

**ORIGINAL ARTICLE**

Financial aid, remittances and their effect on relative deprivation in Rwanda

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Abstract

Economic relative deprivation is increasingly recognized as an indication of economic well-being, also among refugees. This study examines to what extent financial contributions (financial aid and remittances) can compensate for the objective and subjective relative deprivation of Congolese refugees compared to their Rwandan hosts. The analysis is conducted using unique data that have been collected with a UNHCR-funded research project. We find that refugee households initially experience more objective and subjective relative deprivation than local households, but that this association is largely suppressed by financial contributions they receive. The results show that especially financial aid can compensate for relative deprivation. Furthermore, there is evidence that local households are more often exceptionally deprived than refugee households, when more rigid measurements of objective relative deprivation are used. To promote economic well-being among the whole population, the needs of both refugees and locals should be considered when distributing financial and development assistance.

INTRODUCTION

Rwanda has been accommodating refugees from neighbouring countries for decades, despite having suffered from substantial forced displacement itself. At the end of 2018, Rwanda accommodated 152,580 refugees, out of whom 81,740 with a Congolese nationality (UNHCR, 2018). Nearly all of these Congolese refugees are currently

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accommodated in five out of six Rwandan refugee camps, where they also make up the majority of the camp population: Gihembe and Nyabiheke camps in the North of the country, Kiziba camp in the West along the border with the DRC, and Kigeme and Mugombwa camps in the South (Fajth et al., 2019). While a small number of Congolese households have been able to integrate into communities located along the Rwandan–Congolese border (Easton-Calabria & Lindsay, 2013), most refugees are in protracted situations and live in these camp for longer periods of time.

The Rwandan Government has adopted rather progressive policies which support refugees' self-reliance. That is to say, besides their right to protection, refugees in Rwanda have the right to work, access to education, and freedom of movement (Loschmann et al., 2019). In practice, however, refugees living in the camps do not only suffer from land shortages and crowdedness, but they also have to deal with bureaucratic formalities and costs limiting employment, education, and movement opportunities (Easton-Calabria & Lindsay, 2013). Consequently, refugees are particularly economically challenged compared to locals (Hovil, 2011).

In the migration literature, economic relative deprivation is increasingly recognized as an indication of economic well-being, also among refugees (Duclos & Gregoire, 2002). Previously, it was often discussed as a stimulus to migrate and seek economic prosperity elsewhere (Fransen & Mazzucato, 2014). This study sheds light on the post-migration period, with a particular focus on the experiences of protracted Congolese refugees in Rwanda. It is important to study relative deprivation in the post-migration period because (perceived) economic equality has been linked to social cohesion and better health outcomes (Duclos & Grégoire, 2002; Mishra & Carleton, 2015). Moreover, recent research has shown that the more economically deprived refugees feel, the more likely they are to be militarized (Haer & Hecker, 2019). The effects of relative deprivation in this regard go beyond economic impacts and encompass a wide range of potential issues.

Using unique data that have recently been collected with a UNHCR-funded research project conducted in Rwanda, this paper investigates relative deprivation among Congolese refugees and the host communities in Rwanda. However, the paper also takes into account the fact that there may be mechanisms that alleviate the effects of being a refugee on economic relative deprivation. For example, refugees tend to receive more financial contributions than locals, such as development aid (Jacobsen, 2005) and remittances from relatives left behind (Alloush et al., 2017; Lindley, 2007). To our knowledge, no research to date has compared the relative deprivation of refugees and local communities and tested whether the differences can be compensated by the financial contributions refugees receive.

Considering that there is little knowledge about the effect of remittances in displacement settings (Lindley, 2007) and the heated debate around the effectiveness of aid (Bourguignon & Sundberg, 2007), this paper brings new perspectives to the discussion on the role of financial contributions for refugees' economic well-being. Put differently, this study contributes to the theoretical debates on economic well-being and the role of financial contributions for refugees on the one hand and provides insights for policies aimed at reducing the disparity between refugees and their hosts on the other hand.

Relative deprivation: Objective and subjective dimensions

Within the social sciences, relative deprivation has been conceptualized in two fundamentally distinct ways (Halleröd, 2006). Although both definitions are relative, one is measured based on objective criteria (objective relative deprivation (ORD)) while the other is based on individuals' perceptions (subjective relative deprivation (SRD)). Interestingly, most researchers either focus on the subjective aspect of relative deprivation (e.g. Hayo & Seifert, 2003; Mishra & Carleton, 2015) or solely study relative deprivation based on an objective standard (e.g. Alloush et al., 2017; Khawaja, 2003). The present research, in contrast, assesses ORD and SRD simultaneously for a more comprehensive understanding of refugees' and locals' economic well-being.

ORD applies to individuals who lack resources that are viewed to be customary in the societies they are part of (Townsend, 1974). Moreover, they cannot participate in the societies' activities or obtain the "standard" living

conditions. According to this theoretical notion, deprivation can thus be objectively defined in a relative manner in relation to the rest of the society. In a ground-breaking study, Townsend (1979) attempted to apply the concept for the first time by outlining indicators of an “ordinary” lifestyle in the United Kingdom. Accordingly, he created a deprivation index of 12 indicators that reflected which activities individuals were (not) able to do and what properties they did (not) own (Townsend, 1979). Items for instance included whether or not individuals had been on holiday, had a refrigerator, and whether they did not have a cooked meal for one or more days in the past fortnight. Townsend (1979) related this deprivation index to income and identified a threshold defining the point at which any additional decline in income caused a quick increase in deprivation. Following several criticisms on Townsend's measures of ORD, various alternative measurements have been put forward in the past decades (see Halleröd (2006) for a complete overview). Nevertheless, the main assumptions remained the same.

In contrast, SRD is independent from ORD (Stouffer et al., 1949). That is to say, anyone could feel relatively deprived, including those who are not relatively deprived based on objective criteria. The most important aspect of SRD is the choice of reference point. One chooses “a person or a group as reference point whose position one wants to reach, perceives it possible to reach, and also feels one has the right to reach” (Halleröd, 2006, p. 376). Notably, the definition of SRD varies within different types of literature. The current study is situated in the sociological literature which predominantly investigates whether individuals perceive themselves to be (financially) worse off than others and considers this as a reflection of their economic well-being.

