How to cope with a refugee population? Evidence from Uganda

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Abstract:

Sub-Saharan Africa hosts a large proportion of the world's refugees, raising concerns about the consequences on host countries. Uganda is the largest refugee-hosting country in Africa and is praised for its progressive refugee policy. We analyze the effects of hosting refugees on material welfare in Uganda, relying on longitudinal data and an instrumental variable approach. Our results indicate that Ugandan households benefit from living close to refugee settlements. In contrast to the existing literature, those initially involved in subsistence agriculture benefit the most. The effect seems to be driven by the few households able to move from subsistence agriculture to commercial farming and to some extent, to wage employment.

Key words: Refugees, Welfare, Labor Markets, Coping Strategies, Uganda.

1. Introduction

Approximately 85 percent of the world's refugees are hosted in developing countries (UNHCR, 2020), and Sub-Saharan Africa (SSA) hosts about one third. (Ruiz & Vargas-Silva, 2017). The United Nations High Commissioner for Refugees (UNHCR, 2019) asserts that the number of refugees in the region increased threefold between 2010 and 2019. This rise has mainly been attributed to persistent conflicts in the region (Verwimp & Maystadt, 2015; Kasozi, 2017; Ivanova et al., 2018). Protracted conflict has also led to long refugee stays—an average of 9–21 years according to Hunter (2009). Hosting refugees can have far-reaching consequences in areas already struggling to ameliorate their own economic situation (Maystadt et al., 2019).

There is a booming literature assessing the consequences of hosting refugees (Meyer et al., 2011; Ruiz & Vargas-Silva, 2017; Maystadt et al., 2019). Although the literature highlights that refugees can have positive effects on economic development, but with likely distributional consequences, the evidence from individual studies is mixed (Ruiz & Vargas-Silva, 2017; Maystadt et al., 2019; Verme & Schuettler, 2021). In their review, Verme and Schuettler (2021) argue that the direction of impact depends on the economic dimension studied. For instance, they find that beneficial impacts are less likely if the outcome of interest is employment or wages among host communities. In contrast, these are more likely if the outcome of interest is well-being measured in terms of income, consumption, or wealth (Verme & Schuettler, 2021). Furthermore, they stress that few studies have employed panel data to study the impact of refugees on host communities.

Based on panel data collected between 2009 and 2012, we assess the impact of hosting refugees in Uganda on material welfare, measured by the consumption per adult equivalent. Our main outcome variable differs from studies such as Alix-Garcia and Saah (2010), Alix-Garcia et al. (2012), and Loschmann et al. (2019), which focus on market prices, host employment, and

household assets.[1] Alix-Garcia et al. (2018) is one exception, since they use cross-sectional data on consumption to validate their results based on night light density. Other studies on SSA using longitudinal data on consumption include Maystadt and Verwimp (2014), Ruiz and Vargas-Silva (2017), and Maystadt and Duranton (2018) on the Kagera region of Tanzania, and Alloush et al. (2017) on the Congolese refugees in Rwanda. However, all these studies investigate the economic impacts of refugees living in camp settings. We exploit variation in the refugee population, rather than the sudden opening of camps, as exemplified in previous studies (Maystadt and Verwimp, 2014; Tumen, 2016; Ruiz and Vargas-Silva, 2017).

Uganda is an interesting case study. According to Uganda's unique refugee policy, refugees are not settled in camps but, rather, live in settlements. Refugees enjoy a certain freedom of movement and the right to work and are encouraged to engage in agriculture—with the aim of attaining self-reliance—by availing them with plots of agricultural land and seeds for planting (Betts et al., 2017, 2019; UNDP, 2017). The World Bank Group (2016) maintains that this progressive refugee policy also supports the local integration of refugees. Verme and Schuettler (2021) argue that restrictions on the right to work and movement for refugees can significantly determine the direction of impacts on host communities.

To the best of our knowledge, Kreibaum (2016) and d'Errico et al. (2022) are the studies most aligned with ours. Kreibaum (2016) examines the effect of refugee presence on household welfare in terms of consumption in Uganda. The author uses three repeated cross-sections of UNHS[2] data and employs a difference-in-difference strategy to determine the effect of refugee presence, specifically in districts hosting Congolese refugees. d'Errico et al. (2022) find that

[1] Given the specificities of the African context, we abstract from other studies in Latin America and the Middle East (e.g., Aksu et al., 2022; Caruso et al., 2021; Fallah et al., 2019, Tumen, 2016). We should acknowledge that other outcomes have been investigated such as among others, business openings (Akgünduz et al., 2018; Altındağ & Kaushal, 2021), the environment (Aksoy & Tumen, 2021), and the propagation of diseases (Ibanez et al., 2020).

[2] Uganda National Household Survey carried out in the three waves of 2002–2003, 2005–2006, and 2009–2010.

proximity to refugees, considered as a measure of inter-group interactions, increases the welfare of the host population. Our paper complements these studies in several ways. First, while d'Errico et al. (2022) focus on a few settlements and cross-sectional data collected by the Food and Agricultural Organization (FAO) in their surroundings, we exploit nationally representative surveys. Second, we use panel data and can therefore exploit within-district and household variation to better deal with unobserved heterogeneity. The longitudinal nature of our data also allows us to adopt a more dynamic perspective by investigating possible coping strategies at the household level.

Our study utilizes Living-Standards Measurement Study - Integrated Studies on Agriculture (LSMS-ISA) data spanning 3 waves, from 2009 to 2012, to quantify the effect of refugee presence on household welfare. We consider refugees from various source countries and residing close to local communities (clusters in the LSMS). We construct a refugee index that weights the number of refugees in the closest refugee settlements by the inversed distance from those settlements to the clusters. In order to limit endogeneity concerns, we instrument this variable of interest with a shift-share instrumental variable based on the distance from the refugee settlements to the closest border-crossing points for each source country.

Our findings with regards to household consumption are similar to those found for Kenya (Alix-Garcia et al., 2018), Rwanda (Alloush et al., 2017), and Tanzania (Maystadt & Verwimp, 2014). Our results indicate that rural households living close to refugee settlements benefit from the presence of refugees. Similarly, Alix-Garcia and Saah (2010) find that rural households closer to refugee camps experience a positive wealth effect, which may result from the production and supply of non-aid food products in response to increased demand and price shifts. We also investigate the heterogeneity of the average impact and its distributional consequences, and further discuss coping strategies in the labor and commodity markets. The education level of the head of household does not seem to explain the effects of refugee

presence. However, we find that the few households that are able to change their main source of income to commercial farming benefit more from the refugee influx. This is in line with Whitaker (2002), who argues that it is relatively wealthier farmers—those not reliant on subsistence farming—who can take advantage of the price dynamics and the availability of cheap labor. We also find that the type of crop produced matters in this context. Despite differences in research design, it is also interesting to observe that d'Errico et al. (2022) report a similar shift in economic activity. They find a significant reduction in the value of crop sales and an increase in wage income for host households living closer to refugee households. d'Errico et al. (2022) point to a shift towards wage employment as an important adaptation mechanism. Similarly, our results point to changes in households' main source of income as a potential coping strategy. However, although we find that households that shift to wage employment seemingly benefit, potentially greater welfare returns are observed for households that shift to commercial farming.

The paper is organized as follows. The next section outlines the background for the study. Section 3 describes the data used and presents descriptive statistics. Section 4 presents the empirical strategy employed. Section 5 discusses the main results of the study and the assumptions underlying the identification strategy used. Section 6 presents insights into the potential coping strategies on the labor and commodity markets. The final section concludes with a summary of the findings and recommendations for policy and future research.

2. Background

Uganda has received an average of approximately 161,000 refugees annually since its independence in 1962 (World Bank Group, 2016) and a monthly average of 17,000 refugees between October 2018 and February 2019 (World Bank, 2019). The country now hosts about 1.5 million refugees from 17 different countries (UNHCR, 2022). In this study, the refugee dataset captures a cumulative total of 3,391,194 refugees in the years 2000 to 2016. Uganda is

currently the country hosting the most refugees in Sub-Saharan Africa and is the third largest refugee-hosting nation globally after Turkey and Colombia (WHO, 2018; World Bank, 2019; UNHCR, 2022). Most refugees received in Uganda between the years 2000 and 2016 were from Sudan, South Sudan, and the Democratic Republic of the Congo (DRC), representing about 78% of the cumulative total number of refugees received in the country.[3]

Refugees in Uganda are mostly settled in the western flank of the country (Figure 1). Of the 127 districts in Uganda, refugees are found in Adjumani, Arua, Koboko, Moyo, and Yumbe in the West Nile region; Lamwo/Kitgum in the northern region; Kiryandongo, Hoima, Kyegegwa, Kamwenge, and Isingiro in the (south)western region; and Kampala district in the central region of the country (World Bank, 2019). From 2000 to 2016, refugees were distributed over 14 districts, with the Adjumani district hosting the highest number of refugees, about 28% of the cumulative total. Arua, Kampala, and Isingiro follow, each with about 13% of the cumulative total number of refugees in Uganda between 2000 and 2016. The Kisoro district has hosted the lowest number of refugees, with less than 1% of the cumulative total of refugees in Uganda over that period.[4]

[3] The absolute figures are in Appendix 1, Table A1.

