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Facing Displacement and a Global Pandemic: Evidence from a Fragile State

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Abstract

We use novel survey data to assess the impact of the COVID-19 pandemic on Internally Displaced Persons (IDPs) in Libya. Our analysis compares the effects of the pandemic for displaced and non-displaced citizens, controlling for individual and household characteristics and geo-localized measures of economic activity and conflict intensity. In our sample, 9.5% of respondents report that a household member has been infected by COVID-19, while 24.7% of them have suffered economic damages and 14.6% have experienced negative health effects due to the pandemic. IDPs do not display higher incidence of COVID-19 relative to comparable non-displaced individuals, but are about 60% more likely to report negative economic and health impacts caused by the pandemic. We provide suggestive evidence that the larger damages suffered by IDPs can be explained by their weaker economic status - which leads to more food insecurity and indebtedness - and by the discrimination they face in accessing health care.

JEL Codes: F22, J61, K37
Keywords: Internally Displaced Persons, COVID-19, Health, Migration, Conflict, Libya

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1 Introduction

The presence of internally displaced persons (IDPs) - i.e. individuals forced to leave their homes and relocate to a different area in their own country - is a pervasive phenomenon in developing countries. As of end of 2020, UNHCR estimates that 48 million people in the world are internally displaced due to armed conflict, violence, or human rights violations. These individuals have escaped the most immediate life threats but are still residing in extremely hazardous countries and remain highly vulnerable to violence, social exclusion, and destitution.[1]

The outbreak of the COVID-19 pandemic has posed a major challenge for economies and societies across the globe. While the core of academic and policy debate on the consequences of - and on the responses to - the COVID-19 pandemic revolved around the experience of wealthier countries, far less attention has been devoted to Low and Middle-Income Countries (LMICs). We know even less about the effects of the pandemic in fragile and conflict-affected countries in which violence and insecurity impede accurate data collection, making the measurement of health and socio-economic outcomes extremely complicated. The World Bank estimates that about 90 million individuals have entered extreme poverty since the onset of the pandemic, leading to the first increase in poverty over the last two decades (Lakner et al., 2021). The pandemic negatively affected the living standards in developing countries by provoking major income losses, drops in employment probability, and widespread food insecurity (Bundervoet et al., 2021; Egger et al., 2021; Hoogeveen and Lopez-Acevedo, 2021).[2] Learning about the experience of LMICs and of their most vulnerable populations in the midst of the pandemic is essential to conceive policy interventions that are tailored to their specific needs and challenges (Orcutt et al., 2020). Extrapolating from the experience of wealthier countries, instead, may lead to the implementation of measures that are ineffective and even self-defeating (Ma et al., 2021; Miguel and Mobarak, 2021).

The effects of COVID-19 are likely to be even more negative in conflict-affected countries where the pandemic shock adds, and interacts with, pre-existing fragilities. In these settings, often characterized by failed governments and weak public healthcare systems, the population endures the health hazard and the economic hardship caused by the pandemic with very little public support. For population groups - such as the IDPs - who already start from a vulnerable status, the COVID-19 pandemic shock

[1] See Ruiz and Vargas-Silva (2013) and Maystadt et al. (2019) for reviews of the evidence on forced displacement in developing countries.

[2] Other dimensions which have been considered are: gender violence (Gulesci et al., 2021), mental health and women's wellbeing (Altindag et al., 2022; Bau et al., 2021), effects of social protection programs (Abay et al., 2021; Bottan et al., 2021), data collection and citizens' information (Bahety et al., 2021; Gutierrez et al., 2022; Sadish et al., 2021), optimal transfer design (Aiken et al., 2021; Berkouwer et al., 2021) and firms' performance (Guerrero-Amezaga et al., 2022).

can lead to even direr consequences.

In this paper, we contribute to the global effort of documenting the effects of the pandemic on marginalized groups in fragile and conflict-affected countries by presenting the first evidence on the impact of COVID-19 on internally displaced persons (IDPs) in Libya. Since the fall of the Gaddafi's regime in 2011, Libya has been experiencing political instability and violence. Each phase of the conflict resulted in an increasing number of IDPs (NRC, 2021; UNHCR, 2017). The outbreak of the conflict in 2011 displaced an estimated half a million Libyan citizens (almost ten percent of the resident population), while the resurgence of military confrontations in 2014 triggered a second wave of displacement which was even larger and more persistent than the first one. The very little information available on IDPs in Libya indicates that insecurity, financial fragility, limited access to health services are all critical issues that have drastically reduced their well-being (IOM, 2021d). The COVID-19 pandemic exacerbated the socio-economic weaknesses caused by political instability that characterize the country (Rahman and Di Maio, 2020), adding another layer of hardship for the Libyan population (IOM, 2021a) and bringing an already fragile healthcare system to the brink of collapse. In such a setting, the IDPs have been exposed - with little or null support - to both the health and economic hazards of the pandemic (ICMPD, 2020).

In our study, we assess the impact of COVID-19 pandemic on the Libyan population by using novel data from a phone survey that was conducted in Libya in 2021. This survey - whose module on migration and internal displacement we designed - represents the first household data collection since the onset of the conflict in 2011. In our sample, 9.5% of respondents report that a household member has been infected by COVID-19 over the last 12 months while 24.7% of them have suffered economic damages and 14.6% have experienced negative health effects due to the pandemic. Our analysis compares the effects of the pandemic for IDPs and non-displaced individuals, controlling for individual and household characteristics, as well as for geo-localized measures of economic activity and conflict intensity in the area of residence. In our data, displaced individuals report a similar incidence of COVID-19 infections to non-displaced individuals. Nevertheless, they are about 60% more likely to report negative economic and health impacts caused by the pandemic. Our empirical analysis suggests that the larger damage suffered by IDPs cannot be explained by individual and household characteristics, nor by higher probability of contagion, but rather by their weaker economic status - which leads to more food insecurity and indebtedness - and by the discrimination they face in health care access.

Our paper contributes to the literature on the impact of COVID-19 in developing countries by

providing novel primary data on an important phenomenon that is still largely unknown in its dimension and effects, especially in the context of fragile and conflict-affected states. We further add to previous studies by documenting how the pandemic differentially affects IDPs. Our findings show that large gaps in the level of hardship endured during the pandemic may arise even in the absence of a differential contagion risk. These results suggest that policy interventions in a fragile context with large presence of IDPs may need to focus more on preventing damage rather than on containing the spread of COVID-19 among marginalized population groups.

The paper is organized as follows. Section 2 discusses key background information on conflict and internal displacement in Libya and describes broader patterns of COVID-19 infection and mortality in the country. Section 3 provides an overview of our data collection and sampling approach. Section 4 introduces our empirical strategy and section 5 presents our empirical findings. Section 6 concludes.

2 Background

2.1 Conflict and Internal Displacement in Libya

Libya is in a situation of conflict and political unrest by more than a decade now. In February 2011, in the wake of the Arab Spring protests, Libya witnessed a popular uprising against General Muammar Gaddafi, who had uninterruptedly ruled the country since 1969. This revolt marked the beginning of the so called First Libyan Civil War, a violent conflict between various rebel groups and Gaddafi's loyalist army which ended with the toppling of the regime and the execution of its leader in October 2011. Gaddafi's death generated a power vacuum that led to a period of political instability and weak institutional control over the country (Eriksson, 2016). This situation created the conditions for the beginning of the Second Libyan Civil War in 2014 (Fitzgerald and Toaldo, 2016; Pack, 2019): the formation of two competing governments - the UN-recognized Government of National Accord (GNA) based in Tripoli and the Benghazi-based Libya National Army (LNA) - with backing from other Arab states and "great powers" on both sides, led to political fragmentation and years of violent clashes (Fitzgerald and Toaldo, 2016).[3] Terrorist groups and armed militias have exploited the turmoil and used the country as a base for radicalization and organized crime. In October 2020, all belligerent parties accepted a permanent ceasefire in the whole of Libya and, in March 2021, a Government of National Unity (GNU) was formed, increasing hopes of political and social stability. Yet, the dates of the first presidential and parliamentary elections since the onset of the civil war have been fixed and

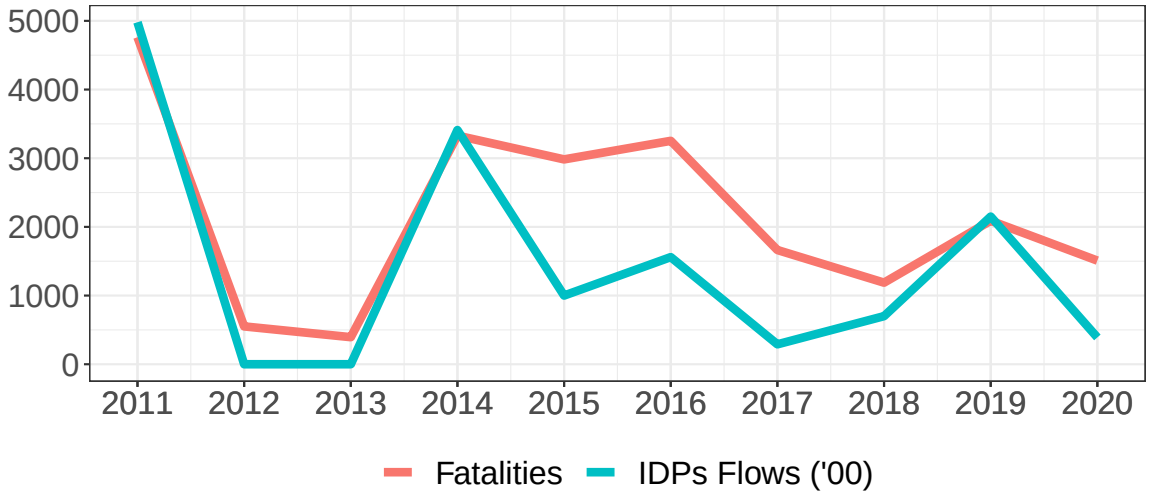
[3]For a detailed account of the phases of the conflict in Libya since 2011 see El Taraboulsi-McCarthy et al. (2019).

postponed several times and the political and economic situation remains complex and unpredictable.