Relative deprivation among refugees and the local population

A review of the broader literature demonstrates that African refugee camps are usually characterized by a substantial lack of material and psychological security (Easton-Calabria & Lindsay, 2013; Khawaja, 2003). As a result, refugees' economic well-being is typically considered to be poor. With respect to economic insecurities within the camps, not only the quantity, but also the quality of the provided food rations fall short compared to nutritional standards (UNHCR, 2013). Similarly, there is often a lack of water and sanitation resources (Easton-Calabria & Lindsay, 2013; UNHCR, 2013). Outside of the camps, refugees' economic well-being is additionally challenged by limited employment opportunities, which are often hampered by policies that restrict movement among refugees (Bilgili & Loschmann, 2018).

Despite the rather liberal Rwandan policies that provide refugees with freedom of movement and the right to find employment outside of the camps, Congolese refugees are also hindered by bureaucratic formalities, the wages are typically low, and jobs are situated far from the camps which results in transportation costs refugees cannot afford (Bilgili & Loschmann, 2018; Loschmann et al., 2019). Although a considerable number of refugees is employed by non-governmental organizations within the camps, it is impossible to meet the employment needs of all refugees (Bilgili & Loschmann, 2018). It can be expected that these economic difficulties cause refugees to be objectively deprived. This is corroborated by Alloush et al. (2017) who indeed found that in three Rwandan refugee camps respectively 40 per cent, 61 per cent and 86 per cent of the Congolese refugees indicated that there were times in the past seven days that their household either did not have enough food or did not have enough money to buy food. In addition, with regard to SRD, multiple studies show that especially ethnic minorities and individuals with a lower status are likely to experience deprivation (Pettigrew et al., 2008; Zagefka & Brown, 2005). That is, due to unfavourable comparisons with higher status majority members, these individuals are more prone to feel relatively deprived (Zagefka & Brown, 2005). Also in the case of Congolese refugees, economic instability and a lower status compared to locals can be associated with SRD.

With respect to the economic well-being of locals living near refugee settlements, results from previous research suggest that they are on the whole doing better than refugees. Multiple studies indicate that the arrival of refugees can create economic expansion and has a positive effect on the employment opportunities and earnings of locals (e.g. Callamard, 1994; Whitaker, 1999). Not only do refugees provide cheap labour that enables locals to

increase their productions, but the arrival of refugees—and consequently the arrival of staff of non-governmental organizations—also increases the demand for certain goods and services (Alloush et al., 2017; Whitaker, 1999). Despite this overall trend, it is worthwhile to mention that a study in the context of Tanzania adds that this especially applies to locals who were initially better positioned before the arrival of refugees, while locals who were already worse off eventually became even more marginalized as they were not able to compete with refugees' cheap labour (Whitaker, 2002). In short, given refugees' economic instability inside as well as outside the camps, refugees' lower social status, and the rather positive effect that refugees can have on the economic situation of many locals, it can be expected that, compared to Rwandan locals, Congolese refugees are more objectively as well as subjectively deprived.

The effect of financial contributions on relative deprivation

Within the context of developing countries, development aid and remittances are typically indicated as the two most important types of financial contributions that can potentially improve economic well-being (e.g. Baldé, 2011; Minasyan & Nunnenkamp, 2016). Especially the effect of development aid has been highly debated in the past decades (Bourguignon & Sundberg, 2007). Although some authors claim it is rather ineffective in achieving its aims at the country level (e.g. Crisp, 2001), multiple studies show that aid has a positive effect on a country's economic growth (Baldé, 2011; Minasyan & Nunnenkamp, 2016). On the household level, aid in developing countries typically consists of goods and services, also known as in-kind aid, or cash-based assistance. It can be expected that receiving financial aid positively affects households' economic well-being and increases their consumption (Werker et al., 2009). Indeed, Alloush et al. (2017) found that the poverty gap between refugee and local households is smaller when refugees receive cash-based assistance than when they receive in-kind aid. In addition, while it is often suggested that food aid puts pressure on local food prices, a study in Darfur did not find such a negative effect of aid for locals (Alix-Garcia et al., 2012). Moreover, despite the fact that UNHCR's main concern is with the nutritional, medical and financial assistance of refugees, locals in need are typically assisted as well.

The second type of financial contributions that can substantively improve individuals' economic well-being are remittances from friends and relatives abroad (Lindley, 2007). This is particularly true in situations where development aid is scarce and employment opportunities are limited. Multiple studies indicate that remittances reduce poverty, increase consumption, and provide comfort during financially difficult times (Alix-Garcia et al., 2012; Fransen & Mazzucato, 2014; Lindley, 2007). Globally, remittances are annually increasing in volume and, consequently, increasing in importance. This is corroborated by the fact that remittance flows now exceed official development aid (Hagen-Zanker & Siegel, 2007). A similar pattern is visible in Rwanda, where the total remittance flow into the country grew from 121 million US dollars a year in 2007 to 163 million US dollars in 2016, a 34.4 per cent growth rate (International Fund for Agricultural Development (IFAD), 2017).

Within the remittance literature, remittances are typically assessed as a source of income diversification that is made possible by sending a household member abroad (Fransen & Mazzucato, 2014). However, not only local households, but also refugees who seek safety abroad are found to receive remittances (Lindley, 2007; Young et al., 2009). In fact, Alloush et al. (2017) found that Congolese refugees are slightly more likely to receive remittances than their Rwandan hosts. Interestingly, these remittances are often sent by relatives who remained in the conflict settings (Dalen & Pedersen, 2007).

All in all, financial aid and remittances reduce poverty and increase consumption in a similar fashion (Fransen & Mazzucato, 2014; Lindley, 2007; Werker et al., 2009). Although refugees initially experience more deprivation than locals due to their lower status and economic instabilities inside and outside the camps (Alloush et al., 2017; Loschman et al., 2019; Pettigrew et al., 2008; Zagefka & Brown, 2005), they are also found to receive slightly more remittances than locals (Alloush et al., 2017; Lindley, 2007) and are usually the main beneficiaries of aid (Jacobsen, 2005). This, in turn, makes them feel supported and allows them to obtain resources that are customary in the

societies they are part of (Townsend, 1974), which could reduce their SRD and ORD. Given that similar mechanisms are expected for the effect of financial aid and remittances on relative deprivation, they will henceforth be combined and addressed as “financial contributions”. In short, financial contributions could thus compensate for any difference between the relative deprivation of locals and refugees and thus create more (perceived) equality between the groups.

