# The Effects of Migration and Remittances on Labour Market Performance: Evidence from MENA Region

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# Summary

This thesis uses individual level data (micro-data) to examine the impact of remittances and migration on the labour market in the Middle East and North Africa (MENA region). The first empirical contribution, we investigate the impact of remittances on child labour in Egypt before and after the Arab Spring. The main results show that the Arab Spring is statistically significant with a negative sign on child labour which is interestingly contrary to our prior expectations and females are less likely to work and less likely to attend school. In the second empirical contribution, we investigate the impacts of the Syrian refugee crisis on the Jordanian labour market. The main results find that native workers are less likely to work in the informal sector, which could be that Jordanian workers are replaced by Syrian refugees in the receiving cities. Moreover, the results suggest that the monthly wage has dropped in the receiving cities as a response to the shock after Syrian War. In third empirical contribution, we examine the impacts of the Syrian refugee crisis on attitude towards immigrants in the MENA region. The main finding are older people are less likely to be intolerant towards immigrant and female is more likely to be intolerant. Surprisingly, contrary to our expectations, the respondents who believe that the religion is important in their life are more likely to be intolerant. Moreover, Jordan is more likely to be intolerant, the intolerant increases when controlling for regional variable (refugees) which is the percentage of Syrian refugees in each city. Furthermore, Iraq is more likely to be intolerant when controlling for the percentage of Syrian refugees in each city. Finally, the results show about the regional level variables that when the inequality exists the attitude become intolerant. Moreover, when the percentage of Syrian refugees is higher in the cities, the attitude towards immigrants become intolerant.

# Declaration

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This thesis is the result of my own investigations, except where otherwise stated. Where correction services have been used, the extent and nature of the correction is clearly marked in a footnote(s). Other sources are acknowledged by footnotes giving explicit references. A bibliography is appended.

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**STATEMENT 2**

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# Dedication

To my beloved wife, *Shaden*, who has been a constant source of love, hope, and support...

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To my lovely daughter, *Ayl*, who has coloured my life...

Love you ALL

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# Chapter 1

# Introduction

Research in the field of migration is important to understand the transformations that are occurring with the current global economic and social developments. It helps to give perspective to the world and allow planning for the future. People migrate either for reasons related to work, family and studies, or for reasons beyond their control, such as disasters, persecution and conflict. These people are the groups most in need of support and assistance.

Around 71 million people were forcibly displaced around the world by the end of 2018 due to conflict and violence, the highest level in modern human history. Of those refugees 85% found shelter in developing countries. Since most people found shelter in these countries, their job opportunities were usually concentrated in the informal sector, and thus large influxes of refugees can lead to deep economic shocks in host economies. Usually, the most affected groups in conflicts are the vulnerable (women and children), whether from the displaced or the host people. Interestingly, economics has historically been given little attention when studying the effects of refugees on cleansed nations until relatively recently, with the first study of this kind dating back to Bernard (1953).

The Middle East and North Africa (MENA) region has been in international conflict for most of its modern history. European powers have competed since the early nineteenth century to colonize the lands of the MENA region to control their geostrategic position and natural resources. After nearly two centuries, the region

has found itself trapped in another round of severe crises in which major and regional powers alike are vying for regional influence. After the stability that occurred in the region, the region became an arena of violence in the aftermath of popular uprisings in the first decade of the twenty-first century (the Arab Spring) and what began as peaceful demands for freedom and democracy quickly turned into regional and civil wars in many regions. The region is one of the world's most rich natural resources, specifically oil. The Arab countries maintain 26.7% of the world's natural gas reserves and 56.5% of world oil reserves, while these countries only account for 5.5% of the world's population (Join Arab Economic Report, 2020). However, there are internal economic imbalances that the region suffers from in its overall wealth. Most of the natural energy is concentrated in the Arabian Gulf, with a small percentage in North Africa. There are major differences between non-oil countries and oil-rich countries, so the region is also home to some of the highest rates of income inequality in the world.

At the beginning of the twenty-first century, the MENA region had the highest rate of youth population in the world. Young people in the region became the focus of much research and policy discussions, especially since the economic conditions and job opportunities in the region are scarce. Youth became increasingly frustrated with their political, economic and social exclusion, and this frustration led to the outbreak of protests across the region in 2011. This worsened conditions and greatly affected the labour market and forced migrations in the region. This worsened conditions and greatly affected the labour market and forced migrations in the region, making the area the focus of attention for researchers. In the last decade, the political instability has given impetus for researchers to focus their attention in this area.

The Arab Spring in the MENA region becomes the most important topic in the world due to a number of differing aspects. First, the MENA region has two types of income level countries, namely low income (which faced turmoil, revolutions and civil war), and rich countries (Gulf countries). The Gulf region are labour importing countries and low-income countries are labour exporting. Due to the Arab Spring, remittances have significantly increased from Gulf countries to labour exporting

countries, which makes it a very interesting topic to explore. Second, the outbreak of the Syrian war in 2011 resulted in an unexpectedly large displacement of the population to neighbouring countries, providing a good opportunity to study the economic impact of migration on host countries. Specially forced displacement is a different phenomenon from economic migration. Forced displacement is a decision made quickly after an unexpected shock, and forced migrants usually carry only small savings with them, and they tend to move to destinations based on criteria of security and proximity rather than personal networks. Lastly, most of the MENA region countries share common characteristics such as language, culture, tradition, and religion, which offers a good opportunity to study the sentiment of host people towards immigrants as it might assumed they have homogeneous migrant-host relations.

The International Migration Report (2020) shows that the total number of migrants in the world reached 272 million in 2019, with three countries from the MENA region among the top 20 immigrant-receiving countries in the world (Saudi Arabia ranked third, the United Arab Emirates ranked sixth, and Jordan ranked nineteenth). On the other hand, the report showed four countries among the top 20 in immigrant-sending countries (Syria ranked fifth, Palestine ranked sixteenth, Egypt and Turkey ranked nineteenth and twentieth, respectively). Naturally, remittances are related to immigrants, and Egypt is among the top five countries in the world to receive remittances, with about 29 billion USD in 2018. Furthermore, four countries in the MENA region are among the top 10 countries sending remittances, the United Arab Emirates ranked second, Saudi Arabia ranked third, Kuwait ranked seventh, and Qatar ranked tenth. Immigrants are the majority of the population in the Gulf countries, where 88% in the United Arab Emirates are immigrants, and around 79% and 72% in Qatar and Kuwait respectively.

As for refugees, the report shows that Syria is the highest for sending refugees, with about 6.7 million refugees. While Turkey is the largest hosting country for refugees in the world (3.7 million), the vast majority of them are Syrians (3.6 million). Jordan and Lebanon, also neighbouring countries to Syria, are also among

the top 10 countries in the world hosting refugees, reflecting the large percentage of Syrians among the global refugee population. Interestingly, Iran is also among the top 10 refugee-hosting countries, with a large number of refugees from Afghanistan. Iran, though does not host Syrian refugees as most of the displaced people are Sunni Muslims, and Iran is mostly inhabited by Shia Muslims.

In this study, the impact of remittances and migration on the labour market in the MENA region is examined, and light is shed on the effect of the Arab Spring. In the first empirical chapter, the impact of remittances on child labour in Egypt before and after the Arab Spring is investigate, as large increases in remittances in Egypt and in the opposite way, the impact of the Arab Spring driven by. Moreover, the Arab Spring has displaced many people outside their country, with one of the largest displacement of immigrants being is Syria. It is important to examine the impact of the Syrian refugees in the labour market in host countries. This is further developed in the second empirical chapter which explores the effect of the Syrian refugee crisis on the Jordanian labour market. Finally, where it is important to assess the impact of the Arab Spring and immigrants on labour markets, it is also important to know the sentiment of the host people towards those immigrants. This is showed in the third empirical chapter which investigates the effects of the Syrian refugee crisis on the attitude towards immigrants in the MENA region. In what follows in this chapter, some background issues will be presented around a short history, the Arab Spring, the MENA region economic outlook, research objectives, research contribution, data and empirical methods, and the research plan.

## 1.1 Short history

After the outbreak of World War I and II and the collapse of the Ottoman Empire, a new Middle East was formed and it was divided into a group of countries. Since that time, the region has gone through many stages of wars, conflicts and upheavals, especially after the Israel occupied the state of Palestine. Many wars broke out between Arabs and Jews, and that led to the displacement of many Palestinians

from their country. In 1948, the first war took place between the Arab countries (Egypt, Jordan, Iraq, Syria, Lebanon, and Saudi Arabia) with the Israel. Further, the Suez Crisis of 1956, occurred against Egypt with Britain, France and Israel. In 1967, the Six Day War took place between Israel against Egypt, Jordan and Syria. In the following year, 1968, a war took place between Jordan and Israel called the Al-Karamah War. Then, the war of attrition continued for 3 years between Egypt and Israel, from 1967 to 1970. In 1973, the October War took place between Egypt and Syria against Israel. Furthermore, in 1982 the First Lebanon War took place with Israel, and in 2006 the Second Lebanon War. As for the Palestinian uprisings, the first intifada took place in 1987 and the second in 2000 between Palestine and Israel and the conflict of Gaza associated with Gaza war in 2008 and 2014.

However, it is not only the Arab-Israeli conflicts that occurred in the region. In 1980 the Iran-Iraq war started and lasted for 8 years until 1988. Moreover, the second Gulf-war in 1990, Kuwait was invaded by Iraq by an alliance made up of the United States, United Kingdom, France, and other countries to end the invasion of Kuwait. After that, economic sanctions were imposed on Iraq for a period of 13 years. Furthermore, in 2003 the United States and United Kingdom and other countries have invaded Iraq until 2011. Finally, the Arab Spring started in late 2010 and early 2011.

## 1.2 Arab spring

Peaceful protests erupted in some Arab countries in late 2010 and early 2011 asking for political and economic change and reform. On 17th December 2010, Mohammad Alboazizi self-immolated himself in Tunisia as a result of the worsening economic conditions and the spread of injustice and despotism by the police. In solidarity, people went out in demonstrations demanding freedom and justice. However, those demonstrations soon turned into a revolution in Tunisia and led to the overthrow of the Tunisian president, and this revolution was the beginning of the Arab Spring. Following the Tunisian revolution on 25th January 2011, the Egyptian revolution

started from the city of Suez until it spread to most Egyptian cities. On 11th February 2011, Egypt announced the resignation of President Mohammed Hosni Mubarak.

After the success of the Tunisian and the Egyptian revolutions, a new revolution erupted in Libya on 17th February 2011. This led to the killing of Libyan President Muammar Gaddafi on 20th October 2011 and the success of the Arab revolutions for the third time in a row. At the same time, the Yemeni revolution began on 11th February 2011 as a peaceful revolution demanding reform until it turned into an armed revolution that ultimately led to the Yemeni president's abdication to his deputy. The final revolution associated with this uprising started in Syria on 18th March 2011. The revolution started from the city of Daraa then spread all over the country and become a war which remains to this day. This war in Syria led to displacement of a huge number of refugees over the world and most of them fled to neighbouring countries. Protests and demonstrations erupted in other Arab countries such as Bahrain, Algeria, Djibouti, Iraq, Palestine, Jordan, Morocco, Oman, Saudi Arabia, Sudan, Kuwait, Lebanon, and Ahwaz in Iran.

## 1.3 MENA economic outlook

This study uses data for some of the MENA region countries. Those countries are Egypt, Jordan, Iraq, Iran, and Turkey. This section will give a brief overview for each country.

#### Egypt

The Arab Republic of Egypt is an Arab country located in the northeast corner of the continent of Africa and it has an Asian extension where the Sinai Peninsula is located within the continent of Asia. It is a transcontinental country with a population estimated at 104 million, making it the thirteenth most populous country in the world and the largest Arab population. The republic has long coasts on the White and Red Seas, and it shares borders with seven countries. The majority of the

population are Sunni Muslims. The gross domestic product (GDP) was 303.1 billion USD in 2019. The Egyptian economy is one of the most diversified economies in the Middle East region, as the sectors of agriculture, industry, tourism and services participate in almost close proportions in its basic formation. Worker remittances are considered one of the most important state resources in securing foreign currency, along with the Suez canal and tourism income.

**Jordan**

The Hashemite Kingdom of Jordan is an Arab country located in southwestern Asia, in the middle of the Middle East, located in the southern part of the Levant region and the northern part of the Arabian Peninsula. It has a common border with Syria from the north, Palestine from the west, Iraq from the east and is bordered to the east and south by the Kingdom of Saudi Arabia. It overlooks the Gulf of Aqaba in the southwest, where the city of Aqaba overlooks the Red Sea, and this is considered the only sea outlet for Jordan. The population in Jordan is approximately 10 million and 30% of the population are not native people (refugee and foreign workers). The majority of the population are Sunni Muslims. The GDP was 44.5 billion USD in 2019. Jordan's economy depends mainly on the services sector, trade and tourism. Remittances are considered an essential component of the Jordanian economy, reaching 20 percent of the GDP. Jordan is considered one of the poorest countries in water resources and it is among the few countries that send labour abroad and receive foreign workers as well.

**Iraq**

Iraq is an Arab country located in western Asia bordering the Arabian Gulf. It is bordered to the south by Kuwait and the Kingdom of Saudi Arabia, to the north by Turkey, to the west by Syria and Jordan, and to the east by Iran. The estimated population is about 38 million and the majority of the population are Sunni and Shia Muslims, with Shia's accounting for 60% of the population. The GDP was 234 billion USD in 2019. The Iraqi economy depends nearly entirely on the oil sector,

as 95% of Iraq's total income is from foreign currency. The first and second Gulf War, and the subsequent the blockade on Iraq, led to heavy costs incurred by Iraq which led to a deterioration in economic conditions and the collapse of the currency exchange rate.

**Iran**

Iran is a country located in western Asia. It is the third largest country in the Middle East in terms of population after Egypt and Turkey, with a total of 81 million people, as well as being the second largest country in terms of land mass after Saudi Arabia. Iran has a geopolitical location that makes it a meeting point for three Asian domains (West, Central and South Asia). It is bordered on the north by Armenia, Azerbaijan and Turkmenistan, on the east by Afghanistan and Pakistan, on the south by the Persian Gulf and the Gulf of Oman, on the west by Iraq and on the northwest by Turkey. The majority of the population are Shia Muslims. GDP was 440 billion USD in 2019. Iran ranks fourth in the world in terms of the volume of oil and gas reserves and it is the second largest oil exporter in the world. Iran's economy relies heavily on the export of oil and gas. Iran has suffered greatly from the sanctions imposed on it since 2005 due to fears over its nuclear weapons development programme.

**Turkey**

Turkey is a transcontinental country mostly located on the Anatolian Peninsula in western Asia, and a smaller part on the Balkan Peninsula in southeastern Europe. It is bordered on the northwest by Greece and Bulgaria, from the north the Black Sea, from the northeast, Georgia, to the east, Armenia, the Azerbaijani enclave of Nakhichevan and Iran, from the southeast, Iraq, and from the south, Syria and the Mediterranean Sea. Turkey has a population of approximately 83 million. Turkey is a secular country, but most of its population is Sunni Muslim. GDP was 761 billion USD in 2019. The Turkish economy depends on industry and agriculture sectors, as the agricultural sector is the largest sector in terms of employment, as

the percentage is about 40% of the total workforce in the country, but it produces only about 12% of the GDP. In comparison, the industrial sector produces about 30% of the GDP. More recently, the tourism sector has become a major factor in the prosperity of the Turkish economy.

## 1.4 Research objectives

Based on the historical developments explained above in the MENA region, where the region has struggled with conflicts, wars and fundamental transformations that started from the First World War until the Arab Spring, which is considered a turning point for major change in the region. The Arab Spring has impacted upon many sectors, the most important of which was the labour market in the MENA region. Therefore, this thesis will study the impact of the Arab Spring from several aspects. These objectives can be summarised as follows: the first objective is to investigate the Arab Spring's effect on child labour in Egypt through the channel of remittances. It is an interesting topic as the Arab Spring is hypothesized to have a negative effect and the large increase in remittances was supposed to have a positive effect on child labour and therefore an overall impact on child labour and school attendance. The second objective is to explore the impact of refugees on the labour market. The highest country from which immigrants were displaced during the Arab Spring was Syria, and the greatest numbers were displaced to neighbouring countries (Turkey, Jordan, and Lebanon). Jordan had received more than 1.5 million Syrian refugees, which is around 15% of the population and thus these focal changes in the population warrant attention as to their impact upon the labour market. The third and the final objective is to highlight to what extent the Arab Spring and the forced displacement affect natives' sentiments in hosting countries towards refugees; this objective is highly important as it embodies and contributes to policy makers and their decisions for further actions that are relevant to their people's immigrant sentiments.

## 1.5 Research contribution

The thesis will add to the existing literature in different fields; the first contribution has a unique case (political shocks) and at the same time there is no study in the literature that has the same shock. Moreover, most of the studies that focus on the impact of remittances on child labour have focused on Latin American countries. Studies in the MENA region been scarce, and to the best of our knowledge none of the extant literature has explicitly investigated the effect of Arab Spring on child labour in the MENA region. The second contribution is that the current thesis is the first to study the impact of Syrian refugees on native workers in Jordan, especially in relation to the informal sector, as the influx of refugees into Jordan over the past two decades has become an important issue in Jordan and has attracted the interest of many researchers and decision makers. This influx has created great concern among native workers about the pressure on the current labour market, which in turn leads to the possibility of reducing wages, increasing working hours and expanding informal work. In this respect, it is essential to assess the effect of refugees on the informal sector, wages and working hours to assist policy makers in designing policies regarding the treatment of refugees. Finally, this thesis has a third contribution which is the first study that explores natives' attitudes toward Syrian immigrants, sharing as they do language, religion, customs and traditions with most countries. This is on contrast to the existing literature which has studied the attitudes of natives towards minorities from different races or other religions.

## 1.6 Data and empirical methods

The thesis uses three different datasets. The first empirical study employs the data obtained from The Egypt Labour Market Panel Surveys (ELMPS) which were conducted by the Economic Research Forum (ERF) in cooperation with Egypt's Central Agency for Public Mobilization and Statistics (CAPMAS) since 1998. This panel data is uses the 2006 and 2012 rounds to compare the results before and after January 25th revolution of 2011 in Egypt. The second empirical study employs data obtained from The Jordan Labour Market Panel Surveys (JLMPS), which were con-

ducted by the Economic Research Forum (ERF) in cooperation with the Jordanian Department of Statistics (DoS) in 2010 and 2016. The panel data is used for analysis to compare the results before and after the eruption of the Syrian War in 2011. The first and second studies employ the Difference-in-Difference (DiD) estimation with instrument variable for the first study and propensity score matching for the second study.

The third empirical chapter employs data obtained from The World Values Survey (WVS) based in Vienna, Austria and although the WVS currently has 7 waves, waves 5 and 7 are only used as our question of interest only exists in those rounds. This third empirical study employs Multi-Level Ordered Probit Model. The model will employ 3 levels: level one is the individuals data; level two is regional (city) level(inequality percentage and the percentage of Syrian refugees in each city); and level three is the country level (GDP per capita and the percentage of Shia in each country).

## 1.7 Research plan

The three main essays in this thesis focus on the impact of remittances and migration on the labour market, each seeking to develop the existing body of empirical evidence using a range of different econometric techniques to investigate a number of under-explored issues. However, each chapter is structured in a similar way: providing motivation, highlighting the most important elements of the literature, developing a methodology, and presenting the main results. Formally, the layout of the thesis can be described as follows:

*Chapter Two* represents the first empirical contribution by exploring the impact of the Arab Spring as a political shock on child labour in Egypt through the channel of remittances. The main results show that the Arab Spring had a statistically significant with a negative impact on child labour, which is interestingly contrary to our prior expectations and females were less likely to work and less likely to attend

school.

*Chapter Three* represents the second empirical contribution, investigating the impacts of the Syrian refugee crisis on the Jordanian labour market. The main results show that the informal sector in the receiving cities has decreased, which means that native workers are less likely to work in the informal sector. One of the explanations could be that Jordanian workers are replaced by Syrian refugees in the receiving cities. Secondly, the results suggest that while the monthly wage has dropped in the receiving cities as a response to the shock after Syrian War, these changes are not statistically significant.

*Chapter Four*, which represents the third empirical contribution, examines the impact of the Syrian refugee crisis on attitudes towards immigrants in the MENA region. The main findings are that older people were less likely to be intolerant towards immigrants and females were more likely to be intolerant. Surprisingly, contrary to our expectations, the respondents who believed that religion was important in their lives were more likely to be intolerant. Moreover, Jordan was more likely to be intolerant, and this intolerance increased when controlling for the percentage of Syrian refugees in each city. Furthermore, Iraq was more likely to be intolerant when controlling for the percentage of Syrian refugees in each city. Finally, the results show that attitude became intolerant when the degree of regional inequality increased. Moreover, when the percentage of Syrian refugees was higher in cities, attitude towards immigrants became more intolerant.

*Chapter Five* highlights the main research findings emanating from this thesis and provides policy implications and recommendations. This chapter also discusses limitations of the analysis and identifies some suggestions for future research.

# Chapter 2

# Arab Spring, remittances and children: Evidence from Egypt

## 2.1 Introduction

The significant growth in the flow of workers' remittances, in the recent decades, has generated great interest for many economists. The movement of people between countries creates more opportunities for migrants to enhance and improve their standards of living not only for them but also for the families left behind in their countries of origin. This phenomenon opens the gate for many questions concerning the behaviour of those migrants to remit a fraction of their income to their families and the consequences of their transfers to the countries of origin. In recent years, many economists and policymakers have turned their attention to the linkage between the monetary flows that migrants transfer 'remittances' and various economic and financial variables. They argue that remittances may serve as a development tool by increasing the level of income and reducing the poverty rates in developing countries, see Adams Jr and Page (2005). Officially recorded remittance statistics received by developing countries indicate that these flows were around USD 529 billion in 2018 (WorldBank, 2018). However, the actual remittance transfers are much larger than this amount, as most of remittances are transferred through unofficial channels. Remittances are now considered as the second largest source of external finance, after the foreign direct investment, in the developing world. Given the growing prominence of remittances to developing countries, it is necessary to examine

the behaviour and effects of these flows in the economy.(Alassaf et al., 2016)

Although there has been much progress in examining the behaviour of remittance flows as well as their macroeconomic effects on the economies of the developing countries, limited empirical studies have investigated the impact of these flows on child labour and school attendance. Some economists are of the view that remittances play a significant role in affecting many macroeconomic variables such as inflation, income level, consumption, and other macroeconomic variables in the home country. Others argue that microeconomic effects of remittances are the most important consequences that affect the standard of living for an economy. The key question is whether workers' remittances play an important role in influencing labour market performance, rather than affecting only the macroeconomic variables. Therefore, determining the most important labour market variables that influence these flows is crucial in identifying the appropriate implications and trigger economic policies.

Remittances for foreign workers are one of the most important sources of external financial flows to the Arab countries, which sometimes exceed official credit flows and investment flows. Egypt is one of the top 10 countries in the world receiving remittances, with remittances amount 20.4 $ billion in 2015 (WorldBank, 2018).

Most of the studies that focus on the impact of remittances on child labour have focused on Latin American countries. Studies in the MENA region have been very scarce, and none of the extant literature has explicitly investigated the effect of Arab Spring on child labour in the MENA region. Therefore, the impact of these remittances will be examined on the children participating in Egypt before and after Arab Spring. This is the first study to empirically examine the remittances on children after the Arab Spring.

In addition to the preceding introduction, this chapter is structured as follows: section 2.2 reviews the relevant literature; section 2.3 describes the methodology section; the data set is explained in section 2.4; section 2.5 presents the empirical results and section2.6 concludes.

## 2.2 Literature review

In this section, we will refer to previous studies on the determinants of remittances in micro and macro-economic levels, which microeconomic level takes into account personal motivations and macroeconomic levels referring to the overall macroeconomic environment. Then, the previous studies on remittances and children will be discussed. After that, this section will provide a review of the literature related to children and economic shocks. Finally, remittances and economic shocks will be discussed.

### 2.2.1 Microeconomic determinants of remittances

One of the important and first models at the microeconomic level for analysing remittances of migrant workers behaviour was Lucas and Stark (1985) using data from a household survey of migration in Botswana. The main idea of this study was to explore either egoism or altruism which are the most common motivations for remittances. Egoism means that migrants spend money for their own good rather than send it to their family. This is also called self-interest. Altruism is the opposite side of egoism which means that migrants need the welfare for their family and others. This suggests that egoism reduces remittances and altruism increase remittances. The authors argue that remittance flows could be affected by altruism partially. They assume, based on either pure self-interest or pure altruism, that the decision to remit from the migrant will be ranging. Based on this framework, if remittances are motivated by altruism, then the effects are negative on household income level, and if these remittances are motivated by self-interest, then the effects will be positive on household income level. In addition, the results find that sons will remit more to the wealthier household to protect inheritance.

Ilahi and Jafarey (1999) examine the assumption that remittances are being used to repay a loan used by the migrant to cover their migration cost (Visa, job search, transport and education). This study used data obtained from a survey of

Pakistani return migrants from 1986. They used the Nelson-Olson model to jointly estimate, retained savings, remittances to the immediate family and the size of the primary loan. This is because the loan variable (one of jointly dependent variables) is censored at zero for a sizable proportion 42% of the sample and they use the Nelson-Olson technique to give a variant of a simultaneous equation model. The results find that remittances for retained savings and immediate family will decrease when the primary loan (the cost of migration) increases. Subsequently, the greater the primary loan the more migrants have to repay extended families and less is available to remit to immediate families or for savings. The results conclude that around one per cent of remittances sent to the immediate family will decrease when the value of the loan from the extended family increase by one per cent. Moreover, around 0.5 per cent will decrease in retained savings when the value of loan increases by one per cent.

Agarwal and Horowitz (2002) investigate the effect of multiple migrants on the level of remittances by examining altruistic motivations against insurance motivations using Guyanese data for 1992 and 1993. The paper is the first one that improves a model, to distinguish between insurance and altruistic motivations, in which the number of migrants sent by a household. They observe that the number of migrants who remit for insurance reasons will not affect the flow of remittances from migrants. However, if the number of migrants who remit for altruistic motivations increase, that will lead to a reduction in the average volume of remittances. They use a probit model to estimate the effect of multiple migrants on the level of remittances. Moreover, to obtain efficient and consistent estimates to correct for employ maximum likelihood estimation and selection bias, they use the Heckman (1976) procedure. The results also show, under altruism motivations, that there is a significant and negative impact on remittances when the household has other migrants, because the migrants will reduce what they remit in response to other migrants. Moreover, under altruistic motivations, the results find that there is a significant and negative effect for household per capita income as lower family income correlates with higher remittance receipts.

Naufal (2008) examines on one hand the relationship between probability of a bad income state in the household and remittances received and the relationship between the number of migrants from a household and remittances received. On the other hand, the probability of a bad income state is estimated by using two procedures: first one, whether the head of the household leave the work due to seasonal work, lack of safety at work, lack of work, liquidation of the enterprise, harassment in the work, personal duties, illness and being fired. The second one, if the head of household wants to work more than one year. The author estimates the effect of remittances received by households in Nicaragua from the migrant by using a tobit model using data from the National Living Standards Measurement Survey (LSMS).The paper covers migrant's characteristics (education, gender, age, developing or developed country, labour force status and years living abroad) and the same characteristics for families at home. The data give the number of migrants and the amount of remittances received by a household, but not which migrants remitted. Subsequently, Naufal controls for selectivity bias and excludes households with more than one migrant. The results show that remittance receipts will decrease when the numbers of migrants rise. These results are similar to those of OLS and probit models and the results are also compatible with altruistic motivations. Moreover, the results find that remittance receipts will rise when the income risk rises. This result is consistent with altruistic and insurance motivations.

Schiopu and Siegfried (2006)investigate the importance of investment versus altruistic motives. The paper uses international migration data (panel data) from OECD for 21 Western European countries and it also uses bilateral flows for 7 EU neighbouring countries. To estimate the effect the study uses unbalanced panel estimator with dummy and time dummies to calculate unobservable variation between individuals and time periods. The results show that there is a positive correlation between average remittances per migrant and the GDP differential between receiving and sending countries, indicating that altruism is important for remitting. On the other hand, the investment motive is weak because the results find that interest rate differentials are insignificant. In addition, remittances increase when migrants have more skills, while the official remittance flows will reduce when the sending

country has a larger informal economy.

Van Dalen et al. (2005) examine the impact of remittances on emigration intentions in Morocco, Turkey and Egypt. The study revolves around two main questions. The first one is about the determination of altruism remittances or the self-interest determination. The second one examines if the previous question lead to extra migration or not. Logistic regression analysis shows that while a clear answer to the first question could not be found, the results of the second question show that there will be a new flow of migrations as a result of receiving remittances.

Murata (2011) examines the effects of remittances on household expenditure inequality and education expenditure. The study uses data from the Family Income and Expenditure Survey (FIES) from 1985 to 2006 in the Philippines. Murata finds that there is displacement effects of remittances from abroad on the level of receiving domestic and international remittances. A significant effect is also found on job-related factors, welfare level, the head of household characteristics, and regional disparities which determine both the size and probability of receiving the remittances. In addition, the study finds that the receipt of remittances in the Philippines did not extend a significant effect on developing the household welfare. Finally, the receipt of remittances from overseas raised the absolute value of the budget share on education.

Garip (2014) examines the effect of remittances and internal migration flows on wealth distribution and accumulation in fifty one rural areas in Thailand. The study uses data from a Nang Rong survey for 5,449 households. Using OLS regression with instrument variables to reduce the potential sources of endogeneity to unobservable time-variance, the results show that migration lead to a reduction of the productive assets for rich households, whilst migration increased the productive assets for poor households. While the results show the assets of consumers, remittances or migration do not affect households. These results have led to an equal impact of remittances and migration on the distribution of wealth in rural areas of Thailand.

