

# Quantifying the Microeconomic Impact of Remittances in Egypt

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## Abstract

Egypt is the largest remittances' recipient in the Middle East and North African (MENA) region in 2015. Household surveys which collect information on socioeconomic, demographic and economic characteristics of Egyptian diaspora and their families are limited. This research is the first remittances' focused qualitative study that takes place after the 2011 Egyptian revolution. It provides a double edged analysis for the microeconomic determinants of remittances. A qualitative exploration and an empirical investigation of the main drivers of remittances from the perspective of 304 migrants' families across 16 Egyptian governorates who have been interviewed between April 2015 and May 2016. According to our Ordinary Least Square (OLS) and Tobit regressions, the migrants' level of education, migrant's age, duration of migration, destination region, household income and the number of household children are the most important determinants of the value of remittances.

**Keywords:** remittances, Egypt, Tobit, OLS

## 1. Introduction

Remittances are currently the main external funding source for developing countries, well ahead of Official Development Aid (ODA) and Foreign Direct Investment (FDI) (World Bank, 2016b). In 2015, 19.7 billion US\$ worth of received international remittances has classified Egypt as the largest remittance recipient MENA country. Remittances to Egypt are three times higher than the foreign exchange revenue from the Suez Canal and substantially higher than foreign direct investment and Official development assistance (World Bank, 2016b). However, these figures represent only officially recorded remittances, informal remittances have been estimated to range from 20 to 35% of the total remittances (Dorantes et al. 2005).

In spite of the increasing importance of remittances to MENA in general and Egypt in specific, household surveys -which represent the best possible source of information about the allocation of remittances and the casual factors of the remitting decision- are limited. Officially reported

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data about distribution and size of remittances to Egypt has several shortcomings in terms of quantity, quality, breakdown, and reliability. Moreover, large discrepancies exist between migrant numbers as recorded by the destination countries i.e. OECD and those that appear in official country-of-origin statistics (Fagrués, 2005; World Bank, 2010). This data is also restrained to formally transmitted remittances, while informal remittances are hardly traced or reported, which hinder in-depth analysis for the issue of remittances.

In order to make up for that deficiency, this research aims to fill a gap in the literature of the microanalysis of remittances in Egypt. Not only we do report a timely and detailed analysis of the allocation of received remittances across 304 remittances' receiving families across 16 Egyptian governorates based upon semi-structured In-Depth Interviews (IDI) and survey questionnaires. But also we empirically investigate the socioeconomic, demographic and economic factors that influence the value of received remittances, while distinguishing between the theories of self-interest and altruism of the remitting behavior.

There is an urgency to better understand the dynamics of the received remittances as a development tool. Also as a substitute for financial losses caused by the volatile Foreign Direct investment (FDI) and Official Development Assistance (ODA) that is pro-cyclical to the existing adverse economic and political environment in Egypt since 2011 revolution. However, remittances, on the contrary, are substantially larger, more stable and countercyclical to economic and political downturns (World Bank, 2016b). Additionally, the importance of remittances as a catalyst of private savings and investment stimulus (Billmeier and Massa, 2009; Taylor, et al. 1996), an income stabilizer and consumption smoother (Combes and Ebeke, 2011), a poverty alleviating tool and a source of foreign exchange (Yang, 2008), has been intensifying.

The latest remittances' qualitative study is the one conducted by the International Organization for Migration [IOM] (2010) that interviewed 200 remittances receiving households across four Egyptian governorates, specifically families who have migrants in the Kingdom of Saudi Arabia. Other qualitative studies tend to be unrepresentative, outdated and limited to rural areas, like Adams (1991) who interviewed a total of 1000 families across three Egyptian rural villages. Others like European Investment Bank [EIB] (2006) undertook small-scale field studies (around 45 interviews) on remittances usage across alternative budget items on selected MENA countries, however, they are limited to bilateral migration corridors, like Egypt-Italy migration corridor. As well, aggregated national household surveys that did not focus specifically on remittances receiving families, but rather capture general trends of household expenditures and their different sources of income.

Our empirical and qualitative results support the altruistic motivation of remitting. According to the Ordinary Least Square (OLS) and Tobit regressions, the migrants' level of education,

migrant's age, duration of migration, destination region, household income and the number of household children are the most important determinants of the value of remittances.

## **2. Microeconomic determinants of remittances**

Since the 1980s and with the introduction of the role of information and social interactions in explaining the remitting behavior, the microeconomic analysis of remittances has witnessed profound changes in how economists define the remitting decision determinants. It is extremely difficult to differentiate between different theories behind the remitting behavior, mainly because these theories imply using the same factors that exercise homogenous influence on the remitting decision (Rapoport and Docquier, 2006).

Based upon Lucas and Stark (1985), the migrant intentions to remit range from pure altruism to pure self-interest, apparently, several interdisciplinary motives exist within this wide range. First, let us consider Lucas and Starks' (1985) pure altruistic theoretical model that was elaborated by Emmanuel and William, (2012), wherein, the migrant non-selfish altruistic motives, are primarily derived from the per capita consumption of those left behind, the size of the household and their existing sources of income. In other words, the migrant utility and correspondingly the value of remittances are derived by the migrant's family utility (Solimano, 2003). In this framework, remittances are viewed as a compensatory source of finance, in times of bad economy, unemployment, inflation and any adverse issue that affects his family status at home. Other factors also that influence the altruistic remitting behavior besides the migrant's family utility, is the duration of the migration project, the level of integration in the destination country, and the status of the existing family ties. As per Van Delan et al. (2005) suggest that under this approach, as the migrant's duration abroad extends, this implies the decay of his family ties and a consequent reduction in received remittances (Galliana, 2006).

Conversely, a self-interested migrant is influenced by other factors that eventually add to his favor. Two main reasons drive his remitting decision, first, if the migrant invests in existing assets, land, building, or business at home country, thereby remitting is nothing but an investing decision, determined by the rate of return on such investment. And given, the migrant relative higher income and savings plus his ability to apply new business model adopted from abroad, he is in a better position to invest in his home country. This frame is not connected to his family status at home, rather related to the business environment in his home country, premium interest rates, attractive saving deposits, better investment opportunities than those in the destination country (Galliana, 2006; Emmanuel and William, 2012).

A second reason for remitting money under altruism motivation is the migrant intention to return home. In this regard, he sends money to invest in a better dwelling, ensure higher relative prestige or owns a business. Consequently, the primary factor governing this type of remitting behavior is the migrant duration of stay and whether the migrant plans to return home or not (Emmanuel and William, 2012).

Another methodology that stands in between pure altruism and pure altruistic is introduced by Galliana (2006) 'the co-sharing and insurance approach'. Wherein the family sends one of the members abroad as a form of insurance against adverse environments in the home country and to secure stable income. On the other hand, the remitter sends money to maintain the ties and also to guarantee the possibility of a return in case of failure of the migration project. This approach can take either the form of a family contract (implicit) in which the family invests in the education and migration costs or an (explicit) contract in the form of a loan, that will be paid back once the migrant settle and start earning enough (Solimano, 2003). The remitting behavior in this framework mainly depends on the degree of integration of the migrant in the destination country and his saving capacity. According to this approach remittances should not decrease during a given (contract) period, but a sharp decline is expected after the repayment has been completed and or when the contract expires (Van Dalen et al., 2005).

Remitting may also be a form of a complex social contract that is governed by several factors based upon the negotiations of the migrant with his family. Accordingly, remittances are considered another source of household income that is not motivated by selfish or altruistic needs. Within this frame, social variables like age, education profile, gender, and authority of the migrant play important moderating role (Gubert, 2002). Other socioeconomic factors according to Russell (1986) and Ilahi and Jafarey (1999) are time spent abroad, education level, work experience and marital status of the migrant, along with the income level of the recipients, their employment profiles, the number of children and their educational levels.

Table 1 summarizes the main explanatory variables discussed in the previous literature under the two general theories of altruism and self-interest. The impact of adverse shocks on the remitting behavior of the migrant has not been elaborated deeply in the literature. However, there exists a general consent that aggregate flows of remittances tend to increase in bad political or economic times, though no microeconomic evidence exists to support this hypothesis.