METHODS

Data and participants

This study made use of household surveys that were commissioned by UNHCR and conducted in May 2016 among Congolese refugee and local households in Rwanda. The survey was implemented in and around three of the five refugee camps in Rwanda: Kiziba, Gihembe, and Kigeme. These camps were selected as they accommodate the largest Congolese refugee populations and represent varying characteristics. First, they are located at various points of the country, with the Kiziba camp being the most remotely located. Second, whereas the Kiziba and Gihembe camps accommodate refugees who already arrived in the late 1990s, Kigeme camp was only opened in 2012 in response to the onset of new violent conflicts in Eastern DRC. Refugee households were randomly selected from a master list of the population within each camp, which was provided by UNHCR¹.

The selection of local households depended on their distance from each camp. Figure A1 in Appendix A visualizes the eligible cells located less than 10 km (indicated in orange) or approximately 20 km (indicated in red) from each of the three camps (indicated in yellow). First, both for the within 10 km and the 20 km areas around each of the three camps, four cells were randomly selected from a master list containing all possible cells. Then, in each selected cell, the community or village with the largest population was chosen. Finally, households were randomly selected from a list that contained all households that were located in these communities.

All households consented to be interviewed. It was made clear that they would remain anonymous and that they could stop the interview or refuse to answer a question at any time. The questionnaire was conducted in the Kinyarwanda language by a trained interviewer through the use of a tablet. One main respondent, preferably the head of the household or spouse, and who was at least 21 years old, answered the survey for all other household members. People were considered to be household members when they normally lived and ate their meals in the household. The survey took about one and a half to two hours to complete. Households were not incentivized for participation, but were notified that their contribution added to a better understanding of the situation of refugees in Rwanda and the impact of refugees on local communities. The study was approved by an internal ethics committee within Maastricht University as well as by the Rwandan National Ethics Committee (RNEC). Ultimately, 1380 households were interviewed: 427 Congolese refugee and 953 local Rwandan households. Characteristics of the sample are depicted in Table 2.

Operationalizations

Subjective relative deprivation

SRD was measured by asking participating main respondents the following question: “Compared to other households in this community, how would you currently describe this household?” This item was measured on a 5-point scale (1 = *Among the poorest in the community* and 5 = *Among the richest in the community*) and was reverse coded so that a higher value indicated a higher level of SRD.

TABLE 1 Dimensions, indicators, cut-offs and weights of the Multidimensional Deprivation Index

Dimension	Indicator	Deprived if...
Economic well-being	Monthly income per household member	Monthly income is less than 2333.33 RWF per household member
	Assets	Household owns less than 4 of: large pieces of furniture, kitchen appliances, radio, telephone, stoves and blankets
Food insecurity	Limit portion size	Household has to limit portion size more than 3 days a week
	Borrow food	Household has to borrow food or rely on help from friends or relatives more than 2 days a week
Living standards	Drinking water	Household's primary source for drinking water is an unprotected spring or a river
	Sanitation	Household only has access to none/ bush/open field

Objective relative deprivation

The method that was used to assess ORD was inspired by studies that implemented multidimensional measures of poverty (e.g. Alkire & Foster, 2011; Alkire & Santos, 2014; Siegel & Waidler, 2012). In the past decades, a shift occurred from a unidimensional way of thinking of poverty to multidimensional notions of poverty as a result of Sen's (1992) writings. It has been argued that multidimensional indices allow a more holistic measurement of poverty than unidimensional measures (Siegel & Waidler, 2012). Therefore, instead of a multidimensional poverty index, we developed a multidimensional deprivation index to assess ORD among refugee and local households. With respect to these multidimensional indices, Alkire and Foster (2011) introduced an approach that used two types of cut-offs. First, a cut-off that defined whether one was deprived with respect to a certain dimension. Second, a cut-off that determined on how many dimensions one had to be deprived in order to be considered poor, or in our case, objectively deprived.

Three dimensions were included in our multidimensional deprivation index: economic well-being, food insecurity and living standards, which each consisted of two indicators (see Table 1). All indicators were given equal weight. First, a threshold was set to determine when a household could be considered as deprived on each of the indicators. This threshold was typically based on the median value of all households in the sample. Then, following Alkire and Santos' (2014) suggestion, a household was considered to be objectively deprived when the weighted sum of deprivation was 33.33 per cent or higher, which translated to households being deprived on two or more indicators.

Economic well-being

The economic well-being dimension had two indicators: "Monthly income per household member" and "Assets". The household's monthly income was measured by the question: "Could you please indicate all sources of income for your household in an average month, over the last 12 months?" Main respondents were asked to indicate their monthly income in Rwandan Franc (1 RWF = 0.0009 Euro) for a wide range of income sources. A variable was created that divided this total monthly income by the number of household members. Given that there were some extreme values, the median was decided to be the most representative threshold. This was 2333.33 RWF (2.04 Euro) per household member per month. Households with a monthly income per household member below this threshold were classified as deprived on this indicator.

The second indicator in the economic well-being dimension referred to assets. After excluding assets that were not owned by at least 90 per cent of the sample and those that were dependent on whether a household owned land or livestock, six assets remained. These were as follows: large pieces of furniture (sofa, bed, table, etc.), kitchen appliances, radio, (mobile) phone, stoves and blankets. A count variable was computed that reflected

how many of these six assets each household owned. The median in the population was 4, meaning that a household was considered to be deprived on this indicator, when the number of assets they owned was lower than four.

Food insecurity

The two indicators for the food insecurity dimension were “Limit portion size” and “Borrow food”. The first indicator was measured by the item: “In the last 7 days, how often has your household had to limit portion size at meal times?” Answer options ranged from “0 days” to “7 days”. As the median in the population was 3 days, households were classified as deprived on this indicator when they scored above this median.

The second indicator, “Borrow food”, was measured by the item: “In the last 7 days, how often has your household had to borrow food, or rely on help from a friend or relative?” Again, answer option ranged from “0 days” to “7 days”. The median was 2, and households were classified as deprived on this indicator when they scored above this median.

