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## **Forced Displacement and Vulnerability: Evidence from High-Frequency Microdata across 11 LMICs**

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# Forced displacement and vulnerability: Evidence from high-frequency microdata across 11 LMICs

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## Abstract

The last decade has seen a concurrent, large increase in forced displacement and in shocks such as conflict, natural disasters, and public health emergencies in low- and middle-income countries. Crises cause displacement so FDPs often geographically cluster around areas susceptible to adverse events and shocks. Crises also hurt those the most that are the most vulnerable to start with. Despite these established facts, data limitations have meant that there is a lack of evidence quantifying differences in vulnerability between forcibly displaced households and their non-displaced counterparts - with important implications for what kind of and for whom policy is made. In this paper, we assemble a longitudinal dataset tracking the vulnerability of over 18,000 forcibly displaced households and 34,000 non-displaced households between April 2020 and March 2023 across 11 low- and middle-income countries. We find that displaced households are almost twice as likely to be severely food insecure, a third less likely to be in employment, and 9% less likely to receive medical care when needed. Part of this vulnerability differential relates to FDPs living in areas with harsher conditions and that are more prone to shocks. We find that FDPs live in areas that are on average 0.7°C hotter, receive 0.65 mm less rain per month, and that record about one additional violent conflict event per 100,000 people and 1.2 additional conflict fatalities in a 6-month period. Yet, FDPs are also substantially more vulnerable than the local host population inhabiting the same areas. This suggests that geography alone explains all but one part of the vulnerability differential which, further, arises even though FDPs are almost three times more likely to receive a form of social assistance. We find that targeting assistance to the broad group of FDPs within a country would do reasonably well in targeting vulnerabilities without the need for data-intensive (proxy) means testing. In an age of compounding crises, mass displacement, and shrinking aid budgets, our findings demonstrate the urgency of more, not less, development funding to be allocated to address the plight of forcibly displaced populations.

**Keywords:** Forced displacement, vulnerability, LMIC, survey data

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The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

## Introduction

There were approximately 117.3 million forcibly displaced people (FDP) worldwide by the end of 2023 (UNHCR, 2023). This marks an 8% rise from the previous year and continues a 12-year trend of increasing displacement. Projections indicate that this number will surpass 120 million by the end of 2024. Currently, one in every 69 people globally, or 1.5% of the world's population, is forcibly displaced, nearly double the ratio from a decade.

The surge in forced displacement over the last years coincides with a culmination of shocks such as natural disasters, a global pandemic, climate change, violent conflict, and public health emergencies in low- and middle-income countries. Crises cause displacement so FDPs often geographically cluster around areas susceptible to adverse events and shocks (Fransen et al. 2023). Crises are also most devastating to those who are the most vulnerable to start with. Despite these established facts, data limitations have meant that vulnerability has been much more extensively studied for the non-displaced population in recent years. Conversely, we know much less about how the vulnerability of forcibly displaced people compares to the general population in quantitative terms.

The objective of this paper is to assess the impact of shocks on displaced populations and determine whether they then become more vulnerable compared to the non-displaced and host populations. We assemble a longitudinal dataset and study the vulnerability of FDPs in comparison to the non-displaced population across 11 low- and middle-income countries (LMICs) and four world regions. The dataset covers countries hosting an estimated 15% of the world's forcibly displaced people, over 46,000 interviews with FDPs, and 171,000 interviews with non-displaced households that are part of the general population. The data were collected between April 2020 and March 2023 as part of the World Bank's High-Frequency Phone Surveys (HFPS) and include information on food security, livelihoods outcomes, and access to public services.

Across all these outcomes, we find that FDPs are statistically significantly and economically more vulnerable than their non-FDPs. They are 89% (17 percentage points) more likely to be severely and 70% (26 pp) more likely to be moderately food insecure, 34% less likely to be in employment, 16% (6 pp) less likely to be able to access medicine, and 9% (7 pp) less likely to receive medical care when needed. Part of this vulnerability differential likely relates to FDPs living in areas with harsher conditions and that are more prone to shocks. We find that FDPs live in areas that are on average 0.7°C hotter, receive 0.65 mm less rain per month, and that record about one additional violent conflict event per 100,000 people and 1.2 additional conflict fatalities in a 6-month period.

Even though differences between displaced and non-displaced households explain a significant share of the total variation in vulnerability in our sample, there are substantial differences even when comparing only among displaced or non-displaced households. Using a multilevel mixture model, we find that differences between countries, and between displaced and non-displaced households within countries, together explain about 44 percent of the total variation in food security in our sample. Among households with the same displacement status, the location of the household and time-constant differences in the characteristics of households account for a further 9 and 13 percentage points of the total variation, respectively. The remaining variation seemingly

relates to time-varying factors such as shocks and seasonality that hit different households differently.

By leveraging a robust and extensive dataset, we offer crucial insights into the differential vulnerabilities and resilience mechanisms of FDPs. This knowledge is vital to design targeted interventions that can effectively mitigate the adverse impacts of shocks on FDPs, thereby promoting equitable and sustainable development pathways in hosting countries.

Moreover, the results and insights from this paper contributes to a growing family of literature and empirical studies investigating the impacts of shocks on the forcefully displaced as well as on host population in lower- and middle-income countries. This literature remains severely data constrained as surveys efforts and administrative records are on these populations continue to be limited.

We contribute to and advance at least three strands of the literature. First, a series of studies assessing the conditions, and climatic hazard exposure of the areas hosting forcefully displaced populations. On climatic hazards, Fransen et al. (2024b) find that displaced populations in the largest 20 refugee settlements in the world are more exposed to extreme weather conditions, such as low rainfall, high temperatures, and extreme rainfall. Owen et al. (2023) focusing on 17 settlements in East Africa draw similar conclusions. Fransen et al. (2024a) provides a detailed overview of the literature on exposure and vulnerability of displaced populations to climatic risks.

Secondly, on FDP vulnerability, we contribute to a growing literature that analyses the vulnerability of displaced populations in low- and middle-income settings (Khuri et al., 2022). This literature currently lacks systematic explorations of vulnerability *differences* between displaced and non-displaced populations, of differences across a large set of contexts, countries, and vulnerability proxies, and an in and out of camp setting for FDPs. The high-frequency phone surveys underlying our study provide the first longitudinal evidence meeting these criteria to the best of our knowledge. Such evidence though currently limited is necessary to capture the much-discussed greater susceptibility of displaced populations to shocks and their impacts on the vulnerability differential. (World Bank, 2023).

Finally, this work contributes to the literature on the impacts of refugee settlements on host populations. Davis et al. (2024) find that Rohingya refugee camps in Bangladesh are located among socioeconomically disadvantaged communities compared to the average in Bangladesh and to the surrounding areas. In contrast, Etang Ndip et al. (2024) employing a difference-in-difference design find increasing economic activity in proximity to Rohingya camps in Bangladesh, along with higher job formality, better access to aid, and increased food consumption as captured in household surveys, which the authors ascribe to the activities of humanitarian organizations. Alix-Garcia et al. (2018) focusing on Kakuma camp in Kenya find that refugee settlements bring some economic benefits but also strain local resources and infrastructure. In the context of Rwanda, Loschmann et al. (2019) document that residing close to a refugee camp increases the likelihood of hosts having wage work and greater assets. In an earlier study from Kagera, Tanzania, Maystadt

and Verwimp (2014) find positive aggregate welfare effects of an influx of Burundian and Rwandan refugees, though there are winners and losers in the local Tanzanian population.

## **Data and Methodology**

### **Data**

#### **Survey data**

We draw on longitudinal, high-frequency phone surveys (HFPSs) across four regions from 11 low and middle-income countries (LMICs): Bangladesh, Burkina Faso, Chad, Djibouti, Ecuador, Ethiopia, Iraq, Jordan, Kenya, Somalia, and Uganda. Together, these countries host approximately 15% of the world’s forcibly displaced population (FDP) (UNHCR 2023). The HFPSs in these countries are part of a broader World Bank initiative that has collected over 280 rounds of phone-based surveys in 54 countries since April 2020. Of these 54 countries, 11 implemented parallel surveys covering non-displaced households and forcibly displaced populations, thus enabling direct comparisons across the two groups. In total, our dataset comprises over 217,000 interviews (April 2020–March 2023) covering 34,000 non-displaced households and 18,000 FDP households. Both the non-displaced and FDP surveys collect information on food security, livelihoods, and access to public services. They also include at least some geographic information at the first administrative level (region, state, governorate etc.). In five countries, Bangladesh, Burkina Faso, Chad, Ethiopia, and Uganda, more precise geographic identifiers (GPS coordinates) are available for non-displaced households, because their sampling frames originated from in-person surveys that recorded the households’ locations. Below, we detail the design for (a) Non-displaced and (b) FDP samples. Additionally, an Appendix Table summarizes key features of each country survey.

#### **Non-displaced Populations**

The HFPSs for non-displaced populations in our 11 countries are designed to be nationally or regionally representative. In many countries, the sampling frames were derived from recently conducted, nationally representative surveys such as the 2015/16 Kenya Integrated Household Budget Survey in Kenya, the 2018/19 Enquête Harmonisée sur les Conditions de Vie des Ménages in Burkina Faso, the 2018/19 Ethiopia Socioeconomic Survey in Ethiopia and the 2019/20 Uganda National Panel Survey in Uganda. These frames offer rich household-level data that facilitate robust sampling design and subsequent reweighting, thereby mitigating coverage bias. In contrast, in settings like Iraq, Ecuador, and Jordan, the surveys instead relied on administrative registries, lists of phone numbers, or random digit dialing (RDD) methods. For instance, in Ecuador, RDD was implemented to rapidly generate large samples, even though this approach can introduce challenges related to non-working or unassigned numbers. In all cases, the targeted respondent was typically the household head or another knowledgeable adult, with clear protocols in place for phone-based respondent selection.

#### **Forcibly Displaced Populations (FDPs)**

For FDPs, the HFPSs required tailored strategies to address both coverage and sampling challenges. Coverage for FDPs is inherently more limited than for the host population, as these

surveys often target specific groups, such as refugees or internally displaced persons, living in camps or designated host communities. In countries such as Chad and Djibouti, recent refugee surveys were thankfully available but in others, such as Burkina Faso, Uganda or Ethiopia, FDP sampling frames were primarily constructed from governmental or institutional registries, for example, the UNHCR's ProGres database or local rosters, to capture FDPs. In Kenya, the sampling design for FDPs was particularly complex: multiple sampling frames were combined to ensure representation across distinct strata (e.g., Kakuma refugee camp, Kalobeyei settlement, Shona stateless populations, Dadaab refugee camp, and urban refugees), with some strata relying on recent socioeconomic surveys and others on UNHCR registries. In other countries, sampling also used multi-frame approaches. In Somalia, for example, a combination of snowball sampling and RDD was implemented to reach both rural and nomadic displaced populations. Respondent selection followed protocols similar to the non-displaced surveys, targeting household heads or key adult members.

