data

We use the Core Welfare Indicator Questionnaire (CWIQ), a nationally representative survey for Burundi collected in 2006. The CWIQ, developed by the World Bank in collaboration with other international agencies, seeks to reduce the untimeliness of data and poor data quality with a less expensive alternative optimising the sampling procedure and the structure of the questionnaire (Ajayi, 2006; Zoyem, Diang'a, & Wodon, 2008). Besides the core modules on HH characteristics and consumption behaviour, questions about displacement and return were included. The sample consists of 6700 HHs.[6]

3.2 Descriptive analysis

Farming is the principle economic activity of more than 80 per cent of all Burundian HHs. The size of the average farm is less than one hectare and its produce feeds on average five persons. Most 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 HH needs as well as the need for non-food products, farm HHs also have 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 per cent 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 HHs* (defined as having a level of consumption lower than the food poverty line), these crops constitute each on average 2 per cent more of the daily food expenses and deliver 2 per cent more of the daily calories than non-poor HHs and 1 per cent more than in poor HHs.

Table 1 also shows the differences in diet composition according to rural or urban HHs, the sex of the head of the HH, the number of HH members and the displacement status of the head of the HH. 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 fives staple crops mentioned above are important *for all* Burundian HHs. The exceptions to this rule seem to merit our attention. The first is that the composition of the diet for HHs with a large HH (>7 members) seems to differ markedly from all other HHs. For this group of the population, the five crops are *relatively* less important in the diet. And second, formerly displaced HHs seem to allocate a higher share of their food expenses to cassava flour than others.[7]

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 HH, equally important. This HH 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 HHs rely more on the market channel compared to poor and female headed. These latter HHs 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.

Figure 1 shows the timing of return and duration of displacement.[8] 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. About 70 per cent of the displaced HHs had an *early return (<1 year)* after having been displaced, and have on average six years since return. Giving the different periods of violence in Burundi, there does not exist a perfect

Table 1. Calorie intake and composition of the diet per adult equivalent in 2006

			Urban vs Rural		Poverty Status[b]			HH Size		HH Head Sex		Displacement	
		Whole Sample	Urban	Rural	Food Poor	Poor	Non-Poor	<= 7	>7	Female	Male	Never Displaced	Displaced
Food expenses per day[a]		423.467	724.534	385.004***	841.252	414.441	244.713***	444.432	317.432***	421.303	432.84	470.226	400.077***
		[308.005]	[467.532]	[256.970]	[345.787]	[88.243]	[105.893]	[318.067]	[222.685]	[305.995]	[316.515]	[353.243]	[279.798]
Daily calorie intake[a]		2381.824	2948.082	2309.481***	4270.823	2774.297	1397.873***	2509.896	1734.052***	2349.406	2522.198***	2490.503	2327.46***
		[1441.650]	[1617.273]	[1401.408]	[1483.078]	[576.047]	[381.162]	[1497.303]	[865.637]	[1397.241]	[1613.064]	[1479.132]	[1419.578]
Beans	% exp	16.091	13.769	16.387***	14.803	17.622	16.032***	16.212	15.479*	15.967	16.627	15.64	16.316**
		[13.278]	[9.730]	[13.638]	[11.393]	[14.341]	[13.533]	[13.563]	[11.721]	[12.857]	[14.959]	[13.232]	[13.297]
	% Kcal	18.813	20.564	18.589***	19.16	18.853	18.645	18.913	18.307	18.751	19.079	18.832	18.803
		[14.780]	[11.805]	[15.104]	[13.041]	[15.431]	[15.220]	[15.082]	[13.142]	[14.388]	[16.375]	[14.767]	[14.788]
Manioc Farina	% exp	11.239	10.963	11.275	9.387	12.913	11.369***	11.122	11.836*	11.197	11.422	9.252	12.233***
		[12.207]	[10.534]	[12.404]	[9.804]	[13.422]	[12.525]	[12.357]	[11.402]	[12.072]	[12.775]	[11.348]	[12.497]
	% Kcal	16.439	16.208	16.469	14.805	17.844	16.583***	16.237	17.462**	16.498	16.184	13.643	17.838***
		[16.341]	[13.775]	[16.641]	[13.978]	[17.415]	[16.786]	[16.534]	[15.295]	[16.271]	[16.643]	[15.273]	[16.676]
Maize	% exp	9.533	2.593	10.419***	7.162	14.089	8.72***	9.596	9.213	9.332	10.403***	9.174	9.712*
		[12.333]	[5.741]	[12.664]	[9.850]	[15.078]	[11.584]	[12.686]	[10.362]	[11.836]	[14.258]	[12.133]	[12.429]
	% Kcal	15.986	5.166	17.369***	13.063	22.244	14.725***	16.008	15.876	15.813	16.735	15.788	16.086
		[18.349]	[10.127]	[18.702]	[15.887]	[21.226]	[17.501]	[18.785]	[15.972]	[17.875]	[20.263]	[18.689]	[18.178]
Sweet Potatoes	% exp	7.573	3.82	8.053***	4.954	7.251	8.847***	7.751	6.673***	7.53	7.762	8	7.36***
		[9.117]	[5.531]	[9.371]	[6.757]	[8.132]	[10.087]	[9.448]	[7.148]	[9.022]	[9.518]	[9.674]	[8.818]
	% Kcal	9.638	5.152	10.212***	6.92	8.905	11.123***	9.82	8.72***	9.629	9.682	10.057	9.429**
		[11.072]	[7.018]	[11.361]	[8.838]	[9.671]	[12.173]	[11.423]	[9.037]	[10.985]	[11.446]	[11.667]	[10.757]
Cooking Bananas	% exp	5.792	4.243	5.99***	5.449	4.54	6.45***	5.685	6.335**	5.8	5.757	6.064	5.656*
		[8.721]	[5.260]	[9.049]	[7.445]	[7.706]	[9.525]	[8.986]	[7.211]	[8.503]	[9.610]	[8.579]	[8.788]
	% Kcal	4.817	3.512	4.983***	4.758	3.521	5.367***	4.743	5.187*	4.85	4.673	5.061	4.694*
		[7.489]	[4.599]	[7.766]	[6.529]	[6.120]	[8.280]	[7.738]	[6.065]	[7.327]	[8.154]	[7.275]	[7.592]
Observations		**6700**	**759**	**5941**	**1588**	**1475**	**3637**	**5594**	**1106**	**5443**	**1257**	**2234**	**4466**

Notes: [a] per adult equivalent. Standard errors in brackets. [b] One-way Anova significance level reported. Two-sided significance level reported. * significant at 10 per cent, ** significant at 5 per cent, and *** significant at 1 per cent. *Source*: World Bank (2006).

