

# **Their Suffering, Our Burden? How Congolese Refugees Affect the Ugandan Population**

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## **Abstract**

The situation of refugees all over the world gets increasingly protracted, as civil wars in their home countries are not resolved. Especially in developing countries, the sudden inflow and long-term presence of refugees can represent a significant strain on infrastructure and markets. Uganda has an exemplary legal framework in its Refugee Act aiming at the economic independence from aid of refugees and the inclusion of public services for hosts and the displaced.

Three waves of two different household surveys are used, in order to employ a difference-in-differences approach. In doing so, the natural experiment of two sudden inflows is exploited, while simultaneously controlling for long-term trends in refugee numbers. The findings presented here suggest that Uganda can benefit from its decades long experience in hosting refugees as well as its policy framework when it comes to the economic welfare and the public service provision of its nationals. Yet, there are small warning signals regarding social integration. This could motivate policy makers to look further into this issue and possibly increase efforts to reduce prejudices between the groups.

## **1 Introduction**

The Second Congo War has also been named Africa's World War, referencing its disastrous impact as the deadliest conflict since World War II. Beginning in 1998 when the Rwandan civil war and genocide spilled over into the Democratic Republic of the Congo (DRC), the conflict involved up to nine African states and about 25 armed groups, fighting along ethnic lines and over valuable minerals. Especially in the east of the country, millions have become internally displaced or fled to neighbouring states. In Uganda, having a history of recent civil war itself, the accommodation of refugees was initially met with popular support. However, as their situation became increasingly protracted and their return was not conceivable, reluctance developed as they were perceived to become a burden on public infrastructure and a competition in the labour market.

When a peace treaty was signed in 2003 and the war officially ended, expectations were that the situation would calm down and the Congolese would be able to return home. However, low-level fighting continued with two notable peaks, resulting in waves of refugee inflow: in the years 2005/06 and 2008. Both incidents hit the Ugandan government as well as international agencies such as the United Nations High Commissioner for Refugees (UNHCR) unexpectedly and led to struggles within providing for the displaced.

Hence, once again, for the refugees to return to their country of origin is not foreseeable. Similarly, most refugee situations in the world are increasingly protracted and ways need to be found in order to

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provide a sustainable, long-term solution for both refugees and the local population. The number of protracted refugee situations, i.e., those that have been lasting for more than five years (Crisp 2003) has increased from 22 in 1999 to 30 in 2008, with refugees living in uncertainty about their future for an average of 17 years (Jacobsen 2002). For a long time, refugee policies largely had an emergency aid type of character, caring for them in camps and aiming at sending them home or to third countries as fast as possible. In 2005, however, the UNHCR followed the evolution of the situation of the refugees and performed a policy shift towards their local integration (United Nations High Commissioner for Refugees 2005). In a background note in the World Development Report 2011, the World Bank also acknowledges the 'development challenge' that exists due to the impact of refugees on their neighbouring countries (Puerto Gomez and Christensen 2010). The Ugandan government has followed a political process from stressing the aim of economic self-reliance of the refugees to its Refugee Act of 2009/10 that promotes local integration of refugees and aims at merging public services for Ugandans and the displaced to both groups' advantage. Notably, it is concerned with economic and social integration while legal integration is not an option. But integration cannot be carried out if the hosts are reluctant to include the foreigners into their society and economy because they feel - and possibly rightfully so - that the latter's presence is to the former's disadvantage (Fielden 2008).

Thus, Uganda has been facing two linked but distinct challenges: Together with the international community, it has to simultaneously provide emergency aid and long-term development support and find a transition from one to the other. Arriving refugees need to receive basic goods and services while at the same time sustainable health and education systems as well as employment opportunities should be open to those persons that have to stay longer. Both of these tasks run the risk of being fulfilled at the cost of the local Ugandan population due to a tight public budget and sensitive economic environment.

The purpose of this work, then, is threefold: First, the degree to which the declared political goals of the Refugee Act - economic activity independent of aid and inclusion of public services - impact the situation of the host population is analysed. This is done by looking at the household welfare and at the accessibility of health and primary education institutions. In addition to these objective measures, the subjective view of the local population of their economic situation and in how far they identify with their national state is taken into account. Third, the long-term development of the refugee population is differentiated from short-term variations to distinguish the general trend from emergency situations.

These three strands of analysis are motivated by the following hypotheses:

*1: The presence of refugees can have an impact on the economic welfare of the population of surrounding areas, depending on the persons' source of income. This might be through either price effects or*

*competition in the (labour) market.*

*2a: When opening up public services provided by international aid donors to the host population, the general availability (and quality) of services is likely to increase.*

*2b: When allowing refugees to access state-run services, congestion can lead to the deterioration of their availability (and quality).*

*3: The presence of a large number of foreigners will impact the population's perceptions. As important stakeholders in the integration process, these have to be considered.*

Three waves (2002, 2005, 2010) of two different household surveys are used, respectively, in order to employ a difference-in-differences approach. The findings presented here suggest that Uganda can benefit from its decades long experience of hosting refugees and providing for internally displaced persons as well as its exemplary policy framework. While there is an overall significantly positive effect of refugee presence that is overlain in times of crisis for income groups competing with refugees, both effects are economically small. Regarding public service, there is some indication that in terms of education, the non-governmental organisations and other private agencies do take some strain off the state while this functions less well in the health sector. However, there are small warning signs, too: Ugandans living in the surrounding areas of refugee settlements have more negative views on their present economic situation and could feel more alienated from their central government. This could motivate policy makers to look further into this issue and possibly increase efforts to reduce prejudices between the groups.

This paper is organised as follows: First, there is a summary of the literature this work aims at contributing to. Then, the paper explains the background information regarding refugees and their hosts in Uganda as well as the conflict in the Democratic Republic of the Congo. Following, the paper describes the identification strategy, model, and data before presenting the findings. The final part concludes.

## **2 Literature**

Most literature about refugee crises focuses on the group that is at first sight the most vulnerable one: the displaced persons themselves. At the same time, the perspective of the population living close to the settlements remains largely under-researched, although a large increase in population can be expected to impact the local economy; specifically, if the receiving country is a developing one which might have difficulties providing for its own population. On the other hand, the global emergency and development assistance system will take action and sweep in with food and further aid which have an additional effect.

A priori, possible risks include disease outbreaks, food and land scarcity, unsafe drinking water, wage

competition, overburdened school and health care facilities, environmental degradation, and increased criminality. In contrast, external funding and additional human resources could raise the welfare of the host community and could also stimulate their local economies through higher demand, the influx of resources from international humanitarian assistance, and more and improved infrastructure (Baez 2011). In a macro level study, Salehyan and Gleditsch (2006) find that civil war in one country significantly increases the likelihood of conflict for its neighbours. They specifically stress the importance of external effects such as refugee flows that on the one hand might extend the network of the rebels and on the other hand might be a humanitarian burden, with negative effects on economic conditions and demographic structures in receiving countries. This is especially likely if refugees are concentrated in one particular region of the country, making up a large share of the population. They are scapegoats for social ills since they are easily attacked and often unable to defend themselves. Kirui and Mwaruvie (2012) also stress the security threats that the Dadaab refugee camp and the porous Somalian border pose to North-Eastern Kenya. But refugees might not just bring conflict across the border with them but also illnesses such as malaria (Montalvo and Reynal-Querol 2007). Jacobsen (1996, 2002) focuses on the host country and factors determining the policy chosen concerning refugees and stresses the potential benefits of economically active refugees and additional development funding. Jacobsen (2001) determines three main obstacles to local integration: real and perceived security threats, economic and environmental resource burdens (perceived or actual) as well as resistance to integration and pressure on authorities to segregate refugees.