To address biases arising from coverage, non-response, and attrition, the HFPSs in both groups employed a range of adjustment techniques. These methods combined sampling-based approaches (such as weighting class adjustments and propensity score matching) with population-based techniques (including post-stratification and raking) to improve representativeness (Himelein et al. 2020, Ambel et al 2021, Brubaker et al. 2021). When a representative survey exists, it served as a benchmark to reweight the raw sample, using methods like propensity score matching and post-stratification, to align the territorial distribution of households with that of the overall population. Moreover, attrition was also mitigated by re-estimating propensity scores through logistic regression models based on household characteristics correlated with response probability in the previous wave; trimming and imputation procedures being then applied before final post-stratification adjustments to yield balanced panel weights (Himelein 2014). These methods were critical for reducing, but not entirely eliminating, the inherent biases in phone survey samples.

#### Variable creation

In order to facilitate cross-country and longitudinal analysis, key outcome variables were constructed to capture multiple dimensions of household well-being. The HFPSs questionnaires encompassed an extensive range of subjects including understanding of COVID-19, behaviors related to the pandemic, accessibility to essential needs, employment status, food security, financial transfers, the impact on children's education throughout school closures, economic losses triggered by the crisis, as well as various shocks and coping strategies. The design of the survey questionnaires was strategically developed to support international comparability and promote data harmonization. Consequently, we were able to develop a set of standardized indicators across the 120 country-survey-rounds. Our final harmonized dataset integrates information on food security, livelihood outcomes, and access to public services.

**Economic Mobility:** Two primary indicators were developed to capture economic mobility. The first is an employment variable; a binary indicator that takes the value 1 if the respondent was employed during the last seven days or if they have a job to which they are expected to return, and 0 otherwise. The second indicator measures income change by capturing whether the respondent experienced a decrease in overall household income relative to the previous survey round, coded as a binary variable.

**Food Security:** The food security dimension is captured through three variables. First, a food access dummy indicates whether a household was able to access all staple foods as usual. Second,

the Food Insecurity Experience Scale (FIES) is used to produce a raw score reflecting the severity of food insecurity experienced by the household. Third, the Household Dietary Diversity Score (HDDS) quantifies the variety of food groups consumed over a reference period, offering an additional perspective on household food access and nutritional quality.

**Health Care:** To assess access to health services, two indicators were created. A dummy variable for access to medicine equaling 1 if the household was able to purchase medicine when needed, and 0 if not. Additionally, a forgone care variable coded as 1 when an individual in the household sought healthcare but was unable to receive it, thereby capturing unmet healthcare needs.

**Assistance:** The assistance variable is a binary indicator reflecting whether the household received any form of external support, whether from government sources, NGOs, international organizations, or other charitable entities.

**Asset Index:** In contexts where the underlying HFPS draws on larger household surveys that include detailed asset modules (in Burkina Faso, Chad, and Ethiopia), an asset index was constructed. Following the approach popularized by Filmer and Pritchett (2001), we applied principal component analysis to a set of asset indicators. This index aggregates information on durable goods and dwelling characteristics into a single continuous measure that serves as a proxy for household wealth.

These variables were harmonized across survey rounds and countries to ensure consistency in measurement and comparability of results. However, not all indicators are available in every survey round or country, and coverage can vary based on various considerations including survey's main objectives. A table detailing variable construction for each country-survey is available in Appendix.

### **Conflict data**

We use data from the Armed Conflict Location & Event Data Project (ACLED) that compiles data on the location, date, and type of conflict events across all countries we study. Depending on the spatial granularity of FDP and non-FDP data in any given country, we calculate the number of conflict events (battles, explosions, riots, and violence against civilians) and the number of conflict fatalities within a geographic area over the last month, the last six months, twelve months, and twenty-four months. To harmonize differences in the size of the administrative divisions within which we can situate different households across countries and normalize the interpretation of regression coefficients, our main specification expresses the prevalence of conflict as the number of conflict events (the number of fatalities) per 100,000 population at the level 1 administrative division.

### **Weather data**

We merge data on the locations of the households in our dataset with longitudinal weather data on temperature and precipitation from the European Centre for Medium-Range Weather Forecasts (ECMWF) ERA5 monthly reanalysis dataset. The data in its original format is gridded such that we calculate averages within the administrative boundaries, as well as anomalies in the form of a Standardized Precipitation Index (SPI), and a Standardized Temperature Index (STI). These indices are computed by first calculating 3-month aggregates for each month, then fitting the long-term values (1990–2023) to a gamma distribution for precipitation and a normal distribution for temperature. Finally, these distributions are transformed into standard normal distributions to derive the SPI and STI (Lloyd-Hughes and Saunders, 2002). For our analysis, we distinguish

between slow-onset climatic differences between areas and rapid-onset climatic shocks. The former is defined as the deviation of average local temperature (precipitation) in the last three months from the national average over the same time period. We define rapid-onset climatic shocks as the standardized temperature (precipitation) index exceeding 1.5 standard deviations, i.e., 3-month average temperature (3-month total precipitation) exceeding their long run averages by 1.5 standard deviations or more.

### **Camp locations**

To locate major FDP settlements, we draw on data from UNHCR which contains a list of the name, type, and GPS coordinates of major FDP settlements for all countries in our dataset. We focus on those countries for which we have GPS location information for non-displaced households and on *formal settlements* as well as *spontaneous locations* as the two most common types of FDP settlements across these countries. Based on the GPS location of each household, we calculate the distance to the nearest FDP settlement within the same country.

### **Estimation**

#### **Vulnerability and shock exposure differentials between displaced and non-displaced households**

We estimate vulnerability differentials in two steps. First, we constrain the list of survey waves used for our analysis to rounds in which data on displaced and non-displaced populations was collected concurrently, i.e., where there is a close time overlap between data collected for FDPs and non-FDPs. Second, we run a regression of the form

$$Y = \beta_0 + \beta_1 FDP + \delta_{ct} + \varepsilon \quad (1)$$

where we pool across countries and regress outcome variable  $Y$  on a dummy for whether the household is forcibly displaced and a set of country-wave dummies,  $\delta_{ct}$ . The country-wave dummies control for factors varying between countries and between the different survey waves within each country. We deliberately choose the simple specification in (1) because we want  $\beta_1$  to capture a long list of potential ways in which displaced households may differ from non-displaced households including the locations they live in, different demographics, and different socio-economic characteristics.

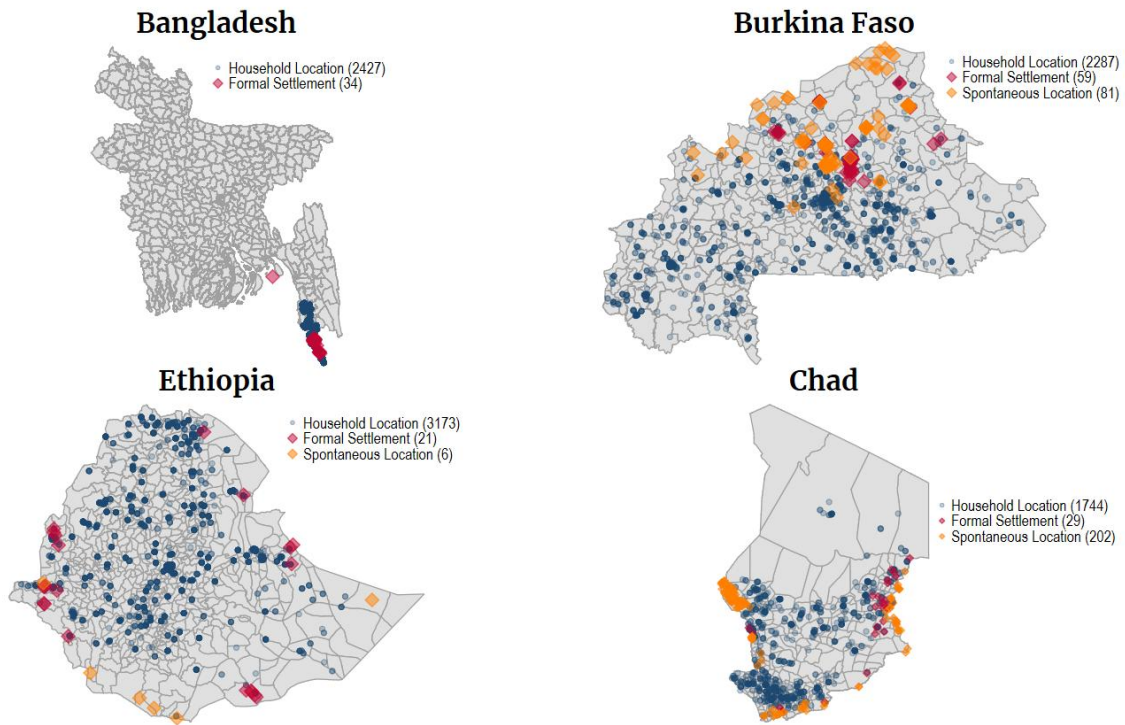
#### **Decomposing variation in vulnerability**

To decompose the variance in vulnerability into factors varying between countries, between displaced and non-displaced populations within country, between different geographic areas within country and displacement status, and finally between different households of the sample displacement status residing in the same geographic areas, we run a set of linear mixture models

$$Y = \beta + \mathbf{Zu} + \varepsilon \quad (3)$$

where  $\beta$  is a constant and  $\mathbf{Z}$  is the design matrix of different levels we nest for the random effects captured in  $\mathbf{u}$ . The random effects have a nesting structure such that the highest level is the country level and subsequent random effects are nested within country and one another. Underneath the country level, we include, in this order, random effects distinguishing between displaced and non-displaced households (“displacement type level”), the geographic area (either admin 1, admin 2, or admin 3), and the household level. We then calculate the intra-cluster correlation at each level of the nesting, that is, we calculate the proportion of the total variation explained by factors varying between units at a given level.

