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OIL AND REMITTANCES IN THE MIDDLE EAST

by

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A Dissertation Submitted to the Faculty of Old Dominion University
in Partial Fulfillment of the Requirements for the Degree of


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ABSTRACT

OIL AND REMITTANCES IN THE MIDDLE EAST

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Old Dominion University, 2008
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This dissertation constructs a framework for understanding the determinants of remittances. It develops the effects of multiple macro economic variables in one area in the Middle East on the remittances flows and the future development of (another Arab neighboring country) Egypt. The framework will explore the relationship between oil prices and remittances from oil based economies (mainly Saudi-Arabia, Kuwait and the Arab Emirates) to a labor exporting country (Egypt). It also highlights the impact of multiple variables affecting the flow of remittances from labor exporting Arab countries: 1) Prices of oil. 2) Oil revenues. 3) Differentials in deposit interest rate between the host and the home countries. 4) The income level in the host countries. 5) The income level in the home country. 6) Inflation rate in the home country. 7) Political instability in the area that might affect remittances flow from the host countries. These variables produce a three-outcome model, presented as three testable hypotheses. Workers' remittances in the Arab countries would be adversely affected by war in the Persian Gulf. Even though there is a tremendous increase in oil prices, remittances flow to Egypt from neighboring Arab countries will decrease. Political and economic factors circumscribe the future of demand for migrant labor (imported labor) and, consequently, growth of remittances in the labor-importing countries from labor-exporting countries.

This will be explained by developing a number of econometric models to test the effect of macro economic variables on the flow of remittances. Remittance is the

dependent variable and the independent variables are price of oil and political instability.

Other macro variables will be added to the model to be tested as independent variables:

the interest rate in Egypt and host countries, the inflation rate in Egypt, and the income

level of the host and the home countries.

To the memory of my father,
Abdel Rahman El-Sharabassy, who has been my role-
model for hard work, persistence and personal sacrifices.

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I would also like to thank Dr. Francis Adams for agreeing to be on my committee and for his valuable time and generous assistance.

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CHAPTER I

INTRODUCTION

Although there is strong growth in other forms of energy, oil is still the world's single largest source of energy. Oil has far reaching effects on the global economy due to the expansion of business in the 20th century, technological changes and market development and the emergence of new markets in the Asia-Pacific region and their remarkable economic growth (Yergin 1990). There was a tremendous increase in the world demand for oil as a result of the continued prosperity of the industrialized nations and the fast growing economies of the developing countries. In the 1970s, there was a sudden increase in world oil prices that was primarily a result of two political events imposed upon the Arab area: the Arab-Israeli War of 1973–74 and the Iranian revolution in 1979. The oil revenues of the Arab oil producing countries rose sharply. As a result, during the first and second oil shocks of 1973 and 1979, there was an enormous growth in the demand for foreign labor in the oil-exporting states of the Arab Gulf. There was a direct connection between the scale of labor movement into the Gulf and the acceleration in oil revenues, as well as between the exceptional rate of investment in the domestic industry and infrastructure of the oil states that those revenues generated. The total income accruing to the Organization of Arab Petroleum Exporting Countries (OAPEC) (Saudi Arabia, Iraq, Kuwait, Libya, the United Arab Emirates, Algeria and Qatar) from

the export of crude oil totaled US \$865 billion from 1974 to 1981 (International Monetary Fund 2006).

As a result of higher prices, oil export receipts have risen from US \$185 billion in 2002 to US \$460 billion in 2005, an increase of approximately one-quarter of oil exporters' GDP. Oil exporting countries have saved a substantial proportion of the higher revenues. Between 2002 and 2005, the current account surplus of oil exporting countries increased from US \$32 billion (5 percent of GDP) to US \$220 billion (21 percent of GDP). The cumulative surplus during 2003–05 was nearly US \$400 billion.

Such developments were also accompanied by a big expansion of government administration, including very large military establishments. The Gulf Cooperation Council countries (GCC)¹ accounted for most of the large foreign investment inflows over the last few years. These inflows were related to privatizations in transportation and telecommunications sectors and massive investments in petrochemicals, gas and infrastructure. With a small indigenous labor force, accelerated economic growth inevitably generated a demand for labor far beyond the capacity of the local labor market. The small size of the indigenous population and its demographic characteristics in capital-rich (oil exporting) Gulf countries give rise to speculations of increasing future dependence on imported labor (Serageldin et al. 1983). In the oil-exporting Gulf States, foreign workers continue to represent more than 50 percent of the labor force in all

¹ GCC (Gulf Cooperation Council) countries comprise Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates.

countries and 70 percent of the labor force of 10 million in Saudi Arabia (Widgren and Martin 2002).

The majority of workers came from the poorer Arab countries. But as the boom progressed, there was an increasing tendency to recruit from Asia. On the other hand, the labor-exporting countries had an economy that was typical of most Third World countries. They were faced with the prospect of a huge balance of payment deficits as a result of the sudden increase in the import bill (Ibrahim 1982). The labor market has become integrated across national Middle East boundaries. It is no longer possible to talk sensibly about the "Egyptian" labor market, without simultaneously discussing Saudi, Kuwaiti, and United Emirates employment opportunities. With this massive movement of labor came a movement of capital in the form of workers' remittances to their home countries. Remittances represent a significant part of international capital flows for those countries that export their labor. These are the most widely recognized benefit of labor exportation. For the countries supplying labor to the oil-exporting states, remittances not only improve the volume of scarce foreign exchange earnings but also provide a potential source of additional savings and capital formation (Swamy 1981).

Following the October 1973 "oil boom," Egypt became the largest labor exporter in the Arab countries. The number of Egyptians working abroad was estimated at 160,000 (Birks, Sinclair, and Socknat 1983). The number increased dramatically following the "oil boom," amounting to 1.365 million by early 1980 (*The Arab Economist*, April 1980; *Al-Ahram* Jan. 14, 1980). Egypt's foreign Minister estimated the number of Egyptians working in the Arab oil countries to be 2.9 million in 1982 (Sell 1988), representing approximately 15 percent of the total Egyptian labor force at that

time. By mid-1983, the number of Egyptian workers in other Arab countries was estimated at approximately 3 million, more than a million of whom were in Iraq (*MEED* Sept. 16, 1983; EIU 1983). There is no doubt that the massive labor emigration wave from Egypt to the GCC countries totally changed the Egyptian labor market (Feiler 1991).

Remittances are becoming an important source of external finance resource in the Middle East. They have come to play an increasingly important role in international economic relations between the poorer, labor exporting countries and labor scarce richer countries (Russell 1986). Remittances are also becoming a main source for developing; and providing crucial social insurance in many countries afflicted by economic and political crises. By the early 1980s workers' remittances in the labor-exporting countries had become a major source of foreign exchange earnings (Owen 1986). In 2006 remittances to Egypt and Morocco reached USD \$5.0 billion, while Lebanon reached USD \$4.9 billion, Jordan was USD \$2.5 billion, Algeria USD \$2.5 billion, and Tunisia USD \$1.5 billion. Remittances as a percentage of GDP were as follows: Lebanon 20.7%, Jordan 19.6%, West Bank and Gaza 11.3%, Morocco 9.1%, Yemen 7.0%, Tunisia 5.4%, Egypt 4.3%, and Algeria 2.1% (Feiler 1991).

The first and second oil shocks of 1973 and 1979 greatly improved the terms of trade facing the region and resulted in large foreign exchange windfalls. These oil windfalls were not limited to the major oil exporters; they spread to countries in the region in the form of labor remittances and foreign aid from oil-rich countries. In 1979 the number of Egyptian workers employed in the oil economies had reached approximately 1.5 million (Richards and Martin 1983).

Migration to the Arab Persian Gulf countries is mainly temporary migration.

Temporary migration is the movement of labor services alone and it's more beneficiary to the whole family and also to the migrant after return. It is controlled by the receiving country's needs for labor services. Persian Gulf countries restrict ownership rights by refusing citizenship to migrants. In Saudi Arabia, for example, the cost of a work permit rises sharply when it is renewed. Temporary migration also requires rapid rotation, which results in reducing the attachment of migrants to the host country (World Bank 1995). Such control policies may result in gradual changes of the direction and the size of labor movements between the sending and the host countries, consequently affecting the regularity of remittances (Glytsos 2002).

The primary cause of the migration in the Middle East region is the enormous gap in wages between the sending and the receiving countries. With the growth of the financial wealth derived from producing and exporting oil, the unequal distribution of income among the Arab countries increased. For example, an unskilled rural Egyptian could earn thirty times more money when working at a Saudi construction site than he could on an Egyptian farm. Jordanian engineers could double or triple their incomes by going to Kuwait. Also the labor exporting countries were faced with the prospect of a huge balance of payment deficits as a result of the sudden increase in their oil import bill (Owen 1986).

PURPOSE OF THE RESEARCH

Research Question

Oil has reshaped the Middle East. A new Arab social order has reformed via the intersection of oil wealth and the demographic and socio-economic structure of other Arab countries. The Arab labor migration has been increasing since the discovery of oil in the Arabian Peninsula, but it was in the 1970s that the scale of migration increased especially in the wake of the October War of 1973 (Ibrahim 1982).

This study assesses the importance of oil prices and revenues from oil exports to the economies of both the Arab oil exporting countries and Arab non-oil exporting countries. The study is carried out to investigate and answer the research questions: how does the change in the trends of oil prices and oil revenues in the oil-based economies influence remittance flows to the neighboring labor-exporting economies? Did the Gulf crisis in 1990–91 affect the trend of demand for labor from neighboring Arab countries? How has the change in oil prices affected remittances from the 1990s to the present period? This research will focus on the fluctuation of oil prices before and after the first Gulf war of 1990–1991.

The dependent variable is workers' remittances, defined as money and goods that are transmitted to households back home by people working away from their communities of origin. The main independent variables are oil revenues and political instability. Other independent variables will be tested too: the level of income of the host countries, the inflation rate in the home country, and the differences between the domestic and foreign interest rate.

The influences come through hypotheses:

H1: The greater the level of instability, the lower the level of remittances.

H2: The economic activity level in the home and host countries circumscribes the future of remittance flows.

H3: The greater the level of oil revenues in the host country, the higher the level of remittances, except under conditions of high instability.

The hypotheses test the impact of two aspects of political instability: war and economic problems on remittances. The hypotheses examine the relationship between both instability and growth and remittance flows. One important analytical consideration is that remittances may both influence and themselves be influenced by the economic variables of interest, such as output growth. If remittances are subject to shocks, then workers' remittances will be negatively affected. The hypotheses predict negative relationships between the variables. The first relationship is between the instability in the Middle East and remittance flows. The second relationship is between the price of oil and oil revenues in the rich Persian Gulf countries and between remittances to labor-exporting Arab countries. In the above hypotheses remittances are the dependent variable. The independent variables are: prices of oil, oil revenues, and economic level of the host and home countries.

Importance of the Question

Remittances have been thought to increase the availability of foreign exchange in an economy and thus favorably contribute to the financing of the balance of payments and promote local economic growth. The significance of remittance flows has become an

important area of research that made it important to establish the factors that influence the amount of migrants' remittances.

Several studies have examined the effects of workers' remittances on exports, imports, and trade balance of the labor exporting countries. As an important source of foreign exchange to these countries, workers' remittances have been the subject of many academic and policy discussions in the past and continue to receive considerable attention in both theoretical and empirical literature. However, the question of whether oil prices might affect the flow of remittances has, to a large extent, been ignored.

While many studies have examined the determinants of migrants' remittances, others have examined the effect of both interest rate and exchange rate on the remittance flows through official and unofficial channels. Studies on the impact of oil price fluctuations on economic development have emphasized the cases of developing countries and the effect of the net flow of worker remittances on the economic growth. To the best of our knowledge, there is no comprehensive survey on the economic analysis of remittances, at least no recent survey that would cover the impact of oil prices, oil revenues, and political instability on remittances in the Middle East. There has been no complete attempt to examine the interdependence or the transmission of such fluctuation between the oil-exporting economies and labor-exporting economies, especially after the Gulf crisis in 1991–92. Various macro and micro factors affect the inflow of remittances to the labor exporting countries. The macro determinants are: the interest rates in the home and host countries, the inflation rate, and the income of the host country. There is relatively little evidence about the macroeconomic determinants of remittances. Much of the current literature on the determinants of remittances focuses on the micro

determinants rather than the macroeconomic variables. The majority of the literature is concerned with the individual's motives to remit. This study aims to evaluate the impact of macroeconomic policy variables on the inflow of migrant workers' remittances to Egypt.

In addition, remittances are susceptible to political conditions in the host countries and the countries of origin. We take into account region-specific measures of political instability. Government changes may not be considered a sign of instability in most regions of the Middle East, and coup d'état are almost nonexistent in others. By political instability we do not mean changes in government coups, or changes in policies; rather we mean instability due to war in the region. We therefore consider the effects of political instability in neighboring countries on the flow of remittances to the home country. Many economies suffer greatly due to nearby conflicts and not because of any domestic instability.

From 1990 to the present there has not been a war in Egypt, so we are actually looking at instability external to Egypt since external instability in one country could affect the economy in a neighboring country. Political instability in the area could affect both the home and the host country. The nature of the relationship between political instability and economic growth in a country could affect remittance flows. The question is, does a more stable political environment lead to economic prosperity?

Political instability in the area could affect remittances to the home country in different ways. It could affect the demand for importing labor from the home country which would certainly affect the flow of remittances to the home country. In the case of the Persian Gulf, when economic growth increases in the host country, demand for

import labor would increase. Due to political instability this would not be the case; the increase in demand for imported labor would no longer have to be from the neighboring Middle East countries.

Also, this study shows the effect of fluctuating oil prices in the oil-exporting countries on workers' remittances to neighboring labor exporting countries before and after the Gulf crisis in 1991–92. This will provide a framework for the future stocks and flows of migrant labor in the Gulf States and indicate whether it will take into account political changes within the Gulf society rather than purely economic considerations. It will also explain the importance of interdependence between these countries and how war in one country in the Middle East could affect other neighboring countries.

The main concern of this study is to test the effect of such fluctuations of oil prices in Arab labor-importing countries on remittances in the neighboring Arab labor-exporting countries. Comparing the periods before and after the first Persian Gulf War (1991–92) will explain the aftermath period in this region. Examining the impact of the Gulf War on the economic growth in that region would show if war and political instability in one area of the Arab countries could affect the future development of another Arab neighboring country. By exploring this period, we can show how the course of political events in one part in the Middle East would have a far-reaching impact on other parts in the region.

Following the 1991 Gulf War, the Gulf countries punished workers from Jordan and Yemen and especially Palestinians for supporting Saddam Hussein and expelled them from their countries. In all these cases, remittances from family members earning money in the Gulf States were crucial. The heavy price paid then and the continued

dependence on remittances from the Gulf were two factors why some countries were opposed to renewed conflict in Iraq, fearing its disruptive economic effects.

Control of remittances as a form of economic warfare has been most evident in the Israel-Palestinian conflict. In September 2000, Israel began revoking the work permits of Palestinians because of security concerns. At that time, some 100,000 Palestinian workers from the West Bank and Gaza Strip crossed into Israel every day. By January 2002, only 25,000 Palestinian workers and 8,000 merchants had permits to enter, a number that has continued to drop. In their place, Israel began to import foreign workers (an estimated 230,000), largely from China, Thailand, Africa and the Philippines to work in agriculture and construction. As a result, remittance outflows from Israel tripled from less than one billion dollars in the early 1990s to nearly three billion in 2001. The economic effects on the West Bank and Gaza have been devastating. Gross national income (GNI) per capita fell by 11.7 percent in 2001 and a further 18.7 percent in 2002, while poverty levels jumped from 21 percent in 1999 to 46 percent in 2002. The drop in remittances had larger indirect effects as well, because the loss of income resulted in depressed demand for Palestinian goods and a sharp decline in imports from Israel, which in turn adversely affected Israel's economy as well.

LITERATURE REVIEW

Saad Eddin Ibrahim argues that oil has given the Arab world a new social order. With the exchange of labor between the Arab countries there has been a new Arab socio-economic structure. Oil and its multitudinous "spill over" have increased Arab interdependence (Ibrahim 1982). He also explained the reasons surrounding the increase

in oil prices after 1973 and the decrease that hit later. Decrease in the demand for oil from the Middle East was the main reason for the price reduction that occurred after 1973 (Kerr and Yassin 1982).

Several studies have considered the question of whether remittance flows are affected by interest rate or by exchange rate differentials between the official and parallel market (Wahba 1991). El-Sakka and McNabb (1999) considered the macroeconomic determinants of migrants' remittances to their countries of origin. Using data from Egypt, they found that both exchange rate and interest rate differentials are important in attracting remittance flows through official channels. They also found that imports financed through remittance earnings have a very high-income elasticity, which suggests that either these imports are consumer durables and luxury goods or that higher income groups undertake them. In addition, they found that the level of earnings available to migrants in the host countries where they work has a significant positive effect on the inflow of remittances.

Moreover, the differential between the official and a black market rate is an important determinant of the flow of remittances. As the difference between black market and official rates of exchange increase migrants will divert their remittances toward the black market. These findings support the findings of Elbadawi and Rocha (1992) and contrast with Swamy (1981) who concluded that the differential between the two rates are not considered imported in determining remittance. El-Sakka and McNabb (1991) also found the elasticity of remittance flows with respect to black market premium is large. In the same way, Wahba (1989) found a large elasticity of remittance flows to Egypt with respect to black market premium. In addition, they concluded the differential

between domestic and a foreign interest rate has a negative and significant impact on the flow of remittance through official channels. When the rate of return of foreign exchange rates are higher than in domestic, migrants will prefer to keep their savings abroad or invest them in foreign exchange assets. This confirms Adam's (1991, 1993) findings that Egyptian households use remittance earnings for investment purposes and Glytsos (1996) claims that migrants are more risk averse when considering how to invest their savings than they are when deciding to work abroad.

El-Sakka and McNabb (1999) tested the effect of domestic inflation on remittances. They found that remittance flow is high during high domestic inflation. An explanation is that migrants remit more during periods of high inflation to support families back home, or to purchase real assets such as land and jewelry, or migrants may also be more inclined to transfer their money through official channels in order to secure the delivery of transfers. This reflects the need to boost family support in a time of rising prices.

Gupta (2005) and Jadhav (2003) analyzed the macroeconomic factors that explain workers' remittances to India. Gupta found remittance to be higher when economic conditions in the host country are benign. Jadhav found remittances to be associated positively with oil prices and the exchange rate depreciation. He used oil prices, U.S. Gross Domestic Product (GDP), an interest rate variable and exchange rate depreciations as the explanatory variables to remittances.² On the other hand, Gupta found that the

² Explanatory (or, predictor) variable: A variable which is used in a relationship to explain or to predict changes in the values of the dependent variable.

fluctuation of oil prices does not affect remittances. He also found that remittances were higher when economic conditions abroad were benign and counter cyclical higher during periods of negative agriculture growth.

Occasional references to these issues have been made as will be seen in the literature review, which will be discussed in more detail in the next chapter. The effects of oil prices and oil revenues on remittances have not been handled systematically in the research or paid the amount of attention they require.

METHODOLOGY

The study will rely mainly on secondary data, a longitudinal study spanning the period from 1991 to the present (in the form of correlated time series). This research will compare Arab countries in order to measure the impact of oil prices and oil exports from oil exporting countries and other macroeconomic variables on remittance flows to the labor exporting countries.

Egypt will be used as an example of a labor exporting country to the oil exporting countries such as Saudi Arabia, Kuwait, United Arab Emirates, Bahrain, Qatar and Oman.

By examining the trends of remittances flow in this period, the trends of the oil prices and oil exports, we can highlight the effects of oil prices on remittances in the short run and in the long run on the developing countries. To explain those relationships, the study will employ an empirical analysis for a sample of oil based economies—Saudi Arabia, Kuwait, United Arab Emirates, Bahrain, Oman, and Qatar—and a labor exporting economy: Egypt. Quantitative research will be applied as the method of this study by

using econometric models for the oil based and labor exporting economies during the period 1990s–present (depending on availability of the data).

The study is concerned with the construction of econometric models for the interrelated oil-based and labor exporting economies and testing the relevance of these models in explaining the behavior of the economies of Egypt, Saudi Arabia, Kuwait, United Arab Emirates, Bahrain, Oman and Qatar.

SET-UP OF THE DISSERTATION

The study will be organized as follows: Chapter I is a general introduction in which an overview and prospective for the research is presented. It includes the problem identification, the objectives of this study. Also the research question and the research hypotheses are stated.

Chapter II presents a review of literature on issues related to remittances: factors affecting remittances, motivation to remit, and remittances through official and unofficial channels. In addition, the chapter examines the relationship between remittances, financial development and growth.

Chapter III illustrates the development of revenues of the oil exporter countries from the sharp increase of oil prices in the 1970s. It also shows how the sharp increase in oil revenues in the Arab Persian countries has created a form of trade between Arab labor exporter countries and the Arab labor importer countries. It describes how remittances are considered one of the major financial foreign flows to Egypt. Also the chapter provides a brief historical account of the Egyptian economy; it explores economic data and briefly describes the structural characteristics of the Egyptian economic situation.

Chapter IV examines the development of the market for oil prices and oil exports and sketches a brief explanation on the oil shocks. It also shows how physical oil supply disruption and oil instability in the Middle East came to be one of the major causes of the rapid increase in oil prices.

Chapter V will focus on the specification of the econometric models. By constructing multiple regression models, we can establish the relative predictive importance of the independent variables (macro economic factors) on the dependent variable (remittances). Hypotheses are tested using data on a broad sample of six Arab countries, over the period 1990–2006. It will also undertake models, estimations and results; data and models will be described in detail.

Chapter VI will present the importance of the regression results and the significance of the research findings. It will also represent a summary of the policy implications and recommendations for future research, and a general conclusion will be provided.

CHAPTER II

REVIEW OF THE LITERATURE

Remittances are resources that are used in several ways: they ease the shortage of foreign currency and improve the balance of payments; they directly and indirectly affect the development of the country; they raise the standard of living of millions of people; and they are a potential source for the improved distribution of income. Remittance flows could be an important source of foreign exchange that aid in the economy and development of the receiving country. Money sent by migrants to their relatives increases the welfare of these households. Remittances enable poor and middle-income households in the home country to buy goods, invest in education and health, and accumulate savings.

The critical goal of this dissertation is to understand the determinants of workers' remittances. Therefore it is crucial to understand a number of factors that could encourage remittances. This chapter provides the background discussion. It defines remittances and also focuses on the theoretical aspects of the important role of remittances in promoting economic growth of labor exporting countries. This chapter discusses determinants of remittances from both macroeconomic and microeconomic approaches. Also, discussed are the causes and effects of remittances and the problem of reporting and measurement of remittance flows from both sending and receiving countries. Finally, this chapter surveys some of the theoretical and empirical literature that analyzes the effects of the flow of remittances on economic development in labor

exporting countries. Consequently, it is also possible to underscore just how critical remittances are in the economies of the home countries.

Taylor (2004) outlined why the U.S. government considers remittances to be important. Due to the important role remittances play in promoting economic growth as they are used for investment, the U.S. is concerned about increasing the amount of remittances going to developing countries. Also, the U.S. government is concerned about tracking remittances in order to deter money laundering and financing of terrorist activities. At the same time, sending remittances through formal channels attracts the banking industry to developing countries.

DEFINITION OF REMITTANCES

According to the International Monetary Fund (IMF), remittances are based on a much broader definition and include three categories of data recorded in three sections of the balance of payments:

- Compensation of employees is defined as the gross earnings of a worker residing abroad for less than 12 months, including the value of in-kind benefits (in the current account, subcategory “income,” item code 2310);
- Workers’ remittances refer to the value of monetary transfers sent home (to resident households in the countries of origin) from workers residing abroad for a year or longer (in the current account, subcategory “current transfers,” item code 2391);

- Migrants' transfers refer to capital transfers of financial assets made by migrants as they move from one country of employment to another and stay for more than one year (in the capital account, subcategory "capital transfers," item code 2431).

In the World Bank approach: remittances are defined as the sum of the three headings; the total of these items are regrouped under item 35, "Workers' remittances"

- Labor income (item 27 of the IMF BOPY) is the factor income accruing to temporary workers, defined as those staying less than 12 months working abroad;
- Workers' remittances (item 35 of the IMF BOPY) are the value of private transfers from emigrants residing abroad for more than a year;
- Migrant transfers (item 33 of the IMF BOPY) are the value of goods and changes in financial assets that arise from emigration.

In order to capture the extent of migrant remittances in a better way than the data reported under the heading of "workers' remittances" alone, scholars use different calculation methods. Some calculate them as the sum of three components: 1) compensation of employees, 2) workers' remittances, and 3) migrants' transfers (Ratha 2003). Others sum up only compensation of employees and workers' remittances (Taylor 1999). Finally, Daianu (2001) proposes total remittances as the sum of "compensation of employees," "workers' remittances" and "other current transfers of other sectors."

WHO REMITS?

Lowell (2001) has observed that more educated international migrant workers are less likely to remit than those with less education. In another study, Puri and Ritzema

(1999) have indicated that workers with higher salaries remit a smaller portion of their total earnings, though they may remit more in absolute terms.

El-Sakka (1997) explains that this is because workers of low salaries do not often take their families to the country of employment, and they live at the lowest level of subsistence in the host country, so their propensity to save is very high. Workers with higher occupational status tend to take their families to the host country, and their remittances to the home country are limited.

Remittances will also differ according to the type of migration. Permanent migrants attach a relatively high priority to their current living standards, and they will have the will to make economic achievement in the new country of residence. In contrast, temporary migrants usually plan to return to their home country so there will be an incentive in advance to save more than to consume in order to be able to return with some money and consume in the future at home. As Glytsos (1996) explains permanent and temporary migration: "So remittances from permanent migration will have a nature of autonomy and nonbonding, while remittances from temporary migrants constitute obligatory income flow". Remittances from both migrations are considered desired and required remittances for saving and investment and also for family support. Glytsos tested data from the Greek experience for both Germany and Australia. Identifying temporary and permanent migration respectively, he concluded that remittances from Germany are strongly associated with the capacity to remit and the claim on the migrant's income from the family at home. On the other hand, the evidence supports the autonomy and the non-binding nature of remittances from Australia.

ECONOMICS OF MIGRANTS' REMITTANCES

The ways in which remittances affect the recipient country are heavily debated. On the macroeconomic level, the literature describes two opposing perspectives. One school of thought states that at a macroeconomic level, remittances often provide a significant source of foreign currency, increase national income, finance imports and contribute to the balance of payments (Russell 1986; Keely and Tran 1989; Massey 1992; Taylor et al. 1996 and Taylor and Wyatt 1996). On the other hand, another school believes that remittances have a negative effect on the level of the economy. The inflow of funds could be misleading if it creates dependence among the recipients, encourages the continued migration of the working age population, and decreases the likelihood of investment by the government of foreign investors because of an unreliable workforce (Pastor and Rogers 1985; Pastor 1989/90; Itzigsohn 1995). In addition, this school views remittances as a cause of increasing inequality. The level of remittances varies widely as they are dependent on migrant income, spent in large amounts by migrants and their families on consumer goods, thereby increasing demand and the rate of inflation and raising the wage level and the high rate of imports created by increased demand for imported goods; therefore, it amplifies the dependence on imports, exhausting foreign currency reserves, and exacerbating the balance of the payments situation (Russell 1986; Martin 1990).

MOTIVATION TO REMIT

According to Ralph Chami, Connel Fullenkamp, and Samir Jahjah (2005), literature on remittances examines the causes and effects separately; it lacks a unifying

framework that would enable researchers to model the causes of remittances and trace their effects through the economy. They linked the motivation for remittances to their effect on economic activity. They concluded that remittances have a negative effect on economic growth, which indicates that the moral hazard problem in remittances is severe. Also, remittances do not act like a source of capital for economic development.

THE COST AND BENEFITS OF REMITTANCES

Remittance transaction costs are an important issue especially for small, personal transfer remittances. According to Russell (1986) and Stark and Bloom (1985), the most important factor in determining the cost of remittances is customer awareness regarding services, prices, and choices available in order to remit. Another important factor is the method and technology used in remittances. An increase in the number of competitors in the market will decrease price and improve service quality; competition in the remittances business in the Middle East has reduced the costs of sending money home. Several governments have tried to facilitate the transfer of remittances through official banking systems. Also, the size of the remittances corridor and the legal regulations are important factors in determining the cost of remittances. Russell (1986) described the costs and benefits to remit as the role family relationships can play in shaping remittance choices. Stark and Bloom (1985) realized that the appropriate unit of analysis in migration and remittance questions is the family because the entire family is sharing and trading off the costs and benefits of remitting. Johnson and Whitelaw (1974) mention altruistic motivations for remittances. Also, Lucas and Stark (1985) argued that pure altruism is the most obvious motive for remitting.

The family can shape the remittance choices; the whole family shares and trades off the costs and benefits of remitting. New and better policies in remittances can help lower transaction costs for remitters and expand access to better financial services. Reducing remittance fees, especially for small transfers that are often made by poor migrants, will increase the migrant's income and the incentives to remit. This will in turn increase the annual remittance flows to developing countries.

CAUSES OR DETERMINANTS OF REMITTANCES "MOTIVES TO REMIT"

An overview of the literature on remittances suggests that there are three basic motives for sending money home: altruism, self-interest, and mutual benefit arrangements. Lucas and Stark (1985) were the first to build a theory of remittance determination. They argued that the intuitively implied altruistic motive for remittances is a simplification inadequate to explain remittance flows.

Altruism is the care of a migrant for those who are left behind (Whitelaw 1974; Lucas and Stark 1985). Migrants may remit in order to increase the well being of family members at home by providing additional income and thus higher consumption levels. Also, a migrant may increase remittances during times of economic hardship in the home countries in order to help the family avoid loss created by a poor economy (Chami, Fullenkamp and Jahjah 2005). Under an altruistic model, the migrant derives satisfaction from the welfare of his or her relatives in the home country.

Self-interest is when the migrant sends money home because his savings are accumulating in the host country. There will be a desire from the migrant to invest in assets at home, especially when the migrant intends to return home in the future. Migrant

workers earn income and must then allocate their savings between home country and host country assets. Here, remittances are fundamentally driven by an investment motive. Remittances could be an aspiration to inherit, as a calculation for maximizing the probability of inheritances (Lucas and Stark 1985). There would be several different types of businesses, or contracts are possible between the members of the family to enhance prestige and political influence in the local community and /or in social capital (e.g. relationships with family and friends).

Mutual benefit arrangements center on the family entering into a “Pareto-improving arrangement.” This arrangement is between the migrant and his family at home. Lucas and Stark (1985) explain that migrants use other family members as their agents to take care of investments that migrants may have at home. “Remittances may then be seen as a device for redistributing gains, with relative shares determined in an implicit arrangement struck between the migrant and remaining family” (Lucas and Stark 1985).

More theories have focused on self-interest as a reason for remitting. Such arrangements mainly center on the family, and these theories view the family as a business. Lucas and Stark (1985) explained the motivation to remit by a more eclectic model labeled “tempered altruism” and “enlightened self-interest.” In this model, remittance determination is placed in a family framework of decision-making, with remittances being endogenous to the migration process. According to the authors, the main determinants of remittances are pure altruism and self-interest (Lucas and Stark 1985).

With a financial intermediary (Stark 1991; Agarwal and Horowitz 2002; and Gubert 2002), the family can function as an insurance company that provides members with protection against income shocks by diversifying the source of income.

Poirine (1997) and Ilahi and Jafarey (1999) model the family as a bank that finances migration for some members. The borrowers remit funds in order to repay the loans, which are put toward more loans to further the interests of other individual family members. It is generally assumed that migrants are altruistic, desiring to improve the living conditions of family members left behind. "We can say that the self-enforcing mechanism on which remittances depend may actually be altruism" (Stark and Lucas 1988). Individuals send money home as payment for some service. For example, some argue that the motive for making remittances is often to ensure that family members back home perform various care-taking services (Lucas and Stark 1985).

INCOME DISTRIBUTION AND INEQUALITY

Other theoretical studies show the impact of remittances on income distribution (inequality) in the home country. According to McCormick and Wahba (2003), the importance of migrants returning to their home country could be a carrier from the host country of financial and human capital, technology and entrepreneurship. They could affect the economic development of their home country, but they could also affect income inequality.

Adams (1989) finds that remittances had a great impact on income inequality in Egypt. Inter-household inequality at the origin intended to increase if mainly the upper income villagers earned remittances. Taylor and Wyatt (1996) show that remittances in

rural Mexico induce an equalizing effect in terms of economic inequality because they are distributed almost evenly across income groups. Also, remittances allow access to productive assets and complementary inputs by households at the middle-to-low-end of the income distribution. While Stark and Yitzhaki (1982) argue that an increase in income inequality could turn out to be a positive development under Pareto criteria, it does not always have to lead to social welfare loss.