Instability and violence in Libya have affected over 1.3 million people out of a 6.7 million population and left more than 450,000 people in need of humanitarian support (NRC, 2021). The civilian population has been directly harmed because most of the battles and fighting have taken place in urban area, residential neighborhoods, and even in city centers (Pack, 2019). Hostilities have also badly damaged hospitals and health care centres (WHO, 2021a).

Each phase of the conflict resulted in an increasing number of internally displaced persons (IDPs) (see Figure 1). The peak in fatalities of the First Libyan Civil war in 2011 forced an estimated half a million Libyan citizens to leave their homes and move elsewhere. The resurgence of violence in 2014, triggered a second wave of displacement which was larger and more persistent than the first one. Approximately 340 thousand citizens were forcedly displaced in 2014 alone, followed by more than 600 thousand IDPs over the years between 2015 and 2020. Unlike in 2011, many of those forcedly displaced from 2014 onwards were unable to return home quickly and were displaced again as the front lines of the conflict shifted across the country. At the time of our survey (May 2021), over 640,000 IDPs are estimated to have returned to their homes, with the stock of IDPs in the country to be about 212,000 people (IOM, 2021d).

Figure 1: Conflict-Related Fatalities and IDPs in Libya (2011-2020)



Note: The graph reports yearly data on the number of conflict-related fatalities (red line; source: ACLED data) and the number of new IDPs (in hundreds; green line; source: IOM Displacement Tracking Matrix).

Information on internal displacement of Libyans is fragmented and incomplete for two main reasons. First, any type of data collection in Libya is extremely difficult due to the ongoing conflict (Rahman and

Di Maio, 2020). Second, shifting patterns of displacement and return together with cases of multiple displacement make it particularly difficult to include IDPs in survey samples (El Taraboulsi-McCarthy et al., 2019).

The very little available information on the characteristics of the IDPs in Libya indicate that a substantial share of the households which were displaced at the beginning of the conflict were moderately well-off. Yet, their socio-economic conditions rapidly deteriorated as a consequence of the forced displacement (OCHA, 2018). Insecurity, financial fragility, limited access to health and other basic services are all critical issues affecting the well-being of the IDPs in the country (IOM, 2021d). The majority of IDPs are believed to be located in urban areas, hosted by relatives or friends, or in informal settlements. Those living in informal settlements are considered to have the most acute needs, with limited access to adequate shelter, social protection, and health care (UNHCR, 2013, 2018).

2.2 COVID-19 in Libya

Libya has been significantly impacted by the global COVID-19 pandemic (IOM, 2021a).[4] According to World Health Organization (WHO) data (WHO, 2021b), Libya recorded a cumulative number of over 390 thousand confirmed cases and 5,750 deaths as per January 2022. These figures correspond to almost 5,700 cases per 100 thousand resident population and 830 deaths per 1 million population. Although COVID-19 data in low-income countries suffer from severe measurement issues that make international comparisons potentially unreliable, WHO data suggest that Libya was the second hardest hit country in the North African region (see Appendix Figure A.2).

The COVID-19 pandemic in Libya has created huge challenges for the provision of basic services, social protection, and healthcare. As in several other African countries (Shapira et al., 2021), the COVID-19 crisis has brought the Libyan health-care systems to the brink of collapse. The combination of armed conflict, underinvestment in health infrastructure, and the dependence on private health service providers has drastically reduced the capacity of the health sector in Libya to deal with the COVID-19 emergency (IOM, 2021c). The response from the Libyan government included a variety of initiatives to cope with the pandemic. However, a fragmented health sector and a lack of funding and human resources resulted in mixed results (IOM, 2021a). Appendix Figure A.2 shows that Libya is lagging behind in the vaccination campaign relative to the other Norther Africa countries: in January 2022, Libya display the lowest share of fully vaccinated citizens (12.6 per 100 population) in the region.

The negative impact of the COVID-19 pandemic on the Libyan population is not limited to the

[4] See Appendix Figure A.1 for a timeline of the pandemic in Libya.

public health area. Due to the instability and insecurity which characterize the country since 2011, the Libyan economy has been struggling for years with rising unemployment, growing inflation and supply shortages (Rahman and Di Maio, 2020). The COVID-19 outbreak has compounded these economic weaknesses. In addition to rising prices, for instance, movement restrictions have led to difficulties in securing food and other basic needs (REACH, 2020). While the government has not been able to put in place a general income support scheme for the Libyan citizens[5], the fact that a large share of Libyas active labour force is employed in the public sector - which continued to pay salaries to its employees - prevented the direst consequences of the pandemic crisis and avoided wide exposure to risk of destitution. Still, marginalized groups, including IDPs, were left totally exposed to both the health and economic effects of the pandemic, exacerbating their pre-existing fragilities (IOM, 2021a; ICMPD, 2020).

3 Data, Sample and Descriptive Statistics

3.1 Data

Survey data Our main source of data comes from the 2021 Libya High-Frequency Phone Survey Social Protection (HFS-SP). This a novel *ad-hoc* survey that we contributed to design. The survey has been conducted in Libya between April and May 2021 and it is part of the Social Protection Study, a project of the World Food Programme (WFP), the World Bank, and the Libyan Bureau of Statistics (LBSC) to assess household vulnerability, shocks, and coping mechanisms of displaced and host Libyan households. Notably, this is the first official household survey since the beginning of the conflict in 2011.[6] We participated in the overall design of the survey and we drafted all the questions relative to migration history, internal displacement, and exposure to conflict.

Data have been collected by the LBSC using a phone-based data collection method.[7] Calls were made to respondents resident in all the 22 Mantikas (regions) in Libya and the sample was constructed to resemble the population share of each Mantika in total population. Respondents phone numbers were randomly selected from a database provided by phone companies operating in the country. The

[5] Gentilini et al. (2022) report that the Libyan government put in place some in-kind transfers (i.e. extending school meals in the form of take-home family ration) and set price ceilings on essential items.

[6] Data on the Libyan population are extremely limited. The latest household survey is the 2007 Household Budget Survey. Official data on economic activities were collected only until 2011. After that, data on the Libyan economy have been largely unreliable due to the limited capacity of government services. The World Bank conducted a survey of the labour market in 2014 (World Bank, 2015) and of the private sector in 2018 (Rahman and Di Maio, 2020). IOM collects monthly aggregate data in IDPs movements in the country since 2017, and REACH conducted a survey on IDPs in 2021. In Appendix Section C, we compare those data with our survey data.

[7] Due to movement restrictions and inaccessibility to some areas, phone survey have rapidly become the primary method for tracking economic conditions in LMICs during the pandemic (see for instance, Egger et al. (2021)).

questionnaire - administered to the head of the household or any respondent older than 17 years old - included the following modules: (i) household roster; (ii) demographic, education, and spending information; (iii) employment; (iv) health status, disability, and cost of healthcare; (v) housing; (vi) household income, transfers, (vii) assets and debt; (viii) shocks and coping strategies; (ix) consumption. In Appendix Section C, we provide more information about the survey methodology - including a discussion of potential limitations of phone interviews. We also present a validation of our sample using the few other existing sources of data on the Libyan population and the IDPs in the country.

Other data In our analysis, we also use additional sources of data to measure the local level of economic activity and of conflict intensity. Data on economic activity are extremely scarce in the Libyan context. The last official economic data were collected in 2011. After that, statistics on the Libyan economy have been largely unreliable due to the limited capacity of government services (Rahman and Di Maio, 2020). To proxy for local economic activity, we thus use geo-localized information on night-lights. Night-lights data are often used as a reliable measure of economic activity when data are missing or badly measured, as in our case. In our analysis, we built our measure of local-level economic activity using night-light data from the Visible Infrared Imaging Radiometer Suite (VIIRS). Data on conflict events are from the PRIO/Uppsala Armed Conflict and Location Event (ACLED) dataset. ACLED covers conflict events worldwide providing geo-localization, date, and characteristics of the event. Event records are derived from various sources, including reports from war zones, humanitarian agencies, and research publications (Raleigh et al., 2010). Using the ACLED dataset, we geo-localised all conflict-related events occurred in Libya during the period 2018-2021 and use them to built a measure of conflict intensity at the local level.[8]

3.2 Sample and descriptive statistics

Our sample includes 2,257 respondents. Descriptive statistics are presented in Table 1. For each variable, we report mean and standard deviation for the full sample and for the sub-sample of IDPs and a t-test of the difference in characteristics between the two samples. The description of each variable construction can be found in Appendix Table A.1.

[8] All our results are robust to the use of an alternative source of information on the number of conflict-related events, namely the Integrated Crisis Early Warning System (ICEWS).