Figure 1: FDP locations (source: UNHCR) and non-displaced household locations



## Results

### Exposure to shocks of forcibly displaced households

We begin by assessing the exposure of forcibly displaced households to conflict and extreme weather. For conflict, we consider the number of conflict events and conflict fatalities per 100,000 population at the admin 1 level in the past month, six months, twelve months, and 24 months (Figure 1). FDP households are significantly more likely to be exposed to both conflict events and conflict fatalities. We estimate that, in a six-month period, they are exposed to one additional

conflict event and about 1.2 additional conflict fatalities per 100,000 population. In a 12-month period, these figures increase to 1.6 and 2.0, respectively.

For extreme weather, we again find FDP households are more exposed (Figure 3). They live in places that are, on average, 0.8 degrees Celsius hotter and receive on average 0.7mm less rainfall per month than the national average. Even though FDPs already live in places that are hotter on average, they are still more likely to be exposed to extreme heat and extreme cold relative to average local conditions. Because they already live in areas much drier than the national average, we find that – relative to typical local conditions - drought shocks are less common but extreme rainfall events more common in areas where FDPs live.

Figure 2: Conflict exposure of displaced vs. non-displaced households

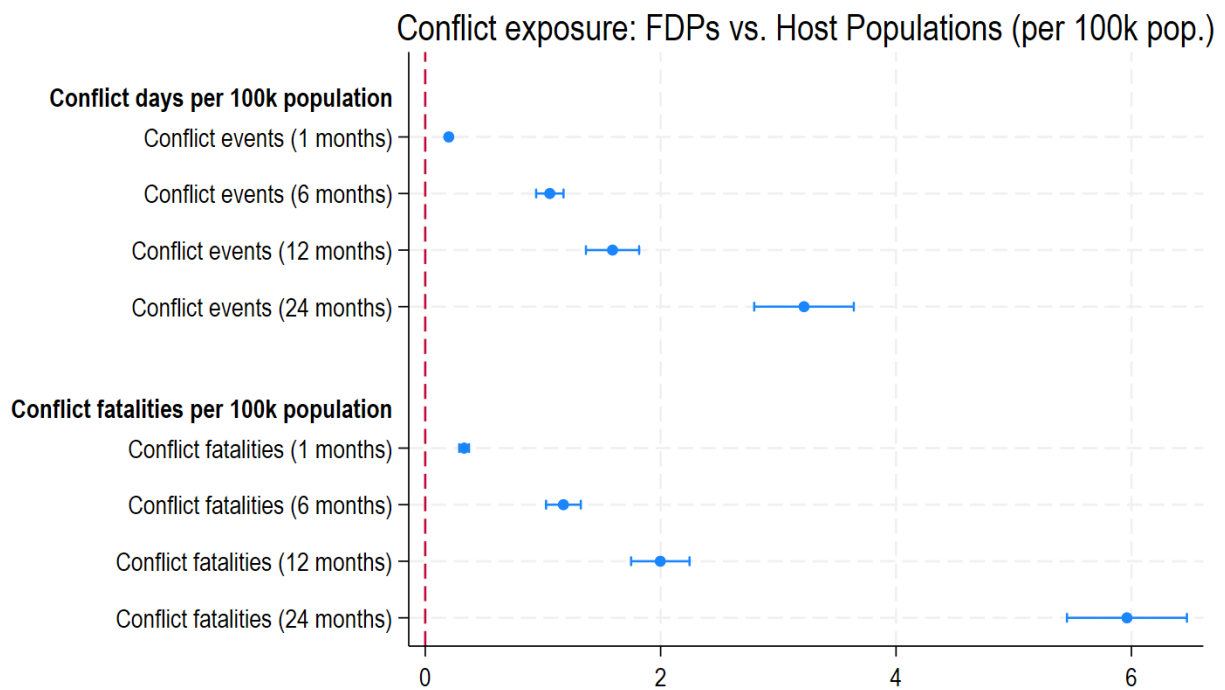
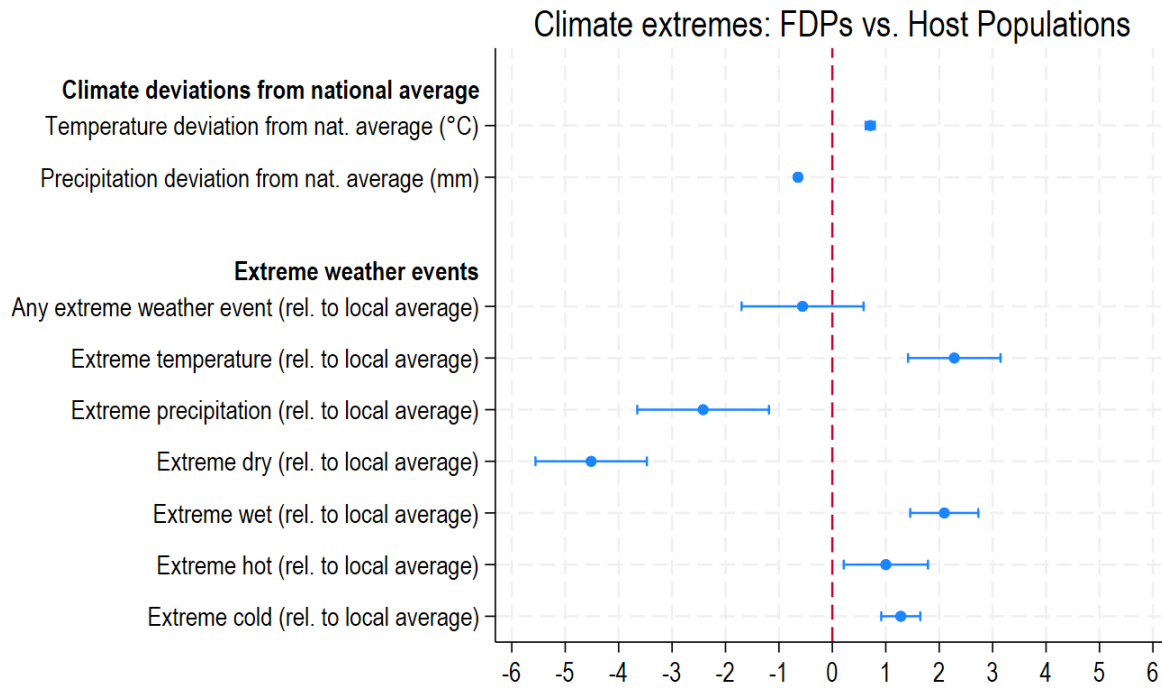


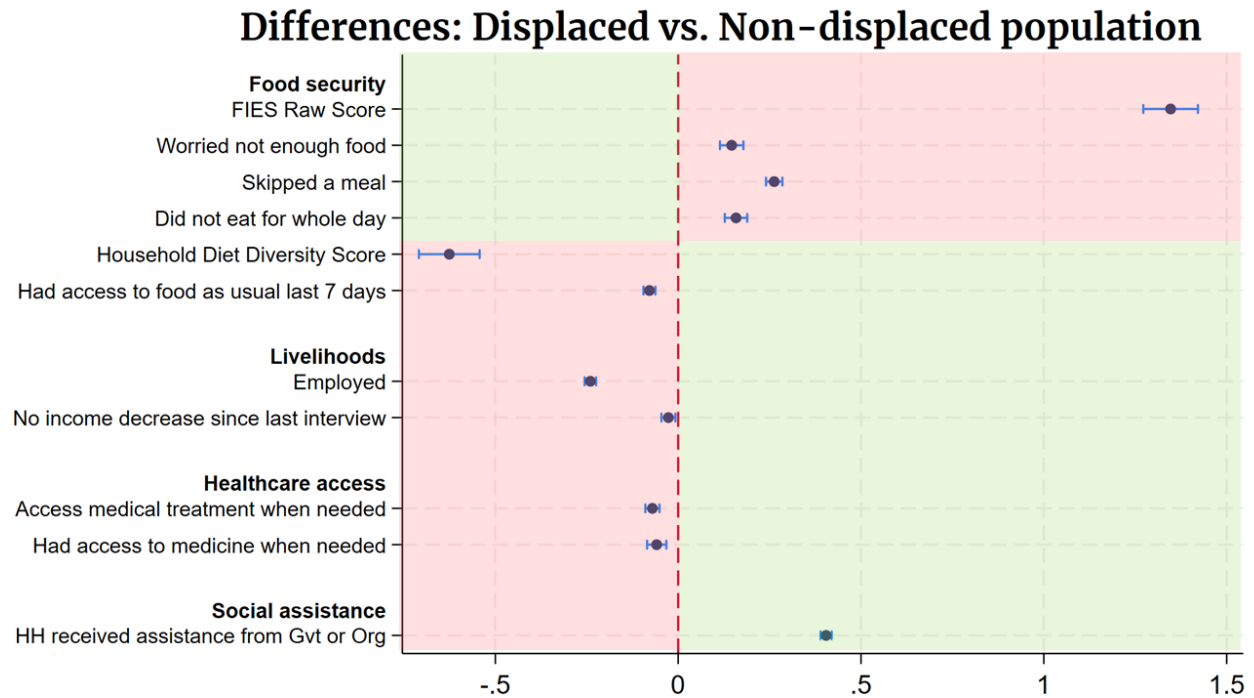
Figure 3: Climate shock exposure of displaced vs. non-displaced households



### Vulnerability of the forcibly displaced

Drawing on our samples of forcibly displaced households and national populations in host nations, we assess the differential vulnerability between these two groups along a range of key welfare outcomes. The results suggest FDP households are more vulnerable along almost all indicators we study (Figure 4). Starting with food security, FDP households are more likely to be food insecure, with a higher Food Insecurity Inexperience Scale score by 1.3 points (64% higher than the cross-country average among non-displaced households). They are 15 percentage points (pp, 24%) more likely to be worried about not having enough food, 26pp (70%) more likely to state to have skipped a meal, and 17pp (89%) more likely to go a day without eating. The household dietary diversity score of FDP households is 0.6 points (8%) lower than that of the national population. We also find FDP households to be 8pp (12%) less likely to have had access to food as usual in the last 7 days and 24pp (34%) less likely to be employed. FDP households are 7pp (9%) and 6pp (13%) less likely to be able to access medical services and medicines, respectively. In contrast, they are almost three times likelier (41pp) to receive social assistance and remittances from abroad (5pp).