Table 2. Food expenses at the HH level in 2006

		Urban vs Rural		Poverty Status[a]			HH Size		HH Head Sex		Displacement	
	Whole Sample	Urban	Rural	Food Poor	Poor	Non-Poor	<= 7	>7	Female	Male	Never Displaced	Displaced
Total expenses (1000 Burundian Francs - per month)	74.870	173.522	62.267***	130.993	67.805	53.230***	67.931	109.964***	78.447	59.380***	87.948	68.328***
	[69.791]	[145.108]	[37.465]	[114.653]	[28.388]	[32.332]	[57.690]	[105.860]	[73.159]	[49.930]	[96.332]	[50.382]
% Non-food	33.084	42.053	31.938***	34.144	27.247	34.988***	33.644	30.250***	32.725	34.639***	34.205	32.523***
	[12.325]	[13.300]	[11.711]	[13.637]	[9.075]	[12.139]	[12.363]	[11.733]	[12.186]	[12.795]	[13.003]	[11.933]
% Food	66.916	57.947	68.062***	65.856	72.753	65.012***	66.356	69.750***	67.275	65.361***	65.795	67.477***
	[12.325]	[13.300]	[11.711]	[13.637]	[9.075]	[12.139]	[12.363]	[11.733]	[12.186]	[12.795]	[13.003]	[11.933]
From own production (% of food expenses)	46.363	8.877	51.152***	37.314	54.502	47.013***	46.455	45.898	46.221	46.977	44.819	47.135***
	[29.591]	[17.415]	[27.318]	[32.586]	[28.988]	[27.314]	[29.744]	[28.812]	[29.240]	[31.068]	[30.816]	[28.931]
Bought (% of food expenses)	46.838	88.128	41.563***	55.785	38.011	46.510***	46.136	50.387***	48.172	41.060***	49.032	45.740***
	[30.223]	[20.560]	[27.028]	[34.984]	[28.359]	[27.496]	[30.362]	[29.266]	[29.793]	[31.380]	[31.766]	[29.363]
Gift (% of food expenses)	4.088	2.552	4.285***	4.047	3.306	4.424***	4.458	2.217***	3.279	7.592***	3.710	4.277***
	[11.838]	[9.717]	[12.069]	[12.001]	[9.925]	[12.452]	[12.509]	[7.312]	[10.033]	[17.210]	[11.309]	[12.091]
Aid (% of food expenses)	2.711	0.444	3.001***	2.854	4.180	2.053***	2.951	1.498***	2.328	4.371***	2.438	2.848
	[11.202]	[5.396]	[11.708]	[11.271]	[14.205]	[9.625]	[11.702]	[8.117]	[10.249]	[14.518]	[10.649]	[11.468]
Observations	**6700**	**759**	**5941**	**1588**	**1475**	**3637**	**5594**	**1106**	**5443**	**1257**	**2234**	**4466**

Notes: [a] One-way Anova significance level reported. Two-sided significance level reported. * significant at 10 per cent, ** significant at 5 per cent, and *** significant at 1 per cent. *Source*: World Bank (2006).

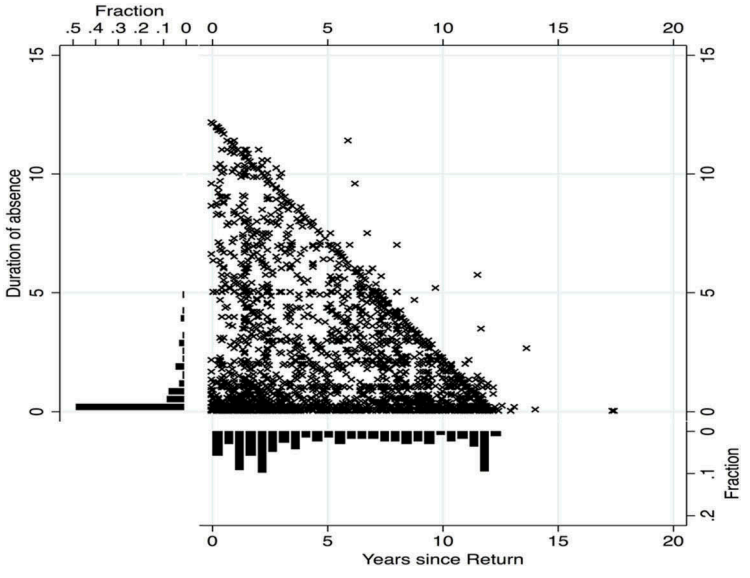


Figure 1. Timing of return and duration of displacement.
Notes: This graph combines the duration of displacement versus number of years since return by each HH, represented in each point. In order to clarify the number of observation by pairwise of displacement/return experience, we also include the fraction of HHs per each value of the axis. *Source*: World Bank (2006).

