LUND UNIVERSITY
School of Economics and Management

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Forced Migration and Its Impact on the Health of Hosting Communities:
In the Case of Somalia Refugees in Ethiopia, 2000-2020

By: Nigatu Degu Terye (ni6305te-s@student.lu.se)

Abstract: The number of global forcibly displaced persons surpassed $80,000,000$ which account for 1 % of the total global population. The contemporary crises associated with these displacements in the destination countries are higher in the developing world than in developed countries as the vast majority of these displaced persons (85%) are hosted in the former. However, investigations of the impacts of forced migration on the receiving countries are done from advanced countries' perspectives. This study, in contrast, seeks to explore the impacts of the influx of forcibly displaced persons on the health of the host population in low-income countries with a focus on Somalia refugees in Ethiopia. Using the Difference in Difference approach and data from five successive Ethiopian Demographic and Health Surveys, the study found that the influx of Somalia's forcibly displaced persons caused adverse health complications in Ethiopia. The effect was significant causing, on average, more than 3 children per $1,000$ live births in Ethiopia who wouldn't die if there was no influx of these forced migrants to the host country in the past two decades. The adverse health consequences of the influx of these forcibly displaced persons are higher for persons with lower levels of socioeconomic status, and illiterate women living in urban areas are found to be vulnerable to the intervention in the host community while there is no significant adverse health effects associated with the intervention for women with higher education. The findings suggest the need for policy reforms safeguarding both forcibly displaced persons and civilians experiencing adverse health complications due to the presence of the forcibly displaced persons from Somalia as well as other sending countries in the country.

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List of Acronyms

ARRA	Administration for Refugee and Returnee Affairs
CMR	Child mortality rate
DHS	Demographic and Health Survey
EDHS	Ethiopian Demographic and Health Survey
IOM	International Organization for Migration
MDG	Millennium development goal
MHCS	Maternal health care service
PNC	Postnatal care service
UNHCR	United Nations High Commissioner for Refugees
WFP	World Food Programme

Contents

1 Introduction

At the end of 1990, there were 40 million forcibly displaced people worldwide who fled their homes due to conflict, persecution, violence, human rights violations, natural or man-made disasters; however, this figure doubled within the past three decades (UNHCR, 2020). Today, the number of forcibly displaced people surpassed 80,000,000, and this displacement consists of more than 45 million internally displaced people (IDPs), 29 million refugees, and 4 million asylum seekers, and other informal migrants who all are at a higher risk of having the novel coronavirus during the pandemic (UNHCR, 2020). This significant proportion of the worlds human population is suffering from forced displacement mainly due to economic and political instability in the developing world that may have negative adverse socioeconomic consequences to both the displaced people and host communities.

To differentiate forced migration from the other form of migration, it may be important to highlight first the concept of migration in general. Migration can be defined as the process of moving from one place to another, maybe from a rural area to urban, or from one region to another region within a country, or from one country to another country. People may migrate globally due to two reasons. One of these reasons can be work, family, or study. The other reason can be due to conflict, harassment, or natural disaster. The former is voluntary migration while the latter is forced migration. As compared to voluntary migrants, forced migrants cover a small proportion of the total global migrants. However, these forced migrants require special attention and support from destination countries while voluntary migrants dont. Other than refugees and asylum seekers, the concept of forced migration refers to anyone forced to leave their homes by conflict, persecution, development projects, natural disasters as well as man-made catastrophes. If forcibly displaced persons crossed their country border, they are entitled to refugees or asylum seekers.

Today about one in five people globally are migrants (World migration report 2020). According to the World migration report 2020, the proportion of global migrants varies substantially over time and space. As shown below, a snapshot of international migrants, the number of global migrants have shown a significant increase over the last three decades even though the share of global migrants to the total population remains relatively steady. Previous migration studies also show that the proportion of international migrants varies by age and sex indicating that the majority of migrants constitute working age groups (between 20 and 54 years) and male migrants. In 2019, 72% of global migrants were within the working-age group and a greater portion of the migration population (52%) were male (McAuliffe et al.,2019).

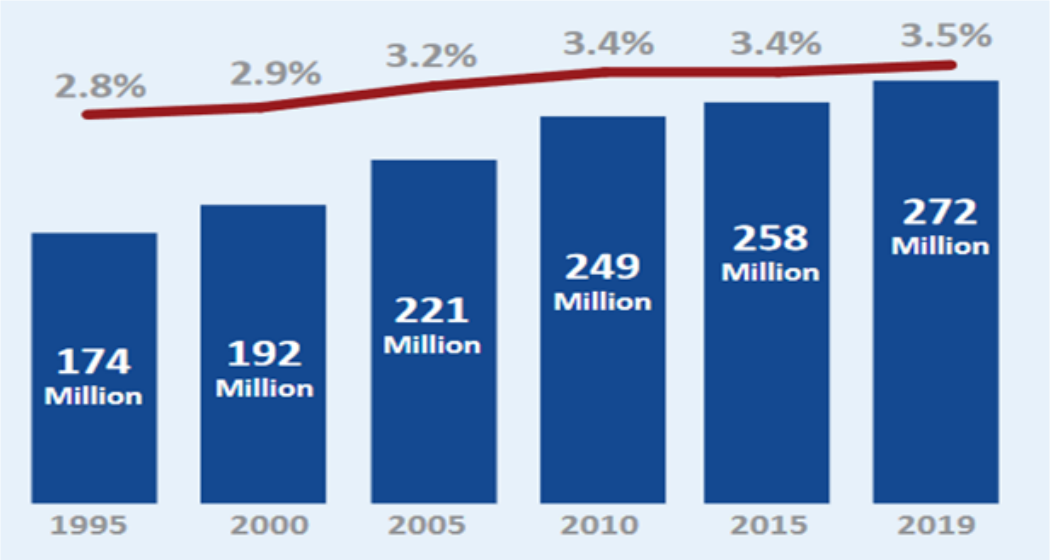

Figure 1: Snapshot of international migrants (Source: IOM, 2020)

There is a substantial difference in the proportion of international migrants between high-income countries and low-income countries. Advanced countries take the lions share of the global migrant workers (18.2%) whereas lower-income countries constitute the smallest share, 1.4% (Migration Report, 2017). On the contrary, the vast majority of forcibly displaced people (85%) are hosted in another neighboring developing country, one-third of these populations are hosted in the least developed countries including Ethiopia (UNHCR, 2018). There are two reasons for this. For one reason, most of these refugees come from less developed countries and they tend to reside in neighborhoods that are also less developed. For another reason, resettlement in the developed countries may require a longer time for a residence permit as they have more restrictive migration policies than less developed countries. Besides, they need high initial costs of settlement and integration in advanced countries. Due to these and other reasons, they may prefer to stay in less developed countries.

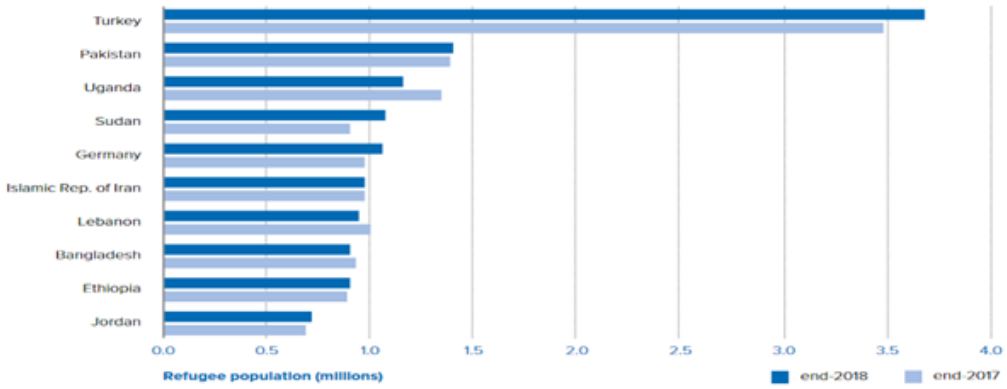

Figure 2: Top ten largest refugee-hosting countries (Source: UNHCR, 2018)

As there are no adequate resources and sophisticated administrative systems in poor countries, hosting large numbers of refugees may cause strain in the local communities that lead to aggravate poverty and negatively affect development in poor countries (Fajth, 2019). Even if abundant studies are documented in an attempt to investigate the causes and consequences of such forced migration, the vast majority of these studies focus more on the effects of forced migration on migrants, but less attention is given to the consequences of forced migration on the host community. As a result, countries host forcibly displaced people without knowing the possible adverse consequences this may result. International organizations such as Administration for Refugee and Returnee Affairs (ARRA), the United Nations High Commission for Refugees (UNHCR) as well as other NGOs also work more towards safeguarding displaced people without paying comparable attention to the host community also studies identified that massive displaced people have effects on the host communities.

Moreover, the available research findings on the effects of forced migration on the host community are dominated by perspectives from destination countries, especially concerning Europe; however, less is done on migration-related issues in destination countries that are the least developed countries (World Migration Report, 2020). According to the UNHCR (2018), developed countries host 16 % of the total global refugee population while the least developed countries host more than 33 % of the global refugee population. Therefore, it can be reasonable to say that there is a clear research gap in the literature in an attempt to understand the effects of forced migration on a destination country between the most developed countries and the least developed countries in the world. Consequently, this study aims to contribute to the existing body of knowledge by providing some empirical evidence that may be important to understand the impact of hosting massive forcibly displaced persons in the receiving country where the country is poor. In this study, the impacts of forcibly displaced persons are assessed on the health of the host community in poor settings with a focus on Somalia refugees in Ethiopia.

Being among the top ten largest refugee-hosting countries worldwide, with an open-door policy for refugee inflows, Ethiopia has a very old history of hosting refugees and the country is the second-largest refugee-hosting country in Africa, sheltering more than 750,000 refugees as of March 30, 2020. And, the majority of these refugees (about 99%) come from just four countries: South Sudan, Somalia, Eritrea, and Sudan (Vemuru, 2020). The inflow of refugees into the country is mainly due to political and civil instability plus persistent natural disasters in its neighboring countries, such as conflict in South Sudan, human rights violations in Eritrea, and food insecurity caused by the conflict in Somalia (Abebe, (2018).

Humanitarian organizations usually provide supports for displaced people upon their arrival at the host country. These supports include shelter, food, and health. As part of the health assistance programs, providing appropriate health care services to vulnerable groups (mother and child health) in the forcibly displaced population is always prioritized. This may lead to an improvement in maternal and child health in the local host population. Under the optimal provision of humanitarian assistance aiming to address quality maternal and children health

services, the recommended minimum health services provided in at the humanitarian assistance program is always exceeds those experienced by most refugee-hosting communities in developing countries, and hence local host population is supposed to receive better maternal and child health care services due to presence of immigrants in the host community (Tatah et al., 2016).

