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DO INTERNATIONAL REMITTANCES AFFECT
THE PERFORMANCE OF LABOR MARKET
IN JORDAN? AN EMPIRICAL INVESTIGATION

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Working Paper No. 1014

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Abstract

The current study examines the effect of international remittances on labor supply decisions of women and men left behind in Jordan. The study draws on micro-data from the Jordan Labor Market Panel Survey in 2010, a nationally representative survey, and addresses the endogeneity of receiving remittances through an Instrumental Variable (IV) approach. The empirical results indicate that remittances are found to have a negative and significant impact on the labor supply of both women and men. On average, women who live in remittance-receiving households are about 5% points less likely to perform any market work, 3% points less likely to be in wage employment and about 8% points less likely to be engaged in own work. On the other hand, men who live in remittance receiving household are about 25% points less likely to perform any market work, 5% points less likely to be in wage employment and about 10% points less likely to be engaged in own work. When we instrument for remittance receipt of the household, the effect of remittances on likelihood to work is found larger for both women and men.

JEL Classification: F22, F24, J22.

Keywords: International Migration, Workers' Remittances, Labor Supply, Jordan.

ملخص

تبحث الدراسة الحالية تأثير التحويلات الدولية على قرارات المعروض من العمالة من النساء والرجال في الأردن. وتستند الدراسة إلى بيانات المسح التتبعي لسوق العمل في الأردن لعام 2010، وهو مسح ممثل وطنياً، ويتناول الجوانب الداخلية لتلقي التحويلات المالية من خلال المتغير المساعد (IV). وتشير النتائج التجريبية أن التحويلات لها تأثير سلبي وكبير على عرض العمل لكل من المرأة والرجل. والنساء الذين يعيشون في أسر المستفيدة من التحويلات حوالي 5 نقاط٪ أقل عرضة لأداء أي عمل السوق، 3 ٪ نقطة أقل من المحتمل أن تكون في العمل بأجر وحوالي 8٪ نقاط أقل عرضة أن تشارك في العمل الخاص. من ناحية أخرى، الرجال الذين يعيشون في التحويلات الاستقبال المنزلية حوالي 25٪ نقاط أقل احتمالاً لأداء أي عمل السوق، 5٪ نقاط أقل من المرجح أن يكون في العمل لقاء أجر، وحوالي 10٪ نقاط أقل عرضة أن يشارك في العمل الخاص. عندما استخدمنا وسيلة لتقدير استلام التحويلات من الأسرة، تم العثور على أثر التحويلات على احتمال وجود عمل أكبر للنساء والرجال

1. Introduction

The rapid growth of remittance flows to emerging economies over the last two decades has generated a number of studies that examine the potential effects of these transfers on various economic dimensions of the country of origin. Jordan is considered as one of the top ten developing countries with the highest received remittances as a percentage of GDP. This exceeds 20% of the GDP in recent years. The country has ranked as one of the top recipient countries for remittances in the developing world¹. Most existing studies investigate the impact of remittances on various economic variables. In some studies, the emphasis is placed on the determinants of the flows of remittances. These studies investigate the main factors that influence workers' remittances. However, to the best of our knowledge there is no study in the literature exclusively devoted to remittances from Jordanian expatriates working abroad.

This study comes to fill some of the gaps in the existing literature about the linkages between international remittances and the performance of the labor market of the origin country by concentrating on the case of Jordan. The study draws on micro-data from the Jordan Labor Market Panel Survey in 2010, a nationally representative survey, and addresses the endogeneity of receiving remittances through an instrumental variable (IV) approach. We use information on the count of Western Union offices in the country as an instrument for receiving remittance, controlling for variety of individual characteristics. We examine the extent to which women and men left behind in Jordan change their participation in labor market, differentiating between wage employment and own-employment. The empirical analysis is undertaken separately for women and men left behind. We also analyze the impact of international remittances on the number of hours worked. Finally, we account for different labor market patterns by running regressions separately for urban and rural areas in Jordan.

The remainder of this paper is organized as follows: Section 2 reviews the existing literature. An overview of the Jordanian labor market and trends in worker remittances are discussed in Section 3 and Section 4, respectively. Section 5 describes the data and the empirical approach and in Section 6 we discuss the empirical results. Section 7 concludes.

2. Literature Review

Among issues of labor economics, labor migration is one of the rich areas of research. Worker remittances have traditionally been an important and vital source of development in many developing countries. The money that expatriates working abroad send home is likely to contribute in playing a significant role in various aspects of the local economy, where these flows have been found to affect labor market performance, particularly in the home county. However, there have been a few theoretical and empirical studies about labor migration and migrant transfers in Jordan. Most of these papers investigated the effects of migration and remittance flows at a macroeconomic level, concentrating on economic growth, investment, consumption, and poverty, (such as Kirwan, 1981; Zagloul, 1984; Alshare', 1982; Talafha, 1985; Quraan, 1988). Another study linking the behavior of remittance flows to Jordan to macroeconomic policy is conducted by El-Sakka (2003). It aims to evaluate the impact of macroeconomic policy on the inflow of remittances to Jordan. It is assumed in this research that the Jordanian expatriates respond to the changes in macroeconomic policies significantly in terms of the amount of money to be transferred back home. The study concludes that remittance flows to Jordan are determined by the level of real income in the host country, interest rate differentials, and exchange rate misalignment.

Most of the studies that have investigated the macroeconomic effects of remittances do not cover the evolution stage of remittances' movement. However, none of these studies has empirically investigated the relationship between remittances and labor supply of males and

¹World Bank Development Statistics, 2010.

females in Jordan. Therefore, it is necessary to conduct empirical investigations to fairly and accurately evaluate the impact of these flows on the Jordanian labor market at a microeconomic level.²

One of the early efforts to explore the relationship between labor market indicators and remittances for Jordan is done by Wahba (2012). The study investigates the impact of immigration and emigration on the labor market in Jordan by using the Jordan Labor Market Panel Survey of 2010 (JLMPS). It discusses the properties of emigration and describes current Jordanian emigrants and return migrants. The researcher also made a comparison between immigrant workers and native workers. The study concludes that Jordan is exporting high-skilled workers but importing low-skilled workers, and native workers negatively influenced by immigrant workers who undermine their wages. In spite of that, immigrant workers work in low-skilled jobs with low benefit in the informal sector. On the other hand, results show that the domestic reservation wages increase due to Jordanian emigrants whose earnings are four times larger. This leads to the raising of the 'Rentier State' phenomena through the remittances of Jordanian emigrants. Emilsson (2011) examine the impact of received remittances on the recipient households' labor supply in Jordan. In order to achieve the objectives of this study, the neoclassical model of labor-leisure choice was applied. The data is obtained from the household income and expenditure surveys of the Department of Statistics in Jordan. The study shows that labor supply has been negatively influenced by the remittances for men and women, which contributes to explain how the source country's economy is affected by migration. This finding is in line with the traditional assumptions of leisure as a normal good.

In the literature, there has been a considerable debate regarding the effect of migration and remittance on labor participation decisions of both males and females. This debate is also expected to remain, over the coming years, since remittances and migration are believed to have significant impact on labor supply, particularly in the country of origin. Using a cross-sectional and panel data analysis based on two household level datasets for Jamaica, Kim (2007) examines the linkages between international remittances and labor supply. The study finds that there is a negative effect of remittances on labor market participation, but the effect on the hours worked is not significant. Individuals who received higher remittances are more likely to have a higher reservation wage, resulting in moving out of the labor force, or being less enthusiastic about finding jobs.

In addition, Airola (2008) attempts to understand to what degree the receipt of remittances affects labor market patterns. Using the household income and expenditure survey data for the case of Mexico, the research finds that remittance receipts are associated with a fewer hours of work and negative income elasticities. This is in line with Amuedo-Dorantes and Pozo (2006), who also find that remittance receipts cause a decline in the labor force participation and hours supplied by rural Mexican women. Justino and Shemyakina (2012) explore the effect of remittances on the labor supply decision in Tajikistan. The authors examine this relationship by differentiating between regions and their exposure to the 1992-1998 armed conflict that the country has experienced. The empirical findings reveal that remittances have a negative effect on the supply of labor hours worked across all regions, and both for men and women. Further, in the households that do not have migrants, remittances have no effect on the labor supply by males, suggesting that migration and not remittances is the primary factor explaining male labor force participation.

Binzel and Assaad (2011) employ data from the 2006 Egypt Labor Market Panel Survey and examine whether migration of a male household member provides a possible avenue to enter

²However, the impact of remittances on the decision to work has been previously examined by Edgard Rodriguez and Erwin R. Tiongson (2001) in Manila and by Edward Funkhouser (1992) in Managua, without accounting for the endogeneity of remittances with respect to labor supply.

the labor market. The empirical results show that women in rural Egypt respond to migration by increasing their labor force participation and their labor supply. The results also indicate that the small decrease in wage work in both rural and urban areas might result from women shifting from wage to non-wage work. However, women living in rural areas and affected by migration have a higher probability to be employed in non-paid family activities and subsistence work compared to women in non-migrant households. Mughal and Farid (2013) investigate the impact of foreign and internal remittances on Pakistan's labor market by using the 2007–2008 Household Integrated Economic Survey. The study employs Probit and Propensity Score Matching (PSM) techniques to test the effect on labor participation and work activities as well as non-active members of remittance-receiving households. The results indicate that foreign and internal remittances decrease labor supply, especially in rural areas among women and young individuals. The results also show that the probability of remittance recipients to be self-employed and cultivate their own land is higher than those who do not receive remittances.

The reviewed studies confirmed the importance of the remittances and migration patterns on the labor participation decision. It is therefore important to conduct a more in depth micro-level empirical study that examines the effect of remittances on the Jordanian women and men left behind. This study comes to fill the gap in the literature by using data at the micro level and to distinguish the analysis by rural and urban regions in Jordan.

3. An Overview of the Labor Market in Jordan

As a small developing economy, the Jordanian economy has a number of stylized facts affecting its growth dynamics and variability. Due to its smallness, openness and geopolitical positioning at the center of regional transformations, the Jordanian economy is highly vulnerable to external shocks and environment (World Bank, 2012), and hence can be perceived as a fair reflection of the developments within neighboring economies. In addition, Jordan's economy suffers from limited financial and natural resources and its structure is dominated by service-related activities, which account for more than two thirds of gross domestic product (GDP).

The population of Jordan has grown rapidly over the last fifty years. In 2013, the population reached about 6.5 million people. The total area of the country is 89,300 square km, only 7.8% of this area is cultivated, and the majority of this area consists mainly of desert plateau (Department of Statistics, Amman). The country is divided into three main regions, the Northern region that has five administrative divisions (provinces), the middle region, with four administrative divisions, and the Southern region, that has four administrative divisions. Around 80% of the population live in urban areas, and approximately three million live in the capital, Amman, which is located in the middle region of Jordan.

The Jordanian economy is highly dependent on imported oil and petroleum products, gas, and electricity to provide a sufficient level for its energy requirements. In contrast, phosphates, fertilizers, and agricultural products are the main exported goods to other countries. A chronic imbalance between government budget revenues and expenditures, as well as serious discrepancies between investment and national savings (leading to a significant dependence on external sources, mainly aid, grants and debt for financing investment), have been the major characteristics that have accompanied the Jordanian economy over long period of time (Maghyreh, 2001). In recent years, Jordan has suffered from the heavy burden of the international refugees, especially from Syria due to the political conflicts that happened in the region.

On the other hand, the Jordanian labor market has experienced dramatic fluctuations, starting from the Arab-Israeli conflict, and the Gulf War, and later the Syrian crisis. It is therefore the case that Jordan's labor market faces many external shocks. In order to investigate the impact

of international remittance inflows on the labor market in Jordan, we will first provide a detailed overview of the general structure of the Jordanian labor market.

In what follows, the movement of unemployment rates over the time, for both males and females at different age groups will be presented. Recent statistics on labor force participation rates and educational outputs of the Jordanian Universities will also be discussed. Since Jordanian expatriates left the local market to other labor markets, and they were a part of the total labor force, discussing the main features of the labor market in Jordan and the level of unemployment can provide a clear picture to understand the nature of the origin market of Jordanian workers.

After the War of 1948 in the Middle East, the Jordanian economy experienced significant structural changes in its economic, social, and demographic features, where many of the West Bank population moved to the East Bank as a result of this war. This led to a huge increase in the population living in Jordan and caused severe structural imbalances in the labor market, since the supply of labor force exceeded the demand for labor force, and unemployment rates reached a very high level at about 25% in that time (see Al-Assaf (2012)).