Table 1: Descriptive Statistics

Variable name	Full sample		IDPs		
	Mean	St. Dev.	Mean	St. Dev.	t-test
Displaced	0.0704	0.256			
Displaced by less than 5 years	0.0310	0.1734			
Displaced by more than 5 years	0.0394	0.1947			
Individual controls					
Gender	0.3062	0.4610	0.3145	0.4658	-0.2175
Age	39.7071	12.1900	39.7044	11.2326	0.0029
Respondent is the household head	0.6549	0.4755	0.7233	0.4488	-1.8505*
High education	0.4276	0.4948	0.3648	0.4829	1.5819
Household controls					
Number of members	5.7559	2.6200	5.7107	2.5417	0.2162
Share of children under 5 years	0.3233	0.2601	0.3791	0.2618	-2.5953**
Share of adults over 60 years	0.0516	0.1262	0.0503	0.1443	0.1157
Rented house	0.1595	0.3662	0.6918	0.4632	-14.182***
Socio-Economic Status					
(Log) income	6.7264	1.1854	6.5214	1.0699	2.3172**
Lack of Food	0.5494	0.4977	0.6918	0.4632	-3.7285***
New debt in the last three months	0.2849	0.4515	0.4151	0.4943	-3.228**
Works in the public sector	0.0456	0.2087	0.0566	0.2318	-0.5803
Received social transfers	0.0399	0.1957	0.1572	0.3652	-4.012***
Household health outcomes					
Someone in the household experienced					
COVID-19	0.0944	0.2924	0.1006	0.3018	-0.2532
Chronic disease	0.1688	0.3747	0.2516	0.4353	-2.3373**
Infectious disease (no COVID-19)	0.0275	0.1635	0.0503	0.2193	-1.2886
Mental disease	0.0168	0.1287	0.0314	0.1751	-1.0328
COVID-19 impact					
COVID 19 had a negative					
Economic impact	0.2472	0.4315	0.4025	0.492	-3.8765***
Health impact	0.1458	0.3530	0.2327	0.4239	-2.5252**
Baladiya characteristics					
Night lights per km^2	4.1578	0.3844	4.1925	0.3577	-1.1763
Number of conflict events	2.9383	2.0227	2.0446	1.8208	-4.4128***

Source: 2021 Libya High-Frequency Phone Survey Social Protection (HFS-SP)

In our sample, women account for 30.6% of the sample, the average age is around 40 years, 65.5% of the interviewees identify themselves as head of household and 42.7% reports having completed higher education. Households have an average size of 5.7 members - of which almost a third are children aged 5 years or less and 5% are adults over 60 - and 16% of them live in rented accommodation. The average household monthly income is 1352.54 dinars (301.90 USD), 54.9% of the households have experienced lack of food over the last 12 months, 28.5% incurred in new debt in the last three months, 4% have received transfers from the government, NGOs, or UN agencies.[9] As far as health outcomes

[9]Official estimates on unemployment rates in Libya have not been produced after 2012. ILO (2021) estimates unemployment at around 55% in 2021, while average unemployment in our data is at 70%. Extremely high unemployment rates are the consequence of the conflict situation (see World Bank (2015)) but also of some peculiar characteristics of the Libyan labour market related to the distortions from the huge (oil-fueled) public sector. First, Libyans queue for a public job. The higher wage and non-wage benefits offered by the public sector contribute to high unemployment by making most Libyans unwilling to undertake manual work or being employed in the private sector. Second, Libyans do often misreport the employment status. It is a common practice for individuals not working in the public sector to register as unemployed, even if they are working in the formal private sector (Abuhadra and Ajaali, 2014).

are concerned, 9.5% of respondents report that someone in the household has suffered from COVID-19 over the last 12 months, 16.8% mention a chronic disease affecting themselves or other household member during the same period, while smaller shares report other infectious diseases (2.7%) and mental health issues (1.7%).

The share of IDPs in our sample is 7%, and slightly more than half of them (56%) have been displaced for more than 5 years. IDPs do not differ compared to the overall population in our sample in terms of individual characteristics such as gender, age, and education. They also have a very similar household size and composition to the overall population, apart from having a significantly larger fraction of members under 5 years of age. Relative to the general population, IDPs' socioeconomic status is weak: internally displaced individuals report a significantly lower income, a substantially larger share of households experiencing lack of food and borrowing money (69.1% and 41.5%, respectively) and a five times larger probability (15.7%) of having received income support.[10] IDPs are also relatively more likely to suffer from a chronic disease (25.1%), while they do not report a significantly higher incidence of COVID-19 (10%), nor of other infectious diseases (5%) or mental issues (3%)

The sharpest differences between IDPs and the rest of the population emerge when respondents are asked about the economic and health impacts of the pandemic. While 24.7% of respondents say that they suffered a negative economic impact from COVID-19 and 14.5% mention a negative health impact, these shares increase to 40.2% and 23.3% among IDPs, respectively, with both differences being strongly statistically significant. This perception of a largely more negative effect of the pandemic on the IDPs seems at odd with the fact they do not report a higher incidence of COVID-19 infections. Also, it cannot be explained by the local conditions of the area where the respondents live. As the last two rows of Table 1 show, localities hosting IDPs are not different in terms of the level of economic activity and are significantly less exposed to conflict. On average, the IDPs in our sample have been exposed to 2 episodes of conflict in the last 12 month compared to almost 3 events for the full sample, a finding which confirms the fact that IDPs effectively moved away from locations where conflict intensity is higher.

[10] Although IDPs report to be employed more than the general population (42% vs 28%), this does not imply that they are better off. As noted in footnote 9, in Libya the employment status is reported in a very distorted way and it is thus little informative of the individual well-being. In fact, all other economic indicators suggest that IDPs are worse off, including the estimated average hourly wage which is 23% lower for IDPs than for the general population.

4 Empirical Analysis

We estimate the following cross-sectional equation to compare COVID-19 related outcomes of displaced and non-displaced individuals:

$$Y_{ibm} = \alpha + \beta\ Displaced_i + \delta\ \mathbf{X}_i + \mu\ Nightlight_b + \gamma\ Conflict\ Events_b + \theta_m + \varepsilon_i \tag{1}$$

where: Y_{ibm} is the individual-level outcome of interest (e.g. having contracted COVID-19, reported impact of COVID-19 on economic and health conditions, etc.) for an individual i, living in *Baladiya* (province) b, located in Mantika (region) m. $Displaced_i$ is a dummy variable which takes value 1 if the individual is an internally displaced person and 0 otherwise.[11] The main coefficient of interest β identifies the difference in average outcomes between displaced and non-displaced respondents. The equation further includes a matrix $\mathbf{X}_i$ of individual characteristics of the respondent (gender, age, age squared, whether she is the household head or not, whether she has a higher education or not) and of the household (number of members, share of children under 5 years, share of adults over 60 years, and whether the house is rented or not). The variables $Nightlight_b$ and $Conflict\ Events_b$ are constructed at the *Baladiya* level to capture differences across locations in economic conditions and conflict intensity, respectively. $Nightlight_b$ proxies for the economic activity and is computed as the average intensity of night lights over the last 12 months before the interview in the 20 km radius of the centroid of the *Baladiya* of residence of the respondent. Similarly, $Conflict\ Events_b$ proxies for the level of conflict intensity and counts the number of conflict-related events for the same radius and the same span of time of the economic activity measure. Finally, we include *Mantika* (region) fixed effects (θ_m) to capture any time-invariant unobservable regional difference that may determine variation in the dependent variable as well as in the probability of observing displaced individuals in the sample. ε_i is the error term. For all our estimates, we report heteroscedasticity-consistent standard errors (HC3).

5 Results

5.1 Incidence of COVID-19

We begin our analysis by testing whether IDPs are more likely to experience COVID-19. Table 2 reports the coefficients from estimating equation (1) with a Linear Probability Model for a binary

[11] More precisely, the dummy $Displaced_i$ takes value 1 if the respondent answers positevely to the question "Has your household been displaced from your municipality?" and it answers negatively to the question "Have you returned to your community of origin?". It takes value zero otherwise.

Table 2: Displacement Status, COVID-19, and Other Diseases in the Household

Dependent Variable:	Over the last 12 months, someone in the household experienced...					
	COVID-19			Chronic disease	Infectious disease (no COVID-19)	Mental disease
	(1)	(2)	(3)	(4)	(5)	(6)
Displaced	0.0001	0.0094	0.0103	0.0973**	0.0168	0.0135
	(0.0249)	(0.0248)	(0.0248)	(0.0353)	(0.0181)	(0.0142)
Nightlights per km^2			-0.0132	0.0449	0.0069	-0.0260
			(0.0295)	(0.0283)	(0.0103)	(0.0231)
Number of conflict events in Baladiya			-0.0124	0.0054	-0.0009	0.0074
			(0.0124)	(0.0161)	(0.0085)	(0.0074)
Individual and HH controls	No	Yes	Yes	Yes	Yes	Yes
Mantika of residence FE	Yes	Yes	Yes	Yes	Yes	Yes
Dependent Variable: Average Value	0.0943	0.0943	0.0943	0.1688	0.0274	0.0168
R^2	0.0194	0.0309	0.0320	0.0872	0.0259	0.0225
Number of observations	2257	2257	2257	2257	2257	2257

Note: Estimated coefficients are reported with robust standard errors (in parentheses): *, **, *** indicate statistical significance at the 10, 5 and 1 percent level. "Displaced" is a dummy variable that identifies IDPs in our sample. The variables "Nightlights per km^2" and "Number of conflict events in Baladiya" register respectively the average value of night lights and the number of conflict events that occurred in a distance radius of 20 km from the centroid of the Baladiya of residence of the respondent in the 12 months before the interview took place, and they are expressed in logs. "Individual controls" include: respondent's gender, age, age squared, whether is the household head or not, and whether has a higher education or not. "HH controls" include: number of members in the household of the respondent, share of children under 5 years, share of adults over 60 years, and whether the house is rented or not.

outcome which takes value one if a member of the household has been infected by COVID-19 (columns 1-3). Column 1 shows the results from estimating the baseline specification that conditions only on Mantika fixed effects, the specification in column 2 additionally controls for individual and household characteristics, while the proxies for economic activity and conflict intensity are added in column 3. In all specifications, our estimates indicate that there is no statistical difference in the probability of reporting a COVID-19 case in the household between IDPs and the host population: the estimated β coefficients are fairly precisely estimated zeros. Notably, the estimates reported in column 3 suggest that the incidence of COVID-19 cases does not seem to be related to the local level of economic activity or conflict intensity. Additional results reported in the Appendix show no evidence that the pandemic has a differential effect across types of occupation and sector of employment of the individual (see Tables A.2 and A.3).