[4] The total number of refugees and the percentages by district are illustrated in the Appendix, in Table A2 and Figure A1. Figure A2 shows that the distribution of female and male refugees is quite balanced across districts, with some having slightly more female refugees (Adjumani, Kanungu, Kiryandongo, Kisoro, Kitgum, Kyegegwa, Masindi, Moyo, and Yumbe) and others having slightly more male refugees (Arua, Hoima, Isingiro, and Kamwenge).

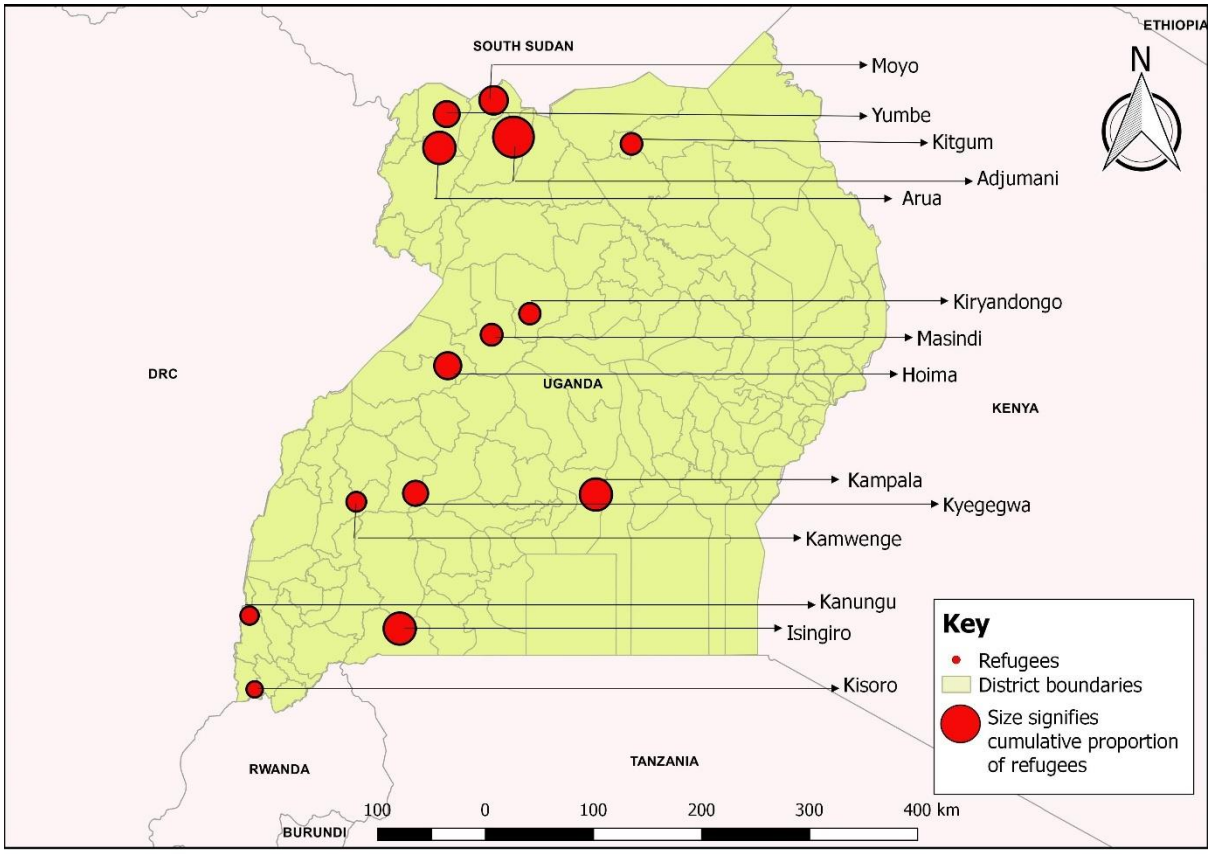


Figure 1: Map of Uganda showing the spatial distribution of refugees in the period from 2000 to 2016 (*Source: Authors' illustration*)

Uganda's refugee management approach, backed by its Refugees Act of 2006 and Refugees Regulations of 2010, is among the most progressive refugee approaches in the world (World Bank, 2019). By using the Developing World Refugee and Asylum Policies (DWRAP) constructed by Blair, Grossman and Weinstein (2022), Figure 2 indeed confirms that Uganda had among the most progressive refugee policy between 2009 and 2012. Among the 79 countries for which data are available over that period, the maximum value of the policy index stands at 0.58 with a mean value of 0.218. As shown in Figure 2, Uganda has the third highest value behind Cameroon (0.58) and Turkey (0.55).[5] But a striking fact is that African countries tend to have higher policy scores than other Middle Eastern and South Asian countries.

[5] Replicating the same exercise over the most recent year (2017) would give a similar picture, although Zambia and Kenya would have a higher index score than Uganda. The most striking change would relate to the more restrictive change in the asylum policy prevalent in Turkey over that 5-years period.

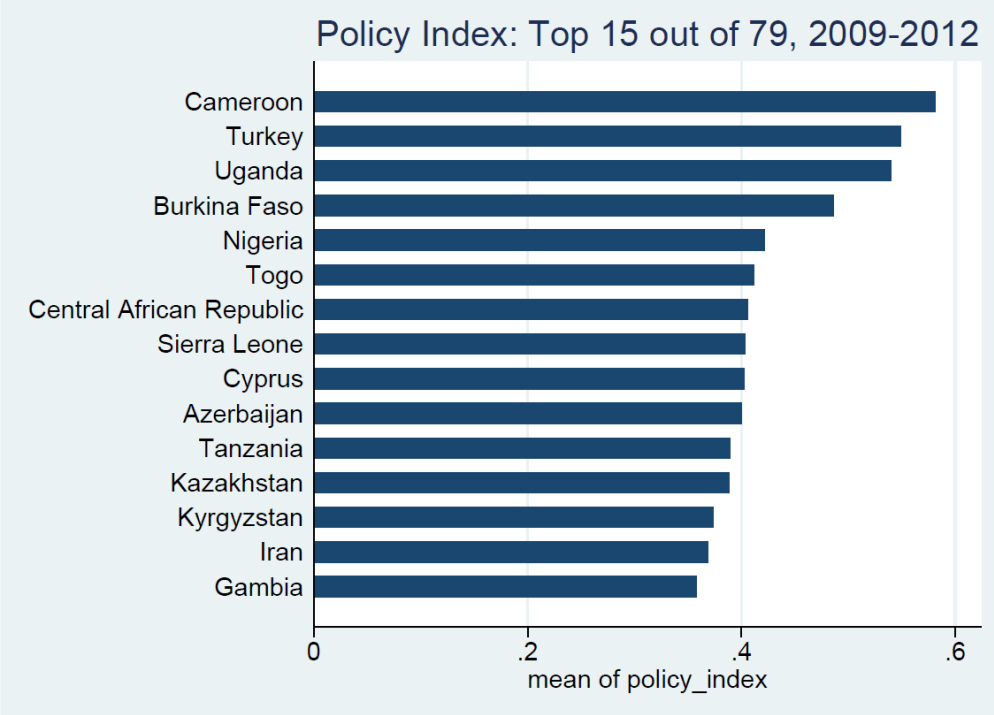


Figure 2. Developing World Refugee and Asylum Policies

Enshrined in the country's refugee regulatory framework are important principles and freedoms that are protective of the refugees hosted within the country. Firstly, refugees are not settled in camps and mostly live in refugee settlements (Kreibaum, 2016; UNDP, 2017). Refugee settlements, according to Jacobsen (2001), are expanses of land segregated purposely to host refugees for protracted periods of time. In contrast to camps, refugee settlements are usually characterized by relatively more permanent housing structures, they are planned for population growth, and land for farming is provided to help refugees attain self-sufficiency, among other differences (Jacobsen, 2001). Refugees in Uganda also have freedom of movement and association, the right to find or establish jobs/employment, a right to access social services, including education and health, and a right to own property and access land, among others (Betts et al., 2017, 2019; World Bank, 2019). As recommended by the 1999 refugee Self-Reliance Strategy (SRS), refugees are to be given seeds and land to encourage farming (Betts

et al., 2017, 2019). The refugee SRS was formalized through the Office of the Prime Minister (OPM) and in collaboration with the UNHCR (WHO, 2018; Betts et al., 2019). The aim of the refugee SRS is to promote the self-reliance of refugees to reduce the need for humanitarian aid for refugee assistance in Uganda (World Bank, 2019).