DETERMINANTS OF REMITTANCES

Microeconomic and Macroeconomic Approach

Due to the broadly positive impact of workers' remittances on the economy, it is important to identify what factors may encourage remittances. Remittances are determined by two sets of factors—microeconomic behavior (family conditions and attitudes) and macroeconomic variables (which determine the yield of savings and the purchasing power of remittances in the home country). This dissertation examines the effect of oil prices, GDP of host countries, inflation, and political instability on remittances. To do that, it is vital to discuss the different factors affecting remittances and outline the macro and micro approach. The first set of factors includes the migrant's ability to remit, which is related to his income and savings, the claim of the migrant's family on his income, and the length of his stay in the host country. The second set of factors, on the other hand, includes the foreign exchange rate and interest rate at both host and home countries, the inflation rate at home, and the level of income in the host country.

The literature is divided into two separate strands. One strand takes a microeconomic approach and examines the causes and uses of remittances. The other strand focuses on the effects of remittances and uses macroeconomic models to estimate the impact of remittances on the macroeconomic variables.

Macro approaches attempt to identify either the impact of remittances on macroeconomic variables in home countries or the impact of macroeconomic variables on the inflow of remittances. At the macroeconomic level, remittances can have a powerful impact through the multiplier effect on GDP, job creation, consumption, and investment. Many scholars used the Keynesian income determination model to estimate the effect of workers' remittances on the macroeconomic variables. Using the standard Keynesian macroeconomic model, Kandil and Metwally (1990) studied the impact of remittances on the Egyptian economy. They identified the factors determining the magnitude of the remittances multiplier and the impact of remittances on the major components of the aggregate demand in Egypt.

Burney (1987) studied the effect of remittances on saving in Pakistan. Looney (1990) examined the effect of remittances on macroeconomic development patterns in the Arab world. Glytsos (1993) examined the multiplied income effect of remittances on macro variables in Greece. By using the Keynesian income determination model, Talafha (1985) showed that remittances have a significant multiplier impact on consumption, investment, and imports. Germán Zárate-Hoyos (2005) found that remittance inflows in Mexico delivered significant income and production multipliers under a variety of scenarios. Conversely, another study of Mexico shows that each US \$100 decline in remittances from the United States leads to a US \$25 decline in physical investment and a

US \$13 decrease in schooling investment (Terry and Wilson 2005). IMF found that mainstreaming remittances into the financial systems of recipient countries can significantly increase the income multipliers of these flows.

At the macroeconomic level, factors operating in both the host country and country of origin will affect the flow of remittances. In the host country, one of the most important variables that influence remittances is the level of income, which will depend on the level of economic activity (Swamy 1981). Also, the level of migrants' earnings will determine their consumption and saving behavior and thus the amount that could potentially be remitted.

Another factor that could affect remittances is the domestic rate of inflation. Domestic inflation could affect real income and thus the purchasing power of migrants' families. This will encourage migrants to send more remittances in order to maintain family consumption. Elbadawi and Rocha (1992) argue that a higher inflation rate might be a sign of economic and political instability in the home country and thus may act as a substitute for uncertainty and risk, thereby discouraging the flow of remittances.

One of the main reasons for remitting is to finance investment projects that are used to purchase land, housing or jewelry. El-Sakka (1997) argues that inconsistent monetary policy could result in an excess supply of money and create inflation. An excess money supply would not only mean increased inflation; it would also indicate a policy failure that may discourage remittances. According to El-Sakka, inconsistent monetary policy is defined as the money supply over trend GDP. Likewise an inconsistent fiscal policy could result in a continuous budget deficit and all the risks associated with it. In a study using data from Greece, Katseli and Glytsos (1986) found

that remittances are negatively related to inflation in the home country, host country income, and host country interest rates.

According to El-Sakka (1998), remittances are positively related to economic growth in the host countries and inflation in the home country. He also found that exchange rate differentials between official and black markets have a negative impact on the inflow of remittances through official channels. Relative rates on investments will affect portfolio allocation decisions involving relative rates of return on investment and on financial and real assets at home and abroad (El-Sakka and McNabb 1999). If domestic rates of return are low compared with those in the host country, migrants will prefer to keep their savings abroad. Higgins et al. (2004) found that exchange rate uncertainty (a measure of risk) is an important determinant of remittances. Their results also show that unemployment in the host country and the exchange rate are significant determinants of remittances.

Using data from Algeria, Morocco, Portugal, Tunisia, Turkey, and Yugoslavia, Elbadawi and Rocha (1992) found that the main determinants of remittances are the level of income in the host country, the black market exchange rate premium, the domestic inflation rate, and the length of stay abroad.

Carlos Vargas-Silva and Peng Huang (2006) identified whether the host or the home country's macroeconomic factors affected remittances. They concluded that remittances respond more to changes in the macroeconomic factors of the host country than to changes in the macroeconomic factors of the home country. In the presence of host country economic conditions, changes in the home country economic condition do not seem to have a big effect on remittances. Migrants focus more on the economic

situation of the host country relative to the economic situation of the home country when deciding how much to remit.

El-Sakka (1997) summarized the policy variables that could influence the inflow of remittances to the home country to include the following policies:

Exchange rate misalignment, defined as deviations from purchasing power parity, is assumed to negatively affect the inflow of remittances. As the degree of misalignment increases, migrants will remit less and adjust their targets. Since remittances are exchanged into domestic currency, migrants may hold their savings in foreign currencies or time their remittances with exchange rate corrections.

The interest rate differential is defined as the difference between foreign and domestic interest rates. This is expected to negatively impact the inflow of remittances since low domestic interest rates compared with interest rates in the host or other countries encourage remitters to withhold their savings in countries where interest rates are higher. The main determinants of remittance inflows are: the level of income in the host country, the black market exchange rate premium, the domestic inflation rate, and the length of stay abroad (Elbadawi and Rocha 1992).

The micro economic approach consists of household surveys or aggregate data to investigate the causes of remittances. It examines the causes and effects of remittances (Elbadawi and Rocha 1992). The models are based on individual maximizing behavior.

The literature is divided into two main strands, namely the Endogenous migration, or Altruism approach, and the Portfolio approach. The *Endogenous migration or Altruism* approach is based on the economics of the family, which includes but is not limited to the motivations based on altruism. This approach implies that the set of variables most useful

for determining the level of remittances includes economic data that describes the economic situations facing the migrant and the family, the demographic data that describes the strength of family ties, or the existence of other family arrangements. For example, the length of the migrant's stay in the host country is thought to weaken the desire of the migrant to remit because the migrant comes to regard himself more and more as a permanent migrant who has formed his own independent household.

The *Portfolio* approach isolates the decision to remit from the decision to migrate and avoids issues of family ties. This theory of remittances is a more formal view; it considers remittances as a source of capital flow. The rate of return on various assets or return differentials should influence remittances. The variables used in such studies include interest rate differentials on comparable deposit accounts offered in the host and home countries, incentive interest rates offered in the host and home country deposits, the black market exchange premium, the return on real estate in the home country, inflation rates, and other returns. Political risk and uncertainty may also affect the decision to remit.

This explains the various economic variables in the home and host countries that determine remittance flows. This is correlated with the first hypothesis: political and economic factors circumscribe the future of demand for migrant labor and, consequently, the growth of remittances in the labor-importing Arab countries from labor-exporting Arab countries.

ECONOMIC EFFECT OF REMITTANCES

Uses of Remittances

Remittances are resources that are used in a range of ways. Most of these uses have direct or indirect development impacts. In general, the majority of the receipts of remitted funds are spent on family consumption rather than investment in business or other productive assets. Oberai and Singh (1980), Durand et al. (1996), Gilani (1981), and Glytsos (1993) had the same result in research conducted on Greece.

In Egypt, the large amount of remittances is spent on consumer goods and to improve the standard of living. There was a new pattern of consumption by the Egyptians working in the oil countries because of the high salaries that exceeded anything they earned back home. Egyptians bought electric appliances for their homes or upgraded their appliances to a more sophisticated item such as expensive rugs or imported clothes. It was found that remittance flows are also used for investment in Egypt both in housing and in more productive spheres, including agriculture. Adams (1993, 1991) has shown that in rural Egypt, remittances flows are used for the purchase of land, where the rate of return has been higher than that on other assets.

Although most of the remittances are directed towards consumption, they generate multiplier effects, especially in poor countries with high unemployment. Remittances foster economic growth through demand and output through consumption, as well as on savings and investments. For instance, in Mexico, remittance receipts of US \$2 billion are estimated to have generated US \$6.5 billion worth of additional economic activity, accounting for 3 percent of GDP. Similarly, in the Egyptian economy it was

estimated that with an increase of US \$10 million received from migrants abroad, the country's GNP would increase by US \$22 million. Moreover, in most Central American countries remittances have increased the average per capita income by 7 to 14 percent (DESA).

In another study conducted on the growth of remittances in Albania, the authors suggest that the monetary amount injected into the Albanian economy has not been used to stimulate domestic production; rather, it has been used for the import of consumable commodities. A smaller part of remittances goes to saving or investment in land and building. Alderman (1996) and Adams (1998) used survey data for Pakistan to find that remittances tend to be invested in land and buildings. Brown (1997) used data for Western Samoa and Tonga to find that housing expenditures are the single largest expenditure out of remittance income. Adams (1991) finds that in a sample of 74 Egyptian households, the receipt of remittances increases the marginal propensity to invest, primarily in residences and land. In general we can say that remittances are used to increase family consumption and wealth but not necessarily the whole economy's stock of wealth (Sofranko and Idris 1999). As in the case of Pakistan, very little of the remittances received from Pakistani migrants to the Middle East are channeled into actual business investment. Lopez and Seligson (1991) surveyed in El Salvador to measure the impact of owners who receive remittances and do not invest any of them in the business. Taylor (1992) finds that remittances to some farmers in Mexico increased their investment in cattle, which is their main investment opportunity. Keese (2003) also concluded that income from remittances could improve the migrant family's standard of living and could exceed the returns from NGO project in Ecuador. Ecuadorians living in

the United States send home approximately US \$1.4 billion dollars each year in remittances. This is many times the value of the US \$147 million that Ecuador receives each year in official development assistance.

Remittances are a significant source of financial inflows for many countries around the world. In many cases, it exceeds what they can get from official development assistance. Robyn Eversole (2005) draws a general picture from the literature on migrant remittances about the development impact of remittances; migrant remittances are a significant source of resources transfer from rich areas to poor areas and often to poor families. Sometimes the migrant remittances' total income exceeds the official development assistance. Remittances are sometimes larger than foreign direct investment in many countries. For instance, from 1980 to 1999 remittances represented on average 4.5 percent of Benin's gross domestic product and 5.8 percent of Burkina Faso's; foreign direct investment over the same period was negligible. Nigeria received about US \$1.3 billion in official remittances from abroad in 1999 but only US \$152 million in official development assistance that same year.

Table 1 shows how Latin American recipients use remittances. The money that remittance receivers get from their relatives is used primarily to help them meet their basic needs, such as food, shelter, and clothing. A significant percentage of receivers are saving their remittances, investing them in business or homes, or using them to pay for their children's education.

In 1974–84, remittances to Egypt amounted to US \$22 billion. Remittances are a more significant source of income to Egypt from the Arab countries than trade, investment or aid. The remittances income that Egypt received in this period was much

larger than any aid Egypt may have received from the Arab oil-producing states. This was larger than the combined amounts of civil and military foreign aid that Egypt received from the Arab Gulf oil countries (AOC) in this period and more than both government and private Arab investments in Egypt. It also exceeded its revenues from Arab tourism and exports to oil countries. In 1974–84, remittances to Egypt amounted to US \$22 billion. Remittances are a more significant source of income to Egypt from the Arab countries than trade, investment or aid.

Table 1. How Latin American Recipients Use Remittances

Use	Brazil	Colombia	Dominican Republic	Ecuador	El Salvador	Guatemala	Honduras	Mexico
Daily expenses ^a	46	68	60	61	84	68	77	78
Education	13	12	17	2	4	7	10	7
Business	10	7	5	8	4	10	4	1
Savings	9	4	5	8	4	11	4	8
Property	7	3	4	4	0	0	0	1

Source: MIF-IDB 2003a, 2003b, 2004a, 2004b, 2004c.

Note: Columns do not sum to 100 percent because of “don’t know” and “other” survey responses.

^a Food, rent, utilities.

The value of remittances worldwide has been estimated to be in excess of US \$100 billion per year and growing, with more than 60 percent going to developing countries (Martin 2001). India had the greatest volume and growth of remittances over the past two decades, followed by Mexico (Orozco 2000). India received over US \$11 billion in remittances in 1999. Migrants from Mexico to the United States send home

more than US \$22 million a day, providing “basic support” for nearly 1.2 million, or about 5 percent, Mexican households (Smith 2001). Countries in the Asian and Pacific region that rely significantly on remittances from migrant workers abroad are the Philippines, India, Pakistan, Bangladesh, and Sri Lanka (Skeldon 2002).

MAIN CHARACTERISTICS OF REMITTANCES

Stable growth over time, sheer volume, and anti cyclical nature are the main characteristics of remittances. These characteristics hold great promise as a source of external development finance to many developing countries.

Growth

Remittance flows rank behind only foreign direct investment (FDI) as a source of external funding for developing countries. In 2006, workers’ remittance receipts in developing countries reached US \$221 billion, up from US \$193 billion in 2005 and more than double the level in 2001. Worldwide flows of remittances, including those to high-income countries, are estimated to have grown to US \$273 billion in 2006, of which developing countries received US \$221 billion. Remittance flows are higher in middle income countries at US \$151 billion, while in low income countries they were US \$53 billion (see Table 2).

According to the World Bank, remittances increased by more than 20 percent from 2001 to 2003, reaching an estimated US \$93 billion in 2003 (World Bank 2004). Remittances remain the second largest financial flow to developing countries after foreign direct investment and are more than double the size of net official finance.

Table 2. Global Flows of International Migrant Remittances (Billion USD)

INFLOWS	2000	2001	2002	2003	2004	2005	2006	Change 2005-06	Change 2001-06
All Developing Countries	85	96	117	145	165	193	221	5%	112%
Low-income countries	22	26	32	40	42	48	53	8%	102%
Middle-income countries (MIC)	63	70	85	105	123	145	151	5%	116%
Lower MICs	43	48	61	75	86	98	102	4%	113%
Upper MICs	20	22	24	30	37	47	50	6%	122%
East Asia and the Pacific	17	20	29	35	39	44	45	16%	170%
Europe and Central Asia	13	13	14	17	23	31	32	1%	144%
Latin America &Caribbean	20	24	28	35	41	48	53	8%	113%
Middle East &North Africa	13	15	16	20	23	24	25	5%	73%
South Asia	17	19	24	31	31	36	41	9%	102%
Sub-Saharan Africa	5	5	5	6	8	9	9	0%	89%
High income OECD	46	50	52	59	66	68	68	0%	37%
World	132	147	170	205	233	262	273	4%	86%
OUTFLOWS	2000	2001	2002	2003	2004	2005	Change 2004-05	Change 2001-05	
All developing countries	12	14	21	25	32	38	19%	167%	
High income OECD	76	83	88	98	111	119	7%	44%	
High income non-OECD	22	22	22	21	20	22	7%	-1%	
World	110	118	131	144	163	179	9%	53%	

Source: Global Development Finance (2007: 54) (e-estimate).

Changes % are World Bank staff calculations based on IMF Balance of Payments Statistics Yearbook 2007.

Remittances are defined as the sum of workers' remittances compensation of employers, and migrant transfers.

The complete dataset including country specific information is available at

www.worldbank.org/prospects/immigrationandremittance.

In 2004 remittances were the second largest source of external financing in developing countries after foreign direct investment and more than the size of official aid (Figure 1). This recorded remittance, however, reflects only transfers recorded in the balance of payments. Unrecorded flows through informal channels are believed to be at least 50 percent higher than recorded flows. Remittances are less volatile than most other sources of foreign exchange earnings for developing countries.

Remittances are expected to show a stable increase in tandem with international migration, which the United Nations Population Division has placed at a figure of between 185 and 192 million migrants in 2005 and which is expected to increase to approximately 230 million by 2050.

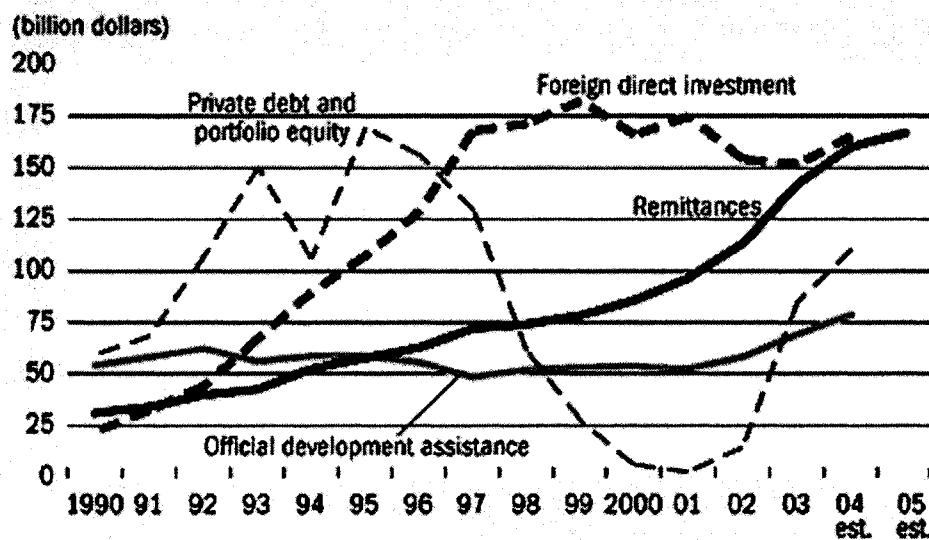


Figure 1. Remittances and Other Sources of Finance for Developing Countries

Source: Dilip Ratha, Sending Money Home: Trends in Migrant Remittances. Finance and Development, vol. 42, no. 4 (December 2005).

Volume

Developing countries rely more heavily on remittances than on aid. Remittances represent a large share of the export of goods and services in major remittance receiving countries and increased during the 1990s in all but two cases.

Remittance flows constitute the largest source of financial flows to developing countries after Foreign Direct Investment (FDI). In 2004, the five single largest recipients of remittances were India (US \$23 billion), Mexico (US \$17 billion), the Philippines (US \$8.1 billion), China (US \$4.6 billion), Pakistan (US \$4.1 billion), Morocco (US \$3.6 billion), Bangladesh (US \$3.4 billion), Colombia (US \$3.1 billion) and Egypt (US \$3.0 billion).

Figure 2 reflects in absolute terms some of the biggest receivers of remittances during 1996–2004. On an average, over the period 1996–2004 the biggest receivers of remittances were India (US \$13 billion), Mexico (US \$9.3), the Philippines (US \$6.6), Egypt (US \$3.1), Turkey (US \$3.1), Morocco (US \$2.6), China (US \$2.3), Pakistan (US \$2.2), Bangladesh (US \$2.2), Brazil (US \$2.1), Lebanon (US \$1.9), Jordan (US \$1.9), Colombia (US \$1.8), El Salvador (US \$1.7), Dominican Republic (US \$1.7), Russia (US \$1.7) and Thailand (US \$1.5) (Global Development Finance 2005, 136).

Stability

Anti-cyclical nature, “Counter-cyclical” nature: remittances flows are less vulnerable to economic up and downturns than other sources of external funding to developing countries, such as foreign direct investment or even official development assistances. Because migrants may send more funds during hard times to help their

families and friends, remittances may rise when the recipient economy suffers a downturn in activity or macroeconomic shocks due to financial crisis, natural disaster or political conflict.

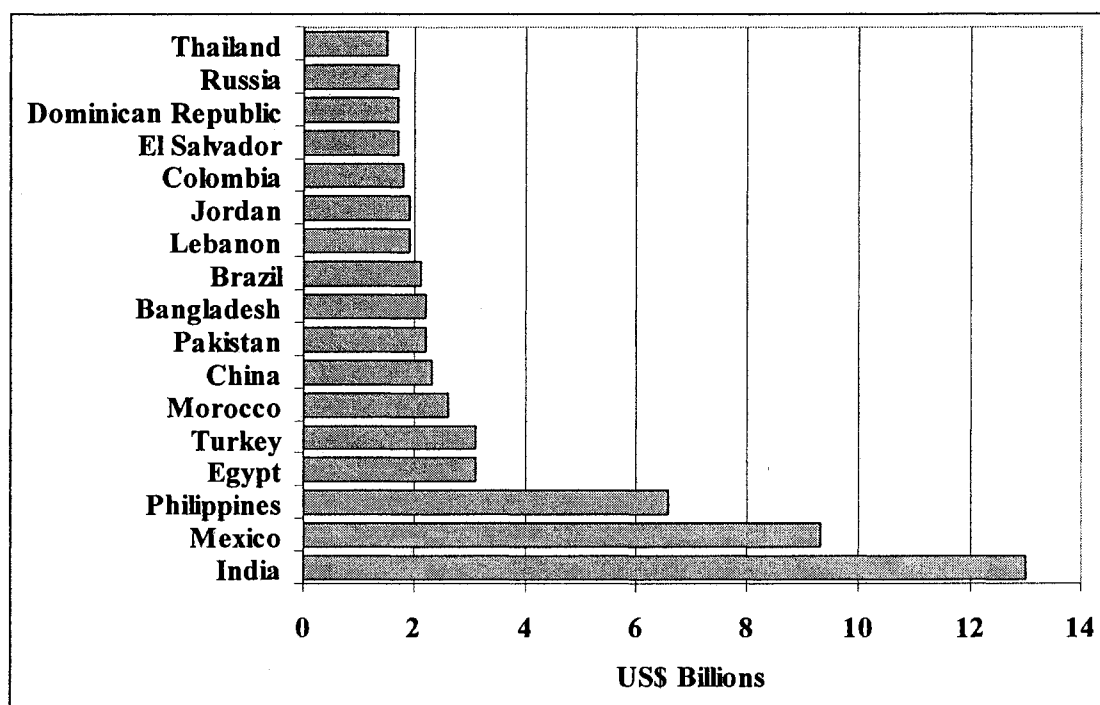


Figure 2. Largest Recipients Countries of largest Remittances, 2004

Source: Data from Global Development Finance 2005, table A.19.

Note: Data refer to the average gross remittances for all available years over the period 1996-2004.

Many studies have observed an increase in remittance inflows following a natural disaster. Remittances to developing countries continued to rise between 1989–2001, when private capital flows declined in the wake of the Asian financial crisis (World Bank

2005). Yang (2004) showed that remittance receipts by Filipino households increased following the 1997 financial crisis.

Remittances have emerged as the most stable source of financial flows for countries afflicted by “shocks” and constitute the single most important source of insurance for many poor countries. Remittance flows are much more stable than private capital flows, which exhibit strong herd-like behavior, amplifying the boom-bust cycles in many emerging markets (Kapur 2003).

El-Sakka and McNabb (1999) estimated a macro model for total inflow of remittances through official channels in Egypt. They found that levels of income in both host and home countries have a positive impact on the inflow of remittances to the home country. They also found that remittance flows are highly responsive to black market premiums, with emigrants diverting remittances into unofficial channels in response to better rates. Results also support the idea that interest differentials at home and abroad have a negative impact on the flow of remittances through official channels. In the case of low domestic interest rates in Egypt, emigrants will keep their savings abroad to invest in foreign exchange-denominated assets.

It is well established that remittances are an important source of finance for developing countries. Remittances transferred to low income countries are generally considered to be a stable flow of income that studies have shown can even increase in times of hardship (Ratha 2003). Beyond their positive effect on consumption and their potentially long-term development effects, two other characteristics enhance the value of remittances as an important resource for poverty reduction.

In Table 3, most receiving countries in Latin America remittances account for a significant portion of the recipient's annual income. In Brazil, remittances account for 43 percent of the annual income, 36 percent for the Dominican Republic and for El Salvador and Honduras 29 percent and 28 percent, respectively.

REMITTANCES AND ECONOMIC GROWTH

A number of researchers have tested the correlation between home economic conditions and the level of remittances. With the altruistic model, the relationship between the home economic conditions and remittances should be negatively correlated. With the self-interest model there is a positive relationship between the home economic conditions and remittances. In other words, if altruism was the reason to remit, then deteriorating economic conditions at home should increase the level of remittances sent by families residing abroad. If the reason to remit were self-interest, then improvements in home economic conditions would be followed by an increase in remittances. Schreider and Knerr (2000) find that sizable inheritances are necessary to ensure that migrants continue to remit money home in Cameroon, lending support to the self-interested model. Agarwal and Horowitz (2002) present evidence suggesting that migrants from Guyana are motivated by altruism. Using macroeconomic data, Faini (1994) attempts to draw inferences about the relationship between aggregate economic conditions in the home country and the volume of remittances received. The study claims to find evidence consistent with the notion that migrants behave altruistically; that is, the remittances and home economic conditions are negatively related.

Table 3. Impact of Remittances on the Annual Income of Remittance Receivers in Latin America

Country	Average annual income (\$)	Average annual remittances (\$)	Share of total income made up of remittances (%) ^a
Brazil	5,515	4,151	43
Dominican Republic	2,496	1,410	36
El-Salvador	4,104	1,700	29
Honduras	3,552	1,360	28
Guatemala	3,504	1,200	26
Mexico	4,699	1,330	22
Colombia	4,241	1,115	21
Ecuador	6,339	1,400	18

Source: MIF-IDB 2003a, 2003b, 2004c, 2004d.

^a Total income is calculated by combining average annual income and average annual remittances.

It is not necessary to attribute a single motive to remitters. Individuals can be altruistic while also acting in their own self-interest. Migrants can take care of their families back home while at the same time advancing their own material self-interest, including watching over their “portfolio of investments” and making strategic payments to family members to secure an anticipated inheritance.

El-Sakka (1998) found that remittances were positively related to economic growth in the host countries and inflation in the home country. As Suzan Pozo (2007) explains it, there is a direct relationship between home economic conditions and the decision to send remittances, a “self-serving” relationship as she calls it. Improving economic conditions at home helps increase the value of goods left behind, and all other things being equal, increase the probability of the migrant’s eventual return home. A

Remittances received by a country help in reducing poverty. Most of the remittances are financing subsistence needs. Families and individuals who receive remittances often are poor people. These groups can be very hard to reach through other policy measures. Remittances have distinct comparative advantages vis-à-vis other sources of finance. Remittances help to reduce poverty by providing families in the countries of origin with additional income. This income is often used for consumer goods, but it also enables families to make necessary investments in education and health. Often remittances assume the function of a social safety net. Remittances are used to finance community projects such as hospitals and schools, or they are invested in business ventures, particularly in countries with a sound economic environment. A recent study found that “on average a 10 percent increase in the share of international remittances in a country’s GDP will lead to 1.6 per cent decline in the share of people living in poverty” (Page and Adams 2003).

Also, migrant remittances are a source of development finances that the poor can control themselves. Migrant remittances are ultimately a strategy used by individuals and households to improve their well-being. They are thus a “development” strategy and one that people themselves pursue—placing money back in the hands of their own families, organizations, and home communities. Durand, Parrado, and Massey (1996) have observed that dollars that Mexican immigrants send home from the United States flow directly to the people who need them the most without being filtered through social and economic structures.

A relatively small amount of the literature considers the impact of remittances on the overall economy. Researchers have pointed out that even if remittances are totally

spent on consumption, there will still be a benefit to the receiving economy to the extent that at least some of the funds are spent on domestically provided goods and services. Although a large amount of the literature has concluded that remittances are mainly used in consumption, there are a few scholars who argue that remittances could be a source for financing development and employment. Investment in consumption contributes to human development in poor areas and indirectly leads to productive investment in the future. As Orozco (2000) observes, “recipients of remittances become agents of development when their money creates new markets or improves the welfare of the household through education and health care.”

Additionally, remittances financed significant portions of the increase in the aggregate quantities, and the growth rates in specific industries. Stahl and Habib (1989) use input-output tables for Bangladesh to construct a simple remittance; the argument is based on a simple Keynesian multiplier story. Nishat and Bilgrami (1991) use a simple Keynesian structural model to estimate the remittance multiplier for Pakistan (Giliani and Iqbal 1981; Amjad 1986).

Another part of the literature examines the relationship between remittances, financial development, and growth. Giuliano and Ruiz-Arranz (2005) argue that remittances could be used to promote growth and not only spent on consumption, housing and land. Remittances could be used for productive investment that would contribute to long-run growth. They find that remittances have promoted growth in less financially developed countries. They suggest that there is an investment channel through which remittances can promote growth where the financial sector does not meet the credit needs of the population. They concluded that lowering costs of conducting transactions might

help direct remittances to projects that yield the highest returns and therefore enhance growth rates.

Also, remittances can be an alternative way for credit constraints in developing countries. Entrepreneurs in developing countries confront much less efficient credit markets, and available evidence indicates that access to credit is among their biggest concerns. Dustamann and Kirchamp (2001) found that although access to credit was limited in some countries, individuals could use remittances to release such credit constraints. Savings of returning migrants may be an important source of start-up capital for micro enterprises. They found that fifty percent of a sample of Turkish emigrants returning from Germany started a micro enterprise within four years of resettling in Turkey, using money saved while working abroad. Similarly, Massey and Parrado (1998) concluded that earnings from work in the United States provided an important source of start-up capital in the new business formations in central-west Mexico. Woodruff and Zenteno (2001) also found that remittances were responsible for almost 20 percent of the capital investment in micro enterprises throughout urban Mexico.

Remittances could be used to fund investments in the future; families use them to pay school fees for children in the home country, thereby investing in human capital for the next generation. Between a quarter and a third of remittances in Latin America, and Caribbean recipients put some of their money towards savings, educational expenses, or small investments.

Unlike foreign aid, remittances go directly to families in places that are the most difficult to reach with development assistance. While foreign direct investment and other capital flows have fluctuated with market cycles, remittances have increased even during

economic recessions. For instance, remittance flows to Latin America and the Caribbean continued to grow during the U.S. economic downturn of 2001–02.

Remittances have become critical to the survival of millions of families and to the health of many national economies. At the household level, remittances are a critically important source of support for about 20 million families in Latin America and the Caribbean, often averaging half or more of household income. The bulk of remittances, about 80 to 85 percent, are used to cover basic necessities such as food, housing, and utilities.

Remittances also act as insurance against shocks and natural disasters. Transfers tend to soar after hurricanes (such as Mitch in Honduras and Nicaragua) and earthquakes (in Central America and Peru). Remittances are also a buffer against economic meltdowns caused by significant financial sector problems or political instability.

OFFICIAL (BANKING SYSTEM) AND UNOFFICIAL TRANSFERS

(INFORMAL SYSTEM)

Data on remittance research represent only the official recorded remittances, and they do not include remittances in kind and unrecorded remittances. Officially recorded remittance estimates may significantly underestimate the real magnitude of remittances. Remittances sent through informal channels could add at least 50 percent to the official estimate, making remittances the largest source of external capital in many developing countries. Unofficial channels are the main reason for the underestimation of remittances. That is why it is important to discuss the official and unofficial channels of remittance flows in the following section.

Remittances are transferred through formal and informal channels. Although there are still a large amount of remittances that are hard to capture from informal channels, remittance through formal channels have quadrupled between 2001 and 2003.

Remittances flow is a source of foreign exchange for labor exporting countries. Reliable and transparent remittance transactions increase the confidence of remitters in the success of the transaction and therefore the likelihood that remitters will use official channels to send their earnings. There is a big loss in developmental value of the remittance when it is transferred through an informal channel. Funds that are transferred through and deposited in bank accounts give the government the ability to tap remittances, which are more likely to be used for purposes that have direct developmental impacts such as savings and investments as opposed to cash transfers, which can be used for immediate consumption purposes.

Migrants use a wide array of informal and formal mechanisms to remit money ranging from hand deliveries by the migrants themselves or by a third party, to less regulated mechanisms such as "Hawala" (meaning transfer in Arabic) in Pakistan and Bangladesh, or "hundi" (meaning collect) in India, to electronic transfers through postal services, banks, credit unions, and money transfer companies.

Official statistics reported in the balance of payments underestimate the level of remittances, and in several countries unrecorded remittances are significant. Adams (1991) estimates that unrecorded remittances equal about one-third of the total migrant remittances to Egypt. Choucri (1986) claims that only 15 percent of Sudanese emigrants used the official banking system to transfer their savings. Brown (1992) shows that by including unrecorded remittances in the Sudanese national accounts for 1983–84, the

proportion of net current transfers increases from 6 percent to 45 percent of the adjusted GNP. Net factor incomes also increase from 7 percent to 17 percent of adjusted GNP.