The seminal paper moving to the micro level was Chambers (1986), differentiating between surplus farmers, subsistence farmers, and labourers with negligible or no land, arguing that ignoring especially vulnerable groups of the host population is fatal as they have needs similar to those of the refugees but cannot use the 'safety net' of a camp. He draws a nuanced picture where net sellers of agricultural products will benefit from increased food demand at the cost of net buyers. Land abundance can mean that more land is used benefiting everyone, while land scarcity, public services and common property resources will at least in the short run be strained but can benefit in the long term as external aid creates additional supply. Many empirical works have then directly or indirectly built on these thoughts. In a case study about Burundian, Rwandan, and Congolese refugees in Western Tanzania, Whitaker (2002) finds that a number of these general hypotheses hold, e.g., an increase in trade and business, positive effects of relief operations but also altered social dynamics and new diseases. Overall, households and districts that were already better off tended to benefit while others were further marginalised. In the same context, Berry (2008) describes environmental degradation causing conflicts while a bigger cheap labour force and more trade benefited the economy. Agblorti (2011) finds that refugee-hosting areas in Ghana undergo a massive structural change as a small agricultural settlement became a growing urban settle-

ment attracting even Ghanaians to move there. Hosts generally accepted social and economic integration of Liberians, but were reluctant to political inclusion as well as mingling with their families. Also, they felt marginalised when it came to accessing water and land.

This qualitative and descriptive literature has only very recently been complemented by quantitative empirical works.<sup>2</sup> Ten years after the influx of Rwandan and Burundian refugees into Tanzania and eight years after their repatriation, Maystadt and Verwimp (2014) conclude that the overall effect of refugees on the host population's welfare as measured by consumption is positive. Yet, this conceals winners and losers determined by the access to resources, education, or power. In a follow-up study looking at the year 2010 (i.e., 14 years after the departure of the refugees), Duranton (2013) find that the effect has even increased and relate this to the improved road network in the area. Alix-Garcia and Saah (2009) studied the same setting but looked at a shorter time horizon (four years after the influx), documenting large positive price effects of non-aid food items and more modest price effects for aid-related food items as the effect is mitigated through external supplies. When differentiating, they, too, display that the welfare effects at the household level depend on whether they are net sellers (rural population) or net buyers (urban population) of agricultural goods. Also in Tanzania, Baez (2011) shows a detrimental effect on child health and mortality.

This study contributes to the literature in a number of ways: While the Tanzanian studies are *ex post*, the crisis in Uganda is still ongoing, so that looking at this context offers the opportunity to distinguish long-term effects of refugee presence from short-term additional inflows after shocks in the sending country. To our knowledge and also according to Ruiz and Vargas-Silva (2013), this is thus the first study focussing on the effects of a prolonged refugee presence. Additionally, so far the studies were rather descriptive in taking the presence of refugees as given and analysing their effect on markets or on welfare through market mechanisms. What is attempted here is a policy analysis less of the impact on the market but rather on the success of the Ugandan state to mitigate it. Tanzania and Uganda are interestingly distinct in their path of political reforms regarding refugees' rights and status: Having both a long history of hosting refugees, Tanzania initially encouraged the Burundians fleeing their home in 1972 to integrate and to become economically self-sustainable, but facing the inflow in 1993/4 restricted their freedom of movement to a 4 km radius around the camp. As mentioned above and described in more detail in section 3, the Ugandan government decided to take the opposite route and to significantly increase the refugees' possibilities to settle and work where they wish to do so. Hence, the impact of refugees in Uganda is likely to be more pronounced and lasting than the short-term, isolated shock in Tanzania. Finally, the host population's perceptions have not yet been considered in a quantitative study.

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<sup>2</sup>Also see Ruiz and Vargas-Silva (2013) for a comprehensive literature review on 'The Economics of Forced Migration'.

### **3 Refugees in Uganda**

Uganda is situated in central eastern Africa with the Democratic Republic of Congo (DRC), Rwanda, and Sudan among its neighbouring countries. Hence, it is in the centre of a region that has seen many internal and internationalised civil wars and a vast extent of destruction and human suffering over the last half century. Most of the more than 190,000 refugees in Uganda come from neighbouring countries, including Burundi, the DRC, Kenya, Rwanda and Sudan (United Nations High Commissioner for Refugees 2013).

Uganda has traditionally hosted refugees in settlement structures rather than camps, i.e., in large villages in isolated rural areas. In 1999, the Ugandan government passed the so-called self-reliance strategy (SRS), which initially aimed at Sudanese refugees in the West Nile Region but has been extended to the whole country. It is supposed to move refugee support from relief to development. When they arrive, they receive a set of non-food items, a plot of land as well as seeds and food rations for two to four seasons until they are supposed to be self-reliant, i.e., economically independent from food aid. In 2004, the SRS was replaced with the Development Assistance for Refugee-Hosting Areas (DAR) programme which, however, kept the initial focus of the SRS (Clark 2008). Following this was the Refugee Act from 2006/09 that was regarded as a model for Africa, recognising the right of the country's refugees to work, move around the country and live in the community, rather than in special areas. However, if they wish to benefit from UNHCR assistance, they are still bound to the settlements which tend to be located in remote and marginal areas, where access to markets can be difficult; self-settled refugees in urban areas are neglected (Kaiser 2006). The Act introduced steps towards locally integrating the displaced, e.g., through shared use of hospitals and schools in order to resolve inefficient parallel systems. Notably, in many cases services provided to refugees were of better quality than the local ones, hence the surrounding populations are likely to have benefited from the refugee presence. In all three cases, implementation has been recorded to be slow and unstructured (see inter alia Dryden-Peterson and Hovil 2004; Garimoi Orach 2005; Rowley et al. 2006).

Dryden-Peterson and Hovil (2004) argue that despite perceived injustice from the part of the local populations witnessing trucks of the World Food Programme (WFP) entering the settlements and although refugees are a potential source of competition for scarce resources, nationals benefit from local integration. Where the lack of coordination between refugee assistance structures and the wider district development structures is resolved, refugees have the potential to benefit commerce as traders and customers or enhance public infrastructure provision if hosts are allowed to access refugee schools as well. On a similar note, Kaiser (2000) describes that in Uganda's Kibanda district, an estimated 40 per cent

of the assistance provided by UNHCR was directed to the area surrounding the refugee settlement at Kiryandongo, in order to mitigate possible resentment by the local population. The Ugandan government as well as the UNHCR and its implementing partners stress the necessity of including the national population into the budgeting and planning of service provision in order to avoid conflicts. Notably, contradicting perceptions exist between the local population who see a strain on existing resources by the refugees, while government official and aid agencies will report that infrastructure such as health centres would not exist in the absence of refugees and that the new institutions provide a much higher quality of services than generally available in rural Uganda (International Organization for Migration 2013).

In addition to services, the main source of conflicts between refugees and nationals appears to be resources, specifically land. When the first refugees arrived in the 1960s and then again in the early 1990s, both populations were rather small, so giving the displaced persons means for agricultural activities was even considered to be a measure to cultivate underutilised land (Jacobsen 2001). However, in the meantime both groups have grown and land has become a scarce resource with refugees complaining about the size and quality of their plots and hosts accusing them of encroaching on their fields (personal interviews 2014).