During 1970s and 1980s, the labor market in Jordan experienced significant growth due to the boom period in the region, particularly in the Arab Gulf countries. Labor force increased from 299,900 workers in 1970 to 355,400 thousand workers in 1975 then to 420,000 and 583,500 thousand workers in 1980 and 1989, respectively. This steady rise in the total labor force affected the labor force participation rate (LFPR) which represents the percentage of working people (including those who are employed and who are unemployed but looking for a job) as well as the unemployment rates of the economy. Figure 1 shows the general trend for the number of labor force and employed workers in the economy for a long span of time. It is clearly seen that the labor force has been rapidly growing particularly over the last two decades.

To provide a detailed picture about the labor force participation rates, Table 1 presents these ratios for both males and females at different age groups during the period 2010-2013. There found labor force participation rates for male are much higher than the female ones, at about 60% for males compared to about 14% for females during the examined period. This is one of the key features of the Jordanian labor market. Therefore, Jordanian women are less likely to participate in the labor market than men. However, the total labor force participation rates for both male and female decreased from 39.5% in 2010 to 38.08% and 37.07% in 2012 and 2013, respectively. The highest participation rates are found for the age groups 15-24 and 25-29 and the lowest are for the 50-54 and 55+ age groups.

Table 2 shows labor force participation rates categorized by the educational levels. The educational levels are categorized into four categories: postgraduate studies, bachelor's, secondary school, and diploma. For both males and females, the highest is the participation rate among those with postgraduate degrees. The ratios reach about 71%-78% for the period 2010-2013, while the participation rate among people who have only secondary school certificate and below is about 30% for the same period. It is also noticed that the huge gap between participation rates between male and female is among people of this age group.

Looking at the structure of the labor force in the Jordanian labor market categorized by the educational level shows that female holding bachelor's degree participated in about 50% of the total female labor force in 2010. This ratio has increased to about 55% in 2013. This is due to the improvement in the educational system and the increase of the number of available seats at Jordanian universities during the last three years. On the other hand, males who are hold a secondary school certificate and below participated in about 72% in 2010 and decreased to about 70% in 2013, due to the increase in the number of male bachelor's graduates in recent years.

In general, the refined labor force participation rate in Jordan is considered to be relatively low, compared to the average refined rate of labor force in the world, which is about 60%. Therefore, low LFPR is one of the main features of the Jordanian economy. This is basically due to two reasons: first, the age structure of the population in Jordan, where about 37% of the Jordan's population are aged less than 15 years old, due to the high fertility; and second, continuous immigration of many skilled Jordanian workers to other countries, especially to the Arab Gulf countries.

Regarding the unemployment rate in Jordan, Figure 2 shows the general trend of the unemployment rate in the Jordanian labor market during the period 1970-2013. This rate measures the number of people actively looking for a job as a percentage of the labor force. The unemployment rate decreased from around 11% in 1970 to 3.5% in 1980, this was largely the result of the high demand of Gulf countries on the Jordanian labor force, especially skilled workers during that period. Therefore, the Jordanian economy reached almost full employment from the mid-1970s to the mid-1980s. At this stage, Jordan started importing labor from other neighboring countries such as Egypt and Syria. However, the economic crisis of 1989, with the Gulf War and the return of many Jordanian expatriates, raised the unemployment rate to 10.3% in 1989 and 18.8% in 1992. However, high population growth rates in the early 1990s begun to have an impact on unemployment in the country.

Consequently, the unemployment rate was 15.5% on average for the period (1990-1999). After that, the labor force had increased during the period 2000-2007, with an average of 3% per year. Nevertheless, unemployment rates stood at around 14% for the same period. After the world financial crisis that took place in 2008, unemployment rate remains at around 12% during the recent years.

The structure of unemployment rates among males and females, shown in table 4, indicates that about 28% of the youth (male and female) aged 15-24 were unemployed in 2010, where about 47% of the females at this age group and 24% of the males were unemployed. This is another indicator for the high unemployment rate among young workers in the Jordanian labor market. However, this rate has increased to about 29% and 31% in the years 2012 and 2013, respectively. Additionally, unemployment is around twice higher among female for most of the years.

Table 5 presents unemployment rates based on the educational levels. Unemployment rates are high among females who hold bachelor's and diploma degrees, while males with bachelor's degrees are suffering from unemployment. It is also noticed that the unemployment rate has decreased among female with secondary schooling and below -- from 13.6% in 2010 to 9.9% in 2013. In contrast, this rate remains at around 10% for males during the same period.

Table 6 gives the details of unemployment rates in different specializations for both male and female groups. In general, unemployment is high in the fields of education, mathematics, sciences, and computer science for both males and females. The rate increased from 16.2% in 2010 to about 21% in 2013. However, unemployment is very low among people with only a secondary education. This reflects the need to have less skilled workers in the economy as the vast majority of Jordanian labor is comprised of highly professional and well educated workers. Between the years 2010 and 2013, unemployment rates in health and social services decreased from 12.2% to 10.3% for both males and females.

Table 7 shows that in Jordan unemployment rate is decreasing in the middle region, rising level of unemployment in southern region is mainly due to limited economic activity as well as absorption capacity in agriculture sector, where unemployment rate touched about 17.8% in the southern region of Jordan, especially in Ma'an and Tafelilah provinces. The unemployment

rate in rural areas is even more than in urban areas, this because of imbalance in economic development which is mainly concentrated in the capital city of Amman in the middle region.

Other labor market indicators can be reflected using the first wave of the Jordan Labor Market Panel Survey (JLMPS 10). The survey was conducted in 2010 and collected micro-level information about different aspects of the labor market in Jordan. From about 5800 individuals who answered the questions about the number of actual days and hours worked in the last three months, around 39% are working six days a week and 36% of them are working eight hours a day. Moreover, 59% of them are employed by private sector and 40% employed by government (see Figures 3 and 4). On the other hand, 1900 individuals of the 5800 enjoy two-day weekend vacation, and about 1626 of them work more than 10 hours a day. However, about 35 % of those workers obtained their job through relatives, family, and friends.

Regarding the trends in female's labor force in Jordan, the statistics obtained from JLMPS 10 reveal that about 55% of the questioned females are working in the labor market, and about 90% of their husbands (for the married females) agree on their working. In addition, 61% of the single females will continue working after marriage (see Tables A2-A11 in Appendix).

4. Trend in the Jordanian Workers' Remittances

The concept of workers' remittances as defined in the International Monetary Fund (IMF) interpretation refers to the value of monetary transfers sent home from workers residing abroad for more than one year, and it is recorded in different sections of the balance of payments. The main objective of the current study is to investigate the effect of such financial transfers on the Jordanian economy, particularly on the labor market. In this part, we briefly present the general trend in workers remittance flows to Jordan. This section concentrates on the significant role of these transfers as a major source of capital inflows to the Jordanian economy. It explores the patterns of remittance flows to Jordan over time. We will also analyse the characteristics of these flows using the data available from the JLMPS 2010.

International migration and its monetary transfers (money that migrants send home) represent today an important source of external funding for many developing countries, including Jordan. According to the World Bank data on remittances³, about USD 3.2 billion in 2011, Jordan is ranked at 10th place among all developing countries. Jordan has been ranked constantly among the top 20 remittances-recipient countries over the last decade. In addition, the Arab Monetary Fund (AMF) statistics in 2011 indicate that Jordan was the third biggest recipient of remittances among Arab countries after Egypt and Lebanon⁴. This confirms the fact that remittance flows to Jordan are considered as a great area of interest.

Figure 5 shows the general trend in remittance flows to Jordan over the period 1976-2013. It can be seen that the country experienced a spectacular increase in remittance flows over the 1970s and the first half of the 1980s, when remittance flows increased from JD 100 million in 1976 to more than JD 300 million in 1979 and then to about JD 500 million in 1987. This was mainly due to the fact that the number of migrants to the Arabian Gulf Countries had grown sharply during that time, whereby thousands of Jordanian skilled workers migrated to the Arabian Gulf Countries, especially during the oil boom in the Gulf Countries in the 1970s and 1980s. Over the second half of the 1980s, the remittances gradually dropped as a result of the economic crisis that happened during the period. This was a consequence of the sharp drop in the oil prices and its impact on the economic development in the labor-imported countries, where these flows dropped about 30% in 1991 compared with their level in 1988.

Over the years 1992 and 1993, the flows of remittances to Jordan experienced rapid growth: the growth rate reached 88% in 1992, when Jordan had started again exporting high skilled labor

³World Bank Development Indicators, 2011.

⁴Joint Arabic Economic Report, Arab Monetary Fund, 2011.

after the Gulf War. This increase continued steadily over the period 1991-1996, whereby the average growth rate was 9% for that period. After that, remittance flows continued to increase to reach about JD 2.24 billion in 2008. However, the 2008-2009 financial crisis affected investment in the Arabian Gulf region with a significant decline in remittances during that period. In the last three years, the flows of remittances have reached high levels at JD 2.15 billion, JD 2.23 billion, and JD 2.33 billion in 2011, 2012 and 2013, respectively. The annual average growth rate of recorded remittances was 12% in these years. It is worth mentioning that the total inward remittance flows were more important than net remittances, considering the outward flows were relatively small compared to the amount of remittances received. Hence, net remittances would not be significantly different than total receipt remittances (Al-Assaf, 2012).

When remittance flows are calculated as a percentage of GDP, or in per capita terms, a different picture emerges. Table 8 presents the volume of recorded remittances as a ratio of selected macroeconomic indicators in selected years over the period 1975-2010.

Remittances, as a share of the GDP, increased gradually from 15% in 1975 to 21% in 1980. This percentage ranges between 17%-20% over the period 1995-2010, where Jordan is ranked as one of the top recipients of remittances among the developing countries. This ratio is usually used to measure the impact of remittances on various economic variables. Moreover, at the macroeconomic level, some studies have taken remittances per capita as a measure of the importance of these flows, compared to other capital flows.

Other studies look at remittances as a percentage of exports and imports. Table 8 also shows that remittances as a share of both exports and imports decreased considerably, reflecting growth in exports and imports compared to the growth in remittances over the period 1975-2010. In contrast, remittances per capita were USD 92 in 1975 and increased considerably to USD 513 in 2010. This is due to the high growth of remittance flows over time. In addition, the importance of remittances to the Jordanian economy can be seen from Figure 6 that compares the flow of remittances to the capital flows expressed by foreign direct investment (FDI). It is clearly concluded that remittance flows are exceeding FDI for all the years over the period 1975-2010.

The host countries that have absorbed most of the Jordanian expatriates are Saudi Arabia and the United Arab of Emirates (UAE), where the available recorded number of the Jordanian expatriates, working abroad, indicates that about 88% of these migrants are working in the Arabian Gulf countries. The following table provides accumulated numbers of Jordanian migrants who work in the Gulf Countries in 2012.

It is clearly seen from Table 9 that about 87% of the Jordanian expatriates are working in three main countries: Saudi Arabia, the UAE, and Kuwait, where about 67,000 workers are employed in Saudi Arabia (which is about 47% of total Jordanian migrants). The ratio of Jordanian migrants in the UAE has increased in recent years. This is because the expansion of many business in the UAE and the improvement in the level of skills of Jordanian migrants.

In order to look at remittance flows to the Jordanian economy in the context of the world and other developing countries, we present the position of Jordan among other countries in terms of the volume of remittances received and the ratio of these transfers to the GDP. A report published recently by the World Bank shows that Jordan has ranked as one of the top remittance-receiving countries in the world in 2011, whereby the volume of these remittances reached about USD 4.2 billion of exceeding many countries in the MENA region. Figure 7 shows the rank of Jordan among top countries in the world in terms of remittances received in billions of USD. In addition, remittances as a share of GDP are estimated at about 15% in 2010 and ranked Jordan as one of the top 20 countries in the world. Figure 8 represents the

importance of remittance flows by calculating the ratio of remittances to GDP, and shows the high rank of Jordan among other countries particularly in the MENA region.

At a micro-level, studies concerning the economic impact of remittances usually employ data obtained from either household income and expenditure surveys or labor market panel surveys. Both of these surveys have questions about migration and inflows of remittances from migrants working abroad. Analyzing the data obtained from the Jordan Labor Market Panel Survey 2010 reveals that from about 25,000 individuals covered by the survey, only 1675 individuals received remittances from a member of family working abroad (which is about 7% of all households).

The JLMPS 2010 indicates that the average value of remittances transferred to the households is JD 1735 over the past 12 months. Most of these transfers are sent by hand (around 44.5% of the total amount), while about 27.4% and 19.6% are transferred through money order and banks respectively. This point clearly confirms the fact that macroeconomic data published by the monetary authority in Jordan underestimates the actual amount of remittances received by households, as most of these inflows are transferred through unofficial methods such as by hand (see Figure 9).

