Food Insecurity and Displacement: Country-Level Analysis of Afghanistan, Ethiopia and Libya

APPLIED RESEARCH PROJECT

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EXECUTIVE SUMMARY

Over the past years, the international community has witnessed a surge in displacement, some of which can be attributed to aspects of food insecurity, and other factors such as conflict, climate change, political instabilities, etc. Similarly, food security has been thoroughly researched in the past decade, especially in the context of countries in the Global South. It is thus the need of the hour to better understand how certain external factors can impact food security as well as its relation to displacement.

The graduate researchers of the Applied Research Project have undertaken a study to better understand food security levels, specifically in three countries – Afghanistan, Ethiopia, and Libya. All three countries are developing nations, labelled as conflict-affected zones (1), and display varying levels of food insecurity. The objective of the study is to identify different socio-economic and demographic factors that impact food security while analysing how displacement affects food security levels.

The study employs qualitative and quantitative methods. The quantitative method includes linear regression analysis of the recent WFP household surveys of the three countries. Two dependent variables were used: the Food Consumption Score (FCS) and the reduced Coping Strategy Index (rCSI). The quantitative analysis identified factors such as gender of the head of the household, educational level, household size, type of residence (IDPs, returnees or permanent residents), etc. as those which impact levels of food security. This analysis was complemented by interviews of country programme heads for Ethiopia and Libya, to address gaps in the quantitative analysis and strengthen the overall report.

" You can't build peace on empty stomachs "

- Norman Borlaug, 1970 Nobel Peace Prize -

KEY FINDINGS FROM THE ANALYSIS

Parameter	Afghanistan	Ethiopia	Libya
Household Type (Refugee/IDP/migrants)	IDPs and returnees are more food insecure than non-displaced people. [In terms of rCSI]	Returnees are more food insecure than non-displaced people. [Both in terms of FCS and rCSI]	IDPs are more food insecure than non- displaced people. [Both in terms of FCS and rCSI]
Sex of the head of the household	Female headed households are more food insecure than male headed households. [Both in terms of FCS and rCSI]	Female headed households are more food insecure than male headed households. [In terms of FCS and rCSI]	Female headed households are more food insecure than male headed households. [In terms of rCSI, at 90%]
Household Size	Large household size corresponds with more food security. However, households with a greater number of children (dependent population) are likely to be food insecure. [Both in terms of FCS and rCSI]	Households with 8 or less members have higher food consumption but also employ severe coping strategies, making the analysis of food security ambiguous. [Both in terms of FCS and rCSI]	Not statistically significant
Education of the head of the household	Higher level of education results in more food security [Both in terms of FCS and rCSI]	Data not available	Not statistically significant
Income/Labour dimension	Data not available	Increase in food expenditure per capita has a positive impact on food security levels [Both in terms of FCS and rCSI]	Those who have debt, tend to be more food insecure than those who do not have any debt [Both in terms of FCS and rCSI]
Disability/Illness	Disability of the household head has a negative correlation to food security levels [Both in terms of FCS and rCSI]	Illness in the household has a negative correlation to food security [Both in terms of FCS and rCSI]	Not statistically significant
Food Assistance	Data not available	Households that receive food aid have higher food consumption but also tend to employ severe coping strategies, making the food security analysis ambiguous	Households that receive food assistance tend to employ severe coping strategies, making them more food insecure. [In terms of rCSI]

KEY RECOMMENDATIONS TO INTERNATIONAL ORGANISATIONS

1	International Organisations must frame their food assistance programmes with a targeted but contextual approach, meeting the unique needs of the countries.
2	Multilateral stakeholder engagement is critical to deal with such a multifaceted issue of food insecurity.
3	Food assistance should be devoid of any diplomatic relations or donor-preferences.
4	Public-private partnerships should be encouraged to push for higher investments to strengthen food systems.

GENERAL DESCRIPTION OF THE STUDY

INTRODUCTION

Food insecurity is a persistent issue across the globe, with the Food and Agriculture Organisation (FAO) estimating that "in 2021, around 2.3 billion people, nearly 30% of the world population, are moderately food insecure and 11.7% of the global population faces food insecurity at severe levels (2)." This phenomenon is caused and exacerbated by root factors such as social and economic inequalities, which may then be coupled with conflict or extreme weather events caused by climate change. In turn, vulnerable segments of the population are disproportionately affected. Additionally, food insecurity and poverty are strongly interconnected, meaning that food-insecure individuals often struggle with access to health services and economic support (3).

This project builds on a prior research report, "At the Root of Exodus: Food Security, Conflict and International Migration," published by the World Food Program (WFP) in 2017. The WFP has researched the link between food insecurity and migration, pointing out that these two variables are not always negatively correlated. In fact, migration can lessen food insecurity, as individuals might improve their access to quality nutrition by leaving their place of residence (4). Based on the findings from their previous research, the aim of the WFP is to now better understand how these two variables are interconnected. Thus, the WFP partnered with a team of students from the Geneva Graduate Institute to study this topic, understanding what inferences can be drawn from studying this connection in the context of three new countries in which the organisation has collected household data on food insecurity and migration.

In the 2017 report, migrants from different nationalities participated in focus group discussions in their destination countries, to assess the rationale behind their migration journey and the role that food insecurity played in the decision to migrate. The main conclusions of the report point to food insecurity as a variable that motivates individuals to migrate but also as a condition that can materialise as a result of the instability of migration journeys. The connection between food insecurity and conflict is reiterated, as the former is found to increase the occurrence and strength of armed conflicts. As a result, food insecurity is recognised as a push factor that encourages migration and impacts the length of displacement or the choice of a new country or area to settle in. The focus group interviews revealed that the role played by food insecurity in the decision to migrate changes based on the country of origin of respondents.

The 2017 report focuses heavily on the role of conflict and poverty in triggering migration, highlighting that in some cases the links between these variables "are less clear, [as] cause and effect become intertwined and reinforce one another" (5). Recommendations for further research highlight two main aspects. First, further focus on Africa and the Middle East is needed as these two regions are the ones that are experiencing growing migratory flows. Second, additional research is needed to understand under which household-specific circumstances food insecurity triggers displacement and migration. In the report, the organisation calls for the strengthening of food security in migrants' origin countries as well as in those neighbouring states that are prone to receiving and hosting migrants. Furthermore, the WFP stresses the diversity and uniqueness of migrants' journeys, calling against the conflation of migration based on nationality or economic rationale. The results of the 2017 report constitute the background of this project, as the team of this applied research project is tasked with testing the interconnectedness between food insecurity and displacement in the context of three countries: Afghanistan, Ethiopia and Libya. Data for the project is provided by the organisation in the form of household surveys conducted in these three states.

Compared to the 2017 report, this study focuses on specific countries. This choice allows for a concentration on context-specific factors that might interact with food insecurity, for instance, conflict or economic constraints that affect food provision. Examples of economic constraints include loss of household assets and few job opportunities, as well as increases in food prices and limits in access to food markets (6). Another novel aspect of the project is its methodology, which will complement the methods used in the previous report by conducting a quantitative analysis of data from the three new countries. The methodology section that is presented below offers an in-depth description of which methods and variables have been employed in the current project.

The project aims at providing humanitarian and development practitioners with a robust analysis of the links between food insecurity and displacement. Within the WFP, the Research, Assessment and Monitoring Division can benefit from this report's analysis of new data and sampling, which can then be applied to humanitarian assistance and development in the three countries. This report also caters to the Vulnerability Analysis and Mapping Unit of the organisation, which wrote the original report in 2017. The main findings of the project can inform which context and household-specific factors should be taken into account when measuring food insecurity in the three target countries, for instance, pointing to intervening variables (such as gender, income or household size) that affect the severity of food insecurity. Thus, it is possible to provide new insights into how this variable correlates with displacement and migration.

RESEARCH QUESTIONS

The research study aims to answer the following research questions:

1. What are the factors affecting and influencing food security?
2. What is the effect of displacement on food insecurity, when it is controlled by other factors that impact food security?

DEFINITIONS

Internally Displaced People (IDPs), according to the Guiding Principles on Internal Displacement, are "those who are forced to flee their residency due to violence, conflict, and natural disasters but do not cross international borders (7)".

In academic literature, one encounters several challenges to the concept of **migration**, but there is a general understanding that migration has both a "distance" and a "time" dimension, which involves a change in place of abode (8) In a more in-depth analysis of the concept, the scholar Pieter Dok argues that this is where "consensus among migration researchers ends (9)". Dok notes that these definition problems apply to a greater extent to "internal population movements than to international moves (10)". The IOM has defined migration as "the movement of persons away from their place of usual residence, either across an international border or within a State (11)." This outmigration can be short-term, temporary or permanent.

According to the IOM, no universal and legally accepted definition of "**migrant**" exists at the international level (12). As there is no consensus on a single definition of a "migrant" its utilisation therefore varies. However, there is an umbrella term based upon a commonly laid definition that a migrant is "a person who moves away from his or her place of usual residence, whether within a country or across an international border, temporarily or permanently, and for a variety of reasons (13)." In other words, a person who has moved away from his/her habitual residence either within a State or across international borders.

The IOM has defined **drivers of migration** as "*a complex set of interlinking factors that influence an individual, family or population group's decisions relating to migration, including displacement* (14)." It is important to note that this concept is dynamic, reflecting an interplay of "personal, social, structural, environmental and circumstantial factors " that are working in tandem with "local, national, regional and global level incentives and constraints (15)." These drivers operate along a spectrum of involuntary and voluntary movements. As there is a lack of agreed terminology, the terms "root causes" and "drivers" are often used synonymously to describe the underlying conditions that compel migration. These drivers can include a positive wish for change, family reunification, responding to sudden shocks, and/or chronic hardship such as food insecurity, environmental degradation, armed conflicts, and poverty, among others (16).

In its 2017 report, the WFP uses the definitions provided by the IOM and the Refugee Convention, and this report will do likewise. Whenever the term migrant is used in the report, it refers to all migrants, including refugees and IDPs.

The World Food Summit Plan of Action (1996) has broadly defined **food security** as existing when: "all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life (17)." According to the WFP "there is no single, direct measure of food security (18)." In other words, the status of food security is usually determined by an interaction of factors (socio-economic, agro-environmental, and biological).

The Integrated Food Security Phase Classification (IPC) is the global standard for measuring food insecurity. The scale includes five stages of hunger (19). As of the IPC's latest analyses, no state has reached phase 5 (famine) but several areas within certain states have reached phase 4 (emergency), including Ethiopia and Afghanistan. The IPC currently has no information on the food security situation in Libya.

THE IPC ACUTE FOOD INSECURITY SCALE

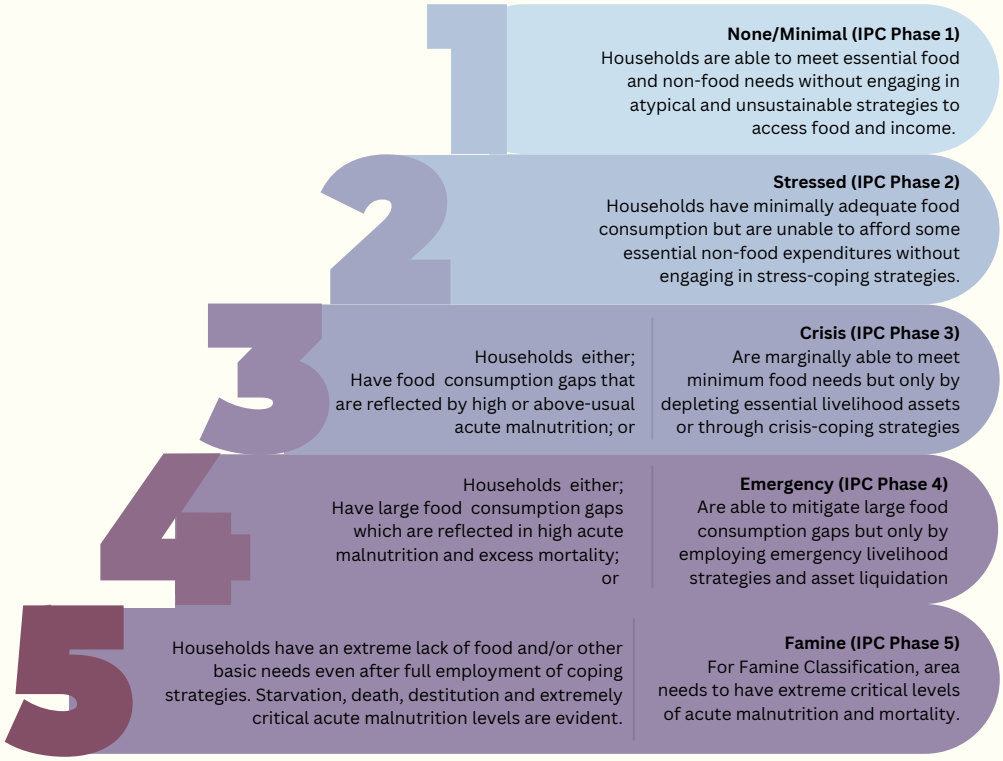

Figure 1: Acute Food Insecurity Scale based on the IPC Classification

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LITERATURE REVIEW

OVERVIEW OF FOOD SECURITY, MIGRATION AND RELATED FACTORS

In recent years, literature has shown that the phenomenon of food security is influenced by factors such as climate change, conflict, socio-demographic features etc. that can be referred to as determinants.

To understand **the determinants of food security**, it is critical to address its evolving definitions through the years. Originally, the term food security was more focused on the supply side of food production (20). At the World Food Conference in 1974, food security was defined as "the availability at all times of adequate world food supplies of basic foodstuffs (...) to sustain a steady expansion of food consumption (...) and to offset fluctuations in production and prices (21)." High demands due to population growth triggered a need for strengthening food production systems globally.

The focus on food availability and production as the main aspects of food security shifted to an access-based approach and this shift was attributed to the economist Amartya Sen. Sen, in *Poverty and Famines* spoke about how food insecurity was majorly influenced by people's inability to access food as well as poverty (22). With this, the food security agenda sought to encompass a more humane aspect, and thus include the individual right to freedom from hunger and a push towards ending poverty. It is usually the case that households that are vulnerable to shocks such as poverty and food insecurity may develop different temporary or permanent measures, or defence mechanisms, to survive in the absence of food and economic resources. Overall, there was a shift to a more people-centric micro perspective from that of the production/ supply-centric macro perspective of food security. The food security agenda also broadened in terms of its focus on aspects of nutrition and the health of individuals (23). A nutrient deficiency was linked to malnutrition and deterioration of health among individuals and these were considered factors that impact overall food security.

Finally, at the World Food Summit in 1996, an all-encompassing definition of food security was adopted: "Food security, at the individual, household, national, regional and global levels is achieved when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life." The definition has evolved to recognise all four pillars of food security: food availability, accessibility, stability of food supply systems and utilisation of food (24).

In this study, the 1996 definition of food security will be most useful as it will recognise aspects such as the type of food being consumed, and dietary nutrition as well as help analyse accessibility as a key component to measure food security.

INDICATORS MEASURING FOOD SECURITY

There are various indicators used by researchers to measure food security and they can be broadly categorised as measures of dietary diversity and food consumption behaviours (25). Dietary diversity indicators capture the types of food consumed by people and their frequency, such as **the Food Consumption Score (FCS), Household Dietary Diversity Scale (HDDS),** and **expenditure on food**. Food consumption behaviour indicators include **Coping Strategy Index (CSI)** and **Reduced Coping Strategy Index (rCSI), Household Food Insecurity and Access Scale (HFIAS)** and **Household Hunger Scale (HHS).** The World Food Programme primarily uses FCS, and sometimes CSI, or more recently rCSI (26).

The FCS is a proxy for measuring access to food at the household level, based on the consumption of different food groups, weighted according to their nutritional value, over a specified period of time - with a 7-day recall period (27). The calculation of FCS accounts for dietary diversity, food consumption frequency as well as nutritional value, and thus captures a broader aspect of food security (28). The 7-day recall period ensures the accuracy of the respondent's memory and allows to capture of the habitual consumption of a household and is considered the most appropriate as it accounts for limits by possible seasonal consumption (29).

The HDDS is similar to FCS in terms of measuring the number of food groups consumed but has a one-day recall period without any information on weighted food categories according to nutritional importance (30,31). The one-day recall period also means that it cannot capture the habituality of household diets.

The total household income spent on food consumption is another indicator used to measure levels of food security and as a proxy for measuring purchasing power. Using this method, households spending a greater proportion of total income on food are considered more vulnerable to food insecurity (32) since the household is only prioritising food needs and not other basic needs, say, shelter, clothing, health etc. However, this indicator neglects the nutritional value of the food being consumed, i.e. food utilisation (a pillar of food security) over a long period of time. Additionally, it neglects the consumption of food from self-production or non-purchased food (33).

The CSI measures the behavioural response of people when they are food insecure, including the household adjustments made such as consumption changes, reduction of expenditure, ways to expand income etc (34). These specific behavioural coping mechanisms are collected through interviews and are alloted numeric scores reflecting their severity and frequency based on local perceptions (35). "The higher the CSI score, the greater the coping, the higher the level of food insecurity (36)". Although this indicator is country-specific, some coping behaviours are more general and thus, universally applicable.

The rCSI thus accounts for a smaller set of five, less-severe but widely used coping strategies that have more standardised weights allotted to them, with a 7-day recall period. The rCSI allows for more comparable data across countries.

The HFIAS indicator has a recall period of 30 days and is built from a set of questionnaires, spanning nine behavioural and psychological aspects related to food security at the household level. However, the questionnaire does not account for cultural variance and hence cannot be used to compare food security levels in different countries. The HHS is derived from the HFIAS but only accounts for three hunger-related aspects of food security and can be used to make cross-country/regional comparisons. Both HFIAS and HHS cover aspects of food sufficiency, however, they do not account for other determinants of food security.

This report uses FCS and rCSI as the dependent variables, because of their appropriate recall period and their wider applicability. The datasets for the three countries also lack any information on other indicators such as the HDDS, HFIAS and HHS, justifying the use of the more prevalent indicators– FCS and rCSI– for the analysis.

UNDERLYING DETERMINANTS OF FOOD SECURITY

Food security is often influenced by events such as conflicts or other social, economic and political structures, which can be referred to as underlying determinants of food insecurity. The concept of food security is complex and is defined by certain driving forces such as population growth, patterns of climate change and environment, structural trade instabilities leading to surges in food prices and high cost of agricultural inputs, political instabilities and conflict, demographic and social structures embedded in the form gender, ethnicity, age etc at the household level as well as food loss and wastage.

The current global population stands at 8 billion people and is growing by over 1% every year. The developed nations are witnessing a decrease in their working populations with low birth rates leading to health and financial challenges for the growing elderly populations. In contrast, the world's poorest countries are contributing to a rapid rise in the global population. These **demographic conditions** have exacerbated poverty and have negative impacts on the environment and resources. This population explosion has also been a major contributor to reduced arable land (37). This is likely to hamper the food production needed to meet the food demand of the growing population.