The microeconomic determinants level for remittances focus on personal motivation. The most common motivations in the literature are altruism, self-interest (egoism), and insurance motivation, see Lucas and Stark (1985), Agarwal and Horowitz (2002), Naufal (2008), and Van Dalen, Groenewold et al. (2005). Lucas and Stark (1985) and Van Dalen, Groenewold et al. (2005) argue either altruism or self-interest are the strongest determinants for remittances. They find that the results were within a range or in some cases they could not find a clear answer. Agarwal and Horowitz (2002) and Naufal (2008) studied the effect of the number of migrants in the same family on insurance against altruism motivations and use a probit model and a tobit model, respectively. Both models give the same results, there is a significant and negative impact on remittances when the household has other migrants. Also under motivation, Schiopu and Siegfried (2006) studed the importance of altruism against investment motivations. They found that altruism was very important for remittances and increased it. However, the results found no relationship between remittances and investment. Murata (2011) investigated the impact of remittances on expenditure, household expenditure inequality and education expenditure. He found there was a significant effect on welfare level, job-related factors, and the head of household characteristics. Under wealth accumulation and distribution, Garip (2014) examined these effects. The results show that migration increases productive assets for poor families and decreases productive assets for rich families. Overall, the results found an equal effect on migration and remittances on the distribution of wealth.

### 2.2.2 Macroeconomic determinants of remittances

One of the first studies to look at macroeconomic determinants of remittances is Swamy (1981). The study investigated the implications of the flows of remittances to Yugoslavia, Turkey, and Greece as a result of the macroeconomic condition in the host country. At first, the study examined the effect of the number of migrants working abroad and their income levels on the flows of remittances to Yugoslavia, Turkey, and Greece. Swamy uses remittances per capita as independent variables instead of total remittances as a second part of the study analysis. The study em-

phasises that the flows of remittances to the home country can be stimulated by the number of dependants in the home country, and the length of stay in the host country. However, there is no proof that there are significant effects based on both exchange and interest rate on remittances. The paper is one of the first studies that have investigated the role of many of macroeconomic variables, such as the total number of migrants and the level of income in the country of work, in influencing the behaviour of remittances. Moreover, the study clarified the relationships between remittances and the level of economic activity in the host country, where the periodic volatility in the economic situation showed 70-90% of the variation in remittances in the study sample. This opens the door to researchers for further research and examination of the effect of the macroeconomics index in the host country on the movement of remittances.

Elbadawi et al. (1992) also investigate the determinants of worker's remittances at a macroeconomic level, using data from six labour exporting countries in South Europe and North Africa (Portugal, Yugoslavia, Turkey, Morocco, Algeria and Tunisia), containing the same variables used in the study by Swamy (1981). Using fixed effects panel estimation techniques, a positive and significant impact on remittances from the number of migrants and the migrant's real income was found. However, there was a negative and significant effect on the level of remittances from both overall price level and exchange rate in the home country. On the other hand, contrary to Swamy's results, the results for the average length of stay in the host country show that there is a significant and negative effect on remittances.

To explain variations in remittances El-Sakka and McNabb (1999) present more proof on the role of macroeconomic variables. The results found that using the data for Egypt between the periods 1967 to 1991 and employing time series analysis, that differentials in both interest and exchange rate are significant in stimulating remittance flows. In addition, the results also show that there is high income elasticity in imports that are funded through remittances. These imports are consumer luxury and durable goods or are carried out by higher income groups. The inflation factor in the home country is determined according to El-Sakka and McNabb (1999) as

a determinant of remittances. They believe that fluctuations in the real income of dependent migrants in the home country are influenced by the rate of inflation in the country of origin. Therefore, the real income will decrease in the home country when the level of inflation increases, and hence additional remittances are stimulated to be transferred. Their empirical results show a positive impact on remittances flows from domestic inflation. In the case of Egypt, this result can also be highlighted by the altruistic motive of remitting, where migrants transfer more when the price is high in the country of origin to recover the shortage of purchasing power of their family.

Adams Jr (2009) studied the determinant of international remittances on 76 low-income and middle-income developing countries for the period from 1995 until 2001. They used data from the IMF on poverty, skill composition of migrants, and interest and exchange rates. The main aim of the paper was to investigate how the skill composition of migrants impacts the level of remittances received by countries. Adams analyses the determinants of remittances at a country level using OLS regression, and finds that the labour sending country does not have a positive impact between the levels of poverty and remittances received. The study also found that remittances per capita are not influenced by skill composition in developing countries. In addition, the results show a significant and positive impact on remittances flows from the interest rate in the country of origin.

Adams Jr and Page (2005) examine the impact of international migration and remittances on the poverty in 71 developing countries. They use data on inequality, remittances, international migration and poverty from the World Bank and IMF for the periods 1990-2000. They used cross-country data to analyse the impact of international migration and remittances on poverty by using OLS regression. The study showed that both international migration and remittances significantly decrease the depth, severity and level of poverty in developing countries.

Havolli (2015) examines the determinants of remittances and their consequences on Kosovo. The study investigates both macroeconomic and microeconomic deter-

minants on remittances. The study uses World Bank data to investigate the impact of macroeconomic variables and policies on the flow of remittances. For the effect of microeconomics determinants (labour force and household expenditure) the study uses the United Nations Development Program Remittances Survey 2010. The study uses AR (1) model for macroeconomics determinants to find the impact. The results showed that the main determinants of remittances, GDP and remittances per capita, are having a negative affect in the home country on real living standards and positive effect in the host country. The impact of GDP in the host country is increaseing, but at decreasing rate. The study uses several models to examine the effects on expenditure, according to the data it is always positive. The author uses OLS for the share of expenditure on current consumption. On the other hand, the author uses a tobit model for both the share of expenditure on durable good and education. The reason for using a tobit model for durable goods is that more than 75% of the observations are zero, and the reason for education is more than half of the observations are zero. The results show that the variable for the share of expenditure on education and current consumption is statistically insignificant. However, the results are positive for the effect of expenditure on durable goods. In addition, the results find three significant impacts when income increases: the share of expenditure on current consumption will rise when the households receive advice on spending remittances: households who get more visits (remittance sender visits) raise the share of expenditure on education and reduce the share of expenditure on current consumption. With regard to the effect of remittances on the labour supply, the results show that remittances per capita are insignificant for employed females and males, and for working age members who are active in the labour market. Policies are aimed to attract migrants to remit more, however the results suggest these are not effective.

Singh et al. (2010) use data from the IMF and World Bank for 36 countries in Sub-Saharan Africa to examine the determinants and macroeconomic effecst of remittances between 1990-2008. To deal with how income and growth affect remittances and how that leads to remittances being correlated with error terms, the study uses fixed-effect two-stage least-square. The results show that the most im-

portant determinants of remittances are diaspora size and location, with remittances increasing when they have a large number of migrants. Moreover, remittances will increase when migrants are in wealthier countries. In addition, the results show that the relationship between growth and remittances is negative; however, countries with well-functioning local institutions appear to be better at opening up remittances in order to participate in quick economic growth.

The macroeconomic determinants level for remittances focus on the number of migrants working abroad, their income level, exchange and interest rate, length of stay, price level in home country, and poverty level. Swamy (1981), Elbadawi, de Rezende Rocha et al. (1992), and Singh, Haacker et al. (2010) find that the number of migrants working abroad and their income can stimulate and increase the flow of remittances. With exchanges and interest rates, the results are not the same, and Swamy (1981) did not find evidence to support this in the results. Elbadawi, de Rezende Rocha et al. (1992) found a negative effect from interest and exchange rates on remittances. El-Sakka and McNabb (1999), and Adams (2009) found positive effects on remittances. The literature found that the length of stay for migrants in host countries can have a positive effect on remittances, see Swamy (1981) or can have a negative effect on remittances, see Elbadawi, de Rezende Rocha et al. (1992). According to price level in home country, Elbadawi, de Rezende Rocha et al. (1992) found negative effects on the level of remittances. However, El-Sakka and McNabb (1999) found that the effect is positive on the flow of remittances. Finally, Adams (2009) found that home country does not have a positive effect between the level of poverty and remittances received. While Adams and Page (2005) found that remittances and international migration significantly decrease the depth, severity, and the level of poverty in home countries.

### 2.2.3 Remittances and economic shocks

Bettin et al. (2015) investigate how macroeconomic conditions, structural characteristics, and negative shocks in recipient countries affect remittances using panel data on bilateral outward remittances to 79 developing countries from 103 Ital-

ian provinces during the period 2005-2011. To examine the impact of financial development and business cycle fluctuation on remittances the study uses Poisson regression estimate. The results show that there is a negative relationship between the business cycle and remittances in recipient countries particularly with negative exogenous shocks, such as a drops in large terms of trade. In addition, the results found that the relationship between financial development and remittances in the recipient country are negatively correlated, which means that remittances help to mitigate credit constrains.

Combes et al. (2014) investigated the impact of remittances and foreign aid in 93 developing countries with food price shocks on the volatility and the level of household consumption per capita. Using World Development Indicators data, the study estimates the impact using the two-step system-GMM, controling for the endogeneity. The results show four main findings. Firstly, the most vulnerable countries to food price shocks are the Sub-Saharan African and low income countries. Secondly, aid and remittances inflows discourage the impact of food price instability and positive food price shock on household consumption in vulnerable countries. Thirdly, there is a significant relationship between household consumption and negative food price shock episodes in vulnerable countries. At last, in order to absorb the impact of food price shocks, the ratio of remittances to GDP should be reduced.

Mohapatra et al. (2012) investigate the relationship between remittances and natural disasters at a micro- and macroeconomic level. At a macroeconomic level the study uses cross-country data from the World Bank and International Emergency Disasters Database (EM-DAT) for 129 developing countries. Using cross-country (Panel) fixed effects regression, the results find that when natural disasters occur, there is an increase in remittances especially when the countries have a large number of migrants outside. At a microeconomic level the study uses household survey data for Ghana (2005), Ethiopia (2004), Burkina Faso (2003) and Bangladesh (1988-1999). Ghana and Burkina Faso suffered from droughts, Bangladesh suffered from devastating floods, and Ethiopia suffered from food security due to floods and recurrent droughts. Using propensity score matching techniques the results show

that in Bangladesh households receiving remittances had higher per capitin a consumption than other countries during floods in 1998. In Ethiopia, the results show that households receiving remittances rely less on selling livestock or household assets and more on cash reserves to cope with drought. In Burkina Faso and Ghana, households receiving remittances show that they are more prepared to cope with natural disasters through access to concrete, not mud, housing, especially in families receiving remittances from high-income developed countries.

Clarke and Wallsten (2003) examined the effect of hurricane Gilbert in Jamaica on the relationship between remittances and income shocks by using data from the Jamaica Survey of Living Conditions (JSLC). The results, using cross-sectional regressions, suggest that remittances increased during Hurricane Gilbert in households which suffered the greatest damage than households that suffered less damage. However, the effect is not big, the remittances increased by 25 percent for every one dollar of damage.

Yang and Choi (2007) investigate the effect of rainfall shocks on remittances in the Philippines using data from the Philippine National Statistics Office. Yang and Choi use OLS regression and instrument rainfall shock as an instrumental variable to estimate the impact. The results show that there is an inverse relationship between changes in income and remittances, compatible with an insurance motivation. Around a 60 percent decrease in the income of households are replaced by remittances from abroad. In addition, the consumption of households which have migrants send remittances and do not change during rainfall shocks, whereas the change in consumption in households which did not have migrants strongly respond to rainfall shocks.

Combes and Ebeke (2011) use UN agencies data and Emergency Events Database (EM-DAT) to examine the effect of remittances in 87 developing countries on household consumption instability. The study uses OLS and GMM regression to estimate the impact and utilise GMM to control for the explanatory variables of the remittances such as endogeneity. The results suggest four main outcomes; firstly,

remittances have significant affect on decreasing the consumption of household instability. Secondly, remittances play an insurance role by reducing the impact of several sources of consumption instability in developing countries (discretionary fiscal policy, exchange rate instability, systemic financial and banking crises, agricultural shocks, and natural disasters). Thirdly, remittances are stronger in a stabilizing role in less financially developed countries. Finally, when remittances exceed 6% of GDP the overall stabilizing effect of remittances are reduced.

Ebeke and Combes (2013) investigate whether remittances can reduce the impact of natural disasters on the fluctuation of the real output per capita growth rate in 113 developing countries. They use the system-Generalized Method of Moments (GMM) using the Emergency Events Database (EM-DAT) and Penn world table. The results show that the increase in remittances will reduce the impact of natural disasters on macroeconomic, when remittances ratio reach 8% of GDP and more of the effect of natural disasters will disappear. However, if the ratio of remittances exceeds 17% of GDP the impacts of natural disaster will appear. In addition, remittances reduce the number of killed people by natural disaster.

The literatures in this section give us a brief conclusion that previous studies mainly focused on two parts of shocks; natural disaster and financial shocks. Mohapatra, Joseph et al. (2012), Clarke and Wallsten (2003), Yang and Choi (2007) and Ebeke and Combes (2013) studied the impact of natural disaster shocks on remittances. Bettin, Presbitero et al. (2015) and Combes, Ebeke et al. (2014) studied financial shocks on remittances. While Combes and Ebeke (2011) studied the effect of both shocks on remittances and household consumption instability. Most of the literatures examine the effect of the shocks on household's consumption instability. All the results were positive which means that remittances reduce household's consumption instability during either natural or financial shocks, see Combes, Ebeke et al. (2014), Mohapatra, Joseph et al. (2012), Yang and Choi (2007) and Combes and Ebeke (2011). While Bettin, Presbitero et al. (2015) examine the financial development and business cycle fluctuation on remittances, and they find negative relationships between both business cycle and financial development on remittances.

Clarke and Wallsten (2003) investigated the effect of remittances on income during hurricane Gilbert in Jamaica. They found that remittances increased by 25 percent for every dollar during the shocks. Ebeke and Combes (2013) examined whether remittances could mitigate the effect of natural disaster at a macroeconomic level. The results show that remittances can reduce the impact of natural disasters.

### 2.2.4 Remittances and children

Elbadawy et al. (2009) used the Egypt Labour Market Panel Survey (ELMPS) 2006 to study the effect of international migration and remittances on child work and child schooling. The study used Egypt as a case study to investigate the impact. To investigate the effect on children the study used the instrument variable approach and they used it to overcome the problem of endogeneity. They use the proportion of households with migrants in the region as instrumental variables based on previous studies. The results show that the university-aged boys had a significantly positive impact on attendance. Also, the results show the same impact on attending school girls between ages 6 to 11. Moreover, the results found a moderate impact on school attendance of university-aged girls. for the results of children work, the results find that the young boy's market work has a significant negative impact from migration and remittances. On the other hand, the results find that remittances reduce home-based work that takes a long time to complete.

Bayot (2007) investigated the impact of remittances on child labour in Mexico using data from the Mexican Migration Project (MMP) for the years 1982, and 1987 to 2004. To estimate the effects Bayot uses the probit model. The results found that there was no significant effect between remittances and household child labour decisions. However, to consider the correlation between the error term and remittances in the probit function Bayot (2007) usesd the Full Information Likelihood method (FIML) method. Hence, the result suggest there is a significant relationship between remittances and child work, by reducing the number of children sent to work by household.

Dimova et al. (2008) investigated child labour in the case of remittances and migration. They used a data set on the Kagera region in Tanzania from the Standards Measurement Survey (LSMS) to estimate the effects by using OLS regression and 3SLS model. They use the 3SLS model because of the possibility of a correlation between the variables due to the effect of the same exogenous shocks on them despite the assumption that stochastic terms are normally and independent distributed with the variance. The results in both models foud that remittances and migration reduce the supply of child labour. The 3SLS model found more results on child labour. It found that the supply of child labour decreases when the head of households have a higher level of education. In addition, the supply of child labour reduces in the case of non-farm businesses. Interestingly, the supply child labour increases when the durable assets have a higher value. At last, the involvement of children between 10-15 leads to increase child labour supply.

Milligan and Bohara (2007) examine the impact of remittances on child education and child labour in Nepal. They use the data set from the Nepal Living Standards Survey (NLSS) in (2003-2004) to estimate the effect of remittances on children by using Heckman's two-stage technique. Because of the desire to study not only if the child is working, but how long it takes the child to work; they also want to study the performance and quality of the student and whether or not the student goes to school. The results show that the income from remittances increases the child welfare in Nepal. However, the effect of other sources of income affects the welfare of child more than remittances source.

Nguyen and Purnamasari (2011) investigate the effect of remittances and migration on labour supply and child outcomes in Indonesia and in particularly the effect of female migrants. The study uses the data set from the Indonesia Family Life Survey (IFLS) to estimate the impact by using the instrumental variable method, by using the proportion of households with migrants in the village as an instrumental variable. The results found that there was a disparity on the effect by the gender of the migrants. Remittances and migration decrease the labour supply if the families have male migrants. Although the same finding was not found with families who

have female migrants. In addition, results found that migration raises the leisure time for the child that has female migrants in their families. Joseph and Plaza (2010) examine the effect of domestic and international remittances in Ghana on child labour. The authors estimate the effect by using the data set from the Ghana Living Standard Measurement Survey (GLSS). They investigate whether domestic remittances affect are different from international remittances household affects and non-receive remittances effect on the child labour by using the instrumental variable to find the effect (religious and network variables). The researchers also measure the impact of remittances on the number of children working hours per year. The results show that the international remittances absolutely decrease the probability of the child labour by 6%. Otherwise, the domestic remittances do not affect the decision of child labour. Concerning to the results of working hours for children, the study finds that international remittances reduce the number of working hours for children for households who receive international remittances compared with the results for households who do not receive international remittances. On the other hand, households who receive domestic remittances work more hours.

Bouoiyour et al. (2016) examine the effect of remittances on children in rural areas in southern Morocco. Using the Moroccan Migration Project data the study uses a probit model to investigate if children who live in households that have migrants are more likely to attend school with other types of households. The results show that the relationship between remittances and school attendance are positive, especially for boys. These findings are important for developing countries and for policy makers concerned. The results indicate that remittances may serve as a channel for investment in human capital to those beneficiary countries, and there is gender inequality in access to education in rural areas and gains are much higher for boys.

Binci and Giannelli (2016) investigate the effect of remittances on child schooling and child labour in Vietnam for both internal and international migration. The paper uses the Vietnam Living Standards Surveys (VLSS) panel data. Using two-sided censored and binomial logit regression, the results suggest that remittances decrease child labour and raise child schooling. In addition, the results find that the

effect of international remittances are stronger than domestic remittances. However, the fixed-effect models show that only domestic remittances have a significant effect.

Acosta (2011) study the impact of remittances from international migration on child labour and school attendance in El Salvador using cross-sectional data from the 'Encuesta de Hogares de Propositos Multiples' (EHPM) that is nationally representative household survey. Using a probit model the results show three main outputs; firstly, there is no overall effect between remittances and school attendance. Secondly, the households that receive remittances have a strong decrease in the wage of children labour. Finally, the unpaid family work will increase for children in remittances receipt households. Furthermore, the results suggest that there is dissimilarity by age and gender of the children. Remittance receipt households increase school attendance for girls by decreasing labour activities, whilst the results do not show that for boys in higher education because they spend time completing family activities more than paid jobs.

Amuedo-Dorantes and Pozo (2010) use two-stage linear probability model to examine the impact of migration and remittances on schooling attendance for children using the Latin American Migration Project survey (LAMP-DR7) in the Dominican Republic. The paper estimates the effect with two ways; first one study the case of child who did not have members currently residing in the USA, the second one expanded the sample to study childre who have members currently residing in the USA. The results show for the first case that remittances increase girl's school attendance in receipt households, whilst younger brothesr and sisters and secondary school children have the most gain from remittances. For the second case, the results found that the impact between school attendance and migration is negative, because when they expand the sample it eliminates the impact of remittances.

Giannelli and Mangiavacchi (2010) examine the long-term impact of parental migration in schooling attendance in Albania using the Living Standard Measurement Survey (LSMS) for 2005 data. They use multiple-choice models to investigate the effect such as; Ordered Logistic Regression and Duration analysis. The results

show that there is negative effect on long-term on school attendance from parental migration, and this increases the risk to leave the school for children left behind.

All the literature in this section find that migration and remittances decrease child labour, and most of the literature found that migration and remittances increase schooling attendance except Amuedo-Dorantes and Pozo (2010) and Giannelli and Mangiavacchi (2010). Amuedo-Dorantes and Pozo (2010) found that remittances from migrants not residing in USA increases girls school attendance in receipt household. However, when they expand the sample to include migrants who residen in USA the results found that remittances decrease school attendance. Giannelli and Mangiavacchi (2010) find negative effect between schooling attendances and long-term parental migration, and the probability of leaving the school will increase. Upon unpaid family work Elbadawy and Roushdy (2009) and Nguyen and Purnamasari (2011) found that remittances decrease family work. While Acosta (2011) found that remittances increase family work in remittance receipt households. Instrumental variable (IV) and probit models are the most common models used in the statistical analyses. Elbadawy and Roushdy (2009), Nguyen and Purnamasari (2011) and Joseph and Plaza (2010) use instrumental variable to estimate the impact. While Bayot (2007), Bouoiyour, Miftah et al. (2016) and Acosta (2011) use probit models. The other studies use different model such as; OLS, 3LS, FIML and Heckman's two-stage.

### 2.2.5 Children and economic shocks

Alcaraz et al. (2012) study the impact of remittances in Mexico that come from the US on school attendance and child labour in receiver households. They use the data for 2008 and 2009 from the Mexican national occupation and employment survey. The study aimed to investigate the impact of the US crisis on remittance receivers by using the difference-in-difference approach to estimate the impact during the recession in US. The approach compares the households that received remittances before the crisis with households who never received remittances. They measure and instrument the distance to the U.S. border along the 1920 rail network for

the membership to the remittances recipient group to avert any potential selection problems. The results ouind that the passive shock on remittance receivers led to massive increases in child labour and a substantial drop of school attendance.

Beegle et al. (2006) investigate the effect of crop shocks (agriculture shock) on child labour to find the relationship between child labour and household income shocks in Tanzania. The researchers examined the extent to which temporary income shocks led to raises in child labour even when household asset reduce the impact of that shocks. The study uses the data set from Kagera Health and Development Survey (KHDS) in Tanzania. The results show that the relationship between child labour and household income shocks are significant, where borrowing and buffer stocks have been taken into account.

Duryea and Arends-Kuenning (2003) and Duryea et al. (2007) study the effect of the crisis in urban and metropolitan Brazil on the child labour, school attendance and local labour market fluctuations. They use the data from the Pesquisa Nacional Amosrta de Domicilios and Brazil's Monthly Employment Survey (PME) for 25 states with difference urban areas during 12 years to recognise the aggregate impact. They use both study probit Models to estimate the behaviour of children. The results show that temporary household income does not affect the child labour and child attendance during the crisis period.

Ebeke (2010) investigate the impact of remittances on child labour across 82 developing countries during the financial crisis. Ebeke uses various instrumental variables to find the effects by using data seta from World Bank such as; the cost to send $200 remittances to each developing country and dummy variables for dual exchange rate. The results found that remittances significantly decrease the expansion of child labour in developing countries. Regarding the relationship between child labour at home with adults emigration, the results did not find any significant relationships between them.

Bandara et al. (2015) examine the effect of income and non-income shocks on

child labour in Tanzania. They used two rounds of apanel survey from the Tanzania National Panel Survey (TZNPS). They used the linear probability model in order to examine whether crop shocks had reasonable exogenous with respect to child labour intensity and other individual and household characteristics, then, they used OLS regression to estimate the direct impact of agriculture and crop shocks. The results show that the agriculture shocks have significant effects on the children overall, particularly for boys. Also there was a significant reverse impact from crop shocks on school attendance especially with girls with more than 70% leaving the school. Moreover, the results find that the assets decrease the working hours of girls. However, the results do not find the assets have a significant impact on boys.

Guarcello et al. (2010) study the impact of credit rationing, insurance and idiosyncratic shocks on child labour and household vulnerability in Guatemala. The data set that was used to estimate the effect collected from Living Standard Measurement Survey in 2000 by using Rosenbaum and Rubin analysis. Results on the impact of shocks on child labour show that the shocks have a negative impact on a households' decision to push their children to the labour market.

Yang (2008) investigates the impact of Philippine migrants exchange shocks due to the 1997 Asian financial crisis on remittances, international migration and household investment. Yang uses the Survey on Overseas Filipinos (SOF) from National Statistics Office of the Philippines to estimate the effect by OLS regression. The results show that remittances rise by 6% when the Philippine pesos per unit increases by 10%. In addition the results suggest that positive migrant shocks reduce child labour and increase education expense and child schooling. Finally, households spend more hours in self-work and they were more likely to start investing on their own work.

Sedlacek et al. (2000) study the impact of Idiosyncratic Shocks on household income on child labour and educational attainment. They use the Pesquisa Mensal de Emprego (PME) which is Brazil's Monthly Employment Survey for six metropolitan areas from 1982 to 1999 for households who have children between 10-15 years

old. Using binomial logit model the results show that there is a significant positive relationship between repeating grades and dropping out of school with the income of the father. In addition, child will start work in domestic labour when the father becomes unemployed in domestic labour. However, there is no relationship between child work and the father becoming unemployed in the non-domestic labour. Moreover, the results found a positive relationship when the child repeats a grade and dropping out with the father becoming unemployed.

Borraz (2005) uses household surveys and the Census report for total household income from 1992 to 2002 to examine the effect of remittances on child labour and child schooling during the Tequila crisis (Mexican shock) which happened when the Mexican peso suddenly devalued during the 1990's.To avoid the endogeneity issue, Borraz ran two instrumental variables which were; historical migration rate and the geographic distance of studied household. The results showed that there was a small positive impact of remittances on children school attendance for child with mothers with low level of education and those living in small cities that have populations less than 2,500.

Usually shocks are classified on the basis of origin or scope, which is then divided into two parts; idiosyncratic and covariant. Idiosyncratic shocks affect households and individuals such as injury, illness, job loss, crop failure, loss of transfer and death. While covariant shocks affect groups of communities, household or regions such as financial crisis, flood, drought, social unrest, armed conflict and change in food price. Upon the origin basis, the shocks were divided into four parts; natural shock, economic shock, social shock and health shock. In this section Beegle, Dehejia et al. (2006), Bandara, Dehejia et al. (2015), Guarcello, Mealli et al. (2010) and Côrtes Neri, Gustafsson-Wright et al. (2000) study idiosyncratic shocks. On the other hand Alcaraz, Chiquiar et al. (2012), Duryea and Arends-Kuenning (2003), Ebeke (2010), Yang (2008) and Borraz (2005) study covariant shocks. Alcaraz, Chiquiar et al. (2012), Ebeke (2010) and Borraz (2005) study the impact of remittances on child schooling and child labour during crisis, and they use instrumental variable approach to find the effect. The results find that there is disparity in the

effect of remittances on child labour during crisis.

### 2.2.6 Where is the gap?

This study has a unique case, political shocks, and at the there is limited literature to support this shock. Moreover, most of the studies that focus on the impact of remittances on child labour have focused on Latin American countries. Studies in the MENA region have been very scarce, and none of the extant literature has explicitly investigated the effect of Arab Spring on child labour in the MENA region. Ultimately, the results of current study will have future implications for support on reducing child labour and increasing school attendance. It is hypothesised that the Arab Spring will have a negative effect, and the large increase in remittances will have a positive effect on child labour, with an overall impact on child labour and school attendance.

## 2.3 Methodology

To capture the possible effect of the Arab Spring on children through its impact on remittances, the study employs the Difference-in-Difference (DiD) estimation. The DiD strategy compares households in receipt of remittances before the Arab Spring with those who have never been recipients. With this aim, it is required to define a treatment group consisting of children aged 6 to 15 whose households that received remittances in round 2006 and a control group formed by children from households that neither received remittances in round 2006 nor in round 2012. The DiD estimator will measure the differential effect of the Arab Spring on children from households in receipt of remittances relative to children in non-recipient households. The study uses 2006 round as this is the nearest available data before the Arab Spring and the round 2012 is the data that available after the Arab Spring has started. To apply the DiD estimator all that is essentially is to capture outcomes in the treatment and control groups both before and after the Arab Spring. The simple DiD estimator compares the mean of the outcome in treatment

and control groups which is well justified on the grounds that they should not have any systematic difference in any other pre-treatment variable. Let $\mu_i t$ is the mean of the outcome in group $i$ in time $t$, where $i = 0$ if the household do not receipt remittances (control group) and $i = 1$ if the household in receipt of remittances in round one (treatment group). Define$t = 0$ as a pre-treatment period (round 2006) and $t = 1$ as post-treatment period (round 2012). Thus, a simple DiD estimator can be expressed as $(\mu 11 - \mu 01)$-$(\mu 10 - \mu 00)$. The first term is the change in outcome for the treatment group and the second term is the change in outcome for the control group. Then, to find a suitable significant instrument variable, the variable remittances has been changed from dummy variables to be a proportion of remittances of total household income.In another words, the treatment is the remittances and how it affects the child labour and school attendance through the shock that happened to the economics which is the Arab spring. The treatment group is the children who belong to the household in receipt of remittances. The control group is the children who belong to the household do not receipt remittances. the treatment group gives the effect of remittances on child schooling and child labour plus the effect of any common shock such as the Arab Spring (or a time trend) that affect both groups, children living in recipient households and non-recipient households. The control group is the children who had same shock (Arab Spring) but do not receipt remittances. A regression based estimator can be obtained by estimating the following equation:

$$Y_i t = \beta 0 + \beta 1 Remittances_i + \beta 2 ArabSpring_t + \beta 3 Remittances_i \times ArabSpring_t + \epsilon_i t \tag{2.1}$$

Where $Y_i t$ is the outcome of children; $Remittances_i$ is a proportion of remittances of total household income if the child belongs to a household that received remittances in period $I$ (treatment group) and zero if the child belongs to a household that did not received remittances in period $I$ (control group); $Arabspring_t$ is a dummy that takes value of one for period $II$ (post-treatment) and zero for period $I$ (pre-treatment) and$Remittances_i \times ArabSpring_t$ is an interaction term that takes the value one only for the treatment group in the post-treatment (Arab spring) period. The coefficient of $\beta 3$ yields the DiD estimator (OLS estimator).