We further explore the possible differential exposure of IDPs to other diseases in the remaining columns of Table 2. Column 4 shows that IDPs are 9 percentage points (58%, relative to the mean value) more likely to report that someone in the household suffers from a chronic disease with the difference being significant at the 5% confidence level.[12] Finally, columns 5 and 6 of Table 2 show that IDPs do not have a higher probability of reporting cases of infectious diseases (other than COVID-19) or mental health issues in the household.

[12]This is in line with evidence from different fragile countries showing that conflict-driven displacement impacts on physical and mental health (Thomas and Thomas, 2004; Miller and Rasmussen, 2010; Daoud et al., 2012).

5.2 The (Perceived) Impact of COVID-19

As a second step in our analysis, we test whether IDPs are differentially impacted by the COVID-19 pandemic. While the results presented in the previous section indicate that IDPs in Libya are not more likely to get COVID-19 relative to comparable non-displaced co-nationals, the descriptive statistics discussed in section 3.2 suggest that IDPs tend to more frequently report negative effects of the pandemic. We now test whether these gaps are statistically significant once we condition on the large set of controls and fixed effects described above.

Table 3 displays results from estimating equation (1) with binary outcomes for reporting an economic (columns 1-3) or a health (columns 4-6) negative impact of the pandemic. According to the estimates reported in column 1 of Table 3, IDPs are 15 percentage points (60%, relative to the sample mean) more likely to report a negative economic impact. This substantial gap is barely affected when conditioning on the full set of individual and household-level controls, and on the local-level economic conditions and conflict intensity (column 2). The inclusion of the latter two variables uncovers relationships that are statistically significant and display the expected signs: respondents are less likely to report a negative economic impact if they live in areas with higher economic activity and lower conflict intensity. Remarkably, the IDPs' propensity to report a negative economic impact from the pandemic does not seem to be related to having directly experienced COVID in the household. When we condition on having had a COVID-19 case in the household and on its interaction with the displacement status, we estimate non-significant coefficients for both these variables (column 3), while our main coefficient of interest remains virtually unaffected.

IDPs also report more negative health effects due to the pandemic with respect to the local population. This larger effect holds in both the baseline (column 4) and the full specification (column 5), pointing at IDPs being 8 percentage points (53%, relative to the sample mean) more likely to report a negative health impact from the pandemic. Finally, column 6 shows that - as expected - all respondents who had a COVID-19 case in the household are 18 percentage points more likely to report a negative health impact of the pandemic, although this effect does not differentially affect the IDPs (as the not statistically significant coefficient of the interaction term shows). Still, the estimated coefficient of the displaced status remains unchanged, implying the existence of a health damage for the IDPs additional to that caused by direct contagion.

As a further step in this analysis, we explore heterogeneity among IDPs in the exposure to COVID-19 contagion and in its perceived impact. Figure 2 shows the estimated coefficients (and 95% confidence intervals) on interaction terms between the *Displaced* variable and gender and education dummies when

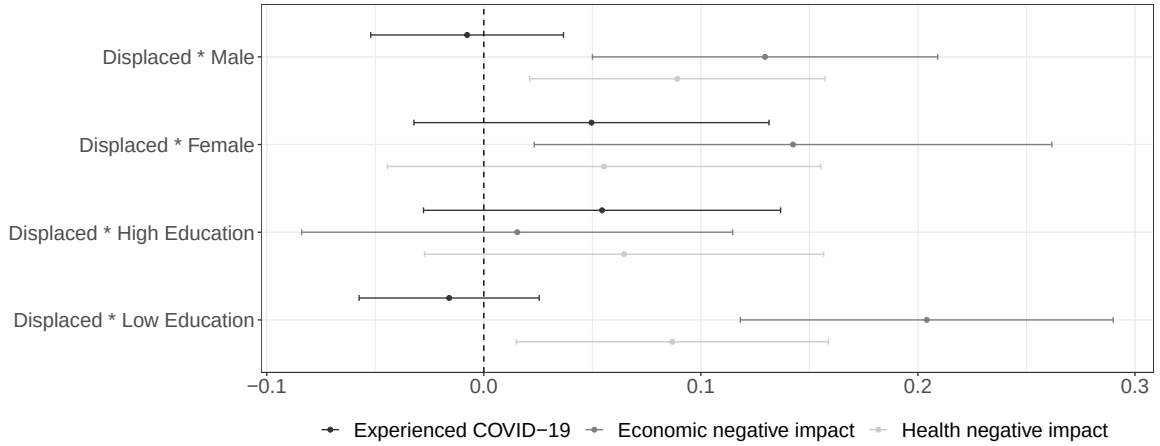
Table 3: Displacement Status and (Perceived) Impact of COVID-19

Dependent Variable	Because of COVID-19 pandemic, you had					
	Economic negative impact			Health negative impact		
	(1)	(2)	(3)	(4)	(5)	(6)
Displaced	0.1502***	0.1336**	0.1528***	0.0811**	0.0785**	0.0833**
	(0.0412)	(0.0408)	(0.0434)	(0.0348)	(0.0348)	(0.0361)
Someone in the household had COVID-19			-0.0374			0.1886***
			(0.0313)			(0.0339)
Displaced*Someone in the household had COVID-19			-0.1840			-0.0653
			(0.1219)			(0.1305)
Nightlights per km^2		-0.0769**	-0.0775**		0.0058	0.0083
		(0.0380)	(0.0380)		(0.0316)	(0.0295)
Number of conflict events in Baladiya		0.0284*	0.0281*		-0.0226	-0.0022
		(0.0167)	(0.0167)		(0.0140)	(0.0139)
Individual and HH controls	No	Yes	Yes	No	Yes	Yes
Mantika of residence FE	Yes	Yes	Yes	Yes	Yes	Yes
Dependent Variable: Average Value	0.2472	0.2472	0.2472	0.1457	0.1457	0.1457
R^2	0.0283	0.0429	0.0451	0.0241	0.0351	0.0578
Number of observations	2257	2257	2257	2257	2257	2257

Note: Estimated coefficients are reported along with robust standard errors (in parentheses). *, **, *** indicate statistical significance at the 10, 5 and 1 percent level. "Someone in the hh had COVID 19" is a dummy variable. It takes one if the respondent answered yes to the question "Did you or anyone in your household experienced COVID 19 since March 2020?". It takes zero otherwise. All other variables are defined as in Table 2.

the outcomes are, alternatively, the probability of having experienced COVID-19 in the household (as in Table 2) and the probability of reporting a negative economic or health impact (as in Table 3). These additional estimates confirm that neither IDPs as a whole nor any subgroup of IDPs display a significantly higher likelihood of reporting a direct contagion from COVID-19 (black dots) than comparable non-displaced individuals. Nevertheless, we observe significant differences when we turn to the perceived impacts of the pandemic. Displaced men and women show a similarly higher probability of reporting a negative economic effect (gray dots) compared to non-displaced individuals, although a significant differential in the health impact is present only for men (light gray dots). The pattern for education, instead, clearly points at low educated IDPs having endured significantly worse economic and health consequences from the pandemic than non displaced interviewees and highly educated IDPs.

Figure 2: Heterogeneity in Incidence and (Perceived) Impact of COVID 19



Note: We augment the model specification in Table 2 (column 3) and Table 3 (columns 3 and 6), by alternatively interacting the dummy variable *Displaced* with the following individual characteristics: i) gender (male/female); ii) education (high/low education). For each of these interaction terms, we report the estimated coefficient and a 95% confidence interval for COVID-19 incidence (black dots), economic impact (gray dots) and health impact (light gray dots).

5.3 Mechanisms

Our results indicate that, although IDPs are not more likely to get infected by COVID-19, they display a higher propensity to report negative economic and health impacts from the pandemic. In this section, we explore potential explanations for these findings.

5.3.1 Economic Fragility

The pandemic has worsened the living conditions of the overall Libyan population (REACH, 2021). Even if - as our results indicate - IDPs do not have a higher risk of COVID-19 contagion, their weaker socio-economic status compared to the host population (World Bank, 2019) may have left them more vulnerable to detrimental consequences of the pandemic (IOM, 2021a). We explore this hypothesis by assessing differences between displaced and non-displaced respondents in income, food security, and degree of indebtedness (see Appendix Table A.1 for the definitions of these variables).