The group of refugees under observation in this work originate from the DRC, a state that has been divided by a violent civil war, which began in 1998 after a coup led by Laurent Kabila, supported by Rwandan and Ugandan rebels, took place against long-term dictator Joseph Mobutu, officially ending in July 2003. During these five years, an estimated 3.5 million people were killed, either as a direct result of the fighting or from starvation and disease, and an additional 3.6 million people were displaced. Although the conflict was initially fought along ethnic lines, there are clear economic interests at work as well, since the DRC is rich in a number of natural resources such as gold, diamonds, timber, and coltan. Still, despite the peace settlement, the situation is highly fragile since many areas remain under the control of rebel forces. While the conflict appeared to calm down after 2003, two major waves of influx of Congolese into Uganda can be noted: In 2005/06 they were sent especially to Kyaka II (Kyenjojo district, Central Region), and in 2008 mainly to Nakivale and Kyangwali (Isingiro and Hoima districts, both Western Region).

Kyangwali is the oldest refugee settlement in Uganda. The land was first home to the displaced from the conflict in Rwanda beginning in 1960. After the majority of these repatriated in the early 1990s, the camp was vacant until 1997 when the crisis in eastern DRC flared up. Now, it is mainly home to Congolese refugees, their number fluctuating between about 16,000 and 22,000 over the period under observation.<sup>3</sup>

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<sup>3</sup>Please note that these numbers and the ones to follow are not 100 per cent fixed but rather estimates collected from reports by the UNHCR, the Refugee Law Project and others.



Kyangwali is known for its inhabitants' relatively high degree of economic self-reliance (Werker 2002, personal interviews 2014). Furthermore, integration of infrastructure has been carried out to the degree that health centres and primary schools in the settlement are equally accessible to refugees and the host community (Refugee Law Project 2008).

Nakivale is the second oldest and largest refugee settlement in Uganda. Founded in the early 1960s to accommodate Rwandans fleeing the genocide, the Nakivale settlement kept its Rwandan character for a long time: In 2003, of the 14,729 refugees living there, 12,311 were Rwandans and only 1,154 Congolese. But in 2008, the total number had risen to 38,822, among which there still were 12,632 Rwandans but now also 14,400 Congolese. The host community has been allowed to access the oldest primary school in the area which for a long time was the only one in the county. The 'critical mass' of Ugandan pupils allows the school to keep running even when the number of refugee children fluctuates (downwards) (Dryden-Peterson and Hovil 2003).

**Table 1:** Settlement refugee population and refugees over 1,000 of district population

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Kyangwali	16,220	17,220	17,000	18,090	19,100	20,109	12,957	20,000	22,230
Hoima	47.20	47.78	45.06	45.91	46.31	46.58	28.68	42.30	44.54
Kyaka 2	3,159	6,180	8,780	14,600	16,415	18,229	20,033	19,132	18,230
Kyenjojo	8.38	15.79	21.64	34.77	37.72	40.41	42.86	39.49	36.12
Nakivale	14,770	15,300	15,800	15,680	21,000	33,176	38,822	50,000	56,067
Isingiro	61.29	60.04	58.77	55.64	67.99	98.47	111.02	135.39	144.95

Kyaka II has developed in a way similar to Nakivale in the last decade: The number of its population rose from 3,159 in 2002 to about 20,000 in 2008, the increase also stemming mainly from Congolese refugees, about 17,000 of which lived there in 2008. Here as well, hosts can access primary schools initially built by UNHCR and its implementing partners (Dryden-Peterson and Hovil 2004). UNHCR and partner organisations carried out an HIV Behavioural Surveillance Survey (BSS) for Kyaka II and surrounding communities in 2010 which gives an impression of the composition of both groups as well as the extent of their social and economic interaction (United Nations High Commissioner for Refugees and Intergovernmental Authority on Development 2010). First, it can be noted that the groups are very similar in many regards: They both are by majority Christian, half of which are Catholic and Protestant, respectively. 95 per cent of both groups have only completed primary education at most (refugees do have a larger share of those who never attended school, though). While in both groups the majority of people interviewed depends on agriculture as their main source of income (70 per cent of the refugees vs. 57 per cent of the Ugandans), the share of those active in pastoralism, trading, and crafts is higher among Ugandans which is not surprising as refugees get their start-up aid in the form of land while the other

employment types require a more long-term perspective as well as larger initial investments. Around Kyaka II, it appears that the inward mobility of Ugandans visiting the settlement is larger than outward mobility of refugees travelling to surrounding areas (21 vs. 6 per cent do so ‘many times a month’ while 66 vs. 73 per cent ‘never’ do so or ‘less than once a month’). The main reason for Ugandans entering the settlement is indeed the infrastructure provided: They use the market for shopping and benefit from the health care. Refugees have less dominant reasons, they more or less equally go for employment, trade, health care, schools or visiting relatives. A small tendency of getting food or visiting the local market being more important than other reasons can be seen. Summarising the findings, it can be said that the two groups are quite similar and that it appears that the local population uses the opportunity to interact more frequently than the refugees which is probably due to the increase in infrastructure for the former who live in remote areas but also to movement restrictions and aid provided to the latter.

## **4 Analysis**

In order to disentangle external effects from conflicts abroad in the form of international refugees from economic hardships caused by fighting during the civil war<sup>4</sup> and internally displaced persons (IDPs), this work focuses on the relatively peaceful Southern and Western parts of Uganda. This is also the bordering region with the DRC and Rwanda and the refugees’ point of entry, thus their share relative to the local population is especially high. As there are two time horizons applied to this analysis, both must be considered separately in terms of identification.

### **4.1 Identification and Model**

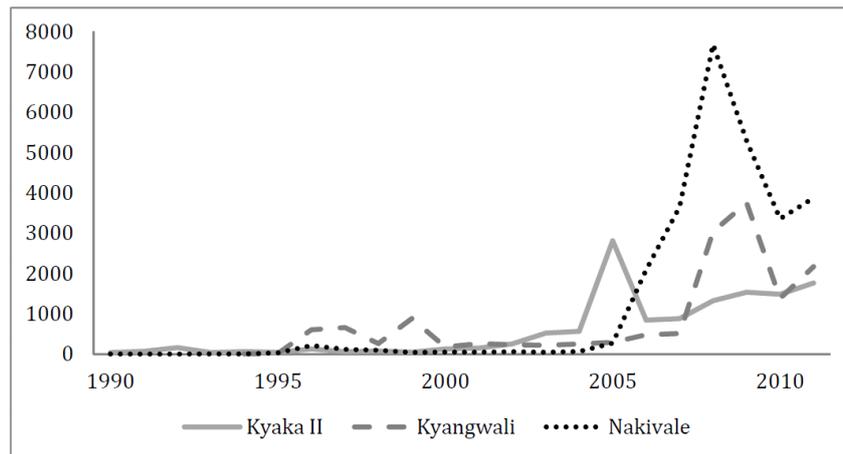
The identification of the effects of the sudden inflow of refugees rests on the unexpected size and nature of the refugee influx, generating a natural experiment. Although all three settlements under observation already existed when these shocks occurred, so that a certain degree of adaptation by the local infrastructure and the population is likely to have had taken place, especially Nakivali and Kyaka II massively increased in size which will have affected the surrounding communities. Figure 2 displays the absolute number of refugees arriving each year between 1990 and 2011. As can be seen, the numbers are very close to zero throughout the 1990s and the peaks in inflows described above are clearly visible. When arriving in one of the transition centres at the borders, refugees do not have a choice concerning their long-term settlement but are allocated according to capacity of the settlements.