Living standards

The third dimension assessed the households’ standard of living by including one indicator of their access to drinking water and one indicator of their access to sanitation. Households were asked: “What is the primary source of drinking water for this household?” Among our sample, the main sources of drinking water were public taps and protected springs. This was taken as the threshold and therefore, households using public taps, protected springs, private pipeline connections, private taps, boreholes and vendors as their main sources of drinking water were considered non-deprived. Households using unprotected springs and rivers as their primary source of drinking water were considered to be deprived on this indicator.

With respect to sanitation, households were asked: “What type of toilet facilities do you have access to in your household?” Answer options were as follows: private covered pit latrine, private uncovered pit latrine, shared covered pit latrine, shared uncovered pit latrine, private flush toilet, shared flush toilet, and none/bush/open field. In our sample, the shared uncovered pit latrine was the most common. Therefore, households were solely classified as deprived when they had no access to sanitation or used bushes/open fields.

Financial contributions

Financial contributions consisted of remittances and financial aid. Households were classified as receiving aid when they formally received any of the following types of financial assistance: cash-based assistance, financial support for business start-up, and voluntary saving and lending activities. In terms of remittances, respondents born outside of Rwanda were asked: “Do you regularly receive money or goods from friends or family members outside of this community?” In addition, all respondents were asked whether they had a household member living abroad for at least 3 consecutive months. If they did, they were asked: “In the past 12 months, has this household member sent money or goods to this household?” Households were considered to receive remittances when they answered affirmative to either one or both of these questions.

Finally, a dummy variable was computed for “financial contributions”, with “0” representing households that did not receive remittances nor financial aid and “1” referring to household who received remittances and/or financial aid.

Refugee household

Households that did not live in one of the three refugee camps were considered to be local Rwandans. A dummy variable was computed (0 = *local household* and 1 = *refugee household*).

TABLE 2 Descriptive statistics of variables in the analysis

Variable description	Refugee households (N = 427)			Local households (N = 953)		
	Range	Mean or percentage	SD	Range	Mean or percentage	SD
SRD	1-5	3.61	0.93	1-5	3.50	1.03
ORD	0/1	62.20%		0/1	55.80%	
Financial contributions	0/1	78.64%		0/1	26.59%	
Household size	1-15	5.88	2.75	1-16	4.77	2.11
Number of children (age <16)	0-8	2.57	1.96	0-8	2.08	1.57
Age HoH	18-95	46.30	15.92	20-99	47.81	15.38
Employment status HoH	0/1	28.40%		0/1	81.41%	
Female HoH	0/1	51.33%		0/1	30.31%	
Literacy HoH	0/1	63.44%		0/1	69.76%	
Married HoH	0/1	64.32%		0/1	71.63%	

Note:: HoH =Head of Household

Control variables

With respect to the household heads, this study controlled for their gender, age, literacy status, marital status and employment status. As larger households or households with more children might receive more financial support than others, controls were included for household size and the number of children in the household. The last household-level control variable referred to the community in which the household lived and indicated whether households lived in the camps, around 10 km from the camp or 20 km from the camp.

Method of analysis

After examining means and correlations, a mediation model was tested using Structural Equation Modelling (SEM) in Mplus. Given that binary mediators only provide a coarse measurement of the underlying continuous response variable (Muthén & Asparouhov, 2015), we treated financial contributions as a continuous latent variable with a single binary indicator. We modelled a regular regression of the latent continuous measure of financial contributions on the independent variable "refugee status" and controls, an ordinal regression of SRD on the latent continuous measure of financial contributions, refugee status, and controls, and a logit regression of the binary ORD on financial contributions, refugee status, and controls. During the analyses, we made use of maximum likelihood estimation (ML) and the variables for ORD and financial contributions were declared as categorical. Moreover, full information maximum likelihood estimation (FIML) was used to deal with missing data, which are based on the assumption that missing values are missing at random (MAR). Ultimately, 204 cases were missing resulting in a study sample of 1176.

RESULTS

Descriptive results

ORD was measured by setting the cut-off point of the multidimensional deprivation index to 33.3 per cent and classifying households as objectively deprived when they were deprived on two or more indicators². With this

measure, 55.8 per cent of the local households and 62.2 per cent of the refugee households were classified as objectively deprived. As depicted in Table 2, refugee households were more likely to be objectively deprived than local households ($p1\text{-sided} = .017$, Fisher's exact test). With respect to the second dependent variable, an independent sample t-test indicated that refugee households also felt significantly more deprived than local households ($t(893) = 1.994$, $p1\text{-sided} = .023$). Moreover, refugee households were significantly more likely to receive financial contributions than local households ($p1\text{-sided} < .001$, Fisher's exact test). Among refugee households in our sample, 75.1 per cent received aid and 14.3 per cent received remittances, compared to 24.7 per cent and 3.9 per cent, respectively, among local households. Furthermore, only 4.8 per cent of the households in the sample received aid as well as remittances.

Financial contributions were negatively and significantly correlated with SRD for both groups (see Appendix B, Table B4), which was in line with the expectations. Although financial contributions were negatively correlated with ORD for local households, no significant correlation was found among refugee households. Finally, the study variables were not highly correlated with each other or with the control variables.

Explanatory findings

In order to test the hypotheses, a mediation model was fitted including the ordinal dependent variable SRD, the binary dependent variable ORD, the continuous latent mediating variable "financial contributions", the independent variable "refugee status" and the control variables. The direct, indirect and total effects of the main variables of Model 1 are displayed in Table 3³. This study expected that Congolese refugees would experience more objective and subjective relative deprivation compared to local Rwandans. However, the analyses showed that the total effects of refugee status on ORD as well as SRD were insignificant. Hence, no support was initially found for these expectations.