In a cross-country regression analysis done by the World Bank, the reported remittances were lower and informal flows higher in corridors where remittance costs were higher and where there were significant black market premiums over the official exchange rate. The developmental impact of remittances is affected by the transfer methods used. The involvement of regulated financial institutions and the involvement of the government to facilitate less expensive transfers are all found to be of great impact. Then development of remittances will have a great impact on the economy of the home country. Poorly developed financial infrastructures constitute a serious obstacle to formal remittance flows in developing countries by limiting access to remittance services for both senders and receivers.

Research in Latin America, the Caribbean, and many African countries confirmed an increase in the average growth in remittance flows as a result of developed financial infrastructures. A major research project examined the role of remittances sent to Latin America and found that remittance flows for Colombia, the Dominican Republic, El Salvador, Guatemala, and Mexico have an average growth of 26 percent since the 1980s and have several consequences. Remittances have attracted new business, new actors are experimenting with innovative approaches to leverage remittances, and immigrants to the United States of America fuel the global remittances market.

Another study on Guyana underscores the idea that underdeveloped financial infrastructures limit remittance flows in significant ways. Although Guyana has a very large diaspora principally living in the United States, and although remittances constitute

a very significant source of foreign exchange for the country, potential flows remain largely unexploited. The study points to the very high cost of sending money to Guyana resulting from a largely uncompetitive market as one major obstacle to increased remittance flows.

Forms of remittance transfers:

- Money sent formally through official channels (banking system)
- Money sent informally through black market agents or by other informal means
- Money carried by emigrants, i.e. money transferred as cash in hand. Hand carried cash remittances are difficult to assess and differ greatly from one country to another, according to the severity of foreign exchange control systems and the structure of incentives available to emigrants

Remittances in kind, which represent goods sent home or imports financed by emigrant savings.

THE MAJOR METHODS OF PERFORMING REMITTANCE SERVICES

As discussed earlier in this chapter, different factors affect remittance costs and how reduction in remittances fees will affect remittance flows. Thus it is important to explain the major methods of providing remittance services. Those methods have a significant impact on remittance pricing which consequently affects regulating informal remittances. Remittance companies such as Western Union, Money Gram and Vigo accept cash from the sender, and the paying agent in the home country pays the beneficiary.

Banks offering remittance services tend to move money between accounts. In developing countries, many people do not have bank accounts, so they prefer to pay cash. Another method of remitting money is to buy a money order and mail it to the beneficiary, who then deposits it in an account or cashes it.

A more advanced method of sending transfers is a remittance system like ikobo.com. It uses the Internet as a means of transferring remittances. Other services like Pay Pal do not focus on immigrants to transfer money but technically move money between accounts.

In the Philippines another advanced method is used; remittances are sent through the cell phone (*Smart Money, Philippines*). Many cell phones are operated by pre-paid cards, which are stored value cards. In the Philippines, it is possible to use the money stored on these cards in many stores. This system helps the beneficiary access his money anywhere.

Hawala is the most well-known method of untraceable, informal money-transfer in the Middle East and parts of Asia and Africa. The sender pays cash and the beneficiary also receives cash. This system offers low transaction costs and is speedy and relatively safe. The information is relayed by phone, fax or email. Hawalas are a natural target for law-enforcement officials, who worry that terrorists and criminals use them to mask transactions and elude authorities (Jost and Sandhu 2000).

The data reported in this dissertation, which is based on official statistics, underestimates the actual size of remittance flows, because a large share of remittances goes unrecorded. Officials in major fund-transfer agencies argue that unrecorded remittances may be larger than recorded remittances.

REMITTANCES VIA UNOFFICIAL CHANNELS

Most of the remittances sent home by migrants are unrecorded, and therefore do not enter many countries' national statistics. When transfers are made using unofficial techniques, remitters can avoid or mitigate commissions and fees. Moreover, they can bypass official currency-exchange rates and governmental regulation. In certain countries, the use of unofficial modes of remittances, and their lack of transparency, allows the remitter to avoid taxes and may also be favored due to immigration concerns.

UN-commissioned research in Bangladesh and other United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) countries indicates that in many instances more than 40 percent of remittances are sent through unofficial means.

In Cuba there is an informal transfer mechanism known as *mulas* (mules) that are family and friends or individuals who travel to Cuba specifically to deliver remittances. It is either services of people or goodwill that are found to be more rational choices for remitters, because of their lower transfer costs. To transfer money back home, 46.4 percent of Cubans in the United States use the goodwill or services of people traveling to Cuba.

There are a number of factors that contribute to the continuous flow of remittances through informal channels. From the point of view of the remitter there are: technological gaps between sending and receiving countries, archaic banking practices on the receiving end, the absence of rural bank branch networks, prohibitive costs of remitting, and an inability to open bank accounts in host countries due to lack of identity documentation and /or lack of regular status; remitters generally have poor access to banking services because of their immigration status and other personal characteristics,

and lack of confidence in official institutions. Also, recent anti-terrorist and anti-money laundering legislation enacted after September 11, 2001, in the United States and many other countries in the developed world, has made migrant access to formal financial institutions more difficult mostly due to missing banking facilities and unfavorable exchange rate regimes.

Greater convenience and bundled services offered by money transfer agents attract remittances away from banks. Lack of knowledge, distrust of the banking system (and, by extension, of formal agents), perceived and real needs for secrecy; create the desire to avoid formal records of the transaction because of lack of faith in the government and the reduced cost of returning the money themselves or via family or friends.

Banks cannot meet global demand for remittance services. Like other investors, they are most likely to extend services in countries that have sound macro-economic policies, political stability, and an improving business climate. Yet where formal financial systems are almost entirely absent, as in Somalia and Afghanistan, sophisticated, low-cost "hawala" or "hundi" remittance systems thrive, and are the mainstay of national payment systems. Formal banks, in fact, have much to learn from the efficiency and convenience of informal systems.

In a national survey of Latinos residing in the United States (Miami and Los Angeles), 58 percent of the respondents who sent remittances regularly did not have bank accounts, and 55 percent did not have credit cards. Due to low levels of awareness and financial literacy, most remitters have no bank accounts; they rely on money-transfer firms to send their money to relatives in Latin America. According to another survey of

1,000 Latin American immigrants in the United States conducted by the Inter-American Development Bank (MIF-IDB 2002), only 20 percent of Latin origin immigrants in the United States use the money-transfer services of banks or credit unions to remit sums of money to their countries of origin. Also, 29 percent of immigrants remitted through the mail and through the services or goodwill of people traveling to the destination area (MIF-IDB 2002).

A significant problem with unrecorded remittances is that they are beyond the control or access of authorities and fund illegal activities, including drug trafficking, trade smuggling, money laundering, capital flight, and other illegal transactions.

Due to the importance of informal channels for remittances, governments on both the remitting and receiving ends should redouble efforts to encourage the use of formalized channels. A preliminary requirement is the existence of strong transparent and reliable financial institutions as well as the extension of banks and other financial service providers to rural and other underserved areas where many migrant families live.

According to the final report in the International Conference on Migrant Remittances, more realistic policies are needed to encourage the increased use of the formal financial sector and to develop better cost effective products for remitters. Also, there should be enhanced access to financial systems, including access for undocumented migrants, general strengthening of national payment systems, appropriate and transparent disclosure of exchange rates and fees charged, and developing a complaints mechanism for remitters.

Cuba is a good example of the success of a governmental policy in attracting a growing inflow of remittances. Despite a significant migration in the last 4 decades, the

economic impact of remittances remained limited for Cuba until very recently. Today remittance flows are one of Cuba's largest sources of foreign currency earnings. The Cuban government significantly reformed its banking system in parallel with monetary regulation reforms. This improved the banking and financial infrastructure and ensured that foreign currency transactions, including remittances, are rapid and transparent. Cuba also signed bilateral agreements with partners in Europe, Latin America and the Caribbean to ease transfers via postal money orders.

Another governmental initiative for boosting remittances occurred in Mexico. The Mexican government issued an identity card through their consulates. This consulate identity card acts as a valid means of identification that grants Mexican immigrants in the United States access to wire transfer agencies and the ability to open bank accounts.

In Bangladesh, India, Pakistan, Korea and the Philippines, incentives include tax exemptions, fixed deposit foreign currency accounts and special development bonds. The establishment of cross border payments of remittances facilitated the transfer of remittances by North African migrants residing in European countries. This is a bilateral agreement between postal services of the host and the sending country that enables overseas workers to make inexpensive and safe remittances to their home countries.

One of the more successful approaches taken by a North African country includes Egypt's special import system called Own Exchange Import System (OEIS), which gives importers a special permit if they show that they can pay for goods with foreign exchange that originates outside the official foreign exchange pool. According to one expert, this strategy has been greatly successful because the main course of foreign exchange to importers is the savings to finance the country's needed imports from abroad. Goods

financed by emigrant savings under the system of OEIS in Egypt represent, on average, more than two thirds of total recorded savings sent home by emigrants.

In the Philippines, the government has instituted a similar policy of allowing Filipino migrants overseas to buy consumer goods (“Balikbayan” boxes) from government duty-free shops that are delivered directly to their families in lieu of cash remittances.

The U.S. Treasury Department and the Philippines Ministry of Finance have created an initiative to reduce the costs of overseas remittance services (through greater competition and efficiency), enhance access to formal remittance systems, and ensure compliance with AML/CFT standards. In collaboration with the U.S. Federal Deposit Insurance Corporation and the Federal Reserve, the U.S. Treasury Department will work with Filipino counterparts to correct deficiencies in remittance channels, understand the role of the private sector, strengthen the infrastructure that supports remittances, minimize vulnerabilities in that infrastructure, promote financial literacy, and ensure proper implementation and full compliance with international best practices.

On June 30, 2003, the Monetary Authority of Singapore announced that it would allow banks subject to branching restrictions to set up new branches specifically to provide remittance and money changing services. When implemented, this new measure will enhance access to formal remittance systems in Singapore and provide foreign workers with more choices and increased convenience in remitting funds to their home country.

In January, 2003, the Inter-American Development Bank (IADB) and Caja de Ahorros Pensiones de Barcelona (La Caixa), a Spanish savings institution, agreed to

cooperate to enhance the development impact of remittances sent from Spain to Latin America and the Caribbean. The IADB's Multilateral Investment Fund (MIF) aims to reduce the cost of remittances by stimulating competition among service providers, increasing awareness of remittance services, and improving regulatory frameworks for financial services. MIF helps micro credit and savings institutions in Latin America and the Caribbean design remittance-related products and services that encourage development and participation in the formal financial sector.

Black Market

The Black market adds up to significant flows of unrecorded remittances. Migrants have the option of exchanging their remittances either through the black market or through official channels. The decision will depend on the difference that exists between the exchange rates available in both markets. The more significant the black market premium, the larger the share of remittances diverted toward the black market. Migrants may be willing to transfer funds through the black market if the use of official channels means that remittances are subject to taxation. The decision also will depend on the penalties imposed by the government upon people involved in black market activities and upon the risk attached to involvement with the black market traders. Significant differences between official and black market exchange rates play an important role in emigrants' decisions. Migrants assess the difference between the official and black market rates and ultimately choose the route that offers the best return.

Sending remittances through official or unofficial markets will depend on the difference between the official exchange rate and the parallel (or black market) rate as

well as the cost of going through the unofficial market. This cost involves the search for a means of sending the remittances as well as the worker's perception of the risk of using unofficial channels. If the difference between the official and parallel exchange rate (the parallel market premium) is greater than the cost of going through the parallel market, then the worker would not have any incentive to send his money through official channels.

Also, flow of remittances is determined by the difference between the real domestic interest rate and the real foreign interest rate. For the worker to remit part of his savings, the real interest rate in his home country must be greater than the interest rate in the host country. El-Sakka (1998) found that remittances were positively related to economic growth in the host countries and inflation in the home country. It was also found that exchange rate differentials between official and black markets have a negative impact on the inflow of remittances through official channels.

In Egypt, El-Sakka and McNabb (1999) found that levels of income in both host and home countries have a positive impact on the inflow of remittances to the home country. They also found that remittance flows are highly responsive to black market premiums, and the interest differentials at home and abroad have a negative impact on the inflow of remittances through official channels. El-Sakka and McNabb also found that imports financed by remittances have higher income elasticity and relatively lower price elasticity as compared to the other imports.

Changes in economic policies of many developing countries, especially with regard to foreign exchange controls, have reduced the black market premium for foreign exchange. As a result, part of the increase in officially recorded remittances reflects a shift in

remittances from informal to formal channels. Whether remittances continue to go through informal channels either because of foreign exchange controls in countries such as Myanmar and Zimbabwe, or because of an absence of state machinery as in Afghanistan, this problem persists. Some activities are needed to design new financial services and also to inform remitters and recipients of available services.

Some of the recommendations in the conclusion of the 2003 International Conference by the World Bank were that the governments should strengthen efforts to engage diasporas through better information sharing, including through development of web-based solutions. Evidence shows that even in countries with well developed financial infrastructures, significant flows are still channeled informally.³

Fostering trust is an important element of migrant outreach because evidence shows that even in countries with well developed financial infrastructures, such as the Philippines, significant flows are still channeled informally. Governments of the developing countries have paid a great deal of attention to increased remittance flows to their countries and how to adopt strategies to maximize their development impact. Remittances to developing countries from overseas resident workers are estimated to have increased by US \$10 billion (8 percent) in 2004, reaching US \$126 billion.

³ The Department for International Development (DFID) and the World Bank in collaboration with the International Migration Policy Programme (IMP) organized an International Conference on Migrant Remittances: Development Impact, Opportunities for the Financial Sector and Future Prospects, on 9-10 October 2003, in London, United Kingdom.

CONCLUSION

Remittance flows will differ according to the level of education of the migrant and also according to the type of migration. There are two approaches that could affect the tendency of emigrants to remit: macroeconomic policy and microeconomic policy. The costs to send remittance and the channels into which migrants will be sending their savings have a major affect too. The choice of emigrants to remit their savings through the formal and informal channels depends on the relevance of these variables.

There are three basic motives for sending money home: to help family members left behind (altruism), a desire from the migrant to invest in assets at home (self-interest), or the use of family members as agents to take care of investments at home (mutual benefit arrangements).

Benefits of remittances to the countries of origin are numerous. Remittances may improve income distribution and quality of life beyond what other available development approaches could deliver. The most obvious outcome of remittances is their effect on the balance of payments of the countries of origin. Remittances relax foreign exchange bottlenecks of labor-sending countries and improve their current account position. Balance of payments of many third world labor-exporting countries have become increasingly dependent on the inflow of foreign exchange funds remitted by emigrants working abroad.

Recorded data on remittances are only remittances through official channels; the true size of remittances including unrecorded flows is considered to be much larger. Therefore it is very important to track remittances; this will help governments try to

increase remittances as a source of development finance and better channel them into productive sectors.

CHAPTER III

REMITTANCES IN THE MIDDLE EAST

The economic fortunes of the Middle East (ME) region have been driven by the price of oil, labor and remittance flows, aid and capital flows, and government economic policies. For most of the countries in the region, the period between 1973 and 1980 was one of exceptional growth, based either on oil or on transfers from oil producers. The vast oil revenues put several Arab countries in a category by themselves as the capital oil rich countries, namely Saudi Arabia, Iraq, Kuwait, Libya, United Arab Emirates (UAE), Bahrain, Oman, and Qatar.

Remittances are the portion of international migrant workers' earnings sent back from the country of employment to the country of origin. According to the World Bank, remittance flows have doubled in the past six years from US \$132 billion in 2000 to an estimated US \$268 billion in 2006. "Counting just recorded remittances sent home by migrants from developing countries, we anticipate a rise to US \$199 billion in 2006, up from \$188 billion in 2005" Dilip Ratha, Senior Economist in the Development Prospects Group of the World Bank, told a conference in London. Ratha continued "including unrecorded flows through formal and informal channels, the true size of remittances is even larger, making them the largest source of external financing in many developing countries" (International Monetary Fund 2006).

It is essential to understand the interdependence between the flow of labor and the flow of capital, in the form of workers' remittances, in the Middle East. The goal of this chapter is to illustrate the development of revenues in the oil exporter countries from the

sharp increase of oil prices in the 1970s. This chapter also highlights the importance of Egypt as one of the major and biggest labor exporting countries in the Middle East. In order to understand how vital remittances are to the Egyptian balance of payment we also provide a brief framework of the Egyptian economic situation to better understand the context within which the determinants of remittances are analyzed. The chapter also explores and compares the data for all those materials.

Oil-rich countries in the Middle East have abundant capital, whereas the region's non-oil producing countries are typically labor abundant. The factors of production in the Middle East complement each other; labor and capital are the most important commodities in trade between the Arab countries. Hobden (1998) described remittances as one of the forms for regional economic cooperation and exchange of factors of production between the countries within the Middle East. The major labor exporting countries are Algeria, Morocco, Tunisia, Egypt, Jordan, Lebanon and Syria. The labor importing countries in the Middle East, mainly the oil rich countries, are Bahrain, Iraq, Kuwait, Libya, Oman, Qatar, Saudi Arabia and UAE. The oil rich countries need labor for their projects, and at the same time, labor exporting countries need the capital inflow to finance their development projects. Those projects could be supplied by remittances of workers. Disruption in the area, such as war or other forms of political instability, could severely halt this trade.

There has been a tremendous increase in the revenues of the Arab oil-producing countries, especially in the 1970s. As shown in Table 4, revenues rose from US \$2.3 billion in 1965 to US \$12.7 billion in 1973 and US \$53.6 billion in 1974 to US \$77.5 billion in 1977. This is important to examine; as pointed out in the introduction of this

dissertation, the sharp increase in oil prices in the early 1970s had a large and direct effect on the revenues of oil exporter countries in the Middle East. The acceleration in oil revenues helped in the development of the Persian Gulf area, which had a direct effect on the demand of labor from the other Arab countries. By 1981, Kuwait's per capita GNP amounted to US \$20,900 and the UAE to US \$24,660.

Table 4. Evolution of Oil Revenues for Major Arab Producers

	1965	1970	1971	1972	1973	1974	1975	1976	1977
Saudi Arabia	655	1214	1885	2745	4340	22574	25676	37809	36900
Kuwait	761	899	1407	1634	1980	8645	7706	8063	6800
Iraq	375	521	840	575	1843	5700	8500	8800	8800
UAE	33	233	431	551	900	5536	6000	7000	8000
Qatar	69	122	200	255	464	1802	1700	2090	2100
Libya	371	1351	1674	1563	2223	5999	5101	7500	8600
Algeria	102	272	321	613	988	3299	3262	3699	3984
Total	2276	4612	6758	7936	12738	53555	56975	74663	775184

Sources: Up to 1974 compiled by M.A. Fadil in *Oil and Arab Unity* (Arabic) (Beirut: Center for Arab Unity Studies, 1979), 10. Later years from *Petroleum Economist*, OPEC Oil Report, 2nd edition, 1979.

Egypt is one of the biggest labor exporting countries in the Middle East. There are large numbers of Egyptians working in the Arab states—over 1.3 million during the 1980s and 1.9 million in the Arab countries (Choucri 1986). Egypt is overpopulated, has labor surplus, a tremendous capacity to absorb capital of which there is very little, and fairly well developed manpower and social institutions. Egypt suffers from high unemployment rates, about 15 percent in 1995. On the contrary, Saudi Arabia, Bahrain, Iraq, Kuwait, Libya, Oman, Qatar and the UAE are under populated and have labor

shortages, limited capacities to absorb capital of which there is plenty, and underdeveloped manpower. In many ways, the two sides represent opposite ends of one bipolar social order in the Arab World at present.

The fast growing population and unemployment in the Middle East created a flow of migrant workers inside and outside the region. Labor flows constitute a more important form of trade within the region than goods flows. Although the intra-regional trade in goods is low, trade in labor service is large. As shown in Table 5, 18 percent of the labor force of the exporting countries within the Middle East—Egypt, Jordan, Lebanon, Syria and Yemen—worked in the Gulf in the early 1980s. Table 5 also indicates that over half the labor force of the eight labor importing countries of the Middle East—Bahrain, Iraq, Kuwait, Libya, Oman, Qatar, Saudi Arabia and the UAE—came from other countries, including Asian countries.

The main source of official data on migrants' remittances is each country's annual balance of payments record, compiled in the Balance of Payments yearbook published by the International Monetary Fund (IMF). Global estimates of official remittance flows based on these balance of payments statistics suggest that remittances increased from US \$43.3 billion in 1980 to US \$70 billion in 1995 (Russell 1992).

Table 6 presents data on remittance flows to and from countries in the Middle East region. These data probably underestimate the extent of remittances; they only contain the recorded remittances. Table 6 also includes remittance flows to countries outside the region. For Egypt and Jordan, remittances in 1989 accounted for more than 10

percent of GNP, and for all labor exporting and poorer countries in the region, remittances in 1983 were far larger than intra-regional exports.

Table 5. Middle Eastern Countries: Migrant Workers as a Proportion of the Labor Force, early 1980s

	Exports of migrant workers to Libya and Gulf	Imports of foreign workers	Migrant workers/labor force (%)	Immigrant workers/labor force (%)
Bahrain	---	81	---	59
Egypt	2000		18	---
Iraq		0.8-1 million	---	19-25
Jordan	300	120	67	27
Kuwait		379	---	79
Lebanon	140		20	---
Libya		467	---	51
Oman	50	145	17	49
Qatar		94	---	85
Saudi Arabia		1.1-2 million	---	44-59
Syria	80		3	---
UAE		491	---	89
Yemen	680		24	---

Source: Nazli Choucri, *Asians in the Arab World: Labour Migration and Public Policy*. (Cambridge, MA: MIT Press (1983) page(5)..

Table 6. Middle Eastern Countries, Net Worker Remittances, 1989 (Million USD)

	Remittances	Remittances/GDP (%)	Remittances/ intraregional exports (1983)
Bahrain	-199	-6.4	-0.22
Egypt	3532	11.2	5.99
Jordan	623	15.9	4.66
Kuwait	-1300	-5.5	-0.64
Libya	-472	-2.1	-400
Oman	-791	-10.2	-2.47
Saudi Arabia	-8300	-10.3	-1.47
Syria	395	3.4	1.90
Yemen	581	7.3	43.82

Source: World Bank.

Note: Data for Middle Eastern countries missing from the table are unavailable.

Remittances remain the second largest financial flow to developing countries after foreign direct investment more than doubled the size of net official finance. Table 7 shows that workers' remittances continued to rise in 2003 to an estimated US \$93 billion, up from US \$88.1 billion in 2002, when remittances equaled 5 percent of developing country imports and 8 percent of domestic investment.

Figure 3 shows the financial flows in the Mediterranean region. It reflects the importance of remittance in the region; remittances are larger than foreign direct investment (FDI) flows and development aid.

The growing importance of remittances is reflected in Table 8; in 2004 remittances is the second source of foreign exchange after foreign direct investment. Growth of remittances has exceeded private capital flows and official development assistance (ODA).

Table 7. Remittances Received and Paid by Developing Countries in 2002 (Billion USD)

	All developing	Low income	Lower- middle income	Upper- middle income	High- income
Total remittance receipts	88.1	25.7	44.5	17.9	44.4
As % of GDP	1.5	2.9	1.3	1.0	0.2
As % of imports	5.1	12.1	4.9	3.2	1.2
As % of domestic investment	8.0	14.6	5.9	14.0	35.7
As % of FDI inflows	66.2	388.9	49.2	51.3	8.4
As % of net official finance	250.0	---	---	---	---
Other current transfers ^a	38.0	9.0	22.0	7.0	83.0
Remittances receipts and other current transfers	126.1	40.2	66.6	24.6	127.4
Total remittance payments	28.0	1.5	3.1	23.4	77.2
Excluding Saudi Arabia	12.1	1.5	3.1	7.5	77.2

Source: IMF 2002 and World Bank 2002 and 2003

Note: --- not available.

^a Other current transfers include gifts, donations to charities, pensions received by currently retired expatriate workers and so on. They may also include personal transfers by migrant families back home. See World Bank 2003, chapter 7, data annex.

Table 8. Recorded Remittances (Billion USD)

	1995	2004
Workers' remittances	58	160
Foreign Direct investment	107	166
Private debt and portfolio equity	170	136
Official development assistance	59	79

Source: World Bank 2005a.

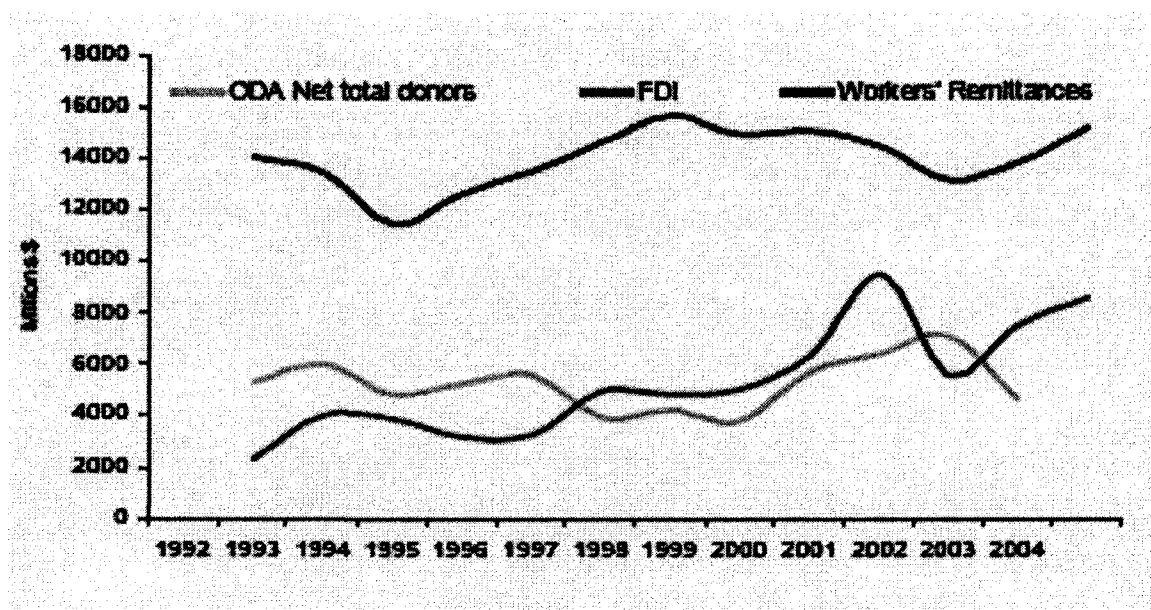


Figure 3. Financial Flows in the Mediterranean Region (Million USD)

Source: UNCTAD Handbook Statistics.

<<http://stats.unctad.org/Handbook/ReprotFolders/ReportFolders.aspx>>

Workers remittances data are for Algeria, Egypt, Libya, Morocco, Tunisia, Jordan, Lebanon, Palestinian Territory, Syria and Turkey. ODA data do not include Algeria and Libya.*

(*) total ODA/OA net: Total donors.

Total donors is the sum of the three following donor types:

DAC bilateral donors: the Development Assistance Committee (DAC) is the committee of the OECD that deals with development cooperation matters. It consists of 23 member countries;

Multilateral donors (i.e. AFDB, IBRD, IMF, INDP);

Other donors: the non-DAC bilateral donors (i.e. Hungary, Lithuania, Turkey).

REMITTANCES IN EGYPT

Migration flows in the Middle East are generally temporary in nature because of extremely strict laws regarding nationality, visas, and residency in the newer migrant destinations in the Middle East. The virtual impossibility of citizenship or permanent residency means that the majority of emigrants to these countries are workers who remain a limited number of years to achieve a target level of savings and then return home. This

pattern of emigration has had a substantial impact on the flow and size of remittances to the labor-exporting countries in the area. Consequently, several countries of the Middle East have become among the world's most dependent on emigrant remittances. A greater likelihood of returning home increases the incentive for migrants to solidify claims on assets left behind, as well as to add to this base.

Millions of Egyptians had the chance to immigrate to the oil countries and they remitted over US \$15 billion (via official channels) to the Egyptian economy from 1973 to 1983. In 1983, there were almost 3 million Egyptians working in the Arab oil countries (Feiler 2003).

In Egypt, remittances have at times been higher than the sum of foreign exchange from oil exports and the Suez Canal dues and tourism. They also considerably exceed merchandise exports (by 45 percent in 1993). In Morocco remittances ranged in the last decade between 5.5–8.0 percent of GDP. As a proportion of merchandise exports, remittances reached in some countries high levels in recent years: Jordan, 84.0 percent; Morocco, 41.0 percent. Egypt is the largest remittances receiving country in the Middle East followed by Morocco and Jordan (El-Sakka 2004).

It is estimated that official total remittances from the Gulf countries have been around US \$70 billion during the last three decades. Remittances to Egypt have been among the highest in the world, peaking at US \$6.1 billion in the early 1990s and ranging between 5 percent and 11 percent of GDP (McCormick and Wahba 2003).

Before the large emigration wave in 1973, official remittances by Egyptians working abroad amounted to just US \$123 million. Within one year this amount increased by 150 percent, totaling US \$310 million in 1974. By 1979, remittances

exceeded US \$2 billion. From 1981–1982, there was a slight decrease in remittances; this could be explained by the political instability in Egypt caused by the murder of Sadat in 1981. By 1984, it had reached US \$4 billion, constituting the main source of foreign currency for the Egyptian economy (Feiler 2003; Ibrahim 1982). This amount equals or exceeds the combined income of Egypt from cotton export, the Suez Canal revenues, tourism, and the value added from the Aswan High Dam (National Bank of Egypt 1981).

Table 9 shows remittance flows to Egypt from all countries. The increase since 1971 in absolute terms is enormous; in the 1960s, remittances did not play an important role in the Egyptian economy. In 1967, they totaled US \$12 million; in 1968 and 1969 the sum of remittances went down to US \$3 million and US \$8 million, respectively. In the 1970s, remittances increased to US \$33 and in 1972 to US \$38 million. Notice the tremendous increase in remittances from 1972–1973 due to the October War in 1973 and the sharp rise in oil prices. Since then, remittances have increased rapidly year after year; in 1977, they amounted to US \$988 million compared with US \$310 million for the corresponding period in 1974. In 1981, remittances decreased to US \$2,230 due to Sadat's murder.

Remittances may help improve economic growth and development. They increase foreign exchange reserves to the receiving country. Remittances also influence the level of investments, the rate of inflation, level of wages and all of the macro and microeconomic determinants of Egypt. Given the temporary nature of migration and the magnitude of remittances, Egypt seems a good case study for the impact of economic variables on remittances. In Egypt, remittances are primarily used for consumption and investment. Investment is mainly in human capital (such as education, health and better

nutrition) or investment in land, housing and livestock. Besides when used in consumption, remittances generate multiplier effects, especially in countries with high unemployment. When used for investment, they generate positive effects on the economy by stimulating demand for other goods and services (Maimbo and Ratha 2005; Feiler 2003).

There is a significant connection between Egyptian investments and the remittances from Egyptians working in the oil countries. Some of the investment projects in Egypt were remitted by Egyptian workers both during the period they were employed in the Gulf States and upon their return to Egypt. Millions of Egyptians worked at different times in Arab oil countries and remitted tens of billions of dollars to Egypt. The domestic investment of the foreign savings of Egyptian immigrants was therefore a valuable contribution to the Egyptian economy (Feiler 2003).

Table 9. Egypt Workers' Remittance, 1967–1984 (Million USD)

Year	Remittances	Year	Remittances
1967	12	1976	842
1968	3	1977	988
1969	8	1978	1,824
1970	33	1980	2,791
1971	38	1981	2,230
1972	110	1982	2,481
1973	123	1983	3,688
1974	310	1984	3,981
1975	445		

Source: 1975–84 from IMF, IFS, 1983 Yearbook, pp. 204–205.

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As seen in Table 10, by 1977 remittances by Egyptian migrants constituted 3.8 percent of all global transfers and 21 percent of the total in the Middle East; in 1983, there was a marked increase, with Egyptian remittances totaling 8.6 percent of global and 78 percent of all Middle Eastern transfers.

Table 10. Private Remittances in Global Terms, in the Middle East and in Egypt

Region	1977	1980	1981	1982	1983
Globally	22,059	34,677	37,278	38,832	36,663
ME	4,032	5,475	5,520	5,790	4,059
Egypt	846	2,145	1,891	1,917	3,166
Egypt/glob.%	3.8	6.2	5.1	4.9	8.6
Egypt/ME%	21.0	39.2	34.3	33.1	78.0

Source: IMF, *Balance of Payments Statistics Yearbook*, vol. 35, part 2, 1984, pp. 68–9; IMF, IFS, 1984 Yearbook.