Table 4 shows that IDPs' average income is 19-21 percent lower than the income of the non-displaced population, even after controlling for a large set of controls (columns 1 and 2). In column 3, we control for an indicator taking value one if the respondent is employed in the public sector. Our estimates show that public sector workers' income is substantially higher (around 20% higher) than the rest of the population - confirming the existence of a large wage premium in the public sector in Libya (see World Bank (2015)). Still, the disadvantage of IDPs remains virtually unaffected. In columns 4-6 of Table 4, we further explore the economic fragility of IDPs by looking at their food

Table 4: Displacement Status, Income, and Food Insecurity

Dependent Variable	(log) Monthly income			Lack of food		
	(1)	(2)	(3)	(4)	(5)	(6)
Displaced	-0.2160**	-0.1914**	-0.1920**	0.1508***	0.1311**	0.1311**
	(0.0930)	(0.0946)	(0.0946)	(0.0389)	(0.0390)	(0.0390)
Works in the public sector			0.1878**			0.0132
			(0.0597)			(0.0495)
Nightlights per km^2		-0.0212	-0.0258		-0.0499	-0.0497
		(0.0658)	(0.0651)		(0.0387)	(0.0387)
Number of conflict events in Baladiya		0.0443	0.0447		0.0219	0.0219
		(0.0415)	(0.0416)		(0.0193)	(0.0193)
Individual and HH controls	No	Yes	Yes	No	Yes	Yes
Mantika of residence FE	Yes	Yes	Yes	Yes	Yes	Yes
Dependent Variable: Average Value	6.7263	6.7263	6.7263	0.5494	0.5494	0.5494
R^2	0.0122	0.0501	0.0511	0.0211	0.0469	0.0470
Number of observations	2257	2257	2257	2257	2257	2257

Note: Estimated coefficients are reported along with robust standard errors (in parentheses). *, **, *** indicate statistical significance at the 10, 5 and 1 percent level. The variable "(log) Monthly income" registers the respondent's (log) monthly income from any source. "Lack of food" is a dummy variable. It takes one if the respondent declars that "someone in the household is currently engaging in any following behaviors due to a lack of food or have engaged in any of these behaviors within the last 12 months before the interview, but he/she cannot continue to do it: Spent savings; Reduced non-food expenditures; Borrowed money; Sold productive assets; Took an additional job; Reduced Health Expenditure; Begged; Engaged in illegal work; Sold house or land". It takes zero otherwise. "Works in the public sector" is a dummy variable. It takes one if the respondent indicated the option "Public Administration and Defence; Compulsory Social Security" when answering to the question "What is the sector you currenlty work in?". It takes zero otherwise. All other variables are defined as in Table 2.

security over the last 12 months. Our estimates show that IDPs face higher food insecurity than non-displaced individuals. In particular, they are 13 percentage points - or 24 percent - more likely to report instances of lack of food than comparable non-displaced individuals living in the same areas.

During the pandemic, there has been a significant rise in prices of basic goods and services (REACH, 2020). Moreover, (IOM, 2021a) reports anecdotal evidence suggesting that the COVID-19 related mobility restrictions have contributed to an economic slowdown. Survey evidence from the same report indicates that, to cope with the worsening economic situation, IDPs had to resort to savings in order to buy food, with the majority of them indicating that their savings are not sufficient to sustain them for more than three months. In Table 5, we test this possibility using our data. In practice, we look at the likelihood of having incurred in a new debt to cover the household basic needs over the last three months before the interview. Column 1 indicates that this probability is 11 percentage points (39% relative to the sample mean) higher for IDPs than for comparable non-displaced respondents. This finding holds also controlling for labour income (column 2) which - as expected - is negatively correlated with the accumulation of new debt. Interestingly, column 3 shows that incurring in a new debt is not directly related to having someone in the households having experienced COVID-19. In all three specifications, the probability of accumulating a new debt is decreasing in the local level of economic activity (proxied by nightlights), a finding which is consistent with lower economic damage

Table 5: Displacement Status and New Debt Accumulation

Dependent Variable	Incurred in a new debt in the last three months		
	(1)	(2)	(3)
Displaced	0.1136**	0.1037**	0.1035**
	(0.0400)	(0.0399)	(0.0399)
(Log) monthly income		-0.0519***	-0.0520***
		(0.0085)	(0.0086)
Someone in the household experienced COVID 19			0.0107
			(0.0324)
Nightlights per km^2	-0.0814**	-0.0825**	-0.0824**
	(0.0373)	(0.0369)	(0.0370)
Number of conflict events in Baladiya	0.0134	0.0158	0.0158
	(0.0168)	(0.0167)	(0.0167)
Individual and HH controls	Yes	Yes	Yes
Mantika of residence FE	Yes	Yes	Yes
Dependent Variable: Average Value	0.2849	0.2849	0.2849
R^2	0.0640	0.0816	0.0817
Number of observations	2257	2257	2257

Note: Estimated coefficients are reported along with robust standard errors (in parentheses). *, **, *** indicate statistical significance at the 10, 5 and 1 percent level. "Incurred in a new debt in last three months" is a dummy variable that takes one if the respondent answers yes to the question "Has your household incurred new debts in the last three months to cover your basic needs?", and zero otherwise. All other variables are defined as in Table 2.

due to COVID-19 reported by individuals living in such localities, as shown in columns 2-3 of Table 3.

Taken together, these results point at IDPs being characterized by economic fragility and by worse economic conditions than non-displaced Libyan citizens. Since all the outcome variables discussed in this section are measured during the pandemic, we are unable to fully disentangle gaps that pre-date the COVID-19 shock from those that are potentially generated - or widened - by differential exposure to its broader impact on the Libyan economy and society. Nevertheless, the estimates reported in Table 5 strongly suggest that IDPs must have faced harsher economic consequences from the pandemic than comparable non-displaced co-nationals as they have been, *ceteris paribus*, substantially more likely to be recently forced to borrow money to cope with economic difficulties. Insofar as human capital shielded individuals from economic hardship, these findings are also consistent with the heterogeneity in the perceived impact of the pandemic that we uncover in Figure 2, whereby low educated IDPs were far more likely to report having been economically damaged by the pandemic than IDPs with a higher level of education.

5.3.2 Health Care Access

Despite the fact that IDPs do not report differential risk of actual contagion (see Table 2), IDPs are more likely to report that they experienced a negative health impact because of the pandemic (Table 3). Notably, this difference adds to the more negative health impact associated with the individual herself or any other member of the household having had COVID-19 (see Table 3, column 6).

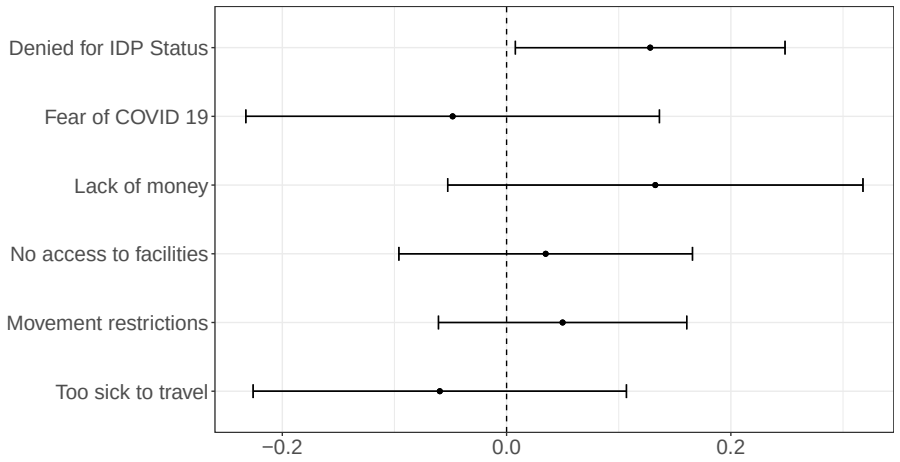
One potential way to rationalize these findings is that IDPs face additional hurdles in accessing the health care system relative to the resident population and are therefore more likely to develop more serious medical complications from the same level of exposure to health hazard. As a matter of fact, limited access to health care has been documented for IDPs in general (Cantor et al., 2021) and for those in Libya in particular (IOM, 2021a; ICMPD, 2020). In this latter context, IDPs have suffered discrimination and stigmatisation as they are perceived by the local community as potential carriers of the virus (Amnesty International, 2020).[13] In the following analysis, we provide suggestive evidence supporting this mechanism as a possible explanation for our results.

A question included in the survey allows us to directly investigate the reasons that prevent IDPs to seek health care - when they needed medical assistance - relative to comparable non-displaced individuals. The questionnaire lists a set of possible reasons on both the demand ("too sick to travel", "lack of money", and "fear of COVID-19") and the supply side ("movement restrictions", "no access to facilities", "access denied due to IDP status") of health care services. Figure 3 shows the estimated coefficients for the *Displaced* dummy obtained when estimating our regression model (1) using an indicator variable for each of these reasons as a separate dependent variable. The only case in which the *Displaced* dummy is significant is when the outcome of the regression is the reason "access denied due to IDP status", a result which suggests that IDPs are discriminated against in the access to health care. Interestingly, the other large - although not significant - coefficient is the one for the reason "lack of money", a finding which speaks directly to the more fragile economic status of IDPs we document in the previous section.

We further explore the decision to seek health care in Table 6. Column 1 shows that, among those reporting to have at least one disease (796 individuals, 35% of our main estimating sample), internally displaced individuals are not less likely to seek care. Column 2 shows that this finding continues to hold when we control for the full set of individual and household characteristics and also for the type of disease the individual suffers from (COVID-19, chronic disease, infectious disease (non-COVID-19), and mental health). We dig more into the determinants of the decision to seek care by the IDPs by considering how that choice may be influenced by the fear of discrimination that we discussed in the previous paragraph. To account for this possibility, we add to our regression specification an interaction between the internally displaced status and an indicator variable capturing the degree

[13] The effects of forced displacement on host population attitudes toward forced migrants are often negative (Hangartner et al., 2019). In conflict-affected settings, prolonged contact does not improve local-displaced relations and instead may reinforce prejudice (Scacco and Warren, 2018). Our findings are also in line with the results discussed in Rodriguez Chatruc and Rozo (2021) showing that solidarity towards more vulnerable populations does not increase in times of crisis, such as that of the COVID-19 pandemic.

Figure 3: Reasons for Not Seeking Care



Note: The graph shows the estimated coefficient (and the corresponding 95% confidence interval) on the variable *Displaced* when we alternatively use as dependent variable in equation 1 one of the variables listed on the y-axis.

of discrimination against IDPs which characterizes the Mantika of residence of the individual. We construct this measure as the number of interviewed IDPs (other than the respondent) who have not received assistance in the Mantika because of their status, over the number of interviewed IDPs in the same Mantika. As shown in column 3 of Table 6, the coefficient of this interaction term is large, negative, and highly significant. We interpret this result as indicating that IDPs are significantly less likely to seek health care if they live in locations in which discrimination against them is stronger.[14]

Taken together, the evidence presented in this section may explain why IDPs more frequently report negative health impact from the COVID-19 pandemic relative to the resident population. Indeed, our findings indicate that discrimination against IDPs in access to health care - together with the fact that they suffer from severe financial constraints - reduce their ability to receive health assistance when they need it, increasing their chances of developing lasting health damages. These results speak directly to the heterogeneity of the pandemic health impact for IDPs that we document in Figure 2. There we show that the probability of reporting a health damage is particularly high among male and low-educated IDPs, which are two categories of forcedly displaced migrants that are likely to be subject to more discrimination from hosting communities.