In terms of the main destinations of Jordanian expatriates, the JLMPS 2010 also indicates that about 35% of Jordanian expatriates are in Saudi Arabia and 24% in the UAE. However, the United States of America is the main destination in the Western Countries, hosting around 10% of Jordanian expatriates. The relationship between the person who sends the money and the person who receives it is distributed as follows: 34% are son or daughter, 18% sibling, and 17% father or mother.

Almost half of Jordanian expatriates have university or higher educational certificates. This means that the vast majority of Jordanians working abroad are highly educated and professional workers. Interestingly, there are a huge difference between the educational levels of Jordanian emigrants working outside Jordan and immigrant labor working inside Jordan, whereby foreign workers in Jordan tend to be engaged in construction and low-skilled work.

5. Data and Empirical Analysis

5.1 The data

For the purpose of this research, we use data from Jordan Labor Market Panel Survey (JLMPS) 2010, which is the first wave of a panel survey carried out by the Economic Research Forum in cooperation with National Centre for Human Resource Development (NCHRD) and the Jordanian Department of Statistics (DOS). The survey was carried out on a nationally representative sample of 5,102 households containing 25,969 individuals of all ages. The dataset available by this survey provides detailed information on demographic and work characteristics, women's work and labor market behavior in Jordan. It is, therefore, an important new source of data helping in explaining the behavior of many indicators related to the labor market. However, the JLMPS 2010 underestimates labor migration in Jordan, as in some cases the survey does not include households who are currently migrating (Wahba, 2012). In addition to the issues of migration and remittances and standard labor market indicators such as labor force participation, employment, unemployment, and income, the JLMPS also covers topics such as parental background, education, housing, access to services, residential mobility, marriage patterns and costs, fertility, women's decision making and empowerment, savings and borrowing behavior, and the operation of household enterprises and private business.

We restrict our sample to prime-age women and men (aged 20-55). We have information about remittances income that refers to whether a household has received any international remittances during the last 12 months (in cash and/or in kind). Our main explanatory variable is the remittance receipt, defined as whether a household member received cash/in kind

transfers from members not present in the household. Specifically, we used the following question: ‘During the past twelve months, has your household or any of its members received any money or goods from persons who are not members of your household or household members who are away from home and do not come back once a week?’ Control variables include the age and age squared of the member left behind, their education and marital status, the number of children under 5 and from 6 to 14 in the household, the presence of elderly individuals, the average monthly non-labor income of the household, number of household members living and working outside Jordan, urban/rural settlement size, regional dummies and an indicator for informal sector employment.

5.2 Empirical methodology

We employ several estimation procedures of the effect of remittances on the labor supply decisions of the women and men left behind. The first models assume that selection into remittance receipt depends only on observables and can include simple parametric regressions (probit and tobit) with remittance receipt status entered as a dummy variable together with other individual characteristics:

$$Pr(Y_i = 1|X_i) = F(\beta_0 + \beta_1 X_i + \beta_2 Rem_i + \varepsilon_i) \quad (1)$$

where Y_i measures participation in wage employment and hours worked for $i = 1, \dots, n$ individuals, that is, labor participation decision – wage employment, *hours*- number of hours worked by both male and female for those who receive remittances; *Rem* is an indicator that captures whether household has received any international remittances during the last 12 months (in cash and/or in kind); X_i is a vector of exogenous explanatory household and individual characteristics, and ε_i is the error term ($\varepsilon_i \sim Normal(0, \sigma^2)$). However, a few econometric issues arise in the estimation of equation (1). Remittances and the error term in equation (1) may be correlated. Unobserved heterogeneity and omitted variable bias may exist if remittances are related to wealth, which, in turn, may be correlated to the dependent variable. Additionally, there is a potential reverse causality as participation in wage employment and hours worked may influence emigrants’ decision to remit. To account for both the endogeneity of remittance decision, we use instrumental variables (IV-probit) model, commonly used in the migration literature (e.g., Rodriguez and Tiongson (2001) in Manila, Amuedo-Dorantes and Pozo (2006) in Mexico)⁵. Following Amuedo-Dorantes and Pozo (2006), we instrument remittances with information about the number of Western Union offices in Jordan by main cities during the previous year to guarantee the predetermined characteristics of this variable⁶. The exogeneity of our instrument is confirmed, owing to the complete lack of correlation between the counts of Western Union offices in the Jordanian cities and male and female labor supplies. This instrument is meant to proxy for the extent of remittances-related network transfers at regional level and presumably provides an external source of variation in access to information. Avila and Schlarb (2008) use instead household-level instruments, which are: (i) the household’s knowledge of a migrant and (ii) whether the household had a member with a foreign nationality as instruments for the receipt of remittances. Yang (2003) uses the experiment arising from the 1997-98 Asian financial crises, which affected remittances via the exchange rate shock experienced by the country. This instrumental variable seems to be a promising way to solve the endogeneity bias because the instrument involved provide effective exogenous source of variation. Binzel and Assad (2011) use the percentage of adult males in the household village or neighborhood of residence who were abroad at the time of the 2006

⁵ Without accounting for endogeneity of remittances with respect to labor supply, they conclude that remittances reduce employment.

⁶We found a total of 340 Western Union offices in Amman, 7 in Al Balqa, 19 in Al Zarqa, 11 in Madaba, 50 in Irbid, 10 in Mafraq, 8 in Jarash, 4 in Aljoun and Tefileh, 15 in Al Karak, 10 in Ma’an and 20 in Aqaba. The source of the data for the instrumental variable comes from the <http://locations.westernunion.com/search/jordan> web site and the Central Bank of Jordan.

Egyptian Population Census. However, the available data do not include relevant policy information and we do believe that the proposed instrument satisfies both the relevance and exogeneity conditions.

6. Empirical Results

6.1 Descriptive statistics

Descriptive results for both urban and rural samples are provided by gender, remittance receipt status and by area in Table 10 and Table 11. One important characteristics of the Jordanian labor market that has been discussed in Section 3 and confirmed with the current data, is that female labor force participation has remained very low: among our sample of women aged 20-65, market labor force participation is around 12% for migrant urban women and much lower in rural areas (around 9% in migrant households). Whether women take up wage or own-work varies strongly with the area of residence, with the majority of women in rural areas working in own-work. Women's labor supply behavior in urban areas seems to be less sensitive to their household's remittance receipt status, whereas in rural areas, we observe significant differences between women in the migrant and non-migrant households. For instance, wage employment is much more prevalent for women in non-migrant households (around 14%) compared to migrant households women (7.4%). For men, labor force participation is around 55% in urban migrant households and much higher for non-migrant households (76.8%). The percentage of men with tertiary education is at 25% for migrant urban households, while it is at 18.8% for women. Women in our migrant sample work on average 35 hours per week in urban and 24 hours per week in rural areas.

The tables also indicate that household that did not receive remittances differ in several respects from those who received remittances: they are more likely to be engaged in both wage and non-wage employment, more likely to be married and had fewer dependent older members in the household.

6.2 The impact of remittance on individuals' labor market decision

To estimate the effect of international remittances on the supply behavior of women and men left behind, we estimate several binary choice models, namely participation in any kind of market work, in wage work, and in own work. Specifically, we used the following information to define the main outcomes of interest – whether in the past seven days the respondent has been engaged in any job; whether individuals' employment status in the main job in the last three months has been defined as wage employment; and whether individual has been engaged in own work in private businesses to produce goods and services. Our main explanatory variable of interest is the presence of a migrant abroad conditional on whether this migrant has sent remittances to the household or not in the 12 months prior to the survey. Control variables include the age and age squared of the woman or man in question, their education and marital status, the number of children under 5 and from 6 to 14 in the household, total number of household members, the average monthly non-labor income of the household, deciles of household wealth, as well as regional residence variables and an indication for informal sector employment. Tables 12 and 13 show the marginal effects after probability models that assume that selection into remittance receipt is based entirely on observables while Tables 14 and 15 summarize the IV results where endogeneity of remittance decision is considered. As discussed above, our instrumental variable is the total counts of Western Union offices in the main cities of Jordan – Amman, Al Balqa, Al Zarqa, Madaba, Irbid, Mafraq, Jarash, Aljoun, Karak, Tefileh, Maan and Aqaba, where the argument is that a higher number of Western Union Offices reduces the costs of sending remittances back home. Indeed, our instrument significantly predicts the probability of receiving remittances.

The results from the probit models suggest that in urban areas women decrease their wage and non-wage employment in response to the remittance receipt of a household member. On

average, women who live in remittance receiving household are about 5 percentage points less likely to perform any market work, 3 percentage points less likely to be engaged in wage employment and about 8 percentage points less likely to be engaged in own work. A decrease in wage work in response to remittance receipt can be explained by the fact that the migration comes along with remittance income, leading to an increase in reservation wage for those left behind (Binzel and Assaad, 2011). When confining the analysis to women living in rural areas, remittances now is predicted not to be significant in woman's likelihood to engage in own work, but still significant and negative in any work and wage employment specifications. It was also observed from the results with respect to the number of household members that a greater number of dependent members have a statistically significant effect on the own work employment specification, increasing the probability of own work by as much as 1.6 percentage points in urban and 1.9 percentage points in rural areas. The dummy representing those with secondary and higher university degrees, is found to significantly increase the market and wage employment work (see Table 12). These results are in line with the literature. Binzel and Assaad (2011), who analyze the impact of international remittances on the labor supply response by the women left behind, also observe significant negative effects for women in wage employment. Turning to the estimates for men left behind, the effect is found significant and negative for urban men engaged in any market and wage employment. Men who live in remittance receiving household are about 25% points less likely to perform any market work, 5% points less likely to be in wage employment and about 10% points less likely to be engaged in own work. However, no significant impact is found in any work specification (see Table 13).

Before looking at the endogeneity-adjusted results, we first ascertain the economic relevance of our instrument. For the clarity of exposition, we moved first stage instrumental probit results to the Appendix Table A1. Although lower in magnitude, the estimated coefficients are statistically different from zero at the 1% level for both urban and rural samples, suggesting that our instrument is significant predictor for remittance received by individuals left behind. They show positive effects on remittances receipt, meaning that the higher the number of the Western Union offices, the higher the probability of receiving remittances from the family members left behind.

When we instrument for remittance receipt status of the household, the effect of international remittances on likelihood to work is found larger for both women and men. In particular, international remittances are predicted to significantly decrease a woman's likelihood to engage in any work and wage employment by 28 percentage and 21 percentage points in urban areas, respectively in household whose remittance receipt status is likely to change due to changes in the instrument (see Table 14). Note that we are now estimating local average treatment effect, which is the effect for those households whose migration behavior changes from non-migrant to migrant as the instrument increases from its minimum to its maximum value -- the so-called "complier" (Imbens and Angrist, 1994). Our results also show that once endogeneity is taken into account, women in urban areas of Jordan respond to international remittances by increasing their involvement in own work. The change in the size of the effect reveals that remittances decision and own-wage work are negatively correlated (i.e., women living in remittance receiving households are initially less likely to be engaged in own-work than their counterparts). In contrast, the impact of international remittances is found insignificant for the case of men's labor force participation, particularly for any market work. This might be not surprising, as the remittances preconditions are that migrant's labor can be replaced by those left behind and this is more likely to be the case with the own-work and family business, especially for women. However, the Wald test of endogeneity, as reported in Tables 14 and 15, refers that we cannot reject the null hypothesis for the wage and any market employment specifications for both males and females. It is strongly rejected for the own work

specifications and for both males and females suggesting sufficient information to reject the null that there is no endogeneity⁷.

7. Conclusion

The relationship between international remittances and macroeconomic variables in many labor exporting countries has been of interest both in theoretical and empirical literature. A large number of studies have been implemented during the last decades to investigate the role of international remittances on economic growth or the level of income in the economy. However, few studies concentrate on the impact on the labor market.

This paper empirically examines the impact of international remittances on labor supply decisions for both women and men. It addresses the endogeneity of receiving remittances through an Instrumental Variable (IV) approach. We run separate models for urban and rural households since the income pattern is relatively different between urban and rural households in Jordan. Using the Jordan Labor Market Panel Survey of 2010, strong evidence is found on a negative and significant influence of international remittances on the both women's and men's likelihood to be engaged in any work. The marginal effects are even stronger once endogeneity is taken into account. International remittances increase the non-labor income of households left behind and, as a result, men and women in both rural and urban regions tend to reduce their willingness to work. On average, women who live in remittance-receiving household are about 5% points less likely to perform any market work, 3% points less likely to be in wage employment and about 8% points less likely to be engaged in own work. Meanwhile, men who live in remittance receiving household are about 25% points less likely to perform any market work, 5% points less likely to be in wage employment and about 10% points less likely to be engaged in own work. When we instrument for remittance receipt status of the household, the effect of remittances on likelihood to work is found larger for both women and men.

Therefore, the results confirm the significant impact of international remittances on the labor supply found in the previous literature for the case of Jordan. These results show that, relatively, a big fraction of remittances in Jordan is spent on supporting households and reducing the willingness of individuals to work. Therefore, remittances play an important role in increasing the reservation wages in the local Jordanian market.