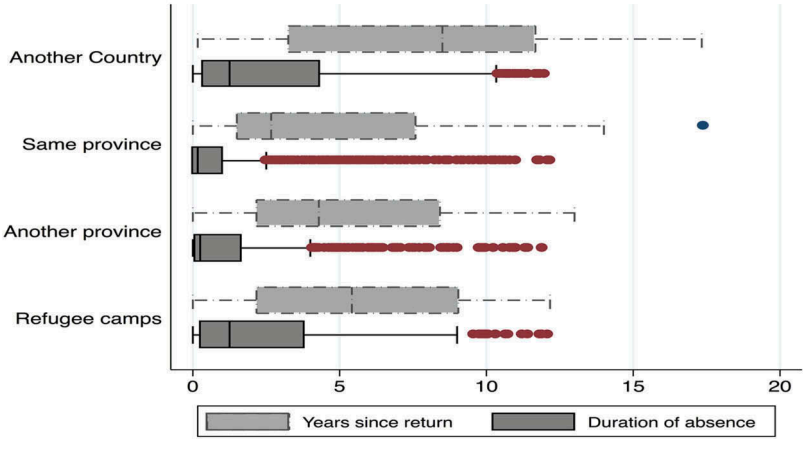
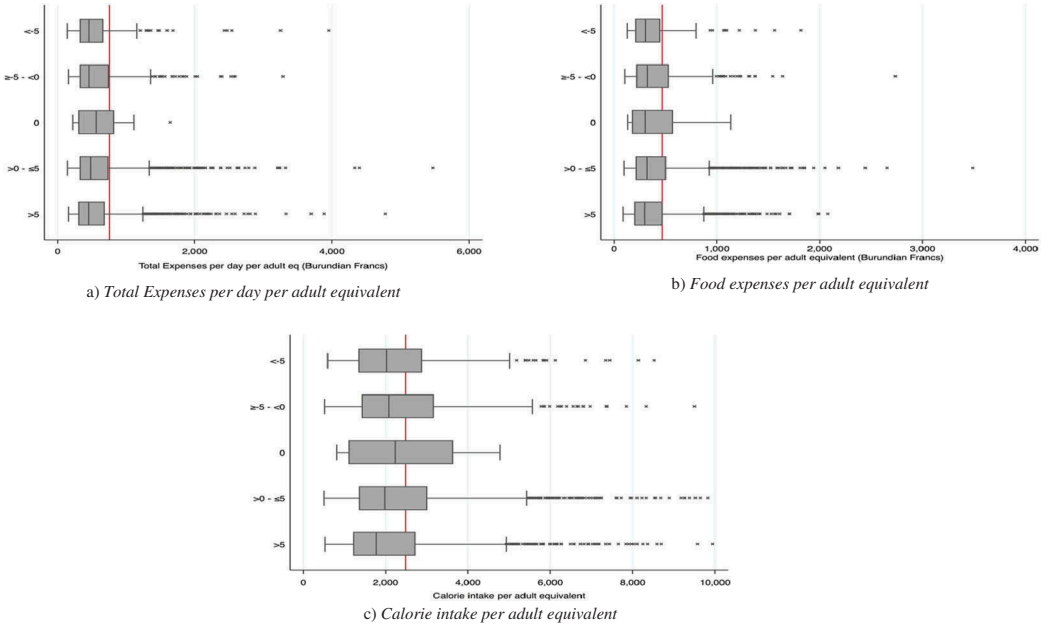


Figure 2. Years since return and absence by arrival place after displacement.
Notes: This graph shows the number of years since return and duration of absence by the different destination of the HH after displacement. *Source*: World Bank (2006).

correspondence between *years of absence* and *duration of displacement*. Figure 2 shows the number of years since return and the duration of displacement by arrival place. Those HHs who went to another country during displacement have both more years since return and longer duration of displacement; in contrast, displaced HH that went to the same province had a shorter duration of displacement.

We have depicted the welfare levels of formerly displaced HHs compared to non-displaced according to the number of years since they returned to Burundi in Figure 3. It shows the relationship between the net difference between the number years since return minus years of



a) *Total Expenses per day per adult equivalent*

b) *Food expenses per adult equivalent*

c) *Calorie intake per adult equivalent*

Figure 3. Net difference between years since return minus years of displacement and HH welfare. *Notes*: These graphs present the net difference between years of displacement minus years since return by the three main variables of interest. Red line represents the mean for the non-displaced HHs. *Source*: World Bank (2006).

displacement and the three main outcomes of interest: (i) total Expenses per day per adult equivalent (panel a); (ii) food expenses per adult equivalent (panel b); and (iii) calorie intake per adult equivalent (panel c). If the net difference is negative, we expect that *divergence process* will dominate over the *convergence process*, as the number of years of being displaced is larger than the number of years since return. In contrast, using the same rational, if it is positive we expect the *convergence process* will dominate. In general, we found that those HHs whose time in displacement and as returnee are equal (that is difference equals to zero) are relatively better off than their counterparts for the three outcomes. For those HHs where we expect that divergence process should dominate (that is years of displacement > years since return), we find a lower mean for total expenses, food expenses and calorie intake. Thus, a *convergence process* seems to take place the first five years after returning, after this time the results are not consistent. We will confirm this in a multivariate analysis.

The CWIQ survey data (2006) offers additional evidence of the needs and the actions taken by heads of HHs 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 (40.41%) and the (re-) start of their farms (48.09%). They financed both through working and the sales of goods as well as – to a lesser extent – 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 World Bank (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.[9]

4. Determinants of calorie intake and poverty

4.1 Empirical approach

We seek to establish the food security and nutritional status of formerly displaced HHs after return in Burundi. While we cannot entirely isolate the individual effect of having been displaced and then returned, there is evidence that exposure to conflict for the average Burundese HH should be regarded as exogenous to their own behaviour. That is, HH characteristics such as wealth, education, electoral results or other did not drive selection into violence (Uvin, 2009; Voors et al., 2012). Nonetheless, an exogenous shock does not necessarily mean an exogenous response. In Burundi, however, empirical evidence suggests that displacement was a generalised phenomenon that affected HHs regardless of HH characteristics (IMDMCNRC, 2011; OCHA, 2004). Yet, HHs who decided to return home might be systematically different to those who decided to stay. That is, HHs with better initial conditions may be more likely to return early because they have better risk coping mechanisms at their disposal. Even though recovering the unobservable information from the baseline is very complex given the different gaps and the compound treatment effect of having been displaced and then returned, we propose different techniques to approach its actual effect on food security and nutrition.

First, we start with an exploratory analysis of the determinants for the two main food security and nutrition status outcomes (F_i): (i) log total expenses per day per adult equivalent; (i) log food expenses per adult equivalent; and (iii) log calorie intake per adult equivalent. The reduced form could be written as follows:

$$F_i = \alpha_0 + \mathbf{D_i}\beta + \mathbf{H_i}\pi + \mathbf{E_i}\theta + \sum\nolimits_{j\epsilon P}\delta_j + e_i \quad (1)$$

where the sub-index i refers to the HH. $\mathbf{D_i}$ denotes our main variable of interest. We start including a dummy for those IDPs who returned home; then, to explore the two main potential mechanisms (that is convergence and divergence processes), we include two variables: (i) duration of absence; and, (ii) years since return. So, if the *convergence* and/or *divergence process* hold, we expect a positive and a negative point estimate respectively.[10] $\mathbf{H_i}$ includes a series of HH level variables, $\mathbf{E_i}$ stands for the set of variables at the level of the head of the HH (E). Finally, δ_j, is the set province fixed effect. Standard deviations are corrected following the survey sampling design.