The earliest available wave of the UNHS is from the year 1992.<sup>5</sup> As this is ‘in between’ the two periods

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<sup>4</sup>The Ugandan civil war took place approximately from 1987 to 2005, then the fighting moved abroad to the DRC and the Central African Republic.

<sup>5</sup>However, no detailed information on the size of the refugee settlements is available so that the analysis cannot be extended to the waves of 1992, 1995, and 1999.



**Figure 2:** Number of newly arriving refugees by settlement (1990-2011)

**Table 2:** District characteristics in 1992 (including t-test)

	Non-hosting areas	Refugee-hosting areas	
	Mean	Mean	
age	39.49	38.33	(1.02)
male	0.73	0.74	(-0.26)
wage	0.25	0.27	(-0.41)
self-employed	0.14	0.18	(-1.31)
property	0.00	0.01	(-1.51)
transfers	0.00	0.00	(-0.52)
agriculture	0.57	0.48	(1.20)
household members	4.51	4.38	(0.50)
highest grade	5.91	6.53	(-0.95)
primary school	0.34	0.35	(-0.09)
gov. health unit	0.12	0.09	(0.34)
priv. health unit	0.14	0.02	(1.48)
district welfare	25331.46	28888.64	(-1.27)
urban	0.30	0.42	(-1.63)
population	5206941.87	6548489.33	(-0.59)
distance border	107.28	56.32	(0.98)
distance Kampala	189.81	220.49	(-0.45)

*t* statistics in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

of activity of the refugee settlements (i.e., the 1960s and the 2000s), this data can help to see if refugee-hosting districts differed from those without a refugee settlement (see Table 2). As can be seen, the two groups appear to be very similar, they do not differ significantly in any of the characteristics (see the t-statistics of the two-group mean-comparison test in parentheses). In addition, when following Sribney (1996) with his suggested test for a common trend of the dependent variables under analysis before 2010, in the majority of cases, it is not possible to refuse the null hypothesis of a parallel development between hosting and non-hosting regions.<sup>6</sup>

Whether refugees ended up in a specific area or not can be considered as being random from another

<sup>6</sup>Notably, simple pairwise correlation between the outcomes and the group membership are calculated, a logit model with refugee presence as an outcome variable is run, and a nonparametric test for a trend across ordered groups (nptrend command) is carried out. Only the availability of government primary schools turns out to be negatively significant in the last case.

**Table 3:** Refugee presence and district characteristics in 1992

	OLS	Poisson
main		
district welfare	0.0000003 (0.00003)	-0.00004 (0.0002)
urban	1.2 (0.9)	7.7 (6.0)
population	0.00000003 (0.00000004)	0.0000003 (0.0000004)
distance border	-0.001 (0.001)	-0.01 (0.01)
Constant	-0.3 (0.6)	-4.4 (3.8)
Observations	18	18

Standard errors in parentheses  
\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

perspective as well: The Congolese people entered Uganda rather than another neighbouring country because of movements in their own country which are presumably unrelated to public provision and welfare in Ugandan districts. While this could be disputable in districts bordering the DRC, considering that Ugandan rebels are also involved in the conflict, this certainly holds for those concerned here as they were initially set up for Rwandan refugees and are thus further away from the Congolese border and do not shelter insurgent groups.<sup>7</sup>

Regarding the long-term presence, camps are likely to have been established in order to facilitate food aid, to be easily accessible by the refugees and to be in areas with unused land. When taking the very simple approach of regressing a binary indicator for refugee presence on district characteristics for the very earliest available data from the year 1992 (see Table 3), neither district welfare nor the distance to the border with the DRC appear to be significant in neither the OLS nor the Poisson specification. The analysis nevertheless controls for these factors and takes advantage of variation in the number of refugees over time. Additionally, district-specific factors that are constant over time are captured in fixed effects.

In most specifications, the analysis will take into account the district level ‘refugee intensity’ and also district level shocks.<sup>8</sup> Two factors support the assumption that the effect will be rather confined to the district level: The first one concerns the location of the settlements which are situated in remote rural areas with high transportation costs. That is to say, interaction among refugees and the host population will be confined to a rather small radius. Displaced are only considered for UNHCR support when living in the settlements, so that if they make use of their newly acquired right to work outside the settlement, most will be likely to do so within commuting distance. Second, the political system in Uganda after democratisation has put a lot of weight on decentralisation and allocated the power of decision-making

<sup>7</sup>Maystadt and Verwimp (2014), Alix-Garcia and Saah (2009), and Baez (2011) follow a similar identification strategy in their analysis of the impact of Rwandan and Burundian refugees on Tanzanian markets.

<sup>8</sup>For a detailed description of variables used, please see section 4.2 below.

over public policies to the so-called LC5 level, i.e., the districts (Byenkya 2012; Ranis 2012). This means that, for example, negotiations between the UNHCR and the government over the service provision and sharing will take place in a district-specific way.

This work exploits two exogenous waves of influx of refugees, using bracketing survey waves to calculate a three-period difference-in-differences model. Large refugee inflows (the so-called treatment) are indicated in two different ways, described in detail in section 4.2. Both datasets consist of three repeated cross-sections which allows to control for a common time trend before the treatment and to calculate the outcome in the period after its occurrence. Using a pooled cross-section inherently assumes that the impact remains equal over the years. In order to account for differing distributions due to repeated sampling, different intercepts are allowed, i.e., year dummies are included. At the same time, district fixed effects are included to control for unobserved heterogeneity. As the units of observation (households, communities) are at a lower level than the unit of the treatment (districts), standard errors are clustered at the district level.

In general, the equation that also includes household and district control variables ( $X_{i,t}$  and  $D_{d,t}$ ) takes the following form:

$$y_{i,t} = \beta_0 + \beta_1 treatment_{d,t} + \beta_2 dummy_{2005} + \beta_3 dummy_{2010} + \delta_1 X_{i,t} + \delta_2 D_{d,t} + \delta_3 dummy_{district} + \epsilon_{d,t} \quad (1)$$

With  $y$  being the different outcomes and  $\epsilon$  the clustered standard errors.  $i$  indicates the household or community,  $d$  the district, and  $t$  the year.

In each case, linear probability models have been given preference over logit or probit ones due to the more straightforward interpretation of coefficients as marginal effects. However, results change little when applying a nonlinear model, when it is possible.

## 4.2 Data

This work is based on two distinct surveys: the Uganda National Household Survey (UNHS) as well as the Afrobarometer Uganda, both carried out in the three waves of 2002/03, 2005/06 and 2009/10 (Afrobarometer 2010; Ugandan Bureau of Statistics 2010). The Afrobarometer creates national probability samples of the populations at voting age (i.e., at least 18 years old), randomly selecting at each stage and interviewing at the household level. The UNHS also follows a stratified probability proportional to size approach. It includes information at the individual level, however, here only household heads have been kept in the sample as the variables of interest are captured at the household level.