Remittance flows to Egypt are an important financing item in Egypt's balance of payments. Table 11 illustrates the importance of remittances by providing a level of remittance flows from all countries to Egypt, as well as their ratio to imports, exports and

the GDP. As the table shows, the ratio of remittances to the GDP was 59 percent in 1990, started to rise in 1991, and reached its peak in 1992 at 91 percent; starting in 1993, the ratio started to decrease until it hit 29 percent in 2000. Since 2001 it has increased but at a smaller rate than in the early nineties. Remittances still account for a large share of Egyptian GDP. After representing 96 percent of exports in 1993, remittances started to decrease to their minimum 26 percent in 2005. About 16 percent of imports have been recently covered by the inflow of remittances.

Table 11. Remittance Flows in Egypt, 1990–2005

Year	Remittances	Remittances/GDP %	Remittances/Exports %	Remittances/Imports %
1990	2,568,000,000	5.954035	60.42353	-22.4770
1991	3,028,500,000	8.191655	78.05211	-30.1220
1992	3,835,100,000	9.162587	102.95290	-35.7478
1993	3,232,400,000	6.848758	96.85674	-30.3594
1994	3,279,000,000	6.318165	66.14888	-25.5962
1995	2,797,600,000	4.650324	60.70522	-19.8319
1996	3,255,600,000	4.812329	60.90470	-20.9164
1997	3,717,700,000	4.739753	72.49240	-21.9995
1998	3,772,400,000	4.447074	84.86648	-22.1807
1999	3,747,100,000	4.130825	58.66118	-20.9804
2000	2,972,900,000	2.908439	42.00079	-18.0819
2001	3,108,800,000	3.182427	43.65802	-21.2389
2002	2,945,700,000	3.353076	35.89953	-19.8761
2003	3,046,100,000	3.673378	29.14231	-16.6578
2004	4,371,700,000	5.548093	31.60250	-18.0703
2005	4,975,400,000	5.535418	26.95949	-16.3444

Source: Data obtained from Central Bank of Egypt. Calculations performed by the author.

Note: remittances are private transfer.

Glytsos discusses the role of remittances in development and growth of labor exporting countries. He uses in his model five labor exporting countries, Egypt Jordan, Morocco, Greece and Portugal. Egypt and Jordan generally have temporary migrants in oil-rich Arab countries. Morocco has mostly permanent migrants to Europe. Greece and Portugal have more or less permanent migrants in Germany and France and also overseas. Glytsos concluded that remittance flows would have positive and negative effects on economic growth. Remittances would boost growth or moderate recession more than restraining growth or accentuating recession. The economy would be more vulnerable to falling than to rising remittances; countries are more likely affected by the fall than by the rise in remittances.

Supply and Demand of Labor

The movement of Egyptians to other Arab countries is motivated by economic incentive, such as higher wages and greater employment opportunities that are modulated by social incentives such as better quality of life, greater access to social services, and better prospects for social mobility. Egypt has long provided the technocracy of the Middle East, exporting professional manpower and relatively unskilled workers.

Egypt's position as a major donor to other Arab states is due to a particular mix of supply and demand relationships. On the supply side, several factors stand out. One is an extensive Egyptian infrastructure that produces a large number of university graduates every year, resulting in a few young Egyptians with a university education who get absorbed into the local market. Many of those that could not find a job were employed in positions for which they were overqualified and /or earned a low salary. The large

deviation in wages between Egypt and the Gulf oil countries was also a major factor. In 1975, an Egyptian teacher living in Egypt earned (permanent job + private tutoring) an annual salary of Egyptian pound L.E.4,000 (US \$625). In comparison, the average salary of an Egyptian teacher in the Arab oil countries was US \$8,250. In the mid 1970s, a professor in Egypt could earn L.E.150 per month, which, over a period of 30 years, averages to L.E.48,600. By contrast, on a 4-year assignment in Kuwait he could earn L.E.84,000, double the amount he could earn during a thirty year career in Egypt. Another factor, which made Egypt a main labor exporter country, was the Egyptian migration policy that facilitated the migration of millions of Egyptians to oil rich countries (Feiler 2003).

On the demand side, the most important factors are the economic incentives in Arab states that have provided the traditional motivations for immigration. Another important factor that affected the demand for Egyptian labor in other Arab countries is the cultural similarity between the Arab countries. Such similarities reduce the difficulties of accommodation and adaptation to an alien environment. The country's traditional role of political leadership in the Middle East is another factor that contributed to the demand for Egyptian labor. The formal adoption of an Arab identity, officially promulgated in the 1956 constitution following the revolution, reinforced the role of Egypt as cultural and political leader in the region. In addition, the expanded enrollments of Arab students in Al Azhar, the religious university, and in Egyptian secular universities empowered Egypt's position as cultural pacesetter in the region. All of these have strengthened the incentives for enhancing its service role and increased the demand for Egyptian labor in the other Arab countries.

Simultaneously Egypt fulfilled a traditional role as go-between for western technology and the technical needs of Arabs and possessed cultural similarity. Egypt could provide manpower in a variety of professions, and the country was considered to be politically neutral, in contrast to the Palestinians, who were viewed as political activists. The oil countries made Egyptian workers an exception in the workplace to the treatment of the foreigners in the 1970s as well as in the workplace to curtail the foreign labor force in the wake of a decrease in oil revenues.

The Arab Gulf oil countries (AOC) viewed the migration of Egyptian workers to their countries as an important factor in the strengthening of relations with the Egyptian regime and, in so doing, making it dependent on them. Their governments saw the migrant workers' remittances as another way of strengthening the Egyptian economy, especially after the formal breaking of diplomatic and economic relations between the countries. The AOC needed Egyptian assistance following tension created in the region during the Iran-Iraq War. After the economic boycott imposed on Egypt at the second Baghdad conference (March 1979), the number of Egyptians working in the oil countries increased, and monetary remittances reached new records after the boycott.

REMITTANCES AND THE EGYPTIAN POLICY

Since the mid-1960s, the Egyptian government has made increasing efforts to attract foreign currency. Naturally, remittances by migrant workers were one of its goals. Until 1965, every unmarried migrant was required to convert 25 percent of his income through the Egyptian banking system at the official rate of exchange; a married migrant was required to convert 10 percent on the same conditions; and a migrant with a free

profession was required to convert 50 percent. In 1965 migrants were given the option to convert their money at a rate of exchange about 35 percent higher than the official rate.

The Egyptian government started to direct Egyptians working abroad to invest rather than spend their remittances. The government offered opportunities for Egyptians to invest their remittances at preferential rates. Banks have been established to attract expatriate Egyptians' funds; one half of the US \$10 million capital of a new trading and investment bank has been contributed by Egyptians working in the United Arab Emirates (*MEED*, 1 July 77, p. 18). Plans to mobilize the savings of Egyptians in Kuwait involve the establishment of an Egyptian bank in Kuwait with capital of US \$55 million (*MEED*, 4 March 1977). Moreover, in the 1980s the exchange rate policy had to change significantly to attract the remittances of the nearly 2 million Egyptians working abroad.⁴

After the revolution in 1952, the Egyptian government viewed migration as an instrument of internal political control. Obtaining an "exit visa" proved to be very difficult for any Egyptian seeking to leave the country. Strong currency controls were instituted in an effort to reduce the outflow of capital. This policy for controlling migration was mainly to reduce migration to the west; therefore reducing dependence on the United States, Great Britain, and communist countries (Choucri 1977; Feiler 2003).

The Sadat regime liberalized domestic politics, and, following the 1973 war, proclaimed an "open door" policy. This new policy reduced the restrictions on migration

⁴ From 1965 on, Egypt policy-makers devised many plans in order to attract expatriates' funds to Egypt, and the media called for encouraging the Egyptians working abroad to invest in Egypt.

obstacles and made immigration completely open. The decision to migrate has become entirely a matter of individual discretion, and there are few political obstacles.

EGYPT'S ECONOMY

During the 1970s, Egypt was one of the first countries in the Middle East and North Africa region (MENA) to embrace a trade liberalization policy (Wilson 1986). As a result of liberalization, the state monopoly on importation was eliminated, creating free zones reducing the average tariff and trade taxes (Wilson 1986). Export bans and quotas were abolished, and the Egyptian pound was unified and devalued. In the 1980s Egypt had a less restrictive trade regime compared to the period from 1958 to 1973, due to the trade liberalization policies implemented in the mid-1970s. Between 1952 and the early 1990s, the Egyptian government overextended itself in areas unsuited for public ownership. The public sector was dominant in many sectors of the economy, including the financial sector, with the government owning several commercial banks. Managers of public enterprises had little incentive to be efficient or respond to consumer tastes and market conditions, so they did not.

Over the late 1960s and 1970s, Egypt's economic growth moved almost in lockstep with oil price fluctuations (with a correlation of nearly 80 percent between real oil prices and growth), cemented through Egypt's own foreign exchange earnings from oil and oil-related revenues, as well as through the various transmission channels from the region's major oil producers (such as labor remittances, economic assistance, direct investment, and interregional tourism). At the peak of the 1980s oil boom more than 20 percent of the Egyptian labor force was employed abroad, primarily in the Gulf. In 1979

labor remittances as a percentage of GDP in Egypt have reached almost 14 percent. FDI inflows reached a peak of almost 7 percent of GDP. Official aid reached more than 19 percent of GDP in 1975 (World Bank 2006).

Egypt has faced a trade deficit for a period of time; the gap between exports and imports has increased since 1981. The growing trade deficit is problematic and could have a negative impact on Egypt's balance of payment. By the early 1980s, the Egyptian economy already largely depended on oil export revenues, Suez Canal dues and remittances from Egyptians working abroad. In the mid 1980s, there was a sharp fall in revenues from Suez Canal dues, tourism, and workers' remittances.

By the late 1980s, Egypt was among the world's most heavily indebted countries. Its foreign debt was US \$43.7 billion. Egypt's total debt increased from about US \$5 billion in 1970 to about US \$30 billion in 1981. These two amounts of debt represented, respectively, 43% of GDP in 1970 and 14% of GDP in 1981. In 1981 Egypt had to pay increasing amounts of interest on debts. For civilian debt alone Egypt had to pay about US \$2.9 billion, where US \$1.3 was in repayment of principal and US \$1.6 was in interest payments. By 1986 Egypt's total indebtedness was 26% greater than in 1981, rising from US \$30 billion to US \$37.8 billion. In 1990, government deficit was 7 percent of GDP. Inflation averaged 18 percent between 1984 and 1992, measured by the retail price index (Amin 1995).

Egypt was a closed economy, exports at about US \$8 billion accounted for 10 percent of GDP. The values of imports were double that of exports, and the deficit was financed in large part by earnings from tourism, Suez Canal receipts and workers' remittances. In fact, when Egypt's current account deficit was decreased in the end of

both 1970 and 1980, remittances were considered to be one of the major factors in this improvement (Petri 1977; Feiler 2003). In 1977 to 1981, remittance flows to Egypt have increased from US \$998 million to US \$4 billion (Amin 1995).

Figure 4 shows the gap between imports and exports from 1980 to 1996. The gap has increased since 1981, and as a result, the trade deficit in the GDP was 11 percent. Between 1988 and 1993 there has been improvement in terms of trade and the quantities of Egypt's exports have increased. Since 1994, the quantities of imports have prevailed over exports, and the deficit has expanded (Refaat 2000).

Among the eight Middle Eastern countries listed in Table 12, Egypt has the largest population and the second largest Gross Domestic Product after Israel in 1995. It has the lowest GDP per capita—about US \$818. The country's share of trade in goods and services to GDP was 53.5 percent; the second lowest after Algeria. Egypt's imports of goods and services accounted for US \$15.275, which is the second highest after Israel. At the same time, Egypt's exports accounted for US \$10.083; this indicates that in 1995 Egypt was facing a trade deficit of the amount of US \$5.2 million.

Egypt has been liberalizing its economy for far longer than it took Gamal Abdel Nasser in the 1950s and 1960s to nationalize banks and industries and place the expanding state in the driving seat. However, plenty of fresh data and deals suggest that alongside a favorable external environment, accelerated market reforms since 2004 are starting to pay off.

After Egypt's participation in the Gulf War from 1990–91, there was an enormous transfer of funds from the Western and Arab donors to Egypt. The social fund for development was made up of approximately US \$600 million committed by the European

Union (EU), United Nations (UN) and bilateral donors. Egypt's major role in the peace process in the Middle East was another factor that led to further Western recognition.

Table 12. Basic Indicators for Egypt and Selected Middle East Countries, 1995

	Population	GDP	GDP Per capita	Exports of G & S	Imports of G & S	X+M/GDP of G & S
	million	\$ billion	\$	\$ million	\$ million	%
Egypt	58	47.4	818	10 083	15 275	53.5
Syria	14	16.8	1 200	5 824	5 438	67.0
Lebanon	4	11.1	2 775	1 065	6 880	71.6
Tunisia	9	18.0	2 000	7 979	8 811	93.3
Algeria	28	41.4	1 479	10 822	10 900	52.5
Morocco	27	32.4	1 200	8 867	11 331	62.3
Jordan	4	6.1	1 525	3 490	4 905	137.6
Israel	6	92.0	15 333	26 735	35 998	68.2

Source: World Bank.

There was also debt rescheduling and a promise of debt relief under certain conditions from the IMF. In 1991, the IMF required Egypt to adopt a comprehensive economic and structural adjustment program. The basic goal of the program was to generate sufficient growth rates and to correct internal and external imbalance as well as to enhance efficiency and productivity, which are essential in a rapidly globalized world economy.

Since the 1990s the country has been trying to follow macroeconomic stabilization policies. It has begun the structural reform programs to put the country onto an export-led, high growth path. The key goals of the economic reform program were liberalizing the Egyptian economy: reduce the size of the public sector, end controls over

investment and eliminate tariffs on imports, reduce consumer subsidies and raise energy and transport prices to realistic levels (El-Mahdi 2003).

Moreover, by mid-1997 the government had proved its determination to reduce the role of the public sector in the economy. Privatization was part of economic reform programs. The Egyptian government, headed by Prime Minister Nazif, in 2004 announced plans for privatizing most state-owned firms, including in sectors that were previously off limits. Between July 2004 and March 2005, 17 non-financial companies were privatized.

Preliminary official figures, higher than International Monetary Fund estimates, show gross domestic product growth reaching an unprecedented 6.9 percent in 2005/2006—territories in which new jobs should outstrip annual demand for employment from new entrants to the market.

In “July/December of FY 2002/03, this surplus is attributed to a lower trade deficit by 13.6 percent and a higher services surplus by 56.6 percent, due mainly to a surge in travel revenues by 38 percent. Sustained and equitable economic growth is our biggest challenge,” says Youssef Boutros Ghali, the finance minister. “The solution to our problems, whether they are political, social or confessional, is a more prosperous country” (*Financial Times*, Friday, November 17, 2006).

According to Srinivasan (2005), when comparing Egypt with the group of middle Eastern and North Africa economies, it has performed better than the average performance of the other economies in the group. The annual rate of real GDP growth in Egypt from 1990–2003, at 4.5 percent, compared with the average rate of 3.9 percent for the group of lower middle income economies, and with the average of 3.2 percent for the

group of Middle Eastern and North African economies. When compared with south Asia countries, however, Egypt does not do well. The average annual rate of GDP for 1990–2003 for South Asia (India) was 5.4 percent (5.8 percent). The Inflation rate has been rising since 2002, reaching a high of 21.7 percent in January 2004, up from 10.3 percent in January 2003. The unemployment rate rose from 9.0 percent in 2002 to 10 percent in 2003 and was expected to rise to 11 percent in 2004 (Srinivasan 2005).

Egypt's service exports increased by an average 20 percent a year between 2002 and 2005 (compared with growth averaging about 4 percent a year between 1998 and 2002), the result of surging Suez Canal receipts and strong growth in tourism. In a quarterly report of the Central Bank of Egypt (CBE), the Egyptian balance of payments achieved a significant current account surplus in July/December of FY 2003/04, totaling US \$2167.0 million compared with US \$249.0 million in 2002/03 (Table 13).

Table 13 reveals the transactions on the balance of payments throughout July/September of FY 2006/07, compared to the same period in FY 2005/06. The current account balance shows a surplus of US \$1.4 billion, representing 1.2 percent of GDP. Services surplus and unrequited transfers improved, while the trade deficit retreated. The capital and financial account achieved net inflows of US \$0.3 billion. The overall balance realized a surplus of US \$1.1 billion (compared to US \$1.8 billion), leading to an equivalent rise in the foreign reserve assets with the Central Bank of Egypt (CBE). The balance of payment current account achieved a surplus of US \$2.9 billion during FY 2004/2005, against US \$3.4 billion. This was an outcome of the improvement in the services surplus and transfers, though this was offset by the rise in the trade deficit.

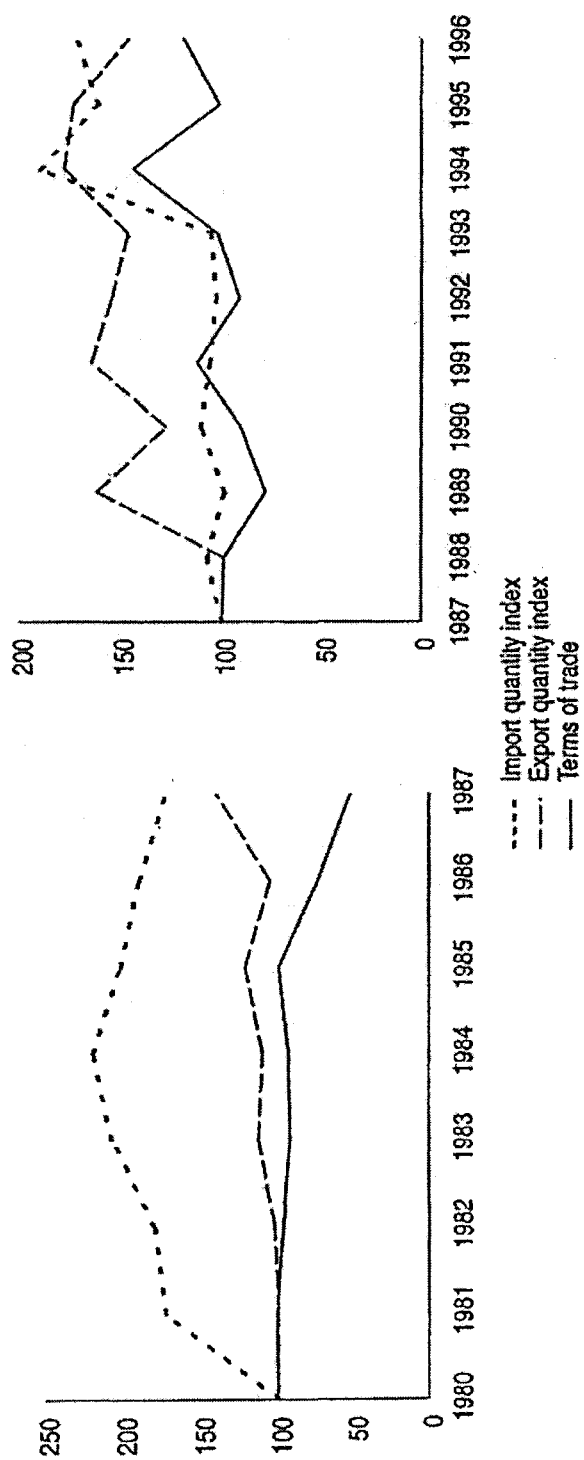


Figure 4. Exports and Imports' Quantity Indices and Terms of Trade, 1980-96

Source: Calculated from CAPMAS, Foreign Trade Indices.

The surplus on services widened by 7.2 percent as a result of the increase of 15.8 percent in service receipts to reach US \$15.0 billion, and the rise of 26.9 percent in service payments reached US \$7.2 billion. Moreover, net unrequited transfers climbed by 38.0 percent to reach US \$5.4 billion. This was ascribed to the increase in private transfers by 43.5 percent and in official transfers by 18.9 percent (Central Bank of Egypt Nov. 2005). As a result, Egypt's economic growth rate increased from 4.1 percent in FY 2003/2004, to 5.1 percent in FY 2004/2005 and to 5.3 percent in Q1 of FY 2005/2006. It was expected to reach a 6 percent growth rate by the end of 2006.

Table 13 also reveals the transactions on the balance of payments during July/December of FY 2003/04, compared to the same period of FY 2002/03. Both trade and services have improved. The Balance of Payments (BOP) current account, including transfers, achieved a surplus of US \$2.2 billion in the first half of FY 2003/04. Capital and financial accounts unfolded an increase in net outflows. As a result, the balance recorded an overall deficit compared with the overall surplus of the corresponding period of the previous year.

Table 14 shows that net unrequited transfers recorded US \$1.8 billion in July/December 2003/04. That is almost the same as the previous year. This was the outcome of a slight decrease, by 0.9 percent in private transfers, to remain more or less stable at US \$1.5 billion (mainly workers' remittances). While in July/September 2006/07 the net unrequited transfers mounted by 4.6 percent, standing at US \$1.4 billion. Official transfers increased by 36.7 percent, to reach US \$123.7 billion, due to a rise in commodity grants. Private transfers rose as well by 2.3 percent to reach US \$1.3 billion, as a result of the increase in workers' remittances by 2.4 percent.

Table 13. Balance of Payments (Million USD)

	July/Dec		July/Sept.	
	2002/03	2003/04	2005/06	2006/07
Current Account	249.0	2167.0	207.6	1437.1
Current Account (Excluding Transfers)	-1554.9	375.2	-1147.4	19.9
Trade Balance	-4004.3	-3461.5	-3317.3	-3049.9
Exports***	3732.2	4514.1	4031.0	5410.8
Oil	1317.0	1701.8	2137.8	2512.5
Other Exports	2415.2	2812.3	1893.2	2898.3
Imports***	-7736.5	-7975.6	-7348.3	-8460.7
Oil	-1026.0	-1136.4	-1152.8	-1396.4
Other Imports	-6710.5	-6839.2	-6195.5	-7064.3
Service Balance	2449.4	3836.7	2169.9	3069.8
Receipts	5294.0	6503.8	4622.7	5282.9
Payments	-2844.6	-2667.1	2452.8	2213.1
Transfers	1803.9	1791.8	1355.0	1417.2
Official (net)	316.0	317.8	90.3	123.4
Private (net)	1487.9	1474.0	1264.7	1293.8
Capital and Financial Account	-1031.7	-3343.8	1882.9	347.7
Capital Account			0.0	38.8
Financial Account			1882.9	386.5
Direct investment abroad	-18.0	-8.7	-18.6	-58.2
Direct investment in Egypt (net)	552.4	89.2	1947.0	3237.1
Portfolio investment abroad	-2.6	-12.0	78.5	-96.0
Portfolio investment in Egypt (net), of which:	-406.9	-19.4	2579.2	37.9
Bonds	-204.2	-40.5	2786.1	-344.0
Other investments (net)	-1156.6	-3392.9	-2703.2	-2734.3
Net Errors and Omissions	935.4	1059.1	-278.61	-723.7
Overall Balance	152.7	-117.7	1811.9	1061.1
Change in Reserve Assets, Increase (-)	-152.7	117.7	-1811.9	-1061.1

Source: Central Bank of Egypt, Quarterly Report, Volume (15). Data for 2002/03, 2003/04 from CEB, Quarterly report, volume (4), April 2004.

* Compiled according to the Fifth Edition of the IMF's Balance of Payments Manual, September 1993.

** Preliminary figures.

*** Including exports and imports of free zones.

Table 14. Unrequited Transfers (Million USD)

	July/Dec.		Change(-)	July/Dec.		Change(-)
	2002/03	2003/04		2005/06	2006/07	
Total	1803.9	1791.8	12.1	1355.0	417.2	62.2
1. Official Transfers (net)	316.0	317.8	1.8	90.3	123.4	33.1
Inward cash grants	8.0	48.4	40.4	16.4	1.3	(15.1)
Other inward grants	320.0	284.2	(35.8)	82.4	125.7	43.3
Outward grants	-12.0	-14.8	(2.8)	-8.5	-3.6	4.9
2. Private Transfers (net)	1487.9	1474.0	(13.9)	1264.7	1293.8	29.1
Workers' remittances	1480.2	1471.3	(8.9)	1279.4	1309.5	30.1
Other transfers	18.1	19.8	1.7	8.4	17.5	9.1
Foreigners' transfers abroad	-10.4	-17.1	(6.7)	-23.1	-33.2	(10.1)

Source: Central Bank of Egypt, Quarterly Report, vol. 15.

According to a speech by Dr. Nazif, the Egyptian Prime Minister, delivered as part of the Government Statement to the People's Assembly in January 2006, total Foreign Direct Investment (FDI)—including the petroleum sector—reached US \$3.9 billion in FY 2004/2005. The FDI flows into Egypt rose from US \$2.1 billion in 2003/2004 to US \$6.1 billion in 2005/2006. Egypt's economic growth rate increased from 4.1 percent in FY 2003/2004 to 5.1 percent in FY 2004/2005 and to 5.3 percent in the first quarter of FY 2005/2006. In first quarter of the current year, it came to US \$1.9 billion, which makes a total of US \$5.8 billion in 15 months, leading to the flourishing of the Egyptian stock market, especially after the public offering of 20 percent of Egypt Telecom's stocks. In addition, the Mobility Program of State's Non-Financial Assets flourished, which made the amount of L.E.16.5 billion in 15 months (Nazif 2006).

REMITTANCES AND POLITICAL INSTABILITY

Remittances are largely affected by political or financial crises and violent conflicts, and even tend to increase in terms of hardship. Political instability could be in different forms. Revolutions, coups d'état, war or even local terrorism could be different forms of political instability.

The economic and political stability as well as the efficiency of the financial system in the developing countries play a crucial role in determining the amount of remittances transfers. This can increase the amount of remittances channeled through formal banking institutions by closing the gap between official and black market exchange rates. The stability of political and economic systems secures the flows of remittances and channeled remittances through the official banking system.

Political instability hinders the flow of remittances to the labor-exporting countries in the area. The political instability caused by Sadat's murder in Egypt in 1981 made many Egyptians working abroad hesitant about transferring large amounts of money to Egypt (Feiler 2003). The Iraqi invasion of Kuwait and the subsequent Gulf War in 1990 caused massive disruption in many migrant origin areas. Migrants' remittances to Jordan, the Palestinian territories, Sudan and the Republic of Yemen all decreased substantially after the Gulf War in the early 1990s (El-Sakka 2004). In Asia, an 18 percent decline in remittances from Filipinos overseas in late 2001 was attributed to the economic downturn following the events of September 11 and the following military strikes on Afghanistan (*Asian Migration News*, October 31, 2001).

Political instability could also hinder economic growth; in research done on the effect of political instability on economic growth in Israel, although it is considered to be

a highly democratic state, it was found that political unrest in the Middle East in the past few years has slowed down economic growth in Israel (Zureiqat 2005).

CONCLUSION

The sharp increase in oil revenues in the Arab Persian countries has created a new form of trade between Arab Persian countries with abundant capital flow and other Arab countries like Egypt that are overpopulated and have excess labor. This set of circumstances has created temporary migration between the Arab countries and had a significant effect on remittance flows to the oil exporting countries.

Remittances are considered one of the major financial foreign flows to Egypt. Balance of payments has become increasingly dependent on the inflow of foreign exchange funds remitted by Egyptian emigrants working abroad. Remittances are considered an important financing item in Egypt's balance of payments; they account for a large share of Egyptian exports and GDP. They are primarily used for consumption and investment. Investment is mainly in human capital (as education, health and better nutrition) or investment in land, housing and livestock.

CHAPTER IV

OIL

Technology and industrialization have transformed peoples' lives. With the rapid growth and development of the world market, particularly in the western industrialized countries during the economic boom that followed the Second World War, oil has become an essential industrial and transportation fuel, displacing coal in most of the world's industries. The world economy has been energy dependent for growth, and oil became a primary source of energy. As a result, there was a sharp increase in the demand for world oil, growing from 11 million barrels per day (mbd) in 1950 to 57 mbd in 1970. World consumption grew rapidly while oil production capacity failed to keep pace. A sharp change in the demand for oil has limited the ability to meet the volume of demand. According to Francisco Parra (2004), the period from 1950–1973 was the golden age for oil. First, technology existed (developed), and petroleum consumption is much cleaner than coal. Second, oil fields of the Middle East provided the resource base for low cost petroleum products across the board.

This chapter examines the growth of oil demand. It also examines the oil price market and the different factors affecting the volatile prices of oil. Focusing on the Middle East market, different data will be analyzed regarding oil prices, oil reserves, and oil production. The oil price shocks will be traced, starting with the Arab Oil embargo in 1973, followed by the Iranian revolution in 1978–79, the Iran-Iraq war in 1978–81, Iraq's invasion of Kuwait in August 1990–91, and ending with the 2003 invasion of Iraq. The

multiple consequences of these events will also be discussed. The actions and policies of the oil exporting nations during the oil shocks will be studied.

BACKGROUND ON OIL DEMAND

As suggested in chapter I, the issue of remittances has become important because oil has become so fundamental to the global economy. The jump in oil prices in the mid-1970s led to enormous labor emigration to the oil-producing Arab states, as well as to what became the largest source of foreign exchange: remittances. Thus, remittances from oil exporting countries are sensitive to swings in oil prices. Therefore to put remittances in perspective, it is important to explore the oil market. In the second half of the last century, industrialized countries' dependence on imported oil grew rapidly. Serious decline in the oil production was anticipated for the United States and made the Soviet Union a net importer. Likewise, the growth in oil demand by China and other countries of non-OECD (Organization for Economic Co-operation and Development) Asia has increased the share of the world's oil imports. Today, the United States imports almost 60 percent of its oil requirements; Japan and South Korea are almost wholly dependent on imports. In 2003, China imported 0.9 million barrels per day from Persian Gulf Organization of the Petroleum Exporting Countries (OPEC) members, and by 2030 its Persian Gulf imports will total 5.8 million barrels per day. Even though there is a remarkable increase in the production of oil from the North Sea, Western Europe's net imports still account for over half of its total consumption (Parra 2004).

In 1968, oil was discovered in the North Sea at the Norwegian sector and in Alaska's North Slope in 1971. The discovery of new reserves outside the Middle East

area may change the situation of oil production in the years to come, but the effects may not be immediate. The high-cost of oil compared to the Middle East price, created no interest in developing the North Sea or North Slope (Choucri and Ferraro 1976).

The development of commercially viable alternative sources of energy may reduce the importance of petroleum and, by extension, the market strength of the oil exporting states. New sources of energy will effectively change the structure of the world petroleum market and invariably interject new issues in international energy transactions. In the future, newly discovered oil reserves will substantially influence trade patterns and might eventually provide oil-consuming countries with new leverages and producer countries with new problems.

The major alternatives to petroleum are coal, natural gas, nuclear power, solar energy, geothermal energy, tar sands and oil shale, and other exotica. Figure 5 presents the percentage of consumption for five sources of energy in relation to total world energy consumption.

Higher world prices for oil and natural gas make coal more competitive. The International Energy Outlook (IEO) 2006 projection for world coal use in 2025 is 16 percent higher than in IEO 2005. For many years, the IEO has projected that natural gas would be the fastest growing energy source in the mid-term; however, higher natural gas prices in IEO 2006 make coal more cost-competitive, especially in the electric power sector. As a result, natural gas use and coal use have increased at similar rates.

The move from oil consumption to alternate energy sources would become profitable as the price increased. Electricity generations from nuclear power and natural

gas, heating homes with natural gas, and ethanol blended gasoline have all reduced the demand for oil.

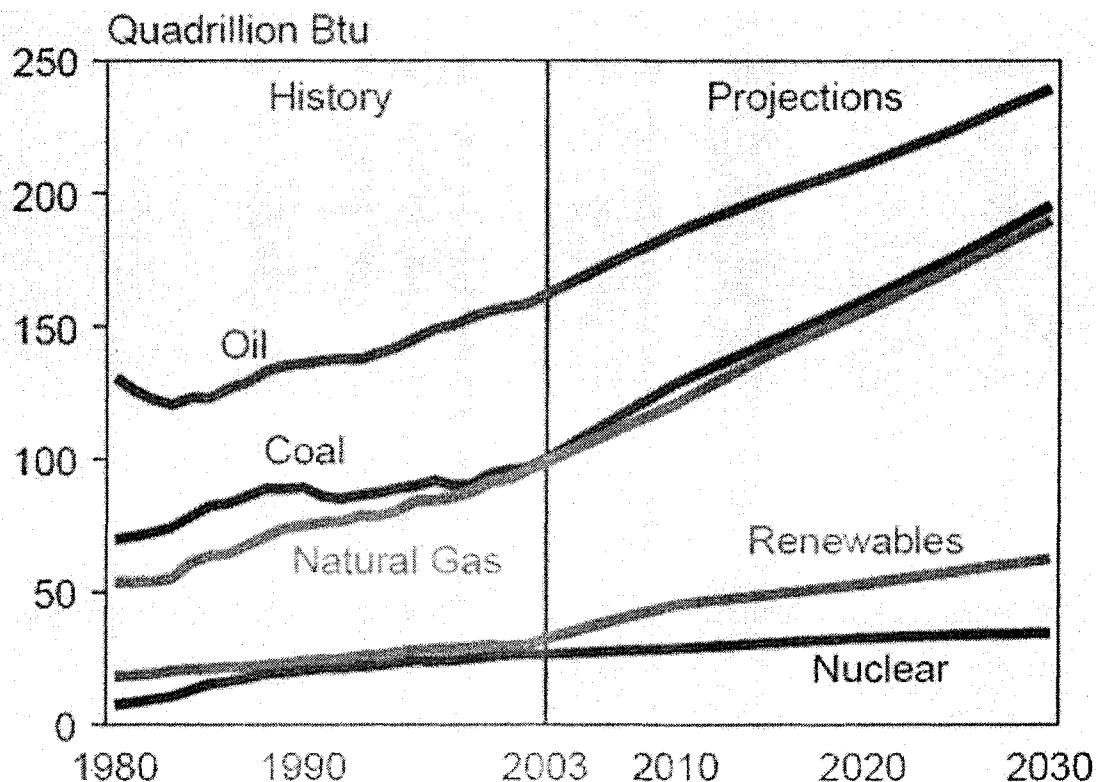


Figure 5. World Marketed Energy Use by Fuel Type, 1980–2030

Sources: History: Energy Information Administration (EIA), International Energy Annual 2003 (May-July 2005), web site www.eia.doe.gov/iea/.
Projections: EIA, System for the Analysis of Global Energy Markets (2006).