Uganda's approach has also involved providing support to refugee-hosting communities. This approach is guided by the Comprehensive Refugee Response Framework (CRRF), which was launched in March 2017 (UNHCR, 2019), and the 2018 Global Compact on Refugees (GCR). According to Thomas (2017), the CRRF advocates for a creative approach to encourage refugee self-reliance while supporting host communities. Thus, as the self-reliance of the refugees is promoted, the resilience and service delivery of host communities is strengthened and a peaceable co-existence of refugees and hosts is encouraged (World Bank, 2019). Moreover, the previous Settlement Transformative Agenda (STA) and the linked Refugee and Host Population Empowerment (ReHoPE) strategic framework emphasize resilience and self-reliance for both refugees and hosting communities (Mathys, 2016; Betts et al., 2019). By progressively improving social service delivery capacity and fostering sustainable livelihoods leading to socio-economic growth in refugee-hosting districts, ReHoPE serves to integrate humanitarian and development systems to ensure effective support for refugee-hosting districts in Uganda (Mathys, 2016).

The drive to establish the CRRF was further demonstrated by the development of a guide for CRRF implementation, resulting in experiences that subsequently produced the Global Compact on Refugees (GCR) that highlights tangible targets and approaches to refugee management. The GCR which was affirmed by the UN General Assembly in December 2018 and was then incorporated into Uganda's National Plan of Action, a living guide that is periodically updated and maps out the direction for the GCR and the CRRF in Uganda. Uganda's refugee policy environment therefore supports the local integration of refugees

(World Bank Group, 2016). It is a refugee management model allowing for integrated service provision and encouraging free social and economic interactions between refugees and hosts (Kreibaum 2016; Betts et al., 2019).

3. Data

We use refugee data provided by the UNHCR at the settlement level and a nationally representative household-level dataset derived from the LSMS-ISA. These datasets are combined at the enumeration area (EA) level (Figure 3). Settlement-level information is linked to the EA-level household information by year.

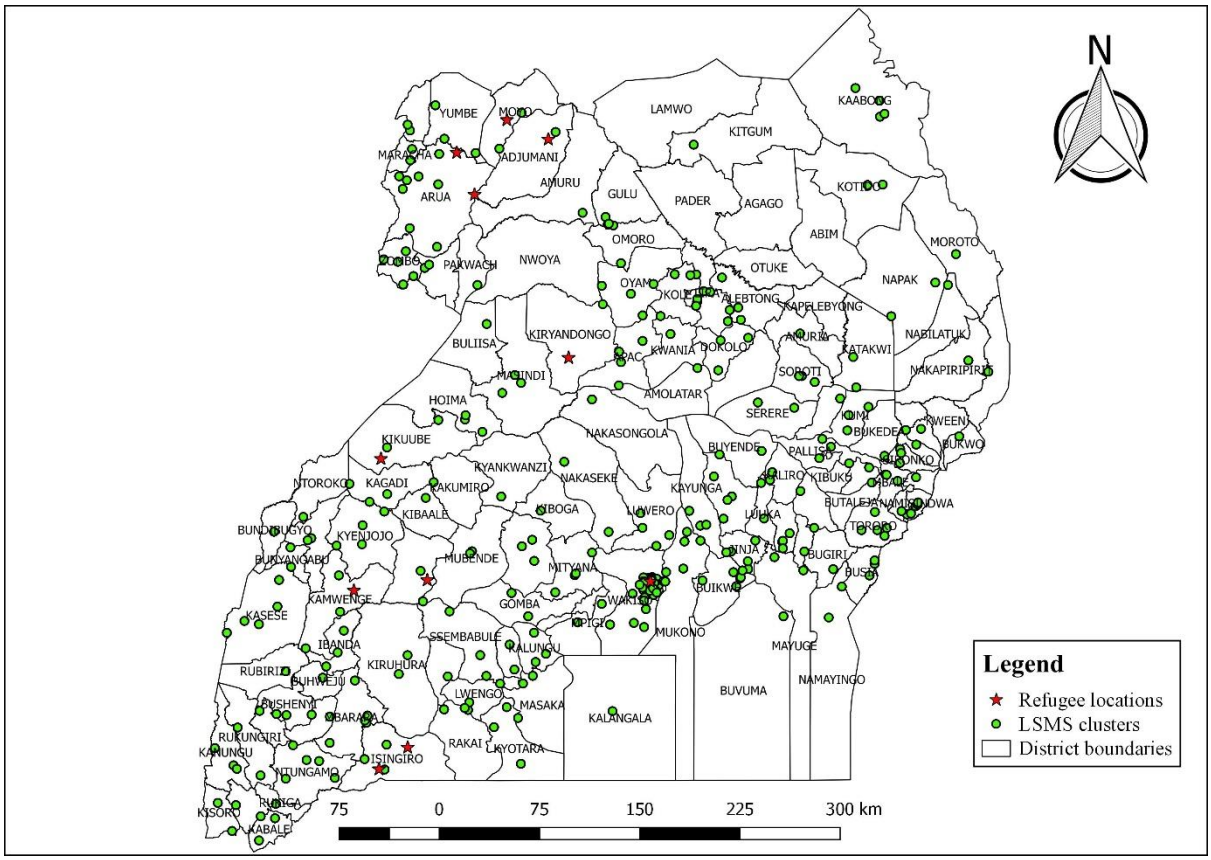
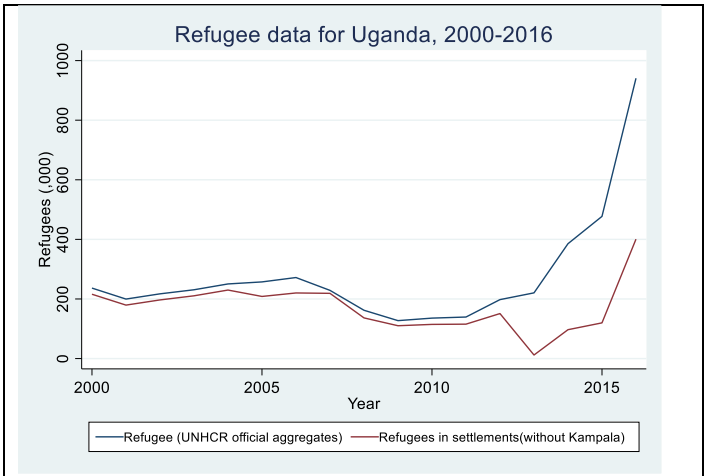


Figure 1: Map showing LSMS clusters and refugee settlements/locations as captured in the balanced panel (2009–2012) (Source: Authors' illustration)

3.1. Refugee data

We use geo-referenced data on the number of refugees received per year from 2000 to 2016 in settlements in 14 districts in Uganda. Figure 4 illustrates the difference between our disaggregated data covering refugees in settlements and national statistics on the total number of refugees in Uganda reported annually by the UNHCR. The co-evolution of the lines reflects the high quality of our data. However, Figure 4 shows that there is still a gap between the refugee numbers reported from the settlements and the annual aggregate of refugees received and registered by the UNHCR. This may be due to the timing of the reporting. UNHCR aggregates capture all refugees received within the country in a particular year. In contrast, the settlement-level data, which could be reported at the end of the year, does not capture refugees who have left the settlements and self-settled within towns in hosting districts. Nevertheless, this gap is smaller within the time period observed in our outcomes data (2009–2012) than in subsequent years. We observe a widening gap after 2012 (Figure 4).[6] This gap may be explained by the increasing number of dispersed refugees (not captured in our disaggregated data) after 2012. Our disaggregated data capture refugees in settlements and do not include self-settled refugees. Our main analysis also does not include Kampala, due to a lack of disaggregated data. We nonetheless discuss the robustness of our results to the addition of aggregated data for Kampala in the robustness section and in the Appendix (Sections 1.2 and 4.4).

[6] Details are provided in Appendix 1, Section 1.2.



The data on refugees in settlements do not include totals of refugees in Kampala

Figure 2: Number of refugees in settlements (study dataset) and total number of refugees received in Uganda (UNHCR data)

3.2. LSMS-ISA household data

We use the Living-Standards Measurement Study - Integrated Studies on Agriculture (LSMS-ISA) dataset for Uganda provided by the World Bank. LSMS-ISA data are derived from the Uganda National Panel Survey (UNPS), which comprises 5 waves of interviews (2009–2010, 2010–2011, 2011–2012, 2013–2014, and 2015–2016). The UNPS collects information for a sample of households that is representative at the national, urban/rural, and main regional levels (North, East, West, and Central regions). The LSMS-ISA dataset provides household and individual-level information, including household welfare measured by consumption aggregate per adult equivalent and indicators of participation and performance in the workforce within the agricultural and non-agricultural sectors.

