



WIDER Working Paper 2018/18

**Is the education of local children influenced by  
living nearby a refugee camp?**

Evidence from host communities in Rwanda

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February 2018

**Abstract:** This paper studies to what extent and in what ways access to educational services and schooling outcomes of local children are influenced by the presence of a refugee camp in or around their community. Taking the case of Congolese refugees in Rwanda and relying on household survey data collected in 2016, we investigate the availability of schools, schooling rates and access to school-based feeding programs in communities closer to and further away from three refugee camps: Gihembe, Kiziba and Kigeme. Furthermore, we conduct a cohort analysis to compare the years of schooling and primary school completion of Rwandans residing at different distances from each of these camps. Finally, on the basis of focus group discussions conducted among locals, we provide further insights into the ways in which locals perceive the effects of the refugee camp's presence on their children's access to schooling and educational outcomes. Our results highlight that living nearby a refugee camp does not have a negative influence on the education of local children. On the contrary, children residing closer to the camps have better schooling outcomes, and locals residing closer to the camps have a wide array of mostly positive views regarding the effects of refugees on local education. These results contribute to the body of literature on the effects of refugees on host communities and inform policies on how refugees need not be a 'burden' if long-term investments are made and the voice of the locals are heard to address their needs.

**Keywords:** Refugees, impact of refugees, host communities, education, Rwanda, Democratic Republic of Congo (DRC)

**JEL classification:** F22, I21, I31, R23

**Acknowledgements:** This paper is a result of a project funded by the United Nations High Commissioner for Refugees. We are thankful of the UNHCR's sub-country office in Kigali, as well as the National Institute of Statistics Rwanda for their support during fieldwork. We would also like to extend our gratitude to the participants of the XXVIII IUSSP International Population Conference and the WIDER Development Conference on 'Migration and Mobility', jointly organized with the African Research Universities Alliance (ARUA). Their comments helped us improve this paper significantly.

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This research study is released in connection with the WIDER Development Conference on 'Migration and mobility – new frontiers for research and policy', jointly organized with the African Research Universities Alliance (ARUA), on 5-6 October 2017 in Accra, Ghana.

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ISSN 1798-7237 ISBN 978-92-9256-460-5

Typescript prepared by Ans Vehmaanperä.

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The Institute is funded through income from an endowment fund with additional contributions to its work programme from Finland, Sweden, and the United Kingdom as well as earmarked contributions for specific projects from a variety of donors.

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## 1 Introduction

Due to concerns for the scale of displacement worldwide, the manner in which refugees impact host communities is a topic that has garnered fresh debate as of late. For more than two decades, a range of issues have been discussed in relation to how the arrival of refugees may have immediate and diverse impacts on land, water, housing, food and medical services. Over time, the effects may encompass other issues such as employment and the provision of social services and education, among others (UNHCR, 1997). Despite the recognition of these potential effects that may impact the long-term social and economic development of a refugee-receiving country, research in the field is rather limited. The few studies on the topic show mixed results with regard to how provisions of social services change over time and illustrate the conditionality of these changes on a variety of issues ranging from the conditions of infrastructure to local policies. In this paper, we add to the literature on the impact of refugees on host communities by investigating a rather understudied domain, namely education. In particular—based on the case of host communities nearby three Congolese refugee camps in Rwanda—we focus on changes in school infrastructure and resources on the one hand, and the educational outcomes of the host population students on the other.

The research field has generated opposing arguments regarding the impact of refugees on host communities. A common assumption is that refugees and locals compete over scarce resources (Jacobsen, 2003). As such, one might expect a host community to be negatively affected by the arrival of refugees, particularly in poorer countries. Conversely, refugees are believed by many to increase demand in the local market, and as a result crowd-in investment from which locals may benefit (Legrain, 2017). A refugee camp itself, for example, usually needs to be built from scratch leading to increased demand for casual labour, whereas fundamental social services targeting refugees are potentially utilized by host community households as well. The inflow of refugees therefore does not necessarily have detrimental effects on the lives of host community households, and the impact of refugees remains an empirical question to be answered depending on local conditions.

Rwanda makes for an interesting case to study the effects of refugees on host communities. The country has been at the centre of a region witnessing years of conflict and political unrest, whereby populations have been displaced from one area to another for decades. Rwanda itself was a refugee-generating country not long ago, but more recently has been home to a considerable number of refugees fleeing violence in neighbouring countries. Currently there are around 160,000 refugees residing in the country, most of them originating from either the Democratic Republic of Congo (DRC) or Burundi (UNHCR, 2017a). Between the two groups, refugees of the DRC are predominately in a protracted situation having been displaced since the mid-1990s, although renewed fighting across the border has also led to new inflows in recent years. Considering that a large share of the Congolese refugee population is in a protracted situation, this paper focuses on the effects of Congolese refugees on the education-related outcomes and resources of local populations.

Recognizing that the voluntary return of Congolese refugees is not likely in the near-term, the Rwandese government has adopted a relatively permissive policy for refugees, allowing for the freedom of movement and work. Moreover, the government has promoted a community-integrated approach to social services, meaning that where possible refugees and local Rwandans have access to the same services including schools. Indeed, the aim of the community-integrated approach is to incorporate refugees into already-existing, local schooling facilities and to strengthen these facilities by building additional classrooms or by providing additional materials

and teachers if necessary. The long-term goal of this approach is to stimulate the socio-economic inclusion of refugees and to reduce their dependency on humanitarian aid.

Given this community-integrated approach, it is conceivable that the presence of the refugee population has led to increased investment in services—including education—in those areas surrounding the camps, which in effect would benefit host community members in Rwanda. In this paper, we take advantage of household survey data and in-depth focus groups discussions (FGDs) conducted in 2016, and focus on the accessibility of schools for local Rwandans residing nearby three camps designated for Congolese refugees. We also explore education-related outcomes for local children residing nearby the camps. On a descriptive level, our results illustrate that there are no significant differences between communities closer to or further away from refugee camps with regard to the number of available schools. However, children living closer to camps are significantly more likely to be enrolled in all grades and benefit more from school-based feeding programs. Furthermore, those living close to a refugee camp are more likely to have positive schooling outcomes, but there is not enough evidence to suggest that these outcomes are due to the refugee camps' proximity alone. Finally, FGDs give greater insight into the perspective of locals, and show that locals living nearby a camp have mostly positive views in terms of the presence of refugees and its effects on local children's access to school and school success.