Second, we provide a first glance of the potential selection bias that Equation (1) may suffer. For that purpose, we identify two different types of returnees: those who returned just after displacement (that is ≤ 1 year – early return) and those who stayed abroad longer (that is >1 year – late return). We argue that IDPs who returned earlier are systematically different than those who returned later and, these differences could be correlated with the self-selection bias. Hence, we propose a Probit model for the determinants of having an early return (≤1 year) after displacement; we estimate:

$$P(early\,return - <1year) = \alpha_0^{**} + \mathbf{H_i}\pi^{**} + \mathbf{E_i}\theta^{**} + \mathbf{V_i}\delta + \sum\nolimits_{j\epsilon P}\delta_j^{**} + \epsilon_i \quad (2)$$

Besides the set of controls defined above, we include an additional set of controls related to the experience of violence (V_i). It includes the place of arrival after displacement and the loss of assets while being displaced.

Third, we propose two different alternatives to attempt to overcome the non-randomness of returning home. Given the fact that recovering baseline information is very complex given the lack of information, we propose two alternatives techniques: (i) propensity score matching (PSM) and (ii) IV approach. The matching estimation procedure is adequate when certain observables have an effect on the outcome of interest (that is welfare or food consumption) as well as on the selection into treatment (that is return), yet are unaffected by the participation into treatment (Guido Imbens, 2015). 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 (Blundell & Dias, 2009; Guido Imbens & Wooldridge, 2009). Using a balance score (for example, propensity score) based on observable characteristics from before the treatment to match similar treated with non-treated HHs, matching allows us to infer the causal effect of the treatment on our outcome of interest.

Thus, to the extent that HH characteristics correlate with forced displacement this should be captured by our PSM strategy. For our identification strategy to hold it is not necessary that displacement is completely random.

Because of World Bank (2006) survey focuses on the return process rather than on the experience before and during displacement, we lack information on wealth status before displacement. The pre-treatment characteristics we consider in the probit model include: age, gender and education level of HH head and the initial province of residence. We argue that these variables might have an effect on our main variable of interest as well as on the selection to return home, without being affected by the return process. On one hand, over 90 per cent of the current displaced HH heads were adults at the moment of displacement (that is over 18 years old); the remaining HH heads were over 14 years old. At these ages, in the Burundian context, education decisions had already taken place (Cieslik, Giani, Muñoz-Mora, Ngenzebuke, & Verwimp, 2014). On the other hand, empirical researches on return (for example, Arias et al. [2014] and Fransen, Ruiz, and Vargas-Silva [2016]) have suggested that individual characteristics such as original place of residence, education, age and sex of the HH head are important determinants of returning home after displacement.

We consider three main variables of interest (that is outcomes): (i) total expenses per day per adult equivalent; (ii) food expenses per day per adult equivalent; and, (iii) calorie intake per day per adult equivalent. After checking the balancing properties and common support across treatment and control groups, we employ the nearest neighbour matching algorithm. Hence, the matching estimator (ATT or Average Treatment Effect on the Treated) can be written as follows

$$\Delta_{ATT} = E\left(Y^1|X, D=1\right) - E_X\left[E\left(Y^0|X, D=0\right), D=1\right] \tag{3}$$

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 matchings: (i) all displaced HH versus never-displaced HH; (ii) early return versus never displaced HH; (iii) lately return versus never displaced HH. Using these different treatment and control groups we want to isolate the effect of the treatment as much as possible. In order to ensure a proper balance between treatment and control groups after matching procedure, we report the following statistics: pseudo-R2, per cent bias and the different measures for the standardised bias suggested by Rosenbaum & Rubin (1985). Moreover, because of the lack of additional pre-treatment variables, our adjustments through matching might fail to account for some relevant unmeasured covariant that simultaneously affects assignment to treatment and the outcome variable (Guido Imbens, 2015). We therefore check the sensitivity of the selection on unobservables ('hidden bias') using the Rosenbaum bounds (Rosenbaum, 2005).

Secondly, although finding a valid and relevant instrument in our context is very difficult, we propose an IV approach to test the consistency of our results. Following the same spirit of the time of return, we use the proximity of the arrival place after displacement with respect to original residence as instrument. Whereas moving to a place which is close to the original residence is completely exogenous to the current level of food security, we argue that IDPs who moved closer to their original residence (that is same commune) are more likely to return earlier, regardless of any unobservable idiosyncratic characteristics. Hence, we re-estimate Equation (1) instrumenting our main variable of interest (that is returned IDPs – yes = 1). That is, the just-identified first stage can be writing as follows[11]:

$$IDH\ returned(\text{yes}=1) = \alpha_0^{***} + \mathbf{I_i}\rho_1 + \mathbf{H_i}\pi^{***} + \mathbf{E_i}\theta^{***} + \sum\nolimits_{j\ P} \delta_j^{***} + \zeta_i \tag{4}$$

Where, I, is a binary variable indicating whether a giving HH remained in the same commune during its displacement. Other controls are defined as above. The main concern of this approach is that the choice of remaining within the same commune may relate to HH unobserved confounders such as wealth, social networks, institutional strength or economic activities (Fiala, 2015; Ruiz & Vargas-Silva, 2013). Moving nearby the original residence may be due to many factors: on the one hand, HHs may consider that violence breakdown is transitory, thus moving back will be easier once the violence passes. In fact, low intensity and transitory violence is one of the characteristics of the civil war in Burundi.[12] On the other hand, giving the risk of expropriation, richer HHs will be more likely to move nearby their original residence in order to monitor their belongings (for example, livestock, land, among others). While the former will be in line with our argument, the latter may bias our estimates, as we would be considering a very particular sub-set of returnees.

As low intensity and transitory violence characterise the Burundian civil war, we argue that the expectations of the HHs rather than their own characteristics are more likely to determinate the decision of moving near to the original residence. In fact, according to the Armed Conflict Location & Event Data Project (ACLED; 2015), an average Burundian village (that is colline) had 1.86 violent events that involved violence against civilians between 1997 and 2006. Moreover, the number of years that passed in order for a similar event to take place at the same village was 3.9, on average. More statistical evidence on the intensity and duration of the Burundian civil war is provided in the Supplementary Matrial (Table A8). In general, this finding is in line with the qualitative evidence that suggest the transitory and mobile nature of the Burundian civil war (Uvin, 2009)

Furthermore, in order to check whether HHs who migrated within the same commune are systematically different than their counterparts, we compare their profiles (see Table 3). We find that IDPs who moved within the same commune had less time of absence and less years since return. Nonetheless, we also find that neither the education of HH head before displacement, nor his/her sex nor age are systematically different between IDPs that moved within the same commune and