The interaction term that takes the value one only for the treatment group in the post-treatment (Arab spring) period which mean the children who live in the household in receipt of remittances in the second round (which investigate the effect of remittances on children after the Arab spring). $\beta 1$ reaction in terms of child labour and school attendance to the effect of remittances on both rounds. $\beta 3$ reaction in terms of child labour and school attendance to the effect of the Arab Spring on remittances.In order to control for observable variables that could affect the outcomes of interest, this study includes child and household characteristics in the estimation. Hence, equation 2.1 can be written as follows:

$$Y_i t = \beta 0 + \beta 1 Remittances_i + \beta 2 ArabSpring_t + \beta 3 Remittances_i \times ArabSpring_t + \phi X_i + \epsilon_i t \tag{2.2}$$

Where $X_i$ is a series of control variables related to child and household characteristics. These characteristics are children age and gender, the number of household members less than 18 years old, a dummy for being in a rural area, the age of the head of the household, the household size (the number of household members), a dummy if the parents are educated, a dummy if the head of the household is married, a dummy if the head of the household is female, and households income. The outcome variables yit represents either child work or child study and how remittances and the Arab Spring affect the decision of parents to push their children to work or study after the Arab Spring. Given that outcome variables are measured as dummies, equation 2.2 corresponds to a linear probability model for these outcomes.

### 2.3.1 Linear probability model

This chapter used binary (dummy) as the independent variable: child labour and school attendance take a value of 1 or zero. In this case it is called linear probability model (LPM). It is possible to use OLS under the assumption that no correlation between regressors and the residuals (no endogeneity). Therefore, the Equation 2.2 can be written as $y_i t = x\beta + \epsilon_i t$ where$xisaN \times K$ matrix of explanatory variables, $\beta$ is a $k \times 1$ vector of parameters, and $\epsilon_i t$ is the residual term. Therefore, the conditional probability of $y = 1$ is the conditional expected value of $y$ ($Pr\ (y = 1|x) = E\ (y|x;$

$\beta$)). This outcome in a binary response model can be written in this way;

$$P(y = 1|x) = x\beta \tag{2.3a}$$

$$P(y = 0|x) = 1 - x\beta \tag{2.3b}$$

$$And, Therefore \triangle P(y = 1|x) = \beta j \triangle \chi j \tag{2.3c}$$

Which can be interpreted as a fractional impact on the likelihood of child work (attend school).

### 2.3.2 Estimation issues

For this situation, the DiD estimator is expected to be an unbiased estimate of the change in the outcomes variables of interest due to a positive shock on remittances recipients and negative shock from Arab Spring. The earlier statement can be accepted when the treatment and control groups responded to the shock similarly, except for the behaviour associated to the change in remittances status. This assumption could be valid, however, fail if remittances recipients are different from non-recipients on some unobservable variables.the chapter uses both models, as both groups are systematically different (treatment and control group) as shown in table 2.7 (t-test). Besides, one should consider that the endogenous variable 'remittance' is binary. To handle this issue, the present study follows the estimation procedure for Alcaraz et al. (2012) which can be depicted as follows. The first stage is the estimation of a probit model of the endogenous variable remittances on an instrument of the number of western union offices in every city. Then, the fitted probability (remittances.hat) is obtained and a new interaction term generated (remittances.hat.Spring). Finally, Equation 2.3 is estimated using remittances.hat as an instrument for remittances and the interaction term remittances.hat.Spring as an instrument for remittances.Spring.

### 2.3.3 Probit model

As an initial phase in the estimation procedure, a probit model of remittance variables on an instrument is estimated in order to obtain the predicted value of re-

mittances. Then, the predicted value will be used in a Two Stages Least Squares (2SLS) framework to estimate the Arab Spring impact on children's work and schooling through the number of western union offices.

## 2.4 Data

### 2.4.1 Introduction

The model employs the data obtained from the Egypt Labour Market Panel Surveys (ELMPS) which was conducted by the Economic Research Forum (ERF) in cooperation with Egypt's Central Agency for Public Mobilization and Statistics (CAPMAS) since 1998. Up to now, the survey has been conducted three times in 1998, 2006, and 2012. In this chapter, the panel data is used for analysis and only the 2006 and 2012 surveys were used to compare the results before and after the January 25th revolution of 2011 on Egypt.

The first round was conducted in 1998 and had 4,816 households including 23,997 individuals from a nationally representative sample chosen from all over Egypt from 200 primary sampling units (PSUs) of the geographical strata representing the 22 provinces. Rural areas were under-represented in the sample (60 out of 200 PSUs at a time when the urban population made up 43.2 per cent of the population), an issue that was taken into account in the creation of sampling weights. The ELMPS 1998 used a master sample prepared by Egypt's Central Agency for Public Mobilization and Statistics (CAPMAS) and over-sampled urban areas and the sample was a two-stage stratified random. The probability proportional to size (PPS) method was used when the primary sampling units (PSUs) selected the sample. The initial sample was 5,000 households, the respondents totalled 4,816, which means that the overall response rate was 96.5 % in 1998. The primary reason behind why they did not conduct the rest of the sample was the incidence of closed households. The rejection cases were very small, only 23 cases, constituting 0.48% of the final sample size. The data was collected by interviewing individuals and households face to face with a paper survey.

The second round was ELMPS 2006, the survey followed the ELMPS 1998 and obtained 3,685 households from the initial 1998 sample. As a result of splits, the survey included 2,168 households, and added 2,498 households as a refresher sample. The refresher sample was selected from a new master sample prepared by CAPMAS which was selected from an additional 100 PSUs randomly. The full survey contained 8,351 households and 37,140 individuals. The attrition was random in nature between round 1998 and round 2006, due to the loss of records containing identifying information for 1998 households (Assaad and Roushdy, 2009).

The survey of 2006 starting from December2, 2006 through to March 28, 2006, with more than 90% of households and individuals surveyed during January and February in 2006.The individual questionnaire for round 2006 has information about; Education, Employment, Earnings, Parents' characteristics, Job characteristics, Job mobility, Unemployment, Female employment, Secondary Jobs, Characteristics of the first job, Geographic mobility, Fertility, Siblings' characteristics, Women's status and Cost of marriage.

The full survey of 2012 was conducted from March 1, 2012 to June 10, 2012, with more than 90% of individuals and households surveyed during March and April. The 2012 round of the survey provides a unique opportunity to ascertain the impact of the momentous events accompanying the January 25th revolution of 2011 on the Egyptian economy and labour market and on the lives of Egyptian workers and their families. 2012 around has the same information that mentioned in round 2006 and has additional information about; Savings and borrowing, Return migration, Health, Information technology and Life events calendar.

Round 2006 included 8,351 households with an average of 5.8 members per household, where the survey included 37,140 individuals in round 2006. While in round 2012 the number of households who answered the survey included 12,060 households with an average of five members per household. The survey also contained 49,186 individuals in round 2012 (see table 2.1).We have 6,752 households and 28,770 in-

Table 2.1: Main statistic for round 2006 and 2012 for overall sample

| | 2006 | 2012 |
|---|---|---|
| Household # | 8351 | 12060 |
| Idividual # | 37140 | 49186 |
| Male (%) | 50 | 50 |
| Female (%) | 50 | 50 |
| HH size | 5.8 | 5 |

dividuals that successfully re-interviewed from 2006. In the meantime, the reasons for the 1,599 household that did not re-interview again in 2012 are mentioned as follows (Assaad and Krafft 2013); 17 refused to respond, 144 died, 43 left the entire country and 1,395 could not be located. The attrition rate at this stage is around 17% at the household level.

### 2.4.2 An overview for our sample

This chapter studies those 28,770 individuals that were successfully re-interviewed in 2012 of which 49.7% of them are male and 50.3% are female. For urban and rural areas, the sample had 52.5%individuals that lived in rural areas in round 2006 and 52.3% in 2012 which was nearly the same in both rounds. For the gender that lived in rural areas, there were 7,851 females that lived in rural areas which was 52.4%. While 7,522 males lived in rural areas which was 52.6% in 2006. As well, we have females and males that lived in rural areas totalling 7,559 and 7,500 respectively in 2012 (see table2.2).

2.2 also shows the average age of the entire sample, in 2006 it was 25.5 years and 31.8 years in 2012. The average age in 2012 was higher than what it was in 2006 by six years; because of the differences between two rounds is six years for the same sample. The average age in rural area was 24 years in 2006, while the average in 2012 was 30.4 years. In contrast, the average age in urban areas for 2006 and 2012 was 27.2 and 33.4 years respectively. As for the age of the children, the average of the children age in the entire sample was 10.6 years in round 2006. As for 2012, the average age of children was also about 10.0 years.

Table 2.2: Main statistic for the individual who did both round 2006+2012 (28,770 individual):

| | 2006 | 2012 |
|---|---|---|
| Male (%) | 49.7 | 49.7 |
| Female (%) | 50.3 | 50.3 |
| Urban (%) | 47.5 | 47.7 |
| Rural (%) | 52.5 | 52.3 |
| Age (Average) | 25.5 | 31.8 |
| Cildren age (Average) | 10.6 | 10 |
| HH size (Average) | 5.7 | 5 |
| HH size in rural area (Average) | 6.5 | 5.4 |
| HH size has members under 18 years (Average) | 2.3 | 1.7 |

Split by gender, the average age for females was 26.1 years in 2006 and 32.4 years in 2012. The average age for females living in rural areas was 24.6 years and 27.8 years in urban areas in 2006, while the averages in 2012 for rural and urban areas was 31 and 33.9 years respectively. On the other hand, the average age for males was 25 years in 2006 and 31.2 years in 2012. The average age for males that live in rural areas was 23.5 years and 26.6 years in urban areas in 2006, while the average in 2012 for rural and urban areas was 29.7 and 32.9 years respectively. This confirms that the fertility rate in rural area was higher than urban area, and the percentage for males was more than females especially in rural areas (CAPMS Yearbook, 2016).

The average household size for the entire sample was 5.7 members in 2006 and 5 members in 2012. In the same line for urban and rural areas, the average household that lived in rural areas was 6.5 members in 2006 and 5.4 in 2012. In the meantime, the average household size that lived in urban areas in 2006 was 5 members and 4.6 members in 2012. Split by members less than 18 years, the average household size was 2.3 members in 2006 and 1.7 members in 2012. Meanwhile, the averages for rural areas was 2.7 and 1.9 members in 2006 and 2012 respectively (see table2.2).

### 2.4.3 Children sample

The entire sample had 5,698 children in round 2006, and the number of children living in rural area was 3,205. On the other hand we have 6,514 children in 2012 and 57.4% of them lived in rural area, which equates to 3,736 children. For those households who receipt remittances, there were 258 children in round 2006 with 164 of them living in rural areas. On the other hand, the entire sample had 387 children in 2012 with 286 of them living in rural areas see table2.3.

Table 2.3: Main characteristics of children aged 6 to 15

| | 2006 | 2012 |
|---|---|---|
| Children # | 5,698 | 6,514 |
| Rural area (%) | 56.2 | 57.4 |
| Receive remittances # | 258 | 387 |
| Female head (%) | 10.7 | 15.4 |
| Fathers are educated (%) | 92.6 | 94.6 |
| Mothers are educated (%) | 98.3 | 98.8 |

In round 2006 and 2012 a question was asked whether children worked or not during the past 7 days. The literature defines child work as a person who is considered to be working if in the week previous to the survey he or she participated in some type of economic activity (production of goods or services) for at least one hour, with or without pay; or if he or she has a job but worked for zero hours because of vacation or sickness period Alcaraz, Chiquiar et al. (2012). This study followed Alcaraz definitions. As shown in table 2.3, the entire sample had 446 children work in round 2006, and 262 children work in 2012, which means the percentage of children that work was 7.8% and 4% in 2006 and 2012 respectively. Meanwhile, the numbers of children who work and live in rural areas is 346 children in 2006 and 203 children in 2012. Children living in rural areas were more likely to work more than those who live in urban areas. With regard to remittances status, 26 children work and live in households in receipt of remittances in 2006, and 80.8% of those children live in rural areas. Moreover, 21 children who work and live in households in receipt of remittances in 2012, and 76.2% of those children are living in rural areas. In contrast, 325 children live in households that do not receipt remittances and live in rural areas, constituting 72.8% of the total number of children working. While

the number of children who live in household that do not receipt remittances and live in rural areas is 187, constituting 71.4% of the total number of children working.

Table 2.4: Characteristics of children work aged 6 to 15

| | 2006 | 2012 |
|---|---|---|
| Children work # | 446 | 262 |
| Rural area | 346 | 203 |
| Receive remittances | 26 | 21 |
| Female head (%) | 11.7 | 16.4 |
| Fathers are educated (%) | 87.7 | 89.9 |
| Mothers are educated (%) | 97.3 | 96.2 |
| Working hours | 22.5 | 24.5 |
| Working hours / non-recipient | 23 | 25.7 |
| Working hours / recipient | 15 | 11.5 |

Split by female head of children who work, 11.7% of children who work and the head of household was female in 2006 and 16.4% in 2012, constitutes 52 and 43 children in 2006 and 2012 respectively. This is dependent on whether or not household receive or do not receive remittances. While 2% of children work and live in recipient households and the head of household is female in 2006, and 4% in 2012.

The father and mother educational status for children who work, was defined as whether the father or mother were educated based on whether they had a primary school education or higher. The sample has 87.7% of children who work with educated fathers in 2006 and 89.9% in 2012. Meanwhile, 97.3% of children who work and their mothers are educated in 2006 and 96.2% in 2012.This is whether household receipt or not receipt remittances. In contrast, 38.5% of children work and their fathers are educated and live in recipient household in 2006, and 47.6% in 2012. While the percentage for children living in non-recipient households was 90.7% in 2006 and 93.4% in 2012. On the other hand, we had 88.5% of children work with educated mothers and live in recipient households in 2006, and all of the children who worked in 2012 had mothers who were educated. While the percentage of children lived in non-recipient household was 97.9% in 2006 and 95.9% in 2012.

To sum up working status, the percentage of children working or not, we had

7.72% who live in non-recipient household remittances who worked in 2006, while 3.93% of children who worked in 2012. The percentage has dropped to more than half after the revolution. Here we must take into account income effect and substitution effect. The revolution can increase child labour, because the company and firm want to replace the children instead of adults to reduce the cost, because they are cheaper, that is substitution effect. In contrast, we have income effect, which means that there is no job opportunities for both adults and children (the demand on labour is low at all).

On the other hand, the percentage for the children who were working that live in recipient households is higher than children who live in non-recipient households. The percentage in 2006 was 10.08% and 5.43 in 2012. We have the same case that the percentage has dropped to half, and it could be the same reason behind the income and substitution effect.

In addition, a question is asked about the number of working hours per week. The mean of the number of hours that children work per week was 22.5 hours in 2006. That is for children living in households either receiving remittances or not. While the results for each category was different. The mean for the number of working hours per week for children who live in households who do not receipt remittances was 23.0 hours. In contrast, the mean for the number of working hours per week for children who live in households in receipt of remittances was 15.0 hours. This confirms what is stated in the literature that children living in recipient household are less likely to work. Meanwhile, the average hours for children who live in households in receipt of remittances and living in rural areas was 15.9 hours per week. While the average hours for children who live in households who do not receipt remittances and live in rural area was 19.5 hours per week in 2006.

On the other hand, in round 2012 the mean number of hours that children work per week was 24.5 hours. That is for children who live in households that either receive remittances or not. While the results for each category was different too. The mean for the number of working hours per week for children who live in households

do not receipt remittances was 25.7 hours. In the meantime, the average hours for children who live in households that do not receipt remittances and live in rural areas was 23.8 hours per week in 2012. We can notice here that the number of working hours after the revolution has increased by 1.68 hours per week for children either living in recipient or non-recipient households and live in rural or urban areas, while the number of working hours has increased by 4.3 hours per week for children living in rural areas and living in non-recipient households, which means that the revolution perhaps plays a big role in affecting children working especially for those who live in non-recipient households.

In contrast, the mean number of working hours per week for children who live in households in receipt of remittances was 11.5 hours. In addition, the average hours for children who live in households in receipt of remittances and living in rural areas was 12.9 hours per week. Hence, these numbers can confirm that the large increase in remittances has significantly affected the number of hours worked by children who live in recipient households.

With regards the study status of children, a question was asked whether children attend school or not. Table 2.5 shows that 92.8% of children going to school in round 2006, included 5,285 children, of which 240 of them were living in households in receipt of remittances. While 6,109 children in round 2012 attended school, and 369 of them were living in households receiving remittances. Split by rural and urban areas, the entire sample has 2,916 children in 2006 attending school that live in rural areas, constituting 55.2% of children, while 149 children who live in recipient households live in rural areas. Meanwhile, the sample has 3,463 children in 2012 that attend school living in rural areas, constituting 56.7% of children, while 269 children living in recipient household living in rural areas.

With regards the female head of children going to school, 10.7% of children who attended school and the had a head of household that was female in 2006 and 15.3% in 2012, constituting 563 and 937 children in 2006 and 2012 respectively. This was irregardless of whether households receive or do not receive remittances. While we

Table 2.5: Characteristics of children attend school aged 6 to 15

| | 2006 | 2012 |
|---|---|---|
| Going to school # | 5,285 | 6,109 |
| Rural area # | 2,916 | 3,463 |
| Receive remittances # | 240 | 369 |
| Female head (%) | 10.7 | 15.3 |
| Fathers are educated (%) | 93.3 | 94.7 |
| Mothers are educated (%) | 98.6 | 99 |
| Studing daily hours | 6.1 | 5.8 |

had 56.2% of children attend school and live in recipient households and the head of household was female in 2006, and 68% in 2012. We can notice here that the female head was high in recieving households, because of fathers living and working abroad.

Upon father and mother education for children who attend school, we define whether the father or mother are educated if they had a primary or higher school. We have 93.3% of children attending school with educated fathers in 2006 and 94.7% in 2012. Meanwhile, the entire sample had 98.6% of children attend school with educated mothers in 2006 and 99% in 2012. This was whether household receive or do not receive remittances. In contrast, we had 67.9% of children attend school and their fathers were educated and live in recipient households in 2006, and 68.2% in 2012. While the percentage for children living in non-recipient household was 94.5% in 2006 and 96.6% in 2012. On the other hand, we have 97.1% of children attend school with educated mothers and living in recipient households in 2006, and 98.9% in 2012. While the percentage of children living in non-recipient households was 98.7% in 2006 and 99.0% in 2012.

In addition, we have some information about the number of daily hours that children spend at school. The average of daily hours in round 2006 was 6.1 hours, and 5.8 hours a day in 2012. Upon remittances status, the average hours for children living in recipient households was 6.1 and 5.7 hours a day in 2006 and 2012 respectively. While the average hours for children living in non-recipient households was 6.1 and 5.8 hours a day in 2006 and 2012 respectively. On the other hand, the average hours for children living in rural areas was 6.0 and 5.7 hours in a day in 2006

and 2012 respectively. Meanwhile, the average number of daily hours for children living in recipient households and living in rural areas was 5.9 hours in 2006 and 5.6 hours in 2012. In contrast, the average number of daily hours for children living in non-recipient households and live in rural areas was 6.0 hours in 2006 and 5.7 hours in 2012.

With regards the female head of households and the numbers of hours that children spend at school, there were 6.1 daily hours in 2006 and 5.8 hours in 2012. This was for children neither living in recipient and non-recipient households nor rural or urban areas. The average hours for children that live in recipient households and their head of family were female was 6.0 hours a day in 2006 and 5.7 hours a day in 2012. While the average hours for children that live in non-recipient households and their head of family were female was 6.2 hours a day in 2006 and 5.8 hours a day in 2012. The average hours for children that live in recipient households and their head of famlily were female and live in rural areas was 5.6 hours a day in 2006 and 5.6 hours a day in 2012. Moreover, the average hours for children that live in non-recipient households and their head of family were female and live in rural areas was 6.1 and 5.8 hours a day in 2006 and 2012 respectively.

With father and mother education for the numbers of hours that children spent at school per day, the average hours when their fathers and mothers were educated was 6.1 hours in 2006 and 5.8 hours per day in 2012. Moreover, the average hours that children spent it in the school per day and their fathers and mothers were educated were the same for children living in non-recipient households whether in 2006 or 2012. Meanwhile, the average hours for children living in recipient households and their fathers and mothers were educated was 6.1 hours in 2006. While the average hours for children living in recipient households in 2012 and their fathers were educated was 5.8 hours and 5.7 hours per day for children living in recipient households with educated mothers.

With regards to the household size that have children, the for the entire sample and for the children who do not receipt remittances was 6.5 members, but the av-

erage for those who receipt remittances was 6.7 members in round 2006. While the average in round 2012 was less than the average in round 2006 by around one member. The average for the children who do not receipt remittances was 5.8 members, and the average for those who receipt remittances was 5.8 members. Furthermore, the average of household size that lived in rural areas was 7.1 and 6.2 members in 2006 and 2012 respectively. While the average of household size that lived in rural areas and receipt remittances was 7.6 and 6.2 members in 2006 and 2012 respectively. Upon the averages of household size that the head of the households were female was 5.5 members in 2006 and 5.4 members in 2012. While the average of household size that the head of the households was female and receipt remittances were 5.1 and 4.9 members in 2006 and 2012 respectively. Moreover, we have 5.6 and 5.5 members for non-recipient households.

Table 2.6: Characteristics of households that have children in 2006 and 2012

| | 2006 | 2012 |
|---|---|---|
| HH size | 6.5 | 5.8 |
| Members under 18 | 3.4 | 2.6 |
| Married head (%) | 73.7 | 80.9 |
| Female head (%) | 10.7 | 15.4 |
| HH income / Egyptian pounds | 4,432 | 14,892 |
| Non-recipient HH income / Egyptian pounds | 14,674 | 4,554 |
| Recipient HH income / Egyptian pounds | 13,696 | 7,006 |

In our sample, the majority of the households who have members under 18 were between 1-4 members per households. The average for the member under 18 in households who do not receipt remittances and have children was 3.4 members and 3.6 members who receipt remittances in round 2006. Meanwhile, the average for the member under 18 in round 2012 was less than the previous round, the average for households who do not receipt remittances and have children was 3.09 members, and 2.77 members who receipt remittances. With rural areas, the average for households that have members under 18 for the whole sample were 2.7 and 1.9 members in 2006 and 2012 respectively. On the other hand, the average for households that have members under 18 and have children were 3.7 members in 2006 and 2.8 members in 2012. In addition, the averages for recipient households that have members under 18

and have children and live in rural areas were 4 members in 2006 and 2.9 members in 2012, while the averages for non-recipient households that have members under 18 and have children and live in rural areas were 3.6 and 2.7 members in 2006 and 2012 respectively. Under female head, the average in 2006 was 1.8 members and 1.3 members in 2012 for households whether receiving remittances or not. The averages for recipient households were 3.2 and 2.5 members in 2006 and 2012 respectively, while the averages for non-recipient households were 3 and 2.6 members in 2006 and 2012 respectively.

Upon married head, in round 2006 and 2012, 73.7% and 80.9% of the sample who had children was married respectively, while the percentage for households who do not receipt remittances in round 2006 was less than round 2012 where the percentage was 74.06% and 82.57% respectively. In contrast, the percentage for households in receipt of remittances in round 2006 was more than round 2012 where the percentage was 66.27% and 54.78% respectively. With rural areas, 68.4% of the head were married in 2006 and 2012, while 70.7% of households who have children, the head were married in 2006 and 78.1% in 2012. Of the 61% of recipient households who were the head were married and had children in 2006 and 53.1% in 2012. On the other hand, 71.2% of non-recipient households who had heads that were married and had children in 2006 and 80.2% in 2012. Furthermore, the percentages if the head of household was married and the head gender is female are 30.6% and 27.8% in 2006 and 2012 respectively.

According to the female households head, 11.4% of the sample had a head of household that was female and 20.9% in round 2012, while 10.7% and 15.4% of the sample the head of household was female and had children in 2006 and 2012 respectively. Upon remittance status, the percentage in 2012 for households that do not receipt remittances and have children was 12.1%, while the percentage in round 2006 was 8.7%. However, the percentage for female head for those who receive remittances and have children in round 2012 and 2006 was 66.4% and 54.26 respectively. Of the sample, 10.8% had a head of household who was female and lived in rural areas in 2006, and 22% in round 2012. Living in rural areas and in receipt of remittances

and have children was more likely to have the head of household as female, 47.6% and 65.4% of them where the head of household was female in round 2006 and 2012 respectively. In contrast, living in rural areas and not in receipt of remittances and having children was less likely to have a female head of household, 8.5% and 13.7% of them where the head of household was female in round 2006 and 2012 respectively.

We can notice from above that the percentage in round 2012 was higher than round 2006 in all cases. Through Egypt's Central Agency for Public Mobilization and Statistics (CAPMAS), we can suggest that the increase in percentage in female head and married head especially in recipient household due to an increase of the percentage of divorce rate and an increase in the number of Egyptians living abroad. The number of divorces increased in Egypt from 65,461 in 2006 to 155,621 in 2012. The percentage increased by 137.8% from 2006 to 2012. Of Egyptians living abroad, the number has increased from around 4 million in 2006 to around 8 million persons in 2012.

As for the father's educational level, the percentage in households who do not receipt remittances was much higher than those whoreceipt remittances. The percentage for those that do not receipt remittances was 93.9% and 96.2% in 2006 and 2012 respectively. On the other hand, the percentage for those who receipt remittances was 66.3% and 54.8% in 2006 and 2012 respectively. Moreover, 93.3% of non-recipient fathers were educated and lived in rural areas in 2006, and 95.4% in 2012. However, 56.7% of recipient fathers were educated and lived in rural areas in 2006 and 64.3% in 2012. We can notice that the percentage of father's education of children living in recipient household was low, and we can explain that by the migrants who work abroad had low skills and needed money as soon as possible instead of going to study.

On the other hand, the mother's education level was higher than the father's education level specifically in the households that receipt remittances which was 96.51% in 2006 and 98.71% in 2012 compared with 65.12% and 68.99% for father's education level in 2006 and 2012 respectively. While the percentage for the house-

holds who do not receipt remittances in 2006 and 2012 were 98.35% and98.81% respectively. In addition, the percentage in rural areas was very close. The percentages for mother's education for non-recipient households was 97.8% and 98.6% in 2006 and 2012 respectively, while the percentage for recipient households was 95.1% and 98.6% in 2006 and 2012 respectively.

Household income has dramatically increased in 2012 with household income 17,650 Egyptian pounds on average compared with 4,877 in 2006. The average for people who do not receipt remittances was 15,601 and 3,670 Egyptian pounds for those who receipt remittances, while the households income in 2006 on average was 4,877 Egyptian pounds, and for those who do not receipt and receipt remittances were 4,554 and 7,006 respectively. In line with income, the exchange rate at the end of 2006 was 5.7 EGP, while the exchange rate against the US dollar at the end of 2012 was 6.2 EGP (World Bank, 2018). The exchange rate has increased by 8.7%, while the income has increased by262% on average from 2006 to 2012.

### 2.4.4 Remittances background

In this section, the statistics relate to remittances, whether from the ELMPS survey or through the official channels such as World Bank. In the entire sample there was 1,163 respondents living in households receiving remittances in round 2006, constituting 4%. While 1,324 respondents were living in households receiving remittances in 2012, constituting 4.6%. Meanwhile, 799 respondents were living in rural areas and living in recipient households in 2006, constituting 68.7%, while 912 respondents in 2012 lived in rural areas, constituting 68.9%.

At the same time, the number of the individuals living in recipient households with a female head was 507 in 2006 and 729 in 2012, constituting 43.% and 55.1% respectively. Furthermore, the number of the individuals living in recipient households and their fathers were educated was 638 and 607, constituting 54.9% and 45.9% in 2006 and 2012 respectively. In this manner, the number of the individuals living in recipient households and their mothers were educated was 734 and 729, constituting

Figure 2.1: The distribution of remittances receipt by household in 2006

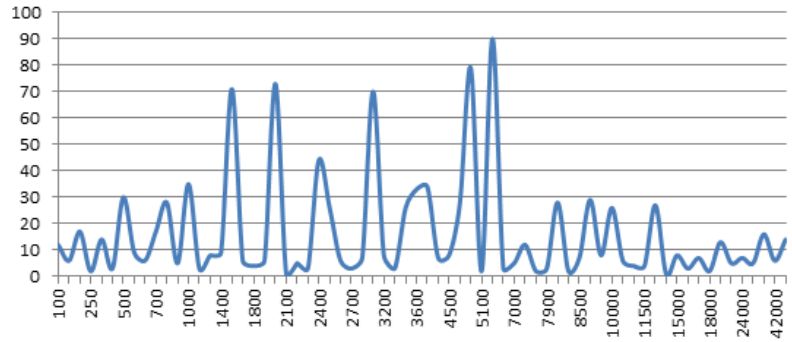
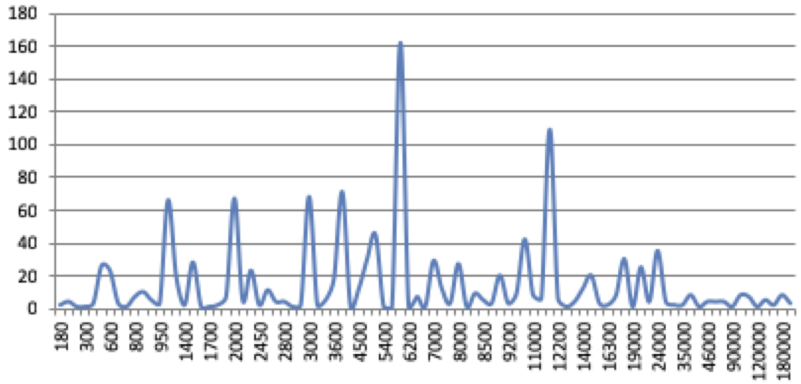



Figure 2.2: The distribution of remittances receipt by household in 2012




63.1% and 55.1% in 2006 and 2012 respectively. With household size, the average size for recipient households was 6.48 members in 2006, while the average has decreased to 5.27 members in 2012.