We use only the first 3 waves in order to minimize attrition and because they have a similar structure. In subsequent waves, portions of the sample were replaced by new households obtained from an updated sampling frame developed from the 2012 Uganda Population and Housing Census by the Uganda Bureau of Statistics (UBOS). Additionally, a new household identification system was implemented after the third wave, making it difficult to construct a

balanced panel dataset across all 5 waves.[7] Our household data is therefore a strongly balanced panel dataset comprising 2,458 households distributed across 320 enumeration areas (EAs) and surveyed in the first 3 rounds of the UNPS. The data cover 106 districts out of the 111 listed in 2010.

3.3. Descriptive statistics by district

We first compare household characteristics between refugee-hosting and non-hosting districts in the first wave (2009/2010) and the last wave (2011/2012) of UNPS data collection. We do so using our main variables of interests (household welfare measured by consumption per adult equivalent, household non-agricultural income and output) and some control variables (socio-demographic characteristics). Table 1 presents the comparison of socio-demographic characteristics at the household level.[8]

According to Table 1, in the base wave the average difference between refugee-hosting and non-hosting districts is not statistically significant from zero for several household characteristics. For instance, we do not observe significant differences in the educational composition of heads of household between refugee-hosting and non-hosting districts. The age and gender characteristics of heads of household are also fairly similar. However, we observe that non-hosting districts have statistically larger households, with more households having heads of household who are separated (divorced/widowed) and never married.[9] Refugee-

[7]Indeed, the household ID format was modified for the last 2 waves, a change that complicates the matching across waves. Balancing the panel across all five waves of the longitudinal survey results in a significant drop in the number of enumeration areas/clusters, from 320 to 211. The number of households also drops from 2,462 interviewed across the first 3 waves to 1,431 households interviewed across 5 waves. Attrition is too much of a concern for robust inference.

[8] These descriptive statistics are presented without Kampala since the capital city may have specific characteristics that could bias the results and thus is excluded from our main analysis. Being the capital and hosting a considerable but not comprehensive number of self-settled refugees, the Kampala district potentially confounds the results in numerous ways. Descriptive statistics including Kampala are presented in the Appendix (see Appendix 2; Table A3). Our empirical analysis is therefore performed without the district of Kampala. The results including Kampala are presented in the section on robustness.

[9] Household size is constructed based on the household roster.

hosting districts have more households headed by polygamously married individuals, and these areas rely more on subsistence and less on commercial farming than non-hosting districts. Several of these statistically significant differences persist in the last wave.

Of particular interest, we find that household welfare (in log) in non-hosting districts is slightly greater than household welfare in refugee-hosting ones in the base wave, while the difference narrows in the last wave. This is suggestive of a relative improvement in household welfare for refugee-hosting areas over the 3 years between the base wave and the last wave. Notably, the differences between the two types of area across some variables become statistically different from zero in the last wave, for instance, the proportion of male-headed and female-headed households. We control for these covariates in the regression analysis.

Overall, the descriptive statistics paint a two-sided picture. On the one hand, if we were to compare households in refugee-hosting districts with others, we run the risk of capturing the lower standard of living, as reflected by a lower consumption per adult equivalent at baseline or the strong reliance on subsistence agriculture in refugee-hosting districts. In identification terms, we may fear the risk of a downward bias from a *naïve* comparison. On the other hand, the descriptive statistics argue against a static view of refugee economies. While the gap in terms of welfare seems to have narrowed, the sources of income have changed substantially, with a stronger reliance on wage employment and subsistence farming. Somewhat surprisingly, the opposite is true for non-agricultural self-employment. These changes are sufficiently puzzling to investigate further distributional effects and possible coping strategies in Section 6.

Table 1: Comparison of household (HH) and head of household indicators between non-refugee-hosting and refugee-hosting districts (excluding Kampala)

	Base wave=2009/10						*Last wave=2012*					
	Mean (Non-hosting)	**Obs.**	**Mean (Hosting)**	**Obs.**	**Mean Diff.**	**Std. Error**	**Mean (Non-hosting)**	**Obs.**	**Mean (Hosting)**	**Obs.**	**Mean Diff.**	**Std. Error**
Consumption per adult equivalent (PAE)	56,666.446	1,835	50,487.684	257	6,178.762*	3,471.519	60,848.386	2,008	53,033.680	271	7,814.706	7,793.058
HH Welfare (log cons. PAE)	10.699	1835	10.674	257	0.025	0.044	10.631	2008	10.620	271	0.011	0.050
Rural location	0.823	2,026	0.890	273	-0.067***	0.024	0.835	2,026	0.890	273	-0.055**	0.024
HH size	6.239	2,026	5.883	273	0.357*	0.201	-	-	-	-	-	-
Age of HH head	46.089	2,023	46.179	273	-0.090	0.980	47.518	2,025	47.744	273	-0.226	0.964
HH head male	0.720	2,026	0.758	273	-0.038	0.029	0.687	2,026	0.736	273	-0.050*	0.030
HH head female	0.280	2,026	0.242	273	0.038	0.029	0.313	2,026	0.264	273	0.050*	0.030
HH head education level												
No formal education	0.198	1,908	0.198	263	0.000	0.026	0.194	1,979	0.209	268	-0.015	0.026
Did not complete primary	0.429	1,908	0.426	263	0.003	0.033	0.411	1,979	0.403	268	0.008	0.032
Completed primary	0.266	1,908	0.262	263	0.004	0.029	0.280	1,979	0.272	268	0.008	0.029
Secondary and above	0.106	1,908	0.114	263	-0.008	0.020	0.114	1,979	0.116	268	-0.001	0.021
HH head marital status												
Married monogamously	0.559	2,021	0.571	273	-0.012	0.032	0.537	2,025	0.546	273	-0.009	0.032
Married polygamously	0.185	2,021	0.260	273	-0.076***	0.025	0.195	2,025	0.271	273	-0.076***	0.026
Separated (divorced/widowed)	0.237	2,021	0.165	273	0.072***	0.027	0.248	2,025	0.176	273	0.073***	0.027
Never married	0.019	2,021	0.004	273	0.016*	0.008	0.020	2,025	0.007	273	0.013	0.009
HH main source of income												
Subsistence farming	0.535	1,946	0.618	262	-0.083**	0.033	0.566	1,856	0.630	262	-0.064**	0.033
Commercial farming	0.028	1,946	0.000	262	0.028***	0.010	0.012	1,856	0.008	262	0.004	0.007
Wage employment	0.160	1,946	0.149	262	0.011	0.024	0.129	1,856	0.160	262	-0.031	0.022
Non-agric. self-employment	0.205	1,946	0.179	262	0.025	0.026	0.213	1,856	0.168	262	0.045*	0.027
Remittances & others	0.072	1,946	0.053	262	0.019	0.017	0.080	1,856	0.034	262	0.046***	0.017

*Note: Two-sample t-test with unequal variances between refugee-hosting and non-hosting districts. Significance level: *** p<0.01, ** p<0.05, * p<0.1*

4. Empirical strategy

Our aim is to causally quantify the effect of refugee presence on host communities and then discuss the potential coping strategies employed by households in these communities. Specifically, we investigate whether refugee presence impacts household welfare; the distributional effects induced by the presence of refugees; and the potential channels through which refugees affect the welfare of households. Household welfare is proxied by the consumption aggregate, which is adjusted for household demographic composition in terms of sex and age (per adult equivalent scales).[10] Then we weave out the coping strategies implemented by households in reaction to experienced refugee shocks.

We assess the impact of the presence of refugees at the year of interview between 2009 and 2012. To this purpose, we construct a refugee index that weights the number of refugees in the closest refugee settlements by the inversed distance from those settlements to the clusters.[11] We only consider refugee settlements within a certain distance (buffer). Given the distribution of households as a function of distance to the closest refugee settlement, we first adopt a 50-kilometer buffer.[12] An alternative threshold at 100 kilometers is explored as a further robustness check. Additionally, in the robustness checks we also consider, in intervals of 10 km, buffers below the 50 km mark.

We then exploit the spatial and time variation in the presence of refugees and the related changes in several outcomes of interest. This variation is obtained through the use of fixed effects to account for

[10] Uganda Bureau of Statistics (2013). Uganda National Panel Survey 2010/2011 Wave II report. June 2013

[11] As discussed by Maystadt and Verwimp (2014), the parameter of the decay function can be modified to give more or less weight to proximity. We follow their robustness checks in dividing the number of refugees by the squared distance or the square root of the distance between settlements and the clusters.