Table 3. Mean test for displaced HHs by place of destination after displacement

		Went outside to their same commune (yes = 1) (n = 2741)	Went to the same commune after displacement (yes = 1) (n = 1725)	
		Mean	Mean	Difference
Displacement experience	Duration of absence (years)	2.030	1.071	0.958*** [0.076]
	Years since Return	6.105	4.477	1.628*** [0.121]
HH Characteristics	HH size	5.199	5.329	−0.129 [0.071]
	Age	43.042	44.566	−1.523*** [0.445]
	HH Head Went to school (yes = 1)	0.665	0.663	0.003 [0.015]
	Land Currently Own per adult equivalent (ha)	0.123	0.128	−0.004 [0.005]
Violence experience	Lost cattle while displacement (yes = 1)	0.263	0.233	0.030* [0.013]
	Lost some equipment while displacement (yes = 1)	0.158	0.155	0.003 [0.011]
	Lost other good (yes = 1)	0.382	0.333	0.048** [0.014]

Notes: Standard errors in brackets. * significant at 10 per cent, ** significant at 5 per cent, and *** significant at 1 per cent. *Source*: World Bank (2006).

those who moved outside. If only the richer or only the poorer would move within the commune, we should observe a difference in their current assents. Findings suggest that there is no difference in the number of hectares of land currently owned by the HHs. Thus, we conclude that there is no evidence in favour of the presence of systematic differences between the different types of returnee HHs.

Finally, once we established empirical evidence on the effect on the food security and nutritional status of formerly displaced HHs after return, we analyse the divergence and convergence processes. Disentangling the relationship of these two mechanisms is a complex task as they are interacting at the same time. To provide a first glance on this dynamic we replicate Equation (1) using a set of categorical variables that describe the different interactions between convergence and divergence mechanisms, they are: (i) divergence process dominates (that is duration of absence > years since return); (ii) convergence process dominates (that is years since return > duration of absence); and, (iii) where none of them will dominate (that is duration of absence = years since return). Whereas we expect that those HHs where the divergence process dominates are worse off than the non-displaced counterparts, in the last two cases we expect no difference.

4.2 Results of the estimations

Table 4 presents the results of an OLS regression explaining the level of calorie intake per adult equivalent (columns I to IV) and level of food expenses per adult equivalent (columns V to VIII). Because of the high correlation between our main variable of interest (that is returned IDPs) and the two mechanisms (that is duration of absence and years since return), we control for each of them in a separate specification. In all cases, standard deviations were corrected using the sampling design of the World Bank (2006).[13] Furthermore, fixed effect for sampling stratum were included in all regressions.

Results suggest that two of the three variables of interest have a statistically significant effect. In general, IDPs who returned home have relatively less *calorie intake* and *food expenses* than the average Burundian HH, corresponding to 5 per cent and 6 per cent respectively. When we 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 former is statistically significant, lending credibility *to the divergence argument*. The magnitude of the displacement effect is such that for every standard deviation in the duration of absence, the *calorie-intake* as well as *food expenses* decreases by 1 per cent with respect to the average HH. The negative effect of displacement has long-term consequences, because years after returning home the effect is not cancelled out. Not surprisingly, HHs with larger HHs have lower calorie intake and higher food expenses per adult equivalent. Female-headed HHs have lower calorie intake and lower food expenses and the schooling of the head of the HH (all levels) boosts calorie intake and expenses, with secondary schooling having the largest impact.

Table 5 shows the results for determinants of having an early return (<1 = year) after displacement. The HH level characteristics do not have an effect on the decision of early return, however, female headed HHs and HHs with an educated head had more probability of having an early return (0.04% and 0.06% respectively). As expected, the arrival place after displacement has an important marginal contribution to the probability of returning earlier. Whereas having gone to *another country* or to a *refugee camp* reduce the probability (−0.19 and −0.15 respectively) of an early return, moving to the same province increases it by 0.09. Multiple displacements strongly and negatively affect the probability of returning earlier.

In order to correct for potential selection into displacement we match different groups. Table 6 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 HH. 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 HH 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

Table 4. Determinants of food security and nutrition among Burundian HHs, 2006

	Dep. Variable: Log. Total Expenses per day per adult eq.				**Dep. Variable:** Log. Calorie intake per adult equivalent				**Dep. Variable**: Log. Food expenses per adult equivalent			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Returned IDH (yes = 1)	−0.071***	−0.066***			−0.068***	−0.063***			−0.056***	−0.053***		
	[0.018]	[0.018]			[0.018]	[0.018]			[0.016]	[0.016]		
Duration of absence			−0.018***	−0.017***			−0.019***	−0.018***			−0.012**	−0.011*
			[0.006]	[0.005]			[0.006]	[0.006]			[0.006]	[0.006]
Years since Return			−0.006	−0.003			−0.011	−0.009			−0.009	−0.007
			[0.007]	[0.007]			[0.008]	[0.008]			[0.007]	[0.007]
HH size	−0.278***	−0.287***	−0.279***	−0.289***	−0.227***	−0.236***	−0.227***	−0.237***	−0.224***	−0.229***	−0.225***	−0.230***
	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]	[0.007]	[0.007]	[0.007]	[0.007]
Rural HH (yes = 1)	−0.069	−0.065	−0.111	−0.106	0.039	0.042	0.002	0.006	0.192	0.194	0.158	0.161
	[0.130]	[0.132]	[0.129]	[0.131]	[0.125]	[0.126]	[0.123]	[0.125]	[0.118]	[0.119]	[0.117]	[0.118]
Produce Rice (yes = 1)	0.087***	0.076***	0.086***	0.075***	0.098***	0.089***	0.098***	0.089***	0.085***	0.078***	0.084***	0.077***
	[0.022]	[0.021]	[0.022]	[0.021]	[0.024]	[0.023]	[0.024]	[0.023]	[0.022]	[0.021]	[0.022]	[0.022]
Produce banana Beer (yes = 1)	0.077***	0.064***	0.073***	0.060***	0.095***	0.084***	0.092***	0.081***	0.068***	0.061***	0.065***	0.058***
	[0.014]	[0.014]	[0.014]	[0.014]	[0.015]	[0.015]	[0.015]	[0.015]	[0.013]	[0.013]	[0.013]	[0.013]
Produce export crop (yes = 1)	0.065***	0.064***	0.064***	0.063***	0.078***	0.077***	0.078***	0.076***	0.062***	0.063***	0.062***	0.063***
	[0.015]	[0.015]	[0.015]	[0.015]	[0.017]	[0.017]	[0.017]	[0.017]	[0.016]	[0.016]	[0.016]	[0.016]
HH Head Age		0.006		0.006		0.006		0.006		−0.004		−0.004
		[0.006]		[0.006]		[0.007]		[0.007]		[0.007]		[0.007]
HH Head Sex (Male = 1)		−0.091***		−0.095***		−0.089***		−0.093***		−0.051***		−0.054***
		[0.016]		[0.016]		[0.018]		[0.018]		[0.018]		[0.018]
HH Head Went to school (yes = 1)		0.137***		0.136***		0.119***		0.117***		0.088***		0.087***
		[0.013]		[0.013]		[0.015]		[0.015]		[0.014]		[0.014]
Observations	6700	6700	6700	6700	6700	6700	6700	6700	6700	6700	6700	6700
R2	0.382	0.399	0.380	0.397	0.256	0.269	0.254	0.268	0.265	0.273	0.264	0.272
F	77.360	78.596	71.931	75.524	53.552	53.772	49.333	50.712	63.812	64.468	58.421	60.528