Based on these findings, this paper makes two contributions to the literature. Firstly, it adds evidence to the growing base of knowledge on the potential benefits of hosting refugees in low-income country contexts (see e.g. Alix-Garcia et al., 2017; Alloush et al., 2017). Taking into consideration that around 85 per cent of the global refugee population is located in low- and middle-income countries (UNHCR, 2017b), our findings are relevant to many other refugee-hosting countries in the Global South. Secondly, this paper illustrates how an integrated policy approach to hosting refugees has the potential to facilitate favourable outcomes for refugees and host communities alike. Such an approach is increasingly of interest for international donors who argue for more durable solutions to address the challenges of displacement (see e.g. EU-funded RDPP project or CRRF).

## **2 The effects of hosting refugees on education and other social service provision**

The effects of refugee inflows on local populations has been a topic that is rarely studied until recently. The reason for this is that the influx of refugees in neighbouring countries has been seen as an emergency situation that would not last for long periods of time (Dryden-Peterson and Hovil, 2003; Kreibaum, 2016). The temporariness of their presence overshadowed the question of what potential impact they may have on the lives of communities or individuals already residing in the area. The past few decades have however shown that many refugees remain in a protracted situation, which has brought to the fore the idea that their presence may have crucial impact on the economic and social lives of locals (Alix-Garcia et al., 2012; Jacobsen, 2002). Within this context, one of the critical debates concerns how social service provision is affected by the presence of refugees. In this section, we provide an overview of the literature regarding the influence of refugees on a variety of issues ranging from infrastructure to health services. While our main focus in this paper is on education, given the limited research in this particular area, we make use of research conducted on the broader framework of social services and infrastructure to deduce how we can think about the links between hosting refugees and education services and outcomes.

Whether the presence of refugees has a negative or positive impact on social service provision for locals is not a simple question, especially when countries host refugees for extended periods. There

are several arguments as to why the social infrastructure in a community is likely to be influenced by the arrival of refugees as the presence of refugees may increase the demands for education, health and other services such as transportation, sanitation, etc. (Gomez and Christensen, 2011; Rowley, 2006). For example, Whitaker (1999) has focused on the refugee situation in western Tanzania and its effects on infrastructure and development resources. She showed that in the early times of arrival, refugees overburdened existing infrastructures and diverted development resources. Plus, the refugee presence was associated with an influx of diseases. However, considering these negative consequences of the refugee situation for the local infrastructure, development projects in the area began to address issues related to water, health, education, natural resources, and infrastructure. A social compensation approach aimed at targeting the host communities as a whole and at rehabilitating infrastructure and improving social services. Long-neglected infrastructure problems were solved to a large extent by minimal contribution from host communities. These included providing schools with teaching materials, training health workers and giving equipment and drugs to health centres. These efforts were perceived positively as their expected effect was long-term. In this regard, the long-term impact of refugees depends on how a response is provided to these increased demands by various stakeholders including the national government, international organizations, and the local population.

Maystadt and Verwimp (2014) argue that in some instances infrastructure improves in host communities because international organisations invest in regions where refugees are allocated. For example, they bring in the example of the Kagera region where a large investment has been made to improve the roads, airstrips, and telecommunications infrastructure (Whitaker, 1999). In a way, thanks to the international response to the refugee inflow, internal transportation has become easier and cheaper in a remote area. The authors also highlight that health and sanitation services improved compared to before the refugee presence as a result of investments made by UNHCR and its implementing partners. These services do not only benefit the refugees but also the local populations. Van Damme and colleagues' earlier study in 1998, has illustrated that in the case of displaced Liberians and Sierra Leoneans in Guinea, the host populations' access to hospital care has increased relatively more in areas with a high number of refugees compared to other areas with a low number of refugees. They have consequently concluded that the refugee-assistance programs have improved the health system and the transport infrastructure in the area.

Beyond the role of international actors, the response of the national government matters significantly. In a first instance, this is reflected in increased expenditure in areas hosting refugees. Due to an increase in demand of services, governments are required to invest in social and infrastructure sectors. As a further response to this, development projects offered by international organizations tend to address the needs of both refugees and local populations (Zetter, 1995). For example, in the case of Malawi, UNHCR included programs that expanded and improved hospitals, clinics, road networks, and water supply. A similar approach has been observed in the case of Kosovar refugees in Albania and Macedonia. Additional funds through quick-disbursements respond to the economic impacts of refugee crises particularly in poorer host countries (World Bank, 1999). Finally, Kreibaum (2016) has shown that in the case of Uganda, non-governmental organizations and other private agencies help the state cope with the additional demand for services especially in the field of education. More specifically, the probability that there is a private primary school increases by 0.06 per cent with an increase in 10 refugees over 1,000 inhabitants.

Finally, it is important to note that the macro-economic situation of the country, rural-urban interactions, and intergroup relations between locals and refugees can all mitigate potential negative effects, and even foster opportunities for local development (Kuhlman 1991, UNHCR 2004). Whitaker (2002) states that if infrastructure improvements are maintained, local communities can continue to benefit from refugee presence. This is especially relevant for areas

closer to refugee camps. Kreibaum (2016) states in his research that the effects of refugees are confined to the district level in Uganda. Dryden-Peterson and Hovil (2003), in the same context, highlight the need for policies that strive for joint development among refugees and the host population. It is in light of these kinds of arguments that we develop our paper around the impact of refugees on local children's access to education services: what is the situation of education services and accessibility of schools in areas closer to and further away from refugee camps? And beyond the question of education service provisions, what do we observe with regards to schooling outcomes of local students? By answering these questions, our aim is to shed light on the educational experiences of locals in Rwanda and bring to the fore policy issues that may improve further the situation in this specific context.

### **3 The state of education in Rwanda**

Before diving into the question of how the presence of refugees has impacted education services and outcomes in Rwanda, it is important to give a brief overview on investment in education in Rwanda and the educational outcomes of the local population. Investing in education has been high on the political agenda in Rwanda, which is in line with the government's Vision 2020 and Economic Development and Poverty Reduction Strategy (Rwandan Ministry of Education, 2013). According to the strategic plan framework on education, the three main goals of the ministry include 'promoting access to education at all levels, improving the quality of education and training, and strengthening the relevance of education and training to meet labour market demands' (Rwandan Ministry of Education, 2013: p.36-37). The ambition to transform Rwanda into a knowledge-based economy by building its own skilled workforce has been in the essence of this investment.