We assume that an altruistic migrant will remit more in adverse times, as his primary objective is to support and sustain his family back home, regardless whether the shock occurs at individual or country levels as soon as it affects his family's utility. On the contrary, a selfish migrant would remit less since the expected rate of return of investments in home country would be negatively affected, specifically when the adverse shock occurs at the country level. For instance, in the questionnaire we distinguish between the two former models by asking the respondent 'Have

remittances increased after the 2011 revolution?’ and the respondent can answer ‘Yes’ which points to the direction of an altruistic model or ‘No’ which refers to the migrant’s selfish motives. This result is not conclusive without controlling for other factors that influence the remitting decision like the migrants’ income, family ties, etc.

As mentioned earlier, the ability to predict precisely how one variable could influence the received remittances is challenging. Giving the interconnectivity between the different theories and the inability to get detailed information about some moderating variables either due to the sensitivity of the respondents towards some information and /or because these factors are not directly measurable.

Moreover, most of the microeconomic variables that influence remittances are not operating in vacuums or stay constant, they are influenced by dynamic social, political and economic environments affecting both the migrant and his family. This issue has been raised by Galliana (2006) who sketched a graph hypothesizing that different approaches could exist for one migrant, depending upon his current migration phase. The initial phase of the migrant project (0-5) years is characterized by altruism and co-sharing behavior. The flow of savings will be high in this phase up to 60% of his income. If the migrant stays longer (12 years and more), he tends to remit less because of higher inclusion in the society and his spending become more directed towards a settlement in the destination area, especially if the family has moved with him. Another scenario can emerge when the migrant decides to return home, remittances prior to his return tend to be high, in order to secure future savings, set up a business or own a home. The next section provides a general review of recent migrant surveys and empirical literature on the microeconomic determinants of remittances in Egypt.

Table 1

The expected impact of the main explanatory variables in altruism and self-interest models

<b>Main explanatory variables / Model</b>	<b>Altruism Model</b>	<b>Self-interest model</b>
<b>Migrant Characteristic</b>		
Income	+	+
Education	Nde	+
Duration of stay	-	+
<b>Recipient’s Characteristic</b>		
Size	+	nde
Education	+	+
Permanent Income	-	nde
Transitory income	+	+
Wealth	-	+
Family ties	+	nde

Source: Van Dalen, et al., (2005) and the author's interpretations. Notes: nde = no direct effect.

## 2-1. Remittances to Egypt

The political and economic unrest post the 2011 revolution has pushed increasing number of Egyptians to migrate. This corresponded with escalated inflow of remittances reaching a share of 6.5% in 2014 that exceeds the last two decades average of 4.96% (World Bank, 2016a; World Bank, 2016b).

Figure 1 shows the pattern of international remittances received during 1996-2015. Nominal remittances witnessed a sharp upsurge since 2009, reaching its highest value 19.7 billion US\$ in 2015. Accurate data on the number of migrants abroad is rare and outdated. The latest update was in 2010, whereas the number of international migrants was estimated at 4.7 million, approximately 70% of them are residing in Arab countries and the remaining 30 % are living mostly in Europe and North America (IOM, 2010).

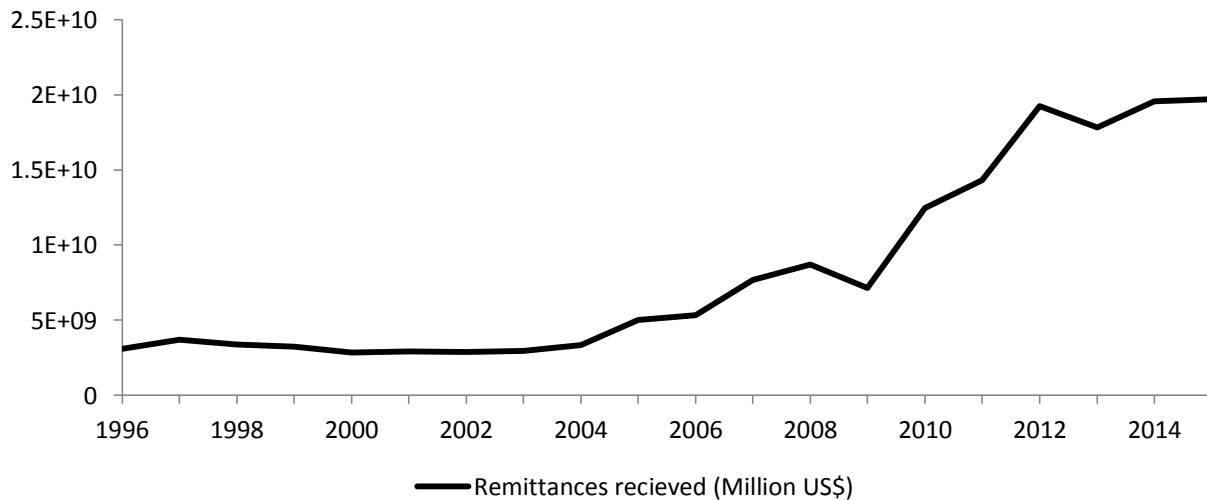


Figure 1: International remittances received, Egypt, (Million US\$)

Source: World Bank, (2016a)

Household surveys which collect information on socioeconomic, demographic and economic characteristics of Egyptian diaspora and their families are limited. The most recent are IOM (2010), who interviewed 200 remittances receiving households across four Egyptian governorates, specifically families who have migrants in the Kingdom of Saudi Arabia. Other studies are unrepresentative, outdated and limited to rural areas like Adams (1991) who interviewed a total of 1000 families across three Egyptian rural villages, amongst 150 families from the same income strata were selected for a second survey, whereas 75 families were remittances receiving and 75 were non-receiving families, in order to compare income and

expenditures patterns between the two groups. Others like EIB (2006) undertook small-scale field studies (around 45 interviews) on remittances usage across alternative budget items on selected MENA countries, however, they are limited to bilateral migration corridors, namely Egypt-Italy migration corridor.

National surveys like the Egypt Labor Market Panel Survey (ELMPS) that was conducted by Economic Research Forum (ERF) and the Central Agency for Public Mobilization and Statistics (CAPMAS) during the years 1988, 1998, 2006, 2012 (Economic Research Forum [ERF], 2016). To the best of our knowledge, ELMPS provides the only example of a nationally representative longitudinal survey. However, it does not focus specifically on remittances receiving families. Nonetheless, it collects general information on various social and demographic characteristics of Egyptian households, for instance, information on job characteristics, mobility, earnings and women's status and work. One special round ELMPS 2006 contains a section which gathers information on international migration history as well as current migrants and remittances, in particular, data on values, types, and frequency of received remittances are also included.

ELMPS 2006 resembles our questionnaire objective in collecting basic social and demographic information about the migrant and his family like age, dwelling, education, employment, etc. However, the migration section fails to provide comprehensive data about how those families allocate the received remittances, especially patterns of educational and health expenditure before and after receiving remittances. As well questioning the micro 'Dutch Diesels' effects of remittances on the employability, educational attainment, skills, and labor force integration of the recipients. Also, it misses information that aids in distinguishing between altruistic and selfish models of remitting behavior as explained in the previous section, like asking the respondents about the impact of 2011 revolution on the transferred money. Our survey -in spite of its limited sample- collects information specifically tailored to our study point that feeds into investigating the microeconomic theories of the remitting behavior, and what casual factors affect the frequency, size and allocation of received remittances by the recipients.

As far as we know the only empirical study, which investigated the micro-determinants of remittances in Egypt along with Turkey and Morocco is Van Dalen et al. (2005). The authors distinguished using cross-sectional household surveys of the Push and Pull Factors of International Migration (PPFIM) project in 1997 between self-interest and altruism models of remitting. Departing from the common norm in such studies of examining the determinants of remittances from the migrant side (Agarwal and Horowitz 2002; Vanwey 2004). They investigated these determinants from the remittance receiving families perspective. They regress a binary variable of '1' if the family received remittances in the last year and '0' if not, on a range of variables capturing the characteristics of the migrant-sending households, their individual members, and their migrant members abroad.

Their analysis rely on subjective measures more than nominal ones, for instance instead of asking the household about their total income, they ask them do you rank the adequacy of the existing financial resources on a scale of sufficient, barely sufficient, insufficient, etc. Such technique according to the authors would reduce the sensitivity of the questions and increase the response rate, though affects the stability and robustness of their interpretations. They conclude eventually that it is hard to distinguish between altruism and self-interest models because they are triggered with the same variables. However, they found that the strength of family ties and the ability and willingness of migrants to generate remittances are more crucial factors than the economic needs of the sending households in increasing the probability of receiving remittances.