Notes: IDH stands for Internally Displaced HH. Standard errors in brackets, corrected for sampling design. * significant at 10 per cent, ** significant at 5 per cent, and *** significant at 1 per cent. All regressions include constant. Strata fixed effects were included in all regressions. All variables were standardised to have mean zero and standard deviation one. *Source*: World Bank (2006).

Table 5. Determinants of having an early return (≤1 year) after displacement (probit estimation)

		(1)	(2)	(3)	(4)
HH	HH size	0.001	0.004	0.007	0.008
		[0.008]	[0.009]	[0.009]	[0.009]
	Rural HH (yes = 1)	−0.241	−0.211	−0.330	−0.32
		[0.176]	[0.180]	[0.217]	[0.213]
	Produce Rice (yes = 1)	−0.047*	−0.051*	−0.053*	−0.053*
		[0.028]	[0.028]	[0.028]	[0.029]
	Produce banana Beer (yes = 1)	0.074***	0.072***	0.046**	0.049**
		[0.019]	[0.019]	[0.020]	[0.020]
	Produce export crop (yes = 1)	0.031	0.030	0.015	0.014
		[0.023]	[0.022]	[0.023]	[0.023]
Head level	Age		0.010	0.009	0.01
			[0.008]	[0.008]	[0.008]
	Sex (Female = 1)		0.046**	0.042**	0.041**
			[0.021]	[0.021]	[0.021]
	Went to school (yes = 1)		0.061***	0.057***	0.056***
			[0.018]	[0.018]	[0.018]
Violence experience	Have been displaced more than one time (yes = 1)			0.069***	0.067***
				[0.022]	[0.022]
	Went to another country after displacement (yes = 1)			−0.194***	−0.193***
				[0.030]	[0.031]
	Went to same province after displacement (yes = 1)			0.096***	0.095***
				[0.025]	[0.025]
	Went to a refugee camp (yes = 1)			−0.159***	−0.158***
				[0.033]	[0.033]
	Lost cattle while displacement (yes = 1)				0.025
					[0.028]
	Lost some equipment while displacement (yes = 1)				−0.006
					[0.030]
	Lost other good (yes = 1)				−0.074**
					[0.031]
	Observations	**4466**	**4466**	**4466**	**4466**

Notes: Standard errors in brackets, corrected for sampling design. Standard errors in brackets. * significant at 10 per cent, ** significant at 5 per cent, and *** significant at 1 per cent. Dependent variable: early return from displacement (< 1 year) (yes = 1). Marginal effects reported. Strata fixed effects were included in all regressions. All variables were standardised to have mean zero and standard deviation one. *Source*: World Bank (2006).

of residence is most often the same as before displacement. In general, the estimated propensity score is homogeneous for the four groups (see Figure A1 in the Supplementary Material), which will guarantee that most of the observations fall within the common support.

Results of the matching procedure are presented in Table 7. Besides the baseline results, we report the two indicators to check the balancing properties and sensitivity to the hidden bias for each definition of treatment and outcome. For the three definitions of treatment we found a low Pseudo-R2 indicating that characteristics of treated and controlled HHs are balanced. This is confirmed by the important bias reduction after the matching was performed. Regarding the sensitivity of our results, we report the maximum level (Γ) where our matching results are robust even if we had failed to control for unobserved characteristics. Despite the lack of consensus on the optimal robustness level, most of our results are robust between $\Gamma = 1.6$ and $\Gamma = 2$, which might indicate that our results seem to be robust to hidden bias. However, we are cautious in interpreting the effect on the 'Calorie Intake per day per adult equivalent' given their comparatively low critical value. Additional results on the balancing properties and sensitivity analysis are reported in the Supplementary Material (Tables A1 to A7).

Results indicate that the treated (displaced/returnee) HHs have lower total expenses per adult equivalent (−18%), lower food expenses (−13%) and lower calorie intake (−10%). The magnitudes

Table 6. Propensity score for different treatments (probit)

	All returned IDP vs Never-Displaced HH	Early return IDP vs Never Displaced HH	Lately return IDP vs Never Displaced HH
	(I)	(II)	(III)
Age	0.009	0.014*	0.004
	[0.007]	[0.008]	[0.010]
Sex (Female = 1)	0.042**	0.060***	0.024
	[0.017]	[0.020]	[0.024]
Went to school (yes = 1)	0.013	0.039**	−0.033
	[0.015]	[0.019]	[0.021]
Initial province of residence FE	Yes	Yes	Yes
Observations	**6700**	**5146**	**3788**
F-Stat	9.48	8.42	11.16

Notes: Standard errors in brackets, corrected for sampling design. * significant at 10 per cent, ** significant at 5 per cent, and *** significant at 1 per cent. Marginal effects reported. All variables were standardised to have mean zero and standard deviation one. *Source*: World Bank (2006).

are similar for the subsequent groups, where we compare early returned and late returned versus non-displaced HHs. Because of the matching technique, we can confirm that these differences take into account the potential sample selection bias of returning home.

Table 8 presents the just identified IV estimation approach. In general, our instrument is relevant (that is statistically significant at the 1% level) and valid. Both magnitude and sign are in the same range as the OLS estimates for our three dependent variables: Total expenses per day, food expenses and calorie intake. These results strengthen the finding on the negative relationship between returned IDPs and the level of food security and nutritional status.