The emphasis on improving education is also reflected in financial investment in education. Public expenditure has almost doubled in Rwanda between 1980 and 2013. In 2013, the current and capital spending on education expressed as a percentage of GDP was 5.0 points (World Bank, 2017a). Along with Kenya and Burundi, Rwanda has been one of the few countries in the region that has invested more than 5 per cent of its GDP in education. Within the education field, investments have been made in primary school teachers. In 2012, about 95.6 per cent of all teachers had received the minimum organized teacher training that is required for teaching at the primary level, compared to half of the teachers who had received such training in 2000 (UNESCO, 2015). Other development policies and investment strategies include increased school construction, teacher recruitment, capitation grants, and teaching and learning materials (Rwandan Ministry of Education, 2015). It is also important to mention that Rwanda is one of the conflict-affected countries that has received significant levels of aid that are pushing the country toward the required per-pupil financial level (UNESCO, 2011). It is within this context of increased investment in education that refugee children have been accommodated within the education system and the change in local schools needs to be observed.

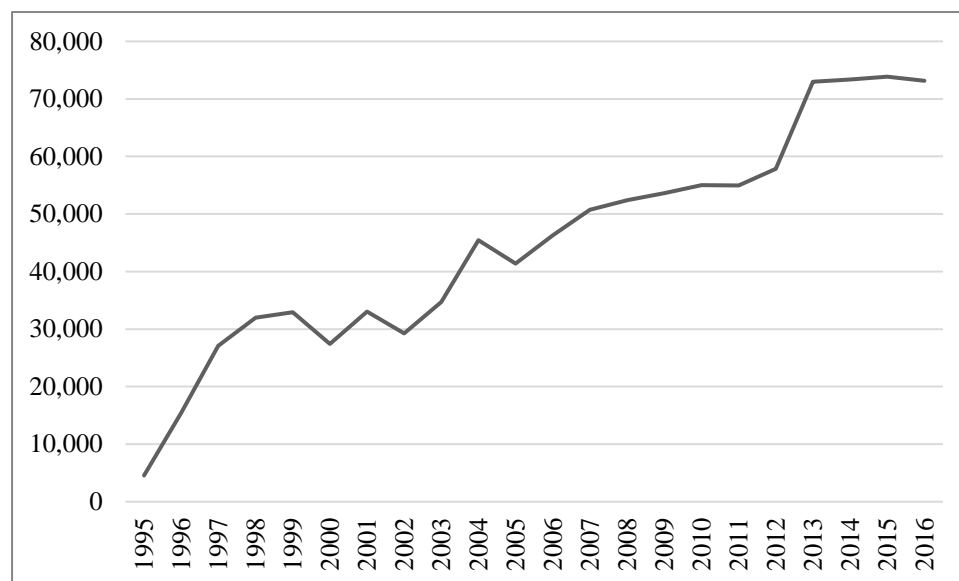
Some important observations can also be made when we look at educational outcomes of the Rwandan population. As a result of steady investment in education, considerable progress has been made in educational outcomes. Expected years of schooling have increased from only 4.9 years in 1980 to 10.3 years in 2014. Gross enrolment ratio in pre-primary education among preschool-age children remains low in Rwanda. In 2010 only about 10.8 per cent of children were enrolled, compared to a relatively increased share of 13.6 per cent in 2013. The total enrolment ratio at primary education as a share of the primary school-age population has gone up from 69.6 per cent in 1980 to 133.8 per cent in 2013, implying that there are also older children enrolled in primary school education. The net enrolment rate has increased from 78.7 per cent in 1999 to 95.1

per cent in 2015, which remains the highest ratio in comparison to neighbouring countries such as Tanzania where the net enrolment rate in primary education remained at 80 per cent in 2014 (World Bank, 2017b). Gross enrolment ratio in secondary education is still low in Rwanda despite a steady increase over the past few decades. In 1980 less than 10 per cent of children were enrolled in secondary education, compared to 40.6 per cent in 2013. This low share however is not an exception for the region. For example, in Burundi and Tanzania, gross enrolment rates in secondary education have been at 32 per cent and around 40 per cent in the Democratic Republic of Congo (World Bank, 2017b). In short, although Rwanda still faces challenges with regard to increasing its adult literacy rate—which was 68 per cent in 2012 and needs to improve quality of education across different regions of the country—it has witnessed considerable progress over the years.

#### 4 Congolese refugees in Rwanda

Rwanda hosts nearly 75,000 officially registered refugees from the DRC (UNHCR, 2017a). The vast majority of this population, around 90 per cent, resides in one of five camps spread throughout the country. Four of these camps host ‘old caseload’ refugees, referring to those individuals entering the country during the first or second Congo wars that took place around the turn of the century. The fifth camp, Kigeme, hosts more recently arriving Congolese refugees arriving after a new outbreak of violence along the border in the Eastern DRC. Figure 1 illustrates these inflows as the stock of Congolese refugees increases noticeably in the late 1990s and early 2000s, and again in 2012.

Figure 1. Number of Congolese refugees in Rwanda



Source: Authors' illustration based on UNHCR (2017a).

Officially, the Rwandan government makes land available for refugee camps and—in a relatively inclusive fashion—enables refugees to move freely and access public services, the labour market, and especially the educational system. This integrated community approach in essence allows refugees to be present in local communities even though they still predominately reside in the camps, and provides opportunities for social and economic interaction with host populations. In practice, however, the freedom of movement and the access to employment opportunities are

limited by bureaucratic procedures and costs (Easton-Calabria & Lindsay, 2013). As a result, many of the Congolese refugees remain dependent on humanitarian aid for decades (Hovil, 2011).

With respect to the integrated community approach for social service provision, children of the Congolese refugee population are provided access to schools in the local community where appropriate. Only in the case of Kiziba, where there are no schools nearby the camp, is a school located within the camp itself, which local children are able to freely access. Moreover, in order to help ease the pronounced increase in attendance due to the refugee children, those same local schools are generally provided additional classrooms, teaching material and uniforms (UN, 2012). Indeed, UNHCR (2016) reports that the inclusion of refugees in the educational system is high in Rwanda. Refugee children are either integrated into national schools or in schools located in camps that follow Rwanda's teaching curriculum. Whether such additional resources due to the refugee population have a positive educational consequence for local children, is the focus of our analysis.

## 5 Data

In order to explore how the proximity of the refugee camps has influenced access to educational services and schooling outcomes of locals, we rely on a mixed-methods approach and triangulate data from various primary sources collected across Rwanda in May 2016. Firstly, we make use of data originating from a household survey conducted in three refugee camps as well as nearby communities at various distance to each camp. Secondly, a community survey conducted with a local representative helps provide broader meso-level information relevant to social service provision in the community as a whole. Thirdly, the surveys were complemented by focus group discussions in each enumeration area—again, either a refugee camp or local communities at various distances to the camp—to provide a deeper account of social service provision and its relation to the proximity to a refugee camp.