Being among the top forced migrant-receiving country, Ethiopia receives funds from international humanitarian organizations such as the United Nations High Commission for Refugees (UNHCR), the World Food Program (WFP), and Administration for Refugee and Returnee Affairs (ARRA) to provide humanitarian services and protection to those people who are displaced from their home in its territory. However, subsidies offered from these organizations to address refugee situations and other humanitarian emergencies remain insufficient; for instance, around 25 billion were needed in 2018, but 44% of this amount wasnt offered by donors (Yigzaw and Abitew, 2019). This funding gap makes refugees host communities in low-income countries at risk of deficiency and having to compete for inadequate public services and resources including health care services and health facilities (Schneiderheinze and Lcke, 2020). Therefore, using the Difference-in-Difference method, this study aims to tests the hypothesis that a massive inflow of forced migrants strains health resources in the local host population in low-income countries: with a focus on Somalias refugees in Ethiopia.

1.1 Aim and Scope

Using data from the Ethiopian Demographic and Health Surveys in the period 2000-2020, this study seeks to assess the health impact of Somalia refugees in Ethiopia. This is done by comparing mother and child health outcomes between two communities, namely refugee-free community (Dire Dawa and Oromia Regional States of Ethiopia) and refugee-hosting community (Somali Regional State of Ethiopia). Women of reproductive age who gave at least one birth before any of the surveys are used in the analysis, and maternal health and child survival are used to explain the health of the local host population. Even though refugees may influence other economic, social conditions in the hosting communities, the scope of this study is limited to assessing the health impact of refugees in the study area in the period 2000-2020.

1.2 Research Questions

The following research questions are addressed in this study:

1. Is there any causality between the influx of Somalia refugees and the health of localhost natives in Ethiopia?

2. If Somalia's refugees are found to have significant effects on the health of the local natives, what are the factors associated with the change in health outcomes in the local host population?

1.3 Research Hypothesis

This study attempts to test the hypothesis that the influx of refugees strains health resources in the local host population in low-income countries with a focus on Somalia refugees in Ethiopia.

H0: Influx of Somalia refugees doesn't strain health resources in the local host population in Ethiopia.

H1: Influx of Somalia refugees strains health resources in the local host population in Ethiopia.

1.4 Outline of the Thesis

This study is divided into six chapters. Chapter 1 begins with concepts of migration (both voluntary migration and, forced migration), by defining and comparing the effects between regions of the world. Chapter 2 continues with context, a review of theories of forced migration, and a review of previous literature stressing the findings of associations between an influx of refugees and health outcomes in refugee-hosting communities, both regional and global results are highlighted. The next chapter sheds light on a data source, variables, and models used in this study. Chapter 4 highlights the findings of this study, discussing them by providing connections to the findings of previous studies and theories discussed in Chapter 1 and Chapter 2. The concluding chapter highlights policy implications for the results and recommendations for the responsible bodies.

2 Theoretical Background

As mentioned above, the main aim of this study is to investigate the impact of an influx of refugees on the host community with a focus on the local health system in Ethiopia. Plenty of migration studies have been documented in this area since the Second World War. The studies cover the cases of both forced and voluntary migration. For the case of forced migration, the literature focuses more on the causes and consequences of forced migration on the forcibly displaced migrants. However, less is documented on the impacts of forced migrants on the host community. Moreover, most of the studies on forced migration aim to study the economic, social, and environmental impacts, but less is done on the impact of forced migrants on the health outcomes of the natives in the asylum country, especially in the least developed world with poor health service and administration systems which is the main attention of this study.

The purpose of this section is thus to provide a general overview of forced migration from a historical perspective, some of its causes, and consequences. The section begins with the framework of refugee and hosting refugees in the case of Ethiopia followed by related theories and literature on the impact of refugees on the host community with a focus on the health system in Ethiopia. The economic, social, and environmental impact of refugees on the host community is also highlighted in this section. The section is ended with a conclusion on the literature regarding forced migration and the research gap that the study in this thesis is trying to fill.

2.1 Context

This section highlights the country overview of refugees and hosting refugees in the Ethiopian context. Ethiopia has a long-standing history of hosting refugees and continues an open-door policy for refugee entry into the country. As of March 2020, Ethiopia hosted more than $750,000$ refugees which place the country among the top refugee-hosting countries in the world and the second in Africa (UNHCR, 2020). The majority of these refugees (99%) fleeing from South Sudan, Somalia, Eritrea, and Sudan due to political, economic as well as natural disasters in their country of origin. As a hosting country, Ethiopia receives funds for refugees from international organizations that help to provide humanitarian services and protection to asylum seekers living in the country. In 2004, according to Ruaudel and Morrison-Mtois (2017), a countrywide Refugee Proclamation was endorsed rooted in the international and regional refugee conventions to which the country is a member (i.e., the 1951 Convention concerning the Status of Refugees, the 1967 Protocol as well as the 1969 Convention Governing the particular Aspects of Refugee issues in Africa OAU Convention). The country revised public refugee law based on international refugee law on 17 January 2019, and the National Law gives refugees the right to work and live out of camps, participate in economic activities and social events such as births and marriages, with both refugees and natives.

Pushing factors

At the beginning of 2018, Ethiopia hosted 892, 555 refugees who fled their countries because of insecurity in their countries of origin. The movement of refugees to the country remains to be very high even though the number of a refugee fleeing to the country showed a relatively little decline in the past two years, i.e., from 892, 555 in 2018 to 751, 449 in 2020 (UNHCR, 2018; UNHCR, 2020). The persistent massive refugee movement to the country is mainly assumed to be political unrest and economic instabilities as well as natural disasters within neighboring countries. These include internal conflict and human rights violations, completion for inadequate natural resources, and drought and famine in the neighboring states, more specifically, conflict in South Sudan, continued political unrest in Eritrea, as well as war and famine in Somalia. In general, the high influx of refugees into the country is associated with several insecurity problems in these four sending countries. The leading causes of the influx include instability due to a conflict, human rights violations and humanitarian crisis in South Sudan, persistent conflict, mainly violent attacks by al-Shabaab, and drought resulted from war in Sudan, and open-ended and reflexive military conscription in Eritrea (Abebe, 2018).

Pulling factors

Ethiopia is among the largest refugee-hosting countries in the world, and the 2nd largest in Africa and the leading causes of this massive refugee movement are insecurity, political instability, military mobilization, war, and drought in the neighboring countries (UNHCR, 2018. There may be several pulling factors that make the country more preferable by forced migrants than other countries in the region.

First, Ethiopia has a long-standing history of receiving refugees, and the country has an unrestricted refugee policy for refugee entry to the country. This open-door policy can reduce visa processing costs and time for refugees. As a result, displaced people may believe that they can get immediate protection without bureaucracy in the country than other countries with more restrictive refugee policies. Second, the country receives a considerable amount of funds for refugees from international organizations working on humanitarian support for refugees and asylum seekers. With this financial assistance, the country offers humanitarian access and protection to those forcibly displaced persons coming from neighboring countries seeking asylum on its territory. This humanitarian support for refugees can attract forcibly displaced persons in the region. For instance, the country provides an emergency shelter, either as a shelter kit or a tent and it also offers in-kind for Non-Food Items, namely, kitchen sets, firewood, and sanitary packages to all asylum seekers upon arrival in its territory (UNHCR, 2018). Third, Ethiopia has shown relatively better economic growth and development in the past two decades as compared to other countries in the Horn of Africa. Moreover, the Ethiopian refugee policy allows refugees to work outside of camp, refugees may expect better job opportunities in the country.

And, as discussed above, the majority of refugees in Ethiopia consistently come

from four countries (South Sudan, Somali, Eritrea, and Sudan) and most of them stay for more than 5 or 6 years in the country who could have a network with their families and friends at their home countries. According to the new economics of migration approach, migrants make decisions based on some insights that they obtained from families or friends to enhance their earnings and reduce risks in their hosting country (Massey et al., 1993). For the same reason, new asylum seekers having refugee families residing in Ethiopia may prefer to flee to the same country.

2.1.1 Refugees and Refugee-Hosting Regions in Ethiopia

According to UNHCR 2018 report, the majority of refugees (more than 99% of the total refugees) fled from only four countries, namely, South Sudan (52.82%), Somalia (25.17%), Eritrea (14.28%), and Sudan (6.75%). Moreover, UNHCR 2020 report indicates that these countries also account for more than 96% of the total refugee population in the country in 2020, specifically, South Sudan (41.3%), Somalia (26.1%), Eritrea (12.6%), and Sudan (8.3%). There are nine regional states and two city administrations in Ethiopia. The regions include Tigray regional state, Afar regional state, Somali regional state, Benshangul-Gumuz regional state, Gambela regional state, Oromia regional state, southern nations nationalities and peoples (SNNP) regional state, Amhara regional state, and Harari regional state whereas Addis Ababa and Dire Dawa are the two city administrations in the country. Even though the proportions vary by regions, nine regions out of these 11 regions (Tigray, Afar, Somali, Benshangul-Gumuz, Gambela, Addis Ababa, Oromia, and SNNP) host refugees whereas the other three (Amhara, Harari, and Dire Dawa) are refugee- free communities (see the map below).
However, five regions host the majority of refugees in the country, namely, Benishangul-Gumuz Regional State; Afar Regional State; Gambella Regional State; Somali Regional State; and Tigray Regional State. A host community is defined as a community within the country of asylum comprising of natives to the country who reside near refugees. The Somali Regional State of Ethiopia is a host community where there are Somalia refugees in the region. Host community refers to residents in areas surrounding refugee camps or near refugee camps (Abebe, 2018). Somali Regional State comprises of dwellers of natives in the region residing in neighborhoods where Somalia refugees live. The region is one of the least developed regions in the country that has bad weather, inconvenient infrastructure, poor managerial ability, very high poverty, and poor development indicators - characterized by poor maternal health care services utilization and high childhood mortality rates. Moreover, the region is extremely remote with poor roads or no roads at all. This study thus attempts to test whether hosting massive Somalia refugees could improve the health of mothers and survival of children in the region, basically due to humanitarian assistance programs.