Finally, we provide empirical evidence on the interaction between the convergence and divergence mechanisms following the same specification as in Table 4. Table 9 presents the results on the relationship of the different scenarios of the convergence/divergence processes with the non-displaced HHs and the different outcomes of interest. As expected, we find that those HHs where the divergence process dominates (that is duration of absence > years since return) are worse off than their counterparts for the three outcomes. Likewise, we find that those returnee HHs where neither the convergence nor divergence process dominates are not different from their counterparts. Lastly, for HHs where the convergence process dominates we find an interesting pattern: for all outcomes, the negative effect coming from displacement persists the first five years after return. After this time, the difference becomes insignificant. As an important share of HHs work in agricultural activities after return, the gap between planting and harvesting or accessing financial services or markets may explain this finding.

5. Final remarks: support for returned IDPs and refugees

The government of Burundi adopted a 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 centers in concentrated settlements that facilitate access to land and infrastructure' (République du Burundi, 2008). On displacement, it declares that the return of IDPs to their community of origin, or the transformation of IDP settlements '[…] 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

Table 7. Average treatment effect on the treated (ATT), using different treatments

			Difference		Balancing Properties		Sensitivity to hidden bias (Rosenbaum bounds)	
	Treated	Controls	*Abs.*	t-stat	% reduction bias after matching	Pseudo R2 after matching	$\Gamma = 1$	(Γ, max *P value*)
All Returned IDP vs non-displaced HH								
Total Expenses per day per adult eq.	600.8	732.123	−131.322	−5.66	87%	0.003	<0.001	(2, 0.02)
Food Expenses per day per adult eq.	400.077	462.693	−62.616	−5.13			<0.001	(1.85, 0.04)
Calorie Intake per day per adult eq.	2327.459	2580.365	−252.905	−4.6			<0.001	(1.6, 0.01)
Observations	**4,466**	**2,234**						
Early returned IDP (≤1 year) vs non-displaced HH								
Total Expenses per day per adult eq.	597.434	738.556	−141.121	−6.31	82%	0.004	<0.001	(2, 0.36)
Food Expenses per day per adult eq.	399.899	461.536	−61.636	−5.09			<0.001	(1.75, 0.05)
Calorie Intake per day per adult eq.	2298.607	2527.604	−228.996	−4.27			<0.001	(1.6, 0.02)
Observations	**2,912**	**2,234**						
Lately return* IDP *(>1 year) vs non-displaced HH								
Total Expenses per day per adult eq.	607.111	711.814	−104.703	−3.56			<0.001	(1.7, 0.04)
Food Expenses per day per adult eq.	400.41	453.201	−52.79	−3.3	89%	0.002	<0.001	(1.6, 0.02)
Calorie Intake per day per adult eq.	2381.525	2582.807	−201.281	−2.72			<0.001	(1.35, 0.02)
Observations	**1,554**	**2,234**						

Note: Data randomly sorted due to similar propensity score. Nearest neighbour algorithm employed (n = 3). We conducted similar analysis with different numbers of neighbours (n = 1,2,3,4,5), finding are equivalent. Results are available upon request. *Source*: World Bank (2006).

Table 8. IV-approach

	Dep. Variable: Log. Total Expenses per day per adult eq		**Dep. Variable**: Log. Food expenses per adult equivalent		**Dep. Variable:** Log. Calorie intake per adult equivalent	
	OLS (1)	IV (2)	OLS (3)	IV (4)	OLS (5)	IV (6)
Returned IDH (yes = 1)	−0.066***	−0.086**	−0.063***	−0.089**	−0.053***	−0.085**
	[0.018]	[0.037]	[0.018]	[0.041]	[0.016]	[0.039]
HH size	−0.287***	−0.287***	−0.236***	−0.235***	−0.229***	−0.228***
	[0.008]	[0.008]	[0.008]	[0.008]	[0.007]	[0.008]
Rural HH (yes = 1)	−0.065	−0.659***	0.042	−0.447***	0.194	−0.310***
	[0.132]	[0.093]	[0.126]	[0.092]	[0.119]	[0.092]
Produce Rice (yes = 1)	0.076***	0.076***	0.089***	0.090***	0.078***	0.078***
	[0.021]	[0.021]	[0.023]	[0.023]	[0.021]	[0.021]
Produce banana Beer (yes = 1)	0.064***	0.065***	0.084***	0.085***	0.061***	0.062***
	[0.014]	[0.014]	[0.015]	[0.015]	[0.013]	[0.013]
Produce export crop (yes = 1)	0.064***	0.064***	0.077***	0.077***	0.063***	0.063***
	[0.015]	[0.015]	[0.017]	[0.017]	[0.016]	[0.016]
HH Head Age	0.006	0.006	0.006	0.006	−0.004	−0.004
	[0.006]	[0.006]	[0.007]	[0.007]	[0.007]	[0.007]
HH Head Sex (Male = 1)	−0.091***	−0.089***	−0.089***	−0.087***	−0.051***	−0.049***
	[0.016]	[0.016]	[0.018]	[0.019]	[0.018]	[0.018]
HH Head Went to school (yes = 1)	0.137***	0.138***	0.119***	0.119***	0.088***	0.088***
	[0.013]	[0.013]	[0.015]	[0.015]	[0.014]	[0.014]
Observations	6700	6700	6700	6700	6700	6700
R2	0.399	0.398	0.269	0.268	0.273	0.272
F-statistic on the excluded instruments		58.59		58.59		58.59

Notes: Standard errors in brackets, corrected for sampling design. * significant at 10 per cent, ** significant at 5 per cent, and *** significant at 1 per cent. All regressions include constant. Strata fixed effect included. All variables were standardised to have mean zero and standard deviation one. *Source*: World Bank (2006).

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 claims (Republique du Burundi, 2010).

With the data available for the current paper we are not able to evaluate the success/failure of these return policies. Hence we cannot say whether or not the different reintegration strategies addressed the needs and the fears of the IDPs mentioned above.[14] International agencies, the government and NGOs assist the returnees upon their arrival and in the first months and years after their arrival. The findings presented in this paper show that that clearly is not enough. The welfare of returnees is lagging seriously behind in comparison with the local non-displaced population.