OIL PRICING

The oil market has been experiencing periods of instability, which have resulted in pressure on oil prices. High oil demand due to global growth and emergence of new

markets (especially China) and a series of supply disruptions have all added pressure and raised oil prices sharply.

From 1970–1980, the real price of oil rose by about 1,300 percent. Between 1980 and 1986, it dropped by about two-thirds. It was fairly steady from 1986–1997, fell farther in 1997–1998 and nearly quadrupled after February 1999. The world price of oil had reached a peak in 1979 at more than US \$80 a barrel (503 US\$/m³); it decreased during the early 1980s to US \$38 a barrel (239 US\$/m³). In real prices, oil briefly fell back to pre-1973 levels. Overall, the reduction in price was a windfall for the oil-consuming nations: the United States, Japan, Europe and especially the Third World (see Figure 6).

As shown in Figure 7, U.S. crude oil prices have averaged US \$21.05 per barrel since 1869 compared to US \$21.66 for world oil prices. Most of the U.S. and world prices were below the median oil price of US \$16.71 per barrel. Post 1970 U.S. crude oil prices average US \$29.06 per barrel, and the more relevant world oil price averages US \$32.23 per barrel. The median oil price for that time period is US \$26.50 per barrel.

The first increase in oil prices from the oil exporting countries began in October 1973 and later accounted for a sequence of future crises. There were many reasons for the latent crises. The rise in oil prices had a great impact on the changing power relations in the world petroleum market, shifting from the west to the Middle East. This was due to the sudden increase in oil imports from the West and the shift of import sources from the Western Hemisphere to the Middle East. During the last 3 months of 1973 oil producers raised the posted price for the Middle East crude oil from about US \$3.01 to about US

\$11.65 per barrel, thereby expanding their revenues from US \$1.76 to over US \$8.00 per barrel (see Table 15).

Then came the age of economic nationalism, as Luciani defined it (Luciani 1995). The situation has changed from one in which international oil companies dominated the oil industry to one in which national governments of the producing countries have become major actors, coordinating their policies and actions. They intended to nationalize the oil concessions of the oil companies. The evolving strength of the oil exporting states and the development of changing power relations between international oil companies and oil exporting states led to a substantial change in the structure of the international oil industry.

There has been a change in power relations in the world oil market, and the strength of the oil-exporting states evolved. In the past, the international oil companies have controlled these arrangements; more recently, exporting governments have assumed a more important role. The changing relationship between oil companies and oil exporting countries reflects new power relations in the world oil market. Ali Johany (1979) explains that the lift of oil prices from 1973–74 occurred because the control of oil resources shifted away from the major oil companies and toward the producing countries. The shift of ownership of oil reserves from international oil companies to the OPEC member countries has shifted the planning horizon from a short planning horizon to longer planning.

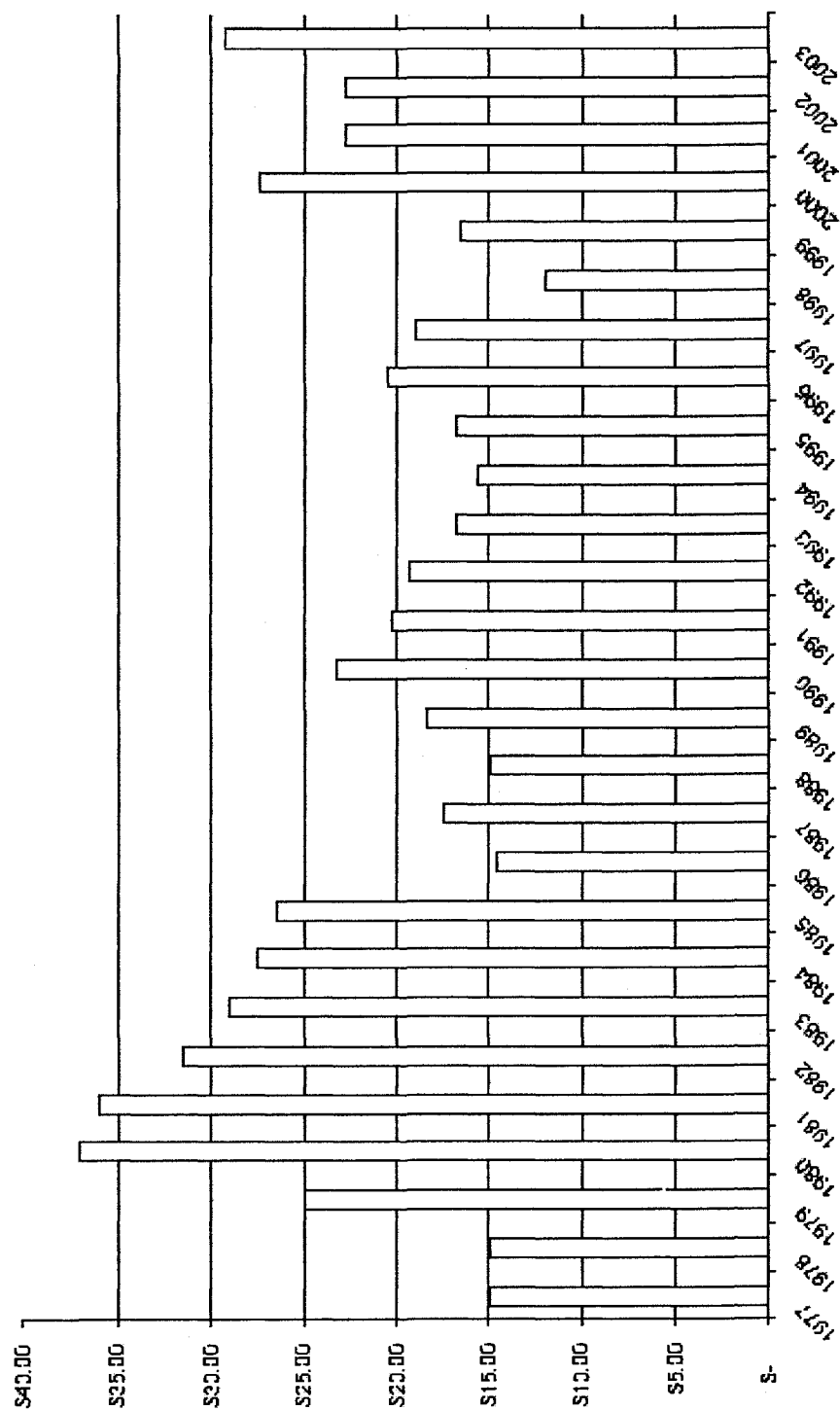


Figure 6. Yearly Average Crude Price, 1977–2003

Source: Illinois Oil and Gas Association. www.ioga.com/PDF_files/oilpricechart.pdf.

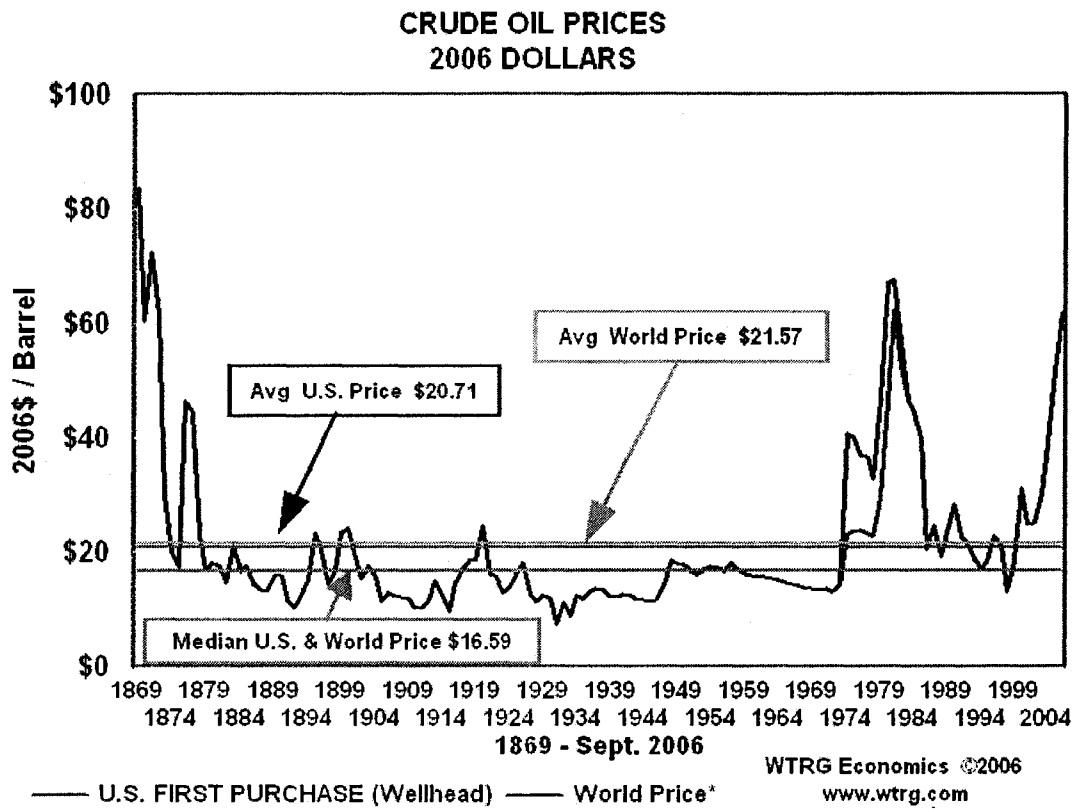


Figure 7. Crude Oil Prices

Source: WTRG Economics 2006, www.wtrg.com.

The oil market is controlled by an oligopoly. This occurs when a small number of firms control a large enough share of the market such that, if they were to band together, they could act like a monopoly (Morris Adelman 1986). Demand for oil is created by millions of individual firms and households, while supply decisions are made by a few governments and the OPEC cartel.

Table 15. Evolution of Government Take on Equity Oil for Selected Gulf Crudes

Dollars/Barrel											
1971		1972		1973				1974			
Country/Oil	Pre-15 Feb.	15 Feb.	20 Jan.	1 Jan.	1 June	1 Aug.	1 Oct.	1 Dec.	1 Jan.	1 July	1 Oct.
Saudi Arabia	0.989	1.261	1.448	1.516	1.702	1.804	1.770	2.998	7.008	7.113	8.260
Arabian light											
Iran Iranian, Light	0.983	1.250	1.430	1.497	1.683	1.783	1.750	3.119	7.133	7.240	8.407
Kuwait	0.958	1.231	1.406	1.472	1.659	1.747	1.716	2.890	6.966	7.070	8.211
Kuwait											
Abu Dhabi	1.005	1.272	1.458	1.527	1.717	1.821	1.787	3.521	7.578	7.692	8.981
Murban											
Iraq	0.933	1.240	1.419	1.487	1.675	1.772	1.739	2.952	7.010	7.116	8.262
Basrah											

Sources: Parra, Ramos & Parra, *International Crude Oil and Product Prices*, 15 October 1974 (Beirut: Middle East Petroleum and Economic Publications, 1974), p. 79.

According to David Hawdon's (1990) Cartel Theory: cartels are formed when several firms band together in order to act as if they were a monopoly, so that they may capture the benefits that would accrue to a monopolist in that market. In order to increase total profits, the cartel as a group will reduce output and increase price compared to what the members would produce as individuals. The profits will then be distributed among the cartel members according to some agreed-upon system.

The (OPEC) cartel is a good example in applying the Cartel Theory. OPEC is an international organization made up of Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates and Venezuela. OPEC has the potential to impact prices; production policies are one of the major determinants of international crude oil prices (Figure 8). The OPEC decisions have been important in shaping the course of the oil market and prices. Studies have tested the effect of OPEC decisions on the price of oil. Verleger (1982), Fitzgerald and Pollio (1984), Lowinger and Ram (1984) and Loderer (1985) showed that there is causality between the official OPEC oil prices and the market price of oil.

OIL REVENUES AND OIL EXPORTS

With high oil prices, Middle Eastern exporting countries are earning substantial revenue from oil. Revenues increased by an estimated US \$100 billion in 2004.

Figure 9 shows that OPEC net oil revenues for 2005 are estimated to be US \$473 billion, a 43 percent increase from 2004 revenues of US \$330 billion and a 10 percent increase from revenue forecasts made back in June 2005. For 2006 and 2007, OPEC net oil export revenues were forecast to be US \$522 billion and US \$495 billion,

respectively. The growth in OPEC oil export revenue forecasts compared to June 2005 mainly results from much higher crude oil prices, around US \$6 per barrel, than had been anticipated at that time (Energy Information Administration [EIA]).

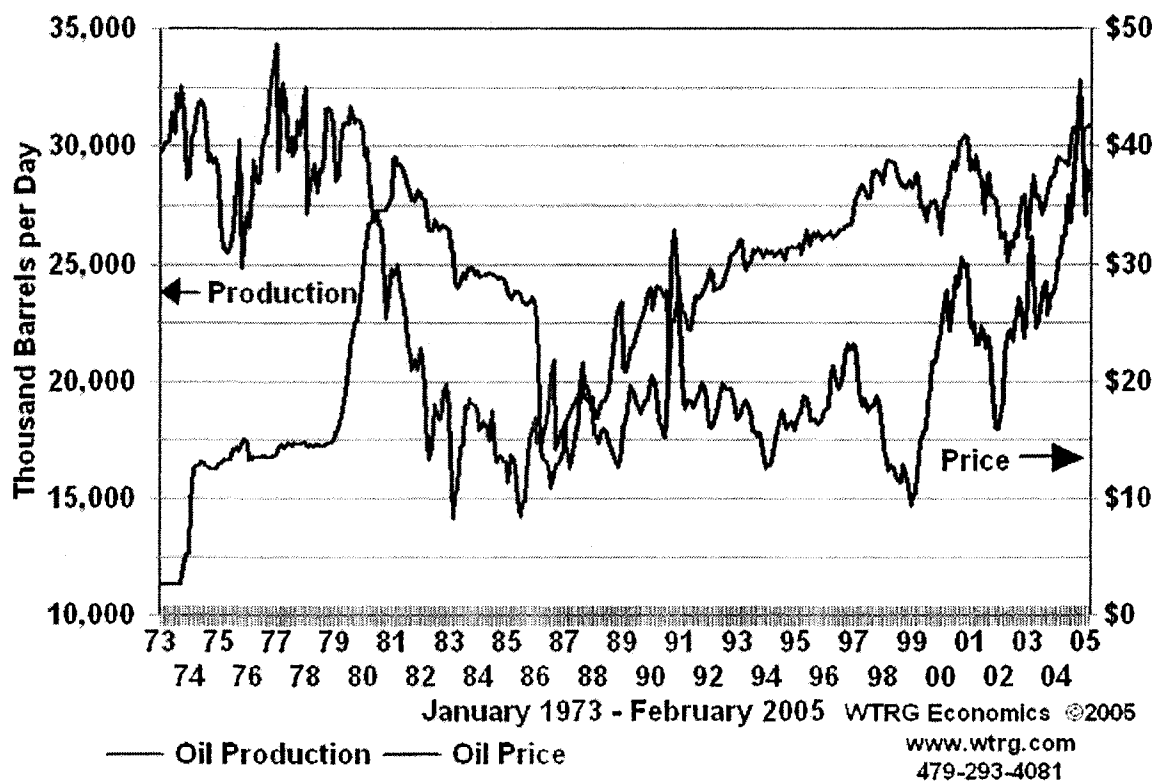


Figure 8. Crude Oil Production, OPEC Countries (Mbbl/d)

Source: Energy Information Administration, <<http://www.eia.doe.gov>>.

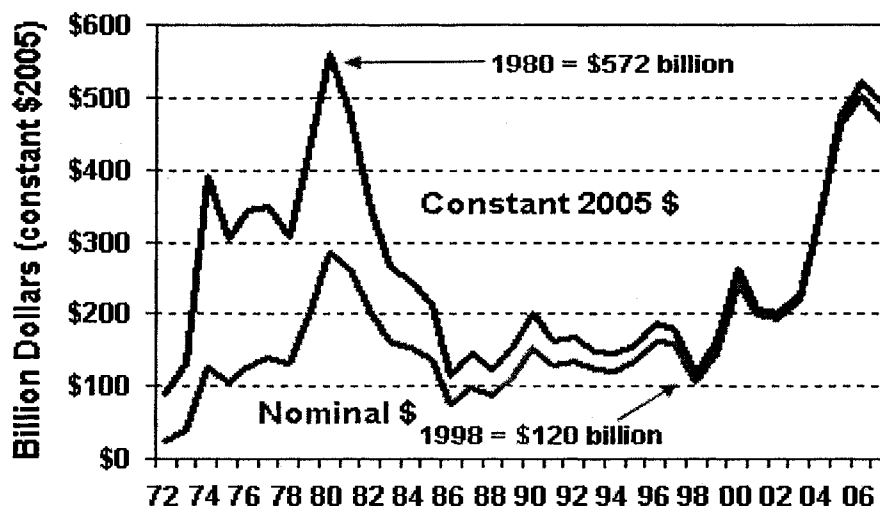


Figure 9. OPEC Net Oil Export Revenues, 1972–2007

Source: Energy Information Administration: <<http://www.eia.doe.gov>>.

EIA estimates that members of OPEC earned US \$676 billion in net oil export revenues in 2007, a 10 percent increase from 2006. Saudi Arabia earned the largest share of these earnings, US \$194 billion, representing 29 percent of total OPEC revenues. On the per-capita basis, OPEC net oil export earning reached US \$1,146 billion, an 8 percent increase from 2006. Based on projections from the EIA February 2008, OPEC net oil export revenues could be US \$927 billion and US \$830 billion in 2009.

Hotelling's Rule⁵ is defined as the net price path as a function of time while maximizing rent at the time of fully extracting a non-renewable natural resource (Hotelling 1931). It indicates that if the return to public investment exceeds the world real

⁵ Hotelling's rule is the result of analysis and non-renewable resource management by Harold Hotelling, published in the *Journal of Political Economy* in 1931. A similar result was published by L.C. Gray in 1914, considering the case of a single mine owner. The simple rule can be expressed by the equilibrium situation representing the optimal solution.

interest rate—which equals the return to holding oil in the ground over the long run—the rate of oil extraction should rise and proceeds should be used to increase fixed investment.

Also, higher earnings from a given rate of extraction should be used to finance higher investment. The maximum rent is also known as Hotelling rent or scarcity rent and is the maximum rent that could be obtained while emptying the stock resource. Hotelling's result shows that in an efficient exploitation of a non-renewable and non-augmentable resource, the percentage change in net-price per unit of time should equal the discount rate in order to maximize the present value of the resource capital over the extraction period.⁶

Hotelling's perspective was that in dealing with a non renewable resource like oil, a wealth maximizing producer would produce up to the point where marginal revenue equaled the sum of marginal production cost and the user cost. That is the cost of using the resource today, thereby foregoing tomorrow's profit. Where future profits are discounted, user costs must rise by the producer's rate of discount to maintain equilibrium.

SUPPLY AND DEMAND

Factors other than OPEC have affected the oil market in the last decades. As Massood V. Samii explained, there are other theories that attribute changes of oil prices

⁶ Discount rate is based on the future cash flow in lieu of the present value of the cash flow. The divisor, for the discount rate, is the resulting future value, including the income. The divisor in the calculation of interest is the original investment.

to events other than OPEC decisions. One theory attributes changes of oil prices to supply and demand factors (Samii 1990).

The price of oil depends mainly on the world's capacity to produce and the world's consumption. World oil consumption grew rapidly while oil production capacity failed to keep pace. In other words, oil price depends on the world's demand and supply of oil. When demand exceeds supply, price will increase. This means that the forces of supply and demand and factors affecting that supply and demand determine the price of oil. Imbalances between supply and demand of oil would result in changes in crude oil prices (MacAvoy 1982). The response of quantities demanded and quantities supplied to changes in market oil prices is measured by elasticity. When the price elasticity of demand for a good (E_d) is inelastic ($E_d < 1$), the percentage change in quantity is smaller than that in price. Since oil demand is very price inelastic (i.e., the quantity purchased falls little when price rises), when the price is raised, the total revenue of producers rises and vice versa. Demand and supply are more elastic in the long run than in the short run. This means that demand for oil will be more responsive to changes in the price of oil in the long run, and there will be little response due to price changes. Consequently, the price of oil will be influenced by all factors that influence either supply or demand and determine equilibrium. The demand for oil is insensitive to prices; shortfalls in supply are not willingly offset by reductions in demand. An increase in oil stock does not necessarily mean an increase in oil flow, and it is flow that determines the prices. This means that world oil prices are not indicators of world oil scarcity (Adelman and Shani 1989). Volatile prices arise from inelastic supply and inelastic demand in the short run, with the result being that even small shocks can have a large effect on price.

Worldwide, transportation and industry are the major growth sectors for oil demand. On a global scale, the transportation sector, where there are currently no alternative fuels that compete widely with oil, accounts for about one-half of the total projected increase in oil use between 2003 and 2030, with the industrial sector accounting for another 39 percent.

Balance of Supply and Demand

World oil demand is expected to increase as long as the world's consumption is increasing and economies like China and India continue to expand. In a market report prepared by OPEC staff members, demand for OPEC crude in 2007 is estimated to average 31.9 mb/d, an increase of 292 tb/d over the previous year. In 2008, demand for OPEC crude is expected to average 31.68 mb/d, a decline of 236 tb/d compared with the 2007 figure. By excluding OPEC supply as shown in Table 16, there is perceptible excess in oil demand. When OPEC crude oil production is added to the world oil supply there is a very slight excess in oil demand where the quantity demanded is almost equal to the quantity supplied, and the oil market is almost in an equilibrium position.

OIL SUPPLY AND OIL STABILITY

The international oil market is vulnerable to turbulence in the Middle East. One of the most important reasons for reducing oil supplies is growing instability in the Middle East, the world's largest oil-producing region. Removing significant amounts of oil supplies from the market would result in turbulent oil prices and oil instability in the market. Steve Yetiv (2004) defines oil stability as a function of the ability to deter or

contain threats to the supply of oil. This means that oil supply is one of the main factors that could affect oil stability and thus the price of oil.

The Iraq-Kuwait War removed the oil supply of both countries from the market resulting in an increase in crude oil prices. Thus, international political development has been the main factor in setting the course of oil prices. Regional political conditions, especially in the Middle East, such as the Arab-Israeli War and the Iran-Iraq War, have all impacted the supply of oil and oil prices. Other factors that could also affect the price of oil are market demand and market psychology (Yetiv 2004).

Cyrus Bina (1985) argued that crude oil prices have become globalized and determined in the market by competition. He explained that internationalization of the oil market has eliminated price differentials of crude oil prices. Internationalization of the oil market has resulted in the equalization of international crude oil prices at the highest international price level (the marginal social cost of oil production of the highest cost production countries).

Many researchers have concluded that the price of oil has declined over time. H.J. Barnett and C. Morse (1963) indicate that technological innovations and lower costs have had a great impact on driving the price paths of resources including oil, since at least the middle 1800s. Nordhaus (1973) confirmed the Barnett and Morse study for the period of 1900 to 1970, and found decreasing unit costs for all extractive resources except copper. One of the most important reasons for reduced oil supplies is growing turbulence in the Middle East, which is the world's largest oil-producing region.

Table 16. Supply and Demand Balance

	2006	2007	2008
(a) World Oil Demand	84.58	85.87	85.77
Non-OPEC Supply	48.89	49.82	49.46
OPEC NGLs and non conventional	4.06	4.22	4.40
(b) Total Supply excluding OPEC	52.95	54.03	53.85
Crude			
Difference (a-b)	31.62	31.84	31.91
OPEC crude oil production	31.43	30.48	30.97
Balance	-0.19	-1.35	0.95

Source: OPEC Monthly Oil Market Report, March 2008. <<http://www.opec.org>>.

MacAvoy (1982) suggested that the price increases of the 1970s would have happened without OPEC. Adelman and Shani (1989) concluded that oil prices are likely to remain depressed unless OPEC resumes a major role.

Oil price increases since 1973 have often precipitated concerns about oil scarcity. The data on reserve indicate that more oil has been added to reserves in that period than has been produced from reserves. Oil is not getting scarcer; if anything it is becoming plentiful (Millerd 1995).

Middle East Oil Reserves

As shown in Figure 10, most of the largest oilfields in production throughout the world today are in the Middle East. In fact, they account for about two-thirds of the world's proven oil reserve, and produce over half the world's total production. OPEC members hold over three-quarters of world reserves. In addition, those oil reserves are cheap to develop and produce. The costs of production in the Middle East are among the cheapest in the world.

Seventy-one percent of the world's total oil reserves are located in the Middle East. OPEC member countries account for 65 percent of the world's total reserves. Ninety percent of OPEC's oil reserves are located in the Middle East. Although the reduction of oil consumption by the importing nations is largely a long-term policy, oil demand in the near future will still increase (Choucri and Ferraro 1976).

According to current estimates, more than three-quarters of the world's oil reserves are located in OPEC countries (Figure 11). The bulk of OPEC oil reserves are located in the Middle East, with Saudi Arabia, Iran and Iraq contributing 57 percent to the OPEC total. OPEC countries have made significant contributions to their reserves in recent years by adopting the best practices in the industry. As a result, OPEC proven reserves currently stand close to 900 billion barrels.

As of January 14, 2008, proved world oil reserves were estimated at 1,317 billion barrels, 24 billion barrels (about 2 percent) higher than the estimate for 2006. The Middle East accounts for the largest amount of the world's oil reserves, 56 percent of the world's reserves. North America has the second largest oil reserves in the world; the largest net increase in estimated proved oil reserves has been made in Canada with the addition of 174 billion barrels. Africa accounts for 114.1 billion barrels, Central and South America

figure 10). Among the top 20 reserve holders in 2008, 11 are OPEC member countries that together account for 65 percent of the world's total reserves (see table 17).

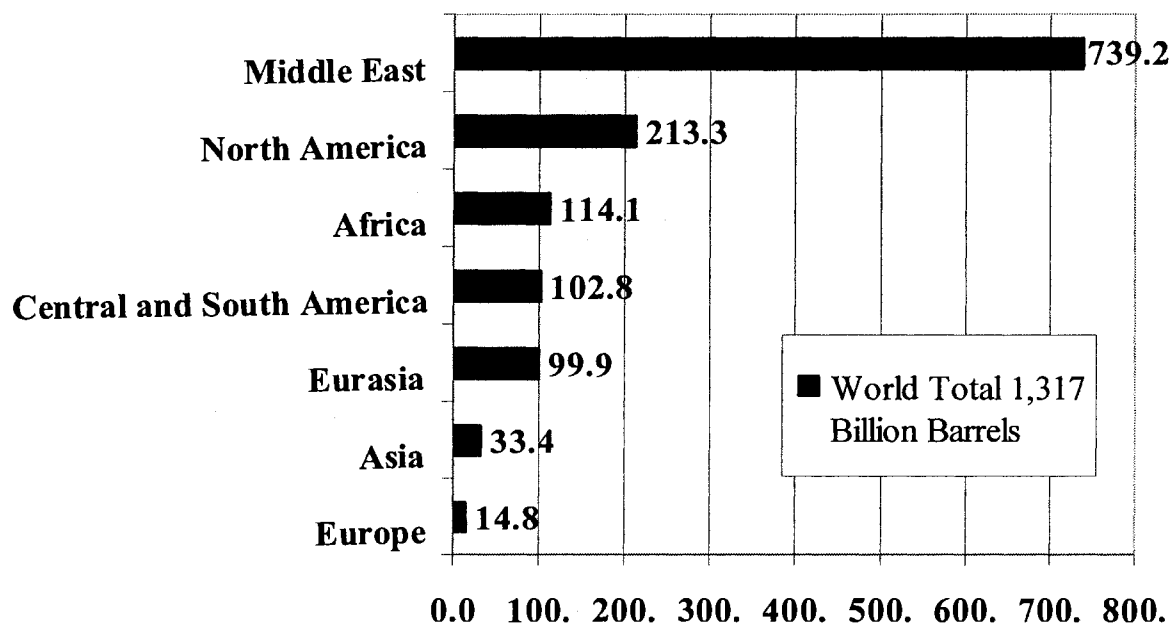


Figure 10. World Proved Oil Reserves by Geographic Region as of January 1, 2007

Source: "Worldwide Look at Reserves and Production," Oil & Gas Journal, vol. 104, no 47 (December 18, 2006), pp.24-25.

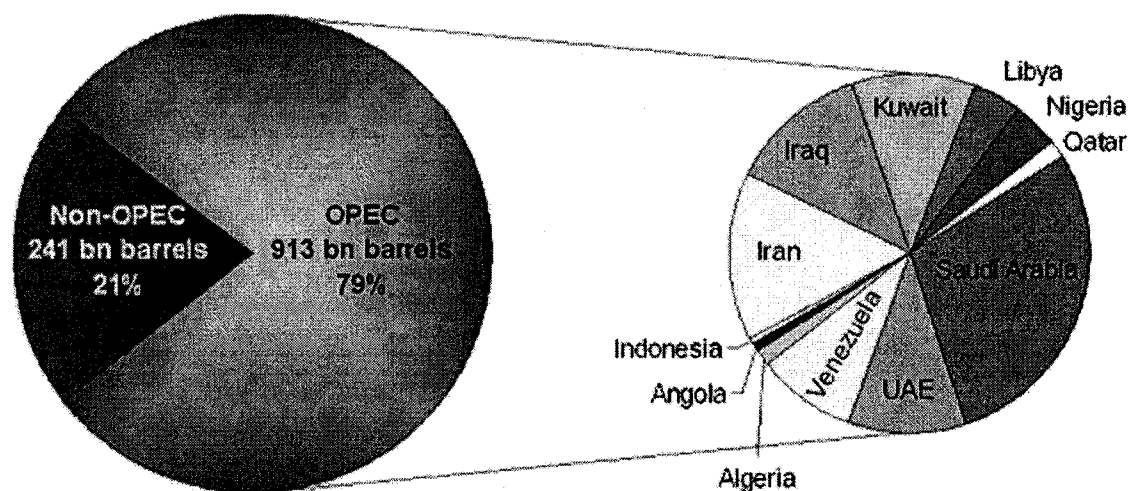


Figure 11. OPEC Share of World Crude Oil Reserves, 2005

Source: OPEC, <[http: www.opec.org](http://www.opec.org)>

R/P ratio, the ratio of current reserves to current production, is sometimes referred to as the reserves life index. It represents the years that the current level of reserves would last if production continued at the present level. It is a crude measure of future reserve availability and should not be used as an indication of when oil reserves will be exhausted. R/P ratios declined until the early 1980s and have increased since then.

Published proved reserves increased by over 80 percent between 1970 and 1993; the average change in net reserves was 2.75 percent. Significant increases in reserves for several years in the 1980s were primarily due to revisions to Middle East reserves.

Kuwaiti reserves were revised upward by 3.5 due to major revisions by OPEC members—Venezuela, Abu Dhabi, Iraq and Iran. In 1989, Saudi Arabia announced an increase of 11 billion tons in its reserves. As shown in Figure 12, OPEC added 90 billion

barrels of reserves, substantially more than the reserve additions made by other crude oil producers.