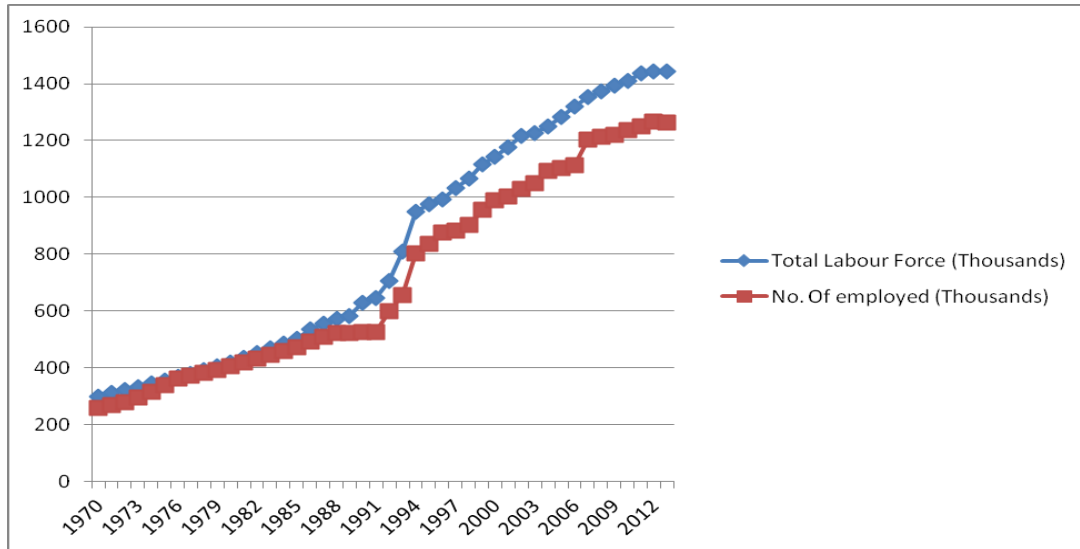
⁷A rejection of the null hypothesis of exogeneity would mean that the error term in the structural equation and reduced form equation are correlated and therefore instrumenting the endogenous variable was an appropriate decision.

References

- Airola, J. (2008). "Labor Supply in Response to Remittance Income: The Case of Mexico". *The Journal of Developing Areas* 41(2): 69-78.
- Al-Assaf (2012), "Workers' Remittances in Jordan" (Published Book), LAMBERT Academic Publishing, Germany, 2012, ISBN 978-3-659-25839-8.
- Amuedo-Dorantes, C. and S. Pozo (2006). "Migration, Remittances, and Male and Female Employment Patterns". *The American Economic Review*: 222-226.
- Assaad, R., Roushdy, R., 2009. "An Analysis of Sample Attrition in the Egypt Labor Market Panel Survey 2006". *The Egyptian Labor Market Revisited*. The American University Cairo Press, Ch. Methodological Appendix 3, pp. 303–316.
- Arab Monetary Fund (2011), Joint Arab Economic Report. UAE.
- Arab Monetary Fund (2010), Annual Report. UAE.
- Avila, R. and Schlarb, E., (2008). "Bank Accounts and Savings - The Impact of Remittances and Migration: A Case Study of Moldova." Kiel advanced studies working papers, No. 448, Kiel, Germany: Leibniz-Informationzentrum Wirtschaft.
- Binzel, C. and R. Assaad (2011). "Egyptian Men Working Abroad: Labor Supply Responses By The Women Left Behind". *Labor Economics* 18: S98-S114.
- CBJ (1975-2013), Annual Reports, the Research Department, Amman-Jordan.
- El-sakka, M. I. T. (2003). "Migrant Workers' Remittances and Macroeconomic Policy on Jordan". Department of Economics, Kuwait University. Kuwait.
- Emilsson, A. (2011). "The Impact of Remittances on Labor Supply: The Case of Jordan." Master Thesis, NEKMOI, Lund University, 39.
- Enders, W. (2004). "Applied Econometric Time Series". *Technometrics*, John Wiley & Sons, USA.
- Funkhouser, E.(1992). "Migration from Nicaragua: Some Recent Evidence." *World Development*, 20(8), pp. 1209–18.
- Imbens, G. and Angrist, J. (1994). "Identification and Estimation of Local Average Treatment Effects". *Econometrica* 62 (2), 467-474.
- JLMPS, 2010. Jordan Labor Market Panel Survey of 2010. Database, Economic Research Forum, Cairo, Egypt (www.erf.org.eg).
- Kim, Namsuk ,(2007). "The Impact of Remittances on Labor Supply: The Case of Jamaica", World Bank Policy Research Working Paper No. 4120.
- Kirwan, F. X. (1981). "The Impact of Labor Migration on the Jordanian Economy." *International Migration Review* 15(4): 671-695.
- Maghyereh, A. (2001). "Stock Market Development and Economic Growth: The Jordanian Experience". PhD Thesis, Department of Economics and Finance, University of Durham, Durham, UK.
- Rodriguez, E. and Tiongson, R. (2001) "Temporary Migration Overseas and Household Labor Supply: Evidence from Urban Philippines." *International Migration Review*, 35(3), pp. 709–25.
- Talafha, H. (1985). "The Effects of Workers' Remittances on the Jordanian Economy." *METU Studies in Development* 12(1-2): 119-130.

- Wahba, J. (2012). "Immigration, Emigration and the Labor Market in Jordan", Working Paper 671, *Economic Research Forum*.
- World Bank (2009), *Development Statistics*, Washington, D.C.
- World Bank (2011), *Development Indicators*, Washington, D.C.
- World Bank (2012), *Global Development Finance*, Washington, D.C.
- World Bank (2012), *Migrant and Remittances Factbook*, Development Prospects Group. Washington, D.C.
- Yang, D., 2003. "*Essays in Development Economics*". Cambridge, MA: Harvard University.
- Zaglol, E. (1984). "Jordanian Remittances and Its Effects on Jordanian Economy". Master Thesis, Economics Department. The University of Jordan. Amman-Jordan.

Figure 1: Number of Total Labor Force and Employed (1970-2013)



Source: Department of Statistics, Amman, Jordan.

Figure 2: Unemployment Rates (1970-2013)

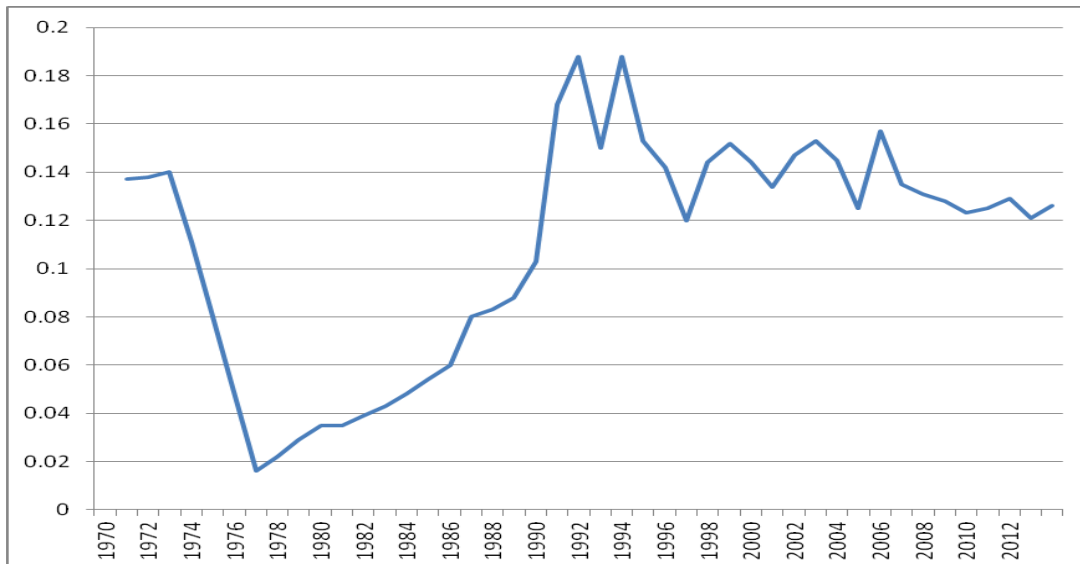
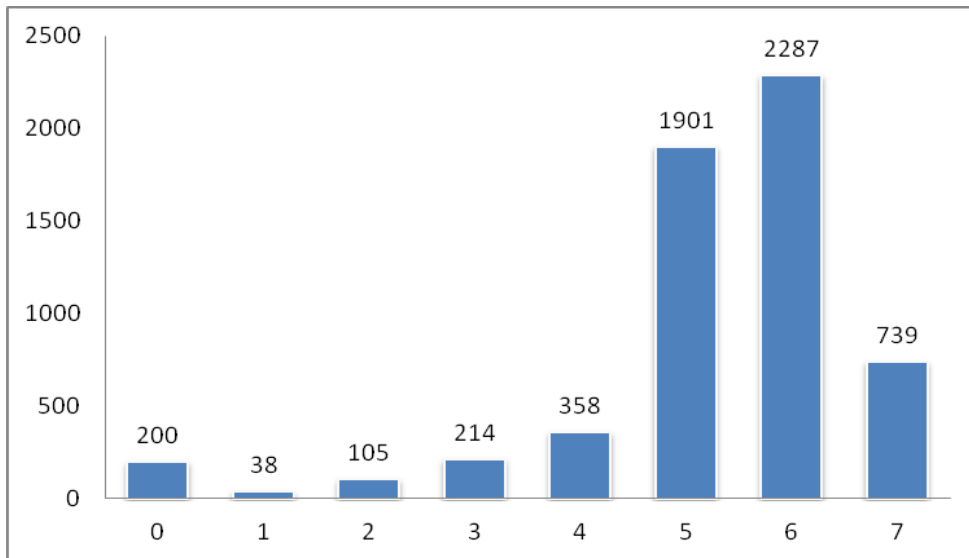
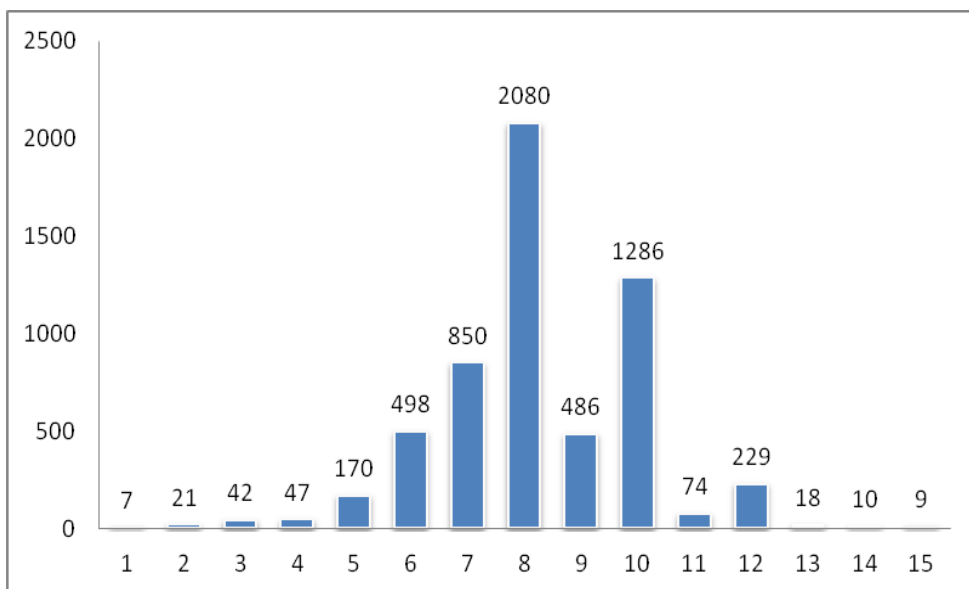


Figure 3: Actual Number of Working Days



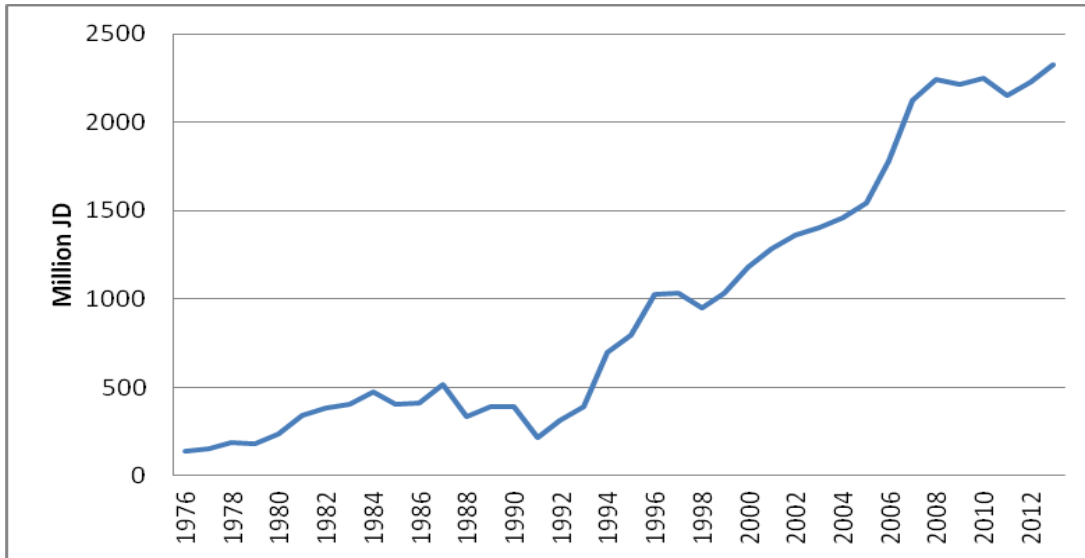
Source: JLMPS 2010.