Climate change has gained plenty of traction from the international community. The rise in average temperatures, unpredictable rainfall, rising sea levels, and excessive droughts or floods have led to poor conditions of food security in countries. These unprecedented changes lead to the reduction of overall crop productivity, thus affecting food production and availability. These changes also raise the probability of epizootic diseases in animals impacting animal husbandry. Countries witnessing high levels of climate extremities seem to have more prevalence of undernourishment (PoU) (38). Climate change and extremities also largely impact the two pillars of food accessibility and utilisation. Droughts or flash floods prevent people's ability to access markets as they lead to disruptions in transportation and supply chains. Climate change and extreme events such as droughts or floods may also negatively impact water availability and sanitation leading to poor nutrient utilisation and poor health of individuals (39). Studies show that households exposed to climate shocks are likely to employ strategies such as job switching, migration and demand for assistance.

Economic instabilities, leading to increases in the prices of inputs (such as fertilisers, seed, fuel, etc.) have resulted in increased food prices. Inadequate purchasing power, growing rates of inflation, high rates of unemployment and lower income, have led to high poverty rates. Recurrent economic shocks (like recessions) have made food inaccessible to a large portion of the developing world and have pushed people towards malnourishment and poverty (40). The economic slowdown in many countries has resulted in a lower capacity to import food. In fact, 65 out of 77 nations that witnessed higher rates of undernourishment from 2011 to 2017, are said to have suffered from economic slowdowns. Other aspects of these shocks include the increasing gap in income equality- and higher income inequality is seen to be congruent with higher levels of food insecurity (41).

Conflicts and political instabilities often disrupt food production and delivery systems, incapacitate the state's response towards individuals' basic needs and rights, and stress economic capabilities to address food security. Research shows that conflict is a key contributor to severe food crises and hunger in countries, especially where the crisis is protracted in nature and political leadership is weak. In May 2018, the United Nations Security Council adopted a resolution condemning countries in conflict to use starvation as a weapon of war. Conflict and food security seem to have a two-way relationship: where conflicts may lead to worsening food security due to political, institutional and economic breakdowns and conversely, food crises may also lead to social and political unrest in the country (like in Burundi in 2005) (42).

Finally, **food loss** is a concept that can be considered an underlying determinant of food security. Food loss essentially refers to the qualitative and quantitative reduction in the amount of food, at all levels- from production to consumption. This loss can be attributed to spoilage because of pests, rodents etc, due to inadequate infrastructure, logistical arrangements (for example, storage facilities and cold storage mechanisms) or due to wastage by consumers (especially prevalent in developed countries). According to the FAO, between the harvest and retail stages, approximately 14% of food produced is lost and 17% of food is wasted in the retail and consumption stages (43). Such food loss results in the reduction of food available for consumption, thus negatively affecting food security levels.

THE POTENTIAL IMPACT OF THESE DETERMINANTS OF FOOD SECURITY

Food security and these determinants causing instabilities in political and social arenas may also have an impact on migratory patterns. **Research has identified food insecurity– often combined with political instability and violence– as a powerful driver for people to move.** The 2017 WFP report explored the role of food security and other factors in triggering cross-border migration (44). The report determined that each 1% increase in food insecurity in a population compels 1.9% more people to migrate per 1000 population. Further, 0.4% more people per 1000 population flee a country for each additional year of conflict. Recently, there has been a growing number of studies on the links between migration and food security. Despite variation in findings, **migration is widely acknowledged as having mostly positive impacts on food security and the nutrition of household members left behind**, owing to remittances from migrants (45,46).

A study from 2014 of eight developing countries suggested that food insecurity– stemming from the impacts of adverse climatic factors on agricultural productivity– can also drive migration (47). Similar results were found in a case study in Ghana, where migration was revealed to be a typical livelihood strategy used by many rural households to cope with adverse weather conditions that reduce farm productivity and threaten food security (48). Another study from El Salvador, Guatemala and Honduras, where nearly half of all households interviewed in 2016 were food insecure, confirmed clear links between food insecurity, adverse climatic events and migration (49). Indeed, multiple determinants play different roles in the migration decision process, such as aspirations, planning and the final decision to migrate. Specifically, food insecurity is an important determinant of both the desire and the decision to migrate.

THE SCOPE OF THIS REPORT

This report focuses on three countries witnessing conflicts, as labelled by the World Bank FY22 List of Fragile and Conflict-affected Situations (50) – the high-intensity conflict zone of **Afghanistan**, and the medium-intensity conflict zones of **Ethiopia** and **Libya**. Both Afghanistan and Ethiopia are predominantly agrarian societies, i.e., agricultural work is the mainstay of their economies and the majority of their population is dependent on agriculture for their livelihood. On the other hand, Libya has historically been an oil-producing nation, dependent on food imports for sustenance.

When it comes to migration, **Afghanistan** has been witnessing an outflow of migrants, making it the third largest refugee-producing country, whereas **Ethiopia** has an influx of migrants from neighbouring nations of Somalia, Eritrea and South Sudan. In the past, **Libya** was a nucleus for migrants because of its robust economy, however, in recent decades, political tensions have led to desperate migrants wanting to make their way over to Europe.

Despite differences, the three countries have been facing varying levels of food insecurity during the last decade. Conflict, environmental degradation and climate change, as well as socio-demographic factors, are common determinants that can be attributed to increasing food insecurity in the countries. Similarly, IDPs are prevalent in all countries. The following sections focus on an in-depth literature review of each of the countries.

Photo by Sohaib Ghyasi on Unsplash

LITERATURE REVIEW

AFGHANISTAN

The main focus of this section is to understand food insecurity variation, mainly where and under what conditions Afghans become susceptible to food insecurity, and how these conditions can impact their decision to migrate. To do so, this section will draw upon a variety of academic literature focusing on the various factors leading to food insecurity in Afghanistan, and the potentiality of food insecurity as a push factor for displacement.

Environmental impacts such as several seasons of droughts and earthquakes, together with long-lasting conflict, have severely impacted the Afghan population's access to food and water, forcing many to migrate. For many, migration has become a lifeline as the country's situation continues to deteriorate. 3.5 million people are currently internally displaced and there are around 2.6 million registered Afghan refugees in the world (51). UNHCR has predicted that this number is likely to rise as the situation in the country continues to worsen (52)

FOOD SECURITY SITUATION IN AFGHANISTAN

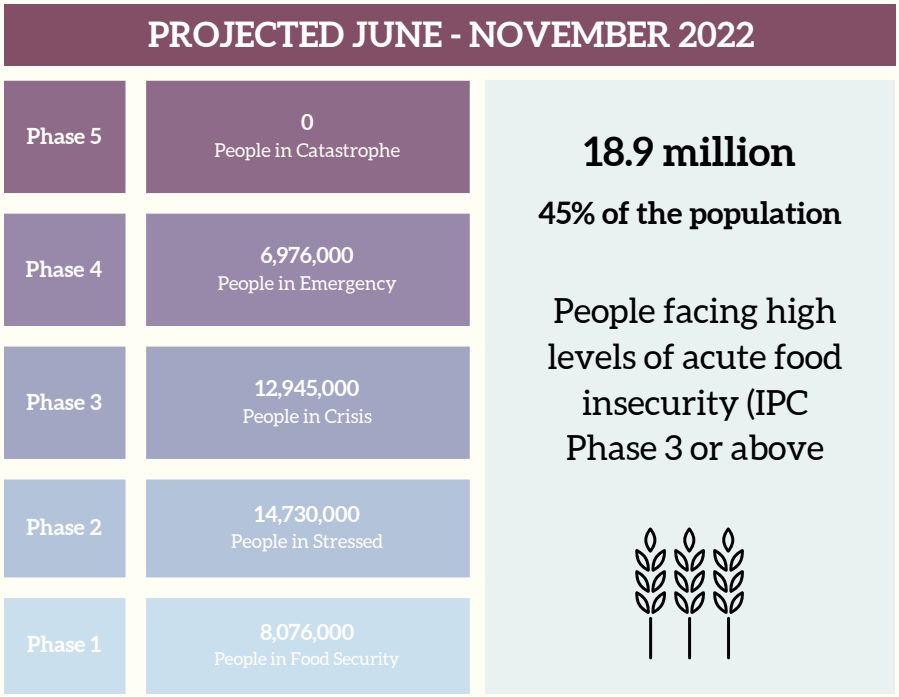

Figure 2: Acute Food Insecurity Projection for June - November 2022 based on the IPC data

Projected Acute Food Insecurity

Afghanistan June - November 2022

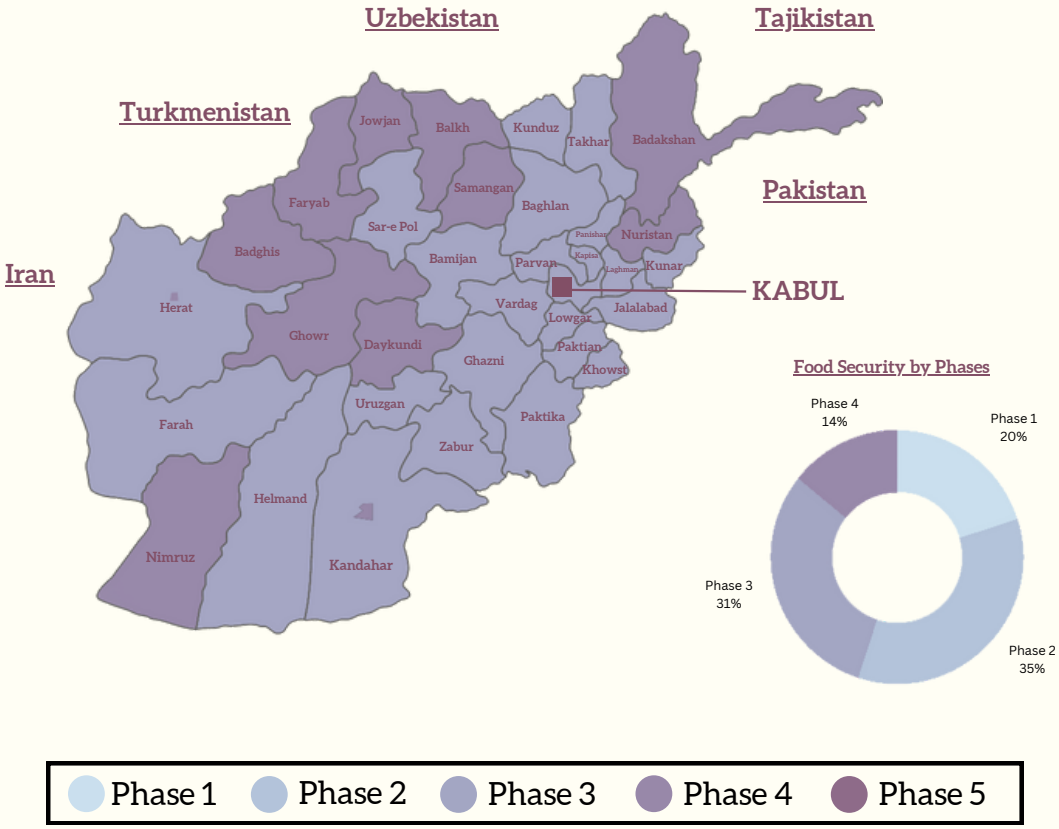

Figure 3: Acute Food Insecurity Projection for June - November 2022 based on the IPC data

According to an IPC analysis of the country, hunger persists at an unprecedented level as nearly 19 million Afghans - roughly half the population - are facing acute hunger (54). Around two-thirds of the population are currently resorting to crisis coping strategies to feed their families, including restricting their consumption, and consuming less expensive food(55). Especially parents are increasingly restricting their food consumption to have something to provide for their children (56). The situation remains far worse than before August 15th of last year, and there are discrepancies between the various provinces; the East and the South being hit the hardest by food insecurity (57). In Afghanistan, hunger is cutting across socio-economic divides(58), and around eight in ten households are seeing a significant decrease in income, resulting in households spending around 80 % of their income on food (59). The IPC has traced three critical drivers for this development: (1) drought, (2) conflict, and (3) economic decline (60).

AGRICULTURE

Agriculture is the mainstay of the country's economy and the biggest livelihood provider (61). Nearly 80% of Afghans rely on farming and herding for their livelihoods (62). In a predominantly agricultural society, why is food insecurity still so prevalent? According to several studies, this is a result of a lack of resources such as technical knowledge, financial support, greater access to market facilities, crop storage facilities, fluctuating markets, lack of water supply, and climate variability (63,64,65). The sustainability of production systems is under threat as a result of the intensity of environmental degradation (66). According to Samim and Hu, there is a strong correlation between food insecurity and low agricultural production in Afghanistan (67). Furthermore, several scholars have noted the severe implications of almost four decades of war and conflict on the irrigation and agricultural infrastructures of the country (68,69,70).

Around 82% of the total crop area cultivated is planted with wheat, making it the main food staple in Afghanistan (71,72). Wheat accounts for a significant part of the total calorie consumption in Afghanistan, especially amongst the poorest 20% of households (73). Deterioration in irrigation infrastructure and droughts have had severe impacts on wheat production throughout the country, creating considerable uncertainty (74). The significant deficit in food production has resulted in food insecurity, and many households are completely dependent on emergency food aid (75).

ECONOMIC FACTORS

Afghanistan has also been impacted by soaring energy and global food prices. Price shock has led to the deterioration in food security as the average Afghan household has reduced both the quantity and the quality of food consumed (76). Research conducted by the USDA found that even those at the top of the income distribution in Afghanistan spend a significant share of their income on food (49% compared to 66% for the bottom quintile), and are thus also vulnerable to price shocks (77). Today, very few households have room to scale back in terms of calorie intake or the quality/diversity of the food they consume (78). Not only is the food consumption quantity alarmingly low, but the quality of food consumed (because of the lack of food variation) can also become a major problem as it can cause micronutrient malnutrition (79). Today, malnutrition is one of the most serious developments and health problems in the country (80). This is especially evident in vulnerable groups such as children and women (81). To maintain calorie intake, households often have to switch to cheaper and lower-quality foods (82).

THE INTERCONNECTEDNESS OF THESE FACTORS

The scholars Samim and Hu identified three different types of food insecurity based on four pillars of food security: **access, availability, stability, and utilisation,** which were used to assess the food security situation in the country (83). When looking at these four pillars, Samim and Hu's research revealed that the deficiency in overall food production in Afghanistan can be attributed to low productivity and social-economic factors such as low income, war, conflict, lack of access to the market, the high price of food, and other poverty-related factors(84). These results are further supported by Wilcox et al., whose research showed that conflict and insecurity are the root causes of population displacement, leading to household food insecurity (85).

The continuation of conflict and environmental disasters work synergistically, burdening the advancement of food security (86). Some of the research outlined above has helped to map out **the potential inverse correlation between food insecurity and various socio-economic factors.** However, it is important to note that there is not necessarily a distinct linear relationship between food insecurity and each of these factors, and various population groups, including IDPs, migrants, returnees, and people belonging to ethnic minorities such as the Hazaras, might have different experiences. **Afghanistan is an ethnically, linguistically and religiously diverse country, and the severity and magnitude of food insecurity differ across the various subgroups.** Women are an example of a population group that is affected disproportionately by the current situation. Heading a household as a woman in Afghanistan implies several complications as women are heavily restricted when it comes to movement, education and property ownership, limiting their income possibilities (87). Women who seek employment outside their homes are often subjected to discrimination, marginalisation, and at times, even violence (88). Furthermore, under the current rule, the Taliban is enforcing a form of policy in which it is only tolerated for women to work if they cannot be replaced by men (89). These restrictions, according to Wilcox et al., make women, in particular, vulnerable to food insecurity (90).

THE POTENTIAL IMPACT OF THESE DETERMINANTS OF FOOD SECURITY

The impact of the aforementioned events on migration has been significant. Furthermore, over 664,000 Afghans were uprooted from their homes as a result of the increased conflict between January and September of 2021, disrupting their livelihood systems. The latest deracination adds to the roughly 3.5 million Afghans that have already been internally displaced over the past years as a result of the conflict (91). **Over time, the country has become one of the largest refugee-producing countries in the world**, ranking third behind Syria and Venezuela (92). In a report by UNHCR, the organisation points out that food crises have a significant impact on people fleeing their homes (93). This is backed by research which has shown that food insecurity affects both within-country and cross-border migration (94). For example, a study of 94 countries conducted between 2014-2015 found that "the probability of migration intentions increases monotonically with the severity of food insecurity (95)." However, simultaneously, other research has shown that this relationship is not linear, stressing the importance of taking into account other intervening factors.

Afghanistan has seen massive displacement as **Afghans have fled to urban centres or across the borders into neighbouring countries.** According to Ahmadi et al., internal displacement is a considerable contributor to food insecurity (96). In Afghanistan, the provinces of Sar-e Pol and Bamyan have seen the highest numbers of new IDPs in 2022 (97). Climatic conditions such as long winters have severe implications for food availability in the provinces, and this is further restrained by the high numbers of IDPs. Wilcox et al. research showcased **an interconnectedness between IDPs and food insecurity** as IDPs "lack the land access and cash resources necessary to obtain food on the market (98)."

The increase of families from rural areas moving into urban centres has implied a **lack of sufficient area for agricultural production** for such a large number of people (99). Additionally, most farms are small (with low productivity), and farmers only produce enough to satisfy the needs of their households, implying that very little agricultural production enters the commercial markets (100). If a household is unable to produce enough food they cannot depend on being able to purchase what they are unable to produce themselves. In other words, there is a huge supply-demand gap constraint, and the current production is unable to meet the demands of the Afghan population (101).

The focus of this section was to summarise the academic debate on determinants of food insecurity in Afghanistan. The academic literature has shown that a variety of factors can be attributed to food insecurity in Afghanistan, including conflict, economic decline, and climate change, and that these factors are intertwined. Furthermore, the literature also touched briefly upon how various subgroups of the Afghan population are impacted differently. This is something that will be addressed further later in the report. Last year, the World Food Programme conducted an "FSAC Seasonal Food Security Assessment (SFSA-2021) Household Questionnaire" in Afghanistan.

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LITERATURE REVIEW

ETHIOPIA

In the context of Ethiopia, data points out that as much as 20% of the population is at risk of being severely food insecure (103). Additionally, the country ranks fourth in Africa for the total percentage of food insecure population (104). In the last decades, Ethiopia has experienced chronic food insecurity to various degrees, with some periods characterised by widespread famines across the country (105).