**Table 4:** Descriptive statistics UNHS

	Non-hosting areas			Refugee-hosting areas		
	Mean	SD	N	Mean	SD	N
gov. primary school	0.39	0.49	1040	0.33	0.47	84
priv. primary school	0.35	0.48	917	0.30	0.46	73
gov. health unit	0.09	0.28	1042	0.08	0.28	84
priv. health unit	0.34	0.47	1003	0.26	0.44	77
refugees per 1000	0.00	0.00	1046	48.94	32.84	84
urban	0.26	0.44	1046	0.18	0.39	84
population	388822.46	240407.10	1046	398103.48	61825.44	84
distance border	124.16	85.54	1046	52.17	19.50	84
distance Kampala	168.55	109.26	1046	213.56	25.08	84
violent events	0.33	0.68	1046	0.66	0.81	84
nighttime light (*1,000)	0.00	0.00	1046	0.00	0.00	84
welfare	59115.18	104971.34	10017	46495.88	43963.89	814
age	39.96	14.54	10019	40.08	14.60	814
male	0.72	0.45	10019	0.78	0.42	814
wage	0.23	0.42	9958	0.22	0.42	811
self-employed	0.30	0.46	9958	0.21	0.41	811
property	0.01	0.09	9958	0.01	0.09	811
transfers	0.05	0.22	9958	0.05	0.22	811
agriculture	0.42	0.49	9958	0.50	0.50	811
household members	5.13	3.06	10019	5.34	2.93	814
highest grade	6.46	5.38	9875	5.70	4.97	812

Descriptive statistics of both datasets are displayed in Tables 4 and 5, organised by refugee-hosting and non-hosting areas.<sup>9</sup> Kampala has been excluded as it is the main urban centre of the country and thus very different from other districts. Furthermore, it hosts many unofficial refugees that cannot be accounted for. A note of caution is in order concerning the numbers of observation reported: they represent the households in the survey while the ‘real’ number of observations has to be based on the districts as this is the level where the treatment varies. The sample encompasses 32 districts, three of which host refugees as described above. Hence, a higher number of households makes the estimates more efficient while their average values at district level will be considered by the model.

The unconditional comparison indicates that, while households are similar in terms of size, source of income, education as well as gender and age structure, there appear to be differences with regard to the explaining factors of interest; i.e., refugee presence, violent events, and distance to the DRC and Rwanda border. In line with the reasoning above, refugee-hosting districts are closer to the borders and further away from Kampala while suffering from higher numbers of violent events.

This analysis will aim at encompassing three fields of possible impacts: First, household level welfare measured by a consumption aggregate calculated by the Ugandan Bureau of Statistics (UBOS). It encompasses monthly household consumption expenditure per adult equivalent. Second, public good provision, specifically health and education as these are among the most basic services that a state pro-

<sup>9</sup>In terms of the variables described below, this is to say that the level of refugees over local population is either unequal or equal to 0, respectively.

**Table 5:** Descriptive statistics Afrobarometer

	Non-hosting areas			Refugee-hosting areas		
	Mean	SD	N	Mean	SD	N
living conditions	0.39	0.49	3106	0.43	0.50	658
ethnic or national identity	0.24	0.43	3005	0.22	0.42	623
age	33.46	12.33	3118	33.92	12.42	659
male	0.50	0.50	3118	0.50	0.50	659
highest grade	3.21	1.79	3113	3.33	1.75	658
gone w/o food	0.76	1.01	3114	0.59	0.98	653
gone w/o water	1.02	1.26	3115	1.20	1.39	657
gone w/o medical care	1.36	1.20	3113	1.33	1.20	656
radio news	3.46	1.07	3116	3.56	1.00	658
refugees per 1000	0.00	0.00	3118	32.06	13.02	659
nighttime light (*1,000)	0.00	0.00	3118	0.00	0.00	659
urban	0.15	0.35	3118	0.15	0.35	659
population	440788.00	266915.13	3118	921088.53	401771.84	659
distance to Kampala	180.36	113.36	3118	223.18	17.48	659
distance to border	116.60	86.93	3118	60.68	7.99	659
violent events	0.38	0.78	3118	0.49	0.73	659

vides. They are captured at the community level through the question: ‘Is there a [education/ health facility] present in this community?’ Third, household’s subjective well-being reported as the answer to: ‘In general, how would you describe: Your own present living conditions?’ as well as ‘Let us suppose that you had to choose between being a Ugandan and being a \_ (Ethnic Group). Which of the following best expresses your feelings?’ Both of these variables were recoded to binary variables, i.e., taking the values 0 and 1. 1 in the first case being ‘Neither good nor bad’, ‘Fairly good’ or ‘Very good’ rather than 0 which represents ‘Very bad’ or ‘Fairly bad’. In the second case, 1 means ‘I feel only Ugandan’ or ‘I feel more Ugandan than (ethnic group)’ as opposed to 0 which stands for ‘I feel only (ethnic group)’, ‘I feel more (ethnic group) than Ugandan’ or ‘I feel equally Ugandan and (ethnic group).’ The motivation for analysing whether a person feels more belonging to their nationality or their ethnicity is based on the idea that this also depends on the context the person finds themselves in (e.g., Hadnes (2014)) and might be used as a means of differentiation. That is, Ugandans and refugees have a similar ethnic background and, depending on the degree to which the Ugandans sympathises or feel the need to discriminate, either one identity could turn out to become more important.

The main variables of interest then intend to capture the long-term level of refugee presence as well as the shocks between the respective survey waves (see the section on identification). The number of refugees per 1,000 inhabitants will be used as an indicator for host country capacity, as this is what the UNHCR also does. In the first analysis, the levels themselves are applied. This is the most straightforward measure of refugee pressure and follows the long-term trend, yet it does not consider fluctuations in refugee numbers between two survey years. In order to do so, further specifications simultaneously account for the shock, too. The shock is first represented by a variable capturing the maximum increase in refugees over local population from one year to another (between survey waves), divided by the dis-

tance to the next settlement. This has the advantage that it does not only vary at the district but at the sub-county level. Extreme increases in refugee population are deemed a strain on local infrastructure and a possible trigger of public resentment.<sup>10</sup> At the same time, inflows are more likely to be exogenous to the dependent variables, while outflows of refugees - both to other areas of the host country or back to their country of origin - are likely to depend on the living conditions within the settlement.

Based on the general conflict literature, a distance measure is adopted as an instrument for intensity, too (see inter alia Akresh and De Walque 2008; Miguel and Roland 2011; Serneels and Verpoorten 2012; Voors et al. 2012). It takes the value 1 if the household or community are situated within a 60 km radius of the settlement and 0 otherwise.

There is a difference between district level treatments and distance that should be kept in mind: While policy decisions are made at the district level, distance also accounts for bordering districts - who might suffer when refugees leave the settlement and just go to the closest school (or hospital or market) rather than the district one, without the hosts getting the same kind of compensation.

Furthermore, control variables are added for the individual (age, age squared, sex, education, occupation), as these explain the individual household's ability to make a living as well as their attitudes. In addition, community (rural/ urban), and district characteristics are included such as violent events (Raleigh et al. 2010), and night-time lights as a proxy for sub-national gross domestic product (GDP) (NOAA National Geophysical Data Center and US Air Force Weather Agency 2011). In general, the situation in Uganda's South and South-West was peaceful in the period under observation: The activities of the Lord's Resistance Army (LRA) were concentrated in the North of the country and moved into Southern Sudan and the DRC from 2006 on. The activities of the Allied Democratic Forces (ADF) peaked between 1997 and 2001, while by 2002, they had calmed down (De Luca and Verpoorten 2011). In line with this, there are very few event days per year on average recorded, which are not focussed on specific areas of the country. One might assume that the more straightforward measure of GDP p.c. would be average per capita consumption as measured by the survey. However, this measure would not be available for the World Value Survey. In addition, while including district fixed effects, it would be a very close predictor of household consumption and overlay the effect of other variables. Thus, in order to ensure comparability between all specifications, the light data is used as a proxy. As was mentioned above, refugees might just be sent to sparsely inhabited areas as well as those ones close to the border with the conflict region; thus, both the district population (Ugandan Bureau of Statistics 2011) and the shortest sub-county distance to either the DRC or Rwanda (author's calculation) are controlled for.