[12] The 50-kilometer threshold may seem arbitrary. The chosen threshold falls between the 25th (36 kilometres) and the 50th percentile (62.5 kilometres) of the distribution of distances to the closest settlement (Figure A4). Existing studies have offered various bandwidths from 10 to 150 kilometres (Alix-Garcia et al., 2018; Loschmann et al., 2019). Beyond the various robustness checks offered in Section 5.1, we should also stress that the choice of threshold matters less than it may seem at first sight, since the refugee index is weighted by the proximity to the nearest refugee settlement.

unobserved heterogeneity across households. For this strategy, the regression model follows a two-way fixed effect specification:

$$Y_{ihct} = \beta_1 Refugee_{ct} + \alpha_t + \alpha_{c|h} + \beta_2 X_{it} + \beta_3 H_{ht} + \beta_4 Q_{ct} + \varepsilon_{itc} \quad (1)$$

Each outcome variable Y of household i in year t and cluster c is regressed on the refugee index, denoted *Refugee*, in year t and cluster c. To ease interpretation, the refugee index is transformed into logarithm form (adding one in case of zero values).[13] We use ordinary least squares as the main method of estimation. To deal with the so-called Moulton problem (Cameron & Miller, 2015; Abadie et al., 2017), we cluster the standard errors at the EA level. We also report Conley (1999) standard errors to correct for spatial dependency.

Causal identification is nonetheless a challenge given the potentially endogenous nature of the presence of refugees. Indeed, the localization of settlements as well as the number of refugees they host can be influenced by unobserved variables related to the attractiveness of the considered area. Refugees are likely to be located in peripheral areas—mostly rural. These areas may feature less dynamic labor markets, pushing the coefficient linking the presence of refugees and some welfare indicators downward, for example. The descriptive statistics indicate that the level of welfare tends to be lower in refugee-hosting districts, and it would not be surprising to see that these areas would have grown slower than other areas in the absence of refugees. To cope with this identification concern, we first control for observed and unobserved heterogeneity.

To correct for unobserved heterogeneity, we consider a set of fixed effects. First, we include year fixed effects (α_t) to account for any unobserved changes over time that the households share. One could, for example, expect the world market or national policies to play an important role in affecting our outcome variables. Second, we add cluster fixed effects (α_c) to control for any unobserved factors

[13] We obtain almost identical results when using an inverse hyperbolic sine transformation.

common to households within the same EA but different across clusters, even within the same district. This is particularly important since our descriptive statistics indicate that refugee-hosting and non-hosting clusters differ in terms of several dimensions. For instance, a difference in the main source of income or agricultural production could be explained by cluster-specific factors such as traditional practice or agro-ecological conditions, among others. In addition, in augmented specifications we replace the cluster fixed effects by household fixed effects, which control for any time-constant unobserved characteristics unique to households. At the risk of shifting the population of interest (oversampling large households, for instance) and reducing the efficiency of our estimates by considerably reducing variation between units of observations, the inclusion of household fixed effects can shed light on possible endogeneity bias arising from location selection of refugee settlements.

Another set of controls is constituted by a vector of household (H_{ht}) and individual (X_{it}) characteristics. The individual covariates include age, sex, and the square of age. We also augment the specifications with less pre-determined covariates, notably household size, marital status, highest completed education level, the household's main source of income, ownership of land, and alternative sources of income. In all regressions, we account for the sampling weights to render the estimates nationally representative and independent of the sampling design. We proceed in a stepwise manner as well, adding controls to successive regressions to avoid the risk of "bad" controls (Angrist & Pischke, 2008).

Despite the use of control variables, there remain concerns about the endogeneity of the presence of refugees. For instance, the number of refugees in a given area might be influenced by the attractiveness of the area and possible related changes. To deal with this concern, we use an instrumental variable approach. We construct a shift-share instrument based on the mean distance

between the refugee settlements and the closest border crossing points. Formally, our instrument can be described as follows:

$$IV_{ct} = \sum_{O} Refugee_{Ot} * \left(\frac{1}{Distance_{cO}}\right),$$

where *c* is the cluster/EA, *t* is the year, and *O* is the refugees' country of origin. [14] For this instrument to be valid, it has to influence our outcome variables only through the presence of refugees. In other words, this instrument has to be a good predictor of the number of refugees within a given cluster while remaining uncorrelated with the error terms. Our assumption to satisfy this exclusion restriction is that the distance between any given cluster and the border point through which refugees come into Uganda is completely independent of the changes in outcome variables. We further relax this assumption in Section 5.2. By linking this distance with the number of refugees from country *O* within cluster *c* and summing up over all possible *O*, we obtain a good predictor of the total number of refugees in cluster *c* at time *t*. However, we discuss further the plausibility of our identifying assumptions in Section 5.2.

[14] There are 17 source countries registered in the UNHCR settlement dataset. Only 7 countries account for 99.7% of the total number of refugees in Uganda (excluding refugees in Kampala whose source country is not known) in the study period. We focus on these 7 countries to construct the instrumental variable (IV). More specifically, these 7 countries are Sudan/South Sudan, DRC, Rwanda, Burundi, Somalia, Eritrea, and Ethiopia. Despite bordering Uganda to the East and having more than 1,000 refugees over the study period, Kenya is not included in the IV analysis as it contributes only about 0.002% of the total number of refugees in the country. In addition, the refugee border crossing points are lined only along the northern, western, and southern borders of Uganda. It is difficult to assume that Kenyan refugees would first cross another international border before crossing into Uganda. Yet, this assumption can be made for refugees from Somalia, Ethiopia, and Eritrea (assuming they enter Uganda through South Sudan).

5. Results

5.1. Effect of refugee presence on household welfare

According to the OLS specifications (Table 2, Panel A),[15] the presence of refugees is positively correlated with household welfare represented by the consumption aggregate per adult equivalent. Within the 50-km buffer, the correlation is statistically different from zero (Table 2, Panel A, columns 1–3) unless household fixed effects are controlled for, in which case the coefficient loses statistical significance (Table 2, Panel A, column 4). The stability of the coefficient gives us a first hint that the efficiency of our estimates is affected by the addition of household fixed effects, although their consistency is not. Moreover, correcting for potential spatial correlation in the error terms confirms our results. The instrumental variable analysis also points to a positive effect of refugee presence on household welfare (Table 2, Panel B).[16] The comparison between the IV and the OLS point estimates suggest that the naïve estimates understate the impact of refugees on hosts. Downward bias may be explained by the fact that host communities tend to have lower socio-economic conditions (Maystadt et al. 2019). In Uganda, refugee settlements are majorly located in rural areas, mostly in peripheral areas. Among the reasons for such an allocation is the need for large amount of land to host the large population of refugees and still be able to sustain the country's self-reliance strategy which involves distribution of land for agriculture to refugees. The areas surrounding these settlements, therefore, may be characterized by certain challenges such as lower trade opportunities, less dynamism in the labour market, sedentary (unimproved) agriculture drastically lowering soil quality, among others. The coefficient in the regression specifications with all controls including year and cluster fixed effects (column 3) is quantitatively similar to the coefficients in the regression specifications with year and household fixed effects (column 4). Doubling the presence of refugees would increase the consumption aggregate per adult equivalent by about 7.38% for households within 50 km of a refugee

[15] Details in Appendix 3, Section 3.1; Tables A4 and A5.
[16] Details in Appendix 3, Section 3.2; Tables A6 and A7.

settlement (Table 2, Panel B, column 4). This effect size is similar to the results of Maystadt and Verwimp (2014), who found an estimated 8% increase in consumption per adult equivalent. [17]

Table 2: Effects of refugee presence on household welfare—analysis at the cluster level and a distance-weighted refugee index at 50 km from the clusters (2009–2012 panel)

	Dep. var. log of welfare (consumption aggregate per adult equivalent)			
	(1)	(2)	(3)	(4)
	Panel A (OLS)			
Log of refugees (50 km)	0.0237	0.0238	0.0273	0.0217
	(0.0108)**	(0.0108)**	(0.0133)**	(0.0144)
[Conley – 50-km cut-off]	[0.0083]***	[0.0083]***	[0.0108]**	[0.0109]**
Observations	5,470	5,467	4,103	4,100
R-squared	0.3892	0.3894	0.3839	0.7172
	Panel B (2SLS 2nd Stage)			
Log of refugees (50 km)	0.03009	0.02995	0.07809	0.07385
	(0.04462)	(0.04456)	(0.04454)*	(0.04302)*
[Conley – 50-km cut-off]	[0.03481]	[0.03477]	[0.03993]*	[0.03844]*
Observations	5,470	5,467	4,103	4,100
Kleibergen–Paap rk Wald F	19.32	19.31	14.61	14.15
Kleibergen–Paap rk Wald F (*correction for spatial dep.*)	20.49	20.46	19.56	22.01
Root MSE	0.595	0.595	0.533	0.362
	Panel C (2SLS 1st Stage)			
	Dep. var. log of refugees (50 km)			
Log of distance IV (mean border distance)	9.23178	9.23409	8.71469	8.67948
	(2.10051)***	(2.10151)***	(2.27975)***	(2.30761)***
Observations	5,470	5,467	4,103	4,100
Root MSE	0.581	0.581	0.612	0.594
Included controls				
Exogenous controls (age, agesq, sex "male==1")	*No*	*Yes*	*Yes*	*Yes*
Other controls (HH size, marital status, education, occupation, other income sources, land ownership)	*No*	*No*	*Yes*	*Yes*
Year fixed effects	*Yes*	*Yes*	*Yes*	*Yes*
Cluster fixed effects	*Yes*	*Yes*	*Yes*	*No*
Household fixed effects	*No*	*No*	*No*	*Yes*