Upon the value of remittances in the survey, the average value that was received by households in 2006 was 5,853 Egyptian Pound (EGP). In contrast, the average in 2012 was 11,342 EGP. Meanwhile, the maximum amounts that were receive were 48,000 EGP and 200,000 EGP in 2006 and 2012 respectively, while the minimum amounts were 100 EGP and 180 EGP in 2006 and 2012 respectively. However, the average value of remittances that were received by households living in rural areas was 5,820 EGP in 2006 and 9,366 EGP in 2012. Moreover, the average value of remittances that were received by households that had a female head was 5,531 EGP and 11,586 EGP in 2006 and 2012 respectively. The figures 2.1 and 2.2 show the distributions of remittances that were received by households in 2006 and 2012.

On the other hand, the average value of remittances that was received by house-

Figure 2.3: The distribution of remittances receipt by household and has children in 2006

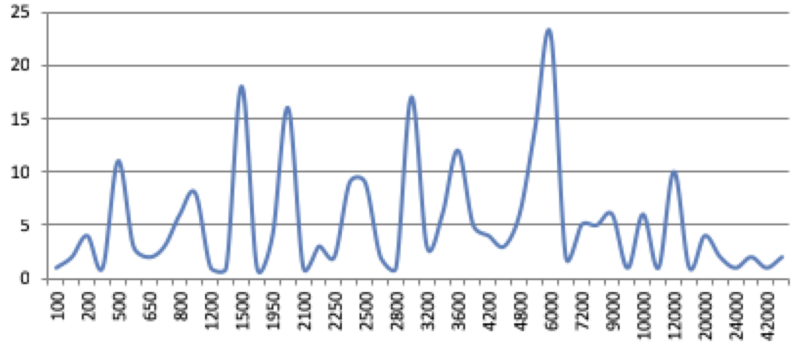
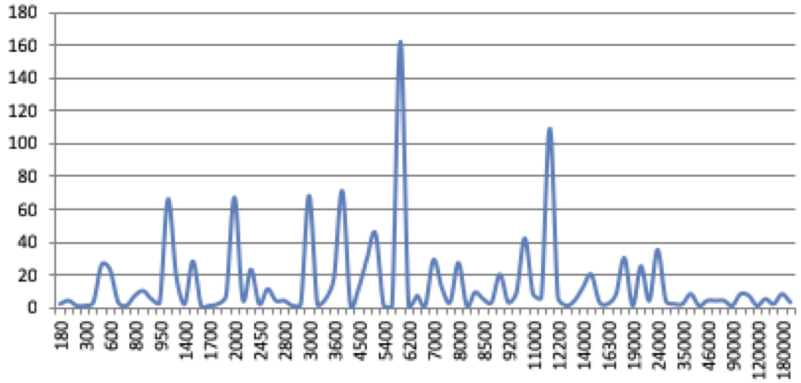



Figure 2.4: The distribution of remittances receipt by household and has children in 2012




holds that have children was 5,142 EGP in 2006 and 10,457 EGP in 2012. However, the average value of remittances that were received by households living in rural areas with children was 4,922 EGP in 2006 and 10,299 EGP in 2012. Moreover, the average value of remittances that were received by households that that had a female head was 5,179 EGP and 9,954 EGP in 2006 and 2012 respectively. The figures 2.3 and 2.4 show the distributions of remittances that were received by households that had children in 2006 and 2012.

By the same token, the survey has information relating to the value of cash assistance for food or goods.The average value that was received by household in 2006 was 1,911 Egyptian Pound (EGP) per year. In contrast, the average in 2012 was 2,644 Egyptian Pound (EGP) per year. In the meantime, the maximum amounts that were received were 20,000 EGP and 40,000 EGP per year in 2006 and 2012 respectively, while the minimum amounts were 60 EGP and 100 EGP in 2006 and 2012 respectively. However, the average value received by households living in rural

areas was 1,947 EGP per year in 2006 and 2,459 EGP per year in 2012. Moreover, the average value received by households that the head was female was 2,038 EGP and 3,438 EGP per year in 2006 and 2012 respectively. On the other hand, the average value in cash for assistance for food or goods that was receive by households that hads children was 1,693 EGP in 2006 and 2,475 EGP per year in 2012. However, the average value received by households living in rural area that had children was 1,574 EGP in 2006 and 2,533 EGP in 2012. Moreover, the average value in cash assistance for food or goods that was received by households with children and the head was female was 1,638 EGP and 2,990 EGP per year in 2006 and 2012 respectively.

In addition, the survey of round 2006 contains information on the residence of the migrant who send the remittances if they live in an Arab country or non-Arab country. We had 1,315 expatriates living in Arab countries and 68 expatriates living in non-Arab countries, while round 2012 only contained information if the person who sent money was living inside or outside of Egypt. The table 3.7 below summarizes the characteristics of children and their households in 2006 and 2012 by remittance status of the household.

With regards to how the households receive remittances, in round 2006 46.8% of households receive remittances by the migrant himself and 20.9% by relative or friend, which means that over than 67% of them receive remittances by hand in 2006 and only 18.3% receive it by electronic transfer. According to the children sample, 42.9% of households who have children receive remittances by hand and 31.8% receive by electronic transfer in 2006. Meanwhile, in round 2012 54.4% of households receive remittances by the migrant himself and 13.5% by relative or friend, which means that over 67% of them received remittances by hand in 2006 and only 1.3% received by a money transfer office. According to the children sample, 35.9% of households who have children receive remittances by hand and 1.3% received by money transfer office in 2012.

According to Egypt's Central Agency for Public Mobilization and Statistics (CAPMAS, 2016), the number of Egyptians living abroad was around 9.5 million,

Table 2.7: Characteristics of children aged 6 to 15 and of their households in 2006 and 2012 by remittances status of the household

| | Non-recipients | 2006 recipients | **Diff.** | Non-recipients | 2012 recipients | **Diff.** |
|---|---|---|---|---|---|---|
| | (a) | (b) | (a-b) | (a) | (b) | (a-b) |
| Works (%) | 7.72 | 10.08 | -2.36 | 3.93 | 5.43 | -1.5 |
| Attend school (%) | 92.74 | 93.02 | -0.28 | 93.68 | 95.35 | -1.67 |
| Female (%) | 48.4 | 51.55 | -3.15 | 49.26 | 53.75 | -4.49* |
| Age (years) | 10.64 | 10.48 | 0.16 | 10.31 | 10.12 | 0.19 |
| HH size | 6.53 | 6.74 | -0.21 | 5.82 | 5.78 | 0.04 |
| Members under 18 | 3.38 | 3.61 | -0.23* | 2.55 | 2.77 | -0.22*** |
| Female head (%) | 8.67 | 54.26 | -45.59*** | 13.69 | 82.17 | -68.48*** |
| Married head (%) | 74.06 | 66.27 | 7.79** | 82.57 | 54.78 | 27.79*** |
| Father educ. (%) | 93.93 | 65.12 | 28.81*** | 96.2 | 68.99 | 27.21*** |
| Mother educ. (%) | 98.35 | 96.51 | 1.84* | 98.81 | 98.71 | 0.1 |
| Total HH income | 4554 | 7006 | 2,452*** | 15601 | 3670 | 11,930* |
| Rural | 55.9 | 63.57 | -7.67** | 56.31 | 73.9 | -17.59*** |
| Observation | 5440 | 258 | | 6127 | 387 | |

Sample: children 6 to 16 years of age in the 2006 and 2012 rounds of Egypt Labour Market Panel Survey, ELMPS 2006+ 2012. Non recipient includes household that did not receive remittances in neither in round 2006 nor round 2012.

around 6.2 million live in Arab countries. The highest number of Egyptian expatriates live in Saudi Arabia (3 million), followed by Jordan (1.2 million). On the other hand, the highest number of Egyptian expatriates that live in non-Arab countries include USA by about 1 million, followed by Canada, Italy, and France by 600 thousand, 560 thousand, and 365 thousand expatriates respectively.

With regards to remittances, figure 2.5 represents the nominal amount of remittances that were received in Egypt between 2006 to 2012. In 2006 Egypt had received 5,330 Million dollars, after that, the amount of remittances has increased to 7,656 and 8,694 Million dollars in 2007 and 2008 respectively, while remittances has decreased in 2009 to 7,150 billion dollars as a result of the global financial crisis. In 2010 the recorded remittance flows to Egypt has fully recovered to the pre-crisis level with 12,453 Million dollars. Remittances have risen by 13% in 2011, constituting 14,324 Million dollars. After the revolution in 2011, the amount of remittances grew up to 19,236 Million dollars, constituting 25.5%. The officially recorded remittance confirms what the survey includes about the value of remittances. We can notice that remittances dramatically grew from 2006 to 2012. Moreover, remittances have sharply increased after the revolution in 2011 in Egypt. This confirms what our

Figure 2.5: Nominal annual flow of remittances in Egypt (2006-2012)

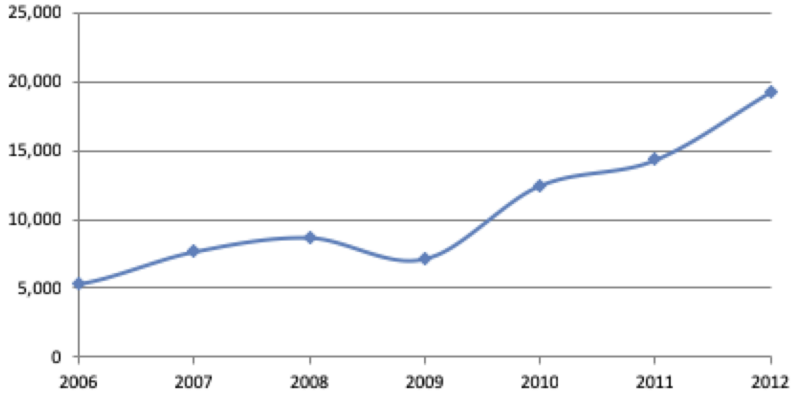
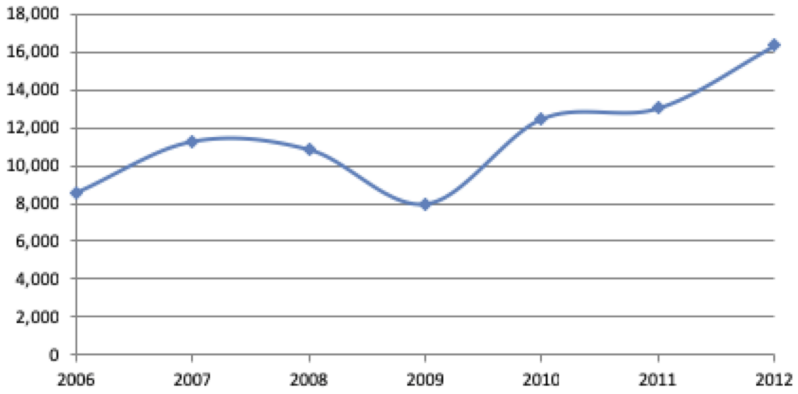



Figure 2.6: Real annual flow of remittances in Egypt (2006-2012)




study wanted to obtain and find either remittances or Arab Spring has more impact on child labour and child schooling.

Meanwhile, the figure 2.6 shows the real flow of remittances based on CPI with the base year as 2010, the Consumer Price Index (CPI) in 2006 was 62.2 and 117.9% in 2012. On the other hand, the unemployment rates increased from 10.5% in 2006 to reach 13% in 2012 (World Bank, 2018). Before considering remittances it is important to note the exchange rate against the US dollar. The exchange rate at the end of 2006 was 5.7 EGP, while the exchange rate against the US dollar at the end of 2012 was 6.2 EGP (World Bank, 2018). This can confirm that the huge increase in remittances was not as a result of the decrease of the value of EGP, and we can notice that the revolution played a big role in enhancing the increase of remittances.

## 2.5 Empirical results

Table 2.8 presents the mean value of the outcome variables (child work and child schooling) for both control and treatment groups in round 2006 and round 2012. The DiD estimator is equal to the difference across both rounds of the difference between treatment and control groups. Differencing the mean values of the outcome variables between the two rounds for the treatment group gives the effect of remittances on child schooling and child labour plus the effect of any common shock such as the Arab Spring (or a time trend) that affect both groups, children living in recipient households and non-recipient households. The difference between rounds for the control group provides an estimate of such additional non-recipient related factors. Thus, differencing the estimate across rounds for the treatment group with that of the control group should offer an estimate of the effect of remittances on child work and school attendance.

Table 2.8: Simple difference in difference estimations

| **child work** | 2006 | 2012 | **Diff.** |
|---|---|---|---|
| Control | 0.077 | 0.039 | -0.038*** |
| Treatment | 0.101 | 0.054 | -0.047 |
| **Diff.** | 0.024 | 0.015 | -0.009 |
| SE | -0.015 | -0.012 | -0.019 |
| **Child study** | | | |
| Control | 0.927 | 0.937 | 0.010* |
| Treatment | 0.93 | 0.953 | 0.023 |
| **Diff.** | 0.003 | 0.017 | 0.014 |
| SE | -0.016 | -0.13 | -0.021 |

Note: The treatment group is composed of children aged 6 to 15 that belong to household that declared receiving remittances in round 2006. The control group is composed of children aged 6 to 15 that did not receive remittances in round 2006 nor in round 2012. Number of children: 645 for the treatment group and 11,567 for the control group. Standard errors in parentheses.
*p< 0.05, **p<0.01, ***p<0.001.

Taking round 2006 as a baseline, 7.7% of children in the control group were working while 3.9% were in the treatment group. Moving to the second round, the

level of child working in both groups have decreased, child work had increased by 3.8% and 4.7% in the treatment and control groups, respectively. Hence, the simple DiD estimator was equal 0.9% which is not statistically significant. This means that, on average, there was no reaction in terms of child labour to the effect of the Arab Spring on remittances. School attendance for the associated DiD estimation, and the control and treatment groups, are also presented in Table 2.9 between round 2006 and round 2012. On average there was an increase in both groups which was greater for the treatment group which was equivalent to 2.3% compared to 1% in the control group. The DiD estimation proposes that children belonging to (treatment group) the remittances-recipient household were 1.4% more likely to attend school after the Arab Spring compared with non-recipient households (control group). The result indicate in the simple estimator that children belonging to the remittances-recipient household are less likely to work and more likely to study. One of the explanation could be that the labour market is become tighter after the Arab spring and the demand on labour has been reduced. Nevertheless, the DiD estimation proposes again that the additional increase due to the change in remittances was not statistically significant. This means that, on average, there was no reaction in terms of child labour to the effect of the Arab Spring on remittances. The interpretation of this results could be that the table shows the simple regression without considering the control variables in order to control for observables variables in the estimation.

In order to control for observable variables it was helpful to include the child and households characteristics in the estimation which might impact the outcomes of interest. Accordingly, Equation 3.1 takes into account a of number of control variables as explained before in section 3. This was estimated using the OLS, and results presented in Table 3.9. Equation 3.1 corresponds to a linear probability model for these outcomes because of school attendance and child labour was measured as dummy variables.

Table 2.9 involves the OLS estimation of Equation 3.1 taking into consideration four different specifications, each of which includes additional controls with respect to the previous. The left hand side panel shows the DiD estimates of the likeli-

hood that children working was affected by remittances, while in the right hand side presents the DiD estimates of the effect of remittances on the likelihood that the child remained in school. Column one and column five correspond to the case with no additional controls. Column two and six involve the children number and their household characteristics without controlling for any regional attributes or household income. These characteristics were the child's age and gender, the number of household members less than 18 years old, the age of the head of the household, the household size (the number of household members), if the parents were educated, if the head of the household was married and if the head of the household was female. Column three and column seven were controlled for household income. Column four and eight were considering if the child lived in a rural family. The highlighted interaction term Rem.Spring is the main coefficient of interest which spells out the DiD estimator.

Respective to child labour, the estimated coefficient was not statistically significant in the interaction term Rem.Spring (columns 1 to 4). Simultaneously, the estimated coefficient for the interaction term was not statistically significant for school attendance (columns 5 to 8). Therefore, the results indicate that as a response to receipt remittances in consequence of the Arab Spring, Egyptian households were less likely to react by taking their children out of work and sending them to school, however, the estimated coefficient for the Arab Spring was not statistically significant in school attendance. This conclusion confirms the findings reported in Table 2.9. The DiD estimator have been in all different model and different specification and these terms are never significant which means that there was no reaction in terms of child labour and school attendance to the effect of the Arab on the OLS regression.

Lastly, the coefficients for the other control variables show patterns that seem to be consistent with prior expectations except if the child was female. A child was less likely to drop out of school to work during the period of reference if the head of household was female, the head was married, or the father and mother had an education. Across models, age was a significant factor in predicting child labour and school attendance. A child was more likely to drop out of school to work during

the period of reference if they were older, household size was big, or lived in a rural area. The children were more likely to join the labour market if they had more members under 18 years old. However, the child is less likely to drop out of school and work if they were female. She is less likely to work in an economic activity due to being involved in chores at home. Upon school attendance, we obtained from the data that 50% of the female was less likely to attend school due to parents' decision, customs and traditions.In Micro-studies such as this the R2 invariably is tends to be low, because we got a lot of variations on the outcome variable but we got limited variation in the regressors, and this is a common finding in existing literature such as Alcaraz et al. (2012) in table 3, and Acosta (2011) in table 4+5.

To account for possible endogeneity biases, the study instrument for belonging for the treatment group was the number of western union offices in every province based on the literature, but the results were insignificant. Then, we tried to find another instrumental variable and we calculated the distance from the city centre from every city to the nearest international airport. Furthermore the results were insignificant. While we do not have enough data to instrument, we tried to change some variables from dummy variables to continuous to have significant relationship. First we put the value of remittance receipts instead of dummy variable and replaced the child labour variable from dummy to the number of working hour per week for every child, but the relationship was insignificant.

Finally, we changed the variable remittances from a dummy variable to be a proportion of remittances of total household income, the results were significant. The table 2.10 show the same estimation as in table 2.9 but the variable remittances has change from dummy to continuous variable (proportion of total household income). There was no major different between the results in table 2.9 and 2.10. I have replaced Remittances from dummy with the percentage of household income as a robustness check.

For the econometric estimation procedure we implemented the following stages: We first estimate a probit model of the endogenous variable remittances, on the

Table 2.9: DiD Estimations

| | **Dep. Var.: Child labour** | | | | **Dep. Var.: School Attendance** | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Remittances | 0.026 | 0.025 | 0.025 | 0.024 | -0.003 | 0.011 | 0.012 | 0.012 |
| | (1.74) | (1.70) | (1.70) | (1.61) | (-0.16) | (0.71) | (1.70) | (0.75) |
| Spring | -0.034*** | -0.023*** | (-0.022***) | -0.025*** | 0.006 | -0.005 | -0.005 | -0.004 |
| | (-8.00) | (-5.13) | (-5.02) | (-5.63) | (1.28) | (-1.00) | (-1.15) | (-0.87) |
| Rem.Spring | -0.010 | -0.008 | -0.009 | -0.013 | 0.021 | 0.019 | 0.019 | 0.021 |
| | (-0.53) | (-0.45) | (-0.46) | (-0.69) | (1.02) | (0.93) | (0.96) | (1.06) |
| Age | | 0.015*** | 0.015*** | 0.015*** | | -0.002** | -0.003** | -0.003 |
| | | (20.25) | (20.28) | (20.56) | | (-3.19) | (-3.24) | (-3.35) |
| Female | | -0.019*** | -0.019*** | -0.018 | | -0.011* | -0.011* | -0.012*** |
| | | (-4.54) | (-4.53) | (-4.31) | | (-2.45) | (-2.46) | (-2.58) |
| Mem. under18 | | 0.006** | 0.006** | 0.005* | | -0.001 | -0.001 | -0.001 |
| | | (3.00) | (2.99) | (2.43) | | (-0.58) | (-0.57) | (-0.30) |
| HH size | | 0.003* | 0.003** | 0.001 | | -0.006*** | -0.006*** | -0.005*** |
| | | (2.58) | (2.62) | (1.21) | | (-4.57) | (-4.63) | (-3.96) |
| Female head | | 0.025** | -0.025** | -0.025 | | 0.033*** | 0.033*** | 0.033*** |
| | | (-3.11) | (-3.11) | (-3.18) | | (3.80) | (3.81) | (3.84) |
| Married head | | -0.017** | -0.016*** | -0.014 | | 0.030*** | 0.030*** | 0.028*** |
| | | (-2.85) | (-2.82) | (-2.43) | | (4.68) | (4.63) | (4.44) |
| Father educ. | | -0.037*** | -0.037*** | -0.033 | | 0.080*** | 0.080*** | 0.078*** |
| | | (-3.65) | (-3.64) | (-3.31) | | (7.25) | (7.23) | (7.08) |
| Mother educ. | | -0.040* | -0.040* | -0.033 | | 0.152*** | 0.152*** | 0.149*** |
| | | (-2.25) | (-2.25) | (-1.87) | | (7.9) | (7.90) | (7.73) |
| HH income | | | 0.000 | 0.000 | | | 0.000* | 0.000 |
| | | | (-1.34) | (-0.91) | | | (2.08) | (1.90) |
| rural | | | | 0.044*** | | | | -0.022*** |
| | | | | (10.05) | | | | (-4.60) |
| _cons | 0.0752*** | -0.021 | -0.021 | -0.045 | 0.929*** | 0.754*** | 0.755*** | 0.767*** |
| | -23.82 | (-0.94) | (-0.97) | (-2.03) | (275.36) | (31.44) | (31.48) | (31.82) |
| *N* | 12212 | 12212 | 12212 | 12212 | 12212 | 12212 | 12212 | 12212 |
| *R-squared* | 0.007 | 0.049 | 0.049 | 0.057 | 0.001 | 0.021 | 0.021 | 0.023 |

Sample: Children aged 6 to 15 in round 2006. The table presents the linear Probability estimation of Eq. (2). Remittances is a dummy equal to one if the child belongs to a household that in round 2006 declared receiving remittances (treatment group), and it is equal to zero if the child belongs to a household that did not receive remittances in 2006 nor in 2012 (control group). Spring is a dummy variable that takes the value if one of one for round 2012 and zero for round 2006. The coefficient on interaction term Rem.Spring is the DiD estimate of the impact on the outcome variables (school attendance and child labour) of the positive shock on remittances due to the Arab Spring which the revolution in Egypt start in 2011. t statistics in parentheses * p< 0.05, ** p< 0.01, *** p< 0.001. Criticisms of the linear probability model discussed by Maddala (1983) are that; the disturbances in the LPM are heteroscedastic, therefore least squares is not efficient, the error term is not distributed normally, so there exist non-linear procedures more efficient than least squares, and predicted probabilities from the LPM could lie outside the 0-1 interval.

western union variable and on the control variables (X). Then, obtain the fitted probabilities, which we call Remithat. Finally, we estimate Eq. (2) by 2SLS using Remithat as an instrument for Remit and the interaction Remithat Spring as an instrument for the interaction term Remit·Spring. This yields a just-identified system. This procedure does not require the probit stage to be correctly specified and the usual 2SLS standard errors and test statistics are asymptotically valid (see Procedure 18.1 in Wooldridge, 2001).

Table 2.10: DiD results for child labour and school attendance (remittances as a proportion of total household income)

| | **Dep. Var.: Child labour** | | | | **Dep. Var.: School Attendance** | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Remittances | -0.437 | -0.552 | -0.555 | -0.591 | -0.003 | 0.009 | 0.010 | 0.012 |
| | (-0.74) | (-0.92) | (-0.92) | (-0.98) | (-0.18) | (0.49) | (0.50) | (0.60) |
| Spring | -0.751*** | -0.392** | -0.376* | -0.401** | 0.006 | -0.004 | -0.005 | -0.004 |
| | (-5.21) | (-2.63) | (-2.52) | (-2.68) | (1.39) | (-0.91) | (-1.06) | (-0.77) |
| Rem.Spring | 0.121 | 0.225 | 0.210 | 0.168 | 0.015 | 0.013 | 0.014 | 0.016 |
| | (0.16) | (0.31) | (0.29) | -0.230 | (0.64) | (0.58) | (0.61) | (0.70) |
| Age | | 0.424*** | 0.425*** | 0.426*** | | -0.003** | -0.003** | -0.003*** |
| | | (17.26) | (17.29) | (17.36) | | (-3.22) | (-3.27) | (-3.38) |
| Female | | -1.461*** | -1.460*** | -1.449*** | | -0.0113* | -0.011 | -0.012*** |
| | | (-10.41) | (-10.41) | (-10.33) | | (-2.44) | (-2.45) | (-2.58) |
| Mem. under18 | | 0.103 | 0.102 | 0.092 | | -0.001 | -0.001 | -0.001 |
| | | -1.620 | (1.61) | (1.45) | | (-0.56) | (-0.55) | (-0.27) |
| HH size | | 0.153*** | 0.154*** | 0.138*** | | -0.006*** | -0.006*** | -0.005*** |
| | | (3.73) | (3.77) | (3.35) | | (-4.54) | (-4.60) | (-3.93) |
| Female head | | -0.292 | -0.294 | -0.293 | | 0.035*** | 0.035*** | 0.035*** |
| | | (-1.08) | (-1.09) | (-1.09) | | (3.95) | (3.96) | (3.97) |
| Married head | | -0.305 | -0.299 | -0.277 | | 0.030*** | 0.030*** | 0.029*** |
| | | (-1.56) | (-1.53) | (-1.42) | | (4.70) | (4.66) | (4.46) |
| Father educ. | | -0.957** | -0.954** | -0.923** | | 0.079*** | 0.080*** | 0.078*** |
| | | (-2.82) | (-2.81) | (-2.72) | | (7.18) | (7.17) | (7.03) |
| Mother educ. | | -2.662*** | -2.660*** | -2.596*** | | 0.152*** | 0.152*** | 0.148*** |
| | | (-4.51) | (-4.51) | (-4.40) | | (7.89) | (7.88) | (7.71) |
| HH income | | | 0.000 | 0.000 | | | 6.38e-08* | 0.000 |
| | | | (-1.45) | (-1.33) | | | (2.08) | (1.89) |
| rural | | | | 0.410** | | | | -0.022 |
| | | | | (2.81) | | | | (-4.60) |
| _cons | 1.749*** | 0.399 | 0.376 | 0.158 | 0.929*** | 0.754*** | 0.755*** | 0.767*** |
| | (16.53) | (0.54) | (0.51) | (0.21) | (276.43) | (31.43) | (31.47) | (31.81) |
| *N* | 12212 | 12212 | 12212 | 12212 | 12212 | 12212 | 12212 | 12212 |
| *R-squared* | 0.003 | 0.043 | 0.043 | 0.044 | 0.001 | 0.021 | 0.021 | 0.023 |

Sample: Children aged 6 to 15 in round 2006. The table presents the linear Probability estimation of Eq. 2.2. Remittances is the ratio of remittances of the total income if the child belongs to a household that in round 2006 declared receiving remittances (treatment group), and it is equal to zero if the child belongs to a household that did not receive remittances in 2006 nor in 2012 (control group). Spring is a dummy variable that takes the value if one of one for round 2012 and zero for round 2006. The coefficient on interaction term Rem.Spring is the DiD estimate of the impact on the outcome variables (school attendance and child labour) of the positive shock on remittances due to the Arab Spring which the revolution in Egypt start in 2011.
t statistics in parentheses
* p< 0.05, ** p< 0.01, *** p< 0.001

Table 2.11: First stage estimation

| Probit | | | First stage | | First stage | |
|---|---|---|---|---|---|---|
| Dependent Var. | Remittances | | Dependent Var. | Remittances | Dependent Var. | Remittances-spring |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| West. union | 0.641*** | 0.697*** | | | | |
| | (35.39) | (43.09) | | | | |
| Remhat | | | 0.031*** | 0.031*** | -0.001 | -0.001 |
| | | | (40.26) | (40.26) | (-1.06) | (-1.06) |
| remhatspring | | | -0.004*** | -0.004*** | 0.039*** | 0.039*** |
| | | | (-4.74) | (-4.74) | (57.79) | (57.78) |
| spring | | | -0.027*** | -0.027 | 0.375*** | 0.375*** |
| | | | (-3.75) | (-3.74) | (61.71) | (61.69) |
| Childage | -0.055 | -0.058 | -0.001 | -0.001 | -0.001 | -0.001 |
| | (-1.98) | (-2.05) | (-0.89) | (-0.89) | (-1.80) | (-1.78) |
| Female | 0.296 | 0.28 | -0.004 | -0.004 | -0.006 | -0.006* |
| | -1.69 | (1.57) | (-1.22) | (-1.22) | (-2.50) | (-2.49) |
| Mem. under18 | 0.079 | 0.072 | 0.001 | 0.001 | 0.002 | 0.002 |
| | (1.21) | (1.07) | (0.81) | (0.81) | (1.44) | (1.44) |
| HH size | 0.175*** | 0.184*** | -0.004*** | -0.004*** | -0.002* | -0.002* |
| | (4.62) | (4.65) | (-4.77) | (-4.76) | (-2.53) | (-2.52) |
| Female head | 4.118*** | 4.516*** | 0.015* | 0.015* | -0.012* | -0.012* |
| | (18.08) | (19.25) | (2.33) | (2.33) | (-2.45) | (-2.45) |
| Marr. head | 0.433 | 0.396 | 0.020*** | 0.021*** | 0.009** | 0.009** |
| | (1.93) | (1.71) | (4.81) | (4.81) | (2.83) | (2.84) |
| Father educ. | -1.353*** | -1.392*** | -0.054*** | -0.054*** | -0.050 | -0.050*** |
| | (-5.13) | (-5.10) | (-7.49) | (-7.49) | (-8.58) | (-8.57) |
| Mother educ. | -0.993 | -1.01 | 0.025* | 0.025* | 0.022* | 0.022* |
| | (-1.64) | (-1.63) | (1.99) | (1.99) | (2.19) | (2.19) |
| HHincome | | (0.000) | | 0.000 | | 0.000 |
| | | (0.000) | | (-0.20) | | (-0.40) |
| _cons | -7.462*** | -8.108*** | 0.328*** | 0.328*** | 0.030* | 0.030* |
| | (-9.79) | (-10.40) | (19.96) | (19.96) | (2.27) | (2.27) |
| *N* | 12212 | 12212 | 12212 | 12212 | 12212 | 12212 |
| *R-squared* | | | 0.322 | 0.322 | 0.463 | 0.463 |
| | | | | | (1) | (2) |
| *Kleibergen-Paap F statistic for weak identification (tests both instruments simultaneously)* | | | | | 51.62 | 51.61 |

Note: First stage results for the 2SLS estimation of Eq. 2.2 where Remit is instrumented with Remit-hat and Remit·Spring with Remit-hat·Spring. Remit-hat is obtained from the probit estimation of Remit on number of western union and controls X. Remittances is the ratio of remittances of the total income if the child belongs to a household that in round 2006 declared receiving remittances (treatment group),, and it is equal to zero if the child belongs to a household that did not receive remittances in round 2006 nor in round 2009 (control group). Spring is a dummy variable that takes the value one for round 20012 and zero for round 2006.
t statistics in parentheses
* p< 0.05, ** p< 0.01, *** p< 0.001

The first panel of Table2.11 presents the results of the probit model for different choices of additional controls. As expected, the coefficient of West. Union suggests a positive and significant relationship between this variable and Remittances, indicating that the further western union offices in the city, will increase the probability of receiving remittances. The table also presents the first stage results from the 2SLS estimation. Our equation included two right hand side endogenous variables (Remittances and the interaction Remit·Spring). Moreover, the table report results for the first stage associated to the endogenous variable Remittances as well as for the first stage of the interaction Remit·Spring in the second and third panels of the table, respectively. The coefficients of Remithat from the first stage of Remittances and of RemithatSpring from the first stage of Remit·Spring were statistically significant and have the correct sign in both cases. The Kleibergen–Paap F statistic for weak identification exceeds the Stock and Yogo critical values, so we reject the null that the instrument was weak.