### **3. Qualitative methodology**

One of the biggest challenges when conducting migrant related surveys is locating households that have migrant members (World Bank, 2009). And because there is no official data on the number or the distribution of households that receive remittances in Egypt, thereof we use Snowball sampling technique that is useful when dealing with a hardly approached population (World Bank, 2009)<sup>2</sup>. The major drawback of Snowball sampling is that it barely leads to a representative sample due to the lack of definite knowledge of whether the selected sample is an accurate reading of the target vogue population or not. However, the best possible compensation against this drawback is, to begin with, a set of initial informants that are as diverse as possible (Morgan and Guevara, 2008).

The sampling strategy in this study is a single staged geographically clustered sampling. Wherein the population is divided into heterogeneous groups, in our case 4 geographical areas: Greater Cairo, North Egypt, Lower Egypt and Upper Egypt. And since data on remittance-receiving households or migrants across Egyptian regions is deficient. We draw our random sample of remittances receiving households proportional to the population of each region based on the population census of the Central Agency for Public Mobilization and Statistics [CAPMAS], (2016). 20 percent of participants are from Greater Cairo, 10 percent are from North Egypt, 40 percent are from Lower Egypt and 30 percent from Upper Egypt as shown in Table 2<sup>3</sup>. This approach corresponds with World Bank (2009) sampling strategy of similar researches that incorporate vogue populations in Senegal, Uganda, and Nigeria.

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<sup>2</sup> Snowball sampling (or chain sampling, chain-referral sampling, referral sampling) is a non-probability sampling technique where existing participants recruit future subjects from among their network. Thus, the sample group appears to grow like a rolling snowball.

<sup>3</sup> We have excluded Sinai area (Marsa Matoruh, North Sinai, South Sinai, New Valley) because of security issues related to recent terrorist attacks. Moreover the total number of people living in these governorates is insignificant, around 1 million (1 percent of Egyptian population).



Table 2  
Geographical distribution of interviewed households

Geographical region	Population (millions)	Percentage of total Egyptian population	Number of interviewed households	Governorates
Greater Cairo	18.3	20%	62	Cairo and Giza
North Egypt	9.2	10%	40	Alexandria, Ismailia, Suez, and Port Said
Lower Egypt	36.5	40%	124	Sharkia, Kafr El Sheikh, Dakahilia, Gharbia, and Qalyiobia
Upper Egypt	27.4	30%	78	Asute, Minya, Beni Suef, Fayoum, and Menofeya,
Total	91.4	100	304	16

### 3-1. Data collection

For this study, a single round, cross-sectional survey is implemented. Information is gathered through online survey questionnaire (using survey monkey), and semi-structured In-Depth Interviews (IDI)<sup>4</sup>. The total number of interviewed households is 304<sup>5 6</sup>. Respondents in each region were selected following the initial respondent's referrals and randomly from different venues with a high prevalence of migrants' families such as banks, nurseries, western union agencies, universities, and clubs. Prior appointment arrangements were made with target respondents. We offered stationary gifts for families during interviews, primarily since

<sup>4</sup> A semi-structured interview covers broad topics of discussion that include open end and closed questions to allow the interviewee to explore different thoughts, feelings, etc.

<sup>5</sup> Sample size formula is  $ss = \frac{Z^2 * (p) * (1-p)}{c^2}$ , Where: Z = Z value (e.g. 1.96 for 95% confidence level), p = percentage of choice occurrence, c = confidence interval (e.g., .05 = ±5). This formula is based upon various statistical institutes, see for instance the creative research system institute at <http://www.surveysystem.com/sscalc.htm>.

<sup>6</sup> Our population is Egyptian households who have at least one migrant abroad. The latest estimate of Egyptians abroad is 4.3 million in 2010 (De Bel-Air, 2016). Assuming that each migrant has at least one family in Egypt that he constantly remits to, therefore there are nearly 4.3 million households as well. The required sample size is 304 households based upon 95% confidence level, 50 % response distribution and 5.6% margin of error.

questionnaires contain sensitive questions and are relatively long. Gift items include calendars, clocks, block notes, and glass kits.

Data collection was undertaken between April 2015 and May 2016. 19 online questionnaires were created and distributed via Survey Monkey and 288 face-to-face interviews were undertaken. Ravallion (2003) argues that households tend to underreport the received remittances because of confidentiality issues. However, this bias will not have a significant impact as long as there has been no major shock to the country during the survey period. We chose only one year for analysis because households are less likely to remember correct amounts for longer periods of time.

16 local researchers, mostly females are allocated across 16 governorates covering the Greater Cairo, North Egypt, Lower Egypt and Upper Egypt regions<sup>7</sup>. Researchers are selected among those working in public domain fields like Journalism and teaching, along with having a work experience in similar research projects. They received training on the topic and the objective of this study. The chosen method of administering the questionnaires aimed to maximize answers to the questions and to probe for deeper narratives from migrant families. The interviews are conducted jointly by two researchers, one for taking notes and one asking the questions. The duration of each interview ranges from 30-60 minutes.

There is an inherent methodological limitation of these types of researches because the issue of income and expenditures in private households are generally sensitive and require establishing considerable trust between the researcher and the respondent. Consequently, to address this issue in online-distributed questionnaires, we explicitly highlighted that the respondent identity is impossible to be revealed because no personal information is required, as well data will be analyzed collectively not individually. This point raises the importance of face-to-face interviews because it is impossible to identify the identity of the online respondent and ensure that he/she is the target respondent. In addition, there were several cases wherein online respondents skipped important sensitive questions. And this is the reason for rejecting more than 80 % of the 110 collected online questionnaires, leaving only 19 valid questionnaires.

### **3-2. Questionnaire design**

For the purpose of this survey, a number of concepts and definitions based on World Bank (2009) are adopted. a) Household is a group of related persons who live together in the same house and have common cooking and financial arrangements. b) Household head is a migrant's close relative (father, mother, wife, son, etc.), who still lives in the migrant's origin country and allocate the transferred remittances to manage the household living and financial conditions. c) A

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<sup>7</sup> The 16 Egyptian governorates are Cairo, Giza, Ismailia, Port Said, Alexandria, Suez, Asute, Minya, Beni Suief, Fayoum, Menofeya, Sharkia, Kafr El Sheikh, Dakahilia, Gharbia, and Qalyiobia

migrant is a person who used to live in a household in the country in which the interview is being conducted but left before the interview to live abroad for at least six months. d) Remittances are international (cross-border) personal monetary transfers sent by migrants to their families.

The survey languages are Arabic and English, and every respondent has been interviewed in his or her preferred language. All the face-to-face interviews are conducted in Arabic. The survey consists of two main parts with 41 questions. The first part consists of a series of questions intend to gather socioeconomic and demographic information about the household and the migrant, covering various dimensions like age, sex, employment, household composition, education, dwelling, destination country, reasons for migration and duration of stay. The second part is dedicated to gather information on household income and amount, currency, frequency, and channels of monetary remittances; also the allocation of remittances across various household expenditure components (education, health, debts, food and drinks, mobile, laptops, cars, etc...), and investment usage of remittances. We avoid using ranges in income and expenditures questions to cover all possible answers and facilitate data processing.

We used Microsoft office Excel 2013 for data entry and coding. While STATA 11 is used for data analysis, statistical testing and the production of frequency tables and figures of the variables.

### **3-3. Inspection and robustness**

A pilot test was carried out at the start with 8 respondents. 6 housewives and 2 expats. Each interview took around 60 minutes, respondents started well but then shied away when financial questions started to appear and got nervous and answers became distorted. This is understandable giving the questions' sensitivity and the current adverse political and social climate in Egypt. However, after assuring to the respondents that anonymous and confidentiality will be adhered and no contact info will be needed, these tensions disappeared. Confidentiality was maintained by assigning a unique code to each questionnaire. Responses were only linked to personal information through this code. Consequently, the names of respondents and personal contact data will not appear in any reports or publications.

We assigned an experienced team who applied call back rate on completed questionnaires to ensure their validity. In the case of error margin exceeding 6%, that specific interviewer's work is back checked completely. Normally, data on questionnaires need different type of checks, these include range checks, skip checks, consistency checks, checks against reference data and typographic checks (World Bank, 2009). All questionnaires were subject to a review process and were inspected for logical coherence and completeness to ensure the robust quality of analyzed data. Moreover, the project supervisors performed fieldwork in the context of unannounced visits with researchers at the rate of 20%.