*Notes: Panel A shows the results from the OLS, Panel B represents the second stage of the IV regression, and Panel C shows the first-stage results from the IV regression. Apart from HH size, the endogenous controls added are as of the base year of the study. In regression (4), where household fixed effects replace the cluster fixed effects, all time-invariant variables drop off (only age, agesq, and male remain). Sampling weights are considered, and standard errors are clustered at the cluster level in all regressions. Robust standard errors are in parentheses, and Conley standard errors are in brackets for regressions with correction for spatial dependency. *** p<0.01, ** p<0.05, * p<0.1. The detailed results are presented in Tables A4 to A7.*

Several robustness tests confirm the positive effects of refugee presence on household welfare. For instance, when constructing the instrumental variable, the parameter of the decay function was

[17] For the 100-km buffer, the coefficient only becomes statistically different from zero and similar to that of the 50-km buffer when cluster and household fixed effects are included (Appendix 4, Section 4.1; Table A8, Panels A and B).

modified to give more or less weight to the proximity between the country-of-origin border point and the destination clusters. The IV regressions with the instruments constructed by dividing the number of refugees from country *O* by the square or the square root of the distance between border points and the clusters also show similar elasticities of between 0.07 and 0.08 for households within 50 km of a refugee settlement.[18] The coefficient of interest falls within the determined elasticity boundaries (0.07 and 0.1) when the analysis is conducted with a reduced buffer from 20 to 50 kilometers, with 10 km intervals.[19] Even when the Kampala district is included in the analysis, the estimated coefficient remains the same for households within 50 km of a refugee settlement.[20] In our main results, we use the absolute distance from cluster to refugee settlement when constructing the compound refugee index, which captures all settlements within a 50-km buffer of a particular cluster. As an additional robustness check, we modify the parameter of the decay function to give more or less weight to proximity between clusters and refugee settlements. Using the distance to a refugee settlement does not alter the result much, only pushing upward the estimated second-stage coefficient of interest when more emphasis is placed on the distance.[21]

The results therefore show that the presence of refugees has a significantly positive effect on household welfare. Living closer to refugee settlements is beneficial (on average) to the host populations.

5.2. Identifying assumptions

The causal identification of a positive impact of refugees on host welfare rests on key identifying assumptions. First, the instrument is sufficiently strong, as shown by the relatively high values—above 14—for the Kleibergen–Paap rk Wald F statistics (see Panel B of Table 2). Second, we assume

[18] See Appendix 4, Section 4.2; Table A9, columns 8 and 12.
[19] See Appendix 4, Section 4.3; Table A10.
[20] See Appendix 4, Section 4.4; Table A11. Our results remain qualitatively similar when dropping the clusters of the Eastern side of the country, known to be different from the Western side that hosts most refugees. A massive reduction in sample size by about one third nonetheless affects the precision of our second-stage estimates (p-value between 0.1 and 0.2).
[21] See Appendix 4, Section 4.5; Table A12.

that the instrumental variable does not impact consumption per adult equivalent through a channel other than the presence of refugees, the so-called exclusion restriction. We explore two main threats to these assumptions.

Unobserved confounding factors linked to border proximity. With our distance-based shift-share instrument, one of the main threats to the exclusion restriction is the fact that other time-varying factors could be correlated with proximity to the border. For instance, trade channels have been shown to have non-trivial impacts across borders (Bayer & Rupert, 2004; Glick & Taylor, 2010). Our results are unaltered after controlling for distance to the border interacted with the year dummies.[22] This is indicative that the distance variable in our IV, and consequently the IV itself, is not affecting household welfare through its effect on any other time-varying factors that are influenced by proximity to the Ugandan border, and which could potentially affect the welfare of households.

Unobserved confounding factors linked to conflict at origin. One other major threat to the exclusion restriction could come from conflict in neighboring countries driving both forced migration and the economic lives of people residing in areas close to borders. Spillovers may also arise from the so-called peace dividends. For instance, the return of South Sudan to relative stability coincided with a large increase in exports from bordering areas in northwestern Uganda (Brenton & Isik, 2012). Therefore, controlling for conflict spillovers can help to show that the distance variable in our IV is an excludable weighting measure allowing the IV to properly predict the number of refugees being hosted in particular localities, without capturing alternative channels such as changing trade.

We use Armed Conflict Location and Event Data (ACLED) to create a conflict fatalities index, which we apply as a proxy for conflict spillovers (Raleigh et al., 2010). The assumption is that conflicts resulting in fatalities capture the intensity of violence towards potential migrants and significant disruption to trade or economic activity in neighboring countries/regions. The conflict spillover index

[22] See results in Appendix 5, Section 5.1; Table A13.

measures the number of fatalities from conflict events in neighboring countries that take place in the areas nearest to the refugee-hosting country in a particular year, weighted by the distance from the conflict area to the clusters in the refugee-hosting country. Initially, we construct this conflict spillover index by restricting the conflict-source countries to neighboring countries that are also refugee source countries (i.e., Burundi, DRC, Eritrea, Ethiopia, Rwanda, Somalia, South Sudan, Sudan, Tanzania, Kenya). Later, we further restrict the sample to only include the closest neighbors and closest trade partners: Burundi, DRC, Rwanda, South Sudan, Tanzania, and Kenya. Controlling for conflict spillovers does not significantly affect the main coefficient of interest.[23]

5.3. Distributional effects

In order to identify distributional effects, we run IV regressions on split samples disaggregated by the head of household's initial level of education, main source of income, and land ownership.

Education. Figure 5 (Panel A) suggests that the education level of the head of household does not significantly influence the effect of refugee presence on household welfare. The positive effect of refugees would have been mostly driven by households headed by individuals who had not completed primary school in the base year of the study period;[24] however, the point estimate is not precisely estimated when observed heterogeneity (Panel A, column 3) and household fixed effects (Panel A, column 4) are controlled for. Moreover, a t-test shows that the difference between the coefficients is not statistically significant. The education level of the head of household therefore does not seem to matter for the effects of refugee presence on household welfare.

[23] See results in Appendix 5, Section 5.2, Table A14.
[24] See details in Appendix 6, Section 6.1, Table A15.