Figure 4: Actual Number of Working Hours



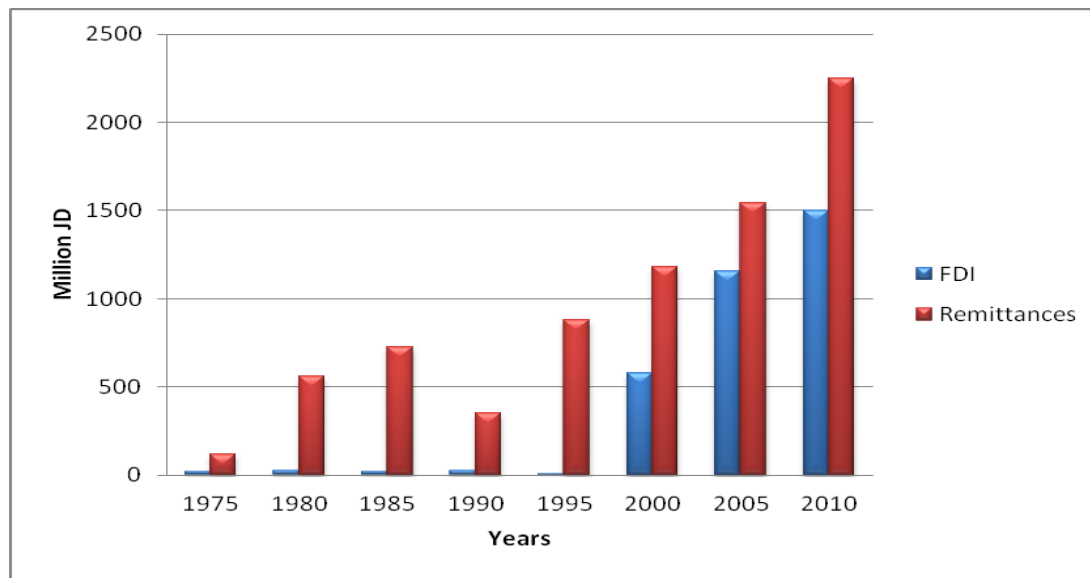
Source: JLMPS 2010.

Figure 5: Remittance Flows to Jordan over 1976-2013



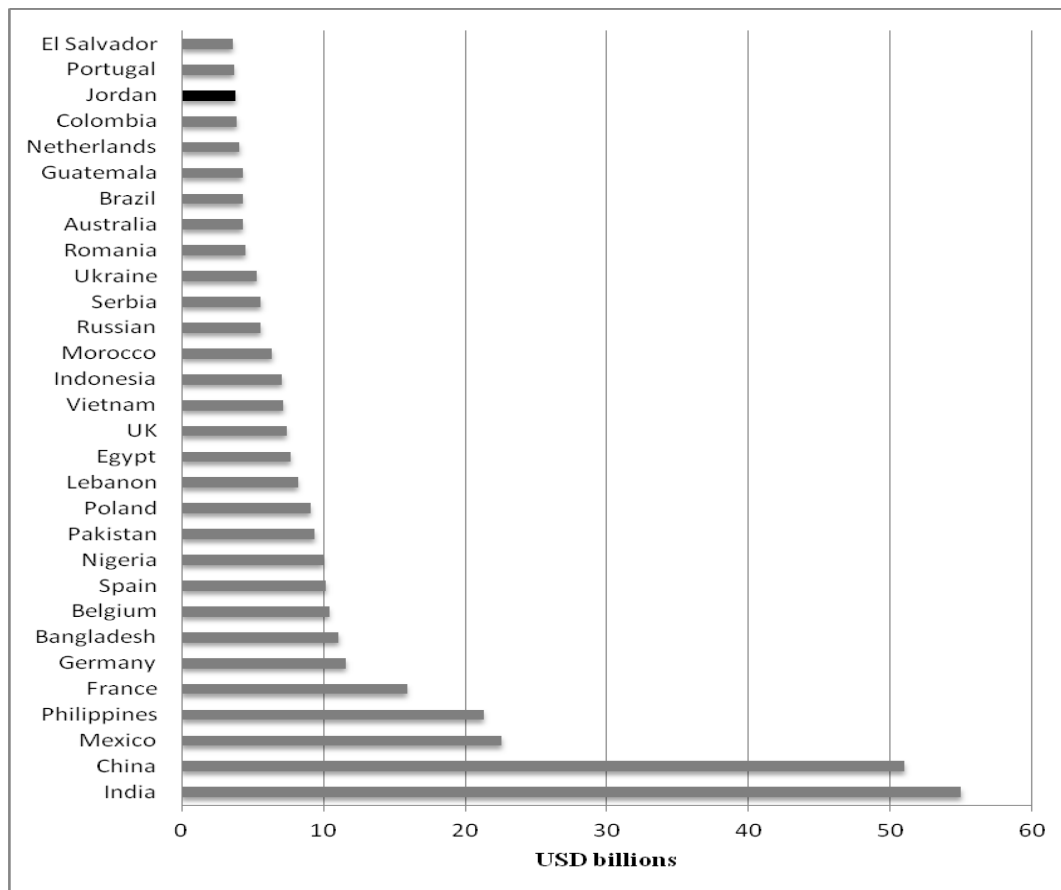
Source: Central Bank of Jordan.

Figure 6: Remittances and Foreign Direct Investment in Jordan



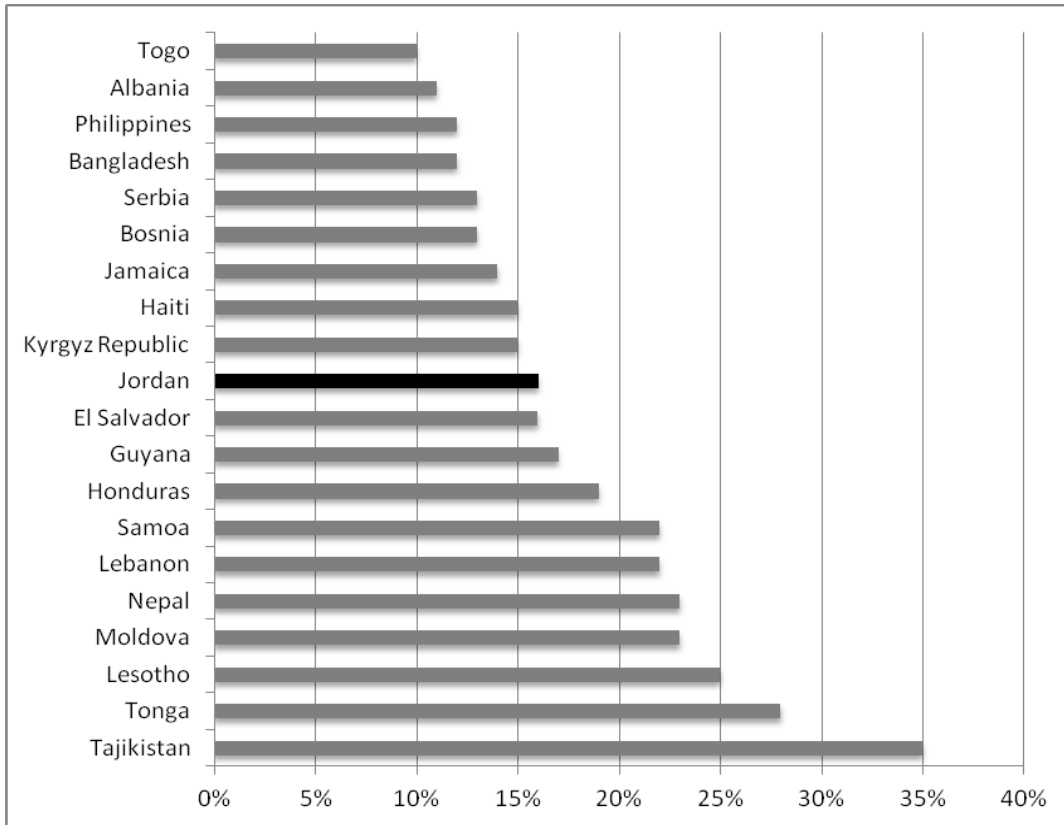
Source: Central Bank of Jordan, Amman, Jordan.

Figure 7: Top Remittance-Receiving Countries in the World in 2011



Source: Migrant and Remittances Factbook, 2012, Development Prospects Group, World Bank.

Figure 8: Top 20 Remittance-Receiving Countries in the World (% of GDP) in 2011



Source: Migrant and Remittances Fact book, 2012, Development Prospects Group, World Bank.

Figure 9: The Mean of Sending Remittance to Household (%)

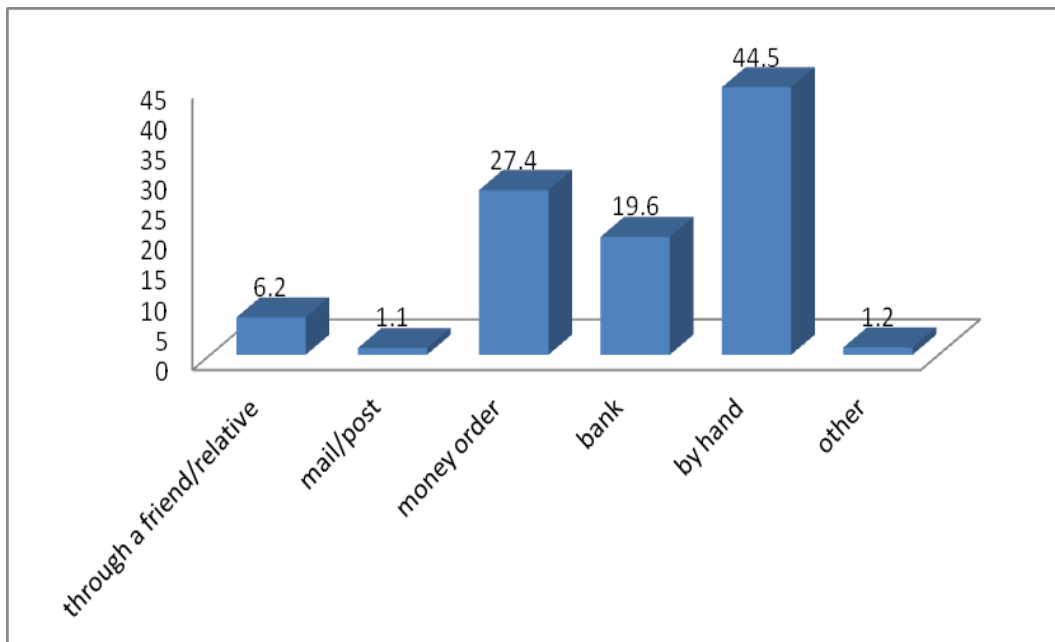


Figure 10: The Main Destinations of Jordanian Expatriates (%)