### **3-4. Limitations**

Migrant surveys similar to general sample surveys have some methodological and data limitations that affect the generated estimates (World Bank 2009). First, this survey is a cross-sectional survey and only provides information at one point in time. Second, the limited sample size that does not fully reflect the true population of migrants' families in each of the 4 regions. Third, the issue of sample representativity is not fully controlled giving the limited resources and scarce information on the number and distribution of the target population in Egypt.

## **4. Data analysis and description**

This section describes the geographic, socioeconomic, and income characteristics of the migrants and their household members surveyed during the period from April 2015 and May 2016. The total number of families interviewed is 304. Each survey contains 41 questions. This section is divided into 3 sub-sections, the first and second sub-sections describe the demographic and socioeconomic characteristics of both the household and the migrants respectively. The final sub-section illustrates the income and expenditures data of the household and the characteristics of received remittances.

### **4-1. The households' demographic and socioeconomic characteristics**

The remittances receiving households in our sample are female dominated, with around 70% of the household heads are females (N=215) and 30% are males (N=89). Consequently, marriage comes on the top of the social relation between the migrant and the interviewed household heads, with 208 out of the 304 respondents are migrant's spouses. While 82 of the remittances receiving household heads are parents. Figure 2 highlights the age distribution of the respondents, entailing that the majority of female household heads who receives remittances from their husbands lie within the age bracket of 29-40, while older age cohorts 55+ reflect mainly those household heads who receive remittances from their children.

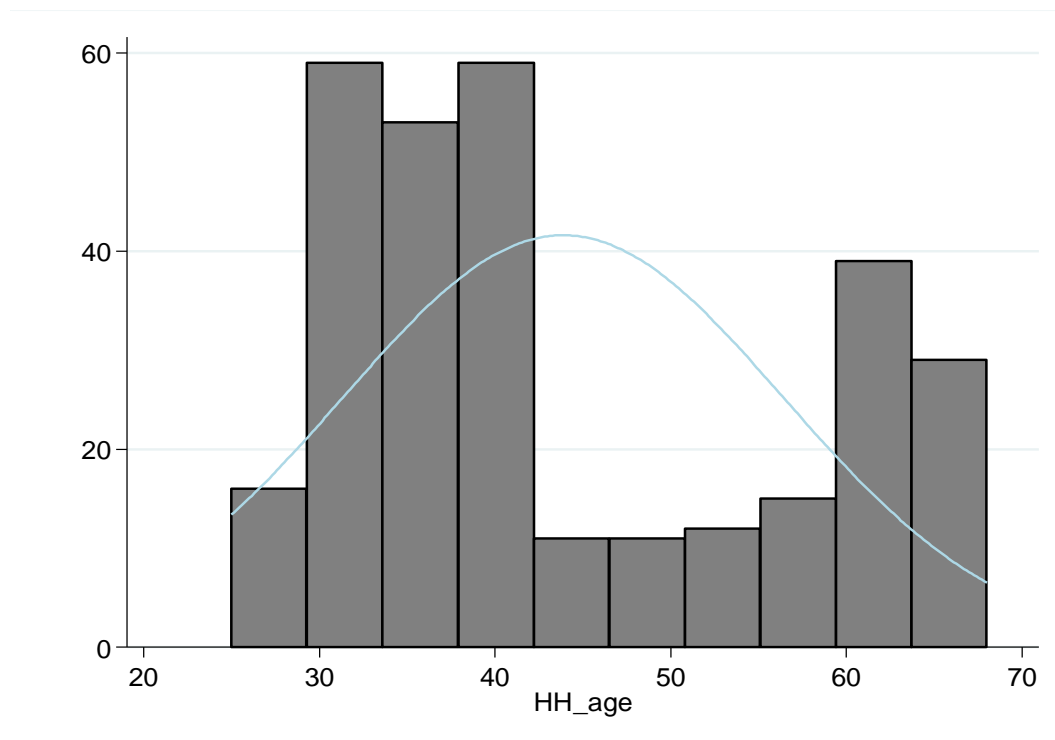


Figure 2: Frequency of the household head age

*Source: Authors calculation based on results of the household survey*

50% of the respondents have received formal education, wherein half of them are high school graduates and the second half are university graduates. Almost 13% have no formal education. Respondents with lower educational attainment are concentrated in Lower and Upper Egypt, while those with better qualifications reside mainly in Greater Cairo and North Egypt. Additionally, 20% of the respondents who reside in Upper and Lower Egypt regions have completed a vocational or technical school as shown in Table 3. In spite of the large population densities (70% of total population) in Upper and Lower Egypt governorates, the relatively low educational attainment is only one side of the welfare and poverty inequality across Egyptian governorates. Whilst Cairo and North Egypt governorates are better off in terms of public infrastructure, private capital accumulation, and investment in human capital, Upper, and Lower Egypt regions have always suffered from chronic deterioration of living standards and escalation of poverty levels and deprivations (Egypt Network for Integrated Development [ENID], 2015).

Table 3  
Educational level of respondents vis-à-vis geographical regions

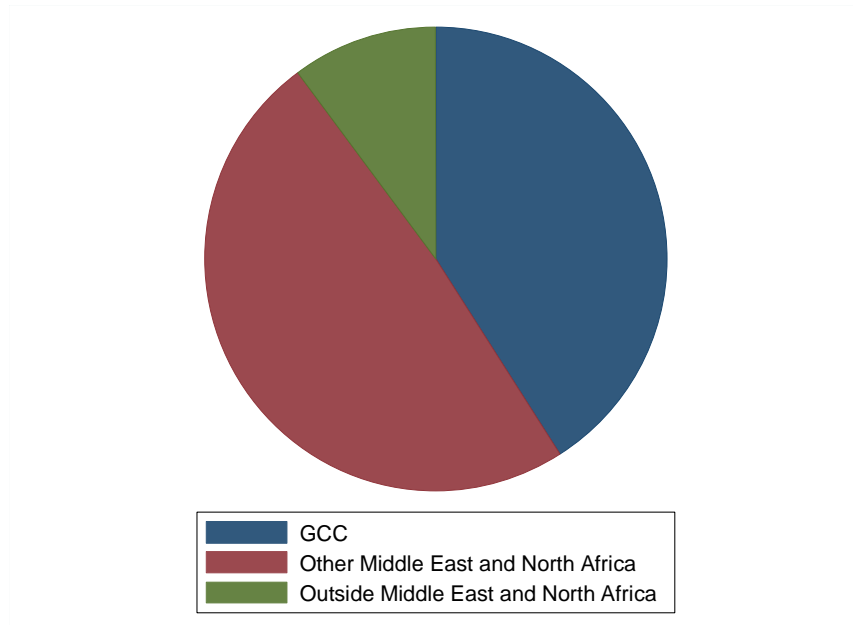
<b>Education level/ geographical regions</b>	<b>Greater Cairo</b>	<b>Lower Egypt</b>	<b>North Egypt</b>	<b>Upper Egypt</b>	<b>Total</b>	<b>Percentage</b>
No formal education	1	16	0	11	<b>28</b>	<b>10</b>
Alphabetization	1	11	0	2	<b>12</b>	<b>3</b>
Primary	0	8	1	10	<b>19</b>	<b>7</b>
Preparatory	6	9	4	10	<b>29</b>	<b>10</b>
High school	13	30	7	21	<b>71</b>	<b>24</b>
Vocational	10	26	6	14	<b>56</b>	<b>20</b>
Diploma	0	2	0	0	<b>2</b>	<b>0.6</b>
Bachelor	28	21	16	10	<b>75</b>	<b>25</b>
Post graduate	3	1	6	0	<b>10</b>	<b>0.4</b>
<b>Total</b>	<b>62</b>	<b>124</b>	<b>40</b>	<b>78</b>	<b>304</b>	<b>100</b>

*Source: Authors calculation based on results of the household survey*

The majority of the household heads (57%) work a full-time job, while almost 15% are not employed and not looking for a job. 52 out of the 89 male-headed households are self-employed as farmers. Nearly all the respondents kept their jobs after receiving remittances. Those who quit their jobs (around 6%), have retired or claimed that there is no need for extra income and they prefer to free more time for their families. These findings provide a counter argument against the Dutch diseases effect of remittances on the employability and labor force integration of the recipients.