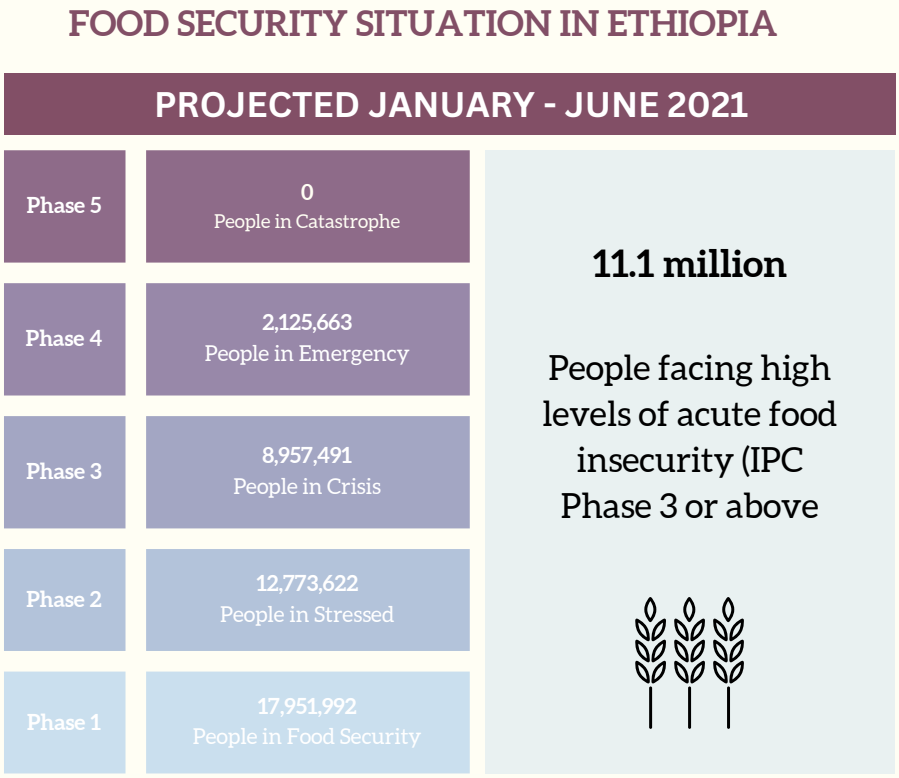

Figure 4: Acute Food Insecurity Projection for January - June 2021 based on the IPC data

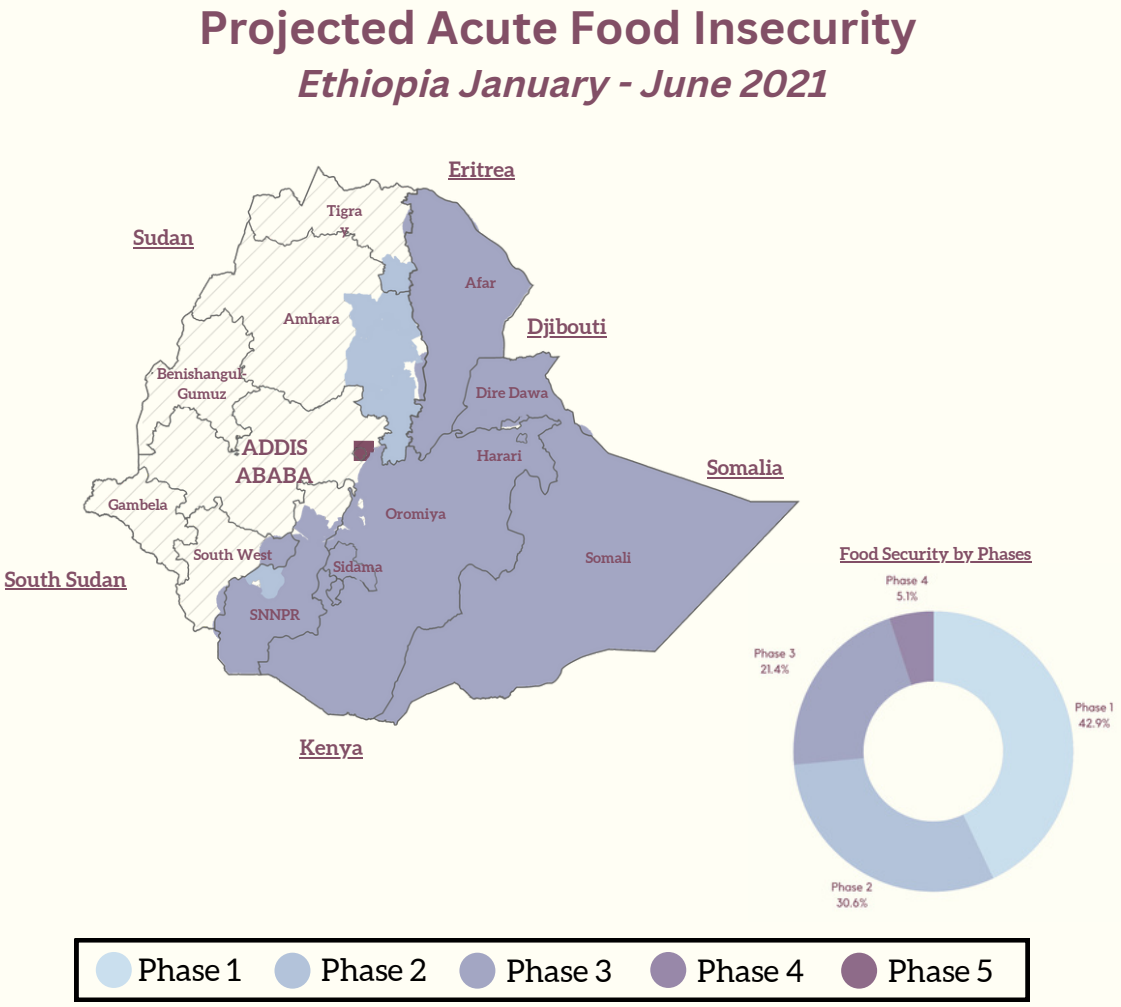

Figure 5: Acute Food Insecurity Situation for January - June 2021 based on the IPC data

The country's economy relies heavily on agriculture, as this sector "contributes nearly 85% of labour force employment, close to 50% of gross domestic product and 90% of foreign exchange earnings" (106). **Climate events** such as low or extreme rainfall, as well as droughts, negatively impact productivity, dramatically increasing food insecurity for the citizens that rely on agriculture for their income and nutrition (107). Thus, climate change interacts with Ethiopia's predominantly agricultural economy, affecting food insecurity. Devereux points out that "Ethiopian agriculture appears to be locked into a downward spiral of low and declining productivity, caused by an adverse combination of agroclimatic, demographic, economic and institutional constraints, trends and shocks" (108). Increased prices of agricultural inputs such as fertiliser reduce the productivity of Ethiopian farmers, who do not have access to the credit needed to purchase these materials (109).

Another issue relates to **the lack of availability and access to arable land,** which in turn affects production (110). In fact, out of the total land available in the country, only 14.4% can be used for agriculture (111). Regions that are particularly affected by severe weather events (for instance Afar, Oromia and Somali) are also the ones mostly affected by food insecurity, as the local population is displaced and unable to continue subsistence farming (112,113).

Lack of adequate infrastructure, coupled with population growth, low economic growth and persistent conflicts are contributing factors, as they affect citizens' ability to produce or purchase enough food. These aspects also lessen the effectiveness of the coping strategies citizens employ to alleviate the effects of food insecurity. The Ethiopian government and international organisations like the WFP have enacted different strategies to respond to this issue, for instance through donations, food transfers and capacity building to improve agricultural methods.

Strategies to counteract food insecurity have been established starting from 1996, with the goal of increasing agricultural outputs, protecting land from droughts and improving food reserves in the country (114). The Ethiopian government has initiated food aid programs in the regions impacted by extreme weather events, for example following severe drought in the regions of Oromia and Tigray, where they set up food distribution and food for work projects (115). Additionally, the government launched several rounds of a food aid program, the Productive Safety Net Program, starting in 2004. The main goal of this program is to increase food availability and production and improve the country's response to food insecurity crises (116). The WFP has also established programs to distribute food to malnourished pregnant women and children in regions like Afar, Amhara and Somali (117). However, these strategies are not always enough to alleviate food insecurity, especially when it interacts with the severe conflicts or civil unrest that characterises some of the regions of the country.

In the last few years, food insecurity has grown exponentially in some areas of the country due to the conflict between the Ethiopian army and the Tigray People's Liberation Front in the northern region of Tigray. According to the IPC, the conflict has caused the displacement of millions and has dramatically increased food insecurity in regions such as Tigray, Amhara and Afar, with data pointing to the concrete risk of famine (118). Data from the IPC shows that around 5.5 million people in the northern regions of the country are at risk of high food insecurity, requiring urgent aid. According to the WFP, in April of 2021 around 10.9 million Ethiopians were food insecure, a number that then increased to 18 million by the end of that same year, pointing to the disastrous effects of the conflict (119). Displacement and migration have been particularly severe due to this and other ethnic conflicts in the country.

Additionally, **Ethiopia country currently hosts around 900,000 refugees** from countries such as South Sudan, Somalia and Eritrea, while 3.5 million Ethiopians are internally displaced(120). In this case, displacement is one of the causes behind food insecurity, as almost two million citizens are internally displaced and are thus unable to provide food for themselves and their families. The destruction of land that was employed for agriculture and the interruption of humanitarian aid due to the continuation of the conflict are also contributing factors (121). Other than conflict, the International Displacement Monitoring Centre points out that severe environmental events such as droughts or heavy rainfall have prompted displacement in other regions of the country, especially in the Afar, Amhara and Oromia areas (122).

A key component of the literature on food insecurity focuses on the strategies that individuals use to cope with this phenomenon. As pointed out by Melketo et al., "nearly all definitions [of coping strategies] stress the common elements of resilience, including ability, mitigation, adaptation, coping, recovery, withstanding, resistance, and bouncing back against shocks and stresses" (123). With regards to food insecurity, these coping strategies may include reducing spending in other areas to redirect money towards buying food (as well as purchasing cheaper food), reducing the amount of food that is eaten by family members or selling valuables to purchase food. In the conflict-ridden region of Tigray, severe coping strategies such as reducing the number of daily meals or reducing portion sizes to give enough food to vulnerable members of the family are widely employed (124).

Moreover, **migration can become a coping strategy to alleviate the negative effects of food insecurity**, as individuals might migrate to seek better employment opportunities and thus increase the amount they can spend on acquiring food, possibly increasing their households' access to food as well (125). Additionally, if a member of the household migrates, the remaining members' food insecurity might decrease, as fewer family members have to be fed(126). Abebaw et al. find that food security programs enacted by the Ethiopian state decreased food insecurity levels of smaller households more than larger ones, as the food aid is divided among fewer members (127). At the same time, if the household relies on agriculture for food production, having fewer members in the household could decrease agricultural output, with negative effects on overall nutrition (128). Additionally, the literature points out that migration and displacement can lead to population pressure, which can increase food insecurity due to the higher number of individuals living and seeking employment in already densely populated areas (129).

Studies on food insecurity in Ethiopia have focused on a range of factors that can explain the persistence of this issue, ranging from climate change, unequal land allocation, conflict and household-related determinants that affect the severity of food insecurity (130,131). Additionally, research finds that "the educational status of the household, number of income sources, number of children, sole parenthood, marital status and employment status of the households are perceived to be determinants of food insecurity" (132). These household-related characteristics converge with issues linked to access to food or price increases, which then lead to food insecurity (133). For instance, households, where mothers had higher school attainment, had lower levels of food insecurity, as they are on average more informed about correct nutritional practices (134). Likewise, households with diversified sources of income were more food secure, as they did not solely rely on sectors like agriculture that can be volatile (135).

Another aspect that is highlighted in the literature is that determinants of food insecurity may change based on region-specific issues or characteristics: for instance, research finds that in the region of Amhara household size is a variable that negatively impacts food security, together with household heads' profession and whether the household resides in an urban or rural area (136). Additionally, the sex of the household head is also a variable of interest. In the southern regions of the country, households that are headed by women are more likely to be food insecure, as women have less access to resources such as land or machinery used for agriculture, which in turn decreases agricultural output (137). Women might have less decision-making power within the household, with men controlling what is produced (in rural settings) or deciding on budget allocation for food (138).

Other than the variables mentioned above, the old age of households is also a significant predictor of food insecurity in the region of Amhara, as older individuals often have lower food production and less income that can be used to purchase food (139). Lastly, research finds that in the region of Afar household size is negatively correlated with food security(140).

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LITERATURE REVIEW

LIBYA

Libya has displayed different patterns of food security and migration for decades, which have only been exacerbated by the conflicts in the last decade. Libya, historically one of the world's largest oil-producing nations, had maintained large trade surpluses (141). While this oil wealth did not percolate down to ordinary citizens, the cost of food was offset by a welfare state that offered free education, healthcare and public services to all (142). However, since the civil war in 2011, Libya's population is in the midst of a major humanitarian crisis. Indeed, years of political insecurity and economic volatility, combined with sudden-onset shocks such as political clashes, the COVID-19 pandemic and the devaluation of the Libyan dinar, and more recently, the crisis in Ukraine, have rendered the situation direr. Currently, as of 2022, an estimated 1.3 million people are now in need of humanitarian assistance, of which more than half are food-insecure (143).

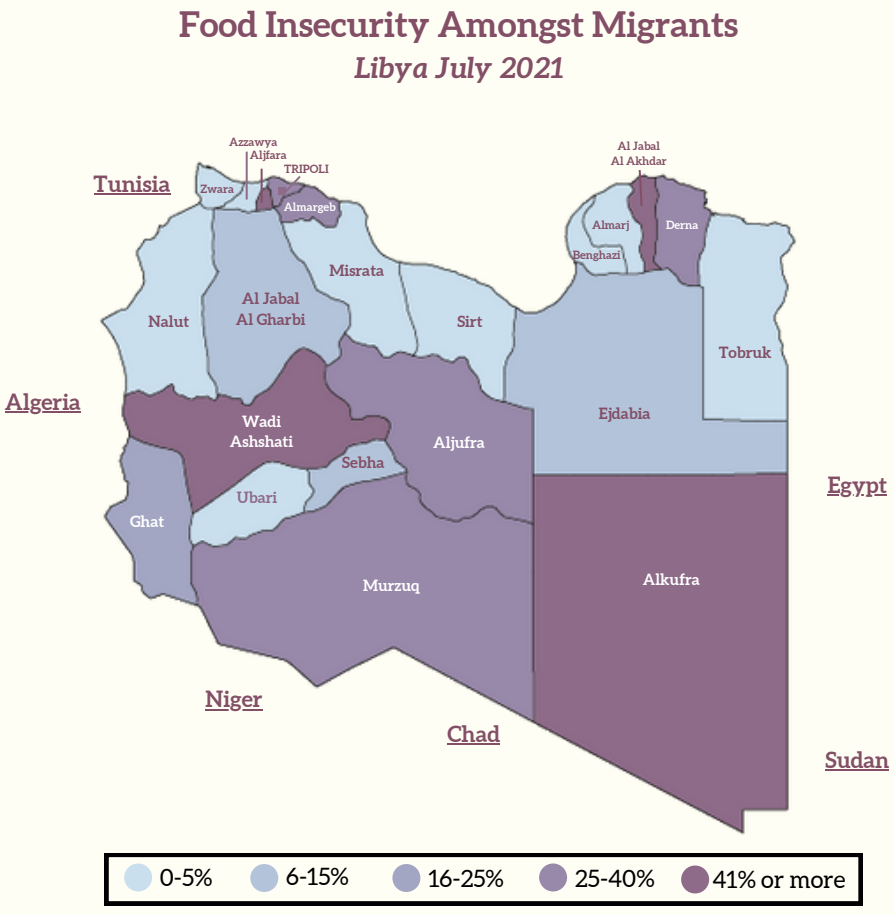


Figure 6: Proportion of migrants with inadequate (poor and borderline) food consumption levels by region (mantika) based on WFP/IOM data

The persistent insecurity and instability since the 2011 uprising have led the socioeconomic, humanitarian and protection environment to deteriorate significantly. Economically and socially, thousands of households are struggling to meet their basic needs and face high unemployment rates, a severe economic downturn and struggling public services (144). Sudden onset shocks, including the emergence of COVID-19, have also rendered the situation more complex, in addition to the political uncertainty caused by the postponed elections of December 2021 (145).

LIBYA'S DEPENDENCY ON FOOD IMPORTS

Libya is also among the countries heavily affected by the war in Ukraine as it imports its food from abroad, especially cereals and flour. As a result of **Libya's heavy dependence on food imports,** specifically from Ukraine and Russia, food security in the country has been significantly impacted by the war. Since the start of the crisis, **Libya has been facing wheat and cereals supply disruptions, shortages, and higher prices** (146). The likelihood of resuming Ukrainian wheat imports is uncertain, and other large importers, including India, have imposed a ban on exports to ensure their food security. Furthermore, with **higher inflation**, consumers' purchasing power will decline, likely resulting in lower consumption, increased food insecurity, and greater use of negative coping mechanisms by vulnerable households. Potential delays in reinstating food subsidies, due to political tensions and/ or inadequate state capacity, could increase social tensions (147).

LIBYA'S MIGRATORY LANDSCAPE

The food security situation within the country has deteriorated since 2011, with **migrants that have lived in Libya for less than two years being more food insecure** (see figure 6 on the previous page) (148). This could be because they are not yet well established, and the majority still pay debts they incurred during their migration. Furthermore, the newly arrived migrants primarily relied on food assistance from humanitarian organisations and support from family and friends (149).

Libya has **a unique migratory landscape.** In terms of its political situation, there has been no effective government since the 2011 uprising that drove out Col. Muammar Gaddafi. Instead, hundreds of different armed groups fight for territory and influence, and human trafficking has flowered in this climate (150). Smugglers, believed to have links to the militias, are making huge profits from packing desperate migrants into unsafe boats bound for Europe (151).

Until recently, Libya was itself a destination for migrants from Africa and the Middle East, drawn to its relatively robust economy. However, the civil conflict has made it a very dangerous place for foreigners to linger. **Migrants who may once have been prepared to search for work there are now desperate to leave** (152).

Regardless of the route used, **those coming to Libya form mixed migration flows**, meaning that people with different backgrounds and motivations travel together along the same routes (153). These include IDPs, refugees and migrants. Almost all refugees and migrants coming to Libya seek the help of smugglers or criminal networks. In looking at mixed migration flows, there are broadly three main routes that bring refugees and migrants to Europe: the Western Mediterranean Route (usually via Morocco to Spain), the Central Mediterranean Route (usually via Libya to Italy) and the Eastern Mediterranean Route (usually via Turkey to Greece). The Central Mediterranean Route is currently the most active and accounts for the largest number of people crossing by sea to Europe (154).

By far, Libya is the preferred site for refugees and migrants from Africa hoping to reach Europe; yet it is particularly unsafe. In recent years, movements by sea from Libya to Europe have increased and the indications are that it is likely to stay this way (155). In addition to Libya's strategic location, conflicts and instability in the country have hindered border control and created an environment where smuggling networks can flourish. At the same time, interviews established that instability has pushed refugees and migrants settled in Libya to leave, attempting to cross the Mediterranean to reach Europe (156).

Indeed, Libya is a destination and transit country for migrants due to its expected job opportunities and geographical location. **As of June 2021, 597,611 migrants were estimated to be residing in the country, while the United Nations High Commissioner for Refugees (UNHCR) recorded 41,404 individuals as registered refugees or asylum seekers in November 2021** (157). However, limited livelihood opportunities, lack of documentation, and discrimination prevent many refugees and migrants from accessing basic services and assistance. In addition, refugees and migrants are particularly vulnerable to exploitation, trafficking, harassment and abuse, arbitrary arrest and indefinite detention (158). This is not the case for IDPs, who enjoy citizenship status in the country. In some cases, these migrants are asylum seekers who wish to obtain refugee status in Europe as they flee war, despotic regimes and political persecution. In other cases, those boarding boats on Libyan shores are economic migrants searching for better employment opportunities, often, but not always, in response to failed local economies, grinding poverty and a dearth of viable paths to upward mobility in their home countries (159).