Figure 4: Vulnerability differential between displaced and non-displaced households



How consistent are these results across countries? Despite our sample spanning four world regions and a diversity of displacement situations, the substantially heightened vulnerability of forcibly displaced populations is evident in nearly all cases (Figure 4). Still, cross-country differences arise in terms of the magnitude of the vulnerability differential which is particularly large in some contexts. Differences in food insecurity between displaced and non-displaced populations are particularly stark in Uganda (4.7 points or over four times higher FIES score), Burkina Faso (2.1 points or over twice as high FIES score), and Djibouti (1.4 points or 16% lower dietary diversity score). In terms of employment, FDPs are particularly disadvantaged in Uganda (52pp or 60% lower employment rate), and Bangladesh (-33pp or 70%). The healthcare differential is greatest in Iraq while the likelihood of FDPs to receive social assistance is highest relative to non-FDPs in Bangladesh and Uganda.

Figure 5: Vulnerability differential by country

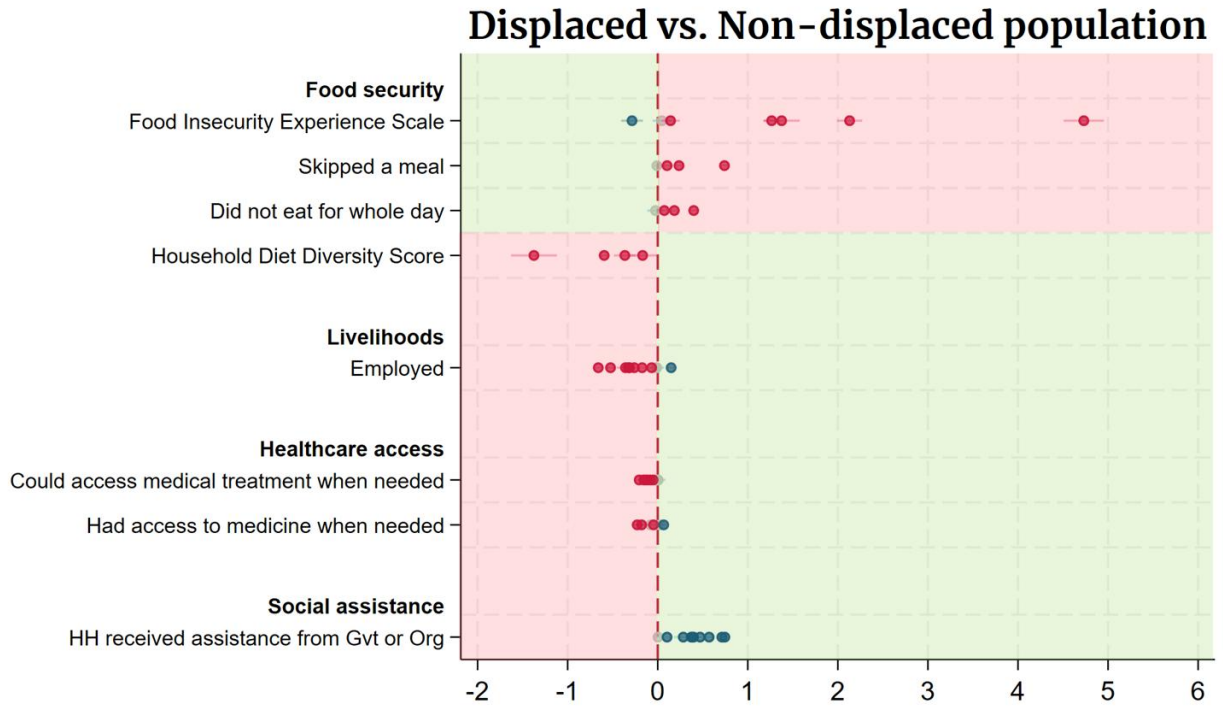
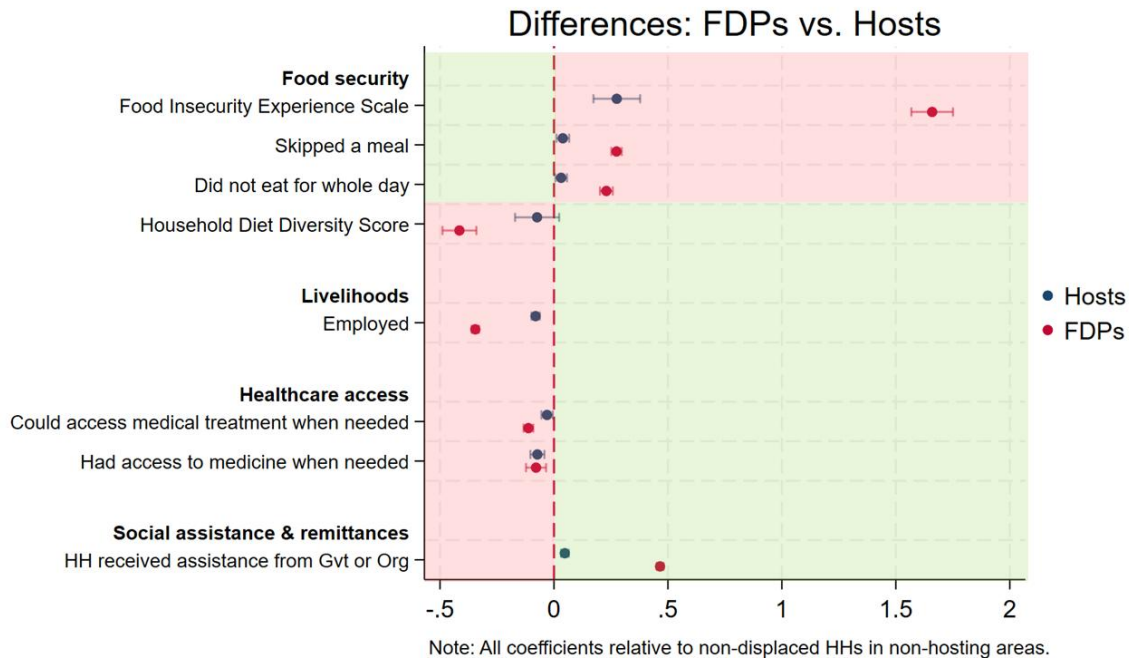


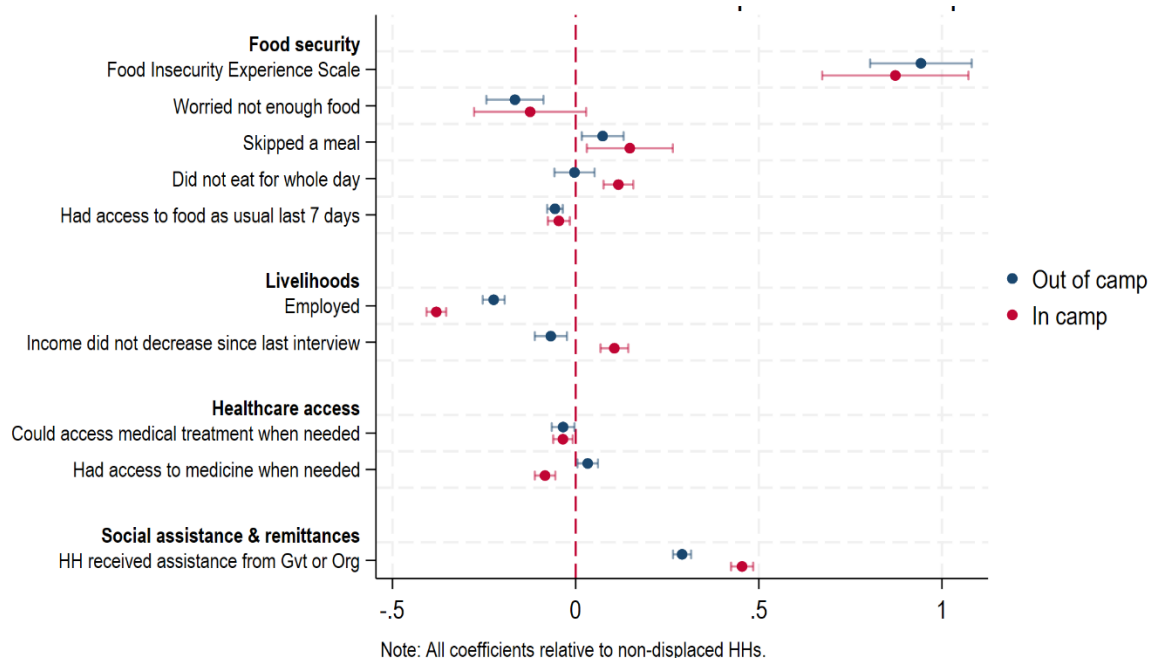
Figure 6: Vulnerability differential compared to non-displaced hosts and other nationals



In Figure 6, we use administrative data on the placement of FDP settlements in each of our sample countries as well as household geographic information to discern between two types of non-displaced households: those living in the same administrative areas as an FDP settlement (“hosts”) and those living in areas without major FDP settlements (“other nationals”, the omitted category in Figure 6). We compare the vulnerability of displaced populations to both these groups and find FDPs to be substantially more vulnerable than their hosts and the remaining national population. The magnitude of differences between displaced and non-displaced households is generally only slightly smaller when compared to hosts occupying the same geographic areas than when compared to non-displaced households living in other parts of the country. We repeat the same analysis with similar results using alternative definitions of the host population: living in the same administrative areas as part of our displaced sample or, where we have the exact coordinates of non-displaced households’ location, living within a 20 km radius of an FDP settlement, respectively (Supplementary Figures 2 and 3).

In a number of countries, we can discern between forcibly displaced people living in-camps and those living outside camps and compare both groups to the non-displaced population (Figure 7). We generally find both to be more vulnerable than the national population. On food security, those living inside and out of camps look similar whereas we find evidence that those living in camps are less likely to be employed and had less access to medicine when needed but were more likely to receive social assistance.