#### **4-2. The Migrants demographic and socioeconomic characteristics**

Migration in our sample is male dominated. The majority of the migrants lie within the age bracket of 25-45. Around 50% of the migrants reside inside the Middle East and North African (MENA) region, namely Jordan. While 35 % of the migrants reside in the Gulf Corporation Council (GCC) countries, namely Saudi Arabia. The average duration of migration is 5 years. More than 90% of the migrants have medium sized families with 1 or 2 kids, regardless of their settlement environments nor their education or income levels. The average age of their first-born child is 10 years and the median is 8. This gives an indication of the high number of children who are still financially dependent upon their fathers abroad.



Migrants are highly skilled, 50% of them hold a bachelor degree, while 25% have finished a vocational training, and 18% have a diploma. 70% of the migrants are not willing to return, and the remaining 30% conditionalize their return to the existence of a well-paid job in Egypt. These figures correspond with the fact that Egypt is classified as the 8<sup>th</sup> country against 132 countries and the

Figure 3: Migrants’ destination regions

Source: Authors calculation based on results of the household survey

highest in the MENA region in terms of unemployed tertiary graduates. In terms of youth unemployment, Egypt also suffers from relatively high rates, which classify it as the 7<sup>th</sup> country against 22 MENA countries, and the 24<sup>th</sup> relative to 172 world countries, with 29.3% of Egyptian population aged between 18-24 are unemployed (World Bank, 2016a).

Giving the skill composition of the migrants, the ‘brain drain’ phenomenon is nonnegligible. The accelerating pace of this phenomenon since the 1990s signals the failure of the country to create the necessary conditions of preventing talented youth from fleeing outside its borders or to benefit from their skills to train other professionals (World Bank, 2009). Additionally, the ongoing economic, political and social transitions since the ‘Arab spring’ seems to magnify the already existing push factors for the youth emigration from Egypt and the region in general (Bardak, 2015).

The construction and service sectors are the largest recruiters of the Egyptian migrants as shown in Table 4. Around 33% of the migrants work as technicians, 27% work in the service and sales sectors, while 28% work in the housing and construction sector. 20% of the migrants (N=58) were unemployed before migrating. 28 of them obtained professions in the services and sales sectors, 22 in the housing sector and 8 worked as technicians.

Table 4  
Migrants' qualifications vis-à-vis their current jobs

Education level/ Job at destination	Academic	Manager	Technician	Service and sales	Armed force	Housing and construction	Total	Percentage
Preparatory	0	0	0	2	0	0	2	0.6
High school	0	0	0	3	0	9	12	3
Vocational	1	0	1	25	0	48	75	25
Diploma	0	1	18	11	0	24	54	18
Bachelor	4	18	80	35	0	8	145	48
Post graduate	24	0	0	1	1	0	14	5.4
<b>Total</b>	<b>17</b>	<b>19</b>	<b>99</b>	<b>77</b>	<b>1</b>	<b>89</b>	<b>304</b>	<b>100</b>
<b>Percentage</b>	<b>5.5</b>	<b>6.2</b>	<b>33</b>	<b>27</b>	<b>0.3</b>	<b>28</b>		<b>100</b>

*Source: Authors calculation based on results of the household survey*

### 4-3. Income and expenditures data

#### A. Household income

52 out of the 215 female household heads (25%) claimed that remittances are their only source of income. Other respondents (N=252) reported other sources of income with an annual mean of 16,476 EGP and a maximum 200,000 EGP per year<sup>8</sup>. Families with larger income profiles reside in areas of North Egypt and Greater Cairo, with mean income nearly double of those families in other regions.

#### B. Remittances

The mean annual value of received remittances is 48,708 EGP, minimum of 6000 EGP and a maximum of 1,000,000 EGP. Nearly 95% of the interviewed households reported that remittances are a significant source of non-labour income. Figure 4 highlights that the average of remittances is more than double the average of other income sources. North Egypt and Greater Cairo households, because of the higher cost of living, tend to receive larger values of remittances compared to the remaining two regions' households. Migrants outside the MENA region send larger values of remittances compared to migrants inside the region. Because in our

<sup>8</sup> The average official exchange of the Egyptian pound against the US-dollar during the survey period is 1US= 7.93 EGP.



sample majority of the migrants work outside the region and acquire academic positions that generate higher salaries and correspondingly larger remittances.

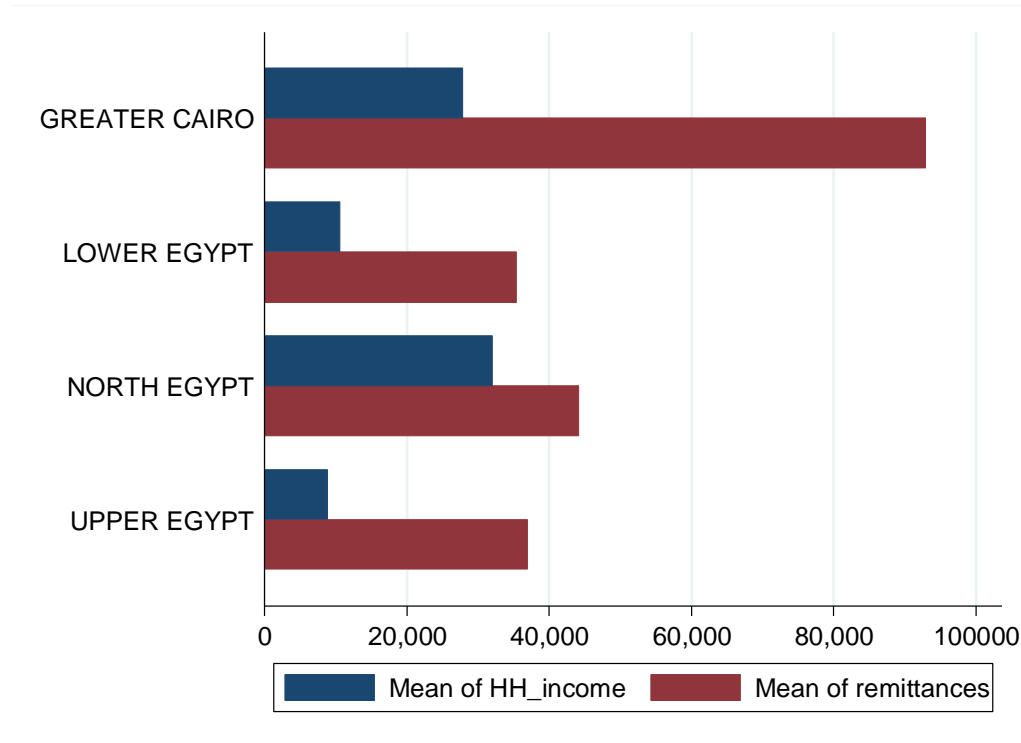


Figure 4: Mean of remittances against mean of household other income sources  
*Source: Authors calculation based on results of the household survey*

US dollar is the dominant currency of remittances. 39% of the respondents receive remittances twice a year, 37% receive them 3 times and 18% each quarter. Since the majority of the migrants reside inside the region, therefore the preferred way of sending remittances is banks. Approximately 60% of the respondents received remittances via bank transfers. The second preferred way is informal channels. 37% of the respondents reported that remittances were hand-delivered by the migrant, a relative or a close friend.

### C. Characteristics of remittances

We asked the respondents to report their average monthly expenses from remittances on selected budget items. Figure 5 shows that food, education, and real estate tend to be the largest consumers of remittances. On a monthly basis, families tend to spend on average 2,086 EGP of remittances on food, 1,583 EGP on education and 3,094 EGP on real estate. This corresponds with findings in the qualitative and empirical literature, see (IOM, 2010; Farzanegan and Hassan, 2016; Mim and Ben Ali, 2012) that everyday expenses- mainly food- and real estate investments absorb most of remittances.