The results from the instrumental variables estimation are presented in Table 3.12. The results found an insignificant impact of remittances on child labour after the Arab Spring, when not controlling for total household income. Furthermore, the result was insignificant when controlling for total household income, which was contrary to expectations. This could be due to the impact of revolution. Moreover, the instrumental variable estimates showed a significant effect of the Arab Spring on child labour with negative sign. This was again contrary to our prior expectations, a possible explanation could be that labour market conditions became tighter after the shock which affected job opportunities for both adults and children. In the meantime, our coefficient of interest (the DiD remittances*Arab spring) was found to be insignificant in both models. In addition, the gender of children was statistically significant with negative impact on child labour, which means that if the child was female, she was less likely to work in an economic activity due to being involved in chores at home. The children were more likely to join the labour market if they were; older, having member under 18, and living in large household size. On the other hand, children were less likely to attend school if they were; female head, married head, educated father and mother, and having higher household income.

Table 2.12: Instrument variables estimation

| | **Dep. Var.: Child labour** | | **Dep. Var.: School Attendance** | |
|---|---|---|---|---|
| | (1) | (2) | (1) | (2) |
| Remittances | 0.048 | 0.049 | 0.026 | 0.025 |
| | (0.84) | (0.85) | (0.42) | (0.40) |
| Spring | -0.022*** | -0.022*** | -0.004 | -0.004 |
| | (-4.65) | (-4.54) | (-0.71) | (-0.86) |
| Rem.Spring | -0.022 | -0.022 | -0.002 | -0.001 |
| | (-0.39) | (-0.40) | (-0.03) | (-0.01) |
| Age | 0.015*** | 0.015*** | -0.002** | -0.002*** |
| | (20.24) | (20.27) | (-3.17) | (-3.22) |
| Female | -0.019*** | -0.019*** | -0.011* | -0.011* |
| | (-4.56) | (-4.55) | (-2.46) | (-2.46) |
| Mem. under18 | 0.006** | 0.006** | -0.001 | -0.001 |
| | (2.97) | (2.95) | (-0.58) | (-0.56) |
| HH size | 0.003** | 0.003** | -0.006*** | -0.006*** |
| | (2.61) | (2.65) | (-4.56) | (-4.62) |
| Female head | -0.027** | -0.027** | 0.033*** | 0.033*** |
| | (-2.97) | (-2.98) | (3.31) | (3.33) |
| Married head | -0.017** | -0.017** | 0.030*** | 0.029*** |
| | (-2.84) | (-2.82) | (4.39) | (0.35) |
| Father educ. | -0.035** | -0.035** | 0.080*** | 0.080*** |
| | (-3.28) | (-3.27) | (6.91) | (6.89) |
| Mother educ. | -0.040* | -0.040* | 0.152*** | 0.152*** |
| | (-2.24) | (-2.24) | (7.89) | (7.89) |
| HH income | | 0.000 | | 0.000* |
| | | (-1.39) | | (2.10) |
| _cons | -0.022 | -0.023 | 0.753*** | 0.754*** |
| | (-1.00) | (-1.03) | (30.87) | (30.91) |
| *N* | 12212 | 12212 | 12212 | 12212 |
| *R-squared* | 0.049 | 0.049 | 0.020 | 0.021 |

Note: Second stage instrumental variables estimations of Eq.2.2. First stage results presented in Table4. The coefficients on the interaction Remit·Spring indicate the effect of the positive shock on remittances on the variables of interest (school attendance and child labour).Remit is equal to a proportion of total household income if the child belongs to a household that in round 2006 declared receiving remittances (treatment group), and it is equal to zero if the child belongs to a household that did not receive remittances in round 2006 nor in round 2012 (control group). Spring is a dummy variable that takes the value one for round 2012 and zero for round 2006.

t statistics in parentheses

* p< 0.05, ** p< 0.01, *** p< 0.001

With regards to school attendance, the table2.12 shows that remittances and Arab Spring and our coefficient of interest (the DiD remittances*Arab spring) was insignificant. A possible explanation could be that the school in Egypt was free of charge. Surprisingly, females were less likely to attend school, which could be due to parents' decisions, customs and traditions. The children were less likely to attend school if they were; older, having member under 18, and living in large household size. On the other hand, children were more likely to attend school if they were; female head, married head, educated father and mother, and having higher household income.

## 2.6 Conclusion

This paper focused on the impact of the Arab Spring, as a political shock, on child labour in Egypt through the channel of remittances. The paper used the Arab spring as an exogenous event that had a negative effect on child labour and school attendance, and this event had a positive impact on remittance flows to Egypt to identify whether recipients reacted to this positive shock by increasing child labour or taking children out of school. The Arab spring could affect the income inside Egypt and could leads the children left the school to work to support their families. The remittances have increased as shown in the data, as the individuals who work outside Egypt do not affected by the Arab spring as the majority of them work in Gulf countries which do not affected by Arab Spring. The study employs the differences-in-differences (DiD) framework to compare children from remittance recipient households with those from non-recipient households before and after the incidence of the Egyptian uprising in 2011, using the ELMPS data. The treatment group was composed of children (aged 6 to 15) in households in receipt of remittance in 2006.The control group was composed of children from non-recipient households.

The DiD estimation used OLS for two outcomes: child labour and school attendance. The estimated coefficient for remittances does not seem to be statistically

significant in both models, which is contrary to expectations, it could be due to the impact of revolution. The estimated coefficient for the Arab Spring was statistically significant for child labour with a negative sign. This was again contrary to our prior expectations. A possible explanation could be that labour market conditions became tighter after the shock which affected job opportunities for both adults and children. In the meantime, the estimated coefficient for the Arab Spring was statistically insignificant in the case of schooling. Our coefficient of interest (the DiD remittances*Arab spring) was found insignificant in both models. The gender of children was statistically significant with negative impact in child labour, which means that if the child was female, she was less likely to work in an economic activity due to being involved in chores at home. Upon school attendance, being a female suggested they were likely to attend school, it could be due to parents' decision, customs and traditions. Living in rural area was more likely for children to work and less likely to attend school, due to helping their family to work on their farm.

To account for possible endogeneity biases, the study instrument for belonging to the treatment group with the number of western union offices in every province based on the literature, the results were the same as OLS estimation that mentioned above.

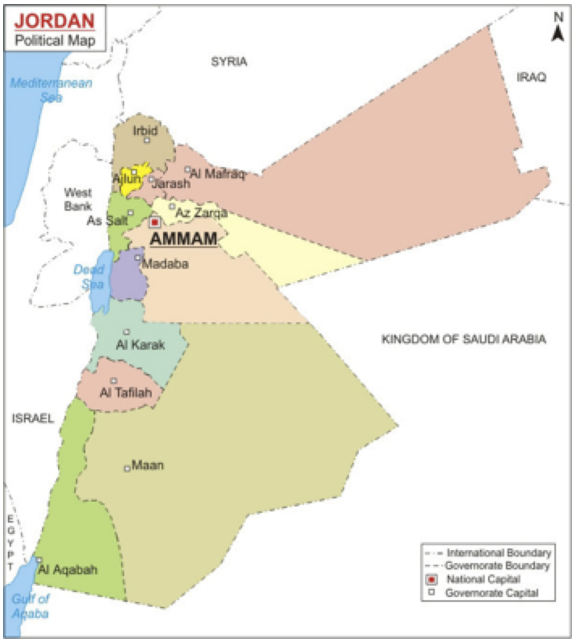
# Chapter 3

# Labour market adjustments of refugee crises: Evidence from Jordan

## 3.1 Introduction

Jordan has one of the smallest economies in the Middle East, with limited natural resources, and a total population of approximately 10 million people. The Jordanian economy has suffered many shocks from its inception, including the displacement of Palestinian refugees in 1948 and 1967, the Lebanese civil war that took place from 1975 to 1991, the 1990 Gulf War, the Iraq war in 2004 and, lastly, the influx of Syrian refugees in 2011. The Syrian war has caused a massive influx of Syrian refugees since its eruption in 2011 on an unprecedented scale. The war in Syria started in the beginning of 2011 in the city of Daraa after the beginning of the Arab Spring, which started in some Arab countries before its eruption in Syria. The refugees began internal migration at the beginning of the war until the Syrians began to migrate abroad after the war expanded in several Syrian cities. More than 13 million Syrians who were internally and externally displaced, equivalent to 60(%) of the total population before the start of the war. More than 5 million refugees have displaced to neighbouring countries. Turkey 3.4 million, Jordan 1.3 million, and Lebanon 1 million refugees.

Figure 3.1: Map of Jordan




Jordan has received a huge number of refugees since the eruption of the Syrian War in 2011; the number of Syrian refugees in Jordan is 1.3 million, which is relatively high compared to a total population of 6.6 million Jordanians in 2015. Syrian refugees mainly live in four cities: around 1.1 out of 1.3 million live in the receiving cities of Amman (436 thousand), Irbid (343), Mafraq (208 thousand), and Zarqa (175 thousand), as shown in figure 3.1.

Jordan did not faced major unrest in the early stages of the war. Indeed, the initial influx of Syrian refugees led to slight gains. Refugees helped increase consumption after some Syrian companies and businesses moved their headquarters to Jordan. However, due to the geographical proximity of the Syrian war, Jordan was not spared from its negative effects.

Trade across the Jordanian border, which depended on the Syrian infrastructure to transport goods to more distant markets such as Lebanon and Turkey, was affected by the war. That is why the Jordanian economy has suffered a great blow by harming this trade. The Syrian highway network, which had multiple tracks connecting Jordan to the Syrian ports, was also disrupted, and Jordanian exporters had to find alternative trade routes. The conflict has also put enormous pressures

on the infrastructure of the public services and health care sector in Jordan, due to the influx of refugees. Moreover, Syrians and Jordanians compete in the informal labor market, as they can easily find jobs.

The reactions of the Syrian crisis affected the structure and resources of the Jordanian economy, and formed in addition to the challenges that Jordan faced. These challenges were reflected in various aspects of the economic and social life of Jordan, starting with the general budget and debt, passing through the investment environment, and the balance of payments, ending with levels of economic growth. The social aspects of the crisis have become apparent, whether in the poverty rates, or clear competition for jobs, professions and livelihoods, which is clearly reflected in the unemployment rates and the income levels of families and their livelihood.

The number of Syrian refugees has increased significantly in the eruption of the war in Jordan in 2012 and 2013, with the influx of refugees in 2011 only 11 refugees. In 2012, 178,000 refugees fled to Jordan, while in 2013 the number of refugees in Jordan reached 576,000, reaching 619,000 refugees in 2014 who were formally registered with the United Nations High Commissioner for Refugees (UNHCR) at the beginning of 2014. In addition to nearly Half a million residents of Syrians who are not registered as refugees, who fled to Jordan since the eruption of the war in Syria, and this number continued according to the latest estimates, as 153,000 returned to Syria after opening the border between Jordan and Syria in 2019.

The influx of refugees into Jordan over the past two decades has become an important issue in Jordan and has attracted the interest of many researchers and decision makers. This influx has created great concern among native workers about the pressure on the current labour market, which in turn leads to the possibility of reducing wages, increasing working hours and expanding informal work. In this respect, it is essential to assess the effect of refugees on the informal sector, wages and working hours to assist policy makers in designing policies regarding how to respond to the refugee crisis. As a result, this chapter empirically investigates the Jordanian labour market adjustments for native workers to refugee crises.

The rest of the chapter is organised as follows; section 3.2 provides a literature review, section 3.3 describes the data and our sample, section 3.4 explains the empirical methodology, section 3.5 shows our findings and conclusions are summarised in section 3.6.

## 3.2 Literature review

Throughout history, many people around the world have been forced to flee their homes in situations of conflict and violence. However, the literature on the impacts of forced migration is still rare to some extent, especially in host countries. There are a number of factors that lead to forced migration flows, including, for example, environmental degradation, natural and industrial disasters, persecution, ethnic discrimination, human rights violations and war and conflict (Mason, 2000).

Ruiz and Vargas-Silva (2013) discuss how forced migration during World War II had positive effects on many displaced populations resulting from the resettlement policies, the increase in mobility, and the rapid transition of displaced people to other fields. Moreover, the study notes that immigrants in European countries tend to be more successful and long-term mobility is considered to be key to determining their long-term outcomes. Conversely, the study argues that forced migration has negative impacts on developing countries, such as the reduction of the labour market outcomes and the decrease in income, which leads to reduced consumption. Although developing countries are affected negatively by forced migration, the study indicates that their communities receive this phenomenon with mixed attitudes (winners and losers). The study clarifies that winners can take advantage of the cheaper labour force, while the losers are represented by local workers, who are replaced by forced migrants who accept lower wages.

Although there is a popular belief that immigrants affect employment opportunities and wages, Friedberg and Hunt (1995) argue that native-born populations have not suffered significantly from immigration, with little discernible effect on labour

market outcomes. Employment levels and wages of the native-born populations are negatively impacted by immigrants at very low rates (see also Fakih and Ibrahim (2016)).

Another study, conducted by D'Amuri et al. (2010), on the impact of immigrants in the western German labour market, finds that there is no effective impact of immigrants on native wages and employment level, even when they control for the levels of education and experience. However, the study reveals that there is a negative impact on previous immigrants, indicating a clear competition between old and new immigrants but not with the native-born population.

In contrast, Borjas (2003) shows that an influx of immigrants with schooling levels mainly impacts younger native-born workers and reduces the wage and labour supply of competing native workers in the US. The research finds that a 10 percent increase in the number of immigrants reduces wages by 3 to 4 percent for native-born workers with the same skills. Manacorda et al. (2012) show that immigration to the UK has increased over the last 30 years, particularly among educated workers. In their research, they note that native and foreign workers are imperfect substitutes in production, whereas immigration has primarily reduced the wage of previous foreign workers. Another study, by Ottaviano and Peri (2012), investigates the impact of migration on individual wages of native-born workers in the US during the period from 1990 until 2004. The study finds that there are imperfect substitutions between foreign-born and US workers, where native-born workers even benefit from immigration. Nevertheless, the study clarifies that previous immigrants suffer from the arrival of new immigrants who compete with them for similar jobs and occupations.

While previous literature concludes that immigrants do not impact native-born workers, Chiswick (1978) argues that foreign-labour workers initially earn less than native-workers, and their earnings increase rapidly by years to exceed that of native-born workers. Chiswick's research explains that, when immigrants arrive, they gradually improve their language skills, acquire knowledge about the labour market, and

make investments in post-school training related to their jobs. Moreover, according to Edmond (2017), about 84 percent of the refugees are hosted in developing countries. It has also been documented that these countries are least able to respond to their needs and confront long term economic, political, environmental, social, and security problems when they are hosting refugees (see ,for example, Miller (2018)). In addition, the influx of refugees in developing countries may cause overpopulation that leads to higher competition for resources (i.e., labour, food, and land) in the hosting communities (Baez, 2011).

Contiguous countries suffer from the negative effects of the conflict country when they host relatively large numbers of refugees. De Groot (2010) clarifies that refugees in the hosting countries negatively affect economic growth as they are usually attracted to less productive activities. Bah (2013) mentions that the influx of refugees leads to greater pressure on public services in the host countries. Nevertheless, the author also states that when refugees have a high level of physical or human capital or when they receive high rates of foreign aid, they might positively influence the economic growth of the host countries.

Many local people welcome the opportunity to employ refugees who accept low wages, which affect the wages and employment levels in the host countries (Chambers, 1986). Ruist (2013) notes that forced migrants are forced to abandon their homes due to violence, while economic migrants seek job opportunities. The author, thus, indicates that forced migrants are considered as push-driven rather than pull-driven and there is expected to be less correlation between the labour market and forced refugees. Evidence from Africa shows that the countries that host the largest numbers of refugees in relation to their population are: Djibouti, Zambia, Guinea, Ghana, and Tanzania and they receive the same impact that was observed in developed countries (Lucas, 2006). In the case of Ghana, the influx of refugees to the urban areas has increased the unemployment rate and negatively affected low skilled workers Arthur (1991). Similarly, Zetter and Deikun (2010) note that the influx of refugees in urban areas increases the pressure on services and resources, leading to conflict with locals.

On the other hand, according to Maystadt and Verwimp (2014), refugees help locals to find workers who accept low wages, and this ultimately leads to increased production. This might justify how some governments' policies are open to an influx of refugees without restrictions (Chaulia, 2003). Forced migration and the labour market are empirically investigated in other economic regions. For instance, Calderón et al. (2009) reveal that the internal forced influx in Colombia produced negative effects on wages and employment opportunities of all workers, particularly low skilled workers.

In the case of Jordan, a study conducted by Lozi (2013) aims to examine the impact of refugees on the Jordanian economy. The study concludes that food prices have increased after the influx of refugees, and there is great pressure on public services. Moreover, the same study reveals that hosting refugees negatively influenced the unemployment rate and Jordan's 2012 budget. In relation to the Iraq War 2003, Saif and DeBartolo (2007) find that the influx of Iraqi refugees influenced the inflation rate in Jordan due to the increase of food prices, real estate, and fuel. On the other hand, the study notes that the contribution of Iraqi refugees to inflation is less than often stated, since the inflation in Amman (where most Iraqi refugees are hosted) from 2002 until 2006 was the lowest in Jordan as a whole. The study underlines that Iraqi refugees have invested heavily in Jordan, and the service sectors in the capital city benefited from their spending, while rural areas were negatively influenced by inflation.

In relation to the Syrian War, which started in 2011, Fakih and Ibrahim (2016) examine the impact of Syrian refugees on the labour market in Jordan. The study uses macro data to explore the effect on unemployment rate, employment rate and labour force participation. The results show that Syrian refugees do not have a significant impact on the labour market in Jordan. On the other hand, Malaeb et al. (2018) investigate the impact of refugees on immigrants' labour market outcomes. The paper uses the Jordanian Labour Market Panel Survey (JLMPS 2010-2016), and the results show that immigrants are more likely to work in the informal sector,

work fewer hours, and have lower wages. Moreover, Krafft and Assaad (n.d.) examine the impact of refugees on employment and wages in Jordan for native workers. Using the JLMPS (2010-2016) data, this paper finds that the natives had not experienced negative labour market outcomes.

Studying the effects of the Syrian War on Turkey, Ceritoglu et al. (2017) reached a contrasting conclusion on the impact of Syrian refugees on the native Turkish labour market. The study uses the Turkish Household Labour Force Survey and concludes that Syrian refugees impacted the employment and wage outcomes of native workers: native workers lost their jobs in the informal sector, and the unemployment rate has increased. In addition, the study clarifies that women, young people, and less-educated workers were affected more by the refugees.

To the best of our knowledge, this chapter is the first study on the impact of Syrian refugees on native workers in Jordan, especially in relation to the informal sector. Moreover, this chapter uses the rich and most recently published JLMPS data.

## 3.3 Data

This chapter uses data obtained from the Jordan Labour Market Panel Surveys (JLMPS), which were conducted by the Economic Research Forum (ERF) in cooperation with the Jordanian Department of Statistics (DoS) in 2010 and 2016. We construct a panel dataset based on the JLMPS to compare between the outcome variables of interest before and after the eruption of the Syrian War in 2011.

The first round of the JLMPS was conducted in 2010 and covered 5,102 households, including 25,953 individuals from a nationally representative sample covering 12 governorates. The second round in 2016, which followed up JLMPS 2010, covered 7,291 households including 3,427 households from 2010 round in addition to 2,950 households which were added as a refresher sample. The refresher sample over-sampled neighbourhoods with high proportions of non-Jordanians as per the

2015 Population and Housing Census. The full survey contained 7,291 households and 33,450 individuals. The attrition rate was 38.1%, which is an unusually high ratio. One possible justification of such a very high attrition ratio is the relatively higher residential mobility of the population in the Jordanian setting and the larger proportion of more mobile non-citizens (Krafft and Assaad, n.d.).

The fieldwork of 2010 survey was carried on from January 2010 through to May 2010. More than 74% of households and individuals were surveyed during February and March in 2010. The questionnaire for 2010 round collected detailed information about individuals' characteristics such as education, gender, employment, and earnings as well as households and job characteristics. The fieldwork of 2016 survey was conducted from December 2016 to September 2017, with more than 87% of individuals and households surveyed by April 2017. This round of the survey provides a unique opportunity to ascertain the impact of the influx of Syrian refugee on the labour market and on the lives of Jordanian workers and their families in general after the eruption of the Syrian War in 2011. In addition to the information collected in 2010 round, the JLMPS 2016 included additional information about attitudes, health conditions, information technology, personal biography (life history), savings & borrowing, in-migration (non-Jordanians) and current migrants. Data collected in both rounds through interviewing individuals and households face to face with a paper survey.

Table 3.1: Main statistic of the Jordan Labour Market Panel Surveys

| Round | 2010 | 2016 | Total |
|---|---|---|---|
| No. HH | 5102 | 7291 | 3058 |
| No. indiv. | 25953 | 33450 | 14502 |
| Male (%) | 50.2 | 50.6 | |
| Femal (%) | 49.8 | 49.4 | |
| HH size | 6.3 | 5.7 | |

As table 3.1 shows, the JLMPS 2010 round covered 5,102 households, with an average of 6.3 members per household, with a total of 25,953 individuals. In the 2016 round, the number of households who completed the survey was 7,291, with

an average of 5.7 members per household. The survey included a total of 33,450 individuals in round 2016. The number of households that were successfully followed from 2010 is 3,427. Thus, there were 1,675 households could not be re-interviewed in the 2016 round because of the following reasons: 1,481 could not be found; 69 refused; in 81 households, all members had left the country; and in 44 households, all members had died. The attrition rate at this stage is around 38% at the household level. The number of households successfully re-interviewed was 3,058 out of 3,427 for the following reasons: 178 were not found; 157 refused; in 8 households, all members died; and 26 households left the country (Krafft and Assaad, n.d.).

### 3.3.1 An overview of overall sample

To construct a panel dataset at individual level, our overall sample includes 14,502 individuals that were successfully re-interviewed in 2016. These include 51% males and 49% females. While 34.9% of individuals in our sample lived in rural areas in 2010 round, only 20.9% were in rural areas in 2016. This constitutes a drop of 14% of those who live in rural areas between both rounds. The gender split is almost equal, with 2,517 females living in rural areas in 2010, which reflects 49.6%, while 2,549 males lived in rural areas, which is 50.4%. The number of those who live in rural areas in 2016 was 1,484 for females and 1,548 for males (see table 3.2).

Table 3.2: Summary statistics for our JLMPS sample (2010-2016)

| | 2010 | 2016 |
|---|---|---|
| Male(%) | 50.6 | 50.6 |
| Female(%) | 49.4 | 49.4 |
| Urban (%) | 65.1 | 79.1 |
| Rural (%) | 34.9 | 20.9 |
| Age (average) | 23.9 | 30.8 |
| Average HH size | 6.5 | 5.9 |
| Average HH size (rural) | 6.8 | 6.3 |

Table 3.2) also shows the average age in our JLMPS sample which was 23.9 years in 2010 and 30.8 years in 2016. The difference in age between both rounds reflects the number of years between both rounds as the second round was six years after

the first round. The average age in rural areas was 23.2 years in 2010, while the same number was 30.6 years in 2016 round. The average age in urban areas for 2010 and 2016 was 24.3 and 30.8 years respectively. Moreover, the average age for females was 24.3 years in 2010 and 31.2 years in 2016. The average age in 2010 for females living in rural areas was 23.6 years and in urban areas was 24.7 years, while the averages in 2016 for rural and urban areas were 31.4 and 31.2 years respectively. On the other hand, the average age for males was 23.7 years in urban areas in 2010 and 30.4 years in 2016. The average age for males that lived in rural areas was 22.8 years in 2010, while the average in 2016 was 30.5 years.

### 3.3.2 A sub-sample of employed individuals

Possible labour market adjustments to refugee crises include changes in working hours and wages. Therefore, we construct a sub-sample for those who are employed in both rounds. Our sub-sample of employed individuals includes 3,114 workers in 2010 and 3,377 in 2016. The average age of the workers is relatively similar in both rounds, 34.2 and 33.7 years old in 2010 and 2016 respectively. Regarding the number of working hours, 2016 round shows a higher average than 2010 round, at 44.7 and 42.8 hours respectively. The number of completed years of education was 11.3 years in round 2010 and 11.7 years in 2016.

The percentage of workers living in rural areas was 34.5 in round 2010, while this percentage has decreased in 2016 to 19.8. This percentage can give use some indication of the internal migration from rural to urban areas, or that Syrian refugees forced them to move to urban areas. The percentage of employed females in this sub-sample is 16.2 and 17.4 in 2010 and 2016 respectively. The percentage of married workers was high in both rounds, which is 66.6 in 2010 and 65.5 in 2016. The average household size in this sub-sample of employed individuals was smaller in 2016 compared to 2010, due to split households. The average size was 6.1 and 5.5 in 2010 and 2016 respectively (see table 3.3).

Table 3.3: Characteristics of the workers in 2010 and 2016

| | 2010 | 2016 |
|---|---|---|
| Workers | 3114 | 3377 |
| Age | 35.3 | 35.2 |
| Work (hours) | 42.8 | 44.7 |
| Educ. (years) | 11.3 | 11.7 |
| Rural % | 34.5 | 19.8 |
| Female % | 16.2 | 17.4 |
| Married % | 66.6 | 65.6 |
| HH size | 6.1 | 5.5 |

### 3.3.3 A sub-sample of informally employed

Table 3.4 shows that the size of the informal sector in our dataset is quite large. The number of workers that worked in the informal sector was 980 in round 2010, which was 31.5%. 1,031 workers worked in the informal sector in round 2016, which was 30.6%. The average age of the informal worker was higher than the average of the entire sample by 2 years, i.e., 37.8 years in 2010 and 37.7 in 2016, compared with 35.3 and 35.2 years in the overall sample in 2010 and 2016 respectively. Moreover, the number of working hours in the informal sector was higher than the average for the entire sample. The average for the informal sector was 46.9 and 47.8 in 2010 and 2016 respectively, while the average for the entire sample was 42.8 and 44.7 respectively.