In addition, we expected that Congolese refugees would be more likely to receive financial contributions than local Rwandans, which in turn would reduce their objective and subjective relative deprivation. In line with expectations, the positive and significant path coefficient indicated that refugee households indeed more often

TABLE 3 Direct, indirect, and total effects on Subjective relative deprivation (SRD) and Objective relative deprivation (ORD) in Model 1 ($N = 1176$)

	Model 1		
	b	SE	$p^{-2} s$
Direct effects (main variables)			
Refugee on SRD	2.350	0.578	<0.001
Refugee on ORD	6.095	1.660	<0.001
Refugee on financial contributions	2.449	0.214	<0.001
Financial contributions on SRD	-0.948	0.243	<0.001
Financial contributions on ORD	-2.349	0.665	<0.001
Indirect effects			
Refugee on SRD via financial contributions	-2.323	0.577	<0.001
Refugee on ORD via financial contributions	-5.754	1.622	<0.001
Total effects			
Refugee on SRD	0.027	0.075	0.713
Refugee on ORD	0.341	0.236	0.148

Note:: Unstandardized coefficient estimates presented. Loglikelihood = -2883.462, AIC

received financial contributions than local households. Furthermore, ORD and SRD were found to be significantly lower among households that received financial contributions. The negative and significant indirect effects confirmed the expected mediating role of financial contributions between refugee status and ORD as well as SRD. Given that the relationship between refugee status and our deprivation measures became stronger and significant after including the mediator “financial contributions”, support was found for the expected suppressor effect of financial contributions (MacKinnon et al., 2000).

Distinguishing aid and remittances

In Model 1, the measurement of financial contributions distinguished households that received financial aid and/or remittances from those who did not. In an additional analysis, it was examined whether running separate models for aid and remittances as mediating variables would lead to similar results (see Models 2 and 3 in Table 4 for the model results). Our models showed that refugee households were significantly more likely to receive aid as well as remittances than local households. With respect to aid, we found evidence for its suppressing effect on both our deprivation measures. The model with remittances, however, showed only marginally significant paths and effects with respect to ORD and SRD. Therefore, this analysis suggests that the compensating effect of aid is larger than that of remittances.

Robustness check with respect to the cut-off point

In the initial analysis, we utilized the conventional cut-off points to determine deprivation. In order to check whether the results were robust, we made the threshold for ORD more rigid. In Model 4 (see Appendix B, Table

TABLE 4 Direct, indirect, and total effects of additional models with financial contributions being measured as aid and remittances ($N = 1176$)

	Model 2 Financial contributions—Aid			Model 3 Financial contributions—Remittances		
	b	se	p^{-2} s	b	se	p^{-2} s
Direct effects						
Refugee on SRD	2.060	0.491	<0.001	1.988	1.071	0.064
Refugee on ORD	5.788	1.635	<0.001	5.150	2.869	0.073
Refugee on financial contributions	2.236	0.206	<0.001	1.591	0.286	<0.001
Financial contributions on SRD	−.909	0.224	<0.001	−1.234	0.646	0.056
Financial contributions on ORD	−2.434	0.716	0.001	−3.027	1.697	0.075
Indirect effects						
Refugee on SRD via financial contributions	−2.033	0.490	<0.001	−1.963	1.071	0.067
Refugee on ORD via financial contributions	−5.443	1.594	0.001	−4.816	2.808	0.086
Total effects						
Refugee on SRD	0.027	0.075	0.718	0.025	0.075	0.737
Refugee on ORD	0.346	0.241	0.152	0.335	0.244	0.171

Note:: Unstandardized coefficient estimates presented. Coefficient estimates of control variables are available upon request. Model 2: Loglikelihood = −2881.050, AIC = 5830.101, BIC = 6002.476. Model 3: Loglikelihood = −536.469, AIC = 5140.939, BIC = 5313.315. Reader caution advised as the fit statistics are not immediately comparable.

B6), the cut-off point was set at 50 per cent, with households that were deprived on three or more indicators being classified as objectively deprived. With this measure, 31.1 per cent of the local households and 24 per cent of the refugee households were objectively deprived.

Since the part of the model related to SRD remained unchanged, the findings in Model 4 with respect to this dependent variable unsurprisingly remained similar in size and direction. In terms of ORD, the negative total effect turned significant in Model 4. This revealed that refugee households were less objectively deprived than local households when ORD was measured as being deprived on three or more indicators. After including the mediation, we found that the direct effect between refugee status and ORD was in fact positive, but that the negative indirect effect of financial contributions suppressed this effect.

Contributing to the robustness of the findings, this check thus confirmed that financial contributions played an important role in the relationship between refugee status and ORD and SRD. Particularly in our mediation models, we found that irrespective of the cut-off point refugee households experienced more ORD as well as SRD than local households. However, as refugee households more often received financial contributions, this significantly suppressed their experiences of deprivation resulting in higher deprivation levels among locals.

Robustness checks with respect to the separate indicators

Finally, five models have been fitted where five of the six indicators of ORD were separately used as the outcome variable⁴ (see Appendix B, Table B7 for the total, direct and indirect effects). The income indicator as well as the two food insecurity indicators “limit portion size” and “borrow food” showed significant and positive total effects, revealing that refugee households are more often deprived with respect to these dimensions. Given that the direct effects became even stronger after including the mediator, we found support for the compensating effect of financial contributions. Interestingly, the negative total effect indicated that refugee households were less deprived than local households in terms of assets. The mediation analysis revealed that the direct effect was positive and that the association was suppressed by financial contributions. With respect to sanitation, no significant total effect was found, but the significant positive direct effects and negative indirect effects once again provided support for the compensating role of financial contributions.

DISCUSSION

This study set out to examine to what extent financial contributions could compensate for the ORD and SRD of Congolese refugees compared to their Rwandan hosts. The contribution of this study was threefold. First, this paper extended previous studies by explicitly distinguishing ORD and SRD, which have been used interchangeably in the past (Halleröd, 2006). By making this distinction, a more comprehensive examination of the relative economic disparity among refugee and local households could take place. Second, provided that there was not only a lack of knowledge on the effect of remittances in displacement settings (Lindley, 2007), but also an ongoing debate on the effectiveness of aid (Bourguignon & Sundberg, 2007), we contributed to the understanding of the effect of these financial contributions on the economic well-being of refugee and local households. Finally, especially the findings with respect to the effect of financial aid have important policy implications.