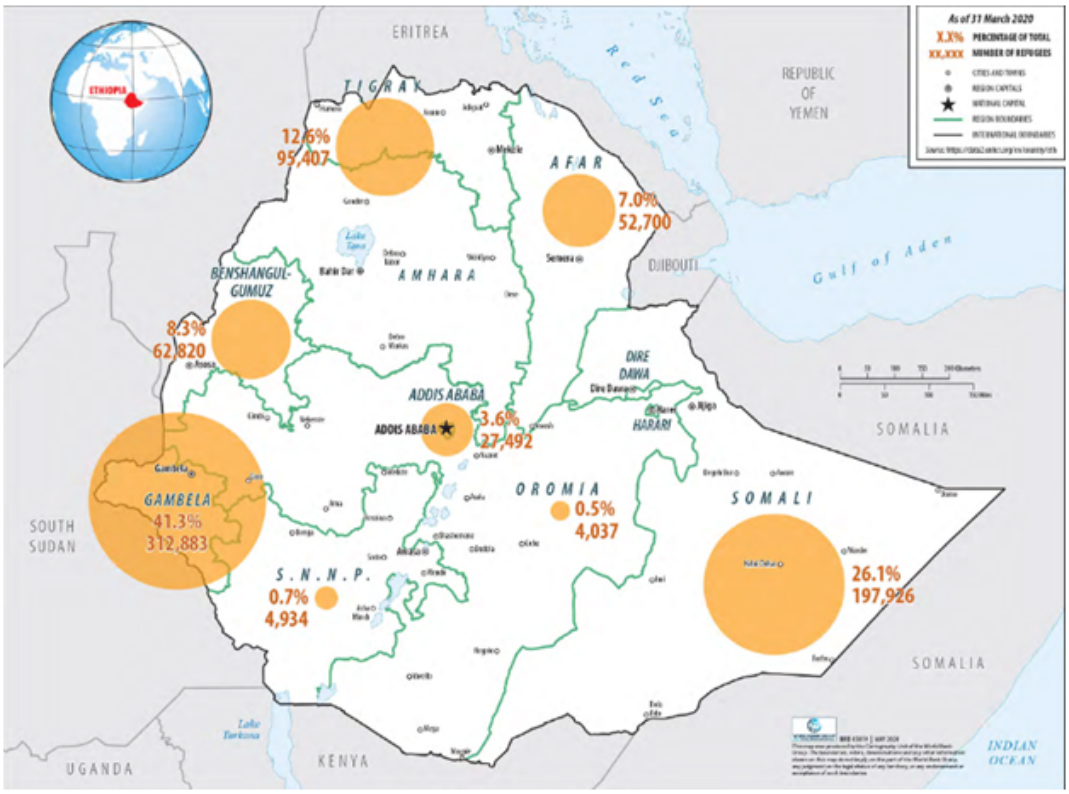

Figure 3: Refugee and Refugee-Hosting Regions in Ethiopia (Source:https://data2.unhcr.org/en/country/eth)

History of Refugee inflows to Ethiopia from the major sending countries

As of 31 January 2021, Ethiopia provides protection and shelter for 801,349 registered refugees and asylum-seekers residing in its territory. The vast majority of these forced migrants are Originated from major sending countries, namely, South Sudan, Somalia, Eritrea, and Sudan.

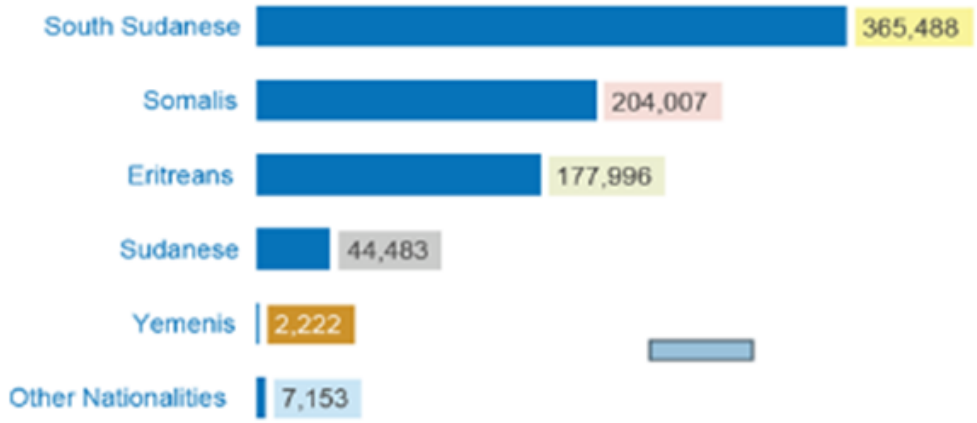

Figure 4: Country of origin (Source: UNHCR Ethiopia, 2021)

Ethiopia started hosting a significant number of refugees from Eritrea who left

their homeland due to persecution in their country of origin in 2000. And, there has been a continued inflow of a large number of Eritrean refugees to the country since that time reflecting unlimited military mobilization, arbitrary arrest and imprisonment without examination, obligatory land gaining and other strategic human rights abuses continue prevalent in the sending country. The Joint Declaration of Peace and Friendship by the two governments signed in July 2018 significantly contributed to the rise in the rate of newcomers from Eritrea, 6,000 people per month during 2019 where the greater proportion of the newcomers (70In history, it is known that Somalia was colonized by European powers. Italy invaded the South while Britain controlled the north of the country between 1882 and 1937 as well as the west was under the control of the French colonial power in 1884. Following the gaining of the countrys independence after the union of British and Italian Somaliland in 1960, several conflicts and wars have been taken place in the region. The Ethio-Somalia war between 1977 -1978, internal political instability, and Saudi Arabia's ban in 1983 are some of these. The ongoing insecurity results in a persistent movement of forced migrants in the region, the inflow of Somalia refugees in Ethiopia is among these.

Consequently, Ethiopia has been served as a home for Somalia refugees since the outbreak of civil war in 1990 that eventually led to state collapse in the country. Due to persistent political instability, violence, and extensive famine, the country is extremely fragile as the countrys security and economy remain dependent on external aid and support (Belay, 2019). As a result, Somalia is known to be one of the top ten countries with forced displacement. The country stands as the 5th largest refugee sending country worldwide (see figure 1.2 above). Even if there were inflows of Somalia migrants to Ethiopia since 1990, massive inflows of Somalia refugees to Ethiopia were observed following the establishment of Al-Shabaab in Somalia in 2005. Today, Somalia has millions of people looking for protection in neighboring countries. In Ethiopia alone, there are 219,926 refugees until the end of 2020, comprising more than 25% of the total refugee population in Ethiopia.

The South Sudanese refugees number is the first in Ethiopia with 365488 forced migrants residing in the country as of 31 January 2021. The persistent influx of South Sudanese refugees to Ethiopia is caused by insecurity in the border areas due to conflict between Upper Nile, Jonglei, and Unity States. The majority of South Sudanese refugees reside in Nguenyyiel camp which is located in Itang district, Gambella Region in Ethiopia. During the period between 1955 and 1972, the Civil War between South Sudan and North Sudan caused the deaths of 500,000 individuals and displacement of several hundred thousand South Sudanese from their home country at the end of the 1960s. Ethiopias commitment to hosting South Sudanese refugees in its territory goes back to 1969 in which the country received the first Sudanese refugees, followed by the construction of the first Sudanese refugee camp in Itang district in Gambella region, in 1983 (https://www.unhcr.org/en-my/4e93f2fa9.pdf). Following the government change in Ethiopia, the camp was closed in 1991 and the majority of Itang refugees (South Sudanese) went back to their country of origin while others were transferred to other South Sudanese camps in the Gambella region which include Bonga camp, Pugnido camp and Dimma camp (Woube, 2005). The persistent Sudanese civil war between South

Sudan and North Sudan resulted in a high influx of South Sudanese and Sudanese refugees to Ethiopia in 2011 following the declaration of South Sudanese independence in July of the same year. Unluckily, the insecurity issues have never been settled in these two countries which causes the high inflows of South Sudanese and Sudanese refugees to the neighboring countries to date, especially in Ethiopia.

There is no regular pattern of refugee inflows to the country as refugee inflows from the different sending countries have different causes of displacement and hence have different patterns of refugee inflows. This makes it difficult to study the impact of refugees on the host population. It is thus important to consider a particular case of the refugee population. This study thus focuses on the Somalia refugee population who has begun to live in Ethiopia over the past two decades. As earlier stated, even if there were some inflows of Somalia migrants to Ethiopia since 1990, the influx of Somalia refugees to Ethiopia was observed mainly following the establishment of Al-Shabaab in Somalia in 2005. Today, Somalia has millions of people looking for protection in neighboring countries. In Ethiopia alone, there are 219,926 refugees until the end of 2020, comprising more than 25% of the total refugee population in Ethiopia.

Therefore, the influx of Somalia forced migration to Ethiopia since 2005 is the intervention (treatment) in this study. Somalia migrants reside in a particular region in Ethiopia called Somali regional State of Ethiopia which is the treatment group in this study. To compare the treatment effect on the host population, this study considers two other regions that have no influx of refugees, namely Dire Dawa and the Oromia Regional States of Ethiopia. There are no refugees in Dire Dawa Regional State. There is no influx of refugees in Oromia Regional State as the refugee population accounts for just 0.5% of the total population of the region, as well as this small share of the refugee population are originated not only from Somalia but also from other sending countries such as South Sudan, Sudan, and Eritrea (see figure 3 above).

2.1.2 National health system regarding refugees in Ethiopia

Ethiopia has achieved remarkable success in the health care system over the last two decades reflected by the significant improvement in access to health services and better health outcomes in the period. However, the country still faces high rates of morbidity and mortality from preventable causes, like pneumonia. Five to six percent of government spending goes to the health sector which accounts for 20% of the total health spending; the remaining portion is covered by external assistance from development partners (50%) and NGOs (30%). The Government of Ethiopia allows equal access to all its residents regardless of their citizenship status. That means the government provides equal health services to nationals, refugees, and other foreigners.

Similarly, the host communities have free access to primary health care services free of charge within refugee camps. The national health care system also gives the right to refugees to get health services at the same costs as natives, and the government subsidizes costs associated with refugees primary health care provided

outside of refugee camps. However, costs for secondary and tertiary health care are supported by non-governmental organizations (NGOs) and Administration for Refugee and Returnee Affairs (ARRA). For such advanced health care, refugees are usually referred to health facilities outside the camp, i.e., hospitals that are administered by the Regional Health Bureau in the country. If the inflow of refugees is very high, such referrals may add an extra burden to the national health system with scarce resources in the country.

2.2 Theory

Theories can be relevant not only for the explanation of the impact of refugee influx on the host but can also be used for policy intervention. The following theories are discussed to better understand the association between refugee influx and its impact on the host communities and to suggest the most effective policies which are appropriate in the study area. As the study considers mother's health and child mortality as the indicators of health outcomes in the study population, the theories are thus associated with mother's health and child mortality.