Of all five Congolese refugee camps in Rwanda, we chose the three largest—Gihembe, Kigeme and Kiziba—to survey in and around. These camps were chosen primarily due to their absolute and relative size taking into consideration the local population nearby (see Table 1). Important to note is that the populations of each camp have remained mostly stable over time as the initial group of refugees in each case arrived at the same time, and most continue to reside there. Also, between the camps themselves, it is relevant that both Gihembe and Kigeme are located on main roads not far from other commercial hubs—Byumba and Gikongoro, respectively—whereas Kiziba is the most remote location at least a few hours' drive from the nearest town – Kibuye. As such, economic activities and interaction between refugees and the local community is abundant around Gihembe and Kigeme camps, and less so in the case of Kiziba. With respect to schooling in particular, the integration of refugee students is much more advanced in Gihembe and Kigeme in comparison to Kiziba. Indeed, one local stakeholder reported that all students from the Kigeme camp are integrated into local schools whereas that percentage drops to a half for Gihembe students and zero for Kiziba (Domestic NGO interviewee, 2016).



Table 1: Camp characteristics

	<i>Year Established</i>	<i>Total Population</i>	<i>Relative Population</i>
Gihembe	1997	14,205	9.49%
Kigeme	2012	18,646	19.38%
Kiziba	1996	17,155	14.52%

*Note:* Relative population is calculated using the local population in all sectors within 10 km of each camp.

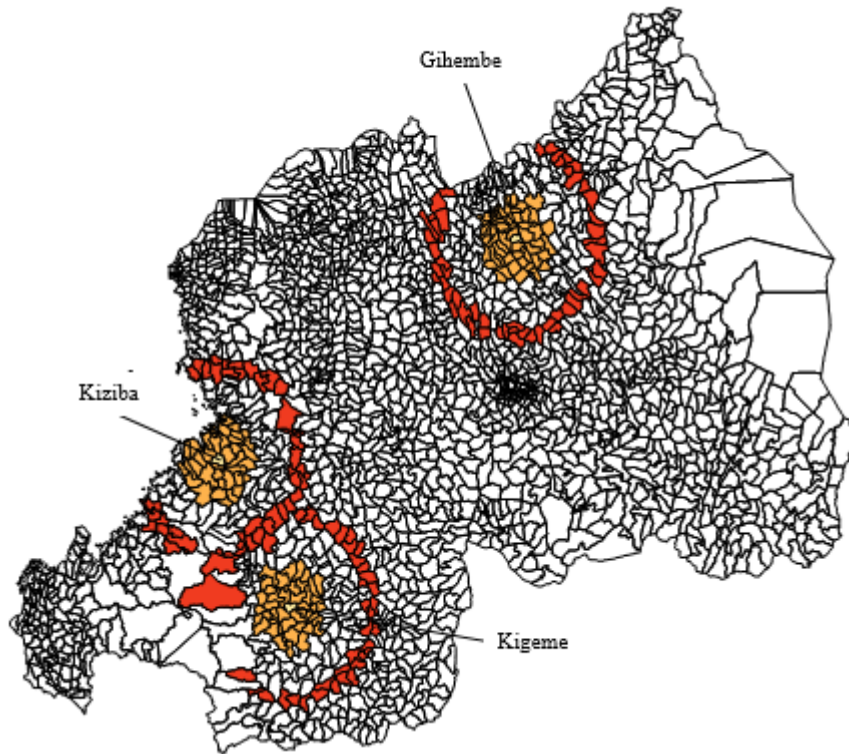
Source: Authors' calculations based on official figures from UNHCR and the Rwanda Population and Housing Census, 2012.

For the household surveys conducted among locals, a random sampling strategy was applied taking into consideration the proximity of a community to one of the three Congolese refugee camps. Figure 1 helps illustrate the enumeration areas in question. For example, we randomly selected four cells (the smallest publicly available administrative unit) within 10 km of each of the three refugee camps, and then randomly sampled households in the largest community of each of those cells. This exercise was repeated for communities outside 20 km of each camp, using the same absolute number of communities as in the within 10 km area of each camp. A master list of households within each community was created in discussion with a community representative, who also took part in a separate community survey. In certain cases this sampling strategy was altered slightly to give priority to tracking households from a previous data collection effort by a team of researchers from the University of California, Davis. In those cases, we randomly chose four cells from the sampling list of the prior survey, and selected all communities in each until reaching the targeted number of households. However, because their sampling approach was also randomized, it does not influence the local representativeness of our own sample.<sup>1</sup>

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<sup>1</sup> See Taylor et al. (2016) for more information about this previous research project.

Figure 1: Sampling strategy at the cell level



Note: Yellow cells indicate the location of each refugee camp. Orange cells are those within 10 km of each camp. Red cells are those above 20 km of each camp.

Source: Authors' own generation based on publicly available administrative GIS data.

To complement the household and community surveys, we conducted focus group discussions to provide deeper insights into the lived experience of refugees and host community members. Two focus group discussions took place in each of the three camps, two in a randomly chosen community within 10 km of each camp, and a final two in a randomly chosen community beyond 20 km of each camp but within the pre-defined enumeration area just described. The two discussions in a single community were each comprised of six discussants of a single gender, meaning one discussion was made up of all female participants while the other was all male. The discussions were led by a local moderator, in the presence of a dedicated note-taker. The team leader was provided with an interview guide in order to direct the discussion towards certain topics of interest related to our research questions, however the open nature of the discussion allowed the participants the freedom to emphasize and expand on issues they saw of particular importance. The discussions were conducted entirely in the local language, Kinyarwanda, and were recorded, translated and transcribed by the team leader and note-taker.