Table 17 shows the oil reserves of the top 20 countries as of January 2008; notice that OPEC accounts for the greatest oil reserve rates, as the Persian Gulf countries, Saudi Arabia, Iran, Iraq, Kuwait and UAE, hold the highest share in the Middle East region. Saudi Arabia accounts for 266.7 giga barrel (Gb), Iran accounts for 138.4 Gb, Iraq for 115 Gb, Kuwait for 104 Gb, UAE for 97.8 Gb, Venezuela for 87 Gb, Nigeria for 36 Gb and Qatar 15.2 Gb.¹

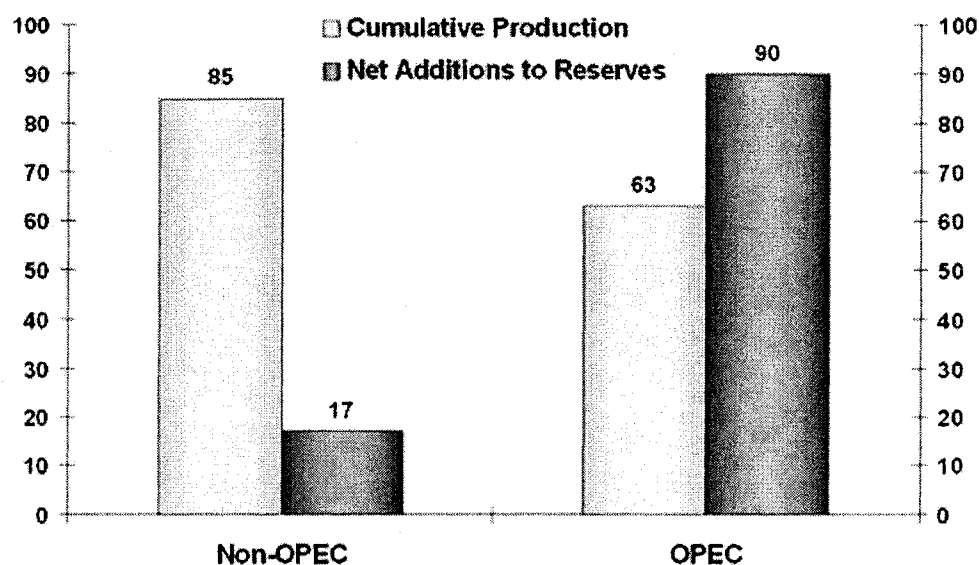


Figure 12. World Crude Oil Reserves: Cumulative Production Versus Net Additions, 2000–2005 (billion barrels)

Source: OPEC, <[http: www.opec.org](http://www.opec.org)>

¹ The term "gigabarrels" (abbreviated Gb) is used to mean 1,000 million barrels, or 1 billion barrels in USA terminology.

Table 17. World Oil Reserves by Country as of January 14, 2008

Country	Oil Reserves	Country	Oil Reserves
<i>Saudi Arabia</i>	262.3	Kazakhstan	30.0
Canada	179.2	United States	21.8
<i>Iran</i>	136.3	China	16.0
<i>Iraq</i>	115.0	<i>Qatar</i>	15.2
<i>Kuwait</i>	101.5	Mexico	12.4
<i>UAE</i>	97.8	<i>Algeria</i>	12.3
<i>Venezuela</i>	80.0	Brazil	11.8
Russia	60.0	<i>Angola</i>	8.0
<i>Libya</i>	41.5	Norway	7.8
<i>Nigeria</i>	36.2	Azerbaijan	7.0
		Rest of World	65.5
		World Total	1,317.4

Source: Worldwide Look at Reserves and Production, *Oil & Gas Journal*.
 Note: OPEC members in italics.

Oil price increase since 1973 have often precipitated concerns about oil scarcity. The data on reserve indicate that more oil has been added to reserves in that period than has been produced from reserves. Oil is not getting scarcer; if anything it is becoming plentiful (Millerd 1995). Total OPEC crude oil production averaged 32.09 mb/b in February 2008, an increase of 83 tb/d from the January 2008 figure. OPEC production (not including Iraq) averaged 29.76 mb/d, down by around 64 tb/d from the January figure. Production in Iraq saw a significant increase of 146 tb/d while Angolan and Indonesian output rose 35 tb/d and 27 tb/d, respectively. Data shows oil production in 2006, 2007 and as of February 2008. Saudi Arabia is the biggest oil producer in OPEC followed by Iran. UAE accounts for the third largest producer in OPEC followed by Venezuela, Kuwait, and Nigeria, respectively (see table 18 and figure 13).

Table 18. OPEC Crude Oil Production, 1,000 barrels per day

	2006	2007	Feb. 2008
Ecuador	536	507	498
Qatar	821	807	842
Indonesia	895	844	869
Algeria	1,365	1,360	1,142
Angola	1,385	1,660	1,892
Libya	1,702	1,710	1,741
Nigeria	2,235	2,125	2,062
Kuwait	2,520	2,464	2,550
Venezuela	2,539	2,392	2,392
UAE	2,540	2,503	2,582
Iran	3,845	3,855	3,866
Saudi Arabia	9,112	8,654	9,056
Iraq	1,932	2,089	2,328
Total OPEC	31,428	30,970	32,089
OPEC excl. Iraq	29,496	28,880	29,761

Source: OPEC Monthly Oil Market Report, March 2008. <<http://www.opec.org>>.

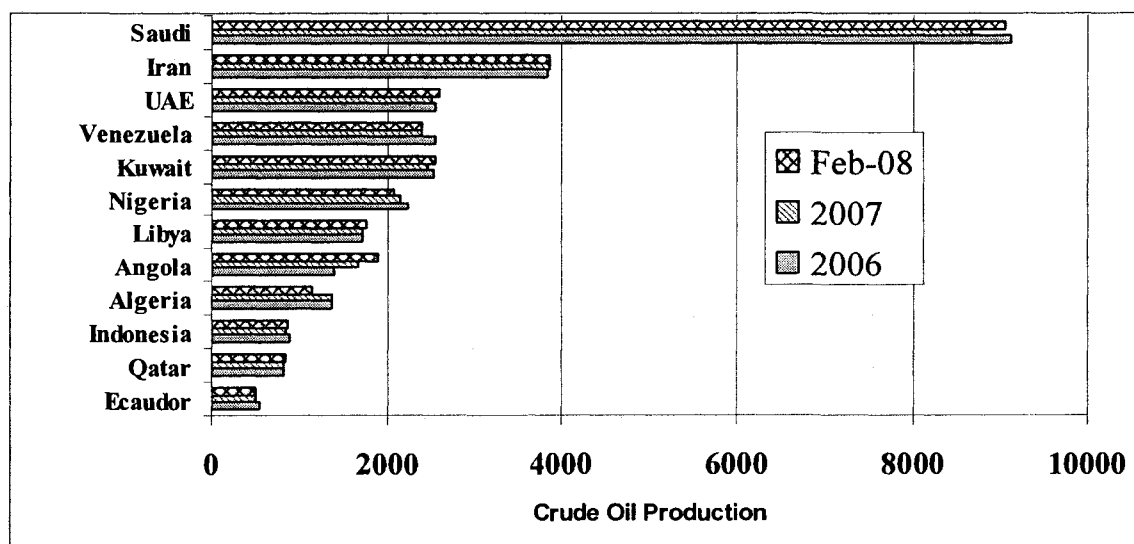


Figure 13. OPEC Crude Oil Production, 1,000 b/d

Source: OPEC Monthly Oil Market Report, March 2008. <<http://www.opec.org>>.

Figure 14 shows the importance of Persian Gulf oil production as a percent of the world's oil production. The Persian Gulf accounts for 58 percent of the world's crude oil reserves, 45 percent of the natural gas reserves. The region also accounts for 28 percent of the world's crude oil production, with 100 percent of excess crude oil production

In 2003, Persian Gulf countries had an estimated 17.2 million bbl/d net oil exports. Saudi Arabia exported the most oil of any Persian Gulf country in 2003, with an estimated 8.40 million bbl/d (49% of the total). Also, Iran had net exports of about 2.6 million bbl/d (15%), followed by the United Arab Emirates (2.4million bbl/d—14%), Kuwait (2.0 million bbl/d—12%), Iraq (0.9 million bbl/d—9%), Qatar (0.9 million bbl/d—5%), and Bahrain (0.01 million bbl/d—0.1) (EIA).

The Middle East has over half of the world's proven oil reserves, and remains the center of gravity in the global oil market. There is no doubt that the importance of the region is poised to grow. In 2002 the region's major oil producers—Saudi Arabia, Iran, Iraq, Kuwait, UAE, Oman and Qatar—produced approximately 18.54 mn b/d of crude and condensate. Of this, approximately 5.23 mn b/d was consumed domestically in refineries and for direct burning in power generation and the remaining volume of approximately 13.32 mn b/d was exported. Of these exports, approximately 60 percent went to the Asia-Pacific region, followed by 19 percent to Europe and 15 percent to North America. The remaining volume was exported to South and Central America and Africa. Saudi Arabia is by far the Middle East largest producer and exporter—accounting for approximately 41percent of production from the Middle East—followed by Iran at 19 percent, and UAE, Iraq and Kuwait at approximately 10–11 percent each. Qatar and Oman each account for 4 percent of total production. These countries produced close to

21 m b/d in 2000. Oil prices declined through most of 2001. In response, OPEC output was cut sharply from the 2000 level. However, with Iraq's progressive increase in oil production, it is projected the seven producers' total volume will be affected by a significant increase (EIA).

Currently over 60 percent of exports from the Middle East are destined for Asian markets, where they sell at a premium. The geographical proximity of the two regions, growing Asian supply deficit and absence of alternative sources for Asian countries will result in an even larger share of eastern sales for Middle East Oil. However, the relationship between Asian refiners and Middle Eastern producers is not seamless. Asian refiners have complained for some time about the premium they are charged on Middle East oil. In the future, it will become tougher for producers to charge this premium and for Asian refiners to pay the extra because of consistently poor refining economics in the Asia-Pacific region and deregulation in Asian countries, exposing domestic refiners to harsher economic realities.

OIL PRICE SHOCKS

Over the past 40 years, there have been 13 significant disruptions of oil supplies from the Middle East. The largest number of Middle East oil supply disruptions occurred in the 1970s (7), with two taking place in the 1950s and the 1960s and one in the 1980s and the 1990s (see table 19). Figure 15 shows the relationship between the increase in oil prices, political instabilities, and oil supply disruption in the Middle East.

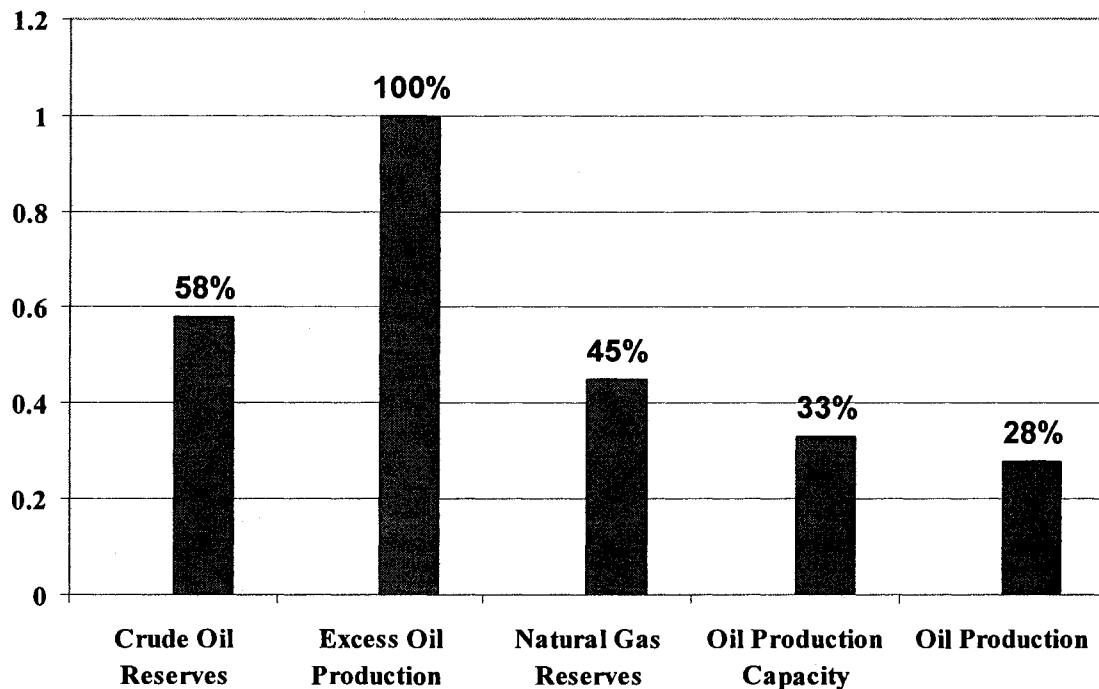


Figure 14. Persian Gulf as a Percent of World

Source: Energy Information Administration. <http://www.eia.doe.gov>.

The disruptions have varied in terms of cause and severity. Damage has been caused by unstable flow of oil and revolutions or other turbulence, including oil facilities damaged by war and civil unrest. During the Persian Gulf crisis of the 1990s, there was a sudden loss of Kuwaiti and Iraqi crude oil production that reduced the world's capacity to produce crude oil. After the rapid increase of the OPEC prices in the 1970s, the number of non-OPEC producers grew, and the urge to develop large quantities of crude oil in other areas increased.

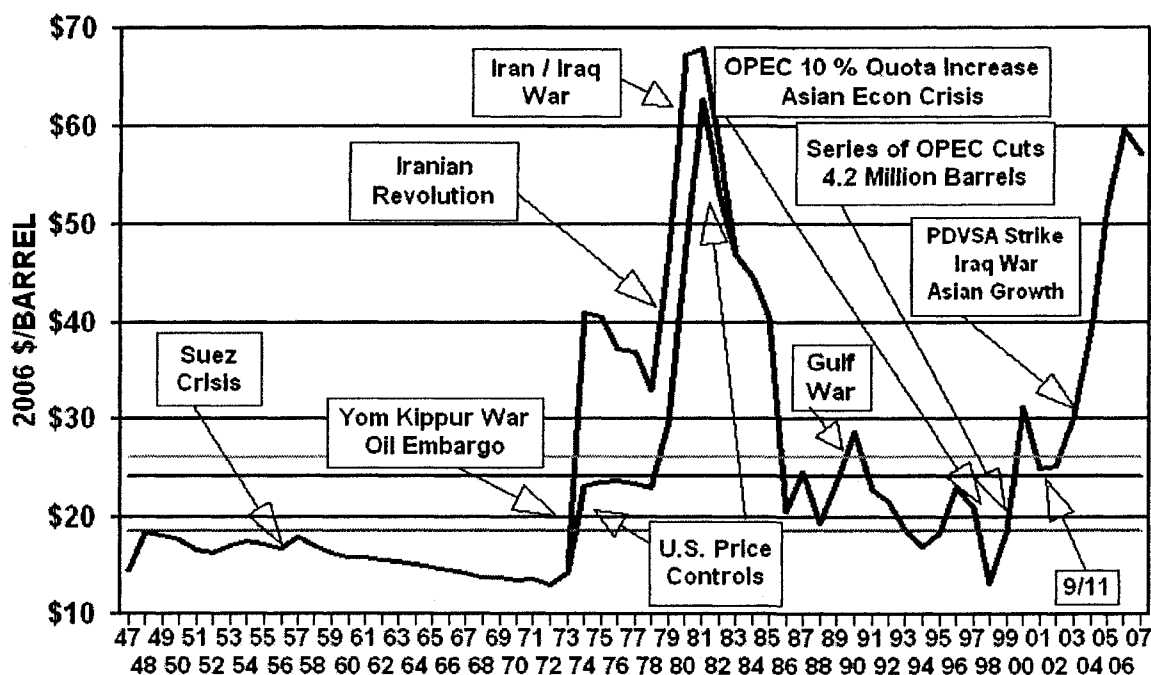


Fig. 15. Crude Oil Prices 1947-Aug. 2007

Source: WTRG Economics. <<http://www.wtrg.com>>.

In order to understand the boom cycle of oil prices and oil revenues, the following section will discuss the main oil price shocks and will explain the impact of supply disruption on the oil price.

The First Oil Price Shock: Arab Oil Embargo in 1973

On October 6, 1973, Egyptian forces crossed the Suez Canal into the Israeli occupied Sinai Peninsula. The United States and many countries in the western world showed strong support for Israel. Ten days later, on October 16, the Organization of Arab Petroleum Exporting Countries (OAPEC) (Iraq, Kuwait, Qatar, Saudi Arabia, the United Arab Emirates and Bahrain) met in Kuwait where they agreed to immediately cut oil

production by 5 percent and raise the posted price of Saudi light crude oil by 70 percent, from US \$3.01 to US \$5.12 per barrel. OAPEC cut production of oil and placed an embargo on shipments of crude oil to the West. Arab exporting nations imposed an embargo on the countries supporting Israel, with the United States and the Netherlands specifically targeted. Also imposed was a boycott of Israel. This decision was a result of the ongoing Yom Kippur War. OAPEC would no longer ship petroleum to nations that had supported Israel in its conflict with Syria and Egypt, including the United States and its allies. This was the first time that oil producing countries used “the oil weapon” to apply pressure on the West. As Parra analyzed it, “Oil was dragged into politics in a way it had never been entangled before” (Parra 2004). This initial decision to unleash the oil weapon in response to the U.S. emergency airlift for military equipment to Israel (which began on October 13) was followed a few days later by a ban on oil exports from OAPEC members to the United States and the Netherlands (and subsequently extended to include South Africa, Rhodesia and Portugal). Saudi Arabia’s role was to use “the oil weapon,” to apply pressure on the United States by withholding supplies. On November 5, another oil embargo was reinforced by an announced 25 percent cut in OAPEC production. As a result, oil production was reduced to 15.5 mbd in November compared to 20 mbd in September. This oil supply reduction resulted in a gross supply disruption in the market economies and reflected in rapidly increasing world oil prices. On March 1974, oil prices began to level off as the Arab-Israeli tension eased, and on March 17 Arab oil exporters decided to terminate their oil embargo after negotiations at the Washington Oil Summit. Although this decision ended the oil crisis, it did not result in a decrease in oil prices.

The oil embargo's aftereffects, though, would linger throughout the rest of the decade. For the oil exporting countries, the embargo was the first sign of their ability to leverage their production for political gains. A number of them would now use this sense of control to renegotiate contracts they had made with the companies that had discovered and exploited their resources. Ironically, though, the vastly increased revenues would prove addictive, and a unified OAPEC oil embargo was never again possible.

In reaction to the emergency re-supply effort that had enabled Israel to withstand Egyptian and Syrian forces, the Arab world imposed the 1973 oil embargo against the United States, Western Europe, and Japan. It has since come to light that an accord regarding the usage of the "oil weapon" was actually negotiated before the war by Egypt and Saudi Arabia. Thus, by the early 1970s the great western oil conglomerates suddenly faced a unified bloc of producers.

The world oil market was transformed after the embargo in 1973. Over the long term, the oil embargo of October 1973 changed the nature of policy in the West toward more exploration and energy conservation. Changes also included a more restrictive monetary policy that was better at fighting inflation. After the oil embargo, the international oil companies sought oil in the North Sea and Alaska as alternatives to oil in the Middle East. Consequently, supplies and production of coal, natural gas, nuclear energy, and non-OPEC oil all increased sharply.

Second Oil Price Shock: Iranian Revolution of 1978–79 and Iran-Iraq War 1979–1981

The second major oil shock led to another doubling of international prices despite Saudi and Iraqi increases in production that more than offset Iranian decreases. The shock

began in October 1978; an Iranian oil-worker's strike reduced Iran's oil production dramatically, from some 6 mbd in August 1978 to approximately 450,000 bd in February 1979 (Claes 2001). In January 1979, the shah left the country, and 2 weeks later the exiled Ayatollah Khomeini was back in the country. Oil exports had been halted entirely

Table 19. Middle East Oil Supply Disruptions Since 1951

Dates of Net Oil Supply Disruption	Duration (Months Of Net supply Disruption)	Average Gross Supply Shortfall (Million B/D)	Reason for Oil Supply Disruption
3/51–10/54	44	0.7	Iranian oilfields nationalized May I, following months of unrest and strikes in Abadan area.
11/56–3/57	4	2	Suez War
12/66–3/67	3	0.7	Syrian Transit Fee Dispute
6/67–8/67	2	2	Six Day War
5/70–1/71	9	1.3	Libyan price controversy; damage to Tapline
4/71–8/71	5	0.6	Algerian-French nationalization struggle
3/73–5/73	2	0.5	Unrest in Lebanon; damage to transit facilities
10/73–3/74	6	2.6	October Arab-Israeli War
4/76	2	0.3	Civil war in Lebanon;
5/77	1	0.7	Damage to Saudi oil field
11/78	6	3.5	Iranian revolution
10/80	3	3.3	Outbreak of Iran-Iraq War
8/90	3	4.6	Iraqi invasion of Kuwait

Sources: U.S. Department of Energy, Strategic Petroleum Reserve: Analysis of Size Options (DOE/IE-0016, 2/90); U.S. Energy Information Administration, Energy Situation Analysis Report (8/14/90, 8/16/90, 8/20/90, 10/29/90); Lowell S. Feld and John H. Herbert, "Oil Stocks and Crises," in *Geopolitics of Energy* 12 (December 1990). Average gross oil supply shortfalls are calculated using a baseline of average oil production during a three-month period preceding the disruption.

Oil exports had been halted entirely and would only resume at the beginning of March 1979. Supplies from Iran were cut in half. The Iranian revolution resulted in the loss of 2 million to 2.5 million barrels of oil per day between November 1978 and June 1979. Saudi Arabia and other OPEC nations increased production to offset the decline, and the overall loss in production was about 4 percent. The crude oil price rose from US \$12.80 in September 1978 to US \$21.80 in February 1979. In November 1979, prices hit a high of almost US \$40/B after Iran announced a production ceiling. OPEC decided to exploit its pricing power after a period of restraint by announcing a 15 percent price rise for 1979. The Outbreak of the Iran-Iraq War in late September 1980 brought on a renewed bout of fever, and prices hit US \$41.

In 1980, following Saddam Hussein's Iraqi invasion of Iran, oil production in Iran nearly stopped, and Iraq's oil production was severely cut as well. Within weeks, the combined production of both countries was only a million barrels per day, or 6.5 million barrels per day less than a year before. Worldwide crude oil production was 10 percent lower than in 1979. In the meantime, there was a renewed scramble by numerous countries to build up oil stockpiles. By the time the market peaked in 1980–81, the price of Saudi light crude oil had climbed to just below US \$40 per barrel, a rise of about US \$25 per barrel and almost a tripling of the 1978 average price.

First Gulf War “Desert Storm”: Iraq’s Invasion of Kuwait in August 1990–1999

In August 2, 1990 Iraq invaded Kuwait after accusing it of flooding the oil market and leading to a collapse in oil prices. Iraq also accused Kuwait of drilling into neighboring Iraqi oil fields.

The uncertainty associated with the Iraqi invasion and the build up to Operation Desert Storm resulted in oil supply disruption. The price of crude oil spiked substantially, and within weeks of August 1990, Saudi light crude oil had jumped from about US \$15 per barrel to over US \$33 per barrel.

The impact on oil prices resulting from the Iranian Revolution and the Gulf War was less significant than that of the Arab oil embargo. The Saudis' behavior drastically affected the price of oil. The Saudi Arabia acted differently during the Iranian revolution and the Gulf War. Saudi Arabia and other OPEC countries worked hard to maximize their own production to offset the loss of the oil supplies caused by those crises.

The Persian Gulf War had a negative impact on the financial and economic situations of Kuwait and Saudi Arabia. Kuwait exhausted its "Fund for future generations." Saudi Arabia also is running a huge account deficit from the impact of the War (Samii 1995).

Second Gulf War "Operation Iraqi Freedom": 2003 Invasion of Iraq, Iraq 2003–Present

The objective of the 2003 U.S. invasion of Iraq was "to disarm Iraq of weapons of mass destruction, to end Saddam Hussein's support for terrorism, and to free the Iraqi people" (President Discusses Beginning of Operation Iraqi Freedom).

In preparation, 100,000 U.S. troops were assembled in Kuwait by February 18. The United States supplied the majority of the invading forces. Supporters of the invasion included a coalition force of "more than 40" countries and Kurds in northern Iraq. These supporters of the invasion supplied troops, equipment, security, and Special Forces.

The Iraq War (2003 to the present), also known as the Second Gulf War (and by the U.S. military as Operation *Iraqi Freedom* and the UK military as Operation *TELIC*), started with the 2003 invasion of Iraq. Three weeks into the invasion, U.S. forces moved into Baghdad, ordering Iraqi forces within the city to surrender, or the city would face a full-scale assault. Iraqi government officials had either disappeared or had conceded defeat, and on April 9, 2003, Baghdad was formally occupied by U.S. forces, and the power of Saddam Hussein was declared ended.

CONCLUSION

Rapid growth in the global economy, especially in Asia, has increased demand for oil. This increased demand made a fragile balance between supply and demand in the oil market. Most of the largest oilfields in production throughout the world today are in the Middle East, and the bulk of OPEC oil reserves are also located in the Middle East. Consequently, the concentration of oil production and reserves in the Persian Gulf continues to be a major source of the world oil market's vulnerability to price shocks. At the same time, physical oil supply disruption and oil instability in the Middle East came to be one of the major causes of the rapid increase in oil prices. Consequently, political instability and the high risk of conflict in the Middle East interfere with the supply of oil to the world market. These have been key factors in the major oil crises, and with the existence of market psychology, oil instability is intuitively spread in the global market.

CHAPTER V

REGRESSION: DATA AND ANALYSIS

There has been a massive boom in remittance flows in the last two decades. Migrants' remittances represent a significant part of international capital flows for labor exporting countries. Remittances have a large impact on domestic economies via current account financing. Thus it is important to ascertain the determinants of remittance flows. As discussed in chapter II, there are two groups of factors that affect the inflow of remittances to the home countries: micro-factors and macro-factors.

Higher oil prices have sharply accelerated real income growth and economic activity among the Arab oil exporting countries. The pace of the expansion of economic activity in oil rich Arab countries could have a significant effect on remittance flows to the low income Arab countries.

One of the chapter's major findings is that level of income in Egypt is important in attracting remittances. Another notable finding is that political instability is crucial in affecting remittance flows to the home country. The difference in GDP between the host and home countries is also found to increase average remittances. Interest rates differentials are also found to be important in attracting remittance flows through official channels.

In this chapter two forms of regressions are presented, and the data and methodology that are used in the regression are explained. The first regression consists of two models investigating the role of the aggregate variables from all six Arab Gulf countries on remittances. The second regression contains three sets of models

investigating the role of independent variables from each of the six Arab countries on the flow of remittances to Egypt. The models will be represented, and the empirical results of the estimations will be discussed. The chapter will end with a conclusion summarizing results from all models.

This chapter presents a model to analyze the macroeconomic determinants of remittances inflow to Egypt from Persian Gulf Arab countries. The dependent variable is remittance flows to Egypt, and the independent variables are the level of GDP in host and home countries, oil revenues, inflation rate, differential in deposit interest rates between the host and the home country, and political instability. The objective of this chapter is to construct and estimate a model of remittance determinants that reflects the individual behavior of the migrant and his family. Eviews statistics software has been used in running the econometric regression analysis.⁸ Remittances could be spent on consumption, saving or investment. This will explain how macroeconomic variables in the home and host countries could drive the remittance behavior. When explaining how remittances are spent or used, the impact of these remittances on economic development in Egypt will be highlighted.

The model has two purposes: to estimate the relative significance of behavioral and macroeconomic variables in remittance determination and to demonstrate, in

⁸ Eviews provides data analysis and regression tools that can develop a statistical relation from the data and then use the relation to forecast future values of the data. It contains a set of tools for manipulating time series data originally developed in Time Series Processor software for large computers. Eviews provides convenient visual ways to enter data series to create new series from existing ones, to display and print series, and to carry out statistical analysis of the relationship among series.

feedback, the implications of the econometric results for the empirical validity of the theoretical model. We will combine the two approaches—the altruism approach and portfolio approach—in our empirical analysis. This will be done by computing the value of the structural parameters of the model from the estimated regression coefficients. The equation is estimated separately for a number of Persian Gulf countries to fill a gap in the relevant literature for the region in the period 1991–2006. The empirical analysis that follows is based on annual country data from 1991 to 2006. This dissertation uses six Arab host countries: Saudi Arabia, Kuwait, United Arab Emirates (UAE), Qatar, Oman, and Bahrain. Remittance flows represent remittances received by Egypt from each of the six countries.

Previous studies (El-Sakka and McNabb 1999; Adams 1991; Glytsos 1996; Lucas and Stark 1985; Swamy 1981; Straubhaar 1986; Elbadawi and Rocha 1992) that looked at the effects of such factors have used aggregate remittance data. It appears that bilateral data have not yet been studied to estimate determinants of workers' remittances on Egypt from Arab Gulf countries. This research uses data containing information on bilateral remittance flows from the six Arab countries to Egypt and investigates the influencing factors on remittance flows.

DETERMINANTS OF REMITTANCES: STATISTICAL ANALYSIS

The Variables

Our variable of interest, remittances received from workers abroad, was taken from the Central Bank of Egypt, which compiles statistics on official worker remittance

flows, representing only money sent through official channels. Although remittances are becoming easier to track and record, there are still remittances that flow through illegal channels and are unreported.

Drawing on the existing literature, the analysis in this study focuses on six broad groups of variables that could possibly affect remittances.

- Economic activity in the migrant workers' host country. Improved host country economic prospects increase migrants' employment chances and wages. This allows existing migrants to send more remittances, and may also encourage greater emigration from the home country, increasing future remittances. Host country economic activity is measured using host GDP.
- Economic activity in the migrant workers' home country. Negative shocks to output, employment and wages in the home country reduce the income of any family members left behind by the migrants. This may encourage existing migrants to send more remittances, as well as push more people to emigrate. Home country economic activity is measured here by domestic GDP.
- Political instability may discourage migrants from sending remittances. Political instability in this study is measured as war in the Middle East.
- Investment opportunities. Greater potential returns on host country assets as opposed to home country assets may encourage migrants to invest their savings in the host country, rather than sending them back as remittances. Investment opportunities on home country assets relative to host country assets are measured in this study using the differential of deposit interest rates in home and host countries.

- Inflation rate in host country. During the rise of domestic prices migrants may remit more during periods of high inflation to support families who are affected by rising prices. Also a high rate of inflation might increase the remittance flows through official channels to secure the risk of transfer.
- Oil price and revenues from oil exports. High oil prices or higher oil revenues both could have a direct effect on remittance flows.

The models we propose to use for Egypt will include the inflow of remittances as a dependent variable, and the independent variables are: oil revenues or price of oil, interest rate and inflation rate, GDP in Egypt and the ratio between GDP in Egypt and host country and a dummy variable representing the political instability.

One of the most important factors that may influence the flow of remittances is the price of oil or oil revenues, which will directly affect the level of economic activity in the host country. Oil exporting countries in the Middle East have experienced a substantial increase in export earnings over the past years as oil prices have increased. Thus economic activity in oil exporting countries will increase, and this will have a direct effect on the demand of importing labor in those countries. According to El-Sakka and McNabb, the level of economic activity in the host country will also affect the migrants' earnings and the regulations that control the period that migrants can stay (El-Sakka and McNabb 1999).

Thus, the revenues from oil exports are expected to have a positive impact on flow of remittances, while interest and inflation rates are expected to have a negative impact on remittances to the home country. According to El-Sakka (2004), the level of income in the home country and inflation may affect remittances either positively or

negatively. When the family support is the main motive to remit, the effect of home country income would be negative and the effect of the inflation rate would be positive on remittance flows. If remittances are for investment motives in the home country, we would expect a positive relationship between levels of income and remittance flows and a negative impact of inflation in the home country. Political instability is expected to have a negative relationship with remittances.

Remittances flow to Egypt from each of the Arab Gulf Countries will be represented by the following equation. The target remittance is modeled as a function of the following macro factors.

Remittances= f (Oil Revenues, Price of Oil, GDP in host country, {GDP in home / GDP in host}, {int. rate in home country - int. rate in host country}, domestic inflation rate, political instability {dummy var.}).

Regression Model:

$$TREMITT = a + b_1 TOILREV + b_2 OILPRICE + b_3 EGGDP + b_4 REDGDP + b_5 DEGRATE + b_6 INFRATE + b_7 POLINST$$

where:

- TREMITT: Remittances to Egypt from the host country (measured in million \$).
- OILPRICE: Price of oil from OPEC basket average price (US\$/barrel).
- TOILREV: Revenues from oil exports (million \$).
- EGGDP: GDP in Egypt (billion \$).
- TGDP: GDP in host country (billion \$).

- REGGDP: Ratio of GDP Egypt/GDP host (billion\$).
- DEGRATE: Differential between deposit interest rate in Egypt and the host countries (%).
- INFLRATE: Inflation rate in Egypt (%).
- POLINST: Political instability {war=1}, {Otherwise=0}.