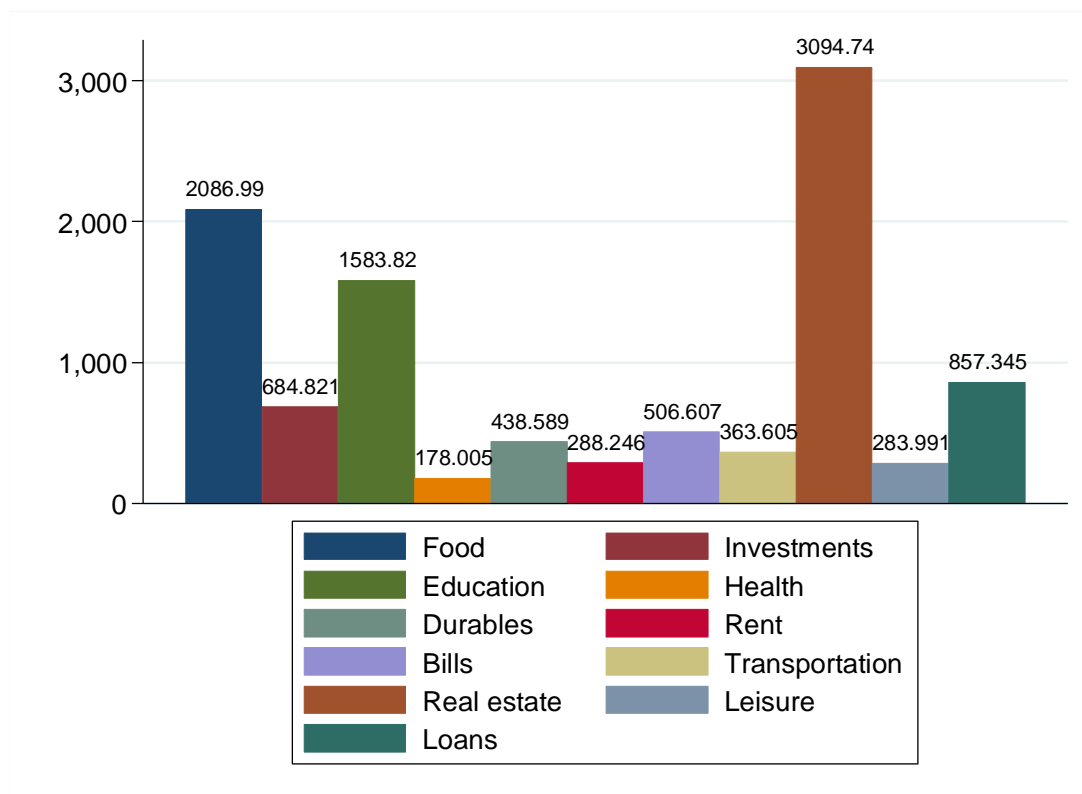


Figure 5: Average monthly expenses of remittances

Source: Authors calculation based on results of the household survey

Most of the respondents (85%) do not invest remittances, and those who invest remittances mainly reside in Upper and Lower Egypt regions. This is explained by the relative higher cost of living in Cairo and North Egypt that hinders investment usage of remittances for these regions' households<sup>9</sup>. 'Income constraints' comes on the top of the factors preventing respondents from investing remittances, followed by 'limited information on how and where to invest' and then 'profitable investment opportunities in destination countries'. When asking the respondents to choose whether they prefer to invest remittances in a form of 'bank deposits with return' or 'projects', 84% chose bank deposits and the majority of those who chose 'projects' reside in Upper and Lower Egypt.

#### D. Revolution effect

In favor of the altruistic remitting theory, which suggest that a migrant will remit more to support his family during adverse times. Almost 64% of the respondents claim that remittances have increased after the 2011 revolution. However, we cannot explicitly argue the altruistic theory

<sup>9</sup> For policy recommendations and suggestions to improve the investment usage of Arab diasporas' remittances, see (Hassan, 2015).

based on this observation alone without controlling for other drivers of the remitting behavior. This issue will be examined empirically in the following section.

### E. Educational expenditures

The average annual educational expenditures in our sample are 7,675 EGP. However, when we geographically categorize these figures, we realize that families residing in Greater Cairo and North Egypt regions tend to spend larger proportions of their income and remittances on education relative to families in other regions as shown in Figure 5. Greater Cairo households spend annually on education an average value of 22,260 EGP, compared to 3,297 EGP in Lower Egypt, 7,975 EGP in North Egypt and 2,449 EGP in Upper Egypt.

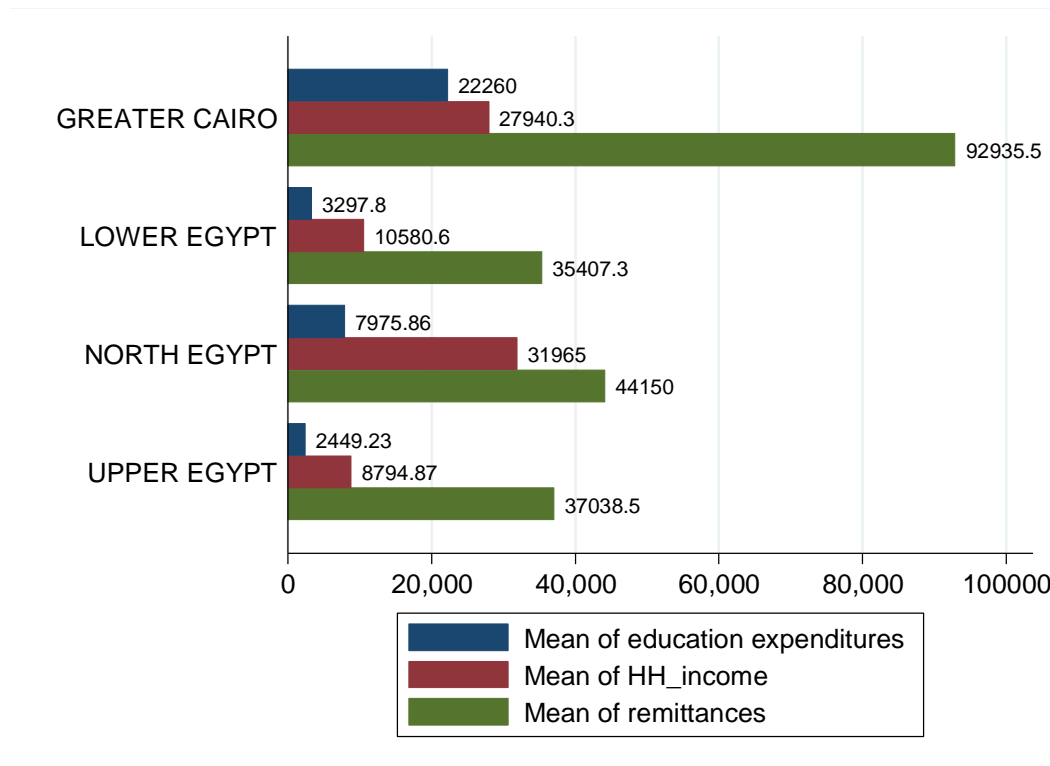


Figure 6: Mean of educational expenditures against mean of household income and remittances

Source: Authors calculation based on results of the household survey

### F. Change in education after remittances

83% of the respondents reported that the pattern of their spending on education has positively changed after receiving remittances. This figure corresponds with Yang (2008) and Acosta (2011) who showed that remittances receiving families tend to spend more on education compared to their non-receiving peers in El Salvador and the Philippines.

In turn, we asked the respondents to choose 1 of 4 options which best describes the ensued transformation. 50% of the households reported that after receiving remittances they directed more resources towards private tutoring and 20% have moved their children from public to private or international schools for the sake of higher quality of educational services. Remittances for 17% of the respondents have freed more resources for improving the cognitive and physical skills of their children, for instance buying their children laptops and mental games, clubs membership and sports become affordable, providing healthier diet or help their children to take training for other languages and soft skills. While 12% of the respondents selected all the options.

To better understanding how the latter transformations influenced, not only the value of educational expenditures but also the quality of education pursued by the children. And giving the non-quantifiable, subjective and interdisciplinary nature of the quality concept (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2015). Therefore, we asked the respondents to rate - on a scale from 0 to 3, '0' implies no effect while '3' implies high effect- the educational effect of remittances on the following general dimensions: grades, speaking and writing skills, mathematical skills, independent learning skills, children cognitive and mental skills, and children social and communication skills. Table 5 shows that more than half the households reported that the children grades and their speaking and writing skills have been 'highly' affected with the new pattern of educational spending. While on average 60% of the households claimed that mathematical skills, independent learning and mental abilities of their children are 'medium' affected. Whereas, an equal percentage of households reported that their children social skills are 'medium' and 'high' affected.