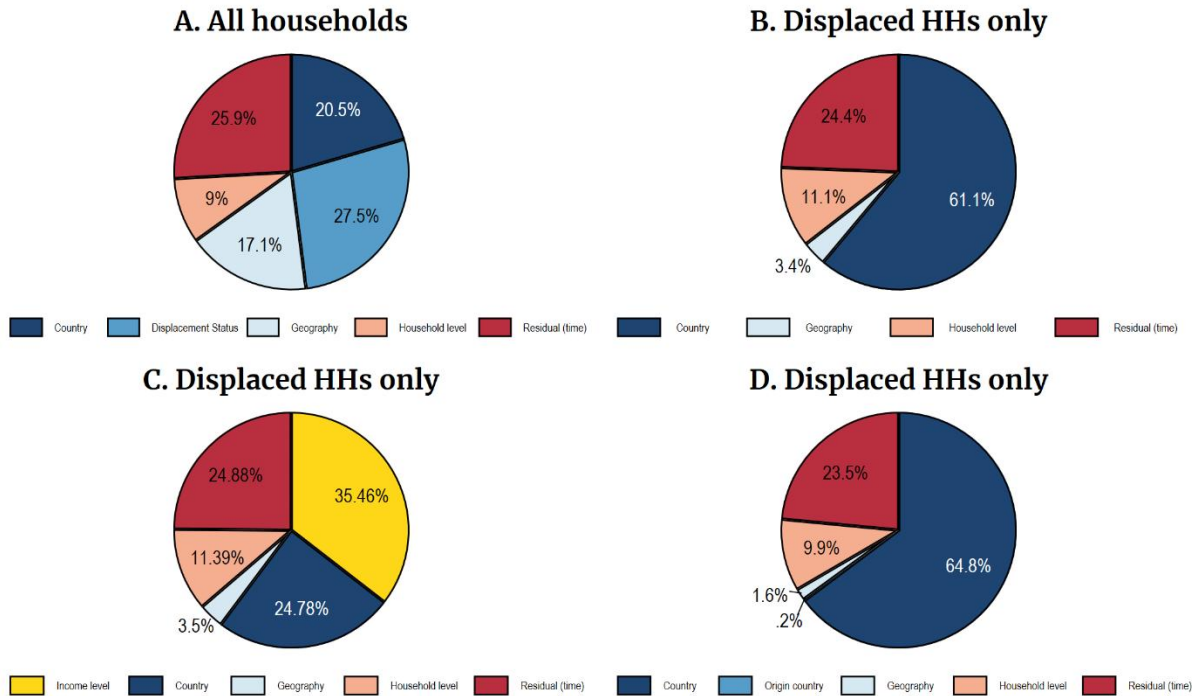
Figure 7: FDPs in- and out-of camps vs. non-displaced population



### What is behind the vulnerability differential?

There is a great deal of variability in household vulnerability both across and within countries. What explains this variability? Is it related to country of residence, location, or simply the fact of being displaced? Here, we investigate the factors explaining these differences in vulnerability, for both displaced and non-displaced households. Relying a hierarchical mixed model, we can decompose the variance in food insecurity (FIES scores) according to several factors varying at different, nested levels. In particular, we decompose the variance due to displacement status, country of residence, local geography (i.e. local administrative unit), household level, and residual variation, that is, variation due to time varying factors not captured in any of the analyzed levels. The results of this exercise are displayed in **Error! Reference source not found.**

Figure 8: Variance decomposition of FIES raw scores



We first analyze the variation in vulnerability amongst all households, both displaced and not displaced (panel A). Displacement status accounts for the relatively largest share of the variation at 27.5%, followed by residual variation, such as shocks and other time-varying factors (e.g., seasonality, changes in household composition, etc.) at 25.9%. The country of origin accounts for 20.5% of variation and the local geography for 17.1% -- both significantly higher than household characteristics at 9%. In the next step, we narrow the analysis to displaced households only (panels B-D). The majority of variation among FDPs (62%) is explained by differences between different host countries. geographic factors (4%) and household characteristics (11%) play a comparably less important role (Panel B). The host country also explains a lot more variation than the country of origin of the displaced population (panel D).

What characteristics of the host country matter most for the vulnerability of the displaced households? Our analysis suggests that the income of the host country plays a critical role. A categorical variable for the income level (low-income, lower-middle-income, upper-middle-income) explains 35.5% of the variation in FIES score, while other factors related to the host country explain about a quarter of the variation. This is further corroborated through a multivariate regression model (Table 1): Relative to the low-income countries in our sample, displaced households in lower-middle income countries have 3.7 points lower FIES scores and upper-middle-income countries a 4 points lower scores on the raw FIES scale (0-7). Similarly, a 1-percent increase in GDP is associated with a 0.024 points decrease in the FIES raw score.

Table 1: Cross-country vulnerability differences: FIES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Region	Income level	Country FE	Origin country FE	Country + origin FE	log GDP p.c.	log GDP p.c. (origin)	GDP p.c. (destination + origin)	Country FE + GDP p.c.	Stringency	Assisted	In camp	Horse race
Region: Sub-Saharan Africa	2.560*** (0.129)												
Income Level Code = 2, LMC		-3.683*** (0.0866)											
Income Level Code = 3, UMC		-4.045*** (0.0553)											
log GDP p.c. (\$1000 PPP)						-2.419*** (0.0319)		-3.494*** (0.102)	0.167 (0.309)				-3.296*** (0.0927)
log GDP p.c. origin country (\$1000 PPP)							-1.334*** (0.0885)	0.772*** (0.0973)					0.654*** (0.163)
COVID-19 stringency index										-0.0148*** (0.00176)			0.0419*** (0.00471)
HH received assistance from Gvt or Org											0.513*** (0.127)		0.154 (0.0982)
In camp (for FDPs)												1.451*** (0.117)	0.746*** (0.169)
Constant	1.971*** (0.0257)	5.642*** (0.0465)	2.720*** (0.0366)	6.000*** (0.172)	2.720*** (0.0366)	40.70*** (0.500)	23.70*** (1.419)	45.81*** (0.567)	0.0702 (4.888)	4.334*** (0.146)	3.426*** (0.118)	2.716*** (0.121)	40.24*** (1.629)
Country FE	NO	NO	YES	NO	YES	NO	NO	NO	YES	NO	NO	NO	NO
Origin Country FE	NO	NO	NO	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO
Observations	30,999	30,999	30,999	21,181	21,181	30,999	21,181	21,181	30,999	30,999	24,739	18,003	6,748
Adjusted R-squared	0.221	0.507	0.628	0.530	0.683	0.463	0.237	0.575	0.628	0.010	0.009	0.072	0.649

Clustered standard errors at household level in parentheses

Table 2: Cross-country vulnerability differences: Employment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	Region	Income level	Country FE	Origin country FE	Country + origin FE	log GDP p.c.	log GDP p.c. (origin)	GDP p.c. (destination + origin)	Country FE + GDP p.c.	Stringency	Assisted	In camp	Horse race
Region: Sub-Saharan Africa	-0.111*** (0.0135)												
Income Level Code = 2, LMC		-0.0590** (0.0232)											
Income Level Code = 3, UMC		0.255*** (0.0110)											
log GDP p.c. (\$1000 PPP)						0.105*** (0.00695)		-0.103*** (0.0123)	-0.0546 (0.234)				-0.117*** (0.0161)
log GDP p.c. origin country (\$1000 PPP)							0.162*** (0.00558)	0.237*** (0.00997)					0.157*** (0.0248)
COVID-19 stringency index										-0.00309*** (0.000254)			-0.00217*** (0.000381)
HH received assistance											-0.00311 (0.0157)		0.0127 (0.0220)
In camp (for FDPs)												-0.0773*** (0.0160)	-0.0513** (0.0253)
Constant	0.546*** (0.00662)	0.432*** (0.00809)	0.141*** (0.00658)	0.458*** (0.0308)	0.141*** (0.00658)	-1.123*** (0.107)	-1.979*** (0.0846)	-1.517*** (0.106)	0.141*** (0.00658)	0.652*** (0.0157)	0.459*** (0.0143)	0.474*** (0.0145)	-0.0333 (0.305)
Country FE	NO	NO	YES	NO	YES	NO	NO	NO	YES	NO	NO	NO	NO
Origin Country FE	NO	NO	NO	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO
Observations	42,031	42,031	42,031	31,411	31,411	42,031	31,411	31,411	31,411	42,031	35,823	29,915	17,984
Adjusted R-squared	0.012	0.063	0.172	0.234	0.234	0.025	0.091	0.100	0.234	0.017	-0.000	0.006	0.033

Clustered standard errors at household level in parentheses. Countries: BGD, BFA, TCD, DJI, ECU, ETH, IRQ, JOR, KEN, SOM, UGA

Figure 9: FIES raw score vs. GDP p.c.