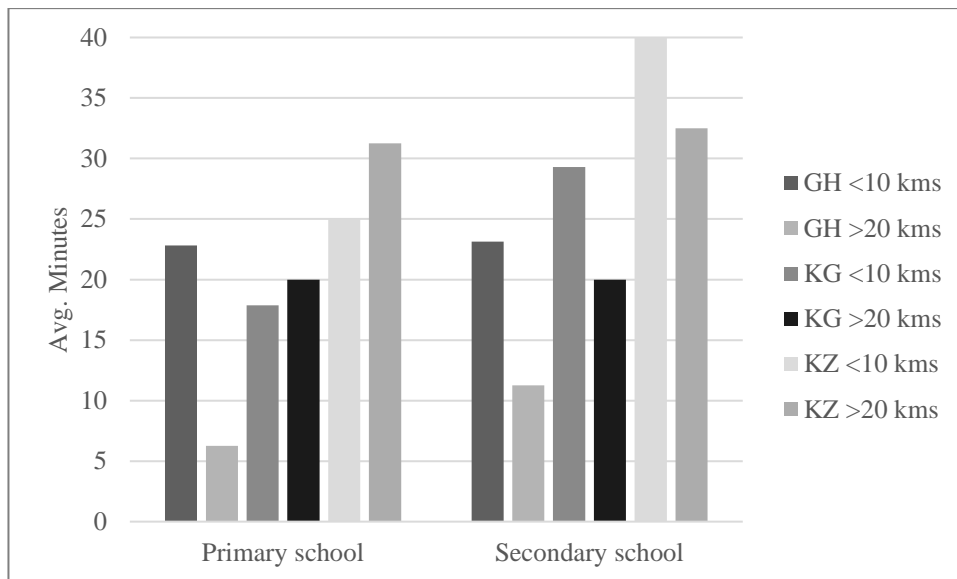
## 6 Descriptive results

### 6.1 Access to education for host communities

To get a bird's eye view of access to education in host communities, we first look at the physical presence of primary and secondary schools within a community. Around 80 and 85 per cent of communities in our sample do not have a primary or secondary school, respectively, physically located within it. More importantly, communities located nearby a refugee camp (<10 km) are not more likely to have a primary or secondary school than those further away (>20 km).

For the communities without a primary or secondary school, we also asked how long it takes on average to reach the nearest school. Figure 2 summarizes the average distance to travel (in minutes) based on both the three camp areas (Gihembe, Kiziba and Kigeme) as well as the measure of proximity (<10 km and >20 km). The average travel time to the nearest primary school is slightly less for communities within a 10 km radius of Kigeme and Kiziba. For Gihembe we find that the average travel time to a primary school is higher for communities residing closer to that camp than for communities that are located outside the 20 km radius. Interestingly we see that it takes longer to travel, on average, to a secondary school in communities within 10 km of each of the three camps in comparison to those communities located beyond 20 km. This is the opposite of what we might expect considering the idea of increased investment in social services around refugee camps.

Figure 2: Distance to nearest primary or secondary school



Note: Only calculated for those communities with no school located within it. GH = Gihembe, KG = Kigeme and KZ = Kiziba.

Source: Authors' own calculations based on household survey data

Finally, under the premise that those areas surrounding a refugee camp may be more exposed to external support, we also inquired about the number of NGOs with education-specific programming in each community. As an example, Adventist Development and Relief Agency Rwanda (ADRA) is a national humanitarian organization who partners with the government and UNHCR to provide education-specific assistance (e.g. capacity building, teacher training, school infrastructure) in and around refugee camps. We find that even though those communities within

10 km of a camp are slightly more likely to have a NGO involved in the education sector, 50 per cent vs. 33 per cent. We interpret this to show that the number of NGOs active throughout Rwanda is rather high, but that there is no evidence that the few refugee camps themselves are driving programming decisions at the local level.

## 6.2 Educational outcomes of host children

Moving away from the community and towards the individual-level, we here focus on whether children who reside nearby a refugee camp have different schooling outcomes in comparison to children residing further away. Looking first at school attendance of all children 18 years or younger, we find that 71 per cent of children residing within 10 km of a camp regularly attend school compared to 61 per cent of children living further than 20 km of a camp. This 10 percentage-point mean difference is statistically significant. Moreover, this difference is not driven by one camp area in particular, as school attendance across all three camps areas and the distances from the camps is comparable.

School attendance by specific age groups varies considerably as illustrated in Table 2. Regular attendance at the pre-primary level is unsurprisingly low overall, at 29 per cent. For our purposes, however, it is interesting to see that there is a 20 percentage point mean difference between those children living in communities nearby a refugee camp relative to those living further away: 39 per cent vs 19 per cent. At the primary and lower secondary levels, it is unsurprising to see quite the opposite in that around 93 per cent of all appropriately school-aged children in our sample regularly attend. But again, those children residing nearby a camp are around five and seven percentage points more likely to attend at both of those respective levels in comparison to children living further away. The overall rate of attendance drops off considerably when it comes to upper secondary and only 67 per cent of the sample at that age level regularly attends school. But again, there is a nearly 20 percentage-point difference based on proximity to the nearby refugee camp, 76 per cent vs. 57 per cent. What is important to highlight here in relation to what we have found previously on access to schools, is that although there are not significantly more schools and children may have to travel longer distances to reach school in communities closer to camps, their likelihood of attending lower secondary and upper secondary school seems to be higher than those children living further away from camps.

Table 2: School attendance by age group and distance

	Pre-primary		Primary		Lower secondary		Upper secondary	
	<10 km	>20 km	<10 km	>20 km	<10 km	>20 km	<10 km	>20 km
No	111	132	20	41	9	21	44	63
	60.66%	80.49%	4.55%	9.36%	4.07%	11.11%	24.44%	43.15%
Yes	72	32	420	397	212	168	136	83
	39.34%	19.51%	95.45%	90.64%	95.93%	88.89%	75.56%	56.85%

Source Authors' own calculations based on household survey data While school attendance in itself is essential, one of the consequences of regular attendance is also the ability to potentially benefit from a school-based feeding program. Of those nearly 1,600 children regularly in attendance at their respective levels, about 14 per cent are nourished through a school-based feeding program. However, there is a stark difference based on proximity to a refugee camp. Only about four per cent of children within communities outside 20 km of the nearest refugee camp are provided food assistance at school, compared to 23 per cent of children located within 10 km of a camp. And as illustrated in Table 3, these differences are mostly driven by schools outside Gihembe and Kigeme camp where local integration in education is highest. We take this as evidence that school-based feeding programs targeting refugee children integrated into local schools in these areas is spilling over to local Rwandan children.

Table 3: School-based feeding by camp area and distance

	Gihembe		Kigeme		Kiziba	
	<10 km	>20 km	<10 km	>20 km	<10 km	>20 km
No	217	203	182	196	286	283
	84.77%	97.60%	54.98%	96.55%	94.70%	95.29%
Yes	39	5	149	7	16	14
	15.23%	2.40%	45.02%	3.45%	5.30%	4.71%

Source: Authors' own calculations based on household survey data

Overall, these descriptive results suggest that there are positive effects of the presence of refugee camps on the access to primary education and educational outcomes of local children. Firstly, children residing closer to Kigeme and Kiziba camps have higher access to primary education facilities, as the average travel time to a primary school is shorter. This is however not the case for children nearby Gihembe camp nor secondary schooling. Secondly, school attendance is higher among children who reside within a 10 km radius of a refugee camp as compared to children residing further away. And finally, local children who reside closer to a refugee camp that has more local integration (i.e. Gihembe and Kigeme) are significantly more likely to be part of a school-based feeding program than children who reside further away from a camp.