CONFLICT IMPLICATIONS

Currently, more than ten years after the start of hostilities in Libya, the security situation has improved, following a ceasefire agreed upon in October 2020 between the warring parties. However, **years of conflict, exacerbated by COVID-19 restrictions, have contributed to the deterioration of the weakened economic situation, with a negative impact on the population's purchasing power and consequently, the ability to fulfil their basic needs.** The humanitarian situation has also been impacted by the protracted conflict, including frequent power and water cuts. As a result, the unemployment rate among migrants presents a significant risk and can lead to increased vulnerability and humanitarian needs, such as food insecurity (160).

As the situation in Libya continues to be unstable, it is critical to monitor trends and effects on the needs of displaced people and migrants. With both migration and food insecurity plaguing the country, their impact on one another can help explain reasons for migration both in and outside of Libya and help to hone in on precise solutions to the food insecurity problem. Indeed, it is the case that understanding the patterns of food insecurity would be to look at other socioeconomic factors such as income, geography, occupation, education levels, and more. Literature on Libya is rich with an analysis of the different factors that affect the precarious conditions of migration and food insecurity.

COVID-19

In terms of COVID-19 impacts, due to the economic downturn and shrinking labour opportunities, the unemployment rate among migrants presents a significant risk factor, which can lead to increased vulnerability and food security. **A 2021 IOM and WFP report finds that the cumulative impact of COVID-19 mobility restrictions has affected the food security levels of the more than 574,000 migrants in Libya,** particularly those relying on casual work found on a daily basis (161).

FURTHER FACTORS IMPACTING FOOD SECURITY

In their study of Libyan migrants, Mansour et al. found, through multivariable logistic regression modelling, that **household size, food store location, and food affordability were found to be significantly related to food insecurity.** They focused on another aspect of food security– food labelling comprehension– and found that **gender, private health insurance, household annual income, and education level were significantly related to food labelling comprehension (**162). Despite the population's high educational status and food labelling comprehension level, food insecurity remained an issue among Libyan migrants.

In terms of household or individual-level factors, Round 4 of WFP's *Food Security and Nutrition Survey* in Libya found that **households headed by males** had a slightly higher proportion of inadequate food consumption (8%) than female-headed households (7%). They also found that the **disability status of the household** head impacted the [in]adequate food consumption levels in a household. People with disabilities had limited access to the workforce and faced difficulties in meeting household food needs (163). These are important to be mentioned, to ensure that variables with a high explanatory power are included in the study. Furthermore, Nouh et al. find that **gender, family size, and living area** are significantly associated with the level of food adequacy among the subjects of their study on the prevalence of food insecurity in the eastern part of Libya (164). These factors are of vital importance, especially to plan out relief efforts concerning food security in Libya.

Photo by Elaine Casap on Unsplash

METHODOLOGY

The report uses the Ordinary Least Square (OLS) method to perform linear regression and statistically analyse the data of the three countries. For the analysis, the dependent variables used are FCS and rCSI.

Food Consumption Score

Food Groups and Weights

	Food Items	Food Groups	Weight
1.	Maize , maize porridge, rice, sorghum, millet pasta, bread and other cereals	Cereals and Tubers	2
2.	Cassava, potatoes and sweet potatoes		
3.	Beans. Peas, groundnuts and cashew nuts	Pulses	3
4.	Vegetables and leaves	Vegetables	1
5.	Fruits	Fruits	1
6.	Beef, goat, poultry, pork, eggs and fish	Meat and Fish	4
7.	Milk yogurt and other diary	Milk	4
8.	Sugar and sugar products	Sugar	0.5
9.	Oils, fats and butter	Oil	0.5
10.	Condiments	Condiments	0

Figure 7: Illustration of the FCS's groups and weights based on the index developed by the WFP

CREATING THE FOOD CONSUMPTION SCORE

FCS =
***a*staple*x*staple+ *a*pulse*x*pulse+ *a*veg*x*veg+ *a*fruit*x*fruit**
+ *a*animal*x*animal+ *a*sugar*x*sugar + *a*dairy*x*dairy+ *a*oil*x*oil

Where,
FCS Food consumption score
xi Frequencies of food consumption = number of days for which each food group was consumed during the past 7 days
(7 days was designated as the maximum value of the sum of the frequencies of the different food items belonging to the same food group)
ai Weight of each food group

The range of the FCS is between 0 and 112. Households can be further classified into three categories based on this range: poor (0-21 FCS), borderline (21.5-35 FCS) and acceptable (>35 FCS) food consumption levels (166). A high FCS means that the household consumes adequate nutritional food at a higher frequency, and thus is food secure.

Reduced Coping Strategy Index (167)

Coping Categories *and Weights*

	Strategy	Variable name	Weight
1.	Eating less preferred but cheaper food	rCSILessQlty	1
2.	Reducing the number of meals per day	rCSIMealNb	1
3.	Limiting portion size at mealtime	rCSIMealSize	1
5.	Borrowing food/money from friends or relatives	rCSIBorrow	2
4.	Prioritising consumption for certain household members	rCSIMealAdult	3

Figure 7: Illustration of the rCSI's groups and weights based on the index developed by the WFP

CREATING THE RCSI SCORE (168)

rCSI =
*rCSILessQlty + (2 * rCSIBorrow) + rCSIMealSize +*
*(3 * rCSIMealAdult) + rCSIMealNb*

The range of rCSI lies between 0 and 56. Unlike FCS, there are no universal guidelines for classifying rCSI scores however, Maxwell et al suggested 3 provisional categories: 0-4 (food secure/mildly food insecure), 5-10 (moderately food insecure), and ⩾11 (severely food insecure) (169). As a result, the higher the value of the rCSI, the more food insecure individuals are.

THE OLS MODEL

The OLS Model of analysis assumes a linear regression model that looks at whether the levels of the independent variables (explained under the country-specific data below) are correlated with the levels of the dependent variables, and whether changes in the explanatory variables are associated with changes in the dependent variables.

In case the FCS is not normally distributed, the regression could produce biased estimates of the explanatory variables. The disadvantage of the OLS model is that while it looks at whether the levels of the independent variables are correlated with the levels of the dependent variables, it **does not say anything about whether changes in the independent variables are associated with changes in the dependent variables.** Because it does not focus on changes, the model does not control for heterogeneity.

It is to be noted that the country-specific variables used for the regression are described in the country data and methods section below.

The statistical analysis for Ethiopia and Libya is further complemented by interviews conducted with country programme heads. The qualitative analysis has helped in strengthening the answers to the existing research questions, as well as fill gaps in the quantitative analysis to understand the correlation between displacement and food security better. Unfortunately, the study on Afghanistan does not include interview data due to the unavailability of the country office heads.

Photo by Megan Thomas on Unsplash

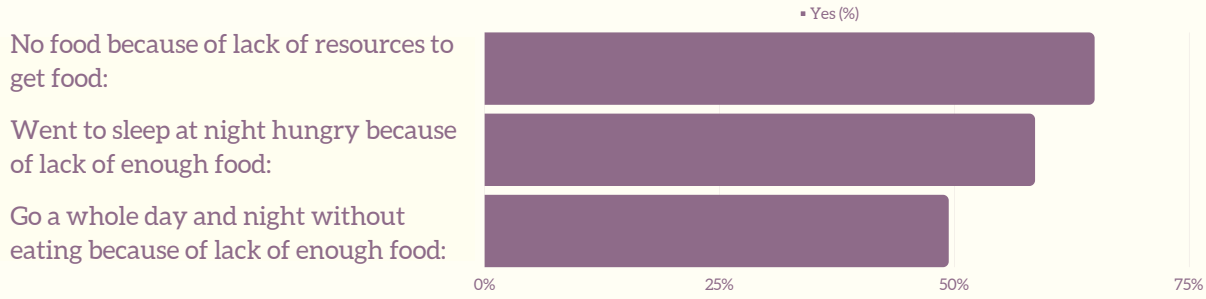
Afghanistan

Sample population at glance (2021)

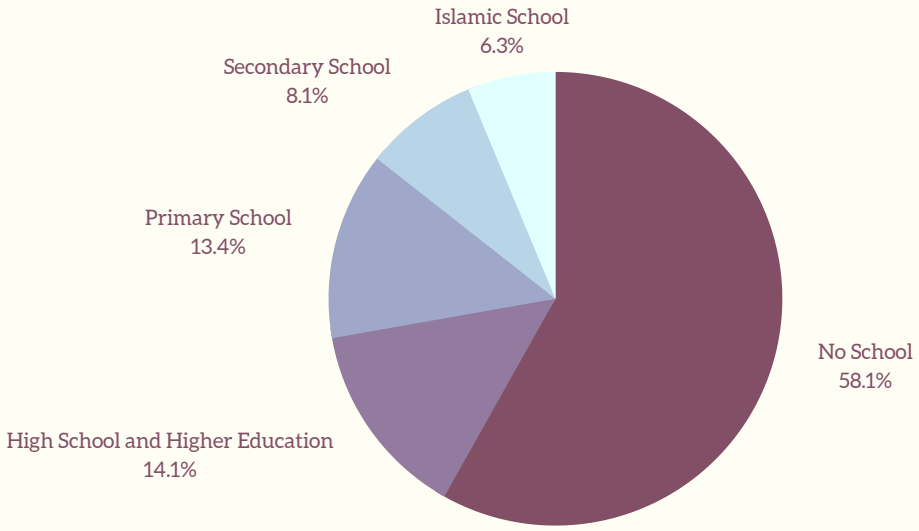
11.433	9.9	18-64
Number of respondents	Average Household Size	Average Range of Household Head Age

Household Hunger Scale

In the past [4 weeks/30 days]...



Average Education Level of the Head of the Household



Data from WFP's FSAC Seasonal Food Security Assessment (SFSA-2021) Household Questionnaire" in Afghanistan

SAMPLE POPULATION AT GLANCE

AFGHANISTAN

The Seasonal Food Security Assessment (SFSA) collected responses from 11,433 interviewees across all 34 Afghan provinces. The cross-sectional data can help showcase the regional differences. The data collected derives from Afghan households currently residing in the country and does therefore not count migrants/refugees residing outside the country. The dataset distinguishes between three different household residence types (permanent resident, IDP, and returnee). When asked about their residence, 91 % of the interviewees stated that they were permanent residents, out of which 87.3 % did not host any returnees or IDPs.

The majority (75%) of the sample population belonged to a rural community. 9/10 households were headed by males, predominantly between the ages of 18-64. Out of the households headed by women, only 2.96% per cent had an adult male (above 18) in the household. The average household population of the interviewees was also significantly large: 9.9 members.

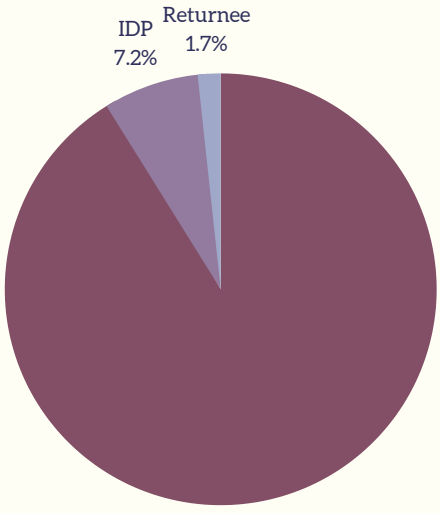
IS THIS COMMUNITY RURAL/URBAN?

75 % Rural Households
25 % Urban Households

WHAT IS THE SEX OF THE HOUSEHOLD HEAD?

94.3 % Male Household Head
5.7 % Women Household Head

WHAT IS YOUR HOUSEHOLD RESIDENCE TYPE?



Data from WFP's FSAC Seasonal Food Security Assessment (SFSA-2021) Household Questionnaire" in Afghanistan

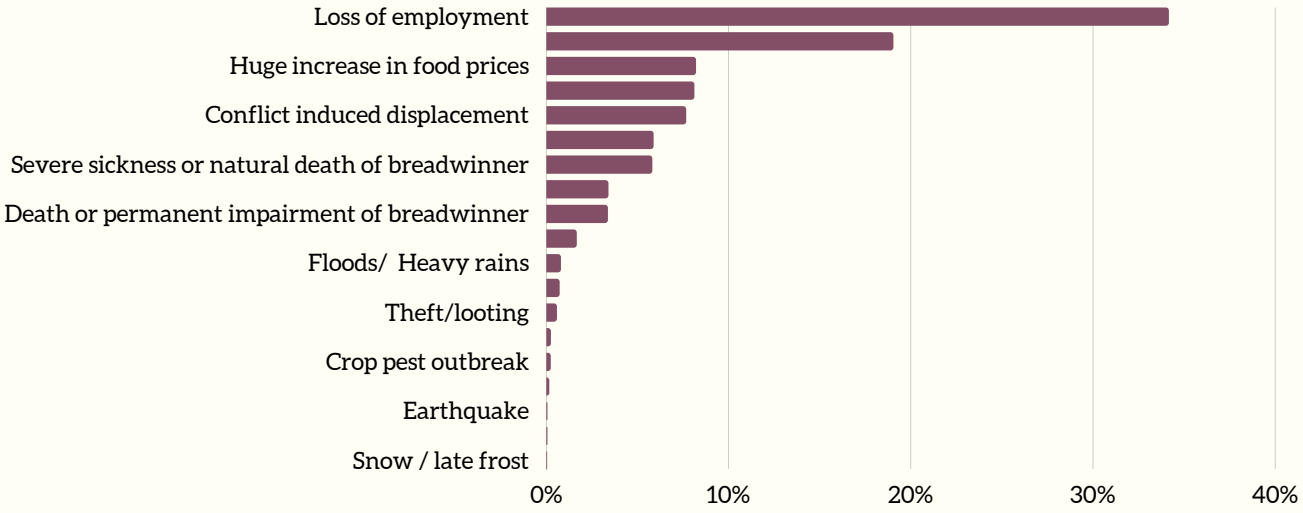
HOUSEHOLD INCOME

Around three out of four households reported that their income had decreased significantly compared to the previous year. The main reason reported for a decrease in household income was conflict (42.7%), followed by reduced employment opportunities (37.7 %), and reduced agriculture production (5.9%). Only 1.9% of the interviewees reported that migration was the main reason for their decrease in income.

HOUSEHOLD EXPENDITURE, SHOCKS AND COPING STRATEGIES

The average household expenditure was 13,213.81 afghani as of last month (approximately 148.84 USD). (170) Food-related expenses accounted for 77.45% of the total expenditure, followed by fuel and electricity, and transportation expenses.

Main Household Shocks/Events Reported



As food-related expenses account for three-fourths of household expenditure, it is evident that economic shocks have a profound impact on food security. 87.3% reported that over the past week, they have had to rely on less preferred and less expensive food at least once. This response can help explain why the biggest food group consumed was cereals and tubers as this has been estimated to be the cheapest food type. Respondents provided a weekly average for the 5 different coping strategies, indicating the number of days per week they had to resort to these alternatives. The report estimates a simple average on the 5 coping strategies, which ranges from 0 to 7, reflecting the average number of days per week each household relied on any of these strategies. The results showed that, on average, a household resorted to 1.82 coping strategies per week.

Based on the responses, a Reduced Coping Strategy Index (rCSI) for Afghanistan was calculated according to the rCSI Formula outlined in the methodology section. **The calculations gave the following results:**

Reduced Coping Strategy Index
Afghanistan 2021

rCSI Threshold	Profiles	Frequency	Percentage
0-4	**Food secure/mildly** food insecure	3	0.03%
5-10	**Moderately** food insecure	1,136	9.94%
⩾11	**Severely** food insecure	10,294	90.04%

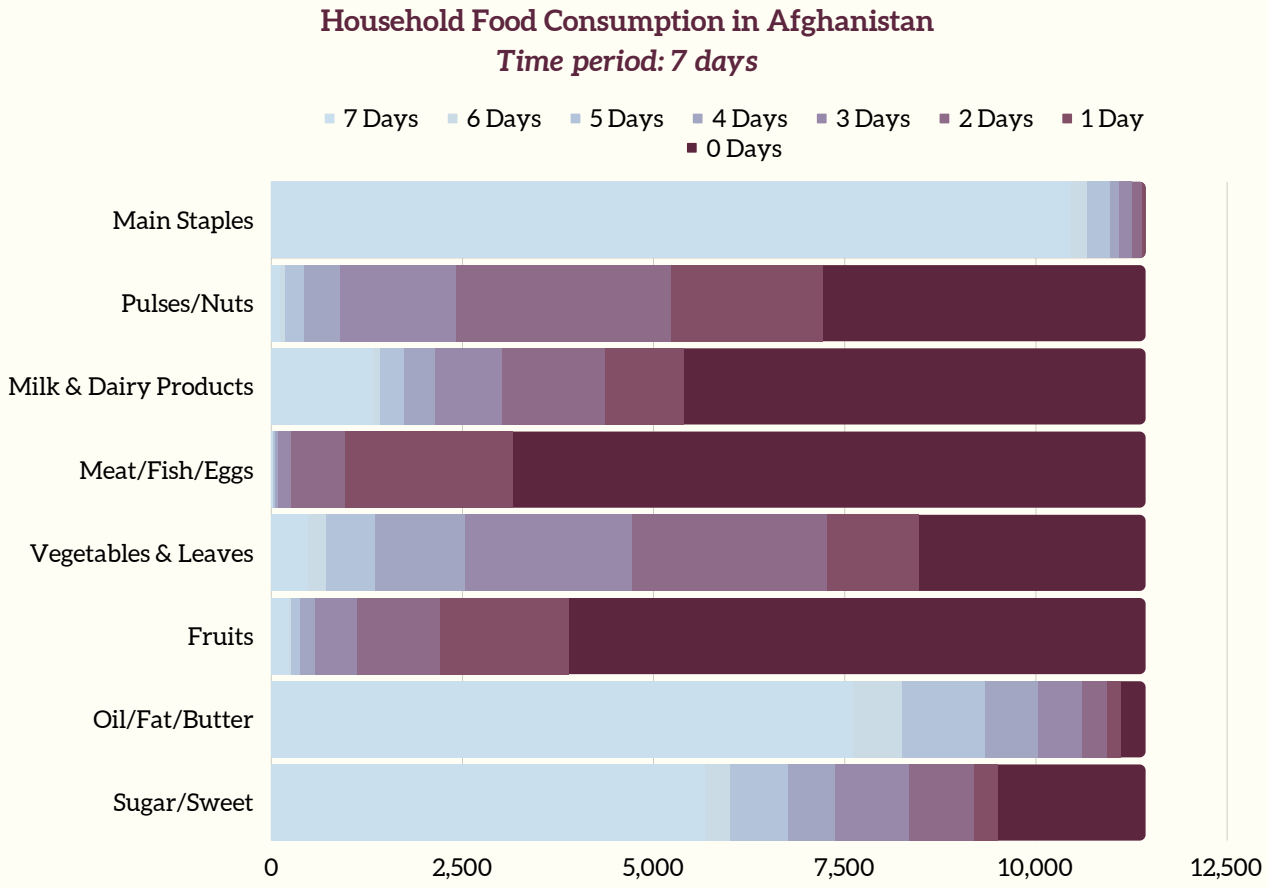
The calculations can be found in the appendix

These results indicate that 90% of the households show types of behaviour that indicate a severe problem of household food insecurity. However, in order to understand the robustness of the statistical significance, **the food consumption score was also calculated, giving the following results:**

Food Consumption Score
Afghanistan 2021

FCS Threshold	Profiles	Frequency	Percentage
0-21	**Poor** food consumption	2,156	19.09%
21.5-35	**Borderline** food consumption	4,789	42.40%
>35	**Acceptable** food consumption	4,350	38.51%

The calculations can be found in the appendix



Looking more closely at the various food groups, the food group consumed most frequently was cereals and tubes (91.4% reported having consumed this type of food every day of the week). The United States Department of Agriculture (USDA) estimated that grains and pulses are the cheapest foods - calculated as calories per Afghani (the local currency) (171). This can help explain why food falling within this category was the most frequently consumed food group across the whole sample population. Furthermore, a study conducted by the World Bank in 2022 found that even non-poor Afghans rely heavily on cereals as a source of cheap proteins, consuming two-thirds of their calories from cereals (172). However, looking at the data, households with higher income did have a more diversified consumption basked as it consumes a higher share of dairy products. Nearly no households consumed meat/fish/eggs everyday.