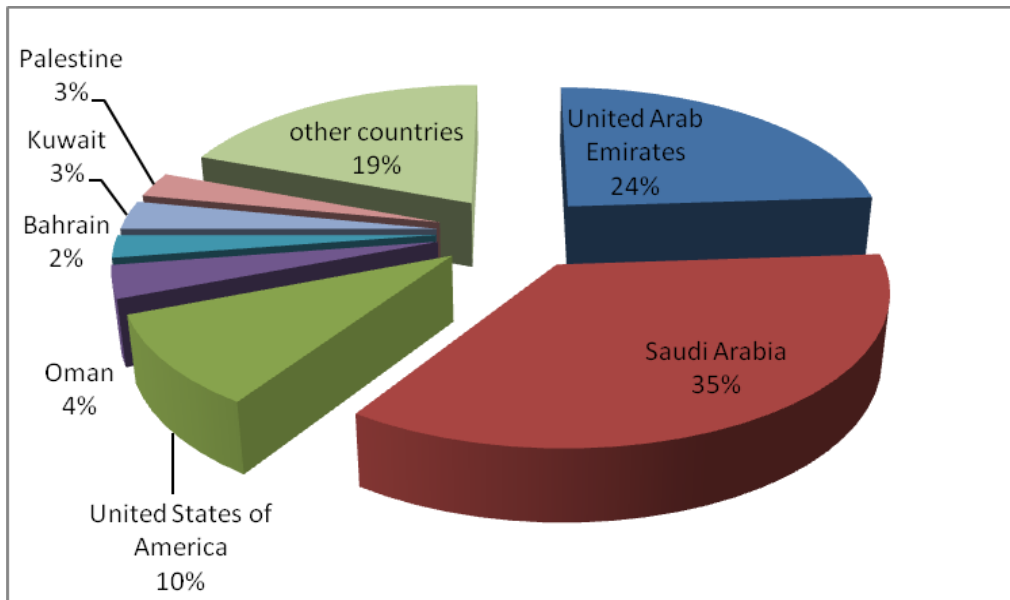


Figure 11: Educational Level of Jordanian Expatriates (%)

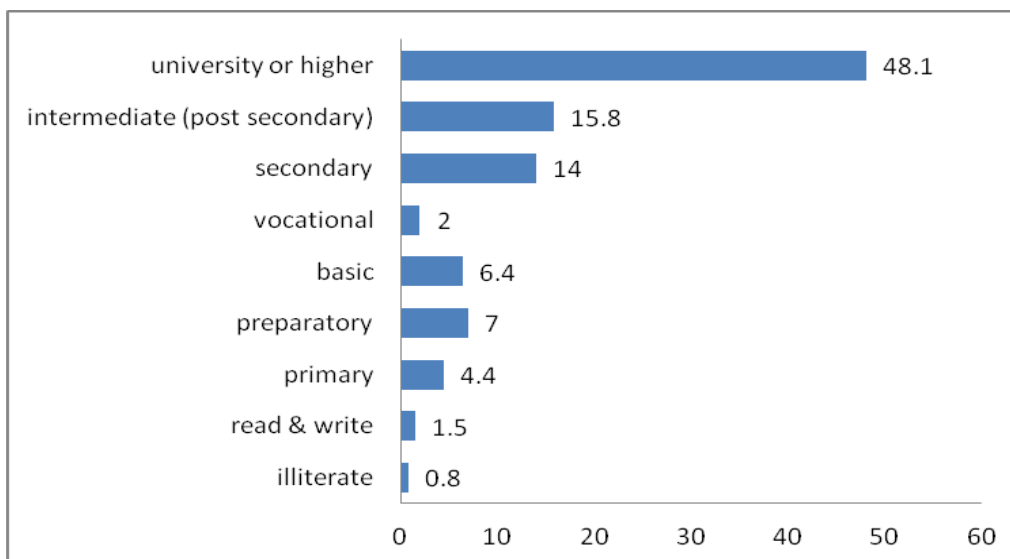


Table 1: Labor Force Participation Rates for Male and Female by Age Groups

Age group	2010			2011			2012			2013		
	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)
15-24	14.14	3.28	8.79	13.14	2.89	8.09	12.59	2.69	7.71	11.89	3.29	7.20
25-29	11.07	3.66	7.42	11.02	3.68	7.40	10.67	3.35	7.06	10.57	3.30	6.98
30-34	9.63	2.73	6.23	9.75	2.72	6.28	9.81	2.80	6.35	9.81	2.62	6.26
35-39	8.78	2.13	5.50	9.02	2.24	5.67	8.47	2.14	5.34	8.41	2.03	5.26
40-44	7.41	1.49	4.49	7.48	1.70	4.63	7.30	1.78	4.58	7.36	1.47	4.45
45-49	5.33	0.88	3.14	5.37	0.87	3.15	5.37	0.88	3.16	5.59	0.89	3.27
50-54	3.35	0.34	1.87	3.17	0.39	1.80	3.21	0.31	1.78	3.34	0.33	1.85
55+	3.81	0.18	2.02	3.80	0.19	2.02	3.86	0.19	2.05	3.42	0.14	1.80
Total	63.53	14.70	39.46	62.75	14.67	39.03	61.27	14.14	38.03	60.38	13.17	37.07

Source: National Centre for Human Resources Development, Amman, Jordan.

Table 2: Labor Force Participation Rates For Male and Female by Education Levels

Educational Level	2010			2011			2012			2013		
	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)
Postgraduate												
Studies	78.84	71.28	76.73	80.27	73.49	78.21	76.83	73.09	75.59	76.84	71.28	76.22
Bachelor's	85.08	61.01	73.75	85.41	59.49	72.96	83.50	55.84	70.29	82.15	61.01	68.90
Secondary School	57.97	4.56	31.90	56.60	4.36	31.05	55.27	3.92	30.21	54.49	4.56	29.40
Diploma	82.75	32.11	51.71	83.15	30.83	52.14	80.33	30.89	50.66	80.16	32.11	50.58
Total	63.53	14.70	39.46	62.75	14.67	39.03	61.27	14.14	38.03	63.53	14.70	37.07

Source: National Centre for Human Resources Development, Amman, Jordan.

Table 3: Labor Force for Male and Female by Educational Levels

Educational Level	2010			2011			2012			2013		
	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)
Postgraduate												
Studies	2.89	4.49	3.18	2.98	5.24	3.40	2.65	5.55	3.18	2.44	4.80	2.85
Bachelors	17.3	49.1	23.1	18.1	51.3	24.3	19.1	52.0	25.1	18.9	55.3	25.3
Secondary School	71.5	23.8	62.8	70.1	22.7	61.3	69.9	21.0	61.0	70.3	18.5	61.2
Diploma	8.3	22.6	10.9	8.8	20.8	11.0	8.3	21.4	10.7	8.4	21.4	10.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: National Centre for Human Resources Development, Amman, Jordan.

Table 4: Unemployment Rates by Age Groups

Age Group	2010			2011			2012			2013		
	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)
15-24	23.84	46.77	28.06	26.27	46.98	29.93	25.19	48.80	29.25	26.48	55.13	31.17
25-29	11.60	27.16	15.38	11.77	28.24	15.80	12.17	26.94	15.62	12.46	30.42	16.66
30-34	6.22	14.32	7.97	6.43	15.32	8.33	6.15	12.45	7.52	6.35	14.55	8.04
35-39	4.71	7.92	5.32	5.99	8.46	6.47	5.82	7.74	6.20	5.90	7.04	6.12
40-44	5.36	4.73	5.26	5.95	4.43	5.67	5.45	3.42	5.06	5.84	3.63	5.48
45-49	4.77	2.35	4.43	5.51	3.24	5.20	4.00	1.82	3.70	4.11	2.05	3.83
50-54	5.05	2.63	4.83	4.23	1.48	3.94	3.25	1.51	3.10	2.40	0.28	2.21
+55	3.04	3.00	3.04	2.71	1.61	2.66	2.69	0.00	2.57	1.70	0.00	1.64
Total	10.39	21.73	12.48	10.99	21.23	12.89	10.42	10.99	12.16	10.57	22.15	12.60

Source: Department of Statistics, Amman, Jordan.

Table 5: Unemployment Rates by Educational Levels

Educational Level	2010			2011			2012			2013		
	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)
Postgraduate Studies	4.17	15.33	7.06	4.47	12.40	6.74	5.19	16.50	8.81	4.36	14.95	7.49
Bachelors	12.02	25.82	17.40	11.88	25.53	17.22	11.83	24.85	16.77	13.61	27.62	18.99
Secondary School	10.61	13.61	10.82	11.42	14.01	11.60	10.67	10.60	10.67	10.35	9.95	10.33
Diploma	7.27	22.70	13.14	7.86	20.74	12.38	6.78	17.77	10.80	7.36	20.20	11.87
Total	10.39	20.73	12.48	10.99	21.23	12.89	10.42	19.87	12.16	10.57	22.15	12.60

Source: Department of Statistics, Amman, Jordan.

Table 6: Unemployment Rates by Economic Activity

Specialization	2010			2011			2012			2013		
	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)	Male (%)	Female (%)	Total (%)
Education	9.5	27.1	21.4	12.3	27.6	22.6	9.3	26.7	21.2	10.7	27.9	22.3
Services	10.3	25.3	13.8	8.1	26.9	12.5	11.4	21.2	13.3	12.6	24.7	14.9
Humanities and Arts	9.7	24.9	17.5	9.8	23.4	16.4	8.2	21.85	15.12	9.2	25.7	17.2
Agriculture and Veterinary	8.0	24.4	12.3	8.1	27.8	13.4	13.1	23.6	16.3	8.3	27.3	14.4
Health & Social Services	10.9	14.1	12.3	8.9	13.4	10.8	8.2	12.1	9.8	9.1	11.8	10.3
Social sciences, business & law	10.3	25.6	14.8	9.8	24.2	13.7	9.6	22.1	13.1	10.6	23.5	13.9
Science, Mathematics	9.7	24.9	16.2	10.9	22.9	16.2	11.2	23.5	16.3	14.1	30.2	20.7
Computing Engineering, manufacturing and construction	8.9	26.4	11.24	9.9	28.3	12.4	10.8	31.6	13.2	12.5	32.6	15.5
High school education	7.7	13.0	8.4	8.7	15.9	9.5	8.3	10.9	8.5	8.5	8.6	8.5
Unknown	11.3	13.9	11.4	12.1	13.0	12.1	11.2	10.4	11.2	10.7	10.7	10.7
Total	20.7	21.7	12.5	10.9	21.2	12.9	10.4	19.9	12.2	10.6	22.2	12.6

Source: Department of Statistics, Amman, Jordan.

Table 7: Unemployment Rates by Administrative Divisions (Provinces)

Provinces	2010 (%)	2011 (%)	2012 (%)	2013 (%)	2014 (%)
Southern Region	14.82	16.36	17.88	15.78	13.14
Tafila	13.37	17.47	19.61	17.13	15.27
Aqaba	14.47	14.62	15.74	15.23	10.55
Karak	15.10	17.27	17.65	15.78	12.62
Ma'an	15.70	15.21	19.05	14.99	15.33
Northern Region	12.68	12.76	11.57	13.24	13.50
Irbid	12.17	12.66	11.87	13.02	13.16
Ma'raq	13.90	11.77	10.67	14.49	14.96
Jarash	13.25	13.56	11.21	12.38	12.73
Ajloun	13.81	14.57	11.39	13.48	14.21
Middle Region	11.99	12.36	11.44	11.78	10.85
Balqa	12.56	14.40	14.18	14.34	15.11
Zarqa	12.47	12.07	12.27	13.14	10.19
Amman	11.56	11.72	10.33	10.53	10.28
Madaba	14.54	18.50	16.96	16.22	12.16
Total	12.48	12.89	12.16	12.60	11.89

Source: Department of Statistics, Amman, Jordan.

Table 8: Remittances as a Percentage of Selected Indicators

	1975 (%)	1980 (%)	1985 (%)	1990 (%)	1995 (%)	2000 (%)	2005 (%)	2010 (%)
Remittances/ GDP	15	21	19	12	19	20	17	18
Remittances/ Exports	60	63	49	15	17	18	9	8
Remittances/ Imports	13	15	14	6	8	8	4	5
Remittances Per Capita (USD)	92	364	387	158	297	346	403	513

Source: International Financial Statistics, IMF. Central Bank of Jordan, Annual reports (various years).

Table 9: Distribution of the Jordanian Labor Force in the Arabian Gulf Countries in 2012

Country	No. of Jordanian workers	Percentage
Saudi Arabia	67452	46.9
UAE	44146	30.7
Kuwait	16732	11.7
Qatar	10254	7.1
Oman	3145	2.2
Bahrain	1940	1.4
Total	143669	100

Source: Department of international cooperation/Ministry of Labor, Amman, Jordan.