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<sup>10</sup>Of course, extreme reductions in the refugee population can decrease overall population to a degree that makes running services uneconomical which would also threaten the host population's access to those services. However, this phenomenon is not the focus of this paper.

### 4.3 Findings

As described in the data section, economic household welfare is measured by monthly (monetary) welfare proxied by a consumption/ expenditure aggregate per adult equivalent. Results are presented in Table 6.<sup>11</sup> Overall, refugee presence appears to increase monthly consumption, while large positive fluctuations do so even more, which is line with reports from the field that Ugandans can also partly access emergency aid. Hence, it appears that a larger population does benefit those already living in the area, for example by opening up new possibilities to trade and attracting new enterprises. However, economically, the effect is rather small: increasing the number of refugees per 1,000 inhabitants by 10 (which is reasonable looking at the data in Table 1), would on average increase consumption by 2 per cent (see columns 1 and 2). At the average expenditure in refugee-hosting areas of 46,496 Ugandan shillings (UGX), this would be about 935 UGX or 50 US cents, 1.43 US dollars if purchasing power parities are considered.

Differentiating by income source draws a more nuanced picture. While the overall effect is robust and each group benefits in general (as compared with subsistence agricultural income which is presumably the most independent from the economic environment), those depending on wage income and transfers appear to face hardships in times of a shock. This finding holds across different shock measures and is in line with hypothesis 1. It is also intuitive assuming that refugees are a priori more likely to enter dependent employment and compete with rural landless workers while starting an enterprise or living off property requires higher initial investments. Please keep in mind that the values for the maximum increase are rather small, which leads to seemingly large coefficients.

Regarding the public service provision (Tables 7 and 8), notably health facilities and schools, there are indications for congestions for the former. It appears that public centers are less likely to be accessible when the relative number of refugees increases. In the health sector, especially regarding private services, the distinctness of the distance as opposed to the district-level measures is visible: While fluctuation in the relative number of refugees does not appear to be significantly related to accessibility of clinics, it looks as if refugees might visit hospitals close to them, independent of district borders, hence possibility creating congestion that is not sufficiently reacted to by district policy makers. The effect for private health centres is clearly counter-intuitive. However, when going back to the 1992 characteristics, one can see that, although not significantly different in the t-test, the availability of private clinics is already higher in non-refugee hosting areas (0.14 vs. 0.02). It thus appears that the divergence has continued due to service provision clustering around Kampala and Lake Victoria (as visible when looking at values by district) and the difference has by now become significant.

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<sup>11</sup>Please note that control variables and standard errors have been suppressed in these tables. Full tables are included in the appendix.

**Table 6:** Household welfare by main income source

	log(welfare)		
refugees per 1000	0.003***	0.002***	0.001
maximum increase			8.4***
radius 60 km		0.05	
wage*level	-0.001		
selfemp*level	-0.001		
property*level	0.001		
transfers*level	-0.006***		
wage*max			-10.1***
selfemp*max			-2.4*
property*max			-6.8
transfers*max			-28.8***
wage*near		-0.1**	
selfemp*near		-0.05	
property*near		-0.06	
transfers*near		-0.2*	
wage	0.1***	0.1***	0.1***
self-employed	0.2***	0.2***	0.2***
property	0.3***	0.3***	0.3***
transfers	0.2***	0.2***	0.1***
$R^2$	0.997	0.997	0.997
Adjusted $R^2$	0.997	0.997	0.997
Observations	10623	10623	10623

Control variables as well as year and district dummies included in all specifications.

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Regarding primary schools, privately provided education (e.g., by NGOs) is more common where more refugees live. This again is in line with policy expectations as NGOs react to humanitarian crises. Taken together, the results indicate that there is some need for the Ugandan government to readjust the service provision in the health sector. In primary education, outcomes could stem from private providers building new infrastructure and opening it for refugees or from the refugee population making it worthwhile to provide education in sparsely settled areas. There does not seem to be a significant effect for government schools.

Here, the effects are notable, as the coefficients estimated represent the marginal effects, ergo an increase in 10 refugees over 1,000 inhabitants is correlated with a  $\beta$  times 10 percentage point increase in the likelihood of a service being provided in the community. For private primary schooling, this would mean an increase of 0.06 percentage points, at an average likelihood of a private primary school in a refugee-hosting area of 0.3 which would be around 20 per cent. For public health services, the same example would lead to a decrease of 0.009 percentage points but at an average likelihood of 0.08, which is about 11 per cent. Thus, in the health sector, there is an indication towards hypothesis 2b while in the primary education provision, it points towards hypothesis 2a.

Interestingly, when looking at the households' own assessment of their economic situation in Table 9, it yields a result contradicting the welfare analysis above but in line with qualitative findings of Kaiser (2000) and ? described above: On average, people feel as though they are worse off in areas with a

**Table 7:** Public and private health service provision

	government health unit		private health unit			
refugees per 1000	-0.0008**	-0.0009***	-0.001	-0.003*	-0.002*	-0.002
maximum increase			0.8			-2.5*
radius 60 km		0.08**			-0.06	
$R^2$	0.139	0.142	0.139	0.455	0.455	0.455
Adjusted $R^2$	0.106	0.109	0.106	0.433	0.433	0.433
Observations	1126	1126	1126	1080	1080	1080

Control variables as well as year and district dummies included in all specifications.

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 8:** Public and private primary education

	government primary schools		private primary schools			
refugees per 1000	0.0009	0.0010	-0.0002	0.006***	0.006**	0.006***
maximum increase			5.1			1.9
radius 60 km		-0.06			0.08	
$R^2$	0.429	0.429	0.429	0.469	0.470	0.469
Adjusted $R^2$	0.407	0.407	0.407	0.446	0.446	0.445
Observations	1124	1124	1124	990	990	990

Control variables as well as year and district dummies included in all specifications.

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 9:** Households' perceptions

	living conditions		national identity			
refugees per 1000	-0.004*	-0.004*	-0.005*	0.007***	0.007***	0.009***
maximum increase			2.3			-6.4
radius 60 km		-0.08***			0.04	
$R^2$	0.477	0.477	0.477	0.271	0.271	0.272
Adjusted $R^2$	0.471	0.471	0.470	0.262	0.262	0.263
Observations	3741	3741	3741	3608	3608	3608

Control variables as well as year and district dummies included in all specifications.

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

higher level of refugees, even more so when living close to settlements. The same impression holds for the feeling of identity. Feelings of resentment might be present, which would mean that more work towards the social integration of refugees and the inclusion of the host population in the process needs to be done, as stated in hypothesis 3. Unfortunately, Afrobarometer does not include occupation information for all waves, hence a disaggregated analysis as in the case for welfare is not possible and a more nuanced picture cannot be drawn.

Overall, in most specifications the main effect stems from the level of refugees in survey years, i.e., the steady increase, than from the shock variable. This could mean that long-term effects dominate short-term fluctuations which makes sense considering structures that have already been set up and personnel that is already present. However, the survey only asks about the existence of a public service, it does not make any statement about their quality. It is thus still possible (and likely) that although schools and clinics have been built to provide for the long-term population but are overrun by an unexpected influx.