**Table 5**  
Dimensions of the Quality of education

<b>Dimensions</b>	<b>Percentage of the respondents and their ratings</b>			
	<i>High</i>	<i>Medium</i>	<i>Low</i>	<i>No effect</i>
Grades	75%	26%		
Speaking and writing skills	63%	36%	0.54%	1%
Mathematical skills	22%	75%	4%	
Ability to learn independently	22%	64%	12%	3%
Mental and cognitive skills	20%	50%	21%	
Social and communication skills	43%	44%	13%	

*Source: Authors calculation based on results of the household survey*

### G. Determinants of the educational quality

There is no better way to identify the factors that influence the quality of educational services in schools than asking the student's families. And giving that the majority of the migrant's children in our sample are at school age, we exploit this opportunity to investigate this issue in more details. We ask the respondents to rate on the same scale from 0 to 3 the impact of the following factors on the quality of education practised by their children: pupil-teacher ratio (number of students per teachers), size of class (number of children in the classroom), availability of schools, and availability of adequate means of transportation. The largest fraction of respondents rated pupil-teacher ratio and size of class as a 'high' moderating factor, while the availability of schools in the residential area and the quality of transportation are rated as 'medium' factors as shown in Table 6. Nevertheless, in spite of the respondents' diversity, they consider all these factors as important determinants of the quality of education.

We also asked the household heads if the gender of their children or their grades play a role in their decision of continuing their education<sup>10</sup>. 93% of the respondents reported the idleness of their children gender. On the contrary, almost all the respondents viewed children grades as substantial in their decision of continuing their education or altering their learning path.

Table 6  
Determinants of the quality of education

Dimensions	Percentage of the respondents and their ratings			
	High	Medium	Low	No effect
Pupil-teacher ratio	44%	33%	10%	14%
Size of class	47%	41%	13%	0.5%
Availability of schools	31%	45%	17%	6%
Transportation	20%	52%	22%	5%

Source: Authors calculation based on results of the household survey

### H. Health expenditures

Families tend to allocate smaller fractions of their income on health expenditures compared to educational expenditures. The respondents spend an average annual value of 1,436 EGP on health. This includes spending on medicines, therapeutic appliances and other health related services. The existence of chronic diseases in family members influences the amount of health spending. 50% of the households reported having no chronic diseases, whilst the remaining has

<sup>10</sup> The issue of gender discrimination in the MENA region concerning income, education, and labor force participation, has been documented by many studies, see for instance (Moghadam, and Fahimi, 2003)

one or more family member with hypertension or diabetes, which are highly prevalent diseases in Egypt (Ministry of Health, 2006).

### *I. Change in health expenditures after remittances*

Does the pattern of health expenditures changed after starting to receive remittances?. 73% answered this question with ‘Yes’ while the remaining said ‘No’. Concerning this change, 42% of the respondents used the extra resources towards consuming healthier diet and acquiring club memberships, 38% have made required surgical operations, 5% adopted private health schemes with better coverage and services, and 15% chose all.

## **5. Empirical methodology**

We elaborated in section 2 that one important moderating factor of sending remittances is the migrant’s remitting decision motivation, altruistic or self-interest. However, giving the interconnectivity between the factors, drawing a clear line between the two theories is challenging (Van Dalen et al. 2005). Different remitting approaches could exist for one migrant, depending upon his migration phase as postulated by Galliana (2006). She classified the phases as follows: the initial phase of the migrant project (0-5) years is characterized by altruism and co-sharing behavior. The flow of savings will be high in this phase up to 60% of his income. If the migrant stays longer (12 years and more), he tends to remit less because of higher inclusion in the society and his spending become more directed towards a settlement in the destination area, especially if the family has moved with him. Nevertheless, even if our empirical approach failed to differentiate distinctively between the two theories, it will assist in identifying the micro determinants of remitting. This is fundamental in assessing which changes in conditions, events or interventions could promote or hinder sending remittances, and for designing policies aimed at fostering remittance flows.

We use linear survey modeling for identifying the main socioeconomic and demographic variables that significantly influence remittances’ values. On the light of these estimations, we can decide which theory, altruistic or self-interest, best describes the remitting behavior of the Egyptian migrants. The dataset is single staged geographically clustered with only 1 strata, in which the 4 regions are the Primary Sampling Units (PSUs) and households are the Secondary Sampling Units (SSUs). Using survey specific commands is preferable as it incorporates the effect of clustering as well as the effect of sampling weights when computing the variance, standard error, and confidence intervals.

Since our sample does not involve comparing the spending pattern of remittances receiving vs. non-receiving households. Rather it reflects various economic and social characteristics of Egyptian remittances receiving families across different regions while stipulating nominal values

of their income and expenditures figures. We use 2 measurements of our dependent variable within 2 methodologies: the logarithm transformation of nominal remittances (*Ln\_remit*) in an Ordinary Least Square (OLS) survey regression and a censored nominal remittances (*remit*) in a Tobit survey regression. These approaches have been intensively used in the literature, see for instance (Gubert 2002; Amuedo-Dorantes and Pozo 2006). Both methodologies aim to account for the existence of several outlying observations in reported remittances via converging data ranges to reflect the largest cloud of observations.

There is a common debate in the remittances literature between the value of remittances and the decision to remit, and whether these two issues are derived by the same mechanisms or not (Emmanuel and William, 2012). However, in our study, there is no explicit discrepancy, since our sample includes only those migrants who are already remitting. Therefore Tobit is the preferred methodology to study this one stage decision, which treats the remitting choice and the value of remittances as one (Zanker and Siegel, 2007).

Our dependent variable is regressed against a set of quantitative and binary control variables based on several studies, like (Galliana, 2006; Gubert, 2002; Emmanuel and William, 2012 and others). These variables are classified into two groups. The first contains migrant related variables such as the migrant age (*age*), migrant education (*education*), duration of migration (*duration*), the decision to return (*return*), destination region (*destination*), migrant job type (*job*). The second group controls for general socioeconomic and income characteristics of the remittances receiving households, like the household income (*h\_income*), the number of children (*children*), household head education (*h\_education*), settlement area (*settlement*), household head employment (*h\_job*), dwelling type (*dwelling*). Variables definition and coding are presented in Table A1.

The nature of our model eliminates the reverse causality problem that arises when using remittances or migration variables in the RHS of the model, such as (Elbadawy and Rousdhy, 2010; Mckenzi, 2005). Some variables might look endogenous, like *h\_income* or *h\_job*, as remittances may influence the migrant's family income, as well the employment choice of the household head. Regarding *h\_income*, the corresponding survey question is structured in a way that respondents report only other sources of income excluding remittances. This explains the existence of several zeros in this variable, signaling those families who have no other sources of income but remittances. While for *h\_job*, cross tabulations and descriptive statistics in the previous section showed that nearly all the respondents kept their jobs after starting to receive remittances, claiming that remittance is not a significant moderating factor of the household head employment choices.

Two major shortcomings of using survey commands are, several post-estimation tests are not applicable and we are unable to use heteroskedasticity and serial correlation robust standard

errors. Yet, we test the existence of a correlation between the predictors (collinearity) in the survey regressions by manually computing the tolerance ( $1-R^2$ ) and the Variance Inflation Factor (VIF) (tolerance reciprocal). VIF values greater than 10 indicate the existence of collinearity (UCLA, 2016). Moreover, we re-estimate our model using the conventional linear regressions, while using household clustered errors that are robust to heteroscedasticity and serial correlation.

The Linear regressions of OLS and Tobit appear in Table 7. Our dependent variable in Models 7.1 and 7.3 is the logarithm transformation of nominal remittances, while in Models 7.2 and 7.4 nominal remittances is our dependent variable. The level of remittances is positively correlated with the migrant level of education and his age. One extra schooling year by the migrant before traveling increases the value of remittances by 1011 EGP at 5% level in Model 7.2. These findings go in line with the altruistic theory which suggests that as time goes by, highly educated migrants are better able to generate sufficient income and remit more to meet the financial needs of their families left behind (Van Dalen, et al. 2005; Zanker and Siegel, 2007; Gubert, 2002).

The duration of migration increases remittances in only Model 7.1. This result corresponds with Gubret (2002). It points towards the direction of self-interest or insurance models of remitting. Unlike the altruism theory predictions that foresee a gradual decrease of remittances as family ties decay over time and distance. However, this result is not robust when estimating our model by Tobit regression.