2.2.1 Fundamental Cause Theory

Socioeconomic status is usually linked to resources that include social networks, power, prestige, money, knowledge that can advance health under different conditions (Dribe, 2020). According to the Fundamental Cause Theory, poorer and less privileged members of a society usually live in worse health conditions and have a lower life expectancy as compared to the rich and more privileged members of the society. The theory further explains that, even though the mechanisms depend on context, high socioeconomic status is beneficial to health, especially in poor countries where preventable diseases are still prevalent (Phelan and Link, 2013). Hence, this high socioeconomic status of mothers is important to control the preventable disease which is related to the mother's health and child survival in these regions.

2.2.2 Modernization Theory

Modernization theory explains the transformation from a traditional society to a civilized society. The theory examines the internal features of a nation whilst assuming that using support, poor nations can be transformed into developed countries in the same approach more advanced countries have been. The theory explains not only the course of transformation but also the reactions to that transformation. The theory stresses on internal dynamics of a nation whilst linking to the use of new technologies and social and cultural structures. Unquestionably, technological advancements contribute to human well-being in society. For instance, technological advancements in medical sciences use to control and treat disease. This reduces death rates and increases life expectancy. In general, modernization theory highlights that advancements in economic development resulted from technological improvement enhance human well-being and decrease childhood mortality Roberts et al. (2014). Plenty of sub-national and cross-country research was investigated in the late 20th century that indicates a strong positive

relationship between economic development (due to industrialization) and maternal health and childhood mortality (Bradshaw and Fraser, 1989); Preston, 1975; Shen and Williamson, 1997).

2.2.3 Gender Stratification Theory

The theory stresses the power and privilege of women (Mason, 1986). Enhancements in women's status are assumed to be associated with mother's health and child mortality since these enhancements increase woman's access to proper diet, employment, health care, and literacy. Women's status comprises economic, educational, social, and political factors; however, improved women's education is supposed to be one of the most appropriate ways of decreasing childhood mortality (Boehmer and Williamson, 1996). According to (Shen and Williamson (1999), a literate female are more likely to use health care services for her children than an illiterate female; educated females have also better communication abilities with health caregivers, and more educated women can keep the sense of balance of family relations concerning child care.

2.3 Literature Review

2.3.1 Forced migration

Every year, thousands of people are forced to leave their countries in a desperate attempt to find a haven, their life being threatened by civil conflicts. End of 2007, UNHCR (2007) reported 11.4 million refugees in the world, whose 2.2 million originated from Sub-Saharan Africa. Contrary to some popular ideas, these refugees do not invade the industrialized world but are in the widespread majority, hosted by their neighboring countries. Recently, millions of people are forced to flee to other regions within or outside of their territory due to persecution, conflict, natural disaster, and human rights violations. If these people travel outside of their country, they are considered refugees or asylum seekers. On the other hand, if they stay within their territory, they are called internally displaced people. Besides this, there are other groups of forced migration that may be forced from their homes by, disasters, development projects, and/or environmental change. The reason for studying forced migration is since its figure shows a sharp increase and its burden becomes a complex global phenomenon. Currently, the global massive flow of forced migrants becomes not only a major social concern but also a political issue in most countries in the world.

Forced migration: effects on the refugees

As discussed before, forcibly displaced persons flee from their homes due to war, conflict, natural disasters. These forcibly displaced people usually experience shocks of stress mainly twice in their life after their displacement. They experience a shock when they escape from harm and when they settle in their new home locality (Porter and Haslam, 2001). Such displacement may cause long-lasting effects on the well-being of persons who have been displaced from their homes as they lose their assets and social networks. These tremendous and repeated shocks of stress may cause physical and mental health complications.

Forced migration: effects on the hosting communities

As early mentioned, millions of people are forced to flee from their home countries because of persecution, conflict, natural disaster, and human rights violations. Most of them seek asylum and reside in neighboring countries. Consequently, the receiving country most of the time host the refugees and request support from international organizations and NGOs to feed and give shelter to these people residing in its territory. In this sense, both hosting countries and organizations giving humanitarian assistance work jointly to safeguard the lives of these victimized persons. However, it seems that less attention is given to the consequences of receiving a massive number of refugees to the local host (Maystadt and Verwimp, 2009).

Economic Impacts

The massive inflows of refugees may affect the economy of the local host both at the macro and micro levels. That means the presence of massive refugees may cause a change in the labor market, trade, banking, government spending, negative externalities, and household income (Alshoubaki, 2017). There are different views in the literature on the economic impact of refugees on the host community. Some research findings suggest that refugees can be a potential or a burden to the receiving country depending on the refugees themselves and the hosting community. If the refugee community is more skilled and more entrepreneur than the natives, they may create new job opportunities for the natives which may positively contribute to the GDP per capita of the receiving country. According to Alshoubaki, (2017), sharing of inputs and using of international assistance refuges and hosts in west Tanzania accelerated economic activities that produced positive economic spillover in the region. Moreover, the presence of a large number of refugees may cause a shift in the labor market in the host so that capitalists in the receiving country may get a labor force with cheaper payment. International organizations provide humanitarian services for refugees which also benefit the host community in different ways, like employment opportunities for locals to work on the refugee camps.

On the contrary, the presence of such large numbers of refugees may cause the price of some commodities to rise significantly. As a result, low-income local groups can be negatively affected by inflation since refugees compete for resources like food, health services, and other limited resources in the host community which can be a burden to the local host, especially in poor countries like Ethiopia where there are always scarce resources in the region. In general, as Whitaker concluded, an influx of refugees can be a benefit to a host community if the host has surplus resources such as land, educated citizens, or power that enables to resist or benefit from the presence of refugees; however, an influx of refugees may be a burden to the host if the host community is poor, and the competition for scarce resources may aggravate poverty in the host and the host becomes even further (Whitaker, 2002). Lozi (2013) also found that the influx of Iraqi and Syrian refugees demanded more food and caused the unemployment rate to rise in Jorda. Therefore, there are

local losers and gainers due to the presence of refugees, and hence it is difficult to generalize the economic impact of refugees to the host community as the effect may vary depending on the context of the study. Even more, some economic empirical research points towards the direction that refuges have more positive effects on economic growth and development than their negative consequences in a receiving country.

Environmental Impacts

The influence of refugee influx on the environment is an important aspect of studying the relationship between refugees and host communities. Mostly, hosts provide temporary settlements to refugees in environmentally sensitive areas, and the majority of camps are located in semi-desert, agriculturally unimportant places in Africa while some other camps are found in forest reserve areas in the continent like Rwandese refugees in Congo (Frew, 2019). In poor infrastructural settings, refugees may destroy the forest for firewood as there may no electricity in the camp. They demolish vegetation when they clear forests for farming. They also clean forests to obtain woods for construction and make charcoal; overgrazing is another problem when refugees get involved in livestock. They can pollute water and compete for water when they engage in unmanageable fishing businesses. All these factors may result in deforestation in the area which directly harms environmental change in the host community. Furthermore, depending on the demand for access to land and shared resources may lead to damage to the refugee-hosting areas and may create security issues (Jacobsen, 2002). The impacts of refugees on the environment of receiving countries, as mentioned by the UNHCR report (1996), are characterized by exhaustion of water ground resources, land degradation, water pollution, and forest depletion, the spread of diseases (Martin, 2005),

Social and cultural impacts

When a country receives a large number of refugees in Africa, the country constructs refugee camps to provide shelter for the refugees and calls international organizations and NGOs for humanitarian assistance (Master Wuhibe.pdf, n.d.). However, it can be arguable that giving food and other humanitarian assistance to refugees in a camp by considering them as dependent passive victims can be human rights abuse (Macchiavello, 2003). As early mentioned, the competition for scarce resources due to the presence of a large number of refugees in poor countries may result in social tension between refugees and host communities (Alshoubaki and Harris, 2021). Some studies found that refugees can be a potential to make a security threat in hosting community while others suggest that refugees may participate in illegal activities such as sex work, theft, drug-seller as they may have limited access to formal employment in the host (Jacobsen, 2002). International organizations and NGOs nominate skilled professionals of a government office with very attractive wages than the host government (Porter, 2008). As a result, more qualified professionals would like to terminate their job in the public sector as they want to be hired in camps with better salaries and other benefits. Such sentiment may result in job satisfaction and reduce the effectiveness of more qualified public servants which may weaken local welfare services in the host community. Further,

refugees can get humanitarian assistance in the form of food and other necessary aid from these international organizations and NGOs while others may not have such opportunities while the people in the host may be poor sometimes poorer than refugees.

The social interaction between refugees and local hosts can be declined as a result of inequalities (Betts, 2009). In this sense, local peoples may perceive that they are discriminated from these organizations and they may perceive that as if the organizations aim to support only refugees but not to poor people who need humanitarian assistance regardless of their migration status. Consequently, people of the host community can develop a negative attitude towards refugees (Kibreab, 2003). However, these gaps between hosts and refugees can be managed when these organizations can support refugees as well as local hosts given that the hosting community is very poor. This has been evident in the case of West Tanzania where organizations support government projects benefiting both refugees and local hosts in the region (Whitaker, 2002). The same situation holds in the case of Ethiopia where both the local host population and immigrants have equal access to health care services provided by the government and international humanitarian assistance.

Mechanism: Competition for Health Resources

As discussed early, forcibly displaced people can be a burden or benefit the local hosts. This is because, on one hand, they may compete for a local resource in the hosting community which may add additional burden to hosts in poor countries. On other hand, they may accelerate economic activities in the host community such as displaced entrepreneurs. Therefore, whether the economic impacts of forcibly displaced people to the receiving country are positive or negative is still debatable, and studying in the area needs some sort of identifying the context of both the displaced people and their new home localities.

The mechanism differs when we consider the health impacts of forcibly displaced people to the receiving country in poor countries. International organizations and other NGOs protect forcibly displaced people within the host country following the influx of forcibly displaced people aiming to improve their quality of life. These humanitarian organizations assist with health services to these needy people. Usually, children and mothers health care is given special attention during the assistance. This may result in a rapid improvement in child and mothers care services in the local host population. According to (Jacobsen, 2002), the local host population can get equal health care assistance as refuges can receive from humanitarian organizations. If the assistance is adequate (as per the standards), the recommended minimum health services obtained from an assistance program exceed those experienced by the majority of refugee-hosting communities in poor countries (Tatah, et al, 2016).