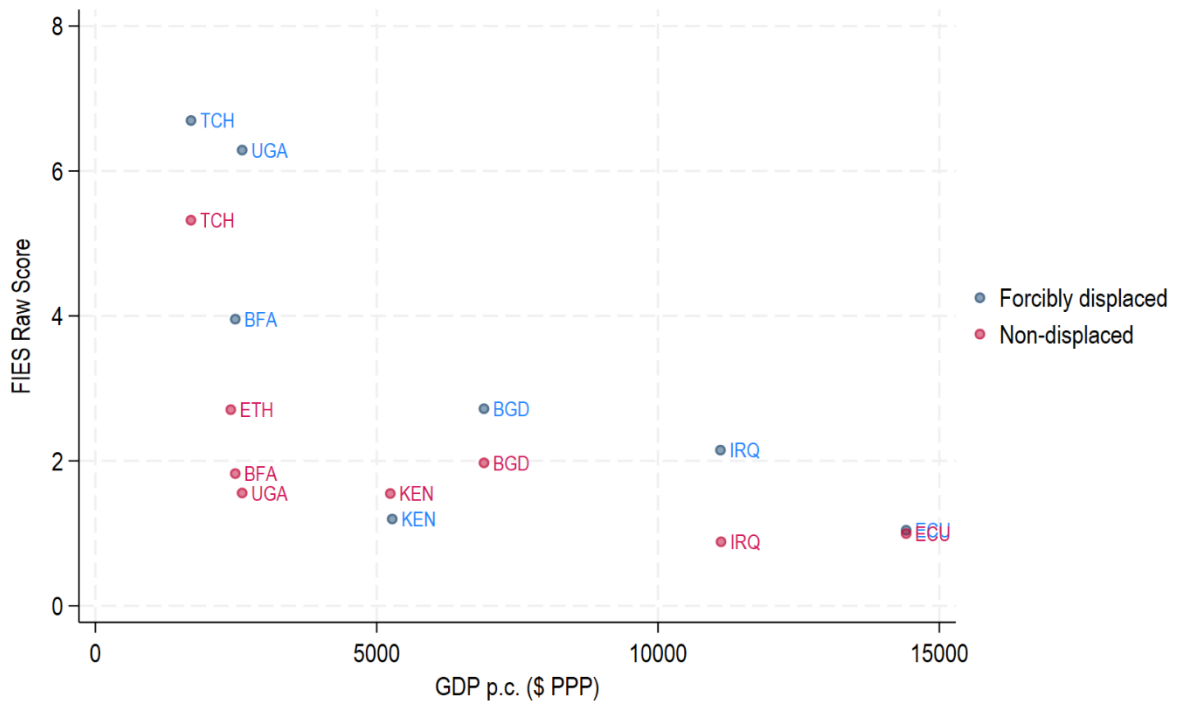
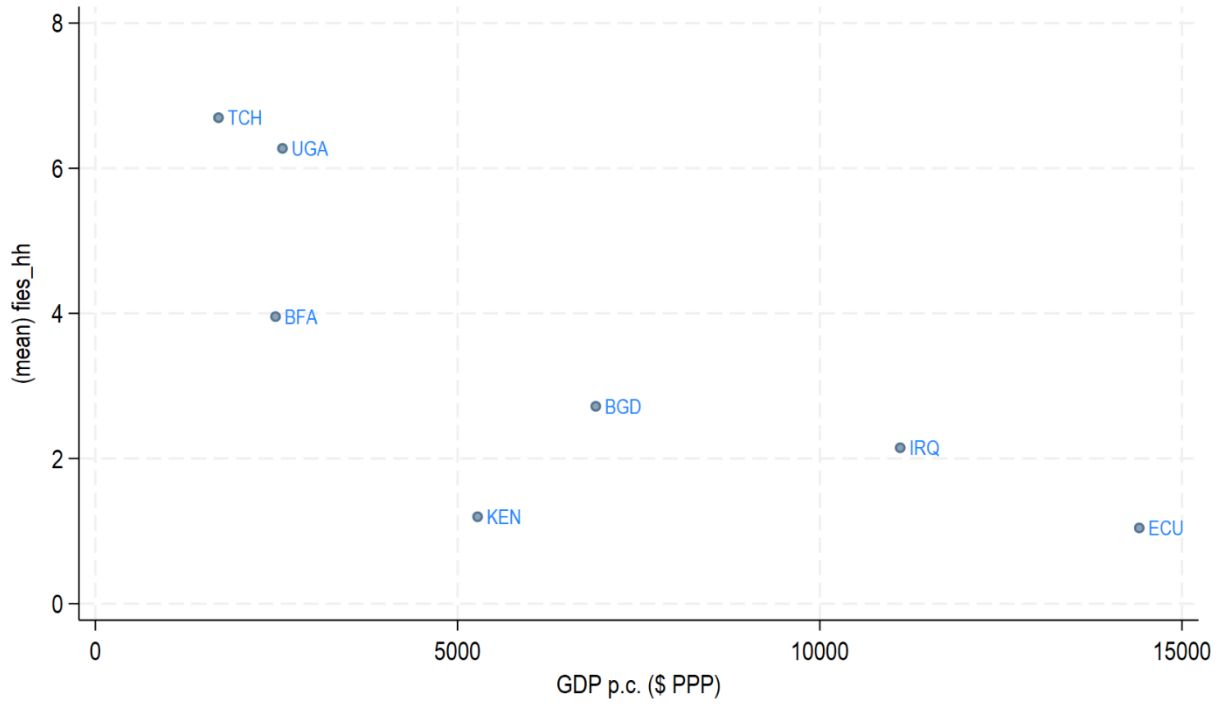


Table 3: Cross-country differences in displaced vs. non-displaced vulnerability differential: FIES

	(1)	(2)	(3)	(4)
	GDP p.c.	GDP p.c. (origin)	Stringency	Assisted
FDP * log GDP p.c.	-1.202*** (0.0494)			
FDP * log GDP p.c. origin		-0.504*** (0.0684)		
FDP * Stringency index			-0.00274 (0.00214)	
FDP * Assisted				1.406*** (0.136)
Forcibly Displaced People	-1.220*** (0.0372)			
log GDP p.c. (\$1000 PPP)	19.86*** (0.782)	9.146*** (1.095)	1.578*** (0.167)	0.786*** (0.117)
log GDP p.c. origin country (\$1000 PPP)		-1.220*** (0.0372)		
COVID-19 stringency index			-0.00918*** (0.00114)	
HH received assistance from Gvt or Org				-0.469*** (0.0529)
Constant	20.90*** (0.591)	20.90*** (0.591)	2.586*** (0.0776)	2.133*** (0.0315)
Observations	95,444	85,626	95,444	75,072
Adjusted R-squared	0.385	0.341	0.073	0.104

Clustered standard errors at household level in parentheses

## Conclusion

In this paper, we provide one of the first systematic, cross-country explorations of differences in the vulnerability between displaced and non-displaced households. Based on high-frequency phone survey data from over 217,000 interviews with 18,000 forcibly displaced households and 34,000 non-displaced households between April 2020 and March 2023, we are among the first to comprehensively quantify the vulnerability of displaced populations relative to non-displaced populations in the same country and at the same points in time. Across a whole array of outcomes, from food security to employment and public service access, we find displaced populations to be systematically and sizably more vulnerable than their non-displaced counterparts. Further, we show that displaced populations are located in places with systematically higher conflict and climate shock exposure than the general, non-displaced population. Much of the vulnerability differential between households in our data is explained by differences between countries and between displaced and non-displaced populations within countries. At the same time, we also find evidence for differences in vulnerability even among households with the same displacement status depending on their location of residence and other household-level factors. Despite some between-country heterogeneity, we find no systematic evidence of differences in the vulnerability

of non-displaced households according to their proximity to an FDP settlement. In future iterations of this draft paper, we plan to unpack this finding further.

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# Appendix

Table A 1: Vulnerability differentials between displaced and non-displaced households

<b>Vulnerability: Displaced vs. Non-displaced population</b>													
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	FIES Raw Score	FIES Worried	FIES Skipped	FIES No eat	HDDS	Food access	Employed	No income loss	Healthcare access	Medicine access	Received assistance	Received foreign remittances	Received domestic remittances
Forcibly Displaced People	1.347** *	0.146** *	0.263** *	0.166***	-0.626***	-	-0.244***	-	-	-	0.411***	0.0477 ***	0.003 59
	(0.0381)	(0.0164)	(0.0115)	(0.0149)	(0.0423)	(0.00823)	(0.00777)	(0.00972)	(0.00927)	(0.0134)	(0.00764)	(0.00315)	(0.00526)
Observations	95,444	68,462	69,979	71,218	23,328	92,027	113,025	21,511	39,662	56,440	103,929	111,398	104,467
Country-wave FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: Results from OLS regressions of different proxies of vulnerability on a dummy for whether the household was forcibly displaced. All regressions use sampling weights recalibrated to sum to 1 for displaced and non-displaced households in each country, respectively. Standard errors clustered at the household level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A 2: Vulnerability differentials between displaced and non-displaced households – by country

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	FIES Raw Score	FIES Worried	FIES Skipped	FIES No eat	HDDS	Food access	Employed	No income loss	Healthcare access	Medicine access	Received assistance	Received foreign remittances	Received domestic remittances
<b>Bangladesh</b>													
Household is forcibly displaced	0.143** (0.0520)	0.0225 (0.0163)	- 0.0092 4 (0.0173)		- 0.365** (0.0612)		- 0.327** (0.0114)	0.135** (0.0153)			0.712** (0.00775)	- 0.0670** (0.00672)	
Constant	2.577** (0.0369)	0.728** (0.0111)	0.318** (0.0117)		7.471** (0.0427)		0.461** (0.0124)	0.803** (0.0124)			0.231** (0.00857)	0.0687** (0.00642)	
Observations	3,652	3,612	3,604		3,652		9,089	2,158			9,916	6,931	
<b>Burkina Faso</b>													
Household is forcibly displaced	2.130** (0.0715)					- 0.291** (0.0142)	- 0.260** (0.0150)		-0.0129 (0.00861)		0.571** (0.0171)	0.00339 (0.00604)	0.141** (0.0129)
Constant	2.022** (0.0571)					0.947** (0.0101)	0.792** (0.0117)		0.969** (0.00795)		0.0325*** (0.00739)	0.0491** (0.00571)	0.237** (0.0116)
Observations	9,139					5,919	9,139		4,637		2,967	9,139	9,139
<b>Chad</b>													
Household is forcibly displaced	1.376** (0.102)	0.0606** (0.0121)	0.236** (0.0182)	0.184** (0.0226)		- 0.000368 (0.0209)	- 0.173** (0.0187)	0.00499 (0.0211)	0.155** (0.0225)		0.398** (0.0224)	0.00338 (0.00218)	0.00367 (0.00367)

Constant	5.276* **	0.871** *	0.660* **	0.332** *	0.261* **	0.824** *	0.264* **	0.791** *	0.0727 ***	0.00091 1	0.00722 ***
	(0.0921 )	(0.0111 )	(0.017 0)	(0.0181 )	(0.0169 )	(0.0134 )	(0.0168 )	(0.0169 )	(0.009 73)	(0.0016 9)	(0.0026 7)
Observations	4,881	4,866	4,828	4,824	4,881	4,881	4,881	3,835	2,534	4,875	4,875

**Djibouti**

Household is forcibly displaced					1.375* **	0.166* **	0.312** *	0.0840* **	0.228** *	0.470* **	0.0240* **	0.0445* **
					(0.130 )	(0.0170 )	(0.0210 )	(0.0210 )	(0.0264 )	(0.014 6)	(0.0088 2)	(0.0103 )
Constant					8.618* **	0.943* **	0.851** *	0.887** *	0.851** *	0.512* **	0.0674* **	0.0921* **
					(0.0702 )	(0.0101 )	(0.0142 )	(0.0136 )	(0.0175 )	(0.015 0)	(0.0067 1)	(0.0080 0)
Observations					3,944	3,603	3,944	1,851	2,144	3,944	3,944	3,944

**Ecuador**

Household is forcibly displaced	0.0470 (0.0535 )						0.149** *	0.0460 **			- 0.00211	-0.0804 (0.0769 )
							(0.0180 )	(0.0182 )			(0.0194 )	(0.0769 )
Constant	1.072* **						0.617** *	0.335* **			0.869** *	0.952** *
	(0.0405 )						(0.0159 )	(0.0161 )			(0.0194 )	(0.0549 )
Observations	5,946						5,946	5,946			2,657	83

**Ethiopia**

Household is forcibly displaced					0.196* **	0.660** *	0.0210	-0.0183	0.0464* **	0.385* **	0.422** *	0.0271* **
					(0.0175 )	(0.0127 )	(0.0186 )	(0.0256 )	(0.0151 )	(0.012 0)	(0.0124 )	(0.0091 9)
Constant					0.724* **	0.884** *	0.771* **	0.927** *	0.935** *	0.0215 ***	0.0116* **	0.0439* **