### 6.3 Cohort analysis

Going beyond the descriptive analysis regarding access to school and school attendance, in this empirical analysis part we further investigate the impact of the presence of the refugee camps on the schooling outcomes of children residing in local communities close to and further away from the camps. For this aim, we conduct a cohort analysis, which is similar to a difference-in-difference approach. We test whether children that are of primary school age (7-12) when the camps are operational, have different schooling outcomes than children that are older than primary school age and thus most likely already finished their schooling before the camps were established.

We consider children residing close to the camp as ‘treated’ (i.e. affected by the presence of the camp) and children residing further away as the ‘untreated’ control group (i.e. unaffected by the presence of the camp). We restrict the sample here to individuals that are at least 12 years of age and younger than 60 at the moment of data collection in 2016. As primary school age in Rwanda runs from 7 to 12, individuals older than 12 are at least in principle able to finish their primary school. We use the cut-off age of 60 in the higher range to have a more homogeneous group in terms of educational experiences.

Because the camps opened in different years, we construct different cohorts of children for each camp. All individuals that are older than 12 - primary school age - when the camp in their area is opened are coded with a ‘zero’, and all individuals that are of primary school age (7–12) when the camp in their area is operational receive a ‘one’. An overview of the age cut-offs is presented in Table 4. Kiziba and Gihembe both opened in December, in the years 1996 and 1997, respectively. As the construction of teaching facilities was most likely not realized immediately, we use the subsequent years as cut-off points for children to be affected (i.e. 1997 for Kibiza and 1998 for Gihembe). Kigeme was operational between 1995 and 2009 for Burundian refugees, and reopened again in 2012 for the new inflow of Congolese refugees. We consider children who are of primary school age in both periods when the camp is open as being part of the school age cohort. Our final sample consists of 1,205 individuals who are of school age when the camps are operational, and 1,441 individuals who finished their education before the camp in their area was established.

Table 4. Overview of school aged cohorts per camp

	Year camp opened	Age in 2016 to be 'affected'
Kiziba	Dec. 1996 - present	Individuals younger than 32
Gihembe	Dec. 1997 - present	Individuals younger than 31
Kigeme	1995 -2009 and June 2012 - present	Individuals aged between 19 and 29 and Individuals younger than 17

Source: Authors' own calculations based on household survey data

Table 5 presents descriptive statistics for the main comparisons of our interest, which we test more rigorously in the cohort analysis (Tables 6 and 7). Table 5 shows that, firstly, individuals who are of primary school age when the camps in their area were operational have better schooling outcomes. These individuals show more years of schooling, on average, and are more likely to complete primary school. This is the case for both distances, i.e. both the group living close to the camp (treatment) and the group living further away (control). An exception that should be noted is that those who are of primary school age when the camp is operational and who live close to the camp (<10 km), are not more likely to have completed primary school than those who are already 12 years old when the camp opens. Secondly, those who live closer to the camps (<10 km) also score consistently higher than those residing further away, regardless of whether they are primary school age when the camp is operational or not. The differences, however, seem smaller for those who are of school age when the camp is operational, with the difference in primary school completion between school-aged children residing close and further away to the camp being statistically insignificant.

Table 5. Descriptive statistics – cohorts, distances and schooling outcomes

Cohort	Years of schooling (mean)			Primary school completion (%)			
	(School age when the camp was operational)	Proximity to the camp <10 km	Proximity to the camp >20 km	Sign. of diff. between distances (t-test)	Proximity to the camp <10 km	Proximity to the camp >20 km	Sign. of diff. between distances (t-test)
No		5.55	4.64	-4.08***	0.52	0.40	-4.28***
Yes		6.55	6.00	-2.97**	0.53	0.50	-1.15
Sign. of diff. between cohorts (t-test)		-4.70***	-7.10***		-0.58	-3.83***	

Notes. Sample includes individuals between 12 and 60 years of age at the point of data collection in 2016. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

Source: Authors' own calculations based on household survey data

These first results imply that children who attend primary school during times that the refugee camps are operational, and children residing close to the camps, have better schooling outcomes than other children. This suggests a positive impact of the presence of the refugee camps on the education of local, non-refugee children. Important to note, however, is that these statistics are not controlling for any other factors. The primary school age cohort in the sample is younger, on average, than the cohort that finished education before the refugee camps were open, which may drive these results. The education system in Rwanda has improved notably since the mid-1990s, and has resulted in higher schooling outcomes for younger cohorts of children, i.e. those who attend school later (see Graph 1 in the Appendix). In the following models we therefore control for changes in the educational system by including birth cohorts of individuals in the sample, among other control variables such as the gender of the child and various household characteristics.

Table 6 shows the results of the first cohort model, with years of schooling as the dependent variable. The analysis shows that the effect of being in the primary school age cohort when the

camp is operational is negatively related to years of schooling, although the effect disappears after controlling for household and area characteristics. The distance to the camp is consistently and positively related to years of schooling, meaning that children closer to the camps (<10 km) attain, on average, significantly more years of schooling than children residing further away from the camps (>20 km). However, the variable of interest, the interaction between the primary age cohort and the camp distance is not significant. This indicates that there is no significant impact of the presence of one of the three refugee camps on the years of schooling of the children who reside close to the camp *and* who are of primary school age when this camp is operational. In other words, there is no additional effect of being of school age on years of education for individuals residing close to the camps.

Table 7 presents the same model, but looks instead at primary school completion. The results for our main variables of interest are similar to those presented in Table 5. Individuals who receive education when the camps are operational are less likely to have finished primary school, but this effect disappears, as expected, when we control for birth cohort. The camp distance variable indicating that the individual resides less than 10 km from the camp is significantly and positively related to the likelihood of an individual having finished primary school. Again, this indicates that individuals residing close to the camp have better schooling outcomes than individuals residing further away. Interestingly, the interaction between the primary school age cohort and distance to the camp is negatively related to primary school completion, meaning that the positive effect of residing close to the camp is lower for those who are of primary school age when the camp is operational.