Table 3.4: Characteristics of the workers in the informal sector in (2010-2016)

| | 2010 | 2016 |
|---|---|---|
| Workers | 980 | 1031 |
| Age | 37.8 | 37.7 |
| Working hours | 46.9 | 47.8 |
| Years educated | 9.6 | 9.9 |
| Rural % | 24.8 | 13 |
| Female % | 10 | 8.3 |
| Married workers % | 72 | 69.5 |
| HH size | 6.2 | 6.4 |

In contrast, the average of the completed years of study for the informal sector is lower than the entire sample. The average in the informal sector was 9.6 years in 2010 and 9.9 years in round 2016, while the average for the entire sample was

11.3 and 11.7 years respectively. Workers in the informal sector worked in urban areas more than rural areas. Moreover, the participation of females in the informal sector was lower than the entire sample; the female percentage was10 in the round of 2010 and 8.3 in the round of 2016. However, the percentage of married workers who worked in the informal sector was higher than the entire sample, at 72.0 and 69.5 in round 2010 and 2012 respectively. Furthermore, the household size of workers in the informal sector was 6.2 and 6.4 persons in the rounds of 2010 and 2016 respectively.

## 3.4 Methodology

To capture the possible effect of the Syrian War on labour market, the study employs the Difference-in-Difference (DiD) estimation. The DiD strategy compares workers who live in receiving cities before the Syrian War with those who live in non-receiving cities. With this aim, it is required to define a treatment group consisting of workers who live in receiving cities in round 2010 and a control group formed by workers who do not live in receiving cities neither in round 2010 nor in round 2016. The DiD estimator will measure the differential effect of the Syrian War on labour market on receiving cities relative to labour market in non-receiving cities. To apply the DiD estimator all that is essentially is to capture outcomes in the treatment and control groups both before and after the Syrian War. The simple DiD estimator compares the mean of the outcome in treatment and control groups which is well justified on the grounds that they should not have any systematic difference in any other pre-treatment variable. Let $\mu_i t$ is the mean of the outcome in group $i$ in time $t$, where $i = 0$ if the workers do not live in receiving cities (control group)and $i = 1$ if the workers live in receiving cities in round one (treatment group). Define $t = 0$ as a pre-treatment period (round 2010) and $t = 1$ as post-treatment period (round 2016). Thus, a simple DiD estimator can be expressed as $(\mu 11 - \mu 10)$-$(\mu 01 - \mu 00)$.The first term is the change in outcome for the treatment group and the second term is the change in outcome for the control group. A regression based estimator can be obtained by estimating the following equation:

$$Y_i t = \beta 0 + \beta 1 Recipient_i + \beta 2 SyrianWar_t + \beta 3 Recipient_i \times SyrianWar_t + \epsilon_i t \quad (3.1)$$

Where $Y_it$ is the outcome of labour market; $Recipient_i$ is a dummy that takes value of one if the workers live in receiving cities in period $I$ (treatment group)and zero if the workers live in non-receiving cities in period $I$ (control group); $SyrianWar_t$ is a dummy that takes value of one for period $II$ (post-treatment) and zero for period $I$ (pre-treatment) and $Recipient_i \times SyrianWar_t$ is an interaction term that takes the value one only for the treatment group in the post-treatment (Syrian War) period. The coefficient of $\beta 3$ yields the DiD estimator (OLS estimator). In order to control for observable variables that could affect the outcomes of interest, this study includes workers and household characteristics in the estimation. Hence, equation 3.1 can be written as follows:

$$Y_it = \beta 0 + \beta 1 Recipient_i + \beta 2 SyrianWar_t + \beta 3 Recipient_i \times SyrianWar_t + \phi X_i + \epsilon_i t \tag{3.2}$$

Where $X_i$ is a series of control variables related to worker and household characteristics. These characteristics are worker age and gender, a dummy variable if worker married or not, household size, number of years educated, and a dummy for being in a rural area, .The outcome variables $Y_it$ represents three cases; the first one is; how the Syrian war affect the informal sector on receiving cities, next; how the Syrian war affect the working hours in receiving cities, finally; how the Syrian War affect the wage in receiving cities.

The DiD estimation is likely to be biased due to heterogeneities existing among workers in treatment and control groups. However, such statement is crucially conditioned on the assumption that both worker who live in receiving cities or non-receiving cities (control and treatment groups) reacted to the Syrian War in the same way, except for the behaviour associated to the change in their demand for labour. This assumption may, however fail if the workers who live in receiving cities are different from workers live in non-receiving cities on some unobservable variables which we do not included in our estimation. In reality, given the substantial heterogeneity among large number of workers in our data set, one shall expect that both workers who live in receiving and non-receiving cities to be systematically different.

To tackle this issue, this chapter employs the propensity score matching (PSM) to estimate the average treatment effect of the treated (ATT). The PSM methodology identifies the average treatment effect by comparing the native workers who live in receiving and non-receiving cities which have similar probabilities. It should be noted that by doing so, the PSM can help to reduce the bias generated by unobservable confounding factors, rather than eliminating it completely.

As reported by Rosenbaum and Rubin (1983), the propensity score in our context can be defined as the conditional probability of living in receiving cities (treatment) given a set of pre-treatment workers characteristics (gender, age, married, HH size, years educated, and rural area), which can be presented formally as follows:

$$P(x) \equiv p(D = 1|X) = E(D|X) \tag{3.3}$$

Where $D = 0, 1$ is an indicator of a worker being live in receiving cities and X is a vector of pre-shock worker characteristics. For a given propensity score $p(X_i)$ for $worker_i$, the ATT can be estimated as follows:

$$\tau = EY_1i–Y_0i|D_i = 1 \tag{3.4}$$

$$= E[E[Y_1i–Y_0i|D_i = 1, p(X_i)]] \tag{3.5}$$

$$= E[E[Y_1i|D_i = 1, p(X_i)]–E[Y_0i|D_i = 0, p(X_i)]|D_i = 1] \tag{3.6}$$

Where the outer expectation is over the distribution of ($p(X_i \div D_i = 1)$ and $Y_1i$ and $Y_0i$ are potential effect in both group (native workers in receiving and non-receiving cities). Two conditions are important, namely the balancing of the pre-treatment variables given the propensity score and the unconfoundedness condition for a given propensity score. Defining p(X) as the propensity score, then the first condition can be written formally as follows:

$$D \perp x|p(X) \tag{3.7}$$

Assuming that being work in receiving cities (treatment group) is unconfounded i.e, $Y_1, Y_0 \perp \div X$, it follows that being subject to the a shock to workers' live

in receiving cities (treatment) is unconfounded given the propensity score, i.e., $Y_1, Y_0 \perp D \div p(x)$.

If the first condition is met, observed workers with the same score must have the same distribution of both observable and unobservable characteristics regardless of their living area status. That is, for a given propensity score, being work in receiving cities is random and therefore treated and control workers should be on average observationally identical. To estimate the propensity scores, this chapter employs a probit model that includes the worker's gender, age, married, HH size, years educated, and rural area. Then workers who are subject to a shock (treatment) are matched.

## 3.5 Empirical results

Table 3.5 presents the OLS estimation, taking into consideration the control variables (the worker's gender, age, marital status, household size, education and area). The first two-column panel shows the DiD estimates of the likelihood that employees work in the informal sector, while the next two columns present the DiD estimates of the number of working hours per week. Finally, the last two columns show the DiD estimates of the monthly wage of the workers. Columns one, three and five correspond to the case with no additional controls. Columns two, four and six consider the characteristics of the workers; age and gender, marital status, the household size (the number of household members), number of years studied, and if the workers live in a rural area. The highlighted interaction term DiD is the main coefficient of interest which spells out the Difference-in-Difference estimator.

With regard to the informal sector, workers who live in receiving cities are 14.6% more likely to work in the informal sector, according to the calculation without control variables, and 12.9% when control variables are considered, compared with non-receiving cities. Moreover, the size of the informal sector increased by 3.4% after the Syrian War. However, the estimated coefficient of the interaction term (DiD) is significant at 1% (columns 1 and 2) with a negative sign, which means that

Jordanian workers are less likely to work in the informal sector by 4.6% and 5.1% respectively. One of the explanations could be that Jordanian workers are replaced by Syrian refugees in the receiving cities.

On the other hand, native workers in receiving cities are more likely to work more hours by 3.6%, as shown in column 3, without control variables. However, the coefficient after adding the control variables is insignificant. Moreover, the estimated coefficient of the Syrian War and the interaction term (DiD) do not seem statistically significant (columns 3 and 4).

Concerning monthly wage, native workers who live in receiving cities have received an increase of 6.2% without considering control variables and 8.3% when control variables are added. The overall monthly wage after the start of the Syrian War increased by 11.1% and 7.0%, with and without control variables respectively. The estimated coefficient of the interaction term (DiD) does not seem statistically significant without control variables (column 5), but, interestingly, the estimated coefficient after adding the control variables is statistically significant with a positive sign by 4.5%. One explanation could be that the recipient cities which are 4 cities, 3 of them if the largest cities in Jordan and their markets expanded after the Syrian war. Moreover, those refugees brought higher demand for jobs and that put upward pressure in wages.However, the results indicate that, as a response to the Syrian War, Jordanian workers were replaced by Syrian refugees in the receiving cities.

Lastly, the coefficients of the other control variables show patterns that seem to be consistent with prior expectations. A worker was less likely to join the informal sector if the worker is female, married, studied for a greater number of years and lived in a rural area. A worker was more likely to join the informal sector if he was older and part of a large family.

Moreover, the results for the number of working hours are the same as for the informal sector except for the age of the worker: a worker was less likely to work more when he/she became older. With regards to monthly wage, native workers re-

Table 3.5: DiD estimation for the informal sector, wage, and working hours

| Dep. Var. | Informal work | | Working hours | | Wage | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Recipient | 0.146*** | 0.129*** | 0.036* | 0.022 | -0.062*** | -0.083*** |
| | (9.25) | (8.43) | (2.23) | (1.32) | (0.26) | (-4.00) |
| Syrian War | 0.034** | 0.018 | 0.019 | 0.018 | 0.111*** | 0.070*** |
| | (2.73) | (1.43) | (1.21) | (1.13) | (0.23) | (8.78) |
| DiD | -0.044** | -0.051** | -0.015 | -0.016 | 0.041 | 0.045* |
| | (-2.65) | (-3.13) | (-0.71) | (-0.77) | (0.71) | (2.16) |
| Female | | -0.061*** | | -0.202*** | | -0.287*** |
| | | (-3.70) | | (-11.86) | | (-10.17) |
| Age | | 0.005*** | | -0.002* | | 0.007*** |
| | | (7.77) | | (-2.35) | | (6.25) |
| Married | | -0.036* | | -0.016 | | 0.115*** |
| | | (-2.56) | | (-1.04) | | (4.87) |
| HH size | | 0.002 | | -0.009*** | | -0.008** |
| | | (1.00) | | (-3.38) | | (-1.61) |
| Education | | -0.035*** | | 0.0009 | | 0.055*** |
| | | (-21.06) | | (0.51) | | (19.93) |
| Rural | | -0.089*** | | -0.010 | | -0.002 |
| | | (-6.87) | | (-0.97) | | (0.41) |
| _cons | 0.226*** | 0.524*** | 3.698*** | 3.847*** | 1.022** | 0.3039*** |
| | (19.05) | (15.31) | (302.06) | (106.28) | (3.19) | (85.08) |
| N | 6484 | 6484 | 5985 | 5985 | 5318 | 5318 |
| R-squared | 0.017 | 0.153 | 0.002 | 0.032 | 0.006 | 0.045 |

Sample: people who worked in the labour market. The table presents the linear Probability estimation. Recipient is a dummy, equal to one if the worker lived in the receiving cities which are main refugee recipients (Amman, Mafraq, Irbid, and Zarqa) in the round of 2010 (treatment group), and equal to zero if the worker lived in a central city either in 2010 or in 2016 (control group). Crisis is a dummy variable that takes the value of one for the round of 2016 and zero for the round of 2010. The coefficient of the interaction term Recipient*Syrian War is the DiD estimate of the impact on the outcome variables (informal sector, working hours per week and monthly wages) of the negative shock on the labour market due to the eruption of the Syrian War in 2011. *All variables in the study are in real terms. t statistics in parentheses *$p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

ceived higher wages if they were old, married, and had studied for a greater number of years. Workers received lower wages if they were female, part of a large family, and lived in a rural area.

The DiD estimation is likely to be biased due to heterogeneities existing among workers in treatment and control groups. To tackle this issue, we employ propensity score matching (PSM), thereby maximising the observable similarity between workers in receiving cities and central cities (treatment and control groups). As an alternative to linear regression, the PSM analysis allows us to create two groups that have similar characteristics so that a comparison can be made within these matched groups.

Table 3.6: DiD estimation after matching (PSM)

| **Informal sector** | 2010 | 2016 | **Diff** |
|---|---|---|---|
| Control | 0.231 | 0. 254 | 0.023 |
| Treatment | 0.378 | 0. 358 | -0.02 |
| **Diff** | 0.148*** | 0.104*** | -0.044* |
| SE | (0.016) | (0.018) | (0.024) |
| **Working hours** | 2010 | 2016 | **Diff** |
| Control | 3.715 | 3.748 | 0.033 |
| Treatment | 3.736 | 3.745 | 0.009 |
| **Diff** | 0.021 | -0.003 | -0.023 |
| SE | (0.016) | (0.018) | (0.024) |
| **Monthly wage** | 2010 | 2016 | **Diff** |
| Control | 1.069 | 1.252 | 0.183 |
| Treatment | 0.981 | 1.107 | 0.126 |
| **Diff** | -0.088*** | -0.145*** | -0.057* |
| SE | (0.026) | (0.03) | (0.04) |

Note: The treatment group is composed of workers in the informal sector and in receiving cities which are the main refugee recipients (Amman, Mafraq, Irbid, and Zarqa), near to the Syrian border. The control group is workers in the informal sector in more central cities. PSM is based on a probit model that includes workers' gender, age, marital status, HH size, education, and whether they live in a rural area. Standard errors in parentheses. $*p < 0.05$, $**p < 0.01$, $***p < 0.001$

Implementation of the PSM methodology follows a two-step procedure whereby,

in the first step, each worker's probability (propensity score) of receiving a political shock is assessed, conditional on a set of explanatory variables. We include the worker's characteristics as measured by gender, age, marital status, household size, number of years educated and whether living in a rural area as controls within the first stage of the model, to ensure that the two groups are matched on similar characteristics. Therefore, the control and treatment group workers are matched on the basis of their propensity scores.

We present the results in table 3.6, based on the kernel-matching method. The procedure involves taking each employee working in a receiving city (treated) and matching them with the worker in a central city (non-treated) with the most similar propensity scores. The matching results for the informal sector, shown in table 4.6, suggest that the informal sector in the receiving cities has decreased, on average, by 4.4% as a response to the shock after the Syrian War. The estimated DiD coefficient is statistically significant at the five percent level. It is interesting, though, to see the magnitude of the estimated DiD coefficient increasing as we account for (or reduce) possible bias.

With regards to the working hours, the estimated DiD coefficient still does not seem statistically significant. Interestingly, after we account for possible bias the estimated DiD coefficient become negative and statistically significant. the matching results suggest that the monthly wage has dropped in the receiving cities, on average, by 5.7% as a response to the shock after Syrian War.

## 3.6 Conclusion:

This paper focused on the impact of the Syrian War, as a political shock, on native workers in the labour market in Jordan. The paper used the Syrian War as an exogenous event that might have had a negative or positive effect on the labour market in Jordan. Our empirical exercise aims to identify whether native workers living in receiving cities might have been affected by this shock by being replaced by Syrian refugees or having the monthly wage pushed down and working hours increased.

The study employs the differences-in-differences (DiD) framework to compare native workers who live in receiving cities that have a huge number of Syrian refugees with those who live in more central cities, before and after the onset of the Syrian War in 2011, using the Jordan Labour Market Panel Survey (JLMPS) data. The treatment group was composed of native workers living in receiving cities in 2010 and 2016. The control group was composed of native workers in non-receiving cities.

We reported the DiD estimation using OLS for three outcomes: informal sector, working hours, and monthly wage. The estimated coefficient for native workers who live in receiving cities is statistically significant with a positive sign for working in the informal sector and a negative sign for monthly wage, which is consistent with prior expectations. However, the results for the working hours does not seem to be statistically significant after adding the control variables.

The estimated coefficient for the Syrian War is significant with a positive sign for work in the informal sector and monthly wage. The result for monthly wage is contrary to our prior expectations. A possible explanation could be that the wages increased as a result of inflation year to year, from 2010-2016. The estimated coefficient for the Syrian War is statistically insignificant in the case of working hours. Our coefficient of interest (the DiD Recipient*Syrian War) is found to be significant with a negative sign in the case of working in the informal sector. This is consistent with prior expectations: one explanation could be that native workers were replaced by Syrian refugees.

The DiD coefficient for an effect on working hours is found to be insignificant. However, the DiD coefficient for an effect on the monthly wage is significant with a positive sign after adding the control variables.

To account for possible bias due to heterogeneities existing among workers, based on the literature, we employ propensity score matching (PSM), thereby maximising the observable similarity between workers in receiving cities and non-receiving cities

(treatment and control groups). The results show the same as OLS regression for the cases of working in the informal sector and the effect on working hours. Interestingly, the results indicate that native workers who live in receiving cities received lower wages, on average, by 5.7% compared with the workers in more central cities. One explanation could be that this decrease is a result of the presence of Syrian refugees.

# Chapter 4

# The effects of the Syrian refugee crisis on attitudes towards immigrants in the MENA region

## 4.1 Introduction

Over recent decades, immigration has become a prevalent issue considered problematic by natives of many nations Rustenbach (2010).Several countries have faced an increase in anti-immigrant sentiments, which are usually associated with economic conditions and increasing immigrant numbers Scheve and Slaughter (2001); Gang et al. (2002)). As the number of global immigrants increases, understanding the reasons for the presence of anti-immigrant sentiment is becoming increasingly necessary. Understanding these causes may have implications for policymakers; it may help societies be more effective in incorporating immigrants in ways that have cultural and economic advantages with less opposition and upheaval. The immigration debate occupies a high place on the world's political agenda, especially in the United States and Europe. The effects of migration on social cohesion and cultural identity, the strong feelings it implies on native peoples, and the economic impacts make migration a prominent topic in political campaigns.

Often, according to changes in the economic situation, regulations on immigration are modified, Preston and Dustmann (2007). However, economic considerations

are often not the only cause, and one of the most important considerations leading to the redesign of immigration policies is the shift in public attitudes toward immigration. Thus, knowledge of the drivers of individual preferences over immigration policies is a critically important area of research for both policy design and descriptive political economy. Regulations for countries have been much more willing to open up their borders to capital and trade flows than migration, Mayda (2008). Survey data can disclose whether this variation in policy outcome originates from differences in public sentiment towards these policies. There are two types of immigrants (temporary and permanent immigrants). Temporary migration is determined by both the supply for and the demand of migrants. Supply, given income at the temporary location, will depend upon prices at each location, moving costs, and income at the permanent location. Demand at the temporary location will influence the income that temporary migrants can earn. Temporary migration is inherently an investment decision. Income is earned and assets are accumulated, some of which are invested and later consumed upon the migrant's return to the permanent location. Temporary migration may be voluntary (in that a person or family prefers temporary to permanent migration); it may also occur because permanent migration, while preferred, is legally prohibited. (Aly and Shields; 1996)

The Arab Spring and the war in Syria in 2011 led to the displacement of 5.6 million abroad, and most of them went to neighbouring countries (UNHCR, 2021). Turkey, Jordan, and Lebanon are host for most of the Syrian refugees. Turkey hosts 3.6 million, Jordan hosts 1.3 million, and Lebanon hosts around 1 million Syrian refugees. This displacement has created several research fields, such as the impact of Syrian refugees on labour market, education, health services, etc. One of the most important areas is the sentiments of native people towards immigrants, especially that studies are scarce and almost non-existent in that region. This study is important for the policy makers to take it into account when changing the regulations based on the native's attitude.

The existing literature focuses on attitudes towards immigrants based on economic and non-economic factors. The economic concerns are normally related to im-

migration consequences on the welfare state, and the labour markets outcomes, while the non-economic factors focus on religion, traditions, language, political power, cultural alienation, terrorism, etc. The existing literature, such as Doebler (2014) investigated the attitude towards minority ethnic groups such as Muslims in Europe. It is a very important topic to examine the attitude towards immigrants that share the same religion as the natives, specifically, the expectations that the natives will be tolerant towards immigrants. This chapter uses the WVS round 5 and 7 data set, (round 7 was just released months ago). The current chapter uses the following questions to study the attitude towards immigrants: What do you think the government should do about people from other countries coming here to work? The first choice; let anyone come who wants to, the second choice; let people come as long as there are jobs available, the third choice; place strict limits on the number of foreigners who can come here, the fourth choice; prohibit people to come from other countries. The current chapter uses multi-level ordered probit methodology. Interestingly, contrary to expectations, the results showed that the respondents who believed that the religion was important were intolerant towards immigrants.

In this chapter, the current study adds to the existing literature in several ways. Firstly, the existing literature showed the attitudes of the natives towards minorities from other races or other religions. However, this chapter examines natives' attitudes toward Syrian immigrants, as they share language, religion, customs and traditions with most countries. Secondly, this chapter is the first study that will calculate the percentage of Syrian refugees in each governorate and use it in the analysis as a regional variable, as explained in the data section. Thirdly, the current study uses the inequality as a regional variable as well, the inequality variable calculated from the WVS, and this variable is considered to be used for the first time in the analysis. Moreover, there is no study that has examined the attitude towards immigrants as a result of their displacement to neighbouring countries, especially with these large numbers of immigrants. Moreover, the immigrants share the same language, religion, customs, and traditions with natives in the host countries. Furthermore, there is no study in the Middle East and the MENA region (except Israel) that investigates the attitude towards immigrants, as all current studies examine the

attitude in Europe, US, Australia, and New Zealand. Finally, the WVS round 7 is newly published on their website, and the current chapter will be from the first studies using round 7 in general.

In addition to the preceding introduction, this chapter is structured as follows: Section 4.2 reviews the relevant literature; Section 4.3 describes the data set; the methodology is explained in section4.4; Section 4.5 presents the empirical results and section 4.6 concludes.

## 4.2 Literature review

The existing literature has emphasised two main channels - economic and non-economic channels - through which individual attitudes towards immigration are affected. The economic concerns are normally related to immigration consequences on the welfare state, and the labour markets outcomes (such as skill shortage issues, wage level, unemployment level etc.). The non-economic issues relate to religion, fear that immigrants will undermine the traditions, language, political power, cultural alienation (cultural threat/cultural identity), or general way of life of the native population, terrorism, civil rights (non-discrimination and free movement of persons), altruism, and international responsibility.

### 4.2.1 Economic channels

#### Labour market

Bernard (1953, p. 57) is the early study who examine the Economic Effects of Immigration. He founds that the commission, which probably had some impact on the adoption of restrictive immigration legislation in the early 1920s, misrepresented the impacts of immigrant workers on domestic job opportunities. Bernard further attacks the so-called lump of labour fallacy. "Job opportunities in any society are not fixed at any particular level but expand with a rising population" (p. 57). Bernard argues that immigrants as consumers cause an expansion of the market.

They also encourage increased investment expenditures, thereby further contributing to increased aggregate demand. Moreover, immigrants contribute importantly to technological progress and entrepreneurial activity. Bernard is suggesting that immigration causes an outward shift of not only the labour supply schedule, but also the labour demand schedule, but he presents no reason why the demand shift should dominate the supply shift. If the supply shift dominated the demand shift, the consequence would be that wages would fall and indigenous workers would be displaced, though not to the extent that would have happened had no offsetting demand shift occurred."

Scheve and Slaughter (2001) examine individual preferences over immigration policy on labour market competition. They argue that immigration plays a key role in wages using National Election Studies (NES) surveys in the United States. Using an ordered probit model, their results showed that less skilled people prefer more immigration policy restrictions. While more skilled people prefer less restriction on immigration policy.

Likewise, O'rourke and Sinnott (2006) studied the individual attitudes for 24 countries towards immigration on political attitudes, socioeconomic position, and sociodemographic characteristics. The paper employs ordered probit modelling using the National Identity module of the International Social Survey (ISSP). The results showed that the high skilled natives were less opposed to immigration than the low-skilled, the effects were larger in richer countries more than the poorer ones. Moreover, attitudes towards immigration reflect nationalist sentiment among respondents, and older people are more anti-immigration than the younger. Furthermore, attitudes towards refugees are different in nature than attitudes towards immigrants more generally. Respondents are on average less hostile towards refugees than towards immigrants in general.

In a similar way, Facchini and Mayda (2012)investigated the attitude towards skilled migration in 21 European countries using the European Social Survey (ESS) data. Using an ordered probit model, the results showed, in general, respondents preferred skilled immigrants more than unskilled. The results also showed that non-

economic factors such as customs, traditions and national security play an important role. On the economic side, the results show that the unskilled respondents preferred immigrants with higher skill than immigrants of the same skill level; likewise, the richer individuals were more suitable than the poor. Moving on to immigration policies, widespread support for skilled immigrant indicates that a simple model of direct democracy was not fully capable of explaining the limited spread of selective immigration policies for skilled immigrants.

Likewise, Espenshade and Hempstead (1996) examined the attitude towards immigrants (both legal and undocumented) in the United States. They used CBS News / New York Times data. The study uses ordered probit regression to analyse the attitude for six subgroups; isolationist sentiments related to foreign policy, isolationist outlooks as they pertain to international economics matters, feelings of alienation, views about the health of the U.S. economy, demographic and socioeconomic characteristics, and perception of immigrant impact. The results showed that the respondents with a low level of income and education were less likely to support more immigrants. Moreover, respondents were opposed to immigrants due to concern for one's economic and social well-being. Furthermore, respondents who were alienated from political institutions and mainstream society were likely to blame immigrants for part of their problems and want lower immigrants' levels. However, respondents who felt that the current economy was in the best condition were likely to further immigrants. Finally, regards to isolationism respondents, participants who were most consistent with an isolationist perspective would prefer lower levels of immigrants than respondents with a more global outlook.

Some authors have also explored whether immigrations was good for the economy. Zimmermann et al. (2000) argue that if the labour market assimilates the immigrants or if the immigrants doing well in the market, the attitude will be more favorable towards immigrants from the native 12 OECD countries. They use the ISSP data. Using a probit approach the results explore what the natives think that the immigrants are good for in the economy in countries that select the immigrants based on their labour market characteristics. Furthermore, the more educated re-

spondents have positive views of immigrants. Moreover, in countries where the natives fear that the immigrants will take their jobs, they believed that immigration should be reduced. Finally, in countries with mainly asylum seekers and refugees, the respondents who were opposed to immigrants were mainly worried about increased crime rates.

In the same way, Dustmann and Preston (2006) investigated whether the immigrations was bad or good for the economy in 22 European countries using the European Social Survey (ESS). They consider not only the labour market competition factors, they broaden it to factors relating to efficiency considerations and public burden. Then, they discussed if it was affecting the welfare for the natives on different skill groups. The results show, using ordered probit models, that the relationship between education and attitude towards immigrants were strong and positive. Moreover, concerns regarding economic competition were largely represented by overall concerns regarding public burden.

In contrast, Card (2005)investigated if the immigrants harm the opportunities in the labour market for the less skilled natives in the United States. The paper uses OLS regression with IV approach. Card finds that immigrants have little impact on the opportunities of natives who were less educated. While there is no relationship between immigrants and high educated.

Among those who believe that wages are driven down by immigrants Malchow-Møller et al. (2008) investigate if economic self-interest affects people's attitudes towards migration, take advantage of people have vastly different perceptions of the consequences of immigration. They use the European Social Survey (ESS) for 16 European countries. Using ordered probit models, the results showed that among those who believe that wages were driven down by immigrants, members of the workforce were more negative towards immigration than those outside the workforce. Moreover, among those who believe that immigrants take jobs away, those who were likely to be hurt by this were more opposed to immigration. Overall, the paper finds significant evidence of economic self-interest playing a role for individual

attitudes towards immigration.

It has also been suggested that changes in economic conditions play an important role in shaping attitudes towards immigrants, Meuleman et al. (2009) examine the evolution of attitudes toward immigration among Europeans. They use three rounds from the ESS. To investigate this change the study uses a Multiple-Group Multiple Indicator Structural Equation Modeling (MGSEM) approach. The results found that individuals became more open towards immigration over a 5-year period, whereas anti-immigration attitudes were on the increase in three countries. Moreover, the findings reveal that the evolution of attitudes toward immigration was considerably different in the countries under study. Diversity of attitudes toward immigration seems to increase, since the countries that figure at the extremes of the country rankings in 2002 (Hungary and Sweden) were shown to move even further away from the European average. Furthermore, the data reveal that changes in economic conditions and minority group size play a role in the process of attitude formation. Attitude changes appear to depend on changes in the minority group size. With respect to economic conditions, mixed evidence is found. Decreasing unemployment rates seem to lead to more positive attitudes toward immigration. Using real GDP growth as an indicator for change in the economic situation, however, no relation with attitude changes were found. Possibly, real GDP growth may be a defective indicator for the increase in material wealth for the majority population because GDP calculations do not take the distribution of income into account. Sudden changes in unemployment figures were probably more tangible for large portions of the population.

Moreover, Mayda (2008) examines the individual attitudes towards immigration and trade in different economic development stage countries. Mayda used individual-level data set in comparative term for several countries. The paper uses the ISSP. The study focuses on the short-term difference in attitudes as the long term cannot explain the differences. Mayda finds that the native respondents were on average more pro-trade than pro-immigration.

**Welfare**

While competition in the labour market is an important factor, and it may not be the only economic concern which forms preferences over immigration. Borjas (1996) notes that the second economic issue was the welfare system. He debates that in the US, immigrants receive a disproportionately large share of the welfare benefits distributed. Borjas draws attention to the possible impact of immigration on dependency ratios and the consequent effects on the cost of the benefit and social security systems.