Drawing on the theoretical notions of ORD and SRD (Halleröd, 2006; Stouffer et al., 1949; Townsend, 1979), this study expected that refugee households would be and feel more relatively deprived than local households. That is, refugees often experience a substantial lack of material security within the camps, are typically challenged by limited employment opportunities outside of the camps, and might feel like they have a lower social status than locals, which could all contribute to stronger experiences of ORD and SRD (Easton-Calabria & Lindsay, 2013; Loschmann et al., 2019; Pettigrew et al., 2008; Zagefka & Brown, 2005). In addition, previous studies suggested

that the arrival of refugees could potentially have a positive effect on the economic situation of many locals (Callamard, 1994; Whitaker, 2002).

Furthermore, multiple studies indicated that aid and remittances reduced poverty, increased consumption, and provided comfort during financially difficult times (e.g. Alix-Garcia et al., 2012; Fransen & Mazzucato, 2014; Lindley, 2007). Therefore, as previous studies found refugees to receive slightly more remittances than locals (Alloush et al., 2017; Lindley, 2007) and to usually be the main beneficiaries of development aid (Jacobsen, 2005), we proposed that these financial contributions could compensate for any difference between the relative deprivation of locals and refugees. We tested our predictions of the relationship between refugee status and ORD and SRD, and the compensating effect of financial contributions among a sample of Congolese refugee and local Rwandan households living in and around three refugee camps in Rwanda.

Indeed, we found that refugee households more often received financial contributions than their local hosts. As expected, when taking these contributions into account, our models showed that refugee households initially experienced more relative deprivation than local households in objective as well as subjective terms and that this association was to a great extent suppressed by financial contributions. Interestingly, additional analyses revealed that in models where the multidimensional measurement of ORD was made more rigid, refugee households were increasingly less objectively deprived than local households due to the compensating effect of the financial contributions they received. These findings suggested that relative inequality was higher among the local population than among the refugee population. Besides the main analysis including the multidimensional deprivation index, these results were corroborated by additional models where the ORD indicators were separately used as the outcome variable.

Despite the fact that the effectiveness of aid is highly debated in the literature, this study showed that the relative deprivation gap between refugee and local households was substantially smaller when refugees received financial aid. It can be expected that receiving financial aid allows households to increase their consumption and prevents them from feeling among the poorest in the community (Werker et al., 2009). In other words, our findings demonstrated that financial aid was crucial for refugee households and if they would not have received this assistance, they would be considerably more deprived in objective as well as subjective terms. Remittances, on the other hand, solely had a marginally significant effect on households' experiences of ORD and SRD.

LIMITATIONS AND FUTURE DIRECTIONS

While this study yielded valuable results, there are some limitations that should be considered. First, this study assessed relative deprivation among refugee and local households that did not necessarily live in the same communities, but lived spread across the country. That is to say, the thresholds of the multidimensional deprivation index were based on the "standard" in the total study population. Although refugee and local households are empirically distinct and therefore well comparable, future studies might consider to establish deprivation thresholds based on the community in which households live. Alloush et al. (2017) for instance showed that the economic lives of residents of three refugee camps and three host communities across Rwanda had multiple differences in terms of consumption, employment and business. Moreover, while this study based the second deprivation cut-off on recommendations of other multidimensional indices (Alkire & Santos, 2014), future studies could strengthen the relative approach by basing both deprivation cut-offs on the median in the population. Hence, alternative assessment of households' experiences of ORD may be warranted.

Second, although the current study already established that receiving financial contributions played an important role in compensating relative deprivation, future studies could go a step further by examining specific characteristics of remittances and aid. With respect to remittances, instead of working with a binary mediator

that assesses whether or not households are recipients of remittances, it would be advisable to include a mediator that reflects the amount of money households receive. This way, it can be examined whether receiving a higher amount of remittances consistently leads to lower levels of relative deprivation or if there is a limit to its compensating effect. Besides the volume of remittances, the regularity and the socio-economic background characteristics of the receiving households might also be of interest. Remittances are more often sent on an ad hoc basis in times of need rather than structurally (Lindley, 2007), which could potentially reach the relatively wealthier families and only have a short-term effect on economic well-being. In terms of aid, not only the received amount might similarly be of interest, but also the design of aid delivery mechanisms could be important. In the past years, several researchers showed that financial aid can be more beneficial than in-kind aid (e.g. Alloush et al., 2017). Consequently, UNHCR has voiced to put more emphasis on cash-based assistance in their programmes (UNHCR, 2017). The way in which this financial aid should be distributed is, however, heavily discussed. While some authors argue for small, regular transfers, others highlight the benefits of lump-sum transfers (Farrington & Slater, 2009). UNHCR typically provides small, regular cash transfers, which allows households to meet subsistence needs and thus mainly ensures short-term survival (Hagen-Zanker et al., 2017). In contrast, lump-sum transfers might enable households to make long-term investments, for instance by acquiring a house or livestock (Farrington & Slater, 2009). Provided that these different delivery mechanisms are highly debated and that they could have different effects on households' economic security and well-being, UNHCR and local governments might benefit from more information on their effects on relative deprivation.

CONCLUSION

For this study, our starting point was to have a better understanding of the ORD and SRD among Congolese refugees in comparison with the Rwandan local population. All in all this study showed the importance of examining ORD and SRD, revealed the economic disparity between refugee and local households in Rwanda, and found evidence for the compensating effect of financial contributions.

By adopting rather progressive policies that grant refugees access to basic health care, the right to work, access to education, and freedom of movement, the integration policies of the Rwandan Government are aimed at treating refugee and local households equally and promoting social cohesion (Loschmann, et al., 2019; UNHCR, 2020). However, this study showed that the financial aid that was provided by the Rwandan Government, NGO's, and international organizations, was mostly allocated to refugee households. While the finding that aid substantially benefitted those who received it is highly important in the light of the debate on aid effectiveness, our study simultaneously revealed that locals may similarly be in need of assistance. Namely, the results surprisingly showed that the Rwandan local households were exceptionally deprived, when more rigid measurements of objective deprivation were utilized.