The control variables also yield some interesting results. Expectedly, individuals in the younger cohorts have more years of schooling relative to older individuals. As discussed before, this is most likely due to improvements in the educational system in Rwanda since the end of conflict in the mid-1990s. Indeed, for those individuals born between 1980 and 1990 we see a slight drop in years of schooling given this cohort experienced—at least partly—the 1994 genocide during their school age years. Additionally, individuals residing in households in which the household head is literate have significantly more years of schooling, whereas the number of children in the household as well as distance to the nearest primary school is negatively associated to years of schooling. Finally, compared to individuals residing close to Gihembe, the average years of schooling is lower for individuals residing close to the other two camps: Kigeme and Kiziba. As discussed before, we expect this has something to do with the fact that Gihembe camp and its surrounding communities are relatively close to an important commercial hub, Byumba, which may contribute to a better historical record of infrastructure and social service provision.

Table 6. Cohort analysis – years of schooling (OLS)

	(1)	(2)	(3)	(4)
Primary age cohort	-0.46*	-0.32	-0.40	-0.24
	(0.24)	(0.28)	(0.24)	(0.28)
Camp distance <10 km	0.68***	0.82***	0.56***	0.72***
	(0.14)	(0.22)	(0.13)	(0.20)
Cohort*camp distance		-0.26		-0.29
		(0.28)		(0.27)
Birth year cohort (ref. = <1960)				
Birth year between 1960-1970	1.28**	1.29**	1.44***	1.44***
	(0.50)	(0.50)	(0.45)	(0.45)
Birth year between 1970-1980	2.00***	2.00***	2.27***	2.27***
	(0.46)	(0.47)	(0.42)	(0.42)
Birth year between 1980-1990	1.88***	1.87***	1.85***	1.84***
	(0.46)	(0.46)	(0.42)	(0.42)
Birth year between >1990	3.70***	3.69***	3.87***	3.85***
	(0.48)	(0.49)	(0.45)	(0.46)
Female	0.10	0.10	0.13	0.14
	(0.14)	(0.14)	(0.13)	(0.13)
Literacy household head			1.92***	1.91***
			(0.14)	(0.14)
Employment household head			-0.75	-0.75
			(0.49)	(0.49)
Female household head			-0.03	-0.03
			(0.16)	(0.16)
Number of children in the hh			-0.27***	-0.27***
			(0.04)	(0.04)
Distance to primary school			-0.23***	-0.23***
			(0.04)	(0.04)
Close to camp (ref. = Gihembe)				
Kigeme			-0.30*	-0.30*
			(0.17)	(0.17)
Kiziba			-0.71***	-0.71***
			(0.17)	(0.17)
Constant	2.89***	2.81***	3.94***	3.86***
	(0.44)	(0.44)	(0.65)	(0.65)
Observations	2,646	2,646	2,639	2,639
R-squared	0.07	0.07	0.17	0.17

Notes. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

Source: Authors' own calculations based on household survey data



Table 7. Cohort analysis – primary school completion (logit)

	(1)	(2)	(3)	(4)
Primary age cohort	-0.21 (0.14)	-0.02 (0.17)	-0.31** (0.15)	-0.07 (0.18)
Camp distance <10 km	0.29*** (0.08)	0.48*** (0.12)	0.25*** (0.08)	0.49*** (0.12)
Cohort*camp distance		-0.35** (0.16)		-0.43** (0.17)
Birth year cohort (ref. = <1960)				
Birth year between 1960-1970	0.70** (0.30)	0.71** (0.30)	0.85*** (0.30)	0.86*** (0.30)
Birth year between 1970-1980	1.00*** (0.29)	1.01*** (0.29)	1.26*** (0.29)	1.27*** (0.29)
Birth year between 1980-1990	0.77*** (0.29)	0.77*** (0.29)	0.89*** (0.29)	0.88*** (0.29)
Birth year between >1990	1.38*** (0.31)	1.37*** (0.31)	1.74*** (0.32)	1.72*** (0.32)
Female	0.08 (0.08)	0.08 (0.08)	0.11 (0.08)	0.12 (0.08)
Literacy household head			1.01*** (0.09)	1.01*** (0.09)
Employment household head			-0.51* (0.31)	-0.51* (0.31)
Female household head			-0.14 (0.10)	-0.15 (0.10)
Number of children in the hh			-0.14*** (0.03)	-0.14*** (0.03)
Distance to primary school			-0.14*** (0.02)	-0.15*** (0.02)
Close to camp (ref. = Gihembe)				
Kigeme			-0.61*** (0.11)	-0.61*** (0.11)
Kiziba			-0.72*** (0.11)	-0.73*** (0.11)
Constant	-1.20*** (0.28)	2.81*** (0.44)	-0.31 (0.43)	-0.43 (0.43)
Observations	2,646	2,646	2,639	2,639
R-squared	0.02	0.02	0.10	0.10

Notes. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

Source. Authors' own calculations based on household survey data

#### **6.4 Perspective of locals on the influence of living close to a refugee camp on their children's education**

In this section we focus on the insights from the FGDs to go beyond the empirical analysis from the survey data, and to put our findings in context. For the most part, FGD participants residing further away from the camps felt that the presence of the camps was a non-issue. When we look into the discussions among locals who are living further away from the refugee camps, we consistently observed that they do not make a strong link between the presence of refugee children and the education quality in their community. For instance, participants in distant communities around Gihembe, illustrative of the views in other areas, suggested that there is hardly any contact between refugee and local children. A participant from a distant community said: 'How could they relate if they don't even meet? There are no relationships between them because the children from the village don't ever go to the camp; in fact they don't even know where it is.' (Gihembe, female, >20 km). In this regard, the differences in perspectives of those living closer to and further away from camps are apparent. Those living closer to refugee camps have much more concrete, be it positive or negative, views on the impact of living close by a refugee camp. Consequently, in the remainder of this section, we focus solely on their views.

Overall there are both positive and negative views on how the presence of refugee camps has affected education services for local children, and these views do not seem to vary significantly between participants from different camp areas. Concerning negative influences, participants referred primarily to overcrowding in classrooms, social tensions between the children and minor violent incidents that occurred between children. It is striking, however, that in response to some of the negative views mentioned by some participants, other participants emphasized the positive changes over time both in terms of educational resources as well as social relations within schools.

Overcrowding of classrooms is an issue mentioned by participants in all nearby villages. In a host community outside of Kigeme camp for example, a participant said:

The big challenge that is faced by people who live nearby the refugee camp, is in education. The number of children who need to go to school from the camp and that from those villages is too high compared to the number of available schools. This causes the overcrowding of children in classes. (Kigeme, female, <10 km)

All participants in this group also agreed that there had been some violence and stated that some children were afraid of going to school. These are certainly issues that need to be taken seriously beyond providing material resources in schools and maintaining a cohesive and peaceful environment.