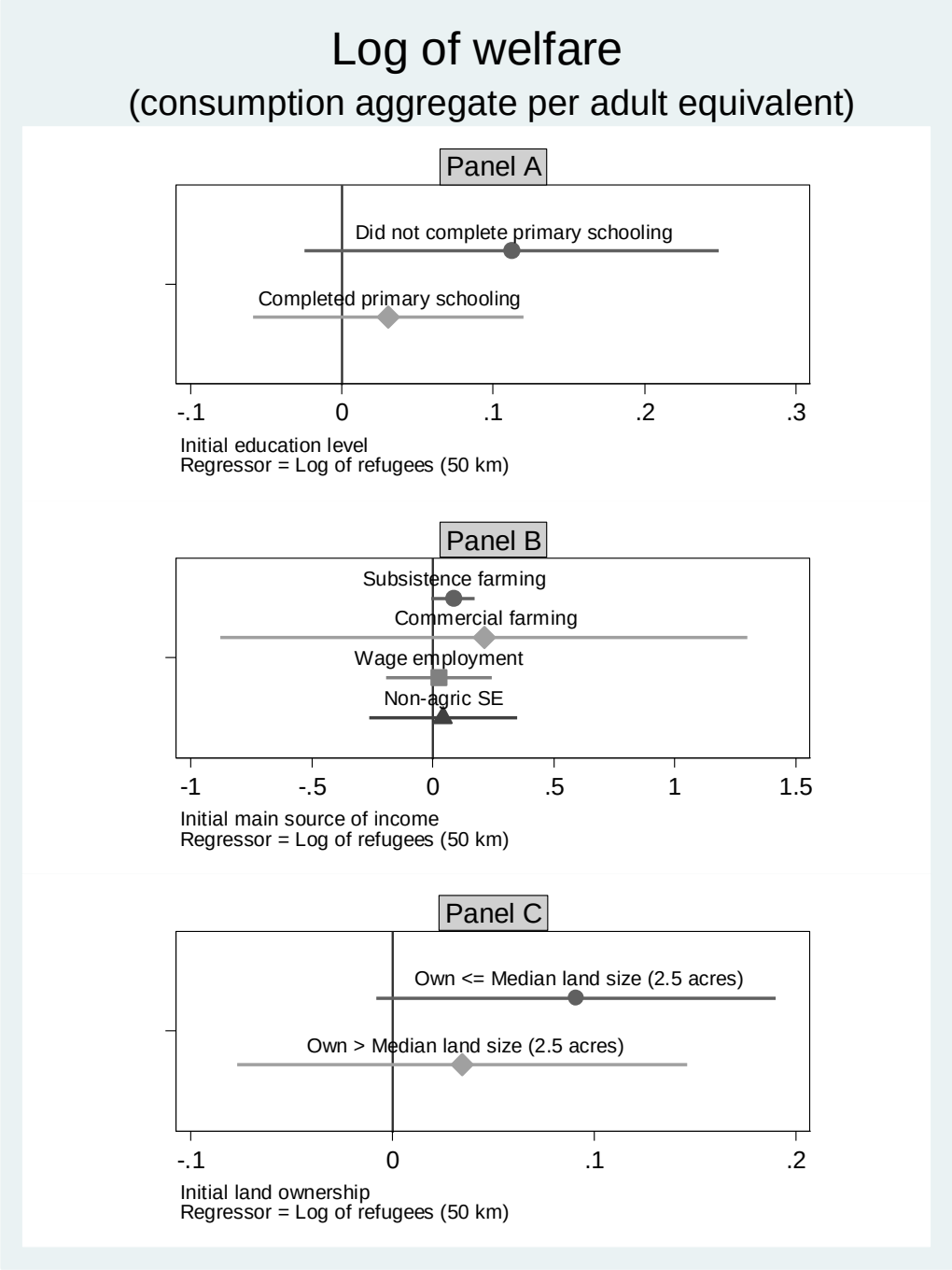


Figure 5: Effect of refugee presence on household welfare disaggregated by initial education, main source of income, and land ownership

Occupation. With regard to the effect of the refugee presence on the welfare of households disaggregated by main source of income in the base year, Figure 5 (Panel B) suggests that households initially reliant on subsistence farming benefit from being near a refugee settlement. An increase in welfare of about 8% can be seen for households within 50 km of a refugee settlement and whose

initial main source of income is subsistence farming (Table A16; Panel A).[25] This positive effect is robust to the choice of decay function in the construction of the IV.[26]

This effect is compatible with households mainly relying on subsistence farming prior to the arrival of refugees (see descriptive statistics) and potentially responding to an increasing demand for agricultural products from refugee settlements. Market expansion induced by refugees would allow subsistence farmers to sell some of their home production and diversify their sources of livelihood. Alix-Garcia and Saah (2010) similarly find that, compared to urban households, rural households closer to refugee camps experience a positive wealth effect that could result from the production and supply of non-aid food products in response to upward price shifts. We do not find any significant effect on those initially involved in commercial farming, wage employment, and non-agricultural employment. However, the reduction of sample sizes and the weakness of the first-stage regressions do not allow us to draw any firm conclusions.

Land ownership. The presence of refugees is potentially beneficial to the welfare of households that initially owned land smaller than or equal to the median size of 2.5 acres (Figure 5, Panel C). The coefficients are relatively large and positive, but only statistically different from zero when household fixed effects are controlled for (Appendix 6, Section 6.3; Table A18, Panel A; column 4).

Subsistence farmers usually own smaller pieces of land, and therefore, it is likely that there is a parallel between the results based on initial land size and those based on initial main source of income. A t-test also shows that the difference between the coefficients in corresponding panels is not

[25] See Appendix 6, Section 6.2; Table A16.
[26] Table A17 (Appendix 6, Section 6.2) shows that the effect size varies from 7% to 10% depending on the choice of decay function (Panel A).

statistically significant. Ownership of land as defined in this study therefore does not seem to matter for the effects of refugee presence on household welfare.

Overall, the heterogeneity analysis presents somewhat surprising results. There is a relatively large consensus that hosting refugees creates relative winners and losers within the hosting population. Although research on the distributional impact of forced displacement remains scarce (Verme & Schuettler, 2021), quantitative and qualitative studies usually converge in identifying households with access to human and physical capital as those most likely to adapt to the refugee shock and respond optimally to changing economic opportunities (Maystadt et al., 2019). Our results are sufficiently puzzling to call for further investigation of the potential mechanisms behind these redistributive effects of benefits/losses.

6. Discussion of possible coping strategies

There are several channels in the literature through which refugees might affect the welfare of households in host communities. For instance, some argue that an influx of refugees induces a supply of cheap agricultural labor for commercial farmers and fosters competition for agricultural wage workers within the hosting communities (Maystadt & Verwimp, 2014). Others suppose that refugees create a market for agricultural goods, thus benefitting those involved in the production of these goods (Alix-Garcia & Saah, 2010). In the literature, therefore, the most commonly discussed channels of refugees influence on household welfare are the labor market and the agricultural sector.[27]

[27] Estimates in this section are computed without instrumentalization due to the weakness of the corresponding instrumental variables when interaction terms are used and, hence, two endogenous variables need to be dealt with. The corresponding Kleibergen–Paap rk Wald F statistics are indeed below one. Caution must be taken to not interpret these results causally.

Occupation choice. The above findings (Section 5.3) generally suggest that the presence of refugees is more beneficial to rural households that are initially involved in subsistence farming.[28] One possible explanation is that subsistence farmers, who are mainly consuming what they produce and are relatively poor, sell off their home production to diversify and improve their well-being. Further investigation reveals such dynamics when households change occupation over time. That is, a household whose initial main source of income is subsistence farming may switch to relying mainly on another, more lucrative, source of income in later years, given the refugee situation. In this investigation, we first correlate welfare and refugee presence given the time-varying main occupations of households. The initial main sources of income are included as controls. Figure 6 (Panel A) shows that the few households who rely on commercial farming seem to benefit more.[29]

[28] Further investigation reveals that, indeed, rural households emerge as beneficiaries compared with urban households (Appendix 7, Section 7.1; Table A19). However, the sample sizes when restricting the analysis to urban households is too limited to make any inferences.

[29] Details can be found in Appendix 7, Section 7.2; Table A20. We do not introduce household fixed effects in these estimations since this would correspond to looking at the change of a change in occupation in a heterogeneous framework. Due to a lack of statistical power, the analysis of coping strategies also does not involve the instrumental variable approach. The analysis should be given a correlational interpretation, not a causal one (naturally, the change in occupation may be a result of the change in welfare).