The unequal allocation of aid might unintendedly ignite locals' feelings of resentment towards refugees, the government, and service providers such as humanitarian organizations (Abdi, 2005). It can be expected that this perceived unequal treatment and, consequently, economic inequality have negative repercussions for social cohesion in the communities and the extent to which refugees are accepted by locals (Mishra & Carleton, 2015). Following the example of Uganda (Jacobsen, 2002), UNHCR and the Rwandan Government might try to mitigate possible resentment among the locals by distributing a larger share of the assistance to the areas surrounding the refugee camps. It is important that local households, which are at times as poor as the incoming refugees, do not become even more marginalized (Alix-Garcia et al., 2019; Whitaker, 2002). In order to achieve the Rwandan Government's goal of "promoting social cohesion and peaceful coexistence" (UNHCR, 2020, p. 17) between local and refugee households, financial and developmental assistance that not only benefits refugees, but also targets the most marginalized locals may be warranted.

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PEER REVIEW

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ENDNOTES

1. During field preparations, researchers became aware of a similar household survey that was conducted in 2015 by the University of California at Davis (UC-Davis) in Gihembe and Kigeme camps. In order to create a unique panel subsample, a large number of refugee households from this study were tracked down and re-surveyed. As the UC-Davis survey was also randomly assigned, this did not affect the representativeness of the current sample.
2. See Appendix B Table B1, Table B2 and B3 for descriptives on dimensions and cut-off points
3. See Appendix B Table B5 for direct effects of control variables
4. One refugee household and 242 local households were deprived on the 'Drinking water' indicator. This unequal distribution caused us to exclude this indicator from the robustness check.

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APPENDIX A

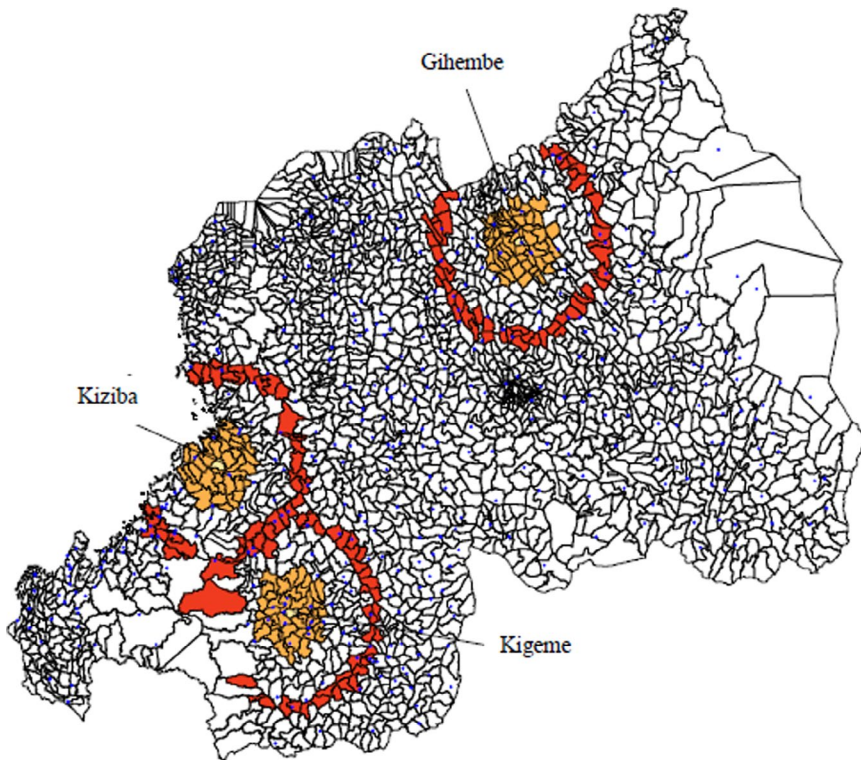


FIGURE A1 Sampling strategy at the cell level

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.

APPENDIX B

TABLE B1 Descriptives of the total number of deprivations that households experience

Number of deprivations	Total percentage of households	Total number of households	Number of refugee households	Number of local households
Zero	16.0%	221	52 (12.8%)	169 (18.9%)
One	23.8%	328	101 (24.9%)	227 (25.3%)
Two	27.2%	376	155 (38.3%)	221 (24.7%)
Three	19.3%	267	81 (20.0%)	186 (20.8%)
Four	5.9%	81	15 (3.7%)	66 (7.4%)
Five	1.9%	26	1 (0.02%)	25 (2.8%)
Six	0.1%	2	0	2 (0.02%)

TABLE B2 Descriptives of number of households that is deprived on each indicator

Deprivation	Total percentage of households	Total number of households	Number of refugee households	Number of local households
Monthly income per household member	48.7%	672	289 (69.5%)	383 (40.9%)
Assets	29.9%	412	59 (13.8%)	353 (37.7%)
Limit portion size	44.1%	608	218 (51.2%)	390 (40.9%)
Borrow food	37.2%	514	175 (41.2%)	339 (35.6%)
Drinking water	17.6%	243	1 (0.02%)	242 (25.7%)
Sanitation	2.0%	28	3 (0.07%)	25 (2.7%)

TABLE B3 Number and percentage of households that would be classified as deprived using different cut-off points

Cut-off point	Total percentage of households	Total number of households	Number of refugee households	Number of local households
One dimension	78.3%	1080	353 (87.2%)	727 (81.1%)
Two dimensions	54.5%	752	252 (62.2%)	500 (55.8%)
Three dimensions	27.2%	376	97 (24.0%)	279 (31.1%)
Four dimensions	7.9%	109	6 (4.0%)	93 (10.4%)
Five dimensions	2.0%	28	1 (0.02%)	27 (3.0%)
Six dimensions	0.1%	2	0	2 (0.02%)

TABLE B4 Correlation coefficients of study variables for local (below diagonal) and refugee (above diagonal) households