MEASURING THE RELATIONSHIP BETWEEN A HOUSEHOLD'S FCS/rCSI AND HOUSEHOLD RESIDENCE TYPE

The below section will carry out a set of estimations by using the Ordinary Least Squares regression (OLS). This section aims to measure the relationship between a household's Food Consumption Score (FCS)/The Reduced Coping Strategies Index (RCSI) and the household residence type, controlling for a set of descriptive variables explained in the following section.

VARIABLES

The two dependent variables for this analysis are the FCS and rCSI scores. These variables have been further explained in the methodology section. The main independent variable is "What is your household residence type?" This is a variable that denotes if the household is: permanent resident, internally displaced, or returnee. The dataset does not include specific information on migration, and to test the interconnectedness of migration and food security, this section will therefore focus on the variable that captures the household residence type as a way of understanding if someone who has been displaced is more prone to being food insecure.

To test this hypothesis, the regression model will take into account several control variables selected based upon the country-specific literature review. The variables are listed on the following page.

Having introduced the independent, dependent and control variables (listed on the following page), the model is presented as follows:

FCS/rCSI =

$$\beta 0 + \beta 1\,\text{Residence Type} + \beta 2\text{Community} + \beta 3\text{HouseholdHeadSex} + \beta 4\text{HouseholdHeadAge} + \beta 5\text{HouseholdHeadEducation} + \beta 6\text{HouseholdPregnant/lactating} + \beta 7\text{HostIDPs/Returnees} + \beta 8\text{TotalChildrenHousehold} + \beta 9\,\text{HouseholdSize} + \beta 10\text{HouseholdHeadDisability} + \beta 11\text{HouseholdShocks} + \beta 12\text{HouseholdIncome} + u$$

Variable Code	Variable Name	Description
S1_4	**ResidenceType -** What is your household residence type?	This is the main independent variable. This is a categorical variable consisting of 3 categories.
S0_5	**Community -** Is this community rural/urban?	A dummy variable taking value of 1 when the household lives in a rural community. The variable was recoded as a dummy variable as originally it took values of 1 and 2.
S1_1	**HouseHoldSex**	A dummy variable taking value of 1 when the household is headed by a woman. The variable was recoded as a dummy variable as originally it took values of 1 and 2.
S1_2	**HouseholdHeadAge**	This is a categorical variable consisting of 3 categories.
S1_3	**HouseholdHeadEducation - W**hat is the education level of the head of the household?	This is a categorical variable consisting of five categories.
S1_6	**HouseholdPregnant/lactating-** How many pregnant and lactating women (15-49) years are there in this household?	This is a numerical discrete variable.
S1_5	**HostIDPs/Returnees- I**f non-displaced household, do you host any returnee or displaced household?	A dummy variable taking value of 1 when the household hosts IDPs/returnees. The variable was recoded as a dummy variable as originally it took values of 1 and 2.
S1_7	**HouseholdSize -** How many persons are living in your household in total?	This is a numerical discrete variable.
total_children	**TotalChildren -** How many children are part of a household?	This is a numerical discrete variable. This variable was generated by separating the responses of people below the age of 18.
dis_head_dummy	**HouseholdHeadDisability**	A dummy variable taking value of 1 when the household head reported to have any of the 6 listed disabilities. This variable was generated by adding up all the variables concerning various types of distabilities. 73.92% responded that the head of the household did not have a disability.
S4_1	**HouseholdShocks -** In the last 6 months, has your household directly experienced any major events/shocks??	A dummy variable taking value of 1 when the household had experienced any shocks in the last 6 months.
S6_11	**HouseholdIncome -** What was/were your main sources of cash income in the last 12 months?	This is a categorical variable consisting of 21 categories.

REGRESSION RESULTS

FCS	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
S0_5	.0939862	.3303454	0.28	0.776	-.5535476	.7415199
S1_1	-3.471477	.5806743	-5.98	0.000	-4.609699	-2.333256
S1_2						
18-64	1.08783	1.642249	0.66	0.508	-2.13126	4.306921
65 and above	1.013312	1.694952	0.60	0.550	-2.309085	4.33571
S1_3						
Primary school	3.012051	.3885529	7.75	0.000	2.25042	3.773681
Secondary school	4.095043	.4825313	8.49	0.000	3.149198	5.040887
High school and higher education	4.293711	.4135557	10.38	0.000	3.48307	5.104351
Islamic school	.7619139	.5349541	1.42	0.154	-.2866883	1.810516
S1_4						
Returnee	-1.25	.9799394	-1.28	0.202	-3.17085	.6708496
IDP	-.1930278	.5171151	-0.37	0.709	-1.206662	.8206067
S1_6	-.2262992	.181761	-1.25	0.213	-.5825821	.1299836
S1_7	.7041021	.0585973	12.02	0.000	.5892412	.8189629
dis_head_dummy	-1.790728	.2972979	-6.02	0.000	-2.373483	-1.207973
S4_1	-3.099753	.2727396	-11.37	0.000	-3.63437	-2.565136
S6_11						
Production & sale of orchard products	-1.709635	.9820727	-1.74	0.082	-3.634667	.2153963
Production & sale of cash crops	-2.885168	1.130226	-2.55	0.011	-5.100606	-.6697304
Agricultural wage labour	-8.219187	.5367703	-15.31	0.000	-9.27135	-7.167025
Production & sale of Poppy	16.45489	5.122325	3.21	0.001	6.414252	26.49553
Wage labour in Poppy field	-10.90445	2.145119	-5.08	0.000	-15.10926	-6.69965
Production & sales of livestock and livestock products	-1.080099	.9005244	-1.20	0.230	-2.845282	.6850836
Shepherding wage labour	-9.512913	.9983475	-9.53	0.000	-11.46985	-7.55598
Production and manufacturing	-6.122575	1.378881	-4.44	0.000	-8.825419	-3.419731
Non-agriculture wage labour	-9.133584	.4531403	-20.16	0.000	-10.02182	-8.245351
Skilled labour	-6.849772	.5417468	-12.64	0.000	-7.911689	-5.787855
Salary work	-6.37211	.5441816	-11.71	0.000	-7.438799	-5.30542
Remittances	-1.643554	.8234519	-2.00	0.046	-3.257662	-.0294466
Transport	-5.21523	.8526765	-6.12	0.000	-6.886623	-3.543837
Small business/petty trade	-3.201599	.6231058	-5.14	0.000	-4.422993	-1.980204
Assistance from government/UN/NGOs etc.	-8.951165	2.144964	-4.17	0.000	-13.15566	-4.746667
Begging	-12.57753	2.357924	-5.33	0.000	-17.19946	-7.955588
Gifts/charity	-11.00985	.9192016	-11.98	0.000	-12.81165	-9.208058
Natural resources	-9.268501	1.927795	-4.81	0.000	-13.04731	-5.48969
No income at all	-10.64738	1.425067	-7.47	0.000	-13.44076	-7.854006
Other (specify)	-7.873256	.7058721	-11.15	0.000	-9.256886	-6.489625
total_children	-.2513541	.0791456	-3.18	0.001	-.406493	-.0962151
_cons	35.54102	1.729982	20.54	0.000	32.14996	38.93208

REGRESSION RESULTS

rCSI	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
S0_5	-.3775845	.2309997	-1.63	0.102	-.8303836	.0752146
S1_1	3.942281	.4060465	9.71	0.000	3.14636	4.738202
S1_2						
18-64	-.0210575	1.148371	-0.02	0.985	-2.272062	2.229947
65 and above	.0411082	1.185224	0.03	0.972	-2.282135	2.364352
S1_3						
Primary school	-1.090633	.2717023	-4.01	0.000	-1.623217	-.55805
Secondary school	-1.384638	.3374183	-4.10	0.000	-2.046036	-.7232401
High school and higher education	-1.517245	.2891859	-5.25	0.000	-2.0841	-.9503912
Islamic school	-1.231378	.3740758	-3.29	0.001	-1.964631	-.4981249
S1_4						
Returnee	2.036266	.6852394	2.97	0.003	.6930792	3.379454
IDP	1.873378	.3616016	5.18	0.000	1.164577	2.58218
S1_6	.394532	.1270995	3.10	0.002	.145395	.6436689
S1_7	-.2607319	.0409752	-6.36	0.000	-.3410503	-.1804135
dis_head_dummy	1.722751	.2078907	8.29	0.000	1.315249	2.130252
S4_1	3.593253	.1907179	18.84	0.000	3.219414	3.967093
S6_11						
Production & sale of orchard products	-2.233416	.6867312	-3.25	0.001	-3.579528	-.8873047
Production & sale of cash crops	-2.866097	.79033	-3.63	0.000	-4.415279	-1.316914
Agricultural wage labour	2.339959	.3753459	6.23	0.000	1.604217	3.075702
Production & sale of Poppy	-.1348113	3.581874	-0.04	0.970	-7.155901	6.886278
Wage labour in Poppy field	1.410213	1.500011	0.94	0.347	-1.530068	4.350493
Production & sales of livestock and livestock products	-.4740713	.6297071	-0.75	0.452	-1.708406	.7602631
Shepherding wage labour	2.447145	.6981116	3.51	0.000	1.078726	3.815563
Production and manufacturing	-1.594044	.9642061	-1.65	0.098	-3.484054	.2959663
Non-agriculture wage labour	1.899448	.3168661	5.99	0.000	1.278335	2.52056
Skilled labour	1.159639	.3788257	3.06	0.002	.4170753	1.902203
Salary work	1.622179	.3805283	4.26	0.000	.8762779	2.36808
Remittances	-2.459853	.5758129	-4.27	0.000	-3.588546	-1.331161
Transport	-.0628955	.5962486	-0.11	0.916	-1.231645	1.105855
Small business/petty trade	-1.32458	.4357174	-3.04	0.002	-2.178661	-.4704987
Assistance from government/UN/NGOs etc.	6.41061	1.499903	4.27	0.000	3.470543	9.350678
Begging	5.185617	1.648819	3.15	0.002	1.953648	8.417586
Gifts/charity	4.752181	.6427675	7.39	0.000	3.492246	6.012116
Natural resources	1.711683	1.348044	1.27	0.204	-.9307157	4.354081
No income at all	6.236899	.9965025	6.26	0.000	4.283582	8.190215
Other (specify)	1.554813	.4935932	3.15	0.002	.5872858	2.522341
total_children	.2965223	.0553439	5.36	0.000	.1880387	.4050058
_cons	10.12413	1.20972	8.37	0.000	7.752871	12.49539

OLS Regression Results
Food Consumption Score

Source	SS	df	MS			
Model	377290.157	35	10779.7188	Number of obs	=	11,433
				F(35, 11397)	=	59.03
				Prob > F	=	0.0000
Residual	2081215.03	11,397	182.610777	R-squared	=	0.1535
				Adj R-squared	=	0.1509
Total	2458505.19	11,432	215.054688	Root MSE	=	13.513

OLS Regression Results
Reduced Coping Strategy Index

Source	SS	df	MS			
Model	110671.652	35	3162.04719	Number of obs	=	11,433
				F(35, 11397)	=	35.41
				Prob > F	=	0.0000
Residual	1017661.19	11,397	89.2920238	R-squared	=	0.0981
				Adj R-squared	=	0.0953
Total	1128332.85	11,432	98.6995142	Root MSE	=	9.4494

FINDINGS OF THE REGRESSIONS

Taking into account the F-statistic, **both models are highly statistically significant, with $p < 0.00$.** At the same time, **the R2 values of the two models are quite small.** The values of the R2 for both the FCS and the rCSI are 0.1535 and 0.0981 respectively, implying that the OLS model only explains 15.35% and 9.81% of the variances in food consumption scores and the reduced coping strategy index within the sample. It is important to note that specific data might generate a lower R2. Regarding **residual standard errors**, the regression model with FCS as a dependent variable showed a change in FCS with a standard error of 13.51, while the regression model with rCSI as a dependent variable showed a change in rCSI with a standard error of 9.45.

HOUSEHOLD RESIDENCE TYPE & HOUSEHOLD SHOCKS

No statistical significance on the effect of household residence type on FCS was found. However, the households identified as IDPs or returnees were associated with lower FCS compared to permanent residents. Nevertheless, these coefficients were not found to be statistically significant. In comparison, **statistical significance was found when the dependent variable was the coping strategy index, ceteris paribus.**

In particular, **IDPs reported resorting to more coping strategies c**ompared to the two other residence types, indicating a higher exposure to food insecurity. As previously outlined in the literature review section, this can be explained by the fact that displaced people have often lost their ability to cultivate their lands and maintain livelihoods, implying that they have to resort to more coping strategies to manage their food shortage, which in turn can have a negative effect on food security.

A study that compared household food consumption indicators found that the rCSI was more of a proxy for food quantity while FCS was found to be a proxy for diet quality (173). This can be used to explain the difference in the results of the rCSI and the FCS. It could therefore be that the food quantity had significantly decreased while the food quality had not decreased significantly.

Furthermore, **if a non-displaced household hosts any returnees or IDPs there is statistical evidence of a positive effect on the FCS.** This finding was not anticipated as the direction of this effect is opposite of what one would expect. The phenomenon of IDPs and returnees residing with host families is relatively unexplored compared to studies on IDPs, and returnees living in camps (174). This result could potentially challenge the preconceived idea that families hosting IDPs/refugees/returnees suffer in terms of economic and resource strains as the FCS, reflecting the quality of the food consumed, increased with the presence of IDPs/returnees. In a similar vein, **there is a significant positive effect of households hosting returnees or IDPs on the rCSI;** implying that these households resorted to fewer coping strategies than the other households.

Additionally, **the findings suggest an overall significant negative effect of a household having experienced shocks in the past six months on the FCS and a significant positive effect on the rCSI.** Furthermore, as anticipated, IDPs and returnees were more prone to have experienced major shocks in the past six months than permanent residents. The main shocks reported were loss of employment (31.17%) and reduced income (19.04%). Potentially, displaced populations that are hosted by permanent residents are able to mitigate these shocks and even have a positive effect on the food security of the household through potentially assisting in the cultivation of land and/or maintaining livelihoods that generate monetary value that in turn ease the financial and resource constraints on the host family.

GENDER

There is statistical evidence of a negative relationship between households whose head is female and the FCS. In a similar vein, households headed by females showed more frequent and severe employment of coping strategies due to food shortages. This can be explained by female heads carrying additional burdens in trying to provide for a household. This aligns with findings highlighted in the literature review where women were found to be disproportionately affected by food insecurity as a result of the discrimination, marginalisation and even violence they face when trying to seek employment outside their homes (175). Additionally, households headed by women were more susceptible to experiencing household shocks, which could be potentially explained by the aforementioned implications of the Taliban takeover in 2021 in depriving women of their livelihoods. These household shocks on female-headed households, including loss of employment and reduced income, could make it more difficult for these households to limit food shortages.

EDUCATION

The educational level of the head of the household is positively associated with the food consumption score and negatively associated with the rCSI. The findings showed that the higher the educational level, the less food insecure a household was. This is a reasonable result as one could expect that people with higher educational levels would be more prone to work in higher-paid jobs and thereby afford more nutritious and varied food and thus less likely to be in need of resorting to coping strategies.

HOUSEHOLD SIZE

The household size is positively correlated with FCS, implying that larger households are more food secure. The positive effect of household size could be related to the presence of more adults in the households that can take responsibility for the household's food consumption. However, when looking at the effect of the total number of children (members below 18) on the FCS there is a negative relationship, implying that households with more children are more prone to be food insecure. There was also a positive relationship between the effect of the total number of children and the rCSI. This is what one would expect, given that a lower FCS and a higher rCSI mean more food insecurity.

INCOME

Compared to the base category (production & sale of field crops), households whose first source of income is "production and sale of poppy" reported higher FCS. **This source of income was the only one with a positive effect on the FCS. However, this source of income had no significant effect on the rCSI.** Statistical significance on the FCS and rCSI was only found for the households deriving their main income from "Wage labour in Poppy field," "Begging", "Gifts/charity", and " No income at all." These income groups also reported a higher rate of coping strategies employed.

No statistical significance was found for the households relying on "Production & sale of orchard products" and "Production & sales of livestock and livestock products" as their main source of income. In regards to the latter, one would anticipate a significant effect on the relationship between this income group and the FCS and rCSI. Out of the seven subgroups of the FCS, the least frequent food group consumed was meat/fish/eggs.

DISABILITY

Reporting any of the listed disabilities for the household head is **negatively associated with the FCS and positively with the rCSI.** This is what one would anticipate, as one could expect that a disability would hinder a household head's ability to provide for the household. There is a well-documented negative relationship between disability and food security (176). This can be partly explained by the inequities in economic opportunities for people with disabilities, making them more vulnerable to food insecurity (177).

OTHER

The variables **household head age** and **community type** (rural or urban) showed no statistical significance on the FCS or the rCSI. However, there was a positive impact on households with at least o**ne pregnant and/or lactating woman** on the rCSI, implying that these households resorted to more frequent and severe coping strategies to deal with food shortages. As previously mentioned, this could imply that the diet quality of this household was poor while the overall food quantity of a household was not significantly impacted by the presence of at least one pregnant and/or lactating woman.

LIMITATIONS OF THE DATA

It is important to note that the data collected does not necessarily reflect the current food security and displacement situation in Afghanistan. In 2021, the conflict in the country took a dramatic turn with the collapse of the government, the withdrawal of international troops, and the takeover of the Taliban. Under the Taliban's harsh rule, the situation in Afghanistan has further deteriorated. The WFP has called the humanitarian crisis in the country of "incredible proportions," and the situation is expected to further worsen (178). The country is on the brink of economic collapse, and only around half the population has adequate food consumption (179). The continuation of the conflict, international sanctions, the devaluing of the Afghani, soaring food prices, increase in unemployment, rising acute malnutrition, and the lean season approaching, and so, can have changed the food security and displacement situation in Afghanistan, and the authors, therefore, note the potential limitations of this dataset in reflecting the current situation. Furthermore, environmental disasters such as floods and droughts have had pernicious effects on arable land, affecting agricultural production, and leaving Afghans without adequate food (180) (181). However, there are no references to environmental impacts in the data. The authors, therefore, note the potential blind spot of the lack of determinants related to environmental impact.