					(0.0169 )	(0.0088 0)	(0.0157 )	(0.0190)	(0.0124)	(0.006 15)	(0.0028 1)	(0.0067 1)
Observations					7,120	8,346	4,380	992	2,248	8,346	4,380	4,380
<b>Iraq</b>												
Household is forcibly displaced	1.265* **				0.595* **	0.166* **	0.0677* **	0.206** *		0.104* **	- 0.00106	0.0183* **
	(0.0459 )				(0.0263 )	(0.0112 )	(0.0127)	(0.0200)		(0.014 1)	(0.0013 7)	(0.0061 4)
Constant	0.783* **				7.685* **	0.900* **	0.862** *	0.766** *		0.550* **	0.00435 ***	0.0391* **
	(0.0391 )				(0.0204 )	(0.0091 5)	(0.0109)	(0.0201)		(0.013 4)	(0.0013 4)	(0.0060 1)
Observations	11,840				11,840	11,840	9,688	4,312		11,840	11,840	11,840
<b>Jordan</b>												
Household is forcibly displaced					0.168* *	0.0292 **	-0.0139	0.0509* **		0.372* **	- 0.00633	0.139** *
					(0.0831 )	(0.0143 )	(0.0254)	(0.0197)		(0.019 9)	(0.0052 7)	(0.0144 )
Constant					7.565* **	0.204* **	0.533** *	0.805** *		0.456* **	0.0161* **	0.179** *
					(0.0783 )	(0.0165 )	(0.0243)	(0.0175)		(0.019 2)	(0.0056 5)	(0.0148 )
Observations					3,892	3,885	2,647	3,140		3,892	3,892	3,892
<b>Kenia</b>												
Household is forcibly displaced	0.286* **	0.149** *	0.103* **	0.0731* **	0.127* **	0.358** *		0.133** *	0.0665* **	0.284* **	0.0593* **	-0.0240
	(0.0616 )	(0.0467 )	(0.033 7)	(0.0196 )	(0.0370 )	(0.0493)		(0.0329)	(0.0145)	(0.052 1)	(0.0091 9)	(0.0174 )
Constant	1.786* **	0.514** *	0.497* **	0.109** *	0.735* **	0.519** *		0.980** *	0.0365* *	0.0818	0.0244* **	0.00991
	(0.0852 )	(0.0472 )	(0.049 2)	(0.0277 )	(0.0226 )	(0.0305)		(0.0193)	(0.0154)	(0.075 7)	(0.0054 3)	(0.0074 5)

Observations	51,733	51,733	51,733	51,733	46,344	44,681	6,748	42,100	45,828	51,733	51,733	
<b>Somalia</b>												
Household is forcibly displaced				-0.0249 (0.0461)	-0.0291 (0.0327)	-0.0112 (0.0417)	0.00503 (0.0403)	0.0254 (0.0265)	0.0036 9 (0.027)	- 0.00217 (0.0218)	0.0876* ** (0.0326)	
Constant				0.225** * (0.0292)	0.723* ** (0.0476)	0.505** * (0.0391)	0.643** * (0.0448)	0.671** * (0.0341)	0.115* ** (0.018)	0.102** * (0.0248)	0.128** * (0.0263)	
Observations				6,410	5,013	6,411	6,000	6,252	6,411	6,411	6,411	
<b>Uganda</b>												
Household is forcibly displaced	4.731* ** (0.114)	0.646** * (0.0173)	0.741* ** (0.016)	0.399** * (0.0237)	0.213* ** (0.0351)	0.524** * (0.0224)	0.230* ** (0.0305)	0.117** * (0.0239)	0.179** * (0.0405)	0.745* ** (0.013)	0.0254* * (0.0106)	0.115** * (0.0201)
Constant	1.732* ** (0.0754)	0.284** * (0.0134)	0.132* ** (0.011)	0.0682* ** (0.0118)	0.930* ** (0.0096)	0.916** * (0.0129)	0.486* ** (0.0158)	0.917** * (0.0148)	0.822** * (0.0138)	0.152* ** (0.010)	0.0117* ** (0.0042)	0.222** * (0.0149)
Observations	8,253	8,251	8,251	8,251	3,422	8,253	4,146	5,490	3,613	8,251	8,253	8,253
Survey Wave FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: OLS regressions of outcome variables (1)-(9) on distance to the nearest FDP location. Comparison group are host households living further than 15/20/25/30km radius from a formal settlement but within 50km. Clustered standard errors at the household level in parentheses. All estimates unweighted. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table A 3: Conflict exposure by displacement status

<b>Conflict exposure: Displaced vs. Non-displaced population</b>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Conflict events per 100k population				Conflict fatalities per 100k population			
	Last month	Last 6 months	Last 12 months	Last 24 months	Last month	Last 6 months	Last 12 months	Last 24 months
Forcibly Displaced People	0.200*** (0.0115)	1.051*** (0.0702)	1.565*** (0.119)	3.174*** (0.216)	0.337*** (0.0189)	1.200*** (0.0701)	2.017*** (0.134)	6.039*** (0.296)
Observations	119,454	119,454	119,454	119,454	119,454	119,454	119,454	119,454
Country-wave FE	YES	YES	YES	YES	YES	YES	YES	YES

Note: Results from OLS regressions of different measures of conflict exposure on a dummy for whether the household was forcibly displaced. Conflict is measured at the admin 1 level and expressed in per 100,000 people terms. All regressions use sampling weights recalibrated to sum to 1 for displaced and non-displaced households in each country, respectively. Standard errors clustered at the household level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A 4: Extreme climate exposure by displacement status

<b>Extreme climate exposure: Displaced vs. Non-displaced population</b>									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Temperature deviation from nat. average (°C)	Precipitation deviation from nat. average (mm)	Any extreme weather event (rel. to local average)	Extreme temperature (rel. to local average)	Extreme precipitation (rel. to local average)	Extreme dry (rel. to local average)	Extreme wet (rel. to local average)	Extreme hot (rel. to local average)	Extreme cold (rel. to local average)
Forcibly Displaced People	0.759*** (0.0695)	-0.657*** (0.0309)	-0.438 (0.591)	2.475*** (0.460)	-2.325*** (0.624)	-4.454*** (0.476)	2.128*** (0.355)	1.174*** (0.379)	1.301*** (0.192)
Observations	119,748	119,748	119,748	119,748	119,748	119,748	119,748	119,748	119,748
Country-wave FE	YES	YES	YES	YES	YES	YES	YES	YES	YES

Note: Results from OLS regressions of different measures of climate on a dummy for whether the household was forcibly displaced. Climate is measured at the lowest administrative level observed in the data for each country, respectively. All regressions use sampling weights recalibrated to sum to 1 for displaced and non-displaced households in each country, respectively. Standard errors clustered at the household level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table A 5: Variance in food insecurity explained at different levels

	(1)	(2)	(3)
<b>FIES Raw Score</b>	Admin 1	Admin 2	Admin 3
ICC - Country	0.245	0.167	0.224
ICC - FDP	0.438	0.271	0.305
ICC - Admin 1	0.523		
ICC - Admin 2		0.426	
ICC - Admin 3			0.471
ICC - HH	0.652	0.591	0.602
Observations	166,474	82,514	57,946

Robust standard errors in parentheses

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

Table A 6: Variance in food insecurity explained at different levels – balanced sample

	(1)	(2)	(3)
<b>FIES Raw Score</b>	Admin 1	Admin 2	Admin 3
ICC - Country	0.184	0.195	0.224
ICC - FDP	0.296	0.288	0.305
ICC - Admin 1	0.450		
ICC - Admin 2		0.451	
ICC - Admin 3			0.471
ICC - HH	0.600	0.595	0.602
Observations	57,946	57,946	57,946