Measure	1.	2.	3.	4.	5.	6.	7.	8.	9.	10
1. SRD	-	0.188***	-0.131**	-0.127**	-0.061	-0.246***	0.095	0.103*	-0.160**	-0.204***
2. ORD	0.373***	-	-0.059	-0.033	0.097	-0.134**	0.067	0.099	-0.044	-0.039
3. Financial contr.	-0.166***	-0.140***	-	0.080	0.060	-0.009	0.045	-0.069	-0.046	0.007
4. Household size	-0.130***	-0.022	0.089**	-	0.739***	0.043	-0.205***	0.065	-0.124*	0.383***
5. Number of children	-0.026	0.053	0.051	0.788***	-	0.123*	-0.131**	-0.217***	-0.065	0.329***
6. Employment HoH	-0.087**	0.010	0.068*	0.064*	0.112***	-	-0.153**	-0.108*	0.132*	0.119*
7. Female HoH	0.183***	0.028	-0.024	-0.287***	-0.230***	-0.030	-	-0.051	-0.232***	-0.443***
8. Age HoH	0.138***	0.037	0.006	-0.096**	-0.286***	-0.263***	0.301***	-	-0.290***	-0.035
9. Literacy HoH	-0.268***	-0.143***	0.091**	-0.016	-0.007	0.059	-0.148***	-0.209***	-	0.030
10. Married HoH	-0.190***	-0.029	0.034	0.430***	0.366***	0.039	-0.751***	-0.317***	0.135***	-

Note: HoH = Head of Household.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

TABLE B5 Direct effects of control variables in Model 1 (N = 1176)

	b	se	p⁻²s
Direct effects on SRD			
Female HoH on SRD	0.178	0.210	0.397
Age HoH on SRD	0.002	0.006	0.673
Household size on SRD	0.030	0.060	0.620
Number of children on SRD	0.084	0.071	0.232
Employment HoH on SRD	0.012	0.194	0.952
Literacy HoH on SRD	-0.244	0.175	0.163
Marital status HoH on SRD	-0.286	0.223	0.201
Community code on SRD	-0.029	0.031	0.363
Direct effects on ORD			
Female HoH on ORD	0.476	0.546	0.383
Age HoH on ORD	0.006	0.015	0.698
Household size on ORD	0.118	0.152	0.438
Number of children on ORD	0.240	0.182	0.187
Employment HoH on ORD	0.394	0.498	0.428
Literacy HoH on ORD	-0.091	0.440	0.837
Marital status HoH on ORD	-0.137	0.578	0.813
Community code on ORD	0.018	0.078	0.816
<i>Direct effects on Financial Contributions</i>			
Female HoH on Financial contributions	0.225	0.212	0.288
Age HoH on Financial contributions	-0.001	0.006	0.860
Household size on Financial contributions	0.125	0.055	0.023
Number of children on Financial contributions	-0.042	0.072	0.559
Employment HoH on Financial contributions	0.277	0.191	0.147
Literacy HoH on Financial contributions	0.269	0.169	0.112
Marital status HoH on Financial contributions	0.027	0.231	0.907
Community code on Financial contributions	-0.055	0.030	0.067

Note:: Unstandardized coefficient estimates presented. HoH =Head of Household

TABLE B6 Direct, indirect, and total effects on SRD and ORD using a more rigid measure of ORD in Model 4 (N = 1176)

	Model 4		
	b	se	$p^{-2}s$
Direct effects (main variables)			
Refugee on SRD	2.494	0.783	0.001
Refugee on ORD	3.934	1.198	0.001
Refugee on Financial contributions	2.419	0.215	< 0.001
Financial contributions on SRD	-1.019	0.340	0.003
Financial contributions on ORD	-1.897	0.501	< 0.001
Indirect effects			
Refugee on SRD via financial contributions	-2.465	0.782	0.002
Refugee on ORD via financial contributions	-4.587	1.216	< 0.001
Total effects			
Refugee on SRD	0.029	0.075	0.700
Refugee on ORD	-0.653	0.243	0.007

Note:: Unstandardized coefficient estimates presented. Loglikelihood = -2883.462, AIC =5834.924, BIC =6007.300.

TABLE B7 Direct, indirect, and total effects for different measures of objective relative deprivation (N = 1176)

	Model 5 ORD – income			Model 6 ORD – assets			Model 7 ORD – limit portion size			Model 8 ORD – borrow food			Model 9 ORD – sanitation		
	b	se	p ² s	b	se	p ² s	b	se	p ² s	b	se	p ² s	b	se	p ² s
Direct effects															
REF on SRD	4.593	3.793	0.226	2.585	0.728	<.001	1.575	0.439	<0.001	4.617	4.628	0.318	5.275	3.669	0.151
REF on ORD	3.517	0.755	<0.001	3.829	1.387	0.006	3.409	0.831	<0.001	2.771	0.663	<0.001	4.662	2.283	0.041
REF on FIN	2.376	0.215	<0.001	2.437	0.214	<0.001	2.536	0.239	<0.001	2.364	0.224	<0.001	2.307	0.216	<0.001
FIN on SRD	-1.921	1.654	0.245	-1.049	0.311	0.001	-0.609	0.188	0.001	-1.941	2.036	0.341	-2.272	1.669	0.173
FIN on ORD	-1.146	0.293	<0.001	-2.332	0.602	<0.001	-1.163	0.331	<0.001	-0.975	0.260	<0.001	-2.670	0.904	0.003
Indirect effects															
REF on SRD via FIN	-4.565	3.793	0.229	-2.557	0.727	<0.001	-1.545	0.436	<0.001	-4.588	4.627	0.321	-5.243	3.669	0.153
REF on ORD via FIN	-2.722	0.719	<0.001	-5.684	1.476	<0.001	-2.949	0.795	<0.001	-2.306	0.632	<0.001	-6.161	2.105	0.003
Total effects															
REF on SRD	0.028	0.075	0.709	0.028	0.075	0.705	0.030	0.075	0.684	0.030	0.075	0.693	0.032	0.075	0.670
REF on ORD	0.795	0.188	<0.001	-1.855	0.324	<0.001	0.460	0.193	0.017	0.465	0.174	0.008	-1.499	0.904	0.097

Note: Unstandardized coefficient estimates presented. Coefficient estimates of control variables are available upon request. REF = Refugee household, FIN = Financial contributions. Model 5: Loglikelihood = -2884.073, AIC = 5.836.147, BIC = 6.008.522. Model 6: Loglikelihood = -2777.556, AIC = 5.623.112, BIC = 5.795.448. Model 7: Loglikelihood = -2981.927, AIC = 6.031.854, BIC = 6.204.229. Model 8: Loglikelihood = -2971.032, AIC = 6.010.065, BIC = 6.182.441. Model 9: Loglikelihood = -2306.190, AIC = 4.680.380, BIC = 4.852.756. Reader caution advised as the fit statistics are not immediately comparable.