Surprisingly, destination carries a negative sign in Model 7.2, implying that migrants outside the MENA region remit more relative to those inside the region. Since our analysis is based on a cross-section survey covering one point of time from mid-2015 till mid-2016. The declining figures of remittances to Egypt within this period, in spite of the increasing number of Egyptians abroad, back this finding (CBE, 2016). This period has two distinctive events, which impacted adversely the flow of remittances flying from migrants in the region, namely GCC. These are the fall of oil prices and the nationalization employment policies ('Nitiqat' program) in Saudi Arabia -the largest employer of Arab expatriates- which seeks to increase the number of Saudi nationals employed in the private sector (Morshed and Pitafi, 2008; World Bank, 2016b). These policies have led to laying out large numbers of diaspora and raised the probability of repatriation for others. Migrants who face this state of insecurity might react by moving to cheaper houses, reducing their spending, shrinking their savings and consequently remit less. Some migrants might adopt a different strategy by choosing to remit all their savings and prepare for returning home (Hassan, 2015; Jha, et al. 2010). However giving the tough economic situation and high unemployment rates in Egypt, it seems like most of the Egyptian migrants inside the region has already picked the first strategy.

For household related variables, whether the household head is employed or not  $h\_job$  affects the value of remittances negatively. If the household head, mostly the wife, is employed, this brings



down remittances by 7996 EGP at 5% level in Model 7.2. This finding goes in line with the general consensus of the altruistic theory that suggests the presence of a negative association between household income and remittances (Lucas and Stark, 1985, Osili, 2007). Similarly, the value of remittances is positively correlated with the number of household children that reflect the impact of larger financial dependence on the migrant. However, this result seems not to hold in the Tobit model.

Altruistic motivations of caring about the family, best describes the remitting behavior of the migrants in our sample. Adding to the regression results, the confirmation of more than 60% of the respondents that remittances has increased after 2011 revolution. Signalizing the procyclicality of remittances to adverse shocks to the household also back this argument. Our results cannot be generalized to the entire migrant's population. Since our survey examines the determinants of remittances only from the perspective of the households. It misses important information on the migrants, like income, expenditures, savings, and the existence of other dependents in the destination country. Our sample is also limited in number and does not account for the fraction of migrants who do not remit, or who were remitting and stopped after a while. Nevertheless, it is challenging to argue in favor for only one theory to explain the remitting behavior. Even someone who is derived purely by altruistic intentions may still act in accordance with some kind of social contract. Hence differencing between the theories and pinpointing the pure altruist among remitters is perhaps impossible (Van Delan, et al. 2005).

Table 7: Linear regressions

	<i>Survey regressions</i>		<i>Non-survey regressions</i>	
	(7.1) <i>OLS</i>	(7.2) <i>Tobit</i>	(7.3) <i>OLS</i>	(7.4) <i>Tobit</i>
<i>Return</i>	0.0303 (-0.67)	593.7 (-0.44)	0.0303 (-0.75)	593.7 -0.44
<i>Destination</i>	-0.396 (-1.67)	-21938.9* (-2.55)	-0.396*** (-2.86)	-21938.9*** (-3.32)
<i>Age</i>	0.0276* (-2.6)	1370.4* (-2.57)	0.0276*** (-5.44)	1370.4*** -7.95
<i>Education</i>	0.0480** (-5.23)	1463.3* (-3.14)	0.0480*** (-3.79)	1463.3*** -4.01
<i>Duration</i>	0.0336** (-5.08)	356.1 (-0.59)	0.0336** (-2.34)	356.1 -0.85
<i>2.job</i>	-0.0118 (-0.21)	1862.9 (-0.28)	-0.0118 (-0.05)	1862.9 -0.39
<i>3.job</i>	0.0783 (-0.56)	4820 (-1.65)	0.0783 (-0.37)	4820 -1.11
<i>4.job</i>	-0.024 (-0.21)	-757.8 (-0.23)	-0.024 (-0.11)	-757.8 (-0.16)
<i>7.job</i>	0.0203 (-0.12)	258.2 (-0.14)	0.0203 (-0.09)	258.2 -0.05
<i>Children</i>	0.0866** (-3.93)	2642.1 (-2.14)	0.0866** (-2.34)	2642.1** -2.5
<i>h_income</i>	0.0000125** (-5.11)	0.546*** (-11.3)	0.0000125*** (-8.19)	0.546*** -7.05
<i>h_job</i>	-0.149* (-2.78)	-7996.2** (-3.28)	-0.149** (-2.59)	-7996.2*** (-4.20)
<i>Settlement</i>	0.157 (-1.86)	1658.8 (-0.79)	0.157*** (-2.6)	1658.8 -1.04
<i>dwelling</i>	0.0402 (0.89)	2953.3 (-1.66)	0.0402 (-0.75)	2953.3* (-1.73)
N	277	277	279	279
Strata	1	1		
PSUs	4	4		
VIF	3.98	-	5.55	
Right censored		21		21
Left-censored		0		0
R2			0.740	
F test (prob.)	(0.00)	(0.00)	(0.00)	(0.00)

The method of estimation is survey linear regression (*svy: linearized*). t Statistics shown in parenthesis. Significantly different from zero at \*90%, \*\*95%, and \*\*\* 99% confidence. The upper and lower limits of Tobit are, 6,000 and 80,000 respectively, wherein majority of remittance values lie within this range.

## **6. Conclusion**

Remittances indeed are an important development tool for many countries and as well for millions of families who consider this money as their primary source of sustenance and durability. During adverse times, conventional sources of foreign income like FDI and ODA fades away, remittances tend to behave contrarily, derived from the migrants' sense of care and altruism to their families back home. Egypt is no different after the political and economic unrest followed the 2011 revolution and after 5 years, the situation is no better, and many people are left with no choice but to cross the country borders seeking a better life for them and their families.

Our study provided a double edged analysis for the microeconomic determinants of remittances in Egypt. A qualitative exploration and an empirical investigation of the main drivers of remittances from the perspective of 304 migrants household located across 16 Egyptian governorates. Our OLS and Tobit survey regressions showed that the migrant age, education and the duration of his migration are the significant determinants of the value of remittances. While for the household side, the number of children and household income are the prominent deriving factors. Our results favored the altruistic model of remitting, implying that these migrants remit for the sake of caring about their families.

In terms of policy implications, our qualitative study showed that households prefer safer investment tool for their savings, favoring 'bank deposits with return' over 'projects'. A distinguishing conclusion is that families in Upper and Lower Egypt have a higher intensity to invest and save remittances compared to families of the richer Greater Cairo and North Egypt regions. This finding guides existing policy makers to better target those families in Upper and Lower Egypt with innovative financial and investment products. Especially when the second top constraint for survey respondents against investing remittances is 'do not know where and how to invest'.

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## Appendix A

Table A1: Variables definition and coding

Variable	Definition	Code
age	Migrant age	Nominal
education	The migrant's level of education measured in number of his schooling years in Egypt. Completion of primary school 6 years, preparatory school 9 years, secondary school 12, university 16 and post graduate 20 +	Nominal
children	Number of children living in the migrant's household who benefit from remittances	Nominal
duration	The number of years spent abroad	Nominal
return	The migrants decision of returning to Egypt	Ordinal: takes value of 1 if the migrant is willing to return, and 0 otherwise.
destination	The settlement region of the migrant	Ordinal: takes value of 1 if the migrant is staying inside the MENA region and 0 otherwise
job	The migrant job type	Ordinal: takes value of 1 if the migrant works in academic and research, 2 manager, 3 technician , 4 Service and sales, 5 Self-employment, 6 armed force occupations, and 7 housing and construction



Table A1- *continued*

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h_income	Other sources of family income excluding remittances	Nominal
h_education	Household head level of education measured in years of his/her schooling years in Egypt. Completion of primary school 6 years, preparatory school 9 years, secondary school 12, university 16 and post graduate 20 +.	Nominal
settlement	Describing the settlement area of the migrant's family	Ordinal: takes value of 1 if they settle in urban surrounding and 0 otherwise
h_job	The household head employment status	Ordinal: takes value of 1 if the household head is employed at the time of the survey and 0 otherwise
dwelling	The migrants' family dwelling type.	Ordinal: takes value of 1 if their dwelling is not yet owned and they are paying installments, and 0 otherwise

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