Since under progressive taxation, any implied tax burden will bear more heavily on richer households, this provides a possible reason for greater concern among those with higher incomes. Preston and Dustmann (2007) used the British Social Attitudes Survey (BSA). Using a probit model, the results show that there was strong evidence that welfare concerns were associated with opinion towards further immigration. Moreover, perceived welfare effects where the better-off carry the burden increases in dependency ratios arise from immigration. Finally, there was no strong evidence that the greater labour market concerns believed to exist among unskilled and manual workers were reflected in opposition towards further immigration.

In addition to the welfare status, Facchini and Mayda (2009) examine welfare-state determinants of individual attitudes toward immigrants—within and across countries—and their interaction with labour market drivers of preferences, using the 1995 National Identity Module of the ISSP. With the attitude towards immigrants, the paper uses probit regressions, and the result found that individual attitudes toward immigrants were on average consistent with the tax adjustment, when the tax increases the sentiment become more intolerant.

Furthermore, Citrin et al. (1997) investigate whether or not the attitude towards immigrants can be attributed to the native's concerns and their economic conditions in the United States. The study employs ordered probit models using the American National Election Study (ANES) 1992 round. The results show that the respondents' personal economic concerns have little effect on the attitude towards immigrants.

However, the respondents think that the anxiety over taxes, the state of the national economy, and overall feelings about the major immigrant groups, Asians and Hispanics, were important determinants of restrictive feelings.

### 4.2.2 Non-economic channels

Further to the economic channels, there are non-economic channels affect the attitude towards immigrants. According to religion, Gorodzeisky and Semyonov (2019) examine unwelcome immigrants and different groups among Europeans. The study was based on exploring the level of opposition to immigration across migrant groups. Gorodzeisky and Semyonov 2019 use the 2014 ESS for 20 countries and include the following groups: Jewish, Roma immigrants, Muslim, immigrants of different race/ethnic group, and immigrants of the same race/ethnic group as a majority population. The results show, using multivariate analysis, that the level of opposition to immigration was more extreme towards the Roma and Muslims and less towards the Jews and same ethnic groups. Moreover, the results also showed that the sources also differ in the level of the opposition. The sources of splitting the opposition were divided into two categories: the group-specific and universal sources. The group-specific sources consist of inter-group contact and fear of crime, and racism tends to raise the opposition exclusive to Roma and Muslim immigrants. While universal sources (the sources that increase the opposition of all migrants, regardless of their origin), relate to the threat of competition for economic, symbolic, and social resources. However, racism does not increase the exclusive opposition to race / ethnic migrants, which differs from most of the country's population. Fear of crime does not likely oppose immigrants towards Muslims, but it excites opposition exclusively from Rome and various races / ethnic groups. The results confirm the multiple sources behind the emergence of anti-immigrant sentiments in general, and opposition to specific groups of migrants, in particular.

In a similar view, another paper examines the attitude towards migrants based on religion. Leon McDaniel et al. (2011)explore how religion affects attitudes towards immigrants in the United States. Using the Pew Survey on immigration and

the Cooperative Congressional Election Survey (CCES), the results found that members of minority religious groups were less anti-immigrant than members of majority affiliations. Furthermore, the results show that the most hostile were Evangelical Protestants, whereas religious affiliation only affects immigrant animus when Christian nationalism was excluded.

In the light of reported attitude towards Muslims, Creighton and Jamal (2015) investigated if Islam played a key role in anti-immigrants attitudes in the United States. The study uses Time-Sharing Experiments for the Social Sciences (TESS) data. They employ regression based on four categories, Catholic, Evangelical Christian, Mainline Protestant, and other Christian. The results showed, using logit model, that Muslim immigrants face explicit opposition, relative to Christian immigrants.

Similarly, Doebler (2014) examined the relationship between tolerance and religion towards immigrants and Muslims in 47 European countries. The paper employed multilevel analysis using the European Values Study (EVS). The results found that there were large differences in the overall levels of intolerance towards Muslims and immigrants between-country. Moreover, Muslims were less accepted than immigrants in most countries. Finally, Western Europeans tend to be less intolerant than Eastern Europeans.

With regards to Culture and national identity, Ben-Nun Bloom et al. (2015) argue that the material and cultural threats affect the attitude of natives in 22 European countries towards immigrants. The study employs multilevel structural models using the ESS and the results explored the respondent's belief that immigrants may pollute the local the homogeneous composition and culture of the national population.

According to fear of national identity, Raijman and Semyonov (2004) studied the determinants of attitudes towards immigrants in Israeli. They obtain the data from the Attitudes Towards Minority Workers Survey' conducted by the B.I. and Lucille

Cohen Institute for Public Opinion Research. Using structural equation modelling, the results showed that the respondents were opposed to grant social right to immigrants. Moreover, the Jews fear for the nation's ethnic character if non-Jews were integrated into Israeli society.

In addition, Sniderman et al. (2004) investigated the opposition to immigrant minorities in Western Europe, especially on The Netherlands based on social identity and economic well-being. The experiments in the study used the public opinion survey carried out in The Netherlands. The result shows that considerations of national identity were more important than economic considerations of hostility towards immigrant minorities.

Moreover, Licata and Klein (2002) investigated the impact of European identity on the attitudes towards non-Europeans immigrants. They used a questionnaire for 313 undergraduate French-speaking Belgian psychology students at the Université Libre de Bruxelles. The results obtained by Alceste procedure show that strong European identifiers were more opposed to immigrants than weak European identifiers, while this does not hold for national identification.

Based on racism, studies have confirmed the racial / ethnic bias that plays an important role in shaping attitudes towards immigrants. Gorodzeisky and Semyonov (2016) explore how racial prejudice toward non-European/non-White minority population can affect public views toward immigrants in European Societies. Using the ESS data, the results showed that the racial prejudice toward racial/ethnic minority population plays an important role, and the negative attitudes toward immigrants (regardless of their race/ethnic origin) were not formed only by threat to the cultural homogeneity of society and fear of competition over economic and social resources. The hierarchical linear model (HLM) demonstrates that the competition increases anti-immigrant attitudes, while racial prejudice found as an independent additional impact on anti-immigrant attitudes.

Previous studies have explored whether attitudes changed after 9/11 event.

Åslund and Rooth (2005) explore whether the attitude towards immigrants were increasingly negative shift in the labour market in Sweden after the event of 9/11. The study uses Institute for Labour Market Policy Evaluation (IFAU) data after and before 9/11. Using the Difference in Difference approach (DID) on some ethnic groups (such as Muslims) the results showed that the job searchers or employers do not denote any shifts immediately to public opinion towards immigrants. Moreover, they did not find a direct link between the changes in the labour market with the feelings of discrimination.

Another study focuses on ethnic minorities, Dustmann and Preston (2001) explore the attitude for the majority of the ethnic groups towards ethnic minorities in the United Kingdom. They employ ordered probit model using the British Social Attitude survey (BSA). The results find that the individuals were more negative towards minorities if they were in a higher rank of household income distribution. However, the individuals were more positive towards minorities if they were educated, while less educated individuals have more negative attitudes. Furthermore, council house occupiers, women, and Catholics have positive attitude towards minorities. Finally, the results show negative attitude towards minorities if there was a higher concentration of them.

Regarding the fear of crime, most of the respondents believe that migrants are the ones who are responsible for increasing rates of violence and crime. Semyonov et al. (2008) examined the attitude towards immigrants using the ESS data for 21 European countries. The paper used multi-level regression, and the results revealed that the overall perception towards immigrants was negative. Moreover, the respondents believed that the most negative impact of immigrants was on crime. The negative attitude is more likely to be in countries that have large proportions of foreigners and where the support for right-wing political parties was more widespread.

Another study for Ceobanu (2011) examines the public views if the immigrants affect on crime and if it is linked with measures of criminal behaviour in Europe. The paper uses hierarchical regression models using the ESS. The results reveal

that perceptions are not affected by personal experience with crime and by contextual measures such as prison population rate, homicide rate, and ratio of foreign prisoner to non-European foreign population. However, at country level, the respondents believed that immigrants increased crime problems in countries that have larger numbers of non-European immigrants, but this perception was not affected by economic circumstances.

Similarly, Turper (2017) examines the perceptions on anti-immigrant sentiments in the Netherlands. The paper argues that if the considerations about criminality of potential immigrants and economic prospects affect the public support for individual immigrants using the ESS. The results showed that both safety and economic considerations highly influence the public support for individual immigrants. Moreover, respondents' attitudes on acceptability of individual immigrants were mostly shaped by considerations about criminality of potential immigrants and social welfare costs.

Finally, there has been numerous studies to investigate both the economic and noneconomic determinants of individual attitude towards immigrants. Mayda (2006) examined the individual attitude towards immigrants in a cross-country study. He uses two data sets, the ISSP and the WVS. He examined the economic and noneconomic determinants of individual attitudes towards immigrants in developing and developed countries. With the economics determinants he focused on standard trade and labour-economics theories of labour markets (Heckscher-Ohlin model and the factor-proportions-analysis mode). With regards to noneconomic factors, he focused on cultural and national-identity issues and security worries. Using OLS and weighted least squares (WLS) Mayda found that noneconomic determinants wemore important than the economic variables considered. The results showed that attitudes toward immigrants were related to labor market concerns, individual feelings toward illegal immigration and political refugees, and security and cultural considerations. Countries where immigrants were on average unskilled, the individual skill was positively correlated with pro-immigration attitudes. While in countries where immigrants were on average skilled, it is negatively correlated with attitudes.

Moreover, Card et al. (2005) examined public opinions about immigration, and the various dimensions of economic, private and public life that individuals felt were affected by immigration, using the ESS. The results show that there is substantial variation in the strength of anti-immigrant opinion across European countries, and attitudes toward immigration also varied systematically with characteristics such as age, education, and urban/rural location.

With regards to studies that explored different sources of shaping the attitude towards immigrants, Rustenbach (2010) examined eight sources of the negative attitude towards immigrants in Europe. The sources included; economic competition, human capital theory, contact theory, cultural marginality theory, neighborhood safety, societal integration, foreign investment and political affiliation. Rustenbach used the ESS and Eurostat / OECD, and regional, individual, and national-level predictors. Using Hierarchical Linear Models the results showed that anti-immigrant attitudes, across Europe, were largely driven by, education, interpersonal trust, political explanations and foreign direct investment. Moreover, it was often believed that the number of migrants and economic variables was a major cause of anti-immigrants, but the results showed that were weak and not related to attitudes against them, and the individual level showed that the differences in anti-immigrant attitudes is greater than at the regional and national levels.

## 4.3 Data

### 4.3.1 Introduction

The current chapter employs data obtained from the WVS based in Vienna, Austria. The WVS is an international network of social scientists studying changing values and their impact on political and social life. The survey started in 1981 and covered 100 countries from very rich to very poor countries and over almost 90 percent of the world's population. The WVS has currently conducted 7 waves; wave 1 was conducted between 1981-1984, wave 2 was conducted between 1990-1994, wave 3 was conducted between 1995-1998, wave 4 was conducted between 1999-2004, wave

5 was conducted between 2005-2009, wave 6 was conducted between 2010-2014, and wave 7 was conducted between 2017-2020. The WVS have information about; security, health, and education; cultural differences and similarities between societies and regions; attitudes and experience of poverty; cultural values, beliefs and attitudes towards family, gender, and religion; attitudes towards multilateral institutions; social tolerance and trust. The WVS survey's main data collection method is a face-to-face interview at the respondent's place of residence. Other interview modes employed in WVS-7 include self-administered online survey, postal survey, and a telephone interview (combined with other surveying techniques).

The question that this chapter used in the analysis was; what do you think the government should do about people from other countries coming here to work? The first choice; let anyone come who wants to, the second choice; let people come as long as there are jobs available, the third choice; place strict limits on the number of foreigners who can come here, the fourth choice; prohibit people coming from other countries. This question is only existing in wave 5 and 7, accordingly, the current chapter will use both rounds 5 and 7, respectively.

The countries available in the MENA region in both waves were; Jordan, Turkey, Egypt, Iraq, and Iran. Jordan and Turkey are hosting most of the Syrian refugees; Turkey hosts 3.6 million, and Jordan hosts 1.3 million. Lebanon hosts around 1 million Syrian refugees, but there was no data for Lebanon in wave 5. Jordan has 1,200 respondents in wave 5 and 1,203 in wave 7, Turkey has 1,346 respondents in wave 5 and 2.415 in wave 7, Egypt has 3,051 respondents in wave 5 and 1,200 in wave 7, Iraq has 2.701 respondents in wave 5 and 1,200 in wave 7, and Iran has 2.667 respondents in wave 5 and 1,499 in wave 7. The total observations in our sample include 18,482 individuals.

Furthermore, this chapter uses macro-data in the analysis of regional and country level. The analysis included two variables for both country and regional level. The country-level variables were; GDP per capita and the percentage of Shia in each country. Moreover, the regional level variables were; inequality in each city (calcu-

lated from WVS; we take the number of respondents who were in the top level in income which is level 10 and divided this number by the total number of respondents from same city), and the percentage of Syrian refugees in each city. The data were collected from the World Bank and the official website for each country.

### 4.3.2 Jordan sample

The WVS has four rounds for Jordan, waves number 4, 5, 6, and 7. This section will report wave 5 and wave 7. The data set has 1,200 respondents in wave 5 and 1,203 in wave 7. The gender distribution for female, was 50.6% in wave 5 and 49.5% in wave 7. The average age of the respondents was 37.6 and 43.3 years old in wave 5 and wave 7, respectively. With regards to education, 33.3% of the respondents have a primary school level or less in wave 5, while 15.3% in wave7. 39.4% and 59.8% of the respondents have secondary school level in wave 5 and wave 7, respectively. Moreover, 27.3% of the respondents have a college level education and above in wave 5 and 24.8% in wave 7.

Table 4.1: Independent Variables and the Individual Descriptive Statistics for Jordan

| Variable name | Percentage | |
|---|---|---|
| | Wave 5 | Wave 7 |
| Female | 50.6 | 49.5 |
| Primary school and under | 33.3 | 15.3 |
| Secondary school | 39.4 | 59.8 |
| College level and above | 27.3 | 24.8 |
| Religion is important | 95.3 | 94.3 |
| Religion is rather important | 4.4 | 3.5 |
| Religion is not important | 0.3 | 1 |
| Immigrants | 23 | 27.2 |
| Variable name | Mean | |
| | Wave 5 | Wave 7 |
| Age (in years) | 37.6 | 43.3 |

In addition, the sample includes data about religion. The survey has questions about how religion was important. Of the respondents, 95.3% answered that religion

was important in wave 5 and 94.4% in wave 7. The respondents who believed that the religion was rather important were 4.4% and 3.5% in wave 5 and wave 7, respectively. Finally, only 0.3% believed that the religion was not important in wave 5 and 1% in wave 7. The last individual level variable was about the immigrant status (if the respondents or their father immigrants to the country). The data shows that 23.0% of the respondents were immigrants in wave 5 and 27.2% in wave 7, see table 4.1.

Moving to our interest variable related to attitudes and perceptions (dependant variable). The survey contains this question; what do you think the government should do about people from other countries coming here to work? The first choice; let anyone come who wants to, the second choice; let people come as long as there are jobs available, the third choice; place strict limits on the number of foreigners who can come here, the fourth choice; prohibit people to come from other countries. The data showed that 2.1% chose to let anyone come who wants to in wave 5 and 6.1% in wave 7. Furthermore, 28.8% and 17.2% choose to let people come as long as there were jobs available in wave 5 and wave 7, respectively. On the other hand, 44.4 chose to place strict limits on the number of foreigners who can come here in wave 5 and 57.1% in wave 7. Finally, 24.7% chose to prohibit people to come from other countries in wave 5 and 19.5% in wave 7.

### 4.3.3 Egypt sample

The WVS has four rounds for Egypt, waves number 4, 5, 6, and 7. This section will report wave 5 and wave 7. The data set has 3,051 respondents in wave 5 and 1,200 in wave 7. The gender distribution for females, was 61.7% in wave 5 while the percentage dropped to 48.3% in wave 7 as the wave 5 sample were biased to female and modified by computed weights according to their distribution in the population. The average age of the respondents was 41.0 and 39.7 years old in wave 5 and wave 7, respectively. With regards to education, 48.3% of the respondents had a primary school level or less in wave 5, while 31.8% in wave 7. Of the respondents, 33.8% and 47.2% have a secondary school level education in wave 5 and wave 7, respectively.

One of the explanations for the decrease in the primary school level and the increase in the secondary school level was that the literacy rate was increased by 4.4% from 66.4% in wave 5 to 71.1% in wave 7. Furthermore, females have lower literacy rates than males in Egypt. Moreover, 17.9% of the respondents have college level and above education in wave 5 and 20.9% in wave 7.

In addition, the sample includes data about religion. The survey has questions about how religion was important. Of the respondents, 95.8% answered that religion was important in wave 5 and 97.3% in wave 7. The respondents who believed that the religion was rather important was 3.9% and 2.7% in wave 5 and wave 7, respectively. Finally, only 0.4% who believed that religion was not important in wave 5 and 0% in wave 7. The last individual level variable was about the immigrant status (if the respondents or their fathers immigrants to the country). The data shows that 0.5% of the respondents were immigrants in wave 5 and 0.3% in wave 7, see table 4.2.

Table 4.2: Independent Variables and the Individual Descriptive Statistics for Egypt

| Variable name | Percentage | |
|---|---|---|
| | Wave 5 | Wave 7 |
| Female | 61.7 | 48.3 |
| Primary school and under | 48.3 | 31.8 |
| Secondary school | 33.8 | 47.2 |
| College level and above | 17.9 | 20.9 |
| Religion is important | 95.8 | 97.3 |
| Religion is rather important | 3.9 | 2.7 |
| Religion is not important | 0.4 | 0 |
| Immigrants | 0.5 | 0.3 |
| Variable name | Mean | |
| | Wave 5 | Wave 7 |
| Age (in years) | 41 | 39.7 |

Moving to our interest variable related to attitudes and perceptions (dependant variable). The survey contains this question; what do you think the government should do about people from other countries coming here to work? The first choice; let anyone come who wants to, the second choice; let people come as long as there are jobs available, the third choice; place strict limits on the number of foreigners

who can come here, the fourth choice; prohibit people to come from other countries. The data shows that 5.3% chose to let anyone come who wants to in wave 5 and 9.9% in wave 7. Furthermore, 24.9% and 21.3% chose to let people come as long as there were jobs available in wave 5 and wave 7, respectively. On the other hand, 42.5 chose to place strict limits on the number of foreigners who could come here in wave 5 and 60.0% in wave 7. Finally, 24.2% choose to prohibit people to come from other countries in wave 5 and 8.9% in wave 7.

### 4.3.4 Turkey sample

The WVS has 6 rounds for Turkey; waves number 2- 7. This section will report 2007 round (wave 5) and 2018 rounds (wave 7). The data set has 1,346 respondents in wave 5 and 2,415 in wave 7. The gender distribution for females, was 49.8% in wave 5 and 50.0% in wave 7. The average age of the respondents was 36.5 and 38.8 years old in wave 5 and wave 7, respectively. With regards to education, 47.9% of the respondents have primary school level or less in wave 5, while 13.7% in wave 7. One of the explanations for the decrease in the primary school level was that the literacy rate was increased by 7.4% from 88.7% in wave 5 to 96.1% in wave 7. 40.0% and 55.6% of the respondents have secondary school level in wave 5 and wave 7, respectively. Moreover, 12.1% of the respondents have a college level education and above in wave 5 and increased to 30.8% in wave 7 as the literacy rate has increased.

With regards to religion, 75.0% of the respondent answered that religion was important in wave 5 and 60.2% in wave 7. The respondents who believed that religion was rather important was 16.4% and 28.4% in wave 5 and wave 7, respectively. Finally, only 8.6% who believed that the religion was not important in wave 5 and 11.4% in wave 7. The last individual level variable was about the immigrant status (if the respondents or their father immigrants to the country). The data shows that 5.9% of the respondents were immigrants in wave 5 and 0.6% in wave 7, see table 4.3.

Moving to our interest variable related to attitudes and perceptions (dependant variable). The survey contains this question; what do you think the government

Table 4.3: Independent Variables and the Individual Descriptive Statistics for Turkey

| Variable name | Percentage | |
|---|---|---|
| | Wave 5 | Wave 7 |
| Female | 49.8 | 50 |
| Primary school and under | 47.9 | 13.7 |
| Secondary school | 40 | 55.6 |
| College level and above | 12.1 | 30.8 |
| Religion is important | 75 | 60.2 |
| Religion is rather important | 16.4 | 28.4 |
| Religion is not important | 8.6 | 11.4 |
| Immigrants | 5.9 | 0.6 |
| Variable name | Mean | |
| | Wave 5 | Wave 7 |
| Age (in years) | 36.5 | 38.8 |

should do about people from other countries coming here to work? The first choice; let anyone come who wants to, the second choice; let people come as long as there are jobs available, the third choice; place strict limits on the number of foreigners who can come here, the fourth choice; prohibit people to come from other countries. The data shows that 8.7% chose to let anyone come who wants to in wave 5 and 5.2% in wave 7. Furthermore, 42.4% and 25.2% chose to let people come as long as there are jobs available in wave 5 and wave 7, respectively. On the other hand, 27.8 chose to place strict limits on the number of foreigners who can come here in wave 5 and 45.5% in wave 7. Finally, 21.2% chose to prohibit people to come from other countries in wave 5 and 24.1% in wave 7.

### 4.3.5 Iraq sample

The WVS has 4 rounds for Iraq, waves number 4 to 7. This section will report wave 5 and wave 7. The data set has 2,701 respondents in wave 5 and 1,200 in wave 7. The gender distribution for females, was 51.6% in wave 5 and 49.3% in wave 7. The average age of the respondents was 37.1 and 36.6 years old in wave 5 and wave 7, respectively. With regards to education, 50.6% of the respondents have primary school level or less in wave 5, while 32.7% in wave 7. Of the respondents, 33.1% and

41.8% have secondary school level in wave 5 and wave 7, respectively. Moreover, 16.2% of the respondents have college level and above in wave 5 and 25.5% in wave 7.

Table 4.4: Independent Variables and the Individual Descriptive Statistics for Iraq

| Variable name | Percentage | |
|---|---|---|
| | Wave 5 | Wave 7 |
| Female | 51.6 | 49.3 |
| Primary school and under | 50.6 | 32.7 |
| Secondary school | 33.1 | 41.8 |
| College level and above | 16.2 | 25.5 |
| Religion is important | 96.1 | 87.6 |
| Religion is rather important | 3.4 | 9 |
| Religion is not important | 0.6 | 3.4 |
| Immigrants | 0 | 0 |
| Variable name | Mean | |
| | Wave 5 | Wave 7 |
| Age (in years) | 37.1 | 36.6 |

With regards to religion. 96.1% of the respondents answered that religion was important in wave 5 and 87.6% in wave 7. The respondents who believed that religion was rather important were 3.4% and 9.0% in wave 5 and wave 7, respectively. Finally, only 0.6% who believed that the religion was not important in wave 5 and 3.4% in wave 7. The last individual level variable was about the immigrant status (if the respondents or their fathers were immigrants to the country). The data shows that there were no immigrants, see table 4.4.

### 4.3.6 Iran sample

The WVS has 3 rounds for Iran, waves number 4, 5, and 7. This section will report wave 5 and wave 7. The data set has 2,667 respondents in wave 5 and 1,499 in wave 7. The gender distribution for female, is 49.9% in wave 5 and 48.9% in wave 7. The average age of the respondents was 32.6 and 39.5 years old in wave 5 and wave 7, respectively. With regards to education, 30.7% of the respondents have primary school level or less in wave 5, while 14.6% in wave7. 45.2% and 48.5% of the respondents have secondary school level education in wave 5 and wave 7, respectively.

Moreover, 24.2% of the respondents have college level and above education in wave 5 and 36.9% in wave 7.

With regards to religion. 78.5% of the respondent answered that religion was important in wave 5 and 70.6% in wave 7. Accordingly, Iran and Turkey have less importance of religion compared with Jordan, Egypt, and Iraq. For Turkey, one of the explanations could be because of The Justice and Development Party who is a secular party that seeks to establish the neutrality of the state toward religion (the separation of religion and the state). While for the case of Iran, it could be because most of the population are Shia, and the current ruling regime in Iran is based on extremism in religion and restricts freedoms. This could be the reason for the people's distaste for their belief that religion is not very important. However, the respondents who believe that the religion was rather important are 16.2% and 22.0% in wave 5 and wave 7, respectively. Finally, only 5.4% believed that religion was not important in wave 5 and 7.4% in wave 7. The last individual level variable was about the immigrant status (if the respondents or their fathers were immigrants to the country). The data shows that 0.0% of the respondents were immigrants in wave 5 and 0.8% in wave 7, see table 4.5.

Table 4.5: Independent Variables and the Individual Descriptive Statistics for Iran

| Variable name | Percentage | |
|---|---|---|
| | Wave 5 | Wave 7 |
| Female | 48.9 | 48.9 |
| Primary school and under | 30.7 | 14.6 |
| Secondary school | 45.2 | 48.5 |
| College level and above | 24.2 | 36.9 |
| Religion is important | 78.5 | 70.6 |
| Religion is rather important | 16.2 | 22 |
| Religion is not important | 5.4 | 7.4 |
| Immigrants | 0 | 0.8 |
| Variable name | Mean | |
| | Wave 5 | Wave 7 |
| Age (in years) | 32.6 | 39.5 |

Moving to our interest variable related to attitudes and perceptions (dependant

variable). The survey contains this question; what do you think the government should do about people from other countries coming here to work? The first choice; Let anyone come who wants to, the second choice; let people come as long as there are jobs available, the third choice; place strict limits on the number of foreigners who can come here, the fourth choice; prohibit people to come from other countries. The data shows that 5.0% chose to let anyone come who wants to in wave 5 and 3.0% in wave 7. Furthermore, 17.5% and 41.6% chose to let people come as long as there were jobs available in wave 5 and wave 7, respectively. On the other hand, 50.8 chose to place strict limits on the number of foreigners who can come here in wave 5 and 38.0% in wave 7. Finally, 17.4% chose to prohibit people to come from other countries in wave 5 and 26.7% in wave 7.

### 4.3.7 Macro-data variables

This chapter presents macro-data at country and regional levels. The country level variables were; GDP per capita, and the percentage of the Shia in each country. The highest GDP per capita ws in Turkey; 9,712 USD in wave 5 and 9,370 USD in wave 7. The lowest GDP per capita was in Egypt; 2,045 USD in wave 5 and 2,549 USD in wave 7. The rest of the countries are presented in table 4.6.

Table 4.6: GDP per capita at country level (current /USD)

| Country | Wave 5 | Wave 7 |
|---|---|---|
| Turkey | 9712 | 9370 |
| Iraq | 2373 | 5834 |
| Iran | 3246 | 5506 |
| Jordan | 2735 | 4241 |
| Egypt | 2045 | 2549 |

On the other hand, the second country level variable was the percentage of Shia. The chapter includes this variable as most Muslims are either Sunni or Shia, and that could affect the intolerance towards another group (Sunni towards Shia or Shia towards Sunni). As the majority of the Syrian refugees were Sunni, this study believes this variable affects the attitude towards immigrants. The highest percentage of Shia was in Iran; 89.1% in wave 5 and 89.0% in wave 7. The lowest percentage of

Shia ws in Egypt; 0.02% in both waves 5 and 7. The rest of the countries are listed below, see table 4.7.

Table 4.7: the percentage of Shia in each country

| Country | Wave 5 | Wave 7 |
|---|---|---|
| Iran | 89.1 | 89 |
| Iraq | 59.5 | 60.5 |
| Turkey | 14.5 | 14.5 |
| Jordan | 1.9 | 2.3 |
| Egypt | 0.02 | 0.02 |

Moreover, this chapter uses two levels of regional data; inequality and the percentage of Syrian refugees in each city. The inequality variables were calculated from the WVS. We divided the number of people who had the highest rank of income scale in each city by the total number of the respondent in the same city, the variable scale is from 1 to 10 (from lowest to highest), we take the highest scale which is scale number 10. We believe that this is the first study that uses this variable as a regional level. The highest inequality percentage was 25.0% in Balqa city in Jordan in wave 5, where the lowest was zero for many cities in all countries. The table of each city will be in the appendix (A.1).

Furthermore, the second regional variable was the percentage of Syrian refugees. We calculated the percentage by collecting the number of Syrian refugees in each city and dividing it by the total population of each city. Again, we believe this is the first study that use the percentage of Syrian refugees as a regional level. The highest percentage was 26.8% in Mafraq city in Jordan in wave 7 and the percentage for wave 5 was zero for all cities as wave 5 was before the Syrian War. The table of each city will be in the appendix (A.2).

## 4.4 Methodology

Attitudinal studies are regularly scored employing a Likert scale (Likert, 1932), which creates data within the shape of ordered, or ordinal, answers. The most

common example of the ordinary scale is; strongly disagree, disagree, neither disagree nor agree, agree, and strongly agree. Various scales emerged undoubtedly as a result of the attitude measurement as it has no natural unit to be measured. For several reasons, responses related to data on ordinal scales are challenging to handle statistically. An ordered probit model is one of the models suitable for the analysis of ordinal data. The main idea of an ordered probit model is that the ordered response is a random variable that is inherent, continuously distributed and representing tendency to agree. By using maximum likelihood, the distributional parameters of this implied latent variable are estimated, and these parameters have interpretations which are beneficial to the investigator.