However, despite overcrowding and social tensions, participants claimed that there had been considerable progress over time. Participants recognized that some government programs had been important to improve the situation among children, with one individual stating:

I think there has been some progress, because before children used to fight a lot and children from the community were beaten by those from the camp, but after some training from the government, our children are no longer beaten or get their clothes ripped off by the kids from the refugee camp, or complaining about their pens and notebooks being stolen by the kids from the refugee camp. (Kigeme, female, <10 km)

Furthermore, some participants highlighted the increasingly warm peer relations between local and refugee children. One respondent states 'They even study together, and they can go home together. There is no problem.' (Gihembe, male, <10 km). For those living close to refugee camps, refugee

children were also seen as good examples of resilient children who encourage the local kids to study better and value the educational opportunities they have: ‘The refugees’ kids inspired our children to study. They would look at the fact that they are studying hard despite their situation of being in a foreign country, and decide to attend schools.’ (Kiziba, male, <10 km).

Beyond the issue of social relations, other participants argued that the arrival of refugees had a positive effect on local investment: ‘Initially, the number of students at school increased due to education for all policy set by Rwanda government. However it has increased more after the refugees arrived.’ (Kiziba, male, <10 km). While it is important that participants recognize the link between investment in education and the arrival of refugees, some participants also pointed out rightfully that the increase in the number of schools does not necessarily mean an improvement in the quality of education. Challenges in this regard are recognized especially with examples about the overburdening of teachers. Nevertheless, beyond the recognition of these challenges, many of the participants appreciated the sole idea that more local children are enrolled in schools:

Speaking of the quality of education, education has helped us to manage the behaviour of the kids, and the government does everything possible for them to study. However the quality of education is not at the higher level yet because of limited resources for instance, few books, the same with laptops and they are sometimes kept due to lack of access to electricity. However the quality of education is not about studying only, also the discipline that students get from schools count, they can graduate and don’t get jobs but they won’t behave like illiterates; so far, that is something that has been achieved and we are grateful for the education they get. (Kiziba, female, <10 km)

The evidence provided by the FGDs highlights issues with regards to availability of resources, quality of education and social relations within schools. These are issues we were not able to tackle in-depth based on the review of the existing literature and the analysis of household survey data. While the discussion points emphasized in this section cannot be taken as representative of the situation, they are important for pointing out that locals living nearby refugee camps have rather positive opinions about the influence of refugees on their children’s education opportunities and aspirations.

## **7 Discussion and conclusion**

The scale of international displacement has reached its peak in the last couple of years. In 2017, there were more than 65 million displaced individuals around the world. About one third of these individuals reside in the African continent, making it the biggest refugee-hosting region in the world (UNHCR, 2017c). In this context, it is crucial to understand how refugee inflows impact the social and economic development of host countries, and how local communities are affected by the presence of sizeable refugee populations. Local communities’ economic and social lives are directly and immediately affected by the arrival of refugees and these effects may endure or change in the long run depending on measures taken in response. Considering the reality that immediate voluntary repatriation is unlikely in most countries hosting refugees today, it is important to understand these effects and under what conditions optimal solutions can be found. To contribute to the expanding literature as well as the heated policy debates on the topic, in this paper we focus on the links between refugees and locals’ access to education and schooling outcomes.

In particular, we look at the unique case of Congolese refugees in Rwanda and make use of recently collected quantitative and qualitative data in local communities surrounding Gihembe, Kiziba and Kigeme camps. The Rwanda case is interesting because the government has developed a

community-integrated approach towards Congolese refugees with the expectation that many are unlikely to repatriate anytime soon. The protracted situation of the majority of the Congolese refugee population requires a long-term perspective when considering how they may influence host communities. To this point, the community-integrated approach provides Congolese refugees with access to the national education system in the sense that refugee children, where possible, are integrated into local schools. At the same time, those local schools are supported with additional assistance to ease the burden of taking in a greater number of students. However, it is still unclear how this policy may have affected the educational outcomes of local children. The unique research design of our study allows for the comparison of communities closer to (<10 km) and further away (>20 km) from three Congolese refugee camps, and hence drawing a clearer picture about their impact on education and schooling.

Our results highlight that the inflow of refugees from the DRC in Rwanda has an overall positive impact on the education of children residing in the areas surrounding the refugee camps. Our descriptive findings show, firstly, that children residing closer to Kigeme and Kiziba camps have higher access to primary education facilities, as the average travel time to a primary school is shorter. Secondly, school attendance is higher among children who reside within a 10 km radius of a refugee camp as compared to children residing further away. And finally, local children who reside closer to a refugee camp that has more local integration (i.e. Gihembe and Kigeme) are significantly more likely to be part of a school-based feeding program than children who reside further away from a camp.

In addition, we find that children residing closer to camps have, on average, more years of schooling. It is, however, difficult to assign this finding directly to the presence of refugee camps. Our cohort analyses showed that local children living relatively closer to a refugee camp were more likely to finish primary school than children residing further away. However, we did not find an additional effect of being of school age when the camps were operational on educational attainment for individuals residing closer to the camps. These findings suggest that other factors may explain our effects of enhanced educational outcomes nearby the camps. As discussed earlier, Rwanda has increased its investment in education over the past years and our findings may, for example, be due to the overall economic development of the country rather than a particular focus on refugee-receiving areas.

The mixed-method approach we implement in this paper helps us go beyond the statistical analysis and bring forward the perspective of local populations with regards to the impact of refugee camps on education. Indeed, the FGDs give more in-depth information on the views of locals regarding the educational impacts of the camps. Although problems regarding the availability of resources, the quality of education and social relations between refugee and local children were mentioned, locals living nearby the refugee camps had a wide array of mostly positive views on the effects of refugees on education and schooling outcomes. Respondents particularly emphasized the government's investments in education in areas surrounding the camp, which is in line with the community-integrated approach applied in Rwanda. However, again, the challenge is to know whether these outcomes can be attributed to the presence of the refugee camps and the response by the Rwandan government, or to other related factors.

This study adds to the body of literature on the effects of refugees on local populations and can inform policies about how refugees need not be a 'burden' if long-term investments are made timely and the voice of the locals are heard to address their needs. The absence of clear negative effects as well as the mostly positive associations with regard to school attendance, primary school completion, and years of education are the main findings. Future research should, however, aim to disentangle the difference between the unique impact of a refugee policy and other societal changes that occur simultaneously. In addition, our outcome measures were mainly related to

access to education and educational outcomes, rather than the quality of education. More work, therefore, needs to take into consideration the quality of schooling that both refugee and local children receive in order to provide a better understanding of the relationship in question. Especially insights provided by locals who live closer to refugee camps can inform innovative policy frameworks that allow for increased quality in education, and constructive interactions between refugee and host communities.

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