The a is the constant, where the regression line intercepts the y axis, representing the amount the dependent variable (remittances) will be when all the independent variables are set to zero. The b 's are the regression coefficients, representing the amount the dependent variable changes when the corresponding independent variable changes by 1 unit and other independent variables are held constant. Also, the b coefficient represents the slope of the regression line: the larger the b , the steeper the slope, the more the dependent variable change for each unit changes in the independent variable.

Although remittances are becoming easier to track and record, there are still remittances that flow through illegal channels and are unreported. For this reason, it is likely that remittances data underestimate the actual level of total remittances.

The empirical analysis is based on annual data for 1991–2006. Remittances are collected from the Central Bank of Egypt reports. The inflation rate is calculated by using Consumer Price Index data from IMF International Financial Statistics different issues. The domestic income and the host income are measured using official Egyptian GDP and host GDP respectively. The data was calculated from the world development indicator 2007 and various issues of International Financial Statistics. The revenues from oil exports used in the model are obtained from various issues of IMF International Financial Statistics. These data are often reported in domestic currency. For the purposes of this

study, all variables were converted into U.S. dollars using official exchange rates. Political instability will be measured in this model as a dummy variable. Dummy variables are a way of adding the values of a nominal or ordinal variable to a regression equation. The standard approach to modeling categorical variables is to include the categorical variables in the regression equation by converting each level of each categorical variable into a variable of its own, usually coded 0 or 1. In our model the categorical variable “war” will be converted into a dummy variable, where 1 represents the case of war and 0 represents the case of no war.

According to the theoretical framework discussed, we hypothesize a positive sign for b_1 , the coefficient of oil exports, b_2 , the coefficient oil price and b_3 , the coefficient of the host country’s GDP and negative signs for b_5 , the coefficient of the differential between deposit interest rate in Egypt and in the host countries, b_6 , the coefficient of the inflation rate and b_7 , the coefficient political instability. The coefficient b_4 is the coefficient of the ratio between Egyptian GDP and the host country’s GDP. The sign of b_4 depends on the motivations for sending remittances. If the motivation for sending remittances is altruism, then it is expected that the sign for b_4 will be negative. This means as the ratio between GDPs increases, migrant worker, send less. If the motivation for sending remittances is self-interest, then as the ratio of GDPs increases, remittances will increase.

EMPIRICAL RESULTS

Regression I

The ability of each independent variable to predict variation in the dependent variable is addressed in the following regression output, which presents coefficient estimates of the model where each of the individual variables is listed. The data were analyzed by multiple regressions, using oil price, Egypt's GDP, the host country's GDP domestic inflation rate and political instability as the independent variables. The dependent variable is remittances and is calculated as the total remittances flow from Arab Persian Gulf countries to Egypt. Equations are estimated in log linear form. The dependent variable and independent variables are log-transformed variables; in econometrics the relationship is commonly referred to as elasticity. In a regression setting, we had interpreted the elasticity as the percent change in the dependent variable, while the independent variable increases by one percent.

Model 1.1

Results show that oil price has a negative coefficient but is statistically insignificant. Egypt's GDP and Egypt's inflation rate have positive coefficients, and both are statistically significant. Total GDP, which is the total GDP of all six Arab host countries, has a positive coefficient, but it is statistically insignificant. Political instability has a negative coefficient and is statistically significant. In model 1.1, as Egypt's GDP increases by 1 percent, remittance flows to Egypt would increase by 3.38 percent. Also the negative significant coefficient of political instability indicates that remittances would

decrease by 1.16 percent when political instability increases. As the inflation rate in Egypt increases by 1 percent, remittances would increase by 0.97 percent. Both coefficients of TGDP and OILPRICE are statistically insignificant, and this means they have no effect (Table 20).

The estimated equation:

$$\begin{aligned} \text{LOG (TREMITT)} = & -135.35 - 1.12\text{LOG (OILPRICE)} + 3.38\text{LOG (EGGDP)} \\ & + 2.25\text{LOG (TGDP)} + 0.969\text{LOG (INFLRATE)} - 1.164\text{POLINST} \end{aligned}$$

Table 20. Regression Results for the Estimated Coefficients for Model 1.1

Dependent Variable: LOG(TREMITT)

Method: Least Squares

Date: 08/31/07 Time: 17:25

Sample: 1991 2006

Included observations: 16

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-135.3542	26.47949	-5.111663	0.0005
LOG(OILPRICE)	-1.124652	0.954868	-1.177809	0.2661
LOG(EGGDP)	3.381652	1.352847	2.499655	0.0315
LOG(TGDP)	2.258307	1.643568	1.374028	0.1994
LOG(INFLRATE)	0.969179	0.381118	2.542987	0.0292
POLINST	-1.164798	0.434842	-2.678666	0.0231
R-squared	0.911288	Mean dependent var		6.795226
Adjusted R-squared	0.866933	S.D. dependent var		1.196834
S.E. of regression	0.436586	Akaike info criterion		1.460334
Sum squared resid	1.906075	Schwarz criterion		1.750055
Log likelihood	-5.682676	F-statistic		20.54496
Durbin-Watson stat	2.003907	Prob(F-statistic)		0.000057

The goodness of the fit, $R^2 = 0.91$, means that our model has accounted for almost 91% of the variation in the dependent variables. The value of R^2 indicates that almost 91% of the variation in remittances can be predicted from the independent variables (Figure 16).

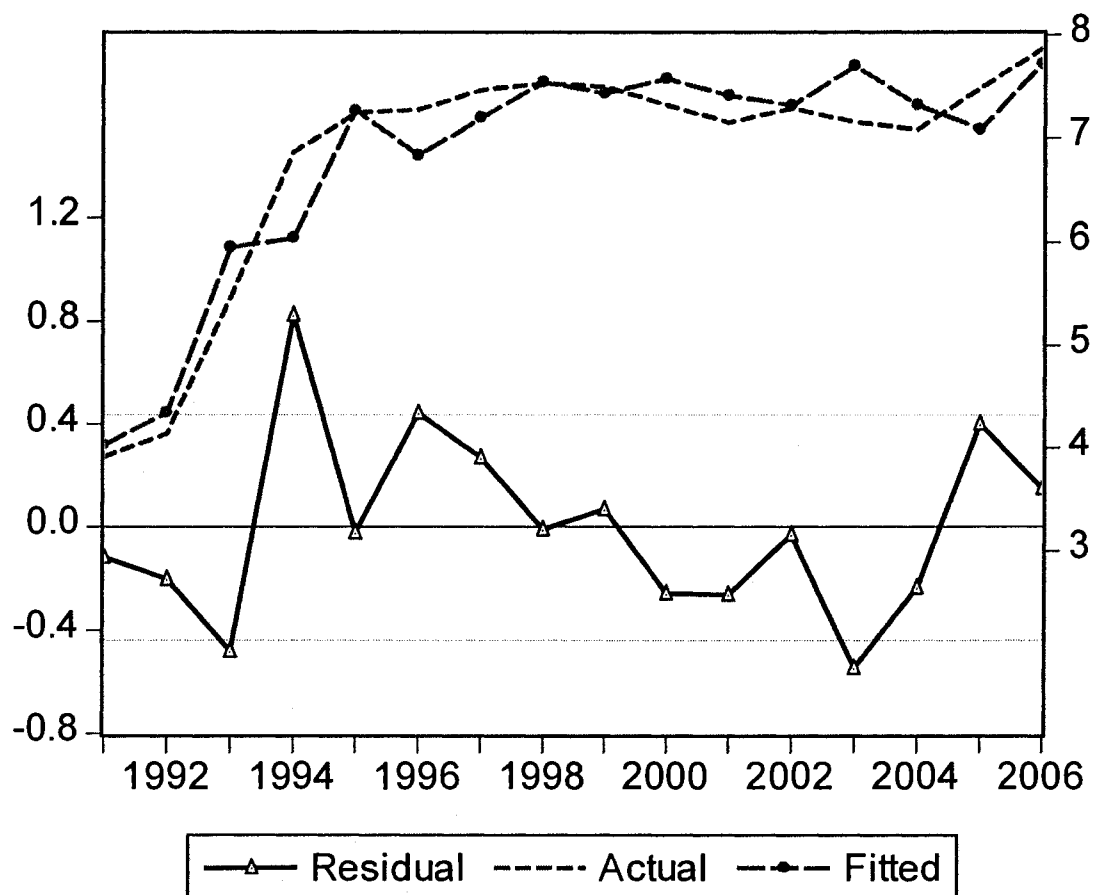


Figure 16. Actual Fitted Residual Graph for Model 1.1

Model 1.2

In model 1.1, an increase in oil prices was expected to have a direct effect on an increase in remittances, but the coefficient of oil price is negative and statistically insignificant. Thus, in model 1.2, lagged oil revenues are used as one of the predictors for remittances instead of oil price. Using oil revenues could give better results since oil revenues = (Price of oil) x (Quantity of oil produced). Lagged oil revenues are revenues from the previous year; remittances of a specific year could be better predicted if using oil revenues from the previous year. Also, when using lagged oil revenues the effect of the previous year would be a better indicator for the economic activity of the following year.

The estimated equation:

$$\begin{aligned} \text{LOG (TREMITT)} = & -106.74 - 0.427\text{LOG (TOILREV (-1))} - 3.007\text{LOG (EGGDP)} \\ & + 1.58\text{LOG (TGDP)} + 0.7637\text{LOG (INFLRATE)} - 1.325\text{POLINST} \end{aligned}$$

In model 1.2, regression was a rather good fit ($R^2=0.886$), and the overall relationship was significant ($F = 14$, $p = 0.000499 < 0.05$). F value is the test statistics used to decide whether the model as a whole has statistically significant predictive capability, that is, whether the regression is big enough, considering the number of variables needed to achieve it (Table 21).

With other variables held constant, remittances were positively related to total GDP of the Persian Arab countries, Egypt's GDP, and inflation rate. Remittances were negatively related to Persian Gulf oil revenues and to political instability. For every extra

dollar per year in total GDP, remittances will increase. Thus, the level of earnings available in the host countries has a positive effect on remittances.

The current results are similar to those found by El-Sakka and McNabb. By using lagged oil revenues in model 1.2, results are similar as using oil prices in model 1.1; oil revenues in model 1.2 are negative and statistically insignificant.

Table 21. Regression Results for the Estimated Coefficients for Model 1.2

Dependent Variable: LOG(TREMITT)

Method: Least Squares

Date: 11/07/07 Time: 22:49

Sample (adjusted): 1992-2006

Included observations: 15 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-106.7416	17.53201	-6.088380	0.0002
LOG(TOILREV(-1))	-0.427241	0.211528	-2.019786	0.0741
LOG(EGGDP)	3.007387	1.230026	2.444979	0.0371
LOG(TGDP)	1.583444	1.004632	1.576144	0.1494
LOG(INFLRATE)	0.763742	0.364441	2.095653	0.0456
POLINST	-1.325858	0.434243	-3.053262	0.0137
R-squared	0.886531	Mean dependent var		6.987440
Adjusted R-squared	0.823493	S.D. dependent var		0.949404
S.E. of regression	0.398870	Akaike info criterion		1.288812
Sum squared resid	1.431876	Schwarz criterion		1.572032
Log likelihood	-3.666090	F-statistic		14.06343
Durbin-Watson stat	2.250909	Prob(F-statistic)		0.000499

In model 1.2, a 1 percent increase in oil revenues would yield a 0.43 percent decrease in remittances. Domestic inflation is found to have a positive impact on the inflow of remittances; remittances will increase by 0.76 percent when the inflation rate

increases by 1 percent. This may indicate that migrants remit more of their earnings during periods of inflation to offset the increase of prices and low income in the home country. Another explanation of the positive effect is that during inflation migrants transfer more of their earnings through official channels in order to avoid risk. The results are similar to El-Sakka and McNabb's findings.

Political instability tended to have a negative coefficient. In the case of war, remittances will decrease by 1.3 percent. This indicates that the existence of war in the Middle East will have a highly negative effect on the flow of remittances to Egypt. This means that political turmoil in the Middle East may bring macroeconomic instability and deterioration in business conditions to all countries in this area.

The GDP of Egypt and the inflation rate are both statistically significant at the 10% level. Political instability is statistically significant at the 5% level. Total GDP of all Persian Arab countries and oil revenues are both statistically insignificant.

The Durbin-Watson statistic tests (DW) coefficient is a test for autocorrelation, the value of the coefficient = 2.25, which is greater than 2. This indicates independence of observations, which means that there is no serial autocorrelation problem. The positive sign indicates that the standard errors of the regression coefficients are too small.

R-Square (coefficient of determination): Note that this is an overall measure of the strength of association, and does not reflect the extent to which any particular independent variable is associated with the dependent variable. $R^2 = 0.886$, the goodness of the fit, means that our model has accounted for almost 89 percent of the variation in the dependent variables. In other words, this value indicates that almost 89 percent of the variation in remittances can be predicted from the independent variables (Figure 17).

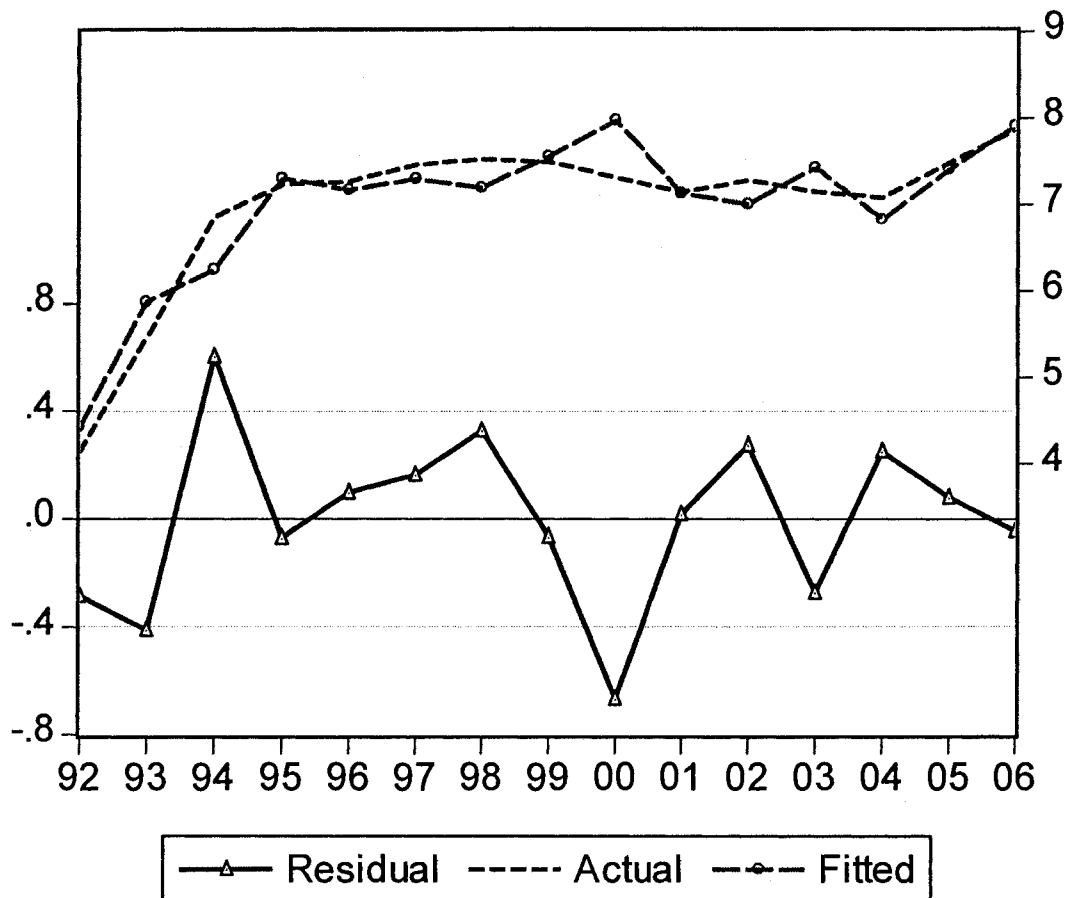


Figure 17. Actual Fitted Residual Graph for Model 1.2

Coefficients give a measure of the contribution of each variable to the model. The coefficient of TGDP has a positive effect on the amount of remittances sent. The TGDP is important because it determines the economic activity level in the host country, which in turn determines the demand on foreign labor and how many foreign laborers can enter the host country.

In both models, the coefficient of predictor variable EGGDP has the larger value of 3.4 and 3.007 respectively, which indicates that a 1 percent increase in GDP will result

in an increase in remittance flows by 3.4 percent in model 1.1 or by 3.007 percent in model 1.2. This shows that the income of the home country plays an important role in determining remittance flows. The positive relationship indicates that remittances will increase by increasing the GDP of host countries, which indicates that remittances flow is mainly used for investment (self-interest) in Egypt. As income in the host country increases this will encourage migrants to send back their savings and use it for investment in their home countries. TOILREV remains insignificant; this means that even though oil revenues increase in the Arab Persian Gulf countries their effect on determining remittances flow to Egypt is insignificant.

Results of the two models in Regression I are summarized in Table 22. In regression I: All variables for the Arab Persian Gulf are added, i.e. the total GDP of host countries and total oil revenues. Thus, we are testing the relationship between the independent variable of all 6 countries combined with remittance flows to Egypt. Therefore this could explain the negative effect of the coefficient of oil revenues. It shows the effect on oil revenues of all six countries as a whole. In this case TGDP is a better indicator for remittance flows to Egypt and also has the largest coefficient.

The unexpected result in Regression I was the negative coefficient of oil price and oil revenues. It was expected that as oil prices increase, revenues to the rich Arab countries would increase, and this should have a positive impact on remittance flows from those countries to Egypt. However, oil price and oil revenue coefficients are both insignificant. The negative coefficients mean that as oil prices and oil revenues increase, remittances to Egypt will decrease. This means that the migrant will send less money to Egypt or demand for Egyptian workers will have decreased. There has been a shift of

major proportion toward substituting Asians for Arab workers in the aftermath of the 1991 war. In addition, according to a report done by IMF staff, a significant part of the oil revenues went into repaying public debt. In Kuwait and Saudi Arabia, the governments used a significant part of the revenue to reduce debt resulting from the Persian Gulf War (Iraq-Kuwait War) (International Monetary Fund 2002). Also, after the first Persian Gulf War the migration opportunity in the Persian Gulf towards the Arabs has changed, and demand for labor from Asia has increased. Wahba (2005) concluded that in the 1990s the flow of Egyptian workers to the Arab Persian Gulf decreased, and Arab workers were replaced by Asian nationals. This means that oil revenues may be positive except under certain conditions: a) a significant part of the revenues is used for repaying public debt; b) demand for labor from Egypt has decreased. In different times oil revenues may be important, but the existence of the two conditions suppresses the effect and then is not noticeable.

Evidence from Kuwait and Saudi Arabia may help shed some light on this issue. As shown in Table 23, in Saudi Arabia foreign population in 1995 amounted to 6.26 million, of which 2.38 million or 38 percent were Arab migrants and 3.34 million or 53.4 percent were Asians. In 1995 the Asian population in Saudi Arabia outnumbered Arab migrants by about one million (Girgis 2002).

The Iraqi invasion of Kuwait brought noticeable changes in the national composition of both labor and population. As Table 24 shows, in 2000 Asian workers outnumbered Arabs even if the Arab population exceeded theirs. Prior to the invasion, Kuwait was known to have been one of the GCC nations with a strong Arab presence.

Table 22. Results for the Estimated Coefficients of Regression I

	Model 1.1	Model 1.2
C	-135.3542 (-5.11)*	-106.7416 (-6.09)*
LOG(OILPRICE)	-1.124652 (-1.17)	
LOG(LOILREV(-1))		-0.427241 (-2.02)
LOG(EGGDP)	3.381652 (2.5)***	3.007387 (2.44)***
LOG(TGDP)	2.258307 (1.37)	1.583444 (1.58)
LOG(INFLRATE)	0.969179 (2.54)***	0.763742 (2.09)***
POLINST	-1.164798 (-2.67)**	-1.325858 (-3.05)**
R ²	0.911288	0.886531
D W	2.003907	2.250909
F-Stat	20.54496	14.06343

Dependent variable is log of remittances.

t-statistics are shown in parentheses.

The equations are estimated in logs and thus coefficients are elasticities.

***significant at the 10% level.

**significant at the 5% level.

*significant at the 1% level.

After the war, however, the situation changed where one notices a profile similar to the one observed in Saudi Arabia. The Asian population represented 52.8 percent in Kuwait in 2000, while they represented 53.4 percent in Saudi Arabia in 1995. In contrast, the percent of Arabs in the total foreign population in Kuwait is still somewhat higher than in Saudi Arabia, 45.7 percent vs. 38 percent. During the 1990s, the number of Arabs in Kuwait dropped by 33.6 percent while the number of Asians rose by almost 50 percent.

Table 23. Saudi Arabia: Foreign Population by Nationality, 1995

Saudi Country	Number	As % in sub-group	As % in foreign population
Egypt	1,195.2	50.2	19.1
Yemen	424.4	17.8	6.8
Jordan & Palestine	266.0	11.2	4.3
Sudan	242.5	10.2	3.9
Syria	168.4	7.1	2.7
All Arabs	2,378.8	97.0	38.0
India	1,228.7	36.8	19.6
Pakistan	778.7	23.3	12.4
Philippines	451.0	13.5	7.2
Bangladesh	446.3	13.4	7.1
Indonesia	249.5	7.5	4.0
All Asians	3,342.6	94.0	53.4

Source: Ministry of Interior in Kuwait. Table cited in: Would Nationals and Asians Replace Arab Workers in the GCC? Prepared by Maurie Girgis, LTC Techno-Economics Inc. Raleigh, NC 27615 USA, submitted to Fourth Mediterranean Development Forum, Amman Jordan 2002.

<http://www.worldbank.org/mdf/mdf4/papers/girgis.pdf>

Table 24. Kuwait: Arab versus Asian Population, 1989 and 2000

Year	Arabs	Asians	Others	Total
Total number:				
December 1989	994.5	508.3	16.8	1,519.6
January 2000	659.9	761.1	21.6	1,442.7
As % in Total:				
December 1989	65.4	33.5	1.11	100.0
January 2000	45.7	52.8	1.5	100.0
Growth rate 89-00	-33.6%	49.7%	28.6%	-5.1%

Source: Public Authority for Civil Information, January 2000 and December 1989, Population and Labor Force, Kuwait.

<http://www.worldbank.org/mdf/mdf4/papers/girgis.pdf>

Although at the peak of the 1980s oil boom, more than 20 percent of the Egyptian labor force was employed abroad (primarily in the Gulf), today only 7 percent of Egyptian laborers work in other Arab states, as Gulf countries have increasingly replaced expatriate Arab with (less costly) South Asian laborers.

After the war, the Kuwaiti government started a new plan for restricting the number of resident foreigners to keep the non-national population below 50 percent of the total population, and to ensure that no single non-Kuwaiti nationality would make up more than 10 percent of the total population. In December 1991, the government closed most domestic staff employment agencies and drew up new regulations covering the licensing of domestic staff. In early 1992, the Ministry of the Interior announced new rules for issuing visas to dependents of expatriate workers, limiting them to higher wage earners. Looking farther into the future, the government approved a resolution in March 1992 doubling to US \$14,000 the sum given to young men at marriage in an effort to encourage local population growth.

Regression II

To test for regional variations in the relationship between the flows of remittances to Egypt from the Arab Persian Gulf countries, we constructed region specific dummy variables and produced the following regressions. Regression II is introduced to test the effect of independent variables specifically from each Arab country on remittance to Egypt.

The Regression Model:

$$\begin{aligned} TREMITT = & C (1) + C (2)*GDP + C (3)*REGPGDP + C (4)*DEGRATE + C \\ & (5)*SAUDI + C (6)*KUWAIT + C (7)*BAHRAIN + C (8)*OMAN + C \\ & (9)*QATAR \end{aligned}$$

In this model we are examining the effect of GDP of host countries, ratio of Egyptian GDP over Arab Persian gulf GDP, Egyptian deposit interest rate, and the differences between domestic interest rate and host deposit interest rate.

The level of income in Egypt could have either a positive or a negative impact on the inflows of remittances, depending on the purpose of the remittances. If remittances are mainly transferred for family support, income levels in the home country could have a negative impact on the inflows of remittances. If remittances were, however, for investment purposes, we would expect a positive relationship between levels of income and inflows of remittances. The differences between domestic and foreign interest rates are expected to be negatively related with remittances. Remitters prefer to retain their savings in countries where interest rates are higher.

We created a dummy variable for Saudi Arabia, Kuwait, Bahrain, Oman and Qatar. We have to leave one of the levels out of the regression model, United Arab Emirates, to avoid perfect multi-collinearity. Dummy variables are:

- Saudi takes the value 1 if remittance flows to Egypt are from Saudi Arabia and 0 otherwise.

- Kuwait takes the value 1 if remittance flows to Egypt are from Kuwait and 0 otherwise.
- Bahrain takes the value 1 if remittance flows to Egypt are from Bahrain and 0 otherwise.
- Oman takes the value 1 if remittance flows to Egypt are from Oman and 0 otherwise.
- Qatar takes the value 1 if remittance flows to Egypt are from Qatar and 0 otherwise.

In this model, C1 is the intercept for the omitted “United Arab Emirates,” and C5, C6, C7, C8 and C9 are the coefficients of the dummy variables, the differences between the intercepts of the respective groups, and the intercept of United Arab Emirates.

In Regression II, the number of observations is larger compared to the number of predictors, and larger than the number of observations in Regression I. This means that the values of R-square and adjusted R-square will be much closer because the ratio of $(N - 1)/(N - k - 1)$ will approach 1. Also, with more observations there will be more degrees of freedom in the predicted model.

Model 2.1

The estimated equation:

$$\begin{aligned} REMITT = & 553.4208431 - 23.69619207*REGPGDP - 32.28130298*DEGRATE \\ & + 216.490797*SAUDI + 67.45273035*KUWAIT - 282.901492*BAHRAIN - \\ & 229.8445277*OMAN - 60.42479196*QATAR \end{aligned}$$

In this model, the dependent variables are: ratio of Egypt's GDP to the host's GDP, the differences between domestic interest rate and host deposit interest rate, and the dummy variables. The coefficient of the ratio of Egypt's GDP/ host's GDP is negatively related to remittances and statistically significant. This indicates that in order for remittance flows to Egypt to increase the host's GDP has to increase. This means that when the host's GDP increases, remittance flows to Egypt will increase.

The differences in deposit interest rates are negatively related to remittances and statistically significant, reinforcing what other economic researchers had found, that interest rate differentials were negative and significant (El-Sakka and McNabb 1999).

The coefficient of the dummy variables explains the relationship between remittances flow from Arab countries to Egypt. The coefficient of Saudi Arabia, Bahrain and Oman are statistically significant, while coefficients for Kuwait and Qatar are statistically insignificant.

For the dummy variable of Saudi Arabia the coefficient of Saudi = 216.4. This means that the expected remittances flow from Saudi Arabia is 216.4 million more than the remittances flow from United Arab Emirates. Bahrain = -282.9 million; this indicates that remittances from Bahrain to Egypt are expected to be less than remittances to Egypt from UAE by 282.9 million. Oman is less by 229.8 million than remittances from UAE. Kuwait and Qatar are both statistically insignificant, which indicates that remittances sent to Egypt from both countries are the same as those sent from UAE (see table 25).

R^2 equals 0.75, indicating a good fit of the independent variables in the model. The model has accounted for almost 75 percent of the variance in the independent variables (Figure 18). The overall relationship was significant ($F = 31$, $p = 0.00 < 0.05$).

The Durbin-Watson statistic tests (DW) coefficient is a test for autocorrelation; the value of the coefficient = 0.94 (see table 25).

The coefficient of the differential between Egyptian and foreign interest rates has a negative impact on the inflow of remittances. This could be because the migrant would be better off keeping his or her money or investing it abroad when the domestic interest rate is too high. This result supports El-Sakka and McNabb's findings that suggest the potential for a more pro-active role for governments in attracting remittance flows.

Results contrast with Swamy's findings and those by Elbadawi and Rocha.

Table 25. Regression Results for the Estimated Coefficients for Model 2.1

Dependent Variable: REMITT

Method: Least Squares

Date: 08/31/07 Time: 21:50

Sample: 1 90

Included observations: 79

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	553.4208	76.20063	7.262681	0.0000
REGPGDP	-23.69619	13.46634	-1.759661	0.0828
DEGRATE	-32.28130	9.761701	-3.306934	0.0015
SAUDI	216.4908	66.68201	3.246615	0.0018
KUWAIT	67.45273	67.70798	0.996230	0.3225
BAHRAIN	-282.9015	77.71450	-3.640266	0.0005
OMAN	-229.8445	93.67662	-2.453595	0.0166
QATAR	-60.42479	146.2480	-0.413167	0.6807
R-squared	0.753483	Mean dependent var		238.8253
Adjusted R-squared	0.729178	S.D. dependent var		276.6251
S.E. of regression	143.9572	Akaike info criterion		12.87267
Sum squared resid	1471381.	Schwarz criterion		13.11262
Log likelihood	-500.4706	F-statistic		31.00175
Durbin-Watson stat	0.884913	Prob(F-statistic)		0.000000

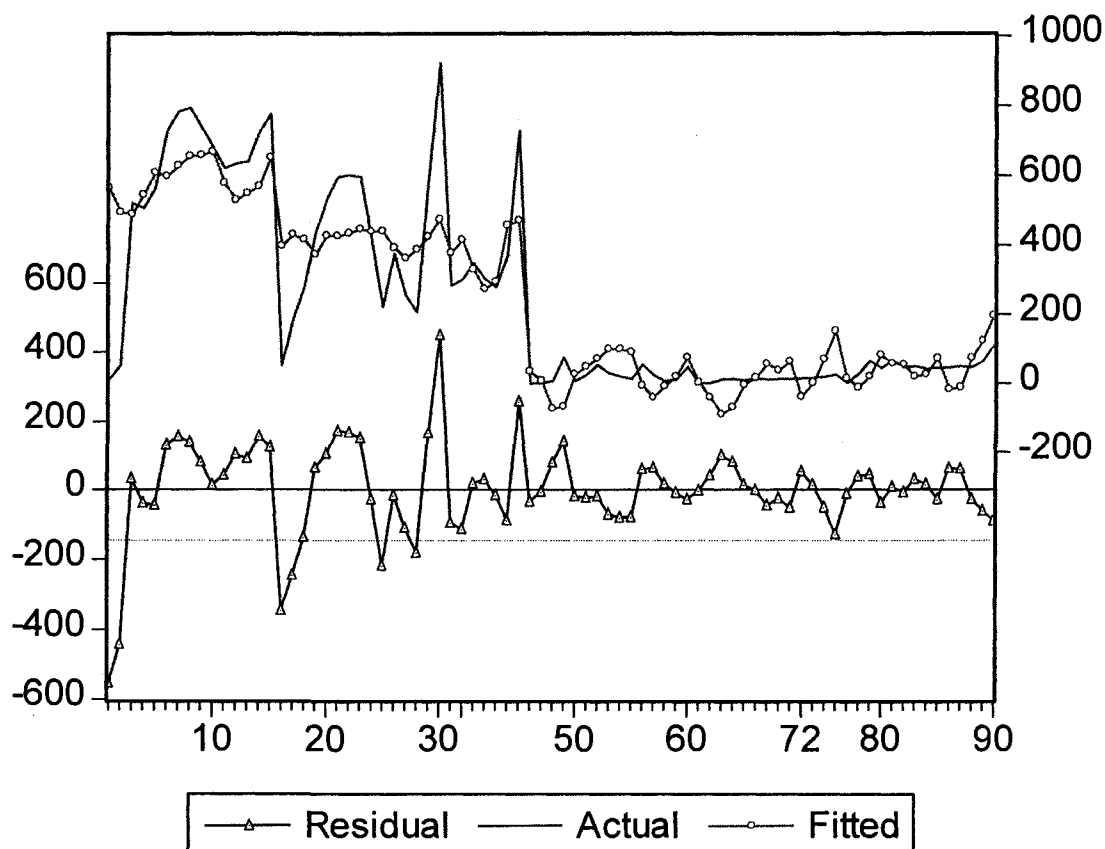


Figure 18. Actual Fitted Residual Graph for Model 2.1

Model 2.2

The estimated equation:

$$\begin{aligned}
 REMITT = & 516.6267658 - 28.55285343 * REGPGDP - 38.45455569 * DEGRATE \\
 & + 0.0089384038 * OILREVENUES + 288.4096777 * SAUDI + \\
 & 10.24673145 * KUWAIT - 211.0060313 * BAHRAIN - 175.976767 * OMAN + \\
 & 11.67875048 * QATAR
 \end{aligned}$$

In model 2.2, oil revenue is introduced into the regression as an independent variable. The values of the coefficients are almost the same in model 2.1. The coefficients remained statistically significant except the coefficients of the dummy variables for Kuwait and Qatar are insignificant. This was also the case in model 2.1.