Ordered probit model attractiveness is easily estimated by looking at the consequences of analysing ordered results using linear regression techniques. The first undesirable consequence of applying linear regression is that it implicitly assumes that, for example, the difference between a 'strongly disagree' response and a 'disagree' response is the same as that between a 'disagree' and a 'neither disagree nor agree'. There is no logical reason for assuming these differences to be the same since the categories only reflect ordinality. The same assumption is not implicit in ordered probit. This point is highly relevant because the interpretation that is given to a linear regression coefficient is in terms of the number of units by which we expect the dependent variable to change in response to a one-unit increase in an explanatory variable. This interpretation is inappropriate if the dependent variable is ordinal. Secondly, the use of linear regression implicitly assumes that two respondents who give the same response have the same attitude. This is not the case; a particular response is consistent with a range of attitudes. While differences in attitude for a given response are clearly unobservable, a model should allow for the fact that such differences exist. It is well-known (Stewart, 1983) that ignoring such differences in the context of "grouped" data leads to biased estimation. This problem is likely to be particularly severe when the number of categories is small.

A closely related issue is what Hedeker and Gibbons (1994) refer to as "floor" and "ceiling" distortions. For an example of the latter, if a respondent currently

responds with the highest possible value, and their circumstances change in a way generally expected to increase the response, their response will not increase; it will remain unchanged. The result of this is likely to be a bias towards zero in each regression coefficient.

Thirdly, since the responses to a question depend partly on its wording, and since in linear regression, the responses are modelled directly, results cannot be invariant to the wording of the question. However, the distribution over the population of the underlying attitude, which is the focus of analysis, should be invariant to the wording of the question. Because the ordered probit model estimates the parameters of this underlying distribution, rather than the response itself, any such "framing effects" are likely to be avoided, it is the cut-points, rather than the distribution itself, which are expected to adjust when the wording of the question changes.

To capture the effects of refugee crisis on attitudes towards immigrants, this paper employs ordered probit estimation as mentioned above. A regression-based estimator can be obtained by estimating the following equation:

$$y_i^* = \beta' x_i + \epsilon_i \tag{4.1}$$

Where $y_i^*$ is the latent and continuous measure of how the respondent think about that government should do with immigrants, $x_i$ is a vector of explanatory variables describing sociodemographic background of the respondents, (age, gender, education level, the importance of religion, and if the respondents are immigrants), $\beta$ is a vector of parameters to be estimated, and $\epsilon_i$ is a random error term (assumed to follow a standard normal distribution).

Our dependant variable which is how the respondent think about that government should do with immigrants, $y_i^*$, is determined from the model as follows:

$$y = 1 \text{ if } -\infty \leq y_i^* \leq k_1 \text{ Let anyone come who wants to come} \tag{4.2}$$

$$y = 2 \text{ if } k_1 \leq y_i^* \leq k_2 \text{ Let people come as long as there are jobs available} \quad (4.3)$$

$$y = 3 \text{ if } k_2 \leq y_i^* \leq k_3 \text{ Place strict limits on the number of foreigners who can come here} \quad (4.4)$$

$$y = 4 \text{ if } k_3 \leq y_i^* \leq k_4 \text{ Prohibit people coming here from other countries} \quad (4.5)$$

Where the $k_i$ represent the thresholds (known as ''cut-points") to be estimated (along with the parameter vector $\beta$).

On the other hand, to deal with correct inferences, substantive interest in group effects, estimating group effects simultaneously with the effects of group-level predictors, and inference to a population of groups, this paper will use a Multi-Level Ordered Probit Model. The model will employ 3 levels, level one is the individuals data from WVS, level two is regional level (city level); inequality percentage and the percentage of Syrian refugees in each city, and level three is the country level; GDP per capita and the percentage of Shia in each country.

The model decomposes the total response variable variation into separate level-specific variance components. Our dependant variable which is how the respondent think about that government should do with immigrants, $y_{ijk}^*$ , is determined from the model as follows:

$$y_{ijk}^* = \beta 0 + v_k + u_{jk} + \epsilon_{ijk} \quad (4.6)$$

$$v_k \sim N(0, \sigma_v^2) \quad (4.7)$$

$$u_{jk} \sim N(0, \sigma_u^2) \quad (4.8)$$

$$\epsilon_{ijk} \sim N(0, \sigma_{\epsilon}^2) \tag{4.9}$$

where $y_{ijk}$ is the observed individual for respondent $i$ in city $j$ in country $k$ , $\beta 0$ is the mean response across all countries, $v_k$ is the effect of country $k$ , $u_{jk}$ is the effect of city $j$ within country $k$, and $\epsilon_{ijk}$ is the residual error term. The random effects and residual errors are assumed independent of one another and normally distributed with zero means and constant variances. The $i$, $j$ and $k$ indices are defined as;

$$i = 1, \ldots. \ , n_{jk}, j = 1, ...., J_k, k = 1, ...., K \tag{4.10}$$

where $n_{jk}$ denotes the number of respondents in the $j$ city within country $k$ , $J_k$ denotes the number of city in country $k$ , and $K$ denotes the number of countries in the sample.

## 4.5 Results

4.8 presents the ordered probit model and multi-level ordered probit estimation, taking into consideration the sociodemographic background of the respondents, (age, gender, education level, the importance of religion, and if the respondents are immigrants). The estimation does not include Turkey (Turkey has been dropped as there was no data available for the location of the respondents in each city). The first column shows the results of the ordered probit model, while the second column shows the results for the multi-level ordered probit model using GDP per capita and percentage of Shia in each country as a country level, and using the percentage of people who sat on the top rank of the high income in each city as a regional variable. Finally, the third column shows the results of multi-level ordered probit model using GDP per capita and percentage of Shia in each country as a country level, and using the percentage of Syrian refugees in each city as a regional variable. With regard to age, ordered probit and multi-level results find that older people were more likely to be tolerant towards immigrants by around 1% in all models. This result was within

our expectations and consistent with previous studies. However, females were more likely to be intolerant towards immigrants by 4.8% in first model and around 4.4% and 4.2% in second and third model, respectively. One of the explanations could be that immigrants take women's jobs in the market, especially low skills level, so they are intolerant. Furthermore, respondents who have a primary school education or less were more likely to be intolerant by 1.6% in the first model, 1.2% in the second model, and 1.1% in the third model. This result is consistent with our prediction, as the majority of the refugees were from low skills level.

Interestingly, the respondents who believed that religion was important in their life were more likely to be intolerant by 24% in the first model, 23% and 24% in the second and third model respectively. This result was not the same as our expectations, as the majority of the countries that included this estimation were from majority Muslims society, and the majority of Syrian refugees were Muslims, so this paper predicts that the people who believed that religion was important in their live would be less intolerant. One of the explanations could be that poor people could be more religious people, so the majority of poor people believe that religion was important and believe that immigrants take their opportunities in labour market.

On the other hand, respondents who are immigrants or their parents were immigrants were less likely to be intolerant by around 18% in the first and second model, and 17% in the third model. Finally, Jordan wass more likely to be intolerant in the first and third models by 15% and 33%, respectively. The percentage increases in the third model as a result of controlling for regional variables (refugees) which was the percentage of Syrian refugees in each city. One city has more than 26% of the population that are Syrian. Moreover, Jordan had 45% of the population as immigrants. Furthermore, Iraq was more likely to be intolerant by 46% when controlling for the percentage of Syrian refugees in each city, one of the explanations could be that the majority of Iraqi were Shia and the majority of the Syrian refugees who fled were Sunni.

4.9 presents the ordered probit model and multi-level ordered probit estimation,

Table 4.8: Ordered probit and multi-level ordered probit estimation

| | 1 | 2 | 3 |
|---|---|---|---|
| Age | 0.010** | 0.014*** | 0.014*** |
| | -2.91 | -3.97 | -3.96 |
| $Age^2$ | -0.001** | -0.001*** | -0.001*** |
| | (-3.01) | (-3.80) | (-3.69) |
| Female | 0.048* | 0.044* | 0.042* |
| | -2.36 | -2.16 | -2.07 |
| Primary school | 0.163*** | 0.122*** | 0.114*** |
| | -7.01 | -5.08 | -4.79 |
| Importance of religion | 0.241*** | 0.232*** | 0.243*** |
| | -3.94 | -3.75 | -3.95 |
| Immigrant | -0.185*** | -0.184*** | -0.174*** |
| | (-3.66) | (-3.47) | (-3.34) |
| Jordan | 0.154*** | 0.199 | 0.325** |
| | -4.97 | -1.56 | -3.21 |
| Iraq | 0.056 | 0.165 | 0.466*** |
| | -1.56 | -1.11 | -3.29 |
| Iran | 0.098*** | 0.11 | 0.194 |
| | -3.97 | -0.89 | -1.32 |
| GDP | | 0.008 | 0.000 |
| | | 0.000 | 0.000 |
| Shia | | 0.000 | 0.000 |
| | | 0.000 | 0.000 |
| Inequality | | 0.032*** | |
| | | -3.56 | |
| Refugees | | | 0.031* |
| | | | -2.49 |
| *N* | 11785 | 11785 | 11785 |

Note:The estimation does not include Turkey, The first column shows the results of ordered probit model, while the second column shows the results for multi-level ordered probit model using GDP per capita and percentage of Shia in each country as a country level, and use the percentage of people who set on the top rank of the high income in each city as a regional variable. Finally, the third column shows the results of multi-level ordered probit model using GDP per capita and percentage of Shia in each country as a country level, and use the percentage of the Syrian refugees in each city as a regional variable. The cutoff values are not shown. R2 is 0.004 ( as mentioned above in Micro studies such as this the R2 invariably is tends to be low, because we got a lot of variations on the outcome variable but we got limited variation in the regressors, and this is a common finding in existing literature). t statistics in parentheses,
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

taking into consideration the sociodemographic background of the respondents (age, gender, education level, the importance of religion, and if the respondents are immigrants). The estimation includes Turkey, to see if the results would change, so this estimation does not use the percentage of Syrian refugees in each city as a regional level variable as the data does not show the place of the respondents. The first column shows the results of ordered probit model, while the second column shows the results for multi-level ordered probit model using GDP per capita and percentage of Shia in each country as a country level, and uses the percentage of people who sat on the top rank of the high income in each city as a regional variable. With regards to age, ordered probit and multi-level results finds that older people were less likely to be intolerant towards immigrants by around 1% in all models. This result was within our expectations and consistent with previous studies. However, females were more likely to be intolerant towards immigrants by 4.8% in the first model and around 4.0% in second model. Again, one of the explanations could be that immigrants take women's jobs in the market, especially low skills level, so they were intolerant. Furthermore, respondents who have primary school education or less were more likely to be intolerant by 8.9% in the first model, and 9.7% in the second model. This result was consisting with our prediction, as the majority of Syrian refugees were from low skills level.

Interestingly, the respondents who believed that religion was important in their life were more likely to be intolerant by 34% in the first model, and 33% in the second model. This result was not consistent with our expectations, as the majority of the countries that include in this estimation were from majority Muslims society, and the majority of Syrian refugees were Muslims, so this paper predicted that the people who believed that religion was important in their lives would be less intolerant. Again, one of the explanations could be that poor people could be more religious, so the majority of poor people believe that religion was important and believe that immigrants take their opportunities in labour market.

On the other hand, respondents who were immigrants or their parents were immigrants were less likely to be intolerant by around 15% in the first model and 12%

Table 4.9: Ordered probit and multi-level ordered probit estimation (include Turkey)

| | 1 | 2 |
|---|---|---|
| Age | 0.001** | 0.011*** |
| | -3.05 | -3.46 |
| $Age^2$ | -0.001** | -0.001** |
| | (-2.83) | (-3.21) |
| Female | 0.048** | 0.040* |
| | -2.73 | -2.26 |
| Primary school | 0.089*** | 0.097*** |
| | -4.35 | -4.53 |
| Importance of religion | 0.339*** | 0.333*** |
| | -8.1 | -7.85 |
| Immigrant | -0.147** | -0.118* |
| | (-3.18) | (-2.48) |
| Jordan | 0.130*** | 0.229 |
| | -4.29 | -1.69 |
| Turkey | -0.016 | -0.043 |
| | (-0.65) | (-0.31) |
| Iraq | 0.054 | 0.157 |
| | -1.51 | -1.02 |
| Iran | 0.094*** | 0.133 |
| | -3.88 | -1.05 |
| GDP | | 0.000 |
| | | 0.000 |
| Shia | | 0.001 |
| | | 0.000 |
| Inequality | | 0.031*** |
| | | -3.8 |
| *N* | 15420 | 15420 |

Note: The first column shows the results of ordered probit model, while the second column shows the results for multi-level ordered probit model using GDP per capita and percentage of Shia in each country as a country level, and use the percentage of people who set on the top rank of the high income in each city as a regional variable. The cutoff values are not shown.

t statistics in parentheses,

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

in the second model. Finally, when we do not control for Syrian refugee's percentage, Jordan and Iraq do not seem to be significant in this model, and this gives us a good explanation that the attitude towards immigrants was intolerant due to Syrian refugees influx.

The regional and country level variables in the 4.8 and 4.9 have positive signs, which was consistent with our expectations. This means that the when the GDP per capita was higher, the people became more likely to be intolerant, as when the country has higher GDP per capita, the number of low skills immigrants that will come to it will increase, however, GDP does not seem to be significant as a country level variable. Moreover, when the percentage of Shia was higher, the attitude became intolerant as the majority of the Syrian refugees who left Syria are Sunni, however, the Shia variable does not seem to be significant at a country level variable. On the other hand, when the inequality exists, the attitude became intolerant as the number of poor people was higher. Finally, when the percentage of Syrian refugees was higher in the cities, the attitude towards immigrants become intolerant, as explained above it could be that the natives have been replaced by refugees.

## 4.6 Conclusion

The current chapter focused on the effects of refugee crisis on attitudes towards immigrants in the MENA region, especially for the Syrian refugees influx to neighbouring countries. As 5.6 million immigrants have fled their home after the Arab Spring in 2011 to abroad, and most of them fled to neighbouring countries (Turkey, Jordan, and Lebanon). Studying the attitude towards immigrants as a result of their displacement to neighbouring countries, especially with these large numbers of immigrants and they share religion, language, customs, and traditions with natives is a very interesting area to examine and explore due to the very intense and complex happenings in the last decade.

This chapter added to the existing literature in several ways. The first important

point was that the policy makers must know the sentiment of the people towards immigrants when drawing the immigrant policy in the country. To the best of our knowledge, there is no study in the MENA addressing the attitude towards immigrants. Secondly, the existing literature studied the attitudes of the natives towards minorities from other races or other religions. However, this chapter examines natives' attitudes toward Syrian immigrants, as they share language, religion, customs and traditions with most countries. Finally, this chapter is the first study that has used regional variables in the analysis, such as the percentage of Syrian refugees and inequality.

The study employs ordered probit models and multi-level analyses to investigate the attitude towards immigrants, using the WVS data set. We used round 5 and round 7 (which is newly published on their website). Our dependant variable y of interest was the following questions in the WVS to examine the attitude towards immigrants; whatdo you think the government should do about people from other countries coming here to work? The first choice; let anyone come who wants to, the second choice; let people come as long as there are jobs available, the third choice; place strict limits on the number of foreigners who can come here, the fourth choice; prohibit people to come from other countries.

We reported the ordered probit and multi-level estimation in three models; model number one (column 1) reports the result for ordered probit estimation, model two (column 2) reports the results for multi-level estimation considering GDP per capita and Shia as country level variables with inequality as regional level variable. Model three (column 3) reports the results for multi-level estimation considering GDP per capita and Shia as country level variables with the percentage of Syrian refugees as a regional level variable.

The results found in general that older people were less likely to be intolerant towards immigrants in the three models, on the other hand, females were more likely to be intolerant towards immigrants in the three models. One of the explanations could be that immigrants take women's jobs in the market, especially low skills

level, so they were intolerant. Furthermore, respondents who have a primary school education or less were more likely to be intolerant, this result was consistent with our prediction, as the majority of the refugees were from low skills level.

Interestingly, the respondents who believed that the religion was important in their life were more likely to be intolerant in all models. This result was contrary to our expectations, as the majority of the countries that were included in this estimation were from a majority Muslims society, and the majority of Syrian refugees were Muslims, so this paper predicted that the people who believed that religion was important in their live would be less intolerant. One of the explanations could be that the poor people could be more religious people, so the majority of poor people believed that religion was important and believed that immigrants would take their opportunities in labour market.

On the other hand, respondents who were immigrants or their parents were immigrants were less likely to be intolerant in all models. Finally, Jordan and was more likely to be intolerant in the first and third models. The percentage increased in the third model as a result of controlling for regional variables (refugees) which was the percentage of Syrian refugees in each city. One city had more than 26% of the population were Syrian. Moreover, Jordan's population was 45% immigrants. Furthermore, Iraq was more likely to be intolerant when controlling for the percentage of Syrian refugees in each city, one of the explanations could be that the majority of Iraqi wre Shia and the majority of the Syrian refugees who fled were Sunni.

The results show the regional and country level variables have positive signs, which were consistent with our expectations. This means that the when the GDP per capita was higher, the people became more likely to be intolerant, and when the country had a higher GDP per capita, the number of low skill immigrants coming to it would increase. However, GDP does not seem to be significant as a country level variable. Moreover, when the percentage of Shia if higher, the attitude shifted and became intolerant as the majority of the Syrian refugees who left Syria are Sunni, however, Shia variable do not seem to be significant as a country level variable. On

the other hand, when the inequality exists the attitude became intolerant as the number of poor people was higher. Finally, when the percentage of Syrian refugees was higher in the cities, the attitude towards immigrants become intolerant, as explained above it could be that the natives have been replaced by refugees.

Finally, this paper did some estimation and added Turkey in the sample and removed the percentage of Syrian refugees in each city as the data for Turkey does not include the respondent location. The results showed the same as above, but when we do not control for Syrian refugee's percentage, Jordan and Iraq does not seem to be significant in this model, and this give us a good explanation that the attitude towards immigrants is intolerant due to Syrian refugee's influx.

# Chapter 5

# Summary and policy implications

## 5.1 Summary

In this study, the impact of remittances and migration on the labour market in the Middle East and North Africa (MENA region) is examined, and light is shed on the effect of the Arab Spring. In the first empirical chapter, the impact of the Arab Spring, as a political shock, on child labour in Egypt through the channel of remittances is investigated. The chapter used the Arab Spring as an exogenous event that had a negative effect on child labour and school attendance, and this event had a positive impact on remittance flows to Egypt to identify whether recipients react to this positive shock by increasing child labour or taking children out of school. We used the differences-in-differences (DiD) framework to compare children from remittance recipient households with those from non-recipient households before and after the incidence of the Egyptian uprising in 2011. While there is a large body of literature explaining how economic shocks affect households' decision regarding their children's time allocation, this thesis contributes to this literature by studying the impact of political shocks on child labour. To account for possible endogeneity biases, the study instruments for belonging to the treatment group with the number of Western Union offices in each province. Findings show that there was no reaction in terms of child labour to the effect of the Arab Spring on remittances, while children belonging to (treatment group) the remittances-recipient household are more likely to attend school after the Arab Spring compared with non-recipient households (control group). Nevertheless, the DiD estimation proposes again that

the additional increase due to the change in remittances was not statistically significant. In general, the results indicate that as a response to receipt remittances in consequence of the Arab Spring, Egyptian households were less likely to react by taking their children out of work and sending them to school. Moreover, females were less likely to drop out of school and work, and less likely to work in an economic activity due to being involved in chores at home.

Therefore, in the second empirical part of this thesis, an empirical investigation is provided of the impacts of the Syrian refugee crisis on the Jordanian labour market. Using difference-in-difference (DiD) framework, the chapter identifies different labour market adjustments to the recent shocks, including possible changes to the wage level, hours of work, and the size of the informal sector. The DiD estimator compares a given outcome variable in receiving cities which are main refugee recipients (i.e., treatment group) with non-receiving cities (i.e., control group) before (pre-treatment) and after (post-treatment) the eruption of the Syrian War in 2011. To account for possible bias due to heterogeneities existing among workers, propensity score matching is used and the results found that the informal sector in the receiving cities decreased as a response to the shock of the Syrian War. Secondly, the results suggest that the monthly wage dropped in the receiving cities as a response to the shock, one of the explanations being that native workers were replaced by Syrian refugees. However, the change in the hourly working wage was not statistically significant. After adjusting for compositional differences via propensity score matching, though, the results indicate that native workers who lived in receiving cities received lower wages compared with the workers in more non-receiving cities. The presence of Syrian refugees could be seen as are possible explanation of this.

While labour market concerns are important in the effective management of immigration, relations between natives and immigrants are equally important. The final empirical chapter investigates the effects of the Syrian refugee crisis on the attitude towards immigrants in the MENA region. The sentiments of natives towards immigrants were explored to provide a clear image to policy makers to take into consideration when drawing the migration policy in the MENA region countries.

The chapter employs multi-level ordered probit model to explain our four categorical dependant variables, namely preferences of natives towards immigrants coming to the country. The results found that older people are less likely to be intolerant towards immigrants, while, females were more likely to be intolerant towards immigrants. A possible explanation could be that immigrants take women's jobs in the labour market, especially low-skill level jobs. Furthermore, respondents who have a primary school education or less were more likely to be intolerant. This result was consistent with a prior expectations, as the majority of the refugees were from low skills level.

Surprisingly, and contrary to expectations, respondents who believed that religion was important in their life were more likely to be intolerant. This is surprising given that the majority of the countries that were included in this investigation were from majority Muslims society, and the majority of Syrian refugees are likewise Muslims, and it is assumed that people who believe religion is important in their live will be less intolerant. One of the explanations could be that the poor people could be more religious people, and therefore the majority of poor people believe that the religion is important and believe that immigrants take their opportunities in labour market.

On the other hand, respondents who are immigrants or their parents are immigrants were less likely to be intolerant in all models. Moreover, Jordan was more likely to be intolerant, and the intolerance increased when controlling for the percentage of Syrian refugees in each city. Interestingly, one city in Jordan (Mafraq) has more than 26% of the population who are Syrian. Moreover, Jordan has 45% of the population that are immigrants. Furthermore, Iraq was more likely to be intolerant when controlling for the percentage of Syrian refugees in each city. An one of the explanation could be that the majority of Iraqi are Shia and the majority of the Syrian refugees who fled are Sunni. Finally, the results show that when regional inequality exists, attitudes become more intolerant. Moreover, when the percentage of Syrian refugees was higher in the cities, the attitude towards immigrants become intolerant, attributable to native workers having been replaced by refugees.

## 5.2 Policy implications

Remittances have played a significant role in sending labour to countries in the MENA region, which Egypt is globally one of the highest countries that receive remittances. As remittances have significantly increased after the eruption of Arab Spring in Egypt, it is important area to explore this impact on child labour and school attendance; child labour in Egypt is one of the main problems. The percentage of child labourers reached 9.3% in 2010 (CAPMAS,2010). It is recommended that decision-makers organize activities that aim to increase awareness of the importance of eliminating child labour by developing a set of educational materials aimed at raising the awareness of workers, employers and children involved in child labour and their families about the negative effects of child labour. Moreover, campaigns can also be launched that include a set of guides, educational posters, visual materials and short stories about the need to protect children and the importance of continuing education.

Immigration has both social and economic implications in host countries. Results presented have indicate that immigrants and native people could compete in the Jordan labour market particularly in the informal sector. This competition reduces the employment opportunities of natives. Immigration became one of the key concerns of Jordanian society. Considering most entrants are fleeing conflicts in the near regions rather than economic migrants (like in the United Kingdom, for example), Jordan has difficulty in selecting immigrants according to their qualifications or fit to the needs of the Jordan labour market. In this context, the role of the Jordanian government should be to minimise illegal entry to the labour market (i.e. workers without a work permit) that could cause unfair conditions for both immigrants (through lower standards of work; for example, lack of insurance) and natives (through the firms' motivation of employing illegal workers from much lower wage levels). Additionally, improvement in the labour sector and organising the informal sector may help to reduce the negative impact of immigrants.

The results show a lack of tolerance towards immigrants in the Middle East and North Africa region. It is surprising that the negative opinions and attitudes are not only caused by economic factors but also by sociocultural factors. Thus, policymakers should consider the culture aspect and how it leads to create discrimination against immigrants. This study has several guidelines for policymakers: First, the education system can work alongside government in addressing and eradicating intolerance towards immigrants. Second, the local media has a key role by conducting awareness campaigns to cope with the negative attitude towards immigrants. Third, community organizations may be effective in this issue by organizing public events to welcome the immigrants and show how most of them are non-economic immigrants, they are not looking for better chance of life, but rather they leave their countries fleeing from wars, conflicts, and violence. Listening to the refugee's tragic stories make natives more compassionate toward them. Fourth, faith communities have an important role in shaping opinions and beliefs and increase awareness among societies. Eventually, as a number of studies have already shown, internal migration helps dissolve some of the impacts on the labour market and could be incentivized by policy makers. Increased capital flows can help re-equalize capital/labour ratios within the country. In general, policies are needed to counterbalance the distributional impacts of a forced displacement inflow on the labour and consumer markets.

# Appendices

# Appendix A

# Appendix

## A.1 Inequality

Table A.1: Regional Inequality distribution / Jordan

| | Wave 5 | Wave 7 |
|---|---|---|
| Amman | 0.141 | 0. 009 |
| Balqa | 0.25 | 0.016 |
| Zarqa | 0.049 | 0.006 |
| Madaba | 0.104 | 0.000 |
| Irbid | 0.061 | 0.000 |
| Mafraq | 0.014 | 0.000 |
| Jerash | 0.017 | 0.000 |
| Karak | 0.041 | 0.020 |
| Tafila | 0.184 | 0.000 |
| Ma'an | 0.063 | 0.000 |
| Aqaba | 0.208 | 0.000 |

Table A.2: Regional Inequality distribution / Turkey

| | Wave 5 | Wave 7 |
|---|---|---|
| Urban | 0.000 | 0.004 |
| Rural | 0.000 | 0.003 |
| Istanbul | 0.050 | 0.000 |
| Aegean | 0.044 | 0.000 |
| Western Anatolia | 0.032 | 0.000 |
| Mediterranean | 0.006 | 0.000 |
| Central Anatolia | 0.012 | 0.000 |
| Western Black Sea | 0.012 | 0.000 |
| Eastern Black Sea | 0.020 | 0.000 |
| South Eastern Anatolia | 0.020 | 0.000 |

Table A.3: Regional Inequality distribution / Iraq

| | Wave 5 | Wave 7 |
|---|---|---|
| Baghdad | 0.002 | 0.039 |
| As Sulaymānīyah | 0.000 | 0.011 |
| Babil | 0.000 | 0.008 |
| Karbala | 0.008 | 0.000 |
| Al Anbar | 0.000 | 0.078 |
| Diyala | 0.008 | 0.000 |
| Ninawa | 0.011 | 0.023 |
| Kirkuk | 0.000 | 0.04 |
| Arbil | 0.000 | 0.013 |

Table A.4: Regional Inequality distribution / Iran

| | Wave 5 | Wave 7 |
|---|---|---|
| Gilan | 0.000 | 0.020 |
| Fars | 0.011 | 0.000 |
| Kerman | 0.011 | 0.028 |
| West azarbayjan | 0.000 | 0.025 |
| East azarbayjan | 0.007 | 0.042 |
| Sistan and balouchestan | 0.043 | 0.026 |
| Khozestan | 0.016 | 0.010 |
| Khorasan | 0.009 | 0.000 |
| Tehran | 0.002 | 0.004 |
| Bushehr | 0.100 | 0.075 |
| Lorestan | 0.000 | 0.050 |
| Ardabil | 0.020 | 0.000 |
| Ghazvin | 0.023 | 0.000 |
| South Khorasan | 0.000 | 0.032 |
| North Khorasan | 0.000 | 0.100 |

Table A.5: Regional Inequality distribution / Egypt

| | Wave 5 | Wave 7 |
|---|---|---|
| Cairo | 0.000 | 0.007 |
| Dakahlia | 0.004 | 0.000 |
| Menofia | 0.008 | 0.000 |
| Behaira | 0.040 | 0.000 |
| Giza | 0.011 | 0.000 |
| Asyut | 0.008 | 0.000 |
| Qena | 0.010 | 0.000 |
| Aswan | 0.040 | 0.000 |

## A.2 Syrian Refugees

Table A.6: Regional percentage of Syrian refugees

| Country | City | Percentage |
|---|---|---|
| Jordan | Amman | 0.044 |
| | Balqa | 0.033 |
| | Zarqa | 0.064 |
| | Madaba | 0.062 |
| | Irbid | 0.069 |
| | Mafraq | 0.268 |
| | Jerash | 0.034 |
| | Ajloun | 0.036 |
| | Karak | 0.023 |
| | Tafila | 0.019 |
| | Ma'an | 0.046 |
| | Aqaba | 0.019 |
| Egypt | Cairo | 0.002 |
| | Alexandria | 0.004 |
| | Damiatta | 0.006 |
| | Sharkia | 0.001 |
| | Giza | 0.004 |
| | Qaliubiya | 0.003 |
| Iraq | As Sulaymānīyah | 0.015 |
| | Arbil | 0.066 |

## A.3 Marginal Effects

Table A.7: Marginal Effects for table 4.8

| | Dy/dx | x |
|---|---|---|
| age | 0.014 | 38.129 |
| female | 0.044 | 0.522 |
| primary | 0.121 | 0.316 |
| imp. religion | 0.231 | 0.972 |
| immigrant | -0.184 | 0.050 |
| Jordan | 0.198 | 0.197 |
| Iraq | 0.165 | 0.100 |
| Iran | 0.110 | 0.350 |

Note: The marginal effects in the ordered probit model obtained from Stata's margins command may have opposite signs from their coefficients. The reason is that increasing an independent variable actually shifts the distribution to the right while the coefficient and threshold estimates are held constant (Greene 2008). The marginal effects in this table are calculated at the mean values of the model covariates. The marginal effects of the independent variables are the change in the probability of observing the intolerance, if the independent variables change by one unit, while all the other variables remain unchanged. For example, if the respondents are more likely to be intolerant if they get older by 1.4% and female more likely to intolerant by 4.4%.

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