Being Ethiopia among the least developed countries in the world, it is expected that the country has been benefited in the health sector from the large influx of forcibly displaced people coming from the neighboring countries in the past two

decades. It is thus crucial to evaluate whether the humanitarian assistance resulted in an improvement in maternal and child health outcomes in Ethiopia or not. The hypothesis to be tested in this study is thus: hosting a large number of forcibly displaced people is directly associated with maternal and child health improvements in Ethiopia. The findings can provide evidence-based information to the local authorities and assistance programs which can be important to make effective decisions related to the child and maternal health of the host population.

3 Data and Method

3.1 Data

The DHS Program

The DHS (Demographic and Health Surveys) program provides accurate and representative data on different areas including marriage and sexual activities, fertility, family planning, child and maternal health and mortality, nutrition, and HIV. DHS is national-representative household surveys which give information for many monitoring and impact assessment in the areas of health, HIV, and nutrition. The DHS program is the largest survey in the world that collects, analyzes, and disseminates all relevant data on different areas mainly on human health. More than 400 analogs surveys are conducted in over 90 countries across the globe, out of which 104 surveys conducted in developing countries, and the majority of the fund covering the costs of the surveys usually comes from the United States Agency for International Development (WHO, 2000).

Ethiopia has been among these developing countries under the DHS program since 2000. This means two decades have passed since Ethiopia has conducted the first Ethiopian Demographic and Health Survey. In line with the standard of the DHS program, the country continued conducting analogs surveys in each successive five years. That means, the country carried out the 2nd, then 3rd, then 4th, and the 5th surveys in 2005, 2011, 2016, and 2020 respectively. The current study uses all these successive surveys between 2000 and 2020. This study uses maternal and child health data in the particular case of Ethiopia, covering four consecutive Ethiopian Demographic and Health Surveys (EHDS) between 2000 and 2020. As the study aims to evaluate the impact of forced migration on child and maternal health, the data thus is suitable for the prediction of unbiased estimates.

3.2 Variable Selection

Childhood mortality is used as a good indicator of the overall health and social welfare of inhabitants in a country (Avogo and Agadjanian, 2010). In that regard, the author select child mortality as a potential variable capable of explaining the health of the entire population in this study. In the study of childhood mortality, researchers choose potential variables based on the characteristics of the mother and child and the status of the birth (EDHS, 2016). In this study, the predictor variables are selected from the DHS programs that are found to have associations with childhood mortality in the Ethiopian context. Accordingly, these variables are categorized into three groups. The first group includes socioeconomic characteristics, namely place of residence, mother's education, and wealth quintile. The second group consists of demographic characteristic which includes child's sex, birth order, previous birth interval, and size of child at birth. The third group comprises maternal health care services such as place of delivery, cesarean delivery, and postnatal health checkups.

According to the 2016 Ethiopian Demographic and Health Survey report, maternal health care services are important for both mother and child health and survival.

Child and mother health and survival are considerably affected by access and use of health care services given to mothers during pregnancy, childbirth and after delivery, and hence appropriate health care during pregnancy, childbirth, and the postpartum period are the most effective interventions that can lower early childhood mortality (EDHS, 2016). Taking this fact into consideration, this study also considered the above-mentioned maternal health care services to examine their contribution to a significant difference in childhood mortality between immigrant hosting communities and immigrant-free communities in the study.

Variables	Description of the variable
Outcome variable	
Child health status	Child mortality: The probability of dying between the first and the fifth birthday (1 = child died and 0 = child didnt die)
Exposure variable	
Zone of residence	1 = residence in immigrant hosting communities; 0 = residence in immigrant free communities
Predictor variables	
Place of residence	Place of residence (0 = Rural, 1 = Urban)
Mothers education	Maternal formal years of schooling (0 = No formal school education, 1 = Primary education i.e., up to class eight, 2 = Secondary, 3 = higher than secondary education
Mothers wealth index	Wealth quintiles (1 = poorest, 2= poorer, 3= middle, 4=richer, 5=richest)
Sex of Child	Childs sex (1 = Male and 2 = Female)
Birth order number	Birth order number (1, 2, 3,)
Previous birth interval	1 = ¡ 2 years, 2 = 2 years,. 3 = 3 years, 4 = 4+ years
Size of child at birth	1= Very large, 2 = Larger than average, 3= Average, 4= Smaller than average, 5= Very small
Place of delivery	Place of delivery (0 = delivered at home, 1 = delivered at health facilities)
Cesarean section	Delivery by cesarean section (0 = no cesarean delivery and 1 =cesarean delivery)
Postnatal care use	Postnatal check-up visits (0 = No, 1 = yes)

Table 3.1 : Operational definition, categorization, and coding of variables.

3.3 Statistical Analysis

The difference in Difference Approach

It is difficult to capture the causal effects of intervention unless we conduct a random experiment due to selection bias. The issues of selection bias may affect our estimates in two ways. First, there may be bias during the selection into treatment. Second, the effect of the treatment may be affected as a result of unobserved characteristics in our treatment and/or control groups. Omitted variable bias is also another issue in non-random experiments which is resulted due to the inability to consider all potential factors. In reality, we can't consider everything associated with our outcome variable, rather we can control for it in observational studies. As a result, it is required to solve the issues associated with such bias in observational studies. The Difference in difference method is a widely used and accepted approach to handle biases linked to selection and omitted variables in non-random experimental studies. The approach relied on the parallel trend assumption, the assumption that there were no differing trends before treatment between treated and control groups.

As a result, by using this method we can control for possible observable or unobservable factors that could cause endogeneity. There are two groups in this method, namely the treatment group and the control group. The treatment group is the recipient of the intervention while the control group doesn't receive any intervention. We need to have historical data on both the treatment group and control group before and after an intervention. The Difference in Difference method is applied to estimate the treatment effect due to the intervention. The treatment effect is obtained by first computing the differences in values of the outcome variable between the treatment and control group before and after the intervention. The treatment effect is the difference of the differences in outcome variable between treatment and control group before and after the intervention. By using this method, all time-invariant variables that could have an association to the selection into treatment and the outcome of the treatment, both observable and unobservable characteristics, can be handled.

Similarly, in the particular case of this study, it is hard to get accurate results while studying the health impact of Somalia refugees in Ethiopia using standard regression models that don't account for selection bias and omitted variable bias since health facilities aren't evenly distributed across the different geographical areas in the country. Therefore, a model that accounts for the associated biases is required to get unbiased estimates that best describes the impact of forced migrants on the health of the local host in Ethiopia. In that regard, Difference in Difference is considered the best choice to assess impact evaluation in the current study.

Using a 20 years history data that can give information on the health of the two groups before and after the influx, the impact of Somalia refugees on the health of the local host population in Ethiopia is thus analyzed using a Difference-in-Difference design The treatment is the influx of Somalia refugees in Ethiopia while the exposure variable is a residence which has two categories and coded as 1 residing in local host community (Somali Regional States) and 0 residing in refugee-free community (Dire Dawa and the Oromia Regional States). Maternal health care service utilization, namely place of delivery, delivery by cesarean

section, and postnatal care service utilization, and child mortality are the four outcome variables in this study. The trends of childhood mortality rates are assessed and compared between the two communities that receive the treatment (influx of refugees) and those that didn't receive the treatment. . Using five consecutive rounds of Ethiopian Demographic and Health Surveys (2000-2020), the health impact of Somalia refugees on the local host population in Ethiopia is evaluated using the Difference in Difference method.
Model Specification:

$$Y = \beta_0 + \beta_1 \times \text{Time} + \beta_2 \times \text{Intervention} + \beta_3 \times \text{Time} \times \text{Intervention} + \epsilon$$

Where Y is the status of child survival, β_0 is an outcome in the baseline, Time is dummy (1=2020), Residence is dummy (1=residence in refugee zone) and ϵ is the error term.

Binary Logistic Regression Model

Logistic regression analysis is used to assess the relationship between an outcome variable and a set of predictor variables where the outcome variable is a categorical variable with two categories (dichotomous variable). The outcome variable in this study is childhood death and coded as 1 if child death occurred and 0 if no death occurred. Therefore, once the significant impact is observed using the difference in Difference method, logistic regression has been employed to investigate the factors that contributed to the higher proportion of childhood deaths in the local host communities. The binary logistic regression model orders the independent variables based on their relative importance. Using the maximum likelihood estimation technique, the effect of predictor variables is expressed using odds ratio which needs transforming the predicted variable into the logit variable. The model is formulated in general as:

$$Logit(P) = \log\left(\frac{p}{1-p}\right) = \beta_0 + \beta_1 X_1 + \beta_1 X_2 + \beta_1 X_3 + \beta_k X_k$$

Where: β_0 is a constant number and β_k are coefficients, X_k is independent variables, and P is the outcome (dependent) variable.

3.4 The Approach

The study in this thesis follows the following step-by-step approach.

First, the prevalence of childhood mortality is computed for each of the two groups, treatment (forcibly immigrant host communities) and control group (immigrant free communities). Other summary statistics are also calculated, namely the measures of central tendency including percentages, mean and minimum and maximum figures on child and maternal health care. The significance of the differences in childhood mortality between immigrant host communities and immigrant-free communities is assessed using an independent sample T-test. The difference in Difference method is used to evaluate the impact of hosting forcibly displaced people on the health of the local host. The association between childhood mortality and other predictor variables in the immigrant host communities is assessed

using Chi-square analysis. A logistic regression model has been used to investigate the significant factors linked to poor child health outcomes in the local host population in the study area.

4 Empirical Analysis

4.1 Results

This section presents the results of summary statistics and the association between child mortality and socioeconomic, demographic, and maternal characteristics. Finally, the results of multivariate analyses are also presented in this section.

This study is a retrospective study based on data extracted from the Ethiopian Demographic Health Survey between 2000 and 2020. The data for this study considers a total of 13,789 live births, of which 9,345 (67.77 %) reside in the refugee zone whereas 4,444 (32.23%) reside in the refugee zone during the study period. 678 out of these 9,345 children (7.26% of live births) died between their first and the firth birthday in the refugee influx free zone whereas 346 out of 4,444 children (7.79% of total live births) died between their first and the firth birthday in the refugee zone over the past 20 years. A lower level of child mortality was observed in the refugee zone (78.86 child deaths per 1,000 live births) as compared to the refugee-free zones (107.18 child deaths per 1,000 live births) before the influx of refugees.

However, the prevalence of child mortality rate showed an increased (89.48 child deaths per 1,000 live births) as compared to the refugee-free zones (57.02 child deaths per 1,000 live births) after the influx of Somalia refugees in 2005. Moreover, the difference in child mortality rate after the intervention (D=32.46) was relatively higher as compared to the child mortality rate before the intervention (D=28.33). Today, the proportion of children who die between their 1st and 5th birthday is relatively higher in refugee host communities (89.48 deaths per 1,000 live births) than their counterparts of the refugee-free community (57.02 deaths per 1,000 live births). This figure exceeds the national child mortality prevalence rate (58.93 child deaths per 1,000 live births) (see figure 2 in the appendix). On the contrary, it is noted as well that the refugee-free community has relatively lower child mortality than the national prevalence rate. These results are consistent with the results from 2000, 2010, 2015, and 2020 EDHS reports.