Robust standard errors in parentheses

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

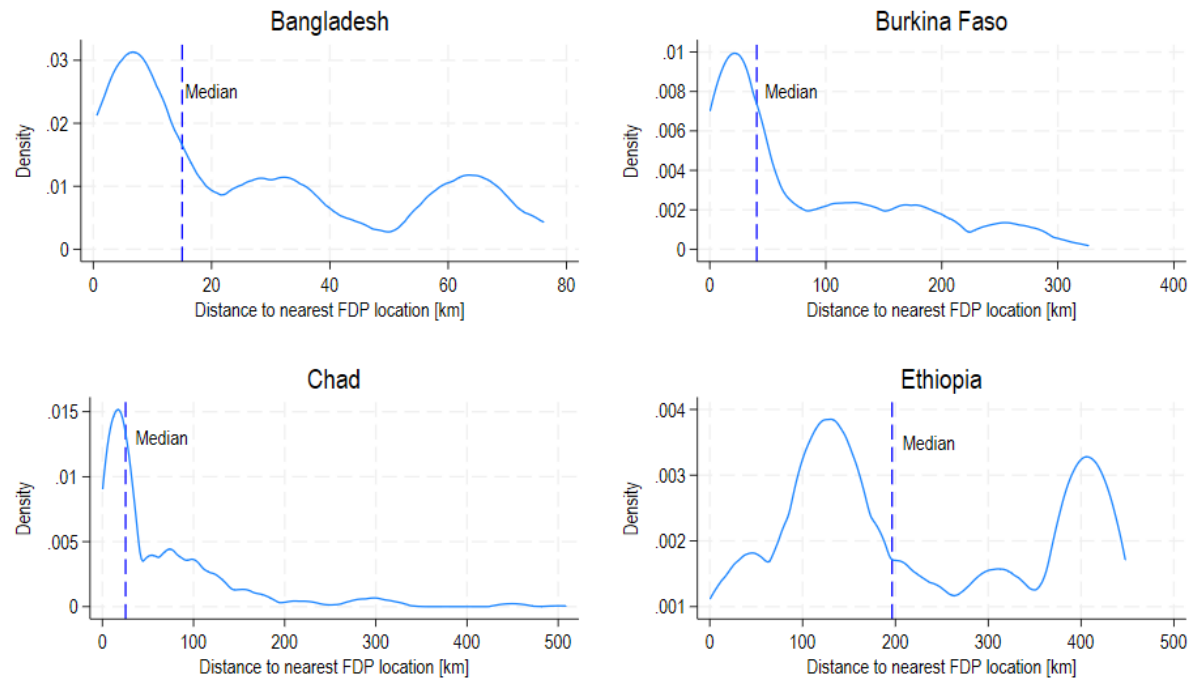
Table A 40: Sample

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(7)	(8)
Number	Country	Type	Sub-type	Sampling Frame	Sample drawn	Respondent	Number of rounds [period] in our dataset	Number of rounds [period] total
1	Bangladesh	Non displaced	Host population stratified into high exposure (within 15km) and low exposure (further than 15km) of a camp	HHs in host communities in Cox's Bazaar and Bandarban district included in Cox's Bazaar Panel Survey 2019	Stratified sampling among households with valid phone number in sampling frame	Any adult, knowledgeable member of the confirmed sample household were eligible to answer the household modules. The labor module was only permitted if the respondent reached was any one of the 2-3 selected adults within the household who had completed the baseline adult questionnaires	3 [Apr 20-Jun 21]	3 [Apr 20-Jun 21]
		FDPs	Refugees in camps	Post-2017 population of displaced Rohingya living in camps in Cox's Bazaar from Cox's Bazaar Panel Survey 2019			3 [Apr 20-Jun 21]	3 [Apr 20-Jun 21]
2	Burkina Faso	Non displaced	Countrywide	2018/19 Harmonized Living Conditions Household Survey (EHCVM)	Random sampling among households with valid phone number in sampling frame	One respondent per household (household head or a knowledgeable adult household member). respondents were not expected to seek out other household members to provide their own information but could consult with other household members as needed to respond to the questions	15 [Jun 20-Oct 22]	23 [Jun 20-Jul 24]
		FDPs	IDPs in 9 regions out of 13	CONASUR database	Random sampling among households with at least a valid phone number in sampling frame		3 [May 21-Jul 21]	3 [May 21-Jul 21]
3	Chad	Non displaced	Countrywide	2018/19 Enquête sur la Consommation des Ménages et le Secteur Informel au Tchad (ECOSIT4)	Stratified sampling among households with valid phone number in sampling frame	N/A	4 [May 20-Apr 21]	4 [May 20-Apr 21]
		FDPs	Refugees	2018/19 Refugees and Host Communities Household Survey in Chad (RHCH, part of ECOSIT4)	N/A	N/A	2 [Jan 21-Apr 21]	2 [Jan 21-Apr 21]

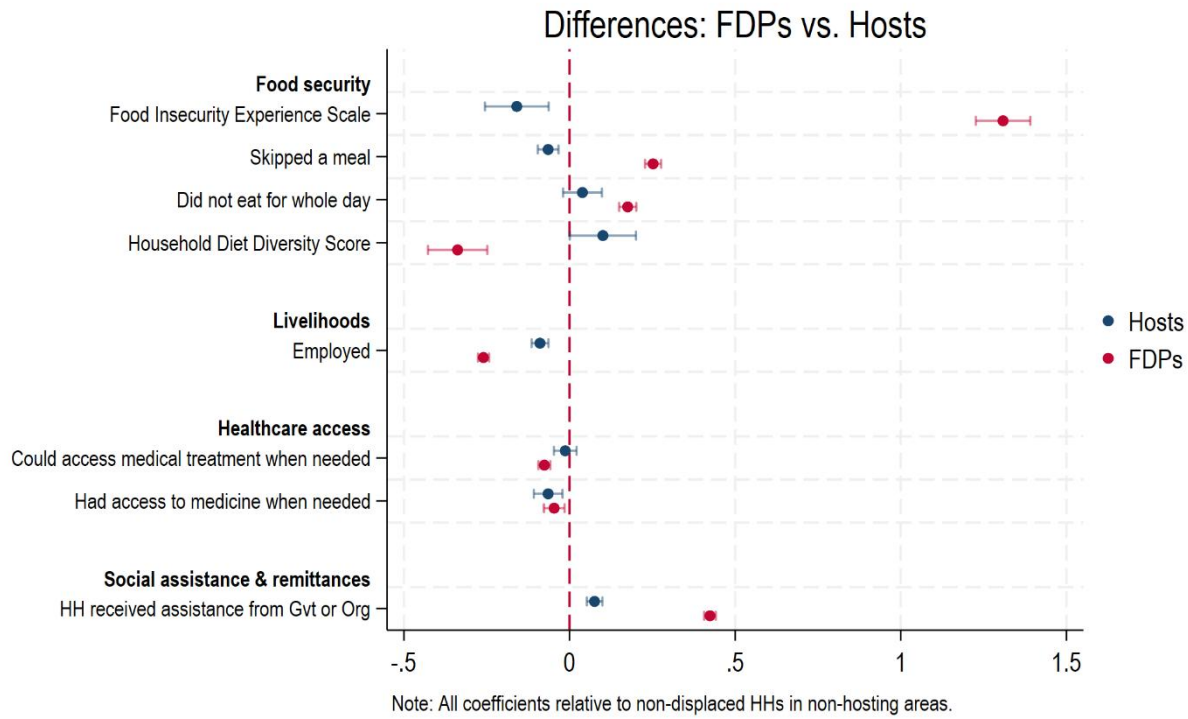
4	Djibouti	Non displaced	Urban areas only (bottom 80 percent of the consumption distribution of the national households)	2017 National social registry (official database of households in Djibouti that may benefit from public transfers)	Stratified sampling among urban households in sampling frame having at least one phone number and interviewed after July 1, 2017	The survey had one respondent per household (knowledgeable adult household member or the head of the household). The respondent may still consult with other household members as needed to respond to the questions	4 [Jul 20-Apr 21]	4 [Jul 20-Apr 21]
		FDPs	Refugees and asylum-seekers in three refugee villages (or refugee settlements) of Ali Addeh, Holl Holl and Markazi, as well as in the capital city Djibouti-city	2019 Refugee survey	Random sampling among households with valid phone number in sampling frame		2 [Dec 20-Apr 21]	2 [Dec 20-Apr 21]
5	Ecuador	Non displaced	Countrywide excluding the Galapagos Islands	Dual frame of cellphone and landline numbers generated through a Random Digit Dialing (RDD) process	Random sampling among confirmed phone numbers in sampling frame	The survey had one respondent per household (adults 18 years old and above) and he/she answered individual, child and household-level questions	8 [May 21-Jun 22]	8 [May 21-Jun 22]
		FDPs	Venezuelans	List of all cell phone numbers of customers who registered regular incoming or outgoing calls from/to Venezuela	Random sampling among households in sampling frame that were confirmed Venezuelan and accepted to participate		4 [May 21-Jun 22]	4 [May 21-Jun 22]
6	Ethiopia	Non displaced	Nationals	2018/19 Ethiopia Socioeconomic Survey (ESS)	Stratified sampling among households with valid phone number in sampling frame	The respondent is one member of the household, typically the household head. Only in cases where the household head cannot be reached despite numerous call-backs, another knowledgeable household member is selected as the respondent	11 [Apr 20-Apr 21]	12 [Apr 20-Jun 21]
		FDPs	Refugees in Addis Ababa, Sub-office Jijiga, Sub-office Shire	Ethiopia Agency for Refugee and Returnee Affairs (ARRA/UNHCR) registration database	Stratified sampling among households with valid phone number and areas with a phone penetration higher than 30 percent in sampling frame		2 [Sept 20-Nov 20]	2 [Sept 20-Nov 20]
7	Iraq	Non displaced	Countrywide	Phone list including all major Mobile Network Operators (MNOs) active in the country	Stratified sampling among households in sampling frame	N/A	9 [Aug 20-Aug 21]	9 [Aug 20-Aug 21]
		FDPs	IDPs and returnees in Kurdistan and Northern region	N/A	N/A	N/A	4 [Oct 20-Jan 21]	4 [Oct 20-Jan 21]
8	Jordan	Non displaced	Countrywide	National Unified Registry (NUR) bread subsidy applicants (The NUR is an administrative registry of potential beneficiaries for social assistance)	Stratified sampling among households in sampling frame with active phone number	The survey respondent was the head of household or an adult household member, and an attempt was made to ensure some gender balance on the respondent	3 [Mar 21-Apr 22]	3 [Mar 21-Apr 22]

		FDPs	Syrian refugees living in the country	UNHCR database of Syrian refugees in Jordan trimmed to cases whose Asylum Seeker Certificate was issued as of 1 September 2018 onwards			3 [Nov 21- Jun 22]	3 [Nov 21- Jun 22]
9	Kenya	Non displaced	Countrywide	2015/16 Kenya Integrated Household Budget Survey (KIHBS) and Random Digit Dialing (RDD) method	Random sampling among confirmed phone numbers in sampling frames		8 [May 20-Jul 22]	8 [May 20-Jul 22]
		FDPs	urban and camp-based refugees as well as stateless individuals	For refugees in Kakuma and Kalobeyi, as well as for stateless people, recently conducted Socioeconomic Surveys (SES), were used as sampling frames. For the refugee population living in urban areas and the Dadaab camp, sampling frames were based on UNHCR's registration records (proGres)	For refugees: Stratified sampling among households in sampling frames with active phone number For stateless: All the participants of the Shona socioeconomic survey were included	N/A	8 [May 20-Jul 22]	8 [May 20-Jul 22]
10	Somalia	Non displaced	Nationals (incl. nomads & IDPs)	2014 UNFPA Population Estimation Survey of Somalia and Random Digit Dialing (RDD) protocol	Stratified sampling among confirmed phone numbers in sampling frames. Snowball sampling methodology (i.e. referrals) was used to increase the sample for hard-to-reach population types, namely the nomadic households	N/A	5 [Jul 20-Jul 22]	5 [Jul 20-Jul 22]
		FDPs	Nomads, and IDPs in settlements			N/A	5 [Jul 20-Jul 22]	5 [Jul 20-Jul 22]
11	Uganda	Non displaced	Countrywide	2019/20 Uganda National Panel Survey (UNPS)	All households with valid phone numbers in sampling frame		12 [Jun 20-Jan 23]	18 [Jun 20-Mar 24]
		FDPs	Refugees	2018 Uganda Bureau of Statistics survey refugee household survey and UNHCR Profile Global Registration System (ProGres)		N/A	3 [Oct 20- Mar 21]	3 [Oct 20- Mar 21]

Supplementary Figure 1: Distribution of non-displaced households relative to their distance to the nearest FDP camp



Supplementary Figure 2: Vulnerability differential with hosts living in same areas as FDPs in study sample; and with other nationals



Supplementary Figure 3: Vulnerability differential with hosts living within 20km of an FDP settlement; and with other nationals