Table 10: Summary Statistics for Outcomes and Explanatory Variables for Women

	Urban sample				Rural sample			
	Remittance Receiving Household		Non- Remittance Receiving		Remittance Receiving Household		Non- Remittance Receiving	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Any market work	0.122	0.327	0.164	0.371	0.088	0.286	0.149	0.356
Wage employment	0.119	0.324	0.152	0.359	0.074	0.263	0.141	0.349
Own work	0.117	0.322	0.207	0.405	0.162	0.371	0.141	0.348
Hours worked	35.64	16.88	34.35	15.68	24.83	18.57	35.71	13.70
Age	39.494	13.618	36.117	11.877	38.662	11.988	35.910	11.763
Number of HH members	4.467	1.969	5.740	2.503	6.015	2.815	6.262	2.452
Presence of elderly	0.019	0.138	0.010	0.101	0.015	0.121	0.007	0.085
Illiterate	0.000	0.000	0.003	0.053	0.000	0.000	0.003	0.054
Reads and writes	0.012	0.108	0.013	0.113	0.051	0.223	0.018	0.134
Basic	0.373	0.484	0.347	0.476	0.513	0.506	0.416	0.493
Secondary	0.427	0.496	0.425	0.494	0.333	0.478	0.354	0.478
University and higher	0.188	0.392	0.212	0.409	0.103	0.307	0.209	0.407
Middle Region	0.642	0.480	0.558	0.497	0.279	0.452	0.351	0.477
North region	0.326	0.469	0.312	0.463	0.588	0.496	0.385	0.487
South	0.032	0.175	0.130	0.336	0.132	0.341	0.264	0.441
Single	0.307	0.462	0.222	0.416	0.294	0.459	0.270	0.444
Married	0.533	0.500	0.707	0.455	0.574	0.498	0.668	0.471
Divorced & widow	0.161	0.368	0.071	0.257	0.132	0.341	0.062	0.241
Informal sector	0.190	0.393	0.129	0.336	0.059	0.237	0.078	0.269
Dep. children aged 0-5	0.219	0.414	0.390	0.488	0.324	0.471	0.379	0.485
Dep. children aged 6-14	0.423	0.495	0.504	0.500	0.456	0.502	0.498	0.500
Average non-labor income	227.0	970.1	183.9	1093.0	0.325	4.029	56.7	427.7
N	411		4061		154		1648	

Table 11: Summary Statistics for Outcomes and Explanatory Variables for Men

	Urban sample				Rural sample			
	Remittance Receiving Household		Non-Remittance Receiving		Remittance Receiving Household		Non-Remittance Receiving	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Any market work	0.519	0.501	0.768	0.422	0.509	0.505	0.739	0.439
Wage employment	0.425	0.495	0.622	0.485	0.377	0.489	0.638	0.481
Own work	0.158	0.365	0.232	0.422	0.226	0.423	0.161	0.367
Hours worked	45.91	16.97	45.53	15.64	40.37	18.11	43.34	14.00
Age	34.793	13.147	36.230	11.838	33.623	11.556	35.261	11.855
members	4.658	1.733	5.753	2.472	6.321	3.118	6.374	2.518
Presence of elderly	0.030	0.171	0.008	0.088	0.000	0.000	0.007	0.082
Illiterate	0.006	0.076	0.002	0.044	0.000	0.000	0.002	0.041
Reads and writes	0.017	0.131	0.016	0.126	0.079	0.273	0.023	0.150
Basic	0.410	0.493	0.392	0.488	0.421	0.500	0.484	0.500
Secondary	0.318	0.467	0.372	0.483	0.237	0.431	0.321	0.467
University and higher	0.249	0.433	0.218	0.413	0.263	0.446	0.170	0.376
Middle Region	0.662	0.474	0.559	0.497	0.283	0.455	0.342	0.474
North region	0.316	0.466	0.324	0.468	0.585	0.497	0.391	0.488
South	0.023	0.149	0.116	0.321	0.132	0.342	0.267	0.442
Single	0.474	0.500	0.324	0.468	0.509	0.505	0.369	0.483
Married	0.500	0.501	0.667	0.471	0.491	0.505	0.626	0.484
Divorced & widow	0.026	0.160	0.008	0.092	0.000	0.000	0.005	0.070
Informal sector	0.586	0.493	0.529	0.499	0.377	0.489	0.359	0.480
Average non-labor income	200.0	756.9	178.1	1099.6	0.943	6.868	69.7	592.6
N	266		4120		53		1638	

Table 12: The Impact of International Remittances on Women's Labor Force Participation

	Urban Sample			Rural Sample		
	Any market work	Wage employment	Own work	Any market work	Wage employment	Own work
Remittances	-0.0460*** (0.0109)	-0.0310*** (0.0113)	-0.0848*** (0.0162)	-0.0438* (0.0258)	-0.0462** (0.0217)	0.0352 (0.0471)
Age	0.0391*** (0.0033)	0.0356*** (0.0032)	0.0044 (0.0042)	0.0364*** (0.0054)	0.0382*** (0.0052)	-0.0054 (0.0056)
Agesquared	-0.0005*** (0.0000)	-0.0005*** (0.0000)	-0.0001 (0.0001)	-0.0004*** (0.0001)	-0.0005*** (0.0001)	0.0000 (0.0001)
N of HHmembers	0.0003 (0.0020)	0.0005 (0.0019)	0.0167*** (0.0027)	-0.0033 (0.0033)	-0.0041 (0.0031)	0.0194*** (0.0037)
Read & write	0.0880 (0.0776)	0.1055 (0.0784)	0.0523 (0.0756)	-0.0204 (0.0685)	-0.0126 (0.0667)	0.1125 (0.1064)
Basic	0.0434** (0.0182)	0.0366** (0.0174)	0.0062 (0.0181)	0.0226 (0.0259)	0.0279 (0.0250)	0.0076 (0.0233)
Secondary	0.1340*** (0.0189)	0.1374*** (0.0188)	0.0053 (0.0164)	0.1563*** (0.0337)	0.1563*** (0.0336)	-0.0297 (0.0211)
University	0.4436*** (0.0329)	0.4567*** (0.0332)	-0.0988*** (0.0155)	0.4105*** (0.0556)	0.4148*** (0.0566)	-0.0374 (0.0240)
Middle region	-0.0468*** (0.0139)	-0.0398*** (0.0129)	0.1144*** (0.0195)	-0.0287* (0.0169)	-0.0310** (0.0153)	0.0314 (0.0226)
North region	-0.0393*** (0.0122)	-0.0399*** (0.0113)	0.0795*** (0.0242)	-0.0279 (0.0170)	-0.0322** (0.0155)	0.0498** (0.0221)
Married	-0.1522*** (0.0241)	-0.1342*** (0.0227)	0.0576*** (0.0221)	-0.0977*** (0.0337)	-0.0992*** (0.0324)	0.1144*** (0.0259)
Divorced	-0.0345** (0.0163)	-0.0269* (0.0161)	-0.0156 (0.0322)	-0.0215 (0.0308)	-0.0163 (0.0293)	0.1051 (0.0664)
Child up to 5 years	0.0094 (0.0127)	0.0071 (0.0119)	-0.0108 (0.0164)	0.0046 (0.0207)	0.0027 (0.0191)	-0.0520** (0.0213)
Child 6-14 years	-0.0432*** (0.0133)	-0.0464*** (0.0125)	-0.0097 (0.0182)	-0.0237 (0.0233)	-0.0234 (0.0216)	-0.0356 (0.0262)
Non labor income	-0.0000** (0.0000)	-0.0000* (0.0000)	-0.0000 (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000** (0.0000)
Informal employment	0.2416*** (0.0207)	0.1406*** (0.0177)	0.1082*** (0.0200)	0.3215*** (0.0463)	0.1568*** (0.0391)	0.1118*** (0.0392)
N	4472	4472	4472	1716	1716	1716
Pseudo R2	0.3059	0.2984	0.0873	0.2631	0.2613	0.1047
Log-likelihood	-1366.47	-1322.89	-2034.31	-527.57	-510.30	-626.62

Notes: Marginal effects; Standard errors in parentheses. (d) for discrete change of dummy variable from 0 to 1* p< 0.10, ** p< 0.05, *** p< 0.01. The specifications also include controls for household wealth deciles.

Table 13: The Impact of International Remittances on Men's Labor Force Participation

	Urban Sample			Rural Sample		
	Any market work	Wage employment	Own work	Any market work	Wage employment	Own work
Remittances	-0.2548*** (0.0411)	-0.0462** (0.0217)	-0.0965*** (0.0179)	-0.1539 (0.1171)	-0.0462** (0.0217)	- (-)
Age	0.1151*** (0.0102)	0.0382*** (0.0052)	0.0118** (0.0053)	0.0889*** (0.0195)	0.0382*** (0.0052)	0.0003 (0.0055)
Age squared	-0.0015*** (0.0001)	-0.0005*** (0.0001)	-0.0001** (0.0001)	-0.0012*** (0.0002)	-0.0005*** (0.0001)	-0.0000 (0.0001)
N of HH members	0.0209 (0.0130)	-0.0041 (0.0031)	0.0164** (0.0067)	0.0515** (0.0225)	-0.0041 (0.0031)	-0.0072 (0.0071)
Read & write	0.0066 (0.1612)	-0.0126 (0.0667)	0.0983 (0.1146)	0.1013 (0.2660)	-0.0126 (0.0667)	-0.0035 (0.0550)
Basic	0.2078*** (0.0528)	0.0279 (0.0250)	-0.0023 (0.0281)	0.1958** (0.0945)	0.0279 (0.0250)	-0.0136 (0.0242)
Secondary	0.2216*** (0.0488)	0.1563*** (0.0336)	-0.0098 (0.0251)	0.1907* (0.0977)	0.1563*** (0.0336)	-0.0455** (0.0180)
University	0.4286*** (0.0465)	0.4148*** (0.0566)	-0.0512** (0.0239)	0.3291*** (0.1012)	0.4148*** (0.0566)	-0.0256 (0.0213)
Middle region	-0.0500 (0.0499)	-0.0310** (0.0153)	0.0573** (0.0281)	-0.0310 (0.0807)	-0.0310** (0.0153)	0.0036 (0.0264)
North region	-0.0558 (0.0525)	-0.0322** (0.0155)	-0.0081 (0.0329)	-0.0670 (0.0764)	-0.0322** (0.0155)	0.0616* (0.0318)
Married	0.1105*** (0.0409)	-0.0992*** (0.0324)	0.0223 (0.0246)	0.3342*** (0.0643)	-0.0992*** (0.0324)	-0.0095 (0.0334)
Divorced	-0.0012 (0.0815)	-0.0163 (0.0293)	-0.0450 (0.0365)	-0.0391 (0.2182)	-0.0163 (0.0293)	0.0717 (0.1092)
Child up to 5 years	-0.3725*** (0.0310)	0.0027 (0.0191)	-0.0015 (0.0278)	-0.4250*** (0.0510)	0.0027 (0.0191)	0.0765 (0.0558)
Child 6-14 years	-0.3683*** (0.0329)	-0.0234 (0.0216)	-0.0215 (0.0264)	-0.1967** (0.0942)	-0.0234 (0.0216)	-0.0314* (0.0177)
Non labor income	-0.0001*** (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	-0.0002 (0.0002)	0.0000 (0.0000)	0.0000 (0.0000)
Informal employment	0.4450*** (0.0299)	0.1568*** (0.0391)	0.1047*** (0.0214)	0.5118*** (0.0590)	0.1568*** (0.0391)	0.1767*** (0.0521)
N	4386	4386	4386	1691	1691	1691
Pseudo R2	0.3869	0.1309	0.1309	0.3737	0.3194	0.2146
Log likelihood	-656.87	-510.30	-591.16	-196.12	-510.30	-85.51

Notes :Marginal effects; Standard errors in parentheses. (d) for discrete change of dummy variable from 0 to 1 * p< 0.10, ** p< 0.05, *** p< 0.01. The specifications also include controls for household wealth deciles.