CONCLUSION

The analysis has demonstrated the effects of several variables on the food FCS and rCSI. The main research objective was to look at the effect of displacement on food security. **The findings showed that being displaced has no statistical significance on the FCS. However, being displaced did have a significant statistical impact on the frequency and severity of coping strategies deployed (rCSI) by a household.** Additionally, the findings suggest that hosting returnees and/or IDPs had a positive effect on the FCS and rCSI on permanent households. This could be a potential future avenue of research as the food security implications of hosting IDPs and/or returnees is a relatively unexplored topic, and no clear conclusion can be drawn according to the findings in the data for why this was a positive relationship. Furthermore, when looking into the various factors affecting and influencing food security, some of the findings corresponded to the findings of the literature review, including the effects of gender and/or disability and/or educational level on food insecurity.

To portray an accurate image of the current status quo in Afghanistan following the Taliban takeover, updated data is needed. Additionally, new data collection should include questions focusing specifically on the environmental impacts when conducting a household survey as the literature section provided strong attestation of the impact of environmental changes such as drought and floods on the food security situation.

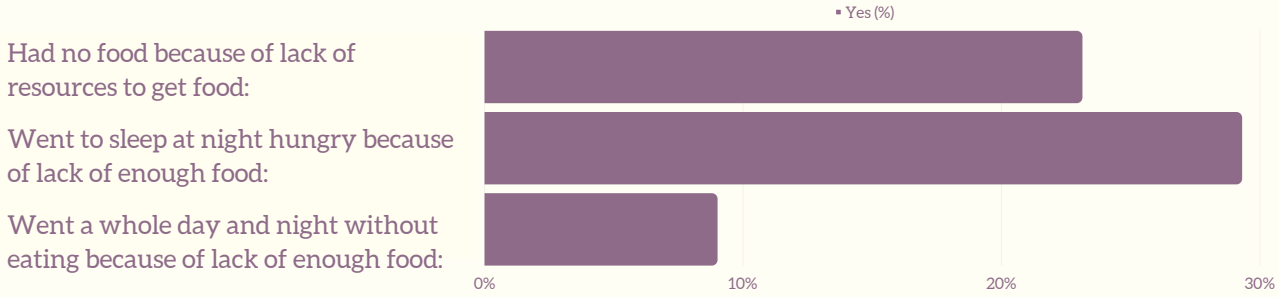
Ethiopia

Sample population at glance (2022)

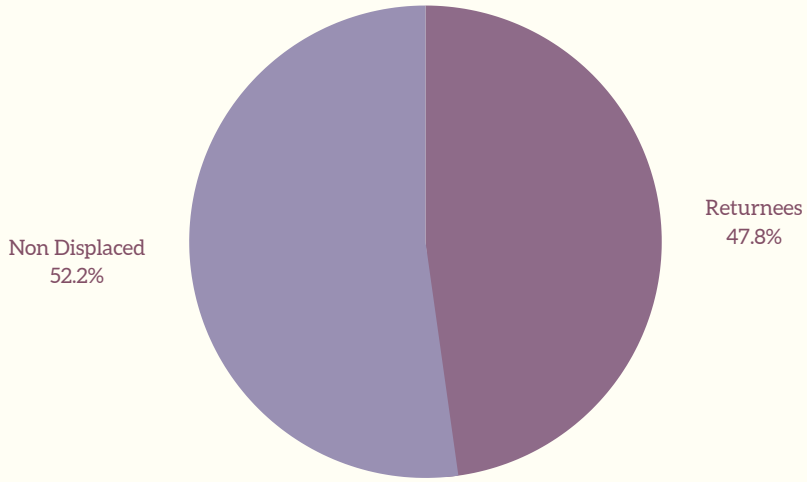
1798	6	45.9
Number of respondents	Average Household Size	Average Household Head Age

Household Hunger Scale

In the past [4 weeks/30 days]...



Percentage of Returnees and Non-Displaced Individuals:



Data from WFP's "Amhara and Afar Conflict Affected Areas - Food Security Monitoring System (FSMS) 2022"

SAMPLE POPULATION AT GLANCE

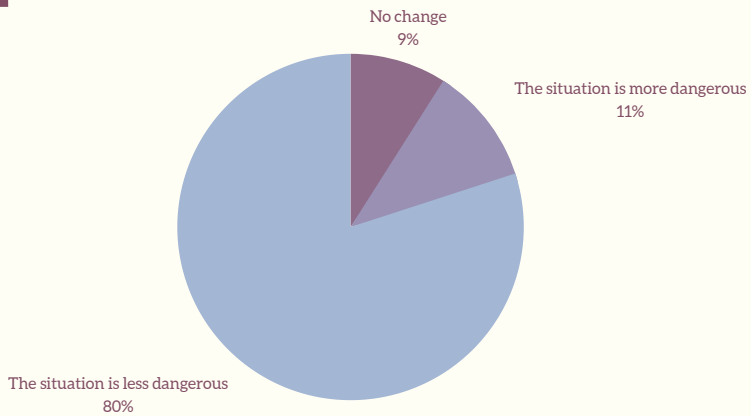
ETHIOPIA

The dataset on Ethiopia includes 1798 respondents for a total of 256 variables. The variables encompass different dimensions of food insecurity, assessing household dietary scores, coping strategies employed by families, household-specific characteristics and migratory status. **The respondents all reside in the Ethiopian regions of Afar and Amhara and the data was collected in January 2022.** The dataset is based on a household survey conducted by the WFP by phone. Taking into account the country-specific literature review, some variables have been selected, as they have a significant effect on the degree of food insecurity. In the sample, around 88% of respondents reside in Amhara, while 11% reside in Afar. **The gender distribution is not equal**, as around 72% of households are headed by men, while 27% are headed by women. The average household size is around 5 or 6 members, with an average food expenditure of around 870 Ethiopian Birr, which amounts to 16 US dollars per person, per household unit. **The average age of the household head is around 46 years.** With regards to the conflict, when surveyed about their safety perception, 9% of respondents report that they notice no change in their living situation, 11% report that their living situation has become more dangerous and 80% report that it has become less dangerous.

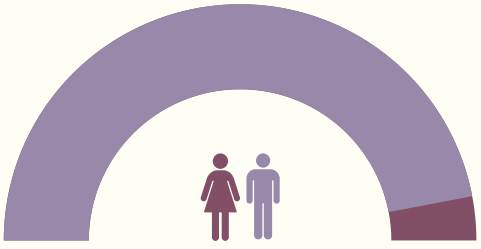
HAVE YOU RECEIVED ANY FORM OF AID?

72.7 % Yes
27.3% No

HAS YOUR SITUATION IN REGARDS TO SAFETY AND VIOLENCE BECOME LESS DANGEROUS OR MORE DANGEROUS?



WHAT IS THE SEX OF THE HOUSEHOLD HEAD?



72.8% Male Household Head
27.2% Women Household Head

Data from WFP's "Amhara and Afar Conflict Affected Areas - Food Security Monitoring System (FSMS) 2022"

FOOD INSECURITY AND COPING STRATEGIES:

Reduced Coping Strategy Index
Ethiopia 2022

rCSI Threshold	Profiles	Frequency	Percentage
0-4	**Food secure/mildly** food insecure	741	41,3%
5-10	**Moderately** food insecure	419	23,4%
⩾11	**Severely** food insecure	638	35,3%

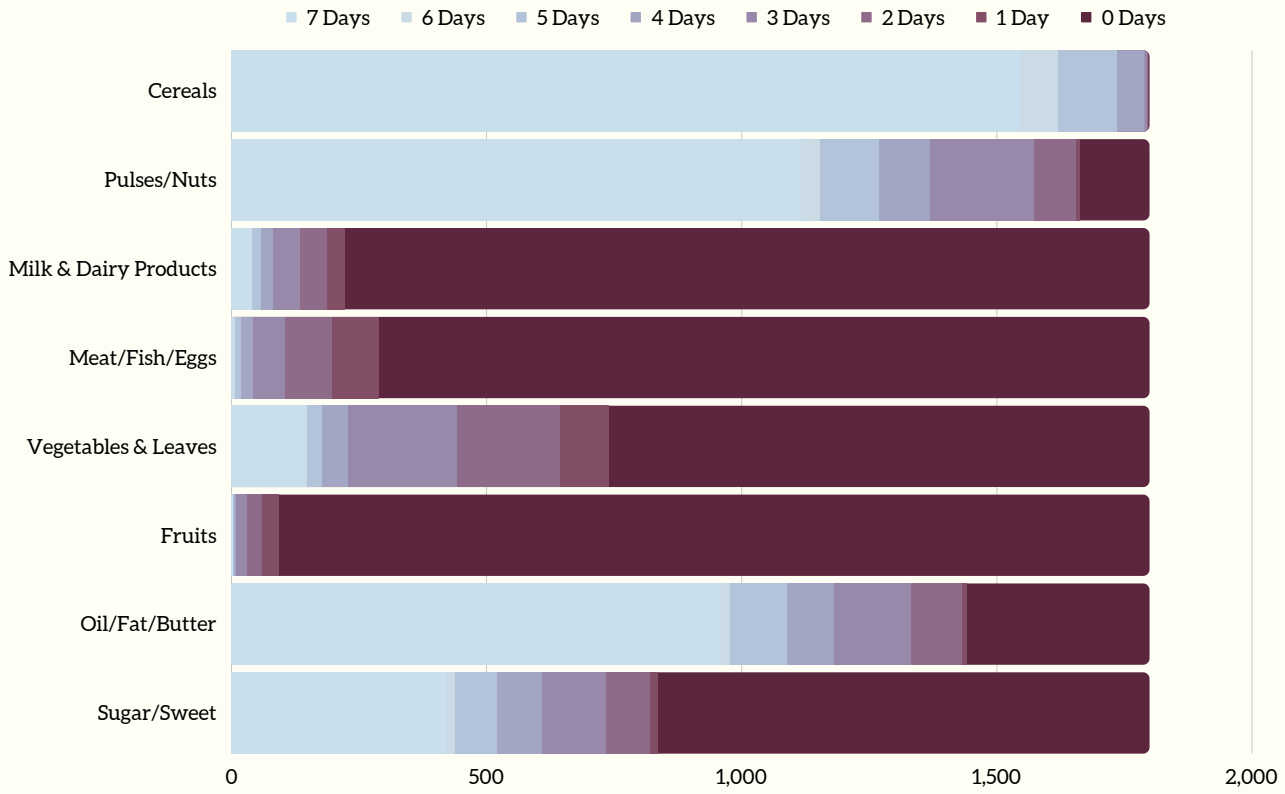
Looking at the rCSI score of this dataset, 41.3% of the sample is food secure, 23.4% is moderately food insecure and 35.3% is severely food insecure. **The variable has a mean of 9.5, meaning that the respondents are on average moderately food insecure.** In particular, at times when food is not sufficient, 48% of respondents rely on less preferred or less expensive foods, 27% borrow food or request help from a friend or relative, 54% reduce portion sizes, 38% reduce the number of meals they would normally eat in a day and 32% of adults reduce their portion sizes to give food to their children.

Food Consumption Score
Ethiopia 2022

FCS Threshold	Profiles	Frequency	Percentage
0-21	**Poor** food consumption	200	11.1%
21.5-35	**Borderline** food consumption	335	18.6%
>35	**Acceptable** food consumption	1263	70.2%

Regarding the Food Consumption Score, around 11% of respondents in the dataset have a “poor” food consumption score, 19% of respondents have a “borderline” food consumption score and 70% of respondents have an “acceptable” food consumption score.

Household Food Consumption in Ethiopia
Time period: 7 days



One section of the survey asks respondents how many times they have consumed a certain food category in the past week, to assess the diversity of their diet. What emerges from the sample is that **most individuals in Afar and Amhara rely on cereals and pulses in their daily diet** (respectively 85% and 62% of respondents consume them every day of the week). Dairy products and protein sources such as meat, fish and eggs are not evenly distributed, as 87% and 84% of respondents never eat them throughout the week. 41% of respondents consume vegetables during the week, while only 5% of the sample consumes fruits, as the prices are often prohibitive and citizens are not informed about the health benefits of consuming these foods (183). Sugar is consumed by 46% of respondents, while fats such as oil and butter are part of the diet of 80% of the sample.

Data from WFP's "Amhara and Afar Conflict Affected Areas - Food Security Monitoring System (FSMS) 2022"

MEASURING THE RELATIONSHIP BETWEEN A HOUSEHOLD'S FCS/rCSI AND HOUSEHOLD RESIDENCE TYPE

The below section will carry out a set of estimations by using the Ordinary Least Squares regression (OLS). This section aims to measure the relationship between a household's Food Consumption Score (FCS)/The Reduced Coping Strategies Index (RCSI) and the household residence type, controlling for a set of descriptive variables explained in the following section.

VARIABLES

The two dependent variables for this analysis are the FCS and rCSI scores. These variables have been further explained in the methodology section. The main independent variable assesses whether respondents were displaced and have then returned to their place of residence or whether they were not displaced at all. **Out of 1798 respondents, 859 (47.7%) individuals are returnees and 939 (52.3%) are non-displaced.** According to the WFP, a returnee is defined as "a person who was previously displaced, but who has recently returned to their place of origin/ habitual residence. It is usually because the threat or danger that had caused him/her to leave his/her place of habitual abode has significantly diminished" (183). Control variables for the regression have been selected based on the existing literature on food insecurity in Ethiopia and have been presented in the literature review section of the report. They have been selected taking into account the data that was available from the WFP dataset.

To test this hypothesis, the regression model will take into account several control variables selected based upon the country-specific literature review. The variables are listed on the following page.

Having introduced the independent, dependent and control variables (listed on the following page), the model is presented as follows:

FCS/rCSI =

$$Food\ Security = \beta 0 + \beta 1 Region + \beta 2 Sex + \beta 3 HouseholdSize + \beta 4 Safety\ and\ Violence + \beta 5 Income + \beta 6 FoodExpenditure + \beta 7 Illness + \beta 8 FoodAid + u.$$

Variable Code	Variable Name	Description
region	**In which region do you reside?**	This variable was recoded as a dummy variable, taking on the value of 0 if the respondent lives in Amhara and 1 if the respondent lives in Afar.
C_2	**What is the sex of the household head?**	This variable was recoded as a dummy variable, taking on the value of 0 if the household head is a male and 1 if the household head is a female.
hhsizeActual	**What is the size of your household?**	This variable was recoded as a dummy variable, taking on the value of 0 if the household is composed of less than 8 or 8 members, and 1 if the household is composed of more than 8 members.
F_6	**Has your situation in regards to safety and violence changed in the last month? Did it become less dangerous or more dangerous?**	This variable was recoded as a dummy variable, taking on the value of 0 if the situation became more dangerous and the value of 1 if it became less dangerous.
k_2	**Have you faced any changes regarding your household's income since the conflict broke out in your area/your adjacent areas ?**	This variable was recoded as a dummy variable, taking on the value of 0 if the income has increased and the value of 1 if the income has decreased.
totcapex	**Total food expenditure per capita**	This variable measures households' total food expenditure per capita, which on average amounts to 870 Ethiopian Birr.
E_8	**Did you or any of the members of your household suffer from any illness in the last two weeks?**	This variable was recoded as a dummy variable, taking on the value of 0 if the household members had suffered from an illness and the value of 1 if they had not.
F_1	**Has your household received humanitarian assistance (food or cash) since July 2021 (when the conflict started in your area or areas bordering your area)?**	This variable was recoded as a dummy variable, taking on the value of 0 if the respondents' household had suffered from an illness and 1 if the household had not.

REGRESSION RESULTS

Variables	Dependent variable	
	FCS	**rCSI**
Migration status	-1.6*** (0.5)	3.0*** (0.5)
Gender	1.4** (0.8)	-0.6 (0.5)
Household Size	6.8***	2.1*** (0.7)
Region	(0.9)	3.1*** (0.8)
Food Expenditure per Capita	0.01*** (0.000)	-0.003*** (0.000)
Illness	-2.0*** (0.6)	2.8*** (0.5)
Food Aid Recipient	0.4 (0.6)	1.7*** (0.5)
Constant	25.0*** (1.2)	6.6*** (1.1)
Note:	*p<0.1; **p<0.05; ***p<0.01	

OLS Regression Results
Food Consumption Score

Number of obs	Residual Std.Error (df =1788)	F Statistic (df = 9;1788	R-squared	Adj R-squared
1789	10.9	54.3***	0.2	0.2

OLS Regression Results
Reduced Coping Strategy Index

Number of obs	Residual Std.Error (df =1788)	F Statistic (df = 9;1788	R-squared	Adj R-squared
1789	10.9	54.3***	0.2	0.2

FINDINGS OF THE REGRESSIONS

Taking into account the F-statistic, both models are highly statistically significant. At the same time, the R2 values of the two models are quite small. For the FCS model, the R2 explains 21% of the variance in food consumption scores within the sample. For the rCSI model, the R2 only explains 10% of the variance in rCSI within the sample. Regarding residual standard errors, the first model predicts the change in the food security score with an average error of 10.94, while the second model predicts the change in the food security score with an average error of 9.93.

HOUSEHOLD RESIDENCE TYPE & HOUSEHOLD SHOCKS

Taking into account the two models, it is observed that across both dependent variables, **being a returnee leads to higher food insecurity levels.** In fact, individuals who are returnees have a lower food consumption score, by 1.6 points, as well as a higher rCSI, by 3 points, compared to individuals who were not displaced, ceteris paribus. Both values are highly statistically significant. **This difference can be explained by the fact that displacement is strongly linked to food insecurity, as individuals are forced to leave their homes and income-generating activities** (184). As most of the population is dependent on agriculture to access food, displacement has a strong negative effect on their food security. The authors' interview with Ms Kaori Ura, Head of Program at the WFP Ethiopia office, confirmed this hypothesis, as she mentioned that returnees have been faced with a variety of shocks during their displacement, for instance losing the productive assets they left home, which affects their capability to produce and access food once their displacement terminates. Accordingly, she highlighted that individuals who were not displaced have remained in their place of residence because they did not deem the situation to be dangerous enough to leave their homes, meaning that probably their food security status did not worsen due to the conflict.

GENDER

When gender is inserted as a control variable, what emerges from the model is that **households headed by males have a higher FCS, by 1.4 points, and a lower rCSI score, by 0.6 points, ceteris paribus.** The gender of the household head is a statistically significant control variable when tested on FCS, but it is not statistically significant when tested on rCSI, meaning that it does not affect the type of coping strategy employed by families faced with food insecurity. This finding corresponds to what was highlighted in the literature review, as women that live in rural contexts in Ethiopia do not have equal access to assets like land or machinery, reducing the level of food security they can attain as household heads (185).

HOUSEHOLD SIZE

Another variable of interest that is part of the model is the size of the household. In this case, a **household composed of 8 or fewer members has a higher FCS, by 1.6 points, but a higher rCSI too, by 2.1 points,** compared to families composed of more than 8 members, ceteris paribus. Both are statistically significant. When studying the interaction between family size and food insecurity, the literature is divided, as it can have a positive or negative effect on food insecurity scores. In the interview, Ms Ura explained that while it is true that a smaller family size can lead to higher food security scores, as food is divided among fewer members, she also mentioned that in relief programs, bigger families receive more food aid, which can explain why this control variable has a different outcome on the two dependent variables.