Teachers and implementing organisations report that there are up to 150 pupils per classroom (personal interviews 2014). Yet, this would not appear in this data.

## **5 Conclusion**

This paper carries out an analysis of both the impact of protracted refugee situations as well as of additional sudden inflows on the host population in Uganda. This case is especially interesting as Uganda is in the course of combining public service provision for refugees and hosts and of giving refugees more freedom to work and freedom of movement. These policy reforms affect the population living in nearby villages and at the same time they can only succeed if this important stakeholder is sufficiently included in the process.

The analysis presented here indicates that the process is on track while there seems to be a division of tasks between the public and private sector regarding public infrastructure. While communities are more likely to have access to primary schools run by NGOs or other private organisations which raises their overall provision with this service, in the health sector the state appears to be overrun by demand and communities in refugee-hosting districts are less likely to have access to public clinics.

While all employment groups can benefit from the increased population in their neighbourhood, some groups are vulnerable to large upward fluctuations, as they are directly forced into competition with refugees entering the labour market. One way to go would be to make it more realistic for refugees to make a living independent from settlement support - i.e., to recognise their academic degrees and give them work permits in less bureaucratic ways. In this manner, at least the qualified share among them would leave the low-paid labourer and farmer workforce. Also, they could move to the urban regions where competition is presumably less fierce than in rural ones. Furthermore, the negative perceptions of the Ugandan population should not be ignored as they could threaten the whole process. Thus, further approaches should be sought to bring both groups together and allow them to reduce possible prejudices.

Yet, as none of the surveys considered refugees and the policies related to them, conclusions from this work should be taken with caution. There needs to be more data and research in general in order to get a clearer view of both the impact of refugees on their host populations in general as well as the Ugandan reforms specifically.

## 6 Appendix I - Full tables

**Table 10:** Household welfare by main income source - displaying control variables

	log(welfare)		
refugees per 1000	0.003*** (0.0009)	0.002*** (0.0005)	0.001 (0.0007)
radius 60 km		0.05 (0.05)	
wage	0.1*** (0.03)	0.1*** (0.03)	0.1*** (0.03)
self-employed	0.2*** (0.02)	0.2*** (0.02)	0.2*** (0.02)
property	0.3*** (0.1)	0.3*** (0.1)	0.3*** (0.10)
transfers	0.2*** (0.05)	0.2*** (0.05)	0.1*** (0.05)
year=2005	0.1*** (0.02)	0.1*** (0.02)	0.1*** (0.02)
year=2010	0.4*** (0.03)	0.4*** (0.03)	0.4*** (0.03)
log(mean light)	0.001 (0.004)	0.001 (0.005)	0.001 (0.004)
urban	0.3*** (0.03)	0.3*** (0.03)	0.3*** (0.03)
population	0.0000006*** (0.0000001)	0.0000006*** (0.0000001)	0.0000006*** (0.0000001)
distance border	0.002* (0.0008)	0.002* (0.0008)	0.002* (0.0008)
distance Kampala	-0.0002 (0.0008)	-0.0003 (0.0008)	-0.0002 (0.0008)
violent events	0.008 (0.02)	0.008 (0.02)	0.005 (0.02)
age	0.004 (0.004)	0.004 (0.004)	0.004 (0.004)
age squared	-0.00002 (0.00004)	-0.00001 (0.00004)	-0.00002 (0.00004)
male	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)
household members	-0.04*** (0.003)	-0.04*** (0.003)	-0.04*** (0.003)
highest grade	0.04*** (0.001)	0.04*** (0.001)	0.04*** (0.001)
max_mv			8.4*** (1.8)
$R^2$	0.997	0.997	0.997
Adjusted $R^2$	0.997	0.997	0.997
Observations	10623	10623	10623

Standard errors in parentheses

Interaction terms and district dummies are included in all specifications.

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 11:** Public and private health service provision - displaying controls

	government health unit			private health unit		
refugees per 1000	-0.0008** (0.0003)	-0.0009*** (0.0003)	-0.001 (0.0007)	-0.003* (0.001)	-0.002* (0.001)	-0.002 (0.002)
maximum increase			0.8 (1.9)			-2.5* (1.5)
radius 60 km		0.08** (0.04)			-0.06 (0.05)	
year=2005	0.04* (0.02)	0.04* (0.02)	0.04* (0.02)	0.2*** (0.03)	0.2*** (0.03)	0.2*** (0.03)
year=2010	0.07** (0.03)	0.08** (0.03)	0.07** (0.03)	0.1** (0.05)	0.1** (0.05)	0.1** (0.05)
log(mean light)	0.002 (0.001)	0.0010 (0.002)	0.002 (0.001)	-0.004 (0.007)	-0.003 (0.007)	-0.003 (0.007)
urban	0.07*** (0.03)	0.07*** (0.02)	0.07*** (0.03)	0.3*** (0.04)	0.3*** (0.04)	0.3*** (0.04)
population	-0.00000008 (0.0000002)	-0.00000008 (0.0000002)	-0.00000008 (0.0000002)	0.0000003 (0.0000002)	0.0000003 (0.0000002)	0.0000003 (0.0000002)
distance border	-0.0008 (0.0006)	-0.0005 (0.0005)	-0.0008 (0.0006)	-0.0004 (0.0008)	-0.0005 (0.0008)	-0.0004 (0.0008)
distance Kampala	-0.001* (0.0005)	-0.001** (0.0005)	-0.001* (0.0005)	-0.001 (0.001)	-0.001 (0.0010)	-0.001 (0.001)
violent events	0.007 (0.02)	0.007 (0.02)	0.007 (0.02)	0.03 (0.02)	0.03 (0.02)	0.03 (0.02)
$R^2$	0.139	0.142	0.139	0.455	0.455	0.455
Adjusted $R^2$	0.106	0.109	0.106	0.433	0.433	0.433
Observations	1126	1126	1126	1080	1080	1080

Standard errors in parentheses

District dummies included in all specifications.

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 12:** Public and private primary education - displaying controls

	government primary schools			private primary schools		
refugees per 1000	0.0009 (0.0008)	0.0010 (0.0008)	-0.0002 (0.001)	0.006*** (0.002)	0.006** (0.002)	0.006*** (0.0005)
radius 60 km		-0.06 (0.09)			0.08 (0.08)	
year=2005	0.1** (0.05)	0.1** (0.05)	0.1** (0.05)	0.03 (0.04)	0.02 (0.04)	0.03 (0.04)
year=2010	0.2*** (0.06)	0.2*** (0.06)	0.2*** (0.06)	0.1*** (0.04)	0.1*** (0.04)	0.1*** (0.04)
log(mean light)	0.008 (0.006)	0.008 (0.006)	0.007 (0.006)	-0.0004 (0.005)	-0.001 (0.005)	-0.0005 (0.005)
urban	-0.02 (0.04)	-0.01 (0.04)	-0.02 (0.04)	0.2*** (0.03)	0.2*** (0.03)	0.2*** (0.03)
population	0.00000002 (0.0000003)	0.00000002 (0.0000003)	0.00000002 (0.0000003)	0.0000006*** (0.0000002)	0.0000006*** (0.0000002)	0.0000006*** (0.0000002)
distance border	-0.002 (0.0009)	-0.002* (0.0009)	-0.002 (0.0009)	0.003** (0.001)	0.003** (0.001)	0.003** (0.001)
distance Kampala	-0.001 (0.0010)	-0.001 (0.0010)	-0.0010 (0.001)	-0.00010 (0.0010)	-0.0002 (0.001)	-0.00008 (0.0010)
violent events	-0.04 (0.03)	-0.04 (0.03)	-0.04 (0.03)	-0.03 (0.02)	-0.03 (0.02)	-0.03 (0.02)
maximum increase			5.1 (5.9)			1.9 (10.9)
$R^2$	0.429	0.429	0.429	0.469	0.470	0.469
Adjusted $R^2$	0.407	0.407	0.407	0.446	0.446	0.445
Observations	1124	1124	1124	990	990	990

Standard errors in parentheses

District dummies included in all specifications.