2000				2020		
	refugee free	host community	D	refugee free	host community	D
CMR	107.18	78.86	28.33	57.02	89.48	32.46:

Table 4.1 : Prevalence of child mortality rate (CMR) between refugee free and refugee host communities (per 1000 live births).

Socioeconomic and demographic characteristics

Results of this study (table 4.2 below) reveal that all socioeconomic and demographic characteristics are associated with childhood survival both in the local host community and refugee-free community. However, mothers of the child in the refugee hosting community experienced lower levels of socioeconomic status

than their counterparts in refugee-free communities in the past 20 years. A higher proportion of mothers of the child in refugee host community have no education (87.3%) and they are the poorest (64.7%) as compared to their counterparts in the refugee free community, 68.8 % with no education and only 16.8 % are in the poorest wealth category. Surprisingly, the proportion of mothers with higher educational levels accounts for less than 1% of all mothers in the host community.

	Refugee Free community	Host community
	(n = 9345)	(n = 4444)
Residence		
Urban	1583(16.9%)	917 (20.6%)
Rural	7762(83.1%)	3527 (79.4%)
Mothers education		
No education	6408 (68.6%)	3881 (87.3%)
Primary	2263 (24.2%)	407 (9.2%)
Secondary	539(5.8%)	121 (2.7%)
Higher	135 (1.4%)	35 (0.8%)
Wealth quintile		
Poorest	1278 (16.8%)	2488 (64.7%)
Poorer	1581 (20.8%)	339 (8.8%)
Middle	1484 (19.5%)	225 (5.8%)
Richer	1438 (18.9%)	255 (6.6%)
Richest	1838 (24.1%)	541 (14.1%)
Sex of Child		
Male	4796 (51.3%)	2308 (51.9%)
Female	4549 (48.7%)	2136 (48.1%)
Birth order		
1st birth	1514 (16.2%)	517 (11.6%)
2nd - 3rd birth	2646 (28.3%)	1040 (23.4%)
4th - 6th birth	3031 (32.4%)	1563 (35.2%)
7th birth and above	2154 (23.0%)	1324 (29.8%)
Previous birth interval		
¡2 years	1730 (22.1%)	1486 (37.9%)
2 years	2713 (34.7%)	1314 (33.5%)
3 years	1633 (20.9%)	660 (16.8%)
4+ years	1741 (22.3%)	464 (11.8%)
Size of child at birth		
Very large	1212 (18.8%)	471 (15.8%)
Larger than average	1090 (16.9%)	520 (17.4%)
Average	2331 (36.2%)	1136 (38.0%)
Smaller than average	777 (12.1%)	294 (9.8%)
Very small	1002 (15.5%)	555 (18.6%)

Table 4.2 : Association between socioeconomic and demographic characteristics and child mortality.

Maternal heath characteristics

The results also show that there is a difference in the proportion of utilization of maternal health care services between the two communities (local host community and refugee-free community). All proportions of the use of maternal care services are lower in the refugee host community than the corresponding figures in the refugee-free community. A higher proportion of mothers (81.2 %) delivered at home in the treatment group as compared to 58.6 % mothers in the control group who delivered at home. Moreover, delivery by cesarean section was lower in the refugee host community (0.9%) than in refugee free community (1.7%). And, poorer postnatal checkups were observed in the refugee host community (2.9%) than in refugee free community (5.5%). As poor maternal health care during pregnancy, childbirth, and post-delivery is associated with higher childhood mortality which reflects poor health status in the general population, the lower levels of maternal health care service utilization could contribute to the poor health outcomes in the refugee hosting community over the past two decades.

	Refugee Free community	Host community
	(n = 9345)	(n = 4444)
place of delivery		
Home	421(58.6%)	517 (81.2%)
Health facility	284(39.5%)	101 (15.9%)
Delivery by caesarean section		
No	7039 (98.3%)	3594 (99.1%)
Yes	125 (1.7%)	31 (0.9%)
Postnatal health checkups		
No	3594 (94.4%)	2385 (96.9%)
Yes	208 (5.5%)	72 (2.9%)

Table 4.3 : Association between maternal heath characteristics and child mortality.

Parallel trend

At the national level, the child mortality rate has declined consistently since 2000. The decline was from 110 child deaths per 1,000 total live births in 2000 to 54.27 child deaths per 1,000 live births in 2015 (see figure 3 in the appendix). The country achieved one of its Millennium Development Goals, a substantial decline in childhood mortality rate in 2015. The parallel trend in figure 1 below reveals that refugee-free communities and immigrant host communities were following similar trends in child mortality rates before the influx of Somalia refugees to Ethiopia. However, the child mortality rate began to rise at a higher rate in the Somalia region of Ethiopia which is an immigrant host community (treatment group) as compared to refugee host community there is no influx of refugees (control group). The trend also reveals that the child mortality rate was at a lower level in the refugee host community before the massive inflows of refugees (intervention) to the region as compared to the child mortality rate in the refugee-free community.

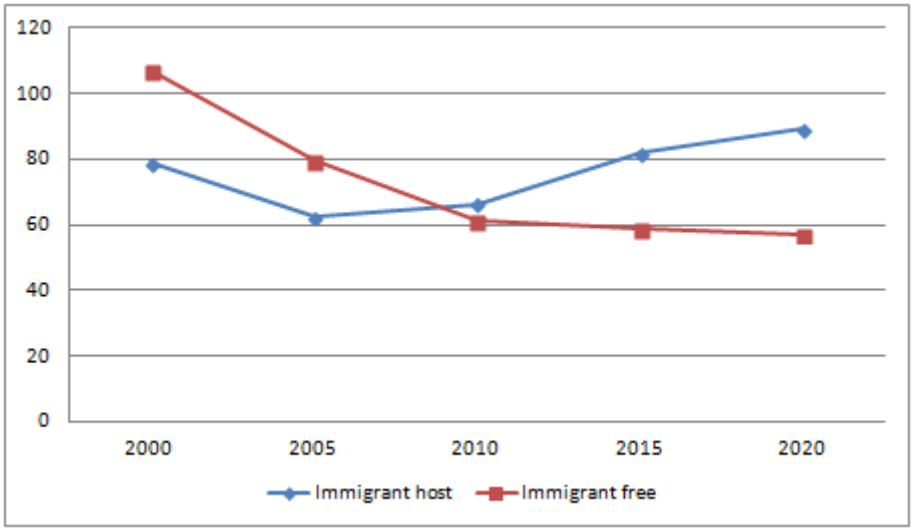

Figure 5: Trends in child mortality rate per 1000 live births

Results of Regression Analysis

The regression result of the base mode suggests that the effect of the influx of refugees to the refugee host community (treatment effect = -0.0035) harms child mortality in the host community (see table 4.4). The result indicates that the treatment effect is significant at a 5% level of significance implying that massive inflow of refugees to the host community substantially contributed to the increased number of deaths of children in the host community. Controlling the effects of all other variables, the influx of Somalia refugees alone caused the deaths of more than three children between their 1st birthday and 5th birthday per 1,000 live births in the host population who could survive if there was no such influx of refugees to the region. As a higher proportion of childhood mortality reflects adverse health outcomes and a lower level of well-being in the general population, the significant effect of the influx of refugees on childhood mortality reflects the influx of refugees could harm the health of the host population.

Variables	Base model(Child mortality)
Treatment	7.1529 $\star\star\star$ (1.541)
Period	0.0027 $\star\star\star$ (0.000)
Treatment Effect	-0.0035 $\star\star\star$ (0.000)
Constant	-4.4994 $\star\star\star$ (0.878)

Robust standard errors in parentheses : $\star\star\star$ = sig. at $P < 0.01, \star\star$ = sig. at$P < 0.05$, $\star$ = sig. at $P < 0.1$

Table 4.4 : Regression output for base model (child mortality).

Socioeconomic characteristics

The socioeconomic status reflects an individual's (or family's) position in society relative to others. A combined measure is liked to work experience and education that can result in a difference in an individual's relative standing in society. So-

cioeconomic status can mainly be explained by three important indicators namely, income, occupational status, and education. The regression outputs of the socioeconomic characteristics in this study reveal that a negative significant effect was observed for all socioeconomic characteristics in the refugee host community. The socioeconomic characteristics that are considered in this study include the mothers education, wealth index, and place of residence. The regression outputs indicate that the influx of refugees negatively affects all the socioeconomic characteristics considered in the study which caused a higher proportion of child mortality in the refugee host community. This association is expected as the negative effect of the intervention on the socioeconomic status may reduce access to health services and affect mothers utilization of health services in the host population. Furthermore, the effect of the influx of refugees to the host community is slightly higher for differences in mothers wealth index (-0.0036) as compared to the treatment effect in the base model.

Variables	M1(Base model)	M2(Residence)	M3(Education)	M4 (wealth)
Treatment	7.1529 $\star$ (1.54)	7.122 $\star$ (1.54)	7.01 $\star$ (1.54)	7.137$\star$ (2.19)
Period	0.0027 $\star$ (0.000)	0.0027 $\star$ (0.000)	0.0025 $\star$ (0.000)	0.16$\star$ (0.000)
T. Effect	-0.0035 $\star$ (0.000)	-0.0035 $\star$ (0.000)	-0.0035 $\star$ (0.000)	-0.0036 $\star$ (0.001)
Constant	-4.499 $\star$ (0.878)	-4.492 $\star$ (0.878)	-4.17 $\star$ (0.888)	-2.313 $\star$ (1.22)

Robust standard errors in parentheses : $\star\star\star$ = sig. at $P < 0.01, \star\star$ = sig. at $P < 0.05, \star$ = sig. at $P < 0.1$

Table 4.5 : Regression output - child mortality rate versus socioeconomic characteristics.

Demographic Characteristics

The regression output also shows that the influx of refugees to the host population has a negative significant effect on child mortality for all demographic characteristics considered in the study except the size of the child. Of these, the effect of the influx of refugees is greatly influenced by sex and birth order.