[14] An alternative possible explanation for the more negative health impact reported by IDPs is related to the type of health facility (i.e. public hospital, private hospital, health center, or pharmacy) to which the IDPs go when in need of health care. For instance, IOM (2021a) describes public health facilities in Libya during the pandemic as lacking staff and personal protective equipment which may imply that they are not able to provide heath care or that it can be provided only to a limited number of individuals. It follows that, if IDPs are *ceteris paribus* more likely to seek health care in public hospitals, this may explain why they report worse health effect from the COVID pandemic. Table A.4 shows that this is not the case. IDPs are not different from the host population as for where they look for health care. This is true for public hospitals and for any other type of health facility as indicated by the fact that the term $DISPLACED$ is always not significant.

Table 6: Displacement Status, Health Care, and Discrimination

	Seek care		
	(1)	(2)	(3)
Displaced	-0.0144	-0.0221	0.0835
	(0.0579)	(0.0567)	(0.0524)
Displaced * % IDPs in the Mantika who were denied care for their status			-0.2119***
			(0.0396)
Nightlights per km^2		-0.1183**	-0.1257**
		(0.0437)	(0.0442)
Number of conflict events in Baladiya		0.0234	0.0226
		(0.0278)	(0.0283)
Individual and HH controls	No	Yes	Yes
Disease Type	No	Yes	Yes
Mantika of residence FE	Yes	Yes	Yes
Dependent Value: Average Value	0.7211	0.7211	0.7211
R^2	0.0236	0.0830	0.1121
Number of observations	796	796	776

Note: Estimated coefficients are reported along with robust standard errors (in parentheses). *, **, *** indicate statistical significance at the 10, 5 and 1 percent level. "Seek care" is a dummy variable. It takes one if the respondent answers yes to the question "Have you or any adult member of your household needed medical treatment for any disease since March 2020?". It takes zero otherwise. "% I% IDPs in the Mantika who were denied care for their status' is equal to the number of interviewed IDPs (other than the respondent) who did not received assistance in the Mantika because of their IDP status, over the number of interviewed IDPs in the same Mantika. "Disease Type" registers whether someone in the household of the respondent reports to suffer from COVID-19, a chronic disease, an infectious disease (non-COVID), or a mental disease. The number of observations drops in column (3) because IDPs are absent from three Mantikas. Results are qualitatively unchanged by using the same sample of individuals across all three columns. All other variables are defined as in Table 2.

6 Concluding Remarks

The spread of the COVID-19 pandemic has severely affected the lives of households in low and lower-middle income countries. A global effort is needed to better document the possibly broad consequences of the COVID-19 shock on individuals living in these countries.

Understanding the economic and social impacts of the pandemic in LIMCs has been generally difficult due to a lack of data. This task has been even more complex in the context of countries that are experiencing a conflict and for populations that are inherently hard to capture in survey samples, such as IDPs. Yet, learning about the experience of fragile and conflict-affected countries and of their most vulnerable populations is essential to formulate policy interventions that are tailored to the specific needs and challenges for those more likely to suffer from the pandemic.

Our paper contributes to this effort by presenting the first assessment of the COVID-19 impact on the Libyan population and, in particular, on those internally displaced by the conflict. We use a novel and unique data from a phone survey conducted in Libya in 2021 to document the differences between displaced and non-displaced individuals facing the COVID-19 pandemic. Our empirical analysis shows that displaced individuals do not report significantly higher incidence of COVID-19 relative to comparable non-displaced individuals, but are largely more exposed than non-displaced respondents to economic and health impacts caused by the pandemic. Our results indicate that the

larger damage suffered by IDPs cannot be explained by individual and household characteristics, nor by higher probability of contagion, but rather by their weaker economic status and the discrimination they face in accessing health care. The finding that in a fragile country like Libya large differences in the level of hardship endured by IDPs during the pandemic are not related to their actual COVID-19 contagion suggests that policy interventions in similar settings may need to focus more on preventing damage (e.g. through vaccination campaigns and income support schemes) rather than on containing the spread of the disease among marginalized population groups.

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A Appendix: Table and Figures

A.1 Appendix Tables

Table A.1: Definition of the Variables

Variable name	Variable definition
Displaced	Dummy variable. It takes one if the respondent answered yes to the question "Has your household been displaced from your municipality?" and it answered no to the question "Have you returned to your community of origin?". It takes zero otherwise.
Displaced less than 5 years ago	Dummy variable. It takes one if the respondent answered yes to the question "Has your household been displaced from your municipality?", it answered no to the question "Have you returned to your community of origin?", and declared that displacement occurred less than 5 years before the interview took place. It takes zero otherwise.
Displaced more than 5 years ago	Dummy variable. It takes one if the respondent answered yes to the question "Has your household been displaced from your municipality?", it answered no to the question "Have you returned to your community of origin?", and declared that displacement occurred more than 5 years before the interview took place. It takes zero otherwise.
Individual controls	
Gender	Dummy variable. It takes one if the head of the respondent's household is female. It takes zero otherwise.
Age	Age of the head of the respondent's household.
Age squared	Squared age of the head of the respondent's household.
Respondent is the household head	Dummy variable. It takes one if the respondent is the head of the household It takes zero otherwise.
High education	Dummy variable. It takes one if the highest level of education completed by the head of the respondent's household is the University. It takes zero otherwise.
Household controls	
Number of members of household	Number of people living in the respondent's household (including him/her).
Share of children under 5 years	Share of children under 5 years old living in the respondent's household.
Share of adults over 60 years	Share of children under 5 years old living in the respondent's household.
Rented house	Dummy variable. It takes one if the respondent indicated the option "Rented Home" when answering to the question "Which of the following living arrangements best describes your housing situation currently?". It takes zero otherwise.
Socio-Economic Status	
(Log) income	(Log) monthly income from any source.
Lack of food	Dummy variable. It takes one if the respondent declared that "someone in the household is currently engaging in any following behaviors due to a lack of food or have engaged in any of these behaviors within the last 12 months before the interview, but he/she cannot continue to do it: Spent savings; Reduced non-food expenditures; Borrowed money; Sold productive assets; Took an additional job; Reduced Health Expenditure; Begged; Engaged in illegal work; Sold house or land". It takes zero otherwise.
New debt in last three months	Dummy variable. It takes one if the respondent answered yes to the question "Has your household incurred new debts in the last three months to cover your basic needs?". It takes zero otherwise.
Works in the public sector	Dummy variable. It takes one if the respondent indicated the option "Public Administration and Defence; Compulsory Social Security" when answering to the question "What is the sector you currenlty work in?". It takes zero otherwise.

Received social transfers	Dummy variable. It takes one if the respondent answered yes to the question "Has your household or any of your household members benefited from the assistance from the Government, NGOs or other UN agencies during the past 6 months?". It takes zero otherwise.
Household health outcomes	
COVID 19	Dummy Variable. It takes one if the respondent answered yes to the question "Did you or anyone in your household experienced COVID 19 since March 2020?". It taks zero otherwise.
Chronic disease	Dummy Variable. It takes one if the respondent answered yes to the question "Did you or anyone in your household experienced a chronic disease since March 2020?". It takes zero otherwise.
Infectious disease other than COVID 19	Dummy Variable. It takes one if the respondent answered yes to the question "Did you or anyone in your household experienced an infectious disease other than COVID 19 since March 2020?". It takes zero otherwise.
Mental disease	Dummy Variable. It takes one if the respondent answered yes to the question "Did you or anyone in your household experienced a mental disease since March 2020?". It takes zero otherwise.
COVID-19 impact	
COVID19 had a negative	
Economic impact	Dummy Variable. It takes one if the respondent indicated the option "Economic and Financial impact" when reporting how COVID-19 negatively affected his/her well being. It takes zero otherwise.
Health impact	Dummy Variable. It takes one if the respondent indicated the option "Health impact" when reporting how COVID-19 negatively affected his/her well being. It takes zero otherwise.
Baladiya characteristics	
Night lights per km^2	Average (log) value of night lights observed in a distance radius of 20 km from the centroid of the respondent's Baladiya of residence in the 12 months before the interview took place. Data source: Visible Infrared Imaging Radiometer Suite (VIIRS).
Number of conflict events in Baladiya	Average (log) number of conflicts registered in a distance radius of 20 km from the centroid of the respondent's Baladiya of residence in the 12 months before the interview took place. Conflict events are defined as: Battles, Explosions/Remote violence, Riots, Violence against civilians, Looting/property destruction. Data source: the Armed Conflict Location & Event Data (ACLED) project.

Source: Libya 2021 High-Frequency Phone Survey Social Protection (HFS-SP)

Displacement status, economic activity, and COVID-19 Table A.2 and A.3 indicate that here is no evidence that the pandemic in Libya has a differential effect across types of occupation and sectors of employment. Reading these results together with those in Table 3, they suggests that it is unlikely that the reported higher negative economic effect of the pandemic for IDPs is related to their type of economic activity or sector of employment.