Table 14: The Impact of International Remittances on Women’s Labor Force Participation Considering Endogeneity

	Any market work	Urban Sample Wage employment	Own work	Any market work	Rural Sample Wage employment	Own work
Remittances	-0.2820** (0.1212)	-0.2141* (0.1237)	0.7437*** (0.0645)	-0.5536*** (0.1044)	-0.2141* (0.1237)	-0.3682 (0.8345)
Age	0.0516*** (0.0075)	0.0516*** (0.0040)	0.0033 (0.0044)	0.0191 (0.0212)	0.0516*** (0.0040)	0.0064 (0.0341)
Age squared	-0.0006*** (0.0001)	-0.0007*** (0.0001)	-0.0001 (0.0001)	-0.0002 (0.0003)	-0.0007*** (0.0001)	-0.0001 (0.0003)
N of HH members	-0.0183** (0.0077)	-0.0142 (0.0089)	0.0318*** (0.0044)	-0.0047 (0.0054)	-0.0142 (0.0089)	0.0123 (0.0496)
Read & write	-0.0154 (0.0355)	0.0031 (0.0361)	0.1086*** (0.0338)	0.0530 (0.0599)	0.0031 (0.0361)	0.1277 (0.2096)
Basic	0.0194 (0.0234)	0.0187 (0.0223)	-0.0127 (0.0239)	0.0252 (0.0451)	0.0187 (0.0223)	0.0603 (0.0903)
Secondary	0.0618* (0.0355)	0.0640* (0.0330)	0.0127 (0.0338)	0.0020 (0.0721)	0.0640* (0.0330)	-0.0320 (0.1186)
University	0.0648** (0.0300)	0.0579* (0.0311)	-0.0565** (0.0262)	0.0289 (0.0619)	0.0579* (0.0311)	0.0532 (0.0655)
Middle region	-0.0064 (0.0371)	-0.0159 (0.0339)	0.0426 (0.0460)	0.0268 (0.0286)	-0.0159 (0.0339)	0.0493 (0.0378)
North region	0.0144 (0.0381)	-0.0036 (0.0356)	-0.0019 (0.0414)	0.0801*** (0.0278)	-0.0036 (0.0356)	0.1015*** (0.0364)
Married	-0.2579*** (0.0368)	-0.2241*** (0.0581)	0.1632*** (0.0367)	-0.0733 (0.0572)	-0.2241*** (0.0581)	0.0548 (0.3774)
Divorced	-0.0896*** (0.0283)	-0.0745** (0.0309)	0.0417 (0.0411)	0.0120 (0.0555)	-0.0745** (0.0309)	0.0825 (0.2021)
Child up tp 5 years	0.0386** (0.0173)	0.0378** (0.0162)	-0.0172 (0.0175)	0.0214 (0.0304)	0.0378** (0.0162)	-0.0273 (0.1492)
Child 6-14 years	-0.0457 (0.0325)	-0.0657** (0.0261)	-0.0392 (0.0250)	-0.0264 (0.0418)	-0.0657** (0.0261)	-0.0362 (0.0443)
Non labor income	-0.0000** (0.0000)	-0.0000* (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000* (0.0000)	0.0000 (0.0001)
<i>N</i>	4472	4472	4472	1716	4472	1716
Log likelihood	-2198.73	-2178.97	-2696.80	-194.1675	-2178.9730	-230.3447

Notes: Marginal effects; Standard errors in parentheses. (d) for discrete change of dummy variable from 0 to 1. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The specifications also include controls for household wealth deciles.

Table 15: The Impact of International Remittances on Men's Labor Force Participation Considering Endogeneity

	Urban Sample			Rural Sample		
	Any market work	Wage employment	Own work	Any market work	Wage employment	Own work
Remittances	0.1583 (0.5119)	-0.6522*** (0.0176)	0.7211*** (0.0605)	-0.6972*** (0.2514)	-0.6599*** (0.0791)	-0.2487 (1.0028)
Age	0.0444*** (0.0047)	0.0173 (0.0128)	0.0119** (0.0053)	0.0343 (0.0526)	0.0427 (0.0753)	0.0103 (0.0162)
Age squared	-0.0006*** (0.0001)	-0.0003 (0.0002)	-0.0001** (0.0001)	-0.0005 (0.0009)	-0.0007 (0.0014)	-0.0001 (0.0002)
N of HH members	-0.0009 (0.0127)	-0.0243*** (0.0028)	0.0258*** (0.0028)	-0.0085 (0.0093)	-0.0056 (0.0053)	0.0112 (0.0270)
Read & write	0.0169 (0.0607)	0.0148 (0.0716)	-0.0175 (0.0675)	-0.0365 (0.0650)	0.1576 (0.2450)	0.1346 (0.4235)
Basic	0.1900*** (0.0220)	0.0795 (0.0725)	0.0408** (0.0207)	0.0039 (0.1519)	0.1908 (0.5236)	0.0725 (0.1730)
Secondary	0.1720*** (0.0261)	0.0574 (0.0678)	0.0316 (0.0339)	-0.0539 (0.0904)	0.1980 (0.5230)	0.0305 (0.1294)
University	0.2106*** (0.0272)	0.1265 (0.0913)	0.0065 (0.0467)	-0.1621 (0.1643)	0.2422 (0.3802)	0.0199 (0.0671)
Middle region	-0.0215 (0.0552)	0.0319 (0.0431)	0.0080 (0.0620)	-0.0022 (0.0684)	-0.0887 (0.3646)	0.0648* (0.0336)
North region	-0.0562 (0.0490)	0.0155 (0.0449)	-0.0025 (0.0531)	0.0331 (0.1116)	-0.0535 (0.4809)	0.0762 (0.1804)
Married	0.2143*** (0.0418)	-0.0079 (0.0561)	0.0396 (0.0429)	0.0361 (0.2989)	0.1287 (0.6997)	-0.0975 (0.1684)
Divorced	-0.0394 (0.0776)	-0.0112 (0.0819)	-0.0719 (0.0626)	-0.1327 (0.1694)	-0.0095 (0.5639)	- -
Non labor income	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	0.0000 (0.0000)	-0.0000 (0.0000)	0.0001 (0.0002)
<i>N</i>	4386	4386	4386	1691	1691	1691
Log likelihood	-1747.47	-2387.65	-1971.43	-250.17	-340.14	-133.67

Notes: Marginal effects; Standard errors in parentheses. (d) for discrete change of dummy variable from 0 to 1. * p< 0.10, ** p< 0.05, *** p< 0.01

Appendix

Table A1: Parametric First-Stage results

Remittances received	Women		Men	
	Urban	Rural	Urban	Rural
Western Union	0.0003*** (0.0000)	0.0001*** (0.0000)	0.0002*** (0.0000)	0.0001*** (0.0000)
Age	-0.0007 (0.0025)	0.0055* (0.0029)	-0.0024 (0.0020)	0.0016 (0.0022)
Age squared	0.0000 (0.0000)	-0.0001 (0.0000)	0.0000 (0.0000)	-0.0000 (0.0000)
N of HH members	-0.0195*** (0.0020)	-0.0016 (0.0019)	-0.0109*** (0.0014)	-0.0010 (0.0012)
Read & write	-0.0145 (0.0375)	0.0735 (0.0723)	-0.0152 (0.0209)	0.0350 (0.0423)
Basic	0.0101 (0.0121)	0.0101 (0.0141)	-0.0200*** (0.0074)	-0.0051 (0.0080)
Secondary	-0.0136 (0.0100)	-0.0016 (0.0129)	-0.0273*** (0.0069)	-0.0059 (0.0081)
University	-0.0268** (0.0106)	-0.0168 (0.0131)	-0.0218*** (0.0073)	0.0044 (0.0111)
Middle region	0.0739*** (0.0167)	0.0176 (0.0170)	0.0642*** (0.0156)	0.0101 (0.0123)
North region	0.1154*** (0.0253)	0.0449*** (0.0154)	0.0852*** (0.0251)	0.0249 (0.0157)
Married	-0.1206*** (0.0210)	-0.0276 (0.0210)	-0.0452*** (0.0124)	-0.0216 (0.0165)
Divorced	-0.0428*** (0.0103)	0.0007 (0.0209)	-0.0009 (0.0252)	- -
Non labor income	-0.0000 (0.0000)	- -	-0.0000 (0.0000)	-0.0001 (0.0001)
Informal sector	0.0257** (0.0125)	-0.0117 (0.0138)	0.0116* (0.0067)	0.0024 (0.0066)
N	4472	1716	4386	1691
Log likelihood	-1235.99	-267.82	-927.53	-224.10

Notes: Marginal effects; Standard errors in parentheses. (d) for discrete change of dummy variable from 0 to 1. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Tables A2-A11: Descriptive Statistics

A2: Received Cash/In-Kind Transfers from Non-hh/hh Members not Present in hh

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1675	6.4	6.4	6.4
	2	24294	93.6	93.6	100.0
Total		25969	100.0	100.0	

A3: Value of Cash Transfers Received (ref: 12 months)

N	Valid	1675
	Missing	24294
	Mean	1733.55
	Median	800.00
	Std. Deviation	2438.084
	Range	20000
	Minimum	0
	Maximum	20000

A4: Mean of Sending Transfers to Household

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	through a friend/relative	104	0.4	6.2	6.2
	mail/post	18	0.1	1.1	7.3
	money order	459	1.8	27.4	34.7
	bank	329	1.3	19.6	54.3
	by hand	745	2.9	44.5	98.8
	other	20	0.1	1.2	100.0
	Total	1675	6.4	100.0	
Missing	System	24294	93.6		
Total		25969	100.0		

A5: Relationship between the Person Offered & the Person Received Trans

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	spouse	306	1.2	18.3	18.3
	son/daughter	569	2.2	34.0	52.2
	father/mother	288	1.1	17.2	69.4
	sibling	303	1.2	18.1	87.5
	other persons	116	0.4	6.9	94.4
	entire family	88	0.3	5.3	99.7
	do not know	5	0.0	0.3	100.0
	Total	1675	6.4	100.0	
Missing	System	24294	93.6		
Total		25969	100.0		

A6: Place Where Person Who Offered Transfers Lives

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	inside the country	680	2.6	40.6	40.6
	Arab country	756	2.9	45.1	85.7
	non-Arab country	239	0.9	14.3	100.0
	Total	1675	6.4	100.0	
Missing	System	24294	93.6		
Total		25969	100.0		

A7: Country of Residence

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	United Arab Emirates	178	0.7	23.7	23.7
	Bahrain	18	0.1	2.4	26.1
	Saudi Arabia	263	1.0	35.0	61.0
	Syria	8	0.0	1.1	62.1
	Iraq	6	0.0	0.8	62.9
	Oman	26	0.1	3.5	66.4
	Palestine	20	0.1	2.7	69.0
	Qatar	14	0.1	1.9	70.9
	Kuwait	23	0.1	3.1	73.9
	Yemen	8	0.0	1.1	75.0
	Afghanistan	3	0.0	0.4	75.4
	Kazakhstan	3	0.0	0.4	75.8
	Algeria	4	0.0	0.5	76.3
	Sudan	6	0.0	0.8	77.1
	Libya	4	0.0	0.5	77.7
	Egypt	1	0.0	0.1	77.8
	Morocco	5	0.0	0.7	78.5
	Germany	15	0.1	2.0	80.5
	Italy	11	0.0	1.5	81.9
	Britain	5	0.0	0.7	82.6
	Belgium	2	0.0	0.3	82.8
	Sweden	7	0.0	0.9	83.8
	Cyprus	2	0.0	0.3	84.0
	Netherlands	7	0.0	0.9	85.0
	Romania	8	0.0	1.1	86.0
	United States of America	73	0.3	9.7	95.7
	Canada	15	0.1	2.0	97.7
	Ecuador	1	0.0	0.1	97.9
	Columbia	8	0.0	1.1	98.9
	Australia	8	0.0	1.1	100.0
	Total	752	2.9	100.0	
Missing	System	25217	97.1		
Total		25969	100.0		

A8: Educational Attainment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	illiterate	6	0.0	0.8	0.8
	read & write	11	0.0	1.5	2.3
	primary	33	0.1	4.4	6.6
	preparatory	53	0.2	7.0	13.7
	basic	48	0.2	6.4	20.1
	vocational	15	0.1	2.0	22.1
	secondary	105	0.4	14.0	36.0
	intermediate (post secondary)	119	0.5	15.8	51.9
	university or higher	362	1.4	48.1	100.0
	Total	752	2.9	100.0	
Missing	System	25217	97.1		
Total		25969	100.0		

A9: Actual no. of Continuous/Intermittent Working Days (ref: 7 days)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	200	0.8	3.4	3.4
	1	38	0.1	0.7	4.1
	2	105	0.4	1.8	5.9
	3	214	0.8	3.7	9.5
	4	358	1.4	6.1	15.7
	5	1901	7.3	32.5	48.2
	6	2287	8.8	39.1	87.4
	7	739	2.8	12.6	100.0
	Total	5842	22.5	100.0	
Missing	System	20127	77.5		
Total		25969	100.0		

A10: No. of Hours/Day in Main Job/in Which Spent Longest Duration (ref: 3 months)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	0.0	0.1	0.1
	2	21	0.1	0.4	0.5
	3	42	0.2	0.7	1.2
	4	47	0.2	0.8	2.0
	5	170	0.7	2.9	4.9
	6	498	1.9	8.5	13.5
	7	850	3.3	14.6	28.1
	8	2080	8.0	35.7	63.8
	9	486	1.9	8.3	72.1
	10	1286	5.0	22.1	94.2
	11	74	0.3	1.3	95.4
	12	229	0.9	3.9	99.4
	13	18	0.1	0.3	99.7
	14	10	0.0	0.2	99.8
	15	9	0.0	0.2	100.0
	Total	5827	22.4	100.0	
Missing	System	20142	77.6		
Total		25969	100.0		

A11: Sector of the First Job

Sector		Frequency	Percent	Valid Percent	Cumulative Percent
	government	3178	12.2	39.8	39.8
	public enterprise	54	0.2	0.7	40.4
	private	4707	18.1	58.9	99.3
	international bodies	45	0.2	0.6	99.9
	cooperative	8	0.0	0.1	100.0
	Total	7992	30.8	100.0	
Missing	System	17977	69.2		
Total		25969	100.0		