Table 4.6: Regression output - child mortality rate versus demographic characteristics

Variables	M1(Base model)	M2(Sex)	M3 (BO)	M4 (BI)	M5(Size)
Treatment	7.15 $\star$ (1.54)	7.07 $\star$ (1.54)	6.93 $\star$ (1.54)	5.65$\star$ (1.65)	2.95 $\star$ (1.82)
Period	0.0023 $\star$ (0.00)	0.003 $\star$ (0.00)	0.003 $\star$ (0.00)	0.002 $\star$ (0.00)	0.002 $\star$ (0.00)
T. Effect	-0.004 $\star$ (0.00)	-0.004 $\star$ (0.00)	-0.003$\star$ (0.00)	-0.003 $\star$ (0.00)	-0.02 $\star$ (0.01)
Constant	-4.50 $\star$ (0.88)	-4.53 $\star$ (0.88)	-4.25 $\star$ (0.88)	-3.68 $\star$ (0.95)	-3.74 $\star$ (1.00)

Robust standard errors in parentheses : $\star$ = sig. at $P < 0.01$.

Table 4.6 : Regression output - demographic characteristics.

Maternal Health Care Characteristics

As mentioned earlier, appropriate health service utilization during pregnancy, childbirth and the postpartum period are important for the well-being of both the mother and child. However, the negative effect of the inflows of refugees was

observed for maternal health care service characteristics in this study which are associated with the increase in childhood mortality rate in the refugee host community. Moreover, among all these, the effect was greater on the utilization of postnatal health care services. This could be due to the reason that refugees compete for scarce health resources in the host community that could result in the lower use of maternal care services after childbirth. The regression outputs indicate that the effect of the intervention (influx) wasn't statistically significant by place of delivery (home or health facility) though it has a negative significant effect on delivery by cesarean section.

Variables	M1(Base model)	M2(Caesarean)	M3 (PNC)
Treatment	7.153 ⋆ (1.54)	4.55 ⋆ (1.53)	10.05 ⋆ (3.748)
Period	0.0027 ⋆ (0.0016)	0.0006 ⋆ (0.0011)	
T. Effect	-0.0035 ⋆ (0.00)	-0.0023 ⋆ (0.00)	-0.0050⋆ (0.0019)
Constant	-4.499 ⋆ (0.878)	-2.269 ⋆ (0.862)	2.18 ⋆ (2.2)

Robust standard errors in parentheses : ⋆ = sig. at $P < 0.01$.
Table 4.7 : Regression output - Maternal Health Care Characteristics.

Sensitivity Analysis

The difference in Difference model is used again here to identify whether the model is sensitive to a set of predictor variables in the study. It is noted that the treatment effect is highly influenced by differences in the levels of the mothers education. Higher educational attainment of mothers is one of the most important features of socioeconomic and health development in a society. This is because education can enhance capabilities and is strongly associated with various socioeconomic indicators like the standard of living, wealth, and health in a society. In this regard, the treatment effect was analyzed by varying the level of mother education in the regression analysis. The findings suggest the effect of the influx of refugees was negatively significant for children with illiterate mothers while the effect was insignificant for children whose mothers attain the highest educational level in the host population. The treatment effect (-0.0042) can be interpreted as the deaths of 42 children per 1,000 live births associated with a higher proportion of illiterate mothers in the hosting community.

Moreover, the model was also highly sensitive to the place of residence. The results suggest that the effect of the influx of refugees greatly varies by place of residence. The outputs in the sensitivity analysis of the difference in Difference model reveals that a negative significant treatment effect (-0.0078) is observed in the urban areas of the host population while a negative significant treatment effect is noted as well in the rural part of the host population. However, the treatment effect is relatively higher in urban than rural areas (-0.0078 ¡ 0.0028). This can be interpreted as the influx of refugees could cause the deaths of 50 more children per 1,000 live births in the urban part of the host community which is the difference in the treatment effect (-0.0078-(-.0028)) between the two areas in the host community.

Variables	M1 (Base model)	M2 (No Edu.)	M3(Highest Edu.)	M4(Urban)	M5(Rular)
Treatment	7.15 ⋆ (1.54)	8.46 ⋆ (1.75)	-0.55 ⋆ (14.4)	15.68 ⋆ (4.14)	5.62 ⋆ (1.66)
Period	0.0027 ⋆ (0.00)	0.0033 ⋆ (0.00)	-0.0028 ⋆ (0.003)	0.0045 ⋆ (0.001)	0.0025 ⋆ (0.00)
T. Effect	-0.0035 ⋆ (0.00)	-0.0042 ⋆ (0.00)	0.003⋆ (0.007)	-0.0078 ⋆ (0.002)	-0.028 ⋆ (0.00)
Constant	-4.499 ⋆ (0.878)	-5.613 ⋆ (0.084)	6.66 ⋆ (6.25)	-8.17 ⋆ (2.67)	-4.07 ⋆ (0.93)

Robust standard errors in parentheses : $\star$ = sig. at $P < 0.01$.
Table 4.8 : Regression outputs for Sensitivity Analysis.

Once a significant treatment effect is identified in the local host population, the logistic regression model is employed here to identify the determinant factors associated with high child mortality in the host population. Estimates are computed in the following three different contexts, i.e., refugee host community, refugee free community as well as the whole country (Ethiopia). Model adequacy check was carried out using the omnibus tests of model coefficients before analyzing the data using the logistic regression model. As the results of omnibus tests of models coefficients for all the three scenarios have significant Chi-square results at a 5% level of significance, the logistic regression model is a good fit mode in all the three contexts in this study (see table 6.1 in the appendix). All socioeconomic, demographic and maternal health characteristics, namely residence, mothers education, wealth quintile, sex of the child, birth order, previous birth interval, size of child at birth, delivery by cesarean section, and postnatal health checkups have been included in the model. Place of delivery is excluded in the analysis as the variable has high missing values. The determinant factors associated with child mortality in the refugee-free community are the same as that of the countrywide estimates. These include birth order, delivery by caesarian section, sex of the child, and preceding birth interval. The results show that the former two factors (birth order and delivery by caesarian section) have also a significant association with child mortality in the refugee host community. However, place of residence and mothers education is exceptionally found to be significant predictors of child mortality in the refugee host population, but these are insignificant both in the refugee-free community and countrywide. The results indicate that child mortality is 7 times higher for children of mothers with no education as compared to those children whose mothers have the highest educational level. In the same fashion, the odd of experiencing child mortality of children of mothers residing in urban areas is twice higher than their counterparts in rural areas. In normal circumstances, child mortality is lower in urban areas than in rural areas due to better health care access and other infrastructures. In the exceptional case where massive inflows of refugees could significantly affect health care service utilization, especially to mothers with lower educational levels who may be affected by the influx due to the rise in the price of commodities in the urban areas and incapability to compete with the refugees.

	host community	refugee free	Ethiopia
Variable	Odds ratio	Odds ratio	Odds ratio
Education	$\star\star$		
No education	7.246 (0.857)		
Primary	6.733 (0.908)		
Secondary	2.064(1.009)		
Higher			
Sex of Child		$\star\star$	$\star\star$
Male		0.485 (0.195)	2308 (51.9%)
Female			
Birth order	$\star\star$	$\star\star$	$\star\star$
1st birth	4.475 (0.39)	1.62(0.23)	
2nd - 3rd birth	1.53 (0.26)	1.96 (0.23)	
4th - 6th birth			
7th birth and above (R)			)
Previous birth interval		$\star\star$	$\star\star$
¡2 years		0.46 (0.3)	
2 years		0.69 (2.8)	
3 years		0.63 (0.3)	
4+ years(R)			
Place of Residence	$\star$		
Urban	2.32 (0.45)		
Rural (R)			

Standard errors in parentheses $\star\star$ = sig. at $P < 0.05$, $\star$ = sig. at $P < 0.1$.
Table 4.9 : Logistic regression outputs.

4.2 Discussion

The findings of this study are briefly discussed here; both their relationships to the current research questions and previous literature and related theories are presented.

This study aims to attempt to explore the impact of forcibly displaced persons on the health of the local host population in low-income countries with a focus on Somalia refugees in Ethiopia. Using data from five successive Ethiopian Demographic and Health Surveys in the period 2000-2020, the study found a piece of supportive evidence for the presumption, under inadequate assistance programs, hosting a massive number of forcibly displaced persons can cause strain in resources that have adverse health consequences in the local host population in poor counties. This was evident in this study which shows that the influx of Somalia refugees, on average, caused the deaths of more than 3 children between the 1st birthday and the 5th birthday per 1,000 live births in Ethiopia who wouldn't die if there was no influx of refugees to the host population. Using the Difference in Difference model, the study reveals that the influx of refugees caused significant adverse health consequences in Ethiopia. This finding is born by several studies done in low-income countries such as Baez, (2011a), . However, this finding is inconsistent with Schneiderheinze and Lcke (2020) and Azevedo et al. (2016)).

This negative effect of the intervention varies by socioeconomic inequalities of mothers in the host community. It is observed that the negative effect is higher for children of mothers with lower socioeconomic status as compared to children of mothers with higher socioeconomic status in the host community. Specifically, mothers with lower socioeconomic status are found to be associated with poor child health outcomes in the local host community. Mothers with higher educational attainment have shown no significant association with child mortality in the host community. Child mortality was 7 times higher for mothers with no education than mothers with higher educational levels in the host community. This result is consistent with the findings on the association between maternal education and childhood mortality in other developing countries such as Terye (2020), Seid, (2012).

Moreover, the effect of the influx of refugees on the health of the local host population is found to be highly influenced by their place of residence. The treatment effect is higher for children of mothers residing in rural areas than their counterparts in rural areas in the host population. Moreover, the logistic regression analysis indicates that children of mothers residing in urban areas experienced twice higher child mortality than their counterparts in rural areas in the host population in the past 20 years. While improved mothers health and child survival are expected in urban areas than rural areas due to better infrastructures and health facilities, the findings of this study show that children of mothers in urban areas experience higher child mortality as compared to their counterparts in a rural area in the refugee receiving community. This is because mothers with no education living in urban incapability to compete for health resources due to the influx of refugees in their locality.

Therefore, the vulnerability of mothers with lower socioeconomic status to the influx of refugees in the host population in this study sheds light on the incapability of these mothers to actively involve in protective strategies to control poor health and unhealthy behaviors and treat medical conditions, especially for preventable diseases. These mothers with lower socioeconomic status dont have adequate resources to protect their health from the strain in health resources due to the influx of refugees in the host community. As discussed in the theoretical background section above, low socioeconomic status is associated with resource deficiency such as income, power, prestige, social networks, and knowledge which can promote health under different conditions. The finding is in line with the Fundamental Cause Theory and it is also consistent with other similar findings such as Holly and Benkassmi (2003).