Table A.2: Displacement Status, Type of Occupation, and COVID-19

Dependent Variable:	Someone in the household experienced COVID-19		
	(1)	(2)	(3)
Displaced	0.0046	0.0157	0.0186
	(0.0423)	(0.0420)	(0.0423)
Night lights per km^2			-0.0708
			(0.0607)
No. of conflict events in Baladiya			-0.0034
			(0.0246)
Agricultural, forestry and fishery laborer	0.0209	0.0957	0.0826
(1= Yes, 0 = No)	(0.0835)	(0.0898)	(0.0816)
Armed forces officer or other ranks	-0.0501	0.0434	0.0394
(1= Yes, 0 = No)	(0.0613)	(0.0721)	(0.0625)
Cleaner and helper	-0.1210*	-0.0489	-0.0690
(1= Yes, 0 = No)	(0.0671)	(0.0712)	(0.0643)
Clerical support worker	-0.0489	0.0427	0.0385
(1= Yes, 0 = No)	(0.0790)	(0.0849)	(0.0773)
Craft and related trade worker	-0.0366	0.0429	0.0388
(1= Yes, 0 = No)	(0.0695)	(0.0734)	(0.0640)
Food preparation assistant	0.0349	0.1288	0.1347
(1= Yes, 0 = No)	(0.1457)	(0.1518)	(0.1457)
Laborer in mining, construction, etc.	-0.0088	0.0710	0.0579
(1= Yes, 0 = No)	(0.0717)	(0.0761)	(0.0655)
Manager	0.0358	0.1008	0.0920
(1= Yes, 0 = No)	(0.0719)	(0.0785)	(0.0690)
Other	-0.0097	0.0756	0.0652
(1= Yes, 0 = No)	(0.0567)	(0.0637)	(0.0527)
Plant and machine operator and assembler	-0.1358**	-0.0422	-0.0517
(1= Yes, 0 = No)	(0.0615)	(0.0693)	(0.0602)
Professional	0.0696	0.1505	0.1489
(1= Yes, 0 = No)	(0.1462)	(0.1830)	(0.1801)
Service and sale worker	-0.0330	0.0465	0.0432
(1= Yes, 0 = No)	(0.0904)	(0.0969)	(0.0901)
Skilled agricultural, forestry, and fishery worker	-0.0711	-0.0404	-0.0396
(1= Yes, 0 = No)	(0.0679)	(0.0789)	(0.0707)
Street and related sale and service	0.1867	0.2675	0.2662
(1= Yes, 0 = No)	(0.1747)	(0.1734)	(0.1698)
Technician and associate professional	0.0412	0.1183	0.1136
(1= Yes, 0 = No)	(0.0906)	(0.0988)	(0.0924)
Individual and HH controls	No	Yes	Yes
Mantika of residence FE	Yes	Yes	Yes
Dependent Variable: Average Value	0.0946	0.0946	0.0946
R^2	0.1355	0.1541	0.1604
Number of observations	2257	2257	2257

Note: Estimated coefficients are reported along with robust standard errors (in parentheses). *, **, *** indicate statistical significance at the 10, 5 and 1 percent level.

Table A.3: Displacement Status, Sector of Employment, and COVID-19

Dependent Variable:	Someone in the household experienced COVID-19		
	(1)	(2)	(3)
Displaced	0.0104	0.0198	0.0226
	(0.0399)	(0.0399)	(0.0404)
Night lights per km^2			-0.0654
			(0.0645)
No. of conflict events in Baladiya			0.0027
			(0.0249)
Agriculture and Hunting (1= Yes, 0 = No)	0.1087*	0.0759	0.2325
	(0.0659)	(0.0716)	(0.2928)
Construction (1= Yes, 0 = No)	0.0898	0.0803	0.2375
	(0.0567)	(0.0598)	(0.2932)
Education (1= Yes, 0 = No)	0.1165**	0.0892	0.2497
	(0.0535)	(0.0603)	(0.2878)
Electricity, Gas and Water supply (1= Yes, 0 = No)	0.1418*	0.1215	0.2786
	(0.0738)	(0.0781)	(0.2933)
Extra-Territorial Organizations and Bodies (1= Yes, 0 = No)	0.0478	0.0361	0.1932
	(0.0750)	(0.0792)	(0.2954)
Financial Intermediation (1= Yes, 0 = No)	0.1039	0.0744	0.2345
	(0.1073)	(0.1121)	(0.3126)
Fishing (1= Yes, 0 = No)	-0.0229	-0.0412	0.1163
	(0.0487)	(0.0588)	(0.2883)
Health and Social Work (1= Yes, 0 = No)	0.1829**	0.1647*	0.3253
	(0.0831)	(0.0900)	(0.2948)
Hotels and Restaurants (1= Yes, 0 = No)	0.2414	0.2338	0.3624
	(0.1798)	(0.1770)	(0.3196)
Manufacturing (1= Yes, 0 = No)	-0.0225	-0.0375	0.1282
	(0.0475)	(0.0542)	(0.2903)
Mining and Quarrying (1= Yes, 0 = No)	0.2396	0.1958	0.3232
	(0.2022)	(0.1954)	(0.3565)
Other Community, Social and Personal Service Activities (1= Yes, 0 = No)	0.0216	0.0040	0.1629
	(0.0465)	(0.0550)	(0.2932)
Public Administration and Defence; Compulsory Social Security (1= Yes, 0 = No)	0.0689	0.0578	0.2161
	(0.0509)	(0.0562)	(0.2906)
Real Estate, Renting and Business Activities (1= Yes, 0 = No)	0.0778	0.0715	0.2255
	(0.0608)	(0.0677)	(0.2881)
Transport, Storage and Communications (1= Yes, 0 = No)	-0.0014	0.0016	0.1565
	(0.0457)	(0.0524)	(0.2854)
Wholesale and Retail Trade; Repair of Motor Vehicles, Motorcycles and Personal and Household Goods (1= Yes, 0 = No)	0.1417**	0.1177*	0.2798
	(0.0641)	(0.0702)	(0.2979)
Individual and HH controls	No	Yes	Yes
Mantika of residence FE	Yes	Yes	Yes
Dependent Variable: Average Value	0.0946	0.0946	0.0946
R^2	0.1510	0.1661	0.1706
Number of observations	666	666	666

Note: Estimated coefficients are reported along with robust standard errors (in parentheses). *, **, *** indicate statistical significance at the 10, 5 and 1 percent level.

Displacement Status and Type of Health Facility Used Table A.4 shows that the type of health facility where IDPs seek care does not explain our main result: IDPs are not different from the host population as for where they look for health care.

Table A.4: Displacement Status and Type of Health Facility Used

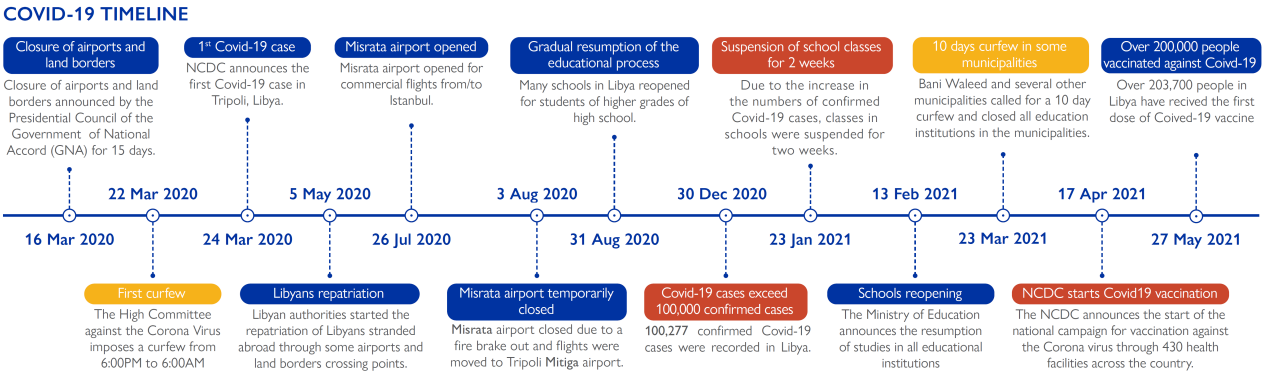
Dependent Variable	Seek care in							
	Public hospital		Private hospital		Health center		Pharmacy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Displaced	0.0557	0.0266	-0.0393	-0.0205	-0.0097	-0.0018	-0.0115	-0.0126
	(0.0749)	(0.0764)	(0.0755)	(0.0764)	(0.0244)	(0.0250)	(0.0314)	(0.0341)
Night lights per km^2		0.0248		0.0749		0.0041		-0.0674
		(0.0526)		(0.0738)		(0.0210)		(0.0552)
No. of conflict events in Baladiya		0.0264		-0.0324		-0.0019		0.0025
		(0.0364)		(0.0378)		(0.0124)		(0.0162)
Individual and HH controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mantika of residence FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dependent Variable: Average Value	0.4247	0.4247	0.4623	0.4623	0.0325	0.0325	0.0497	0.0497
R^2	0.0371	0.0775	0.0350	0.0610	0.0511	0.0668	0.0291	0.0545
Number of observations	584	584	584	584	584	584	584	584

Note: Estimated coefficients are reported with robust standard errors (in parentheses). All other variables are defined in Table 2.

A.2 Appendix Figures

The time line of the COVID-Pandemic in Libya March 2020 - May 2021 Figure A.1 shows the most important moments in the evolution of the COVID-19 pandemic in Libya during our period of analysis, namely March 2020 - May 2021.