REGION OF HOUSEHOLD RESIDENCE

Region of residence was also controlled for, leading to the finding that **individuals living in Amhara have a higher FCS, by 6.8 points, and a higher rCSI, by 3.1 points**, compared to individuals residing in Afar, ceteris paribus. Both control variables are statistically significant. This finding is confirmed when looking at the food insecurity assessment from January 2022, when the WFP data was collected, which shows that only an area in Amhara, bordering Tigray, presents emergency-level food insecurity, while the entirety of Afar shows crisis and emergency-level food insecurity (186). Ms Ura further confirmed this finding, stressing that since Ethiopia has a strong agricultural economy, the results of surveys on food insecurity will change depending on the month in which the data is collected. For instance, she mentioned that January is the harvest time in Amhara, meaning that food is more available for those who produce it compared to other periods of the year. In contrast, Afar is mainly a pastoralist region, thus more dry and exposed to frequent droughts and low rainfall levels, which in turn reduce the food security of citizens. In the model, the effect on the rCSI could be biased, as the respondents are only asked about the coping strategies they have adopted in the one week prior to the survey, thus not capturing in full the difference between the two regions.

HOUSEHOLD FOOD EXPENDITURE

In the model, **an increase in food expenditure per capita improves FCS by 0.01 points and reduces rCSI by 0.003 points, ceteris paribus.** This finding is corroborated by the literature, as increases in food expenditure are associated with having a more diverse diet, thus decreasing food insecurity (187). **Illness also significantly increases food insecurity levels**, as respondents who suffered from an illness in the weeks before the survey have a lower FCS, by 2 points, and a higher rCSI, by 2.8 points, compared to respondents who were not ill.

FOOD ASSISTANCE

Lastly, being a food aid recipient has a different effect on the FCS and rCSI. **Respondents who receive food aid have a higher FCS, by 0.4 points**, compared to respondents who did not receive it. However, when looking at the rCSI, what emerges is that **respondents who receive food aid have a higher rCSI, by 1.7 points, ceteris paribus**. In general, the literature points to the ambiguous effect of food aid on food insecurity levels. In fact, it can support those who are struggling with food access and production, but it can also disincentivize those individuals who are employed in the agricultural sector from producing their own food, thus increasing their food insecurity in the long term (188).

LIMITATIONS OF THE MODEL

The model presents several limitations. **The R2 values of both models are quite low, meaning that the model cannot fully explain how the control variables affect FCS and rCSI.** Including other variables in the model could have increased R2. For example, including variables that measure environmental and conflict-related factors could have strengthened the model, as the literature points to the significant effect that they have on food insecurity levels in Ethiopia. At the same time, the data provided by the WFP did not include variables of this type, or included them in the codebook but not in the survey results, making their inclusion in the study impossible. Consequently, the model could be affected by omitted variable bias, as these environmental or conflict-related factors affect both displacement and food insecurity.

In some cases, the questions included in the WFP survey presented some methodological limitations. For instance, the question asking respondents whether they have been ill only takes into account the two weeks before the survey, limiting the robustness of the findings. Similarly, only around 11% of the respondents in the sample reside in Afar, compared to 88% residing in Amhara. Thus, the model cannot be completely representative of the food insecurity situation in Afar. Lastly, **data on food insecurity in Ethiopia is inextricably linked to the Tigray conflict. Since the data was collected in January 2022, the conflict has decreased in intensity, around March, and then reignited again around August. These important developments, which affect citizens' capability to grow their food or purchase it, are thus not captured in this dataset.**

CONCLUSION

The analysis has demonstrated the effects of several variables on food security indexes. Some of the findings corroborated what the literature on this topic has concluded, for instance concerning the effects of the gender of the household head or the presence of illness on food insecurity. **The analysis has concluded that, ceteris paribus, individuals who have experienced displacement have lower food security levels compared to those who did not leave their place of residence.** Some of the findings of this study require further research, concerning the effect of food aid and family size on food insecurity. During the conversation with Ms Ura, she further stressed that **the relationship between food insecurity and displacement is not linear.** Looking at Ethiopia, she mentioned the example of IDPs that moved from Tigray to Amhara because food aid was not reaching them due to the conflict and aid blockades. In this case, food insecurity is the primary reason that pushes individuals to migrate. At the same time, she mentioned the important role that contextual factors such as conflict play in worsening food security, pushing people to migrate to seek better opportunities or forcing them into displacement. Thus, the relationship between these two variables is affected by several contextual factors.

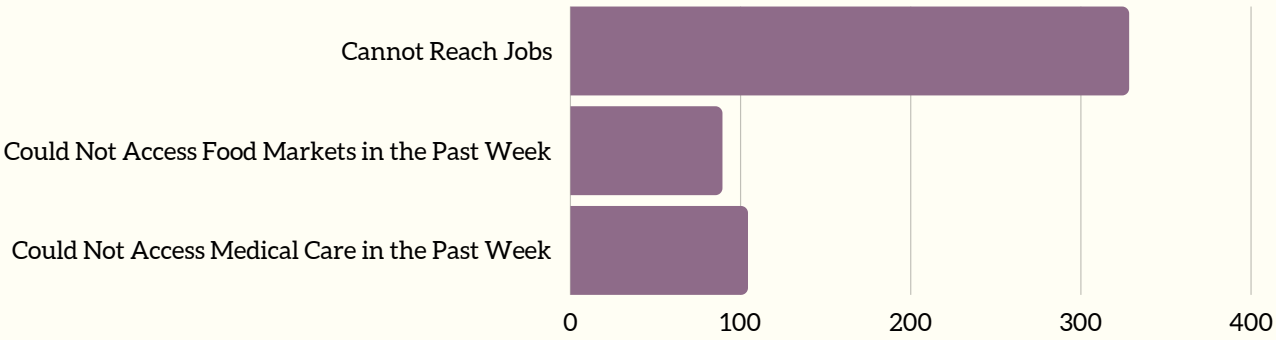
Further research on this topic should test the relationship between the two variables on updated data, to account for the changes that have taken place in the country since the first round of data collection in January 2022. Additionally, new data collection should equally include individuals from both regions, to present more balanced findings. Lastly, future surveys should incorporate more questions on factors like income or the effect of severe environmental events like droughts to better understand how they affect displacement and food insecurity.

Libya

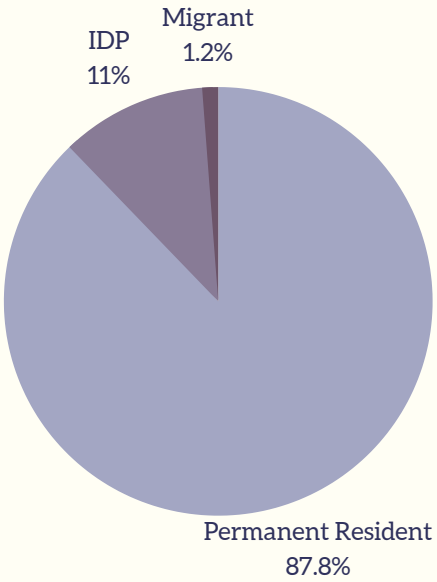
Sample population at glance (2020)

521	11%	80%
Number of respondents	Displaced household	Adopted at least one coping strategy

Impact of COVID-19 On Access to Basic Services



What is your household residence type?



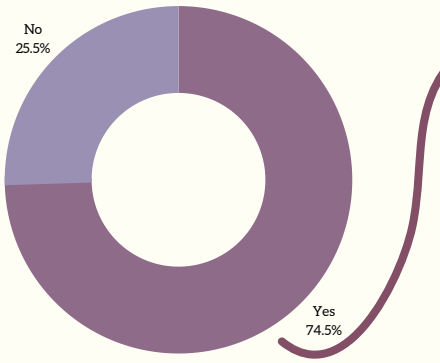
Data from WFP's FSAC Seasonal Food Security Assessment (SFSA-2020) Household Questionnaire" in Libya

SAMPLE POPULATION AT GLANCE

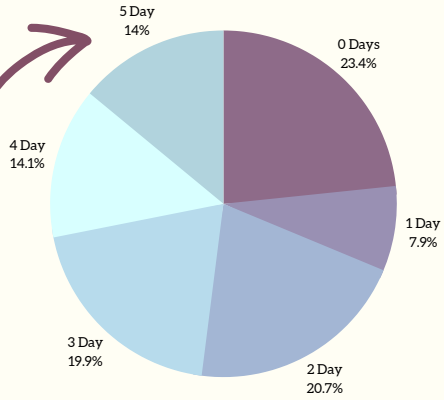
LIBYA

The SFSA collected responses from 521 surveys across Libya. The data collected derives from Libyan households currently residing in the country and distinguishes between the different household residence types (for example, permanent resident, IDP, and migrant). **11% of respondents come from displaced households, and a small 1.2% described themselves as 'migrants**.

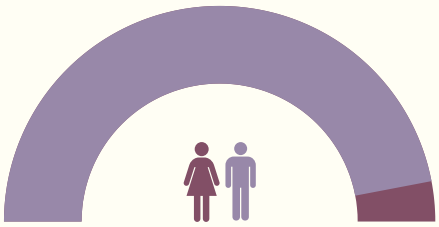
DOES YOUR HOUSEHOLD HAVE ANY FOOD STOCK?



IF YES, HOW MANY DAYS WOULD THIS FOOD STOCK WOULD LAST?



WHAT IS THE SEX OF THE HOUSEHOLD HEAD?



92.32 % Male Household Head
7.68 % Women Household Head

COVID-19 has also had an important role in the living conditions of Libyan respondents. 70% of respondents reported that they were staying home permanently after the COVID-19 Pandemic. Libyan authorities subsequently implemented public health measures, which included restricting travel and internal movements to curb the spread of COVID-19. 48% of the respondents mentioned that they did not have access to markets after the pandemic, which could have affected their food access.

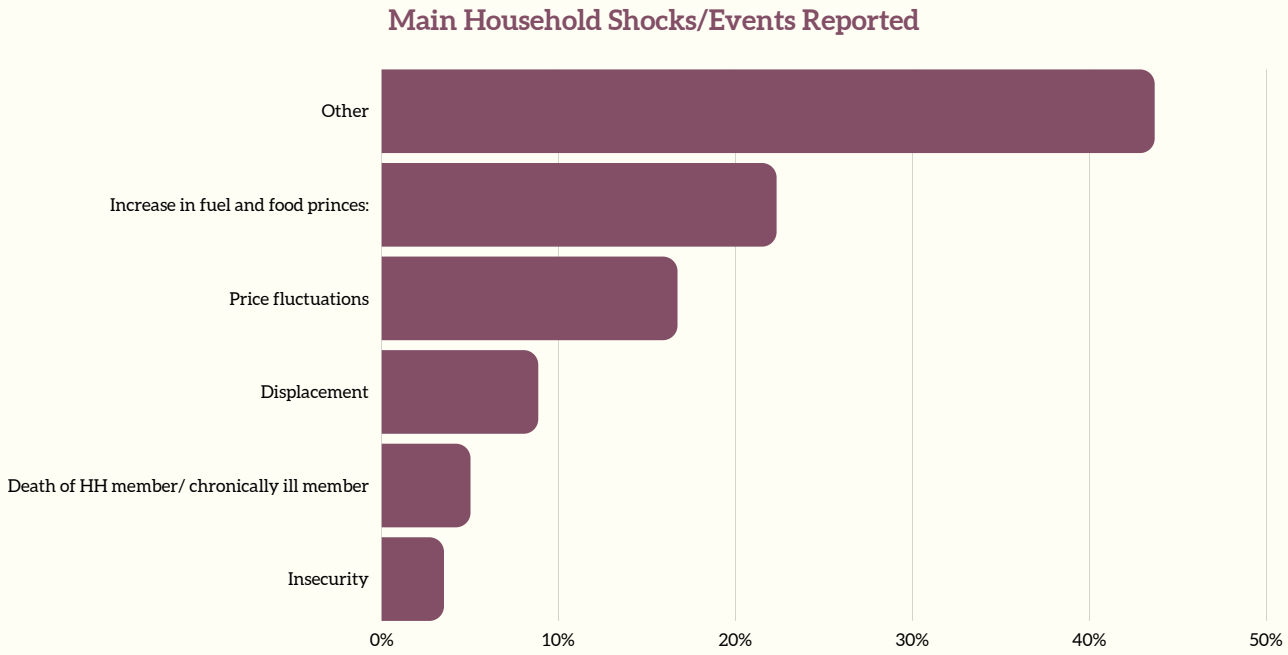
Data from WFP's FSAC Seasonal Food Security Assessment (SFSA-2020) Household Questionnaire" in Libya

SITUATION UPDATE

As reported in the Libya Situation Report produced by OCHA, the 4th of April 2020 marked one year since forces of the Libyan National Army (LNA) launched their offensive to seize Tripoli, Libya's Capital. According to the mobility tracking report, the number of internally displaced Persons (IDPs) identified in Libya increased from 373,709 to 401,836 in March and April 2020, mainly due to the increase of the armed conflict in western Libya. Ongoing clashes continued to be reported in densely populated areas, particularly in Southern parts of Tripoli, with a significant impact on people's livelihoods and access to essential goods and services. The conflict has had a significant impact on infrastructure as well, and many homes, hospitals and schools have been damaged or destroyed.

HOUSEHOLD SHOCKS

Households also reported on going through shocks, reported in the graph below:



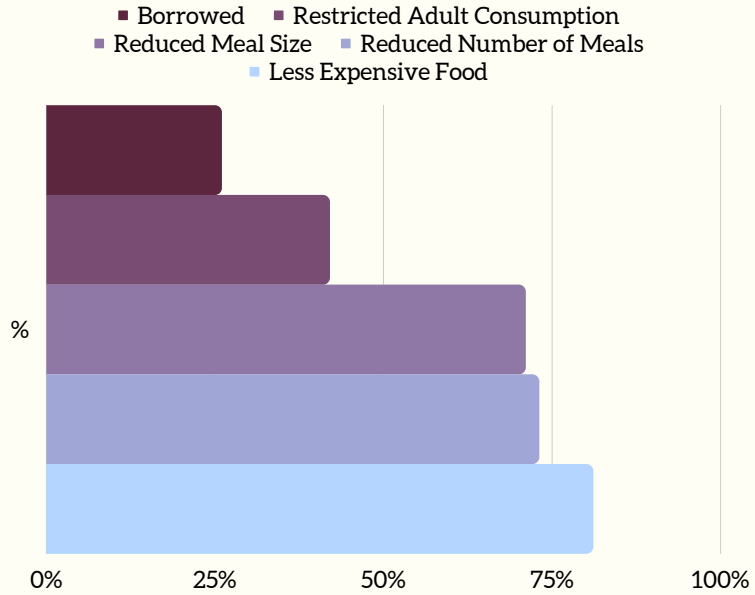
Here it is important to note that the data collected is from 2020, and since then, the country has reeled from continued mass displacement, dangers caused by newly-laid landmines, and the destruction of critical infrastructure, including healthcare and schools. Hundreds of people remain missing, including many civilians, and the authorities made grim discoveries of mass graves containing dozens of bodies that remain unidentified. Furthermore, migrants, asylum seekers, and refugees in Libya faced arbitrary detention, during which many experienced ill-treatment, sexual assault, forced labour, and extortion by groups linked with the Government of National Unity's Interior Ministry, members of armed groups, smugglers, and traffickers. These could have changed the nature and landscape of food insecurity in Libya, and future studies with more recent data can capture these changes.

HOUSEHOLD FOOD INSECURITY AND COPING STRATEGIES

Reduced Coping Strategy Index
Libya *2020*

rCSI Threshold	Profiles	Frequency	Percentage
0-4	**Food secure/mildly** food insecure	259	49.7%
5-10	**Moderately** food insecure	65	12.48%
⩾11	**Severely** food insecure	197	37.81%

Consumption Based Strategies Adopted By the Household



The vast majority of households engage in food-based and other coping strategies to maintain food consumption. The most adopted food-based coping strategies are consuming less expensive foods (81%), reducing the number of meals (73%), and reducing meal sizes (71%). Additionally, approximately 80% of households adopted at least one livelihood coping strategy. Many of the adopted coping strategies were damaging to longer-term household outcomes, including borrowing money, selling productive assets, reducing health and education expenditures, and engaging in illegal or dangerous work.

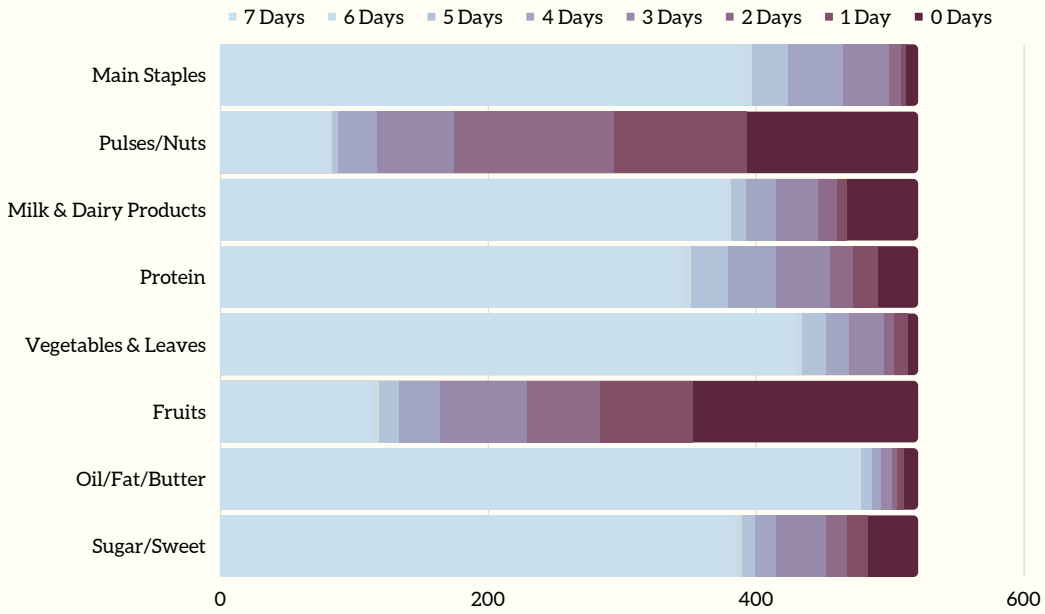
Data from WFP's FSAC Seasonal Food Security Assessment (SFSA-2020) Household Questionnaire" in Libya

Food Consumption Score
Libya 2020

FCS Threshold	Profiles	Frequency	Percentage
0-21	**Poor** food consumption	8	1.5%
21.5-35	**Borderline** food consumption	16	3.1%
>35	**Acceptable** food consumption	497	95.4%

Regarding the Food Consumption Score, around 1.5% of the respondents have a "poor" food consumption score, 3.1% of the respondents have a "borderline" food consumption score, while the majority, 95.4% of the respondents have an "acceptable" food consumption score.

Household Food Consumption in Libya
Time period: 7 days



Data from WFP's FSAC Seasonal Food Security Assessment (SFSA-2020) Household Questionnaire" in Libya

This graph depicts how many times respondents have consumed a certain food category in the past week, to assess the diversity of their diet. Generally, main staples, milk and dairy products, vegetables and leaves, and oil and fats were consumed regularly by most respondents, but there is less consumption of pulses and nuts, and fruits. Even though the share of households with poor food consumption is relatively low, households have to sacrifice the quality of their diet to maintain adequate consumption. A high share of households is at risk of worse food security outcomes.