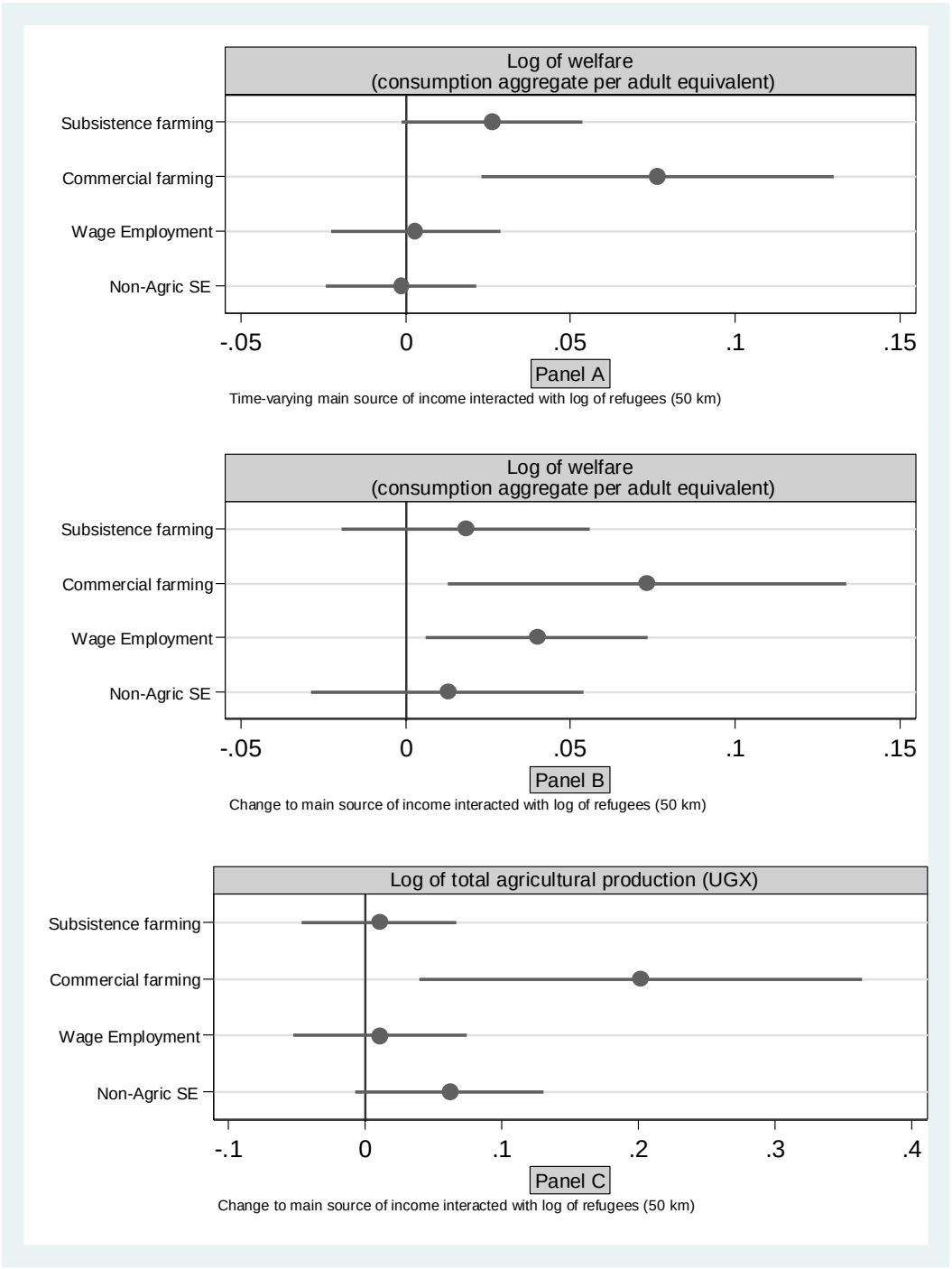


Figure 6: Effects of refugee presence on household welfare and total agriculture production disaggregated by occupation choice

For our second investigation, we correlate welfare and refugee presence interacted with an indicator equal to one if the household moves to a particular main source of income. The results suggest that households that change from their initial main source of income to commercial farming and wage

employment likely benefit more from the influx of refugees (Figure 7, Panel B).[30] Overall, these results suggest that households respond to the market dynamics created by the influx of refugees by switching to commercial farming in order to increase their welfare. Given our descriptive statistics (Table 1), we should nonetheless acknowledge that less than 1 percent of households in refugee-hosting areas generate their income mainly from commercial farming. While such a coping strategy certainly offers large payoffs, it remains limited in scope.

In order to understand this coping strategy, we further investigate the agriculture channel. We define a variable capturing the level of agricultural production, that is, total agricultural production across both agricultural seasons.[31] These variables are all log-transformed before inclusion in the model specification. We redefine model specification (1) above by including the following controls: whether or not the household experienced shocks in the last 12 months, distance to the nearest major road, distance to the nearest population center, distance to the nearest market, distance to the nearest land border crossing, distance to the headquarters of the district of residence, annual mean temperature, annual cumulative precipitation, average 12-month total rainfall, percentage of agriculture within an approximately 1-km buffer, and the majority land-cover class within an approximately 1-km buffer. We can show that the few households that switch to commercial farming potentially enjoy higher total agricultural production (Figure 6, Panel C). These results support the argument that agriculture is an important channel through which the welfare of households living in refugee-hosting areas is affected. [32]

[30] Details in Appendix 7, Section 7.3; Table A21.We should nonetheless acknowledge that these results rely on a small number of households (52) that are able to switch to commercial farming.

[31] We disaggregate the level of agricultural production by calculating the total harvests of fruits, vegetables, and cereals across both agricultural seasons. The total harvests of fruits, vegetables, and cereals are converted into monetary terms, that is, Uganda shillings (UGX), before the values are aggregated to determine total household agricultural production. The detailed classification of the food categories is provided on the last page of the Appendix.

[32] Details in Appendix 7, Section 7.4; Table A22.

The findings also imply that switching one's main source of income is an important coping strategy for these households. Furthermore, the results show that households that switch from their initial occupation to commercial farming are likely to benefit because they increase their total agricultural production. We also find that these potential benefits from agricultural production accruing to households that switch to commercial farming as their main source of income possibly come from an increase in the total production of vegetables specifically.[33] Ruiz and Vargas-Silva (2016) suggest that households working within the agricultural sector may not necessarily leave the sector in response to a refugee shock but can change the types of crops they cultivate. Alix-Garcia and Saah (2010) also explain that positive wealth effects accrue to households who respond to increasing prices by increasing their production of particular agricultural products, especially non-aid food items. These increasing prices are driven by increasing demand for these items. In Uganda, the basic food-aid basket given to refugees comprises maize, cow peas, salt, beans, and cooking oil (Betts et al., 2017), and from anecdotal evidence it appears that rice and sorghum also occasionally feature in the food basket. When preferred food items are not given freely, refugees incur a cost to obtain the foods they would rather consume. For instance, Somali refugees in Uganda can trade their aid maize rations for cash in order to buy their preferred foods, which are pasta and rice (Betts et al., 2017). Moreover, Betts et al. (2017) further highlight trade opportunities within refugee economies where neighboring villages sell their products to refugees, including vegetables. These accounts support the argument of improved welfare for host households that switch to commercial farming, and perhaps specifically those that produce more vegetables.[34]

[33] See Appendix 7, Section 7.4; Table A23. We do not find significant correlations with the total production of fruits and cereals (Appendix 7, Section 7.4; Tables A24 and A25).

[34] It is important to note the definition of a commercial farmer in this context. Usually, commercial farming encompasses two major aspects: the main purpose of selling produce and the physical capital requirement of a large area of land. However, the results in Table A26 (Appendix 7) suggest that the decision to switch to commercial farming perhaps does not drive the need to own a larger area of land, at least in the immediate future. The reverse could also be true: that the switch to commercial farming in this context is not strongly driven by the size of land owned. Since the classification of the main source of household income is merely reported in the LSMS-ISA and not observed, this could imply that most households would classify themselves as commercial farmers solely based on the main purpose of planting.

In light of these findings, we qualify our previous conclusions. Households initially involved in subsistence agriculture seem to benefit from the presence of refugees and, possibly, from the Ugandan policy towards refugees. Our analysis does not lend itself to a static framework, however. The few who are able to switch from subsistence farming or any other initial main source of household income to commercial farming benefit more from the market advantages. Moreover, the market advantages may be more apparent for those farmers who engage in commercial vegetable production.

7. Conclusion

The consequences of hosting refugees are driven by several factors that encompass the refugee policy in the hosting country, the sheer number of refugees being hosted, the duration of stay of the refugees, and the coping strategies hosts employ given the refugee shock, among others. Sub-Saharan Africa (SSA) has to cope with a large and rising number of refugees who live in their host countries for protracted durations. Therefore, understanding the consequences of hosting refugees in SSA has increasingly gained attention in the literature. Several studies have highlighted a net economic benefit. In this study, we contribute to the literature by exploring the potential channels of refugee influence on household welfare and the coping strategies employed by households in refugee-hosting areas.

Our study centers on Uganda, which has a unique refugee policy. The country hosts the most refugees in SSA and is the third largest refugee-hosting nation globally. We use panel data to determine the effect of refugee presence on household welfare based on the consumption per adult equivalent between 2009 and 2012. Based on a shift-share instrumental variable, our results indicate that the presence of refugees leads to significant welfare benefits for households living close to refugee settlements. The host-community effect size we find is similar to what is reported from other countries in the region albeit they have stricter refugee management policies. One reason might be that the *de facto* differences are less pronounced than the *de jure* ones. For instance, mobility has been found to be limited in practice due to reliance to aid for livelihoods (Betts et al., 2019). In their comparison between Uganda and Kenya, Betts et al. (2019) highlight that refugees in Kenya are also more likely to be employed by the host communities than refugees in Uganda. Understanding how the challenges of integration faced by refugees translate into refugee-host interactions and *in fine*, impact the hosts' welfare despite the heterogeneity in refugee policies is an essential direction for further research.

Finally, our findings indicate that rural households initially involved in subsistence agriculture who benefit most from the presence of refugees. This contrasts with previous studies pointing to households with access to human and physical capital as those most likely to adapt to the refugee shock and respond optimally to changing economic opportunities (Maystadt et al., 2019). Welfare improvements in refugee-hosting districts also correlate with a switch to commercial agriculture and, to some extent, wage employment. The channel through which households are able to benefit may be increased agricultural production, and especially vegetable production, for those who switch to commercial farming. These occupational transitions are beneficial coping strategies restricted to a small number of households, however. Further (qualitative and comparative) research is required to investigate the specificities of the Ugandan framework and context in facilitating these occupational transitions and how policies can incentivize these transitions even further. Indeed, this would help to inform policy regarding how potential losers can be assisted to adopt beneficial coping strategies.

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