The coefficient of the ratio of the GDP Egypt/host is negatively related with remittances and the coefficient is statistically significant at the 10% level. This means that as GDP in Egypt increases the ratio (GDP Egypt/host) will increase, and remittances will decrease. As GDP in the host country increases, the ratio will decrease and thus remittance will increase. The negatively significant coefficient indicates that as income levels in host counties rise relative to Egypt's GDP, remittances increase. This indicates that the higher the earnings available to the migrant the more income is likely to be sent home, which points out the importance of the economic well being in the host country to the flow of remittances.

Differences in interest rates between Egypt and host countries are negatively related to remittances; the coefficient is statistically significant at 1%. Oil revenues are positively related to remittances, and the coefficient is statistically significant at the 1% level (see table 26).

The coefficient of the dummy variable for Saudi Arabia increased to 288, meaning that remittances to Egypt are more than remittances from UAE to Egypt by that amount. Remittances from Bahrain are 211 million fewer than from UAE compared to model 2.1; they were 282 million less. Remittances from Oman are 175 less than remittances from UAE while in Model 2.1 they were 229 less. Kuwait and Qatar are still the same as remittances from UAE. Results in both Model 2.1 and 2.2 conform to

previous studies by El-Sakka and El-Sakka and McNabb. In model 2.2, R^2 value is 0.78; which indicates that 78 percent of the variation in remittances is accounted by the variation in the independent variables (see figure 19). “F value” was 30 and statistically significant (see table 26).

Table 26. Regression Results for the Estimated Coefficients for Model 2.2

Dependent Variable: REMITT

Method: Least Squares

Date: 08/22/07 Time: 17:12

Sample: 1 90

Included observations: 77

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	516.6268	81.36063	6.349837	0.0000
REGPGDP	-28.55285	13.89083	-2.055518	0.0437
DEGRATE	-38.45456	9.696301	-3.965900	0.0002
TOILREV	0.008938	0.003067	2.914237	0.0048
SAUDI	288.4097	73.57838	3.919761	0.0002
KUWAIT	10.24673	70.33064	0.145694	0.8846
BAHRAIN	-211.0060	82.90471	-2.545164	0.0132
OMAN	-175.9768	100.5204	-1.750657	0.0845
QATAR	11.67875	151.6850	0.076993	0.9389
R-squared	0.783649	Mean dependent var		241.0299
Adjusted R-squared	0.758196	S.D. dependent var		279.1101
S.E. of regression	137.2484	Akaike info criterion		12.79093
Sum squared resid	1280924.	Schwarz criterion		13.06488
Log likelihood	-483.4508	F-statistic		30.78802
Durbin-Watson stat	0.953798	Prob(F-statistic)		0.000000

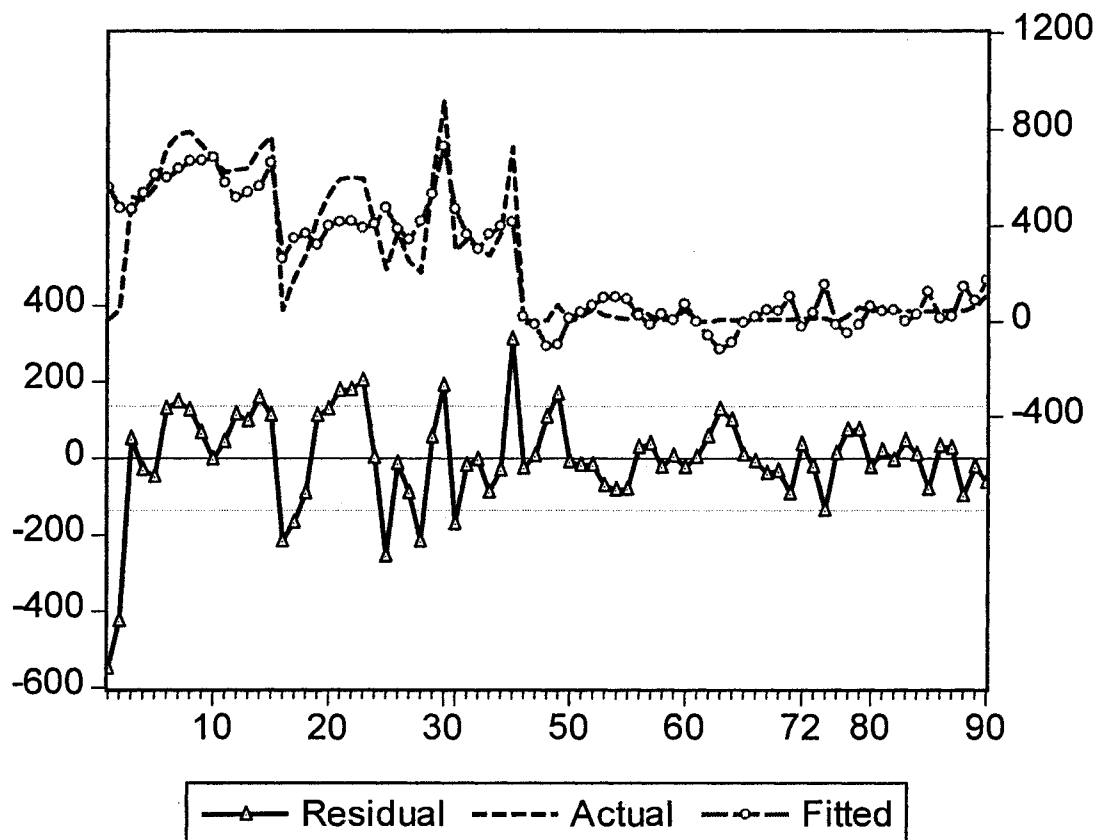


Figure 19. Actual Fitted Residual Graph for Model 2.2

Model 2.3

The estimated equation:

$$\begin{aligned}
 REMITT = & 239.2923727 + 2.408128048e-009 * GDP - 24.5128384 * DEGRATE + \\
 & 0.006315202909 * OILREVENUES + 54.27444553 * SAUDI + \\
 & 113.8401537 * KUWAIT - 156.3578779 * BAHRAIN - 162.9678098 * OMAN - \\
 & 96.7840945 * QATAR
 \end{aligned}$$

In model 2.3 we used GDP of the host countries instead of Ratio of GDP for Egypt/host. GDP is positively significant to remittances. Although the coefficient of GDP is small, it still suggests that economic level in the host country has a positive effect on the level of remittances. Interest rates remain negative but the coefficient decreased from 38.4 to 24.5. Dummy variables for Bahrain and Oman are significant, while the dummy variables for Saudi Arabia, Kuwait and Qatar are insignificant. This indicates that remittances from Saudi Arabia, Kuwait and Qatar are the same as remittances sent from UAE to Egypt. Remittances from Bahrain and Oman are less than remittance from UAE by 156.4 and 163, respectively (Table 27). This model tends to have the highest $R^2 = 0.80$ in all the 3 models in regression II. This means that 80 percent of the variance in remittances can be explained by the independent variables (Figure 20).

Results of the three models in Regression II are summarized in Table 28.

Table 27. Regression Results for the Estimated Coefficients for Model 2.3

Dependent Variable: REMITT

Method: Least Squares

Date: 09/01/07 Time: 16:52

Sample: 1 90

Included observations: 77

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	239.2924	90.63835	2.640079	0.0103
GDP	2.41E-09	6.67E-10	3.611885	0.0006
DEGRATE	-24.51284	8.587429	-2.854503	0.0057
TOILREV	0.006315	0.002988	2.113534	0.0382
SAUDI	54.27445	97.58633	0.556169	0.5799
KUWAIT	113.8402	74.96729	1.518531	0.1335
BAHRAIN	-156.3579	77.75662	-2.010863	0.0483
OMAN	-162.9678	79.69002	-2.045022	0.0447
QATAR	-96.78409	80.36628	-1.204287	0.2327
R-squared	0.807195	Mean dependent var		241.0299
Adjusted R-squared	0.784513	S.D. dependent var		279.1101
S.E. of regression	129.5646	Akaike info criterion		12.67571
Sum squared resid	1141516.	Schwarz criterion		12.94966
Log likelihood	-479.0147	F-statistic		35.58610
Durbin-Watson stat	0.870616	Prob(F-statistic)		0.000000

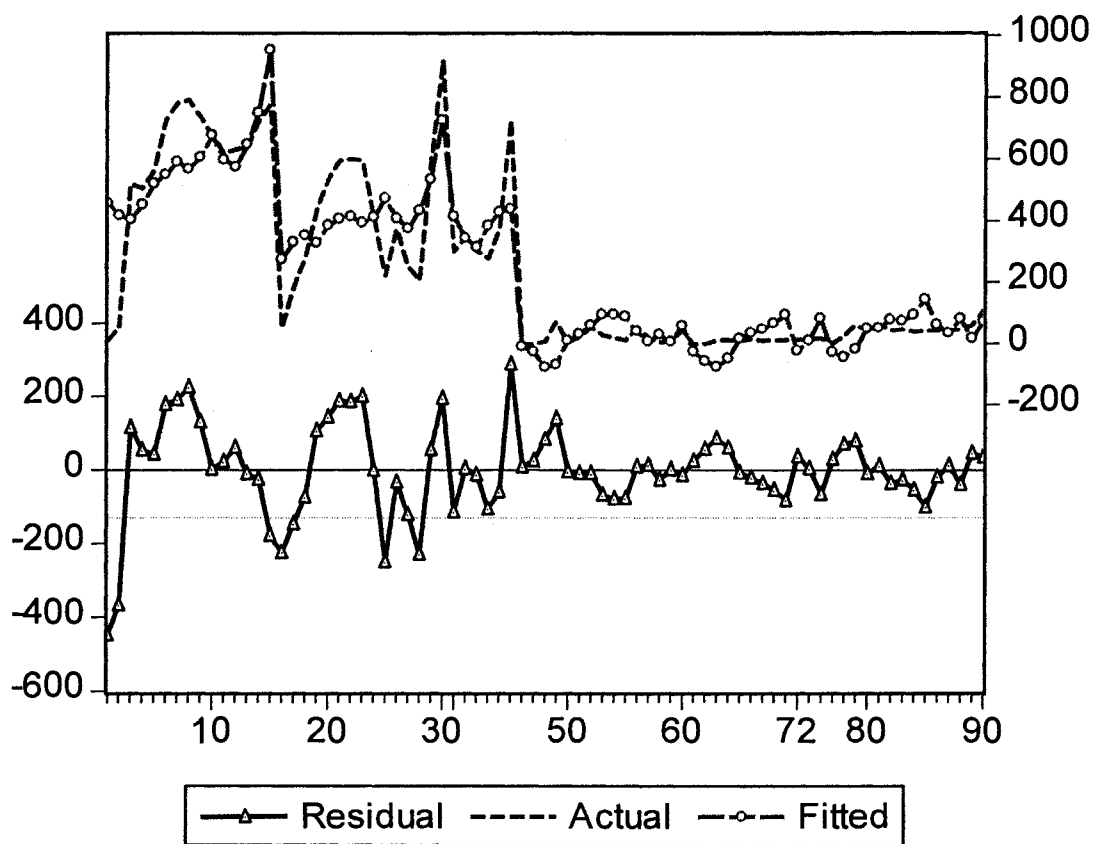


Figure 20. Actual Fitted Residual Graph for Model 2.3

Table 28. Results for the Estimated Coefficients of Regression II

	Model 2.1	Model 2.2	Model 2.3
C	553.4208 (7.26)*	516.6268 (6.35)*	239.2924 (2.64)**
GDP			2.41E-09 (3.61)*
REGPGDP	-23.69619 (-1.75)	-28.55285 (-2.05)***	
DEGRATE	-32.28130 (-3.30)*	-38.45456 (-3.96)*	-24.51284 (-2.85)*
TOILREV		0.008938 (2.91)*	0.006315 (2.11)***
SAUDI	216.4908 (3.25)*	288.4097 (3.92)*	54.27445 (0.55)
KUWAIT	67.45273 (0.99)	10.24673 (0.15)	113.8402 (1.51)
BAHRAIN	-282.9015 (-3.64)*	-211.0060 (-2.55)**	-156.3579 (-2.01)***
OMAN	-229.8445 (-2.45)**	-175.9768 (-1.75)	-162.9678 (-2.05)***
QATAR	-60.42479 (-0.413)	11.67875 (0.07)	-96.78409 (-1.20)
R ²	0.753483	0.783649	0.807195
D W	0.884913	0.953798	0.870616
F-Stat	31.00175	30.78802	35.58610

Dependent variable is total remittances

t-statistics are shown in parentheses

***significant at the 10% level

**significant at the 5% level

*significant at the 1% level

CONCLUSION

This chapter examines the effect of the fundamental macroeconomic variables specifically, home and host country incomes, revenues from oil exports, interest rate differentials and political instability, all of which influence the inflow of remittances to the home country for the period 1991–2006.

Two regressions were used; the first regression tests the effect of GDP, oil prices and oil revenues of the Persian countries combined. The second regression tests the effect of GDP and oil revenues from each Arab Persian country.

The empirical evidence in this chapter indicates that, when using the combined effect of GDP of the host country, oil prices, and oil revenues from all Arab countries, all three independent variables turned out to be statistically insignificant. Egypt's GDP, interest rate differentials and political instability have significantly affected the remittances flow to Egypt. When testing the effect of oil revenues from each Arab country in particular, results show that the variables are positively significant. The explanation for this differential in the results is that other external factors could influence remittance flows. After the first Persian Gulf War, demand for Egyptian labor in Kuwait decreased, and at the same time, demand for foreign labor from Asia increased.

In regression II, the ratio of home GDP/ host GDP is one of the explanatory variables in the model. The ratio of home GDP/ host GDP is negatively related to remittances; this means that when changes in host GDP is greater than the changes in home GDP, remittances will increase. This indicates that differentials between the income levels in the home and host countries are important factors affecting remittances (see table 28). Results are equivalent to Chami et al. (2003) and Schiopu and Siegfried

(2006), who assumed that wages offered in the host country should be higher than those in the home country, and difference in GDP between the host and home countries increases average remittances. Also, other researchers found that the level of economic activity and real earnings of workers in the host country were consistently found to have a significant and positive effect on the flow of remittance. (El-Sakka and McNabb 1999; Wahba 1991; Swamy 1981; Strubhaar 1986; Elbadawi and Rocha 1992).

As a result of the tremendous increase in oil prices, oil exporting countries in the Middle East have experienced a substantial increase in export earnings. These revenues have supported strong growth, and consequently, affected remittances.

Interest rate differential, defined as the difference between foreign and domestic interest rates, is found to have a significant negative effect on remittances. Remitters prefer to keep their money where interest rates are high. Therefore when the interest rate in the home country is less than abroad, remitters prefer to keep their money abroad and vice versa. Those findings are similar to El-Sakka and McNabb (1999), while Elbadawi and Rocha (1992) and Schiopu and Siegfried (2006) found that the differential between domestic and foreign interest rates has no significant effect on remittances.

GDP in the home country is positively related to remittances. As income levels in Egypt rise, the inflow of remittance increases. This means that part of remittances flow to Egypt is used for investment. This indicates that as much as rising economic activity level in a country is important for attracting foreign capital, it is also crucial for attracting remittances.

Those results are equivalent to El-Sakka and McNabb's (1999) findings in their research on Egypt between 1967 and 1991. Their results implied that Egyptians were

using their money for investment reasons. Their findings also indicated that migrants send more money during high inflation. The results contradict the findings of Chami, Fullenkamp, and Jahjah (2003) and Lucas and Stark (1985). These authors found that remittances might be for consumption rather than investment; this means that the motives to remit can be purely altruistic, and remittances are found to have a significantly negative effect on the economic growth of the home country.

The negative significance of POLINST indicates that political instability has discouraged remittance flows. This signifies that political instability in the Middle East could be a deterrent to the flow of remittances. The positive effects of inflation rate on remittances indicate that motivation to support the family is greater during a high rate of inflation for workers' remittances flows to Egypt. This indicates that remittances to Egypt are used for both consumption and investment, suggesting that in the case of Egypt, altruism and self-serving (self-interest) are both important motivations to remit.

CHAPTER VI

CONCLUSION AND POLICY RECOMMENDATIONS

In this conclusion, the results of the dissertation first will be stated in brief. That will be followed by revisiting each chapter in the research. A brief summary of each chapter also will be given. Then, the results of the estimated models will be elaborated upon. Their importance on remittance flows and their sign and correlation with remittances also will be discussed.

This dissertation set out to establish a framework through which we would understand the major factors that could affect remittance flows. This study investigates the role of different macroeconomic factors that are important in determining remittance flows to Egypt; in particular, the level of income in the host and the home countries, differences between domestic and foreign interest rates, and oil revenues and political instability in the Middle East. Political instability refers to war in the Middle East. Based on the time series analysis for the 1990–2006 periods, our empirical analysis suggests that macroeconomic and political instability have significantly affected remittance flows to Egypt.

The purpose of this dissertation was to investigate the effect of the various macroeconomic factors on remittance flows. This study touched on the effect of rapidly increasing oil prices since the 1970s on economic growth in the Middle East.

The rise in oil prices and the associated increase in Arab oil revenues have tremendously affected socioeconomic forces in the Arab world. Oil has reshaped socioeconomic structure in the Arab World. Persian Gulf Arab oil countries like Saudi

Arabia, Qatar, United Arab Emirates, Bahrain, Oman, Kuwait and Libya have abundant capital, while other Arab countries, Egypt, Jordan, Yemen and Morocco, have abundant labor. The Persian Gulf Arab oil countries need labor for their development boom; similarly, poorer Arab countries need capital to help with their economic problems. Capital and labor are two factors of production that have created a structure of trade between the labor exporting and labor importing (capital exporting) countries in the Middle East.

Remittances could be defined as the portion of earned income that migrant workers choose to send to the families they have left behind. Workers' remittances constitute one of the largest sources of external finance for developing countries. Remittances could affect the economy of the recipient country in different ways. First of all, they ease the shortage of foreign currency and improve the balance of payments. Secondly, they directly and indirectly affect the development of the country. Finally, they raise the standard of living of millions of people and are a potential source for the improved distribution of income. To sum up, remittances promote financial development in developing countries.

The amount of remittance flows to a country is directly proportional to the number of migrants from the country. The temporary labor migrations from the non-rich Arab and Asian developing countries to the oil-rich Arab countries reached its peak in the wake of the oil price increase of 1973. This pattern of migration had a large impact on the flow and the size of remittances. Remittance flows tend to be larger during temporary migration. Migrants remit more of their income than migrants who plan to settle down in their new country of residence. Also, the huge wealth of the rich Arab countries, resulting

from oil prices during the 1970s, has been used to fuel demand for manpower from poorer countries in the region.

The small population in capital rich countries gives rise to speculations of increasing future dependence on imported labor. This leads to a dramatic increase in the demand for labor in capital rich countries on the labor markets of the Middle East region. Workers' remittance flows have been the subject of much academic research and policy discussion. Remittances promote economic development in developing countries. Workers' remittances to developing countries have become the second largest type of flow after foreign direct investment. It is generally believed that remittances unequivocally improve the balance of payments of the labor exporting countries.

RESULTS IN BRIEF

There are many variables that affect remittance flow. To begin with, the level of income in the home and host country is important in determining remittance flows to the home country. Also, the difference between foreign and domestic interest rates is significant in determining the level of remittances. The oil exports revenue is also a significant determinant in remittance flows. Altruism and self interest are both found to be important motivations to remit.

Political instability and disruption in the oil supply in the Middle East and oil market psychology are all major factors in the increase of oil prices.

Hypotheses

This dissertation examines the effect of various macroeconomic variables that could affect remittance flows from Arab labor importing to Arab labor exporting countries. This helps to determine the behavior of remittances and examine the impact of political instability on remittances and whether the instability deters the amount of remittances a country receives. The first hypothesis is examined in chapter III:

H1: The greater the level of instability, the lower the level of remittances.

The second and third hypotheses are examined through chapter III, IV and V.

H2: The economic activity level in the home and host countries circumscribe the future of remittance flows.

H3: The greater the level of oil revenues in host country, the higher the level of remittances, except under conditions of high instability.

The current literature on remittances is provided in chapter II. Remittances are analyzed in the literature using two approaches: the “altruism” approach and the “portfolio” approach. The two approaches explain the motivations to remit. Remittances are also defined, and determinants, causes and effects of remittances are discussed. To show the importance of remittances as a source of external development finance, the main characteristics of remittances are discussed. The correlation between remittances and their impact on the economic growth of the home country depends on the motivation to remit. For “altruism,” remittances will increase with the deteriorating economic conditions in the home country, while for “portfolio,” improvement in home economic conditions will encourage remittance flows to the home country.

The inflow of remittances from Egyptians abroad has been and still is an enormous boost for the economy. Chapter III discussed the importance of remittances to the Middle East, specifically Egypt. Data and statistics are presented regarding workers' remittances in the region. Various types of data for the top receiving countries in the Middle East have been provided. After analyzing the magnitude and importance of remittances in Egypt, the chapter reviewed different patterns of use for remittances and their positive economic impact on Egypt. Remittances in Egypt are used for both consumption and investment; they influence the level of investments. When used for investment they generate positive effects on the economy by stimulating demand for other goods and services like education, health, and better nutrition. Also, an overview of the Egyptian economy has been presented. Remittance proved to be an important financing item in Egypt's balance of payments. Remittances account for a large share of Egyptian GDP and exports; the ratio of remittances to GDP was 59 percent in 1990 and started to rise in 1991, reaching its peak in 1992 at 91 percent; starting in 1993 it started to decrease till it reached 29 percent in 2000. In 1993 remittances represented 96 percent of exports. This chapter continued to explore the relationship between the economic conditions in the home and host countries and remittance flows.

Global growth and the emergence of new markets in Asia are the main drivers of oil demands; thus a background of oil demand is presented in Chapter IV. Even though there were discoveries of new oil reserves outside the Middle East, there is still high demand for oil in the Middle East. Data on oil price, oil reserves and oil production in the Middle East were analyzed. Oil export revenues have been increasing rapidly due to high

oil prices. The rise of oil prices and the associated increase in oil earnings present a window of opportunity for oil-exporting countries to address their economic challenges.

Over the past few years, higher oil prices have resulted from a number of factors, including rapid growth of world oil demand, high Asian oil demand, and high OPEC capacity utilization rates.

Political instability in the Middle East has always resulted in oil instability. The oil price shocks and their effect on the global market explain the boom cycle of oil revenues. All shocks stem from geopolitical disturbances in the Middle East. The political shock in the Middle East leads to an expected fall in supply that spikes the price of oil. For example, the Arab-Israeli Yom Kippur War of October 1973 and the subsequent oil embargo imposed on the West by the Organization of Arab Petroleum Exporting Countries (OAPEC) led to a quadrupling of oil prices. Also, in the aftermath of the Iranian Revolution in 1979, the Iranian-U.S. hostage crisis and the Iraq-Iran War of 1980 led to a near tripling of oil prices. Then there was the Iraqi invasion of Kuwait in 1990 that triggered a brief spike in oil prices to US \$40, or a doubling of prices before the outbreak of hostilities. Furthermore, the current U.S.-Iraqi war has also raised oil prices. Hence, any disruptions in oil supply in this region will lead to oil instability and thus to oil price crises.

In order to understand the effects of oil price and oil revenues on the flow of remittances, this study has adopted a regression analysis approach to examine such effects on remittances in great detail. In chapter V, we investigated the effect of various macroeconomic variables on remittance flows, namely host and home income levels, deposit interest rate differentials in home and host country, inflation rate in home

country, and a dummy for political instability. For this purpose, a macroeconomic model for Egypt was developed. This study used data on workers' remittance flows to Egypt from six Arab Persian Gulf countries during the period of 1990–2006. In particular, this study examines whether those variables contribute to an increase or a decrease in remittance flows.

Multiple regression models were employed to estimate the impact of macro economic variables on the inflow of remittances from the labor exporting countries. The structural segment of the two regressions consists of five models explaining remittance behavior. The dependent variable is remittance flows, and independent variables are Egypt's GDP, the host countries' GDP, differential in deposit interest rates of Egypt and the host country, oil revenues of the labor importer "host" countries and political instability. This study employed ordinary least squares regression; this was used in the explanatory stage. The estimated results of the regression analysis for the structural part of the model were reported. Most of the estimated coefficients of the variables of the structural equations gave the theoretically expected signs.

IMPORTANCE OF REGRESSION RESULTS

The regression analysis showed how a set of macroeconomic determinants can influence the incentives to remit and the amount of remittances. The results from regression analysis showed a significant positive relationship between the level of income in Egypt and the inflow of remittances. As income level in Egypt increases, remittance flow to Egypt will increase. This positive relationship indicates that a large part of

remittance flows to Egypt are used for investment. This indicates that rising economic activity level is important for attracting remittances to the countries of origin.

The interest rate differential, defined as the difference between foreign and domestic interest rates, is found to be negatively related to remittances. When the interest rate in the home country is less than abroad, remitters would prefer to keep their money abroad and vice versa.

Results also showed that the ratio of income in both Egypt and host countries is negatively related to remittance flows. This indicates that when the income level ratio decreases, remittances will increase. In other words, when the level of income in the host country is greater than the level of income in the home country, remittance flows to the home country will increase. This means that the host country's GDP should be higher than in the home country in order for remittance flows to increase.

In regression I, results showed a negative relationship between revenues from oil exports and remittances. This negative relationship was a result of testing oil revenues from the Arab Persian gulf countries as a whole. This means that research is testing the total effect of the independent variables to aggregate remittances from all six countries and not the entity effect. This was explained by a decrease in demand for labor from Egypt in some of those countries, especially right after the Iraqi invasion of Kuwait in 1990. After the war, the composition of the work force shifted, the Arab foreign labor in Kuwait and Saudi Arabia has decreased and been replaced by labor from Asia. As of 2000 the Asian population represented 52.8 percent of total population in Kuwait in 2000 while it was 53.4 percent in Saudi Arabia in 1995. During the 1990s, the number of

Arabs in Kuwait dropped by 33.6 percent while the number of Asians rose by about 50 percent.

Those results endorsed *Hypothesis 3: The greater the level of oil revenues in the host country, the higher the level of remittances, except under conditions of high instability.*

When testing the effect of oil revenue on remittance flows from each country to Egypt we got a significant positive relationship, so we got more precise results when separating the effect of oil revenues and remittances from each Gulf country rather than adding the effect as a whole.

The negative significance of political instability indicates that political unrest has discouraged remittance flows. This signifies that political instability in the Middle East could be a deterrent to the flow of remittances. In this research, political instability refers to war in the Middle East, so it refers to the outside changes that could affect the home country. This indicates that political instability in one country in the Middle East could affect remittance flows to a neighboring country. Those results agreed with *Hypothesis 1: The greater the level of instability, the lower the level of remittances.* Political instability constitutes an important determinant of remittance flows. Results show that remittances are sensitive to political conditions in the region. Less political risk in the Middle East region leads to larger volumes of remittances.

Chapter IV showed how political instability in the Middle East has resulted in oil disruption and major oil crises. Political instability is a major barrier for development in the region. Political unrest in one country in the Middle East could have a direct effect on the economic development on a neighboring country in the region.

The positive effects of inflation rate on remittances indicate that the motivation of family support increases during a high rate of inflation for workers' remittance flows to Egypt. This indicates that remittances to Egypt are used for both consumption and investment, which implies that in the case of Egypt, altruism and self-serving (self-interest) are both important motivations for remittances. Also, the positive correlation indicates that remittance flows increase through official channels during inflation in order to avoid risks.

The outcome seems to indicate that the levels of income in the home and host countries are the most important measure influencing remittances. The difference in interest rates between home and host countries proved to be an important measure too. Results prove that the effects of remittances on investment and growth are strongly linked to the determinants of remittances. Results confirmed *Hypothesis 2: The economic activity level in the home and host countries circumscribe the future of remittance flows.*

IMPROVING REMITTANCES STATISTICS

There has been an enormous increase in remittance flows in the last few decades. Despite the increased interest in workers' remittances and available data, there is still scarcity and inaccuracy of data regarding remittance flows. Unrecorded remittances have become one of the most critical dimensions of the remittance systems in many Arab and Asian economies. Data represent only the official recorded remittances in Egypt, and they do not include remittances in kind and unrecorded remittances. Officially recorded remittance estimates may significantly underestimate the real magnitude of remittances. Remittances sent through informal channels could add at least 50 percent to the official

estimate, making remittances the largest source of external capital in many developing countries (World Bank 2006).

Also some data in the Persian Gulf countries were hard to find, especially interest rates. Some countries, such as the United Arab Emirates have started to report data recently, but information for previous years is missing.

SIGNIFICANCE OF THE FINDINGS

Many of the explanations proposed in the literature focused on the microeconomic determinants for remittances. However, limited research has been done on the macroeconomic determinants and was only done for the time period of the 1980s. Unlike the previous literature, the dynamic version of the model used in this study may offer an explanation from another angle. This study is using the macroeconomic determinants for remittances during the period between 1991–2006. This study examines the period starting from the first Gulf War in the Middle East; it tests the effects of political instability on remittance flows during this period. This study also added revenues from oil exports as one of the independent variables for determining remittances. Remittances used in the regression analysis are bilateral remittance flows; that is, remittance inflows to Egypt explicitly from each of the six Arab oil exporter countries. Providing the level of total remittances and calculating remittances as a percentage of GDP, imports and exports, shows the importance of those transfers on the Egyptian balance of payments and on the Egyptian economy during the period between 1990–2005. This study also shows that disruption in oil supply in the Middle East and the

market psychology have been the key factor to the major oil crises and ultimately to oil instability in the global market.

The findings of this dissertation are important. First, remittances could be an important tool for economic development to recipient countries. Remittances represent a substantial flow of financial resources, predominantly from developed economies to developing economies. The positive correlation between remittances and income growth in the home country proves that remittances play the same role in economic development as foreign direct investment and other capital flows. The dissertation adds a unifying framework that models the causes of remittances and traces their effects through the economy; it links the motivation for remittances with their effect on economic activity. Second, if remittances can be better understood, then they can either be shown to promote development on their own, or they can be channeled into productive investment by wise policies. Third, remittances are used for both consumption and investment, which implies that in the case of Egypt, altruism and self-serving (self-interest) are both important motivations for remittances. It also proved that remittances are transferred through official channels more often during inflation. In addition higher inflation in the home country is found to encourage more remittance flows to compensate for the loss of purchasing power. Fourth, political instability in one country of the Middle East could have a direct effect on the development of the whole region. The negative correlation between political instability and remittance flows proves that war in one country in the Middle East could affect capital flow and investment in neighboring countries. Fifth, political instability in the Middle East has a direct effect on oil market psychology and also could result in oil supply disruption, which consequently could be an indication of

major oil crises. This proves that stability in the Middle East is required to maintain economic development in the region and is a dynamic factor in promoting stability in the global economy.

FUTURE RESEARCH AND POLICY RECOMMENDATION

The analysis of workers' remittance flows developed in this research is by no means a comprehensive one. The phenomenon had been shown to be a multi-dimensional one and requires further investigation.

Political instability in the home country is an important variable that could discourage migrants from sending remittances to their home country, especially if it were for investment purposes. For future research on remittances in the Middle East, measuring economic stability in the home country by using the Polity IV dataset would play an important role in determining remittance flows. Polity IV is a source for monitoring political regime changes; it captures the changes that happen within the government. It is used as an indicator for political instability measured by the lack of democracy in the home country, and it ranks governments as democracies or autocracies. Measuring the impact of the level of democracy in the home government on remittance flows would be an effective variable in explaining the patterns of remittance flows.

Another factor that could be useful for future studies of remittance flows is the difference between official and black market exchange rates. The presence of exchange rate restrictions and black market premia, especially in developing countries, may discourage migrants from sending remittances. Adding this factor as an explanatory variable in determining remittance flows will be very useful.

Remittance leakages are a reflection of the macroeconomic policy regimes of labor exporting countries. Therefore, economic policies and institutions in the home country need to pay more attention to remittance flows, especially through informal and unrecorded channels.

Reducing remittance costs has emerged as a major concern for policy makers. High remittance costs are a major drain on the incomes of poor migrants. High costs and lack of access to convenient remittance services encourage migrants to use informal channels. Thus, empirical findings in this research imply that improving financial intermediation and the existing banking network to effectively compete with the remittance market would help decrease remittance costs. Greater financial sector development that makes remittances easier and cheaper to send and receive may encourage remittances. Transaction costs of the remittance fee should be a low fixed amount in order to encourage remittance flows through formal channels. Also, increased efforts are needed from the government to increase remittance flows and to channel the funds into productive investments.

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