MEASURING THE RELATIONSHIP BETWEEN A HOUSEHOLD'S FCS/rCSI AND HOUSEHOLD RESIDENCE TYPE

The below section will carry out a set of estimations by using the Ordinary Least Squares regression (OLS). This section aims to measure the relationship between a household's Food Consumption Score (FCS)/The Reduced Coping Strategies Index (RCSI) and the household residence type, controlling for a set of descriptive variables explained in the following section.

The dataset employs national-level data for multiple districts in Libya, collected by the WFP in 2020. The model measures variations across districts in Libya. This helps to capture regional differences in food security indicators, which in part are due to significant differences in prices and access to government-subsidised food markets across regions. For example, households were asked about how many pieces of bread they could buy from local bakeries with one Libyan Dinar. Households in Murzuq reported that they could only purchase three pieces of bread with one Libyan Dinar, while households in Alkufraand Tobruk could buy six pieces of bread with the same amount (figure below) (189).

Average number of bread pieces that can be bought with 1 Libyan Dinar by Mantika:

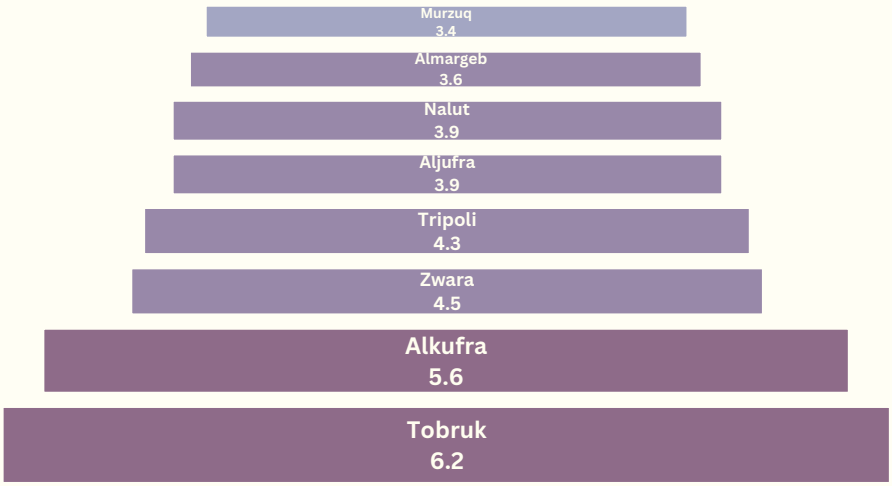


Figure 8: Information derived from the Libya VAM bulletin #4 (April-May2020)

VARIABLES

There are two dependent variables: the FCS and rCSI scores. Here it is important to note that when one looks at only the FCS score, it broadly paints the picture that Libyan respondents do not face much food insecurity. However, when coupled with rCSI, there is a broader picture to see– which is that over 80% of Libyan respondents gave up something to be able to afford food. In this sense, even though food is consumed, respondents adopt a high amount of coping strategies.

For Libya in particular, Mr. Yukinori Hibi, head of programmes from 2018, and head of the Benghazi office, Libya, since 2021, mentioned that FCS as a variable is useful because it can be used to compare across multiple data sets, even though in Libya, FCS is shown as stable and moderate. However, rCSI is more critical to understanding the case of Libya.

The main independent variable is 'Internally Displaced Person (Yes or No)' (12.2% displaced, 87.8 permanent residents), a variable that denotes if the respondent has been internally displaced, or has migrated, in the past. It is based on data collected by the WFP from a national survey.

To test this hypothesis, the regression model will take into account several control variables selected based upon the country-specific literature review. The variables are listed on the following page.

Having introduced the independent, dependent and control variables (listed on the following page), the model is presented as follows:

FCS/rCSI =

$$Food\ Security = \beta 0 + \beta 1 HouseholdHeadSex + \beta 2 HouseholdFoodAssistance + \beta 3 HouseholdDisability + \beta 4 HouseholdHeadEducation + \beta 5 HouseholdAssistance + \beta 6 HouseType + \beta 7 Debt + \beta 8 ChronicIllness + \beta 9 WashingItems + \beta 10 GovernmentJob + \beta 11 JobsAfterCOVID + u.$$

Variable Name	Description
Sex of the Head of the Household	Captures the differences in food insecurity between male and female heads of the household.
Household Food Assistance	Answers 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?" This measures whether the household falls under the category of receiving food assistance.
Household Disability	Answers the question: "Do you have in your household a family member suffering from disabilities and/or chronic disease?"
Education Level of the Head of the Household	Answers the question: "What is the highest level of education HoH have completed?"
Household Assistance	A variable used as a proxy for income, to answer 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?"
House Type	A variable used as a proxy for income, to answer the question: "Which of the following living arrangements best describes your housing situation currently?"
Debt	A variable used as a proxy for income, to check whether respondents have debt.
Chronic Illness	Answers the question: "Among the elderly members currently living in your household how many have either chronic heart or lung illnesses or have had cancer?"
Washing Items	Answers the question: "If there were products in [a list of commonly used washing items] that your household requires but is unable to purchase, what is the main reason why your household can't purchase them?"
Government Job	Measures labour patterns, and answers the question: "Is there anyone in the family who gets a monthly salary from the government?"
Reach Jobs After COVID	Answers the question: "Is there any member of the household that was unable to reach their place of work during the COVID pandemic?"

REGRESSION RESULTS

Variables	Dependent variable	
	FCS	**rCSI**
IDP Status	-4.628 (2.073)	3.305** (1.620)
Receives Assistance	-5.007 (4.000)	7.040** (3.127)
Head of Household Sex	5.287 (3.277)	-4.575* (2.562)
Has Debt	-9.208*** (1.891)	9.100*** (1.478)
Chronic Illness	-1.072 (2.232)	-2.966* (1.745)
Job After COVID	-4.066** (1.935)	2.805* 1.513
Constant	92.133*** (21.835)	-1.190 (17.069)
Note:	*p<0.1; **p<0.05; ***p<0.01	

OLS Regression Results
Food Consumption Score

Number of obs	Residual Std.Error (df =489)	F Statistic (df = 25;489)	R-squared	Adj R-squared
515	18.790	5.633***	0.224	0.184

OLS Regression Results
Reduced Coping Strategy Index

Number of obs	Residual Std.Error (df =489)	F Statistic (df = 25;489)	R-squared	Adj R-squared
515	14.689	6.287***	0.243	0.205

FINDINGS OF THE REGRESSIONS

Taking into account the F-statistic, both models are highly statistically significant. At the same time, the R2 values of the two models are quite small. The R2 value for the model with FCS and rCSI as dependent variables are 0.1839 and 0.2046 respectively. This means that the model describes only 18% and 20%, respectively, of the variation in the dependent variable around its mean.

After controlling for factors related to income, labour and health, in Libya, **being an IDP is linked to lower levels of food security, compared to those non-displaced. This is true across both scores used to measure food security.** IDPs have a higher rCSI score, by 3.3 points, and have a lower FCS, by 4.6 points, compared to individuals who were non-displaced, ceteris paribus. This means that across both measures, IDPs perform worse than their non-displaced counterparts.

These correlations are not caused by income-related factors such as debt or reception of assistance, or household-level factors such as the sex of the head of the household: they are robust to the inclusion of controls for both such types of factors. In fact, **the sex of the head of the household has no statistically significant effect on the dependent variable of FCS, and only 90% significance when it comes to the rCSI.** This implies that only a small measure of food security status in Libya can be, partly, explained by the sex of the head of the household, but not by other household-level factors, such as house type or education level of the head of the household.

The income and labour dimensions, however, have a much larger explanatory role. **Measures of income level and labour status – including debt, household assistance, and job after COVID – are negatively correlated with FCS and positively correlated with rCSI.** This is expected, given that a lower FCS and a higher rCSI mean more food insecurity.

HOUSEHOLD INCOME

Apart from the status of displacement, the income effects are also substantial. **Respondents who had debt have a higher rCSI score, by 9.1 points, and have a lower FCS, by 9.2 points, compared to those who do not have debt, ceteris paribus.** For the rCSI score, households which receive assistance have a higher rCSI score by 7 points compared to households which do not receive assistance, ceteris paribus.

EMPLOYMENT POSSIBILITIES POST COVID-19

When it comes to labour effects, **respondents who could not reach their jobs after COVID have a higher rCSI score, by 2.8 points, and a lower FCS, by 4.1 points**, compared to those who could reach their jobs after COVID, ceteris paribus. Furthermore, respondents who have a government job which they attend regularly, have a higher FCS, by 5.1 points, compared to those who do not have a job, ceteris paribus. Interestingly, having a government job does not have any significant impact on Libyan respondents' rCSI scores.

OTHER HOUSEHOLD RELATED FACTORS

Lastly, in terms of household-level factors, **households headed by males have lower rCSI scores, by 4.5 points, compared to households headed by females, ceteris paribus.** This means that male-headed households are more food secure than female-headed households. **Respondents who did not have a chronic illness have a lower rCSI score, by 3 points, compared to those who have an illness, ceteris paribus.** Interestingly, neither of these two controls is significant when FCS is the dependent variable.

The aforementioned results are to be expected– intuitively, higher income and better jobs mean that you are less likely to be food insecure. However, the data also displayed some interesting patterns; for the regression model with the rCSI, **the sex of the head of the household only becomes significant when there is a control for whether the household has debt.** That is, without controlling for debt, the sex of the head of the household has no significant effect on food security. This is an interesting research area to delve further into.

Furthermore, **literature on this topic suggests that disability in the household is an important explanatory factor for food security, but this is not reflected in this report's regression model.**

Mr Yukinori Hibi gave insights into other non-income factors that impact food security, especially in the case of migrants, such as **education and health**, and possessing reliable accommodation. These greatly impact the ability of both migrants and IDPs to access regular sources of food. **Conflict sensitivity** is another critical factor, which impacts the conditions of food security, especially among refugees. For example, the hostility towards Sudanese migrants would increase if diplomatic relations between Libya and Sudan get worse. That means that the government assistance for them would also be poor.

LIMITATIONS OF THE MODEL

The model presents several limitations. **The R2 values of both models are quite low, meaning that the model cannot fully explain how the control variables affect FCS and rCSI.** Including other variables in the model could have increased R2.

Furthermore, the estimators for the variable could be biased, for two reasons: (i) **Omitted variable bias**: given that the regression model explains around 20% of the variation, it could be susceptible to omitted variable bias, which occurs when a statistical model leaves out one or more relevant variables. The bias results in the model attributing the effect of the missing variables to those that were included. That is, this bias appears in the estimates of parameters in regression analysis when the assumed specification is incorrect in that it omits an independent variable that is a determinant of the dependent variable, and correlates with one or more of the included independent variables. One key variable that is excluded is that of conflict, as it was difficult to extract this data from the WFP dataset.

(ii) There is **a possible violation of the zero conditional mean condition** as the error term [u] in the model might be correlated with the model regressors, owing to unwanted heterogeneity in the data extracted. This could also lead to biased estimators.

CONCLUSION

The data describes the interconnectedness between food insecurity and displacement. An interesting question here is whether these results are similar for migrants more broadly. Speaking to Mr Yukinori Hibi, the authors gained some insight to answer this question.

Hibi stated that in general, **migrants tend to have higher food insecurity in terms of both FCS and rCSI, compared to IDPs and non-displaced individuals.** This is because, in many situations, migrants lack national documentation, which makes it difficult to have their data for assistance provided. Furthermore, migrants mostly tend to be wage labourers, without much job security or stable earnings. This severely affects their capacity to be food secure, both in terms of access and affordability. In contrast, IDPs are Libyans, and thus many, if not all, enjoy access to the basic services provided by the government.

Migrants can also suffer due to organisation-donor relations. For example, donor funding which is earmarked to help Libyans access food, by definition cannot be used to facilitate better food security amongst migrants. This means that even when there is funding to further the agenda of better food security in Libya, strict donor contracts mean that migrants cannot benefit from such interventions.

To conclude, he notes that food insecurity and migration are interconnected in Libya, and perhaps so in other countries. Libya particularly is a country of transit for most migrants; for example, those who plan to migrate to Europe. The rCSI score in Libya is quite poor among migrants along with IDPs, because of the limited income and resources of people, which pushed them to prioritise food and use coping mechanisms. Migrants are disproportionately affected by their displacement status compared to IDPs, because remittances, including social protection and job security provided by the government, are factors that impact both food security and migration, and both income and remittances are critical factors involved in the interconnectedness between the two.

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CONCLUSION

The objective of this study was to primarily identify and analyse various factors that can alter a household's food security levels and find whether there is an interconnectedness between food insecurity and displacement. Both the quantitative analysis and qualitative data (interviews) have provided fascinating insights into this topic.

In all three countries, IDPs, returnees and refugees had high levels of food insecurity as compared to those who were non-displaced. These migratory patterns may be affected by factors such as conflict or environmental shocks. Sometimes, like in the case of Ethiopia, rising food insecurity because of the disruption of food assistance due to conflict in one region may force people to move to other regions in search of food. This shows that food security and displacement may have a mutually reinforcing relationship which is also impacted by other factors such as conflict, climate shocks, etc. In Libya, although statistical analysis portrays IDPs as the most food insecure, the interview provided further observation as refugees from neighbouring countries tend to be more food insecure compared to IDPs, given their lack of documentation as well as because of volatile inter-political and diplomatic relations of the host country with the country of origin.

Similarly, the country analysis shows that households headed by females are likely to be more food insecure than households headed by males. This may be an outcome of historically patriarchal societies, where women do not have agency or control over resources and food. In Afghanistan, for example, the Taliban regime has deprived women of their livelihoods; reducing their income, having a significant impact on the food security levels of female-headed households.

The size of the household also impacts food security. In Afghanistan, a larger household size is positively correlated to food security, however with more dependent members (those under the age of 18), the level of food security falls. In Ethiopia, the impact of household size on food security is ambiguous - a smaller household (with 8 or fewer members) statistically corresponds to high FCS but with the employment of severe coping strategies. The interview shed light on why this might be the case - during food assistance, more food is allotted to larger households, leaving smaller households to employ coping mechanisms.

Taking a forward-looking approach, to deal with issues of food security, policies and work by International Organisations (IOs) must have a targeted but contextual approach. This means that the policies and programmes should aim to target the various determinants of food security and at the same time be customised to each country's needs, as is evident in the differences in the findings of this study. Such programmes need to be interdisciplinary and multilateral in the sense that they must engage a diverse range of stakeholders - from the field of health, trade and finance, environment and politics. In conflict zones, like the countries in the study, programmes should also push for protection and assistance to refugees, irrespective of diplomatic relations between the host country and country of origin, as well as donor preferences to ensure that refugees are also entitled to basic social benefits. IOs must also strengthen their monitoring mechanism and ensure regular and timely data collection. For example, currently, there is a dearth of quantitative data on Libya concerning the levels of food security. Public-private partnerships also play a key role in improving and strengthening global food systems and increasing investments.

LIMITATIONS

It is critical to recognise and acknowledge the limitations in the study to explain the gaps in the analysis process. As noted in the literature review, many determinants impact food security levels in all three countries, including conflict, environmental and climatic shocks, socio-demographic features etc. Some of these determinants such as household types, gender, education, and income-related aspects were conveyed in the household survey, however, determinants like climate and environmental shocks and even conflict were not referenced in the data. This could have caused omitted variable bias, thereby leading to biased estimators, which could cast doubt on the magnitude of the estimators.

In all the countries, the value of R2 of both FCS and rCSI were found to be low - it was 0.1535 and 0.0981 respectively for Afghanistan; 0.2145 and 0.1001 respectively for Ethiopia and 0.1839 and 0.2046 respectively for Libya. The low R2 means that the regression model corresponds to a lower percentage of variation of the dependent variable around its mean. Usually, a larger R2 explains the variations better, however, this does not necessarily mean that a lower R2 model is not accurate. Since many of the independent variables are statistically significant, the lower R2 does not impact the accuracy of the conclusions.

The authors also faced constraints as a result of the lack of correspondence between the datasets and codebooks provided by WFP; for Ethiopia and Libya, the dataset had variables which were not explained, or even mentioned, in the codebook and vice versa. This made the procedure of choosing the right control variables difficult. Originally, the report was designed to check the interconnectedness between food insecurity and migration. However, the WFP data did not have any information on migration, so the authors conducted a quantitative analysis to look at displacement, and facilitated information on migration through a secondary literature review and interview data.

Another constraint on the analysis is the lack of expertise and previous experience in statistical analysis on the part of the authors.

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APPENDIX

The Food Consumption Score for Afghanistan was calculated using the following formula:

FCS =
***a*staple*x*staple+ *a*pulse*x*pulse+ *a*veg*x*veg+ *a*fruit*x*fruit**
+ *a*animal*x*animal+ *a*sugar*x*sugar + *a*dairy*x*dairy+ *a*oil*x*oil

Where,
FCS Food consumption score
xi Frequencies of food consumption = number of days for which each food group was consumed during the past 7 days
(7 days was designated as the maximum value of the sum of the frequencies of the different food items belonging to the same food group)
ai Weight of each food group

Using this formula, the FCS was calculated in the following way:

FCS =
S3_11*2 + S3_13*3 + S3_19*1 + S3_201*1 + S3_17*4 +
S3_15*4 + S3_205*0.5 + S3_203*0.5 + S3_303*0

Where,
S3_11 = Cereals and Tubers: Bread, Rice, pasta, maize, potatoes, sweet potatoes.
S3_13 = Pulses / nuts: Beans, cowpeas, peanuts, lentils, nut, soy, pigeon pea and / or other nuts.
S3_15 = Milk and other dairy products: fresh milk / sour, yogurt, cheese, other dairy products.
S3_17 = Meat, fish and eggs: (goat, beef, chicken, fish, including canned tuna, other seafood, eggs.
S3_19 = Vegetables and leaves (Okra, eggplant, green beans, spinach, leak, tomato, onion etc.).
S3_201 = Fruits (any type) (banana, apple, lemon, papaya, apricot, peach, mango etc.
S3_203 = Oil / fat / butter: Vegetable oil, ghee, margarine, other fats / oil.
S3_205 = Sugar or sweet: Sugar, honey, jam, cakes, candy, cookies, and other sweet.
S3_303 = Condiments (salt, garlic, spices, yeast / baking powder, tomato / sauce, meat or fish as a condiment,), coffee, tea.

The Reduced Coping Strategy Index was calculated using the following formula:

rCSI =
(**a***rCSILessQlty) + (**a** * rCSIBorrow) + (**a***rCSIMealSize) +
(**a** * rCSIMealAdult) + (**a*** rCSIMealNb)

Where,
rCSI reduced coping strategy index
ai Weight of each coping group

Using this formula, the FCS was calculated in the following way:

rCSI =
S5_1a*1+S5_1b*2+S5_1c*1+S5_1d*2+S5_1e*2

Where,
S5_1a = Rely on less preferred and less expensive food
S5_1b = Borrow food, or rely on help from a friend or relative
S5_1c = Limit portion size at mealtimes
S5_1d = Restrict consumption by adults in order for small children to eat
S5_1e = Reduce number of meals eaten in a day

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