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 13:** Households' perceptions - displaying controls

	living conditions		national identity			
refugees per 1000	-0.004*	-0.004*	-0.005*	0.007***	0.007***	0.009***
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)
maximum increase			2.3			-6.4
			(3.5)			(4.6)
radius 60 km		-0.08***			0.04	
		(0.03)			(0.04)	
year==2005	-0.02	-0.01	-0.02	-0.05**	-0.05**	-0.04*
	(0.03)	(0.03)	(0.04)	(0.02)	(0.02)	(0.02)
year=2010	0.04	0.04	0.04	0.08*	0.07*	0.07*
	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)
log(mean light)	-0.01***	-0.01***	-0.01***	-0.002	-0.002	-0.001
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)
urban	-0.02	-0.02	-0.02	0.01	0.01	0.01
	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)
population	0.0000006***	0.0000006***	0.0000006***	-0.0000004	-0.0000004	-0.0000003
	(0.0000002)	(0.0000002)	(0.0000002)	(0.0000002)	(0.0000002)	(0.0000002)
distance to border	0.002	0.001	0.003	-0.002	-0.001	-0.005
	(0.005)	(0.005)	(0.006)	(0.007)	(0.007)	(0.006)
distance to Kampala	0.02***	0.02***	0.02***	-0.003	-0.004	-0.007
	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.005)
violent events	0.02	0.02	0.02	0.03**	0.03**	0.03**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)
age	-0.007*	-0.007*	-0.007*	-0.002	-0.002	-0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
age squared	0.00007	0.00007	0.00007	0.000008	0.000008	0.000008
	(0.00004)	(0.00004)	(0.00004)	(0.00004)	(0.00004)	(0.00004)
male	-0.02	-0.02	-0.02	0.01	0.01	0.01
	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)
highest grade	0.02***	0.02***	0.02***	-0.004	-0.004	-0.004
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
gone w/o food	-0.06***	-0.06***	-0.06***	-0.0010	-0.0010	-0.0006
	(0.01)	(0.01)	(0.01)	(0.009)	(0.009)	(0.009)
gone w/o water	-0.002	-0.002	-0.002	0.01**	0.01**	0.01**
	(0.008)	(0.008)	(0.008)	(0.005)	(0.005)	(0.005)
gone w/o medical care	-0.07***	-0.07***	-0.07***	-0.005	-0.005	-0.005
	(0.01)	(0.01)	(0.01)	(0.008)	(0.008)	(0.008)
radio news	0.02***	0.02***	0.02***	-0.004	-0.004	-0.004
	(0.008)	(0.008)	(0.008)	(0.009)	(0.009)	(0.009)
$R^2$	0.477	0.477	0.477	0.271	0.271	0.272
Adjusted $R^2$	0.471	0.471	0.470	0.262	0.262	0.263
Observations	3741	3741	3741	3608	3608	3608

Standard errors in parentheses

District dummies included in all specifications.

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

## 7 Appendix II - Robustness

**Table 14:** Replacing refugee levels with the M-V indicator

	log(welfare)	gov. health	priv. health	gov. school	priv. school
Maystadt/ Verwimp indicator	0.010***	-0.01***	0.0004	0.0006	0.07***
year=2005	0.1***	0.04*	0.2***	0.1**	0.02
year=2010	0.4***	0.07**	0.1**	0.2***	0.1***
log(mean light)	0.001	0.002	-0.003	0.008	-0.0007
urban	0.3***	0.07***	0.3***	-0.02	0.2***
population	0.0000006***	-0.00000008	0.0000003	0.00000002	0.0000006***
distance border	0.002*	-0.0008	-0.0004	-0.002	0.003**
distance Kampala	-0.0002	-0.001*	-0.001	-0.001	-0.0002
violent events	0.005	0.007	0.04*	-0.04	-0.03
$R^2$	0.997	0.140	0.454	0.428	0.470
Adjusted $R^2$	0.997	0.107	0.433	0.407	0.448
Observations	10623	1126	1080	1124	990

District dummies included in all specifications.

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

	living conditions	national identity
Maystadt/ Verwimp measure	-0.2**	0.3***
year=2005	-0.02	-0.04**
year=2010	0.04	0.08*
log(mean light)	-0.01***	-0.002
urban	-0.02	0.01
population	0.0000007***	-0.0000004*
distance to border	0.002	-0.002
distance to Kampala	0.02***	-0.004
violent events	0.02	0.04**
age	-0.007*	-0.002
age squared	0.00007	0.000008
male	-0.02	0.01
highest grade	0.02***	-0.004
gone w/o food	-0.06***	-0.001
gone w/o water	-0.002	0.01**
gone w/o medical care	-0.07***	-0.005
radio news	0.02***	-0.004
$R^2$	0.477	0.271
Adjusted $R^2$	0.471	0.262
Observations	3741	3608

District dummies included in all specifications.

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 15:** District-level analysis

	log(welfare)	gov. health	priv. health	gov. school	priv. school
refugees per 1000	0.001	-0.001	-0.002	0.0006	0.008***
wage	0.2				
self-employed	0.5**				
property	-1.9				
transfers	-0.5				
year=2005	0.3**	0.07	0.1*	0.1*	-0.03
year=2010	0.6***	0.1**	0.1	0.2**	0.04
log(mean light)	0.006	0.002	-0.004	0.01	0.0010
urban	0.6***	0.1	0.005	-0.02	0.2
population	0.0000008*	-0.0000002	-0.0000003	0.0000002	0.0000009
distance border	0.02**	-0.005	-0.0007	-0.01	0.02
distance Kampala	0.02*	-0.01	0.02	-0.01	0.009
violent events	-0.02	0.006	0.07**	-0.06*	-0.009
age	-0.1**				
age squared	0.001**				
male	0.2				
household members	-0.06				
highest grade	0.03				
$R^2$	1.000	0.737	0.888	0.918	0.882
Adjusted $R^2$	1.000	0.541	0.804	0.857	0.793
Observations	96	96	95	96	95

District dummies included in all specifications.

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

	living conditions	national identity
refugees per 1000	-0.003	0.006*
year==2005	0.01	-0.02
year=2010	0.04	0.03
log(mean light)	-0.01**	-0.002
urban	0.005	0.08
population	0.0000008**	-0.0000002
distance to border	0.0004	-0.007
distance to Kampala	0.03**	0.001
violent events	0.02	0.03
age	0.05	0.003
age squared	-0.0007	0.00001
male	-0.03	0.4
highest grade	0.07*	0.007
gone w/o food	-0.09	-0.1**
gone w/o water	-0.04	-0.002
gone w/o medical care	-0.04	0.1**
radio news	-0.02	-0.01
$R^2$	0.982	0.953
Adjusted $R^2$	0.956	0.887
Observations	74	74

District dummies included in all specifications.

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

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