This study found that the influx of refugees has negative significant effects on maternal health and child survival to mothers with lower socioeconomic status in the host community. However, the result shows that the influx of refugees has no significant effects on maternal health and child survival for mothers with higher socioeconomic status. These findings suggest that illiterate women are vulnerable to the intervention. The inflow of refugees could accelerate market-based economic activities in the host community which could result in a rise in commodity prices in the host community. As a result, mothers with lower socioeconomic status may fare less favorably and hence couldn't compete with refugees with higher capitals. However, those mothers with high socioeconomic status who initially have access to some capital such as land, housing, and livestock, community ties, and leadership are in a better position to take advantage of the economic opportunities and they can manage the negative adverse health consequences of an influx of refugees in their locality. The findings reflect better-off mothers enter more rewarding economic activities such as new businesses and work in the humanitarian sector. The influx of refugees may help the better-off mothers to extend theirs profitably by expanding the existing businesses in urban areas in the host community. However, mothers with lower economic status residing in urban areas in the host community are negatively affected by the influx of refugees and are the worse off struggling in extreme poverty, for instance, daily workers competing with cheap refugee labor in the host community.

Besides socioeconomic characteristics, the negative effect of the influx of refugees on child survival significantly affected the utilization of maternal and health care services. Overall, lower levels of maternal health are observed in the host community as compared to elsewhere in the country. Only 15.9% of women residing in the host community delivered at health facilities while the proportion of delivery at a health facility is higher (39.5%) in the control group. The proportion of women's delivery by cesarean section was less than 1% in the host community while the recommendation from the WHO for delivery by cesarean section is 10% for developing countries. Only 2.9% of the host population received postnatal health checkups while the proportion was higher (5.5%) for the control group in the past 20 years. In the multivariate analysis using logistic regression, the lower levels of health services utilization were found to be significantly associated with

the health of mothers and the surviving children in the host population. Findings of the multivariate analysis indicate that mothers who didnt deliver by caesarian section experienced 25 times more child mortality as compared to those mothers who deliver by caesarian section in the host population.

In general, as earlier discussed, the results from the Difference in Difference and multivariate logistic regression models suggest that the effect of the influx of refugees on child survival is influenced by the use of maternal health care services. And, childhood mortality is relatively higher for children of mothers who have lower levels of health care services utilization in the host community. Therefore, the existing poor health of mothers and child survival is partly attributed to the influx of refugees in the host community. This finding is consistent with other studies such as Tatah et al. (2016), Sarkar (2020), (Baez, 2011b), Therefore, this study presents empirical evidence on the devastating negative impact of the influx of forcibly displaced persons on the health of the local host population in low-income countries with a focus on Somalia refugees in Ethiopia.

From a policy point of view, the findings of this study suggest that the responsible bodies are required to adopt pro-poor policies to reduce the sufferings of civilians who cannot minimize the adverse health consequences of the influx of refugees to the host community. Specifically, the responsible local authorities and international assistance organizations are required to safeguard the health of mothers and their children who have no education and live in the urban areas of the host community. More comprehensive and robust findings in the different segments of the country experiencing a similar influx of refugees are also required to understand the homogeneity of estimates that explains the negative impact of hosting a massive number of refugees to the civilians in the receiving community.

Conclusion

This thesis aimed to understand whether forcibly displaced persons are potential for improved health or additional health burden to receiving countries in low-income countries with a focus on Somalia refugees in Ethiopia. This study sought to add some empirical pieces of evidence to the body of knowledge on the impacts of the influx of forcibly displaced persons on the health of the host community in the context of the least developed countries where the host country has no efficient financial and administrative capability for its citizens. The study was also purposed to evaluating and quantifies the impact of receiving massive forcibly displaced persons on the health of the host community in Ethiopia to provide the most recent information to local authorities and international humanitarian organizations for their better decisions.

This study found a supportive evidence for the presumption that, under insufficient international assistance, the presence of massive forcibly displaced persons strain resources that cause adverse health consequences in the receiving country in the least developed countries. This study found that the influx of forcibly displaced persons from Somalia caused adverse health complications in Ethiopia that wouldnt be occurred if there were no massive inflows of these displaced persons to the host country. The presence of these forcibly displaced persons caused the deaths of more than 3 children between their 1st birthday and 5th birthday per 1,000 live births in Ethiopia that wouldn't die if there was no influx of these refugees to Ethiopia. The results suggest that the levels of the adverse health consequences of these forcibly displaced persons significantly differ by the socioeconomic status of women. Mothers with lower socioeconomic status were highly affected by the effect of influx of the displaced persons in the country. Specifically, illiterate women living in urban areas of the host community are found to be the vulnerable group to the presence of a large number of forcibly displaced persons in the host community. The rationale behind this is because illiterate women residing in urban areas have no potentials to minimize the changes that occurred due to the presence of massive forcibly displaced persons in the host community. This change could be due to a rise in commodity prices for daily workers in urban areas as well as landless workers in rural areas, cheap refugee labor.

Under optimal assistance programs, the health of the local host population in the poor region is supposed to have improved health outcomes due to the short-term and long-term benefits of the assistance programs. In contrast, the findings of this study reveal that native civilians in the hosting community experience poor health outcomes even lower than before the intervention. This reflects insufficient assistance from international humanitarian organizations in the host community. Therefore, the results of this thesis present empirical evidence suggesting the need to advance and mobilize international assistance at least the minimum standard level. It is also important to give equal attention to both forcibly displaced persons and the native civilians in the national refugee response plans as well as other related public strategies to ensure safeguarding both populations in the hosting

country. Future research work can be suggested based on the findings of this study. It was evident from this study that the presence of a large number of forcibly displaced persons caused adverse child health complications in the host community. However, this study didn't cover whether the observed adverse health effects also have long-lasting negative effects at their latter ages in the study area.

Contribution of this thesis

According to a recent UNHCR report (2018), developed countries host 16 % of the total global refugee population while the least developed countries host more than 33 % of this population. However, much research work is documented on the impact of forced migration on the receiving countries in developed countries' perspectives. This study, in contrast, attempts to provide some empirical evidence on the impact of forcibly displaced persons in one of the least developed country's perspective. Besides, there is a presumption that under optimal assistance from international humanitarian organizations, the presence of forcibly displaced persons in the host community is a good opportunity to improve the health of the host populations in low-income countries. The findings of this study disprove this presumption based on the empirical evidence obtained from the analysis of the impact of Somalia refugees on the health of the host community in Ethiopia using data from the Ethiopian Demographic Surveys covering 2000-2020. In reality, there is always insufficient assistance from aiding programs and the presence of a large number of forcibly displaced persons can be a burden to the health of the local host population in poor regions. This study thus can give some insights to the body knowledge on the debate whether forcibly displaced persons are a burden or a potential to the receiving countries for improved health in less developed countries.

5 Appendix

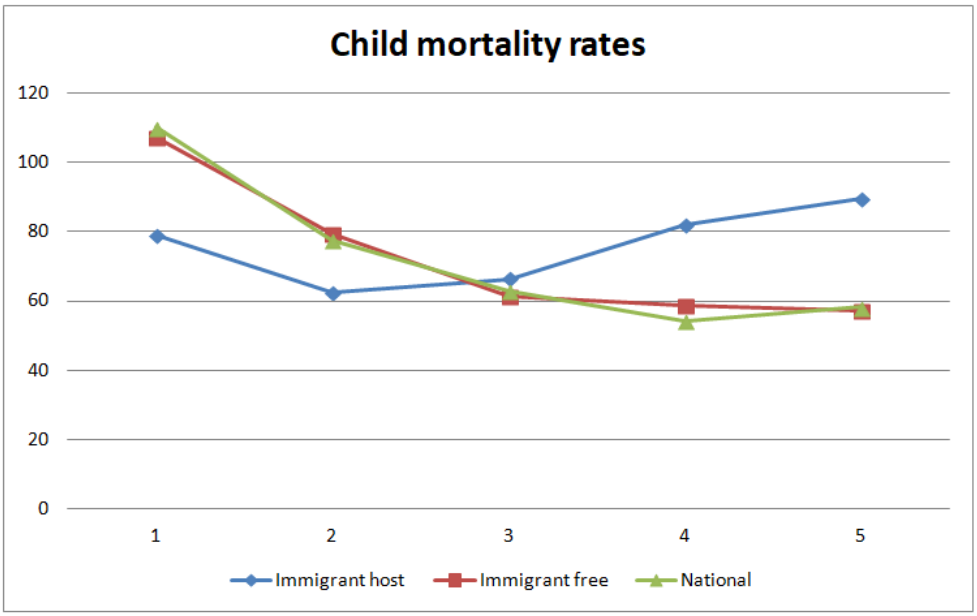

Figure 6: Trends in child mortality rates, 20002020 EDHS

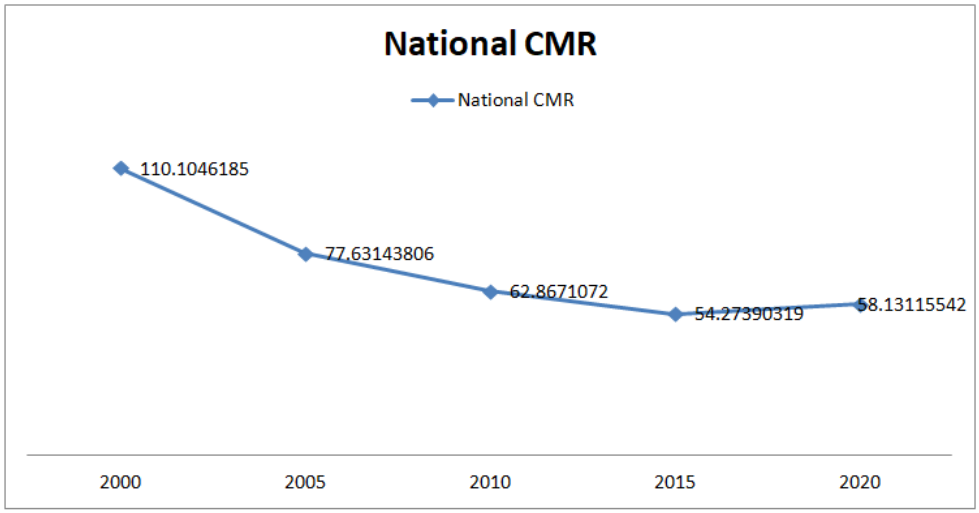

Figure 7: Trend in child mortality rate in Ethiopia, 2000-2020 EDHS

Table 6.1: Model adequacy checking

	Model 1 (Refugee host community)	Model 2 Refugee free community	Model 3 Ethiopia
Chi-square	80.7*** (21)	31.054*** 9)	55.307*** (9)

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