An interesting point (suggested to us by one of the anonymous referees) is the question of potential structural change in the economy after a period of violent conflict, a topic we did not deal with in this paper. Indeed, in our paper we implicitly assumed that returnees can go back to their old jobs if they wanted. This assumption is realistic as the vast majority of refugees and returnees are farmers and more than 90 per cent of the population works in agriculture, before the conflict as well as at the time of the CWIQ survey. The 2011 Country Economic Memorandum by the World Bank stipulates (p. 8) that Burundi has not seen a peace dividend, unlike for example, Rwanda or Sierra Leone. The reason, according to the same report, is that the conflict in Burundi ended neither rapidly nor completely. As, by 2006, the economy was in dire shape, farming was almost the only option for returnees. If any, structural change would also affect the non-displaced population. If that occurs in an equal manner as the returnees it should not have an effect on our analysis. If, however, both parties are affected differently (by whatever mechanism), our results would be

Table 9. Divergence vs convergence mechanism

	Dep. Variable: Log. Total Expenses per day per adult eq		**Dep. Variable:** Log. Calorie intake per adult equivalent		**Dep. Variable**: Log. Food expenses per adult equivalent	
	(1)	(2)	(3)	(4)	(5)	(6)
Duration of Absence > Years Since Return (> 5 years) (yes = 1)	−0.099***	−0.096***	−0.098***	−0.095***	−0.077**	−0.075**
	[0.032]	[0.031]	[0.034]	[0.032]	[0.033]	[0.032]
Duration of Absence > Years Since Return (5 years–0 years) (yes = 1)	−0.114***	−0.106***	−0.094***	−0.087***	−0.075***	−0.070**
	[0.028]	[0.027]	[0.031]	[0.031]	[0.028]	[0.027]
Duration of Absence = Years Since Return (yes = 1)	−0.053	−0.056	−0.105	−0.105	−0.074	−0.077
	[0.086]	[0.074]	[0.142]	[0.138]	[0.146]	[0.144]
Years Since Return > Duration of Absence (5 years–0 years) (yes = 1)	−0.098***	−0.097***	−0.090***	−0.089***	−0.075***	−0.075***
	[0.020]	[0.020]	[0.022]	[0.022]	[0.019]	[0.019]
Years Since Return > Duration of Absence (> 5 years) (yes = 1)	−0.035*	−0.028	−0.040*	−0.033	−0.034*	−0.029
	[0.021]	[0.020]	[0.021]	[0.021]	[0.019]	[0.019]
HH size	−0.278***	−0.288***	−0.227***	−0.237***	−0.224***	−0.230***
	[0.008]	[0.008]	[0.008]	[0.008]	[0.007]	[0.007]
Rural HH (yes = 1)	−0.045	−0.040	0.058	0.061	0.207*	0.210*
	[0.130]	[0.132]	[0.124]	[0.126]	[0.118]	[0.119]
Produce Rice (yes = 1)	0.088***	0.077***	0.099***	0.090***	0.086***	0.079***
	[0.021]	[0.021]	[0.023]	[0.023]	[0.022]	[0.021]
Produce banana Beer (yes = 1)	0.076***	0.063***	0.094***	0.083***	0.067***	0.060***
	[0.014]	[0.014]	[0.015]	[0.015]	[0.013]	[0.013]
Produce export crop (yes = 1)	0.064***	0.063***	0.077***	0.076***	0.062***	0.062***
	[0.015]	[0.015]	[0.017]	[0.017]	[0.016]	[0.016]
HH Head Age		0.005		0.005		−0.005
		[0.006]		[0.007]		[0.007]
HH Head Sex (Male = 1)		−0.094***		−0.091***		−0.053***
		[0.016]		[0.018]		[0.018]
HH Head Went to school (yes = 1)		0.136***		0.118***		0.088***
		[0.013]		[0.015]		[0.014]
Observations	6700	6700	6700	6700	6700	6700
R2	0.383	0.401	0.257	0.271	0.266	0.274
F	68.770	71.379	46.789	48.339	55.257	57.282

Notes: IDH stands for Internally Displaced HH. Standard errors in brackets, corrected for sampling design. * significant at 10 per cent, ** significant at 5 per cent, and *** significant at 1 per cent. All regressions include constant. Strata fixed effects were included in all regressions. All variables were standardised to have mean zero and standard deviation one. *Source*: World Bank (2006).

affected. To date we have not seen a paper that deals with displaced and non-displaced populations and the effect of conflict on their welfare. One study, Mercier, Ngenzebuke, & Verwimp (2015) uses panel data over a medium-long period (1998–2012) and finds that (i) headcount poverty has remained almost the same over time; (ii) there exists considerable movement in and out of poverty; (iii) the intensity of conflict affects the poverty status. This study however does not distinguish between displaced and non-displaced HHs.

Acknowledgement

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. We are grateful for the comments received from two anonymous reviewers and from the journal which allowed us to improve the paper. Remaining errors are the sole responsibility of the authors. The data used in this study as well as the syntaxis we wrote to arrive at the results are available in a repository (https://github.com/jcmunozmora/returning_home).

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the European Union Seventh Framework Programme; [263905].

Notes

1. Internally Displaced Person – IDP.
2. This section is based on three comprehensive reports on the history of displacement and the situation of IDPs and former refugees in Burundi: OCHA (2004; 2005; 2011) and IMDMC (2011).
3. For Burundi's political division, hills are equivalent to village.
4. '[. . .] Proximity of the place of origin to the site (that is IDP settlement) is an important element in determining an IDP HH'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, p. 13).
5. Particularly prevalent in certain areas of Makamba province, along the Maragarazi River, and in certain areas of Ruyigi and Bubanza provinces.
6. The CWIQ follows a two-stage sampling design: first, the main sampling units were defined as sous-colline and some urban zones. The universe of sous-collines was 9614 sous-colline and 301 urban zones, which were located in 17 provinces and three urban zones (that is strata). Second, from a universe of 1,306,471 rural HHs and 77,190 urban HHs, HHs were randomly selected within each selected sampling unit (Republique du Burundi, 2006). From the original data set (7199 HHs), we left out HHs with missing observations in the variables of interest (displacement and expenditure).
7. Similar results were found by Zoyem, Diang'a and Wodon (Zoyem et al., 2008).
8. 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. Many Burundian have suffered forced displacement from their homes more than once. World Bank (2006) shows that whereas the 22.54 per cent were displaced once, 44.9 per cent were displaced at least two times.
9. 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.
10. We test for the correlation between our two main variables of interest (that is *Duration of absence* and *Years since return*). We found that, although positive, they are not perfectly correlated. It may be due to the different processes of displacement that have taken place in Burundi since 1972. Further information is available upon request.
11. In the absence of more than one valid instrument, *just-identified* model yields better results under potential weak instruments (Angrist & Pishke, 2008).
12. Bundervoet, Verwimp, and Akresh (2009) describe how the violence moved over time and over space.
13. For further information about the sampling design of the of the World Bank (2006), see Republique du Burundi (2006).

14. 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. To the best of our knowledge such data do not exist for Burundi.

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