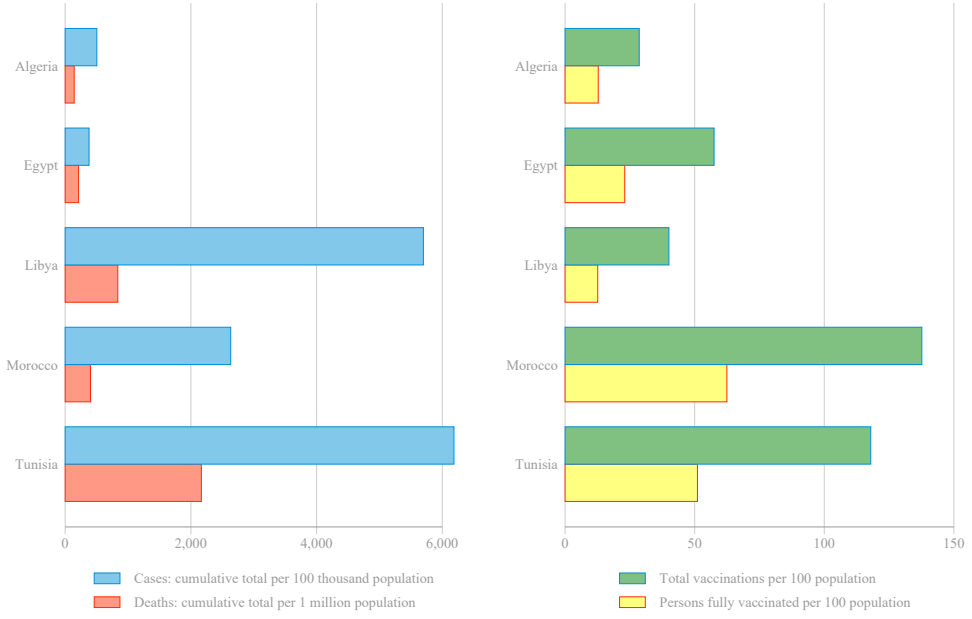
Figure A.1: Time line of the COVID-19 pandemic in Libya



Note: (IOM, 2021b).

COVID-19 and vaccination in the North African region Figure A.2 shows data on COVID cases and vaccination in a sample of North African countries, including Libya. According to World Health Organization (WHO) records (WHO, 2021b), Libya recorded a cumulative number of over 390 thousand confirmed cases and 5,750 deaths as per January 2022. These figures correspond to almost 5,700 cases per 100 thousand resident population and 830 deaths per 1 million population. As shown in Figure A.2 (left panel), WHO data indicate that Libya is the second hardest hit country in the North African region preceded only by Tunisia, which experienced a larger but still similar incidence of cases (almost 6,200 cases per 100 thousand population) and a substantially higher mortality rate (2,100 deaths per 1 million population). In contrast, Morocco recorded approximately 2,600 cases per 100 thousand population, and Algeria and Egypt were at 500 and 380, respectively. Figure A.2 (right panel) shows data on vaccination in Libya and in Norther Africa countries. Data show that Libya is lagging behind in terms if vaccination. In January 2022, Libya display the lowest share of fully vaccinated citizens (12.6 per 100 population) in the region, a value which is close to the level of Algeria (12.8) but well below Egypt (23), Tunisia (51) and Morocco (62.4).

Figure A.2: COVID-19 in Libya and other Northern African countries



Note: Authors' elaborations on data from the WHO Coronavirus (COVID-19) Dashboard (data accessed on the 10th of January 2022).

C Appendix: Survey methodology

The survey was conducted from April 6, 2021, to April 19, 2021 using phone-based data collection. For the implementation of the survey, the project relied on the infrastructure developed by the World Food Programme for its Mobile Vulnerability Analysis and Mapping (mVAM). The mVAM survey approach allows for a wide geographic coverage over a shorter period. However, the amount of information is limited by using short questionnaires administered by phone.

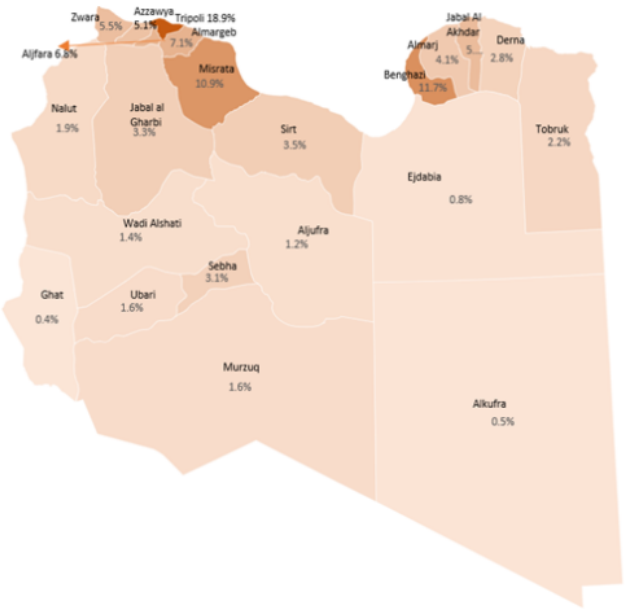
Despite limitations, phone surveys have demonstrated their ability to collect high-quality data. Their agility and ability to collect data rapidly without the need for personal presence by an enumerator makes phone surveys a valuable tool for specific situations, such as emergencies, dangerous situations, or situations in which the respondent is mobile (Hoogeveen and Lopez-Acevedo, 2021). While data are regularly reported by government agencies in high-income countries, a similar data infrastructure does not exist in most developing countries, even less in conflict-affected ones. This is why development economists resorted to phone surveys in developing countries as the primary method of collecting data during the pandemic (Miguel and Mobarak, 2021). Two main limitations inherent to conducting phone surveys need to be taken into account. First, groups with limited network coverage or no access to phones, mainly the poorest segment of the population, will be under-covered in the sample. Second, indicators that are measured at the individual level will be biased due to respondent selection Bundervoet et al. (2021). Smart phone ownership is common for Libyan populations, which reduces the likelihood of this being a barrier for the targeted groups (REACH, 2021).

The sample was drawn from a subscriber phone database from a Libyan telecom company based on respondents' location information (Mantikas). All respondents were randomly selected by stratified random sampling from the Mantikas of consideration based on their population shares. Within each stratum, respondents were selected using a simple random sample. Calls were made by the Libyan Bureau of Statistics and Census (LBSC) staff at the LBSC offices using phone lines provided by the telecom company.

The survey was administered with a median duration of 40 minutes. Due to the absence of a sampling frame of individuals, the high-frequency phone survey is not nationally representative. Instead, the survey reflects the results of respondents randomly selected from all 22 Mantikas, where spatial distributions of sampled respondents follow the same spatial distribution of individuals in the country.

Only Libyan nationals who are at least 18 years of age were eligible for selection. Calls made to respondents not meeting these requirements were terminated. A total of 2,297 call attempts were made, of which about 2 percent were made to ineligible respondents. These respondents include those who did not consent to the interview or non-Libyan citizens. After data cleaning, the final sample size is 2,257 respondents randomly selected from all the 22 administrative units (*Mantikas*). The *mantikas* with the highest number of respondents are Tripoli, Benghazi, and Misrata, which make up 42 percent of the total sample (see Figure C.1).

Figure C.1: Distribution of interviewed individuals in Libya



Note: Authors' calculation using HFS-SP 2021

To validate our sample, we conducted different checks against the few other existing sources of data on the size and geographical distribution of the Libyan population and on the number and location of IDPs in the country.

To begin, Table C.1 shows that the distribution of respondents at the Mantika level in our sample closely resembles that of the Libyan population as provided by the Libyan Bureau of Statistics.

In terms of the distribution of IDPs in the Libyan territory, our sample is also comparable to those from the only two other surveys conducted in the country after the beginning of the pandemic. The first one is IOM (IOM, 2021d). The top 3 Mantikas in terms of number of IDPs in our survey is the same as in this survey. Moreover, the correlation between the Mantika level distribution of IDPs in our sample and in the IOM data for the same period is 0.88 (IOM, 2021d).

The only other source of data on displaced individuals in Libya in 2020 is provided by (REACH, 2021). The correlation between the Mantika-level sample composition in terms of host, displaced, and returnees individuals between our sample and the REACH one is 0.66.[15]

[15]In August 2020, REACH conducted a quantitative phone-based data collection including non displaced, internally displaced persons (IDPs), returnees.The sample includes 6061 individuals (REACH, 2021).

Table C.1: Survey stratification by Mantika

	Mantika	Population	Population proportion	Proportion phone numbers (sampling)	Sampled data	Proportion sampled data
1	Tobruk	202,064	3%	3%	50	2%
2	Derna	206,809	3%	3%	63	3%
3	Al Jabal Al Gharbi	367,461	5%	4%	75	3%
4	Al Marj	162,266	2%	4%	92	4%
5	Benghazi	849,66	12%	12%	263	12%
6	Ejdabia	212,363	3%	3%	18	1%
7	Alkufra	56,727	1%	1%	11	0%
8	Sirt	151,33	2%	2%	78	3%
9	Aljufra	59,875	1%	1%	28	1%
10	Misrata	676,706	10%	10%	247	11%
11	Almargeb	536,255	8%	8%	160	7%
12	Tripoli	1,220,712	18%	19%	426	19%
13	Aljfara	551,111	8%	8%	154	7%
14	Azzawya	365,11	5%	5%	114	5%
15	Zwara	360,769	5%	5%	125	6%
16	Al Jabal Al Akhdhar	242,804	4%	5%	132	6%
17	Nalut	109,484	2%	2%	42	2%
18	Sebha	168,249	2%	2%	69	3%
19	Wadi Al Shatii	95,563	1%	1%	31	1%
20	Ubari	92,444	1%	1%	35	2%
21	Maszak	94,609	0%	1%	35	2%
22	Ghat	28,346	0%	0%	9	0%
	Total	6,810,717	100%	100%	2,257	100%

Source: Libyan Bureau of Statistics (LBSC) and 2021 Libya High-Frequency Phone Survey Social Protection (HFS-SP)